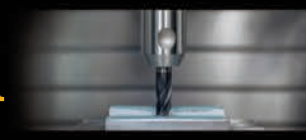
STELLAR INDUSTRIAL

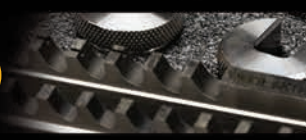
FUNDY GRINDING

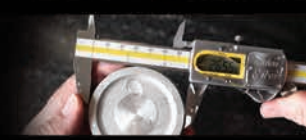


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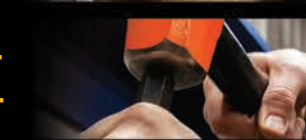
MILLING	Sowa High Performance End Mill Selection, Typhoon End Mills, Carbide End Mills, HSCO & HSS General Purpose End Mills	A
DRILLING & HOLEMAKING	Premium Class Carbide Drills, Sowa High Performance Drills & Spade Drill System, Countersinks, General Purpose Drills including Jobber, Stub, Extra Length, Prentice, Taper Shank, Reamers Include: Chucking, Jobber, Bridge, Taper, Shell, and Expanding	B
THREADING & TAPPING	Sowa High Performance Taps, General Purpose Hand Taps, NPT Taps, Tap & Die Sets, Tap Wrenches, Screw Extractors, Round and Hex Dies	C
CUTTING TOOLS	Cut-Off Blades, Toolbits, Boring Bars, Counterbores, Annular Cutters, Milling Cutters, Knurling Tools, Broaching Systems	D
INDEXABLE CUTTING TOOLS	Sowa Indexable Cutting Tools featuring Turning, Boring, Parting, Grooving, Threading, Milling & Drilling Inserts and Holders complete with all technical information	E
MEASURING & INSPECTING	Asimeto, STM, Mitutoyo, and Starrett Precision Tools including Micrometers, Calipers, Indicators, Magnetic Bases, Depth & Height Gauges, Surface Plates, Angle Blocks & Plates, Gauge Blocks & Pin Gauges, Hardness Tester, Profile Projectors, Parallels, Set-Up Blocks, Handbooks, and Tool Kits	F
TOOL HOLDING	GS Premium Balance Rotary Tooling, including End Mill Holders, ER, TG, Collet Chucks, Retention Knobs, Milling Chucks, Shrink Fit Tooling, Tapping Chucks & Collets, Taper Adapters, Drill Chucks, Right Angle Heads, Boring and Facing Heads	G
WORKHOLDING, CLAMPING & FIXTURING	GS Milling Vises, Double Clamp, Hydraulic, Bench & Drill Press Vises. Vee-Blocks, Angle Plates, Arbor Presses, Clamping Components, Mitee-Bite, 2, 3, 4, 6 Jaw Lathe Chucks, Big Bore Oil Country Chucks, F/A Fine Adjustment Precision Chucks, Power Chucks, Power Chuck Jaws & T-Nuts, Live Centres, Dead Centres, Face Drivers, Quick Change Tool Posts	H
ACCESSORIES	Super & Simple Indexes, 5C Collet Chucks, Radius Dressers. Screw Jack Sets, Magnetic Lifters, Drill Sharpeners, Deluxe Shock Absorbers, Chip Collectors & Hooks, Coolants & Pastes, Coolant Hose System, Noga Minicool	I
ABRASIVES & FINISHING	Ceramic, Surface, General Purpose Grinding Wheels, Depressed Centre Discs and Cut-off Wheels, Flap Discs, Shop Rolls, Cloth Sheets, Belts, Die Grinders and Diamond Files, Carbide Burrs & Sets, Deburring Systems, Blade Selection	J
HAND TOOLS	Punches, Stamps, Chisels, Hammers, Hacksaws, Utility Knives, Grease Guns, Barrel Pumps, L-Wrenches, Torque Limiting Device, Screwdrivers & Bits, Sockets & Attachments, Combination Wrenches, Adjustable & Pipe Wrenches, Torque Wrenches, Pliers, and Wire Strippers	K
CABINETS & CHESTS	Machinists' & Mechanics' Chests, Chest Bases, Top Chests, Heavy Duty Workstation, Roller Cabinets, Utility Carts, Tool Boxes, Parts Cabinets, End Mill Dispenser Cabinets, Drill Dispenser Cabinets	L










To Our Valued Customers

Managing your daily business is full of challenges, worrying about having the right tools for the job should not be one of them. For over 60 years, Sowa Tool & Machine has been there to support North American manufacturers and distributors with world-class metalworking solutions. We offer a wide array of metalworking and MRO products, in stock and ready to ship same day. Our customer service team is just a call or click away, ready to support you with technical help or to source those hard to find products. We are here to keep your business moving forward.

We are proud to introduce our latest product catalogue, V62. Inside you will find the most comprehensive offering to date. This catalogue represents over 24,000 products, with upgrades and additions across most categories. We are equally excited to announce the launch of our brand-new website at SowaTool.com. There you will have access to over 90,000 products from some of the best brands in the industry! On top of that, you no longer need to call in to receive a quote. You can now submit quote requests online directly from our website. Visit our website to see all that is new for yourself.

We appreciate the opportunity to serve you and thank all of you who have trusted us to keep your business moving forward. We take our customer's care very seriously. So, feel free to tell us how we are doing as we are continually striving to serve you better. Our purpose is to serve you, and tooling your world is our passion.

Ryan Esposito
Chief Operating Officer | EVP

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Sowa Tool is a family of brands each with their own specialties. This includes our premium GS Tooling, our more economic STM Tooling solutions, our complete offering of high-performance Asimeto precision measuring tools, and our Sowa line of cutting, drilling, tapping and indexable tooling solutions. We also offer premium live centres from Skoda, and production grade boring heads and kits from Narex. We are uniquely qualified to serve your many needs under one roof.



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Sowa Family of Brands

Sowa
G3 TOOLING
narex
STM
ASIMETO
SKODA

Industry Brands

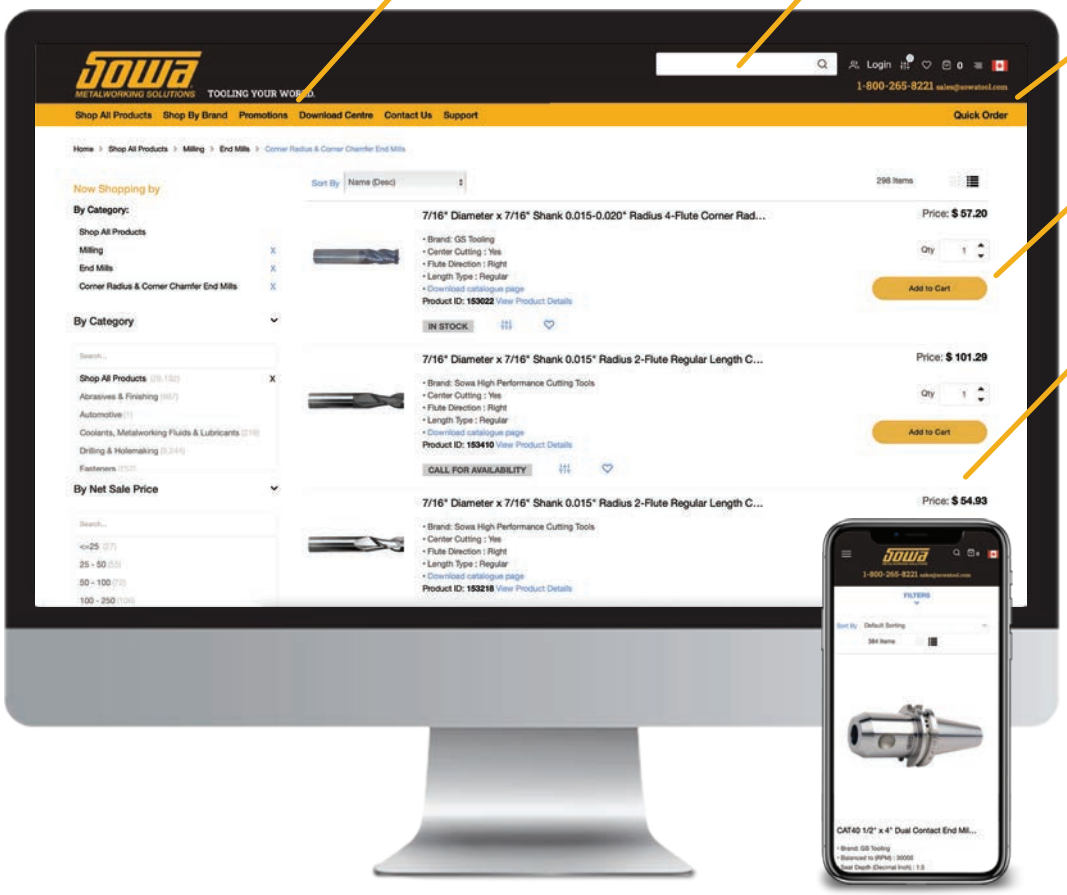
BIG DAISHOWA
BISON
BONDHUS
BORITE
Dynamic
GRAY TOOLS
Hassay Savage
Jacobs
KENNEDY
KINIK
KLINGSPOR
MILACRON
MITEE-BITE PRODUCTS LLC
Mitutoyo
Nine9
NOGA
QTT QUALITY TECH TOOL
ROHM
SMW AUTOBLOK
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TOOLEX Vise Workholding Systems
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Our account management now allows you to add, delete, and modify users associated with your business directly from our website.

NEW STM Holders

Our STM Premium line is now offering competitive End Mill Holders and ER Collet Chucks at industry best prices. These holders provide DIN coolant option as standard and are factory balanced for increased tool life and productivity.



STM CAT40/50 End Mill Holders
pg. G4 & G6



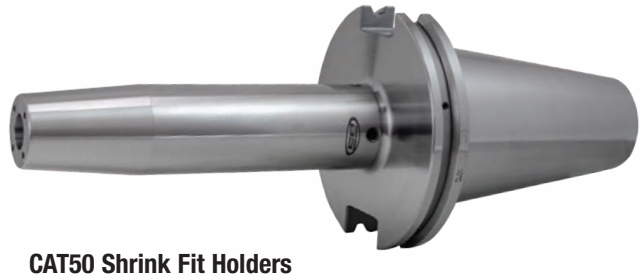
STM CAT40/50 ER Collet Chucks
pg. G18 & G19

Shrink Fit Holders

Our new and improved Shrink Fit Holders have been redesigned from the ground up. They've been re-engineered with new stand-out features including 4 coolant ports in the nose with the ability to be closed off to direct coolant through the centre of the holder. We include threaded holes in order to fine balance the holders.



CAT40 Shrink Fit Holders With Coolant Ports
pg. G44



CAT50 Shrink Fit Holders With Coolant Ports
pg. G44



HSK 63A/100A Shrink Fit Holders With Coolant Ports
pg. G46



BT30/40 Shrink Fit Holders With Coolant Ports
pg. G45

Collets

GS Tooling is introducing Extreme Precision 5 Micron Collets. Nothing else compares! Our new GS Extreme Precision AA Collets offer 5 micron runout. We are also now offering Tap Collets for synchronous, rigid tapping operations using our ER collet chuck.



ER20 Tap Collets
pg. G25





5 Micron AA ER Collet Sets
pg. G22

Live Centres

The GS Tooling brand has added Live Centres to their lineup. When precision is paramount and high accuracy is a necessity, our new line of Live Centres are the perfect choice. With 8 different varieties available for a range of rpm thresholds and bearing systems, you're sure to find the perfect one for you.



CNC High Speed Live Centres — Standard Point
pg. H114



60° Bull Head Live Centres — Extended A Type Point
pg. H116



High Speed Live Centres — Extended A Type Point
pg. H116



High Performance Live Centres
pg. H115



High Speed Live Centres
pg. H115



CNC High Speed Live Centres — Extended A Type Point
pg. H114



80° Bull Nose Live Centres — Standard Point
pg. H117



Interchangeable Points Live Centres
pg. H118

Driven Tools

GS Tooling now carries Driven Tools for CNC turning centres. This allows milling, drilling, and tapping operations on the lathes without additional parts handling. GS Tooling also supplies a wide range of types in order to equip the CNC lathes and turrets of the most popular builders on the market with an unbeatable price to quality ratio.



Driven Tools For DMG MORI Lathes
pg. G48



Driven Tools For DOOSAN Lathes
pg. G48



Driven Tools For HAAS Lathes
pg. G48



Driven Tools For MAZAK Lathes
pg. G48

Vises

GS Tooling's new Multi-Tasking range of modular vises have been specially designed for 5-axis machines. Working on five sides of the workpiece, it allows the best optimization of the machining cycle. New GS Precision Milling and Versatile Vises are also available under the GS line. All of our vises offer the same or better specs as compared to our competitors, the biggest difference you'll find is the price!

Type 1 & 2



Vise shown with riser

Type 3



GS Multi-Tasking Modular Vises for 5-Axis Machining Centers
pg. H7



GSV60 6" Versatile Vise
pg. H2



GS160G 6" x 9.13" Precision Milling Machine Vise
pg. H2

Countersinks/Drills

Our countersink and drill lineups are ever expanding. We've added 6 new Cobalt Countersinks offering both a standard and TiN coated option. We've also added 2 new HSS Stub NC Spot Drills.



82° & 90° Cobalt 3 Flute Countersinks
pg. B58



82° & 90° Cobalt 3 Flute Countersinks - TiN Coated
pg. B58



60° HSS Combined Drill & Countersinks
pg. B43



60° HSS Combined Drill & Countersinks - TiN Coated
pg. B44



60° Combined Drill & Countersinks - Long Series
pg. B43



90° HSS Stub NC Spot Drills
pg. B45

Dual Contact Collet Chucks

GS Dual Contact ER Collet Chucks are the perfect solution for when high rigidity and increased feed rate are paramount. With tight tolerance to the Big Plus standard, GS Tooling offers these high-performance tools at industry leading pricing.



CAT40/50 DUAL CONTACT ER Collet Chucks
pg. G18 & G19

Icon Legend

Surface Treatments

Black/Gold Finish
Black Oxide on the grooves for greater lubricity and chip removal, special coating on the lands for greater tool life.

Typhoon Coating
The hard PVD coating allows effective machining of hard mold, die, and tool steels up to 60HRC in dry or wet conditions.

Titanium Carbon Nitride
TiCN coated tools have a very high surface hardness of approx. 90HRC. This coating is recommended for use in all steels, cast iron and aluminum.

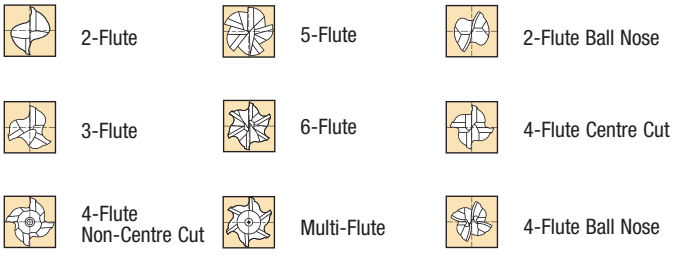
Black Oxide Surface
Reduces adhesion of chips to the surface of tool.

Titanium Aluminum Nitride
This coating is applied by the PVD process and has a higher hardness than TiN and TiCN. This greatly increases the service life of the tool and can stand higher temperatures when machining cast iron and tough steels.

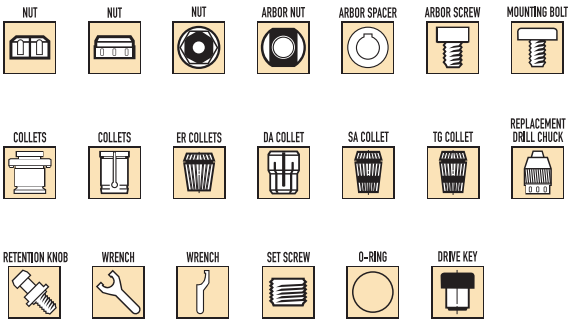
Titanium Nitride
A gold coloured film with a hardness of approx. 85HRC is deposited on the tool which extends tool life by reducing friction and enables the tool to be operated at higher speeds and feeds.

Bright Finish

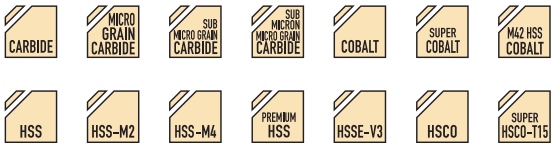
Flutes



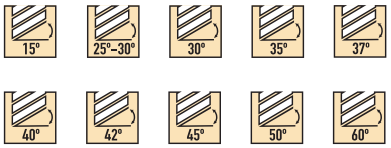
Rotary



Tool Materials



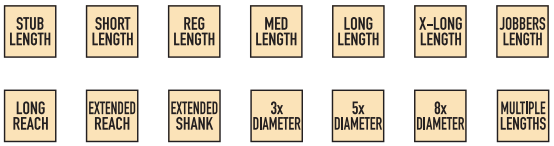
Helix Angles



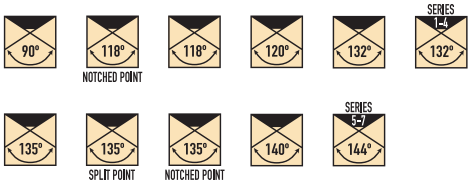
Hole Types



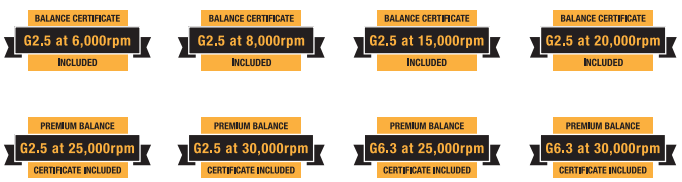
Tool Dimensions



Drill Point Angles



Balance Ratings





Milling



Milling

SOWA HIGH PERFORMANCE END MILL SELECTION A2

CARBIDE END MILLS - BRIGHT FINISH & TiAlN COATED

2-Flute A3-6
End Mill Dispenser Cabinets A4
End Mill Sheath Racks A4
Drill Mills A5
3-Flute A7-8
4-Flute A8-12
Multi-Flute A11
Roughers A11

TYPHOON END MILLS - RED SERIES

2-Flute A13-14
4-Flute A14-15
Multi Flute A15
Roughers A16
4 & 5-Flute Variable Helix A16-17

QTT PREMIUM CLASS CARBIDE END MILLS

2-Flute A17-18
4-Flute A18

CARBIDE END MILLS FOR ALUMINUM - GREEN SERIES

2-Flute A19-20
3-Flute A19-20

HSCO & HSS GENERAL PURPOSE END MILLS

2-Flute A20-23
3-Flute A23
4-Flute A24-26
Multi-Flute A24-26
Roughers A26-27
Tapered End Mills A28-30

SPEEDS & FEEDS A31-45



Bright – Starting at page A3

Micrograin Carbide Bright Finish — Cutting Conditions

Materials Main Group	Materials Sub-Group	Condition	Hardness (HRC)	Cutting Speed (SFM)
Low Carbon	1018, 1010, 1035	Normalized	<25	150-200
Medium Carbon	1045, 1050, 1065	Normalized	<25	150-200
Aluminum	Unalloyed, Cast	–	–	350-600
Brass/Bronze	–	–	–	350-400
Copper	–	–	–	250-300
Cast Iron	–	As Cast	<15	150-225



TiAlN Coated – Starting at page A3

Micrograin Carbide TiAlN Coated — Cutting Conditions

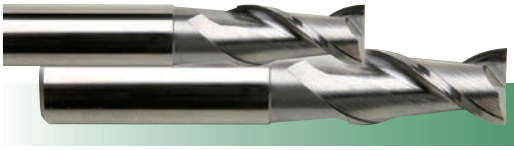
Materials Main Group	Materials Sub-Group	Condition	Hardness	Cutting Speed (SFM)
Stainless Steels	300, 400 Series	Annealed	<29	200-350
Tool Steels	01, A-2, D-2, H-13, P-20	Annealed	<35	150-250
Medium Carbon	1030, 1035, 1038, 1040, 1045, 1050	Normalized	<28	190-275
Alloyed High Carbon	1065, 1070, 1080, 1090,1095, 1561,1572	Normalized	<32	150-250
High Strength	4140, 4340	Normalized	<32	150-250
Titanium	Commercially pure	Annealed	<32	150-250



TYPHOON – Starting at page A13

TYPHOON Sub-Micrograin Carbide Modified AlTiN — Cutting Conditions

Materials Main Group	Materials Sub-Group	Condition	Hardness (HRC)	Cutting Speed (SFM)
Stainless Steel	17-4PH, 15-5, 17-7PH, AM350	Hardened	<45	150-250
Tool Steels	01, A-2, D-2, H-13, P-20,	Hardened	<60	80-270
High Strength	4140, 4340, 50100	Hardened	<60	80-270
Nickel Alloys	Inconel, Hastaloy, Waspaloy, Astraloy, Rene, Monel	Annealed and Hardened	<45	150-225
Titanium	6 AL 4	Annealed/Hardened	<42	175-275



Aluminum Series – Starting at page A19

Carbide Bright Finish for Aluminum — Cutting Conditions

Materials Main Group	Cutting Speed (SFM)
Aluminum	600-700
Die Cast Aluminum	600-700

2-Flute Regular Length Carbide End Mills

A general purpose carbide end mill with maximum chip clearance added.

For: End milling, Slotting, Sinking
On: Variety of Steels, Cast Iron, Non-Ferrous Metals, Plastics, Abrasive Type Materials





MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	1/8	1-1/2	103770	**14.44**	102677	**17.90**
3/64	1/8	9/64	1-1/2	103772	**14.44**	102799	**17.90**
1/16	1/8	3/16	1-1/2	103848	**13.39**	102800	**16.88**
5/64	1/8	1/4	1-1/2	103773	**13.39**	102801	**16.88**
3/32	1/8	5/16	1-1/2	103849	**12.67**	102802	**16.14**
7/64	1/8	3/8	1-1/2	103775	**12.67**	102803	**16.14**
1/8	1/8	1/2	1-1/2	103850	**11.70**	102804	**15.16**
9/64	3/16	1/2	2	103776	**17.28**	102805	**20.74**
5/32	3/16	9/16	2	103851	**17.28**	102806	**20.74**
11/64	3/16	9/16	2	103777	**17.28**	102807	**20.74**
3/16	3/16	5/8	2	103852	**16.40**	102808	**19.85**
13/64	1/4	5/8	2-1/2	103778	**21.72**	102809	**28.91**
7/32	1/4	5/8	2-1/2	103853	**21.72**	102811	**28.91**
1/4	1/4	3/4	2-1/2	103854	**19.76**	102810	**26.93**
9/32	5/16	3/4	2-1/2	103855	**34.66**	102813	**45.40**
5/16	5/16	13/16	2-1/2	103856	**27.73**	102812	**38.46**
11/32	3/8	7/8	2-1/2	103779	**41.08**	102815	**51.79**
3/8	3/8	1	2-1/2	103857	**34.53**	102814	**45.24**
13/32	7/16	1	2-3/4	103780	**49.11**	102817	**61.30**
7/16	7/16	1	2-3/4	103858	**42.12**	102816	**54.35**
1/2	1/2	1	3	103859	**55.30**	102818	**67.50**
9/16	9/16	1-1/8	3-1/2	103886	**94.47**	102820	**112.10**
5/8	5/8	1-1/4	3-1/2	103887	**106.64**	102822	**124.30**
11/16	3/4	1-3/8	4	103888	**177.60**	102824	**198.42**
3/4	3/4	1-1/2	4	103889	**156.35**	102826	**177.19**
7/8	7/8	1-1/2	4	103890	**225.03**	102828	**255.77**
1	1	1-1/2	4	103891	**233.92**	102830	**264.65**
6pc set: 1/4", 5/16", 3/8", 1/2", 5/8", 3/4"				103846	**400.31**	-	-
5pc set: 3/16", 1/4", 5/16", 3/8", 1/2"				-	-	102957	**197.98**
Metric							
0.5	3	1.5	39	101552	**23.73**	102819	**18.63**
1	3	3	39	101553	**15.16**	102821	**18.63**
1.5	3	5	39	101432	**15.16**	102823	**18.63**
2	3	7	39	102696	**14.06**	102825	**17.52**
2.5	3	7	39	102697	**13.30**	102827	**16.78**
3	3	9	39	102698	**12.27**	102829	**15.76**
3.5	4	12	51	102699	**18.18**	102853	**21.65**
4	4	14	51	102700	**17.23**	102855	**20.70**
4.5	5	14	51	102701	**21.09**	102857	**26.50**
5	5	16	51	102702	**20.11**	102859	**27.27**
6	6	19	64	102703	**20.74**	102861	**27.92**
7	8	19	64	102704	**28.50**	102863	**39.21**
8	8	21	64	102705	**29.11**	102865	**39.85**
9	10	22	70	102706	**36.25**	102867	**46.97**
10	10	22	70	102707	**42.02**	102869	**54.21**
11	11	25	70	102708	**44.24**	102871	**56.45**
12	12	25	76	102709	**58.08**	102873	**70.27**
14	14	30	89	102711	**99.18**	102875	**116.81**
16	16	32	89	102712	**111.99**	102881	**129.64**
18	18	35	102	102713	**164.20**	102883	**185.00**
20	20	38	102	102714	**208.77**	102885	**239.52**
22	22	38	102	101451	**231.98**	102887	**262.72**
25	25	38	102	102715	**242.55**	102889	**273.29**

2-Flute Stub Length Carbide End Mills

2-Flute Stub has added strength and stability with the same geometry of our standard length series. Stub end mills are specifically designed for shallow milling and slotting in a variety of materials.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	5/64	1-1/2	101220	**14.44**	102202	**17.90**
3/64	1/8	3/32	1-1/2	101221	**14.44**	102221	**17.90**
1/16	1/8	1/8	1-1/2	101222	**11.44**	102222	**14.94**
5/64	1/8	1/8	1-1/2	101223	**11.44**	102223	**15.54**
3/32	1/8	3/16	1-1/2	101224	**10.83**	102224	**14.31**
7/64	1/8	7/32	1-1/2	101225	**10.83**	102225	**14.59**
1/8	1/8	1/4	1-1/2	101226	**10.55**	102226	**14.00**
9/64	3/16	9/32	2	101227	**14.82**	102227	**19.04**
5/32	3/16	5/16	2	101228	**14.82**	102228	**18.26**
3/16	3/16	3/8	2	101229	**14.00**	102229	**17.50**
7/32	1/4	7/16	2	101230	**18.57**	102203	**24.01**
1/4	1/4	1/2	2	101231	**18.31**	102231	**23.73**
5/16	5/16	1/2	2	101232	**25.06**	102204	**32.78**
3/8	3/8	5/8	2	101233	**30.94**	102233	**38.66**
7/16	7/16	5/8	2-1/2	101234	**38.26**	102206	**50.45**
1/2	1/2	5/8	2-1/2	101235	**51.03**	102235	**63.22**
5/8	5/8	3/4	3	101236	**97.52**	102207	**111.67**
3/4	3/4	1	3	101237	**140.27**	102237	**157.19**
Metric							
1	3	2	39	101640	**15.16**	102631	**18.67**
1.5	3	3	39	101641	**15.16**	102641	**18.67**
2	3	4	39	101642	**12.04**	102633	**15.54**
2.5	3	5	39	101643	**11.40**	102643	**14.87**
3	3	6	39	101644	**11.12**	102644	**14.59**
3.5	4	7	51	101645	**15.56**	102645	**19.04**
4	4	8	51	101646	**14.71**	102646	**18.22**
4.5	5	9	51	101647	**19.54**	102647	**24.96**
5	5	10	51	101648	**18.22**	102648	**23.62**
6	6	12	51	101649	**19.30**	102649	**24.70**
7	8	12	51	101650	**25.09**	102635	**32.81**
8	8	12	51	101651	**26.33**	102651	**34.09**
9	10	14	51	101652	**32.53**	102637	**40.26**
10	10	14	51	101653	**35.97**	102653	**44.72**
11	11	16	64	101654	**42.02**	-	-
12	12	16	64	101655	**48.25**	-	-

2-Flute 1/8" Shank Miniature Carbide End Mills

Designed for milling small precision components in a variety of materials.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
0.015	1/8	0.047	1-1/2	101210	**24.51**	102208	**24.51**
0.020	1/8	0.063	1-1/2	101211	**23.73**	102211	**23.73**
0.025	1/8	0.078	1-1/2	101212	**22.12**	102212	**22.12**
0.030	1/8	0.094	1-1/2	101213	**19.83**	102213	**19.83**
0.035	1/8	0.109	1-1/2	101214	**15.16**	102214	**18.63**
0.040	1/8	0.125	1-1/2	101215	**15.16**	102209	**18.63**
0.045	1/8	0.140	1-1/2	101216	**15.16**	102216	**18.63**
0.050	1/8	0.156	1-1/2	101217	**15.16**	102217	**18.63**
0.055	1/8	0.171	1-1/2	101218	**15.16**	102218	**18.63**
0.060	1/8	0.188	1-1/2	101219	**15.16**	102219	**18.63**

Tolerances - Inch

Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric

Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

2-Flute Long Length Carbide End Mills

Long length end mills combine added flute and overall length for greater reach when deep slotting or milling. These end mills have the capability to mill much thicker material in a single pass, thereby eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	3/4	2-1/4	102961	**26.47**	102902	**30.72**
3/16	3/16	3/4	2-1/4	102962	**29.20**	102904	**34.62**
1/4	1/4	1-1/8	3	102963	**33.81**	102906	**41.00**
5/16	5/16	1-1/8	3	102964	**41.75**	102908	**52.48**
3/8	3/8	1-1/8	3	102965	**46.96**	102910	**57.71**
7/16	7/16	2	4	102966	**70.98**	102912	**86.76**
1/2	1/2	2	4	102967	**75.49**	102914	**91.28**
5/8	5/8	2-1/4	5	102968	**155.59**	102916	**181.79**
3/4	3/4	2-1/4	5	102969	**247.85**	102918	**278.19**
1	1	2-1/4	5	102970	**421.37**	102920	**460.72**
Metric							
3	3	19	57	101560	**16.40**	102921	**19.14**
4	4	19	57	101561	**17.23**	102923	**20.70**
5	5	25	64	101562	**30.74**	102925	**37.88**
6	6	28	76	101563	**35.64**	102927	**42.76**
8	8	29	76	101564	**43.97**	102929	**54.66**
10	10	32	76	101565	**50.99**	102931	**63.18**
12	12	51	102	101566	**80.05**	102933	**95.83**
14	14	57	127	101567	**143.28**	-	**-**
16	16	57	127	101568	**155.59**	102937	**181.79**
18	18	57	127	101569	**233.92**	102939	**233.92**
20	20	57	127	101570	**261.10**	-	**-**
25	25	57	127	101571	**402.35**	-	**-**

2-Flute Extra Long Length Carbide End Mills

Extra long length end mills combine added flute and overall length for greater reach when deep slotting or milling. These end mills have the capability to mill much thicker material in a single pass, thereby eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | X-LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	1	3	102400	**26.47**	102500	**30.72**
3/16	3/16	1-1/8	3	102402	**29.20**	102502	**34.62**
1/4	1/4	1-1/2	4	102404	**35.71**	102504	**44.11**
5/16	5/16	1-5/8	4	102406	**46.60**	102506	**60.22**
3/8	3/8	1-3/4	4	102408	**51.56**	102508	**65.21**
7/16	7/16	3	6	102410	**94.35**	102510	**116.57**
1/2	1/2	3	6	102412	**131.33**	102512	**131.33**
5/8	5/8	3	6	102414	**155.59**	102514	**181.79**
3/4	3/4	3	6	102416	**247.85**	102516	**278.19**
1	1	3	6	102418	**421.37**	102518	**460.72**

Tolerances - Inch		
Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric		
Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

2-Flute Double End Stub Length

Double end end mills offer the same tool geometry as the single end stub end mill, but with two cutters in one tool. Economy is an added feature of this tool.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	5/64	1-1/2	102260	**25.95**	102360	**31.14**
1/16	1/8	1/8	1-1/2	102262	**25.95**	102362	**31.14**
3/32	1/8	3/16	1-1/2	102264	**25.95**	102364	**31.14**
1/8	1/8	1/4	1-1/2	102266	**16.07**	102366	**21.30**
5/32	3/16	5/16	2	102268	**28.55**	102368	**33.78**
3/16	3/16	3/8	2	102270	**23.31**	102370	**28.52**
7/32	1/4	1/2	2-1/2	102272	**33.31**	102372	**44.05**
1/4	1/4	1/2	2-1/2	102274	**30.33**	102374	**41.08**
5/16	5/16	1/2	2-1/2	102276	**37.76**	102376	**53.81**
3/8	3/8	1/2	2-1/2	102278	**40.13**	102378	**56.24**
7/16	7/16	9/16	2-3/4	102280	**68.21**	102380	**86.52**
1/2	1/2	5/8	3	102282	**68.21**	102382	**86.52**

2-Flute Double End Regular Length

With maximum chip clearance, 2-flute end mills are ideal for milling, sinking, profiling or slotting in a variety of materials.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	3/8	3/8	3-1/16	101300	**50.89**	102001	**66.98**
5/32	3/8	7/16	3-1/8	101301	**50.89**	102003	**66.98**
3/16	3/8	1/2	3-1/4	101302	**50.89**	102005	**66.98**
7/32	3/8	9/16	3-3/8	101303	**50.89**	102007	**66.98**
1/4	3/8	5/8	3-3/8	101304	**50.89**	102009	**66.98**
9/32	3/8	11/16	3-3/8	101305	**58.48**	102011	**78.89**
5/16	3/8	3/4	3-1/2	101306	**58.48**	102013	**78.89**
11/32	3/8	3/4	3-1/2	101307	**58.48**	-	**-**
3/8	3/8	3/4	3-1/2	101308	**58.48**	102017	**78.89**
7/16	1/2	7/8	4	101309	**70.98**	102019	**86.76**
1/2	1/2	1	4	101310	**75.49**	102021	**91.28**

End Mill Dispenser Cabinets

- Three drawer
- All steel



Description	Model No.	Code No.	Price $
Two flute single and double end for 1/16 to 1	CZD10	113905	**976.32**
Four flute single and double end for 1/16 to 1	CZD11	113906	**976.32**
Two and four flute single and double end for 1/8 to 1 x 8ths	CZD12	113907	**246.36**

End Mill Sheath Rack

- ABS plastic
- 62 sheaths



Model	Size Range (mm)	Dimensions	Code No.	Price $
VMS-2	Ø6-Ø42	205x205x80	326545	**46.99**

2-Flute Corner Radius Regular Length

2-flute carbide end mill with corner radius allows more strength and minimizes chipping on corners. Two-flute construction provides more chip space and clearance than three or four flute designs.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

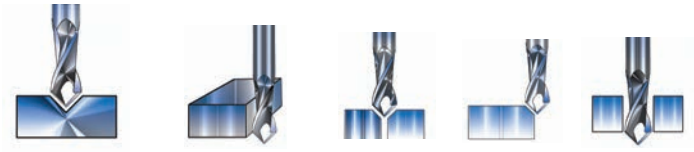
Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Corner Radius	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch								
1/8	0.015	1/8	1/2	1-1/2	101140	**14.99**	102023	**18.47**
3/16	0.020	3/16	5/8	2	101141	**19.76**	102025	**23.22**
3/16	0.030	3/16	5/8	2	101142	**19.76**	102027	**23.22**
1/4	0.020	1/4	3/4	2-1/2	101143	**24.54**	102029	**31.68**
1/4	0.030	1/4	3/4	2-1/2	101144	**24.54**	102031	**31.68**
1/4	0.045	1/4	3/4	2-1/2	101145	**24.54**	102033	**31.68**
5/16	0.020	5/16	13/16	2-1/2	101146	**32.18**	102035	**42.95**
5/16	0.030	5/16	13/16	2-1/2	101147	**32.18**	102037	**42.95**
5/16	0.045	5/16	13/16	2-1/2	101148	**32.18**	102039	**42.95**
3/8	0.020	3/8	1	2-1/2	101149	**39.38**	102041	**50.15**
3/8	0.030	3/8	1	2-1/2	101150	**39.38**	102043	**50.15**
3/8	0.045	3/8	1	2-1/2	101151	**39.38**	102045	**50.15**
1/2	0.020	1/2	1	3	101152	**73.30**	102046	**85.53**
1/2	0.030	1/2	1	3	101153	**73.30**	102047	**85.53**
1/2	0.045	1/2	1	3	101154	**73.30**	102048	**85.53**
1/2	0.060	1/2	1	3	101155	**73.30**	102049	**85.53**
5/8	0.020	5/8	1-1/4	3-1/2	101156	**118.57**	102051	**136.19**
5/8	0.030	5/8	1-1/4	3-1/2	101157	**118.57**	102053	**136.19**
5/8	0.045	5/8	1-1/4	3-1/2	101158	**118.57**	102055	**136.19**
5/8	0.060	5/8	1-1/4	3-1/2	101159	**118.57**	102057	**136.19**
5/8	0.090	5/8	1-1/4	3-1/2	101160	**118.57**	102059	**136.19**
3/4	0.020	3/4	1-1/2	4	101162	**174.49**	102061	**195.29**
3/4	0.030	3/4	1-1/2	4	101163	**174.49**	102063	**195.29**
3/4	0.045	3/4	1-1/2	4	101164	**174.49**	102065	**195.29**
3/4	0.060	3/4	1-1/2	4	101165	**174.49**	102067	**195.29**
3/4	0.090	3/4	1-1/2	4	101166	**174.49**	102069	**195.29**
3/4	0.125	3/4	1-1/2	4	101161	**156.77**	-	-
1	0.020	1	1-1/2	4	101168	**302.65**	102073	**333.41**
1	0.030	1	1-1/2	4	101169	**302.65**	102075	**333.41**
1	0.045	1	1-1/2	4	101170	**302.65**	102077	**333.41**
1	0.060	1	1-1/2	4	101171	**302.65**	102079	**333.41**
1	0.090	1	1-1/2	4	101172	**302.65**	102081	**333.41**
1	0.125	1	1-1/2	4	101167	**302.65**	102083	**333.41**

Carbide Drill Mills

- Drill/Mills can be used for drilling, slotting, profile milling
- 2-Flute - 60° & 90° included point angle
- Made from submicron grain carbide
- Cutting diameter tolerance: +0.000 / -0.002





Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Bright 60° Code No.	Price $	Bright 90° Code No.	Price $
1/16	1/8	3/16	1-1/2	153187	**14.56**	153186	**14.56**
3/32	1/8	3/8	1-1/2	153189	**14.56**	153188	**14.56**
1/8	1/8	1/2	1-1/2	153191	**14.56**	153190	**14.56**
3/16	3/16	5/8	2	153193	**19.20**	153192	**19.20**
1/4	1/4	3/4	2-1/2	153195	**23.84**	153194	**23.84**
5/16	5/16	13/16	2-1/2	153197	**31.27**	153196	**31.27**
3/8	3/8	1	2-1/2	153199	**38.26**	153198	**38.26**
7/16	7/16	1	2-3/4	153201	**47.10**	153200	**47.10**
1/2	1/2	1	3	153203	**71.22**	153202	**71.22**
5/8	5/8	1-1/4	3-1/2	153205	**115.22**	153204	**115.22**
3/4	3/4	1-1/2	4	153207	**169.55**	153206	**169.55**

2-Flute Ball Nose Regular Length

A general purpose carbide end mill with maximum chip clearance added.
For: End Milling, Slotting, Sinking, Contouring
On: Variety of Steels, Cast Iron, Non-Ferrous Metals, Plastics, Abrasive Type Materials



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	1/2	1-1/2	103872	**14.99**	102862	**18.47**
3/16	3/16	5/8	2	103873	**19.76**	102864	**23.22**
1/4	1/4	3/4	2-1/2	103874	**24.54**	102866	**31.68**
5/16	5/16	13/16	2-1/2	103877	**32.18**	102868	**42.95**
3/8	3/8	1	2-1/2	103875	**39.38**	102870	**50.15**
1/2	1/2	1	3	103876	**73.30**	102872	**85.53**
9/16	9/16	1-1/8	3-1/2	103892	**106.77**	102874	**124.38**
5/8	5/8	1-1/4	3-1/2	103893	**118.57**	102876	**136.19**
11/16	3/4	1-3/8	4	103894	**197.36**	102877	**218.16**
3/4	3/4	1-1/2	4	103895	**174.49**	102878	**195.29**
7/8	7/8	1-1/2	4	103896	**279.52**	102879	**310.28**
1	1	1-1/2	4	103897	**302.65**	102880	**333.41**
Metric							
0.5	3	1.5	39	101460	**29.65**	102107	**22.69**
1	3	3	39	101461	**19.22**	102108	**22.69**
1.5	3	5	39	101462	**19.22**	102109	**22.69**
2	3	7	39	102740	**18.13**	102111	**21.61**
2.5	3	7	39	102741	**17.37**	102113	**20.83**
3	3	9	39	102742	**15.76**	102115	**19.22**
3.5	4	12	51	102743	**23.14**	102117	**26.58**
4	4	14	51	102744	**20.74**	102119	**24.22**
4.5	5	14	51	102745	**26.11**	102121	**31.54**
5	5	16	51	102746	**25.16**	102123	**32.32**
6	6	19	64	102747	**25.79**	102182	**32.94**
7	8	19	64	102748	**33.10**	102183	**43.80**
8	8	21	64	102749	**33.86**	102184	**44.55**
9	10	22	70	102750	**41.37**	102186	**52.08**
10	10	22	70	102751	**48.35**	102187	**60.55**
11	11	25	70	102752	**50.89**	102188	**89.17**
12	12	25	76	102753	**77.00**	102189	**89.17**
14	14	30	89	102755	**112.10**	102191	**129.72**
16	16	32	89	102756	**124.45**	102192	**142.10**
18	18	35	102	102757	**183.17**	102193	**204.02**
20	20	38	102	102758	**245.62**	102194	**276.40**
22	22	38	102	101481	**286.03**	102195	**303.62**
25	25	38	102	102759	**286.03**	102196	**316.78**

2-Flute Ball Nose Extra Long Length

Extra long length end mills combine added flute and overall lengths for greater reach when deep slotting or milling. These end mills have the capability to mill much thicker material in a single pass, thereby eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | X-LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	1	3	102420	**31.14**	102520	**35.38**
3/16	3/16	1-1/8	3	102422	**34.35**	102522	**39.76**
1/4	1/4	1-1/2	4	102424	**41.84**	102524	**50.27**
5/16	5/16	1-5/8	4	102426	**54.80**	102526	**68.45**
3/8	3/8	1-3/4	4	102428	**60.63**	102528	**74.26**
7/16	7/16	3	6	102430	**108.53**	102530	**130.72**
1/2	1/2	3	6	102432	**120.79**	102532	**142.95**
5/8	5/8	3	6	102434	**177.60**	102534	**203.77**
3/4	3/4	3	6	102436	**291.46**	102536	**321.78**
1	1	3	6	102438	**495.63**	102538	**535.04**

2-Flute Ball Nose Stub Length

This series has added strength and stability with the same geometry of our standard length series. Stub end mills are specifically designed for shallow milling, contour milling and slotting.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	5/64	1-1/2	101240	**18.31**	102197	**21.79**
3/64	1/8	3/32	1-1/2	101241	**18.31**	102198	**21.79**
1/16	1/8	1/8	1-1/2	101242	**13.50**	102199	**16.95**
5/64	1/8	5/32	1-1/2	101243	**14.19**	102201	**17.66**
3/32	1/8	3/16	1-1/2	101244	**12.74**	102239	**16.22**
7/64	1/8	7/32	1-1/2	101245	**13.39**	102241	**16.88**
1/8	1/8	1/4	1-1/2	101246	**12.42**	102243	**15.89**
9/64	3/16	9/32	2	101247	**18.27**	102245	**21.77**
5/32	3/16	5/16	2	101248	**17.38**	102247	**20.84**
3/16	3/16	3/8	2	101249	**16.49**	102249	**19.96**
7/32	1/4	7/16	2	101250	**21.87**	102251	**27.30**
1/4	1/4	1/2	2	101251	**21.52**	102252	**26.97**
5/16	5/16	1/2	2	101252	**29.45**	102253	**37.17**
3/8	3/8	5/8	2	101253	**36.37**	102254	**44.11**
7/16	7/16	5/8	2-1/2	101254	**45.00**	102255	**57.20**
1/2	1/2	5/8	2-1/2	101255	**60.00**	102256	**72.18**
5/8	5/8	3/4	3	101256	**165.06**	102257	**128.90**
3/4	3/4	1	3	101257	**165.06**	102258	**182.00**
Metric							
1	3	2	39	101670	**19.22**	102259	**22.71**
1.5	3	3	39	101671	**19.22**	102261	**22.71**
2	3	4	39	101672	**14.19**	102263	**17.66**
2.5	3	5	39	101673	**13.39**	-	**-**
3	3	6	39	101674	**13.06**	102267	**16.51**
3.5	4	7	51	101675	**18.27**	102269	**21.77**
4	4	8	51	101676	**17.37**	102271	**20.83**
4.5	5	9	51	101677	**20.62**	-	**-**
5	5	10	51	101678	**21.62**	102275	**27.02**
6	6	12	51	101679	**22.71**	102277	**28.10**
7	8	12	51	101680	**29.70**	102279	**37.45**
8	8	12	51	101681	**31.01**	102281	**38.73**
9	10	14	51	101682	**38.29**	-	**-**
10	10	14	51	101683	**42.32**	102285	**51.07**
11	11	16	64	101684	**63.13**	-	**-**
12	12	16	64	101685	**63.13**	-	**-**

2-Flute Ball Nose Long Length

Long length end mills combine added flute and overall lengths for greater reach when deep slotting or milling. These end mills have the capability to mill much thicker material in a single pass, thereby eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	3/4	2-1/4	102971	**31.14**	102780	**35.38**
3/16	3/16	3/4	2-1/2	102972	**34.35**	102782	**39.76**
1/4	1/4	1-1/8	3	102973	**39.77**	102784	**46.95**
5/16	5/16	1-1/8	3	102974	**49.13**	102786	**59.87**
3/8	3/8	1-1/8	3	102975	**55.27**	102788	**65.99**
7/16	7/16	2	4	102976	**83.49**	102790	**99.31**
1/2	1/2	2	4	102977	**85.28**	102792	**101.08**
5/8	5/8	2-1/4	5	102978	**177.60**	102794	**203.77**
3/4	3/4	2-1/4	5	102979	**291.46**	102796	**321.78**
1	1	2-1/4	5	102980	**495.63**	102798	**535.04**
Metric							
3	3	19	57	101580	**32.78**	102085	**36.25**
4	4	19	57	101581	**33.47**	102086	**38.89**
5	5	25	64	101582	**36.16**	102087	**43.32**
6	6	28	76	101583	**41.85**	102089	**49.00**
8	8	29	76	101584	**51.71**	-	**-**
10	10	32	76	101585	**78.28**	-	**-**
12	12	51	102	101586	**89.86**	-	**-**
14	14	57	127	101587	**168.54**	-	**-**
16	16	57	127	101588	**177.59**	-	**-**
18	18	57	127	101589	**273.18**	-	**-**
20	20	57	127	101590	**300.36**	-	**-**
25	25	57	127	101591	**476.61**	-	**-**

2-Flute Ball Nose Double End Stub Length

These end mills offer the same tool geometry as the single end stub end mill, but with two cutters in one tool.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	5/64	1-1/2	101331	**30.46**	102291	**35.68**
3/64	1/8	3/32	1-1/2	101332	**30.46**	102293	**35.68**
1/16	1/8	1/8	1-1/2	101333	**30.46**	102295	**35.68**
3/32	1/8	3/16	1-1/2	101334	**30.46**	102297	**35.68**
1/8	1/8	1/4	1-1/2	101335	**18.90**	102299	**24.10**
5/32	3/16	5/16	2	101336	**33.57**	102323	**38.77**
3/16	3/16	3/8	2	101337	**27.44**	102324	**32.65**
7/32	1/4	1/2	2-1/2	101338	**35.68**	102325	**46.44**
1/4	1/4	1/2	2-1/2	101339	**35.68**	102326	**46.44**
5/16	5/16	1/2	2-1/2	101351	**49.13**	102327	**60.49**
3/8	3/8	1/2	2-1/2	101352	**55.27**	102328	**63.30**
7/16	7/16	9/16	2-3/4	101353	**83.49**	102329	**98.58**
1/2	1/2	5/8	3	101354	**85.28**	102331	**98.58**

2-Flute Ball Nose Double End Regular Length

With maximum chip clearance, 2-flute ball nose end mills are ideal for milling, sinking, profiling or slotting various steels, non-ferrous materials, cast iron or highly abrasive materials.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	3/8	3/8	3-1/16	101320	**59.87**	102333	**75.94**
5/32	3/8	7/16	3-1/8	101321	**59.87**	102335	**75.94**
3/16	3/8	1/2	3-1/4	101322	**59.87**	102337	**75.94**
7/32	3/8	9/16	3-3/8	101323	**59.87**	102339	**75.94**
1/4	3/8	5/8	3-3/8	101324	**59.87**	102341	**75.94**
9/32	3/8	11/16	3-3/8	101325	**60.63**	102343	**89.20**
5/16	3/8	3/4	3-1/2	101326	**60.63**	102345	**89.20**
11/32	3/8	3/4	3-1/2	101327	**60.63**	102347	**89.20**
3/8	3/8	3/4	3-1/2	101328	**60.63**	102349	**89.20**
7/16	1/2	7/8	4	101329	**83.49**	-	**-**
1/2	1/2	1	4	101330	**85.28**	102352	**101.08**

3-Flute Regular Length Carbide End Mills

3-flute carbide end mills offer maximum chip clearance therefore reducing chip packing.
For: End milling, Slotting, Sinking
On: Steels, Cast Iron, Aluminum, Copper, Brass, Plastics, and Abrasive Type Materials



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A31
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/16	1/8	3/16	1-1/2	101080	**13.39**	102353	**16.88**
5/64	1/8	3/16	1-1/2	101081	**13.39**	102354	**16.88**
3/32	1/8	5/16	1-1/2	101082	**12.67**	102355	**16.14**
7/64	1/8	7/16	1-1/2	101083	**12.67**	102356	**16.14**
1/8	1/8	1/2	1-1/2	101084	**11.70**	102357	**15.16**
9/64	3/16	1/2	2	101085	**17.28**	102358	**20.74**
5/32	3/16	9/16	2	101086	**17.28**	102359	**20.74**
11/64	3/16	5/8	2	101087	**17.28**	102361	**20.74**
3/16	3/16	5/8	2	101088	**16.40**	102363	**19.85**
13/64	1/4	5/8	2-1/2	101089	**21.72**	102365	**28.91**
7/32	1/4	5/8	2-1/2	101090	**21.72**	102367	**28.91**
15/64	1/4	3/4	2-1/2	101091	**21.72**	102369	**28.91**
1/4	1/4	3/4	2-1/2	101092	**19.76**	102371	**26.93**
17/64	5/16	3/4	2-1/2	101093	**34.66**	102373	**45.40**
9/32	5/16	3/4	2-1/2	101094	**34.66**	102375	**45.40**
19/64	5/16	13/16	2-1/2	101095	**34.66**	102377	**45.40**
5/16	5/16	13/16	2-1/2	101096	**27.73**	102379	**38.46**
3/8	3/8	1	2-1/2	101097	**34.53**	102381	**45.24**
7/16	7/16	1	2-3/4	101098	**42.12**	102383	**54.35**
1/2	1/2	1	3	101099	**55.30**	102384	**67.50**
9/16	9/16	1-1/8	3-1/2	101100	**94.47**	102385	**112.10**
5/8	5/8	1-1/4	3-1/2	101101	**106.64**	102386	**124.30**
11/16	3/4	1-3/8	4	101102	**177.60**	-	-
3/4	3/4	1-1/2	4	101103	**156.35**	102388	**177.19**
7/8	7/8	1-1/2	4	101104	**225.03**	102389	**255.77**
1	1	1-1/2	4	101105	**233.92**	102390	**264.65**
Metric							
1	3	3	39	101490	**15.16**	102391	**18.63**
1.5	3	5	39	101491	**15.16**	102392	**18.63**
2	3	7	39	101492	**14.06**	102393	**17.52**
3	3	10	39	101494	**12.04**	-	-
3.5	4	12	51	101495	**18.18**	102396	**21.65**
4	4	14	51	101496	**16.90**	-	-
4.5	5	14	51	101497	**21.09**	102398	**26.50**
5	5	16	51	101498	**20.11**	102399	**27.27**
6	6	19	64	101499	**20.74**	102401	**27.92**
7	8	19	64	101500	**28.50**	102403	**39.21**
8	8	21	64	101501	**29.11**	102405	**39.85**
9	10	22	70	101502	**36.25**	102407	**46.97**
10	10	25	70	101503	**42.02**	102409	**54.21**
11	11	25	70	101504	**44.24**	-	-
12	12	25	76	101505	**58.08**	102413	**70.27**
14	14	30	89	101506	**99.18**	102415	**116.81**
16	16	32	89	101507	**111.99**	102417	**129.64**
18	18	35	102	101508	**164.20**	102419	**185.00**
20	20	38	102	101509	**208.77**	102421	**239.52**
22	22	38	102	101510	**231.98**	102423	**262.72**
25	25	38	102	101511	**242.55**	102425	**273.29**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

3-Flute Ball Nose Regular Length

3-flute carbide end mills offer maximum chip clearance therefore reducing chip packing.
For: End Milling, Slotting, Sinking
On: Steels, Cast Iron, Aluminum, Copper, Brass, Plastics, and Abrasive Type Materials



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/16	1/8	3/16	1-1/2	101110	**17.28**	102455	**20.74**
5/64	1/8	3/16	1-1/2	101111	**17.28**	102457	**20.74**
3/32	1/8	5/16	1-1/2	101112	**16.51**	102459	**19.99**
7/64	1/8	7/16	1-1/2	101113	**16.51**	102461	**19.99**
1/8	1/8	1/2	1-1/2	101114	**14.99**	102463	**18.47**
9/64	3/16	1/2	2	101115	**22.00**	102465	**25.50**
5/32	3/16	9/16	2	101116	**22.00**	102467	**25.50**
11/64	3/16	5/8	2	101117	**22.00**	102469	**25.50**
3/16	3/16	5/8	2	101118	**19.76**	102470	**23.22**
13/64	1/4	5/8	2-1/2	101119	**25.59**	102471	**32.76**
7/32	1/4	5/8	2-1/2	101120	**25.59**	102472	**32.76**
15/64	1/4	3/4	2-1/2	101121	**25.59**	102473	**32.76**
1/4	1/4	3/4	2-1/2	101122	**24.54**	102474	**31.68**
17/64	5/16	3/4	2-1/2	101123	**38.41**	102475	**49.15**
9/32	5/16	3/4	2-1/2	101124	**38.41**	102476	**49.15**
19/64	5/16	13/16	2-1/2	101125	**38.41**	102477	**49.15**
5/16	5/16	13/16	2-1/2	101126	**32.18**	102478	**42.95**
3/8	3/8	1	2-1/2	101127	**39.38**	102479	**50.15**
7/16	7/16	1	2-3/4	101128	**48.47**	102481	**60.63**
1/2	1/2	1	3	101129	**73.30**	102483	**85.53**
9/16	9/16	1-1/8	3-1/2	101130	**106.77**	-	-
5/8	5/8	1-1/4	3-1/2	101131	**118.57**	102487	**136.19**
11/16	3/4	1-3/8	4	101132	**197.36**	-	-
3/4	3/4	1-1/2	4	101133	**174.49**	102491	**195.29**
7/8	7/8	1-1/2	4	101134	**279.52**	-	-
1	1	1-1/2	4	101135	**302.65**	102495	**333.41**
Metric							
1	3	3	39	101520	**19.22**	102497	**22.69**
1.5	3	5	39	101521	**19.22**	102499	**22.69**
2	3	7	39	101522	**18.13**	102501	**21.61**
2.5	3	8	39	101523	**17.37**	102503	**20.83**
3	3	10	39	101524	**15.76**	102505	**19.22**
3.5	4	12	51	101525	**23.14**	102507	**26.58**
4	4	14	51	101526	**20.74**	102509	**24.22**
4.5	5	14	51	101527	**26.11**	102511	**31.54**
5	5	16	51	101528	**25.16**	102513	**32.32**
6	6	19	64	101529	**25.79**	102515	**32.94**
7	8	19	64	101530	**29.74**	-	-
8	8	21	64	101531	**33.86**	102519	**44.55**
9	10	22	70	101532	**41.37**	102521	**52.08**
10	10	25	70	101533	**48.35**	102523	**60.55**
11	11	25	70	101534	**50.89**	-	-
12	12	25	76	101535	**77.00**	102527	**89.17**
14	14	30	89	101536	**112.10**	102529	**129.72**
16	16	32	89	101537	**124.45**	102531	**142.10**
18	18	35	102	101538	**183.17**	102533	**204.02**
20	20	38	102	101539	**245.62**	102535	**276.40**
22	22	38	102	101540	**272.87**	102537	**303.62**
25	25	38	102	101541	**286.03**	102539	**316.78**

Tolerances - Inch

Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric

Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

3-Flute 60° High-Helix

These end mills are designed for milling stainless steel, titanium, inconel and other similar metals where high cutting forces are generated. The high helix angle increases length of cutting edge engaged in the cut, reducing cutting load variations and prolonging tool life. Excellent surface finish with high speed and feed capabilities are features of these tools.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 60°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	1/2	1-1/2	101000	**20.82**	102427	**27.97**
3/16	3/16	5/8	2	101002	**20.82**	102429	**27.97**
1/4	1/4	3/4	2-1/2	101004	**20.82**	102431	**27.97**
5/16	5/16	13/16	2-1/2	101006	**29.18**	102433	**39.89**
3/8	3/8	1	2-1/2	101008	**36.34**	102435	**47.06**
7/16	7/16	1	2-3/4	101010	**44.36**	102437	**56.58**
1/2	1/2	1	3	101012	**58.23**	102439	**70.38**
5/8	5/8	1-1/4	3-1/2	101014	**112.26**	102440	**129.89**
3/4	3/4	1-1/2	4	101016	**164.62**	102441	**185.40**
1	1	1-1/2	4	101018	**246.23**	102442	**276.99**
Metric							
6	6	19	64	101730	**18.70**	-	-
8	8	21	64	101731	**26.22**	-	-
10	10	25	70	101732	**39.86**	-	-
12	12	25	76	101733	**52.31**	-	-
14	14	29	89	101734	**112.26**	-	-
16	16	32	89	101735	**100.87**	-	-
18	18	38	102	101736	**147.90**	-	-
20	20	38	102	101737	**147.90**	-	-
25	25	38	102	101738	**246.23**	-	-



STM

Contain and organize all your end mills.

See Page A4

4-Flute Regular Length Carbide End Mills

The industry standard. Wear resistance and minimal deflection for excellent size control.

For: Slotting, Production Milling, Profiling
On: Variety of Steels





MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A34

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	1/8	1-1/2	103781	**14.44**	102899	**17.90**
3/64	1/8	9/64	1-1/2	103782	**14.44**	102831	**17.90**
1/16	1/8	3/16	1-1/2	103870	**13.39**	102832	**16.88**
5/64	1/8	1/4	1-1/2	103783	**13.39**	102833	**16.88**
3/32	1/8	5/16	1-1/2	103871	**12.67**	102834	**16.14**
7/64	1/8	3/8	1-1/2	103784	**12.67**	102835	**16.14**
1/8	1/8	1/2	1-1/2	103860	**11.70**	102836	**15.16**
9/64	3/16	1/2	2	103785	**17.28**	102837	**20.74**
5/32	3/16	9/16	2	103861	**17.28**	102839	**20.74**
11/64	3/16	9/16	2	103786	**17.28**	102841	**20.74**
3/16	3/16	5/8	2	103862	**16.40**	102838	**19.85**
13/64	1/4	5/8	2-1/2	103787	**21.72**	102843	**28.91**
7/32	1/4	5/8	2-1/2	103863	**21.72**	102845	**28.91**
1/4	1/4	3/4	2-1/2	103864	**19.76**	102840	**26.93**
9/32	5/16	3/4	2-1/2	103865	**34.66**	102847	**45.40**
5/16	5/16	13/16	2-1/2	103866	**27.73**	102842	**38.46**
11/32	3/8	7/8	2-1/2	103789	**41.08**	102849	**51.79**
3/8	3/8	1	2-1/2	103867	**34.53**	102844	**45.24**
13/32	7/16	1	2-3/4	103790	**49.11**	102851	**61.30**
7/16	7/16	1	2-3/4	103868	**42.12**	102846	**54.35**
1/2	1/2	1	3	103869	**55.30**	102848	**67.50**
9/16	9/16	1-1/8	3-1/2	103933	**94.47**	102850	**112.10**
5/8	5/8	1-1/4	3-1/2	103934	**106.64**	102852	**124.30**
11/16	3/4	1-3/8	4	103935	**177.60**	102854	**198.42**
3/4	3/4	1-1/2	4	103936	**156.35**	102856	**177.19**
7/8	7/8	1-1/2	4	103937	**225.03**	102858	**255.77**
1	1	1-1/2	4	103938	**233.92**	102860	**264.65**
6pc Set: 1/4", 5/16", 3/8", 1/2", 5/8", 3/4"				103847	**400.31**	-	-
Metric							
1	3	3	39	101550	**15.16**	102601	**18.63**
1.5	3	5	39	101551	**15.16**	102603	**18.63**
2	3	7	39	102716	**14.06**	102605	**17.52**
2.5	3	8	39	102717	**13.30**	102607	**16.78**
3	3	10	39	102718	**12.27**	102609	**15.76**
3.5	4	12	51	102719	**18.18**	102611	**21.65**
4	4	14	51	102720	**17.23**	102613	**20.70**
4.5	5	14	51	102721	**21.09**	102615	**26.50**
5	5	16	51	102722	**20.11**	102617	**27.27**
6	6	19	64	102723	**20.74**	102619	**27.92**
7	8	19	64	102724	**28.50**	102621	**39.21**
8	8	21	64	102725	**29.11**	102623	**39.85**
9	10	22	70	102726	**36.25**	102625	**46.97**
10	10	25	70	102727	**42.02**	102627	**54.21**
11	11	25	70	102728	**44.24**	102629	**56.45**
12	12	25	76	102729	**58.08**	102657	**70.27**
14	14	30	89	102731	**99.18**	102659	**116.81**
16	16	32	89	102732	**111.99**	102661	**129.64**
18	18	35	102	102733	**164.20**	102663	**185.00**
20	20	38	102	102734	**208.77**	102665	**239.52**
22	22	38	102	102736	**231.98**	102667	**262.72**
25	25	38	102	102735	**242.55**	102669	**273.29**

4-Flute Stub Length Carbide End Mills

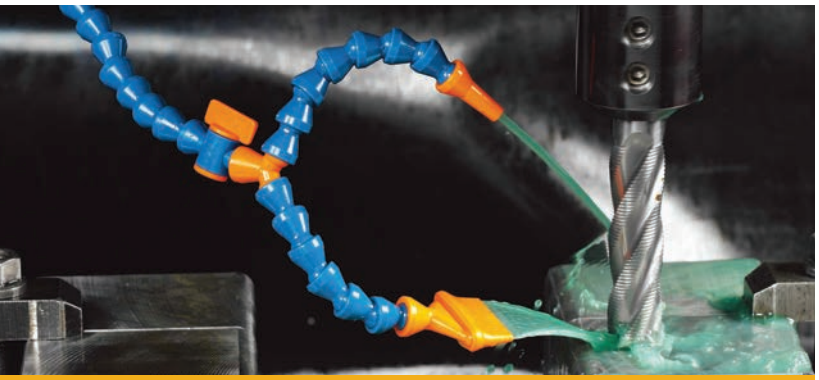
Strength, rigidity and improved tool life can be obtained with this stub length end mill. The premium micrograin carbide makes these mills tough enough to machine the very hard metals.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A35

Shank Dia.	Flute Dia.	Overall Length	Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	5/64	1-1/2	101260	**14.44**	102540	**17.90**
3/64	1/8	3/32	1-1/2	101261	**14.44**	102541	**17.90**
1/16	1/8	1/8	1-1/2	101262	**11.44**	102542	**14.94**
5/64	1/8	5/32	1-1/2	101263	**12.04**	102543	**15.54**
3/32	1/8	3/16	1-1/2	101264	**10.83**	102544	**14.31**
7/64	1/8	7/32	1-1/2	101265	**11.12**	102545	**14.59**
1/8	1/8	1/4	1-1/2	101266	**10.55**	102546	**14.00**
9/64	3/16	9/32	2	101267	**15.56**	102547	**19.04**
5/32	3/16	5/16	2	101268	**13.31**	-	-
3/16	3/16	3/8	2	101269	**14.00**	102549	**17.50**
7/32	1/4	7/16	2	101270	**18.57**	102551	**24.01**
1/4	1/4	1/2	2	101271	**18.31**	102553	**23.73**
5/16	5/16	1/2	2	101272	**25.06**	102555	**32.78**
3/8	3/8	5/8	2	101273	**30.94**	102557	**38.66**
7/16	7/16	5/8	2-1/2	101274	**38.26**	102559	**50.45**
1/2	1/2	5/8	2-1/2	101275	**51.03**	102561	**63.22**
5/8	5/8	3/4	3	101276	**97.52**	102563	**111.67**
3/4	3/4	1	3	101277	**140.27**	102565	**157.19**
Metric							
1	3	2	39	101690	**15.16**	102567	**18.67**
1.5	3	3	39	101691	**15.16**	102569	**18.67**
2	3	4	39	101692	**12.04**	102570	**15.54**
2.5	3	5	39	101693	**11.40**	102571	**14.87**
3	3	6	39	101694	**11.12**	102572	**14.59**
3.5	4	7	51	101695	**15.56**	102573	**19.04**
4	4	8	51	101696	**14.71**	102574	**18.22**
4.5	5	9	51	101697	**18.50**	-	-
5	5	10	51	101698	**18.22**	-	-
6	6	12	51	101699	**19.30**	102577	**24.70**
7	8	12	51	101700	**25.09**	102578	**32.81**
8	8	12	51	101701	**26.33**	102579	**34.09**
10	10	14	51	101703	**35.97**	102583	**44.72**
11	11	16	64	101704	**42.02**	-	-
12	12	16	64	101705	**53.70**	-	-



Coolant Hoses

See Pages I8-13

4-Flute Long Length Carbide End Mills

Long length end mills combine added flute and overall length for greater reach when deep slotting or milling. These end mills have the capability to mill thicker material in one pass, eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A35

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	3/4	2-1/4	102981	**26.47**	102922	**30.72**
3/16	3/16	3/4	2-1/4	102982	**29.20**	102924	**34.62**
1/4	1/4	1-1/8	3	102983	**33.81**	102926	**41.00**
5/16	5/16	1-1/8	3	102984	**41.75**	102928	**52.48**
3/8	3/8	1-1/8	3	102985	**46.96**	102930	**57.71**
7/16	7/16	2	4	102986	**70.98**	102932	**86.76**
1/2	1/2	2	4	102987	**75.49**	102934	**91.28**
5/8	5/8	2-1/4	5	102988	**155.59**	102936	**181.79**
3/4	3/4	2-1/4	5	102989	**247.85**	102938	**278.19**
1	1	2-1/4	5	102990	**421.37**	102940	**460.72**
Metric							
3	3	19	57	101600	**16.40**	102901	**31.33**
4	4	19	57	101601	**17.23**	102903	**33.89**
5	5	25	64	101602	**30.74**	102905	**37.88**
6	6	28	76	101603	**35.64**	102907	**42.76**
8	8	29	76	101604	**43.97**	102909	**54.66**
10	10	32	76	101605	**50.99**	102911	**63.18**
12	12	51	102	101606	**80.05**	102913	**95.83**
14	14	57	127	101607	**109.90**	102915	**169.47**
18	18	57	127	101609	**233.92**	102919	**181.79**
20	20	57	127	101610	**261.10**	102917	**300.49**
25	25	57	127	101611	**402.35**	-	-

4-Flute Extra Long Length Carbide End Mills

Extra long length end mills combine added flute and overall length for greater reach when deep slotting or milling. These end mills have the capability to mill much thicker material in a single pass, thereby eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | X-LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A35

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	1	3	102450	**26.47**	102550	**30.72**
3/16	3/16	1-1/8	3	102452	**29.20**	102552	**34.62**
1/4	1/4	1-1/2	4	102454	**35.71**	102554	**44.11**
5/16	5/16	1-5/8	4	102456	**46.60**	102556	**60.22**
3/8	3/8	1-3/4	4	102458	**51.56**	102558	**65.21**
7/16	7/16	3	6	102460	**94.35**	102560	**116.57**
1/2	1/2	3	6	102462	**109.15**	102562	**131.33**
5/8	5/8	3	6	102464	**155.59**	102564	**181.79**
3/4	3/4	3	6	102466	**247.85**	102566	**278.19**
1	1	3	6	102468	**421.37**	102568	**460.72**

Tolerances - Inch		
Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric		
Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

4-Flute Double End Regular Length

Four-flute configuration with centre cutting permits plunging and milling on many ferrous and non-ferrous materials. It also offers lower chip-load for size control and finish.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A35

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	3/8	3/8	3-1/16	101340	**50.89**	102589	**66.98**
5/32	3/8	7/16	3-1/8	101341	**50.89**	-	**-**
3/16	3/8	1/2	3-1/4	101342	**50.89**	102593	**66.98**
7/32	3/8	9/16	3-3/8	101343	**50.89**	102595	**66.98**
1/4	3/8	5/8	3-3/8	101344	**50.89**	102597	**66.98**
9/32	3/8	11/16	3-3/8	101345	**58.48**	102599	**78.89**
5/16	3/8	3/4	3-1/2	101346	**58.48**	102671	**78.89**
11/32	3/8	3/4	3-1/2	101347	**110.85**	-	**-**
3/8	3/8	3/4	3-1/2	101348	**58.48**	102675	**78.89**
7/16	1/2	7/8	4	101349	**63.77**	-	**-**
1/2	1/2	1	4	101350	**75.49**	102679	**91.28**

4-Flute Double End Stub Length

These end mills have a shorter flute length which provides greater rigidity with less deflection for shallow milling or slotting. This series is ideal for use on high tensile alloys and heat treated steels.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A35

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/16	1/8	1/8	1-1/2	102230	**25.95**	102330	**31.14**
3/32	1/8	3/16	1-1/2	102232	**25.95**	102332	**31.14**
1/8	1/8	1/4	1-1/2	102234	**16.07**	102334	**21.30**
5/32	3/16	5/16	2	102236	**28.55**	102336	**33.77**
3/16	3/16	3/8	2	102238	**23.31**	102338	**28.52**
7/32	1/4	1/2	2-1/2	102240	**33.31**	102340	**44.05**
1/4	1/4	1/2	2-1/2	102242	**30.33**	102342	**41.08**
5/16	5/16	1/2	2-1/2	102244	**37.76**	102344	**53.81**
3/8	3/8	1/2	2-1/2	102246	**40.13**	102346	**56.24**
7/16	7/16	9/16	2-3/4	102248	**68.21**	102348	**86.52**
1/2	1/2	5/8	3	102250	**68.21**	102350	**86.52**

4-Flute Corner Radius Regular Length

Four-flute carbide end mills with corner radius allows more strength and minimizes chipping on corners. Four-flute construction provides more strength than two or three-flute and will also result in excellent surface finishes.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A32
TiAlN: Speeds & Feeds ➤ P. A35

Cutting Dia.	Corner Radius (in.)	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch								
1/8	0.015	1/8	1/2	1-1/2	101175	**14.99**	101833	**18.47**
3/16	0.020	3/16	5/8	2	101176	**19.76**	101834	**23.22**
3/16	0.030	3/16	5/8	2	101177	**19.76**	101835	**23.22**
1/4	0.020	1/4	3/4	2-1/2	101178	**24.54**	101836	**31.68**
1/4	0.030	1/4	3/4	2-1/2	101179	**24.54**	101837	**31.68**
1/4	0.045	1/4	3/4	2-1/2	101180	**24.54**	101838	**31.68**
5/16	0.020	5/16	13/16	2-1/2	101181	**32.18**	101839	**42.95**
5/16	0.030	5/16	13/16	2-1/2	101182	**32.18**	101862	**42.95**
5/16	0.045	5/16	13/16	2-1/2	101183	**32.18**	101863	**42.95**
3/8	0.020	3/8	1	2-1/2	101184	**39.38**	101864	**50.15**
3/8	0.030	3/8	1	2-1/2	101185	**39.38**	101865	**50.15**
3/8	0.045	3/8	1	2-1/2	101186	**39.38**	101866	**50.15**
1/2	0.020	1/2	1	3	101187	**73.30**	101867	**85.53**
1/2	0.030	1/2	1	3	101188	**73.30**	101868	**85.53**
1/2	0.045	1/2	1	3	101189	**73.30**	101869	**85.53**
1/2	0.060	1/2	1	3	101190	**73.30**	101892	**85.53**
5/8	0.020	5/8	1-1/4	3-1/2	101191	**118.57**	101893	**85.53**
5/8	0.030	5/8	1-1/4	3-1/2	101192	**118.57**	101894	**85.53**
5/8	0.045	5/8	1-1/4	3-1/2	101193	**118.57**	101895	**85.53**
5/8	0.060	5/8	1-1/4	3-1/2	101194	**118.57**	101896	**85.53**
5/8	0.090	5/8	1-1/4	3-1/2	101195	**118.57**	101897	**85.53**
3/4	0.020	3/4	1-1/2	4	101197	**174.49**	101898	**195.29**
3/4	0.030	3/4	1-1/2	4	101198	**174.49**	101899	**195.29**
3/4	0.045	3/4	1-1/2	4	101199	**174.49**	101990	**195.29**
3/4	0.060	3/4	1-1/2	4	101200	**174.49**	101991	**195.29**
3/4	0.090	3/4	1-1/2	4	101201	**174.49**	101992	**195.29**
3/4	0.125	3/4	1-1/2	4	101196	**174.49**	101993	**195.29**
1	0.020	1	1-1/2	4	101203	**302.65**	101994	**333.41**
1	0.030	1	1-1/2	4	101204	**302.65**	101995	**333.41**
1	0.045	1	1-1/2	4	101205	**302.65**	101996	**333.41**
1	0.060	1	1-1/2	4	101206	**302.65**	101997	**333.41**
1	0.090	1	1-1/2	4	101207	**302.65**	101998	**333.41**
1	0.125	1	1-1/2	4	101202	**302.65**	101999	**333.41**

GS TOOLING



GS Tooling
End Mill Holders

Unmatched precision and quality,
at a price point you'll love!

See Pages G4-10

4-Flute Ball Nose Stub Length

Strength, rigidity and improved tool life can be obtained with this stub length end mill.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A36

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	5/64	1-1/2	101280	**18.31**	102681	**21.79**
3/64	1/8	3/32	1-1/2	101281	**18.31**	102683	**21.79**
1/16	1/8	1/8	1-1/2	101282	**13.50**	102685	**16.95**
5/64	1/8	5/32	1-1/2	101283	**12.74**	102687	**16.22**
3/32	1/8	3/16	1-1/2	101284	**12.74**	102689	**16.22**
7/64	1/8	7/32	1-1/2	101285	**13.06**	102691	**16.51**
1/8	1/8	1/4	1-1/2	101286	**12.42**	102693	**15.89**
9/64	3/16	9/32	2	101287	**17.38**	102694	**20.84**
5/32	3/16	5/16	2	101288	**17.38**	102695	**20.84**
3/16	3/16	3/8	2	101289	**16.49**	102781	**19.96**
7/32	1/4	7/16	2	101290	**21.87**	102783	**27.30**
1/4	1/4	1/2	2	101291	**21.52**	102785	**26.97**
5/16	5/16	1/2	2	101292	**29.45**	102787	**37.17**
3/8	3/8	5/8	2	101293	**36.37**	102789	**44.11**
7/16	7/16	5/8	2-1/2	101294	**45.00**	102791	**57.20**
1/2	1/2	5/8	2-1/2	101295	**60.00**	102793	**72.18**
5/8	5/8	3/4	3	101296	**165.06**	102795	**128.90**
3/4	3/4	1	3	101297	**165.06**	102797	**182.00**
Metric							
1	3	2	39	101710	**19.22**	102891	**22.71**
1.5	3	3	39	101711	**19.22**	102893	**22.71**
2	3	4	39	101712	**12.75**	-	-
2.5	3	5	39	101713	**12.03**	-	-
3	3	6	39	101714	**13.06**	102941	**16.51**
3.5	4	7	51	101715	**18.27**	-	-
4	4	8	51	101716	**15.61**	-	-
4.5	5	9	51	101717	**22.95**	-	-
5	5	10	51	101718	**21.62**	102935	**27.02**
6	6	12	51	101719	**22.71**	102945	**28.10**
7	8	12	51	101720	**29.70**	-	-
8	8	12	51	101721	**31.01**	-	-
9	10	14	51	101722	**38.29**	102943	**46.04**
10	10	14	51	101723	**42.32**	-	-
11	11	16	64	101724	**45.00**	-	-
12	12	16	64	101725	**63.13**	-	-

Multi-Flute Rougher Regular Length — TiAlN Coated

These fine pitch roughing end mills have an excellent flute design for roughing applications in a variety of materials. TiAlN coating enhances speeds-feeds and tool life.

- 4 flutes



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH

TiAlN: Speeds & Feeds ➤ P. A35

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/4	1/4	3/4	2-1/2	102150	**45.11**	102185	**53.06**
5/16	5/16	3/4	2-1/2	102155	**51.79**	102190	**60.94**
3/8	3/8	1	2-1/2	102160	**62.74**	102200	**73.82**
1/2	1/2	1-1/4	3	102165	**84.83**	102205	**99.79**
5/8	5/8	1-1/4	3-1/2	102170	**135.15**	102210	**159.00**
3/4	3/4	1-5/8	4	102175	**194.04**	102215	**228.29**
1	1	1-3/4	4	102180	**325.92**	102220	**383.46**

4-Flute Ball Nose Regular Length

The industry standard. Wear resistance and minimal deflection for excellent size control.
For: General Purpose Milling, Production Milling, Contouring
On: Steels, Stainless Steels



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A36

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	1/2	1-1/2	103880	**14.99**	102882	**18.47**
3/16	3/16	5/8	2	103881	**19.76**	102884	**23.22**
1/4	1/4	3/4	2-1/2	103882	**24.54**	102886	**31.68**
5/16	5/16	13/16	2-1/2	103883	**32.18**	102888	**42.95**
3/8	3/8	1	2-1/2	103884	**39.38**	102890	**50.15**
1/2	1/2	1	3	103885	**73.30**	102892	**85.53**
9/16	9/16	1-1/8	3-1/2	103939	**106.77**	102894	**124.38**
5/8	5/8	1-1/4	3-1/2	103940	**118.57**	102896	**136.19**
11/16	3/4	1-3/8	4	103941	**197.36**	102895	**218.16**
3/4	3/4	1-1/2	4	103942	**174.49**	102898	**195.29**
7/8	7/8	1-1/2	4	103943	**279.52**	102897	**310.28**
1	1	1-1/2	4	103944	**302.65**	102900	**333.41**
Metric							
1	3	3	39	102737	**19.22**	101635	**22.69**
1.5	3	5	39	102738	**19.22**	101636	**22.69**
2	3	7	39	102760	**18.13**	101637	**21.61**
2.5	3	8	39	102761	**17.37**	101638	**20.83**
3	3	10	39	102762	**15.76**	101639	**19.22**
3.5	4	12	51	102763	**23.14**	101656	**26.58**
4	4	14	51	102764	**20.74**	101657	**24.22**
4.5	5	14	51	102765	**26.11**	101658	**31.54**
5	5	16	51	102766	**25.16**	101659	**32.32**
6	6	19	64	102767	**25.79**	101660	**32.94**
7	8	19	64	102768	**33.10**	101661	**43.80**
8	8	21	64	102769	**33.86**	101662	**44.55**
9	10	22	70	102770	**41.37**	101663	**52.08**
10	10	25	70	102771	**48.35**	101664	**60.55**
11	11	25	70	102772	**50.89**	101665	**63.07**
12	12	25	76	102773	**57.02**	101666	**89.17**
14	14	30	89	102775	**112.10**	101667	**129.72**
16	16	32	89	102776	**124.45**	101668	**142.10**
18	18	35	102	102777	**183.17**	101669	**204.02**
20	20	38	102	102778	**245.62**	101686	**276.40**
25	25	38	102	102779	**286.03**	101687	**316.78**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Tolerances - Inch

Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric

Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

4-Flute Ball Nose Long Length

Added flute and overall length combine for greater reach when deep slotting or milling. These end mills have the capability to mill thicker material in one pass, eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A36

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	3/4	2-1/4	102991	**31.14**	102942	**23.63**
3/16	3/16	3/4	2-1/2	102992	**34.35**	102944	**23.22**
1/4	1/4	1-1/8	3	102993	**39.77**	102946	**46.95**
5/16	5/16	1-1/8	3	102994	**49.13**	102948	**59.87**
3/8	3/8	1-1/8	3	102995	**55.27**	102950	**65.99**
7/16	7/16	2	4	102996	**83.49**	102952	**99.31**
1/2	1/2	2	4	102997	**85.28**	102954	**101.08**
5/8	5/8	2-1/4	5	102998	**177.60**	102956	**203.77**
3/4	3/4	2-1/4	5	102999	**291.46**	102958	**321.78**
1	1	2-1/4	5	103000	**495.63**	102960	**535.04**
Metric							
3	3	19	57	101620	**32.78**	101764	**36.25**
4	4	19	57	101621	**33.47**	101765	**38.89**
5	5	25	64	101622	**36.16**	101766	**43.32**
6	6	28	76	101623	**41.85**	101767	**49.00**
8	8	29	76	101624	**51.71**	101768	**62.41**
10	10	32	76	101625	**59.71**	101769	**71.93**
12	12	51	102	101626	**89.86**	101770	**105.63**
14	14	57	127	101627	**168.54**	-	**-**
16	16	57	127	101628	**177.59**	101772	**203.77**
18	18	57	127	101629	**273.18**	-	**-**
20	20	57	127	101630	**300.36**	101774	**339.77**
25	25	57	127	101631	**476.61**	-	**-**

4-Flute Ball Nose Extra Long Length

Extra Long Length End mills combine added flute and overall length for greater reach when deep slotting or milling. These end mills have the capability to mill much thicker material in a single pass, thereby eliminating the interrupted cut that may be present with regular length end mills.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | X-LONG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A36

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	1/8	1	3	102480	**31.14**	102580	**35.38**
3/16	3/16	1-1/8	3	102482	**34.35**	102582	**39.76**
1/4	1/4	1-1/2	4	102484	**41.84**	102584	**50.27**
5/16	5/16	1-5/8	4	102486	**54.80**	102586	**68.45**
3/8	3/8	1-3/4	4	102488	**60.63**	102588	**74.26**
7/16	7/16	3	6	102490	**108.53**	102590	**130.72**
1/2	1/2	3	6	102492	**120.79**	102592	**142.95**
5/8	5/8	3	6	102494	**177.60**	102594	**181.79**
3/4	3/4	3	6	102496	**291.46**	102596	**278.19**
1	1	3	6	102498	**495.63**	102598	**535.04**

Tolerances - Inch		
Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric		
Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

4-Flute Ball Nose Double End Regular Length

The ball nose 4-flute centre cut design allows for excellent finish while contour milling.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | REG LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A36

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/8	3/8	3/8	3-1/16	101360	**59.87**	101708	**75.94**
5/32	3/8	7/16	3-1/8	101361	**59.87**	-	**-**
3/16	3/8	1/2	3-1/4	101362	**59.87**	101726	**75.94**
7/32	3/8	9/16	3-3/8	101363	**59.87**	-	**-**
1/4	3/8	5/8	3-3/8	101364	**59.87**	101728	**75.94**
9/32	3/8	11/16	3-3/8	101365	**60.63**	-	**-**
5/16	3/8	3/4	3-1/2	101366	**60.63**	101739	**89.20**
11/32	3/8	3/4	3-1/2	101367	**60.63**	-	**-**
3/8	3/8	3/4	3-1/2	101368	**60.63**	101748	**89.20**
7/16	1/2	7/8	4	101369	**83.49**	-	**-**
1/2	1/2	1	4	101370	**83.49**	101763	**101.08**

4-Flute Ball Nose Double End Stub Length

These end mills have a shorter flute length which provides greater rigidity with less deflection for shallow milling or slotting. This series is ideal for use on high tensile alloys and heat treated steels.



MICRO GRAIN CARBIDE | BRIGHT | TiAlN | STUB LENGTH | 30°

Bright: Speeds & Feeds ➤ P. A33
TiAlN: Speeds & Feeds ➤ P. A36

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price $	TiAlN Code No.	Price $
Inch							
1/32	1/8	5/64	1-1/2	101355	**30.46**	101776	**35.68**
3/64	1/8	3/32	1-1/2	101356	**30.46**	101777	**35.68**
1/16	1/8	1/8	1-1/2	101357	**30.46**	101778	**35.68**
3/32	1/8	3/16	1-1/2	101358	**30.46**	101779	**35.68**
1/8	1/8	1/4	1-1/2	101359	**18.90**	101802	**24.10**
5/32	3/16	5/16	2	101371	**33.57**	101803	**38.77**
3/16	3/16	3/8	2	101372	**27.44**	101804	**32.65**
7/32	1/4	1/2	2-1/2	101373	**35.68**	101805	**48.30**
1/4	1/4	1/2	2-1/2	101374	**35.68**	101806	**46.44**
5/16	5/16	1/2	2-1/2	101375	**54.80**	101807	**60.49**
3/8	3/8	1/2	2-1/2	101376	**60.63**	101808	**63.30**
7/16	7/16	9/16	2-3/4	101377	**83.49**	101809	**98.58**
1/2	1/2	5/8	3	101378	**85.28**	101832	**98.58**



Deburring systems

See Pages J19-28

2-Flute Regular Length — Typhoon

These end mills are manufactured with Premium Sub-Micron carbide and are designed to cut hardened materials. The unique geometry of the Typhoon end mill combined with its modified AlTiN coating make it an excellent choice for demanding applications.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A37

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	1/8	3/16	1-1/2	104602	**32.34**
3/32	1/8	5/16	1-1/2	104601	**30.83**
1/8	1/8	1/2	1-1/2	104600	**35.69**
5/32	3/16	9/16	2	104603	**39.91**
3/16	3/16	5/8	2	104604	**39.91**
7/32	1/4	5/8	2-1/2	104605	**35.59**
1/4	1/4	3/4	2-1/2	104608	**48.67**
9/32	5/16	3/4	2-1/2	104607	**63.16**
5/16	5/16	13/16	2-1/2	104612	**63.16**
3/8	3/8	1	2-1/2	104616	**82.63**
7/16	7/16	1	2-3/4	104618	**95.17**
1/2	1/2	1	3	104620	**118.53**
9/16	9/16	1-1/8	3-1/2	104622	**182.45**
5/8	5/8	1-1/4	3-1/2	104624	**215.65**
11/16	3/4	1-3/8	4	104630	**305.96**
3/4	3/4	1-1/2	4	104628	**290.39**
7/8	7/8	1-1/2	4	104631	**375.28**
1	1	1-1/2	4	104632	**514.15**
Metric					
1	3	3	39	101780	**29.53**
1.5	3	5	39	101781	**25.74**
2	3	7	39	101782	**27.04**
2.5	3	8	39	101783	**27.04**
3	3	10	39	101784	**27.04**
3.5	4	12	51	101785	**36.12**
4	4	14	51	101786	**36.12**
4.5	5	14	51	101787	**40.13**
5	5	16	51	101788	**39.91**
6	6	19	64	101789	**52.03**
7	8	19	64	101790	**67.05**
8	8	21	64	101791	**69.86**
9	10	22	70	101792	**100.58**
10	10	25	70	101793	**95.39**
11	12	25	70	101794	**117.45**
12	12	25	76	101795	**138.55**
14	14	30	89	101796	**187.96**
16	16	32	89	101797	**216.85**
18	18	35	102	101798	**306.28**
20	20	38	102	101799	**369.34**
22	22	38	102	101800	**464.83**
25	25	38	102	101801	**537.94**

2-Flute Long Length — Typhoon

These Typhoon end mills have the added reach and depth of cut required for longer reach applications in hardened materials.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | LONG LENGTH

Speeds & Feeds ➤ P. A37

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	1/8	3/4	2-1/4	104815	**42.51**
3/16	3/16	3/4	2-1/4	104816	**45.32**
1/4	1/4	1-1/8	3	104818	**57.54**
5/16	5/16	1-1/8	3	104820	**83.17**
3/8	3/8	1-1/8	3	104822	**89.55**
1/2	1/2	2	4	104824	**156.82**
5/8	5/8	2-1/4	5	104826	**387.51**
3/4	3/4	2-1/4	5	104830	**494.25**
1	1	2-1/4	5	104831	**633.76**

2-Flute Corner Radius — Typhoon

Typhoon end mills with corner radius allow more strength and minimize chipping on the corners in demanding applications.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A37

Cutting Dia. (in.)	Corner Radius (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch						
1/8	0.015	1/8	1/2	1-1/2	102602	**52.34**
3/16	0.020	3/16	5/8	2	102610	**52.03**
1/4	0.020	1/4	3/4	2-1/2	102616	**51.81**
1/4	0.030	1/4	3/4	2-1/2	102618	**54.72**
5/16	0.020	5/16	13/16	2-1/2	102620	**74.74**
3/8	0.020	3/8	1	2-1/2	102628	**80.25**
3/8	0.030	3/8	1	2-1/2	102630	**80.25**
1/2	0.020	1/2	1	3	102636	**152.92**
1/2	0.030	1/2	1	3	102638	**152.92**
1/2	0.060	1/2	1	3	102640	**152.92**

2-Flute Ball Nose Regular Length - Typhoon

Typhoon ball nose end mills are designed for contour milling applications in hardened materials.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A37

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	1/8	3/16	1-1/2	104649	**46.72**
3/32	1/8	5/16	1-1/2	104651	**45.42**
1/8	1/8	1/2	1-1/2	104650	**44.02**
5/32	3/16	9/16	2	104653	**47.37**
3/16	3/16	5/8	2	104654	**47.37**
7/32	1/4	5/8	2-1/2	104655	**63.49**
1/4	1/4	3/4	2-1/2	104658	**66.73**
9/32	5/16	3/4	2-1/2	104657	**85.65**
5/16	5/16	13/16	2-1/2	104662	**86.74**
3/8	3/8	1	2-1/2	104666	**101.34**
7/16	7/16	1	2-3/4	104668	**135.08**
1/2	1/2	1	3	104670	**152.92**
9/16	9/16	1-1/8	3-1/2	104672	**230.26**
5/8	5/8	1-1/4	3-1/2	104674	**262.70**
3/4	3/4	1-1/2	4	104678	**348.68**
7/8	7/8	1-1/2	4	104681	**526.80**
1	1	1-1/2	4	104682	**478.46**
Metric					
1	3	3	39	101810	**33.53**
1.5	3	5	39	101811	**31.26**
2	3	7	39	101812	**31.26**
2.5	3	8	39	101813	**31.58**
3	3	10	39	101814	**31.26**
3.5	4	12	51	101815	**41.64**
4	4	14	51	101816	**41.53**
4.5	5	14	51	101817	**44.24**
5	5	16	51	101818	**45.97**
6	6	19	64	101819	**59.60**
7	8	19	64	101820	**77.12**
8	8	21	64	101821	**84.47**
9	10	22	70	101822	**115.50**
10	10	25	70	101823	**115.50**
11	12	25	70	101824	**106.75**
12	12	25	76	101825	**159.31**
14	14	30	89	101826	**216.20**
16	16	32	89	101827	**249.29**
18	18	35	102	101828	**284.98**
20	20	38	102	101829	**423.08**
22	22	38	102	101830	**548.54**
25	25	38	102	101831	**634.62**

2-Flute Ball Nose Long Length — Typhoon

G3 TOOLING

Typhoon ball nose end mills are designed for contour milling in hardened materials. The long length allows for milling tougher materials in longer reach applications.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | LONG LENGTH

Speeds & Feeds ➤ P. A38

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	1/8	3/4	2-1/4	104652	**54.51**
3/16	3/16	3/4	2-1/4	104656	**41.53**
1/4	1/4	1-1/8	3	104660	**89.12**
5/16	5/16	1-1/8	3	104663	**109.45**
3/8	3/8	1-1/8	3	104667	**123.62**
1/2	1/2	2	4	104671	**244.42**
3/4	3/4	2-1/4	5	104679	**560.43**
1	1	2-1/4	5	104683	**1,103.78**

2-Flute Mold Mill — Typhoon

G3 TOOLING

The Typhoon Mold Mill offers excellent performance and tool life in mold milling applications on tougher materials.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A39

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	1/8	5/16	2-3/8	104034	**95.60**
3/16	3/16	3/8	3-1/8	104036	**68.46**
1/4	1/4	1/2	3-1/2	104038	**96.15**
5/16	5/16	15/32	4	104040	**129.90**
3/8	3/8	3/4	4	104042	**131.84**
1/2	1/2	7/8	4-1/4	104044	**301.31**
5/8	5/8	15/16	6	104046	**316.60**
3/4	3/4	1-1/8	6	104048	**493.50**
1	1	1-1/2	6	104050	**789.40**

2-Flute Spherical Ball End — Typhoon

G3 TOOLING

- High performance ball nose plus end mills are used in the mold industry and have a full 220 degree arc cutting capability
- Modified AlTiN coated for improved tool life and increased production output
- Made from premium sub-micron grain carbide



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A38

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Regular Length					
1/8	1/8	3/32	1-1/2	153110	**36.88**
3/16	3/16	9/64	2	153112	**37.26**
1/4	1/4	3/16	2-1/2	153114	**54.22**
3/8	3/8	9/32	2-1/2	153116	**76.32**
1/2	1/2	3/8	3	153118	**112.94**
Long Length					
1/8	1/8	3/32	3	153120	**41.76**
3/16	3/16	9/64	3	153122	**42.39**
1/4	1/4	3/16	4	153124	**73.61**
3/8	3/8	9/32	4	153126	**85.95**
1/2	1/2	3/8	6	153128	**160.99**

Tolerances - Inch		
Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric		
Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

4-Flute Regular Length — Typhoon

G3 TOOLING

These end mills are manufactured with premium sub-micron carbide and are designed to cut hardened materials. The unique geometry of the Typhoon end mill combined with its modified AlTiN coating make it an excellent choice for demanding applications.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A37

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	1/8	3/16	1-1/2	104702	**32.34**
3/32	1/8	5/16	1-1/2	104701	**33.53**
1/8	1/8	1/2	1-1/2	104700	**32.34**
5/32	3/16	9/16	2	104703	**36.02**
3/16	3/16	5/8	2	104704	**39.91**
7/32	1/4	5/8	2-1/2	104705	**43.81**
1/4	1/4	3/4	2-1/2	104708	**43.81**
9/32	5/16	3/4	2-1/2	104707	**63.16**
5/16	5/16	13/16	2-1/2	104712	**63.16**
3/8	3/8	1	2-1/2	104716	**74.52**
7/16	7/16	1	2-3/4	104718	**95.17**
1/2	1/2	1	3	104720	**118.53**
9/16	9/16	1-1/8	3-1/2	104722	**182.45**
5/8	5/8	1-1/4	3-1/2	104724	**215.65**
11/16	3/4	1-3/8	4	104730	**408.81**
3/4	3/4	1-1/2	4	104728	**304.98**
7/8	7/8	1-1/2	4	104731	**463.64**
1	1	1-1/2	4	104732	**512.20**
Metric					
1	3	3	39	101840	**29.53**
1.5	3	5	39	101841	**27.04**
2	3	7	39	101842	**27.04**
2.5	3	8	39	101843	**27.04**
3	3	10	39	101844	**27.04**
3.5	4	12	51	101845	**36.12**
4	4	14	51	101846	**36.12**
4.5	5	14	51	101847	**39.91**
5	5	16	51	101848	**39.91**
6	6	19	64	101849	**52.03**
7	8	19	64	101850	**66.95**
8	8	21	64	101851	**73.22**
9	10	22	70	101852	**95.39**
10	10	25	70	101853	**100.15**
11	12	25	70	101854	**117.45**
12	12	25	76	101855	**138.00**
14	14	30	89	101856	**187.43**
16	16	32	89	101857	**216.63**
18	18	35	102	101858	**306.18**
20	20	38	102	101859	**367.71**
22	22	38	102	101860	**556.00**
25	25	38	102	101861	**537.94**

4-Flute Long Length — Typhoon

G3 TOOLING

These end mills are manufactured with premium sub-micron carbide and are designed to cut hardened materials. The unique geometry of the Typhoon end mill combined with its modified AlTiN coating make it an excellent choice for demanding and longer reach applications.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | LONG LENGTH

Speeds & Feeds ➤ P. A37

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	1/8	3/4	2-1/4	104832	**42.51**
3/16	3/16	3/4	2-1/4	104834	**45.32**
1/4	1/4	1-1/8	3	104836	**57.54**
5/16	5/16	1-1/8	3	104838	**83.17**
3/8	3/8	1-1/8	3	104840	**99.61**
1/2	1/2	2	4	104842	**156.38**
5/8	5/8	2-1/4	5	104844	**318.61**
3/4	3/4	2-1/4	5	104846	**473.38**
1	1	2-1/4	5	104848	**1,077.50**

4-Flute Corner Radius — Typhoon

Typhoon end mills with corner radius provides greater strength and minimizes chipping on the corners in demanding applications.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A37

Cutting Dia. (in.)	Corner Radius (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch						
1/8	0.015	1/8	1/2	1-1/2	102652	**52.34**
1/8	0.030	1/8	1/2	1-1/2	102656	**51.81**
3/16	0.020	3/16	5/8	2	102660	**51.81**
1/4	0.020	1/4	3/4	2-1/2	102666	**51.81**
1/4	0.030	1/4	3/4	2-1/2	102668	**51.81**
5/16	0.020	5/16	13/16	2-1/2	102670	**74.74**
5/16	0.030	5/16	13/16	2-1/2	102672	**74.74**
3/8	0.020	3/8	1	2-1/2	102678	**80.25**
3/8	0.030	3/8	1	2-1/2	102680	**80.25**
1/2	0.020	1/2	1	3	102686	**140.38**
1/2	0.030	1/2	1	3	102688	**140.38**
1/2	0.060	1/2	1	3	102690	**152.92**

4-Flute Spherical Ball End — Typhoon

- High performance ball nose plus end mills are used in the mold industry and have a full 220 degree arc cutting capability
- Modified AlTiN coated for improved tool life and increased production output
- Made from premium sub-micron grain carbide



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A38

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Regular Length					
1/8	1/8	3/32	1-1/2	153130	**35.21**
3/16	3/16	9/64	2	153132	**47.79**
1/4	1/4	3/16	2-1/2	153134	**66.56**
3/8	3/8	9/32	2-1/2	153136	**76.32**
1/2	1/2	3/8	3	153138	**157.39**
Long Length					
1/8	1/8	3/32	3	153140	**41.76**
3/16	3/16	9/64	3	153142	**42.39**
1/4	1/4	3/16	4	153144	**76.70**
3/8	3/8	9/32	4	153146	**85.95**
1/2	1/2	3/8	6	153148	**227.67**

4-Flute Ball Nose Long Length — Typhoon

Typhoon ball nose end mills are designed for long reach contour milling applications in hardened materials.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | LONG LENGTH

Speeds & Feeds ➤ P. A38

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	1/8	3/4	2-1/4	104833	**57.00**
3/16	3/16	3/4	2-1/4	104835	**68.78**
1/4	1/4	1-1/8	3	104837	**87.39**
5/16	5/16	1-1/8	3	104839	**109.13**
3/8	3/8	1-1/8	3	104841	**123.62**
1/2	1/2	2	4	104843	**244.42**
5/8	5/8	2-1/4	5	104845	**435.31**
3/4	3/4	2-1/4	5	104847	**560.43**
1	1	2-1/4	5	104849	**1,081.40**

4-Flute Ball Nose Regular Length — Typhoon

Typhoon ball nose end mills are designed for contour milling applications in hardened materials.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A38

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	1/8	3/16	1-1/2	104752	**46.72**
3/32	1/8	5/16	1-1/2	104751	**45.42**
1/8	1/8	1/2	1-1/2	104750	**48.78**
5/32	3/16	9/16	2	104753	**52.67**
3/16	3/16	5/8	2	104754	**47.37**
7/32	1/4	5/8	2-1/2	104755	**74.09**
1/4	1/4	3/4	2-1/2	104758	**66.73**
9/32	5/16	3/4	2-1/2	104757	**90.09**
5/16	5/16	13/16	2-1/2	104762	**86.74**
3/8	3/8	1	2-1/2	104766	**101.34**
7/16	7/16	1	2-3/4	104768	**134.97**
1/2	1/2	1	3	104770	**152.92**
9/16	9/16	1-1/8	3-1/2	104772	**230.26**
5/8	5/8	1-1/4	3-1/2	104774	**261.62**
11/16	3/4	1-3/8	4	104780	**367.61**
3/4	3/4	1-1/2	4	104778	**367.61**
7/8	7/8	1-1/2	4	104781	**585.52**
1	1	1-1/2	4	104782	**591.15**
Metric					
1	3	3	39	101870	**33.53**
1.5	3	5	39	101871	**31.26**
2	3	7	39	101872	**31.26**
2.5	3	8	39	101873	**31.26**
3	3	10	39	101874	**31.26**
3.5	4	12	51	101875	**41.53**
4	4	14	51	101876	**41.53**
4.5	5	14	51	101877	**37.32**
5	5	16	51	101878	**45.97**
6	6	19	64	101879	**59.60**
7	8	19	64	101880	**76.90**
8	8	21	64	101881	**84.47**
9	10	22	70	101882	**115.50**
10	10	25	70	101883	**115.50**
11	12	25	70	101884	**130.76**
12	12	25	76	101885	**158.88**
14	14	30	89	101886	**216.20**
16	16	32	89	101887	**249.29**
18	18	35	102	101888	**352.14**
20	20	38	102	101889	**424.71**
22	22	38	102	101890	**548.54**
25	25	38	102	101891	**634.62**

Multi-Flute Regular Length — Typhoon

Multi-Flute Typhoon end mill design allow them to be run at higher rpm than conventional end mills as well as increase tool life without chipping.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH | 50°

Speeds & Feeds ➤ P. A39

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	No. of Flutes	Code No.	Price $
Inch						
1/8	1/8	1/2	1-1/2	4	101050	**31.26**
3/16	3/16	5/8	2	4	101052	**72.24**
1/4	1/4	3/4	2-1/2	6	101054	**88.47**
5/16	5/16	13/16	2-1/2	6	101056	**74.52**
3/8	3/8	1	2-1/2	6	101058	**99.18**
7/16	7/16	1	2-3/4	6	101060	**138.43**
1/2	1/2	1	3	6	101062	**160.39**
9/16	9/16	1-1/8	3-1/2	6	101064	**192.72**
5/8	5/8	1-1/4	3-1/2	6	101066	**265.83**
3/4	3/4	1-1/2	4	6	101068	**325.10**
7/8	7/8	1-1/2	4	6	101070	**509.50**
1	1	1-1/2	4	8	101072	**589.53**

Roughers Regular Length — Typhoon

TOOLING

This fine pitch rougher is designed for milling harder metals and has updated geometry in the design of this tool for higher feed rates with no vibration or chatter and chipbreakers to eliminate birdnesting.



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A40

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	No. of Flutes	Code No.	Price $
Inch						
1/4	1/4	3/4	2-1/2	3	104800	**58.83**
5/16	5/16	3/4	2-1/2	3	104802	**81.87**
3/8	3/8	7/8	2-1/2	3	104804	**96.80**
1/2	1/2	1	3	4	104806	**154.01**
5/8	5/8	1-1/4	3-1/2	4	104810	**280.44**
3/4	3/4	1-5/8	4	4	104812	**377.44**
1	1	1-3/4	4	5	104814	**521.72**

5pc 4-Flute Variable Helix Carbide End Mill Set

TOOLING

- Helix changes along flutes
- Increased stability during cutting action
- Substantial increase in speed
- Small corner radius for added strength and smoother cutting action
- AlTiN coated for improved tool life and increased production output
- Made from premium sub-micron grain carbide



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Description	Code No.	Price $
Set Includes: 153002, 153006, 153012, 153018, 153027	153005	**233.53**

4-Flute Variable Helix Carbide End Mill — Typhoon

- Helix changes along flutes
- Increased stability during cutting action
- Substantial increase in speed
- Small corner radius for added strength and smoother cutting action
- AlTiN coated for improved tool life and increased production output
- Made from premium sub-micron grain carbide



TOOLING

SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A16

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Corner Radius	With Radius Code No.	Price $	Without Radius Code No.	Price $	Weldon Flat Without Radius Code No.	Price $
1/8	1/8	1/2	1-1/2	0.010-0.015	153000	**18.50**	153250	**16.44**	-	**-**
3/16	3/16	3/8	1-1/2	0.010-0.015	153001	**23.22**	-	**-**	-	**-**
3/16	3/16	5/8	2	0.015-0.020	153002	**23.22**	153252	**20.73**	-	**-**
1/4	1/4	1/2	2	0.015-0.020	153004	**28.61**	153254	**28.61**	-	**-**
1/4	1/4	3/4	2-1/2	0.015-0.020	153006	**31.68**	153256	**27.97**	-	**-**
1/4	1/4	1-1/8	3	0.015-0.020	153008	**46.95**	153258	**46.95**	-	**-**
5/16	5/16	1/2	2	0.015-0.020	153010	**39.08**	153260	**34.09**	-	**-**
5/16	5/16	13/16	2-1/2	0.015-0.020	153012	**42.95**	153262	**39.89**	-	**-**
5/16	5/16	1-1/8	3	0.015-0.020	153014	**59.87**	153264	**59.87**	-	**-**
3/8	3/8	5/8	2	0.015-0.020	153016	**46.11**	153266	**47.06**	153500	**39.14**
3/8	3/8	1	2-1/2	0.015-0.020	153018	**50.15**	153268	**47.06**	153502	**45.73**
3/8	3/8	1-1/8	3	0.015-0.020	153020	**65.99**	153270	**65.99**	153504	**64.12**
7/16	7/16	1	2-3/4	0.015-0.020	153022	**60.63**	153272	**56.58**	153506	**54.98**
1/2	1/2	5/8	2-1/2	0.025-0.030	153024	**76.64**	153274	**65.89**	153508	**64.02**
1/2	1/2	1	3	0.025-0.030	153026	**85.53**	153276	**70.38**	153510	**68.39**
1/2	1/2	1-1/4	3	0.025-0.030	153027	**85.53**	153277	**70.38**	153512	**68.39**
1/2	1/2	2	4	0.025-0.030	153028	**101.08**	153278	**95.26**	153514	**92.57**
5/8	5/8	3/4	3	0.030-0.035	153030	**132.49**	153280	**126.20**	153516	**122.63**
5/8	5/8	1-1/4	3-1/2	0.030-0.035	153032	**136.19**	153282	**129.89**	-	**-**
5/8	5/8	2-1/4	5	0.030-0.035	153034	**203.77**	153284	**203.77**	153518	**198.01**
3/4	3/4	1	3	0.030-0.035	153036	**191.14**	153286	**181.44**	153520	**176.31**
3/4	3/4	1-1/2	4	0.030-0.035	153038	**195.29**	153288	**185.40**	-	**-**
3/4	3/4	2-1/4	5	0.030-0.035	153040	**270.88**	153290	**248.86**	153522	**241.81**
1	1	1-1/2	4	0.030-0.035	153042	**333.41**	153292	**276.99**	153526	**276.99**
1	1	2-1/4	5	0.030-0.035	153041	**410.22**	153293	**370.79**	153524	**360.29**
1-1/4	1-1/4	2-1/4	5	0.030-0.035	153043	**888.29**	153294	**710.57**	-	**-**

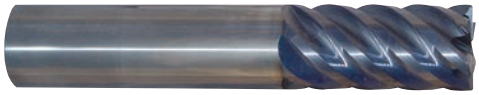
Speeds & Feeds — 4 & 5-Flute Variable Helix End Mills

Material	SFM	1/8"	1/4"	1/2"	1"
Aluminum Alloys	1120	0.0010	0.0020	0.0040	0.0080
Carbon Steel	300-600	0.0010	0.0015	0.0030	0.0060
Cast Iron	350-550	0.0010	0.0015	0.0030	0.0060
Copper Alloys	500-900	0.0010	0.0020	0.0030	0.0060
Steel - Annealed	350-500	0.0010	0.0020	0.0030	0.0050
Steel - 18-24 HRC	150-500	0.0004	0.0008	0.0015	0.0045
Steel - 25-37 HRC	125-200	0.0003	0.0005	0.0010	0.0030
Stainless Steel - Free Machining	250-400	0.0005	0.0010	0.0020	0.0030
Stainless Steel - Other	150-300	0.0005	0.0010	0.0020	0.0030
Inconel/Monel	60-100	0.0005	0.0010	0.0015	0.0030
Titanium	175-300	0.0005	0.0008	0.0015	0.0030

* All speeds and feeds are suggested starting points. They may be increased or decreased depending on machine condition, depth of cut, finish required, coolant, etc.

5-Flute Variable Helix Carbide End Mill — Typhoon

- 25% increase in feed rates over 4-flute version
- Helix changes along flutes
- Increased stability during cutting action
- Substantial increase in speed
- Small corner radius for added strength and smoother cutting action
- Modified AlTiN coated for improved tool life and increase production output



SUB MICRON MICRO GRAIN CARBIDE | TYPHOON | REG LENGTH

Speeds & Feeds ➤ P. A16

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Corner Radius	Code No.	Price $
1/4	1/4	3/4	2-1/2	0.015-0.020	153100	**36.42**
3/8	3/8	1	2-1/2	0.015-0.020	153102	**57.66**
1/2	1/2	1	3	0.025-0.030	153104	**98.38**
5/8	5/8	1-1/4	3-1/2	0.030-0.035	153106	**156.62**
3/4	3/4	1-1/2	4	0.030-0.035	153108	**224.59**
1	1	1-1/2	4	0.030-0.035	153109	**229.17**

2-Flute Ball Nose Necked Design – Short Length



SUB MICRO GRAIN CARBIDE | TiAlN | SHORT LENGTH | 30°

PC413

Speeds & Feeds ➤ P. A41

Cutting Dia. (mm)	Flute Length (mm)	Neck Length (mm)	Neck Dia. (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
1.0	2.0	2.5	0.95	6	50	101935	**76.18**
1.2	1.2	3.0	1.15	6	50	101936	**76.18**
1.4	1.4	7.0	1.35	6	50	101937	**88.91**
1.5	1.5	3.8	1.45	6	50	101938	**79.38**
1.6	1.6	4.0	1.55	6	50	101939	**88.91**
1.8	1.8	4.5	1.75	6	50	101940	**88.91**
2.0	2.0	5.0	1.95	6	50	101941	**79.38**
2.5	2.5	5.0	2.40	6	50	101942	**84.97**
3.0	3.0	6.0	2.85	6	50	101943	**84.97**
3.5	3.5	6.0	3.35	6	50	101944	**93.77**
4.0	4.0	6.0	3.85	6	50	101945	**84.97**
5.0	5.0	7.5	4.85	6	50	101946	**90.56**
6.0	6.0	9.0	5.85	6	50	101947	**95.94**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

2-Flute Ball Nose Necked Design – Standard/Extended Reach



SUB MICRO GRAIN CARBIDE | TiAlN | EXTENDED REACH | 30°

PC419/PC419L

Speeds & Feeds ➤ P. A41

Cutting Dia. (mm)	Flute Length (mm)	Neck Length (mm)	Neck Dia. (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
0.5	0.7	2.5	0.45	6	60	102125	**95.63**
0.5	0.5	2.5	0.45	6	60	102126	**107.85**
0.6	0.6	3.0	0.55	6	60	102127	**95.63**
0.6	0.6	6.0	0.55	6	60	102128	**99.57**
0.8	0.8	4.0	0.75	6	60	102129	**98.12**
0.8	0.8	8.0	0.75	6	60	102130	**100.91**
1.0	1.0	5.0	0.95	6	60	102131	**86.84**
1.0	1.0	8.0	0.95	6	60	102132	**88.39**
1.0	1.0	10	0.95	6	60	102133	**89.73**
1.0	1.0	12	0.95	6	60	102134	**90.77**
1.0	1.0	16	0.95	6	60	102135	**93.05**
1.0	1.0	20	0.95	6	60	102136	**95.12**
1.2	1.2	6.0	1.15	6	60	102137	**87.35**
1.2	1.2	12	1.15	6	60	102138	**90.77**
1.4	1.4	7.0	1.35	6	60	102139	**87.87**
1.4	1.4	12	1.35	6	60	102140	**90.77**
1.5	1.5	6.0	1.45	6	60	102141	**87.35**
1.5	1.5	7.5	1.45	6	60	102142	**88.39**
1.5	1.5	10	1.45	6	60	102143	**89.73**
1.5	1.5	12	1.45	6	60	102144	**90.77**
1.5	1.5	20	1.45	6	60	102145	**95.12**
1.6	1.6	8.0	1.55	6	60	102146	**88.39**
1.6	1.6	16	1.55	6	60	102147	**93.05**
1.8	1.8	9.0	1.75	6	60	102148	**89.32**
1.8	1.8	16	1.75	6	60	102149	**93.05**
2.0	2.0	8.0	1.95	6	60	102151	**88.39**
2.0	2.0	10	1.95	6	60	102152	**86.94**
2.0	2.0	12	1.95	6	60	102154	**86.94**
2.0	2.0	16	1.95	6	60	102153	**87.04**
2.0	2.0	20	1.95	6	60	102156	**87.04**
2.0	2.0	25	2.40	6	60	102157	**87.15**
2.5	2.5	12.5	2.40	6	60	102158	**86.94**
2.5	2.5	16	2.40	6	60	102159	**87.04**
2.5	2.5	20	2.40	6	60	102161	**87.04**
3.0	3.0	10	2.85	6	70	102162	**94.81**
3.0	3.0	12	2.85	6	70	102164	**95.94**
3.0	3.0	15	2.85	6	70	102167	**97.60**
3.0	3.0	20	2.85	6	70	102163	**100.91**
3.0	3.0	25	2.85	6	70	102166	**103.71**
3.0	3.0	30	2.85	6	70	102168	**106.61**
3.0	3.0	35	2.85	6	70	102169	**106.61**
3.5	3.5	17.5	3.35	6	70	102171	**98.74**
4.0	4.0	8.0	3.85	6	70	102172	**93.56**
4.0	4.0	12	3.85	6	70	102173	**95.94**
4.0	4.0	16	3.85	6	70	102174	**98.22**
4.0	4.0	20	3.85	6	70	102177	**100.91**
4.0	4.0	25	3.85	6	70	102176	**103.71**
4.0	4.0	30	3.85	6	70	102178	**106.61**
5.0	5.0	25	4.85	6	80	102179	**104.02**
6.0	6.0	30	5.85	6	90	102181	**110.33**

Tolerances - Inch		
Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric		
Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

2-Flute Square End Necked Design – Standard & Long



SUB MICRO GRAIN CARBIDE | TiAlN | REG LENGTH | LONG LENGTH | 30°

PC410

Speeds & Feeds ➤ P. A40

Cutting Dia. (mm)	Flute Length (mm)	Neck Length (mm)	Neck Dia. (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
0.5	0.7	2.5	0.45	6	60	101900	**70.59**
0.5	0.7	4.0	0.45	6	60	101901	**63.55**
0.5	0.7	6.0	0.45	6	60	101902	**63.55**
0.6	0.9	3.0	0.55	6	60	101903	**70.59**
0.6	0.9	6.0	0.55	6	60	101904	**63.55**
0.8	1.2	4.0	0.75	6	60	101905	**69.66**
0.8	1.2	6.0	0.75	6	60	101906	**63.55**
1.0	1.5	5.0	0.95	6	60	101907	**61.17**
1.0	1.5	8.0	0.95	6	60	101908	**54.96**
1.0	1.5	12	0.95	6	60	101909	**54.96**
1.2	1.8	6.0	1.15	6	60	101910	**68.41**
1.2	1.8	10	1.15	6	60	101911	**61.48**
1.4	2.1	7.0	1.35	6	60	101912	**69.45**
1.4	2.1	12	1.35	6	60	101913	**62.20**
1.4	2.1	16	1.35	6	60	101914	**62.20**
1.5	2.3	7.5	1.45	6	60	101915	**61.48**
1.5	2.3	10	1.45	6	60	101916	**55.37**
1.5	2.3	20	1.45	6	60	101917	**57.03**
1.6	2.4	8.0	1.55	6	60	101918	**69.45**
1.6	2.4	12	1.55	6	60	101919	**62.51**
1.6	2.4	20	1.55	6	60	101920	**63.96**
1.8	2.7	6.0	1.75	6	60	101921	**62.51**
1.8	2.7	9.0	1.75	6	60	101922	**69.45**
1.8	2.7	12	1.75	6	60	101923	**62.93**
1.8	2.7	20	1.75	6	60	101924	**64.27**
2.0	3.0	6.0	1.95	6	60	101925	**57.24**
2.0	3.0	10	1.95	6	60	101926	**57.24**
2.0	3.0	16	1.95	6	60	101927	**58.06**
2.0	3.0	20	1.95	6	60	101928	**59.31**
2.5	3.7	12.5	2.4	6	60	101929	**57.96**

2-Flute Tapered Pencil Neck Ball Nose



SUB MICRO GRAIN CARBIDE | TiAlN | LONG REACH | 30°

PC418

Speeds & Feeds ➤ P. A42

Cutting Dia. (mm)	Flute Length (mm)	Non Taper Neck Length (mm)	Neck Length (mm)	Max. Neck Dia. (mm)	Neck Incline	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
1.0	2.5	4.0	20	3.8	5°	6	60	101970	**95.94**
1.0	2.5	4.0	40	4.8	3°	6	80	101971	**102.05**
1.0	2.5	4.0	20	1.8	1.5°	6	70	101972	**98.84**
2.0	5.0	7.0	20	4.3	5°	6	60	101973	**95.94**
2.0	5.0	7.0	40	5.5	3°	6	80	101974	**102.05**
2.0	5.0	7.0	20	2.7	1.5°	6	70	101975	**98.84**
3.0	8.0	10.5	30	5.0	3°	6	70	101976	**98.84**
3.0	8.0	10.5	50	5.1	1.5°	6	90	101977	**105.05**
4.0	8.0	10.5	28	6.0	3°	6	70	101978	**98.64**
4.0	8.0	10.5	48	6.0	1.5°	6	90	101979	**104.74**
5.0	10	12.5	40	8.0	3°	8	90	101980	**126.06**
5.0	10	12.5	60	7.5	1.5°	8	110	101981	**133.41**
6.0	12	14.5	33.5	8.0	3°	8	90	101982	**131.86**
6.0	12	14.5	52	8.0	1.5°	8	110	101983	**131.86**
8.0	14	16.5	35.5	10	3°	10	100	101984	**171.09**
8.0	14	16.5	54.5	10	1.5°	10	120	101985	**182.16**
10	18	20.5	39.5	12	3°	12	110	101986	**211.24**
10	18	20.5	58.5	12	1.5°	12	130	101987	**222.42**
12	22	25	60	16	3°	16	140	101988	**316.71**
12	22	25	80	14.9	1.5°	16	160	101989	**345.90**

2-Flute Square End – Long Reach



SUB MICRO GRAIN CARBIDE | TiAlN | LONG REACH | 30°

PC412

Speeds & Feeds ➤ P. A42

Cutting Dia. (mm)	Radius (mm)	Flute Length (mm)	Neck Length (mm)	Neck Dia. (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
0.5	0.05	0.7	2.0	0.46	6	50	101948	**105.05**
0.5	0.05	0.7	4.0	0.46	6	50	101949	**105.05**
1.0	0.1	1.5	4.0	0.95	6	50	101950	**85.49**
1.0	0.1	1.5	8.0	0.95	6	50	101951	**101.22**
1.0	0.1	1.5	12	0.95	6	50	101952	**85.49**
1.0	0.2	1.5	4.0	0.95	6	50	101953	**101.22**
1.0	0.2	1.5	8.0	0.95	6	50	101954	**101.22**
1.0	0.2	1.5	12	0.95	6	50	101955	**85.49**
1.0	0.3	1.5	4.0	0.95	6	50	101956	**101.22**
1.0	0.3	1.5	8.0	0.95	6	50	101957	**101.22**
1.0	0.3	1.5	12	0.95	6	50	101958	**101.22**
1.5	0.3	2.3	6.0	1.45	6	50	101959	**89.63**
1.5	0.3	2.3	12	1.45	6	50	101960	**89.63**
1.5	0.3	2.3	18	1.45	6	50	101961	**97.50**
1.5	0.5	2.3	6.0	1.45	6	60	101963	**112.30**
1.5	0.5	2.3	12	1.45	6	60	101964	**97.50**
1.5	0.5	2.3	18	1.45	6	60	101965	**110.64**
2.0	0.3	3.0	10	1.94	6	60	101966	**112.30**
2.0	0.3	3.0	16	1.94	6	60	101967	**94.81**
2.0	0.3	3.0	24	1.94	6	70	101968	**110.64**
2.0	0.3	3.0	30	1.94	6	70	101969	**104.12**
2.0	0.5	3.0	10	1.94	6	60	102300	**94.81**
2.0	0.5	3.0	16	1.94	6	60	102301	**94.81**
2.0	0.5	3.0	24	1.94	6	70	102302	**115.61**
2.0	0.5	3.0	30	1.94	6	70	102303	**110.64**
2.5	0.5	3.7	15	2.40	6	70	102304	**119.85**
2.5	0.5	3.7	30	2.40	6	70	102305	**110.64**
3.0	0.5	4.5	12	2.85	6	70	102306	**125.75**
3.0	0.5	4.5	24	2.85	6	80	102307	**125.75**
3.0	1.0	4.5	12	2.85	6	70	102309	**125.75**
3.0	1.0	4.5	24	2.85	6	80	102310	**125.75**
3.0	1.0	4.5	36	2.85	6	80	102311	**125.75**
3.5	0.5	5.0	16	3.35	6	80	102312	**125.75**
3.5	0.5	5.0	32	3.35	6	80	102313	**125.75**
3.5	1.0	5.0	16	3.35	6	80	102314	**125.75**
4.0	0.5	6.0	16	3.80	6	80	102315	**121.41**
4.0	0.5	6.0	24	3.80	6	80	102316	**125.75**
4.0	0.5	6.0	32	3.80	6	80	102317	**121.41**
4.0	1.0	6.0	16	3.80	6	80	102318	**125.75**
4.0	1.0	6.0	24	3.80	6	80	102319	**125.75**
4.0	1.0	6.0	32	3.80	6	80	102320	**125.75**
4.5	0.5	8.0	16	4.30	6	80	102321	**125.75**
4.5	0.5	8.0	32	4.30	6	80	102322	**125.75**

4-Flute Square End Long Reach



SUB MICRO GRAIN CARBIDE | TiAlN | LONG REACH | 30°

PC411

Speeds & Feeds ➤ P. A42

Cutting Dia. (mm)	Flute Length (mm)	Neck Length (mm)	Neck Dia. (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
3.0	4.5	15	2.85	6	70	101930	**71.42**
3.5	5.3	17.5	3.35	6	70	101931	**75.35**
4.0	6.0	20	3.85	6	70	101932	**73.90**
5.0	7.5	25	4.85	6	80	101933	**79.49**
6.0	9.0	30	5.85	6	90	101934	**83.01**

2-Flute For Aluminum

This carbide aluminum end mill has been designed specially for milling aluminum and all non-ferrous materials. The unique geometry permits much higher speed and feed rates without loading. Spindle and feed rates can be increased by fifty percent for greater productivity with excellent piece/part finishes.



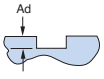
SUB MICRON MICRO GRAIN CARBIDE | BRIGHT | REG LENGTH | 40°

Speeds & Feeds ➤ P. A19

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/4	1/4	3/4	2-1/2	101020	**20.82**
1/4	1/4	1-1/2	4	101022	**37.60**
5/16	5/16	13/16	2-1/2	101024	**43.93**
5/16	5/16	1-5/8	4	101026	**49.03**
3/8	3/8	1	2-1/2	101028	**36.34**
3/8	3/8	1-3/4	4	101030	**54.30**
1/2	1/2	1	3	101032	**58.23**
1/2	1/2	2	4	101034	**79.46**
5/8	5/8	1-1/4	3-1/2	101036	**112.26**
5/8	5/8	2-1/4	5	101038	**163.78**
3/4	3/4	1-1/2	4	101040	**164.62**
3/4	3/4	2-1/4	5	101042	**255.98**
1	1	2-1/4	5	101044	**246.23**
1	1	3	6	101046	**443.58**
Metric					
6	6	19	63	101390	**21.83**
6	6	38	102	101391	**38.82**
8	8	21	63	101392	**30.66**
8	8	41	102	101393	**46.39**
10	10	25	70	101394	**44.24**
10	10	51	102	101395	**67.90**
12	12	26	76	101396	**61.14**
12	12	51	102	101397	**84.23**
16	16	32	89	101398	**117.87**
16	16	57	127	101399	**163.78**
20	20	38	102	101400	**219.76**
20	20	57	127	101401	**274.85**
25	25	57	127	101402	**255.30**
25	25	76	152	101403	**423.54**

2-Flute Aluminum Speeds & Feeds

Side Milling **Slotting**

Work Material		Aluminum		Aluminum	
Hardness					
Depth of Cut		 Ad= 1.5D Rd= 0.1D		 Ad= 0.5D	
Mill Dia. (inch)	mm	V=660 SFM		V=660 SFM	
		Speed	Feed	Speed	Feed
		RPM	in/min	RPM	in/min
1/4	6	10000	60	10000	30
5/16	8	8000	64	8000	32
3/8	10	8000	80	8000	40
1/2	12	8000	96	8000	48
5/8	16	6000	84	6000	42
3/4	20	4000	64	4000	32
1	25	4000	64	4000	32

3-Flute Square End 40° Helix Carbide End Mills

- Special geometry allows for high chip loads and feed rates
- 3-flute design excellent for slotting and profiling at high speeds
- Made from premium sub-micron grain carbide
- Cutting diameter tolerance +0.000 / -0.002



SUB MICRON MICRO GRAIN CARBIDE | BRIGHT | TiCN | 40°

Speeds & Feeds ➤ P. A19

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Bright Finish Code No.	Price $	TiCN Coated Code No.	Price $
Inch							
1/32	1/8	3/32	1-1/2	153300	**14.22**	153350	**18.90**
3/64	1/8	1/8	1-1/2	153302	**14.22**	153352	**18.90**
1/16	1/8	3/16	1-1/2	153304	**14.22**	153354	**17.81**
3/32	1/8	3/8	1-1/2	153306	**14.22**	153356	**17.02**
1/8	1/8	1/2	1-1/2	153308	**14.22**	153358	**15.98**
9/64	3/16	9/16	2	153310	**24.63**	153360	**21.05**
5/32	3/16	9/16	2	153312	**16.77**	153362	**21.05**
11/64	3/16	9/16	2	153314	**16.77**	153364	**19.73**
3/16	3/16	5/8	2	153316	**16.77**	153366	**19.73**
13/64	1/4	5/8	2-1/2	153318	**20.23**	153368	**26.25**
7/32	1/4	5/8	2-1/2	153320	**20.23**	153370	**26.25**
15/64	1/4	3/4	2-1/2	153322	**20.23**	153372	**26.25**
1/4	1/4	3/4	2-1/2	153324	**20.23**	153374	**26.25**
17/64	5/16	3/4	2-1/2	153326	**28.36**	153376	**36.42**
5/16	5/16	13/16	2-1/2	153328	**28.36**	153378	**36.42**
5/16	5/16	1-5/8	4	153330	**47.64**	153380	**57.68**
3/8	3/8	1	2-1/2	153332	**35.31**	153382	**41.86**
3/8	3/8	1-1/8	3	153334	**52.77**	153384	**62.76**
1/2	1/2	1	3	153336	**56.58**	153386	**66.24**
1/2	1/2	2	4	153338	**77.21**	153388	**89.32**
5/8	5/8	1-1/4	3-1/2	153340	**109.09**	153390	**124.16**
5/8	5/8	2-1/4	5	153342	**159.15**	153392	**180.30**
3/4	3/4	1-1/2	4	153344	**159.96**	153394	**177.22**

3-Flute Aluminum Speeds & Feeds

Material	SFM	Chip Load Per Tooth 1/8	1/4"	1/2"	1"
Aluminum Alloys	600/1200	0.0010	0.0020	0.0040	0.0080

RPM = 3.82 x sfm ÷ dia SFM = rpm x 0.262 ÷ dia
IPM = chip load x No. of teeth x rpm

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Tolerances - Inch

Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric

Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

2-Flute Corner Radius For Aluminum

- Special geometry allows for high chip loads and feed rates
- Excellent for slotting and profiling at high speeds
- Made from premium sub-micron grain carbide
- Cutting diameter tolerance +0.000 / -0.002





Speeds & Feeds ➤ P. A20

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Corner Radius	Bright Finish Code No.	Price $	TiCN Coated Code No.	Price $
Regular Length								
1/8	1/8	3/8	1-1/2	0.010	153208	**14.22**	153400	**29.33**
3/16	3/16	5/8	2	0.010	153210	**17.76**	153402	**29.33**
1/4	1/4	3/4	2-1/2	0.010	153212	**20.23**	153404	**37.54**
5/16	5/16	13/16	2-1/2	0.010	153214	**42.68**	153406	**49.68**
3/8	3/8	1	2-1/2	0.015	153216	**35.31**	153408	**57.90**
7/16	7/16	1	2-3/4	0.015	153218	**56.58**	153410	**104.33**
1/2	1/2	1	3	0.020	153220	**56.58**	153412	**104.33**
5/8	5/8	1-1/4	3-1/2	0.020	153222	**109.09**	153414	**180.46**
3/4	3/4	1-1/2	4	0.030	153224	**159.96**	153416	**234.21**
1	1	1-1/2	4	0.030	153226	**239.26**	153418	**399.43**
Long Length								
1/4	1/4	1-1/8	3	0.010	153228	**36.53**	153420	**65.02**
5/16	5/16	1-1/8	3	0.010	153230	**42.68**	153422	**85.48**
3/8	3/8	1-1/8	3	0.015	153232	**52.77**	153424	**98.86**
1/2	1/2	2	4	0.020	153234	**81.71**	153426	**120.64**
5/8	5/8	2-1/4	5	0.020	153236	**159.15**	153428	**258.04**
3/4	3/4	2-1/4	5	0.030	153238	**253.51**	153430	**349.05**
1	1	2-1/4	5	0.030	153240	**431.02**	153432	**585.36**

2-Flute Corner Radius Aluminum Speeds & Feeds

	Chip load per tooth				
Material	**SFM**	**1/8**	**1/4"**	**1/2"**	**1"**
Aluminum Alloys	600/1200	0.0010	0.0020	0.0040	0.0080

RPM = 3.82 x sfm ÷ dia **SFM = rpm x 0.262 ÷ dia** **IPM = chip load x No. of teeth x rpm**

3-Flute Corner Radius For Aluminum

- Special geometry allows for high chip loads and feed rates
- 3-flute design excellent for slotting and profiling at high speeds
- Made from premium sub-micron grain carbide
- Cutting diameter tolerance +0.000 / -0.002





Speeds & Feeds ➤ P. A20

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Corner Radius	Bright Finish Code No.	Price $	TiCN Coated Code No.	Price $
Regular Length								
1/8	1/8	3/8	1-1/2	0.005	153150	**14.22**	153044	**28.43**
3/16	3/16	5/8	2	0.005	153152	**16.77**	153046	**29.33**
1/4	1/4	3/4	2-1/2	0.005	153154	**20.23**	153048	**37.54**
5/16	5/16	13/16	2-1/2	0.005	153156	**28.36**	153050	**49.68**
3/8	3/8	1	2-1/2	0.005	153158	**35.31**	153052	**57.90**
7/16	7/16	1	2-3/4	0.005	153160	**43.11**	153054	**104.33**
1/2	1/2	1-1/4	3	0.005	153162	**56.58**	153056	**104.33**
5/8	5/8	1-5/8	3-1/2	0.005	153164	**109.09**	153058	**180.46**
3/4	3/4	1-5/8	4	0.005	153166	**159.96**	153060	**234.21**
1	1	1-1/2	4	0.005	153168	**239.26**	153062	**399.43**
Long Length								
1/4	1/4	1-1/8	3	0.005	153170	**34.63**	153434	**65.02**
5/16	5/16	1-1/8	3	0.005	153172	**47.64**	153436	**85.48**
3/8	3/8	1-1/8	3	0.005	153174	**52.77**	153438	**98.86**
1/2	1/2	1-1/2	4	0.005	153176	**77.21**	153440	**120.64**
1/2	1/2	2	4	0.005	153178	**77.21**	153442	**120.64**
5/8	5/8	2-1/4	5	0.005	153180	**159.15**	153444	**258.04**
3/4	3/4	2-1/4	5	0.005	153182	**253.51**	153446	**349.05**
1	1	2-1/4	5	0.005	153184	**431.02**	153448	**585.36**

3-Flute Corner Radius Aluminum Speeds & Feeds

	Chip load per tooth				
Material	**SFM**	**1/8**	**1/4"**	**1/2"**	**1"**
Aluminum Alloys	600/1200	0.0010	0.0020	0.0040	0.0080

RPM = 3.82 x sfm ÷ dia **SFM = rpm x 0.262 ÷ dia** **IPM = chip load x No. of teeth x rpm**

2-Flute Regular Length HSCO & HSS

These end mills come standard with right-hand cutting and right-hand helical flutes. All shanks are flatted for holder set screw. Designed for slotting, drilling, pocketing and general-purpose operation.

- 2 helical flutes
- Centre cutting
- Single end with weldon shank
- Keyway tolerance







Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat		HSCO TiAlN Coated Weldon Flat		HSS Weldon Flat		HSCO Comb. Shank	
				Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $
Inch											
1/8	3/8	3/8	2-5/16	103050	**20.38**	104570	**39.81**	104450	**14.22**	-	**-**
5/32	3/8	7/16	2-5/16	103052	**20.38**	-	**-**	104452	**14.22**	-	**-**
3/16	3/8	7/16	2-5/16	103054	**20.38**	104571	**39.81**	104454	**14.18**	-	**-**
7/32	3/8	1/2	2-5/16	103056	**20.38**	-	**-**	104456	**12.34**	103005	**14.87**
1/4	3/8	1/2	2-5/16	103058	**20.38**	104572	**39.80**	104458	**14.18**	-	**-**
9/32	3/8	9/16	2-5/16	103060	**20.38**	-	**-**	104460	**14.22**	103007	**14.87**
5/16	3/8	9/16	2-5/16	103062	**20.38**	104573	**39.79**	104462	**14.22**	-	**-**
11/32	3/8	9/16	2-5/16	103064	**20.38**	-	**-**	104464	**11.31**	-	**-**
3/8	3/8	9/16	2-5/16	103066	**20.38**	104574	**39.81**	104466	**14.22**	103010	**17.72**
13/32	3/8	13/16	2-1/2	103068	**32.29**	-	**-**	104468	**24.80**	-	**-**
7/16	3/8	13/16	2-1/2	103070	**29.22**	104575	**48.58**	104470	**20.37**	103011	**26.94**
15/32	3/8	13/16	2-1/2	103072	**32.29**	-	**-**	104472	**24.80**	-	**-**
1/2	1/2	1	3	103074	**29.22**	104576	**52.02**	104474	**22.03**	-	**-**
17/32	1/2	1	3	103076	**38.99**	-	**-**	-	**-**	-	**-**
9/16	1/2	1-1/8	3-1/8	103078	**46.35**	-	**-**	104476	**33.36**	-	**-**
5/8	5/8	1-5/16	3-7/16	103082	**46.35**	104577	**79.45**	104478	**33.40**	-	**-**
11/16	5/8	1-5/16	3-7/16	103086	**51.58**	-	**-**	104480	**40.02**	103015	**48.06**
3/4	3/4	1-5/16	3-7/16	103090	**51.57**	104578	**88.95**	104482	**39.15**	-	**-**
13/16	5/8	1-1/2	3-5/8	103094	**66.16**	-	**-**	104484	**47.02**	-	**-**
7/8	3/4	1-1/2	3-3/4	103098	**66.17**	104579	**106.41**	104486	**46.97**	-	**-**
1	1	1-5/8	4-1/8	103110	**83.64**	104580	**133.25**	104488	**58.01**	-	**-**
1-1/8	1	1-5/8	4-1/8	103112	**119.54**	104581	**174.34**	104490	**87.04**	-	**-**
1-1/4	1-1/4	1-5/8	4-1/8	103116	**131.26**	104582	**200.95**	104492	**96.57**	103019	**165.38**
1-3/8	1-1/4	1-5/8	4-1/8	103120	**193.84**	-	**-**	-	**-**	-	**-**
1-1/2	1-1/4	1-5/8	4-1/8	103124	**188.79**	-	**-**	104494	**138.40**	-	**-**
1-3/4	1-1/4	1-5/8	4-1/8	103126	**237.56**	-	**-**	104496	**179.89**	-	**-**
2	1-1/4	1-5/8	4-1/8	103128	**282.88**	-	**-**	104498	**224.92**	-	**-**
6pc Set	**Contains: 1/4" - 3/4"**			103574	**188.28**	-	**-**	-	**-**	-	**-**

2-Flute Regular Length HSCO – Metric



These end mills come standard with right-hand cutting and right-hand helical flutes. All shanks are flatted for holder set screw. Designed for slotting, drilling, pocketing and general-purpose operation.

- 2 helical flutes
- Single end with weldon shank
- Centre cutting
- Keyway tolerance

HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A43

Cutting Dia. (mm)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Metric					
2 mm	3/8	5/16	2-5/16	103700	**26.10**
3 mm	3/8	5/16	2-5/16	103702	**21.73**
3.5 mm	3/8	7/16	2-5/16	103703	**25.14**
4 mm	3/8	7/16	2-5/16	103704	**26.10**
5 mm	3/8	1/2	2-5/16	103706	**26.10**
5.5 mm	3/8	1/2	2-5/16	103707	**25.14**
6 mm	3/8	1/2	2-5/16	103708	**26.10**
7 mm	3/8	9/16	2-5/16	103710	**26.10**
8 mm	3/8	9/16	2-5/16	103712	**26.10**
9 mm	3/8	9/16	2-5/16	103713	**26.10**
10 mm	3/8	13/16	2-1/2	103714	**26.10**
11 mm	3/8	13/16	2-1/2	103715	**39.81**
12 mm	3/8	13/16	2-1/2	103716	**39.81**
14 mm	1/2	1-1/8	3-1/8	103718	**46.34**
16 mm	5/8	1-5/16	3-7/16	103720	**56.79**
18 mm	5/8	1-5/16	3-7/16	103722	**66.31**
20 mm	5/8	1-1/2	3-3/4	103724	**73.87**
22 mm	3/4	1-1/2	3-3/4	103726	**85.24**
24 mm	3/4	2	4-1/2	103728	**109.90**

2-Flute Long Length HSCO



HSCO | BRIGHT | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/4	3/8	1-1/4	3-1/8	103130	**29.76**
5/16	3/8	1-3/8	3-1/8	103132	**29.76**
3/8	3/8	1-1/2	3-1/4	103134	**29.76**
1/2	1/2	2	4	103136	**41.91**
5/8	5/8	2	4-1/8	103138	**60.67**
3/4	3/4	2-1/4	4-1/2	103140	**71.84**
7/8	7/8	2-1/2	4-3/4	103142	**83.01**
1	1	3	5-1/2	103144	**115.87**
1-1/8	1	3	5-1/2	103146	**143.50**
1-1/4	1-1/4	3	5-1/2	103150	**157.22**
1-1/2	1-1/4	3	5-1/2	103152	**215.43**
1-3/4	1-1/4	3	5-1/2	103154	**273.54**
2	1-1/4	3	5-1/2	103156	**364.02**

2-Flute Extended Shank HSCO



HSCO | BRIGHT | EXTENDED SHANK | 30°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Length Below Shank	Overall Length (in.)	Comb. Shank Code No.	Price $	Weldon Flat Code No.	Price $
Inch								
1/8	3/8	3/8	13/16	2-3/8	-	-	103158	**25.27**
3/16	3/8	1/2	1-1/8	2-11/16	103622	**25.12**	103160	**27.06**
1/4	3/8	5/8	1-1/2	3-1/16	103624	**22.57**	103162	**27.06**
5/16	3/8	3/4	1-3/4	3-5/16	-	-	103164	**27.05**
3/8	3/8	3/4	1-3/4	3-5/16	103628	**22.82**	103166	**27.05**
1/2	1/2	1	2-7/32	4	103630	**27.30**	103168	**38.00**
5/8	5/8	1-3/8	2-23/32	4-5/8	103632	**67.56**	103170	**62.92**
3/4	3/4	1-5/8	3-11/32	5-3/8	103634	**91.74**	103172	**72.87**
7/8	7/8	2	4	6	103636	**94.33**	103174	**105.16**
1	1	2-1/2	4-31/32	7-1/4	-	-	103176	**141.21**
1-1/4	1-1/4	3	4-31/32	7-1/4	-	-	103178	**181.09**

2-Flute Regular Length HSS For Aluminum



The 2-flute end mills for aluminum have high helix flute design making them well suited for milling aluminum and other non-ferrous materials.

HSS | BRIGHT | REG LENGTH | 42°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/4	3/8	5/8	2-7/16	103506	**20.29**
5/16	3/8	3/4	2-1/2	103507	**20.29**
3/8	3/8	3/4	2-1/2	103508	**20.29**
7/16	3/8	1	2-11/16	103509	**29.41**
1/2	1/2	1-1/4	3-1/4	103510	**29.41**
5/8	5/8	1-5/8	3-3/4	103511	**47.29**
3/4	3/4	1-5/8	3-7/8	103512	**61.56**
7/8	3/4	1-7/8	4-1/8	103513	**74.31**
1	1	2	4-1/2	103514	**93.05**
1-1/4	1-1/4	2	4-1/2	103515	**137.33**
1-1/2	1-1/4	2	4-1/2	103516	**214.38**
2	1-1/4	2	4-1/2	103517	**305.86**

2-Flute Extra Long Length HSS For Aluminum



HSS | BRIGHT | X-LONG LENGTH | 42°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/4	3/8	1-3/4	3-9/16	103529	**27.02**
5/16	3/8	2	3-3/4	103530	**27.02**
3/8	3/8	2-1/2	4-1/4	103531	**27.02**
1/2	1/2	3	5	103532	**45.78**
5/8	5/8	4	6-1/8	103533	**79.96**
3/4	3/4	4	6-1/4	103534	**104.05**
1	1	6	8-1/2	103535	**154.71**
1-1/4	1-1/4	6	8-1/2	103536	**232.12**
1-1/2	1-1/4	8	10-1/2	103537	**333.69**

2-Flute Long Length HSS For Aluminum



HSS | BRIGHT | LONG LENGTH | 42°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/4	3/8	1-1/4	3-1/16	103518	**25.06**
5/16	3/8	1-3/8	3-1/8	103519	**25.05**
3/8	3/8	1-1/2	3-1/4	103520	**25.05**
7/16	1/2	1-3/4	3-3/4	103521	**38.90**
1/2	1/2	2	4	103522	**38.86**
5/8	5/8	2-1/2	4-5/8	103523	**61.45**
3/4	3/4	3	5-1/4	103524	**81.50**
1	1	4	6-1/2	103525	**132.54**
1-1/4	1-1/4	4	6-1/2	103526	**183.09**
1-1/2	1-1/4	4	6-1/2	103527	**261.18**
2	1-1/4	4	6-1/2	103528	**405.10**

Tolerances - Inch

Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

Tolerances - Metric

Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

Steel | Stainless Steel | Cast Iron/Hardened | Aluminum

2-Flute Double End Regular Length HSCO



Excellent tool geometry for slotting, keying and general purpose milling, plus the added economy offered by the double-end design.

- 2 helical flutes
- Centre cutting
- Double end with weldon shank



Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	3/8	3/8	3-1/16	103180	**28.85**
5/32	3/8	7/16	3-1/8	103182	**28.85**
3/16	3/8	7/16	3-1/8	103184	**28.85**
7/32	3/8	1/2	3-1/8	103186	**28.82**
1/4	3/8	1/2	3-1/8	103188	**28.85**
9/32	3/8	9/16	3-1/8	103190	**28.82**
5/16	3/8	9/16	3-1/8	103192	**28.85**
11/32	3/8	9/16	3-1/8	103194	**28.85**
3/8	3/8	9/16	3-1/8	103196	**28.82**
13/32	1/2	9/16	3-1/8	103198	**44.97**
7/16	1/2	13/16	3-3/4	103200	**44.97**
15/32	1/2	13/16	3-3/4	103202	**34.12**
1/2	1/2	13/16	3-3/4	103204	**44.97**
9/16	5/8	1-1/8	4-1/2	103206	**75.09**
5/8	5/8	1-1/8	4-1/2	103208	**75.07**
11/16	3/4	1-5/16	5	103210	**72.54**
3/4	3/4	1-5/16	5	103212	**88.49**
1	1	1-5/8	5-7/8	103220	**128.04**

2-Flute Double End Stub Length Miniature HSCO



Tools under Miniature End Mills have 3/16" shank diameter without flats. Designed with positive rake angle geometry and a high helix angle to ensure free cutting action. Flute design provides good strength behind the cutting edge. Suitable for finishing of precision components such as watch, camera and electronic apparatus molds.



Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/32	3/16	3/64	2	103281	**22.18**
3/64	3/16	1/16	2	103282	**21.17**
1/16	3/16	3/32	2	103283	**20.12**
5/64	3/16	1/8	2	103284	**19.99**
3/32	3/16	9/64	2	103285	**21.53**
7/64	3/16	5/32	2	103286	**18.20**
1/8	3/16	3/16	2	103288	**20.12**
9/64	3/16	7/32	2	103289	**20.12**
5/32	3/16	15/64	2	103290	**20.12**
11/64	3/16	1/4	2	103291	**20.12**
3/16	3/16	9/32	2	103292	**18.20**

2-Flute Double End Long Length Miniature HSCO



Longer flute length. Suitable for finishing of precision components such as watch, camera and electronic apparatus molds.

- Long length
- 2 helical flutes
- Double end with straight shank



Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	3/16	7/32	2-1/2	103452	**21.71**
5/64	3/16	1/4	2-1/2	103453	**21.71**
3/32	3/16	9/32	2-5/8	103454	**21.71**
7/64	3/16	9/32	2-5/8	103455	**21.71**
1/8	3/16	3/4	3-1/8	103456	**23.07**
9/64	3/16	3/4	3-1/8	103457	**23.11**
5/32	3/16	7/8	3-1/4	103458	**23.11**
11/64	3/16	7/8	3-1/4	103459	**23.07**
3/16	3/16	1	3-3/8	103460	**23.11**

2-Flute Double End Regular Length Miniature HSCO



Excellent tool geometry for slotting, keying and general purpose milling, plus the added economy offered by the double-end design.

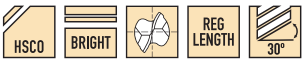


Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/32	3/16	3/32	2-1/4	103441	**22.18**
3/64	3/16	9/64	2-1/4	103442	**21.17**
1/16	3/16	3/16	2-1/4	103443	**20.12**
5/64	3/16	15/64	2-1/4	103444	**20.12**
3/32	3/16	9/32	2-1/4	103445	**20.12**
7/64	3/16	21/64	2-1/4	103446	**20.12**
1/8	3/16	3/8	2-1/4	103447	**20.12**
9/64	3/16	13/32	2-1/4	103448	**20.12**
5/32	3/16	7/16	2-1/4	103449	**20.12**
11/64	3/16	1/2	2-1/4	103450	**20.12**
3/16	3/16	1/2	2-1/4	103451	**20.12**

2-Flute Ball Nose Regular Length HSCO



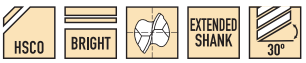


Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Comb. Shank Code No.	Price $	Weldon Flat Code No.	Price $
Inch							
1/8	3/8	3/8	2-5/16	103801	**27.84**	103394	**27.39**
3/16	3/8	1/2	2-3/8	103802	**23.45**	103395	**27.39**
1/4	3/8	5/8	2-7/16	103803	**23.48**	103396	**27.39**
5/16	3/8	3/4	2-1/2	103804	**23.45**	103397	**29.82**
3/8	3/8	3/4	2-1/2	-	**-**	103398	**29.82**
7/16	1/2	1	3	103806	**33.20**	103399	**44.45**
1/2	1/2	1	3	-	**-**	103400	**44.54**
5/8	5/8	1-3/8	3-1/2	103808	**56.52**	103402	**65.28**
3/4	3/4	1-5/8	3-7/8	103809	**72.29**	103404	**86.05**
7/8	3/4	2	4-1/4	103810	**83.18**	103405	**118.91**
1	1	2-1/4	4-3/4	103811	**121.23**	103406	**137.65**

2-Flute Ball Nose Extended Shank HSCO





Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Length Below Shank	Overall Length (in.)	Comb. Shank Code No.	Price $	Weldon Flat Code No.	Price $
Inch								
1/8	3/8	3/8	13/16	2-3/8	103821	**31.14**	103410	**38.07**
3/16	3/8	1/2	1-1/8	2-11/16	103822	**31.14**	103411	**38.07**
1/4	3/8	5/8	1-1/2	3-1/16	103823	**31.14**	103412	**38.07**
5/16	3/8	3/4	1-3/4	3-5/16	-	**-**	103413	**47.61**
3/8	3/8	3/4	1-3/4	3-5/16	103825	**31.27**	103414	**47.61**
7/16	1/2	1	1-7/8	3-11/16	-	**-**	103415	**62.69**
1/2	1/2	1	2-1/4	4	103827	**37.81**	103416	**62.72**
5/8	5/8	1-3/8	2-3/4	4-5/8	-	**-**	103417	**85.72**
3/4	3/4	1-5/8	3-3/8	5-3/8	-	**-**	103418	**109.30**
1	1	2-1/2	5	7-1/4	103830	**140.34**	103419	**171.29**

2-Flute Ball Nose Double End HSCO & HSS



HSCO | HSS | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Code No.	Price $	HSS Code No.	Price $
Inch							
1/8	3/8	3/8	3-1/16	104174	**46.90**	104226	**38.09**
3/16	3/8	7/16	3-1/8	104176	**41.01**	104228	**38.12**
1/4	3/8	1/2	3-1/8	104178	**46.90**	104230	**32.97**
5/16	3/8	9/16	3-1/8	104180	**46.90**	104232	**19.80**
3/8	3/8	9/16	3-1/8	104182	**46.90**	104234	**32.97**
7/16	1/2	13/16	3-3/4	104184	**68.74**	104236	**48.06**
1/2	1/2	13/16	3-3/4	104186	**68.80**	104238	**48.11**
5/8	5/8	1-1/8	4-1/2	104188	**89.33**	104240	**84.84**
3/4	3/4	1-5/16	5	104190	**129.38**	104242	**66.70**
1	1	1-5/8	5-7/8	104192	**186.99**	104244	**149.70**

2-Flute Ball Nose Double End Stub Length Mini HSCO

Helical flute on the nose radius. Suitable for high efficiency copying process and cutting of die mold corner radius.

- Stub length
- 2 helical flutes, ball end
- Double end with straight shank



HSCO | BRIGHT | STUB LENGTH | 30°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	3/16	3/32	2	103270	**38.07**
3/32	3/16	9/64	2	103271	**38.07**
1/8	3/16	3/16	2	103272	**33.30**
5/32	3/16	15/64	2	103273	**33.27**
3/16	3/16	9/32	2	103274	**33.30**

2-Flute Ball Nose Double End Regular Length Mini HSCO

Helical flute on the nose radius. Suitable for high efficiency copying process and cutting of die mold corner radius.

- Regular length
- 2 helical flutes, ball end
- Double end with straight shank



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/32	3/16	3/32	2	103420	**42.94**
3/64	3/16	1/16	2	103421	**40.70**
1/16	3/16	3/32	2	103488	**38.71**
5/64	3/16	1/8	2	103489	**40.56**
3/32	3/16	9/64	2	103490	**38.71**
7/64	3/16	21/64	2-1/4	103491	**40.59**
1/8	3/16	3/8	2-1/4	103492	**34.12**
9/64	3/16	13/32	2-1/4	103493	**35.89**
5/32	3/16	7/16	2-1/4	103494	**33.84**
11/64	3/16	1/2	2-1/4	103495	**35.89**
3/16	3/16	1/2	2-1/4	103496	**37.97**

2-Flute Ball Nose Double End Long Length Mini HSCO

Longer flute length. Helical flute on the nose radius. Suitable for high efficiency copying process and cutting of die mold corner radius.

- Long length
- 2 helical flutes, ball end
- Double end with straight shank



HSCO | BRIGHT | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A43

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	3/16	7/32	2-1/2	103497	**41.00**
3/32	3/16	9/32	2-5/8	103499	**40.95**
1/8	3/16	3/4	3-1/8	103501	**38.27**
5/32	3/16	7/8	3-1/4	103503	**38.27**
3/16	3/16	1	3-3/8	103504	**36.81**

3-Flute Short Length Throwaway HSCO

Well balanced web design to minimize deflection and chattering.

- High accuracy for outside diameter is guaranteed under the strict tolerance control
- 3 helical flutes
- Single end with weldon shank



HSCO | BRIGHT | SHORT LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	1/4	3/32	31/32	103580	**13.23**
3/32	1/4	5/32	1-1/64	103582	**13.23**
1/8	1/4	3/16	1-3/32	103584	**13.23**
5/32	1/4	1/4	1-9/32	103586	**13.23**
3/16	1/4	9/32	1-11/32	103588	**13.23**
7/32	1/4	5/16	1-13/32	103590	**13.23**
1/4	1/4	3/8	1-13/32	103592	**13.23**

3-Flute Long Length Throwaway HSCO

Well balanced web design to minimize deflection and chattering.

- High accuracy for outside diameter is guaranteed under the strict tolerance control
- 3 helical flutes
- Single end with weldon shank



HSCO | BRIGHT | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	1/4	5/32	1-3/32	103594	**14.81**
5/64	1/4	7/32	1-3/16	103596	**14.36**
3/32	1/4	1/4	1-1/4	103598	**14.36**
7/64	1/4	9/32	1-9/32	103600	**14.36**
1/8	1/4	5/16	1-11/32	103602	**14.81**
9/64	1/4	11/32	1-7/16	103604	**14.36**
5/32	1/4	3/8	1-17/32	103606	**14.81**
11/64	1/4	13/32	1-19/32	103608	**12.05**
3/16	1/4	7/16	1-21/32	103610	**14.81**
13/64	1/4	15/32	1-11/16	103612	**14.36**
7/32	1/4	1/2	1-3/4	103614	**14.81**
15/64	1/4	9/16	1-13/16	103616	**12.05**
1/4	1/4	5/8	1-3/4	103618	**14.81**

4-Flute Regular Length HSCO - Metric

Centre cutting allows these end mills to drill into the part for the beginning of a slot. These centre cutting end mills are recommended for pocketing, tracer milling, cam milling, die sinking and slotting. • Single end with weldon shank



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (mm)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
2 mm	3/8	3/8	2-5/16	103730	**26.10**
3 mm	3/8	3/8	2-5/16	103731	**26.10**
4 mm	3/8	1/2	2-3/8	103732	**26.10**
5 mm	3/8	9/16	2-1/2	103733	**26.10**
6 mm	3/8	5/8	2-1/2	103734	**26.10**
7 mm	3/8	11/16	2-1/2	103735	**26.10**
8 mm	3/8	3/4	2-1/2	103736	**26.10**
10 mm	3/8	1	2-11/16	103737	**26.10**
11 mm	3/8	1	2-11/16	103749	**39.81**
12 mm	3/8	1	2-11/16	103738	**39.81**
13 mm	1/2	1-1/4	3-1/4	103750	**46.34**
14 mm	1/2	1-3/8	3-3/8	103739	**46.34**
16 mm	5/8	1-5/8	3-3/4	103740	**56.79**
18 mm	5/8	1-5/8	3-3/4	103741	**66.31**
20 mm	5/8	1-7/8	4-1/8	103742	**73.87**
22 mm	3/4	1-7/8	4-1/8	103743	**85.22**
24 mm	3/4	2	4-1/2	103744	**109.90**

Multi-Flute Long Length HSCO

- Multiple helical flutes
- Centre cutting
- Single end with weldon shank



HSCO | BRIGHT | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Comb. Shank Code No.	Price $	Weldon Flat Code No.	Price $
Inch								
1/4	3/8	1-1/4	3-1/16	4	-	-	103360	**30.34**
5/16	3/8	1-3/8	3-1/8	4	-	-	103361	**30.34**
3/8	3/8	1-1/2	3-1/4	4	-	-	103362	**30.34**
1/2	1/2	2	4	4	103658	**35.02**	103363	**45.43**
5/8	5/8	2-1/2	4-5/8	4	-	-	103364	**70.66**
3/4	3/4	3	5-1/4	4	-	-	103365	**88.47**
7/8	3/4	3-1/2	5-3/4	4	103664	**184.17**	103366	**102.65**
1	1	4	6-1/2	4	103666	**147.79**	103367	**154.91**
1-1/4	1-1/4	4	6-1/2	6	-	-	103368	**201.77**
1-1/2	1-1/4	4	6-1/2	6	-	-	103369	**281.45**

Multi-Flute Regular Length HSCO & HSS

Centre cutting allows these end mills to drill into the part for the beginning of a slot. These centre cutting end mills are recommended for pocketing, tracer milling, cam milling, die sinking and slotting.





HSCO | HSS | BRIGHT | TiAlN | REG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.	HSCO Weldon Flat Price $	HSCO TiAlN Coated Weldon Flat Code No.	HSCO TiAlN Coated Weldon Flat Price $	HSS Weldon Flat Code No.	HSS Weldon Flat Price $	HSCO Comb. Shank Code No.	HSCO Comb. Shank Price $
Inch												
1/8	3/8	3/8	2-5/16	4	103222	**23.25**	104522	**42.76**	104400	**14.19**	-	-
5/32	3/8	7/16	2-3/8	4	103223	**20.36**	-	-	104402	**13.86**	103021	**15.51**
3/16	3/8	1/2	2-3/8	4	103224	**23.24**	104524	**42.76**	104404	**15.69**	-	-
7/32	3/8	9/16	2-7/16	4	103225	**17.56**	-	-	104406	**14.20**	103023	**17.30**
1/4	3/8	5/8	2-7/16	4	103226	**23.24**	104526	**39.81**	104408	**15.69**	-	-
9/32	3/8	11/16	2-1/2	4	103227	**23.24**	-	-	104410	**15.69**	-	-
5/16	3/8	3/4	2-1/2	4	103228	**23.24**	104528	**42.75**	104412	**15.70**	-	-
11/32	3/8	3/4	2-1/2	4	103229	**23.24**	-	-	104414	**15.71**	103027	**15.51**
3/8	3/8	3/4	2-1/2	4	103230	**23.24**	104530	**42.75**	104416	**15.71**	-	-
13/32	3/8	1	2-11/16	4	103231	**34.83**	-	-	104418	**24.07**	-	-
7/16	3/8	1	2-11/16	4	103232	**34.87**	104532	**54.32**	104420	**24.07**	-	-
1/2	1/2	1-1/4	3-1/4	4	103235	**34.87**	104535	**62.56**	104422	**24.07**	-	-
9/16	1/2	1-3/8	3-3/8	4	103237	**46.24**	-	-	104424	**33.41**	103031	**56.84**
5/8	5/8	1-5/8	3-3/4	4	103240	**53.44**	104540	**86.63**	104426	**36.61**	-	-
11/16	5/8	1-5/8	3-3/4	4	103242	**59.35**	-	-	104428	**40.02**	103033	**52.93**
3/4	3/4	1-5/8	3-7/8	4	103246	**63.19**	104546	**96.31**	104430	**45.97**	-	-
13/16	3/4	1-7/8	4-1/8	4	103248	**65.98**	-	-	-	-	-	-
7/8	3/4	1-7/8	4-1/8	4	103252	**79.40**	-	-	104432	**57.65**	-	-
1	1	2	4-1/2	4	103259	**95.73**	104559	**153.05**	104434	**58.98**	-	-
1-1/8	1	2	4-1/2	4	-	-	104561	**186.17**	-	-	-	-
1-1/8	1	2	4-1/2	6	103261	**128.96**	-	-	104436	**134.19**	-	-
1-1/4	1-1/4	2	4-1/2	4	-	-	104564	**222.68**	-	-	-	-
1-1/4	1-1/4	2	4-1/2	6	103264	**153.43**	-	-	104438	**120.88**	-	-
1-3/8	1	2	4-1/2	6	103265	**175.50**	-	-	-	-	-	-
1-1/2	1-1/4	2	4-1/2	4	-	-	-	-	-	-	103046	**253.77**
1-1/2	1-1/4	2	4-1/2	6	103267	**202.87**	104567	**309.94**	104442	**174.30**	103044	**274.29**
2	1-1/4	2	4-1/2	6	103269	**319.88**	-	-	104444	**228.71**	-	-
6pc Set	**Contains: 1/4"- 3/4"**				103581	**221.22**						

Multi-Flute Extra Long Length HSCO

- Multiple helical flutes
- Centre cutting
- Single end with weldon shank



HSCO | BRIGHT | X-LONG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Code No.	Price $
Inch						
1/4	3/8	1-3/4	3-9/16	4	103370	**36.10**
5/16	3/8	2	3-3/4	4	103371	**39.42**
3/8	3/8	2-1/2	4-1/4	4	103372	**41.67**
1/2	1/2	3	5	4	103373	**53.90**
5/8	5/8	4	6-1/8	4	103374	**85.30**
3/4	3/4	4	6-1/4	4	103375	**103.65**
7/8	3/4	5	7-1/4	4	103376	**123.02**
1	1	6	8-1/2	4	103377	**173.68**
1-1/4	1-1/4	6	8-1/2	6	103378	**234.16**
1-1/2	1-1/4	8	10-1/2	6	103378A	**#N/A**

4-Flute Double End Regular Length HSCO

Double end economy. Used for slabbing, shallow pocketing, tracer milling or die sinking and similar operations.



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	3/8	3/8	3-1/16	103379	**32.40**
3/16	3/8	1/2	3-1/4	103380	**32.40**
1/4	3/8	5/8	3-3/8	103381	**32.40**
5/16	3/8	3/4	3-1/2	103382	**32.40**
3/8	3/8	3/4	3-1/2	103383	**32.40**
1/2	1/2	1	4-1/8	103384	**47.24**
5/8	5/8	1-3/8	5	103385	**81.31**
3/4	3/4	1-5/8	5-5/8	103386	**93.46**
7/8	7/8	1-7/8	6-1/8	103387	**125.08**
1	1	1-7/8	6-3/8	103388	**154.72**

4-Flute Double End Stub Length Miniature HSCO

Suitable for finishing of precision components such as watch, camera, and electronic apparatus molds.



HSCO | BRIGHT | STUB LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	3/16	3/32	2	103461	**20.12**
5/64	3/16	1/8	2	103462	**20.12**
3/32	3/16	9/64	2	103463	**20.12**
7/64	3/16	5/32	2	103464	**18.20**
1/8	3/16	3/16	2	103465	**20.12**
9/64	3/16	7/32	2	103466	**18.20**
5/32	3/16	15/64	2	103467	**20.12**
11/64	3/16	1/4	2	103468	**18.20**
3/16	3/16	9/32	2	103469	**18.20**

4-Flute Double End Regular Length Miniature HSCO

Suitable for finishing of precision components such as watch, camera, and electronic apparatus molds, etc.



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	3/16	3/16	2-1/4	103470	**20.12**
5/64	3/16	15/64	2-1/4	103471	**20.12**
3/32	3/16	9/32	2-1/4	103472	**20.12**
7/64	3/16	21/64	2-1/4	103473	**20.12**
1/8	3/16	3/8	2-1/4	103474	**20.12**
9/64	3/16	13/32	2-1/4	103475	**20.12**
5/32	3/16	7/16	2-1/4	103476	**20.12**
11/64	3/16	1/2	2-1/4	103477	**19.99**
3/16	3/16	1/2	2-1/4	103478	**20.12**

4-Flute Double End Long Length Miniature HSCO

Longer flute length. Suitable for finishing of precision components such as watch, camera and electronic apparatus molds.



HSCO | BRIGHT | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/16	3/16	7/32	2-1/2	103479	**21.71**
5/64	3/16	1/4	2-1/2	103480	**21.67**
3/32	3/16	9/32	2-5/8	103481	**21.71**
7/64	3/16	9/32	2-5/8	103482	**19.49**
1/8	3/16	3/4	3-1/8	103483	**23.11**
9/64	3/16	3/4	3-1/8	103484	**23.07**
5/32	3/16	7/8	3-1/4	103485	**23.11**
11/64	3/16	7/8	3-1/4	103486	**21.29**
3/16	3/16	1	3-3/8	103487	**23.11**

Multi-Flute Centre Cut Heavy Duty HSCO



HSCO | MULTIPLE LENGTHS | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
2	2	2	5-3/4	103389	**449.46**
2	2	4	7-3/4	103390	**447.62**
2	2	5	8-3/4	103391	**542.62**
2	2	6	9-3/4	103392	**612.04**
2	2	8	11-3/4	103393	**724.38**

60° High Helix Regular Length HSCO

Faster feed and speed than normal HSS can be applied to even hardened steels over 35HRC.

- Centre cutting



HSCO | BRIGHT | REG LENGTH | 60°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Code No.	Price $
Inch						
1/4	3/8	5/8	2-7/16	3	103538	**33.78**
5/16	3/8	3/4	2-1/2	3	103539	**33.78**
3/8	3/8	3/4	2-1/2	3	103540	**33.78**
7/16	3/8	1	2-11/16	3	103541	**44.01**
1/2	1/2	1-1/4	3-1/4	3	103542	**49.15**
5/8	5/8	1-5/8	3-3/4	3	103543	**71.13**
3/4	3/4	1-5/8	3-7/8	3	103544	**94.20**
1	1	2	4-1/2	4	103546	**143.77**
1-1/4	1-1/4	2	4-1/2	4	103547	**216.53**
1-1/2	1-1/4	2	4-1/2	4	103548	**392.31**
2	1-1/4	2	4-1/2	4	103549	**608.00**

3/4" Shank Regular Length HSCO



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Code No.	Price $
Inch						
3/4	3/4	1-5/8	3-7/8	4	103336	**51.44**
7/8	3/4	1-7/8	4-1/8	4	103338	**66.17**
1	3/4	1-7/8	4-1/8	4	103340	**82.25**
1-1/8	3/4	2	4-1/4	6	103341	**117.54**
1-1/4	3/4	2	4-1/4	6	103342	**129.06**
1-1/2	3/4	1-1/2	4-1/4	6	103343	**179.49**
1-3/4	3/4	1-1/2	4-1/2	6	103344	**233.57**
2	3/4	1-1/2	4-1/2	8	103345	**268.00**

4-Flute Ball Nose Regular Length HSCO

The 4-Flute Ball End Mills are designed for milling of radius bottom slots, fillets and special contours. The end teeth are cut to centre allowing these end mills to drill into material at the beginning of a slotting cut.



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/8	3/8	3/8	2-5/16	104950	**35.48**
3/16	3/8	1/2	2-3/8	104952	**35.48**
1/4	3/8	5/8	2-7/16	104954	**35.48**
5/16	3/8	3/4	2-1/2	104956	**35.48**
3/8	3/8	3/4	2-1/2	104958	**35.48**
7/16	3/8	1	2-11/14	104960	**48.94**
1/2	1/2	1-1/4	3-1/4	104962	**48.94**
5/8	5/8	1-5/8	3-3/4	104964	**78.64**
11/16	3/4	1-5/8	3-3/4	104966	**100.00**
3/4	3/4	1-5/8	3-7/8	104968	**100.00**
7/8	7/8	1-7/8	4-1/8	104970	**124.31**
1	1	2	4-1/2	104972	**147.35**
1-1/8	1	2	4-1/2	104974	**194.06**
1-1/4	1-1/4	2	4-1/2	104976	**242.16**
1-1/2	1-1/4	2	4-1/2	104978	**272.22**
2	1-1/4	2	4-1/2	104980	**412.02**

4-Flute Ball Nose Long Length HSCO

Longer flute length than regular length ball end mills and suitable for high efficiency copying process and deep cutting of die mold corner radius.



HSCO | BRIGHT | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A44

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
1/4	3/8	1-1/4	3-1/16	104982	**45.79**
5/16	3/8	1-3/8	3-1/8	104984	**45.79**
3/8	3/8	1-1/2	3-1/4	104986	**45.79**
1/2	1/2	2	4	104988	**56.78**
5/8	5/8	2-1/2	4-5/8	104990	**93.29**
3/4	3/4	3	5-1/4	104992	**120.47**
7/8	7/8	3-1/2	5-3/4	104994	**140.04**
1	1	4	6-1/2	104996	**175.66**

Regular Length Roughing End Mills HSCO

Multiple-Flute: This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials. The end tooth of this tool has a centre hole design for many accurate resharpenings.

- Coarse pitch



HSCO | BRIGHT | TiAlN | REG LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	O.A.L. (in.)	Fl.	Comb. Shank Code No.	Price $	Bright Finish Code No.	Price $	TiAlN Coated Code No.	Price $
Inch										
1/4	3/8	5/8	2-7/16	3	103950	**34.86**	103900	**33.87**	104500	**50.32**
5/16	3/8	3/4	2-1/2	3	103951	**34.90**	103901	**33.87**	104501	**50.30**
3/8	3/8	3/4	2-1/2	4	-	-	103902	**33.87**	104502	**50.30**
1/2	1/2	1-1/4	3-1/4	4	103953	**56.84**	103903	**47.22**	104503	**73.17**
5/8	5/8	1-5/8	3-3/4	4	-	-	103904	**57.60**	104504	**80.18**
3/4	5/8	1-5/8	3-3/4	4	103955	**71.26**	103905	**71.60**	104505	**100.82**
3/4	3/4	1-5/8	3-3/4	4	-	-	103906	**71.60**	104506	**105.96**
7/8	3/4	1-7/8	4-1/8	5	103957	**95.23**	103907	**92.00**	104507	**134.09**
1	1	2	4-1/2	5	-	-	103908	**103.58**	104508	**161.63**
1-1/8	1	2	4-1/2	6	103959	**129.70**	103909	**136.75**	104509	**208.44**
1-1/4	1-1/4	2	4-1/2	6	-	-	103910	**158.30**	104510	**230.10**
1-1/2	1-1/4	2	4-1/2	6	-	-	103911	**212.02**	104511	**324.86**
1-3/4	1-1/4	2	4-1/2	6	-	-	103912	**262.61**	-	-
2	2	2	5-3/4	8	-	-	103913	**405.51**	-	-
2	2	3	6-3/4	8	-	-	103914	**435.37**	-	-
2	2	4	7-3/4	8	-	-	103915	**528.16**	-	-

Medium Length Roughing End Mills HSCO



HSCO | BRIGHT | MED LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Code No.	Price $
Inch						
1	1	3	5-1/2	5	103916	**127.93**
1-1/4	1-1/4	3	5-1/2	6	103917	**191.77**
1-1/2	1-1/4	3	5-1/2	6	103918	**221.25**
2	2	6	9-3/4	8	103919	**605.43**

Long Length Roughing End Mills HSCO



HSCO | BRIGHT | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Comb. Shank Code No.	Price $	Weldon Flat Code No.	Price $
Inch								
3/8	3/8	1-1/2	4	4	-	-	103932	**55.81**
1/2	1/2	2	4	4	103970	**63.95**	103920	**60.76**
5/8	5/8	2-1/2	4-5/8	4	103971	**90.19**	103921	**83.11**
3/4	5/8	3	5-1/8	4	-	-	103922	**89.52**
3/4	3/4	3	5-1/4	4	-	-	103923	**89.52**
7/8	3/4	3-1/2	5-3/4	5	-	-	103924	**108.74**
1	1	4	6-1/2	5	-	-	103925	**148.65**
1-1/4	1-1/4	4	6-1/2	6	-	-	103926	**213.57**
1-1/2	1-1/4	4	6-1/2	6	-	-	103927	**253.56**
1-3/4	1-1/4	4	6-1/2	6	-	-	103928	**331.60**
2	2	8	11-3/4	8	-	-	103929	**828.32**

Regular Length Centre Cut Roughing End Mills HSCO

This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials.

- Multiple helical flutes
- Single end with weldon shank
- Centre cutting
- Round profile
- Coarse pitch



HSCO | BRIGHT | TiAlN | REG LENGTH | 30°

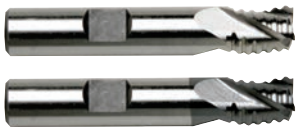
Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price $	TiAlN Coated Code No.	Price $
Inch								
1/2	1/2	1-1/4	3-1/4	4	103100	**52.08**	103585	**49.77**
5/8	5/8	1-5/8	3-3/4	4	103101	**64.38**	103591	**104.80**
3/4	3/4	1-5/8	3-7/8	4	103102	**80.12**	103587	**89.53**
1	1	2	4-1/2	5	103103	**113.99**	103593	**115.82**
1-1/4	1-1/4	2	4-1/2	6	103104	**174.13**	103589	**141.42**
1-1/2	1-1/4	2	4-1/2	6	103105	**233.28**	103595	**253.05**

Stub Length Centre Cutting Rougher HSCO

This general purpose rougher is designed for high production metal removal in a wide range of work piece material. Suitable for a very broad spectrum of materials having high tensile strengths. Milled surfaces are of exceptional quality.

- 3 helical flutes
- Centre cutting
- Coarse pitch
- Round profile



HSCO | BRIGHT | TiAlN | STUB LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price $	TiAlN Coated Code No.	Price $
Inch								
1/4	3/8	1/4	2-1/16	3	104340	**40.66**	104360	**57.02**
3/8	3/8	3/8	2-5/32	3	104342	**40.66**	104362	**53.49**
1/2	1/2	1/2	2-1/2	3	104344	**55.86**	104364	**76.12**
5/8	5/8	5/8	2-3/4	3	104346	**65.57**	104366	**92.21**
3/4	3/4	3/4	2-7/8	3	104348	**85.91**	104368	**136.19**
1	1	1	3-1/2	3	104350	**128.98**	104370	**188.79**

Reg. Length Roughing End Mills For Aluminum HSCO



HSCO | BRIGHT | REG LENGTH | 37°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Code No.	Price $
Inch						
1/4	3/8	5/8	2-7/16	3	104052	**47.48**
5/16	3/8	3/4	2-1/2	3	104054	**51.32**
3/8	3/8	3/4	2-1/2	3	104056	**47.48**
1/2	1/2	1-1/4	3-1/4	3	104058	**65.21**
5/8	5/8	1-5/8	3-3/4	3	104060	**80.62**
3/4	3/4	1-5/8	3-3/4	3	104062	**102.12**
1	1	2	4-1/2	3	104066	**150.97**
1-1/4	1-1/4	2	4-1/2	3	104068	**220.96**
1-1/2	1-1/4	2	4-1/2	3	104070	**262.35**

Regular Length Ball Nose Rougher HSCO

This general purpose rougher is designed for high production metal removal in a wide range of work piece material.

- Multiple helical flutes
- Single end with weldon shank
- Ball end
- Round profile
- Coarse pitch



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price $
Inch						
1/4	3/8	5/8	2-7/16	3	104088	**61.01**
5/16	3/8	3/4	2-1/2	3	104089	**64.85**
3/8	3/8	3/4	2-1/2	4	104090	**61.01**
1/2	1/2	1-1/4	3-1/4	4	104091	**83.81**
5/8	5/8	1-5/8	3-3/4	4	104092	**103.62**
3/4	3/4	1-3/4	4	4	104093	**128.94**
1	3/4	2	4-1/2	5	104094	**179.72**
1	1	2	4-1/2	5	104095	**186.47**
1-1/4	1-1/4	2	4-1/2	6	104096	**284.53**
1-1/2	1-1/4	2	4-1/2	6	104097	**381.38**

Stub Length Fine Pitch Rougher HSCO

Fine Pitch Roughers

This general purpose rougher is designed for high production metal removal in a wide range of work piece material. Suitable for a very broad spectrum of materials having high tensile strengths. Milled surfaces are of exceptional quality.

- Centre cutting
- Round profile
- Single end with weldon shank



HSCO | BRIGHT | TiAlN | STUB LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price $	TiAlN Coated Code No.	Price $
Inch								
1/4	3/8	1/4	2-1/16	3	104300	**44.71**	104320	**61.02**
3/8	3/8	3/8	2-5/32	3	104302	**43.96**	104322	**61.06**
1/2	1/2	1/2	2-1/2	3	104304	**61.41**	104324	**81.71**
5/8	5/8	5/8	2-3/4	3	104306	**76.01**	104326	**108.00**
3/4	3/4	3/4	2-7/8	3	104308	**94.45**	104328	**129.95**
7/8	3/4	7/8	3-1/8	3	104310	**114.96**	104330	**155.64**
1	1	1	3-3/4	3	104312	**136.63**	104332	**188.79**

Regular Length Fine Pitch Rougher HSCO



HSCO | BRIGHT | TiAlN | REG LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price $	TiAlN Coated Code No.	Price $
Inch								
1/4	3/8	5/8	2-7/16	3	104150	**37.28**	104202	**50.81**
5/16	3/8	3/4	2-1/2	3	104152	**37.30**	104204	**53.64**
3/8	3/8	3/4	2-1/2	4	104154	**37.27**	104206	**53.63**
7/16	3/8	1	2-11/16	4	104156	**51.19**	104208	**69.15**
1/2	1/2	1-1/4	3-1/4	4	104158	**51.21**	104210	**77.19**
5/8	5/8	1-5/8	3-3/4	4	104160	**63.32**	104212	**92.58**
3/4	3/4	1-5/8	3-7/8	4	104162	**78.79**	104214	**113.14**
7/8	3/4	1-7/8	4-1/8	5	104164	**101.20**	104216	**143.25**
1	1	2	4-1/2	5	104166	**113.99**	104218	**171.93**
1-1/4	1-1/4	2	4-1/2	6	104168	**174.13**	104220	**245.70**
1-1/2	1-1/4	2	4-1/2	6	104170	**233.25**	104222	**355.29**
2	1-1/4	2	4-1/2	6	104172	**308.57**	104224	**632.38**

Long Length Fine Pitch Rougher HSCO



HSCO | BRIGHT | TiAlN | LONG LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price $	TiAlN Coated Code No.	Price $
Inch								
1/2	1/2	2	4	4	104250	**66.78**	104266	**92.71**
5/8	5/8	2-1/2	4-5/8	4	104252	**91.42**	104268	**127.83**
3/4	3/4	3	5-1/4	4	104254	**98.51**	104270	**148.23**
7/8	7/8	3-1/2	5-3/4	5	104256	**119.62**	104272	**177.25**
1	1	4	6-1/2	5	104258	**153.42**	104274	**225.72**
1-1/4	1-1/4	4	6-1/2	6	104260	**234.75**	104276	**303.69**
1-1/2	1-1/4	4	6-1/2	6	104262	**278.62**	104278	**420.97**
2	1-1/4	4	6-1/2	6	104264	**430.12**	104280	**572.72**

Rougher Finisher HSCO

Tools are finishing end mills with chipbreakers.

- Prevents chattering while achieving good chip control and high efficiency
- Centre cutting



HSCO | BRIGHT | REG LENGTH | 30°

Speeds & Feeds ➤ P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price $
Inch						
1/4	3/8	5/8	2-7/16	4	103550	**37.94**
5/16	3/8	3/4	2-1/2	4	103551	**37.94**
3/8	3/8	3/4	2-1/2	4	103552	**37.94**
7/16	3/8	1	2-11/16	4	103553	**51.19**
1/2	1/2	1-1/4	3-1/4	4	103554	**51.19**
5/8	5/8	1-5/8	3-3/4	4	103555	**63.33**
3/4	3/4	1-5/8	3-3/4	4	103556	**78.79**
7/8	3/4	1-7/8	4-1/8	5	103557	**101.29**
1	1	2	4-1/2	5	103559	**113.99**
1-1/4	1-1/4	2	4-1/2	6	103560	**226.03**
1-1/2	1-1/4	2	4-1/2	6	103561	**274.41**
2	1-1/4	2	4-1/2	6	103562	**404.48**

High Speed Steel Tapered End Mills

- Made from Premium-Grade High Speed Steel
- End cutting
- Weldon flat



PREMIUM HSS

Angle Per Side	Tool No.	Tip Dia. (in.)	Length Of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Code No.	Price $
Inch							
1/2°							
	AX103	3/32	3/4	3/8	2-7/8	154200	**78.49**
	AX105	3/32	1-1/4	3/8	3-1/4	154201	**89.61**
	AX203	1/8	3/4	3/8	2-7/8	154202	**78.49**
	AX305	3/16	1-1/4	3/8	3-1/4	154203	**95.74**
	AX405	1/4	1-1/4	3/8	3-1/4	154204	**100.94**
	AX409	1/4	2-1/4	1/2	4-1/4	154205	**144.29**
	AX609	3/8	2-1/4	1/2	4-1/4	154206	**159.35**
1°							
	A102	3/32	1/2	3/8	2-5/8	154207	**74.34**
	A103	3/32	3/4	3/8	2-7/8	154208	**79.73**
	A201	1/8	1/4	3/8	2-5/8	154209	**71.19**
	A203	1/8	3/4	3/8	2-7/8	154210	**79.73**
	A204	1/8	1	3/8	2-7/8	154211	**88.56**
	A303	3/16	3/4	3/8	2-7/8	154212	**80.74**
	A305	3/16	1-1/4	3/8	3-1/4	154213	**96.98**
	A403	1/4	3/4	3/8	2-7/8	154214	**81.39**
	A405	1/4	1-1/4	3/8	3-1/4	154215	**101.58**
	A409	1/4	2-1/4	1/2	4-1/8	154216	**153.62**
	A605	3/8	1-1/4	1/2	3-1/4	154217	**123.10**
	A609	3/8	2-1/4	1/2	4-1/4	154218	**171.31**
	A805	1/2	1-1/4	1/2	3-1/4	154219	**158.11**
	A809	1/2	2-1/4	1/2	4-1/4	154220	**193.97**
	A813	1/2	3-1/4	1/2	5-1/2	154221	**240.18**
1-1/2°							
	AAX203	1/8	3/4	3/8	2-7/8	154222	**80.74**
	AAX405	1/4	1-1/4	3/8	3-1/4	154223	**102.04**
2°							
	B103	3/32	3/4	3/8	2-7/8	154225	**81.08**
	B105	3/32	1-1/4	3/8	3-1/4	154226	**92.04**
	B204	1/8	1	3/8	2-7/8	154227	**91.81**
	B303	3/16	3/4	3/8	2-7/8	154228	**82.32**
	B305	3/16	1-1/4	3/8	3-1/4	154229	**99.26**
	B403	1/4	3/4	3/8	2-7/8	154230	**82.76**
	B405	1/4	1-1/4	3/8	3-1/4	154231	**102.49**
	B409	1/4	2-1/4	1/2	4-1/4	154232	**160.68**
	B413	1/4	3-1/4	1/2	5-1/2	154233	**238.26**
	B605	3/8	1-1/4	1/2	3-1/4	154234	**148.65**
	B609	3/8	2-1/4	1/2	4-1/4	154235	**186.25**
	B805	1/2	1-1/4	1/2	3-1/4	154236	**160.08**
	B809	1/2	2-1/4	1/2	4-1/4	154237	**201.71**
3°							
	C104	3/32	1	3/8	2-7/8	154238	**90.14**
	C106	3/32	1-1/4	3/8	3-1/4	154239	**97.54**
	C203	1/8	3/4	3/8	2-7/8	154240	**82.53**
	C204	1/8	1	3/8	2-7/8	154241	**92.28**
	C303	3/16	3/4	3/8	2-7/8	154242	**84.29**
	C305	3/16	1-1/4	3/8	3-1/4	154243	**102.04**
	C403	1/4	3/4	3/8	2-7/8	154244	**88.26**
	C405	1/4	1-1/4	3/8	3-1/4	154245	**104.17**
	C409	1/4	2-1/4	1/2	4-1/4	154246	**180.25**
	C605	3/8	1-1/4	1/2	3-1/4	154247	**154.50**
	C805	1/2	1-1/4	1/2	3-1/4	154248	**165.85**
	C809	1/2	2-1/4	5/8	4-3/8	154249	**240.27**
5°							
	E004	1/16	1	3/8	2-7/8	154250	**97.54**
	E103	3/32	3/4	3/8	2-7/8	154251	**86.09**
	E104	3/32	1	3/8	2-7/8	154252	**91.15**
	E106	3/32	1-1/2	3/8	3-1/4	154253	**99.90**
	E203	1/8	3/4	3/8	2-7/8	154254	**83.55**
	E204	1/8	1	3/8	2-7/8	154255	**92.51**
	E205	1/8	1-1/4	3/8	3-1/4	154256	**99.26**
	E206	1/8	1-1/2	3/8	3-1/4	154257	**114.69**
	E208	1/8	2	1/2	3-7/8	154258	**150.01**
	E210B	1/8	2-1/2	1/2	4-1/2	154259	**196.43**
	E303	3/16	3/4	3/8	2-7/8	154260	**85.56**
	E305	3/16	1-1/4	1/2	3-1/4	154261	**106.75**

Angle Per Side	Tool No.	Tip Dia.	Length Of Cut	Shank Dia.	Overall Length	Code No.	Price $
5°							
	E403	1/4	3/4	3/8	2-7/8	154262	**91.06**
	E405	1/4	1-1/4	1/2	3-1/4	154264	**111.57**
	E409A	1/4	2-1/4	5/8	4-1/2	154265	**216.19**
	E605	3/8	1-1/4	1/2	3-1/4	154266	**164.61**
	E609	3/8	2-1/4	3/4	4-3/4	154267	**251.14**
	E613	3/8	3-1/4	3/4	5-1/2	154268	**391.66**
	E805	1/2	1-1/4	1/2	3-1/4	154269	**199.12**
	E809	1/2	2-1/4	3/4	4-1/2	154270	**320.55**
7°							
	G004	1/16	1	3/8	2-7/8	154271	**102.04**
	G104	3/32	1	3/8	2-7/8	154272	**95.08**
	G203	1/8	3/4	3/8	2-7/8	154273	**86.81**
	G206	1/8	1-1/2	1/2	3-1/4	154274	**108.90**
	G305	3/16	1-1/4	1/2	3-1/8	154275	**129.52**
	G403	1/4	3/4	1/2	3	154276	**115.49**
	G405	1/4	1-1/4	1/2	3-1/4	154277	**133.77**
	G409	1/4	2-1/4	3/4	4-1/2	154278	**281.77**
	G609	3/8	2-1/4	3/4	4-1/2	154279	**361.03**
10°							
	J102	3/32	1/2	3/8	2-5/8	154280	**88.56**
	J106	3/32	1-1/2	1/2	3-1/2	154281	**184.22**
	J203	1/8	3/4	3/8	2-7/8	154282	**95.42**
	J205	1/8	1-1/4	1/2	3-1/4	154283	**143.74**
	J309	3/16	2-1/4	3/4	4-1/2	154284	**386.50**
	J403	1/4	3/4	1/2	2-7/8	154285	**117.38**
	J405	1/4	1-1/4	1/2	3-1/4	154286	**185.43**
	J409	1/4	2-1/4	3/4	4-1/2	154287	**401.76**
	J605	3/8	1-1/4	5/8	3-1/2	154288	**227.48**
	J805	1/2	1-1/4	3/4	3-1/2	154289	**271.47**
15°							
	P103	3/32	3/4	1/2	2-3/4	154290	**111.44**
	P106	3/32	1-1/2	3/4	3-3/4	154291	**230.19**
	P202	1/8	1/2	3/8	2-7/8	154292	**96.55**
	P204	1/8	1	1/2	3	154293	**148.12**
	P304	3/16	1	1/2	3	154294	**177.49**
	P404	1/4	1	1/2	3	154295	**224.46**
	P406	1/4	1-1/2	3/4	3-3/4	154296	**294.44**
	P605	3/8	1-1/4	3/4	3-5/8	154297	**311.17**
	P805	1/2	1-1/4	3/4	3-1/2	154298	**368.34**
20°							
	T0002	1/32	1/2	3/8	2-1/2	154319	**182.13**
	T002	1/16	1/2	3/8	2-1/2	154320	**145.63**
	T103	3/32	3/4	1/2	2-3/4	154321	**148.12**
	T202	1/8	1/2	3/8	2-1/2	154299	**149.68**
	T204	1/8	1	1/2	3	154322	**256.64**
	T304	3/16	1	1/2	3	154323	**274.27**
	T404	1/4	1	1/2	3	154324	**287.17**
	T406	1/4	1-1/2	3/4	4	154325	**443.46**
	T504	5/16	1	3/4	3-3/8	154326	**309.92**
	T506	5/16	1-1/2	3/4	3-1/2	154327	**459.15**
	T606	3/8	1-1/2	3/4	4	154328	**676.89**
	T608	3/8	2	1	4-1/2	154329	**905.40**
	T809	1/2	2-1/4	1-1/4	4-3/4	154330	**1,032.66**
30°							
	U002A	1/16	1/2	1/2	2-1/2	154331	**203.06**
	U103	3/32	3/4	1/2	2-3/4	154332	**205.86**
	U202	1/8	1/2	1/2	2-1/2	154333	**193.30**
	U204B	1/8	1	1/2	3-1/8	154334	**415.99**
	U204A	1/8	1	5/8	3-1/8	154335	**415.99**
	U404	1/4	1	3/4	3-1/2	154336	**467.13**
	U406	1/4	1-1/2	1	4-1/8	154337	**810.40**
	U605	3/8	1-1/4	1	4	154338	**802.68**
	U606	3/8	1-1/2	1	4-1/4	154339	**893.95**
	U805	1/2	1-1/4	1	4	154340	**884.30**
	U806	1/2	1-1/2	1	4-1/4	154341	**953.49**
35°							
	V203 (4 fl.)	1/8	3/4	1/2	3	154342	**511.11**
	V404 (4 fl.)	1/4	1	1	3-1/4	154344	**697.42**
45°							
	WA215	1/8	5/16	1/2	2-5/8	154345	**231.44**
	WA215 (SP)	1/8	5/16	1/2	2-5/8	154346	**241.85**
	WA203	1/8	3/4	5/8	3-1/4	154347	**533.03**
	WA203 (SP)	1/8	3/4	5/8	3-1/4	154348	**543.46**
	WA204B	1/8	1	3/4	3-3/4	154349	**740.67**
	WA204B (SP)	1/8	1	3/4	3-3/4	154350	**714.73**
	WA204A	1/8	1	1	3-3/4	154351	**740.67**
	WA204A (SP)	1/8	1	1	3-3/4	154352	**757.62**



GS Tooling
Shrink Fit Holders

Focusing on the cutting edge, coolant ports come standard!

See Pages G43-46

Carbide Miniature Tapered End Mills

- End cutting
- Weldon flat



Angle Per Side	Tool No.	Tip Dia. (in.)	Length Of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Code No.	Price $
Inch							
1/2°							
	CM-AX1001	1/32	1/4	1/8	2-1/2	154001	**158.88**
	CM-AX1002	1/32	1/2	1/8	2-1/2	154002	**171.43**
	CM-AX011	3/64	1/4	1/8	2-1/2	154003	**158.88**
	CM-AX012	3/64	1/2	1/8	2-1/2	154004	**171.43**
	CM-AX002	1/16	1/2	1/8	2-1/2	154005	**171.43**
	CM-AX003	1/16	3/4	1/8	2-1/2	154006	**183.98**
	CM-AX004	1/16	1	1/8	2-1/2	154007	**196.45**
	CM-AX022	5/64	1/2	1/8	2-1/2	154008	**158.88**
	CM-AX023	5/64	3/4	1/8	2-1/2	154009	**171.43**
	CM-AX024	5/64	1	1/8	2-1/2	154010	**183.98**
1°							
	CM-A0001	1/32	1/4	1/8	2-1/2	154011	**163.13**
	CM-A0002	1/32	1/2	1/8	2-1/2	154012	**175.71**
	CM-A001	3/64	1/4	1/8	2-1/2	154013	**163.13**
	CM-A012	3/64	1/2	1/8	2-1/2	154014	**175.71**
	CM-A002	1/16	1/2	1/8	2-1/2	154015	**175.71**
	CM-A003	1/16	3/4	1/8	2-1/2	154016	**188.15**
	CM-A004	1/16	1	1/8	2-1/2	154017	**200.70**
	CM-A022	5/64	1/2	1/8	2-1/2	154018	**163.13**
	CM-A023	5/64	3/4	1/8	2-1/2	154019	**175.71**
	CM-A024	5/64	1	1/8	2-1/2	154020	**196.00**
1-1/2°							
	CM-AAX1001	1/32	1/4	1/8	2-1/2	154022	**167.29**
	CM-AAX1002	1/32	1/2	1/8	2-1/2	154023	**179.85**
	CM-AAX011	3/64	1/4	1/8	2-1/2	154024	**167.29**
	CM-AAX012	3/64	1/2	1/8	2-1/2	154025	**179.85**
	CM-AAX002	1/16	1/2	1/8	2-1/2	154026	**179.85**
	CM-AAX003	1/16	3/4	1/8	2-1/2	154027	**192.31**
	CM-AAX004	1/16	1	3/16	3	154028	**204.87**
	CM-AAX022	5/64	1/2	1/8	2-1/2	154029	**167.29**
	CM-AAX023	5/64	3/4	1/8	2-1/2	154030	**179.85**
	CM-AAX024	5/64	1	3/16	3	154032	**154.31**
2°							
	CM-B0001	1/32	1/4	1/8	2-1/2	154033	**171.43**
	CM-B0002	1/32	1/2	1/8	2-1/2	154034	**183.98**
	CM-B011	3/64	1/4	1/8	2-1/2	154035	**171.43**
	CM-B012	3/64	1/2	1/8	2-1/2	154036	**183.98**
	CM-B002	1/16	1/2	1/8	2-1/2	154037	**183.98**
	CM-B003	1/16	3/4	1/8	2-1/2	154038	**196.45**
	CM-B004	1/16	1	3/16	3	154039	**225.80**
	CM-B022	5/64	1/2	1/8	2-1/2	154040	**171.43**
	CM-B023	5/64	3/4	3/16	3	154041	**200.70**
	CM-B024	5/64	1	3/16	3	154042	**213.29**
3°							
	CM-C0001	1/32	1/4	1/8	2-1/2	154043	**175.71**
	CM-C0002	1/32	1/2	1/8	2-1/2	154044	**188.15**
	CM-C001	3/64	1/4	1/8	2-1/2	154045	**175.71**
	CM-C012	3/64	1/2	1/8	2-1/2	154046	**188.15**
	CM-C002	1/16	1/2	1/8	2-1/2	154047	**188.15**
	CM-C003	1/16	3/4	3/16	3	154048	**217.42**
	CM-C004	1/16	1	3/16	3	154049	**229.94**
	CM-C022	5/64	1/2	3/16	3	154050	**178.35**
	CM-C023	5/64	3/4	3/16	3	154051	**204.87**
	CM-C024	5/64	1	3/16	3	154052	**217.42**
5°							
	CM-E0001	1/32	1/4	1/8	2-1/2	154053	**180.74**
	CM-E0002	1/32	1/2	3/16	3	154054	**209.18**
	CM-E011	3/64	1/4	1/8	2-1/2	154055	**179.85**
	CM-E012	3/64	1/2	3/16	3	154056	**209.12**
	CM-E002	1/16	1/2	1/4	2-1/2	154057	**221.66**
	CM-E003	1/16	3/4	1/4	2-1/2	154058	**234.10**
	CM-E004	1/16	1	1/4	2-1/2	154059	**246.77**
	CM-E022	5/64	1/2	3/16	3	154060	**197.46**
	CM-E023	5/64	3/4	1/4	2-1/2	154061	**225.80**
	CM-E024	5/64	1	3/8	2-1/2	154062	**256.19**

Carbide Tapered End Mills

- End cutting
- Weldon flat



Angle Per Side	Tool No.	Tip Dia. (in.)	Length Of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Code No.	Price $
Inch							
1/2°							
	AX103C	3/32	3/4	1/4	2-1/2	154063	**153.62**
	AX203C	1/8	3/4	1/4	2-1/2	154064	**155.51**
	AX205C	1/8	1-1/4	1/4	3-1/2	154065	**175.56**
	AX305C	3/16	1-1/4	1/4	3-1/2	154067	**188.34**
	AX405C	1/4	1-1/4	3/8	3-1/2	154069	**215.16**
1°							
	A102C	3/32	1/2	1/4	2	154070	**141.25**
	A104C	3/32	1	1/4	3	154071	**158.30**
	A203C	1/8	3/4	1/4	2-1/2	154072	**165.37**
	A204C	1/8	1	1/4	3	154073	**166.93**
	A206C	1/8	1-1/2	1/4	3-1/2	154074	**189.27**
	A303C	3/16	3/4	1/4	2-1/2	154075	**169.00**
	A305C	3/16	1-1/4	1/4	3-1/2	154076	**190.47**
	A308C	3/16	2	3/8	4	154077	**262.37**
	A403C	1/4	3/4	3/8	3	154078	**186.79**
	A405C	1/4	1-1//4	3/8	3-1/2	154079	**223.24**
	A409C	1/4	2-1/4	3/8	4	154080	**320.12**
1-1/2°							
	AAX104C	3/32	1	1/4	3	154081	**163.84**
	AAX204C	1/8	1	1/4	3	154082	**169.00**
	AAX206C	1/8	1-1/2	1/4	3-1/2	154083	**199.68**
	AAX305C	3/16	1-1/4	3/8	3-1/2	154084	**200.06**
	AAX308C	3/16	2	3/8	4	154085	**309.10**
	AAX403C	1/4	3/4	3/8	3	154086	**314.87**
	AAX405C	1/4	1-1/4	3/8	3-1/2	154087	**224.28**
2°							
	B103C	3/32	3/4	1/4	2-1/2	154088	**154.34**
	B104C	3/32	1	1/4	3	154089	**170.70**
	B203C	1/8	3/4	1/4	2-1/2	154090	**168.41**
	B206C	1/8	1-1/2	1/4	3-1/2	154091	**210.25**
	B303C	3/16	3/4	1/4	2-1/2	154092	**173.02**
	B305C	3/16	1-1/4	3/8	3-1/2	154093	**209.65**
	B307C	3/16	1-3/4	3/8	3-1/2	154094	**244.77**
	B403C	1/4	3/4	3/8	3	154095	**199.68**
	B405C	1/4	1-1/4	3/8	3-1/2	154096	**226.05**
	B409C	1/4	2-1/4	1/2	4-1/2	154097	**327.50**
3°							
	C104C	3/32	1	1/4	3	154098	**171.20**
	C106C	3/32	1-1/2	1/4	3-1/2	154099	**199.68**
	C203C	1/8	3/4	1/4	2-1/2	154100	**170.43**
	C204C	1/8	1	1/4	2-1/2	154101	**173.56**
	C206C	1/8	1-1/2	3/8	3-1/2	154102	**220.54**
	C209C	1/8	2-1/4	3/8	4	154103	**314.39**
	C256C	5/32	1-1/2	3/8	3-1/2	154104	**229.87**
	C257C	5/32	1-3/4	3/8	3-1/2	154105	**268.43**
	C303C	3/16	3/4	3/8	3	154106	**189.27**
	C305C	3/16	1-1/4	3/8	3-1/2	154107	**217.85**
	C403C	1/4	3/4	3/8	3	154108	**193.14**
	C405C	1/4	1-1/4	3/8	3-1/2	154109	**227.48**
	C409C	1/4	2-1/4	1/2	4-1/2	154110	**398.93**
4°							
	D104C	3/32	1	1/4	3	154111	**172.43**
	D203C	1/8	3/4	1/4	2-1/2	154112	**174.64**
	D204C	1/8	1	3/8	3	154113	**175.66**
	D303C	3/16	3/4	3/8	3	154114	**191.64**
	D305C	3/16	1-1/4	3/8	3-1/2	154115	**229.62**
	D405C	1/4	1-1/4	1/2	3-1/2	154117	**246.68**
5°							
	E103C	3/32	3/4	1/4	3	154118	**179.52**
	E104C	3/32	1	3/8	3	154119	**201.50**
	E106C	3/32	1-1/2	3/8	3-1/2	154120	**225.82**
	E203C	1/8	3/4	1/4	3	154121	**172.22**
	E204C	1/8	1	3/8	3	154122	**203.84**
	E206C	1/8	1-1/2	3/8	3-1/2	154123	**226.48**
	E303C	3/16	3/4	3/8	3	154124	**204.75**
	E305C	3/16	1-1/4	1/2	3-1/2	154125	**246.88**
	E403C	1/4	3/4	3/8	3	154126	**225.62**
	E405C	1/4	1-1/4	1/2	3-1/2	154128	**259.00**
	E408C	1/4	2	5/8	4	154129	**715.38**

Angle Per Side	Tool No.	Tip Dia. (in.)	Length Of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Code No.	Price $
7°							
	G104C	3/32	1	3/8	3	154130	**226.81**
	G202C	1/8	1/2	1/4	2-1/2	154131	**196.88**
	G203C	1/8	3/4	3/8	3	154132	**212.02**
	G204C	1/8	1	3/8	3	154133	**226.05**
	G206C	1/8	1-1/2	1/2	3-1/2	154134	**253.76**
	G253C	5/32	3/4	3/8	2-1/2	154135	**189.94**
	G305C	3/16	1-1/4	1/2	3-1/2	154136	**284.12**
	G403C	1/4	3/4	1/2	3	154137	**238.35**
	G405C	1/4	1-1/4	5/8	3-1/2	154138	**394.32**
10°							
	J102C	3/32	1/2	3/8	2-1/2	154140	**195.75**
	J106C	3/32	1-1/2	5/8	3-1/2	154141	**409.04**
	J203C	1/8	3/4	3/8	2-1/2	154142	**211.12**
	J204C	1/8	1	1/2	3-1/2	154143	**263.70**
	J205C	1/8	1-1/4	5/8	3-1/2	154144	**415.90**
	J305C	3/16	1-1/4	5/8	3-1/2	154145	**415.90**
	J403C	1/4	3/4	1/2	3	154146	**290.62**
	J404C	1/4	1	5/8	3	154147	**387.78**
15°							
	P0003C	1/32	3/4	1/2	3	154300	**390.65**
	P001C	1/16	1/4	1/4	2	154301	**183.61**
	P103C	3/32	3/4	1/2	3	154302	**252.12**
	P204C	1/8	1	5/8	3	154148	**683.49**
	P304CA	3/16	1	3/4	3	154149	**813.00**
	P404CA	1/4	1	3/4	3	154150	**833.17**
	P606C	3/8	1-1/2	3/4	4	154303	**1,407.60**
	P805C	1/2	1-1/4	3/4	3-1/2	154304	**1,235.99**
	P809C	1/2	2-1/4	1	4-1/4	154305	**2,879.23**
20°							
	T0001C	1/32	1/4	1/4	2	154306	**209.68**
	T001C	1/16	1/4	1/4	2	154307	**202.75**
	T002C	1/16	1/2	1/2	3	154308	**253.58**
	T102C	3/32	1/2	1/2	3	154309	**260.31**
	T202C	1/8	1/2	1/2	3	154310	**309.01**
	T304CB	3/16	1	1/2	3	154311	**877.84**
	T404CB	1/4	1	1/2	3	154312	**1,033.79**
30°							
	U001C	1/16	1/4	3/8	2-1/2	154313	**259.44**
	U101C	3/32	1/4	3/8	2-1/2	154314	**270.53**
	U201C	1/8	1/4	1/2	3	154315	**342.00**
	U202CB	1/8	1/2	1/2	2-1/2	154316	**685.78**
	U404C	1/4	1	3/4	3	154317	**1,872.94**
45°							
	WA215CB	1/8	7/16	1/2	2-1/2	154318	**760.21**

ASIMETO

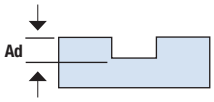


Dial Indicators

See Page F12

Speeds & Feeds
– 2 & 3-Fl. Square End, 2-Fl. Corner Radius, & 2-Fl. Miniature Bright Carbide End Mills
Slot Milling — 2-fl. Reg Length, 2-fl. Stub Length, 2-fl. Double End Reg & Stub Length, 2-fl. Corner Radius

Notes:
- Increase Speeds and Feeds 20% for 3-fl. Reg. Length
- Reduce Speeds and Feeds 25% for 2-fl. Long Length
- Reduce Speeds and Feeds 50% for 2-fl. Extra Long Length

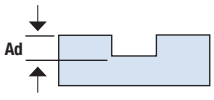
Hardness		Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC			
Work Material	Cast Iron	Mild Steels, Carbon Steels		Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)		Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys		Aluminum Alloys	
Depth of Cut											

D	Ad
< 1/8	0.3D
1/8 ≤ D	0.5D

Dia. (in)	(mm)	170 SFM		155 SFM		130 SFM		110 SFM		90 SFM		390 SFM	
		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
		RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min
	0.5	32,000	6.6	30,000	4.5	25,230	1.9	21,350	1.4	16,890	1.2	50,000	9.4
1/32	0.8	20,790	6.6	18,950	4.5	15,900	1.9	13,450	1.4	10,640	1.2	47,700	9.4
	1	16,800	6.6	15,000	4.5	12,600	1.9	10,680	1.4	8,400	1.2	37,800	9.4
3/64		15,225	6.6	13,590	4.5	11,430	1.9	9,660	1.4	7,595	1.2	34,140	9.4
1/16	1.5	11,970	6.6	10,660	4.6	9,000	2.0	7,540	1.4	5,925	1.2	26,520	9.4
5/64	2	8,705	6.6	7,730	4.7	6,570	2.1	5,415	1.4	4,260	1.2	18,900	9.4
3/32		7,480	6.8	6,635	4.7	5,650	2.4	4,650	1.4	3,645	1.2	16,305	9.4
7/64		6,335	6.9	5,610	4.7	4,790	2.6	3,935	1.4	3,075	1.2	13,925	9.4
1/8	3	5,445	7.1	4,815	4.7	4,125	3.0	3,375	1.4	2,640	1.2	12,060	10.3
9/64		4,870	7.3	4,310	4.7	3,700	3.4	3,020	1.4	2,380	1.2	10,845	12.1
5/32	4	4,300	7.5	3,815	4.7	3,270	3.7	2,660	1.4	2,115	1.2	9,630	14.0
11/64		3,945	7.6	3,490	4.7	2,990	3.8	2,440	1.4	1,940	1.2	8,835	14.2
3/16		3,615	7.7	3,180	4.7	2,735	3.8	2,225	1.4	1,775	1.2	8,075	14.2
13/64	5	3,320	8.0	2,920	4.7	2,505	3.8	2,040	1.4	1,630	1.2	7,415	14.2
7/32		3,080	8.6	2,730	4.7	2,345	3.8	1,895	1.4	1,510	1.2	6,915	14.2
1/4	6	2,690	9.5	2,400	4.7	2,060	3.8	1,660	1.4	1,320	1.2	6,070	14.2
9/32		2,405	10.2	2,140	4.7	1,845	3.8	1,490	1.4	1,185	1.2	5,430	14.2
5/16	8	2,115	10.8	1,875	4.7	1,630	3.8	1,330	1.4	1,055	1.2	4,785	14.2
11/32		1,940	10.9	1,725	4.7	1,485	3.8	1,220	1.4	970	1.2	4,385	14.2
3/8		1,775	10.9	1,580	4.7	1,340	3.8	1,120	1.4	885	1.2	4,005	14.2
13/32	10	1,630	10.9	1,455	4.7	1,230	3.8	1,035	1.4	815	1.2	3,680	14.2
7/16		1,510	10.9	1,360	4.7	1,155	3.8	965	1.4	755	1.2	3,440	14.2
1/2	12	1,310	10.9	1,190	4.7	1,020	3.8	840	1.4	660	1.2	3,010	14.2
9/16		1,175	10.9	1,060	4.7	905	3.8	740	1.4	585	1.2	2,645	14.2
5/8	16	1,080	11.1	960	4.7	815	3.8	670	1.6	520	1.2	2,355	14.2
11/16		980	11.1	870	4.7	740	3.8	610	1.7	470	1.2	2,160	14.2
3/4	20	880	11.1	780	4.7	665	3.8	545	1.7	425	1.2	1,920	14.2
7/8	22	765	11.1	675	4.7	580	3.8	480	1.7	370	1.2	1,660	14.2
1	25	670	10.9	590	4.7	500	3.8	420	1.7	330	1.2	1,475	14.2

• For side milling, increase Feeds 25% or more

Slot Milling — 2-Flute Miniature End Mills

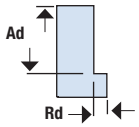
Hardness		Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC					
Work Material	Cast Iron	Mild Steels, Carbon Steels		Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)		Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys		Aluminum Alloys		Copper Alloys	
Depth of Cut													

D	Ad
< 0.04	0.1D
0.04 ≤ D	0.3D

Dia. (in)	145 SFM		130 SFM		110 SFM		90 SFM		70 SFM		330 SFM		130 SFM	
	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min
0.015	31,500	2.2	31,500	2.2	27,425	1.5	22,900	0.9	18,210	0.7	32,000	3.0	31,500	2.2
0.020	27,180	2.7	25,830	2.4	22,140	1.6	17,950	1.0	14,260	0.8	32,000	4.0	25,830	2.4
0.025	22,450	3.0	20,035	2.6	17,210	1.6	13,885	1.0	11,015	0.8	32,000	5.0	20,035	2.6
0.030	18,640	3.1	16,545	2.7	14,355	1.6	11,665	1.0	9,270	0.8	32,000	6.0	16,545	2.7
0.035	15,940	3.4	14,165	3.0	12,165	1.6	10,065	1.1	7,970	0.9	32,000	7.1	14,165	3.0
0.040	13,800	3.7	12,340	3.3	10,380	1.6	8,780	1.2	6,900	1.0	31,560	8.0	12,340	3.3
0.045	12,210	3.7	11,070	3.3	9,425	1.6	7,825	1.2	6,140	1.0	28,065	7.9	11,070	3.3
0.050	11,325	3.7	9,990	3.3	8,545	1.6	7,030	1.2	5,520	1.0	25,100	7.9	9,990	3.3
0.055	11,005	3.7	9,070	3.3	7,715	1.7	6,365	1.2	5,010	1.0	22,560	7.9	9,070	3.3
0.060	9,725	3.9	8,365	3.5	7,110	1.8	5,850	1.2	4,595	1.0	20,640	7.9	8,365	3.3

Speeds & Feeds
– 4-Fl. Square End, 4-Fl. Corner Radius & 3-Fl. 60° Bright Carbide End Mills
Side Milling — 4-fl. Reg Length, 4-fl. Stub Length, 4-fl. Double End Reg & Stub Length, 4-fl. Corner Radius

Notes:
- Reduce Speeds and Feeds 25% for 4-fl. Long Length
- Reduce Speeds and Feeds 50% for 4-fl. Extra Long Length
- Reduce Speeds and Feeds 50% for 4-fl. Extra Long Length

Hardness			Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC			
Work Material		Cast Iron	Mild Steels, Carbon Steels		Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)		Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys		Aluminum Alloys	
Depth of Cut		 Ad = 1.5D Rd = 0.1D										
Dia. (in)	(mm)	160 SFM		175 SFM		130 SFM		120 SFM		95 SFM		470 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
	0.5	32,000	23.9	32,000	11.8	25,240	10.9	23,300	4.5	19,400	3.5	50,000	39.4
1/32	0.8	21,150	23.9	23,240	11.8	15,900	10.9	14,600	4.5	12,200	3.5	50,000	39.4
	1	15,600	23.9	17,400	11.8	12,600	10.9	11,400	4.5	9,000	3.5	44,400	39.4
3/64		14,140	23.9	15,680	11.8	11,390	10.9	10,305	4.5	8,145	3.5	40,275	39.4
1/16	1.5	11,115	23.9	12,105	11.8	8,895	10.9	8,045	4.5	6,390	3.5	31,710	39.4
5/64	2	8,090	23.9	8,535	11.8	6,395	10.9	5,780	4.5	4,625	3.5	23,135	39.4
3/32		6,970	23.9	7,320	12.6	5,495	10.9	4,965	4.4	3,960	3.4	19,820	40.6
7/64		5,920	23.9	6,200	13.5	4,660	10.9	4,205	4.3	3,340	3.4	16,725	41.8
1/8	3	5,090	24.6	5,330	14.4	4,005	10.9	3,610	4.3	2,870	3.3	14,370	42.9
9/64		4,545	26.3	4,785	15.4	3,580	10.9	3,225	4.3	2,585	3.3	12,935	43.8
5/32	4	4,000	28.0	4,240	16.4	3,150	10.9	2,850	4.3	2,295	3.3	11,505	44.8
11/64		3,670	28.1	3,885	16.9	2,895	11.2	2,620	4.3	2,100	3.3	10,565	45.2
3/16		3,360	28.1	3,555	17.2	2,655	11.6	2,405	4.3	1,910	3.3	9,660	45.6
13/64	5	3,090	28.1	3,260	17.6	2,445	11.8	2,205	4.3	1,750	3.3	8,880	46.0
7/32		2,870	28.1	3,020	17.9	2,285	11.8	2,045	4.3	1,630	3.3	8,280	46.3
1/4	6	2,520	28.1	2,640	18.2	2,000	11.8	1,775	4.3	1,430	3.3	7,280	46.8
9/32		2,260	28.1	2,380	18.3	1,785	11.8	1,580	4.3	1,295	3.3	6,520	47.0
5/16	8	1,995	28.1	2,115	18.4	1,570	11.8	1,390	4.3	1,150	3.3	5,760	47.2
11/32		1,820	28.3	1,940	19.4	1,445	11.8	1,290	4.3	1,055	3.3	5,280	47.2
3/8		1,655	28.6	1,775	20.4	1,325	11.8	1,200	4.3	965	3.3	4,830	47.2
13/32	10	1,515	28.9	1,630	21.0	1,220	11.8	1,110	4.3	885	3.3	4,430	48.0
7/16		1,420	29.1	1,510	21.1	1,140	11.8	1,035	4.3	825	3.3	4,120	49.8
1/2	12	1,250	30.9	1,310	22.5	995	12.2	900	4.3	720	3.3	3,585	52.0
9/16		1,120	34.3	1,175	24.9	880	13.1	795	4.3	635	3.3	3,170	52.0
5/8	16	1,005	35.5	1,055	25.7	790	13.8	720	4.3	570	3.3	2,840	52.0
11/16		915	38.4	960	25.9	720	13.9	650	4.3	515	3.3	2,595	52.0
3/4	20	820	39.4	860	26.3	640	13.9	580	4.1	465	3.3	2,340	52.0
7/8	22	710	35.5	750	23.6	560	12.6	510	3.7	405	3.0	2,015	49.1
1	25	630	31.2	660	20.7	490	10.9	440	3.3	360	2.6	1,775	43.5

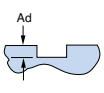
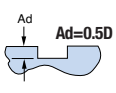
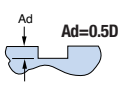
- For slot milling, reduce Feeds 20% to 50%

3-Flute 60° High Helix

Side Milling

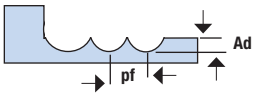
Work Material		Aluminum		Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Hardness						< 35HRC		35-45 HRC		45-55 HRC	
Depth of Cut		 Ad = 1.5D Rd = 0.1D						 Ad = 1.5D Rd = 0.1D			
Mill Dia. (inch)	mm	390-460 SFM		130-164 SFM		Up to 100 SFM		Up to 66 SFM		Up to 50 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6	6900	21.7	2400	10.6	1600	6.7	1060	3.0	800	1.2
5/16	8	5200	21.7	1800	10.6	1200	6.7	800	3.0	600	1.2
3/8	10	4200	23.6	1400	13.4	950	6.7	640	3.0	480	1.2
1/2	12	3500	23.6	1200	14.2	800	7.1	530	3.0	400	1.2
5/8	16	2600	23.6	900	15.7	600	7.1	400	3.0	300	1.2
3/4	20	2100	23.6	720	16.1	480	7.9	320	3.0	240	1.2
1	25	1700	23.6	580	13.8	380	7.1	250	3.0	190	1.2

Slotting

Work Material		Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Hardness				< 35HRC		35-45 HRC		45-55 HRC	
Depth of Cut		 up to 1/2" Ad = 1.0D over 1/2" Ad = 0.5D		 Ad=0.5D		 Ad=0.5D	
Mill Dia. (inch)	mm	110-140 SFM		Up to 85 SFM		Up to 56 SFM		Up to 43 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6	2040	7.9	1360	4.7	900	2.0	680	0.8
5/16	8	1530	7.9	1020	4.7	680	2.0	510	0.8
3/8	10	1190	9.1	810	4.7	540	2.0	410	0.8
1/2	12	1020	9.8	680	5.1	450	2.0	340	0.8
5/8	16	760	10.6	510	5.1	340	2.0	260	0.8
3/4	20	620	11.0	410	5.5	270	2.0	200	0.8
1	25	500	9.4	320	5.1	210	2.0	160	0.8

Speeds & Feeds — 2, 3 & 4-Fl. Ball Nose Bright Carbide End Mills

Profiling — 2-fl. Reg Length, 2-fl. Stub Length, 2-fl. Double End Reg & Stub Length Ball Nose End Mills

Hardness		Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	
Work Material	Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)	Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)	Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys	Aluminum Alloys
Depth of Cut						

	Ad	pf
D < 1/8	0.1D	0.2D
1/8 ≤ D	0.3D	0.7D

Dia. (in)	(mm)	160 SFM		160 SFM		120 SFM		100 SFM		80 SFM		490 SFM	
		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
		RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min
	0.5	31,000	4.8	31,000	4.5	23,300	2.5	19,400	1.2	15,500	0.9	50,000	6.8
1/32	0.8	19,600	4.8	19,600	4.5	14,680	2.5	12,200	1.2	9,780	0.9	50,000	6.8
	1	15,600	5.0	15,600	4.7	11,400	2.8	9,540	1.4	7,620	0.9	38,400	7.1
3/64		14,140	5.2	14,140	4.8	10,305	3.0	8,620	1.5	6,885	1.0	35,535	8.0
1/16	1.5	11,115	5.8	11,115	5.1	8,045	3.4	6,720	1.7	5,360	1.2	29,585	9.8
5/64	2	8,090	6.3	8,090	5.4	5,780	3.7	4,810	1.8	3,840	1.4	23,630	11.7
3/32		6,970	6.5	6,970	5.7	4,965	3.9	4,140	1.9	3,290	1.4	20,420	11.8
7/64		5,920	6.7	5,920	6.0	4,205	4.1	3,520	1.9	2,795	1.4	17,325	11.8
1/8	3	5,090	7.2	5,090	6.1	3,610	4.3	3,030	1.9	2,400	1.4	14,945	11.8
9/64		4,545	7.9	4,545	6.2	3,225	4.3	2,690	1.9	2,140	1.4	13,470	11.8
5/32	4	4,000	8.6	4,000	6.3	2,850	4.3	2,360	1.9	1,875	1.4	11,990	11.8
11/64		3,670	9.2	3,670	6.6	2,620	4.3	2,160	1.9	1,725	1.4	11,020	12.7
3/16		3,360	9.6	3,360	6.9	2,405	4.4	1,970	1.9	1,580	1.4	10,090	13.6
13/64	5	3,090	10.1	3,090	7.1	2,205	4.4	1,810	1.9	1,455	1.4	9,275	14.2
7/32		2,870	10.4	2,870	7.1	2,045	4.3	1,690	1.9	1,360	1.4	8,630	14.2
1/4	6	2,520	11.3	2,520	6.9	1,775	4.2	1,490	1.9	1,205	1.4	7,570	14.6
9/32		2,260	12.5	2,260	6.4	1,580	4.1	1,350	1.9	1,080	1.4	6,785	15.5
5/16	8	1,995	13.6	1,995	5.9	1,390	4.0	1,200	1.9	960	1.4	6,000	16.4
11/32		1,820	13.7	1,820	5.8	1,290	4.0	1,100	1.9	880	1.4	5,495	16.5
3/8		1,655	13.7	1,655	5.7	1,200	4.0	1,005	1.9	800	1.4	5,020	16.5
13/32	10	1,515	13.7	1,515	5.6	1,110	3.9	920	1.9	735	1.4	4,610	16.9
7/16		1,420	13.7	1,420	5.4	1,035	3.7	855	1.9	690	1.4	4,300	17.8
1/2	12	1,250	13.7	1,250	5.2	900	3.5	750	1.9	600	1.4	3,750	18.9
9/16		1,120	13.9	1,120	5.2	795	3.5	660	1.9	530	1.4	3,290	18.5
5/8	16	1,005	13.9	1,005	5.2	720	3.5	590	1.9	470	1.4	2,960	16.7
11/16		915	13.9	915	5.2	650	3.5	540	1.9	430	1.4	2,715	16.5
3/4	20	820	12.9	820	5.2	580	3.5	485	1.9	380	1.4	2,415	16.5
7/8	22	710	11.2	710	5.2	510	3.5	425	1.8	335	1.4	2,100	16.5
1	25	630	9.8	630	5.1	440	3.5	370	1.6	300	1.4	1,830	16.3

Notes:

- Increase Speeds and Feeds 20% for 3-fl. Reg. Length
- Reduce Speeds and Feeds 25% for 2-fl. Ball Nose Long Length
- Reduce Speeds and Feeds 50% for 2-fl. Ball nose Extra Long Length

Notes:

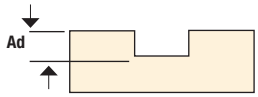
- Increase Speeds and Feeds 40% for 4-fl. Ball Nose Reg. & Stub Length, also 4-fl Double End Reg. & Stub Length
- Reduce Speeds 25% and Increase Feeds 10% for 4-fl. Ball Nose Long Length
- Reduce Speeds 50% and Increase Feeds 10% for 4-fl. Ball Nose Extra Long Length

Speeds & Feeds — 2-Fl. Square End, TiAlN Coated Carbide End Mills

Slot Milling — 2-fl. Reg Length, 2-fl. Stub Length, 2-fl. Double End Reg & Stub Length

Notes:

- Reduce Speeds and Feeds 25% for 2-fl. Long Length
- Reduce Speeds and Feeds 50% for 2-fl. Extra Long Length

Hardness			Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC			
Work Material		Cast Iron	Mild Steels, Carbon Steels		Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)		Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys		Aluminum Alloys	
Depth of Cut												
Dia. (in)	(mm)	220 SFM		200 SFM		170 SFM		140 SFM		110 SFM		500 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
	0.5	40,000	8.25	37,500	5.63	31,537	2.38	26,687	1.75	21,112	1.50	62,500	11.75
1/32	0.8	25,987.	8.25	23,687	5.63	19,875	2.38	16,812	1.75	13,300	1.50	59,625	11.75
	1	21,000	8.25	18,750	5.63	15,750	2.38	13,350	1.75	10,500	1.50	47,250	11.75
3/64		19,031	8.25	16,987	5.63	14,287	2.38	12,075	1.75	9,493	1.50	42,675	11.75
1/16	1.5	14,962	8.25	13,325	5.75	11,250	2.50	9,425	1.75	7,406	1.50	33,150	11.75
5/64	2	10,881	8.25	9,662	5.88	8,212	2.63	6,768	1.75	5,325	1.50	23,625	11.75
3/32		9,350	8.50	8,293	5.88	7,062	3.00	5,812	1.75	4,556	1.50	20,381	11.75
7/64		7,918	8.63	7,012	5.88	5,987	3.25	4,918	1.75	3,843	1.50	17,406	11.75
1/8	3	6,806	8.88	6,018	5.88	5,156	3.75	4,218	1.75	3,300	1.50	15,075	12.88
9/64		6,087	9.13	5,387	5.88	4,625	4.25	3,775	1.75	2,975	1.50	13,556	15.13
5/32	4	5,375	9.38	4,768	5.88	4,087	4.63	3,325	1.75	2,643	1.50	12,037	17.50
11/64		4,931	9.50	4,362	5.88	3,737	4.75	3,050	1.75	2,425	1.50	11,043	17.75
3/16		4,518	9.63	3,975	5.88	3,418	4.75	2,781	1.75	2,218	1.50	10,093	17.75
13/64	5	4,150	10.00	3,650	5.88	3,131	4.75	2,550	1.75	2,037	1.50	9,268	17.75
7/32		3,850	10.75	3,412	5.88	2,931	4.75	2,368	1.75	1,887	1.50	8,643	17.75
1/4	6	3,362	11.88	3,000	5.88	2,575	4.75	2,075	1.75	1,650	1.50	7,587	17.75
9/32		3,006	12.75	2,675	5.88	2,306	4.75	1,862	1.75	1,481	1.50	6,787	17.75
5/16	8	2,643	13.50	2,343	5.88	2,037	4.75	1,662	1.75	1,318	1.50	5,981	17.75
11/32		2,425	13.63	2,156	5.88	1,856	4.75	1,525	1.75	1,212	1.50	5,481	17.75
3/8		2,218	13.63	1,975	5.88	1,675	4.75	1,400	1.75	1,106	1.50	5,006	17.75
13/32	10	2,037	13.63	1,818	5.88	1,537	4.75	1,293	1.75	1,018	1.50	4,600	17.75
7/16		1,887	13.63	1,700	5.88	1,443	4.75	1,206	1.75	943	1.50	4,300	17.75
1/2	12	1,637	13.63	1,487	5.88	1,275	4.75	1,050	1.75	825	1.50	3,762	17.75
9/16		1,468	13.63	1,325	5.88	1,131	4.75	925	1.75	731	1.50	3,306	17.75
5/8	16	1,350	13.88	1,200	5.88	1,018	4.75	837	2.00	650	1.50	2,943	17.75
11/16		1,225	13.88	1,087	5.88	925	4.75	762	2.13	587	1.50	2,700	17.75
3/4	20	1,100	13.88	975	5.88	831	4.75	681	2.13	531	1.50	2,400	17.75
7/8	22	956	13.88	843	5.88	725	4.75	600	2.13	462	1.50	2,075	17.75
1	25	837	13.63	737	5.88	625	4.75	525	2.13	412	1.50	1,843	17.75

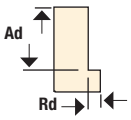
Ad	
D < 1/8	0.3D
1/8 ≤ D	0.5D

- For side milling, increase Feeds 25% or more.

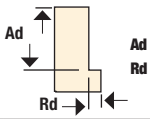
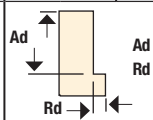
Speeds & Feeds — 4-Fl. Square End, TiAlN Coated Carbide End Mills

Side Milling — 4-fl. Reg Length, 4-fl. Double End Stub Length

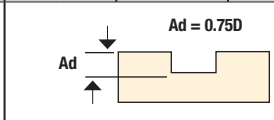
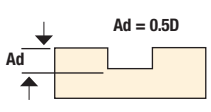
Notes:
- Reduce Speeds and Feeds 25% for 4-fl. Long Length
- Reduce Speeds and Feeds 50% for 4-fl. Extra long length
- For slot milling, reduce Feeds 20% to 50%.

Hardness			Tensile Strength: Up to 750N/mm²	Up to 30HRC		30 to 38 HRC		38 to 45 HRC		
Work Material		Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)		Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys		Aluminum Alloys
Depth of Cut		 Ad = 1.5D Rd = 0.1D								
Dia. (in)	(mm)	200 SFM		215 SFM		165 SFM		150 SFM		120 SFM		590 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
	0.5	40,000	29.88	40,000	14.75	31,550	13.63	29,125	5.63	24,250	4.38	62,500	49.25
1/32	0.8	26,437	29.88	29,050	14.75	19,875	13.63	18,250	5.63	15,250	4.38	62,500	49.25
	1	19,500	29.88	21,750	14.75	15,750	13.63	14,250	5.63	11,250	4.38	55,500	49.25
3/64		17,675	29.88	19,600	14.75	14,237	13.63	12,881	5.63	10,181	4.38	50,343	49.25
1/16	1.5	13,893	29.88	15,131	14.75	11,118	13.63	10,056	5.63	7,987	4.38	39,637	49.25
5/64	2	10,112	29.88	10,668	14.75	7,993	13.63	7,225	5.63	5,781	4.38	28,918	49.25
3/32		8,712	29.88	9,150	15.75	6,868	13.63	6,206	5.50	4,950	4.25	24,775	50.75
7/64		7,400	29.88	7,750	16.88	5,825	13.63	5,256	5.38	4,175	4.25	20,906	52.25
1/8	3	6,362	30.75	6,662	18.00	5,006	13.63	4,512	5.38	3,587	4.13	17,962	53.63
9/64		5,681	32.88	5,981	19.25	4,475	13.63	4,031	5.38	3,231	4.13	16,168	54.75
5/32	4	5,000	35.00	5,300	20.50	3,937	13.63	3,562	5.38	2,868	4.13	14,381	56.00
11/64		4,587	35.13	4,856	21.13	3,618	14.00	3,275	5.38	2,625	4.13	13,206	56.50
3/16		4,200	35.13	4,443	21.50	3,318	14.50	3,006	5.38	2,387	4.13	12,075	57.00
13/64	5	3,862	35.13	4,075	22.00	3,056	14.75	2,756	5.38	2,187	4.13	11,100	57.50
7/32		3,587	35.13	3,775	22.38	2,856	14.75	2,556	5.38	2,037	4.13	10,350	57.88
1/4	6	3,150	35.13	3,300	22.75	2,500	14.75	2,218	5.38	1,787	4.13	9,100	58.50
9/32		2,825	35.13	2,975	22.88	2,231	14.75	1,975	5.38	1,618	4.13	8,150	58.75
5/16	8	2,493	35.13	2,643	23.00	1,962	14.75	1,737	5.38	1,437	4.13	7,200	59.00
11/32		2,275	35.38	2,425	24.25	1,806	14.75	1,612	5.38	1,318	4.13	6,600	59.00
3/8		2,068	35.75	2,218	25.50	1,656	14.75	1,500	5.38	1,206	4.13	6,037	59.00
13/32	10	1,893	36.13	2,037	26.25	1,525	14.75	1,387	5.38	1,106	4.13	5,537	60.00
7/16		1,775	36.38	1,887	26.38	1,425	14.75	1,293	5.38	1,031	4.13	5,150	62.25
1/2	12	1,562	38.63	1,637	28.13	1,243	15.25	1,125	5.38	900	4.13	4,481	65.00
9/16		1,400	42.88	1,468	31.13	1,100	16.38	993	5.38	793	4.13	3,962	65.00
5/8	16	1,256	44.38	1,318	32.13	987	17.25	900	5.38	712	4.13	3,550	65.00
11/16		1,143	48.00	1,200	32.38	900	17.38	812	5.38	643	4.13	3,243	65.00
3/4	20	1,025	49.25	1,075	32.88	800	17.38	725	5.13	581	4.13	2,925	65.00
7/8	22	887	44.38	937	29.50	700	15.75	637	4.63	506	3.75	2,518	61.38
1	25	787	39.00	825	25.88	612	13.63	550	4.13	450	3.25	2,218	54.38

Speeds & Feeds — TiAlN Coated Carbide Roughing End Mills — Side Milling

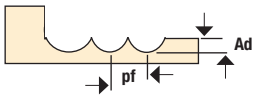
Hardness			Tensile Strength: Up to 750N/mm²	Up to 30HRC		30 to 38 HRC		38 to 45 HRC	
Work Material		Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels		Hardened Steels, Stainless Steels	
Depth of Cut		 Ad = 1.5D Rd = 0.4D				 Ad = 1.5D Rd = 0.3D			
Dia. (in)	(mm)	420 SFM		350 SFM		300 SFM		225 SFM		175 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6	6,350	29.9	5,300	25.2	4,500	14.2	3,450	11.0	2,650	8.3
5/16	8	4,750	29.9	4,000	25.2	3,400	16.1	2,600	12.2	2,000	9.4
3/8	10	3,800	29.9	3,200	25.2	2,700	16.9	2,050	13.0	1,600	10.2
1/2	12	3,200	30.3	2,650	25.2	2,250	17.7	1,700	13.4	1,350	10.6
5/8	16	2,400	30.3	2,000	25.2	1,700	18.9	1,300	14.2	1,000	11.0
3/4	20	1,900	29.9	1,600	24.0	1,350	18.5	1,050	13.8	800	10.2
1	25	1,500	29.9	1,150	24.0	1,000	18.5	800	13.8	600	10.2

Speeds & Feeds — TiAlN Coated Carbide Roughing End Mills — Slotting

Hardness			Tensile Strength: Up to 750N/mm²	Up to 30HRC		30 to 38 HRC		38 to 45 HRC	
Work Material		Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels		Hardened Steels, Stainless Steels	
Depth of Cut									
Dia. (in)	(mm)	350 SFM		300 SFM		250 SFM		190 SFM		160 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6	5,300	25.2	4,500	21.3	3,700	11.8	2,900	9.1	2,400	7.5
5/16	8	4,000	25.2	3,400	21.3	2,800	13.4	2,200	10.2	1,800	8.7
3/8	10	3,200	25.2	2,700	21.3	2,250	14.2	1,750	11.0	1,450	9.1
1/2	12	2,650	25.2	2,250	21.3	1,850	14.6	1,450	11.4	1,200	9.4
5/8	16	2,000	25.2	1,700	21.3	1,400	15.4	1,100	12.2	900	9.8
3/4	20	1,600	25.2	1,350	20.1	1,100	15.4	900	11.8	700	9.1
1	25	1,150	25.2	950	20.1	800	15.4	700	11.8	500	9.1

Speeds & Feeds — 2 & 4-Fl. Ball Nose TiAlN Coated Carbide End Mills

Profiling — 2-fl. Reg Length Ball Nose End Mills

Hardness		Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC			
Work Material	Cast Iron	Mild Steels, Carbon Steels		Alloy Steels, Tool Steels, Ti Alloys (Annealed)		Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)		Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys		Aluminum Alloys	
Depth of Cut											
Dia. (in)	(mm)	200 SFM		205 SFM		150 SFM		125 SFM		100 SFM		600 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
	0.5	38,750	6.00	38,750	5.63	29,125	3.13	24,250	1.50	14,375	1.13	62,500	8.50
1/32	0.8	24,500	6.00	24,500	5.63	18,350	3.13	15,250	1.50	12,225	1.13	62,500	8.50
	1	19,500	6.25	19,500	5.88	14,250	3.50	11,925	1.75	9,525	1.13	48,000	8.88
3/64		17,675	6.50	17,675	6.00	12,881	3.75	10,775	1.88	8,606	1.25	44,418	10.00
1/16	1.5	13,893	7.25	13,893	6.38	10,056	4.25	8,400	2.13	6,700	1.50	36,981	12.25
5/64	2	10,112	7.88	10,112	6.75	7,225	4.63	6,012	2.25	4,800	1.75	29,537	14.63
3/32		8,712	8.13	8,712	7.13	6,206	4.88	5,175	2.38	4,112	1.75	25,525	14.75
7/64		7,400	8.38	7,400	7.50	5,256	5.13	4,400	2.38	3,493	1.75	21,656	14.75
1/8	3	6,362	9.00	6,362	7.63	4,512	5.38	3,787	2.38	3,000	1.75	18,681	14.75
9/64		5,681	9.88	5,681	7.75	4,031	5.38	3,362	2.38	2,675	1.75	16,837	14.75
5/32	4	5,000	10.75	5,000	7.88	3,562	5.38	2,950	2.38	2,343	1.75	14,987	14.75
11/64		4,587	11.50	4,587	8.25	3,275	5.38	2,700	2.38	2,156	1.75	13,775	15.88
3/16		4,200	12.00	4,200	8.63	3,006	5.50	2,462	2.38	1,975	1.75	12,612	17.00
13/64	5	3,862	12.63	3,862	8.88	2,756	5.50	2,262	2.38	1,818	1.75	11,593	17.75
7/32		3,587	13.00	3,587	8.88	2,556	5.38	2,112	2.38	1,700	1.75	10,787	17.75
1/4	6	3,150	14.13	3,150	8.63	2,218	5.25	1,862	2.38	1,506	1.75	9,462	18.25
9/32		2,825	15.63	2,825	8.00	1,975	5.13	1,687	2.38	1,350	1.75	8,481	19.38
5/16	8	2,493	17.00	2,493	7.38	1,737	5.00	1,500	2.38	1,200	1.75	7,500	20.50
11/32		2,275	17.13	2,275	7.25	1,612	5.00	1,375	2.38	1,100	1.75	6,868	20.63
3/8		2,068	17.13	2,068	7.13	1,500	5.00	1,256	2.38	1,000	1.75	6,275	20.63
13/32	10	1,893	17.13	1,893	7.00	1,387	4.88	1,150	2.38	918	1.75	5,762	21.13
7/16		1,775	17.13	1,775	6.75	1,293	4.63	1,068	2.38	862	1.75	5,375	22.25
1/2	12	1,562	17.13	1,562	6.50	1,125	4.38	937	2.38	750	1.75	4,687	23.63
9/16		1,400	17.38	1,400	6.50	993	4.38	825	2.38	662	1.75	4,112	23.13
5/8	16	1,256	17.38	1,256	6.50	900	4.38	737	2.38	587	1.75	3,700	20.88
11/16		1,143	17.38	1,143	6.50	812	4.38	675	2.38	537	1.75	3,393	20.63
3/4	20	1,025	16.13	1,025	6.50	725	4.38	606	2.38	475	1.75	3,018	20.63
7/8	22	887	14.00	887	6.50	637	4.38	531	2.25	418	1.75	2,625	20.63
1	25	787	12.25	787	6.38	550	4.38	462	2.00	375	1.75	2,287	20.38

	Ad	pf
D < 1/8	0.1D	0.2D
1/8 ≤ D	0.3D	0.7D

2-fl. Notes:

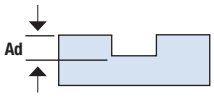
- Reduce Speeds and Feeds 25% for 2-fl. Ball Nose Long Length
- Reduce Speeds and Feeds 50% for 2-fl. Ball Nose Extra Long Length

4-fl. Notes:

- Increase Speeds and Feeds 40% for 4-fl. Ball Nose Reg. Length
- Reduce Speeds 25% and Increase Feeds 10% for 4-fl. Ball Nose Long Length
- Reduce Speeds 50% and Increase Feeds 10% for 4-fl. Ball Nose Extra Long Length

Speeds & Feeds – 2-Fl. Square End & 2-Fl. Corner Radius Typhoon Mod. AlTiN Carbide End Mills

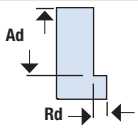
Slot Milling — 2-Flute Square End & 2-Flute Corner Radius

Hardness		Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)	Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)	Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys	Hardened Steels	Hardened Steels
Depth of Cut			D <1/16: Ad = 0.1D 1/16 ≤ D<1/8: Ad = 0.3D 1/16 ≤ D: Ad = 0.5D			D <1/16: Ad = 0.02D 1/16 ≤ D: Ad = 0.05D	D <1/16: Ad = 0.01D 1/16 ≤ D<1/8: Ad = 0.02D 1/8 ≤ D: Ad = 0.05D

Dia. (in)	(mm)	360 SFM		330 SFM		260 SFM		220 SFM		280 SFM		120 SFM		80 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	1.5	19,145	6.9	17,405	6.2	13,095	5.9	11,115	4.2	9,915	3.2	6,245	1.7	4,430	1.2
3/32		12,710	8.3	11,550	7.6	9,135	6.3	7,620	4.3	6,750	3.4	4,185	2.0	2,950	1.2
1/8	3	9,450	10.7	8,570	9.8	7,310	7.4	6,135	4.9	5,135	3.7	3,180	2.2	2,300	1.4
5/32	4	7,910	12.2	7,190	11.1	5,930	8.6	5,145	5.8	4,230	4.2	2,655	2.4	1,870	1.4
3/16		7,190	15.4	6,540	14.0	5,325	10.5	4,455	6.0	3,785	4.5	2,360	2.6	1,590	1.4
7/32		6,365	16.3	5,790	14.7	4,690	11.1	3,855	6.1	3,285	4.7	2,045	2.6	1,365	1.3
1/4	6	5,600	16.0	5,090	14.5	4,125	11.1	3,375	6.0	2,870	4.7	1,775	2.6	1,205	1.2
9/32		5,000	15.6	4,545	14.2	3,700	11.1	3,020	6.0	2,585	4.7	1,580	2.5	1,080	1.2
5/16	8	4,395	15.3	4,000	13.9	3,270	11.1	2,660	5.9	2,295	4.7	1,390	2.4	960	1.2
11/32		4,035	15.0	3,670	13.7	2,990	11.1	2,440	5.9	2,100	4.6	1,290	2.4	880	1.2
3/8		3,695	14.7	3,360	13.3	2,735	11.0	2,225	5.9	1,910	4.5	1,200	2.4	800	1.2
13/32	10	3,400	14.5	3,090	13.2	2,505	10.9	2,040	5.9	1,750	4.4	1,110	2.4	735	1.1
7/16		3,160	14.5	2,870	13.2	2,345	10.9	1,895	5.9	1,630	4.4	1,035	2.3	690	1.0
1/2	12	2,760	14.5	2,510	13.2	2,030	10.6	1,655	5.6	1,415	4.4	900	2.1	600	0.9
9/16		2,460	14.2	2,230	13.0	1,770	10.1	1,480	5.1	1,240	4.3	795	1.9	530	0.8
5/8		2,195	12.6	1,995	12.3	1,625	9.5	1,330	4.7	1,150	4.0	720	1.7	470	0.7
11/16		1,980	12.1	1,800	11.2	1,485	8.7	1,215	4.3	1,040	3.7	650	1.5	430	0.7
3/4	20	1,760	11.1	1,605	10.0	1,305	7.6	1,095	3.8	935	3.2	580	1.4	380	0.6
7/8	22	1,565	9.8	1,420	8.9	1,140	6.8	960	3.3	815	2.8	510	1.2	340	0.5
1	25	1,360	8.5	1,240	7.7	1,020	6.0	840	3.0	720	2.6	440	0.9	300	0.5

Speeds & Feeds — 4-Fl. Square End & 4-Fl. Corner Radius Typhoon Mod. AlTiN Carbide End Mills

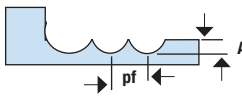
Side Milling — 4-Flute Square End & 4-Flute Corner Radius

Hardness		Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)	Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)	Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys	Hardened Steels	Hardened Steels
Depth of Cut			D <1/8: Ad = 1.5D, Rd = 0.05D 1/8 ≤ D: Ad = 1.5D, Rd = 0.1D			Ad = 1D, Rd = 0.02D	

Dia. (in)	(mm)	390 SFM		330 SFM		270 SFM		220 SFM		190 SFM		120 SFM		80 SFM	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	1.5	20,825	15.4	18,070	12.5	15,670	11.2	10,870	4.7	9,915	4.2	6,740	2.6	5,400	1.6
3/32		16,305	21.5	13,720	18.1	11,550	14.5	8,075	5.4	6,885	4.9	4,185	2.9	2,950	2.0
1/8	3	12,060	28.4	10,205	24.0	8,700	16.9	7,125	5.9	5,475	5.2	3,180	2.9	2,290	2.2
5/32	4	9,630	29.9	8,060	25.0	7,890	17.5	5,170	6.3	4,475	5.3	2,655	3.3	1,815	2.2
3/16		8,075	33.7	6,740	28.3	5,930	19.4	4,455	6.5	3,935	5.7	2,360	3.5	1,565	2.0
7/32		7,580	34.8	5,790	29.1	4,835	20.0	3,855	6.7	3,440	6.0	2,045	3.4	1,360	1.9
1/4	6	7,060	34.4	5,090	28.9	4,235	20.0	3,375	6.9	3,030	6.1	1,775	3.3	1,205	1.9
9/32		5,945	34.0	4,545	28.3	3,785	19.9	3,020	6.9	2,690	6.1	1,580	3.3	1,080	1.8
5/16	8	4,820	33.6	4,000	27.8	3,330	19.8	2,660	6.9	2,360	6.1	1,390	3.2	960	1.7
11/32		4,385	33.6	3,670	27.8	3,050	19.8	2,440	6.9	2,160	6.1	1,290	3.5	880	1.7
3/8		4,005	33.6	3,360	27.8	2,795	19.8	2,225	6.9	1,970	6.1	1,200	3.8	800	1.7
13/32	10	3,680	33.6	3,090	27.8	2,565	19.8	2,040	6.9	1,810	6.1	1,110	3.9	735	1.7
7/16		3,440	33.6	2,870	27.8	2,405	19.8	1,895	6.9	1,690	6.1	1,035	3.4	690	1.5
1/2	12	3,010	32.7	2,510	27.5	2,090	19.7	1,655	6.9	1,475	6.0	900	2.7	600	1.3
9/16		2,645	31.2	2,230	26.9	1,820	19.6	1,470	6.7	1,295	5.8	795	2.4	530	1.1
5/8		2,355	31.4	1,995	26.1	1,630	19.6	1,325	6.1	1,200	5.4	720	2.3	470	0.9
11/16		2,160	31.0	1,800	25.7	1,485	19.2	1,215	5.6	1,090	5.0	650	2.0	430	0.9
3/4	20	1,920	29.7	1,605	24.9	1,350	15.7	1,095	5.0	975	4.5	580	1.7	380	0.9
7/8	22	1,660	26.2	1,420	22.4	1,185	15.9	960	4.3	850	3.9	510	1.4	335	0.8
1	25	1,485	23.3	1,240	19.5	1,050	14.0	840	3.9	750	3.5	440	1.4	300	0.7

Speeds & Feeds — 2 & 4-Fl. Ball Nose Typhoon Mod. AlTiN Carbide End Mills

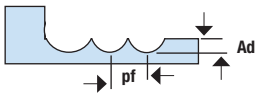
Profiling — 2 & 4-Flute Ball Nose

Hardness		Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)	Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)	Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys	Hardened Steels	Hardened Steels
Depth of Cut			Ad: 0.1D, pf: 0.2D			Ad: 0.05D, pf: 0.1D	

Dia. (in)	(mm)	575 SFM		460 SFM		375 SFM		310 SFM		260 SFM		230 SFM		165 SFM	
		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
		RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min
1/16	1.5	32,405	41.0	29,230	36.1	26,520	29.3	21,185	18.9	18,640	13.6	16,095	9.9	11,970	6.6
3/32		24,540	44.4	19,820	36.1	16,305	29.4	13,145	18.9	11,550	13.7	9,950	9.9	7,480	6.6
1/8	3	17,760	44.4	14,370	36.1	12,060	29.8	9,695	19.5	8,490	14.4	7,280	10.4	5,445	6.9
5/32	4	13,950	44.4	11,505	36.1	9,630	29.8	7,695	20.9	6,725	17.3	5,760	12.7	4,300	8.2
3/16		11,100	48.3	9,660	39.4	8,075	29.9	6,425	21.0	5,650	17.5	4,830	13.3	3,615	8.3
7/32		10,360	49.6	8,280	40.4	6,915	30.9	5,490	21.5	4,835	18.0	4,120	13.7	3,080	8.5
1/4	6	9,120	51.6	7,280	42.0	6,070	32.6	4,815	22.7	4,235	18.9	3,610	14.2	2,690	8.9
9/32		8,165	56.3	6,520	45.6	5,430	34.9	4,310	24.4	3,785	20.2	3,225	14.7	2,405	9.4
5/16	8	7,210	61.0	5,760	49.3	4,785	37.1	3,815	26.1	3,330	21.4	2,850	15.3	2,115	9.9
11/32		6,610	59.7	5,280	48.0	4,385	36.5	3,490	25.7	3,050	21.0	2,620	15.5	1,940	9.9
3/8		6,040	57.8	4,830	46.3	4,005	35.7	3,180	25.1	2,795	20.6	2,405	15.7	1,775	9.9
13/32	10	5,540	55.9	4,430	44.6	3,680	34.8	2,920	24.5	2,565	20.3	2,205	15.6	1,630	9.8
7/16		5,165	54.0	4,120	42.7	3,440	34.0	2,730	23.9	2,405	20.3	2,045	15.2	1,510	9.5
1/2	12	4,505	51.1	3,585	40.7	3,010	32.6	2,390	22.9	2,090	19.7	1,775	14.5	1,310	9.1
9/16		4,000	49.6	3,170	40.7	2,645	31.7	2,110	22.4	1,820	18.3	1,580	13.9	1,175	8.9
5/8	16	3,570	49.6	2,840	39.7	2,355	30.5	1,875	22.4	1,630	18.0	1,390	12.8	1,080	8.7
11/16		3,275	47.9	2,595	38.1	2,160	29.2	1,725	22.4	1,485	18.0	1,290	12.4	980	8.4
3/4	20	2,915	45.2	2,340	36.5	1,920	27.4	1,545	21.5	1,350	17.6	1,175	11.9	880	8.1
7/8	22	2,540	42.1	2,130	33.8	1,775	24.4	1,365	19.2	1,185	15.9	1,025	10.8	765	7.7
1	25	2,240	36.8	1,775	31.5	1,475	21.8	1,180	16.8	1,050	13.7	900	9.8	670	6.7

• Increase Feeds 40% to 50% for 4-Flute Ball Nose

High-Speed Light Milling — 2 & 4-Flute Ball Nose

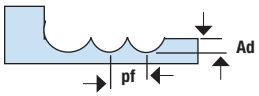
Hardness		Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material		Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)	Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)	Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys	Hardened Steels	Hardened Steels
Depth of Cut			Ad: 0.02D, pf: 0.05D			D <5/8: Ad 0.02D, pf 0.05D; 5/8 ≤ D: Ad 0.012", pf 0.05D	

Dia. (in)	(mm)	985 SFM		855 SFM		740 SFM		590 SFM		590 SFM		400 SFM	
		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
		RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min
1/16	1.5	39,125	126.4	35,305	110.2	35,010	98.4	33,400	88.6	88.6	59.4	17,650	39.4
3/32		27,490	137.8	21,750	110.2	21,250	98.4	20,450	88.6	88.6	61.0	10,950	39.4
1/8	3	20,475	139.2	16,325	114.4	15,825	100.1	15,150	90.0	90.0	63.4	8,355	40.0
5/32	4	18,085	145.4	15,525	133.1	15,025	108.0	13,555	96.2	96.2	74.4	7,960	43.1
3/16		16,085	154.6	15,110	153.3	14,230	112.8	11,585	91.9	91.9	80.8	7,675	46.3
7/32		15,215	175.0	14,160	164.9	12,600	110.9	10,160	89.4	89.4	85.9	7,035	46.1
1/4	6	14,380	181.0	12,880	161.7	11,050	103.8	9,080	84.8	84.8	84.8	6,305	43.5
9/32		12,990	163.1	11,490	144.5	10,035	93.6	8,150	76.2	76.2	76.2	5,650	39.4
5/16	8	11,600	145.1	10,100	127.3	9,025	83.5	7,215	67.6	67.6	67.6	5,000	35.4
11/32		10,760	134.3	9,355	117.3	8,285	76.9	6,610	61.9	61.9	61.9	4,575	32.4
3/8		9,975	124.2	8,660	108.0	7,575	70.7	6,035	56.4	56.4	56.4	4,180	29.6
13/32	10	9,250	115.0	8,025	99.5	6,950	65.0	5,540	51.6	51.6	51.6	3,840	27.2
7/16		8,630	107.1	7,465	92.5	6,475	60.4	5,165	47.6	47.6	47.6	3,580	25.3
1/2	12	7,540	93.6	6,510	80.5	5,650	52.4	4,500	41.5	41.5	41.5	3,125	22.0
9/16		6,675	83.2	5,785	71.4	5,000	46.4	3,975	37.5	37.5	37.5	2,740	19.3
5/8	16	6,000	75.4	5,190	63.6	4,485	41.7	3,575	33.7	33.7	33.7	2,465	17.4
11/16		5,465	67.6	4,705	58.7	4,075	38.3	3,250	30.7	30.7	30.7	2,260	16.0
3/4	20	4,890	60.6	4,215	52.8	3,650	34.4	2,925	27.6	27.6	27.6	2,010	14.3
7/8	22	4,255	53.2	3,710	46.3	3,190	30.2	2,550	24.0	24.0	24.1	1,755	12.3
1	25	3,740	46.6	3,250	40.8	2,805	26.4	2,215	21.0	21.0	21.0	1,525	10.7

• Increase Feeds 40% to 50% for 4-Flute Ball Nose

Speeds & Feeds — Typhoon Mod. AlTiN Mold Mills

Mold Mills for Profile Milling

Hardness		Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Cast Iron	Mild Steels, Carbon Steels	Alloy Steels, Tool Steels, Ti Alloys (Annealed)	Hardened Steels, Prehardened Steels, Ti Alloys (Solution Treated and Aged)	Hardened Steels, Prehardened Steels, Stainless Steels, Inconel, Ni Based Alloys	Hardened Steels	Hardened Steels
Depth of Cut							

	Ad
D < 5/8	0.05D
5/8≤ D	0.03"

Dia. (in)	(mm)	550 SFM		550 SFM		450 SFM		360 SFM		270 SFM		230 SFM		200 SFM	
		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
		RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min
1/8	3	14,400	40.8	14,400	34.8	12,720	28.8	10,200	19.2	7,680	14.4	6,528	10.5	5,683	9.4
3/16	5	11,520	43.2	11,520	34.8	9,600	28.8	7,680	21.6	5,760	16.8	4,896	12.3	4,262	10.9
1/4	6	9,120	43.2	9,120	34.8	7,680	28.8	6,120	22.8	4,560	16.8	3,876	12.3	3,374	10.9
5/16	8	7,680	43.2	7,680	36.0	6,360	28.8	5,040	24.0	3,840	18.0	3,264	13.1	2,842	11.7
3/8	10	5,760	32.4	5,760	27.6	4,800	22.8	3,840	18.0	2,880	13.2	2,448	9.6	2,131	8.6
7/16	11	4,560	25.2	4,560	21.6	3,840	18.0	3,000	14.4	2,280	10.8	1,938	7.9	1,687	7.0
1/2	12	4,200	24.0	4,200	19.2	3,480	16.8	2,760	13.2	2,040	9.6	1,734	7.0	1,510	6.2
9/16	14	3,840	21.6	3,840	18.0	3,120	15.6	2,520	12.0	1,920	9.6	1,632	7.0	1,421	6.2
5/8	16	2,880	16.8	2,880	13.2	2,400	10.8	1,920	9.6	1,440	7.2	1,224	5.3	1,066	4.7
3/4	20	2,280	13.2	2,280	10.8	1,920	9.6	1,560	7.2	1,140	6.0	969	4.4	844	3.9
1	25	1,800	10.8	1,800	8.4	1,560	7.2	1,200	6.0	912	4.8	775	3.5	675	3.1

Speeds & Feeds — 6-Flute 60° High Spiral Typhoon Mod. AlTiN Carbide End Mills

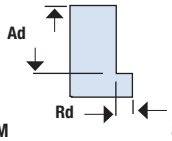
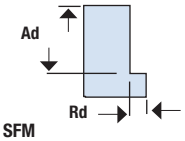
Side Milling

Work Material	Mild Steel Carbon Steel Cast Iron	Alloy Steels Tool Steels	Hardened Steels Tool Steels	Hardened Steels Tool Steels	Titanium Alloy	Nickel Base High-Temp Alloy
Hardness	Up to 25HRC	25-45 HRC	45-55 HRC	55-60 HRC	30-40 HRC	25-45 HRC
Depth of Cut	 Ad= 1.5D Rd= 0.1D		 Ad= 1.5D Rd= 0.05D		 Ad= 1.5D Rd= 0.05D	

Dia. (in)	(mm)	312-540 SFM		156-312 SFM		96-156 SFM		60-96 SFM		156-276 SFM		48-80 SFM	
		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
		RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min	RPM	in/min
1/8	3	11,400	70.8	6,360	19.2	3,240	7.2	2,280	4.8	5,040	33.6	1,680	2.4
5/32	4	8,640	70.8	4,800	19.2	2,640	9.6	1,800	4.8	3,840	36.0	1,260	2.4
3/16	5	6,840	61.2	3,840	19.2	2,160	10.8	1,560	4.8	3,000	36.0	984	3.6
1/4	6	6,360	122.4	3,,480	39.6	1,920	14.4	1,320	7.2	2,520	42.0	840	4.8
5/16	8	4,800	112.8	2,,640	39.6	1,440	14.4	996	7.2	1,920	42.0	624	4.8
3/8	10	3,840	99.6	2,,160	39.6	1,152	13.2	804	7.2	1,560	37.2	480	4.8
1/2	12	3,480	99.6	1,920	36.0	960	13.2	672	6.0	1,260	36.0	408	3.6
5/8	16	2,640	75.6	1,440	27.6	720	10.8	528	4.8	960	33.6	312	3.6
3/4	20	2,160	61.2	1,140	21.6	576	7.2	420	3.6	780	28.8	240	3.6
1	25	1,500	56.4	900	22.8	450	8.4	300	3.6	720	24.0	216	2.4
1/8	3	11,400	70.8	6,360	19.2	3,240	7.2	2,280	4.8	5,040	33.6	1,680	2.4
5/32	4	8,640	70.8	4,800	19.2	2,640	9.6	1,800	4.8	3,840	36.0	1,260	2.4
3/16	5	6,840	61.2	3,840	19.2	2,160	10.8	1,560	4.8	3,000	36.0	984	3.6
1/4	6	6,360	122.4	3,,480	39.6	1,920	14.4	1,320	7.2	2,520	42.0	840	4.8
5/16	8	4,800	112.8	2,,640	39.6	1,440	14.4	996	7.2	1,920	42.0	624	4.8
3/8	10	3,840	99.6	2,,160	39.6	1,152	13.2	804	7.2	1,560	37.2	480	4.8
1/2	12	3,480	99.6	1,920	36.0	960	13.2	672	6.0	1,260	36.0	408	3.6
5/8	16	2,640	75.6	1,440	27.6	720	10.8	528	4.8	960	33.6	312	3.6
3/4	20	2,160	61.2	1,140	21.6	576	7.2	420	3.6	780	28.8	240	3.6
1	25	1,500	56.4	900	22.8	450	8.4	300	3.6	720	24.0	216	2.4

Speeds & Feeds — Typhoon Mod. AlTiN Carbide Roughing End Mills

Roughing Side Cutting

Hardness		Up to 30HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 65 HRC	
Work Material		Non-Alloyed Steels Alloy Steels Cast Iron		Alloys Steels Heat Resistant Steels		Alloys Steels Heat Resistant Steels		Hardened Steels		Hardened Steels	
Depth of Cut		 1000 SFM		Ad = 1.5D Rd = 0.3D 800 SFM		550 SFM		 225 SFM		Ad = 1.0D Rd = 0.05D 160 SFM	
Dia. (in)	Strength (mm)	Up to 1000N/mm²		1000 to 1200N/mm²		1200 to 1400N/mm²		1400 to 2000N/mm²		2000N/mm²~	
		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6	15,600	91.35	12,400	33.10	8,400	22.45	3,400	10.25	2,400	7.50
5/16	8	11,600	91.35	9,200	33.10	6,300	22.45	2,400	9.50	1,800	7.10
3/8	10	9,200	91.35	7,600	33.10	5,100	22.45	2,000	11.40	1,300	7.50
1/2	12	8000	94.50	6,000	31.50	4,200	22.45	1,680	10.25	1,200	7.50
5/8	16	6000	94.50	4,800	29.90	3,300	20.05	1,200	6.30	800	4.35
3/4	20	5200	91.35	4,400	28.35	2,700	16.55	1,100	5.90	700	3.95
1	25	4800	85.05	3,600	22.05	2,400	14.15	1,000	5.90	660	3.95

Speeds & Feeds — 2-Fl. Square End, Necked Design, Standard & Long Length Carbide End Mills — PC410

Slot Milling

Hardness	Tensile Strength: Up to 750N/mm2		Up to 30HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Mild Steel, Carbon Steel		Alloy Steels, Tool Steel, Ti Alloys (Annealed)		Hardened Steel, Prehardened Steel, Ti Alloys (Solution Treated and Aged)		Hardened Steel, Prehardened Steel, Stainless Steel, Inconel, Ni Based Alloys		Hardened Steels		Hardened Steels	
Cut Speed	96 m/min		78 m/min		66 m/min		60 m/min		36 m/min		18 m/min	
Depth of Cut	a_a D < 1/16: 0.05D 1/16≤ D: 0.1D						$a_{a=0.02D}$					
Dia. (mm)	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min
0.5	44,160	350	44,160	280	44,160	280	42,090	210	26,220	110	13,800	40
0.6	44,160	410	44,160	350	40,710	300	34,500	280	21,390	110	11,660	40
0.8	43,470	550	37,260	480	30,360	350	26,220	280	15,870	110	8,760	40
1.0	36,570	690	29,670	620	24,150	480	20,700	350	13,110	110	6,970	40
1.5	24,150	830	19,320	690	15,870	550	13,800	350	8,760	110	4,620	40
2.0	17,940	830	14,490	690	12,280	550	10,490	350	6,550	110	3,450	40
2.5	14,490	830	11,940	690	9,800	550	8,420	350	5,240	110	2,760	40

Speeds & Feeds — 2-Fl. Square End Long Reach Carbide End Mills — PC412

Slot Milling

Hardness	Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Mild Steel, Carbon Steel		Alloy Steels, Tool Steel, Ti Alloys (Annealed)		Hardened Steel, Prehardened Steel, Ti Alloys (Solution Treated and Aged)		Hardened Steel, Prehardened Steel, Stainless Steel, Inconel, Ni Based Alloys		Hardened Steels		Hardened Steels	
Cut Speed	103 m/min		88 m/min		75 m/min		66 m/min		41 m/min		22 m/min	
Depth of Cut	a_a D <1/16: 0.05D 1/16≤ D: 0.1D						$a_{a=0.02D}$					
Dia. (mm)	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min
2	17,940	830	14,490	690	12,280	550	10,490	350	6,550	110	3,450	40
2.5	14,490	830	11,940	690	9,800	550	8,420	350	5,240	110	2,760	40
3	10,870	745	9,330	665	7,990	555	6,960	355	4,340	110	2,310	40
3.5	9,210	745	7,900	660	6,770	540	5,900	345	3,680	110	1,960	40
4	8,150	755	7,000	665	5,990	535	5,220	350	3,250	110	1,740	40
4.5	7,250	750	6,220	665	5,330	555	4,640	355	2,890	110	1,540	40

Speeds & Feeds — 2-Fl. Ball Nose Necked Design Short Length & Extended Reach Carbide End Mills — PC413, PC419

High Speed Milling

Hardness	Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Mild Steel, Carbon Steel	Alloy Steels, Tool Steel, Ti Alloys (Annealed)	Hardened Steel, Prehardened Steel, Ti Alloys (Solution Treated and Aged)	Hardened Steel, Prehardened Steel, Stainless Steel, Inconel, Ni Based Alloys	Hardened Steels	Hardened Steels
Cut Speed	290 m/min	250 m/min	220 m/min	175 m/min	175 m/min	120 m/min
Depth of Cut	a_a=0.02D a_r=0.05D			a_a / a_r D < 8: 0.02D / 0.05D 8 < R: 0.32mm / 0.05D		

Dia. (mm)	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min
0.5	57,500	1,670	57,500	1,610	57,500	1,610	57,500	1,380	36,800	850	36,800	850
0.6	57,500	1,900	57,500	1,900	57,500	1,900	57,500	1,610	36,800	1,010	36,800	1,010
0.8	57,500	2,530	57,500	2,530	57,500	2,300	57,500	2,190	36,800	1,320	36,800	1,150
1	57,500	3,220	57,500	3,220	57,500	2,880	54,620	2,590	36,800	1,670	28,750	1,150
2	36,550	4,010	29,190	3,220	28,620	2,880	27,460	2,590	19,810	1,780	14,590	1,150
3	23,550	4,070	18,770	3,340	18,200	2,920	17,420	2,630	12,650	1,850	9,610	1,170
4	20,800	4,250	17,850	3,890	17,280	3,150	15,590	2,810	12,650	2,170	9,150	1,260
5	17,730	4,750	16,970	4,700	15,640	3,310	12,370	2,640	11,400	2,440	8,550	1,370
6	16,540	5,290	14,810	4,720	12,710	3,030	10,440	2,480	10,440	2,480	7,250	1,270
8	13,340	4,240	11,620	3,720	10,380	2,440	8,300	1,970	8,300	1,970	5,750	1,030
10	10,640	3,360	9,230	2,910	7,990	1,900	6,370	1,510	6,370	1,510	4,420	790
12	8,670	2,730	7,490	2,350	6,500	1,530	5,180	1,210	5,180	1,210	3,590	640

Speeds & Feeds – 2-Fl. Ball Nose Necked Design Short Length & Extended Reach Carbide End Mills — PC413, PC419

Profiling

Hardness		Tensile Strength: Up to 750N/mm²	Up to 30HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Cast Iron	Mild Steel, Carbon Steel	Alloy Steels, Tool Steel, Ti Alloys (Annealed)	Hardened Steel, Prehardened Steel, Ti Alloys (Solution Treated and Aged)	Hardened Steel, Prehardened Steel, Stainless Steel, Inconel, Ni Based Alloys	Hardened Steels	Hardened Steels
Cut Speed	210 m/min	168 m/min	138 m/min	108 m/min	96 m/min	84 m/min	60 m/min
Depth of Cut	a_a=0.1D a_r=0.2D					a_a=0.05D a_r=0.01D	

Dia. (mm)	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min
0.5	52,990	1,040	52,990	1,040	52,990	830	52,990	520	52,990	410	63,290	280	46,370	210
0.6	52,990	1,120	52,990	1,120	52,990	910	52,990	550	52,990	440	63,290	300	46,370	210
0.8	52,990	1,240	52,990	1,240	52,990	980	52,990	580	52,990	460	39,580	330	28,980	220
1	52,990	1,260	52,990	1,260	52,160	1,020	41,400	660	36,430	470	31,460	350	23,180	230
2	39,120	1,550	31,800	1,260	26,080	1,020	21,020	660	18,490	480	15,970	350	12,010	230
3	24,510	1,550	19,830	1,260	16,640	1,040	13,370	680	11,720	500	10,050	360	7,510	240
4	19,250	1,550	15,870	1,260	13,290	1,040	10,610	730	9,270	610	7,950	440	5,930	280
5	15,320	1,740	12,250	1,410	10,230	1,060	8,130	740	7,160	610	6,110	470	4,580	290
6	12,590	1,810	10,050	1,470	8,380	1,140	6,640	790	5,840	660	4,980	500	3,710	310
8	9,950	2,140	7,950	1,720	6,600	1,300	5,260	910	4,600	750	3,930	530	2,910	350
10	7,650	1,960	6,110	1,560	5,080	1,210	4,030	860	3,530	710	3,040	550	2,250	340
12	6,210	1,790	4,940	1,420	4,150	1,140	3,300	800	2,880	680	2,440	500	1,810	320

Speeds & Feeds — 2-Fl. Tapered Pencil Neck Ball Nose End Mills — PC418

High Speed Milling

Hardness	Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Mild Steel, Carbon Steel		Alloy Steels, Tool Steel, Ti Alloys (Annealed)		Hardened Steel, Prehardened Steel, Ti Alloys (Solution Treated and Aged)		Hardened Steel, Prehardened Steel, Stainless Steel, Inconel, Ni Based Alloys		Hardened Steels		Hardened Steels	
Cut Speed	261 m/min		226 m/min		196 m/min		157 m/min		157 m/min		109 m/min	
Depth of Cut	a_a=0.02D a_r=0.05D						D < 8: a_a 0.02D, a_r 0.05D 8 < R: a_a 0.32mm, a_r 0.05D					
Dia. (mm)	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min
1	50,000	2,800	50,000	2,800	50,000	2,500	47,500	2,250	32,000	1,450	25,000	1,000
2	31,780	3,480	25,390	2,800	24,890	2,500	23,880	2,250	17,220	1,540	12,690	1,000
3	20,470	3,530	16,330	2,900	15,830	2,540	15,150	2,280	11,000	1,610	8,350	1,010
4	18,080	3,690	15,520	3,380	15,020	2,740	13,560	2,440	11,000	1,880	7,960	1,090
5	15,410	4,120	14,750	4,080	13,600	2,870	10,750	2,290	9,920	2,120	7,430	1,190
6	14,380	4,590	12,880	4,100	11,050	2,630	9,080	2,150	9,080	2,150	6,310	1,100
8	11,600	3,680	10,100	3,230	9,030	2,120	7,220	1,710	7,220	1,710	5,000	890
10	9,250	2,920	8,020	2,520	6,950	1,650	5,540	1,310	5,540	1,310	3,840	690
12	7,540	2,370	6,510	2,040	5,650	1,330	4,500	1,050	4,500	1,050	3,120	550

Profiling

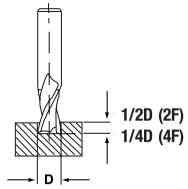
Hardness		Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Cast Iron	Mild Steel, Carbon Steel		Alloy Steels, Tool Steel, Ti Alloys (Annealed)		Hardened Steel, Prehardened Steel, Ti Alloys (Solution Treated and Aged)		Hardened Steel, Prehardened Steel, Stainless Steel, Inconel, Ni Based Alloys		Hardened Steels		Hardened Steels	
Cut Speed	210 m/min	168 m/min		138 m/min		108 m/min		96 m/min		84 m/min		60 m/min	
Depth of Cut	a_a=0.1D a_r=0.2D									a_a=0.05D a_r=0.01D			
Dia. (mm)	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min
1	46,080	1,100	46,080	1,100	45,360	890	36,000	580	31,680	410	27,360	300	20,160	200
2	34,030	1,340	27,650	1,100	22,680	890	18,280	580	16,080	410	13,880	300	10,450	200
3	21,310	1,350	17,240	1,100	14,470	910	11,630	590	10,190	430	8,740	310	6,530	210
4	16,740	1,350	13,810	1,100	11,560	910	9,230	640	8,070	530	6,910	380	5,160	250
5	13,320	1,510	10,660	1,230	8,900	920	7,070	640	6,230	530	5,320	410	3,980	250
6	10,940	1,570	8,740	1,280	7,280	990	5,780	690	5,080	580	4,330	430	3,230	270
8	8,650	1,860	6,910	1,500	5,740	1,130	4,580	790	4,000	650	3,420	460	2,540	300
10	6,650	1,700	5,320	1,360	4,420	1,060	3,500	740	3,080	620	2,650	470	1,960	290
12	5,410	1,550	4,300	1,240	3,610	990	2,870	700	2,510	590	2,130	440	1,570	280

Speeds & Feeds — 4-Fl. Square End Long Reach Carbide End Mills — PC411

Slot Milling

Hardness	Tensile Strength: Up to 750N/mm²		Up to 30HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Mild Steel, Carbon Steel		Alloy Steels, Tool Steel, Ti Alloys (Annealed)		Hardened Steel, Prehardened Steel, Ti Alloys (Solution Treated and Aged)		Hardened Steel, Prehardened Steel, Stainless Steel, Inconel, Ni Based Alloys		Hardened Steels		Hardened Steels	
Cut Speed	100 m/min		80 m/min		68 m/min		56 m/min		36 m/min		25 m/min	
Depth of Cut	a_a=0.1D						a_a=0.02D					
Dia. (mm)	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min
3	12,280	1,380	9,940	970	8,140	690	7,040	550	4,420	210	2,900	70
4	9,250	1,380	7,450	970	6,210	690	5,240	550	3,310	210	2,210	70
5	7,310	1,380	5,930	970	4,970	690	4,280	550	2,620	210	1,790	70
6	6,210	1,380	4,970	970	4,140	690	3,450	550	2,210	210	1,520	70

Materials	1. Mild Steels (Up to 70 x 10^3 lb/in^2) 2. Brass 3. Bronze		1. Medium Tensile Steels (70 x 10^3 - 115 x 10^3 lb/in^2) 2. Mild Steel Forgings 3. Cast Iron 4. Hard Brass and Bronze 5. Copper		1. High Tensile Sheers (115 x 10^3 - 142 x 10^3 lb/in^2) 2. Unalloyed Titanium 3. Heat Resistant Ferritic Low Alloys		1. High Tensile Sheets (142 x 10^3 - 200 x 10^3 lb/in^2) 2. Tool Steels 3. Medium Strength Stainless Steels 4. Medium Strength Titanium Alloys		1. Heat Resistant High Alloys 2. High Strength Stainless Steels 3. High Strength Titanium Alloys		1. Aluminum 2. Alloyed Aluminum 3. Plastic 4. Woods	
Hardness	Up to Bhn 145 Up to 0HRC		Bhn 145-237 0-22 HRC		Bhn 237-286 22-30 HRC		Bhn 286-390 30-42 HRC		Bhn 390-451 42-48 HRC			
Cutting Speeds	80~150 SFM		80~110 SFM		50~65 SFM		30~50 SFM		16~32 SFM		80~395 SFM	
Dia. of Mills	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)
1/8	4000	4.05	3000	2.70	1800	1.35	1250	0.079	800	0.34	10000	9.00
5/32	3150	4.50	2360	3.04	1400	1.46	1000	0.090	630	0.34	8000	10.24
3/16	2500	4.95	1900	3.38	1120	1.58	800	1.01	500	0.45	6300	10.80
1/4	2000	5.74	1500	3.83	900	1.80	630	1.13	400	0.56	5000	11.93
5/16	1600	6.41	1180	4.28	710	2.03	500	1.24	315	0.56	4000	13.73
3/8	1400	6.64	1060	4.50	630	2.14	450	1.35	280	0.56	3550	13.50
7/16	1120	6.75	850	4.61	500	2.25	355	1.35	224	0.56	2800	13.39
1/2	1000	6.75	750	4.28	450	2.14	315	1.35	200	0.68	2500	13.50
9/16	900	6.53	670	4.28	400	2.14	280	1.46	180	0.68	2240	12.71
5/8	800	6.08	600	4.05	355	2.14	250	1.46	160	0.68	2000	12.04
11/16	710	6.08	530	3.83	315	2.03	224	1.46	140	0.68	1800	12.15
3/4	710	6.08	530	3.83	315	2.03	224	1.46	140	0.68	1800	12.15
13/16	630	5.63	475	3.83	280	2.03	200	1.46	125	0.68	1600	11.48
7/8	560	5.29	425	3.04	250	1.80	180	1.35	112	0.68	1400	10.69
15/16	500	5.29	375	2.70	224	1.58	160	1.13	100	0.68	1250	10.13
1	500	5.29	375	2.70	224	1.58	160	1.13	100	0.68	1250	10.13
1-1/8	450	4.50	335	2.36	200	1.46	140	1.01	90	0.68	1120	9.56
1-1/4	400	4.28	300	2.14	180	1.35	125	0.90	80	0.56	1000	8.55
1-3/8	355	3.83	265	1.91	160	1.13	112	0.79	71	0.56	900	8.10
1-1/2	315	3.60	236	1.69	140	1.01	100	0.68	63	0.45	800	7.20
1-3/4	280	3.15	212	1.58	125	0.90	90	0.68	56	0.45	710	6.41
2	250	2.81	190	1.35	112	0.79	80	0.56	50	0.34	630	5.63

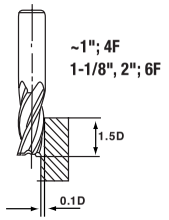


NOTES:

1) The cutting conditions in this table are given for reference, which should be varied depending on the machine, tooling, depth of cut, cutting fluid and other conditions
2) Use a holder of strong gripping force and machine of high stiffness
3) In case of deeper operation, slow down feed by 20~50%
4) The feed, in long types, should be reduced by around 50%

Call **1-800-265-8221** or visit www.**SowaTool**.com to order.

Materials	1. Mild Steels (Up to 70 x 10^3 lb/in^2) 2. Brass 3. Bronze		1. Medium Tensile Steels (70 x 10^3 - 115 x 10^3 lb/in^2) 2. Mild Steel Forgings 3. Cast Iron 4. Hard Brass and Bronze 5. Copper		1. High Tensile Sheers (115 x 10^3 - 142 x 10^3 lb/in^2) 2. Unalloyed Titanium 3. Heat Resistant Ferritic Low Alloys		1. High Tensile Sheets (142 x 10^3 - 200 x 10^3 lb/in^2) 2. Tool Steels 3. Medium Strength Stainless Steels 4. Medium Strength Titanium Alloys		1. Heat Resistant High Alloys 2. High Strength Stainless Steels 3. High Strength Titanium Alloys		1. Aluminum 2. Alloyed Aluminum 3. Plastic 4. Woods	
Hardness	Up to Bhn 145 Up to 0HRC		Bhn 145-237 0-22 HRC		Bhn 237-286 22-30 HRC		Bhn 286-390 30-42 HRC		Bhn 390-451 42-48 HRC			
Cutting Speeds	130~135 SFM		105~125 SFM		65~80 SFM		30~50 SFM		16~32 SFM		325~590 SFM	
Dia. of Mills	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)
1/8	4500	9.11	3550	6.41	2240	3.26	1250	1.46	800	0.68	16000	28.80
5/32	3550	10.24	2800	7.20	1800	3.60	1000	1.69	630	0.79	12500	31.95
3/16	2800	11.14	2240	8.10	1400	4.05	800	1.91	500	0.90	10000	34.20
1/4	2240	12.94	1800	9.11	1120	4.50	630	2.14	400	1.01	8000	38.03
5/16	1800	14.51	1400	10.13	900	5.18	500	2.36	315	1.13	6300	43.09
3/8	1600	15.30	1250	10.58	800	5.51	450	2.59	280	1.24	5600	42.75
7/16	1250	15.06	1000	10.80	630	5.63	355	2.70	224	1.13	4500	42.98
1/2	1120	15.06	900	10.24	560	5.29	315	2.70	200	1.35	4000	43.20
9/16	1000	14.40	800	10.24	500	5.60	280	2.81	180	1.35	3550	40.28
5/8	900	13.73	710	9.56	450	5.60	250	2.81	160	1.24	3150	38.03
11/16	800	13.73	630	8.55	400	5.06	224	2.81	140	1.24	2800	37.80
3/4	800	13.73	630	8.55	400	5.06	224	2.81	140	1.24	2800	37.80
13/16	710	12.83	560	7.54	355	5.06	200	2.93	125	1.24	2500	36.00
7/8	630	12.04	500	6.75	315	4.50	180	2.59	112	1.24	2240	34.31
15/16	560	11.25	450	6.08	280	4.05	160	2.25	100	1.24	2000	32.40
1	560	11.25	450	6.08	280	4.05	160	2.25	100	1.24	2000	32.40
1-1/8	500	13.97	400	7.45	250	4.97	140	2.79	90	1.86	1800	42.54
1-1/4	450	13.35	355	6.68	224	4.50	125	2.48	80	1.55	1600	37.73
1-3/8	400	11.95	315	5.90	200	4.04	112	2.17	71	1.40	1400	34.78
1-1/2	355	11.18	280	5.28	180	3.57	100	2.02	63	1.24	1250	31.05
1-3/4	315	10.69	250	5.06	160	3.49	90	1.91	56	1.24	1120	30.26
2	280	9.56	224	4.50	140	3.04	80	1.69	50	1.13	1000	27.00



NOTES:

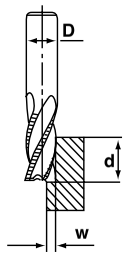
1) The cutting conditions in this table are given for reference, which should be varied depending on the machine, tooling, depth of cut, cutting fluid and other conditions
2) Use a holder of strong gripping force and machine of high stiffness
3) For 2-fl end mill slow down to 1/2 of feed speed
4) For finish cut put rpm, up to 1.5 to 1.3 times faster
5) The feed, in long types should be reduced by around 50%

End Mill Cutting Dia. & Shank Tolerances

Type	No. of Flute	Series	Shank Type	Size	Cutting Edge Tolerance	Shank Dia. Tolerance
Slot Drill & Ball Nose	2-Flute	Short	Plain/ Flatted	< 12mm & 1/2"	-0.025mm	+0.000mm -0.025mm
				> 12mm & 1/2"	h9	
		Long		< 32mm		
End Mill & Ball Nose	4-Flute	Short		< 12mm & 1/2"	-0.025mm	
				> 12mm & 1/2"	k9	
		Long		< 32mm		
Slot Drill & Ball Nose	2-Flute	Short	Threaded	< 12mm & 1/2"	-0.025mm	+0.000mm -0.025mm
				> 12mm & 1/2"	h9	
		Long		< 1.1/2"		
Unimill	3-Flute	Short		< 12mm & 1/2"		
				> 12mm & 1/2"		
		Long		< 1.1/2"		
End Mill & Ball Nose	4-Flute	Short		< 12mm & 1/2"	+0.025mm	
				> 12mm & 1/2"	k9	
		Long		< 1.1/2"		
End Mill & Ball Nose	4-Flute	Short	Plain/ Flatted	All	js10	+0.000mm -0.010mm
		Long				
		Short	Threaded			+0.000mm -0.025mm
		Long				

Roughing HSCO

Materials	1. Mild Steels (Up to 115 x 10^3 lb/in^2) 2. Mild Steel Forgings 3. Cast Iron 4. Hard Brass and Bronze 5. Copper		1. High Tensile Sheers (115 x 10^3 - 145 x 10^3 lb/in^2) 2. Unalloyed Titanium 3. Heat Resistant Ferritic Low Alloys		1. High Tensile Sheets (145 x 10^3 - 200 x 10^3 lb/in^2) 2. Tool Steels 3. Medium Strength Titanium Alloys		1. Heat Resistant High Alloys 2. High Strength Stainless Steels 3. High Strength Titanium Alloys 4. Woods		1. Aluminum 2. Alloyed Aluminum 3. Plastic Materials	
Hardness	Up to Bhn 237 Up to 22HRC		Bhn 237-286 22-30 HRC		Bhn 286-390 30-42 HRC		Bhn 390-451 42-48 HRC			
Cutting Speeds	80~100 SFM		60~75 SFM		40~55 SFM		26~40 SFM		195~330 SFM	
Dia. of Mills	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)	rpm	Feed (in/min)
1/4	1320	2.36	1000	1.46	750	0.90	500	0.63	4000	10.01
5/16	1060	2.70	800	1.69	600	1.01	400	0.75	3150	11.14
3/8	950	2.81	710	1.80	530	0.90	355	0.75	2800	11.70
1/2	670	3.38	500	2.14	375	1.35	250	0.79	2000	14.18
5/8	600	4.28	400	2.36	300	1.46	200	0.90	1600	15.86
3/4	475	4.05	355	2.48	265	1.58	180	0.90	1400	16.65
7/8	375	4.05	280	2.48	212	1.58	140	0.90	1120	16.88
1	335	3.71	250	2.36	190	1.46	125	0.90	1000	15.98
1-1/8	300	3.60	224	2.25	170	1.46	112	0.79	900	15.19
1-1/4	256	4.16	200	2.70	150	1.69	100	1.01	800	17.89
1-1/2	212	3.71	160	2.36	118	1.46	80	0.90	630	15.86
1-3/4	190	3.60	140	2.25	106	1.35	71	0.90	560	14.8
2	170	3.15	125	2.02	95	1.24	63	0.79	500	13.28



1/4" up to 1-1/8"
d=1.5 x D
W=0.5 x D
1-1/4" up to 2"
d=1 x D
W=0.5 x D

NOTES:

1) The cutting conditions in this table are given for reference, which should be varied depending on the machine, tooling, depth of cut, cutting fluid and other conditions
2) Use a holder of strong gripping force and machine of high stiffness
3) For TiN-Coated End Mills put cutting speed, feed up to 1.5~1.8 times faster
4) The feed, in long types, should be reduced by around 50%

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Drilling & Holemaking





Drilling & Holemaking

QTT PREMIUM CLASS CARBIDE DRILLS

Non-Coolant Fed 3xD, 5xD B6-7
Coolant Fed 3xD, 5xD, 8xD B8-10

GENERAL DRILL INDEX

Jobber Length Twist Drill Sets B2-4
Drill Sets, Stands & Dispensers B2-5
Jobber Drills B2-20
Black & Gold Jobber Drills B15
Slow & Fast Spiral Drills B16-17
Left Hand Drills B19-20
Stub Drills B21-22
Prentice Drills B22-23
Taper Length Drills B23-25
Aircraft Extension Drills B26-27
Extra Length Drills B28-29
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Core Drills B39
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Combined Drill & Countersinks, Centre Drills B44-45
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Vent Drills B45
Drill And Reamer Blanks B45-46

SPADE DRILL SYSTEM

. . . . . B47-53

COUNTERSINKS

Chatterfree 0-Flute B54
Single Flute B54-56
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6 Flute & Multi-Flute B59-61

REAMERS

Chucking Reamers B62-68
Taper Pin & Bridge Reamers B69-70
Jobber & Hand Reamers B70-71
Taper Pipe Reamers B70, B72
Shell Reamers & Arbors B71
Brown and Sharpe & Morse Taper Reamers B72
Expansion Chucking Reamers B72
Adjustable Blade Reamers B72

DRILL SPEEDS & FEEDS

. . . . . B73-76

Jobber Length Straight Shank Twist Drill Sets



1/16 to 1/2 by 64th
Folding Metal Case Included
29 Piece Set



Number Sizes 1 through 60
Folding Metal Case Included
60 Piece Set



A to Z Inclusive
Folding Metal Case Included
26 Piece Set



1/16 to 1/2 by 64th Inclusive
1 to 60 Inclusive
A to Z Inclusive
115 Piece Set

Sowa Premium / US Made / Quality Import

No. pcs.	HSS	Price $	No. pcs.	HSS	Price $	Cobalt	Price $	TiN Coated	Price $	HSS	Price $	TiN Coated	Price $	Black/ Gold	Price $
29 - 1/16-1/2	128119	**255.47**	29 - 1/16-1/2	118119	**191.51**	118121	**335.30**	118122	**410.70**	-	-	105370	**129.56**	105380	**131.50**
60 - #1-60	128190	**217.18**	60 - #1-60	118124	**156.05**	-	-	-	-	-	-	-	-	-	-
26 - A-Z	128276	**280.96**	20 - #61-80	-	-	-	-	-	-	105830	**50.23**	-	-	-	-
115 - 3 in 1	128280	**771.48**	26 - A-Z	118125	**196.20**	-	-	-	-	-	-	-	-	-	-
			115 - 3 in 1	118123	**551.64**	-	-	-	-	-	-	-	-	-	-

Premium HSS Jobber Length Drill Sets

These Premium HSS drills can be used in a variety of applications. Their surface treatment increases abrasion resistance, which reduces the amount of chip welding and improves chip flow.



PREMIUM HSS | 30° | 135° SPLIT POINT | JOBBERS LENGTH

Description	Pieces Per Set	Code No.	Price $
1/16 - 1/2 x 64ths Fractional Set	29	128119	**255.47**
#1 - #60 Number Set	60	128190	**217.18**
A - Z Letter Set	26	128276	**280.96**
3 in 1 Fractional/Number/Letter	115	128280	**771.48**

Black/Gold Jobber Length Drill Set

- High Speed Steel
- Black/Gold finish extends tool life
- 135° split point penetrates faster and prevents bit "walk"



HSS | BLACK/GOLD | 30° | 135° SPLIT POINT | JOBBERS LENGTH

Description	Pieces Per Set	Code No.	Price $
1/16" - 1/2" x 64ths Fractional Set	29	105380	**131.50**



Store & organize all your drills in this cabinet.

See Page B5

Jobber Length Drill Sets






STM PREMIUM

* Sizes under 1/16 - NOT split

Description	Pieces Set	Empty Case No.	Price $	Set Code No.	Price $	Sowa Premium Code No.	Price $	Quality Import Code No.	Price $
High Speed Steel - General Purpose									
Fractional 1/16 - 1/2 by 64ths	29	105374	**20.96**	118119	**191.51**	-	-	-	-
Fractional 1/16 - 1/4 by 64ths	13	105349	**11.28**	113847	**50.78**	-	-	-	-
Fractional 1/16 - 3/8 by 64ths	21	113800	**20.96**	113848	**119.29**	-	-	-	-
Fractional 1/16 - 1/2 by 32nds	15	113801	**20.96**	113849	**131.59**	-	-	-	-
Letter A-Z	26	105989	**24.18**	118125	**196.20**	-	-	-	-
Wire Gauge 1 - 60	60	105824	**20.96**	118124	**156.05**	-	-	-	-
Wire Gauge 61 - 80	20	113802	**12.09**	113850	**73.17**	-	-	105830	**50.23**
Metric 1.0mm - 6.0mm by 0.5mm	11	113803	**12.90**	113851	**49.34**	-	-	-	-
Metric 1.0mm - 10.00mm by 0.5mm	19	113804	**20.15**	113852	**133.60**	-	-	-	-
Metric 1.0mm - 13.0mm by 0.5mm	25	113805	**27.40**	113853	**262.21**	-	-	-	-
Black/Gold High Speed Steel									
135° Split Point 1/16 - 1/2 by 64ths	29	-	-	-	-	-	-	105380	**131.50**
Titanium Coated, High Speed Steel									
Fractional 1/16 - 1/2 by 64ths	29	-	-	118122	**410.70**	-	-	105370	**129.56**
Fractional 1 /16 - 1 /4 by 64ths	13	105349	**11.28**	113854	**132.05**				
Fractional 1/16 - 1/2 by 32nds	15	-	-	113855	**355.44**	-	-	-	-
Letter A - Z	26	-	-	113856	**556.79**	-	-	-	-
Wire Gauge 1 - 60	60	-	-	113857	**602.13**	-	-	-	-
Cobalt, 135° Split Point									
Fractional 1/16 - 1/2 by 64ths	29	-	-	118121	**335.30**	-	-	-	-
Fractional 1/16 - 1/2 by 32nds	15	-	-	113858	**230.83**	-	-	-	-
Fractional 1/16 - 3/8 by 64ths	21	-	-	113859	**210.10**	-	-	-	-
Fractional 1/16 - 1/4 by 64ths	13	105349	**11.28**	113860	**84.70**	-	-	-	-
Letter A - Z	26	-	-	113861	**452.35**	-	-	-	-
*Wire Gauge 1 - 60	60	-	-	113862	**341.70**	-	-	-	-
*Wire Gauge 61 - 80	20	-	-	113863	**127.39**	-	-	-	-
Combination Sets, General Purpose									
1/16 - 1/2 by 64ths, A - Z, 1 - 60	115	105994	**77.38**	118123	**551.64**	-	-	-	-
1/16 - 1/2 by 64ths, A - Z, 1 - 80	135	-	-	113864	**793.93**	-	-	-	-
1/16-1/2 by 64ths, 1-80,1-13mm by 0.5mm	134	-	-	113865	**717.11**	-	-	-	-
Combination Set, Titanium Coated									
1/16 - 1/2 by 64ths, A - Z, 1 - 60	115	-	-	113866	**1,862.17**	-	-	-	-
Combination Set, Cobalt									
135° Sp. Pt. 1/16 - 1/2 by 64ths, A - Z, 1 - 60	115	-	-	113867	**1,255.48**	-	-	-	-
Split Point, High Speed Steel									
118° Split Point 1/16 - 1/2 by 64ths	29	-	-	113868	**324.63**	-	-	-	-
135° Split Point 1/16 - 1/2 by 64ths	29	-	-	113869	**324.63**	128119	**255.47**	-	-
135° Split Point Wire Gauge 1 - 60	60	-	-	-	-	128190	**217.18**	-	-
135° Split Point Letter A - Z	26	-	-	-	-	128276	**280.96**	-	-
Combination Set, Split Point HSS									
135° 1/16- 1/2 by 64ths, A - Z, 1 - 60	115	-	-	-	-	128280	**771.48**	-	-
Left Hand, High Speed Steel									
Fractional 1/16 - 1/2 by 64ths	29	-	-	113870	**630.96**	-	-	-	-
Letter A - Z	26	-	-	113871	**645.82**	-	-	-	-
Wire Gauge 1 - 60	60	-	-	113872	**539.71**	-	-	-	-
Fast Spiral, High Speed Steel									
Fractional 1/16 - 1/2 by 64ths	29	-	-	113873	**325.52**	-	-	-	-
Parabolic Flute, High Speed Steel									
Fractional 1/16 - 1/2 by 64ths	29	-	-	113875	**502.35**	-	-	-	-
Carbide Tip, High Speed Steel									
Fractional 1/8 - 1/2 by 64ths	25	-	-	113876	**1,420.02**	-	-	-	-
Carbide									
Fractional 1/16 - 1/2 by 32nds	15	-	-	113877	**2,207.96**	-	-	-	-
Fractional 1/8 - 1/4 by 64ths	9	-	-	113878	**634.94**	-	-	-	-

Screw Machine Length Drill Sets




Description	Pieces per Set	Set No.	Empty Case No.	Price $	Code No.	Price $
High Speed Steel, 135° Split Point						
Fractional 1/16 - 1/2 by 64ths	29	607F	113807	**32.24**	113879	**238.59**
Fractional 1/16 - 1/4 by 64ths	13	607G	113808	**17.73**	113880	**53.99**
Letter A-Z	26	607L	113809	**32.24**	113881	**275.51**
*Wire Gauge 1-60	60	607W	113810	**32.24**	113882	**213.98**
*Comb. 1/16-1/2 by 64ths, A-Z, 1-60	115	607X	113811	**96.72**	113883	**710.90**
High Speed Steel, 118° Standard Point						
Fractional 1/2 - 1" by 64ths'"	33	607H	-	-	113884	**2,334.91**
Cobalt, 135° Split Point						
Fractional 1/16 - 1/2 by 64ths	29	607CF	113807	**32.24**	113885	**476.63**
Letter A - Z	26	607CL	113809	**32.24**	113886	**501.24**
*Wire Gauge 1-60	60	607CW	113810	**32.24**	113887	**367.65**

Taper Length/Taper Shank Drill Sets




Description	Pieces per Set	Set No.	Empty Case No.	Price $	Code No.	Price $
High Speed Steel						
Fractional 1/16 - 1/2 by 64ths	29	407A	113812	**48.36**	113888	**503.24**
Fractional 33/64 - 3/4 by 64ths	16	4078	113813	**177.32**	113889	**1,147.83**
Fractional 49/64 - 1" by 64ths	16	407C	113814	**209.56**	113890	**2,092.32**
Letter A-Z	26	407L	113815	**48.36**	113891	**700.13**
Wire Gauge 1-60	60	407W	113816	**78.99**	113892	**903.13**
Cobalt, 135° Split Point						
Fractional 1/16 - 1/2 by 64ths	29	407CF	113807	**32.24**	113893	**1,299.49**
Taper Shank, High Speed Steel						
Fractional 33/64 - 3/4 by 64ths	16	200A	113813	**177.32**	113894	**1,432.53**
Fractional 49/64 - 1" by 64ths	16	200B	113814	**209.56**	113895	**2,404.31**

Aircraft Extension Drill Sets



Description	Pieces per Set	Set No.	Empty Case No.	Price $	Code No.	Price $
High Speed Steel						
Frac. - 6" OAL 1 /16-3/8 x 64ths	21	906SF	113908	**19.39**	113896	**294.58**
Frac. - 12" OAL 1 /16-1/2 x 64ths	29	912SF	113908	**19.39**	113897	**1,164.13**
Letter - 12" OAL A-Z	26	912SL	113909	**19.39**	113898	**1,228.20**
Wire Gauge - 6" OAL 1-60	60	906SW	113910	**19.39**	113899	**598.47**
Wire Gauge - 12" OAL 1-60	60	912SW	113910	**19.39**	113900	**1,537.65**

Extra Length Drill Sets



Description	Pieces per Set	Set No.	Empty Case No.	Price $	Code No.	Price $
Straight Shank, High Speed Steel						
8" Overall 1/8 - 3/8 by 64ths	17	208ES	113908	**19.39**	113901	**561.66**
10" Overall 3/16 - 1/2 by 64ths	21	210ES	113908	**19.39**	113902	**1,006.69**
12" Overall 1/8 - 1/2 by 64ths	25	212ES	113908	**19.39**	113903	**1,412.47**
18" Overall 3/16 - 1/2 by 32nds	11	218ES	113908	**19.39**	113904	**1,107.81**

Reduced Shank Drill Sets




Description	Pieces per Set	Set No.	Empty Case No.	Price $	Code No.	Price $
High Speed Steel						
1/4" shank 1/16 - 1/2 by 64ths	29	304A	113911	**31.60**	113913	**417.20**
1/4" shank 1/4 - 1/2 by 16ths drill, 1/4- 1/2 by 1/16ths CT masonry	10	304B	-	-	113914	**154.22**
3/8" shank 1/16 - 1/2 by 64ths	29	308A	-	-	113915	**424.51**
3/8" shank 3/8 - 5/8 by 32nds	8	308D	-	-	113916	**335.49**
1/2" shank 9/16 - 1" by 16ths	8	303SA	113912	**86.15**	113917	**355.11**
1/2" shank 1-1/16 - 1-1/2 by 16ths	8	303SB	-	-	113918	**1,184.64**
1/2" shk. 9/16-1" x 16ths, 1-1/8, 1-1/4	10	303SC	-	-	113919	**546.03**
1/2" shk. 17/32 - 3/4 by 32nds, 13/16 - 1" by 16ths, 31 /32	13	303SD	-	-	113920	**658.89**
1/2" shank 33/64 - 1 " by 64ths	32	303SE	-	-	113921	**1,418.46**
3/4" shank 1" - 1-1/2 by 8ths	5	306A	-	-	113922	**1,666.58**
3/4" shank 1"-2" by 4ths	5	306B	-	-	113923	**2,527.04**
Cobalt						
1/2" shank 9/16- 1" by 16ths	8	303CA	113912	**86.15**	113924	**816.10**
1/2" shank 9/16-1"x 16ths, 1-1/8,1-1/4	10	303CS	-	-	113925	**1,310.47**
1/2" shank 1-1/16-1-1/2 by 16ths	8	303CB	-	-	113926	**2,266.61**
1/2" shank 17/32 -3/4 by 32nds, 13/16- 1" by 16ths, 31/32	13	303CD	-	-	113927	**1,580.89**
1 /2" shank 33/64 - 1" by 64ths	32	303CE	-	-	113928	**3,189.59**
3/4" shank 1"- 1-1/2 by 8ths	5	306D	-	-	113929	**2,929.94**
3/4" shank 1"-2" by 4ths	5	306E	-	-	113930	**4,512.38**

Drill Stands



Description	Pieces per Set	Code No.	Price $
Standard Shanks			
Fractional 1/16 - 1/2 by 64ths	29	113908	**19.39**
Letter A-Z	26	113909	**19.39**
Wire Gauge 1-60	60	113910	**19.39**

Prentice Drill Sets HSS

QUALITY IMPORT



Set	Dia. (in.)	HSS Code No.	Price $
8pc in Metal Case	9/16; 5/8; 11/16; 3/4; 13/16; 7/8; 15/16; 1	107225	**411.00**
8pc on Wooden Block	9/16; 5/8; 11/16; 3/4; 13/16; 7/8; 15/16; 1	107226	**514.47**
12pc on Wooden Block	17/32; 9/16; 19/32; 5/8; 21/32; 11/16; 23/32; 3/4; 13/16; 7/8; 15/16; 1	107227	**780.93**
5pc on Wooden Block	1; 1-1/8; 1-1/4; 1-3/8; 1-1/2	107228	**617.81**

Drill Dispenser Cabinets

STM PREMIUM



Description	Case No.	Code No.	Price $
Steel Cabinet holds 1/16-1/2 x 64ths Jobber Drills	13000	113826	**140.24**
Steel Cabinet holds #1-60 Jobber Drills	13025	113827	**177.32**

Chatterfree HSS Countersink Sets

STM

HSS



Description	Set Contents	Set Code No.	Price $
82°	0, 1, 2, 3, 4	121035	**238.25**
90°	0, 1, 2, 3, 4	121033	**238.25**

3 Flute Countersink Sets HSS

STM

HSS



Description	82° HSS Code No.	Price $	90° HSS Code No.	Price $
5 piece - 1/4, 3/8, 1/2, 3/4, 1	121048	**401.70**	121060	**416.07**

5pc 3 Flute Countersink Sets

SOWA

- M35 Cobalt
- Wide flutes provide good chip evacuation
- Positive cut
- Constant profile aids regrinding of the tool
- Self-centering of the cutting mill (three bearing points)
- Virtually eliminates vibration



121865 121870

Description	Code No.	Price $
Includes 6.3mm, 10.4mm, 16.5mm, 20.5mm, 25.0mm		
82° HSCO	121860	**328.00**
90° HSS	121865	**328.00**
TiN Coated 10.4mm, 16.5mm, 20.5mm, 25mm, 31mm		
82° HSCO TiN	121870	**508.28**

3 Flute Countersink Sets HSS

STM

HSS



Set Size (in.)	60° Code No.	Price $	82° Code No.	Price $	90° Code No.	Price $	100° Code No.	Price $
5 piece								
1/4, 3/8, 1/2, 3/4, 1	120865	**180.94**	120854	**180.94**	120856	**180.94**	-	**-**
6 piece								
1/4, 3/8, 1/2, 5/8, 3/4, 1	120866	**215.73**	120868	**215.73**	120870	**215.73**	120872	**215.73**

6 Flute HSS Machine Countersink Sets

STM

HSS



Set Size (in.)	60° Code No.	Price $	82° Code No.	Price $	90° Code No.	Price $
5 piece						
1/4, 3/8, 1/2, 3/4, 1	-	**-**	120877	**218.62**	120881	**218.62**
8 piece						
1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1	120874	**354.11**	120878	**354.11**	120882	**354.11**
10 piece						
1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/4, 1-1/2	120875	**661.38**	120879	**661.38**	120883	**661.38**
11 piece						
3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/4, 1-1/2	120876	**678.96**	120880	**678.96**	120884	**678.96**

3 X D Premium Class Sub-Micrograin Carbide Drills



QUALITY TECH TOOL

PC243

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
3.0	20	6	62	133400	**55.06**
3.1	20	6	62	133401	**55.06**
3.2	20	6	62	133402	**55.06**
3.3	20	6	62	133403	**55.06**
3.4	20	6	62	133404	**55.06**
3.5	20	6	62	133405	**66.86**
3.6	20	6	62	133406	**66.86**
3.7	24	6	62	133407	**55.06**
3.8	24	6	66	133408	**55.06**
3.9	24	6	66	133409	**66.86**
4.0	24	6	66	133410	**55.06**
4.1	24	6	66	133411	**66.86**
4.2	24	6	66	133412	**55.06**
4.3	24	6	66	133413	**55.06**
4.4	24	6	66	133414	**66.86**
4.5	24	6	66	133415	**55.06**
4.6	24	6	66	133416	**66.86**
4.7	24	6	66	133417	**55.06**
4.8	28	6	66	133418	**55.06**
4.9	28	6	66	133419	**66.86**
5.0	28	6	66	133420	**55.06**
5.1	28	6	66	133421	**55.06**
5.2	28	6	66	133422	**66.86**
5.3	28	6	66	133423	**55.06**
5.4	28	6	66	133424	**66.86**
5.5	28	6	66	133425	**55.06**
5.6	28	6	66	133426	**55.06**
5.7	28	6	66	133427	**66.86**
5.8	28	6	66	133428	**55.06**
5.9	28	6	66	133429	**55.06**
6.0	28	6	66	133430	**55.06**
6.1	34	8	79	133431	**89.53**
6.2	34	8	79	133432	**89.53**
6.3	34	8	79	133433	**89.53**
6.4	34	8	79	133434	**89.53**
6.5	34	8	79	133435	**89.53**
6.6	34	8	79	133436	**89.53**
6.7	34	8	79	133437	**89.53**
6.8	34	8	79	133438	**89.53**
6.9	34	8	79	133439	**89.53**
7.0	34	8	79	133440	**89.53**
7.1	41	8	79	133441	**89.53**
7.2	41	8	79	133442	**89.53**
7.3	41	8	79	133443	**93.05**
7.4	41	8	79	133444	**89.53**
7.5	41	8	79	133445	**89.53**
7.6	41	8	79	133446	**89.53**
7.7	41	8	79	133447	**89.53**
7.8	41	8	79	133448	**89.53**
7.9	41	8	79	133449	**89.53**
8.0	41	8	79	133450	**89.53**
8.1	47	10	89	133451	**146.56**
8.2	47	10	89	133452	**146.56**
8.3	47	10	89	133453	**146.56**
8.4	47	10	89	133454	**146.56**
8.5	47	10	89	133455	**146.56**
8.6	47	10	89	133456	**146.56**
8.7	47	10	89	133457	**146.56**
8.8	47	10	89	133458	**146.56**
8.9	47	10	89	133459	**146.56**

PC243

Speeds & Feeds ➤ P. B73

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
9.0	47	10	89	133460	**146.56**
9.1	47	10	89	133461	**146.56**
9.2	47	10	89	133462	**146.56**
9.3	47	10	89	133463	**146.56**
9.4	47	10	89	133464	**146.56**
9.5	47	10	89	133465	**146.56**
9.6	47	10	89	133466	**146.56**
9.7	47	10	89	133467	**146.56**
9.8	47	10	89	133468	**146.56**
9.9	47	10	89	133469	**146.56**
10.0	47	10	89	133470	**146.56**
10.1	55	12	102	133471	**219.42**
10.2	55	12	102	133472	**219.42**
10.3	55	12	102	133473	**219.42**
10.4	55	12	102	133474	**219.42**
10.5	55	12	102	133475	**219.42**
10.6	55	12	102	133476	**219.42**
10.7	55	12	102	133477	**219.42**
10.8	55	12	102	133478	**219.42**
10.9	55	12	102	133479	**219.42**
11.0	55	12	102	133480	**219.42**
11.1	55	12	102	133481	**219.42**
11.2	55	12	102	133482	**219.42**
11.3	55	12	102	133483	**219.42**
11.4	55	12	102	133484	**219.42**
11.5	55	12	102	133485	**219.42**
11.6	55	12	102	133486	**219.42**
11.7	55	12	102	133487	**219.42**
11.8	55	12	102	133488	**219.42**
11.9	55	12	102	133489	**219.42**
12.0	55	12	102	133490	**219.42**
12.1	60	14	107	133491	**255.96**
12.2	60	14	107	133492	**255.96**
12.3	60	14	107	133493	**255.96**
12.4	60	14	107	133494	**255.96**
12.5	60	14	107	133495	**255.96**
12.6	60	14	107	133496	**255.96**
12.7	60	14	107	133497	**233.29**
12.8	60	14	107	133498	**255.96**
12.9	60	14	107	133499	**255.96**
13.0	60	14	107	133500	**255.96**
13.1	60	14	107	133501	**255.96**
13.2	60	14	107	133502	**255.96**
13.3	60	14	107	133503	**255.96**
13.4	60	14	107	133504	**255.96**
13.5	60	14	107	133505	**255.96**
14.0	60	14	107	133506	**255.96**
14.5	65	16	115	133507	**381.71**
15.0	65	16	115	133508	**381.71**
15.5	65	16	115	133509	**381.71**
16.0	65	16	115	133510	**381.71**
16.5	73	18	123	133511	**536.44**
17.0	73	18	123	133512	**536.44**
17.5	73	18	123	133513	**536.44**
18.0	73	18	123	133514	**536.44**
18.5	79	20	131	133515	**605.68**
19.0	79	20	131	133516	**605.68**
19.5	79	20	131	133517	**605.68**
20.0	79	20	131	133518	**605.68**

5 X D Premium Class Sub-Micrograin Carbide Drills



QTT QUALITY TECH TOOL

PC245



Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
3.0	28	6	66	133520	**74.62**
3.1	28	6	66	133521	**55.99**
3.2	28	6	66	133522	**55.99**
3.3	28	6	66	133523	**74.62**
3.4	28	6	66	133524	**74.62**
3.5	28	6	66	133525	**74.62**
3.6	28	6	66	133526	**74.62**
3.7	28	6	66	133527	**60.75**
3.8	36	6	74	133528	**60.75**
3.9	36	6	74	133529	**60.75**
4.0	36	6	74	133530	**60.75**
4.1	36	6	74	133531	**81.14**
4.2	36	6	74	133532	**60.75**
4.3	36	6	74	133533	**60.75**
4.4	36	6	74	133534	**81.14**
4.5	36	6	74	133535	**60.75**
4.6	36	6	74	133536	**60.75**
4.7	44	6	82	133537	**81.14**
4.8	44	6	82	133538	**60.75**
4.9	44	6	82	133539	**81.14**
5.0	44	6	82	133540	**60.75**
5.1	44	6	82	133541	**60.75**
5.2	44	6	82	133542	**60.75**
5.3	44	6	82	133543	**81.14**
5.4	44	6	82	133544	**81.14**
5.5	44	6	82	133545	**81.14**
5.6	44	6	82	133546	**81.14**
5.7	44	6	82	133547	**81.14**
5.8	44	6	82	133548	**81.14**
5.9	44	6	82	133549	**81.14**
6.0	44	6	82	133550	**60.75**
6.1	53	8	91	133551	**115.61**
6.2	53	8	91	133552	**93.05**
6.3	53	8	91	133553	**93.05**
6.4	53	8	91	133554	**93.05**
6.5	53	8	91	133555	**93.05**
6.6	53	8	91	133556	**115.61**
6.7	53	8	91	133557	**115.61**
6.8	53	8	91	133558	**93.05**
6.9	53	8	91	133559	**93.05**
7.0	53	8	91	133560	**93.05**
7.1	53	8	91	133561	**93.05**
7.2	53	8	91	133562	**115.61**
7.3	53	8	91	133563	**115.61**
7.4	53	8	91	133564	**115.61**
7.5	53	8	91	133565	**115.61**
7.6	53	8	91	133566	**115.61**
7.7	53	8	91	133567	**115.61**
7.8	53	8	91	133568	**115.61**
7.9	53	8	91	133569	**93.05**
8.0	53	8	91	133570	**115.61**
8.1	61	10	103	133571	**136.62**
8.2	61	10	103	133572	**136.62**
8.3	61	10	103	133573	**136.62**
8.4	61	10	103	133574	**136.62**
8.5	61	10	103	133575	**136.62**
8.6	61	10	103	133576	**136.62**
8.7	61	10	103	133577	**136.62**
8.8	61	10	103	133578	**136.62**
8.9	61	10	103	133579	**136.62**

PC245

Speeds & Feeds ➤ P. B73

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
9.0	61	10	103	133580	**136.62**
9.1	61	10	103	133581	**136.62**
9.2	61	10	103	133582	**136.62**
9.3	61	10	103	133583	**136.62**
9.4	61	10	103	133584	**136.62**
9.5	61	10	103	133585	**136.62**
9.6	61	10	103	133586	**136.62**
9.7	61	10	103	133587	**136.62**
9.8	61	10	103	133588	**136.62**
9.9	61	10	103	133589	**136.62**
10.0	61	10	103	133590	**136.62**
10.1	71	12	118	133591	**217.04**
10.2	71	12	118	133592	**217.04**
10.3	71	12	118	133593	**217.04**
10.4	71	12	118	133594	**217.04**
10.5	71	12	118	133595	**217.04**
10.6	71	12	118	133596	**217.04**
10.7	71	12	118	133597	**217.04**
10.8	71	12	118	133598	**217.04**
10.9	71	12	118	133599	**217.04**
11.0	71	12	118	133600	**217.04**
11.1	71	12	118	133601	**217.04**
11.2	71	12	118	133602	**217.04**
11.3	71	12	118	133603	**217.04**
11.4	71	12	118	133604	**217.04**
11.5	71	12	118	133605	**217.04**
11.6	71	12	118	133606	**217.04**
11.7	71	12	118	133607	**217.04**
11.8	71	12	118	133608	**217.04**
11.9	71	12	118	133609	**217.04**
12.0	71	12	118	133610	**217.04**
12.1	77	14	124	133611	**301.39**
12.2	77	14	124	133612	**301.39**
12.3	77	14	124	133613	**301.39**
12.4	77	14	124	133614	**301.39**
12.5	77	14	124	133615	**301.39**
12.6	77	14	124	133616	**301.39**
12.7	77	14	124	133617	**204.83**
12.8	77	14	124	133618	**301.39**
12.9	77	14	124	133619	**301.39**
13.0	77	14	124	133620	**301.39**
13.1	77	14	124	133621	**301.39**
13.2	77	14	124	133622	**301.39**
13.3	77	14	124	133623	**301.39**
13.4	77	14	124	133624	**301.39**
13.5	77	14	124	133625	**301.39**
14.0	77	14	124	133626	**301.39**
14.5	83	16	133	133627	**418.04**
15.0	83	16	133	133628	**418.04**
15.5	83	16	133	133629	**418.04**
16.0	83	16	133	133630	**418.04**
16.5	93	18	143	133631	**564.08**
17.0	93	18	143	133632	**564.08**
17.5	93	18	143	133633	**564.08**
18.0	93	18	143	133634	**564.08**
18.5	101	20	153	133635	**775.94**
19.0	101	20	153	133636	**775.94**
19.5	101	20	153	133637	**775.94**
20.0	101	20	153	133638	**775.94**

3 X D Premium Class Coolant-Fed Sub-Micrograin Carbide Drills



QUALITY TECH TOOL

PC253

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
3.0	20	6	62	138210	**89.63**
3.1	20	6	62	138211	**89.63**
3.2	20	6	62	138212	**89.63**
3.3	20	6	62	138213	**89.63**
3.4	20	6	62	138214	**89.63**
3.5	20	6	62	138215	**89.63**
3.6	20	6	62	138216	**89.63**
3.7	24	6	62	138217	**89.63**
3.8	24	6	66	138218	**89.63**
3.9	24	6	66	138219	**89.63**
4.0	24	6	66	138220	**89.63**
4.1	24	6	66	138221	**89.63**
4.2	24	6	66	138222	**89.63**
4.3	24	6	66	138223	**89.63**
4.4	24	6	66	138224	**89.63**
4.5	24	6	66	138225	**89.63**
4.6	24	6	66	138226	**89.63**
4.7	24	6	66	138227	**89.63**
4.8	28	6	66	138228	**89.63**
4.9	28	6	66	138229	**89.63**
5.0	28	6	66	138230	**89.63**
5.1	28	6	66	138231	**89.63**
5.2	28	6	66	138232	**89.63**
5.3	28	6	66	138233	**89.63**
5.4	28	6	66	138234	**89.63**
5.5	28	6	66	138235	**89.63**
5.6	28	6	66	138236	**89.63**
5.7	28	6	66	138237	**89.63**
5.8	28	6	66	138238	**89.63**
5.9	28	6	66	138239	**89.63**
6.0	28	6	66	138240	**89.63**
6.1	34	8	79	138241	**101.43**
6.2	34	8	79	138242	**101.43**
6.3	34	8	79	138243	**101.43**
6.4	34	8	79	138244	**123.89**
6.5	34	8	79	138245	**101.43**
6.6	34	8	79	138246	**101.43**
6.7	34	8	79	138247	**101.43**
6.8	34	8	79	138248	**101.43**
6.9	34	8	79	138249	**101.43**
7.0	34	8	79	138250	**101.43**
7.1	41	8	79	138251	**101.43**
7.2	41	8	79	138252	**101.43**
7.3	41	8	79	138253	**101.43**
7.4	41	8	79	138254	**101.43**
7.5	41	8	79	138255	**101.43**
7.6	41	8	79	138256	**101.43**
7.7	41	8	79	138257	**101.43**
7.8	41	8	79	138258	**101.43**
7.9	41	8	79	138259	**101.43**
8.0	41	8	79	138260	**101.43**
8.1	47	10	89	138261	**171.71**
8.2	47	10	89	138262	**171.71**
8.3	47	10	89	138263	**171.71**
8.4	47	10	89	138264	**171.71**
8.5	47	10	89	138265	**171.71**
8.6	47	10	89	138266	**171.71**
8.7	47	10	89	138267	**171.71**
8.8	47	10	89	138268	**171.71**
8.9	47	10	89	138269	**171.71**

PC253

Speeds & Feeds ➤ P. B74

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
9.0	47	10	89	138270	**171.71**
9.1	47	10	89	138271	**171.71**
9.2	47	10	89	138272	**171.71**
9.3	47	10	89	138273	**171.71**
9.4	47	10	89	138274	**171.71**
9.5	47	10	89	138275	**171.71**
9.6	47	10	89	138276	**171.71**
9.7	47	10	89	138277	**171.71**
9.8	47	10	89	138278	**171.71**
9.9	47	10	89	138279	**171.71**
10.0	47	10	89	138280	**171.71**
10.1	55	12	102	138281	**262.68**
10.2	55	12	102	138282	**262.68**
10.3	55	12	102	138283	**262.68**
10.4	55	12	102	138284	**262.68**
10.5	55	12	102	138285	**262.68**
10.6	55	12	102	138286	**262.68**
10.7	55	12	102	138287	**262.68**
10.8	55	12	102	138288	**262.68**
10.9	55	12	102	138289	**262.68**
11.0	55	12	102	138290	**262.68**
11.1	55	12	102	138291	**262.68**
11.2	55	12	102	138292	**262.68**
11.3	55	12	102	138293	**262.68**
11.4	55	12	102	138294	**262.68**
11.5	55	12	102	138295	**262.68**
11.6	55	12	102	138296	**262.68**
11.7	55	12	102	138297	**262.68**
11.8	55	12	102	138298	**262.68**
11.9	55	12	102	138299	**262.68**
12.0	55	12	102	138300	**262.68**
12.1	60	14	107	138301	**273.86**
12.2	60	14	107	138302	**273.86**
12.3	60	14	107	138303	**273.86**
12.4	60	14	107	138304	**273.86**
12.5	60	14	107	138305	**318.99**
12.6	60	14	107	138306	**318.99**
12.7	60	14	107	138307	**226.46**
12.8	60	14	107	138308	**318.99**
12.9	60	14	107	138309	**318.99**
13.0	60	14	107	138310	**318.99**
13.1	60	14	107	138311	**318.99**
13.2	60	14	107	138312	**318.99**
13.3	60	14	107	138313	**318.99**
13.4	60	14	107	138314	**318.99**
13.5	60	14	107	138315	**318.99**
14.0	60	14	107	138316	**318.99**
14.5	65	16	115	138317	**447.02**
15.0	65	16	115	138318	**447.02**
15.5	65	16	115	138319	**447.02**
16.0	65	16	115	138320	**447.02**
16.5	73	18	123	138321	**656.19**
17.0	73	18	123	138322	**517.91**
17.5	73	18	123	138323	**517.91**
18.0	73	18	123	138324	**517.91**
18.5	79	20	131	138325	**756.59**
19.0	79	20	131	138326	**756.59**
19.5	79	20	131	138327	**756.59**
20.0	79	20	131	138328	**756.59**

5 X D Premium Class Coolant-Fed Sub-Micrograin Carbide Drills

QTT QUALITY TECH TOOL



PC255

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
3.0	28	6	66	138330	**92.94**
3.1	28	6	66	138331	**92.94**
3.2	28	6	66	138332	**92.94**
3.3	28	6	66	138333	**92.94**
3.4	28	6	66	138334	**92.94**
3.5	28	6	66	138335	**92.94**
3.6	28	6	66	138336	**92.94**
3.7	28	6	66	138337	**92.94**
3.8	36	6	74	138338	**97.50**
3.9	36	6	74	138339	**97.50**
4.0	36	6	74	138340	**97.50**
4.1	36	6	74	138341	**97.50**
4.2	36	6	74	138342	**123.79**
4.3	36	6	74	138343	**97.50**
4.4	36	6	74	138344	**97.50**
4.5	36	6	74	138345	**97.50**
4.6	36	6	74	138346	**97.50**
4.7	44	6	82	138347	**97.50**
4.8	44	6	82	138348	**97.50**
4.9	44	6	82	138349	**97.50**
5.0	44	6	82	138350	**97.50**
5.1	44	6	82	138351	**97.50**
5.2	44	6	82	138352	**97.50**
5.3	44	6	82	138353	**97.50**
5.4	44	6	82	138354	**97.50**
5.5	44	6	82	138355	**97.50**
5.6	44	6	82	138356	**97.50**
5.7	44	6	82	138357	**97.50**
5.8	44	6	82	138358	**97.50**
5.9	44	6	82	138359	**97.50**
6.0	44	6	82	138360	**97.50**
6.1	53	8	91	138361	**111.99**
6.2	53	8	91	138362	**111.99**
6.3	53	8	91	138363	**111.99**
6.4	53	8	91	138364	**111.99**
6.5	53	8	91	138365	**111.99**
6.6	53	8	91	138366	**111.99**
6.7	53	8	91	138367	**111.99**
6.8	53	8	91	138368	**111.99**
6.9	53	8	91	138369	**111.99**
7.0	53	8	91	138370	**111.99**
7.1	53	8	91	138371	**111.99**
7.2	53	8	91	138372	**111.99**
7.3	53	8	91	138373	**111.99**
7.4	53	8	91	138374	**111.99**
7.5	53	8	91	138375	**111.99**
7.6	53	8	91	138376	**111.99**
7.7	53	8	91	138377	**111.99**
7.8	53	8	91	138378	**111.99**
7.9	53	8	91	138379	**111.99**
8.0	53	8	91	138380	**111.99**
8.1	61	10	103	138381	**179.99**
8.2	61	10	103	138382	**179.99**
8.3	61	10	103	138383	**179.99**
8.4	61	10	103	138384	**179.99**
8.5	61	10	103	138385	**185.16**
8.6	61	10	103	138386	**179.99**
8.7	61	10	103	138387	**179.99**
8.8	61	10	103	138388	**179.99**
8.9	61	10	103	138389	**179.99**

PC255

Speeds & Feeds ➤ P. B74

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
9.0	61	10	103	138390	**179.99**
9.1	61	10	103	138391	**179.99**
9.2	61	10	103	138392	**179.99**
9.3	61	10	103	138393	**179.99**
9.4	61	10	103	138394	**179.99**
9.5	61	10	103	138395	**179.99**
9.6	61	10	103	138396	**179.99**
9.7	61	10	103	138397	**179.99**
9.8	61	10	103	138398	**179.99**
9.9	61	10	103	138399	**179.99**
10.0	61	10	103	138400	**179.99**
10.1	71	12	118	138401	**251.82**
10.2	71	12	118	138402	**251.82**
10.3	71	12	118	138403	**251.82**
10.4	71	12	118	138404	**251.82**
10.5	71	12	118	138405	**251.82**
10.6	71	12	118	138406	**251.82**
10.7	71	12	118	138407	**251.82**
10.8	71	12	118	138408	**251.82**
10.9	71	12	118	138409	**251.82**
11.0	71	12	118	138410	**251.82**
11.1	71	12	118	138411	**251.82**
11.2	71	12	118	138412	**251.82**
11.3	71	12	118	138413	**251.82**
11.4	71	12	118	138414	**251.82**
11.5	71	12	118	138415	**251.82**
11.6	71	12	118	138416	**251.82**
11.7	71	12	118	138417	**251.82**
11.8	71	12	118	138418	**251.82**
11.9	71	12	118	138419	**251.82**
12.0	71	12	118	138420	**251.82**
12.1	77	14	124	138421	**335.24**
12.2	77	14	124	138422	**335.24**
12.3	77	14	124	138423	**335.24**
12.4	77	14	124	138424	**335.24**
12.5	77	14	124	138425	**316.19**
12.6	77	14	124	138426	**316.19**
12.7	77	14	124	138427	**316.19**
12.8	77	14	124	138428	**316.19**
12.9	77	14	124	138429	**316.19**
13.0	77	14	124	138430	**316.19**
13.1	77	14	124	138431	**316.19**
13.2	77	14	124	138432	**316.19**
13.3	77	14	124	138433	**316.19**
13.4	77	14	124	138434	**316.19**
13.5	77	14	124	138435	**316.19**
14.0	77	14	124	138436	**316.19**
14.5	83	16	133	138437	**497.01**
15.0	83	16	133	138438	**497.01**
15.5	83	16	133	138439	**497.01**
16.0	83	16	133	138440	**497.01**
16.5	93	18	143	138441	**696.35**
17.0	93	18	143	138442	**548.76**
17.5	93	18	143	138443	**548.76**
18.0	93	18	143	138444	**548.76**
18.5	101	20	153	138445	**854.81**
19.0	101	20	153	138446	**854.81**
19.5	101	20	153	138447	**854.81**
20.0	101	20	153	138448	**854.81**

8 X D Premium Class Coolant-Fed Sub-Micrograin Carbide Drills

QTT QUALITY TECH TOOL



SUB MICRO GRAIN CARBIDE | TiAlN | 8x DIAMETER | 25°–30° | 140°

PC258

Speeds & Feeds ➤ P. B74

Cutting Dia. (mm)	Flute Length (mm)	Shank Dia. (mm)	Overall Length (mm)	Code No.	Price $
3.0	50	6	95	138450	**102.15**
3.1	50	6	95	138451	**102.15**
3.2	50	6	95	138452	**102.15**
3.3	50	6	95	138453	**102.15**
3.4	50	6	95	138454	**102.15**
3.5	50	6	95	138455	**205.14**
3.6	50	6	95	138456	**102.15**
3.7	50	6	95	138457	**102.15**
3.8	50	6	95	138458	**113.33**
3.9	50	6	95	138459	**113.33**
4.0	50	6	95	138460	**113.33**
4.1	50	6	95	138461	**113.33**
4.2	50	6	95	138462	**113.33**
4.3	50	6	95	138463	**113.33**
4.4	50	6	95	138464	**113.33**
4.5	50	6	95	138465	**272.93**
4.6	50	6	95	138466	**113.33**
4.7	50	6	95	138467	**113.33**
4.8	50	6	95	138468	**109.40**
4.9	50	6	95	138469	**109.40**
5.0	50	6	90	138470	**109.40**
5.5	57	6	97	138471	**109.40**
6.0	57	6	97	138472	**109.40**
6.5	66	8	106	138473	**251.19**
7.0	76	8	116	138474	**251.19**
7.5	76	8	116	138475	**251.19**
8.0	76	8	116	138476	**251.19**
8.5	87	10	131	138477	**263.82**
9.0	87	10	131	138478	**263.82**
9.5	95	10	139	138479	**263.82**
10.0	95	10	139	138480	**263.82**
10.5	106	12	155	138481	**392.37**
11.0	106	12	155	138482	**392.37**
11.5	114	12	163	138483	**392.37**
12.0	114	12	163	138484	**392.37**
12.5	133	14	182	138485	**486.86**
13.0	133	14	182	138486	**486.86**
13.5	133	14	182	138487	**486.86**
14.0	133	14	182	138488	**647.81**
14.5	152	16	204	138489	**675.65**
15.0	152	16	204	138490	**675.65**
15.5	152	16	204	138491	**675.65**
16.0	152	16	204	138492	**675.65**
16.5	171	18	223	138493	**1,092.55**
17.0	171	18	223	138494	**1,092.55**
17.5	171	18	223	138495	**1,092.55**
18.0	171	18	223	138496	**1,092.55**
18.5	190	20	244	138497	**1,707.54**
19.0	190	20	244	138498	**1,707.54**
19.5	190	20	244	138499	**1,707.54**
20.0	190	20	244	138500	**1,707.54**

GS TOOLING



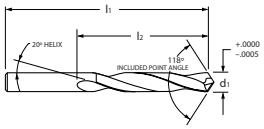
GS Tooling
Drill Chucks

High precision, premium tolerance & TiN coated jaws for improved life.

See Pages G70-71

Carbide Jobber Drills

- Aluminum
- Low & Med Carbon Steel
- Glass, Plastics, Composite Materials
- Titanium Alloy
- Copper
- Cast Iron
- High Carbon Steel





STM PREMIUM

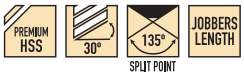
Speeds & Feeds ➤ P. B75

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
Inch					
56	0.0465	3/4	1-1/2	171063	**18.32**
3/64	0.0469	3/4	1-1/2	170600	**19.22**
55	0.0520	3/4	1-1/2	171064	**19.67**
54	0.0550	3/4	1-1/2	171065	**19.67**
53	0.0595	3/4	1-1/2	171066	**19.67**
1/16	0.0625	3/4	1-1/2	170602	**18.73**
52	0.0635	3/4	1-1/2	171067	**19.33**
51	0.0670	3/4	1-1/2	171068	**19.33**
50	0.0700	7/8	1-3/4	171069	**19.78**
49	0.0730	7/8	1-3/4	171070	**19.78**
48	0.0760	7/8	1-3/4	171071	**20.46**
5/64	0.0781	7/8	1-3/4	170604	**20.46**
47	0.0785	7/8	1-3/4	171072	**20.46**
46	0.0810	7/8	1-3/4	171073	**20.91**
45	0.0820	7/8	1-3/4	171074	**20.91**
44	0.0860	1	2	171075	**21.59**
43	0.0890	1	2	171076	**22.27**
42	0.0935	1	2	171077	**22.50**
3/32	0.0938	1	2	170606	**22.50**
41	0.0960	1	2	171078	**22.94**
40	0.0980	1	2	171079	**23.06**
39	0.0995	1-1/4	2-1/4	171080	**23.85**
38	0.1015	1-1/4	2-1/4	171081	**23.85**
37	0.1040	1-1/4	2-1/4	171082	**24.42**
36	0.1065	1-1/4	2-1/4	171083	**25.54**
7/64	0.1094	1-1/4	2-1/4	170608	**25.54**
35	0.1100	1-1/4	2-1/4	171084	**25.54**
34	0.1110	1-1/4	2-1/4	171085	**25.54**
33	0.1130	1-1/4	2-1/4	171086	**26.45**
32	0.1160	1-1/4	2-1/4	171087	**26.79**
31	0.1200	1-1/4	2-1/4	171088	**26.68**
1/8	0.1250	1-1/4	2-1/4	170610	**27.24**
30	0.1285	1-1/4	2-1/4	171089	**28.60**
29	0.1360	1-3/8	2-1/2	171090	**30.07**
28	0.1405	1-3/8	2-1/2	171091	**30.07**
9/64	0.1406	1-3/8	2-1/2	170612	**30.07**
27	0.1440	1-3/8	2-1/2	171092	**31.08**
26	0.1470	1-3/8	2-1/2	171093	**31.53**
25	0.1495	1-3/8	2-1/2	171094	**31.53**
24	0.1520	1-3/8	2-1/2	171096	**32.67**
23	0.1540	1-3/8	2-1/2	171097	**33.68**
5/32	0.1562	1-3/8	2-1/2	170614	**33.68**
22	0.1570	1-3/8	2-1/2	171098	**33.68**
21	0.1590	1-3/8	2-1/2	171099	**35.04**
20	0.1610	1-3/8	2-1/2	171100	**35.04**
19	0.1660	1-5/8	2-3/4	171101	**36.85**
18	0.1695	1-5/8	2-3/4	171102	**37.30**
11/64	0.1719	1-5/8	2-3/4	170616	**39.78**
17	0.1730	1-5/8	2-3/4	171103	**39.78**
16	0.1770	1-5/8	2-3/4	171104	**41.59**
15	0.1800	1-5/8	2-3/4	171105	**41.59**
14	0.1820	1-5/8	2-3/4	171106	**42.38**
13	0.1850	1-5/8	2-3/4	171107	**43.06**
3/16	0.1875	1-5/8	2-3/4	170618	**40.91**
12	0.1890	1-5/8	2-3/4	171108	**44.09**
11	0.1910	1-5/8	2-3/4	171109	**44.09**
10	0.1935	1-5/8	2-3/4	171110	**44.64**
9	0.1960	1-3/4	3	171111	**45.21**
8	0.1991	1-3/4	3	171112	**45.66**
7	0.2010	1-3/4	3	171113	**46.00**
13/64	0.2031	1-3/4	3	170620	**46.79**
6	0.2040	1-3/4	3	171114	**47.36**
5	0.2055	1-3/4	3	171115	**47.36**
4	0.2090	1-3/4	3	171116	**48.61**
3	0.2130	1-3/4	3	171117	**49.84**
7/32	0.2188	1-3/4	3	170622	**51.99**
2	0.2210	1-3/4	3	171118	**51.99**
1	0.2280	1-3/4	3	171119	**54.14**
A	0.2340	2	3-1/4	171120	**59.34**
15/64	0.2344	2	3-1/4	170624	**58.67**
B	0.2380	2	3-1/4	171121	**61.94**
C	0.2420	2	3-1/4	171122	**62.28**
D	0.2460	2	3-1/4	171123	**63.07**
1/4	0.2500	2	3-1/4	170626	**62.05**
E	0.2500	2	3-1/4	171124	**62.05**
F	0.2570	2	3-1/4	171125	**68.72**
G	0.2610	2-1/8	3-1/2	171126	**72.90**
17/64	0.2656	2-1/8	3-1/2	170628	**69.85**
H	0.2660	2-1/8	3-1/2	171127	**74.48**
I	0.2720	2-1/8	3-1/2	171128	**75.50**
J	0.2770	2-1/8	3-1/2	171129	**77.65**
K	0.2810	2-1/8	3-1/2	171130	**78.33**
9/32	0.2812	2-1/8	3-1/2	170630	**72.68**
L	0.2900	2-1/8	3-1/2	171131	**82.73**
M	0.2950	2-1/8	3-1/2	171132	**84.21**
19/64	0.2969	2-1/8	3-1/2	170632	**81.48**
N	0.3020	2-1/8	3-1/2	171133	**89.63**
5/16	0.3125	2-1/8	3-1/2	170634	**85.66**
O	0.3160	2-1/8	3-1/2	171134	**94.49**
P	0.3230	2-1/8	3-1/2	171135	**97.99**
21/64	0.3281	2-1/2	4	170636	**93.25**
Q	0.3320	2-1/2	4	171136	**101.61**
R	0.3390	2-1/2	4	171137	**106.13**
11/32	0.3438	2-1/2	4	170638	**102.06**
S	0.3480	2-1/2	4	171138	**113.26**
T	0.3580	2-1/2	4	171139	**116.98**
23/64	0.3594	2-1/2	4	170640	**114.04**
U	0.3680	2-3/4	4-1/4	171140	**122.64**
3/8	0.3750	2-3/4	4-1/4	170642	**120.94**
V	0.3770	2-3/4	4-1/4	171141	**135.74**
W	0.3860	2-7/8	4-1/2	171142	**146.26**
25/64	0.3906	2-7/8	4-1/2	170644	**141.50**
X	0.3970	2-7/8	4-1/2	171143	**159.70**
Y	0.4040	2-7/8	4-1/2	171144	**165.02**
13/32	0.4062	2-7/8	4-1/2	170646	**155.06**
Z	0.4130	2-7/8	4-1/2	171145	**172.47**
27/64	0.4219	2-7/8	4-1/2	170648	**168.29**
7/16	0.4375	2-7/8	4-1/2	170650	**176.43**
29/64	0.4531	3	4-3/4	170652	**204.22**
15/32	0.4688	3	4-3/4	170654	**212.82**
31/64	0.4844	3	4-3/4	170656	**218.92**
1/2	0.5000	3	4-3/4	170658	**218.92**
Metric					
1.5	0.0591	19	38	171146	**20.34**
2.0	0.0787	22	44	171147	**21.59**
2.5	0.0984	25	51	171148	**24.29**
3.0	0.1181	32	57	171149	**27.24**
3.5	0.1378	35	64	171150	**32.22**
4.0	0.1575	35	64	171151	**36.17**
4.5	0.1772	41	70	171152	**42.61**
5.0	0.1968	44	76	171153	**46.56**
5.5	0.2165	44	76	171154	**52.89**
6.0	0.2362	51	83	171155	**59.34**
6.5	0.2559	51	83	171156	**66.34**
7.0	0.2756	54	89	171157	**77.65**
7.5	0.2953	60	92	171158	**84.99**
8.0	0.3150	60	92	171159	**96.18**
8.5	0.3346	64	102	171160	**105.56**
9.0	0.3543	64	102	171161	**121.95**
9.5	0.3740	70	108	171162	**137.32**
10.0	0.3937	73	114	171163	**160.15**
10.5	0.4134	73	114	171164	**172.13**
11.0	0.4331	73	114	171165	**198.69**
11.5	0.4528	76	121	171166	**215.64**
12.0	0.4724	76	121	171167	**223.22**

Premium HSS Jobber Length Drills

These Premium HSS drills can be used in a variety of applications. Their surface treatment increases abrasion resistance, which reduces the amount of chip welding and improves chip flow.





Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
60	0.0400	11/16	1-5/8	128189	**2.96**
59	0.0410	11/16	1-5/8	128188	**2.96**
58	0.0420	11/16	1-5/8	128187	**2.96**
57	0.0430	3/4	1-3/4	128186	**2.96**
56	0.0465	3/4	1-3/4	128185	**2.96**
55	0.0520	7/8	1-7/8	128184	**2.96**
54	0.0540	7/8	1-7/8	128183	**2.96**
53	0.0595	7/8	1-7/8	128182	**2.96**
1/16	0.0625	7/8	1-7/8	128001	**2.59**
52	0.0635	7/8	1-7/8	128181	**2.96**
51	0.0670	1	2	128180	**2.96**
50	0.0700	1	2	128179	**2.70**
49	0.0730	1	2	128178	**2.70**
48	0.0760	1	2	128177	**2.70**
5/64	0.0781	1	2	128002	**2.59**
47	0.0785	1	2	128176	**2.70**
46	0.0810	1-1/8	2-1/8	128175	**2.70**
45	0.0820	1-1/8	2-1/8	128174	**2.70**
44	0.0860	1-1/8	2-1/8	128173	**2.70**
43	0.0890	1-1/4	2-1/4	128172	**2.70**
42	0.0935	1-1/4	2-1/4	128171	**2.70**
3/32	0.0938	1-1/4	2-1/4	128003	**2.59**
41	0.0960	1-3/8	2-3/8	128170	**2.70**
40	0.0980	1-3/8	2-3/8	128169	**2.70**
39	0.0995	1-3/8	2-3/8	128168	**2.70**
38	0.1015	1-7/16	2-1/2	128167	**2.70**
37	0.1040	1-7/16	2-1/2	128166	**2.70**
36	0.1065	1-7/16	2-1/2	128165	**2.70**
7/64	0.1094	1-1/2	2-5/8	128004	**2.95**
35	0.1100	1-1/2	2-5/8	128164	**2.70**
34	0.1110	1-1/2	2-5/8	128163	**2.70**
33	0.1130	1-1/2	2-5/8	128162	**2.70**
32	0.1160	1-5/8	2-3/4	128161	**2.70**
31	0.1200	1-5/8	2-3/4	128160	**2.70**
1/8	0.1250	1-5/8	2-3/4	128005	**2.95**
30	0.1285	1-5/8	2-3/4	128159	**2.70**
29	0.1360	1-3/4	2-7/8	128158	**2.70**
28	0.1405	1-3/4	2-7/8	128157	**2.70**
9/64	0.1406	1-3/4	2-7/8	128006	**2.93**
27	0.1440	1-7/8	3	128156	**3.07**
26	0.1470	1-7/8	3	128155	**3.07**
25	0.1495	1-7/8	3	128154	**3.07**
24	0.1520	2	3-1/8	128153	**3.07**
23	0.1540	2	3-1/8	128152	**3.07**
5/32	0.1562	2	3-1/8	128007	**2.93**
22	0.1570	2	3-1/8	128151	**3.07**
21	0.1590	2-1/8	3-1/4	128150	**3.07**
20	0.1610	2-1/8	3-1/4	128149	**3.33**
19	0.1660	2-1/8	3-1/4	128148	**3.32**
18	0.1695	2-1/8	3-1/4	128147	**3.32**
11/64	0.1719	2-1/8	3-1/4	128008	**3.08**
17	0.1730	2-3/16	3-3/8	128146	**3.84**
16	0.1770	2-3/16	3-3/8	128145	**3.84**
15	0.1800	2-3/16	3-3/8	128144	**3.84**
14	0.1820	2-3/16	3-3/8	128143	**3.84**
13	0.1850	2-5/16	3-1/2	128142	**3.84**
3/16	0.1875	2-5/16	3-1/2	128009	**3.44**
12	0.1890	2-5/16	3-1/2	128141	**3.84**
11	0.1910	2-5/16	3-1/2	128140	**3.84**
10	0.1935	2-7/16	3-5/8	128139	**4.29**
9	0.1960	2-7/16	3-5/8	128138	**4.29**
8	0.1991	2-7/16	3-5/8	128137	**4.29**
7	0.2010	2-7/16	3-5/8	128136	**4.29**
13/64	0.2031	2-7/16	3-5/8	128010	**3.83**

Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
6	0.2040	2-1/2	3-3/4	128135	**4.69**
5	0.2055	2-1/2	3-3/4	128134	**4.69**
4	0.2090	2-1/2	3-3/4	128133	**4.79**
3	0.2130	2-1/2	3-3/4	128132	**4.79**
7/32	0.2188	2-1/2	3-3/4	128011	**4.43**
2	0.2210	2-5/8	3-7/8	128131	**5.03**
1	0.2280	2-5/8	3-7/8	128130	**5.03**
A	0.2340	2-5/8	3-7/8	128250	**5.06**
15/64	0.2344	2-5/8	3-7/8	128012	**4.80**
B	0.2380	2-3/4	4	128251	**5.17**
C	0.2420	2-3/4	4	128252	**5.17**
D	0.2460	2-3/4	4	128253	**5.39**
1/4	0.2500	2-3/4	4	128013	**5.06**
E	0.2500	2-3/4	4	128254	**5.39**
F	0.2570	2-7/8	4-1/8	128255	**7.63**
G	0.2610	2-7/8	4-1/8	128256	**7.51**
17/64	0.2656	2-7/8	4-1/8	128014	**6.40**
H	0.2660	2-7/8	4-1/8	128257	**7.52**
I	0.2720	2-7/8	4-1/8	128258	**7.61**
J	0.2770	2-7/8	4-1/8	128259	**7.88**
K	0.2810	2-15/16	4-1/4	128260	**8.11**
9/32	0.2812	2-15/16	4-1/4	128015	**6.40**
L	0.2900	2-15/16	4-1/4	128261	**8.23**
M	0.2950	3-1/16	4-3/8	128262	**8.87**
19/64	0.2969	3-1/16	4-3/8	128016	**7.51**
N	0.3020	3-1/16	4-3/8	128263	**8.99**
5/16	0.3125	3-3/16	4-1/2	128017	**7.87**
O	0.3160	3-3/16	4-1/2	128264	**9.57**
P	0.3230	3-5/16	4-5/8	128265	**10.57**
21/64	0.3281	3-5/16	4-5/8	128018	**8.86**
Q	0.3320	3-7/16	4-3/4	128266	**10.95**
R	0.3390	3-7/16	4-3/4	128267	**11.34**
11/32	0.3438	3-7/16	4-3/4	128019	**9.57**
S	0.3480	3-1/2	4-7/8	128268	**12.03**
T	0.3580	3-1/2	4-7/8	128269	**12.43**
23/64	0.3594	3-1/2	4-7/8	128020	**10.69**
U	0.3680	3-5/8	5	128270	**13.65**
3/8	0.3750	3-5/8	5	128021	**10.96**
V	0.3770	3-5/8	5	128271	**14.00**
W	0.3860	3-3/4	5-1/8	128272	**14.89**
25/64	0.3906	3-3/4	5-1/8	128022	**12.79**
X	0.3970	3-3/4	5-1/8	128273	**15.76**
Y	0.4040	3-7/8	5-1/4	128274	**16.47**
13/32	0.4062	3-7/8	5-1/4	128023	**13.02**
Z	0.4130	3-7/8	5-1/4	128275	**16.59**
27/64	0.4219	3-15/16	5-3/8	128024	**14.75**
7/16	0.4375	4-1/16	5-1/2	128025	**14.87**
29/64	0.4531	4-3/16	5-5/8	128026	**17.49**
15/32	0.4688	4-5/16	5-3/4	128027	**17.94**
31/64	0.4844	4-3/8	5-7/8	128028	**19.07**
1/2	0.5000	4-1/2	6	128029	**18.93**

General Purpose HSS & Cobalt Jobber Drills — Fractional

STM PREMIUM

- General Purpose



118° 135° HSS COBALT

Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	General Purpose 118° Code No.	Price $	HD Split Point 135° Code No.	Price $	General Purpose TiN Coated 118° Code No.	Price $	General Purpose Cobalt 135° Code No.	Price $
1/64	0.0156	3/16	3/4	117995	**4.21**	-	**-**	-	**-**	117985	**7.09**
1/32	0.0312	1/2	1-3/8	117996	**2.66**	-	**-**	-	**-**	117986	**5.77**
3/64	0.0469	3/4	1-3/4	117997	**2.44**	-	**-**	-	**-**	117987	**4.21**
1/16	0.0625	7/8	1-7/8	118001	**2.16**	118030	**2.61**	118090	**6.28**	118060	**3.32**
5/64	0.0781	1	2	118002	**2.16**	118031	**2.61**	118091	**6.55**	118061	**3.32**
3/32	0.0938	1-1/4	2-1/4	118003	**2.24**	118032	**2.61**	118092	**6.18**	118062	**3.32**
7/64	0.1094	1-1/2	2-5/8	118004	**2.24**	118033	**2.98**	118093	**6.31**	118063	**3.54**
1/8	0.1250	1-5/8	2-3/4	118005	**2.26**	118034	**2.98**	118094	**6.55**	118064	**4.18**
9/64	0.1406	1-3/4	2-7/8	118006	**2.51**	118035	**2.95**	118095	**6.66**	118065	**4.51**
5/32	0.1562	2	3-1/8	118007	**2.84**	118036	**2.95**	118096	**7.23**	118066	**4.53**
11/64	0.1719	2-1/8	3-1/4	118008	**2.99**	118037	**3.21**	118097	**7.37**	118067	**4.63**
3/16	0.1875	2-5/16	3-1/2	118009	**3.22**	118038	**3.56**	118098	**7.87**	118068	**5.83**
13/64	0.2031	2-7/16	3-5/8	118010	**3.55**	118039	**3.93**	118099	**11.90**	118069	**6.88**
7/32	0.2188	2-1/2	3-3/4	118011	**3.92**	118040	**4.53**	118100	**12.23**	118070	**7.02**
15/64	0.2344	2-5/8	3-7/8	118012	**4.18**	118041	**4.99**	118101	**12.62**	118071	**7.95**
1/4	0.2500	2-3/4	4	118013	**4.15**	118042	**5.02**	118102	**12.95**	118072	**8.23**
17/64	0.2656	2-7/8	4-1/8	118014	**4.88**	118043	**6.55**	118103	**18.90**	118073	**9.27**
9/32	0.2812	2-15/16	4-1/4	118015	**5.81**	118044	**6.55**	118104	**19.39**	118074	**9.85**
19/64	0.2969	3-1/16	4-3/8	118016	**6.67**	118045	**7.59**	118105	**20.09**	118075	**12.23**
5/16	0.3125	3-3/16	4-1/2	118017	**7.38**	118046	**7.98**	118106	**20.56**	118076	**12.72**
21/64	0.3281	3-5/16	4-5/8	118018	**8.23**	118047	**9.03**	118107	**23.79**	118077	**14.40**
11/32	0.3438	3-7/16	4-3/4	118019	**8.90**	118048	**9.87**	118108	**24.35**	118078	**15.71**
23/64	0.3594	3-1/2	4-7/8	118020	**9.85**	118049	**11.29**	118109	**25.33**	118079	**15.68**
3/8	0.3750	3-5/8	5	118021	**9.99**	118050	**11.52**	118110	**26.02**	118080	**15.93**
25/64	0.3906	3-3/4	5-1/8	118022	**11.99**	118051	**13.20**	118111	**29.35**	118081	**19.04**
13/32	0.4062	3-7/8	5-1/4	118023	**12.23**	118052	**13.30**	118112	**30.67**	118082	**21.26**
27/64	0.4219	3-15/16	5-3/8	118024	**13.68**	118053	**15.21**	118113	**31.60**	118083	**24.23**
7/16	0.4375	4-1/16	5-1/2	118025	**14.01**	118054	**15.35**	118114	**33.07**	118084	**24.71**
29/64	0.4531	4-3/16	5-5/8	118026	**16.04**	118055	**17.69**	118115	**36.39**	118085	**28.29**
15/32	0.4688	4-5/16	5-3/4	118027	**17.24**	118056	**18.29**	118116	**37.82**	118086	**29.00**
31/64	0.4844	4-3/8	5-7/8	118028	**17.69**	118057	**19.61**	118117	**39.13**	118087	**30.78**
1/2	0.5000	4-1/2	6	118029	**17.96**	118058	**19.64**	118118	**40.06**	118088	**31.01**
33/64	0.5156	4-13/16	6-5/8	117970	**33.59**	-	**-**	-	**-**	117988	**65.96**
17/32	0.5312	4-13/16	6-5/8	117971	**34.37**	-	**-**	-	**-**	117989	**69.40**
35/64	0.5469	4-13/16	6-5/8	117972	**38.03**	-	**-**	-	**-**	117990	**75.06**
9/16	0.5625	4-13/16	6-5/8	117973	**39.03**	-	**-**	-	**-**	117991	**78.50**
37/64	0.5781	4-13/16	6-5/8	117974	**39.91**	-	**-**	-	**-**	117992	**78.94**
19/32	0.5938	5-3/16	7-1/8	117975	**41.02**	-	**-**	-	**-**	117993	**80.94**
39/64	0.6094	5-3/16	7-1/8	117976	**43.91**	-	**-**	-	**-**	117994	**86.71**
5/8	0.6250	5-3/16	7-1/8	117977	**43.02**	-	**-**	-	**-**	117998	**86.71**
41/64	0.6406	5-3/16	7-1/8	117978	**47.01**	-	**-**	-	**-**	117999	**92.80**
21/32	0.6562	5-3/16	7-1/8	117979	**49.34**	-	**-**	-	**-**	117983	**97.46**
43/64	0.6719	5-5/8	7-5/8	117980	**53.22**	-	**-**	-	**-**	117984	**105.33**
11/16	0.6875	5-5/8	7-5/8	117981	**53.22**	-	**-**	-	**-**	117969	**105.33**
3/4	0.7500	5-5/8	7-5/8	117982	**69.96**	-	**-**	-	**-**	-	**-**

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General Purpose HSS Jobber Drills — Number

STM PREMIUM

- General Purpose



Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	General Purpose 118° Code No.	Price $	HD Split Point 135° Code No.	Price $
1	0.2280	2-5/8	3-7/8	118130	**4.51**	118200	**5.24**
2	0.2210	2-5/8	3-7/8	118131	**4.51**	118201	**5.24**
3	0.2130	2-1/2	3-3/4	118132	**4.16**	118202	**4.86**
4	0.2090	2-1/2	3-3/4	118133	**4.16**	118203	**4.86**
5	0.2055	2-1/2	3-3/4	118134	**4.16**	118204	**4.88**
6	0.2040	2-1/2	3-3/4	118135	**4.16**	118205	**4.88**
7	0.2010	2-7/16	3-5/8	118136	**3.71**	118206	**4.30**
8	0.1990	2-7/16	3-5/8	118137	**3.71**	118207	**4.30**
9	0.1960	2-7/16	3-5/8	118138	**3.71**	118208	**4.30**
10	0.1935	2-7/16	3-5/8	118139	**3.71**	118209	**4.30**
11	0.1910	2-5/16	3-1/2	118140	**3.54**	118210	**4.18**
12	0.1890	2-5/16	3-1/2	118141	**3.54**	118211	**4.18**
13	0.1850	2-5/16	3-1/2	118142	**3.54**	118212	**4.18**
14	0.1820	2-3/16	3-3/8	118143	**3.54**	118213	**4.18**
15	0.1800	2-3/16	3-3/8	118144	**3.54**	118214	**4.18**
16	0.1770	2-3/16	3-3/8	118145	**3.54**	118215	**4.18**
17	0.1730	2-3/16	3-3/8	118146	**3.54**	118216	**4.18**
18	0.1695	2-1/8	3-1/4	118147	**2.98**	118217	**3.34**
19	0.1660	2-1/8	3-1/4	118148	**2.98**	118218	**3.34**
20	0.1610	2-1/8	3-1/4	118149	**2.98**	118219	**3.09**
21	0.1590	2-1/8	3-1/4	118150	**2.61**	118220	**3.20**
22	0.1570	2	3-1/8	118151	**2.61**	118221	**3.20**
23	0.1540	2	3-1/8	118152	**2.61**	118222	**3.20**
24	0.1520	2	3-1/8	118153	**2.61**	118223	**3.20**
25	0.1495	1-7/8	3	118154	**2.61**	118224	**3.20**
26	0.1470	1-7/8	3	118155	**2.61**	118225	**3.20**
27	0.1440	1-7/8	3	118156	**2.61**	118226	**3.20**
28	0.1405	1-3/4	2-7/8	118157	**2.51**	118227	**2.84**
29	0.1360	1-3/4	2-7/8	118158	**2.51**	118228	**2.84**
30	0.1285	1-5/8	2-3/4	118159	**2.51**	118229	**2.84**
31	0.1200	1-5/8	2-3/4	118160	**2.51**	118230	**2.84**
32	0.1160	1-5/8	2-3/4	118161	**2.51**	118231	**2.84**
33	0.1130	1-1/2	2-5/8	118162	**2.51**	118232	**2.84**
34	0.1110	1-1/2	2-5/8	118163	**2.51**	118233	**2.84**
35	0.1100	1-1/2	2-5/8	118164	**2.51**	118234	**2.84**
36	0.1065	1-7/16	2-1/2	118165	**2.51**	118235	**2.84**
37	0.1040	1-7/16	2-1/2	118166	**2.51**	118236	**2.84**
38	0.1015	1-7/16	2-1/2	118167	**2.51**	118237	**2.84**
39	0.0995	1-3/8	2-3/8	118168	**2.51**	118238	**2.84**
40	0.0980	1-3/8	2-3/8	118169	**2.51**	118239	**2.84**
41	0.0960	1-3/8	2-3/8	118170	**2.51**	-	-
42	0.0935	1-1/4	2-1/4	118171	**2.51**	-	-
43	0.0890	1-1/4	2-1/4	118172	**2.51**	-	-
44	0.0860	1-1/8	2-1/8	118173	**2.51**	-	-
45	0.0820	1-1/8	2-1/8	118174	**2.51**	-	-
46	0.0810	1-1/8	2-1/8	118175	**2.51**	-	-
47	0.0785	1	2	118176	**2.51**	-	-
48	0.0760	1	2	118177	**2.51**	-	-
49	0.0730	1	2	118178	**2.51**	-	-
50	0.0700	1	2	118179	**2.51**	-	-
51	0.0670	1	2	118180	**2.51**	-	-
52	0.0635	7/8	1-7/8	118181	**2.51**	-	-
53	0.0595	7/8	1-7/8	118182	**2.51**	-	-
54	0.0550	7/8	1-7/8	118183	**2.51**	-	-
55	0.0520	7/8	1-7/8	118184	**2.51**	-	-
56	0.0465	3/4	1-3/4	118185	**2.51**	-	-
57	0.0430	3/4	1-3/4	118186	**2.51**	-	-
58	0.0420	11/16	1-5/8	118187	**2.51**	-	-
59	0.0410	11/16	1-5/8	118188	**2.51**	-	-
60	0.0400	11/16	1-5/8	118189	**2.51**	-	-

General Purpose HSS Jobber Drills — Number

STM

- General Purpose



Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
61	0.0390	11/16	1-5/8	105705	**2.89**
62	0.0380	5/8	1-1/2	105710	**2.89**
63	0.0370	5/8	1-1/2	105715	**2.70**
64	0.0360	5/8	1-1/2	105720	**2.61**
65	0.0350	5/8	1-1/2	105725	**2.89**
66	0.0330	1/2	1-3/8	105730	**2.90**
67	0.0320	1/2	1-3/8	105735	**2.90**
68	0.0310	1/2	1-3/8	105740	**3.01**
69	0.0292	1/2	1-3/8	105745	**3.17**
70	0.0280	3/8	1-1/4	105750	**3.39**
71	0.0260	3/8	1-1/4	105755	**3.17**
72	0.0250	5/16	1-1/8	105760	**3.39**
73	0.0240	5/16	1-1/8	105765	**3.22**
74	0.0225	1/4	1	105770	**3.39**
75	0.0210	1/4	1	105775	**3.79**
76	0.0200	3/16	7/8	105780	**4.16**
77	0.0180	3/16	7/8	105785	**3.78**
78	0.0160	3/16	7/8	105790	**3.78**
79	0.0145	1/8	3/4	105795	**3.78**
80	0.0135	1/8	3/4	105800	**3.78**

General Purpose HSS Jobber Drills — Letter A-Z

STM PREMIUM

- General Purpose



Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	General Purpose 118° Code No.	Price $	HD Split Point 135° Code No.	Price $
A	0.234	2-5/8	3-7/8	118250	**4.64**	118280	**5.21**
B	0.238	2-3/4	4	118251	**4.86**	118281	**5.34**
C	0.242	2-3/4	4	118252	**4.86**	118282	**5.34**
D	0.246	2-3/4	4	118253	**5.01**	118283	**5.83**
E	0.250	2-3/4	4	118254	**5.02**	118284	**5.83**
F	0.257	2-7/8	4-1/8	118255	**7.24**	118285	**7.01**
G	0.261	2-7/8	4-1/8	118256	**6.88**	118286	**7.62**
H	0.266	2-7/8	4-1/8	118257	**7.01**	118287	**7.60**
I	0.272	2-7/8	4-1/8	118258	**7.26**	118288	**7.95**
J	0.277	2-7/8	4-1/8	118259	**7.37**	118289	**8.23**
K	0.281	2-15/16	4-1/4	118260	**7.62**	118290	**8.20**
L	0.290	2-15/16	4-1/4	118261	**7.83**	118291	**8.58**
M	0.295	3-1/16	4-3/8	118262	**8.33**	118292	**9.03**
N	0.302	3-1/16	4-3/8	118263	**8.57**	118293	**9.28**
O	0.316	3-3/16	4-1/2	118264	**9.04**	118294	**9.98**
P	0.323	3-5/16	4-5/8	118265	**9.87**	118295	**10.68**
Q	0.332	3-7/16	4-3/4	118266	**10.20**	118296	**11.30**
R	0.339	3-7/16	4-3/4	118267	**10.59**	118297	**11.89**
S	0.348	3-1/2	4-7/8	118268	**10.92**	118298	**12.23**
T	0.358	3-1/2	4-7/8	118269	**11.64**	118299	**12.72**
U	0.368	3-5/8	5	118270	**12.74**	118300	**13.93**
V	0.377	3-5/8	5	118271	**13.19**	118301	**14.27**
W	0.386	3-3/4	5-1/8	118272	**14.00**	118302	**15.20**
X	0.397	3-3/4	5-1/8	118273	**14.63**	118303	**16.04**
Y	0.404	3-7/8	5-1/4	118274	**15.33**	118304	**16.97**
Z	0.413	3-7/8	5-1/4	118275	**15.58**	118305	**17.35**

Black/Gold Jobber Length Drills

- Black/Gold finish extends tool life
- 135° split point penetrates faster and prevents bit "walk"



HSS | BLACK/GOLD | 30° | 135° SPLIT POINT | JOBBERS LENGTH

Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
60	0.0400	11/16	1-5/8	105495	**3.43**
59	0.0410	11/16	1-5/8	105494	**3.43**
58	0.0420	11/16	1-5/8	105493	**3.43**
57	0.0430	3/4	1-3/4	105492	**3.43**
56	0.0465	3/4	1-3/4	105491	**3.43**
55	0.0520	7/8	1-7/8	105490	**3.43**
54	0.0540	7/8	1-7/8	105489	**3.43**
53	0.0595	7/8	1-7/8	105488	**3.43**
1/16	0.0625	7/8	1-7/8	105381	**0.96**
52	0.0635	7/8	1-7/8	105487	**3.43**
51	0.0670	1	2	105486	**3.43**
50	0.0700	1	2	105485	**3.30**
49	0.0730	1	2	105484	**3.30**
48	0.0760	1	2	105483	**3.30**
5/64	0.0781	1	2	105382	**0.96**
47	0.0785	1	2	105482	**3.30**
46	0.0810	1-1/8	2-1/8	105481	**3.30**
45	0.0820	1-1/8	2-1/8	105480	**3.30**
44	0.0860	1-1/8	2-1/8	105479	**3.30**
43	0.0890	1-1/4	2-1/4	105478	**3.30**
42	0.0935	1-1/4	2-1/4	105477	**3.30**
3/32	0.0938	1-1/4	2-1/4	105383	**1.13**
41	0.0960	1-3/8	2-3/8	105476	**3.30**
40	0.0980	1-3/8	2-3/8	105475	**3.30**
39	0.0995	1-3/8	2-3/8	105474	**3.32**
38	0.1015	1-7/16	2-1/2	105473	**3.32**
37	0.1040	1-7/16	2-1/2	105472	**3.33**
36	0.1065	1-7/16	2-1/2	105471	**3.33**
7/64	0.1094	1-1/2	2-5/8	105384	**1.15**
35	0.1100	1-1/2	2-5/8	105470	**3.33**
34	0.1110	1-1/2	2-5/8	105469	**3.31**
33	0.1130	1-1/2	2-5/8	105468	**3.31**
32	0.1160	1-5/8	2-3/4	105467	**3.33**
31	0.1200	1-5/8	2-3/4	105466	**3.33**
1/8	0.1250	1-5/8	2-3/4	105385	**1.39**
30	0.1285	1-5/8	2-3/4	105465	**3.32**
29	0.1360	1-3/4	2-7/8	105464	**3.32**
28	0.1405	1-3/4	2-7/8	105463	**3.32**
9/64	0.1406	1-3/4	2-7/8	105386	**1.32**
27	0.1440	1-7/8	3	105462	**3.72**
26	0.1470	1-7/8	3	105461	**3.72**
25	0.1495	1-7/8	3	105460	**3.72**
24	0.1520	2	3-1/8	105459	**3.69**
23	0.1540	2	3-1/8	105458	**3.69**
5/32	0.1562	2	3-1/8	105387	**1.40**
22	0.1570	2	3-1/8	105457	**3.70**
21	0.1590	2-1/8	3-1/4	105456	**3.70**
20	0.1610	2-1/8	3-1/4	105455	**3.82**
19	0.1660	2-1/8	3-1/4	105454	**4.07**
18	0.1695	2-1/8	3-1/4	105453	**4.07**
11/64	0.1719	2-1/8	3-1/4	105388	**1.45**
17	0.1730	2-3/16	3-3/8	105452	**4.79**
16	0.1770	2-3/16	3-3/8	105451	**4.79**
15	0.1800	2-3/16	3-3/8	105450	**4.79**
14	0.1820	2-3/16	3-3/8	105449	**4.79**
13	0.1850	2-5/16	3-1/2	105448	**4.79**
3/16	0.1875	2-5/16	3-1/2	105389	**1.86**
12	0.1890	2-5/16	3-1/2	105447	**4.81**
11	0.1910	2-5/16	3-1/2	105446	**4.81**
10	0.1935	2-7/16	3-5/8	105445	**5.41**
9	0.1960	2-7/16	3-5/8	105444	**5.39**
8	0.1991	2-7/16	3-5/8	105443	**5.39**
7	0.2010	2-7/16	3-5/8	105442	**5.39**
13/64	0.2031	2-7/16	3-5/8	105390	**1.93**
6	0.2040	2-1/2	3-3/4	105441	**6.02**
5	0.2055	2-1/2	3-3/4	105440	**6.02**
4	0.2090	2-1/2	3-3/4	105439	**6.02**
3	0.2130	2-1/2	3-3/4	105438	**6.02**
7/32	0.2188	2-1/2	3-3/4	105391	**2.11**
2	0.2210	2-5/8	3-7/8	105437	**6.39**
1	0.2280	2-5/8	3-7/8	105436	**6.39**
A	0.2340	2-5/8	3-7/8	105410	**6.15**
15/64	0.2344	2-5/8	3-7/8	105392	**2.38**
B	0.2380	2-3/4	4	105411	**6.39**
C	0.2420	2-3/4	4	105412	**6.39**
D	0.2460	2-3/4	4	105413	**6.75**
1/4	0.2500	2-3/4	4	105393	**2.64**
E	0.2500	2-3/4	4	105414	**6.79**
F	0.2570	2-7/8	4-1/8	105415	**9.00**
G	0.2610	2-7/8	4-1/8	105416	**9.23**
17/64	0.2656	2-7/8	4-1/8	105394	**3.13**
H	0.2660	2-7/8	4-1/8	105417	**8.88**
I	0.2720	2-7/8	4-1/8	105418	**9.23**
J	0.2770	2-7/8	4-1/8	105419	**9.85**
K	0.2810	2-15/16	4-1/4	105420	**9.94**
9/32	0.2812	2-15/16	4-1/4	105395	**3.37**
L	0.2900	2-15/16	4-1/4	105421	**10.34**
M	0.2950	3-1/16	4-3/8	105422	**11.09**
19/64	0.2969	3-1/16	4-3/8	105396	**3.53**
N	0.3020	3-1/16	4-3/8	105423	**11.33**
5/16	0.3125	3-3/16	4-1/2	105397	**3.78**
O	0.3160	3-3/16	4-1/2	105424	**12.32**
P	0.3230	3-5/16	4-5/8	105425	**13.40**
21/64	0.3281	3-5/16	4-5/8	105398	**4.27**
Q	0.3320	3-7/16	4-3/4	105426	**13.79**
R	0.3390	3-7/16	4-3/4	105427	**14.12**
11/32	0.3438	3-7/16	4-3/4	105399	**5.18**
S	0.3480	3-1/2	4-7/8	105428	**14.88**
T	0.3580	3-1/2	4-7/8	105429	**15.73**
23/64	0.3594	3-1/2	4-7/8	105400	**5.28**
U	0.3680	3-5/8	5	105430	**16.96**
3/8	0.3750	3-5/8	5	105401	**5.96**
V	0.3770	3-5/8	5	105431	**17.59**
W	0.3860	3-3/4	5-1/8	105432	**18.69**
25/64	0.3906	3-3/4	5-1/8	105402	**5.83**
X	0.3970	3-3/4	5-1/8	105433	**19.67**
Y	0.4040	3-7/8	5-1/4	105434	**20.81**
13/32	0.4062	3-7/8	5-1/4	105403	**6.46**
Z	0.4130	3-7/8	5-1/4	105435	**21.30**
27/64	0.4219	3-15/16	5-3/8	105404	**7.29**
7/16	0.4375	4-1/16	5-1/2	105405	**7.46**
29/64	0.4531	4-3/16	5-5/8	105406	**7.59**
15/32	0.4688	4-5/16	5-3/4	105407	**8.24**
31/64	0.4844	4-3/8	5-7/8	105408	**9.34**
1/2	0.5000	4-1/2	6	105409	**9.93**

Slow Spiral HSS Drills

STM PREMIUM

Used in shallow hole drilling of aluminum and magnesium alloys and die cast parts.



BRIGHT | 118° | HSS

Fractional Sizes

Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/64	0.0156	3/16	3/4	143200	**8.54**
1/32	0.0312	1/2	1-3/8	143201	**5.55**
3/64	0.0469	3/4	1-3/4	143202	**4.10**
1/16	0.0625	7/8	1-7/8	143203	**3.77**
5/64	0.0781	1	2	143204	**3.77**
3/32	0.0938	1-1/4	2-1/4	143205	**3.67**
7/64	0.1094	1-1/2	2-5/8	143206	**3.77**
1/8	0.1250	1-5/8	2-3/4	143207	**3.67**
9/64	0.1406	1-3/4	2-7/8	143208	**3.77**
5/32	0.1562	2	3-1/8	143209	**4.54**
11/64	0.1719	2-1/8	3-1/4	143210	**5.20**
3/16	0.1875	2-5/16	3-1/2	143211	**5.20**
13/64	0.2031	2-7/16	3-5/8	143212	**6.10**
7/32	0.2188	2-1/2	3-3/4	143213	**6.88**
15/64	0.2344	2-5/8	3-7/8	143214	**7.77**
1/4	0.2500	2-3/4	4	143215	**7.21**
17/64	0.2656	2-7/8	4-1/8	143216	**9.31**
9/32	0.2812	2-15/16	4-1/4	143217	**9.75**
19/64	0.2969	3-1/16	4-3/8	143218	**11.53**
5/16	0.3125	3-3/16	4-1/2	143219	**11.98**
21/64	0.3281	3-5/16	4-5/8	143220	**13.08**
11/32	0.3438	3-7/16	4-3/4	143221	**14.52**
23/64	0.3594	3-1/2	4-7/8	143222	**19.52**
3/8	0.3750	3-5/8	5	143223	**17.18**
25/64	0.3906	3-3/4	5-1/8	143224	**21.51**
13/32	0.4062	3-7/8	5-1/4	143225	**19.85**
27/64	0.4219	3-15/16	5-3/8	143226	**25.28**
7/16	0.4375	4-1/16	5-1/2	143227	**22.95**
29/64	0.4531	4-3/16	5-5/8	143228	**29.60**
15/32	0.4688	4-5/16	5-3/4	143229	**28.27**
31/64	0.4844	4-3/8	5-7/8	143230	**33.26**
1/2	0.5000	4-1/2	6	143231	**29.39**

Letter Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
A	0.2340	2-5/8	3-7/8	143232	**10.53**
B	0.2380	2-3/4	4	143233	**10.53**
C	0.2420	2-3/4	4	143234	**10.53**
D	0.2460	2-3/4	4	143235	**10.53**
E	0.2500	2-3/4	4	143236	**7.21**
F	0.2570	2-7/8	4-1/8	143237	**10.53**
G	0.2610	2-7/8	4-1/8	143238	**11.08**
H	0.2660	2-7/8	4-1/8	143239	**14.64**
I	0.2720	2-7/8	4-1/8	143240	**15.19**
J	0.2770	2-7/8	4-1/8	143241	**15.19**
K	0.2810	2-15/16	4-1/4	143242	**15.19**
L	0.2900	2-15/16	4-1/4	143243	**15.19**
M	0.2950	3-1/16	4-3/8	143244	**16.41**
N	0.3020	3-1/16	4-3/8	143245	**16.41**
O	0.3160	3-3/16	4-1/2	143246	**17.96**
P	0.3230	3-5/16	4-5/8	143247	**17.96**
Q	0.3320	3-7/16	4-3/4	143248	**17.96**
R	0.3390	3-7/16	4-3/4	143249	**20.52**
S	0.3480	3-1/2	4-7/8	143250	**21.51**
T	0.3580	3-1/2	4-7/8	143251	**21.51**
U	0.3680	3-5/8	5	143252	**21.51**
V	0.3770	3-5/8	5	143253	**22.40**
W	0.3860	3-3/4	5-1/8	143254	**26.39**
X	0.3970	3-3/4	5-1/8	143255	**26.39**
Y	0.4040	3-7/8	5-1/4	143256	**29.72**
Z	0.4130	3-7/8	5-1/4	143257	**29.72**

Wire Gauge Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1	0.2280	2-5/8	3-7/8	143258	**8.54**
2	0.2210	2-5/8	3-7/8	143259	**8.54**
3	0.2130	2-1/2	3-3/4	143260	**8.21**
4	0.2090	2-1/2	3-3/4	143261	**8.21**
5	0.2055	2-1/2	3-3/4	143262	**8.21**
6	0.2040	2-1/2	3-3/4	143263	**8.21**
7	0.2010	2-7/16	3-5/8	143264	**7.09**
8	0.1990	2-7/16	3-5/8	143265	**7.09**
9	0.1960	2-7/16	3-5/8	143266	**7.09**
10	0.1935	2-7/16	3-5/8	143267	**7.09**
11	0.1910	2-5/16	3-1/2	143268	**6.54**
12	0.1890	2-5/16	3-1/2	143269	**6.54**
13	0.1850	2-5/16	3-1/2	143270	**6.10**
14	0.1820	2-3/16	3-3/8	143271	**6.10**
15	0.1800	2-3/16	3-3/8	143272	**6.10**
16	0.1770	2-3/16	3-3/8	143273	**6.10**
17	0.1730	2-3/16	3-3/8	143274	**6.10**
18	0.1695	2-1/8	3-1/4	143275	**5.55**
19	0.1660	2-1/8	3-1/4	143276	**5.55**
20	0.1610	2-1/8	3-1/4	143277	**5.55**
21	0.1590	2-1/8	3-1/4	143278	**5.20**
22	0.1570	2	3-1/8	143279	**5.20**
23	0.1540	2	3-1/8	143281	**5.20**
24	0.1520	2	3-1/8	143282	**5.10**
25	0.1495	1-7/8	3	143283	**5.10**
26	0.1470	1-7/8	3	143284	**4.66**
27	0.1440	1-7/8	3	143285	**4.66**
28	0.1405	1-3/4	2-7/8	143286	**4.66**
29	0.1360	1-3/4	2-7/8	143287	**4.10**
30	0.1285	1-5/8	2-3/4	143288	**4.10**
31	0.1200	1-5/8	2-3/4	143289	**4.10**
32	0.1160	1-5/8	2-3/4	143290	**4.10**
33	0.1130	1-1/2	2-5/8	143291	**4.10**
34	0.1110	1-1/2	2-5/8	143292	**4.10**
35	0.1100	1-1/2	2-5/8	143293	**4.10**
36	0.1065	1-7/16	2-1/2	143294	**4.10**
37	0.1040	1-7/16	2-1/2	143295	**4.10**
38	0.1015	1-7/16	2-1/2	143296	**4.10**
39	0.0995	1-3/8	2-3/8	143297	**4.10**
40	0.0980	1-3/8	2-3/8	143298	**4.10**
41	0.0960	1-3/8	2-3/8	143299	**4.21**
42	0.0935	1-1/4	2-1/4	143300	**4.21**
43	0.0890	1-1/4	2-1/4	143301	**4.21**
44	0.0860	1-1/8	2-1/8	143302	**4.21**
45	0.0820	1-1/8	2-1/8	143303	**4.21**
46	0.0810	1-1/8	2-1/8	143304	**4.21**
47	0.0785	1	2	143305	**4.21**
48	0.0760	1	2	143306	**4.21**
49	0.0730	1	2	143307	**4.21**
50	0.0700	1	2	143308	**4.21**
51	0.0670	1	2	143309	**4.21**
52	0.0635	7/8	1-7/8	143310	**4.21**
53	0.0595	7/8	1-7/8	143311	**4.10**
54	0.0550	7/8	1-7/8	143312	**4.10**
55	0.0520	7/8	1-7/8	143313	**4.10**
56	0.0465	3/4	1-3/4	143314	**4.10**
57	0.0430	3/4	1-3/4	143315	**4.10**
58	0.0420	11/16	1-5/8	143316	**4.10**
59	0.0410	11/16	1-5/8	143317	**4.10**
60	0.0400	11/16	1-5/8	143318	**4.10**
61	0.0390	11/16	1-5/8	143319	**4.87**
62	0.0380	5/8	1-1/2	143320	**4.87**
63	0.0370	5/8	1-1/2	143321	**4.87**
64	0.0360	5/8	1-1/2	143322	**4.87**
65	0.0350	5/8	1-1/2	143323	**4.87**
66	0.0330	1/2	1-3/8	143324	**4.87**
67	0.0320	1/2	1-3/8	143325	**4.87**
68	0.0310	1/2	1-3/8	143326	**4.87**
69	0.0292	1/2	1-3/8	143327	**5.55**
70	0.0280	3/8	1-1/4	143328	**5.55**
71	0.0260	3/8	1-1/4	143329	**7.09**
72	0.0250	5/16	1-1/8	143330	**7.09**
73	0.0240	5/16	1-1/8	143331	**7.09**
74	0.0225	1/4	1	143332	**7.09**
75	0.0210	1/4	1	143333	**7.09**
76	0.0200	3/16	7/8	143334	**7.09**
77	0.0180	3/16	7/8	143335	**7.09**
78	0.0160	3/16	7/8	143336	**7.09**
79	0.0145	1/8	3/4	143337	**8.54**
80	0.0135	1/8	3/4	143338	**8.54**

Fast Spiral HSS Drills

STM PREMIUM

These drills are designed primarily for drilling in nonferrous materials such as Aluminum, Zinc die cast, and some plastics. They are successfully used in mild steel deep holes where chip packing occurs with standard helix drills.



BRIGHT | 118° | HSS

Fractional Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/64	0.0156	3/16	3/4	117700	**5.55**
1/32	0.0312	1/2	1-3/8	117701	**3.87**
3/64	0.0469	3/4	1-3/4	117702	**3.33**
1/16	0.0625	7/8	1-7/8	117703	**3.21**
5/64	0.0781	1	2	117704	**3.33**
3/32	0.0938	1-1/4	2-1/4	117705	**3.33**
7/64	0.1094	1-1/2	2-5/8	117706	**3.21**
1/8	0.1250	1-5/8	2-3/4	117707	**3.21**
9/64	0.1406	1-3/4	2-7/8	117708	**3.21**
5/32	0.1562	2	3-1/8	117709	**3.44**
11/64	0.1719	2-1/8	3-1/4	117710	**4.21**
3/16	0.1875	2-5/16	3-1/2	117711	**4.66**
13/64	0.2031	2-7/16	3-5/8	117712	**5.33**
7/32	0.2188	2-1/2	3-3/4	117713	**5.77**
15/64	0.2344	2-5/8	3-7/8	117714	**6.54**
1/4	0.2500	2-3/4	4	117715	**6.21**
17/64	0.2656	2-7/8	4-1/8	117716	**8.31**
9/32	0.2812	2-15/16	4-1/4	117717	**8.31**
19/64	0.2969	3-1/16	4-3/8	117718	**9.64**
5/16	0.3125	3-3/16	4-1/2	117719	**9.98**
21/64	0.3281	3-5/16	4-5/8	117720	**11.53**
11/32	0.3438	3-7/16	4-3/4	117721	**12.21**
23/64	0.3594	3-1/2	4-7/8	117722	**15.08**
3/8	0.3750	3-5/8	5	117723	**14.64**
25/64	0.3906	3-3/4	5-1/8	117724	**17.51**
13/32	0.4062	3-7/8	5-1/4	117725	**17.08**
27/64	0.4219	3-15/16	5-3/8	117726	**20.39**
7/16	0.4375	4-1/16	5-1/2	117727	**20.06**
29/64	0.4531	4-3/16	5-5/8	117728	**25.16**
15/32	0.4688	4-5/16	5-3/4	117729	**25.83**
31/64	0.4844	4-3/8	5-7/8	117730	**24.83**
1/2	0.5000	4-1/2	6	117731	**23.95**

Letter Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
A	0.2340	2-5/8	3-7/8	117732	**7.31**
B	0.2380	2-3/4	4	117733	**7.21**
C	0.2420	2-3/4	4	117734	**6.65**
D	0.2460	2-3/4	4	117735	**6.65**
E	0.2500	2-3/4	4	117736	**6.21**
F	0.2570	2-7/8	4-1/8	117737	**7.65**
G	0.2610	2-7/8	4-1/8	117738	**8.10**
H	0.2660	2-7/8	4-1/8	117739	**9.09**
I	0.2720	2-7/8	4-1/8	117740	**7.98**
J	0.2770	2-7/8	4-1/8	117741	**9.09**
K	0.2810	2-15/16	4-1/4	117742	**11.42**
L	0.2900	2-15/16	4-1/4	117743	**9.98**
M	0.2950	3-1/16	4-3/8	117744	**10.65**
N	0.3020	3-1/16	4-3/8	117745	**9.75**
O	0.3160	3-3/16	4-1/2	117746	**10.53**
P	0.3230	3-5/16	4-5/8	117747	**11.08**
Q	0.3320	3-7/16	4-3/4	117748	**11.08**
R	0.3390	3-7/16	4-3/4	117749	**11.42**
S	0.3480	3-1/2	4-7/8	117750	**12.41**
T	0.3580	3-1/2	4-7/8	117751	**14.52**
U	0.3680	3-5/8	5	117752	**14.52**
V	0.3770	3-5/8	5	117753	**15.19**
W	0.3860	3-3/4	5-1/8	117754	**15.63**
X	0.3970	3-3/4	5-1/8	117755	**17.85**
Y	0.4040	3-7/8	5-1/4	117756	**20.62**
Z	0.4130	3-7/8	5-1/4	117757	**21.51**

Wire Gauge Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1	0.2280	2-5/8	3-7/8	117758	**6.54**
2	0.2210	2-5/8	3-7/8	117759	**6.65**
3	0.2130	2-1/2	3-3/4	117760	**6.21**
4	0.2090	2-1/2	3-3/4	117761	**6.21**
5	0.2055	2-1/2	3-3/4	117762	**6.21**
6	0.2040	2-1/2	3-3/4	117763	**6.21**
7	0.2010	2-7/16	3-5/8	117764	**5.10**
8	0.1990	2-7/16	3-5/8	117765	**5.20**
9	0.1960	2-7/16	3-5/8	117766	**5.20**
10	0.1935	2-7/16	3-5/8	117767	**5.20**
11	0.1910	2-5/16	3-1/2	117768	**4.87**
12	0.1890	2-5/16	3-1/2	117769	**5.20**
13	0.1850	2-5/16	3-1/2	117770	**4.77**
14	0.1820	2-3/16	3-3/8	117771	**4.77**
15	0.1800	2-3/16	3-3/8	117772	**4.77**
16	0.1770	2-3/16	3-3/8	117773	**4.77**
17	0.1730	2-3/16	3-3/8	117774	**4.77**
18	0.1695	2-1/8	3-1/4	117775	**4.21**
19	0.1660	2-1/8	3-1/4	117776	**4.10**
20	0.1610	2-1/8	3-1/4	117777	**4.10**
21	0.1590	2-1/8	3-1/4	117778	**3.77**
22	0.1570	2	3-1/8	117779	**3.87**
23	0.1540	2	3-1/8	117780	**3.67**
24	0.1520	2	3-1/8	117781	**3.44**
25	0.1495	1-7/8	3	117782	**3.44**
26	0.1470	1-7/8	3	117783	**3.44**
27	0.1440	1-7/8	3	117784	**3.44**
28	0.1405	1-3/4	2-7/8	117785	**3.33**
29	0.1360	1-3/4	2-7/8	117786	**3.21**
30	0.1285	1-5/8	2-3/4	117787	**3.21**
31	0.1200	1-5/8	2-3/4	117788	**3.33**
32	0.1160	1-5/8	2-3/4	117789	**3.33**
33	0.1130	1-1/2	2-5/8	117790	**3.33**
34	0.1110	1-1/2	2-5/8	117791	**3.33**
35	0.1100	1-1/2	2-5/8	117792	**3.33**
36	0.1065	1-7/16	2-1/2	117793	**3.33**
37	0.1040	1-7/16	2-1/2	117794	**3.33**
38	0.1015	1-7/16	2-1/2	117795	**3.33**
39	0.0995	1-3/8	2-3/8	117796	**3.33**
40	0.0980	1-3/8	2-3/8	117797	**3.11**
41	0.0960	1-3/8	2-3/8	117798	**3.33**
42	0.0935	1-1/4	2-1/4	117799	**3.33**
43	0.0890	1-1/4	2-1/4	117800	**3.21**
44	0.0860	1-1/8	2-1/8	117801	**3.33**
45	0.0820	1-1/8	2-1/8	117802	**3.33**
46	0.0810	1-1/8	2-1/8	117803	**3.33**
47	0.0785	1	2	117804	**3.33**
48	0.0760	1	2	117805	**3.33**
49	0.0730	1	2	117806	**3.33**
50	0.0700	1	2	117807	**3.33**
51	0.0670	1	2	117808	**3.33**
52	0.0635	7/8	1-7/8	117809	**3.33**
53	0.0595	7/8	1-7/8	117810	**3.33**
54	0.0550	7/8	1-7/8	117811	**3.33**
55	0.0520	7/8	1-7/8	117812	**3.21**
56	0.0465	3/4	1-3/4	117813	**3.33**
57	0.0430	3/4	1-3/4	117814	**3.33**
58	0.0420	11/16	1-5/8	117815	**3.33**
59	0.0410	11/16	1-5/8	117816	**3.33**
60	0.0400	11/16	1-5/8	117817	**3.33**
61	0.0390	11/16	1-5/8	117818	**3.87**
62	0.0380	5/8	1-1/2	117819	**3.87**
63	0.0370	5/8	1-1/2	117820	**3.87**
64	0.0360	5/8	1-1/2	117821	**3.87**
65	0.0350	5/8	1-1/2	117822	**3.77**
66	0.0330	1/2	1-3/8	117823	**3.87**
67	0.0320	1/2	1-3/8	117824	**3.77**
68	0.0310	1/2	1-3/8	117825	**3.77**
69	0.0292	1/2	1-3/8	117826	**4.21**
70	0.0280	3/8	1-1/4	117827	**4.21**
71	0.0260	3/8	1-1/4	117828	**5.33**
72	0.0250	5/16	1-1/8	117829	**5.10**
73	0.0240	5/16	1-1/8	117830	**5.10**
74	0.0225	1/4	1	117831	**5.10**
75	0.0210	1/4	1	117832	**5.10**
76	0.0200	3/16	7/8	117833	**5.10**
77	0.0180	3/16	7/8	117834	**5.10**
78	0.0160	3/16	7/8	117835	**5.10**
79	0.0145	1/8	3/4	117836	**5.88**
80	0.0135	1/8	3/4	117837	**5.33**

General Purpose Jobber Drills — Metric

- General purpose
- Heavy duty
- Super Cobalt



118° 135° HSS SUPER COBALT

Size (mm)	Decimal Equivalent	Flute Length	Overall Length	HSS 118° Point Code No.	Price $	Cobalt 135° Point Code No.	Price $
0.15	0.0059	3/64	3/4	143340	**13.97**	-	-
0.16	0.0063	3/64	3/4	143341	**13.74**	-	-
0.17	0.0067	1/16	3/4	143342	**12.64**	-	-
0.18	0.0071	1/16	3/4	143343	**12.64**	-	-
0.19	0.0075	1/16	3/4	143344	**10.09**	-	-
0.20	0.0079	1/16	3/4	143345	**10.09**	-	-
0.22	0.0087	1/16	3/4	143346	**10.09**	-	-
0.25	0.0098	5/64	3/4	143347	**7.98**	-	-
0.26	0.0102	5/64	3/4	143348	**7.98**	-	-
0.27	0.0106	5/64	3/4	143349	**7.21**	-	-
0.28	0.0110	5/64	3/4	143350	**7.21**	-	-
0.29	0.0114	5/64	3/4	143351	**7.21**	-	-
0.30	0.0118	3/32	3/4	144001	**6.88**	-	-
0.32	0.0126	3/32	3/4	144002	**6.10**	-	-
0.35	0.0138	1/8	3/4	144003	**4.91**	-	-
0.38	0.0150	3/16	3/4	144004	**4.54**	-	-
0.40	0.0158	3/16	7/8	144005	**4.54**	-	-
0.42	0.0165	3/16	7/8	144006	**4.54**	-	-
0.44	0.0173	3/16	7/8	143352	**4.54**	-	-
0.45	0.0177	3/16	7/8	144007	**4.54**	-	-
0.48	0.0189	3/16	7/8	144008	**4.54**	-	-
0.50	0.0197	3/16	7/8	144009	**4.54**	-	-
0.55	0.0217	1/4	1	144011	**4.54**	-	-
0.58	0.0228	5/16	1-1/8	144012	**4.91**	-	-
0.60	0.0236	5/16	1-1/8	144013	**4.54**	-	-
0.62	0.0244	5/16	1-1/8	144014	**3.01**	-	-
0.65	0.0256	3/8	1-1/4	144015	**4.54**	-	-
0.68	0.0267	3/8	1-1/4	144016	**4.91**	-	-
0.70	0.0276	3/8	1-1/4	144017	**3.44**	-	-
0.72	0.0283	3/8	1-1/4	144018	**4.91**	-	-
0.75	0.0296	1/2	1-3/8	144019	**3.21**	-	-
0.78	0.0308	1/2	1-3/8	144020	**3.26**	-	-
0.80	0.0315	1/2	1-3/8	144021	**2.88**	-	-
0.82	0.0322	1/2	1-3/8	144022	**3.26**	-	-
0.85	0.0335	5/8	1-1/2	144023	**2.88**	-	-
0.88	0.0346	5/8	1-1/2	144024	**2.51**	-	-
0.90	0.0355	5/8	1-1/2	144025	**2.88**	-	-
0.92	0.0362	5/8	1-1/2	144026	**2.51**	-	-
0.95	0.0374	5/8	1-1/2	144027	**2.88**	-	-
1.00	0.0394	11/16	1-5/8	144029	**2.44**	143354	**4.77**
1.05	0.0413	11/16	1-5/8	144030	**3.11**	-	-
1.10	0.0433	3/4	1-3/4	144031	**2.77**	143355	**5.20**
1.15	0.0453	3/4	1-3/4	144032	**2.88**	143356	**5.33**
1.20	0.0472	7/8	1-7/8	144033	**2.88**	143357	**5.10**
1.25	0.0492	7/8	1-7/8	144034	**2.88**	-	-
1.30	0.0512	7/8	1-7/8	144035	**2.88**	-	-
1.35	0.0531	7/8	1-7/8	144036	**3.11**	-	-
1.40	0.0551	7/8	1-7/8	144037	**2.88**	-	-
1.45	0.0571	7/8	1-7/8	-	-	143358	**5.10**
1.50	0.0591	7/8	1-7/8	144038	**3.01**	143359	**4.66**
1.55	0.0610	7/8	1-7/8	144039	**3.11**	-	-
1.60	0.0630	7/8	1-7/8	144040	**2.88**	-	-
1.65	0.0650	1	2	144041	**3.11**	143360	**5.10**
1.70	0.0669	1	2	144042	**2.88**	-	-
1.75	0.0689	1	2	144043	**3.11**	-	-
1.80	0.0709	1	2	144044	**2.88**	143361	**5.10**
1.85	0.0728	1	2	144045	**3.67**	143362	**5.10**
1.90	0.0748	1	2	-	-	143363	**5.10**
1.95	0.0768	1	2	-	-	143364	**5.10**
2.00	0.0787	1	2-1/8	144046	**2.66**	143365	**4.54**
2.05	0.0807	1-1/8	2-1/8	144047	**3.87**	-	-
2.10	0.0827	1-1/8	2-1/8	144048	**2.88**	143366	**5.10**
2.15	0.0846	1-1/8	2-1/8	144049	**3.11**	143367	**5.10**
2.20	0.0866	1-1/4	2-1/4	144050	**2.88**	143368	**5.10**
2.25	0.0886	1-1/4	2-1/4	144051	**3.11**	-	-
2.30	0.0906	1-1/4	2-1/4	144052	**2.88**	-	-
2.35	0.0925	1-1/4	2-1/4	144053	**3.11**	143369	**5.10**
2.40	0.0945	1-3/8	2-3/8	144054	**3.11**	143370	**5.20**
2.45	0.0965	1-3/8	2-3/8	144055	**3.87**	-	-
2.50	0.0984	1-3/8	2-3/8	144056	**2.77**	143371	**4.66**
2.60	0.1024	1-7/16	2-1/2	144058	**3.11**	143372	**5.20**
2.65	0.1043	1-7/16	2-1/2	144059	**3.26**	-	-
2.70	0.1063	1-7/16	2-1/2	144060	**3.11**	143373	**5.20**
2.75	0.1083	1-1/2	2-5/8	144061	**3.21**	-	-
2.80	0.1102	1-1/2	2-5/8	144062	**3.87**	143374	**5.33**
2.85	0.1122	1-1/2	2-5/8	144063	**3.26**	-	-
2.90	0.1142	1-5/8	2-3/4	144064	**3.11**	143375	**6.21**
2.95	0.1161	1-5/8	2-3/4	144065	**3.26**	-	-
3.00	0.1181	1-5/8	2-3/4	144066	**2.77**	143376	**6.21**
3.10	0.1220	1-5/8	2-3/4	144067	**3.11**	143377	**5.55**
3.15	0.1240	1-5/8	2-3/4	144068	**3.52**	-	-
3.20	0.1260	1-5/8	2-3/4	144069	**3.11**	143378	**6.21**
3.25	0.1280	1-5/8	2-3/4	143353	**3.21**	-	-
3.30	0.1299	1-3/4	2-7/8	144070	**3.11**	143379	**5.77**
3.40	0.1339	1-3/4	2-7/8	144071	**3.21**	143380	**5.65**
3.50	0.1378	1-3/4	2-7/8	144072	**3.11**	143381	**6.10**
3.55	0.1397	1-3/4	2-7/8	144073	**3.26**	-	-
3.60	0.1417	1-7/8	3	144074	**3.33**	143382	**5.65**
3.70	0.1457	1-7/8	3	144075	**3.33**	-	-
3.75	0.1476	1-7/8	3	144076	**4.21**	-	-
3.80	0.1496	1-7/8	3	144077	**4.21**	143383	**7.21**
3.90	0.1535	2	3-1/8	144078	**4.87**	-	-
4.00	0.1575	2-1/8	3-1/4	144079	**3.33**	143389	**7.09**
4.10	0.1614	2-1/8	3-1/4	144080	**3.67**	-	-
4.20	0.1654	2-1/8	3-1/4	144081	**3.33**	143390	**7.54**
4.25	0.1673	2-1/8	3-1/4	143384	**4.33**	-	-
4.30	0.1693	2-1/8	3-1/4	144082	**3.67**	-	-
4.40	0.1732	2-3/16	3-3/8	144083	**4.10**	143391	**7.54**
4.50	0.1772	2-3/16	3-3/8	144084	**3.67**	143392	**8.31**
4.60	0.1811	2-3/16	3-3/8	144085	**4.10**	143393	**7.31**
4.70	0.1850	2-5/16	3-1/2	144086	**5.20**	-	-
4.75	0.1870	2-5/16	3-1/2	143385	**5.20**	-	-
4.80	0.1890	2-5/16	3-1/2	144087	**4.33**	143394	**8.54**
4.90	0.1929	2-7/16	3-5/8	144088	**4.54**	-	-
5.00	0.1968	2-7/16	3-5/8	144089	**4.10**	143395	**10.09**
5.10	0.2008	2-7/16	3-5/8	144090	**4.54**	-	-
5.20	0.2047	2-1/2	3-3/4	144091	**5.10**	143396	**10.09**
5.25	0.2067	2-1/2	3-3/4	144092	**5.20**	-	-
5.30	0.2087	2-1/2	3-3/4	144093	**5.10**	143397	**11.20**
5.40	0.2126	2-1/2	3-3/4	144094	**5.10**	-	-
5.50	0.2165	2-1/2	3-3/4	144095	**4.54**	143398	**10.98**
5.60	0.2205	2-5/8	3-7/8	144096	**5.33**	143399	**9.64**
5.70	0.2244	2-5/8	3-7/8	144097	**5.33**	143400	**11.64**
5.75	0.2264	2-5/8	3-7/8	144098	**5.65**	-	-
5.80	0.2283	2-5/8	3-7/8	144099	**5.33**	143401	**11.75**
5.90	0.2323	2-5/8	3-7/8	144100	**6.54**	-	-
6.00	0.2362	2-3/4	4	144101	**5.20**	143402	**11.64**
6.10	0.2402	2-3/4	4	144102	**5.77**	-	-
6.20	0.2441	2-3/4	4	144103	**5.33**	-	-
6.25	0.2461	2-3/4	4	144104	**5.33**	-	-
6.30	0.2480	2-3/4	4	144105	**5.33**	-	-
6.40	0.2520	2-7/8	4-1/8	144106	**6.21**	143403	**11.42**
6.50	0.2559	2-7/8	4-1/8	144107	**6.21**	143404	**12.97**
6.60	0.2598	2-7/8	4-1/8	144108	**6.88**	-	-
6.70	0.2638	2-7/8	4-1/8	144109	**6.21**	-	-
6.75	0.2657	2-7/8	4-1/8	143386	**7.31**	-	-
6.80	0.2677	2-7/8	4-1/8	144110	**6.54**	-	-
6.90	0.2717	2-7/8	4-1/8	144111	**8.54**	-	-
7.00	0.2756	2-7/8	4-1/8	144112	**6.32**	143405	**14.64**
7.10	0.2795	2-15/16	4-1/4	144113	**8.54**	-	-
7.20	0.2835	2-15/16	4-1/4	144114	**7.54**	-	-
7.25	0.2854	2-15/16	4-1/4	144115	**8.54**	-	-
7.30	0.2874	2-15/16	4-1/4	144116	**8.21**	-	-
7.40	0.2913	3-1/16	4-3/8	144117	**8.21**	-	-
7.50	0.2953	3-1/16	4-3/8	144118	**7.54**	143406	**17.96**
7.60	0.2992	3-1/16	4-3/8	144119	**9.09**	-	-
7.70	0.3031	3-3/16	4-1/2	144120	**9.54**	143407	**19.07**
7.75	0.3051	3-3/16	4-1/2	143387	**10.20**	-	-
7.80	0.3071	3-3/16	4-1/2	144121	**9.31**	143408	**19.39**
7.90	0.3110	3-3/16	4-1/2	144122	**8.98**	143409	**19.07**
8.00	0.3150	3-3/16	4-1/2	144123	**8.98**	143410	**19.07**
8.10	0.3189	3-5/16	4-5/8	-	-	143411	**18.63**
8.20	0.3228	3-5/16	4-5/8	144124	**10.20**	-	-
8.25	0.3248	3-5/16	4-5/8	144125	**10.53**	-	-
8.30	0.3268	3-5/16	4-5/8	144126	**10.75**	-	-

Size (mm)	Decimal Equivalent (in.)	Flute Length	Overall Length	HSS 118° Point Code No.	Price $	Cobalt 135° Point Code No.	Price $
8.40	0.3307	3-7/16	4-3/4	144127	**11.42**	-	-
8.50	0.3346	3-7/16	4-3/4	144128	**9.98**	143412	**20.29**
8.60	0.3386	3-7/16	4-3/4	144129	**11.42**	143413	**23.06**
8.70	0.3425	3-7/16	4-3/4	144130	**11.42**	-	-
8.75	0.3445	3-1/2	4-7/8	143388	**13.08**	-	-
8.80	0.3465	3-1/2	4-7/8	144131	**12.75**	-	-
8.90	0.3504	3-1/2	4-7/8	144132	**12.75**	-	-
9.00	0.3543	3-1/2	4-7/8	144133	**11.20**	143414	**23.39**
9.10	0.3583	3-1/2	4-7/8	144134	**12.75**	-	-
9.20	0.3622	3-5/8	5	144135	**13.41**	-	-
9.25	0.3642	3-5/8	5	144136	**14.95**	-	-
9.30	0.3661	3-5/8	5	144137	**13.41**	-	-
9.40	0.3701	3-5/8	5	144138	**13.41**	-	-
9.50	0.3740	3-5/8	5	144139	**11.75**	143415	**23.95**
9.60	0.3780	3-3/4	5-1/8	144140	**14.97**	-	-
9.70	0.3819	3-3/4	5-1/8	144141	**14.97**	-	-
9.75	0.3839	3-3/4	5-1/8	143615	**15.19**	-	-
9.80	0.3858	3-3/4	5-1/8	144142	**14.97**	143416	**30.16**
10.00	0.3937	3-3/4	5-1/8	144143	**13.53**	143417	**27.73**
10.10	0.3976	3-7/8	5-1/4	144144	**15.83**	-	-
10.20	0.4016	3-7/8	5-1/4	144145	**14.42**	-	-
10.25	0.4035	3-7/8	5-1/4	144146	**14.44**	-	-
10.30	0.4055	3-7/8	5-1/4	144147	**14.44**	-	-
10.40	0.4094	3-15/16	5-3/8	144148	**14.44**	-	-
10.50	0.4134	3-15/16	5-3/8	144149	**14.97**	143418	**30.60**
10.60	0.4173	3-15/16	5-3/8	144150	**16.95**	-	-
10.70	0.4213	3-15/16	5-1/2	144151	**16.33**	-	-
10.80	0.4252	4-1/16	5-1/2	144152	**18.07**	-	-
10.90	0.4370	4-1/16	5-1/2	144153	**16.33**	-	-
11.00	0.4331	4-1/16	5-1/2	144154	**15.52**	143419	**31.27**
11.10	0.4370	4-1/16	5-1/2	144155	**16.33**	-	-
11.20	0.4409	4-3/16	5-5/8	144156	**20.29**	-	-
11.25	0.4429	4-3/16	5-5/8	143616	**20.95**	-	-
11.30	0.4449	4-3/16	5-5/8	144157	**17.96**	-	-
11.40	0.4488	4-3/16	5-5/8	144158	**17.96**	-	-
11.50	0.4528	4-3/16	5-5/8	144159	**17.41**	143420	**37.47**
11.60	0.4567	4-3/16	5-5/8	144160	**17.96**	-	-
11.70	0.4606	4-3/16	5-5/8	144161	**18.84**	-	-
11.80	0.4646	4-3/8	5-7/8	144162	**21.51**	-	-
11.90	0.4685	4-3/8	5-7/8	144163	**19.97**	-	-
12.00	0.4724	4-3/8	5-7/8	144164	**19.39**	143421	**39.25**
12.10	0.4764	4-3/8	5-7/8	144165	**19.97**	-	-
12.20	0.4803	4-3/8	5-7/8	144166	**22.51**	-	-
12.25	0.4823	4-3/8	5-7/8	144167	**25.98**	-	-
12.30	0.4843	4-1/2	5-7/8	144168	**19.97**	-	-
12.40	0.4882	4-1/2	6	144169	**19.97**	-	-
12.50	0.4921	4-1/2	6	144170	**19.62**	143422	**40.14**
12.60	0.4961	4-1/2	6	144171	**19.97**	-	-
12.70	0.5000	4-1/2	6	144172	**19.97**	-	-
12.75	0.5020	4-1/2	6	143617	**34.03**	-	-
12.80	0.5039	4-1/2	6	144173	**19.97**	-	-
12.90	0.5070	4-1/2	6	144174	**19.97**	-	-
13.00	0.5118	4-1/2	6	144175	**34.26**	-	-
13.10	0.5157	4-1/2	6	144176	**24.86**	-	-
13.20	0.5197	4-1/2	6	144177	**24.86**	-	-
13.30	0.5236	4-1/2	6	144178	**24.86**	-	-
13.40	0.5376	4-13/16	6-5/8	144179	**24.86**	-	-
13.50	0.5315	4-13/16	6-5/8	144180	**43.58**	-	-
13.60	0.5354	4-13/16	6-5/8	144190	**24.86**	-	-
13.70	0.5394	4-13/16	6-5/8	144191	**24.86**	-	-
13.75	0.5413	4-13/16	6-5/8	144192	**28.63**	-	-
13.80	0.5433	4-13/16	6-5/8	144193	**43.58**	-	-
13.90	0.5472	4-13/16	6-5/8	144194	**28.63**	-	-
14.00	0.5512	4-13/16	6-5/8	144195	**40.69**	-	-
14.25	0.5610	4-13/16	6-5/8	144196	**28.63**	-	-
14.50	0.5709	4-13/16	6-5/8	143618	**44.91**	-	-
14.75	0.5709	5-3/16	7-1/8	144197	**30.89**	-	-
15.50	0.6102	5-3/16	7-1/8	144198	**60.53**	-	-
15.75	0.6201	5-5/16	7-1/8	144199	**35.04**	-	-
16.00	0.6299	5-3/16	7-1/8	144200	**60.53**	-	-
16.25	0.6398	5-3/16	7-1/8	144201	**54.78**	-	-
16.50	0.6490	5-3/16	7-1/8	144202	**60.53**	-	-
17.00	0.6693	5-5/8	7-5/8	144204	**60.76**	-	-
17.25	0.6791	5-5/8	7-5/8	144205	**60.76**	-	-
17.50	0.6890	5-5/8	7-5/8	144206	**60.76**	-	-
17.75	0.6988	5-5/8	7-5/8	144207	**31.27**	-	-
18.00	0.7087	5-5/8	7-5/8	144208	**51.10**	-	-
18.25	0.7185	5-5/8	7-5/8	144209	**55.25**	-	-
18.50	0.7283	5-5/8	7-5/8	144210	**55.25**	-	-
18.75	0.7382	5-5/8	7-5/8	144211	**55.25**	-	-
19.00	0.7480	5-5/8	7-5/8	144212	**55.25**	-	-
19.25	0.7579	5-5/8	7-5/8	144213	**61.15**	-	-
19.50	0.7677	5-5/8	7-5/8	144214	**61.15**	-	-
19.75	0.7776	5-5/8	7-5/8	144215	**61.15**	-	-
20.00	0.7874	5-5/8	7-5/8	144216	**54.37**	-	-

Left Hand HSS Drills

STM PREMIUM





Fractional Sizes

Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/64	0.0156	3/16	3/4	143425	**17.08**
1/32	0.0312	1/2	1-3/8	143426	**10.32**
3/64	0.0469	3/4	1-3/4	143427	**6.76**
1/16	0.0625	7/8	1-7/8	143428	**6.76**
5/64	0.0781	1	2	143429	**6.76**
3/32	0.0938	1-1/4	2-1/4	143430	**7.09**
7/64	0.1094	1-1/2	2-5/8	143431	**7.31**
1/8	0.1250	1-5/8	2-3/4	143432	**7.31**
9/64	0.1406	1-3/4	2-7/8	143433	**7.65**
5/32	0.1562	2	3-1/8	143434	**8.54**
11/64	0.1719	2-1/8	3-1/4	143435	**9.98**
3/16	0.1875	2-5/16	3-1/2	143436	**10.65**
13/64	0.2031	2-7/16	3-5/8	143437	**11.08**
7/32	0.2188	2-1/2	3-3/4	143438	**10.65**
15/64	0.2344	2-5/8	3-7/8	143439	**15.19**
1/4	0.2500	2-3/4	4	143440	**14.64**
17/64	0.2656	2-7/8	4-1/8	143441	**16.08**
9/32	0.2812	2-15/16	4-1/4	143442	**16.08**
19/64	0.2969	3-1/16	4-3/8	143443	**18.29**
5/16	0.3125	3-3/16	4-1/2	143444	**18.63**
21/64	0.3281	3-5/16	4-5/8	143445	**21.07**
11/32	0.3438	3-7/16	4-3/4	143446	**22.95**
23/64	0.3594	3-1/2	4-7/8	143447	**27.73**
3/8	0.3750	3-5/8	5	143448	**28.16**
25/64	0.3906	3-3/4	5-1/8	143449	**31.82**
13/32	0.4062	3-7/8	5-1/4	143450	**32.04**
27/64	0.4219	3-15/16	5-3/8	143451	**37.26**
7/16	0.4375	4-1/16	5-1/2	143452	**37.70**
29/64	0.4531	4-3/16	5-5/8	143453	**44.45**
15/32	0.4688	4-5/16	5-3/4	143454	**45.57**
31/64	0.4844	4-3/8	5-7/8	143455	**50.01**
1/2	0.5000	4-1/2	6	143456	**48.12**

Left Hand HSS Drills — Cont'd

Letter Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
A	0.2340	2-5/8	3-7/8	143457	**18.41**
B	0.2380	2-3/4	4	143458	**18.41**
C	0.2420	2-3/4	4	143459	**18.41**
D	0.2460	2-3/4	4	143460	**18.41**
E	0.2500	2-3/4	4	143461	**16.08**
F	0.2570	2-7/8	4-1/8	143462	**19.85**
G	0.2610	2-7/8	4-1/8	143463	**19.85**
H	0.2660	2-7/8	4-1/8	143464	**19.85**
I	0.2720	2-7/8	4-1/8	143465	**19.85**
J	0.2770	2-7/8	4-1/8	143466	**19.85**
K	0.2810	2-15/16	4-1/4	143467	**19.85**
L	0.2900	2-15/16	4-1/4	143468	**19.85**
M	0.2950	3-1/16	4-3/8	143469	**22.40**
N	0.3020	3-1/16	4-3/8	143470	**22.95**
O	0.3160	3-3/16	4-1/2	143471	**25.72**
P	0.3230	3-5/16	4-5/8	143472	**28.27**
Q	0.3320	3-7/16	4-3/4	143473	**29.26**
R	0.3390	3-7/16	4-3/4	143474	**29.26**
S	0.3480	3-1/2	4-7/8	143475	**34.26**
T	0.3580	3-1/2	4-7/8	143476	**34.59**
U	0.3680	3-5/8	5	143477	**36.04**
V	0.3770	3-5/8	5	143478	**39.25**
W	0.3860	3-3/4	5-1/8	143479	**39.91**
X	0.3970	3-3/4	5-1/8	143480	**39.91**
Y	0.4040	3-7/8	5-1/4	143481	**41.90**
Z	0.4130	3-7/8	5-1/4	143482	**46.01**

Wire Gauge Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1	0.2280	2-5/8	3-7/8	143483	**14.85**
2	0.2210	2-5/8	3-7/8	143484	**14.85**
3	0.2130	2-1/2	3-3/4	143485	**13.97**
4	0.2090	2-1/2	3-3/4	143486	**13.97**
5	0.2055	2-1/2	3-3/4	143487	**13.97**
6	0.2040	2-1/2	3-3/4	143488	**13.97**
7	0.2010	2-7/16	3-5/8	143489	**11.75**
8	0.1990	2-7/16	3-5/8	143490	**11.75**
9	0.1960	2-7/16	3-5/8	143491	**11.75**
10	0.1935	2-7/16	3-5/8	143492	**11.75**
11	0.1910	2-5/16	3-1/2	143493	**11.42**
12	0.1890	2-5/16	3-1/2	143494	**11.42**
13	0.1850	2-5/16	3-1/2	143495	**10.53**
14	0.1820	2-3/16	3-3/8	143496	**10.53**
15	0.1800	2-3/16	3-3/8	143497	**10.53**
16	0.1770	2-3/16	3-3/8	143498	**10.53**
17	0.1730	2-3/16	3-3/8	143499	**10.53**
18	0.1695	2-1/8	3-1/4	143500	**9.20**
19	0.1660	2-1/8	3-1/4	143501	**9.20**
20	0.1610	2-1/8	3-1/4	143502	**9.20**
21	0.1590	2-1/8	3-1/4	143503	**8.77**
22	0.1570	2	3-1/8	143504	**8.77**
23	0.1540	2	3-1/8	143505	**8.54**
24	0.1520	2	3-1/8	143506	**8.54**
25	0.1495	1-7/8	3	143507	**8.10**
26	0.1470	1-7/8	3	143508	**8.10**
27	0.1440	1-7/8	3	143509	**8.10**
28	0.1405	1-3/4	2-7/8	143510	**7.21**
29	0.1360	1-3/4	2-7/8	143511	**7.21**

Wire Gauge Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
30	0.1285	1-5/8	2-3/4	143512	**7.21**
31	0.1200	1-5/8	2-3/4	143513	**7.21**
32	0.1160	1-5/8	2-3/4	143514	**7.21**
33	0.1130	1-1/2	2-5/8	143515	**7.31**
34	0.1110	1-1/2	2-5/8	143516	**7.21**
35	0.1100	1-1/2	2-5/8	143517	**7.21**
36	0.1065	1-7/16	2-1/2	143518	**7.21**
37	0.1040	1-7/16	2-1/2	143519	**7.21**
39	0.0995	1-3/8	2-3/8	143521	**7.21**
40	0.0980	1-3/8	2-3/8	143522	**7.21**
41	0.0960	1-3/8	2-3/8	143523	**7.21**
42	0.0935	1-1/4	2-1/4	143524	**7.21**
43	0.0890	1-1/4	2-1/4	143525	**7.21**
44	0.0860	1-1/8	2-1/8	143526	**7.21**
45	0.0820	1-1/8	2-1/8	143527	**7.21**
46	0.0810	1-1/8	2-1/8	143528	**7.21**
47	0.0785	1	2	143529	**7.21**
48	0.0760	1	2	143530	**7.21**
49	0.0730	1	2	143531	**7.21**
50	0.0700	1	2	143532	**7.21**
51	0.0670	1	2	143533	**7.31**
52	0.0635	7/8	1-7/8	143534	**7.31**
53	0.0595	7/8	1-7/8	143535	**7.31**
54	0.0550	7/8	1-7/8	143536	**7.31**
55	0.0520	7/8	1-7/8	143537	**7.31**
56	0.0465	3/4	1-3/4	143538	**7.31**
57	0.0430	3/4	1-3/4	143539	**7.31**
58	0.0420	11/16	1-5/8	143540	**7.31**
59	0.0410	11/16	1-5/8	143541	**7.31**
60	0.0400	11/16	1-5/8	143543	**7.31**
61	0.0390	11/16	1-5/8	143544	**7.77**
62	0.0380	5/8	1-1/2	143545	**15.52**
63	0.0370	5/8	1-1/2	143546	**15.52**
64	0.0360	5/8	1-1/2	143547	**15.52**
65	0.0350	5/8	1-1/2	143548	**15.52**
66	0.0330	1/2	1-3/8	143549	**15.52**
67	0.0320	1/2	1-3/8	143550	**15.52**
68	0.0310	1/2	1-3/8	143551	**15.52**
69	0.0292	1/2	1-3/8	143552	**16.52**
70	0.0280	3/8	1-1/4	143553	**16.52**
71	0.0260	3/8	1-1/4	143554	**16.52**
72	0.0250	5/16	1-1/8	143555	**16.52**
73	0.0240	5/16	1-1/8	143556	**16.52**
74	0.0225	1/4	1	143557	**16.52**
75	0.0210	1/4	1	143558	**16.52**
76	0.0200	3/16	7/8	143559	**16.52**
77	0.0180	3/16	7/8	143560	**16.52**
78	0.0160	3/16	7/8	143561	**16.52**
79	0.0145	1/8	3/4	143562	**19.29**
80	0.0135	1/8	3/4	143563	**19.29**

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Premium HSS Stub Drills

These Premium HSS drills can be used in a variety of applications. Their surface treatment increases abrasion resistance, which reduces the amount of chip welding and improves chip flow.



PREMIUM HSS | 30° | 135° SPLIT POINT | STUB LENGTH

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
60	0.0400	1/2	1-3/8	128399	**2.96**
59	0.0410	1/2	1-3/8	128398	**2.96**
58	0.0420	1/2	1-3/8	128397	**2.96**
57	0.0430	1/2	1-3/8	128396	**2.96**
56	0.0465	1/2	1-3/8	128395	**2.96**
55	0.0520	5/8	1-5/8	128394	**2.96**
54	0.0540	5/8	1-5/8	128393	**2.96**
53	0.0595	5/8	1-5/8	128392	**2.96**
1/16	0.0625	5/8	1-5/8	128310	**2.95**
52	0.0635	11-16	1-11/16	128391	**2.96**
51	0.0670	11-16	1-11/16	128390	**2.96**
50	0.0700	11/16	1-11/16	128389	**2.96**
49	0.0730	11/16	1-11/16	128388	**2.96**
48	0.0760	11/16	1-11/16	128387	**2.96**
5/64	0.0781	11/16	1-11/16	128311	**2.95**
47	0.0785	11/16	1-11/16	128386	**2.96**
46	0.0810	3/4	1-3/4	128385	**2.96**
45	0.0820	3/4	1-3/4	128384	**2.96**
44	0.0860	3/4	1-3/4	128383	**2.96**
43	0.0890	3/4	1-3/4	128382	**2.96**
42	0.0935	3/4	1-3/4	128381	**2.96**
3/32	0.0938	3/4	1-3/4	128312	**2.95**
41	0.0960	13/16	1-13/16	128380	**2.96**
40	0.0980	13/16	1-13/16	128379	**2.72**
39	0.0995	13/16	1-13/16	128378	**2.72**
38	0.1015	13/16	1-13/16	128377	**2.72**
37	0.1040	13/16	1-13/16	128376	**2.72**
36	0.1065	13/16	1-13/16	128375	**2.72**
7/64	0.1094	13/16	1-13/16	128313	**2.95**
35	0.1100	7/8	1-7/8	128374	**2.72**
34	0.1110	7/8	1-7/8	128373	**2.72**
33	0.1130	7/8	1-7/8	128372	**2.72**
32	0.1160	7/8	1-7/8	128371	**2.72**
31	0.1200	7/8	1-7/8	128370	**2.72**
1/8	0.1250	7/8	1-7/8	128314	**2.95**
30	0.1285	15/16	1-15/16	128369	**2.72**
29	0.1360	15/16	1-15/16	128368	**2.72**
28	0.1405	15/16	1-15/16	128367	**2.72**
9/64	0.1406	15/16	1-15/16	128315	**3.09**
27	0.1440	1	2-1/16	128366	**2.96**
26	0.1470	1	2-1/16	128365	**2.96**
25	0.1495	1	2-1/16	128364	**2.96**
24	0.1520	1	2-1/16	128363	**2.96**
23	0.1540	1	2-1/16	128362	**2.96**
5/32	0.1562	1	2-1/16	128316	**3.33**
22	0.1570	1-1/16	2-1/8	128361	**2.96**
21	0.1590	1-1/16	2-1/8	128360	**2.96**
20	0.1610	1-1/16	2-1/8	128359	**3.07**
19	0.1660	1-1/16	2-1/8	128358	**3.07**
18	0.1695	1-1/16	2-1/8	128357	**3.07**
11/64	0.1719	1-1/16	2-1/8	128317	**3.43**
17	0.1730	1-1/8	2-3/16	128356	**3.43**
16	0.1770	1-1/8	2-3/16	128355	**3.43**
15	0.1800	1-1/8	2-3/16	128354	**3.43**
14	0.1820	1-1/8	2-3/16	128353	**3.43**
13	0.1850	1-1/8	2-3/16	128352	**3.43**
3/16	0.1875	1-1/8	2-3/16	128318	**3.67**
12	0.1890	1-3/16	2-1/4	128351	**3.43**
11	0.1910	1-3/16	2-1/4	128350	**3.43**
10	0.1935	1-3/16	2-1/4	128349	**3.43**
9	0.1960	1-3/16	2-1/4	128348	**3.43**
8	0.1991	1-3/16	2-1/4	128347	**3.43**
7	0.2010	1-3/16	2-1/4	128346	**3.43**
13/64	0.2031	1-3/16	2-1/4	128319	**4.32**
6	0.2040	1-1/4	2-3/8	128345	**4.29**
5	0.2055	1-1/4	2-3/8	128344	**4.29**
4	0.2090	1-1/4	2-3/8	128343	**4.29**
3	0.2130	1-1/4	2-3/8	128342	**4.29**
7/32	0.2188	1-1/4	2-3/8	128320	**4.29**
2	0.2210	1-5/16	2-7/16	128341	**4.66**
1	0.2280	1-5/16	2-7/16	128340	**4.66**
A	0.2340	1-5/16	2-7/16	128410	**4.08**
15/64	0.2344	1-5/16	2-7/16	128321	**4.29**
B	0.2380	1-3/8	2-1/2	128411	**4.29**
C	0.2420	1-3/8	2-1/2	128412	**4.29**
D	0.2460	1-3/8	2-1/2	128413	**4.30**
1/4	0.2500	1-3/8	2-1/2	128322	**4.46**
E	0.2500	1-3/8	2-1/2	128414	**4.30**
F	0.2570	1-7/16	2-5/8	128415	**5.52**
G	0.2610	1-7/16	2-5/8	128416	**6.16**
17/64	0.2656	1-7/16	2-5/8	128323	**6.02**
H	0.2660	1-1/2	2-11/16	128417	**6.14**
I	0.2720	1-1/2	2-11/16	128418	**6.39**
J	0.2770	1-1/2	2-11/16	128419	**6.40**
K	0.2810	1-1/2	2-11/16	128420	**6.50**
9/32	0.2812	1-1/2	2-11/16	128324	**6.14**
L	0.2900	1-9/16	2-3/4	128421	**6.78**
M	0.2950	1-9/16	2-3/4	128422	**6.90**
19/64	0.2969	1-9/16	2-3/4	128325	**6.75**
N	0.3020	1-5/8	2-13/16	128423	**7.14**
5/16	0.3125	1-5/8	2-13/16	128326	**6.88**
O	0.3160	1-11/16	2-15/16	128424	**8.14**
P	0.3230	1-11/16	2-15/16	128425	**8.24**
21/64	0.3281	1-11/16	2-15/16	128327	**7.87**
Q	0.3320	1-11/16	2-15/16	128426	**8.50**
R	0.3390	1-11/16	2-15/16	128427	**8.86**
11/32	0.3438	1-11/16	2-15/16	128328	**7.88**
S	0.3480	1-3/4	3-1/16	128428	**9.00**
T	0.3580	1-3/4	3-1/16	128429	**9.23**
23/64	0.3594	1-3/4	3-1/16	128329	**8.86**
U	0.3680	1-13/16	3-1/8	128430	**9.94**
3/8	0.3750	1-13/16	3-1/8	128330	**8.98**
V	0.3770	1-7/8	3-1/4	128431	**10.58**
W	0.3860	1-7/8	3-1/4	128432	**10.96**
25/64	0.3906	1-7/8	3-1/4	128331	**10.23**
X	0.3970	1-15/16	3-5/16	128434	**11.94**
Y	0.4040	1-15/16	3-5/16	128435	**12.06**
13/32	0.4062	1-15/16	3-5/16	128332	**10.96**
Z	0.4130	2	3-3/8	128436	**12.44**
27/64	0.4219	2	3-3/8	128333	**11.70**
7/16	0.4375	2-1/16	3-7/16	128334	**12.30**
29/64	0.4531	2-1/8	3-9/16	128335	**13.65**
15/32	0.4688	2-1/8	3-5/8	128336	**14.75**
31/64	0.4844	2-3/16	3-11/16	128337	**15.26**
1/2	0.5000	2-1/4	3-3/4	128338	**15.74**

Stub Drills HSS

- 135° heavy duty split point



Fractional Sizes

Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/16	0.0625	5/8	1-5/8	118310	**2.61**
5/64	0.0781	11/16	1-11/16	118311	**2.61**
3/32	0.0938	3/4	1-3/4	118312	**2.61**
7/64	0.1094	13/16	1-13/16	118313	**2.61**
1/8	0.1250	7/8	1-7/8	118314	**2.61**
9/64	0.1406	15/16	1-15/16	118315	**2.85**
5/32	0.1562	1	2-1/16	118316	**2.99**
11/64	0.1719	1-1/16	2-1/8	118317	**3.22**
3/16	0.1875	1-1/8	2-3/16	118318	**3.34**
13/64	0.2031	1-3/16	2-1/4	118319	**3.92**
7/32	0.2188	1-1/4	2-3/8	118320	**3.93**
15/64	0.2344	1-5/16	2-7/16	118321	**4.18**
1/4	0.2500	1-3/8	2-1/2	118322	**4.16**

Stub Drills HSS — Cont'd

- 135° heavy duty split point



Size (in.)	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
17/64	0.2656	1-7/16	2-5/8	118323	**5.25**
9/32	0.2812	1-1/2	2-11/16	118324	**5.80**
19/64	0.2969	1-9/16	2-3/4	118325	**6.18**
5/16	0.3125	1-5/8	2-13/16	118326	**6.56**
21/64	0.3281	1-11/16	2-15/16	118327	**7.26**
11/32	0.3438	1-11/16	3	118328	**7.23**
23/64	0.3594	1-3/4	3-1/16	118329	**8.20**
3/8	0.3750	1-13/16	3-1/8	118330	**8.33**
25/64	0.3906	1-7/8	3-1/4	118331	**9.49**
13/32	0.4062	1-15/16	3-5/16	118332	**10.20**
27/64	0.4219	2	3-3/8	118333	**10.68**
7/16	0.4375	2-1/16	3-7/16	118334	**11.30**
29/64	0.4531	2-1/8	3-9/16	118335	**12.61**
15/32	0.4688	2-1/8	3-5/8	118336	**13.65**
31/64	0.4844	2-3/16	3-11/16	118337	**14.28**
1/2	0.5000	2-1/4	3-3/4	118338	**14.62**

Wire Gauge Sizes

Size	Decimal Equivalent	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1	0.2280	1-5/16	2-7/16	118340	**4.62**
2	0.2210	1-5/16	2-7/16	118341	**4.62**
3	0.2130	1-1/4	2-3/8	118342	**4.30**
4	0.2090	1-1/4	2-3/8	118343	**4.30**
5	0.2055	1-1/4	2-3/8	118344	**4.30**
6	0.2040	1-1/4	2-3/8	118345	**4.30**
7	0.2010	1-3/16	2-1/4	118346	**3.55**
8	0.1990	1-3/16	2-1/4	118347	**3.55**
9	0.1960	1-3/16	2-1/4	118348	**3.55**
10	0.1935	1-3/16	2-1/4	118349	**3.55**
11	0.1910	1-3/16	2-1/4	118350	**3.55**
12	0.1890	1-3/16	2-1/4	118351	**3.55**
13	0.1850	1-1/8	2-3/16	118352	**3.55**
14	0.1820	1-1/8	2-3/16	118353	**3.55**
15	0.1800	1-1/8	2-3/16	118354	**3.55**
16	0.1770	1-1/8	2-3/16	118355	**3.55**
17	0.1730	1-1/8	2-3/16	118356	**3.55**
18	0.1695	1-1/16	2-1/8	118357	**3.20**
19	0.1660	1-1/16	2-1/8	118358	**3.20**
20	0.1610	1-1/16	2-1/8	118359	**3.20**
21	0.1590	1-1/16	2-1/8	118360	**2.99**
22	0.1570	1-1/16	2-1/8	118361	**2.99**
23	0.1540	1	2-1/16	118362	**2.99**
24	0.1520	1	2-1/16	118363	**2.99**
25	0.1495	1	2-1/16	118364	**2.99**
26	0.1470	1	2-1/16	118365	**2.99**
27	0.1440	1	2-1/16	118366	**2.99**
28	0.1405	15/16	1-15/16	118367	**2.62**
29	0.1360	15/16	1-15/16	118368	**2.62**
30	0.1285	15/16	1-15/16	118369	**2.62**
31	0.1200	7/8	1-7/8	118370	**2.62**
32	0.1160	7/8	1-7/8	118371	**2.62**
33	0.1130	7/8	1-7/8	118372	**2.62**
34	0.1110	7/8	1-7/8	118373	**2.62**
35	0.1100	7/8	1-7/8	118374	**2.62**
36	0.1065	13/16	1-13/16	118375	**2.62**
37	0.1040	13/16	1-13/16	118376	**2.62**
38	0.1015	13/16	1-13/16	118377	**2.62**
39	0.0995	13/16	1-13/16	118378	**2.62**
40	0.0980	13/16	1-13/16	118379	**2.62**

Prentice Drills

STM PREMIUM

- 1/2" shank
- 3" cutting length
- 6" overall length



Available in: HSS, HSS w/3 Flats & HSCO

Size (in.)	Decimal Equiv.	General Purpose Code No.	HSS Price $	General Purpose With 3 Flats Code No.	HSS Price $	HSCO Cobalt Code No.	Price $
33/64	0.5156	118400	**28.16**	118457	**29.82**	118501	**76.94**
17/32	0.5312	118401	**27.38**	118458	**29.05**	118502	**76.94**
35/64	0.5469	118402	**29.82**	118459	**31.70**	118503	**79.50**
9/16	0.5625	118403	**29.16**	118460	**30.94**	118504	**79.50**
37/64	0.5781	118404	**32.16**	118461	**34.15**	118505	**85.15**
19/32	0.5937	118405	**31.27**	118462	**33.16**	118506	**85.15**
39/64	0.6094	118406	**33.59**	118463	**35.70**	118507	**90.58**
5/8	0.6250	118407	**32.70**	118464	**34.71**	118508	**90.58**
41/64	0.6406	118408	**35.81**	118465	**38.13**	118509	**101.56**
21/32	0.6562	118409	**34.81**	118466	**37.03**	118510	**101.56**
43/64	0.6719	118410	**37.26**	118467	**39.58**	118511	**107.20**
11/16	0.6875	118411	**36.25**	118468	**38.58**	118512	**107.20**
45/64	0.7031	118412	**37.70**	118469	**40.14**	118513	**114.64**
23/32	0.7187	118413	**36.70**	118470	**37.03**	118514	**114.64**
47/64	0.7344	118414	**41.14**	118471	**45.68**	118515	**114.64**
3/4	0.7500	118415	**40.02**	118472	**42.47**	118516	**114.64**
49/64	0.7656	118416	**43.91**	118473	**46.57**	118517	**129.50**
25/32	0.7812	118417	**42.57**	118474	**45.34**	118518	**129.50**
51/64	0.7969	118418	**51.44**	118475	**54.66**	118519	**135.70**
13/16	0.8125	118419	**44.91**	118476	**47.68**	118520	**135.70**
53/64	0.8281	118420	**53.22**	118477	**56.55**	118521	**147.67**
27/32	0.8437	118421	**46.34**	118478	**49.22**	118522	**147.67**
55/64	0.8594	118422	**55.21**	118479	**58.65**	118523	**147.67**
7/8	0.8750	118423	**48.12**	118480	**51.11**	118524	**146.01**
57/64	0.8906	118424	**57.65**	118481	**61.32**	118525	**155.44**
29/32	0.9062	118425	**50.23**	118482	**58.65**	118526	**155.44**
59/64	0.9219	118426	**61.65**	118483	**65.63**	118527	**155.44**
15/16	0.9375	118427	**53.78**	118484	**57.22**	118528	**155.44**
61/64	0.9531	118428	**65.19**	118485	**69.30**	118529	**173.62**
31/32	0.9687	118429	**56.76**	118486	**60.43**	118530	**173.62**
63/64	0.9844	118430	**72.51**	118487	**77.17**	118531	**188.58**
1	1.0000	118431	**68.40**	118488	**71.96**	118532	**188.58**
1-1/32	1.0312	118432	**77.05**	118489	**82.04**	118534	**241.36**
1-1/16	1.0625	118433	**74.17**	118490	**78.94**	118536	**260.55**
1-3/32	1.0937	118434	**82.15**	118491	**87.36**	118538	**278.40**
1-1/8	1.1250	118435	**84.26**	118492	**89.69**	118540	**296.36**
1-5/32	1.1562	118436	**87.59**	118493	**93.13**	118542	**310.76**
1-3/16	1.1875	118437	**92.58**	118494	**98.46**	118544	**324.95**
1-7/32	1.2187	118438	**103.44**	118495	**110.10**	118546	**342.36**
1-1/4	1.2500	118439	**102.44**	118496	**108.98**	118548	**359.88**
1-9/32	1.2812	-	**-**	-	**-**	118550	**508.22**
1-5/16	1.3125	118441	**127.50**	118497	**134.93**	118552	**508.22**
1-11/32	1.3438	-	**-**	-	**-**	118554	**515.66**
1-3/8	1.3750	118443	**145.68**	118498	**155.11**	118556	**515.66**
1-13/32	1.4062	-	**-**	-	**-**	118558	**557.23**
1-7/16	1.4375	118445	**160.32**	118499	**170.63**	118560	**557.23**
1-15/32	1.4688	-	**-**	-	**-**	118562	**568.31**
1-1/2	1.5000	118447	**176.28**	118500	**187.58**	118564	**568.31**

Prentice Drills HSS

QUALITY IMPORT

- 1/2" shank
- 3" cutting length
- 6" overall length
- Flatted shank



Size (in.)	Decimal Equivalent (in.)	STM HSS Code No.	Price $
33/64	0.5156	107500	**13.85**
17/32	0.5312	107502	**13.73**
35/64	0.5469	107504	**13.85**
9/16	0.5625	107506	**15.86**
37/64	0.5781	107508	**16.65**
19/32	0.5937	107510	**14.73**
39/64	0.6094	107512	**16.22**
5/8	0.6250	107514	**16.26**
41/64	0.6406	107516	**19.00**
21/32	0.6562	107518	**18.04**
43/64	0.6719	107520	**17.21**
11/16	0.6875	107522	**17.57**
45/64	0.7031	107524	**19.42**
23/32	0.7187	107526	**19.29**
47/64	0.7344	107528	**20.40**
3/4	0.7500	107530	**21.31**
49/64	0.7656	107532	**22.43**
25/32	0.7812	107534	**21.24**
51/64	0.7969	107536	**22.94**
13/16	0.8125	107538	**20.84**
53/64	0.8281	107540	**24.90**
27/32	0.8437	107542	**26.32**
55/64	0.8594	107544	**25.27**
7/8	0.8750	107546	**27.34**
57/64	0.8906	107548	**27.90**
29/32	0.9062	107550	**28.46**
59/64	0.9219	107552	**28.48**
15/16	0.9375	107554	**29.20**
61/64	0.9531	107556	**32.43**
31/32	0.9687	107558	**34.56**
63/64	0.9844	107560	**34.33**
1	1.0000	107562	**34.09**
1-1/64	1.0156	107564	**39.70**
1-1/32	1.0312	107566	**47.30**
1-3/64	1.0469	107568	**40.73**
1-1/16	1.0625	107570	**41.81**
1-5/64	1.0781	107572	**52.23**
1-3/32	1.0937	107574	**42.46**
1-7/64	1.1094	107576	**45.98**
1-1/8	1.1250	107578	**45.97**
1-9/64	1.1406	107580	**59.57**
1-5/32	1.1562	107582	**48.68**
1-11/64	1.1719	107584	**48.60**
1-3/16	1.1875	107586	**59.69**
1-13/64	1.2031	107588	**63.68**
1-7/32	1.2187	107590	**69.47**
1-15/64	1.2344	107592	**66.90**
1-1/4	1.2500	107594	**67.66**
1-17/64	1.2656	107596	**61.95**
1-9/32	1.2812	107598	**68.07**
1-19/64	1.2969	107600	**74.97**
1-5/16	1.3125	107602	**77.82**
1-21/64	1.3281	107604	**83.14**
1-11/32	1.3437	107606	**92.11**
1-23/64	1.3594	107608	**106.79**
1-3/8	1.3750	107610	**90.60**
1-25/64	1.3906	107612	**102.12**
1-13/32	1.4062	107614	**106.58**
1-27/64	1.4219	107616	**146.61**
1-7/16	1.4375	107618	**111.38**
1-29/64	1.4531	107620	**109.10**
1-15/32	1.4687	107622	**112.53**
1-31/64	1.4844	107624	**120.68**
1-1/2	1.5000	107626	**122.31**

Taper Length Drills

STM PREMIUM

Taper length drills are designed for general purpose drilling where longer length is required.



Fractional Sizes

Size (in.)	Decimal Equiv. (in.)	Flute Length	Overall Length	HSS Code No.	Price $	Cobalt 135° Split Point Code No.	Price $
1/64	0.0156	5/16	1-1/2	116792	**12.35**	-	-
1/32	0.0312	3/4	2	116793	**9.76**	-	-
3/64	0.0469	1-1/8	2-1/4	116794	**4.68**	115001	**12.08**
1/16	0.0625	1-3/4	3	116795	**4.84**	115002	**12.54**
5/64	0.0781	2	3-3/4	116796	**5.65**	115003	**14.64**
3/32	0.0938	2-1/4	4-1/4	116797	**6.85**	115004	**17.08**
7/64	0.1094	2-1/2	4-5/8	116798	**8.45**	115005	**21.85**
1/8	0.1250	2-3/4	5-1/8	116799	**8.72**	115006	**21.85**
9/64	0.1406	3	5-3/8	116800	**11.55**	115007	**26.50**
5/32	0.1562	3	5-3/8	116801	**10.48**	115008	**26.50**
11/64	0.1719	3-3/8	5-3/4	116802	**12.35**	115009	**26.50**
3/16	0.1875	3-3/8	5-3/4	116803	**10.48**	115010	**26.50**
13/64	0.2031	3-5/8	6	116804	**14.14**	115011	**30.60**
7/32	0.2188	3-5/8	6	116805	**14.97**	115012	**30.60**
15/64	0.2344	3-3/4	6-1/8	116806	**14.97**	115013	**32.04**
1/4	0.2500	3-3/4	6-1/8	116807	**12.35**	115014	**30.27**
17/64	0.2656	3-7/8	6-1/4	116808	**15.67**	115015	**39.58**
9/32	0.2812	3-7/8	6-1/4	116809	**14.97**	115016	**37.47**
19/64	0.2969	4	6-3/8	116810	**17.25**	115017	**39.58**
5/16	0.3125	4	6-3/8	116811	**14.97**	115018	**37.47**
21/64	0.3281	4-1/8	6-1/2	116812	**17.54**	115019	**45.46**
11/32	0.3438	4-1/8	6-1/2	116813	**17.25**	115020	**43.91**
23/64	0.3594	4-1/4	6-3/4	116814	**20.15**	115021	**53.78**
3/8	0.3750	4-1/4	6-3/4	116815	**20.15**	115022	**49.55**
25/64	0.3906	4-3/8	7	116816	**21.41**	115023	**55.66**
13/32	0.4062	4-3/8	7	116817	**21.09**	115024	**53.78**
27/64	0.4219	4-5/8	7-1/4	116818	**22.81**	115025	**60.31**
7/16	0.4375	4-5/8	7-1/4	116819	**23.19**	115026	**58.21**
29/64	0.4531	4-3/4	7-1/2	116820	**25.72**	115027	**68.40**
15/32	0.4688	4-3/4	7-1/2	116821	**27.31**	115028	**68.40**
31/64	0.4844	4-3/4	7-3/4	116822	**29.89**	115029	**69.40**
1/2	0.5000	4-3/4	7-3/4	116823	**28.52**	115030	**71.51**
33/64	0.5156	4-3/4	8	116824	**43.40**	115031	**98.89**
17/32	0.5312	4-3/4	8	116825	**42.23**	115032	**95.24**
35/64	0.5469	4-7/8	8-1/4	116826	**48.23**	115033	**106.77**
9/16	0.5625	4-7/8	8-1/4	116827	**44.49**	115034	**103.00**
37/64	0.5781	4-7/8	8-3/4	116828	**51.99**	115035	**123.18**
19/32	0.5938	4-7/8	8-3/4	116829	**51.99**	115036	**120.18**
39/64	0.6094	4-7/8	8-3/4	116830	**54.73**	115037	**124.61**
5/8	0.6250	4-7/8	8-3/4	116831	**51.99**	115038	**120.18**
41/64	0.6406	5-1/8	9	116832	**61.54**	115039	**139.92**
21/32	0.6562	5-1/8	9	116833	**59.58**	115040	**132.49**
43/64	0.6719	5-3/8	9-1/4	116834	**69.83**	115041	**160.76**
11/16	0.6875	5-3/8	9-1/4	116835	**67.09**	115042	**155.11**
45/64	0.7031	5-5/8	9-1/2	116836	**74.46**	115043	**176.06**
23/32	0.7188	5-5/8	9-1/2	116837	**73.24**	115044	**169.63**
47/64	0.7344	5-7/8	9-3/4	116838	**81.42**	115045	**186.15**
3/4	0.7500	5-7/8	9-3/4	116839	**77.51**	115046	**179.61**
49/64	0.7656	6	9-7/8	116840	**85.60**	115047	**219.30**
25/32	0.7812	6	9-7/8	116841	**85.60**	115048	**211.42**
51/64	0.7969	6-1/8	10	116842	**92.15**	115049	**240.03**
13/16	0.8125	6-1/8	10	116843	**90.58**	115050	**227.29**
53/64	0.8281	6-1/8	10	116844	**95.48**	115051	**243.91**
27/32	0.8438	6-1/8	10	116845	**95.48**	115052	**235.15**
55/64	0.8594	6-1/8	10	116846	**100.24**	115053	**256.22**
7/8	0.8750	6-1/8	10	116847	**99.16**	115054	**247.01**
57/64	0.8906	6-1/8	10	116848	**104.36**	115055	**271.85**
29/32	0.9062	6-1/8	10	116849	**104.36**	115056	**257.32**
59/64	0.9219	6-1/8	10-3/4	116850	**114.36**	115057	**295.68**
15/16	0.9375	6-1/8	10-3/4	116851	**113.41**	115058	**280.16**
61/64	0.9531	6-3/8	11	116852	**125.12**	115059	**326.51**
31/32	0.9688	6-3/8	11	116853	**125.12**	115060	**309.22**
63/64	0.9844	6-3/8	11	116854	**131.62**	115061	**334.16**
1	1.0000	6-3/8	11	116855	**130.52**	115062	**322.18**

Taper Length Drills

- General purpose



Wire Gauge Sizes

HSS | SUPER COBALT | 118°

Size	Decimal Equiv.	Flute Length	Overall Length	HSS Code No.	Price $	Cobalt Code No.	Price $
1	0.2280	3-3/4	6-1/8	115065	**17.63**	115145	**35.04**
2	0.2210	3-3/4	6-1/8	115066	**17.63**	115146	**35.04**
3	0.2130	3-5/8	6	115067	**17.08**	115147	**35.04**
4	0.2090	3-5/8	6	115068	**17.08**	115148	**35.04**
5	0.2055	3-5/8	6	115069	**17.08**	115149	**35.04**
6	0.2040	3-5/8	6	115070	**17.08**	115150	**35.04**
7	0.2010	3-5/8	6	115071	**17.08**	115151	**35.04**
8	0.1990	3-5/8	6	115072	**17.08**	115152	**35.04**
9	0.1960	3-5/8	6	115073	**17.08**	115153	**35.04**
10	0.1935	3-5/8	6	115074	**17.08**	115154	**35.04**
11	0.1910	3-5/8	6	115075	**17.08**	115155	**35.04**
12	0.1890	3-5/8	6	115076	**17.08**	115156	**35.04**
13	0.1850	3-3/8	5-3/4	115077	**15.52**	115157	**32.04**
14	0.1820	3-3/8	5-3/4	115078	**15.52**	115158	**32.04**
15	0.1800	3-3/8	5-3/4	115079	**15.52**	115159	**32.04**
16	0.1770	3-3/8	5-3/4	115080	**15.52**	115160	**32.04**
17	0.1730	3-3/8	5-3/4	115081	**15.52**	115161	**32.04**
18	0.1695	3-3/8	5-3/4	115082	**15.52**	115162	**32.04**
19	0.1660	3-3/8	5-3/4	115083	**15.52**	115163	**32.04**
20	0.1610	3-3/8	5-3/4	115084	**15.52**	115164	**32.04**
21	0.1590	3-3/8	5-3/4	115085	**15.52**	115165	**32.04**
22	0.1570	3-3/8	5-3/4	115086	**15.52**	115166	**32.04**
23	0.1540	3	5-3/8	115087	**15.52**	115167	**32.04**
24	0.1520	3	5-3/8	115088	**15.52**	115168	**32.04**
25	0.1495	3	5-3/8	115089	**15.52**	115169	**32.04**
26	0.1470	3	5-3/8	115090	**15.52**	115170	**32.04**
27	0.1440	3	5-3/8	115091	**15.52**	115171	**32.04**
28	0.1405	3	5-3/8	115092	**15.52**	115172	**28.39**
29	0.1360	3	5-3/8	115093	**15.52**	115173	**28.39**
30	0.1285	3	5-3/8	115094	**15.52**	115174	**28.39**
31	0.1200	2-3/4	5-1/8	115095	**15.19**	115175	**26.28**
32	0.1160	2-3/4	5-1/8	115096	**15.19**	115176	**26.28**
33	0.1130	2-3/4	5-1/8	115097	**15.19**	115177	**26.28**
34	0.1110	2-3/4	5-1/8	115098	**15.19**	115178	**26.28**
35	0.1100	2-3/4	5-1/8	115099	**15.19**	115179	**26.28**
36	0.1065	2-1/2	4-5/8	115100	**11.53**	115180	**25.50**
37	0.1040	2-1/2	4-5/8	115101	**11.53**	115181	**25.50**
38	0.1015	2-1/2	4-5/8	115102	**11.53**	115182	**25.50**
39	0.0995	2-1/2	4-5/8	115103	**9.98**	115183	**25.50**
40	0.0980	2-1/2	4-5/8	115104	**9.98**	115184	**25.50**
41	0.0960	2-1/2	4-5/8	115105	**9.98**	-	-
42	0.0935	2-1/4	4-1/4	115106	**8.54**	-	-
43	0.0890	2-1/4	4-1/4	115107	**8.54**	-	-
44	0.0860	2-1/4	4-1/4	115108	**8.54**	-	-
45	0.0820	2-1/4	4-1/4	115109	**8.54**	-	-
46	0.0810	2-1/4	4-1/4	115110	**8.54**	-	-
47	0.0785	2-1/4	4-1/4	115111	**8.54**	-	-
48	0.0760	2	3-3/4	115112	**7.09**	-	-
49	0.0730	2	3-3/4	115113	**7.09**	-	-
50	0.0700	2	3-3/4	115114	**7.09**	-	-
51	0.0670	2	3-3/4	115115	**7.09**	-	-
52	0.0635	2	3-3/4	115116	**7.09**	-	-
53	0.0595	1-3/4	3	115117	**7.09**	-	-
54	0.0550	1-3/4	3	115118	**7.09**	-	-
55	0.0520	1-3/4	3	115119	**7.09**	-	-
56	0.0465	1-1/8	2-1/4	115120	**7.09**	-	-
57	0.0430	1-1/8	2-1/4	115121	**7.09**	-	-
58	0.0420	1-1/8	2-1/4	115122	**7.09**	-	-
59	0.0410	1-1/8	2-1/4	115123	**7.09**	-	-
60	0.0400	1-1/8	2-1/4	115124	**7.09**	-	-
61	0.0390	1-1/8	2-1/4	115125	**6.76**	-	-
62	0.0380	3/4	2	115126	**8.54**	-	-
63	0.0370	3/4	2	115127	**8.54**	-	-
64	0.0360	3/4	2	115128	**8.54**	-	-
65	0.0350	3/4	2	115129	**8.54**	-	-
66	0.0330	3/4	2	115130	**8.54**	-	-
67	0.0320	3/4	2	115131	**8.54**	-	-
68	0.0310	3/4	2	115132	**8.54**	-	-
69	0.0292	3/4	2	115133	**8.54**	-	-
70	0.0280	3/4	2	115134	**9.09**	-	-
71	0.0260	3/4	2	115135	**9.09**	-	-
72	0.0250	5/16	1-1/2	115136	**9.09**	-	-
73	0.0240	5/16	1-1/2	115137	**9.09**	-	-
74	0.0225	5/16	1-1/2	115138	**9.09**	-	-
75	0.0210	5/16	1-1/2	115139	**9.09**	-	-
76	0.0200	5/16	1-1/2	115140	**10.75**	-	-
77	0.0180	5/16	1-1/2	115141	**10.98**	-	-
78	0.0160	5/16	1-1/2	115142	**10.98**	-	-
79	0.0145	5/16	1-1/2	115143	**10.98**	-	-
80	0.0135	5/16	1-1/2	115144	**10.98**	-	-

Letter Sizes

Size	Decimal Equiv.	Flute Length	Overall Length	HSS Code No.	Price $	Cobalt Code No.	Price $
A	0.2340	3-3/4	6-1/8	115185	**19.62**	117842	**39.69**
B	0.2380	3-3/4	6-1/8	115186	**19.62**	117843	**39.69**
C	0.2420	3-3/4	6-1/8	115187	**19.62**	117844	**39.69**
D	0.2460	3-3/4	6-1/8	115188	**19.96**	117845	**39.69**
E	0.2500	3-3/4	6-1/8	115189	**12.97**	117846	**30.60**
F	0.2570	3-7/8	6-1/4	115190	**20.85**	117847	**47.34**
G	0.2610	3-7/8	6-1/4	115191	**21.73**	117848	**35.04**
H	0.2660	3-7/8	6-1/4	115192	**22.51**	117849	**47.34**
I	0.2720	3-7/8	6-1/4	115193	**22.51**	117850	**47.34**
J	0.2770	3-7/6	6-1/4	115194	**22.51**	117851	**47.34**
K	0.2810	3-7/8	6-1/4	115195	**22.51**	117852	**47.34**
L	0.2900	4	6-3/8	115196	**24.06**	117853	**47.34**
M	0.2950	4	6-3/8	115197	**24.06**	117854	**47.34**
N	0.3020	4	6-3/8	115198	**24.49**	117855	**47.34**
O	0.3160	4-1/8	6-1/2	115199	**24.49**	117856	**51.99**
P	0.3230	4-1/8	6-1/2	115200	**24.49**	117857	**51.99**
Q	0.3320	4-1/8	6-1/2	115201	**24.49**	117858	**51.99**
R	0.3390	4-1/8	6-1/2	115202	**25.83**	117859	**51.99**
S	0.3480	4-1/4	6-3/4	115203	**25.83**	117860	**64.08**
T	0.3580	4-1/4	6-3/4	115204	**25.83**	117861	**64.08**
U	0.3680	4-1/4	6-3/4	115205	**27.16**	117862	**64.08**
V	0.3770	4-3/8	7	115206	**27.16**	117863	**66.19**
W	0.3860	4-3/8	7	115207	**27.16**	117864	**66.19**
X	0.3970	4-3/8	7	115208	**27.93**	117865	**66.19**
Y	0.4040	4-3/8	7	115209	**27.93**	117866	**66.19**
Z	0.4130	4-5/8	7-1/4	115210	**28.93**	117867	**71.18**

Metric - HSS

Size (mm)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
1.00	0.0394	1-1/8	2-1/4	115211	**6.54**
1.05	0.0413	1-1/8	2-1/4	115212	**6.54**
1.10	0.0433	1-1/8	2-1/4	115213	**7.09**
1.15	0.0453	1-1/8	2-1/4	115214	**6.54**
1.20	0.0472	1-3/4	3	115215	**6.65**
1.25	0.0492	1-3/4	3	115216	**6.65**
1.30	0.0512	1-3/4	3	115217	**6.65**
1.35	0.0531	1-3/4	3	115218	**6.88**
1.40	0.0551	1-3/4	3	115219	**6.65**
1.45	0.0571	1-3/4	3	115220	**6.88**
1.50	0.0591	1-3/4	3	115221	**6.21**
1.55	0.0610	1-3/4	3	115222	**7.09**
1.60	0.0630	2	3-3/4	115223	**7.77**
1.65	0.0650	2	3-3/4	115224	**8.10**
1.70	0.0669	2	3-3/4	115225	**7.77**
1.75	0.0689	2	3-3/4	115226	**8.10**
1.80	0.0709	2	3-3/4	115227	**7.77**
1.85	0.0728	2	3-3/4	115228	**8.10**
1.90	0.0748	2	3-3/4	115229	**7.77**
1.95	0.0768	2	3-3/4	115230	**8.10**
2.00	0.0787	2-1/4	4-1/4	115231	**8.31**
2.05	0.0807	2-1/4	4-1/4	115232	**9.64**



Size (mm)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
2.10	0.0827	2-1/4	4-1/4	115233	**9.31**
2.15	0.0846	2-1/4	4-1/4	115234	**9.64**
2.20	0.0866	2-1/4	4-1/4	115235	**9.31**
2.25	0.0886	2-1/4	4-1/4	115236	**9.64**
2.30	0.0906	2-1/4	4-1/4	115237	**9.31**
2.35	0.0925	2-1/4	4-1/4	115238	**9.64**
2.40	0.0945	2-1/2	4-5/8	115239	**11.64**
2.45	0.0965	2-1/2	4-5/8	115240	**11.98**
2.50	0.0984	2-1/2	4-5/8	115241	**10.32**
2.60	0.1024	2-1/2	4-5/8	115242	**11.64**
2.70	0.1063	2-1/2	4-5/8	115243	**11.64**
2.80	0.1102	2-3/4	5-1/8	115244	**11.98**
2.90	0.1142	2-3/4	5-1/8	115245	**11.98**
3.00	0.1181	2-3/4	5-1/8	115246	**10.75**
3.10	0.1220	2-3/4	5-1/8	115247	**11.98**
3.20	0.1260	3	5-3/8	115248	**12.97**
3.30	0.1299	3	5-3/8	115249	**12.97**
3.40	0.1339	3	5-3/8	115250	**13.97**
3.50	0.1378	3	5-3/8	115251	**13.08**
3.60	0.1417	3	5-3/8	115252	**14.52**
3.70	0.1457	3	5-3/8	115253	**14.52**
3.80	0.1496	3	5-3/8	115254	**14.52**
3.90	0.1535	3	5-3/8	115255	**14.52**
4.00	0.1575	3-3/8	5-3/4	115256	**13.08**
4.10	0.1614	3-3/8	5-3/4	115257	**14.52**
4.20	0.1654	3-3/8	5-3/4	115258	**13.08**
4.30	0.1693	3-3/8	5-3/4	115259	**14.52**
4.40	0.1732	3-3/8	5-3/4	115260	**14.52**
4.50	0.1772	3-3/8	5-3/4	115261	**13.08**
4.60	0.1811	3-3/8	5-3/4	115262	**14.52**
4.70	0.1850	3-3/8	5-3/4	115263	**14.52**
4.80	0.1890	3-5/8	6	115264	**16.18**
4.90	0.1929	3-5/8	6	115265	**16.96**
5.00	0.1968	3-5/8	6	115266	**15.19**
5.10	0.2008	3-5/8	6	115267	**16.96**
5.20	0.2047	3-5/8	6	115268	**16.96**
5.30	0.2087	3-5/8	6	115269	**16.96**
5.40	0.2126	3-5/8	6	115270	**16.96**
5.50	0.2165	3-5/8	6	115271	**15.19**
5.60	0.2205	3-3/4	6-1/8	115272	**16.96**
5.70	0.2244	3-3/4	6-1/8	115273	**16.96**
5.80	0.2283	3-3/4	6-1/8	115274	**16.96**
5.90	0.2323	3-3/4	6-1/8	115275	**19.85**
6.00	0.2362	3-3/4	6-1/8	115276	**16.18**
6.10	0.2402	3-3/4	6-1/8	115277	**19.39**
6.20	0.2441	3-3/4	6-1/8	115278	**15.52**
6.30	0.2480	3-3/4	6-1/8	115279	**16.41**
6.40	0.2520	3-7/8	6-1/4	115280	**18.96**
6.50	0.2559	3-7/8	6-1/4	115281	**18.51**
6.80	0.2677	3-7/8	6-1/4	115282	**18.96**
7.00	0.2756	3-7/8	6-1/4	115283	**18.51**
7.20	0.2835	4	6-3/8	115284	**19.29**
7.50	0.2953	4	6-3/8	115285	**19.29**
7.80	0.3071	4	6-3/8	115286	**20.95**
8.00	0.3150	4-1/8	6-1/2	115287	**21.51**
8.20	0.3228	4-1/8	6-1/2	115288	**23.95**
8.50	0.3346	4-1/8	6-1/2	115289	**21.51**
8.80	0.3465	4-1/4	6-3/4	115290	**28.16**
9.00	0.3543	4-1/4	6-3/4	115291	**25.28**
9.20	0.3622	4-1/4	6-3/4	115292	**28.16**
9.50	0.3740	4-1/4	6-3/4	115293	**25.83**
9.80	0.3858	4-3/8	7	115294	**29.39**
10.00	0.3937	4-3/8	7	115295	**26.39**
10.20	0.4016	4-3/8	7	115296	**26.94**
10.50	0.4134	4-5/8	7-1/4	115297	**28.39**
10.80	0.4252	4-5/8	7-1/4	115298	**32.37**
11.00	0.4331	4-5/8	7-1/4	115299	**28.93**
11.20	0.4409	4-3/4	7-1/2	115300	**36.04**
11.50	0.4528	4-3/4	7-1/2	115301	**32.26**
11.80	0.4646	4-3/4	7-1/2	115302	**38.13**
12.00	0.4724	4-3/4	7-3/4	115303	**35.59**
12.20	0.4803	4-3/4	7-3/4	115304	**39.69**
12.50	0.4921	4-3/4	7-3/4	115305	**35.59**
12.80	0.5039	4-3/4	8	115306	**53.88**

Size (mm)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
13.00	0.5118	4-3/4	8	115307	**50.44**
13.20	0.5197	4-3/4	8	115308	**54.88**
13.50	0.5315	4-3/4	8	115309	**56.76**
13.80	0.5433	4-7/8	8-1/4	115310	**57.76**
14.00	0.5512	4-7/8	8-1/4	115311	**52.99**
14.25	0.5610	4-7/8	8-1/4	115312	**57.76**
14.50	0.5709	4-7/8	8-3/4	115313	**66.30**
14.75	0.5807	4-7/8	8-3/4	115314	**67.52**
15.00	0.5906	4-7/8	8-3/4	115315	**66.19**
15.25	0.6004	4-7/8	8-3/4	115316	**69.73**
15.50	0.6102	4-7/8	8-3/4	115317	**68.63**
15.75	0.6201	4-7/8	8-3/4	115318	**69.96**
16.00	0.6299	5-1/8	9	115319	**78.27**
16.25	0.6938	5-1/8	9	115320	**79.72**
16.50	0.6496	5-1/8	9	115321	**78.27**
16.75	0.6594	5-3/8	9-1/4	115322	**93.46**
17.00	0.6693	5-3/8	9-1/4	115323	**91.80**
17.25	0.6791	5-3/8	9-1/4	115324	**94.69**
17.50	0.6890	5-5/8	9-1/2	115325	**98.00**
17.75	0.6988	5-5/8	9-1/2	115326	**98.00**
18.00	0.7087	5-5/8	9-1/2	115327	**98.00**
18.50	0.7283	5-7/8	9-3/4	115328	**111.98**
19.00	0.7480	5-7/8	9-3/4	115329	**107.33**
19.20	0.7559	6	9-7/8	115330	**78.38**
19.50	0.7677	6	9-7/8	115331	**113.86**
20.00	0.7874	6-1/8	10	115332	**122.29**
20.50	0.8071	6-1/8	10	115333	**129.93**
21.00	0.8268	6-1/8	10	115334	**132.05**
21.50	0.8465	6-1/8	10	115335	**141.24**
22.00	0.8661	6-1/8	10	115336	**132.93**
22.50	0.8858	6-1/8	10	115337	**144.57**
23.00	0.9055	6-1/8	10	115338	**144.57**
23.50	0.9252	6-1/8	10-3/4	115339	**160.32**
24.00	0.9449	6-3/8	11	115340	**173.62**
24.50	0.9646	6-3/8	11	115341	**176.73**
25.00	0.9843	6-3/8	11	115342	**174.73**
25.50	1.0039	6-1/2	11-1/8	115343	**220.51**
26.00	1.0236	6-1/2	11-1/8	115344	**216.54**
26.50	1.0433	6-5/8	11-1/4	115345	**228.17**
27.00	1.0630	6-5/8	11-1/4	115346	**240.37**
27.50	1.0827	6-7/8	11-1/2	115347	**244.57**
28.00	1.1024	7-1/8	11-3/4	115348	**249.34**
28.50	1.1220	7-1/8	11-3/4	115349	**254.11**
29.00	1.1417	7-1/4	11-7/8	115350	**271.41**
29.50	1.1614	7-3/8	12	115351	**297.57**
30.00	1.1811	7-3/8	12	115352	**292.14**
30.50	1.2008	7-1/2	12-1/8	115353	**309.66**
31.00	1.2205	7-7/8	12-1/2	115354	**315.98**
31.50	1.2402	7-7/8	12-1/2	115355	**321.85**
32.00	1.2598	8-1/2	14-1/8	115356	**370.19**
32.50	1.2795	8-1/2	14-1/8	115357	**370.19**
33.00	1.2992	8-5/8	14-1/4	115358	**383.94**
33.50	1.3189	8-3/4	14-3/8	115359	**394.70**
34.00	1.3386	8-3/4	14-3/8	115360	**394.70**
34.50	1.3583	8-7/8	14-1/2	115361	**411.33**
35.00	1.3780	9	14-5/8	115362	**433.38**
35.50	1.3976	9	14-5/8	115363	**433.38**
36.00	1.4173	9-1/8	14-3/4	115364	**446.92**
36.50	1.4370	9-1/8	14-3/4	115365	**446.92**
37.00	1.4567	9-1/4	14-7/8	115366	**485.60**
37.50	1.4764	9-3/8	15	115367	**496.92**
38.00	1.4961	9-3/8	15	115368	**496.92**

Aircraft Extension Drills

- 6" and 12" Overall Length
- Split Point
- Sizes smaller than 1/16" are not split point



STM PREMIUM

HSS COBALT

Size	Decimal Equiv.	Flute Length (in.)	HSS 6" O.A.L. Code No.	Price $	HSS 12" O.A.L. Code No.	Price $	Cobalt 6" O.A.L. Code No.	Price $	Cobalt 12" O.A.L. Code No.	Price $
60	0.0400	11/16	117300	**15.97**	117405	**26.72**	117521	**21.73**	-	**-**
59	0.0410	11/16	117301	**16.85**	117406	**26.72**	-	**-**	-	**-**
58	0.0420	11/16	117302	**16.85**	117407	**27.50**	-	**-**	-	**-**
57	0.0430	3/4	117303	**16.52**	117408	**23.73**	-	**-**	-	**-**
56	0.0465	3/4	117304	**13.64**	117409	**23.73**	117522	**21.73**	-	**-**
3/64	0.0469	3/4	117305	**14.19**	117410	**26.28**	-	**-**	-	**-**
55	0.0520	7/8	117306	**13.64**	117411	**23.73**	115605	**20.95**	-	**-**
54	0.0550	7/8	117307	**13.64**	117412	**23.73**	-	**-**	-	**-**
53	0.0595	7/8	117308	**13.64**	117413	**23.73**	117523	**21.73**	-	**-**
1/16	0.0625	7/8	117309	**7.31**	117414	**21.28**	117524	**9.75**	117582	**28.83**
52	0.0635	7/8	117310	**7.31**	117415	**23.39**	115608	**9.64**	115683	**28.83**
51	0.0670	1	117311	**7.31**	117416	**23.39**	115609	**9.64**	115684	**28.83**
50	0.0700	1	117312	**7.31**	117417	**25.16**	117525	**9.98**	117583	**28.83**
49	0.0730	1	117313	**7.31**	117418	**25.16**	115611	**9.54**	115686	**28.83**
48	0.0760	1	117314	**7.09**	117419	**25.16**	115612	**9.54**	115687	**28.83**
5/64	0.0781	1	117315	**7.09**	117420	**21.28**	117526	**10.20**	117584	**28.83**
47	0.0785	1	117316	**7.31**	117421	**25.16**	115614	**9.98**	115689	**29.82**
46	0.0810	1-1/8	117317	**7.31**	117422	**25.16**	115615	**9.98**	115690	**28.83**
45	0.0820	1-1/8	117318	**7.31**	117423	**25.16**	115616	**9.98**	115691	**28.83**
44	0.0860	1-1/8	117319	**7.31**	117424	**25.16**	117527	**10.20**	115692	**28.83**
43	0.0890	1-1/4	117320	**7.31**	117425	**25.16**	117528	**10.20**	115693	**28.83**
42	0.0935	1-1/4	117321	**5.65**	117426	**19.52**	115619	**7.98**	115694	**28.83**
3/32	0.0938	1-1/4	117322	**5.55**	117427	**21.28**	117529	**7.65**	117585	**24.49**
41	0.0960	1-3/8	117323	**5.65**	117428	**19.29**	117530	**8.21**	115696	**28.83**
40	0.0980	1-3/8	117324	**5.55**	117429	**19.29**	117531	**7.98**	117586	**27.83**
39	0.0995	1-3/8	117325	**6.21**	117430	**19.29**	115623	**8.54**	115698	**27.83**
38	0.1015	1-7/16	117326	**6.21**	117431	**19.29**	115624	**8.54**	115699	**27.83**
37	0.1040	1-7/16	117327	**6.21**	117432	**19.29**	115625	**8.77**	115700	**27.83**
36	0.1065	1-7/16	117328	**6.21**	117433	**19.29**	117532	**8.77**	115701	**27.83**
7/64	0.1094	1-1/2	117329	**6.21**	117434	**16.52**	117533	**8.98**	117587	**25.28**
35	0.1100	1-1/2	117330	**6.21**	117435	**19.29**	117534	**8.77**	115703	**27.83**
34	0.1110	1-1/2	117331	**4.87**	117436	**19.29**	117535	**8.77**	115704	**27.83**
33	0.1130	1-1/2	117332	**6.21**	117437	**19.29**	117536	**8.77**	115705	**27.83**
32	0.1160	1-5/8	117333	**6.21**	117438	**15.52**	117537	**8.77**	115706	**27.83**
31	0.1200	1-5/8	117334	**6.10**	117439	**19.29**	117538	**8.77**	115707	**27.83**
1/8	0.1250	1-5/8	117335	**5.77**	117440	**16.18**	117539	**8.21**	117588	**25.72**
30	0.1285	1-5/8	117336	**6.10**	117441	**19.29**	117540	**8.54**	117589	**26.72**
29	0.1360	1-3/4	117337	**7.65**	117442	**19.29**	117541	**10.09**	115710	**27.93**
28	0.1405	1-3/4	117338	**7.65**	117443	**19.29**	117542	**10.75**	115711	**28.83**
9/64	0.1406	1-3/4	117339	**7.09**	117444	**16.18**	117543	**9.75**	117590	**28.83**
27	0.1440	1-7/8	117340	**7.65**	117445	**19.29**	117544	**10.75**	115713	**28.72**
26	0.1470	1-7/8	117341	**7.65**	117446	**19.29**	117545	**10.75**	115714	**26.28**
25	0.1495	1-7/8	117342	**7.65**	117447	**19.29**	117546	**10.32**	115715	**26.28**
24	0.1520	2	117343	**7.65**	117448	**19.29**	117547	**10.75**	115716	**26.28**
23	0.1540	2	117344	**7.65**	117449	**19.29**	117548	**10.75**	115717	**26.28**
5/32	0.1562	2	117345	**7.31**	117450	**16.18**	117549	**9.64**	117591	**26.28**
22	0.1570	2	117346	**7.65**	117451	**19.29**	117550	**10.75**	115719	**26.72**
21	0.1590	2-1/8	117347	**7.65**	117452	**19.29**	117551	**10.53**	117592	**26.72**
20	0.1610	2-1/8	117348	**7.31**	117453	**19.29**	117552	**10.53**	117593	**26.50**
19	0.1660	2-1/8	117349	**8.31**	117454	**20.95**	117553	**11.98**	117594	**30.37**
18	0.1695	2-1/8	117350	**8.31**	117455	**20.95**	117554	**11.98**	115723	**27.73**
11/64	0.1719	2-1/8	117351	**7.98**	117456	**18.41**	117555	**10.75**	117595	**28.60**
17	0.1730	2-3/16	117352	**8.31**	117457	**20.95**	117556	**11.98**	115725	**27.73**
16	0.1770	2-3/16	117353	**8.31**	117458	**20.95**	117557	**11.98**	115726	**30.37**
15	0.1800	2-3/16	117354	**8.31**	117459	**20.95**	117558	**11.98**	115727	**27.73**
14	0.1820	2-3/16	117355	**8.10**	117460	**20.95**	117559	**11.98**	115728	**27.73**
13	0.1850	2-5/16	117356	**8.31**	117461	**20.95**	117560	**11.98**	115729	**27.73**
3/16	0.1875	2-5/16	117357	**7.65**	117462	**18.41**	117561	**10.53**	117596	**27.83**
12	0.1890	2-5/16	117358	**8.31**	117463	**20.95**	117562	**11.98**	115731	**27.73**
11	0.1910	2-5/16	117359	**8.31**	117464	**20.95**	117563	**11.98**	115732	**29.16**
10	0.1935	2-7/16	117360	**9.09**	117465	**20.95**	117564	**12.41**	117597	**29.16**
9	0.1960	2-7/16	117361	**9.64**	117466	**20.95**	117565	**13.64**	115734	**30.27**
8	0.1990	2-7/16	117362	**9.75**	117467	**23.29**	117566	**13.64**	115735	**30.94**
7	0.2010	2-7/16	117363	**9.54**	117468	**23.29**	117567	**14.19**	115736	**30.94**
13/64	0.2031	2-7/16	117364	**9.64**	117469	**21.28**	117568	**13.19**	117598	**36.25**
6	0.2040	2-1/2	117365	**9.75**	117470	**23.29**	117569	**14.19**	115738	**36.25**
5	0.2055	2-1/2	117366	**9.75**	117471	**23.29**	117570	**14.19**	115739	**36.25**

Size	Decimal Equiv.	Flute Length (in.)	HSS 6" O.A.L. Code No.	Price $	HSS 12" O.A.L. Code No.	Price $	Cobalt 6" O.A.L. Code No.	Price $	Cobalt 12" O.A.L. Code No.	Price $
4	0.2090	2-1/2	117367	**9.75**	117472	**23.29**	117571	**14.19**	115740	**36.25**
3	0.2130	2-1/2	117368	**9.75**	117473	**23.29**	117572	**13.64**	115741	**36.25**
7/32	0.2188	2-1/2	117369	**9.54**	117474	**21.28**	117573	**13.19**	117599	**32.70**
2	0.2210	2-5/8	117370	**11.08**	117475	**23.29**	117574	**15.63**	115743	**36.60**
1	0.2280	2-5/8	117371	**11.08**	117476	**25.16**	117575	**15.08**	117600	**36.60**
A	0.2340	2-5/8	117372	**14.85**	117477	**29.26**	-	**-**	-	**-**
15/64	0.2344	2-5/8	117373	**10.09**	117478	**23.29**	117576	**14.97**	117601	**37.70**
B	0.2380	2-3/4	117374	**14.85**	117479	**29.26**	-	**-**	-	**-**
C	0.2420	2-3/4	117375	**14.85**	117480	**29.26**	117577	**23.83**	-	**-**
D	0.2460	2-3/4	117376	**14.85**	117481	**29.26**	117578	**23.83**	-	**-**
1/4	0.2500	2-3/4	117377	**10.09**	117482	**22.51**	117579	**16.41**	117602	**33.59**
E	0.2500	2-3/4	117378	**10.09**	117483	**22.51**	117580	**16.96**	117603	**33.59**
F	0.2570	2-7/8	117379	**15.85**	117484	**34.71**	117581	**23.50**	-	**-**
G	0.2610	2-7/8	117380	**25.16**	117485	**34.81**	-	**-**	-	**-**
17/64	0.2656	2-7/8	117381	**21.85**	117486	**27.50**	115676	**37.14**	115748	**51.44**
H	0.2660	2-7/8	117382	**26.94**	117487	**34.81**	-	**-**	-	**-**
I	0.2720	2-7/8	117383	**26.94**	117488	**34.81**	-	**-**	-	**-**
J	0.2770	2-7/8	117384	**26.94**	117489	**34.81**	-	**-**	-	**-**
K	0.2810	2-5/16	117385	**26.17**	117490	**34.81**	115677	**43.68**		
9/32	0.2812	2-5/16	117386	**22.73**	117491	**28.16**	115678	**39.25**	117604	**60.53**
L	0.2900	2-5/16	117387	**30.60**	117492	**36.70**	-	**-**	-	**-**
M	0.2950	3-1/16	117388	**30.60**	117493	**36.70**	-	**-**	-	**-**
19/64	0.2969	3-1/16	117389	**26.72**	117494	**33.16**	115679	**46.34**	117605	**60.53**
N	0.3020	3-1/16	117390	**34.37**	117495	**40.02**	-	**-**	-	**-**
5/16	0.3125	3-3/16	117391	**27.93**	117496	**36.60**	115680	**50.01**	117606	**65.53**
O	0.3160	3-3/16	117392	**36.04**	117497	**43.02**	-	**-**	-	**-**
P	0.3230	3-5/16	115463	**34.71**	117498	**43.02**	-	**-**	-	**-**
21/64	0.3281	3-5/16	117393	**30.27**	117499	**38.81**	-	**-**	115752	**63.53**
Q	0.3320	3-7/16	115465	**35.04**	117500	**44.91**	-	**-**	-	**-**
R	0.3390	3-7/16	115466	**35.04**	117501	**46.90**	-	**-**	-	**-**
11/32	0.3438	3-7/16	117394	**29.94**	117502	**38.81**	-	**-**	117607	**80.71**
S	0.3480	3-1/2	115468	**38.58**	117503	**49.11**	-	**-**	-	**-**
T	0.3580	3-1/2	115469	**38.58**	117504	**49.11**	-	**-**	-	**-**
23/64	0.3594	3-1/2	117395	**34.81**	117505	**43.13**	115681	**60.53**	117608	**81.82**
U	0.3680	3-5/8	115471	**40.69**	117506	**49.11**	-	**-**	-	**-**
3/8	0.3750	3-5/8	117396	**35.59**	117507	**44.68**	-	**-**	117609	**81.82**
V	0.3770	3-5/8	115473	**43.02**	117508	**51.99**	-	**-**	-	**-**
W	0.3860	3-3/4	115474	**43.02**	117509	**51.99**	-	**-**	-	**-**
25/64	0.3906	3-3/4	117397	**39.58**	117510	**49.01**	-	**-**	-	**-**
X	0.3970	3-3/4	115476	**43.02**	117511	**54.99**	-	**-**	115756	**93.79**
Y	0.4040	3-7/8	115477	**43.02**	117512	**54.99**	-	**-**	-	**-**
13/32	0.4062	3-7/8	117398	**38.13**	117513	**47.45**	-	**-**	117610	**86.92**
Z	0.4130	3-7/8	115479	**46.12**	117514	**58.09**	-	**-**	-	**-**
27/64	0.4219	3-15/16	117399	**42.47**	117515	**52.45**	-	**-**	-	**-**
7/16	0.4375	4-1/16	117400	**43.02**	117516	**52.45**	-	**-**	117611	**100.67**
29/64	0.4531	4-3/16	117401	**45.46**	117517	**58.32**	-	**-**	115759	**104.99**
15/32	0.4688	4-5/16	117402	**48.78**	117518	**60.31**	-	**-**	115760	**104.99**
31/64	0.4844	4-3/8	117403	**48.89**	117519	**62.52**	-	**-**	115761	**108.31**
1/2	0.5000	4-1/2	117404	**51.44**	117520	**63.53**	-	**-**	117612	**108.31**



Did you know?

You can extend the life of your drills with our STM Drill Sharpeners.

See Page I5

6" Extra Length Drills HSS

- 4" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
1/16	0.0625	116888	**16.52**
5/64	0.0781	116889	**19.78**
3/32	0.0938	116890	**15.09**
7/64	0.1094	116891	**16.45**
1/8	0.1250	116892	**16.45**
9/64	0.1406	116893	**20.99**
5/32	0.1562	116894	**20.99**
11/64	0.1719	116895	**23.41**
3/16	0.1875	116896	**23.41**

8" Extra Length Drills HSS

- 5-1/2" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
1/16	0.0625	116887	**12.63**
3/32	0.0938	116897	**23.33**
7/64	0.1094	116898	**23.33**
1/8	0.1250	116899	**24.46**
9/64	0.1406	116900	**24.69**
5/32	0.1562	116901	**24.69**
11/64	0.1719	116902	**25.59**
3/16	0.1875	116903	**25.59**
13/64	0.2031	116904	**26.28**
7/32	0.2188	116905	**26.28**
15/64	0.2344	116906	**26.28**
1/4	0.2500	116907	**26.94**
17/64	0.2656	116908	**30.26**
9/32	0.2812	116909	**30.26**
19/64	0.2969	116910	**31.29**
5/16	0.3125	116911	**31.57**
21/64	0.3281	116912	**32.55**
11/32	0.3438	116913	**32.78**
23/64	0.3594	116914	**36.26**
3/8	0.3750	116915	**37.00**
25/64	0.3906	116916	**40.24**
13/32	0.4062	116917	**40.24**
27/64	0.4219	116918	**42.70**
7/16	0.4219	116919	**42.70**
29/64	0.4531	116920	**49.06**
15/32	0.4688	116923	**49.06**
1/2	0.5000	116924	**50.42**

9" Extra Length Drills HSS

- 6-1/2" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
27/64	0.4219	116978	**43.92**
7/16	0.4375	116921	**43.92**
29/64	0.4531	116922	**50.62**
31/64	0.4844	116980	**52.29**
1/2	0.5000	116982	**51.86**

10" Extra Length Drills HSS

- 7-1/2" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
1/8	0.1250	116983	**26.13**
9/64	0.1406	116926	**26.13**
5/32	0.1562	116927	**26.13**
11/64	0.1719	116928	**27.30**
3/16	0.1875	116929	**27.30**
13/64	0.2031	116930	**27.30**
7/32	0.2188	116931	**27.30**
15/64	0.2344	116932	**27.30**
1/4	0.2500	116933	**28.61**
17/64	0.2344	116934	**32.21**
9/32	0.2812	116935	**32.21**
19/64	0.2969	116936	**26.13**
5/16	0.3125	116937	**33.71**
21/64	0.3281	116938	**48.55**
11/32	0.3438	116939	**35.01**
23/64	0.3594	116940	**38.35**
3/8	0.3750	116941	**39.20**
25/64	0.3906	116942	**43.06**
13/32	0.4062	116943	**43.06**
27/64	0.4219	116944	**45.00**
7/16	0.4375	116945	**45.00**
29/64	0.4531	116946	**52.16**
15/32	0.4688	116947	**52.16**
31/64	0.4844	116948	**53.75**
1/2	0.5000	116949	**53.51**

12" Extra Length Drills HSS

- 9" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
7/64	0.1094	116984	**39.25**
1/8	0.1250	116950	**29.32**
9/64	0.1406	116951	**30.82**
5/32	0.1562	116952	**30.82**
11/64	0.1719	116953	**32.78**
3/16	0.1875	116954	**32.78**
13/64	0.2031	116955	**32.78**
7/32	0.2188	116956	**35.08**
15/64	0.2344	116957	**35.08**
1/4	0.2500	116958	**35.08**
17/64	0.2656	116959	**36.73**
9/32	0.2812	116960	**36.73**
19/64	0.2969	116961	**39.93**
5/16	0.3125	116962	**39.93**
21/64	0.3281	116963	**43.34**
11/32	0.3438	116964	**43.34**
23/64	0.3594	116965	**46.35**
3/8	0.3750	116966	**46.35**
25/64	0.3906	116967	**51.13**
13/32	0.4062	116968	**51.13**
27/64	0.4219	116969	**53.37**
7/16	0.4375	116970	**53.37**
29/64	0.4531	116971	**62.91**
15/32	0.4688	116972	**62.91**
31/64	0.4844	116973	**66.37**
1/2	0.5000	116974	**66.37**
33/64	0.5156	116985	**83.66**
17/32	0.5312	116976	**94.12**
35/64	0.5469	116986	**98.30**
9/16	0.5625	116987	**98.30**
37/64	0.5781	116988	**104.60**
19/32	0.5938	116989	**104.60**
39/64	0.6094	116981	**106.21**
5/8	0.6250	116990	**110.36**
41/64	0.6406	116991	**134.02**
21/32	0.6562	116992	**134.02**
43/64	0.6719	116993	**143.08**
11/16	0.6875	116994	**144.49**
45/64	0.7031	116995	**149.82**
23/32	0.7188	116996	**149.82**
3/4	0.7500	116997	**162.03**
25/32	0.7812	116998	**177.78**
13/16	0.8125	116999	**191.51**
7/8	0.8750	117000	**229.88**

18" Extra Length Drills HSS

- 12" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
3/16	0.1875	117027	**66.73**
13/64	0.2031	117028	**66.73**
7/32	0.2188	117029	**68.47**
15/64	0.2344	117030	**68.47**
1/4	0.2500	117031	**66.73**
17/64	0.2656	117032	**72.69**
9/32	0.2812	117033	**72.69**
19/64	0.2969	117034	**76.93**
5/16	0.3125	117035	**76.93**
21/64	0.3281	117036	**78.73**
11/32	0.3438	117037	**78.73**
23/64	0.3594	117038	**80.52**
3/8	0.3750	117039	**80.52**
25/64	0.3906	117040	**84.58**
13/32	0.4062	117041	**84.58**
27/64	0.4219	117043	**89.30**
7/16	0.4375	117045	**89.30**
29/64	0.4531	117046	**104.36**
15/32	0.4688	117047	**104.36**
31/64	0.4844	117048	**108.56**
1/2	0.5000	117049	**108.56**
17/32	0.5312	117051	**163.82**
35/64	0.5469	117052	**164.56**
9/16	0.5625	117053	**171.65**
19/32	0.5938	117054	**179.64**
5/8	0.625	117055	**188.10**
21/32	0.6562	117056	**195.76**
11/16	0.6875	117057	**225.61**
23/32	0.7031	117059	**230.44**
3/4	0.7500	117060	**242.78**
25/32	0.7812	117061	**248.07**
13/16	0.8125	117062	**264.02**
7/8	0.8750	117064	**287.27**
1	1.000	117065	**333.17**

24" Extra Length Drills HSS

- 18" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
3/8	0.3750	117066	**103.00**
7/16	0.4375	117067	**137.31**
1/2	0.5000	117068	**166.67**
9/16	0.5625	117069	**254.48**
5/8	0.625	117070	**278.56**
3/4	0.7500	117071	**359.54**
7/8	0.8750	117072	**425.41**
1	1.000	117073	**493.56**

48" Extra Length Drills HSS

- 5-1/2" flute length
- Fractional sizes



Size (in.)	Decimal Equiv.	HSS Code No.	Price $
1/4	0.2500	117074	**133.93**
5/16	0.3125	117075	**145.68**
3/8	0.3750	117076	**164.86**
1/2	0.5000	117078	**197.90**

Taper Shank Drills HSS

- General purpose



Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSS Code No.	Price $
1/16	0.0625	1-1/4	4-5/8	1	114000	**33.03**
5/64	0.0781	1-3/8	4-3/4	1	114001	**33.03**
1/8	0.1250	1-7/8	5-1/8	1	114002	**27.50**
9/64	0.1406	2-1/8	5-3/8	1	114003	**28.93**
5/32	0.1562	2-1/8	5-3/8	1	114004	**27.83**
11/64	0.1719	2-1/2	5-3/4	1	114005	**28.93**
3/16	0.1875	2-1/2	5-3/4	1	114006	**19.29**
13/64	0.2031	2-3/4	6	1	114007	**21.51**
7/32	0.2188	2-3/4	6	1	114008	**20.85**
15/64	0.2344	2-7/8	6-1/8	1	114009	**24.72**
1/4	0.2500	2-7/8	6-1/8	1	114010	**21.40**
17/64	0.2656	3	6-1/4	1	114011	**23.83**
9/32	0.2812	3	6-1/4	1	114012	**22.84**
19/64	0.2969	3-1/8	6-3/8	1	114013	**29.39**
5/16	0.3125	3-1/8	6-3/8	1	114014	**22.84**
21/64	0.3281	3-1/4	6-1/2	1	114015	**32.26**
11/32	0.3438	3-1/4	6-1/2	1	114016	**33.70**
23/64	0.3594	3-1/2	6-3/4	1	114017	**37.47**
3/8	0.3750	3-1/2	6-3/4	1	114018	**35.59**
25/64	0.3906	3-5/8	7	1	114019	**38.69**
13/32	0.4062	3-5/8	7	1	114020	**36.04**
27/64	0.4219	3-7/8	7-1/4	1	114022	**41.24**
7/16	0.4375	3-7/8	7-1/4	1	114023	**39.91**
29/64	0.4531	4-1/8	7-1/2	1	114024	**45.46**
15/32	0.4688	4-1/8	7-1/2	1	114025	**45.68**
31/64	0.4844	4-3/8	8-1/4	2	114026	**51.34**
1/2	0.5000	4-3/8	8-1/4	2	114027	**46.79**
33/64	0.5156	4-5/8	8-1/2	2	114028	**55.88**
17/32	0.5312	4-5/8	8-1/2	2	114029	**52.22**
35/64	0.5469	4-7/8	8-3/4	2	114030	**60.76**
9/16	0.5625	4-7/8	8-3/4	2	114031	**56.88**
37/64	0.5781	4-7/8	8-3/4	2	114032	**64.63**
19/32	0.5938	4-7/8	8-3/4	2	114033	**61.20**
39/64	0.6094	4-7/8	8-3/4	2	114034	**67.64**
5/8	0.6250	4-7/8	8-3/4	2	114035	**62.09**
41/64	0.6406	5-1/8	9	2	114036	**74.50**
21/32	0.6562	5-1/8	9	2	114037	**69.40**
43/64	0.6719	5-3/8	9-1/4	2	114038	**79.83**
11/16	0.6875	5-3/8	9-1/4	2	114039	**74.40**
45/64	0.7031	5-5/8	9-1/2	2	114040	**83.27**
23/32	0.7188	5-5/8	9-1/2	2	114041	**77.28**
47/64	0.7344	5-7/8	9-3/4	2	114042	**88.26**
3/4	0.7500	5-7/8	9-3/4	2	114043	**89.36**
49/64	0.7656	6	9-7/8	2	114044	**106.21**
25/32	0.7812	6	9-7/8	2	114045	**101.44**
51/64	0.7969	6-1/8	10-3/4	3	114046	**116.19**
13/16	0.8125	6-1/8	10-3/4	3	114047	**107.88**
53/64	0.8281	6-1/8	10-3/4	3	114048	**121.19**
27/32	0.8438	6-1/8	10-3/4	3	114049	**117.08**
55/64	0.8594	6-1/8	10-3/4	3	114050	**125.51**
7/8	0.8750	6-1/8	10-3/4	3	114051	**123.18**
57/64	0.8906	6-1/8	10-3/4	3	114052	**128.17**
29/32	0.9062	6-1/8	10-3/4	3	114053	**126.39**
59/64	0.9219	6-1/8	10-3/4	3	114054	**129.83**
15/16	0.9375	6-1/8	10-3/4	3	114055	**129.38**
61/64	0.9531	6-3/8	11	3	114056	**133.37**
31/32	0.9688	6-3/8	11	3	114057	**132.38**
63/64	0.9844	6-3/8	11	3	114058	**141.58**
1	1.0000	6-3/8	11	3	114059	**135.49**
1-1/64	1.0156	6-1/2	11-1/8	3	114060	**160.98**
1-1/32	1.0312	6-1/2	11-1/8	3	114061	**146.24**
1-3/64	1.0469	6-5/8	11-1/4	3	114062	**169.19**
1-1/16	1.0625	6-5/8	11-1/4	3	114063	**148.67**
1-5/64	1.0781	6-7/8	12-1/2	4	114064	**195.24**
1-3/32	1.0938	6-7/8	12-1/2	4	114065	**175.84**
1-7/64	1.1094	7-1/8	12-3/4	4	114067	**203.00**
1-1/8	1.1250	7-1/8	12-3/4	4	114068	**182.71**

Taper Shank Drills HSS — Cont'd

Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSS Code No.	Price $
1-9/64	1.1406	7-1/4	12-7/8	4	114069	**214.98**
1-5/32	1.1562	7-1/4	12-7/8	4	114070	**191.25**
1-11/64	1.1719	7-3/8	13	4	114071	**217.41**
1-3/16	1.1875	7-3/8	13	4	114072	**199.13**
1-13/64	1.2031	7-1/2	13-1/8	4	114073	**232.72**
1-7/32	1.2188	7-1/2	13-1/8	4	114074	**214.31**
1-15/64	1.2344	7-7/8	13-1/2	4	114075	**253.78**
1-1/4	1.2500	7-7/8	13-1/2	4	114076	**224.18**
1-17/64	1.2656	8-1/2	14-1/8	4	114077	**292.59**
1-9/32	1.2812	8-1/2	14-1/8	4	114078	**279.39**
1-19/64	1.2969	8-5/8	14-1/4	4	114079	**311.54**
1-5/16	1.3125	8-5/8	14-1/4	4	114080	**281.17**
1-21/64	1.3281	8-3/4	14-3/8	4	114081	**321.96**
1-11/32	1.3438	8-3/4	14-3/8	4	114082	**299.91**
1-23/64	1.3594	8-7/8	14-1/2	4	114083	**328.94**
1-3/8	1.3750	8-7/8	14-1/2	4	114084	**301.56**
1-25/64	1.3906	9	14-5/8	4	114085	**337.93**
1-13/32	1.4062	9	14-5/8	4	114086	**325.85**
1-27/64	1.4219	9-1/8	14-3/4	4	114087	**350.01**
1-7/16	1.4375	9-1/8	14-3/4	4	114088	**325.95**
1-29/64	1.4531	9-1/4	14-7/8	4	114089	**368.19**
1-15/32	1.4688	9-1/4	14-7/8	4	114090	**351.01**
1-31/64	1.4844	9-3/8	15	4	114091	**377.72**
1-1/2	1.5000	9-3/8	15	4	114092	**346.57**
1-33/64	1.5156	9-3/8	16-3/8	5	114093	**486.27**
1-17/32	1.5312	9-3/8	16-3/8	5	114094	**404.45**
1-35/64	1.5469	9-5/8	16-5/8	5	114095	**517.09**
1-9/16	1.5625	9-5/8	16-5/8	5	114096	**419.75**
1-37/64	1.5781	9-7/8	16-7/8	5	114097	**550.91**
1-19/32	1.5938	9-7/8	16-7/8	5	114098	**457.67**
1-39/64	1.6094	10	17	5	114099	**577.08**
1-5/8	1.6250	10	17	5	114100	**453.34**
1-41/64	1.6406	10-1/8	17-1/8	5	114101	**614.78**
1-21/32	1.6562	10-1/8	17-1/8	5	114102	**492.15**
1-43/64	1.6719	10-1/8	17-1/8	5	114103	**638.50**
1-11/16	1.6875	10-1/8	17-1/8	5	114104	**499.68**
1-45/64	1.7031	10-1/8	17-1/8	5	114105	**659.33**
1-23/32	1.7188	10-1/8	17-1/8	5	114106	**529.40**
1-47/64	1.7344	10-1/8	17-1/8	5	114107	**634.61**
1-3/4	1.7500	10-1/8'	17-1/8	5	114108	**535.16**
1-25/32	1.7812	10-1/8	17-1/8	5	114109	**561.33**
1-13/16	1.8125	10-1/8	17-1/8	5	114110	**570.42**
1-27/32	1.8438	10-1/8	17-1/8	5	114111	**601.36**
1-7/8	1.8750	10-3/8	17-3/8	5	114112	**596.81**
1-29/32	1.9062	10-3/8	17-3/8	5	114113	**628.74**
1-15/16	1.9375	10-3/8	17-3/8	5	114114	**641.94**
1-31/32	1.9688	10-3/8	17-3/8	5	114115	**662.44**
2	2.0000	10-3/8	17-3/8	5	114116	**666.77**
2-1/32	2.0312	10-3/8	17-3/8	5	114117	**707.12**
2-1/16	2.0625	10-1/4	17-3/8	5	114118	**705.68**
2-3/32	2.0938	10-1/4	17-3/8	5	114119	**753.81**
2-1/8	2.1250	10-1/4	17-3/8	5	114120	**746.48**
2-5/32	2.1562	10-1/4	17-3/8	5	114121	**803.92**
2-3/16	2.1875	10-1/4	17-3/8	5	114122	**810.12**
2-7/32	2.2188	10-1/8	17-3/8	5	114123	**847.60**
2-1/4	2.2500	10-1/8	17-3/8	5	114124	**845.71**
2-9/32	2.2812	10-1/8	17-3/8	5	114125	**938.52**
2-5/16	2.3125	10-1/8	17-3/8	5	114126	**914.78**
2-11/32	2.3438	10-1/8	17-3/8	5	114127	**967.01**
2-3/8	2.3750	10-1/8	17-3/8	5	114128	**938.18**
2-13/32	2.4062	11-1/4	18-3/4	5	114129	**1,229.32**
2-7/16	2.4375	11-1/4	18-3/4	5	114130	**1,196.39**
2-15/32	2.4688	11-1/4	18-3/4	5	114131	**1,265.57**
2-1/2	2.5000	11-1/4	18-3/4	5	114132	**1,223.33**
2-17/32	2.5312	11-7/8	19-1/2	5	114133	**1,377.66**
2-9/16	2.5625	11-7/8	19-1/2	5	114134	**1,348.61**
2-5/8	2.6250	11-7/8	19-1/2	5	114135	**1,432.66**
2-11/16	2.6875	12-3/4	20-3/8	5	114136	**1,564.48**
2-23/32	2.7188	12-3/4	20-3/8	5	114137	**1,761.93**
2-3/4	2.7500	12-3/4	20-3/8	5	114138	**1,594.19**
2-13/16	2.8125	13-3/8	21-1/8	5	114139	**1,750.96**
2-27/32	2.8438	13-3/8	21-1/8	5	114140	**1,891.76**
2-7/8	2.8750	13-3/8	21-1/8	5	114141	**1,831.12**
2-15/16	2.9375	14	21-3/4	5	114142	**1,946.97**
3	3.0000	14	21-3/4	5	114143	**2,014.15**
3-1/16	3.0625	14-5/8	24-1/2	6	114144	**2,670.84**
3-1/8	3.1250	14-5/8	24-1/2	6	114145	**2,670.84**
3-3/16	3.1875	14-5/8	24-1/2	6	114146	**3,047.80**
3-1/4	3.2500	15-1/2	25-1/2	6	114147	**3,047.80**
3-5/16	3.3125	15-1/2	25-1/2	6	114148	**3,369.20**
3-3/8	3.3750	15-1/2	25-1/2	6	114149	**3,603.91**
3-7/16	3.4375	15-1/2	25-1/2	6	114150	**4,532.33**
3-1/2	3.5000	16-3/8	26-1/2	6	114151	**4,161.47**
3-5/8	3.6250	16-3/8	26-1/2	6	114152	**4,695.42**
3-3/4	3.7500	16-3/8	26-1/2	6	114153	**5,753.78**
3-7/8	3.8750	16-3/8	26-1/2	6	114154	**6,633.75**
4	4.0000	17-1/2	27-1/2	6	114155	**7,249.18**

HSCO Taper Shank Drills

STM PREMIUM

- Heavy duty



Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSCO Code No.	Price $
1/2	0.5000	4-3/8	8-1/4	2	106302	**89.14**
33/64	0.5156	4-5/8	8-1/2	2	106304	**108.76**
17/32	0.5312	4-5/8	8-1/2	2	106306	**101.00**
35/64	0.5469	4-7/8	8-3/4	2	106308	**113.75**
9/16	0.5625	4-7/8	8-3/4	2	106310	**105.54**
37/64	0.5781	4-7/8	8-3/4	2	106312	**120.62**
19/32	0.5938	4-7/8	8-3/4	2	106314	**117.52**
39/64	0.6094	4-7/8	8-3/4	2	106316	**132.93**
5/8	0.625	4-7/8	8-3/4	2	106318	**120.07**
41/64	0.6406	5-1/8	9-3/4	3	106320	**152.11**
21/32	0.6562	5-1/8	9-3/4	3	106322	**137.37**
43/64	0.6719	5-3/8	10	3	106324	**162.43**
11/16	0.6875	5-3/8	10	3	106326	**146.79**
45/64	0.7031	5-5/8	10-1/4	3	106328	**177.17**
23/32	0.7188	5-5/8	10-1/4	3	106330	**163.19**
47/64	0.7344	5-7/8	10-1/2	3	106332	**179.94**
3/4	0.750	5-7/8	10-1/2	3	106334	**170.18**
49/64	0.7656	6	10-5/8	3	106336	**192.69**
25/32	0.7812	6	10-5/8	3	106338	**179.06**
51/64	0.7969	6-1/8	10-3/4	3	106340	**204.56**
13/16	0.8125	6-1/8	10-3/4	3	106342	**184.81**
53/64	0.8281	6-1/8	10-3/4	3	106344	**238.15**
27/32	0.8438	6-1/8	10-3/4	3	106346	**219.41**
55/64	0.8594	6-1/8	10-3/4	3	106348	**238.15**
7/8	0.875	6-1/8	10-3/4	3	106350	**219.41**
57/64	0.8906	6-1/8	10-3/4	3	106352	**238.15**
29/32	0.9062	6-1/8	10-3/4	3	106354	**215.31**
59/64	0.9219	6-1/8	10-3/4	3	106356	**280.16**
15/16	0.9375	6-1/8	10-3/4	3	106358	**253.11**
61/64	0.9531	6-3/8	11	3	106360	**317.09**
31/32	0.9688	6-3/8	11	3	106362	**300.01**
63/64	0.9844	6-3/8	11	3	106364	**308.32**
1	1.000	6-3/8	11	3	106366	**286.27**
1-1/64	1.0156	6-1/2	12-1/8	4	106367	**416.76**
1-1/32	1.0312	6-1/2	12-1/8	4	106368	**384.27**
1-3/64	1.0469	6-5/8	12-1/4	4	106369	**378.95**
1-1/16	1.0625	6-5/8	12-1/4	4	106370	**366.76**
1-1/8	1.125	7-1/8	12-3/4	4	106374	**401.45**
1-5/32	1.1562	7-1/4	12-7/8	4	106376	**476.63**
1-3/16	1.1875	7-3/8	13	4	106378	**455.00**
1-7/32	1.2188	7-1/2	13-1/8	4	106380	**543.15**
1-1/4	1.250	7-7/8	13-1/2	5	106382	**528.30**
1-5/16	1.3125	8-5/8	15/7/8	5	106386	**633.40**
1-3/8	1.375	8-7/8	15-7/8	5	106390	**680.96**
1-7/16	1.4375	9-1/8	16-1/8	5	106394	**804.91**
1-1/2	1.500	9-3/8	16-3/8	5	106398	**864.35**
1-5/8	1.625	10	17	5	106406	**1,017.11**
1-3/4	1.750	10-1/8	17-1/8	5	106414	**1,273.44**

Taper Shank Drills – Shank Larger Than Standard

STM PREMIUM

118° HSS



Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSS Code No.	Price $
3/8	0.3750	3-1/2	7-3/8	2	114156	**48.55**
25/64	0.3906	3-5/8	7-1/2	2	114157	**53.45**
13/32	0.4062	3-5/8	7-1/2	2	114158	**50.56**
27/64	0.4219	3-7/8	7-3/4	2	114159	**53.45**
7/16	0.4375	3-7/8	7-3/4	2	114160	**58.09**
29/64	0.4531	4-1/8	8	2	114161	**58.09**
15/32	0.4688	4-1/8	8	2	114162	**57.76**
41/64	0.6406	5-1/8	9-3/4	3	114163	**101.89**
21/32	0.6562	5-1/8	9-3/4	3	114164	**97.56**
43/64	0.6719	5-3/8	10	3	114165	**109.31**
11/16	0.6875	5-3/8	10	3	114166	**107.00**
45/64	0.7031	5-5/8	10-1/4	3	114167	**118.18**
23/32	0.7188	5-5/8	10-1/4	3	114168	**114.74**
47/64	0.7344	5-7/8	10-1/2	3	114169	**127.95**
3/4	0.7500	5-7/8	10-1/2	3	114170	**120.07**
49/64	0.7656	6	10-5/8	3	114171	**142.24**
25/32	0.7812	6	10-5/8	3	114172	**132.05**
1	1.0000	6-3/8	12	4	114173	**192.35**
1-1/32	1.0312	6-1/2	12-1/8	4	114174	**216.74**
1-1/16	1.0625	6-5/8	12-1/4	4	114175	**226.39**

Taper Shank Drills – Shank Smaller Than Standard

STM PREMIUM

118° HSS



Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSS Code No.	Price $
31/64	0.4844	4-3/8	7-3/4	1	114176	**61.09**
1/2	0.5000	4-3/8	7-3/4	1	114177	**53.32**
33/64	0.5156	4-5/8	8	1	114178	**67.07**
17/32	0.5312	4-5/8	8	1	114179	**61.65**
35/64	0.5469	4-7/8	8-1/4	1	114180	**71.62**
9/16	0.5625	4-7/8	8-1/4	1	114181	**67.19**
37/64	0.5781	4-7/8	8-1/4	1	114182	**75.95**
51/64	0.7969	6-1/8	10	2	114183	**130.93**
13/16	0.8125	6-1/8	10	2	114184	**119.63**
53/64	0.8281	6-1/8	10	2	114185	**139.36**
27/32	0.8438	6-1/8	10	2	114186	**128.05**
55/64	0.8594	6-1/8	10	2	114187	**145.35**
7/8	0.8750	6-1/8	10	2	114188	**131.49**
57/64	0.8906	6-1/8	10	2	114189	**150.01**
29/32	0.9062	6-1/8	10	2	114190	**137.70**
1	1.0000	6-1/4	10-1/8	2	114191	**147.11**
1-5/64	1.0781	6-7/8	11-1/2	3	114192	**231.83**
1-3/32	1.0938	6-7/8	11-1/2	3	114193	**208.99**
1-7/64	1.1094	7-1/8	11-3/4	3	114194	**235.27**
1-1/8	1.1250	7-1/8	11-3/4	3	114195	**217.08**
1-9/64	1.1406	7-1/4	11-7/8	3	114196	**250.01**
1-5/32	1.1562	7-1/4	11-7/8	3	114197	**236.49**
1-11/64	1.1719	7-3/8	12	3	114198	**258.21**
1-3/16	1.1875	7-3/8	12	3	114199	**241.36**
1-13/64	1.2031	7-1/2	12-1/8	3	114200	**277.17**
1-7/32	1.2188	7-1/2	12-1/8	3	114201	**259.11**
1-15/64	1.2344	7-7/8	12-1/2	3	114202	**302.01**
1-1/4	1.2500	7-7/8	12-1/2	3	114203	**284.38**
1-5/16	1.3125	8-5/8	13-1/4	3	114204	**352.00**
1-3/8	1.3750	8-7/8	13-1/2	3	114205	**370.64**
1-7/16	1.4375	9-1/8	13-3/4	3	114206	**408.89**
1-1/2	1.5000	9-3/8	14	3	114207	**430.07**
1-33/64	1.5156	9-3/8	15	4	114208	**486.27**
1-17/32	1.5312	9-3/8	15	4	114209	**454.67**
1-35/64	1.5469	9-5/8	15-1/4	4	114210	**517.54**
1-9/16	1.5625	9-5/8	15-1/4	4	114211	**486.60**
1-37/64	1.5781	9-7/8	15-1/2	4	114212	**549.91**
1-19/32	1.5938	9-7/8	15-1/2	4	114213	**520.09**
1-39/64	1.6094	10	15-5/8	4	114214	**571.09**
1-5/8	1.6250	10	15-5/8	4	114215	**531.84**
1-41/64	1.6406	10-1/8	15-3/4	4	114216	**615.66**
1-21/32	1.6562	10-1/8	15-3/4	4	114217	**595.81**
1-43/64	1.6719	10-1/8	15-3/4	4	114218	**638.94**
1-11/16	1.6875	10-1/8	15-3/4	4	114219	**596.25**
1-45/64	1.7031	10-1/8	15-3/4	4	114220	**658.13**
1-23/32	1.7188	10-1/8	15-3/4	4	114221	**610.01**
1-47/64	1.7344	10-3/8	16-1/4	4	114222	**634.94**
1-3/4	1.7500	10-3/8	16-1/4	4	114223	**578.63**
1-25/32	1.7812	10-3/8	16-1/4	4	114224	**638.05**
1-13/16	1.8125	10-3/8	16-1/4	4	114225	**638.05**
1-27/32	1.8438	10-3/8	16-1/4	4	114226	**679.96**
1-7/8	1.8750	10-1/2	16-1/2	4	114227	**676.08**
1-57/64	1.8906	10-1/2	16-1/2	4	114228	**762.00**
1-29/32	1.9062	10-1/2	16-1/2	4	114229	**730.85**
1-15/16	1.9375	10-5/8	16-5/8	4	114230	**721.09**
1-31/32	1.9688	10-5/8	16-5/8	4	114231	**743.60**
2	2.0000	10-5/8	16-5/8	4	114232	**724.42**
2-1/32	2.0312	10-3/8	16-1/4	4	114233	**768.54**
2-1/16	2.0625	10-1/4	16-1/4	4	114234	**769.20**
2-3/32	2.0938	10-1/4	16-1/4	4	114235	**837.29**
2-1/8	2.1250	10-1/4	16-1/4	4	114236	**677.19**
2-5/32	2.1562	10-1/4	16-1/4	4	114237	**891.17**
2-3/16	2.1875	10-1/4	16-1/4	4	114238	**891.17**
2-7/32	2.2188	10-1/8	16-1/4	4	114239	**938.62**
2-1/4	2.2500	10-1/8	16-1/8	4	114240	**938.62**
2-5/16	2.3125	10-1/8	16-1/8	4	114241	**1,014.67**
2-3/8	2.3750	10-1/8	16-1/8	4	114242	**1,031.19**
2-7/16	2.4375	11-1/4	17-1/4	4	114243	**1,307.82**
2-1/2	2.5000	11-1/4	17-1/4	4	114244	**1,345.07**
2-5/8	2.6250	11-7/8	18	4	114245	**1,580.44**
2-3/4	2.7500	12-3/4	19-1/8	4	114246	**1,778.35**
3-1/16	3.0625	14-1/4	22	5	114247	**2,912.31**
3-1/8	3.1250	14-1/4	22	5	114248	**3,072.29**
3-3/16	3.1875	14-1/4	22	5	114249	**3,072.29**
3-1/4	3.2500	15-1/4	23	5	114250	**1,841.55**
3-5/16	3.3125	15-1/4	23	5	114251	**3,589.39**
3-3/8	3.3750	15-1/4	23	5	114252	**3,793.84**
3-7/16	3.4375	15-1/4	23	5	114253	**4,081.64**
3-1/2	3.5000	16-1/4	24	5	114254	**4,409.28**
3-5/8	3.6250	16-1/4	24	5	114255	**4,923.15**

Taper Shank Drills HSS — Letter Sizes

STM PREMIUM

Furnished with #1 morse taper shank.



Size	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
A	0.2340	2-7/8	6-1/8	114256	**38.47**
B	0.2380	2-7/8	6-1/8	114257	**38.47**
C	0.2420	2-7/8	6-1/8	114258	**38.47**
D	0.2460	2-7/8	6-1/8	114259	**34.15**
E	0.2500	2-7/8	6-1/8	114260	**21.40**
F	0.2570	3	6-1/4	114261	**33.81**
G	0.2610	3	6-1/4	114262	**40.24**
H	0.2660	3	6-1/4	114263	**40.24**
I	0.2720	3	6-1/4	114264	**40.24**
J	0.2770	3	6-1/4	114265	**37.14**
K	0.2810	3	6-1/4	114266	**42.24**
L	0.2900	3-1/8	6-3/8	114267	**42.24**
M	0.2950	3-1/8	6-3/8	114268	**42.24**
N	0.3020	3-1/8	6-3/8	114269	**42.24**
O	0.3160	3-1/4	6-1/2	114270	**50.23**
P	0.3230	3-1/4	6-1/2	114271	**50.23**
Q	0.3320	3-1/4	6-1/2	114272	**52.55**
R	0.3390	3-1/4	6-1/2	114273	**57.76**
S	0.3480	3-1/2	6-3/4	114274	**60.64**
T	0.3580	3-1/2	6-3/4	114275	**60.64**
U	0.3680	3-1/2	6-3/4	114276	**60.64**
V	0.3770	3-5/8	7	114277	**63.75**
W	0.3860	3-5/8	7	114278	**63.75**
X	0.3970	3-5/8	7	114279	**65.76**
Y	0.4040	3-5/8	7	114280	**65.76**
Z	0.4130	3-7/8	7-1/4	114281	**68.74**

Taper Shank Drills HSS – Wire Gauge Sizes

STM PREMIUM

Furnished with #1 morse taper shank, flute length and overall length are approximately the same as corresponding fractional.



Size	Decimal Equiv.	HSS Code No.	Price $
1	0.2280	114282	**37.03**
2	0.2210	114283	**37.03**
3	0.2130	114284	**37.03**
4	0.2090	114285	**37.03**
5	0.2055	114286	**37.03**
6	0.2040	114287	**37.03**
7	0.2010	114288	**35.47**
8	0.1990	114289	**35.47**
9	0.1960	114290	**35.47**
10	0.1935	114291	**35.47**
11	0.1910	114292	**35.47**
12	0.1890	114293	**35.47**
13	0.1850	114294	**35.47**
14	0.1820	114295	**35.47**
15	0.1800	114296	**35.47**
16	0.1770	114297	**35.47**
17	0.1730	114298	**35.47**
18	0.1695	114299	**35.47**
19	0.1660	114300	**35.47**
20	0.1610	114301	**33.16**
21	0.1590	114302	**33.16**
22	0.1570	114303	**33.16**
23	0.1540	114304	**33.16**
24	0.1520	114305	**33.16**
25	0.1495	114306	**33.16**
26	0.1470	114307	**33.16**
27	0.1440	114308	**33.16**
28	0.1405	114309	**33.16**
29	0.1360	114310	**33.16**
30	0.1285	114311	**33.16**
31	0.1200	114312	**33.16**
37	0.1040	114313	**33.16**
39	0.0995	114314	**33.16**
40	0.0980	114315	**33.16**
44	0.0860	114316	**33.16**
47	0.0785	114317	**33.16**

Taper Shank Drills HSS — Metric

STM PREMIUM

Flute length and overall length are approximately the same as corresponding fractional.



Size (mm)	Decimal Equiv. (in.)	Flute Length	Overall Length	Morse Taper No.	HSS Code No.	Price $
3.00	0.1181	1-7/8	5-1/8	1	114318	**28.83**
3.20	0.1260	1-7/8	5-1/8	1	114319	**30.27**
3.50	0.1378	2-1/8	5-3/8	1	114320	**28.83**
3.80	0.1496	2-1/8	5-3/8	1	114321	**30.27**
4.00	0.1575	2-1/8	5-3/8	1	114322	**28.83**
4.20	0.1654	2-1/2	5-3/4	1	114323	**30.27**
4.50	0.1772	2-1/2	5-3/4	1	114324	**23.73**
4.80	0.1890	2-1/2	5-3/4	1	114325	**23.73**
5.00	0.1969	2-3/4	6	1	114326	**23.50**
5.20	0.2047	2-3/4	6	1	114327	**23.73**
5.50	0.2165	2-3/4	6	1	114328	**23.50**
5.80	0.2283	2-7/8	6-1/8	1	114329	**24.72**
6.00	0.2362	2-7/8	6-1/8	1	114330	**24.72**
6.20	0.2441	2-7/8	6-1/8	1	114331	**26.17**
6.50	0.2559	3	6-1/4	1	114332	**26.17**
6.80	0.2677	3	6-1/4	1	114333	**27.27**
7.00	0.2756	3	6-1/4	1	114334	**26.17**
7.20	0.2835	3-1/8	6-3/8	1	114335	**27.50**
7.50	0.2953	3-1/8	6-3/8	1	114336	**26.17**
7.80	0.3071	3-1/8	6-3/8	1	114337	**28.93**
8.00	0.3150	3-1/4	6-1/2	1	114338	**35.47**
8.20	0.3228	3-1/4	6-1/2	1	114339	**37.58**
8.50	0.3346	3-1/4	6-1/2	1	114340	**37.47**
8.80	0.3465	3-1/2	6-3/4	1	114341	**42.13**
9.00	0.3543	3-1/4	6-1/2	1	114342	**41.02**
9.20	0.3622	3-1/4	6-1/2	1	114343	**41.14**
9.50	0.3740	3-1/4	6-1/2	1	114344	**41.14**
9.80	0.3858	3-5/8	7	1	114345	**41.14**
10.00	0.3937	3-5/8	7	1	114346	**41.14**
10.20	0.4016	3-5/8	7	1	114347	**42.13**
10.50	0.4134	3-7/8	7-1/4	1	114348	**45.34**
10.80	0.4252	3-7/8	7-1/4	1	114349	**46.01**
11.00	0.4331	3-7/8	7-1/4	1	114350	**45.68**
11.20	0.4409	4-1/8	7-1/2	1	114351	**49.89**
11.50	0.4528	4-1/8	7-1/2	1	114352	**49.89**
11.80	0.4646	4-1/8	7-1/2	1	114353	**53.88**
12.00	0.4724	4-3/8	8-1/4	2	114354	**53.78**
12.20	0.4803	4-3/8	8-1/4	2	114355	**61.32**
12.50	0.4921	4-3/8	8-1/4	2	114356	**53.78**
12.80	0.5039	4-5/8	8-1/2	2	114357	**62.86**
13.00	0.5118	4-5/8	8-1/2	2	114358	**60.09**
13.20	0.5197	4-5/8	8-1/2	2	114359	**65.63**
13.50	0.5315	4-5/8	8-1/2	2	114360	**65.53**
13.80	0.5433	4-7/8	8-3/4	2	114361	**65.53**
14.00	0.5512	4-7/8	8-3/4	2	114362	**62.52**
14.25	0.5610	4-7/8	8-3/4	2	114363	**71.84**
14.50	0.5709	4-7/8	8-3/4	2	114364	**69.73**
14.75	0.5807	4-7/8	8-3/4	2	114365	**79.83**
15.00	0.5906	4-7/8	8-3/4	2	114366	**67.97**
15.25	0.6004	4-7/8	8-3/4	2	114367	**75.06**
15.50	0.6102	4-7/8	8-3/4	2	114368	**71.62**
15.75	0.6201	4-7/8	8-3/4	2	114369	**74.95**
16.00	0.6299	5-1/8	9	2	114370	**76.94**
16.25	0.6398	5-1/8	9	2	114371	**90.35**
16.50	0.6496	5-1/8	9	2	114372	**79.05**
16.75	0.6594	5-3/8	9-1/4	2	114373	**95.02**
17.00	0.6693	5-3/8	9-1/4	2	114374	**79.50**
17.25	0.6791	5-3/8	9-1/4	2	114375	**95.02**
17.50	0.6890	5-5/8	9-1/2	2	114376	**84.26**
18.00	0.7087	5-5/8	9-1/2	2	114377	**84.26**
18.50	0.7283	5-5/8	9-1/2	2	114378	**97.01**
19.00	0.7480	5-7/8	9-3/4	2	114379	**94.46**
19.50	0.7677	6	9-7/8	2	114380	**116.07**
20.00	0.7874	6	9-7/8	3	114381	**116.75**
20.50	0.8071	6-1/8	10-3/4	3	114382	**129.05**
21.00	0.8268	6-1/8	10-3/4	3	114383	**129.60**
21.50	0.8465	6-1/8	10-3/4	3	114384	**143.24**
22.00	0.8661	6-1/8	10-3/4	3	114385	**129.60**
22.50	0.8858	6-1/8	10-3/4	3	114386	**139.92**
23.00	0.9055	6-1/8	10-3/4	3	114387	**130.06**
23.50	0.9252	6-1/8	10-3/4	3	114388	**143.80**
24.00	0.9449	6-3/8	11	3	114389	**141.58**
24.50	0.9646	6-3/8	11	3	114390	**156.33**
25.00	0.9843	6-3/8	11	3	114391	**151.45**
25.50	1.0039	6-1/2	11-1/8	3	114392	**174.84**
26.00	1.0236	6-1/2	11-1/8	3	114393	**158.32**
26.50	1.0433	6-5/8	11-1/4	3	114394	**197.90**
27.00	1.0630	6-5/8	11-1/4	3	114395	**195.46**
27.50	1.0827	6-7/8	12-1/2	4	114396	**219.85**
28.00	1.1024	7-1/8	12-3/4	4	114397	**205.22**
28.50	1.1220	7-1/8	12-3/4	4	114398	**240.93**
29.00	1.1417	7-1/4	12-7/8	4	114399	**212.54**
29.50	1.1614	7-3/8	13	4	114400	**262.42**
30.00	1.1811	7-3/8	13	4	114401	**223.62**
30.50	1.2008	7-1/2	13-1/8	4	114402	**283.83**
31.00	1.2205	7-7/8	13-1/2	4	114403	**258.66**
31.50	1.2402	7-7/8	13-1/2	4	114404	**295.35**
32.00	1.2598	8-1/2	14-1/8	4	114405	**301.56**
32.50	1.2795	8-1/2	14-1/8	4	114406	**357.55**
33.00	1.2992	8-5/8	14-1/4	4	114407	**309.43**
33.50	1.3189	8-3/4	14-3/8	4	114408	**383.83**
34.00	1.3386	8-3/4	14-3/8	4	114409	**336.15**
34.50	1.3583	8-7/8	14-1/2	4	114410	**405.45**
35.00	1.3780	9	14-5/8	4	114411	**365.21**
35.50	1.3976	9	14-5/8	4	114412	**416.87**
36.00	1.4173	9-1/8	14-3/4	4	114413	**368.85**
36.50	1.4370	9-1/8	14-3/4	4	114414	**421.20**
37.00	1.4567	9-1/4	14-7/8	4	114415	**392.25**
37.50	1.4764	9-3/8	15	4	114416	**447.80**
38.00	1.4961	9-3/8	15	4	114417	**392.25**
39.00	1.5354	9-5/8	16-5/8	5	114418	**518.20**
40.00	1.5748	9-7/8	16-7/8	5	114419	**518.20**
41.00	1.6142	10	17	5	114420	**559.67**
42.00	1.6535	10-1/8	17-1/8	5	114421	**601.68**
43.00	1.6929	10-1/8	17-1/8	5	114422	**647.37**
44.00	1.7323	10-1/8	17-1/8	5	114423	**660.67**
45.00	1.7717	10-1/8	17-1/8	5	114424	**686.39**
46.00	1.8110	10-1/8	17-1/8	5	114425	**713.11**
47.00	1.8504	10-3/8	17-3/8	5	114426	**736.73**
48.00	1.8898	10-3/8	17-3/8	5	114427	**768.87**
49.00	1.9291	10-3/8	17-3/8	5	114428	**792.61**
50.00	1.9685	10-3/8	17-3/8	5	114429	**742.60**
51.00	2.0079	10-3/8	17-3/8	5	114430	**864.45**
57.00	2.2441	10-3/8	17-3/8	5	114431	**1,093.40**
59.00	2.3228	10-3/8	17-3/8	5	114432	**1,174.88**
65.00	2.5591	11-7/8	19-1/2	5	114433	**1,664.04**
66.00	2.5984	11-7/8	19-1/2	5	114434	**1,741.76**
69.00	2.7165	12-3/4	20-3/8	5	114435	**2,091.99**
70.00	2.7559	13-3/8	21-1/8	5	114436	**2,210.73**
72.00	2.8346	13-3/8	21-1/8	5	114437	**2,296.65**

Taper Shank Drills HSS – Titanium Coated

STM PREMIUM

118° HSS TiN COATED



Size (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSS TiN Coated Code No.	Price $
5/16	3-1/8	6-3/8	1	114438	**69.40**
3/8	3-1/2	6-3/4	1	114439	**72.40**
7/16	3-7/8	7-1/4	1	114440	**78.94**
1/2	4-3/8	8-1/4	2	114441	**83.27**
33/64	4-5/8	8-1/2	2	114442	**99.45**
17/32	4-5/8	8-1/2	2	114443	**92.13**
9/16	4-7/8	8-3/4	2	114444	**102.10**
19/32	4-7/8	8-3/4	2	114445	**109.87**
5/8	4-7/8	8-3/4	2	114446	**111.43**
21/32	5-1/8	9	2	114447	**123.73**
11/16	5-3/8	9-1/4	2	114448	**127.95**
23/32	5-5/8	9-1/2	2	114449	**154.00**
3/4	5-7/8	9-3/4	2	114450	**149.78**
25/32	6	9-7/8	2	114451	**178.72**
13/16	6-1/8	10-3/4	3	114452	**186.92**
27/32	6-1/8	10-3/4	3	114453	**200.67**
7/8	6-1/8	10-3/4	3	114454	**206.11**
29/32	6-1/8	10-3/4	3	114455	**246.36**
15/16	6-1/8	10-3/4	3	114456	**234.05**
31/32	6-3/8	11	3	114457	**253.90**
63/64	6-3/8	11	3	114458	**280.16**
1	6-3/8	11	3	114459	**258.66**
1-1/32	6-1/2	11-1/8	3	114460	**284.71**
1-1/16	6-5/8	11-1/4	3	114461	**263.76**
1-3/32	6-7/8	12-1/2	4	114462	**350.90**
1-1/8	7-1/8	12-3/4	4	114463	**325.62**
1-5/32	7-1/4	12-7/8	4	114464	**384.83**
1-3/16	7-3/8	13	4	114465	**400.12**
1-7/32	7-1/2	13-1/8	4	114466	**430.94**
1-1/4	7-7/8	13-1/2	4	114467	**398.36**
1-5/16	8-5/8	14-1/4	4	114468	**563.21**
1-3/8	8-7/8	14-1/2	4	114469	**600.14**
1-1/2	9-3/8	15	4	114470	**692.38**

HSS Taper Shank Drills

QUALITY IMPORT

118° HSS



Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSS Code No.	Price $
1/2	0.5000	4-3/8	8-1/4	2	106002	**6204**
33/64	0.5156	4-5/8	8-1/2	2	106004	**14.11**
17/32	0.5312	4-5/8	8-1/2	2	106006	**14.09**
35/64	0.5469	4-7/8	8-3/4	2	106008	**14.10**
9/16	0.5625	4-7/8	8-3/4	2	106010	**16.87**
37/64	0.5781	4-7/8	8-3/4	2	106012	**16.83**
19/32	0.5938	4-7/8	8-3/4	2	106014	**16.38**
39/64	0.6094	4-7/8	8-3/4	2	106016	**14.34**
5/8	0.6250	4-7/8	8-3/4	2	106018	**17.85**
41/64	0.6406	5-1/8	9	2	106020	**16.83**
21/32	0.6562	5-1/8	9	2	106022	**19.99**
43/64	0.6719	5-3/8	9-1/4	2	106024	**20.22**
11/16	0.6875	5-3/8	9-1/4	2	106026	**20.19**
45/64	0.7031	5-5/8	9-1/2	2	106028	**20.19**
23/32	0.7188	5-5/8	9-1/2	2	106030	**20.22**
47/64	0.7344	5-7/8	9-3/4	2	106032	**22.47**
3/4	0.7500	5-7/8	9-3/4	2	106034	**22.94**
49/64	0.7656	6	9-7/8	2	106036	**26.78**
25/32	0.7812	6	9-7/8	2	106038	**26.79**
51/64	0.7969	6-1/8	10-3/4	3	106040	**26.85**
13/16	0.8125	6-1/8	10-3/4	3	106042	**26.89**
53/64	0.8281	6-1/8	10-3/4	3	106044	**30.95**
27/32	0.8438	6-1/8	10-3/4	3	106046	**29.26**
55/64	0.8594	6-1/8	10-3/4	3	106048	**31.40**
7/8	0.8750	6-1/8	10-3/4	3	106050	**29.26**
57/64	0.8906	6-1/8	10-3/4	3	106052	**34.18**
29/32	0.9062	6-1/8	10-3/4	3	106054	**36.03**
59/64	0.9219	6-1/8	10-3/4	3	106056	**40.65**
15/16	0.9375	6-1/8	10-3/4	3	106058	**41.90**
61/64	0.9531	6-3/8	11	3	106060	**41.89**
31/32	0.9688	6-3/8	11	3	106062	**40.62**
63/64	0.9844	6-3/8	11	3	106064	**40.74**
1	1.0000	6-3/8	11	3	106066	**40.99**
1-1/64	1.0156	6-1/2	11-1/8	3	106067	**48.80**
1-1/32	1.0312	6-1/2	11-1/8	3	106068	**55.12**
1-3/64	1.0469	6-5/8	11-1/4	3	106069	**52.94**
1-1/16	1.0625	6-5/8	11-1/4	3	106070	**54.07**
1-5/64	1.0781	6-7/8	12-1/2	4	106071	**55.12**
1-3/32	1.0938	6-7/8	12-1/2	4	106072	**51.16**
1-7/64	1.1094	7-1/8	12-3/4	4	106073	**55.12**
1-1/8	1.1250	7-1/8	12-3/4	4	106074	**63.81**
1-9/64	1.1406	7-1/4	12-7/8	4	106075	**63.01**
1-5/32	1.1562	7-1/4	12-7/8	4	106076	**69.91**
1-11/64	1.1719	7-3/8	13	4	106077	**66.04**
1-3/16	1.1875	7-3/8	13	4	106078	**73.13**
1-13/64	1.2031	7-1/2	13-1/8	4	106079	**77.81**
1-7/32	1.2188	7-1/2	13-1/8	4	106080	**81.31**
1-15/64	1.2344	7-7/8	13-1/2	4	106081	**90.90**
1-1/4	1.2500	7-7/8	13-1/2	4	106082	**100.83**
1-17/64	1.2656	8-1/2	14-1/8	4	106083	**97.67**
1-9/32	1.2812	8-1/2	14-1/8	4	106084	**100.85**
1-19/64	1.2969	8-5/8	14-1/4	4	106085	**106.27**
1-5/16	1.3125	8-5/8	14-1/4	4	106086	**110.67**
1-21/64	1.3281	8-3/4	14-3/8	4	106087	**110.22**
1-11/32	1.3438	8-3/4	14-3/8	4	106088	**113.11**
1-23/64	1.3594	8-7/8	14-1/2	4	106089	**91.10**
1-3/8	1.3750	8-7/8	14-1/2	4	106090	**116.60**
1-25/64	1.3906	9	14-5/8	4	106091	**126.65**
1-13/32	1.4062	9	14-5/8	4	106092	**133.20**
1-27/64	1.4219	9-1/8	14-3/4	4	106093	**132.56**
1-7/16	1.4375	9-1/8	14-3/4	4	106094	**135.91**
1-29/64	1.4531	9-1/4	14-7/8	4	106095	**140.92**
1-15/32	1.4688	9-1/4	14-7/8	4	106096	**144.87**
1-31/64	1.4844	9-3/8	15	4	106097	**152.32**
1-1/2	1.5000	9-3/8	15	4	106098	**159.42**
1-33/64	1.5156	9-3/8	16-3/8	5	106099	**163.84**
1-17/32	1.5312	9-3/8	16-3/8	5	106100	**163.84**
1-35/64	1.5469	9-5/8	16-5/8	5	106101	**113.70**
1-9/16	1.5625	9-5/8	16-5/8	5	106102	**167.41**
1-37/64	1.5781	9-7/8	16-7/8	5	106103	**165.29**
1-19/32	1.5938	9-7/8	16-7/8	5	106104	**165.29**
1-39/64	1.6094	10	17	5	106105	**165.31**
1-5/8	1.6250	10	17	5	106106	**167.30**
1-41/64	1.6406	10-1/8	17-1/8	5	106107	**167.32**
1-21/32	1.6562	10-1/8	17-1/8	5	106108	**173.41**
1-43/64	1.6719	10-1/8	17-1/8	5	106109	**180.09**
1-11/16	1.6875	10-1/8	17-1/8	5	106110	**180.11**
1-45/64	1.7031	10-1/8	17-1/8	5	106111	**186.49**
1-23/32	1.7188	10-1/8	17-1/8	5	106112	**199.59**
1-47/64	1.7344	10-1/8	17-1/8	5	106113	**196.31**
1-3/4	1.7500	10-1/8	17-1/8	5	106114	**196.35**
1-25/32	1.7812	10-1/8	17-1/8	5	106116	**227.62**
1-13/16	1.8125	10-1/8	17-1/8	5	106118	**356.40**
1-27/32	1.8438	10-1/8	17-1/8	5	106120	**373.70**
1-7/8	1.8750	10-3/8	17-3/8	5	106122	**255.75**
1-29/32	1.9062	10-3/8	17-3/8	5	106124	**255.72**
1-15/16	1.9375	10-3/8	17-3/8	5	106126	**255.75**
1-31/32	1.9688	10-3/8	17-3/8	5	106128	**264.90**
2	2.0000	10-3/8	17-3/8	5	106130	**288.59**
2-1/32	2.0313	10-3/8	17-3/8	5	106131	**305.98**
2-1/16	2.0625	10-1/4	17-3/8	5	106132	**308.55**
2-3/32	2.0938	10-1/4	17-3/8	5	106133	**308.54**
2-1/8	2.1250	10-1/4	17-3/8	5	106134	**333.85**
2-5/32	2.1562	10-1/4	17-3/8	5	106135	**242.76**
2-3/16	2.1875	10-1/4	17-3/8	5	106136	**351.37**
2-7/32	2.2188	10-1/8	17-3/8	5	106137	**365.35**
2-1/4	2.2500	10-1/8	17-3/8	5	106138	**372.49**
2-5/16	2.3125	10-1/8	17-3/8	5	106140	**401.85**
2-3/8	2.3750	10-1/8	17-3/8	5	106142	**445.31**
2-7/16	2.4375	11-1/4	18-3/4	5	106144	**545.31**
2-1/2	2.5000	11-1/4	18-3/4	5	106146	**596.88**
2-9/16	2.5625	11-7/8	19-1/2	5	106148	**632.25**
2-5/8	2.6250	11-7/8	19-1/2	5	106150	**680.35**
2-11/16	2.6875	12-3/4	20-3/8	5	106152	**487.84**
2-3/4	2.7500	12-3/4	20-3/8	5	106154	**689.36**
2-13/16	2.8125	13-3/8	21-1/8	5	106156	**517.86**
2-7/8	2.8750	14	21-3/4	5	106158	**798.32**
2-15/16	2.9375	14	21-3/4	5	106160	**788.84**
3	3.0000	14	21-3/4	5	106162	**1,572.16**
3-1/16	3.0625	14-5/8	24-1/2	6	106164	**1,677.70**
3-1/8	3.1250	14-5/8	24-1/2	6	106166	**2,498.14**
3-3/16	3.1875	14-5/8	24-1/2	6	106168	**1,920.20**
3-1/4	3.2500	15-1/2	25-1/2	6	106170	**2,932.34**
3-5/16	3.3125	15-1/2	25-1/2	6	106172	**3,095.10**
3-3/8	3.3750	15-1/2	25-1/2	6	106174	**3,203.65**
3-7/16	3.4375	15-1/2	25-1/2	6	106176	**2,428.30**
3-1/2	3.5000	16-3/8	26-1/2	6	106178	**3,258.00**
3-5/8	3.6250	16-3/8	26-1/2	6	106180	**4,235.22**
3-3/4	3.7500	16-3/8	26-1/2	6	106182	**4,778.24**
3-7/8	3.8750	16-3/8	26-1/2	6	106184	**4,995.47**
4	4.0000	17-1/2	27-1/2	6	106186	**4,553.80**

Extra Length Taper Shank Drills HSS — 8"-12" Overall Length

STM PREMIUM

- Taper shank





Size	Decimal Equiv.	Morse Taper No.	Flute Length	8" O.A.L. Code No.	Price $	Flute Length	10" O.A.L. Code No.	Price $	Flute Length	12" O.A.L. Code No.	Price $
1/8	0.1250	1	5	114471	**93.24**	-	-	**-**	9	114512	**118.85**
9/64	0.1406	1	5	114472	**97.90**	-	-	**-**	-	-	**-**
5/32	0.1562	1	5	114473	**97.90**	7	114489	**100.45**	-	-	**-**
11/64	0.1719	1	5	114474	**97.90**	7	114490	**102.44**	9	114513	**120.62**
3/16	0.1875	1	5	114475	**97.90**	-	-	**-**	9	114514	**120.62**
13/64	0.2031	1	5	114476	**97.90**	7	114491	**105.87**	9	114515	**123.28**
7/32	0.2188	1	5	114477	**97.90**	7	114492	**105.87**	9	114516	**123.28**
15/64	0.2344	1	5	114478	**97.90**	7	114493	**105.87**	9	114517	**123.28**
1/4	0.2500	1	5	114479	**87.36**	7	114494	**105.87**	9	114518	**123.28**
17/64	0.2656	1	5	114480	**105.87**	-	-	**-**	9	114519	**135.03**
9/32	0.2812	1	5	114481	**94.57**	7	114495	**115.41**	9	114520	**135.03**
19/64	0.2969	1	5	114482	**105.87**	7	114496	**115.41**	9	114521	**135.03**
5/16	0.3125	1	5	114483	**94.57**	-	-	**-**	9	114522	**135.03**
21/64	0.3281	1	5	114484	**106.33**	7	114497	**125.06**	9	114523	**147.11**
11/32	0.3438	1	5	114485	**119.08**	-	-	**-**	9	114524	**147.11**
23/64	0.3594	1	5	114486	**122.51**	7	114498	**128.50**	9	114525	**151.22**
3/8	0.3750	1	5	114487	**122.51**	7	114499	**128.50**	9	114526	**151.22**
25/64	0.3906	1	-	-	**-**	-	-	**-**	9	114527	**158.65**
13/32	0.4062	1	-	-	**-**	-	-	**-**	9	114528	**158.65**
27/64	0.4219	1	-	-	**-**	-	-	**-**	9	114529	**164.32**
7/16	0.4375	1	-	-	**-**	7	114500	**136.92**	9	114530	**164.32**
29/64	0.4531	1	-	-	**-**	7	114501	**150.23**	9	114531	**176.95**
15/32	0.4688	1	5	114488	**134.82**	7	114502	**144.90**	9	114532	**170.40**
31/64	0.4844	2	-	-	**-**	6	114503	**165.86**	8	114533	**195.24**
1/2	0.5000	2	-	-	**-**	6	114504	**160.09**	8	114534	**188.37**
33/64	0.5156	2	-	-	**-**	6	114505	**165.86**	8	114535	**195.24**
17/32	0.5312	2	-	-	**-**	6	114506	**160.09**	8	114536	**189.04**
35/64	0.5469	2	-	-	**-**	6	114507	**162.31**	8	114537	**197.90**
9/16	0.5625	2	-	-	**-**	6	114508	**162.31**	8	114538	**190.92**
37/64	0.5781	2	-	-	**-**	6	114509	**170.40**	8	114539	**200.67**
19/32	0.5938	2	-	-	**-**	6	114510	**164.42**	8	114540	**193.46**
39/64	0.6094	2	-	-	**-**	6	114511	**175.29**	8	114541	**213.98**
5/8	0.6250	2	-	-	**-**	-	-	**-**	8	114542	**205.99**
41/64	0.6406	2	-	-	**-**	-	-	**-**	8	114543	**220.51**
21/32	0.6562	2	-	-	**-**	-	-	**-**	8	114544	**220.51**
43/64	0.6719	2	-	-	**-**	-	-	**-**	8	114545	**240.47**
11/16	0.6875	2	-	-	**-**	-	-	**-**	8	114546	**240.47**
45/64	0.7031	2	-	-	**-**	-	-	**-**	8	114547	**256.33**
23/32	0.7188	2	-	-	**-**	-	-	**-**	8	114548	**256.33**
47/64	0.7344	2	-	-	**-**	-	-	**-**	8	114549	**266.52**
3/4	0.7500	2	-	-	**-**	-	-	**-**	8	114550	**266.52**
49/64	0.7656	2	-	-	**-**	-	-	**-**	8	114551	**281.39**
25/32	0.7812	2	-	-	**-**	-	-	**-**	8	114552	**281.39**
51/64	0.7969	3	-	-	**-**	-	-	**-**	7	114553	**297.02**
13/16	0.8125	3	-	-	**-**	-	-	**-**	7	114554	**297.02**
53/64	0.8281	3	-	-	**-**	-	-	**-**	7	114555	**297.02**
27/32	0.8438	3	-	-	**-**	-	-	**-**	7	114556	**297.02**
55/64	0.8594	3	-	-	**-**	-	-	**-**	7	114557	**297.02**
7/8	0.8750	3	-	-	**-**	-	-	**-**	7	114558	**297.02**
57/64	0.8906	3	-	-	**-**	-	-	**-**	7	114559	**326.51**
29/32	0.9062	3	-	-	**-**	-	-	**-**	7	114560	**326.51**
59/64	0.9219	3	-	-	**-**	-	-	**-**	7	114561	**337.26**
15/16	0.9375	3	-	-	**-**	-	-	**-**	7	114562	**337.26**
61/64	0.9531	3	-	-	**-**	-	-	**-**	-	-	**-**
31/32	0.9688	3	-	-	**-**	-	-	**-**	7	114563	**353.33**
63/64	0.9844	3	-	-	**-**	-	-	**-**	-	-	**-**
1	1.0000	3	-	-	**-**	-	-	**-**	7	114564	**355.90**

Knock-Out Drill Drifts

QUALITY IMPORT



M.T. Size	Overall Length (in.)	Thickness (in.)	Width At Hole	Code No.	Price $
1	4-1/2	13/64	11/16	106201	**16.50**
2	5-1/4	1/4	13/16	106202	**19.05**
3	6	5/16	1-1/16	106203	**20.75**
4	7	15/32	1-1/8	106204	**26.09**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Extra Length Taper Shank Drills HSS — 14"-18" Overall Length

STM PREMIUM

Size	Decimal Equiv.	Morse Taper No.	Flute Length	14" O.A.L. HSS Code No.	Price $	Flute Length	15" O.A.L. HSS. Code No.	Price $	Flute Length	18" O.A.L. HSS Code No.	Price $
3/16	0.1875	1	-	-	-	12	114588	**160.88**	-	-	-
13/64	0.2031	1	-	-	-	12	114589	**160.88**	-	-	-
7/32	0.2188	1	-	-	-	12	114590	**160.88**	-	-	-
15/64	0.2344	1	-	-	-	12	114591	**160.88**	-	-	-
1/4	0.2500	1	-	-	-	12	114592	**160.88**	15	114651	**209.54**
17/64	0.2656	1	-	-	-	12	114593	**169.74**	15	114652	**212.97**
9/32	0.2812	1	-	-	-	12	114594	**169.74**	15	114653	**212.97**
19/64	0.2969	1	-	-	-	12	114595	**178.72**	15	114654	**218.52**
5/16	0.3125	1	-	-	-	12	114596	**178.72**	15	114655	**218.52**
21/64	0.3281	1	-	-	-	12	114597	**187.58**	15	114656	**226.73**
11/32	0.3438	1	-	-	-	12	114598	**187.58**	15	114657	**226.73**
23/64	0.3594	1	-	-	-	12	114599	**209.10**	15	114658	**237.03**
3/8	0.3750	1	-	-	-	12	114600	**209.10**	15	114659	**237.03**
25/64	0.3906	1	-	-	-	12	114601	**209.10**	15	114660	**237.03**
13/32	0.4062	1	-	-	-	12	114602	**209.10**	15	114661	**237.03**
27/64	0.4219	1	-	-	-	12	114603	**209.10**	15	114662	**237.03**
7/16	0.4375	1	-	-	-	12	114604	**209.10**	15	114663	**237.03**
29/64	0.4531	1	11	114565	**214.65**	12	114605	**214.43**	15	114664	**237.03**
15/32	0.4688	1	11	114566	**214.65**	-	-	-	15	114665	**237.03**
31/64	0.4844	2	10	114567	**217.97**	11	114606	**217.53**	14	114666	**237.03**
1/2	0.5000	2	10	114568	**217.97**	11	114607	**217.53**	14	114667	**237.03**
33/64	0.5156	2	10	114569	**220.18**	11	114608	**217.53**	14	114668	**237.03**
17/32	0.5312	2	-	-	-	11	114609	**217.53**	14	114669	**237.03**
35/64	0.5469	2	10	114570	**239.37**	11	114610	**220.51**	14	114670	**240.47**
9/16	0.5625	2	10	114571	**239.37**	11	114611	**220.51**	14	114671	**240.47**
37/64	0.5781	2	10	114572	**239.37**	11	114612	**223.73**	14	114672	**243.14**
19/32	0.5938	2	-	-	-	11	114613	**223.73**	14	114673	**243.14**
39/64	0.6094	2	10	114573	**252.45**	11	114614	**238.70**	14	114674	**260.77**
5/8	0.6250	2	10	114574	**252.45**	11	114615	**238.70**	14	114675	**260.77**
41/64	0.6406	2	10	114575	**234.27**	11	114616	**255.67**	14	114676	**279.94**
21/32	0.6562	2	10	114576	**241.47**	11	114617	**255.67**	14	114677	**279.94**
43/64	0.6719	2	-	-	-	11	114618	**280.16**	14	114678	**306.89**
11/16	0.6875	2	-	-	-	11	114619	**280.16**	14	114679	**306.89**
45/64	0.7031	2	10	114577	**296.36**	11	114620	**289.58**	14	114680	**330.28**
23/32	0.7188	2	10	114578	**296.36**	11	114621	**291.04**	14	114681	**330.28**
47/64	0.7344	2	10	114579	**321.63**	11	114622	**310.33**	14	114682	**340.70**
3/4	0.7500	2	10	114580	**287.15**	11	114623	**310.33**	14	114683	**340.70**
49/64	0.7656	2	10	114581	**336.93**	11	114624	**327.41**	14	114684	**359.00**
25/32	0.7812	2	10	114582	**300.90**	11	114625	**327.41**	14	114685	**359.00**
51/64	0.7969	3	-	-	-	10	114626	**327.41**	13	114686	**359.00**
13/16	0.8125	3	-	-	-	10	114627	**327.41**	14	114687	**359.00**
53/64	0.8281	3	-	-	-	10	114628	**327.41**	13	114688	**374.73**
27/32	0.8438	3	9	114583	**311.88**	10	114629	**327.41**	13	114689	**374.73**
55/64	0.8594	3	-	-	-	10	114630	**327.41**	13	114690	**388.27**
7/8	0.8750	3	9	114584	**346.24**	10	114631	**327.41**	13	114691	**388.27**
57/64	0.8906	3	9	114585	**387.82**	10	114632	**368.65**	13	114692	**401.68**
29/32	0.9062	3	-	-	-	10	114633	**368.65**	13	114693	**401.68**
59/64	0.9219	3	-	-	-	10	114634	**368.65**	13	114694	**408.44**
15/16	0.9375	3	-	-	-	10	114635	**387.49**	13	114695	**408.44**
61/64	0.9531	3	-	-	-	10	114636	**393.24**	13	114696	**415.20**
31/32	0.9688	3	9	114586	**421.63**	10	114637	**393.24**	13	114697	**415.20**
63/64	0.9844	3	9	114587	**421.63**	10	114638	**398.14**	13	114698	**438.82**
1	1.0000	3	-	-	-	10	114639	**398.14**	13	114699	**438.82**
1-1/32	1.0312	3	-	-	-	10	114640	**400.02**	13	114700	**475.85**
1-3/64	1.0469	3	-	-	-	10	114641	**407.44**	13	114701	**475.85**
1-1/16	1.0625	3	-	-	-	10	114642	**400.02**	13	114702	**475.85**
1-5/64	1.0781	4	-	-	-	9	114643	**428.73**	12	114703	**480.85**
1-3/32	1.0938	4	-	-	-	10	114644	**428.73**	12	114704	**480.85**
1-1/8	1.1250	4	-	-	-	10	114645	**428.73**	12	114705	**480.85**
1-5/32	1.1562	4	-	-	-	10	114646	**437.15**	12	114706	**534.83**
1-11/64	1.1719	4	-	-	-	10	114647	**442.03**	12	114707	**535.84**
1-3/16	1.1875	4	-	-	-	10	114648	**442.03**	12	114708	**535.84**
1-7/32	1.2188	4	-	-	-	9	114649	**468.87**	12	114709	**562.66**
1-15/64	1.2344	4	-	-	-	-	-	-	12	114710	**562.66**
1-1/4	1.2500	4	-	-	-	9	114650	**468.87**	12	114711	**562.66**
1-9/32	1.2813	4	-	-	-	-	-	-	12	114712	**636.83**
1-5/16	1.3125	4	-	-	-	-	-	-	12	114713	**636.83**
1-11/32	1.3438	4	-	-	-	-	-	-	12	114714	**713.44**
1-23/64	1.3594	4	-	-	-	-	-	-	12	114715	**713.44**
1-3/8	1.3750	4	-	-	-	-	-	-	12	114716	**713.44**
1-13/32	1.4062	4	-	-	-	-	-	-	12	114717	**735.07**
1-7/16	1.4375	4	-	-	-	-	-	-	12	114718	**735.07**
1-15/32	1.4688	4	-	-	-	-	-	-	12	114719	**796.71**
1-1/2	1.5000	4	-	-	-	-	-	-	12	114720	**796.71**
1-9/16	1.5625	5	-	-	-	-	-	-	10	114721	**887.51**
1-5/8	1.6250	5	-	-	-	-	-	-	10	114722	**946.49**
1-11/16	1.6875	5	-	-	-	-	-	-	10	114723	**1,009.68**
1-3/4	1.7500	5	-	-	-	-	-	-	10	114724	**1,133.41**
1-7/8	1.8750	5	-	-	-	-	-	-	10	114725	**1,370.24**

Extra Length Taper Shank Drills HSS — 20"-36" Overall Length

STM PREMIUM

- Taper shank





Size	Decimal Equiv.	Morse Taper No.	Flute Length	20" O.A.L. Code No.	Price $	Flute Length	24" O.A.L. HSS Code No.	Price $	Flute Length	30" O.A.L. HSS Code No.	Price $	Flute Length	36" O.A.L. HSS Code No.	Price $
3/8	0.3750	1	-	-	-	21	114747	**332.50**	-	-	-	-	-	-
25/64	0.3906	1	-	-	-	21	114748	**332.50**	-	-	-	-	-	-
13/32	0.4062	1	-	-	-	21	114749	**332.50**	-	-	-	-	-	-
27/64	0.4219	1	-	-	-	21	114750	**332.50**	-	-	-	-	-	-
7/16	0.4375	1	-	-	-	21	114751	**332.50**	-	-	-	-	-	-
29/64	0.4531	1	-	-	-	21	114752	**332.50**	-	-	-	-	-	-
15/32	0.4688	1	-	-	-	21	114753	**332.50**	-	-	-	-	-	-
31/64	0.4844	2	-	-	-	21	114754	**332.50**	-	-	-	-	-	-
1/2	0.5000	2	-	-	-	20	114755	**332.50**	-	-	-	-	-	-
33/64	0.5156	2	16	114726	**302.34**	20	114756	**345.58**	-	-	-	-	-	-
17/32	0.5312	2	-	-	-	20	114757	**345.58**	-	-	-	-	-	-
35/64	0.5469	2	-	-	-	20	114758	**345.58**	-	-	-	-	-	-
9/16	0.5625	2	-	-	-	20	114759	**345.58**	-	-	-	-	-	-
37/64	0.5781	2	-	-	-	20	114760	**345.58**	-	-	-	-	-	-
19/32	0.5938	2	-	-	-	20	114761	**345.58**	-	-	-	-	-	-
39/64	0.6094	2	-	-	-	20	114762	**345.58**	-	-	-	-	-	-
5/8	0.6250	2	-	-	-	20	114763	**345.58**	-	-	-	-	-	-
41/64	0.6406	2	-	-	-	20	114764	**345.58**	-	-	-	-	-	-
21/32	0.6562	2	16	114727	**345.58**	20	114765	**345.58**	-	-	-	-	-	-
43/64	0.6719	2	-	-	-	20	114766	**365.21**	-	-	-	-	-	-
11/16	0.6875	2	-	-	-	20	114767	**365.21**	-	-	-	-	-	-
45/64	0.7031	2	-	-	-	20	114768	**377.52**	-	-	-	-	-	-
23/32	0.7188	2	-	-	-	20	114769	**377.52**	-	-	-	-	-	-
47/64	0.7344	2	-	-	-	20	114770	**398.80**	-	-	-	-	-	-
3/4	0.7500	2	-	-	-	20	114771	**398.80**	26	114832	**613.88**	-	-	-
49/64	0.7656	2	-	-	-	20	114772	**411.55**	-	-	-	-	-	-
25/32	0.7812	2	-	-	-	20	114773	**411.55**	-	-	-	-	-	-
51/64	0.7969	3	-	-	-	19	114774	**433.38**	-	-	-	-	-	-
13/16	0.8125	3	15	114728	**397.14**	19	114775	**433.38**	25	114833	**723.20**	-	-	-
53/64	0.8281	3	-	-	-	19	114776	**498.68**	-	-	-	-	-	-
27/32	0.8438	3	15	114729	**460.11**	19	114777	**498.68**	-	-	-	-	-	-
55/64	0.8594	3	-	-	-	19	114778	**521.42**	-	-	-	-	-	-
7/8	0.8750	3	15	114730	**439.60**	19	114779	**521.42**	25	114834	**829.41**	-	-	-
57/64	0.8906	3	-	-	-	19	114780	**521.42**	-	-	-	-	-	-
29/32	0.9062	3	15	114731	**446.46**	19	114781	**521.42**	-	-	-	-	-	-
59/64	0.9219	3	-	-	-	19	114782	**543.04**	-	-	-	-	-	-
15/16	0.9375	3	15	114732	**446.46**	19	114783	**543.04**	25	114835	**896.93**	-	-	-
61/64	0.9531	3	-	-	-	19	114784	**598.47**	-	-	-	-	-	-
31/32	0.9688	3	15	114733	**479.39**	19	114785	**598.47**	-	-	-	-	-	-
63/64	0.9844	3	-	-	-	19	114786	**609.45**	-	-	-	-	-	-
1	1.0000	3	-	-	-	19	114787	**609.45**	25	114836	**987.73**	-	-	-
1-1/32	1.0312	3	-	-	-	19	114788	**625.08**	-	-	-	-	-	-
1-3/64	1.0469	3	-	-	-	19	114789	**625.08**	-	-	-	-	-	-
1-1/16	1.0625	3	15	114734	**520.64**	18	114790	**625.08**	25	114837	**987.73**	-	-	-
1-5/64	1.0781	4	-	-	-	18	114791	**686.83**	-	-	-	-	-	-
1-3/32	1.0938	4	14	114735	**548.14**	18	114792	**686.83**	-	-	-	-	-	-
1-1/8	1.1250	4	14	114736	**548.14**	18	114793	**686.83**	24	114838	**1,127.76**	-	-	-
1-5/32	1.1562	4	14	114737	**594.81**	18	114794	**739.06**	-	-	-	-	-	-
1-11/64	1.1719	4	-	-	-	18	114795	**766.66**	-	-	-	-	-	-
1-3/16	1.1875	4	14	114738	**638.83**	18	114796	**766.66**	24	114839	**1,229.32**	-	-	-
1-7/32	1.2188	4	14	114739	**638.83**	18	114797	**775.53**	-	-	-	-	-	-
1-15/64	1.2344	4	-	-	-	18	114798	**775.53**	-	-	-	-	-	-
1-1/4	1.2500	4	14	114740	**638.83**	18	114799	**775.53**	24	114840	**1,330.87**	-	-	-
1-9/32	1.2813	4	-	-	-	18	114800	**878.19**	-	-	-	-	-	-
1-5/16	1.3125	4	-	-	-	18	114801	**878.19**	24	114841	**1,510.81**	-	-	-
1-11/32	1.3438	4	14	114741	**806.46**	-	-	-	-	-	-	-	-	-
1-23/64	1.3594	4	-	-	-	18	114802	**982.20**	-	-	-	-	-	-
1-3/8	1.3750	4	14	114742	**824.21**	18	114803	**982.20**	24	114842	**1,644.75**	-	-	-
1-13/32	1.4062	4	14	114743	**858.57**	18	114804	**1,015.56**	-	-	-	-	-	-
1-7/16	1.4375	4	14	114744	**858.57**	18	114805	**1,015.56**	24	114843	**1,692.42**	-	-	-
1-15/32	1.4688	4	-	-	-	18	114806	**1,015.56**	-	-	-	-	-	-
1-1/2	1.5000	4	-	-	-	18	114807	**1,100.94**	24	114844	**1,844.76**	29	114865	**2,672.61**
1-9/16	1.5625	5	-	-	-	17	114808	**1,100.94**	-	-	-	-	-	-
1-5/8	1.6250	5	-	-	-	17	114809	**1,223.33**	23	114845	**2,060.06**	-	-	-
1-11/16	1.6875	5	-	-	-	17	114810	**1,393.29**	-	-	-	-	-	-
1-3/4	1.7500	5	-	-	-	17	114811	**1,557.94**	23	114846	**2,277.03**	29	114866	**3,298.25**
1-25/32	1.7812	5	13	114745	**1,442.41**	-	-	-	-	-	-	-	-	-
1-7/8	1.8750	5	-	-	-	17	114812	**1,913.05**	23	114847	**2,549.22**	-	-	-
1-15/16	1.9375	5	-	-	-	17	114813	**2,101.86**	-	-	-	-	-	-

Size	Decimal Equiv.	Morse Taper No.	Flute Length	20" O.A.L. HSS Code No.	Price $	Flute Length	24" O.A.L. HSS Code No.	Price $	Flute Length	30" O.A.L. HSS Code No.	Price $	Flute Length	36" O.A.L. HSS Code No.	Price $
2	2.0000	5	-	-	-	17	114814	**2,278.59**	23	114848	**2,900.01**	29	114867	**4,415.15**
2-1/16	2.0625	5	-	-	-	17	114815	**2,455.42**	23	114849	**3,200.01**	-	-	-
2-1/8	2.1250	5	-	-	-	17	114816	**2,455.42**	23	114850	**3,200.01**	29	114868	**5,154.97**
2-3/16	2.1875	5	-	-	-	17	114817	**2,698.66**	-	-	-	-	-	-
2-7/32	2.2188	5	13	114746	**2,060.50**	17	114818	**2,939.59**	-	-	-	-	-	-
2-1/4	2.2500	5	-	-	-	17	114819	**2,698.66**	23	114851	**3,433.83**	29	114869	**5,156.64**
2-5/16	2.3125	5	-	-	-	17	114820	**2,942.03**	23	114852	**3,746.16**	-	-	-
2-3/8	2.3750	5	-	-	-	17	114821	**2,942.03**	23	114853	**3,746.16**	29	114870	**6,179.29**
2-7/16	2.4375	5	-	-	-	17	114822	**3,139.92**	23	114854	**3,998.38**	-	-	-
2-1/2	2.5000	5	-	-	-	17	114823	**3,139.92**	23	114855	**3,998.38**	29	114871	**6,179.29**
2-9/16	2.5625	5	-	-	-	17	114824	**3,337.72**	23	114856	**2,692.46**	-	-	-
2-5/8	2.6250	5	-	-	-	17	114825	**3,337.72**	23	114857	**4,244.73**	29	114872	**7,006.04**
2-11/16	2.6875	5	-	-	-	17	114826	**3,614.23**	-	-	-	-	-	-
2-3/4	2.7500	5	-	-	-	17	114827	**3,614.23**	23	114858	**4,598.52**	29	114873	**8,171.95**
2-13/16	2.8125	5	-	-	-	17	114828	**3,890.85**	-	-	-	-	-	-
2-7/8	2.8750	5	-	-	-	17	114829	**3,890.85**	23	114859	**4,859.95**	-	-	-
2-15/16	2.9375	5	-	-	-	17	114830	**4,445.29**	-	-	-	-	-	-
3	3.0000	5	-	-	-	17	114831	**4,445.29**	23	114860	**5,661.54**	29	114874	**9,330.65**
3-1/8	3.1250	5	-	-	-	-	-	-	23	114861	**6,430.74**	29	114875	**9,981.55**
3-1/4	3.2500	5	-	-	-	-	-	-	23	114862	**7,758.40**	29	114876	**12,238.85**
3-3/8	3.3750	5	-	-	-	-	-	-	23	114863	**10,409.07**	29	114877	**17,895.74**
3-1/2	3.5000	5	-	-	-	-	-	-	23	114864	**13,292.11**	29	114878	**21,491.32**

Oil Hole Drills HSS — Straight Shank

STM PREMIUM

These drills are designed with oil holes the length of the land section of the drill to deliver a high pressure oil flow to the cutting edges. The resulting coolant flow flushes chips out of the hole to reduce heat and chip packing problems common to deep hole drilling applications. Surface speeds may be increased 30% or more over standard drill styles.





Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
15/64	0.2344	3-3/8	5-3/4	114879	**380.50**
15/64	0.2344	5-1/8	7-1/2	114880	**425.63**
1/4	0.2500	3-3/4	6-1/8	114881	**379.95**
9/32	0.2812	4	6-3/8	114882	**380.50**
19/64	0.2969	4	6-3/8	114883	**380.50**
5/16	0.3125	4	6-3/8	114884	**380.50**
21/64	0.3281	4-1/8	6-1/2	114885	**380.50**
11/32	0.3438	4-1/8	6-1/2	114886	**380.50**
23/64	0.3594	4-1/4	6-3/4	114887	**380.50**
3/8	0.3750	4-1/4	6-3/4	114888	**380.50**
25/64	0.3906	4-3/8	7	114889	**378.84**
13/32	0.4062	4-3/8	7	114890	**385.83**
27/64	0.4219	4-5/8	7-1/4	114891	**385.83**
7/16	0.4375	4-5/8	7-1/4	114892	**399.79**
29/64	0.4531	4-7/8	7-1/2	114893	**399.79**
15/32	0.4688	4-7/8	7-1/2	114894	**408.33**
31/64	0.4844	5	7-3/4	114895	**408.33**
1/2	0.5000	5	7-3/4	114896	**413.43**
33/64	0.5156	5-1/4	8	114897	**413.43**
17/32	0.5312	5-1/4	8	114898	**405.55**
35/64	0.5469	5-3/8	8-1/4	114899	**419.64**
9/16	0.5625	5-3/8	8-1/4	114900	**429.51**
37/64	0.5781	5-5/8	8-1/2	114901	**429.51**
19/32	0.5938	5-5/8	8-1/2	114902	**434.17**
39/64	0.6094	5-3/4	8-3/4	114903	**434.17**
5/8	0.6250	5-3/4	8-3/4	114904	**455.23**
41/64	0.6406	5-7/8	9	114905	**455.23**
21/32	0.6562	5-7/8	9	114906	**455.23**
43/64	0.6719	6	9-1/4	114907	**455.23**
11/16	0.6875	6	9-1/4	114908	**465.54**
45/64	0.7031	6-3/16	9-1/2	114909	**470.85**
23/32	0.7188	6-3/16	9-1/2	114910	**477.63**
47/64	0.7344	6-3/8	9-3/4	114911	**477.63**
3/4	0.7500	6-3/8	9-3/4	114912	**510.66**
49/64	0.7656	6-1/2	9-7/8	114913	**510.66**
25/32	0.7812	6-1/2	9-7/8	114914	**519.43**
51/64	0.7969	6-5/8	10	114915	**519.43**
13/16	0.8125	6-5/8	10	114916	**531.61**
53/64	0.8281	6-3/4	10-1/4	114917	**531.61**
27/32	0.8438	6-3/8	10-1/4	114918	**542.15**
55/64	0.8594	7	10-1/2	114919	**542.15**
7/8	0.8750	7	10-1/2	114920	**586.83**
57/64	0.8906	7	10-5/8	114921	**586.83**

Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
29/32	0.9062	7	10-5/8	114922	**628.74**
59/64	0.9219	7	10-3/4	114923	**672.30**
15/16	0.9375	7	10-3/4	114924	**672.30**
61/64	0.9531	7-1/8	10-7/8	114925	**705.13**
31/32	0.9688	7-1/8	10-7/8	114926	**705.13**
63/64	0.9844	7-3/16	11	114927	**740.04**
1	1.0000	7-3/16	11	114928	**740.04**
1-1/64	1.0156	7-5/16	11-1/8	114929	**781.64**
1-1/32	1.0312	7-5/16	11-1/8	114930	**781.64**
1-3/64	1.0469	7-3/8	11-1/4	114931	**813.11**
1-1/16	1.0625	7-3/8	11-1/4	114932	**813.11**
1-5/64	1.0781	7-5/8	11-1/2	114933	**846.04**
1-3/32	1.0938	7-5/8	11-1/2	114934	**846.04**
1-7/64	1.1094	7-7/8	11-3/4	114935	**889.07**
1-1/8	1.1250	7-7/8	11-3/4	114936	**889.07**
1-9/64	1.1406	8	11-7/8	114937	**932.75**
1-5/32	1.1562	8	11-7/8	114938	**932.75**
1-11/64	1.1719	8-1/8	12	114939	**976.32**
1-3/16	1.1875	8-1/8	12	114940	**976.32**
1-13/64	1.2031	8-1/8	12-1/8	114941	**1,019.56**
1-7/32	1.2188	8-1/8	12-1/8	114942	**1,019.56**
1-15/64	1.2344	8-1/2	12-1/2	114943	**1,061.35**
1-1/4	1.2500	8-1/2	12-1/2	114944	**1,061.35**
1-17/64	1.2656	9-1/4	14-1/8	114945	**1,129.64**
1-9/32	1.2812	9-1/4	14-1/8	114946	**1,129.64**
1-19/64	1.2969	9-1/4	14-1/4	114947	**1,177.54**
1-5/16	1.3125	9-1/4	14-1/4	114948	**1,177.54**
1-21/64	1.3281	9-1/2	14-3/8	114949	**1,253.38**
1-11/32	1.3438	9-1/2	14-3/8	114950	**1,253.38**
1-23/64	1.3594	9-1/2	14-1/2	114951	**1,322.01**
1-3/8	1.3750	9-1/2	14-1/2	114952	**1,322.01**
1-13/32	1.4062	9-1/2	14-5/8	114953	**1,479.77**
1-7/16	1.4375	9-1/8	14-3/4	114954	**1,479.77**
1-15/32	1.4688	9-1/8	14-7/8	114955	**1,601.18**
1-1/2	1.5000	9-5/8	15	114956	**1,601.18**
1-9/16	1.5625	9-5/8	15-1/4	114957	**1,775.02**
1-5/8	1.6250	9-7/8	15-5/8	114958	**1,921.02**
1-11/16	1.6875	10	15-3/4	114959	**2,182.24**
1-3/4	1.7500	10-1/2	16-1/4	114960	**2,305.19**
1-13/16	1.8125	10-1/2	16-1/4	114961	**2,324.04**
1-7/8	1.8750	10-3/4	16-1/2	114962	**2,555.76**
1-15/16	1.9375	10-3/4	16-5/8	114963	**2,744.79**
2	2.0000	10-3/4	16-5/8	114964	**2,882.70**

Coolant Inducer Socket

For use with taper shank oil hole drills.



Morse Taper Hole and Shank Size	Overall Length	Code No.	Price $
2	6-7/8	114965	**392.91**
3	8-1/2	114966	**406.55**
4	10-1/2	114967	**1,068.01**
5	13-3/4	114968	**2,053.63**

Oil Hole Drills HSS — Taper Shank

Oil Hole Drills feature coolant passages throughout the length of the body. These allow a coolant (air, oil or vapour mist) to reach the cutting edges. The resulting flow cools and lubricates the cutting edges and also aids in the extraction of chips.

- Standard length

118° NOTCHED POINT HSS



Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	HSS Code No.	Price $
3/8	0.3750	3-1/2	7-5/8	2	114969	**629.63**
25/64	0.3906	3-5/8	8	2	114970	**629.63**
13/32	0.4062	3-5/8	8	2	114971	**629.63**
27/64	0.4219	3-7/8	8-1/8	2	114972	**629.63**
7/16	0.4375	3-7/8	8-3/8	2	114973	**629.63**
29/64	0.4531	4-1/8	8-3/4	2	114974	**629.63**
15/32	0.4688	4-1/8	8-3/4	3	114975	**590.16**
31/64	0.4844	4-3/8	9	3	114976	**590.16**
1/2	0.5000	4-3/8	9	3	114977	**590.16**
33/64	0.5156	4-5/8	9-1/4	3	114978	**590.16**
17/32	0.5312	4-5/8	9-1/4	3	114979	**590.16**
35/64	0.5469	4-7/8	9-1/2	3	114980	**590.16**
9/16	0.5625	4-7/8	9-1/2	3	114981	**528.17**
37/64	0.5781	4-7/8	9-1/2	3	114982	**590.16**
19/32	0.5938	4-7/8	9-1/2	3	114983	**528.17**
39/64	0.6094	4-7/8	9-1/2	3	114984	**528.17**
5/8	0.6250	4-7/8	9-1/2	3	114985	**528.17**
41/64	0.6406	5-1/8	9-3/4	3	114986	**528.17**
21/32	0.6562	5-1/8	9-3/4	3	114987	**528.96**
43/64	0.6719	5-3/8	10	3	114988	**536.28**
11/16	0.6875	5-3/8	10	3	114989	**536.28**
45/64	0.7031	5-5/8	10-1/4	3	114990	**543.70**
23/32	0.7188	5-5/8	10-1/4	3	114991	**543.70**
47/64	0.7344	5-7/8	10-1/2	3	114992	**543.70**
3/4	0.7500	5-7/8	10-1/2	3	114993	**543.70**
49/64	0.7656	6	10-5/8	3	114994	**549.02**
25/32	0.7812	6	10-5/8	3	114995	**549.02**
51/64	0.7969	6-1/8	10-3/4	3	114996	**549.02**
13/16	0.8125	6-1/8	10-3/4	3	114997	**549.02**
53/64	0.8281	6-1/8	10-3/4	3	114998	**597.47**
27/32	0.8438	6-1/8	10-3/4	3	114999	**597.47**
55/64	0.8594	6-1/8	10-3/4	3	115800	**597.47**
7/8	0.8750	6-1/8	10-3/4	3	115801	**597.47**
57/64	0.8906	6-1/8	10-3/4	3	115802	**599.25**
29/32	0.9062	6-1/8	10-3/4	3	115803	**599.25**
59/64	0.9219	6-1/8	10-3/4	3	115804	**599.25**
15/16	0.9375	6-1/8	10-3/4	3	115805	**599.25**
61/64	0.9531	6-3/8	11	3	115806	**706.57**
31/32	0.9688	6-3/8	11	3	115807	**706.57**
63/64	0.9844	6-3/8	11	3	115808	**706.57**
1	1.0000	6-3/8	11	3	115809	**706.57**
1-1/64	1.0156	6-1/2	11-1/8	3	115810	**765.43**
1-1/32	1.0312	6-1/2	11-1/8	3	115811	**765.43**
1-3/64	1.0469	6-5/8	11-1/4	3	115812	**765.43**
1-1/16	1.0625	6-5/8	11-1/4	3	115813	**765.43**
1-5/64	1.0781	6-7/8	12-1/2	4	115814	**904.03**
1-3/32	1.0938	6-7/8	12-1/2	4	115815	**904.03**
1-7/64	1.1094	7-1/8	12-3/4	4	115816	**988.73**
1-1/8	1.1250	7-1/8	12-3/4	4	115817	**988.73**
1-9/64	1.1406	7-1/4	12-7/8	4	115818	**988.73**
1-5/32	1.1562	7-1/4	12-7/8	4	115819	**988.73**
1-11/64	1.1719	7-3/8	13	4	115820	**994.94**
1-3/16	1.1875	7-3/8	13	4	115821	**994.94**
1-13/64	1.2031	7-1/2	13-1/8	4	115822	**1,132.08**
1-7/32	1.2188	7-1/2	13-1/8	4	115823	**1,132.08**
1-15/64	1.2344	7-7/8	13-1/2	4	115824	**1,132.08**
1-1/4	1.2500	7-7/8	13-1/2	4	115825	**1,132.08**
1-17/64	1.2656	8-1/2	14-1/8	4	115826	**1,376.22**
1-9/32	1.2812	8-1/2	14-1/8	4	115827	**1,376.22**
1-19/64	1.2969	8-5/8	14-1/4	4	115828	**1,480.66**
1-5/16	1.3125	8-5/8	14-1/4	4	115829	**1,480.66**
1-21-64	1.3281	8-3/4	14-3/8	4	115830	**1,480.66**
1-11/32	1.3438	8-3/4	14-3/8	4	115831	**1,480.66**
1-23/64	1.3594	8-7/8	14-1/2	4	115832	**1,638.87**
1-3/8	1.3750	8-7/8	14-1/2	4	115833	**1,638.87**
1-13/32	1.4062	9	14-5/8	4	115834	**1,638.87**
1-7/16	1.4375	9-1/8	14-3/4	4	115835	**1,638.87**
1-15/32	1.4688	9-1/4	14-7/8	4	115836	**1,710.72**
1-1/2	1.5000	9-3/8	15	4	115837	**1,710.72**
1-9/16	1.5625	9-5/8	15-1/4	4	115838	**1,792.09**
1-5/8	1.6250	10	15-5/8	4	115839	**1,927.35**
1-11/16	1.6875	10-1/8	15-3/4	4	115840	**2,265.61**
1-3/4	1.7500	10-1/8	16	4	115841	**2,333.13**
1-13/16	1.8125	10-1/8	17-1/8	5	115842	**2,434.58**
1-7/8	1.8750	10-3/8	17-3/8	5	115843	**2,569.84**
1-15/16	1.9375	10-3/8	17-3/8	5	115844	**2,721.95**
2	2.0000	10-3/8	17-3/8	5	115845	**2,789.69**

Extra Length Oil Hole Drills

* Shank larger than standard

118° NOTCHED POINT



Size (in.)	Decimal Equiv.	Morse Taper No.	10-1/2" OAL HSS 6" Fl. Code No.	Price $	12-1/2" OAL HSS 8" Fl. Code No.	Price $	14-1/2" OAL HSS 10" Fl. Code No.	Price $
31/64	0.4844	3	115846	**647.71**	-	-	-	-
1/2	0.5000	3	115847	**647.71**	115850	**704.13**	115870	**837.73**
33/64	0.5156	3	115848	**647.71**	115851	**704.13**	115871	**837.73**
17/32	0.5312	3	115849	**647.71**	115852	**704.13**	115872	**837.73**
9/16	0.5625	3	-	-	115853	**704.13**	115873	**837.73**
19/32	0.5938	3	-	-	115854	**704.13**	115874	**837.73**
5/8	0.6250	3	-	-	115855	**704.13**	115875	**837.73**
41/64	0.6406	3	-	-	115856	**704.13**	115876	**837.73**
21/32	0.6562	3	-	-	115857	**704.13**	115877	**837.73**
11/16	0.6875	3	-	-	115858	**704.13**	115878	**837.73**
23/32	0.7188	3	-	-	115859	**704.13**	115879	**837.73**
47/64	0.7344	3	-	-	115860	**704.13**	115880	**837.73**
3/4	0.7500	3	-	-	115861	**704.13**	115881	**837.73**
49/64	0.7656	3	-	-	115862	**739.16**	115882	**870.77**
25/32	0.7812	3	-	-	115863	**739.39**	115883	**869.32**
13/16	0.8125	3	-	-	115864	**739.39**	115884	**869.32**
27/32	0.8438	3	-	-	115865	**758.23**	115885	**894.27**
7/8	0.8750	3	-	-	115866	**767.88**	115886	**894.27**
29/32	0.9062	3	-	-	115867	**767.88**	115887	**911.01**
15/16	0.9375	3	-	-	115868	**767.88**	115888	**911.01**
31/32	0.9688	3	-	-	115869	**808.68**	115889	**945.38**
63/64	0.9844	3	-	-	115890	**1,236.20**	115893	**1,023.66**
1	1.0000	3	-	-	115891	**879.08**	115894	**1,023.66**
1-1/32	1.0312	3	-	-	115892	**1,281.32**	115895	**1,058.46**
1-1/16	1.0625	3	-	-	-	-	115896	**1,058.46**
1-1/8*	1.1250	4	-	-	-	-	115897	**1,327.66**
1-3/16*	1.1875	4	-	-	-	-	115898	**1,424.22**
1-1/4*	1.2500	4	-	-	-	-	115899	**1,579.55**

Taper Shank Core Drills HSS

STM PREMIUM

- Used to open out existing pre-drilled holes
- 4-flute

118° NOTCHED POINT

Size (in.)	Morse Taper No.	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
13/32	1	3-5/8	7	106500	**110.88**
7/16	1	3-7/8	7-1/4	106501	**116.40**
15/32	1	4-1/8	7-1/4	106502	**55.38**
31/64	2	4-3/8	8-1/4	106503	**80.62**
1/2	2	4-3/8	8-1/4	106504	**140.39**
33/64	2	4-5/8	8-1/2	106505	**89.40**
17/32	2	4-5/8	8-1/2	106506	**155.59**
9/16	2	4-7/8	8-3/4	106507	**169.91**
19/32	2	4-7/8	8-3/4	106508	**154.99**
39/64	2	4-7/8	8-3/4	106509	**93.79**
5/8	2	4-7/8	8-3/4	106510	**185.09**
41/64	2	5-1/8	9	106511	**117.66**
21/32	2	5-1/8	9	106512	**204.69**
11/16	2	5-3/8	9-1/2	106513	**219.76**
45/64	2	5-5/8	9-1/2	106514	**121.74**
23/32	2	5-5/8	9-1/2	106515	**240.22**
47/64	2	5-5/8	9-1/2	106516	**146.67**
3/4	2	5-7/8	9-3/4	106517	**255.16**
49/64	2	6	9-7/8	106518	**233.59**
25/32	2	6	9-7/8	106519	**264.57**
51/64	3	6-1/8	10-3/4	106520	**128.83**
13/16	3	6-1/8	10-3/4	106521	**304.14**
27/32	3	6-1/8	10-3/4	106522	**134.93**
55/64	3	6-1/8	10-3/4	106523	**169.74**
7/8	3	6-1/8	10-3/4	106524	**334.65**
29/32	3	6-1/8	10-3/4	106525	**167.64**
59/64	3	6-1/8	10-3/4	106526	**212.72**
15/16	3	6-1/8	10-3/4	106527	**369.94**
61/64	3	6-3/8	11	106528	**193.88**
31/32	3	6-3/8	11	106529	**404.72**
63/64	3	6-3/8	11	106530	**429.71**
1	3	6-3/8	11	106532	**429.71**
1-1/32	3	6-1/2	11-1/8	106533	**227.72**
1-3/64	3	6-5/8	11-1/4	106534	**240.47**
1-1/16	3	6-5/8	11-1/4	106535	**418.64**
1-5/64	4	6-7/8	12-1/2	106536	**304.63**
1-3/32	4	6-7/8	12-1/2	106537	**529.41**
1-1/8	4	7-1/8	12-3/4	106538	**559.04**
1-5/32	4	7-1/4	12-7/8	106539	**598.60**
1-11/64	4	7-3/8	13	106540	**361.53**
1-3/16	4	7-3/8	13	106541	**628.61**
1-13/64	4	7-1/2	13-1/8	106542	**381.86**
1-7/32	4	7-1/2	13-1/8	106543	**663.65**
1-15/64	4	7-1/8	13-1/2	106544	**418.28**
1-1/4	4	7-1/8	13-1/2	106545	**728.06**
1-17/64	4	8-1/2	14-1/8	106546	**422.07**
1-9/32	4	8-1/2	14-1/8	106547	**833.17**
1-5/16	4	8-5/8	14-1/4	106548	**766.11**
1-11/32	4	8-3/4	14-3/8	106549	**432.47**
1-3/8	4	8-7/8	14-1/2	106550	**832.40**
1-13/32	4	9	14-5/8	106551	**448.16**
1-7/16	4	9-1/8	14-3/4	106552	**1,027.43**
1-15/32	4	9-1/4	14-7/8	106553	**452.79**
1-1/2	4	9-3/8	15	106554	**1,117.33**
1-17/32	5	9-3/8	16-3/8	106555	**1,246.17**
1-35/64	5	9-5/8	16-5/8	106556	**600.11**
1-9/16	5	9-5/8	16-5/8	106557	**1,315.99**
1-37/64	5	9-7/8	16-7/8	106558	**632.01**
1-19/32	5	9-7/8	16-7/8	106559	**1,386.68**
1-39/64	5	10	17	106560	**826.14**
1-5/8	5	10	17	106561	**1,435.67**
1-21/32	5	10-1/8	17-1/8	106562	**1,490.41**
1-11/16	5	10-1/8	17-1/8	106563	**1,545.28**
1-23/32	5	10-1/8	17-1/8	106564	**1,595.76**
1-3/4	5	10-1/8	17-1/8	106565	**1,644.99**
1-25/32	5	10-1/8	17-1/8	106566	**1,704.38**
1-13/16	5	10-1/8	17-1/8	106567	**840.08**
1-27/32	5	10-1/8	17-1/8	106568	**1,805.08**
1-7/8	5	10-3/8	17-3/8	106569	**1,904.93**
1-29/32	5	10-3/8	17-3/8	106570	**1,973.73**
1-15/16	5	10-3/8	17-3/8	106571	**2,034.38**
1-31/32	5	10-3/8	17-3/8	106572	**2,098.81**
2	5	10-3/8	17-3/8	106573	**2,158.58**
2-1/32	5	10-3/8	17-3/8	106574	**2,217.97**
2-1/16	5	10-1/4	17-3/8	106575	**2,283.64**
2-1/8	5	10-1/4	17-3/8	106576	**2,402.56**
2-3/16	5	10-1/4	17-3/8	106577	**2,517.20**
2-1/4	5	10-1/8	17-3/8	106578	**2,641.76**
2-5/16	5	10-1/8	17-3/8	106579	**1,603.93**
2-3/8	5	10-1/8	17-3/8	106580	**1,689.94**
2-7/16	5	11-1/4	18-3/4	106581	**3,563.59**
2-1/2	5	11-1/4	18-3/4	106582	**3,686.90**
2-9/16	5	11-7/8	19-1/2	106583	**2,332.36**
2-5/8	5	11-7/8	18-3/4	106584	**4,284.38**
2-11/16	5	12-3/4	20-3/8	106585	**4,732.29**
2-3/4	5	12-3/4	20-3/8	106586	**4,981.67**
2-13/16	5	13-3/8	21-1/8	106587	**5,430.34**
2-7/8	5	13-3/8	21-1/8	106588	**5,728.69**
2-15/16	5	14	21-3/4	106589	**2,909.11**
3	5	14	21-3/4	106590	**3,099.74**

Carbide Tipped Drills

STM PREMIUM

Designed for drilling abrasive and non-ferrous materials such as castings, hard rubber, and copper alloys. **They are NOT recommended for drilling steel or other ferrous materials.**

- High speed steel bodies



118° JOBBERS LENGTH

Fractional Sizes

Size (in.)	Decimal Equiv.	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/8	0.1250	1-5/8	2-3/4	115900	**31.82**
9/64	0.1406	1-3/4	2-7/8	115901	**33.70**
5/32	0.1562	2	3-1/8	115902	**33.70**
11/64	0.1719	2-1/8	3-1/4	115903	**36.04**
3/16	0.1875	2-5/16	3-1/2	115904	**36.04**
13/64	0.2031	2-7/16	3-5/8	115905	**39.25**
7/32	0.2188	2-1/2	3-3/4	115906	**39.25**
15/64	0.2344	2-5/8	3-7/8	115907	**43.13**
1/4	0.2500	2-3/4	4	115908	**42.24**
17/64	0.2656	2-7/8	4-1/8	115909	**50.89**
9/32	0.2812	2-15/16	4-1/4	115910	**49.89**
19/64	0.2969	3-1/16	4-3/8	115911	**54.88**
5/16	0.3125	3-3/16	4-1/2	115912	**53.88**
21/64	0.3281	3-5/16	4-5/8	115913	**58.32**
11/32	0.3438	3-7/16	4-3/4	115914	**57.32**
23/64	0.3594	3-1/2	4-7/8	115915	**62.09**
3/8	0.3750	3-5/8	5	115916	**60.86**
25/64	0.3906	3-3/4	5-1/8	115917	**67.52**
13/32	0.4062	3-7/8	5-1/4	115918	**66.30**
27/64	0.4219	3-15/16	5-3/8	115919	**73.17**
7/16	0.4375	4-1/16	5-1/2	115920	**71.96**
29/64	0.4531	4-3/16	5-5/8	115921	**82.27**
15/32	0.4688	4-5/16	5-3/4	115922	**80.82**
31/64	0.4844	4-3/8	5-7/8	115923	**92.13**
1/2	0.5000	4-1/2	6	115924	**90.35**
33/64	0.5156	4-13/16	6-5/8	115925	**138.47**
17/32	0.5312	4-13/16	6-5/8	115926	**138.47**
35/64	0.5469	4-13/16	6-5/8	115927	**140.13**
9/16	0.5625	4-13/16	6-5/8	115928	**140.13**
37/64	0.5781	4-13/16	6-5/8	115929	**154.55**
19/32	0.5938	5-3/16	7-1/8	115930	**150.01**
39/64	0.6094	5-3/16	7-1/8	115931	**177.50**
5/8	0.6250	5-3/16	7-1/8	115932	**169.85**
41/64	0.6406	5-3/16	7-1/8	115933	**196.12**
21/32	0.6562	5-3/16	7-1/8	115934	**172.73**
43/64	0.6719	5-5/8	7-5/8	115935	**224.95**
11/16	0.6875	5-5/8	7-5/8	115936	**176.17**

Carbide Tipped Drills — Cont'd



Letter Sizes

Size	Decimal Equiv.	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
A	0.2340	2-5/8	3-7/8	115937	**46.12**
B	0.2380	2-3/4	4	115938	**46.12**
C	0.2420	2-3/4	4	115939	**46.12**
D	0.2460	2-3/4	4	115940	**46.12**
E	0.2500	2-3/4	4	115941	**44.01**
F	0.2570	2-7/8	4-1/8	115942	**52.22**
G	0.2610	2-7/8	4-1/8	115943	**52.88**
H	0.2660	2-7/8	4-1/8	115944	**52.88**
I	0.2720	2-7/8	4-1/8	115945	**52.88**
J	0.2770	2-7/8	4-1/8	115946	**52.32**
K	0.2810	2-15/16	4-1/4	115947	**52.22**
L	0.2900	2-15/16	4-1/4	115948	**52.22**
M	0.2950	3-1/16	4-3/8	115949	**54.99**
N	0.3020	3-1/16	4-3/8	115950	**54.99**
O	0.3160	3-3/16	4-1/2	115951	**54.99**
P	0.3230	3-5/16	4-5/8	115952	**58.76**
Q	0.3320	3-7/16	4-3/4	115953	**58.76**
R	0.3390	3-7/16	4-3/4	115954	**61.09**
S	0.3480	3-1/2	4-7/8	115955	**62.32**
T	0.3580	3-1/2	4-7/8	115956	**62.32**
U	0.3680	3-5/8	5	115957	**62.32**
V	0.3770	3-5/8	5	115958	**63.64**
W	0.3860	3-3/4	5-1/8	115959	**69.40**
X	0.3970	3-3/4	5-1/8	115960	**69.40**
Y	0.4040	3-7/8	5-1/4	115961	**69.40**
Z	0.4130	3-7/8	5-1/4	115962	**79.83**

Wire Gauge Sizes

Size	Decimal Equiv.	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1	0.2280	2-5/8	3-7/8	115963	**40.14**
2	0.2210	2-5/8	3-7/8	115964	**40.14**
3	0.2130	2-1/2	3-3/4	115965	**38.03**
4	0.2090	2-1/2	3-3/4	115966	**38.03**
5	0.2055	2-1/2	3-3/4	115967	**38.03**
6	0.2040	2-1/2	3-3/4	115968	**38.03**
7	0.2010	2-7/16	3-5/8	115969	**38.03**
8	0.1990	2-7/16	3-5/8	115970	**38.03**
9	0.1960	2-7/16	3-5/8	115971	**38.03**
10	0.1935	2-7/16	3-5/8	115972	**38.03**
11	0.1910	2-5/16	3-1/2	115973	**38.03**
12	0.1890	2-5/16	3-1/2	115974	**38.03**
13	0.1850	2-5/16	3-1/2	115975	**36.04**
14	0.1820	2-3/16	3-3/8	115976	**36.04**
15	0.1800	2-3/16	3-3/8	115977	**36.04**
16	0.1770	2-3/16	3-3/8	115978	**36.04**
17	0.1730	2-3/16	3-3/8	115979	**36.04**
18	0.1695	2-1/8	3-1/4	115980	**36.04**
19	0.1660	2-1/8	3-1/4	115981	**36.04**
20	0.1610	2-1/8	3-1/4	115982	**36.04**
21	0.1590	2-1/8	3-1/4	115983	**36.04**
22	0.1570	2	3-1/8	115984	**36.04**
23	0.1540	2	3-1/8	115985	**34.03**
24	0.1520	2	3-1/8	115986	**34.03**
25	0.1495	1-7/8	3	115987	**34.03**
26	0.1470	1-7/8	3	115988	**34.03**
27	0.1440	1-7/8	3	115989	**34.03**
28	0.1405	1-3/4	2-7/8	115990	**34.03**
29	0.1360	1-3/4	2-7/8	115991	**33.37**
30	0.1285	1-5/8	2-3/4	115992	**32.37**
31	0.1200	1-5/8	2-3/4	115993	**32.37**
32	0.1160	1-5/8	2-3/4	115994	**32.37**

Carbide Tipped Drills — Taper Length

STM PREMIUM

- High Speed Steel bodies





Size	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/8	2-3/4	5-1/8	115995	**50.01**
9/64	3	5-3/8	115996	**50.01**
5/32	3	5-3/8	115997	**52.55**
11/64	3-3/8	5-3/4	115998	**53.65**
3/16	3-3/8	5-3/4	115999	**53.65**
5 mm	3-1/2	6-1/4	116000	**56.88**
13/64	3-5/8	6	116001	**56.66**
7/32	3-5/8	6	116002	**56.66**
15/64	3-3/4	6-1/8	116003	**65.08**
"C"	3-1/2	6-1/4	116004	**65.53**
6.3 mm	3-1/2	6-1/4	116005	**71.84**
1/4	3-3/4	6-1/8	116006	**63.97**
"F"	3-1/2	6-1/4	116007	**67.19**
17/64	3-7/8	6-1/4	116008	**73.07**
9/32	3-7/8	6-1/4	116009	**71.84**
19/64	4	6-3/8	116010	**78.83**
5/16	4	6-3/8	116011	**77.38**
"O"	3-1/2	6-1/4	116012	**83.37**
21/64	4-1/8	6-1/2	116013	**86.81**
11/32	4-1/8	6-1/2	116014	**85.25**
23/64	4-1/4	6-3/4	116015	**95.24**
9.4 mm	4	7	116016	**93.69**
3/8	4-1/4	6-3/4	116017	**93.57**
25/64	4-3/8	7	116018	**104.88**
13/32	4-3/8	7	116019	**103.00**
27/64	4-5/8	7-1/4	116020	**120.74**
7/16	4-5/8	7-1/4	116021	**118.52**
29/64	4-3/4	7-1/2	116022	**133.37**
15/32	4-3/4	7-1/2	116023	**130.93**
12 mm	5-1/2	7-1/4	116024	**137.70**
31/64	4-3/4	7-3/4	116025	**139.70**
1/2	4-3/4	7-3/4	116026	**137.04**
33/64	4-3/4	8	116027	**179.94**
17/32	4-3/4	8	116028	**177.50**
35/64	4-7/8	8-1/4	116029	**185.82**
9/16	4-7/8	8-1/4	116030	**179.17**
37/64	4-7/8	8-1/4	116031	**196.12**
19/32	4-7/8	8-1/4	116032	**192.69**
39/64	4-7/8	8-3/4	116033	**130.93**
5/8	4-7/8	8-3/4	116034	**217.87**
41/64	5-1/8	8-3/4	116035	**234.27**
21/32	5-1/8	9	116036	**225.95**
43/64	5-3/8	9	116037	**238.37**
11/16	5-3/8	9-1/4	116038	**229.83**
45/64	5-5/8	9-1/4	116039	**241.03**
23/32	5-5/8	9-1/2	116040	**234.93**
47/64	5-7/8	9-1/2	116041	**245.03**
3/4	5-7/8	9-3/4	116042	**240.03**
49/64	6	9-3/4	116043	**269.86**
25/32	6	9-7/8	116044	**259.77**
51/64	6-1/8	9-7/8	116045	**271.08**
13/16	6-1/8	10	116046	**261.09**
53/64	6-1/8	10	116047	**271.08**
27/32	6-1/8	10	116048	**261.09**
55/64	6-1/8	10	116049	**286.27**
7/8	6-1/8	10	116050	**275.95**
57/64	6-1/8	10	116051	**296.14**
29/32	6-1/8	10	116052	**285.60**
59/64	6-1/8	10-3/4	116053	**297.35**
15/16	6-1/8	10-3/4	116054	**289.58**
61/64	6-3/8	11	116055	**313.21**
31/32	6-3/8	11	116056	**303.35**
63/64	6-3/8	11	116057	**321.08**
1	6-3/8	11	116058	**312.76**

Carbide Tipped Drills — Taper Shank

STM PREMIUM

- High Speed Steel bodies



Size (in.)	Flute Length (in.)	Overall Length (in.)	Morse Taper No.	Code No.	Price $
1/4	2-7/8	6-1/8	1	116059	**87.14**
17/64	3	6-1/4	1	116060	**90.58**
9/32	3	6-1/4	1	116061	**89.02**
19/64	3-1/8	6-3/8	1	116062	**90.58**
5/16	3-1/8	6-3/8	1	116063	**89.02**
21/64	3-1/4	6-1/2	1	116064	**115.08**
11/32	3-1/4	6-1/2	1	116065	**112.86**
23/64	3-1/2	6-3/4	1	116066	**115.08**
3/8	3-1/2	6-3/4	1	116067	**112.86**
25/64	3-5/8	7	1	116068	**133.48**
13/32	3-5/8	7	1	116069	**131.05**
27/64	3-7/8	7-1/4	1	116070	**133.48**
7/16	3-7/8	7-1/4	1	116071	**131.05**
29/64	4-1/8	7-1/2	1	116072	**161.43**
15/32	4-1/8	7-1/2	1	116073	**158.55**
31/64	4-3/8	8-1/4	2	116074	**161.43**
1/2	4-3/8	8-1/4	2	116075	**166.41**
33/64	4-5/8	8-1/2	2	116076	**180.72**
17/32	4-5/8	8-1/2	2	116077	**174.29**
35/64	4-7/8	8-3/4	2	116078	**183.15**
9/16	4-7/8	8-3/4	2	116079	**176.62**
37/64	4-7/8	8-3/4	2	116080	**191.69**
19/32	4-7/8	8-3/4	2	116081	**184.94**
39/64	4-7/8	8-3/4	2	116082	**218.07**
5/8	4-7/8	8-3/4	2	116083	**210.21**
41/64	5-1/8	9	2	116084	**231.28**
21/32	5-1/8	9	2	116085	**222.96**
43/64	5-3/8	9-1/4	2	116086	**223.95**
11/16	5-3/8	9-1/4	2	116087	**216.08**
45/64	5-5/8	9-1/2	2	116088	**230.16**
23/32	5-5/8	9-1/2	2	116089	**221.84**
47/64	5-7/8	9-3/4	2	116090	**234.93**
3/4	5-7/8	9-3/4	2	116091	**226.39**
49/64	6	9-7/8	2	116092	**245.47**
25/32	6-1/8	9-7/8	2	116093	**247.91**
51/64	6-1/8	10-3/4	3	116094	**253.44**
13/16	6-1/8	10-3/4	3	116095	**268.96**
53/64	6-1/8	10-3/4	3	116096	**289.48**
27/32	6-1/8	10-3/4	3	116097	**288.04**
55/64	6-1/8	10-3/4	3	116098	**272.85**
7/8	6-1/8	10-3/4	3	116099	**272.85**
57/64	6-1/8	10-3/4	3	116100	**279.83**
29/32	6-1/8	10-3/4	3	116101	**279.83**
59/64	6-1/8	10-3/4	3	116102	**292.14**
15/16	6-1/8	10-3/4	3	116103	**292.14**
61/64	6-3/8	11	3	116104	**313.54**
31/32	6-3/8	11	3	116105	**309.10**
63/64	6-3/8	11	3	116106	**313.54**
1	6-3/8	11	3	116107	**304.22**
1-1/32	6-1/2	11-1/8	3	116108	**375.96**
1-1/16	6-5/8	11-1/4	4	116109	**380.96**
1-3/32	6-7/8	12-1/2	4	116110	**412.10**
1-1/8	7-1/8	12-3/4	4	116111	**422.41**
1-5/32	7-1/4	12-7/8	4	116112	**478.19**
1-3/16	7-3/8	13	4	116113	**483.06**
1-7/32	7-1/2	13-1/8	4	116114	**511.12**
1-1/4	7-7/8	13-1/2	4	116115	**517.65**

Die Drills — Carbide Tipped

STM PREMIUM

Negative angle cutting edge for extra strength and for drilling hardened steel.
* Solid carbide



Size	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/16*	-	1-1/2	116116	**34.03**
5/64*	-	1-1/2	116117	**34.03**
3/32*	-	2	116118	**38.47**
7/64*	-	2	116119	**38.47**
1/8*	-	2	116120	**38.47**
9/64*	-	2	116121	**41.02**
5/32*	-	2	116122	**47.34**
11/64	1-1/2	3-1/2	116123	**71.40**
3/16	1-1/2	3-1/2	116124	**71.40**
13/64	1-3/4	3-3/4	116125	**73.50**
7/32	1-3/4	3-3/4	116126	**73.50**
15/64	2	4	116127	**76.28**
1/4	2	4	116128	**76.28**
17/64	2-1/4	4-1/4	116129	**80.49**
9/32	2-1/4	4-1/4	116130	**80.49**
19/64	2-1/2	4-1/2	116131	**84.15**
5/16	2-1/2	4-1/2	116132	**84.15**
21/64	2-3/4	4-3/4	116133	**90.69**
11/32	2-3/4	4-3/4	116134	**90.69**
23/64	3	5	116135	**96.46**
3/8	3	5	116136	**96.46**
25/64	3	5-1/4	116137	**112.42**
13/32	3	5-1/4	116138	**112.65**
27/64	3	5-1/2	116139	**130.60**
7/16	3	5-1/2	116140	**130.60**
29/64	3-1/4	5-3/4	116141	**143.70**
15/32	3-1/4	5-3/4	116142	**143.70**
31/64	3-1/2	6	116143	**168.42**
1/2	3-1/2	6	116144	**168.42**
17/32	3-1/2	6	116145	**203.33**
9/16	3-1/2	6	116146	**203.33**
19/32	4	7	116147	**221.84**
5/8	4	7	116148	**221.84**
21/32	4-1/2	7-1/2	116149	**233.72**
11/16	4-1/2	7-1/2	116150	**240.14**
23/32	4-3/4	8	116151	**256.55**
3/4	4-3/4	8	116152	**258.66**
13/16	4-3/4	8	116153	**445.26**
7/8	4-3/4	8	116154	**463.00**
15/16	4-3/4	8	116155	**512.78**
1	4-3/4	8	116156	**532.40**

RC65 Straight Flute Drills — Carbide Tipped

STM PREMIUM

For drilling and centre drilling heat treated high speed steel up to 65HRC. The special point design provides a free cutting action that minimizes heat and produces a smooth finish.



Size (in.)	Flute Length (in.)	Overall Length (in.)	Approx. RPM	Code No.	Price $
1/8	1/2	3	2000	116157	**128.38**
5/32	1/2	3	1800	116158	**138.70**
3/16	3/4	3-1/4	1600	116159	**120.29**
7/32	1-1/4	3-1/4	1400	116160	**122.62**
1/4	1-1/2	3-1/2	1200	116161	**128.38**
5/16	1-3/4	3-3/4	1000	116162	**135.26**
3/8	2	4	800	116163	**145.68**
7/16	2-1/4	4-1/2	800	116164	**194.91**
1/2	2-1/2	5	700	116165	**235.71**
5/8	2-1/2	5	700	116166	**295.91**

Carbide Tipped Stub Drills

STM PREMIUM

- Carbide tipped



Size	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
1/8	7/8	1-7/8	116167	**53.99**
9/64	15/16	1-15/16	116168	**58.32**
5/32	1	2-1/16	116169	**61.09**
3/16	1-1/8	2-3/16	116170	**65.53**
7/32	1-1/4	2-3/8	116171	**65.96**
1/4	1-3/8	2-1/2	116172	**61.65**
9/32	1-1/2	2-11/16	116173	**84.70**
5/16	1-5/8	2-13/16	116174	**93.57**
3/8	3-1/8	3-1/8	116175	**91.02**
7/16	3-7/16	3-7/16	116176	**122.07**
1/2	2-1/4	3-3/4	116177	**153.89**

Carbide Tipped Masonry Drills

STM PREMIUM

- Straight shank
- Rotary



4" O.A.L.

Size (in.)	Shank Size (in.)	Code No.	Price $
1/8 (3" OAL)	1/8	116178	**7.77**
5/32 (3" OAL)	5/32	116179	**8.21**
11/64 (3" OAL)	11/64	116180	**8.21**
3/16	3/16	116181	**8.31**
7/32	7/32	116182	**8.64**
1/4	1/4	116183	**8.77**
9/32	1/4	116184	**8.98**
5/16	1/4	116185	**9.09**
3/8	1/4	116186	**9.75**
1/2	1/4	116187	**11.42**

6" O.A.L.

Size (in.)	Shank Size (in.)	Code No.	Price $
1/8	1/8	116188	**8.21**
3/16	3/16	116189	**8.54**
1/4	1/4	116190	**8.77**
9/32	1/4	116191	**9.75**
5/16	1/4	116192	**10.09**
3/8	1/4	116193	**10.32**
7/16	1/4	116194	**11.08**
7/16	3/8	116195	**11.08**
1/2	1/4	116196	**12.08**
1/2	3/8	116197	**12.08**
9/16	3/8	116198	**16.63**
9/16	1/2	116199	**16.63**
5/8	1/2	116200	**19.39**
11/16	1/2	116201	**21.07**
3/4	1/2	116202	**22.84**
7/8	1/2	116203	**28.93**
1	1/2	116204	**35.59**
1-1/8	1/2	116205	**50.89**
1-1/4	1/2	116206	**66.19**
1-3/8	1/2	116207	**89.36**
1-1/2	1/2	116208	**91.68**

12" O.A.L.

Size (in.)	Shank Size (in.)	Code No.	Price $
1/8	1/8	116209	**19.29**
3/16	3/16	116210	**19.62**
1/4	1/4	116211	**20.06**
5/16	1/4	116212	**21.28**
3/8	1/4	116213	**23.95**
7/16	3/8	116214	**28.60**
1/2	3/8	116215	**29.26**
9/16	1/2	116216	**33.16**
5/8	1/2	116217	**36.70**
11/16	1/2	116218	**43.02**
3/4	1/2	116219	**44.01**
7/8	1/2	116220	**52.32**
1	1/2	116221	**60.20**
1-1/8	1/2	116222	**75.50**

18" O.A.L.

Size (in.)	Shank Size (in.)	Code No.	Price $
1/4	1/4	116223	**27.50**
3/16	3/16	116224	**28.93**
5/16	1/4	116225	**30.94**
3/8	5/16	116226	**33.16**
7/16	3/8	116227	**39.69**
1/2	3/8	116228	**40.58**
9/16	1/2	116229	**46.90**
5/8	1/2	116230	**49.55**
11/16	1/2	116231	**57.76**
3/4	1/2	116232	**59.20**
7/8	1/2	116233	**71.51**
1	1/2	116234	**81.05**
1-1/8	1/2	116235	**115.41**
1-1/4	1/2	116236	**122.29**
1-1/2	1/2	116237	**158.09**

Solid Carbide Centre Drills

QUALITY IMPORT

MICRO GRAIN CARBIDE | REG LENGTH



Catalog No.	Body Diameter (in.)	Drill Diameter (in.)	Overall Length (in.)	Code No.	Price $
1	1/8	3/64	1-1/4	170700	**33.23**
2	3/16	5/64	1-7/8	170702	**51.54**
3	1/4	7/64	2	170704	**61.48**
4	5/16	1/8	2-1/8	170706	**83.64**
5	7/16	3/16	2-3/4	170708	**126.92**
6	1/2	7/32	3	170710	**173.15**

60° Carbide and HSS Combined Drill & Countersinks

QUALITY IMPORT

- For centering and spot drilling applications when high accuracy is necessary
- Use carbide for highly abrasive or tough materials in production runs



Size	Drill Dia. (in.)	Body Dia. (in.)	HSS	HSS Code No.	Price $	Carbide	Carbide Code No.	Price $
00	0.025	1/8	HS00CD	121810	**23.51**	C00CD	121830	**53.06**
0	0.031	1/8	HS0CD	121812	**21.94**	C0CD	121832	**44.33**
1	3/64	1/8	HS1CD	121814	**15.34**	C1CD	121834	**38.40**
2	5/64	3/16	HS2CD	121816	**16.01**	C2CD	121836	**60.11**
3	7/64	1/4	HS3CD	121818	**16.68**	C3CD	121838	**55.97**
4	1/8	5/16	HS4CD	121820	**17.24**	C4CD	121840	**77.58**
5	3/16	7/16	HS5CD	121822	**27.31**	C5CD	121842	**137.79**
6	7/32	1/2	HS6CD	121824	**41.08**	C6CD	121844	**187.94**
7	1/4	5/8	HS7CD	121826	**72.08**	C7CD	121846	**221.01**
8	5/16	3/4	HS8CD	121828	**94.47**	C8CD	121848	**449.98**

Combined Drills & Countersinks — Regular Length

QUALITY IMPORT

- Plain type
- 60° point



HSS

Size	Body Dia. (in.)	Drill Dia. (in.)	Drill Length (in.)	Overall Length (in.)	Bell Dia.	Code No.	Price $
2	3/16	5/64	5/64	1-7/8	-	125281	**4.16**
3	1/4	7/64	7/64	2	-	125282	**4.16**
4	5/16	1/8	1/8	2-1/8	-	125283	**4.16**
5	7/16	3/16	3/16	2-3/4	-	125284	**10.56**
6	1/2	7/32	7/32	3	-	125285	**16.03**
7	5/8	1/4	1/4	3-1/4	-	125286	**27.34**
8	3/4	5/16	5/16	3-1/2	-	125287	**28.81**
Bell Type							
11	1/8	3/64	3/64	1-1/4	-	125291	**7.42**
12	3/16	1/16	1/16	1-7/8	0.150	125292	**7.42**
13	1/4	3/32	3/32	2	0.200	125293	**7.42**
14	5/16	7/64	7/64	2-1/8	0.250	125294	**7.42**
15	7/16	5/32	5/32	2-3/4	0.350	125295	**13.82**
16	1/2	3/16	3/16	3	0.400	125296	**20.96**
17	5/8	7/32	7/32	3-1/4	0.500	125297	**27.50**

Combined Drills & Countersinks — Long Series

QUALITY IMPORT

- Right hand
- 60° point



HSS

Size	Body Dia. (in.)	Drill Dia. (in.)	Drill Length (in.)	Overall Length (in.)	HSS Code No.	Price $
1	1/8	3/64	3/64	3	125351	**21.48**
1	1/8	3/64	3/64	4	125352	**22.48**
1	1/8	3/64	3/64	5	125353	**22.69**
1	1/8	3/64	3/64	6	125354	**40.18**
2	3/16	5/64	5/64	4	125355	**24.16**
2	3/16	5/64	5/64	5	125356	**28.16**
2	3/16	5/64	5/64	6	125357	**35.75**
3	1/4	7/64	7/64	4	125358	**33.52**
3	1/4	7/64	7/64	5	125359	**32.53**
3	1/4	7/64	7/64	6	125360	**36.75**
4	5/16	1/8	1/8	4	125361	**27.59**
4	5/16	1/8	1/8	5	125362	**34.54**
4	5/16	1/8	1/8	6	125363	**40.11**
4-1/2	3/8	9/64	9/64	4	125364	**30.24**
4-1/2	3/8	9/64	9/64	5	125365	**35.17**
4-1/2	3/8	9/64	9/64	6	125366	**41.97**
5	7/16	3/16	3/16	4	125367	**32.90**
5	7/16	3/16	3/16	5	125368	**35.75**
5	7/16	3/16	3/16	6	125369	**43.62**
6	1/2	7/32	7/32	5	125370	**49.90**
6	1/2	7/32	7/32	6	125371	**48.48**
7	5/8	1/4	1/4	5	125372	**52.63**
7	5/8	1/4	1/4	6	125373	**93.19**
8	3/4	5/16	5/16	6	125374	**102.40**

Combined Drills & Countersinks — Plain Type

STM PREMIUM

- 60° countersink



HSS COBALT CARBIDE

Size	Body Dia. (in.)	Drill Dia./ Length (in.)	O.A.L. (in.)	HSS Code No.	Price $	Cobalt Code No.	Price $	Solid Carbide Code No.	Price $
1	1/8	3/64	1-1/4	116238	**7.77**	116248	**23.29**	116256	**37.03**
2	3/16	5/64	1-7/8	116239	**7.77**	116249	**23.73**	116257	**57.88**
3	1/4	7/64	2	116240	**7.98**	116250	**24.83**	116258	**69.07**
4	5/16	1/8	2-1/8	116241	**8.10**	116251	**25.39**	116259	**94.69**
5	7/16	3/16	2-3/4	116242	**12.08**	116252	**47.34**	116260	**143.57**
6	1/2	7/32	3	116243	**18.07**	116253	**63.53**	116261	**208.66**
7	5/8	1/4	3-1/4	116244	**26.17**	116254	**82.15**	-	**-**
8	3/4	5/16	3-1/2	116245	**36.25**	116255	**117.08**	-	**-**
9	7/8	11/32	3-5/8	116246	**68.07**	-	**-**	-	**-**
10	1	3/8	3-3/4	116247	**89.02**	-	**-**	-	**-**

Combined Drills & Countersinks — Bell Type

STM PREMIUM

- 60° countersink



HSS COBALT

Size	Body Dia. (in.)	Drill Dia./ Length (in.)	O.A.L. (in.)	Bell Dia.	HSS Code No.	Price $	Cobalt Code No.	Price $
11	1/8	3/64	1-1/4	0.1000	116262	**10.32**	116272	**31.37**
12	3/16	1/16	1-7/8	0.1500	116263	**10.32**	116273	**33.16**
13	1/4	3/32	2	0.2000	116264	**10.98**	116274	**32.37**
14	5/16	7/64	2-1/8	0.2500	116265	**10.98**	116275	**39.69**
15	7/16	5/32	2-3/4	0.3500	116266	**17.63**	116276	**46.34**
16	1/2	3/16	3	0.4000	116267	**23.73**	116277	**64.75**
17	5/8	7/32	3-1/4	0.5000	116268	**33.37**	116278	**95.68**
18	3/4	1/4	3-1/2	0.6000	116269	**46.01**	116279	**120.18**
20	1	3/8	3-3/4	0.8000	116271	**88.36**	-	**-**

Combined Drills & Countersinks — Long Series

STM PREMIUM



HSS

Size	Body Dia. (in.)	Drill Dia. (in.)	Overall Length (in.)	HSS Code No.	Price $
1	1/8	3/64	3	116280	**27.93**
1	1/8	3/64	4	116281	**29.26**
1	1/8	3/64	5	116282	**39.25**
1	1/8	3/64	6	116283	**52.45**
2	3/16	5/64	4	116284	**32.16**
2	3/16	5/64	5	116285	**40.69**
2	3/16	5/64	6	116286	**52.45**
3	1/4	7/64	4	116287	**33.70**
3	1/4	7/64	5	116288	**44.35**
3	1/4	7/64	6	116289	**52.45**
4	5/16	1/8	4	116290	**37.03**
4	5/16	1/8	5	116291	**47.34**
4	5/16	1/8	6	116292	**54.66**
4-1/2	3/8	9/64	4	116294	**41.47**
4-1/2	3/8	9/64	5	116295	**50.78**
4-1/2	3/8	9/64	6	116296	**57.88**
5	7/16	3/16	4	116297	**47.45**
5	7/16	3/16	5	116298	**54.21**
5	7/16	3/16	6	116299	**60.76**
6	1/2	7/32	5	116300	**57.09**
6	1/2	7/32	6	116301	**68.97**
7	5/8	1/4	6	116302	**127.16**
8	3/4	5/16	6	116305	**138.70**

60° HSS Combined Drill & Countersinks

SOWA

- 60° countersink



HSS 118°

Size	Body Dia.	Drill Dia.	Drill Length	Overall Length	Code No.	Price $
#000	1/8"	0.020"	0.5-0.8mm	31mm	121907	**11.57**
#00	1/8"	0.025"	0.7-1.0mm	31mm	121908	**10.93**
#0	1/8"	1/32"	0.9-1.2mm	31mm	121910	**10.07**
1	1/8"	3/64"	1.4-1.7mm	31mm	121911	**9.64**
2	3/16"	5/64"	2.4-2.7mm	47mm	121912	**10.07**
3	1/4"	7/64"	3.3-3.9mm	50mm	121913	**10.61**
4	5/16"	1/8"	3.8-4.4mm	54mm	121914	**12.32**
4-1/2	3/8"	9/64"	4.3-4.9mm	63mm	121919	**15.97**
5	7/16"	3/16"	5.9-6.5mm	70mm	121915	**18.21**
6	1/2"	7/32"	6.9-7.5mm	76mm	121916	**24.10**
7	5/8"	1/4"	8.0-8.6mm	82mm	121917	**43.17**
8	3/4"	5/16"	10.0-10.6mm	89mm	121918	**70.70**
Set		**Contents**				
5pcs		#1 - 5			121920	**64.06**

60° Combined Drill & Countersinks - Long Series

SOWA



- 60° countersink

HSS 118°

Size	Body Dia.	Drill Dia.	Drill Length	Overall Length	Code No.	Price $
1	1/8"	3/64"	1.4-1.7mm	4"	121931	**24.74**
2	3/16"	5/64"	2.4-2.7mm	4"	121932	**24.74**
3	1/4"	7/64"	3.3-3.9mm	4"	121933	**27.32**
4	5/16"	1/8"	3.8-4.4mm	4"	121934	**29.36**
5	7/16"	3/16"	5.9-6.5mm	4"	121935	**37.81**

60° HSS Combined Drill & Countersinks TiN Coated

- 60° countersink



TiN | 118°

Size	Body Dia.	Drill Dia.	Drill Length	Overall Length	Code No.	Price $
1	1/8"	3/64"	1.4-1.7mm	31mm	121921	**16.28**
2	3/16"	5/64"	2.4-2.7mm	47mm	121922	**18.21**
3	1/4"	7/64"	3.3-3.9mm	50mm	121923	**20.57**
4	5/16"	1/8"	3.8-4.4mm	54mm	121924	**23.78**
4-1/2	3/8"	9/64"	4.3-4.9mm	63mm	121929	**30.63**
5	7/16"	3/16"	5.9-6.5mm	70mm	121925	**34.49**
6	1/2"	7/32"	6.9-7.5mm	76mm	121926	**41.99**
7	5/8"	1/4"	8.0-8.6mm	82mm	121927	**62.88**
8	3/4'	5/16"	10.0-10.6mm	89mm	121928	**96.84**

Combined Drills & Countersinks HSS — Metric Sizes

- Plain type
- 60° countersink



HSS

Size (mm)	Drill Diameter (in.)	Body Diameter (in.)	Overall Length (in.)	HSS Code No.	Price $
0.50 *	0.0197	1/8	13/16	116306	**21.51**
0.80 *	0.0315	1/8	13/16	116307	**19.96**
1.00	0.0394	1/8	1-1/4	116308	**17.63**
1.25	0.0492	1/8	1-1/4	116309	**17.63**
1.60	0.0630	5/32	1-5/16	116310	**16.85**
2.00	0.0787	0.1969	1-9/16	116311	**18.85**
2.50	0.0984	1/4	1-3/4	116312	**21.28**
3.15	0.1240	0.3150	2	116313	**25.95**
4.00	0.1575	0.3937	2-1/4	116314	**44.35**
5.00	0.1969	0.4921	2-1/2	116315	**61.20**
6.30	0.2480	0.6299	2-3/4	116316	**89.36**
8.00	0.3150	0.7874	3-1/8	116317	**139.14**

* Single end

Missile & Aircraft Series HSS

HSS



Size	Body Dia. (in.)	Drill Dia. (in.)	Drill Length (in.)	Overall Length (in.)	HSS Code No.	Price $
000	1/8	0.020	0.02	1-1/4	116318	**9.31**
00	1/8	0.025	0.025	1-1/4	116319	**9.31**
0	1/8	1/32	1/32	1-1/4	116320	**9.31**

Carbide Tipped Combined Drills & Countersinks

These drills are used for centre drilling hardened high speed steel in the range up to 65HRC.

- 60° countersink



120°

Size	Body Diameter (in.)	Drill Diameter (in.)	Overall Length (in.)	Code No.	Price $
4-1	5/16	3/32	2-1/8	116321	**132.05**
4-2	5/16	1/8	2-1/8	116322	**132.05**
6-1	1/2	7/32	3	116323	**168.63**
6-2	1/2	9/32	3	116324	**168.63**

Spotting & Centering Drills HSS

To provide greater rigidity, these drills are made with short overall and flute lengths.



118°

Size (in.)	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	Right Hand Code No.	Price $	Left Hand Code No.	Price $
3/8	0.3750	1	2	116325	**15.19**	116336	**26.39**
7/16	0.4375	1	2	116326	**24.72**	116337	**35.81**
1/2	0.5000	1	2	116327	**26.50**	116338	**38.47**
5/8	0.6250	1-1/8	2-1/4	116328	**42.13**	116339	**59.87**
3/4	0.7500	1-1/8	2-1/4	116329	**59.87**	116340	**83.49**
7/8	0.8750	1-1/4	2-1/2	116330	**86.15**	116341	**118.08**
1	1.0000	1-1/4	2-1/2	116331	**96.68**	116342	**126.62**
1-1/4	1.2500	2	4	116332	**192.48**	116343	**288.60**
1-1/2	1.5000	2-1/2	5	116333	**300.12**	116344	**405.55**
1-3/4	1.7500	2-3/4	5-1/2	116334	**454.00**	116345	**610.01**
2	2.000	3	6	116335	**538.60**	-	**-**

NC/CNC Spotting Drills HSS

These drills are used for perfect alignment of the follow-on tool.

- Standard length
- Right hand cut



90° | 120°

Size (in.)	Decimal Equiv. (in.)	Overall Length (in.)	90° Flute Length	HSS Code No.	Price $	120° Flute Length	HSS Code No.	Price $
1/4	0.2500	2-1/2	3/4	116346	**36.14**	21/32	116352	**36.60**
3/8	0.3750	3-1/8	1-1/8	116347	**38.81**	1	116353	**39.47**
1/2	0.5000	3-3/4	1-3/8	116348	**49.78**	1-3/16	116354	**50.44**
5/8	0.6250	4-3/8	1-5/8	116349	**65.76**	1-15/32	116355	**65.19**
3/4	0.7500	5	1-7/8	116350	**82.94**	1-3/4	116356	**83.82**
1	1.0000	6	2-1/4	116351	**139.92**	2-3/32	116357	**158.43**

Centre Drills HSS

These drills are used for starting and centering screw machine operations. Their short flute and overall length increase rigidity while minimizing runout.



118°

Size	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
#56	0.0465	3/8	1-3/16	116358	**3.77**
1/16	0.0625	3/8	1-3/16	116359	**3.77**
5/64	0.0781	3/4	1-1/4	116360	**3.77**
3/32	0.0938	3/4	1-1/4	116361	**4.21**
#41	0.0960	3/4	1-1/4	116362	**4.21**
#40	0.0980	3/4	1-1/4	116363	**4.66**
7/64	0.1094	3/4	1-1/4	116364	**4.21**
1/8	0.1250	3/4	1-1/4	116365	**3.44**
#30	0.1285	3/4	1-1/4	116366	**3.67**
9/64	0.1406	3/4	1-1/4	116367	**5.55**
5/32	0.1562	1	1-1/2	116368	**6.10**
#21	0.1590	1	1-1/2	116369	**6.10**
#20	0.1610	1	1-1/2	116370	**6.10**
11/64	0.1719	1	1-1/2	116371	**6.10**
3/16	0.1875	1	1-1/2	116372	**6.10**
13/64	0.2031	1	1-1/2	116373	**6.10**
#5	0.2055	1	1-1/2	116374	**6.10**
7/32	0.2188	1	1-1/2	116375	**6.10**
1/4	0.2500	1	1-1/2	116376	**6.76**
9/32	0.2812	1	1-1/2	116377	**9.31**
5/16	0.3125	1	1-1/2	116378	**11.08**
29/64	0.4531	1	1-1/2	116379	**17.85**

Spotting & Centering Drills HSS



Dia. (in.)	Overall Length (in.)	Flute Length (in.)	HSS Code No.	Price $
7/16	2	1	144312	**28.13**
5/8	2-1/4	1-1/8	144314	**32.40**
3/4	2-1/4	1-1/8	144315	**49.10**
7/8	2-1/2	1-1/4	144316	**113.26**
1	2-1/2	1-1/4	144317	**150.57**
1-1/4	4	2	144318	**223.40**
1-1/2	5	2-1/2	144319	**329.62**

90° HSS Stub NC Spot Drills



Dia. (in.)	Overall Length (in.)	Flute Length (in.)	Overall Length	Code No.	Price $
1/8"	1-1/4"	0.380"	32mm	121939	**12.96**
3/16"	1-3/8"	0.500"	35mm	121940	**14.24**
1/4"	1-1/2"	0.640"	38mm	121941	**14.78**
5/16"	1-1/2"	0.640"	38mm	121942	**18.21**
3/8"	2"	1"	51mm	121943	**19.82**
7/16"	2"	1"	51mm	121944	**26.35**
1/2"	2"	1"	51mm	121945	**31.38**
5/8"	2-1/4"	1-1/8"	57mm	121946	**54.31**
3/4"	2-1/4"	1-1/8"	57mm	121947	**72.31**
7/8"	2-1/2"	1-1/4"	64mm	121948	**91.91**
1"	2-1/2"	1-1/4"	64mm	121949	**111.62**

118° HSS Stub NC Spot Drills



Dia. (in.)	Overall Length (in.)	Flute Length (in.)	Overall Length	Code No.	Price $
1/8"	1-1/4"	0.380"	32mm	121950	**12.96**
3/16"	1-3/8"	0.500"	35mm	121951	**14.24**
1/4"	1-1/2"	0.640"	38mm	121952	**14.78**
5/16"	1-1/2"	0.640"	38mm	121953	**18.21**
3/8"	2"	1"	51mm	121954	**19.82**
7/16"	2"	1"	51mm	121956	**26.35**
1/2"	2"	1"	51mm	121957	**31.38**
5/8"	2-1/4"	1-1/8"	57mm	121958	**54.31**
3/4"	2-1/4"	1-1/8"	57mm	121959	**72.31**
7/8"	2-1/2"	1-1/4"	64mm	121960	**91.91**
1"	2-1/2"	1-1/4"	64mm	121961	**111.62**

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Vent Drills HSS

These drills are used for the tire mould industry.

Size	Decimal Equiv. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Code No.	Price $
74	0.0225	1	2	116380	**7.77**
74	0.0225	1	3	116381	**8.64**
73	0.0240	5/8	1-1/2	116382	**8.21**
69	0.0292	2	3	116383	**9.20**
68	0.0320	2	6	116384	**13.97**
60	0.0400	3	4	116385	**8.77**
58	0.0420	3	4	116386	**8.31**
57	0.0430	4	6	116387	**12.08**
57	0.0430	2	3	116388	**7.77**
57	0.0430	3	4	116389	**9.54**
3/64	0.0469	2	3	116390	**8.10**
55	0.0520	2-1/4	3	116391	**8.31**
55	0.0520	2-1/2	4-1/2	116392	**10.09**
55	0.0520	3	4	116393	**9.75**
55	0.0520	3-1/2	6-1/4	116394	**11.64**
54	0.0550	4	6	116395	**12.64**
1/16	0.0625	2-1/2	3-1/2	116396	**9.20**
1/16	0.0625	3	4	116397	**9.98**
1/16	0.0625	4	5	116398	**13.08**
1/16	0.0625	4	6	116400	**13.53**
52	0.0635	4	5	116401	**11.64**
50	0.0700	3	4	116402	**10.20**
50	0.0700	3	5	116403	**11.75**
50	0.0700	4	6	116404	**13.97**

Drill & Reamer Blanks HSS

Made from hardened (63-65 HRC) high speed steel and ground, can be used as punches, gauges, pins or ground for special tools.



Drill Blanks

- to 1/2" + 0.0000/ - 0.0003", to 1 " + 0.0000"/ - 0.0005"

Reamer Blanks

- + 0.0002"/ - 0.0000"

Fractional Sizes

Size	Decimal Equiv. (in.)	Overall Length (in.)	Drill Blank Code No.	Price $	Reamer Blank Code No.	Price $
1/64	0.0156	3/4	116405	**3.77**	116670	**3.77**
1/32	0.0312	1-3/8	116406	**3.77**	116671	**3.77**
3/64	0.0469	1-3/4	116407	**4.10**	116672	**4.10**
1/16	0.0625	1-7/8	116408	**3.87**	116673	**3.87**
5/64	0.0781	2	116409	**4.21**	116674	**4.21**
3/32	0.0938	2-1/4	116410	**4.10**	116675	**4.10**
7/64	0.1094	2-5/8	116411	**4.21**	116676	**4.21**
1/8	0.1250	2-3/4	116412	**3.87**	116677	**3.87**
9/64	0.1406	2-7/8	116413	**4.21**	116678	**4.21**
5/32	0.1562	3-1/8	116414	**4.66**	116679	**4.66**
11/64	0.1719	3-1/4	116415	**4.66**	116680	**4.66**
3/16	0.1875	3-1/2	116416	**5.10**	116681	**5.10**
13/64	0.2031	3-5/8	116417	**6.65**	116682	**6.65**
7/32	0.2188	3-3/4	116418	**6.65**	116683	**6.65**
15/64	0.2344	3-7/8	116419	**7.54**	116684	**7.54**
1/4	0.2500	4	116420	**7.77**	116685	**7.77**
17/64	0.2656	4-1/8	116421	**8.77**	116686	**8.77**
9/32	0.2812	4-1/4	116422	**9.54**	116687	**9.54**
19/64	0.2969	4-3/8	116423	**10.53**	116688	**10.53**
5/16	0.3125	4-1/2	116424	**10.20**	116689	**10.20**
21/64	0.3281	4-5/8	116425	**11.75**	116690	**11.75**
11/32	0.3438	4-3/4	116426	**12.64**	116691	**12.64**
23/64	0.3594	4-7/8	116427	**14.19**	116692	**14.19**
3/8	0.3750	5	116428	**14.97**	116693	**14.97**
25/64	0.3906	5-1/8	116429	**16.18**	116694	**16.18**
13/32	0.4062	5-1/4	116430	**17.63**	116695	**17.63**
27/64	0.4219	5-3/8	116431	**19.85**	116696	**19.85**
7/16	0.4375	5-1/2	116432	**21.73**	116697	**21.73**
29/64	0.4531	5-5/8	116433	**22.84**	116698	**22.84**

Drill & Reamer Blanks HSS — Cont'd

Fractional Sizes

Size	Decimal Equiv. (in.)	Overall Length (in.)	Drill Blank Code No.	Price $	Reamer Blank Code No.	Price $
15/32	0.4688	5-3/4	116434	**23.29**	116699	**23.29**
31/64	0.4844	5-7/8	116435	**26.39**	116700	**26.39**
1/2	0.5000	6	116436	**26.50**	116701	**26.50**
33/64	0.5156	6	116437	**41.47**	-	-
17/32	0.5312	6	116438	**43.46**	-	-
35/64	0.5469	6	116439	**41.47**	-	-
9/16	0.5625	6	116440	**45.34**	-	-
37/64	0.5781	6	116441	**51.89**	-	-
19/32	0.5938	6	116442	**51.89**	-	-
39/64	0.6094	6	116443	**50.89**	-	-
5/8	0.6250	6	116444	**50.89**	-	-
41/64	0.6406	6	116445	**59.87**	-	-
21/32	0.6562	6	116446	**59.87**	-	-
43/64	0.6719	6	116447	**65.76**	-	-
11/16	0.6875	6	116448	**65.76**	-	-
45/64	0.7031	6	116449	**65.76**	-	-
23/32	0.7188	6	116450	**65.76**	-	-
47/64	0.7344	6	116451	**68.07**	-	-
3/4	0.7500	6	116452	**68.07**	-	-
49/64	0.7656	6	116453	**74.40**	-	-
25/32	0.7812	6	116454	**74.40**	-	-
51/64	0.7969	6	116455	**79.05**	-	-
13/16	0.8125	6	116456	**79.05**	-	-
53/64	0.8281	6	116457	**87.81**	-	-
27/32	0.8438	6	116458	**87.81**	-	-
55/64	0.8594	6	116459	**93.13**	-	-
7/8	0.8750	6	116460	**93.13**	-	-
57/64	0.8906	6	116461	**101.44**	-	-
29/32	0.9062	6	116462	**101.44**	-	-
59/64	0.9219	6	116463	**107.55**	-	-
15/16	0.9375	6	116464	**107.55**	-	-
61/64	0.9531	6	116465	**111.87**	-	-
31/32	0.9688	6	116466	**111.87**	-	-
63/64	0.9844	6	116467	**117.85**	-	-
1	1.0000	6	116468	**117.85**	-	-

Letter Sizes

Size	Decimal Equiv. (in.)	Overall Length (in.)	Drill Blank Code No.	Price $	Reamer Blank Code No.	Price $
A	0.2340	3-7/8	116469	**7.77**	116495	**7.77**
B	0.2380	4	116470	**7.77**	116496	**7.77**
C	0.2420	4	116471	**7.77**	116497	**7.77**
D	0.2460	4	116472	**7.77**	116498	**7.77**
E	0.2500	4	116473	**7.77**	116499	**7.77**
F	0.2570	4-1/8	116474	**8.64**	116500	**8.64**
G	0.2610	4-1/8	116475	**8.64**	116501	**8.64**
H	0.2660	4-1/8	116476	**8.64**	116502	**8.64**
I	0.2720	4-1/8	116477	**9.31**	116503	**9.31**
J	0.2770	4-1/8	116478	**9.31**	116504	**9.31**
K	0.2810	4-1/4	116479	**7.98**	116505	**9.64**
L	0.2900	4-1/4	116480	**9.64**	116506	**9.64**
M	0.2950	4-3/8	116481	**10.75**	116507	**10.75**
N	0.3020	4-3/8	116482	**10.75**	116508	**10.75**
O	0.3160	4-1/2	116483	**10.65**	116509	**10.65**
P	0.3230	4-5/8	116484	**11.53**	116510	**11.53**
Q	0.3320	4-3/4	116485	**11.53**	116511	**11.53**
R	0.3390	4-3/4	116486	**12.97**	116512	**12.97**
S	0.3480	4-7/8	116487	**14.85**	116513	**14.85**
T	0.3580	4-7/8	116488	**14.85**	116514	**14.85**
U	0.3680	5	116489	**15.63**	116515	**15.63**
V	0.3770	5	116490	**15.63**	116516	**15.63**
W	0.3860	5-1/8	116491	**16.96**	116517	**16.96**
X	0.3970	5-1/8	116492	**16.96**	116518	**16.96**
Y	0.4040	5-1/4	116493	**18.41**	116519	**18.41**
Z	0.4130	5-1/4	116494	**18.41**	116520	**18.41**

Wire Gauge Sizes

Size	Decimal Equiv. (in.)	Overall Length (in.)	Drill Blank Code No.	Price $	Reamer Blank Code No.	Price $
1	0.2280	3-7/8	116521	**6.32**	116601	**6.32**
2	0.2210	3-7/8	116522	**6.32**	116602	**6.32**
3	0.2130	3-3/4	116523	**6.32**	116603	**6.32**
4	0.2090	3-3/4	116524	**6.32**	116604	**6.32**
5	0.2055	3-3/4	116525	**6.32**	116605	**6.32**
6	0.2040	3-3/4	116526	**6.21**	116606	**6.21**
7	0.2010	3-5/8	116527	**6.21**	116607	**6.21**
8	0.1990	3-5/8	116528	**6.21**	116608	**6.21**
9	0.1960	3-5/8	116529	**6.21**	116609	**6.21**
10	0.1935	3-5/8	116530	**6.21**	116610	**6.21**
11	0.1910	3-1/2	116531	**4.87**	116611	**4.87**
12	0.1890	3-1/2	116532	**4.87**	116612	**4.87**
13	0.1850	3-1/2	116533	**4.87**	116613	**4.87**
14	0.1820	3-3/8	116534	**4.87**	116614	**4.87**
15	0.1800	3-3/8	116535	**4.87**	116615	**4.87**
16	0.1770	3-3/8	116536	**4.33**	116616	**4.33**
17	0.1730	3-3/8	116537	**4.33**	116617	**4.33**
18	0.1695	3-1/4	116538	**4.33**	116618	**4.33**
19	0.1660	3-1/4	116539	**4.33**	116619	**4.33**
20	0.1610	3-1/4	116540	**4.33**	116620	**4.33**
21	0.1590	3-1/4	116541	**4.33**	116621	**4.33**
22	0.1570	3-1/8	116542	**4.33**	116622	**4.33**
23	0.1540	3-1/8	116543	**4.33**	116623	**4.33**
24	0.1520	3-1/8	116544	**4.33**	116624	**4.33**
25	0.1495	3	116545	**4.33**	116625	**4.33**
26	0.1470	3	116546	**3.87**	116626	**3.87**
27	0.1440	3	116547	**3.87**	116627	**3.87**
28	0.1405	2-7/8	116548	**3.87**	116628	**3.87**
29	0.1360	2-7/8	116549	**3.87**	116629	**3.87**
30	0.1285	2-3/4	116550	**3.87**	116630	**3.87**
31	0.1200	2-3/4	116551	**3.87**	116631	**3.87**
32	0.1160	2-3/4	116552	**3.87**	116632	**3.87**
33	0.1130	2-5/8	116553	**3.87**	116633	**3.87**
34	0.1110	2-5/8	116554	**3.87**	116634	**3.87**
35	0.1100	2-5/8	116555	**3.87**	116635	**3.87**
36	0.1065	2-1/2	116556	**3.87**	116636	**3.87**
37	0.1040	2-1/2	116557	**3.87**	116637	**3.87**
38	0.1015	2-1/2	116558	**3.87**	116638	**3.87**
39	0.0995	2-3/8	116559	**3.87**	116639	**3.87**
40	0.0980	2-3/8	116560	**3.87**	116640	**3.87**
41	0.0960	2-3/8	116561	**3.77**	116641	**3.77**
42	0.0935	2-1/4	116562	**3.77**	116642	**3.77**
43	0.0890	2-1/4	116563	**3.77**	116643	**3.77**
44	0.0860	2-1/8	116564	**3.77**	116644	**3.77**
45	0.0820	2-1/8	116565	**3.77**	116645	**3.77**
46	0.0810	2-1/8	116566	**3.77**	116646	**3.77**
47	0.0785	2	116567	**3.77**	116647	**3.77**
48	0.0760	2	116568	**3.77**	116648	**3.77**
49	0.0730	2	116569	**3.77**	116649	**3.77**
50	0.0700	2	116570	**3.77**	116650	**3.77**
51	0.0670	2	116571	**3.67**	116651	**3.67**
52	0.0635	1-7/8	116572	**3.67**	116652	**3.67**
53	0.0595	1-7/8	116573	**3.67**	116653	**3.67**
54	0.0550	1-7/8	116574	**3.67**	116654	**3.67**
55	0.0520	1-7/8	116575	**3.67**	116655	**3.67**
56	0.0465	1-3/4	116576	**3.67**	116656	**3.67**
57	0.0430	1-3/4	116577	**3.67**	116657	**3.67**
58	0.0420	1-5/8	116578	**3.67**	116658	**3.67**
59	0.0410	1-5/8	116579	**3.67**	116659	**3.67**
60	0.0400	1-5/8	116580	**3.67**	116660	**3.67**
61	0.0390	1-5/8	116581	**3.67**	-	-
62	0.0380	1-1/2	116582	**3.67**	-	-
63	0.0370	1-1/2	116583	**3.67**	-	-
64	0.0360	1-1/2	116584	**3.67**	-	-
65	0.0350	1-1/2	116585	**3.67**	-	-
66	0.0330	1-3/8	116586	**3.67**	-	-
67	0.0320	1-3/8	116587	**3.67**	-	-
68	0.0310	1-3/8	116588	**3.67**	-	-
69	0.0292	1-3/8	116589	**3.67**	-	-
70	0.0280	1-1/4	116590	**3.67**	-	-
71	0.0260	1-1/4	116591	**3.67**	-	-
72	0.0250	1-1/8	116592	**3.67**	-	-
73	0.0240	1-1/8	116593	**3.67**	-	-
74	0.0225	1	116594	**3.67**	-	-
75	0.0210	1	116595	**3.67**	-	-
76	0.0200	7/8	116596	**3.67**	-	-
77	0.0180	7/8	116597	**3.67**	-	-
78	0.0160	7/8	116598	**3.67**	-	-
79	0.0145	3/4	116599	**3.67**	-	-
80	0.0135	3/4	116600	**3.67**	-	-

HSS (M4) Spade Drill

For general purpose applications in a variety of materials and for drilling in applications where added toughness is required such as unstable set ups on manual machines or cross hole drilling.





Speeds & Feeds ➤ P. B52-53

Series Min. to Max	Diameter Inch Metric	Diameter Decimal (in.)	TiN Coated Code No.	Price $	TiAlN Coated Code No.	Price $
1 0.690" to 0.960" (5/32") Thick	45/64"	0.7031	162360	**48.04**	162500	**57.63**
	18mm	0.7087	162361	**47.99**	162501	**57.63**
	23/32"	0.7188	162362	**48.04**	162502	**57.63**
	18.50mm	0.7283	162363	**47.99**	162503	**57.63**
	47/64"	0.7344	162364	**48.04**	162504	**57.63**
	19mm	0.7480	162365	**48.04**	162505	**57.63**
	3/4"	0.7500	162366	**48.04**	162506	**57.68**
	49/64"	0.7656	162368	**48.04**	162508	**57.63**
	19.50mm	0.7677	162369	**47.99**	162509	**57.63**
	25/32"	0.7813	162370	**48.04**	162510	**57.63**
	20.00mm	0.7874	162371	**48.04**	162511	**57.68**
	51/64"	0.7969	162373	**48.04**	162513	**57.63**
	20.50mm	0.8071	162375	**48.04**	162515	**57.68**
	13/16"	0.8125	162372	**48.04**	162512	**57.68**
	21mm	0.8268	162377	**48.04**	162517	**57.63**
	27/32"	0.8438	162374	**48.04**	162514	**57.63**
	55/64"	0.8594	162379	**47.99**	162519	**57.63**
	22mm	0.8661	162381	**47.99**	162521	**57.68**
	7/8"	0.8750	162376	**48.04**	162516	**57.68**
	23mm	0.9055	162385	**48.04**	162525	**57.63**
	29/32"	0.9063	162378	**48.04**	162518	**57.68**
	59/64"	0.9219	162380	**48.04**	162520	**57.63**
	15/16"	0.9375	162382	**48.04**	162522	**57.68**
	24mm	0.9449	162387	**48.04**	162527	**57.68**
2 0.961" to 1.380" (3/16") Thick	31/32"	0.9688	162384	**56.60**	162524	**67.76**
	63/64"	0.9843	162386	**56.60**	162526	**67.70**
	1"	1.0000	162388	**56.60**	162528	**67.76**
	1-1/64"	1.0156	162390	**56.60**	162530	**67.70**
	26mm	1.0236	162391	**56.60**	162531	**67.70**
	1-1/32"	1.0313	162392	**56.60**	162532	**67.76**
	1-3/64"	1.0469	162393	**56.56**	162533	**67.70**
	1-1/16"	1.0625	162394	**56.60**	162534	**67.76**
	27mm	1.0630	162395	**56.56**	162535	**67.70**
	1-3/32"	1.0938	162396	**56.60**	162536	**67.76**
	28mm	1.1024	162397	**56.60**	162537	**67.70**
	1-7/64"	1.1094	162399	**56.60**	162539	**67.70**
	1-1/8"	1.1250	162398	**56.60**	162538	**67.76**
	29mm	1.1417	162403	**56.60**	162541	**70.31**
	1-5/32"	1.1563	162400	**56.60**	162540	**67.70**
	30mm	1.1811	162404	**56.56**	162543	**67.76**
	1-3/16"	1.1875	162401	**56.60**	162542	**67.76**
	1-7/32"	1.2188	162402	**56.60**	162544	**67.76**
	31mm	1.2205	162405	**58.74**	162545	**67.70**
	1-1/4"	1.2500	162406	**56.60**	162546	**67.76**
	32mm	1.2598	162407	**56.60**	162547	**67.70**
	1-9/32"	1.2813	162408	**56.60**	162548	**67.76**
	33mm	1.2992	162409	**58.74**	162549	**67.76**
	1-5/16"	1.3125	162410	**56.60**	162550	**67.76**
	34mm	1.3386	162411	**56.60**	162551	**67.70**
	1-11/32"	1.3438	162412	**56.60**	162552	**67.76**
	1-3/8"	1.3750	162414	**56.60**	162554	**67.76**
	35mm	1.3780	162415	**56.56**	162555	**67.70**
3 1.353" to 1.882" (1/4") Thick	1-13/32"	1.4063	162416	**70.23**	162558	**84.41**
	36mm	1.4173	162417	**70.16**	162559	**84.41**
	1-7/16"	1.4375	162418	**70.23**	162560	**84.49**
	37mm	1.4567	162419	**70.23**	162561	**84.41**
	1-15/32"	1.4688	162420	**70.23**	162562	**84.49**
	38mm	1.4961	162421	**70.23**	162563	**84.49**
	1-1/2"	1.5000	162422	**70.23**	162564	**84.49**
	1-17/32"	1.5313	162424	**70.23**	162566	**84.41**
	39mm	1.5354	162425	**70.23**	162567	**84.41**
	1-9/16"	1.5625	162426	**70.23**	162568	**84.49**
3 1.353" to 1.882" (1/4") Thick	40mm	1.5748	162427	**70.16**	162569	**84.41**
	1-19/32"	1.5938	162428	**70.16**	162570	**84.49**
	41mm	1.6142	162429	**79.71**	162571	**84.41**
	1-5/8"	1.6250	162430	**70.23**	162572	**84.49**
	42mm	1.6535	162431	**70.16**	162573	**84.41**
	1-21/32"	1.6563	162432	**70.23**	162574	**84.41**
	1-11/16"	1.6875	162434	**70.23**	162576	**84.49**
	43mm	1.6929	162435	**70.16**	162577	**84.49**
	1-23/32"	1.7188	162436	**70.23**	162578	**84.49**
	44mm	1.7323	162437	**70.23**	162579	**84.41**
	1-3/4"	1.7500	162438	**70.23**	162580	**84.49**
	45mm	1.7717	162439	**70.16**	162581	**84.41**
	1-25/32"	1.7813	162440	**70.16**	162582	**84.49**
	46mm	1.8110	162441	**70.16**	162583	**84.41**
	1-13/16"	1.8125	162442	**70.23**	162584	**84.41**
	1-27/32"	1.8438	162444	**70.16**	162586	**84.41**
	47mm	1.8504	162445	**70.16**	162587	**84.41**
	1-7/8"	1.8750	162446	**70.23**	162588	**84.49**
4 1.850" to 2.570" (5/16") Thick	1-29/32"	1.9063	162448	**83.23**	162590	**99.92**
	1-15/16"	1.9375	162450	**83.31**	162592	**118.29**
	1-31/32"	1.9688	162452	**83.31**	162594	**99.92**
	2"	2.0000	162454	**83.31**	162596	**99.92**
	2-1/32"	2.0313	162456	**83.31**	162598	**99.84**
	2-3/64"	2.0472	162458	**83.23**	162600	**99.84**
	2-1/16"	2.0625	162460	**83.31**	162602	**99.84**
	2-3/32"	2.0938	162462	**86.43**	162604	**99.84**
	2-1/8"	2.1250	162464	**83.31**	162606	**99.92**
	2-5/32"	2.1563	162466	**83.31**	162608	**99.84**
	2-3/16"	2.1875	162468	**83.31**	162610	**99.84**
	2-7/32"	2.2188	162470	**83.23**	162612	**99.92**
	2-1/4"	2.2500	162472	**83.31**	162614	**99.92**
	2-9/32"	2.2813	162474	**83.23**	162616	**99.84**
	2-5/16"	2.3125	162476	**83.31**	162618	**99.84**
	2-11/32"	2.3438	162478	**83.23**	162620	**99.84**
	2-3/8"	2.3750	162480	**83.31**	162622	**99.92**
	2-13/32"	2.4063	162482	**83.23**	162624	**99.84**
	2-7/16"	2.4375	162484	**83.31**	162626	**99.92**
	2-15/32"	2.4688	162486	**83.31**	162628	**99.92**
	2-1/2"	2.5000	162488	**83.31**	162630	**99.92**
	2-17/32"	2.5313	162490	**83.31**	162632	**99.92**
	2-9/16"	2.5625	162492	**83.31**	162634	**99.92**
5 2.456" to 3.000" (7/16") Thick	2-1/2"	2.5000	162900	**120.96**	TiAlN not stocked but available on request.	
	2-5/8"	2.6250	162912	**120.96**		
	2-3/4"	2.7500	162922	**120.96**		
	2-25/32"	2.7813	162926	**120.96**		
	2-13/16"	2.8125	162928	**120.96**		
	2-27/32"	2.8438	162932	**120.83**		
	2-7/8"	2.8750	162934	**120.96**		
	2-29/32"	2.9063	162936	**83.23**		
	2-15/16"	2.9375	162940	**120.96**		
	2-31/32"	2.9688	162942	**120.96**		
	3"	3.0000	162946	**120.96**		
6 3.001" to 3.507" (7/16") Thick	3-1/16"	3.0625	162950	**139.91**		
	3-1/8"	3.1250	162956	**139.91**		
	3-1/4"	3.2500	162968	**139.91**		
	3-3/8"	3.3750	162978	**139.91**		
	3-7/16"	3.4375	162984	**139.91**		
	3-1/2"	3.5000	162990	**139.91**		
7 3.455" to 4.0" (7/16") Thick	3-9/16"	3.5625	162991	**167.21**		
	3-5/8"	3.6250	163002	**167.21**		
	3-3/4"	3.7500	163012	**167.36**		
	3-7/8"	3.8750	163024	**167.36**		
	4"	4.0000	163034	**167.36**		

Super HSCO (T15) Spade Drill

For drilling in high alloy materials and exotic materials, T15 may also be used in general purpose applications where increased speeds and enhanced wear resistance is required.







Speeds & Feeds ➤ P. B52-53

Series Min. to Max	Diameter Inch Metric	Diameter Decimal (in.)	TiN Coated Code No.	Price $	TiAlN Coated Code No.	Price $
Y 0.374" to 0.436" (3/32") Thick	9.50mm	0.3740	161999	**44.60**	162179	**53.56**
	3/8"	0.3750	162000	**44.60**	162180	**53.62**
	9.80mm	0.3860	162001	**44.56**	162181	**53.62**
	25/64"	0.3906	162002	**44.60**	162182	**53.56**
	10mm	0.3937	162003	**44.56**	162183	**53.56**
	10.20mm	0.4016	162005	**44.56**	162185	**53.56**
	13/32"	0.4063	162004	**44.60**	162184	**53.62**
	10.50mm	0.4134	162007	**44.56**	162187	**53.62**
	27/64"	0.4219	162006	**44.60**	162186	**53.62**
	10.80mm	0.4252	162009	**44.56**	162189	**53.56**
	11mm	0.4331	162650	**44.56**	162720	**53.56**
Z 0.437" to 0.510" (3/32") Thick	7/16"	0.4375	162008	**44.60**	162188	**53.62**
	11.50mm	0.4528	162011	**44.56**	162191	**53.56**
	29/64"	0.4531	162010	**44.60**	162190	**53.62**
	15/32"	0.4688	162012	**44.60**	162192	**53.62**
	12mm	0.4724	162652	**44.60**	162722	**53.56**
	31/64"	0.4844	162014	**44.60**	162194	**53.62**
	12.50mm	0.4921	162654	**44.56**	162724	**53.56**
	1/2"	0.5000	162016	**44.60**	162196	**53.62**
0 0.511" to 0.695" (1/8") Thick	13mm	0.5118	162656	**48.04**	162726	**57.68**
	33/64"	0.5156	162018	**48.04**	162198	**57.68**
	17/32"	0.5313	162020	**48.04**	162200	**57.68**
	13.50mm	0.5315	162019	**48.04**	162203	**57.68**
	35/64"	0.5469	162021	**48.04**	162201	**57.68**
	14mm	0.5512	162658	**48.04**	162728	**57.68**
	9/16"	0.5625	162022	**48.04**	162204	**57.68**
	14.50mm	0.5709	162660	**48.04**	162730	**57.68**
	37/64"	0.5781	162024	**48.04**	162206	**57.68**
	15mm	0.5906	162662	**47.99**	162732	**57.68**
	19/32"	0.5938	162026	**48.04**	162208	**57.68**
	39/64"	0.6094	162027	**48.04**	162209	**57.68**
	15.50mm	0.6102	162664	**47.99**	162734	**57.68**
	5/8"	0.6250	162028	**48.04**	162210	**57.68**
	16mm	0.6299	162666	**48.04**	162736	**57.68**
	41/64"	0.6406	162029	**48.04**	162211	**57.68**
	16.50mm	0.6496	162668	**48.04**	162738	**57.63**
	21/32"	0.6563	162030	**48.04**	162212	**57.68**
	17mm	0.6693	162670	**49.88**	162740	**57.68**
	43/64"	0.6719	162031	**48.04**	162213	**57.68**
	11/16"	0.6875	162032	**48.04**	162214	**57.68**
	17.50mm	0.6890	162033	**48.04**	162215	**57.68**
1 0.690" to 0.960" (5/32") Thick	45/64"	0.7031	162036	**54.13**	162218	**64.10**
	18mm	0.7087	162672	**54.13**	162742	**64.10**
	23/32"	0.7188	162038	**54.13**	162220	**64.10**
	18.50mm	0.7283	162674	**54.10**	162744	**64.06**
	47/64"	0.7344	162040	**54.13**	162222	**64.10**
	19mm	0.7480	162676	**54.10**	162746	**64.10**
	3/4"	0.7500	162042	**54.13**	162224	**64.10**
	49/64"	0.7656	162044	**54.13**	162226	**64.10**
	19.50mm	0.7677	162045	**54.13**	162227	**64.06**
	25/32"	0.7813	162046	**54.13**	162228	**64.10**
	20mm	0.7874	162678	**54.13**	162748	**64.10**
	51/64"	0.7969	162047	**54.13**	162229	**64.10**
	20.50mm	0.8071	162680	**54.13**	162750	**64.06**
	13/16"	0.8125	162048	**54.13**	162230	**64.10**
	21mm	0.8268	162682	**54.13**	162752	**64.10**
	27/32"	0.8438	162050	**54.13**	162232	**64.10**
	55/64"	0.8594	162051	**56.19**	162233	**64.10**
	22mm	0.8661	162684	**54.13**	162754	**64.10**
	7/8"	0.8750	162052	**54.13**	162234	**64.10**
	57/64"	0.8906	162053	**54.13**	162235	**64.10**
	23mm	0.9055	162055	**54.10**	162237	**64.10**
	29/32"	0.9063	162054	**54.13**	162236	**64.10**
	59/64"	0.9219	162056	**54.13**	162238	**64.10**
	15/16"	0.9375	162058	**54.10**	162240	**64.10**
	24mm	0.9449	162686	**54.13**	162756	**64.10**
2 0.961" to 1.380" (3/16") Thick	31/32"	0.9688	162062	**63.70**	162244	**75.58**
	63/64"	0.9843	162064	**63.70**	162246	**75.58**
	1"	1.0000	162066	**63.70**	162248	**75.58**
	1-1/64"	1.0156	162068	**63.70**	162250	**75.58**
	26mm	1.0236	162688	**63.70**	162758	**75.58**
	1-1/32"	1.0313	162070	**63.70**	162252	**75.58**
	1-3/64"	1.0469	162071	**63.70**	162253	**75.58**
	1-1/16"	1.0625	162072	**63.70**	162254	**75.58**
	27mm	1.0630	162073	**63.70**	162255	**75.58**
	1-3/32"	1.0938	162074	**63.70**	162256	**75.58**
	28mm	1.1024	162690	**63.70**	162760	**75.58**
	1-7/64"	1.1094	162075	**63.70**	162257	**75.58**
	1-1/8"	1.1250	162076	**63.70**	162258	**75.58**
	29mm	1.1417	162692	**63.70**	162762	**75.58**
	1-5/32"	1.1563	162078	**63.70**	162260	**75.58**
	30mm	1.1811	162694	**63.70**	162764	**75.58**
	1-3/16"	1.1875	162080	**63.70**	162262	**75.58**
	1-7/32"	1.2188	162082	**63.70**	162264	**75.58**
	31mm	1.2205	162083	**63.70**	162265	**75.58**
	1-1/4"	1.2500	162084	**63.70**	162266	**75.58**
	32mm	1.2598	162696	**63.70**	162766	**75.58**
	1-9/32"	1.2813	162086	**63.70**	162268	**75.58**
	33mm	1.2992	162698	**63.70**	162768	**75.58**
	1-5/16"	1.3125	162088	**63.70**	162270	**75.58**
	34mm	1.3386	162700	**63.70**	162770	**75.58**
	1-11/32"	1.3438	162090	**63.70**	162272	**75.58**
	1-3/8"	1.3750	162092	**63.70**	162274	**75.58**
	35mm	1.3780	162702	**63.70**	162772	**75.52**
3 1.380" to 1.882" (1/4") Thick	1-13/32"	1.4063	162094	**80.84**	162276	**97.04**
	36mm	1.4173	162704	**80.84**	162774	**97.04**
	1-7/16"	1.4375	162096	**80.84**	162278	**97.04**
	37mm	1.4567	162097	**80.77**	162279	**97.04**
	1-15/32"	1.4688	162098	**80.84**	162280	**97.04**
	38mm	1.4961	162099	**80.77**	162281	**96.94**
	1-1/2"	1.5000	162100	**80.84**	162282	**97.04**
	1-17/32"	1.5313	162102	**80.84**	162284	**97.04**
	39mm	1.5354	162103	**80.77**	162285	**110.12**
	1-9/16"	1.5625	162104	**80.84**	162286	**97.04**
	40mm	1.5748	162706	**80.84**	162776	**97.04**
	1-19/32"	1.5938	162106	**80.84**	162288	**97.04**
	41mm	1.6142	162107	**80.77**	162289	**96.94**
	1-5/8"	1.6250	162108	**80.84**	162290	**97.04**
	42mm	1.6535	162109	**80.77**	162291	**97.04**
	1-21/32"	1.6563	162110	**80.84**	162292	**97.04**
	1-11/16"	1.6875	162112	**80.84**	162294	**97.04**
	43mm	1.6929	162113	**80.77**	162295	**110.12**
	1-23/32"	1.7188	162114	**80.84**	162296	**97.04**
	44mm	1.7323	162708	**80.84**	162778	**97.04**
	1-3/4"	1.7500	162116	**80.84**	162298	**97.04**
	45mm	1.7717	162710	**80.84**	162780	**97.04**
	1-25/32"	1.7813	162118	**80.84**	162300	**97.04**
	46mm	1.8110	162119	**80.84**	162301	**96.94**
	1-13/16"	1.8125	162120	**80.84**	162302	**97.04**
	1-27/32"	1.8438	162122	**80.84**	162304	**97.04**
	47mm	1.8504	162123	**80.77**	162305	**96.94**
	1-7/8"	1.8750	162124	**80.84**	162306	**97.04**
4 1.850" to 2.570" (5/16") Thick	1-29/32"	1.9063	162126	**102.40**	162308	**122.56**
	1-15/16"	1.9375	162128	**102.40**	162310	**122.56**
	1-31/32"	1.9688	162130	**102.40**	162312	**122.56**
	2"	2.0000	162132	**102.40**	162314	**122.56**
	2-1/32"	2.0313	162134	**102.30**	162316	**122.56**
	2-3/64"	2.0472	162135	**102.40**	162317	**122.56**
	2-1/16"	2.0625	162136	**102.40**	162318	**122.56**
	2-3/32"	2.0938	162138	**83.23**	162320	**122.56**
	2-1/8"	2.1250	162140	**102.40**	162322	**122.56**
	2-5/32"	2.1563	162142	**102.30**	162324	**122.56**
	2-3/16"	2.1875	162144	**102.40**	162326	**122.56**
	2-7/32"	2.2188	162146	**102.40**	162328	**122.56**
	2-1/4"	2.2500	162148	**102.40**	162330	**122.56**
	2-9/32"	2.2813	162150	**102.40**	162332	**122.56**
	2-5/16"	2.3125	162152	**102.40**	162334	**122.56**
	2-11/32"	2.3438	162154	**102.30**	162336	**122.56**
	2-3/8"	2.3750	162156	**102.40**	162338	**122.56**
	2-13/32"	2.4063	162158	**86.46**	162340	**122.56**
	2-7/16"	2.4375	162160	**102.40**	162342	**122.56**
	2-15/32"	2.4688	162162	**102.40**	162344	**122.56**
	2-1/2"	2.5000	162164	**102.40**	162346	**122.56**
	2-17/32"	2.5313	162166	**102.40**	162348	**122.56**
	2-9/16"	2.5625	162168	**102.40**	162350	**122.56**

Short Length Straight Shank Holder — Straight Flute



Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Dia.	Shank Length	Pipe Tap	Code No.	Price $
Y	3/8" – 27/64"	1-1/4"	2-1/32"	2-1/8"	4-13/32"	3/4"	2-3/8"	1/8"	162801	**278.58**
Z	7/16" – 1/2"	1-1/4"	2-1/32"	2-1/8"	4-13/32"	3/4"	2-3/8"	1/8"	162803	**278.58**
0	33/64" – 11/16"	1-3/8"	2-3/16"	2-19/64"	4-9/16"	3/4"	2-3/8"	1/8"	162805	**270.97**
0.5	39/64" – 11/16"	1-3/8"	2-3/16"	2-19/64"	4-9/16"	3/4"	2-3/8"	1/8"	162807	**278.58**
1	45/64" – 15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	3/4"	3"	1/8"	162822	**281.24**
1	45/64" –15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	1"	3"	1/8"	162809	**281.24**
1.5	55/64" – 15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	3/4"	3"	1/8"	162808	**312.53**
1.5	55/64" – 15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	1"	3"	1/8"	162811	**312.53**
2	31/32" – 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1"	3-1/2"	1/8"	162824	**303.97**
2	31/32" – 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1-1/4"	3-1/2"	1/8"	162812	**312.53**
2.5	1-3/16" – 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1"	3-1/2"	1/8"	162813	**350.79**
2.5	1-3/16" – 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1-1/4"	3-1/2"	1/8"	162815	**350.79**
3	1-13/32" – 1-7/8"	4-3/4"	6"	6-3/16"	10"	1-1/4"	4"	1/4"	162826	**345.37**
3	1-13/32" – 1-7/8"	4-3/4"	6"	6-3/16"	10"	1-1/2"	4"	1-4"	162817	**355.08**
4	1-29/32" – 2-9/16"	5-1/8"	6-1/2"	6-3/16"	10-1/2"	1-1/2"	4"	1/4"	162828	**408.22**
4	1-29/32" – 2-9/16"	5-1/8"	6-1/2"	6-3/16"	10-1/2"	1-3/4"	4"	1/4"	162819	**431.59**
5-6	2-1/2" – 3-1/2"	6-3/4"	8-1/2"	8-3/4"	12-1/2"	2"	4"	1/2"	163050	**730.35**

Intermediate Length Straight Shank Holder — Straight Flute



Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Dia.	Shank Length	Pipe Tap	Code No.	Price $
1	45/64" – 15/16"	4-5/8"	5-7/8"	6-1/64"	8-7/8"	1"	3"	1/8"	162833	**321.12**
1.5	55/64" – 15/16"	4-5/8"	5-7/8"	6-1/64"	8-7/8"	1"	3"	1/8"	162834	**360.16**
2	31/32" – 1-3/8"	5-3/8"	6-1/2"	6-41/64"	10"	1-1/4"	3-1/2"	1/8"	162835	**350.30**
2.5	1-3/16" – 1-3/8"	5-3/8"	6-1/2"	6-41/64"	10"	1-1/4"	3-1/2"	1/8"	162837	**400.17**
3	1-13/32" – 1-7/8"	6-1/2"	7-3/4"	7-15/16"	11-3/4"	1-1/2"	4"	1/4"	162839	**425.20**

Standard Length Straight Shank Holder — Straight Flute



Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Dia.	Shank Length	Pipe Tap	Code No.	Price $
Y	3/8" – 27/64"	2-3/8"	3-5/32"	3-1/4"	5-17/32"	3/4"	2-3/8"	1/8"	162800	**277.06**
Z	7/16" – 1/2"	2-3/8"	3-5/32"	3-1/4"	5-17/32"	3/4"	2-3/8"	1/8"	162802	**277.06**
0	33/64" – 11/16"	2-1/2"	3-5/16"	3-27/64"	5-11/16"	3/4"	2-3/8"	1/8"	162804	**277.08**
0.5	39/64" – 11/16"	2-1/2"	3-5/16"	3-27/64"	5-11/16"	3/4"	2-3/8"	1/8"	162820	**284.86**
1	45/64" – 15/16"	6-5/8"	7-7/8"	8-1/64"	10-7/8"	3/4"	3"	1/8"	162806	**303.98**
1	45/64" – 15/16"	6-5/8"	7-7/8"	8-1/64"	10-7/8"	1"	3"	1/8"	162821	**303.99**
1.5	55/64" – 15/16"	6-5/8"	7-7/8"	8-1/64"	10-7/8"	1"	3"	1/8"	162825	**335.90**
2	31/32" – 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1"	3-1/2"	1/8"	162810	**335.90**
2	31/32" – 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1-1/4"	3-1/2"	1/8"	162827	**326.72**
2.5	1-3/16" – 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1"	3-1/2"	1/8"	162829	**372.06**
2.5	1-3/16" – 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1-1/4"	3-1/2"	1/8"	162830	**372.06**
3	1-13/32" – 1-7/8"	8-1/4"	9-1/2"	9-11/16"	13-1/2"	1-1/4"	4"	1/4"	162814	**366.07**
3	1-13/32" – 1-7/8"	8-1/4"	9-1/2"	9-11/16"	13-1/2"	1-1/2"	4"	1/4"	162831	**376.36**
4	1-29/32" – 2-9/16"	9-1/8"	10-1/2"	10-11/16"	14-1/2"	1-1/2"	4"	1/4"	162818	**661.56**
4	1-29/32" – 2-9/16"	9-1/8"	10-1/2"	10-11/16"	14-1/2"	1-3/4"	4"	1/4"	162832	**508.10**
5-6	2-1/2" – 3-1/2"	10-3/4"	12-1/2"	12-3/4"	16-1/2"	2"	4"	1/2"	163054	**712.15**

Short Length Taper Shank Holder — Straight Flute



Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Taper	Pipe Tap	Code No.	Price $
Y	3/8" – 27/64"	1-1/4"	2-1/32"	3-15/32"	6-5/16"	#2	1/16"	162917	**294.89**
Z	7/16" – 1/2"	1-1/4"	2-1/32"	3-15/32"	6-5/16"	#2	1/16"	162901	**294.89**
0	33/64" – 11/16"	1-3/8"	2-3/16"	3-41/64"	6-15/32"	#2	1/16"	162902	**294.89**
0.5	39/64" – 11/16"	1-3/8"	2-3/16"	3-41/64"	6-15/32"	#2	1/16"	162903	**294.89**
1	45/64" – 15/16"	2-3/4"	3-7/8"	5-39/64"	9-5/32"	#3	1/8"	162904	**313.10**
1	45/64" – 15/16"	2-3/4"	3-7/8"	5-43/64"	10-5/32"	#4	1/8"	162905	**330.94**
1.5	55/64" – 15/16"	2-3/4"	3-7/8"	5-39/64"	9-5/32"	#3	1/8"	162906	**346.70**
1.5	55/64" – 15/16"	2-3/4"	3-7/8"	5-43/64"	10-5/32"	#4	1/8"	162907	**357.95**
2	31/32" – 1-3/8"	3-3/8"	4-1/2"	6-15/64"	9-25/32"	#3	1/8"	162908	**357.95**
2	31/32" – 1-3/8"	3-3/8"	4-1/2"	6-19/64"	10-25/32"	#4	1/8"	162909	**371.40**
2.5	1-3/16" – 1-3/8"	3-3/8"	4-1/2"	6-15/64"	9-25/32"	#3	1/8"	162910	**382.64**
2.5	1-3/16" – 1-3/8"	3-3/8"	4-1/2"	6-37/64"	11-1/16"	#4	1/4"	162911	**398.41**
3	1-13/32" – 1-7/8"	4-3/4"	6"	8-1/8"	13-9/16"	#4	1/4"	162918	**398.41**
3	1-13/32" – 1-7/8"	4-3/4"	6"	8-1/8"	13-13/16"	#5	1/4"	162913	**420.89**
4	1-29/32" – 2-9/16"	5-1/8"	6-1/2"	8-5/8"	14-5/16"	#5	1/4"	162914	**472.71**
5-6	2-1/2" – 3-1/2"	6-3/4"	8-1/2"	11-5/16"	16-15/16"	#5	1/2"	162915	**686.57**

Intermediate Length Taper Shank Holder — Straight Flute



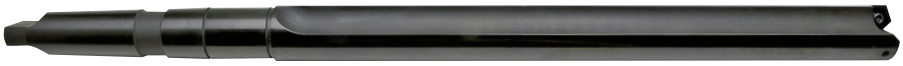
Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Taper	Pipe Tap	Code No.	Price $
1	45/64" – 15/16"	4-3/4"	5-7/8"	7-39/64"	11-5/32"	#3	1/8"	162841	**358.61**
2	31/32" – 1-3/8"	5-3/8"	6-1/2"	8-19/64"	12-25/32"	#4	1/8"	162845	**415.50**
2.5	1-3/16" – 1-3/8"	5-3/8"	6-1/2"	8-37/64"	13-1/16"	#4	1/4"	162846	**410.75**
3	1-13/32" – 1-7/8"	6-1/2"	7-3/4"	9-7/8"	14-5/16"	#4	1/4"	162847	**450.00**

Standard Length Taper Shank Holder — Straight Flute



Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Taper	Pipe Tap	Code No.	Price $
Y	3/8" – 27/64"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	162864	**301.61**
Z	7/16" – 1/2"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	162866	**301.61**
0	33/64" – 11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	#2	1/16"	162868	**293.37**
0.5	39/64" – 11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	#2	1/16"	162869	**301.61**
1	45/64" – 15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	#3	1/8"	162870	**334.98**
1	45/64" – 15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	#4	1/8"	162871	**345.91**
1.5	55/64" – 15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	#3	1/8"	162872	**369.20**
1.5	55/64" – 15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	#4	1/8"	162873	**380.43**
2	31-32" – 1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	#3	1/8"	162874	**370.02**
2	31/32" – 1-3/8"	7-3/8"	8-1/2"	10-19/64"	14-25/32"	#4	1/8"	162875	**380.96**
2.5	1-3/16" – 1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	#3	1/8"	162876	**405.13**
2.5	1-3/16" – 1-3/8"	7-3/8"	8-1/2"	10-37/64"	15-1/16"	#4	1/4"	162877	**420.89**
3	1-13/32" – 1-7/8"	8-1/4"	9-1/2"	11-1/8"	16-1/16"	#4	1/4"	162878	**422.57**
3	1-13/32" – 1-7/8"	8-1/4"	9-1/2"	11-5/8"	17-5/16"	#5	1/4"	162881	**468.19**
4	1-29/32" – 2-9/16"	9-1/8"	10-1/2"	12-5/8"	17-1/16"	#4	1/4"	162879	**499.72**
4	1-29/32" – 2-9/16"	9-1/8"	10-1/2"	12-5/8"	18-5/16"	#5	1/4"	162883	**537.97**
5-6	2-1/2" – 3-1/2"	10-3/4"	12-1/2"	15-5/16"	20-15/16"	#5	1/2"	163058	**754.04**

Extended Length Taper Shank Holder — Straight Flute



Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Taper	Pipe Tap	Code No.	Price $
0	33/64" – 11/16"	4-1/2"	5-5/16"	6-49/64"	9-13/32"	#2	1/16"	162836	**331.27**
1	45/64" – 15/16"	10-3/4"	11-7/8"	13-39/64"	17-5/32"	#3	1/8"	162838	**380.33**
2	31/32" – 1-3/8"	11-3/8"	12-1/2"	14-15/64"	18-25/32"	#4	1/8"	162840	**489.47**
3	1-13/32" – 1-7/8"	13-3/4"	15"	17-1/8"	21-9/16"	#4	1/4"	162842	**561.90**
4	1-29/32" – 2-9/16"	16-5/8"	18"	20-1/8"	25-13/16"	#5	1/4"	162844	**710.17**

Standard Length Taper Shank Holder — Helical Flute



Series	Drill Insert Range	Max. Drill Depth	Flute Length	Top of Drill to Shank	Overall Length	Shank Taper	Pipe Tap	Code No.	Price $
Y	3/8" – 27/64"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	162850	**262.15**
Z	7/16" – 1/2"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	162852	**310.10**
0	33/64" – 11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	#2	1/16"	162854	**310.10**
1	45/64" – 15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	#3	1/8"	162856	**368.75**
2	31/32" – 1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	#3	1/8"	162860	**418.03**

Coolant Adapters



M.T.	Description	Pipe Thread	Thread for Driving Rod	Code No.	Price $
2	SCA-2	1/8"	5/16-NC	163100	**77.80**
3	SCA-3	1/8"	5/16-NC	163102	**82.60**
4	SCA-4	1/4"	3/8-NC	163104	**107.20**
5	SCA-5	1/4"	3/8-NC	163106	**123.60**

Seal Repair Kits



M.T.	Description	Code No.	Price $
2	CA-2	163110	**8.00**
3	CA-3	163112	**5.40**
4	CA-4	163114	**6.30**
5	CA-5	163116	**15.60**

Torx Screws



Series	Torx Size	Code No.	Price $
Y, Z	T-7	162880	**6.65**
Y, Z	M2 x 0.4	162891	**5.36**
0	T-8	162882	**5.58**
0.5	M2.5 x 0.45	162893	**5.36**
1-1.5	T-9	162884	**5.58**
1.5	M3 x 0.5	162895	**5.36**
2-2.5	T-15	162886	**5.58**
3-4	T-20	162888	**5.58**
5-8	T-25	162890	**5.58**

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Images are representational only and may not reflect actual product.

Recommended Blade Selection, Speeds & Feeds

When To Use M-4:
- Loose machines
- Manual machines
- Cross hole drilling

When To Use T15:
- On CNC machines
- When M-4 life needs to be extended
- Abrasive drilling

Material	Material Rockwell Hardness (HRC)	Rec. Blade HSS-M4 ϴHSCO-T15	TiN SFM Surface Footage	TiAlN SFM Surface Footage	3/8" to 1/2"	Feed (IPR) 33/64" to 11/16"	45/64" to 15/16"	31/32" to 1-3/8"	1-13/32" to 1-7/8"	1-29/32" to 2-9/16"	2-19/32" to 4-1/2"
Free Machining Steel 1118, 1215, 12L14, etc.	-	-	-	280	0.007	0.010	0.013	0.016	0.020	0.023	0.028
	< 12	-	-	260	0.007	0.010	0.013	0.016	0.020	0.023	0.028
	12-25	-	-	240	0.007	0.010	0.013	0.016	0.020	0.023	0.028
Low & Medium Carbon Steel 1018, 1040, 12L14, etc.	< 7	-	160	240	0.006	0.009	0.012	0.015	0.019	0.023	0.027
	7-20	-	150	225	0.005	0.0098	0.010	0.014	0.018	0.021	0.024
	20-29	-	140	210	0.005	0.0098	0.010	0.014	0.018	0.021	0.024
	29-35	ϴ	130	195	0.004	0.007	0.009	0.012	0.016	0.019	0.022
Alloy Steel 4140, 5140 8640, etc.	< 7	-	150	210	0.006	0.008	0.010	0.014	0.017	0.019	0.022
	7-20	-	140	195	0.005	0.008	0.010	0.014	0.017	0.019	0.022
	20-29	-	130	180	0.005	0.007	0.010	0.014	0.017	0.019	0.022
	29-35	ϴ	120	170	0.004	0.006	0.009	0.012	0.015	0.017	0.020
	35-40	ϴ	110	155	0.003	0.006	0.009	0.012	0.015	0.017	0.020
High Strength Alloy Steel 4340, 4330V, 300M, etc.	20-32	ϴ	80	110	0.005	0.007	0.009	0.010	0.014	0.017	0.020
	32-37	ϴ	60	85	0.004	0.007	0.009	0.010	0.014	0.017	0.020
	37-43	-	50	70	0.003	0.006	0.008	0.009	0.012	0.015	0.018
Structural Steel A36, A285 A516, etc.	-	-	140	200	0.006	0.010	0.012	0.014	0.018	0.021	0.026
	12-25	-	120	170	0.005	0.009	0.010	0.012	0.016	0.019	0.024
	37-43	ϴ	100	140	0.004	0.008	0.009	0.010	0.014	0.017	0.020
High Temp, Alloy Hastelloy B, Inconel 600, etc.	< 18	ϴ	30	40	0.003	0.006	0.007	0.008	0.010	0.012	0.015
	18-32	ϴ	25	35	0.003	0.006	0.007	0.008	0.010	0.012	0.015
Stainless Steel 303, 416, 420, 17-4 PH, etc.	< 7	-	75	105	0.006	0.008	0.009	0.011	0.014	0.016	0.020
	7-29	-	60	90	0.005	0.007	0.008	0.010	0.012	0.014	0.018
Tool Steel H-13, H021, AD4, O-2, S-3, etc	< 12	ϴ	80	110	0.004	0.006	0.008	0.010	0.012	0.015	0.017
	12-25	ϴ	60	90	0.004	0.006	0.008	0.010	0.012	0.015	0.017
Aluminum	< 6	-	600	850	0.008	0.013	0.016	0.020	0.022	0.025	0.025
	-	-	300	450	0.008	0.013	0.016	0.018	0.022	0.025	0.025
Cast Iron Gray, Ductile, Nodular	-	-	170	250	0.007	0.012	0.016	0.020	0.024	0.027	0.030
	<12	-	150	225	0.006	0.011	0.014	0.018	0.022	0.025	0.028
	12-18	-	130	195	0.006	0.009	0.012	0.016	0.018	0.021	0.024
	18-26	ϴ	110	165	0.005	0.007	0.009	0.012	0.014	0.017	0.020
	26-32	ϴ	90	135	0.004	0.006	0.007	0.009	0.012	0.014	0.016

Note: The speeds and feeds listed above are considered a general starting point for all applications. Factors such as material, material hardness, coolant pressure, hole diameter and length to diameter ratio should also be considered when making these recommendations.
Speed and feed reductions are recommended when using extended length holders.

Throw-Away Drill Inserts — Coolant Pressure

Material	Material Hardness (BHN)	High Speed Steel (TiN, TiAlN) Coolant Pressure (PSI) Coolant Volumetric Flow Rate (GPM)						
		3/8" - 1/2"	33/64" - 11/16"	23/32" - 1"	1" - 1-1/4"	1/4" - 1"	2" - 3"	3" - 4"
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	175 - 185	100 - 120	105 - 140	80 - 115	75 - 100	40 - 50	65 - 90
		2.5 - 2.6	2.8 - 3.0	4.4 - 5.2	7 - 8	12 - 14	30 - 33	38 - 44
Low Carbon Steel 1010, 1020, 1025, 1522, etc.	85 - 275	165 - 170	75 - 90	75 - 95	60 - 80	55 - 75	30 - 40	50 - 65
		2.4 - 2.5	2.4 - 2.6	3.7 - 4.2	6 - 7	11 - 12	26 - 30	33 - 38
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151	125 - 325	160 - 165	70 - 85	70 - 90	55 - 70	50 - 70	30 - 40	50 - 65
		2.3 - 2.4	2.3 - 2.6	3.6 - 4.1	5 - 6	10 - 12	26 - 30	33 - 38
Alloy Steel 4140, 5140, 8640, etc.	125 - 375	160 - 165	66 - 75	65 - 80	50 - 70	45 - 60	30 - 35	40 - 50
		2.3 - 2.5	2.2 - 2.4	3.5 - 3.9	5 - 6	10 - 11	26 - 28	30 - 33
High Strength Alloy	225 - 400	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25	25 - 30
		2.3 - 2.4	2.1 - 2.2	2.90 - 3.1	4 - 5	7 - 8	21 - 23	23 - 26
Structural Steel	100 - 350	160 - 165	75 - 85	65 - 80	40 - 55	40 - 50	25 - 30	40 - 50
		2.3 - 2.4	2.4 - 2.6	3.5 - 3.9	5 - 6	9 - 10	23 - 26	33 - 33
High Temp. Alloy Hastelloy B, Inconel 600, etc.	140 - 310	150 - 155	60 - 65	50 - 55	30 - 35	25 - 30	25 - 30	-
		2.3 - 2.4	2.2 - 2.3	3.1 - 3.2	4 - 5	7 - 8	23 - 26	-
Stainless Steel 301, 316, 330, 17-4Ph, etc.	135 - 275	165 - 170	70 - 85	65 - 75	40 - 55	40 - 50	25 - 30	35 - 45
		2.4 - 2.5	2.3 - 2.6	3.5 - 3.7	5 - 6	9 - 10	23 - 26	28 - 31
Tool Steel H-13, H-21, A-4, O-2, S-3, etc	150 - 250	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25	25 - 30
		2.3 -2.4	2.1 -2.2	2.9 - 3.1	4 - 5	7 - 8	21 - 23	23 - 26
Aluminum	30 - 180	190 - 210	140 - 180	150 - 200	115 - 160	90 - 125	40 - 50	60 - 80
		2.6 - 2.7	3.3 - 3.7	5.3 - 6.1	8 - 9	14 - 16	30 - 33	36 - 42
Cast Iron	120 - 320	155 - 160	60 - 65	50 - 60	30 - 40	30 - 36	25 - 30	30 - 35
		2.3 - 2.4	2.2 - 2.3	3.1 - 3.3	4 - 4	8 - 9	23 - 26	26 - 28

Throw-Away Drill Inserts Spade Drill Horsepower Consumption Rate

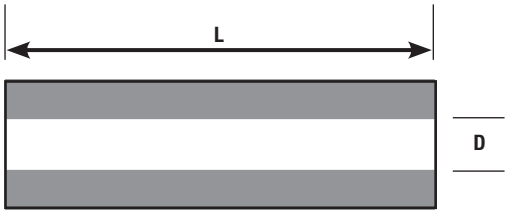
Metal Removal Rates (MRR)
Example: 1.50 dia. drill @ 6.412 IPM

Volume of Cylinder Method: D2 x 0.785 x L
D = Hole Diameter
L = Length in IPM
0.785 is Constant

Material Drilled 4140 250 BHN:
Cutting Data: 180 SFM (458 R.P.M.) x 0.014 Feed per Rev.

458rpm x 0.014 = 6.412 IPM (L)
D2 (1.5)2 x 0.785 x L (6.412) = 5 C.U. In./Min (MRR)

MRR of 5 x 1.4 Energy Value = 7HP



Metal Removal Rates (MRR)

- Cubic inches of metal removal per unit of horsepower
- Unit horsepower (HPu) is the amount of power to remove a volume of metal in a period of time
- HPu = power to cut 1 cubic inch per minute – found in tables

AVERAGE UNIT HORSEPOWER VALUES OF ENERGY PER UNIT VOLUME

Material	BHN	HPu [HP/(in3)min.)]
Carbon Steels	150 - 200	1.0
	200 - 250	1.4
	250 - 350	1.6
Leaded Steels	150 - 175	0.7
Cast Irons	125 - 190	0.5
	190 - 250	1.6
Stainless Steels	135 - 275	1.5
Aluminum Alloys	50 - 100	0.3
Magnesium Alloys	40 - 90	0.2
Copper	125 - 140	0.7
Copper Alloys	100 - 150	0.7

Single Flute Countersinks HSS — 60°, 82°, 90°, 100°, 120°

- Radial relief generated in the first 90 degrees behind the cutting edge, ensures smooth, chatter-free cutting without overfeeding and makes the tool self-centering
- Steam black oxide surface treatment enhances tool life and prevents galling
- The best style countersink for use in hand held applications
- 100% CNC manufactured to tighter than industry standard tolerances



STM PREMIUM

HSS | BLACK OXIDE

Body Dia. (in.)	Shank Dia. (in.)	60°	60° HSS Code No.	Price $	82°	82° HSS Code No.	Price $	90°	90° HSS Code No.	Price $
1/8	1/8	HS1-1/8-60	121560	**18.81**	HS1-1/8-82	121571	**17.13**	HS1-1/8-90	121582	**18.81**
3/16	3/16	HS1-3/16-60	121561	**18.91**	HS1-3/16-82	121572	**18.91**	HS1-3/16-90	121583	**17.35**
1/4	1/4	HS1-1/4-60	121562	**20.37**	HS1-1/4-82	121573	**19.82**	HS1-1/4-90	121584	**21.38**
3/8	1/4	HS1-3/8-60	121563	**26.98**	HS1-3/8-82	121574	**26.53**	HS1-3/8-90	121585	**28.43**
1/2	1/4	HS1-1/2-60	121564	**30.78**	HS1-1/2-82	121575	**32.58**	HS1-1/2-90	121586	**32.58**
5/8	3/8	HS1-5/8-60	121565	**45.00**	HS1-5/8-82	121576	**45.22**	HS1-5/8-90	121587	**47.58**
3/4	1/2	HS1-3/4-60	121566	**64.15**	HS1-3/4-82	121577	**64.92**	HS1-3/4-90	121588	**64.92**
1	1/2	HS1-1-60	121567	**96.16**	HS1-1-82	121578	**100.74**	HS1-1-90	121589	**100.74**
1-1/4	1/2	HS1-1-1/4-60	121568	**170.15**	HS1-1-1/4-82	121579	**172.27**	HS1-1-1/4-90	121590	**172.27**
1-1/2	3/4	HS1-1-1/2-60	121569	**232.82**	HS1-1-1/2-82	121580	**225.55**	HS1-1-1/2-90	121591	**227.57**
2	3/4	HS1-2-60	121570	**440.46**	HS1-2-82	121581	**441.13**	HS1-2-90	121592	**440.46**

Body Dia. (in.)	Shank Dia. (in.)	100°	100° HSS Code No.	Price $	120°	120° HSS Code No.	Price $
1/8	1/8	HS1-1/8-100	121593	**17.24**	HS1-1/8-120	121601	**17.24**
3/16	3/16	HS1-3/16-100	121594	**18.14**	HS1-3/16-120	121602	**18.14**
1/4	1/4	HS1-1/4-100	121595	**19.03**	HS1-1/4-120	121603	**21.38**
3/8	1/4	HS1-3/8-100	121596	**25.40**	HS1-3/8-120	121604	**26.98**
1/2	1/4	HS1-1/2-100	121597	**30.78**	HS1-1/2-120	121605	**32.81**
5/8	3/8	HS1-5/8-100	121598	**42.77**	HS1-5/8-120	121606	**43.21**
3/4	1/2	HS1-3/4-100	121599	**62.02**	HS1-3/4-120	121607	**61.45**
1	1/2	HS1-1-100	121600	**96.49**	HS1-1-120	121608	**98.94**

Chatterfree HSS Countersinks



STM PREMIUM

HSS

Size	Range	Shank Dia.	82° HSS Code No.	Price $	90° HSS Code No.	Price $
0	1/16–15/64	1/4	121003	**27.28**	121002	**27.29**
1	5/32–13/32	1/4	121005	**29.17**	121004	**29.18**
2	3/16–17/32	1/4	121010	**33.51**	121009	**33.51**
3	5/16–25/32	1/2	121015	**58.52**	121014	**58.52**
4	9/16–1-1/16	1/2	121020	**102.96**	121019	**106.67**
5	5/8–1-15/32	1/2	121025	**200.80**	121024	**234.97**
6	3/4–1-3/4	5/8	121030	**314.97**	121031	**367.59**

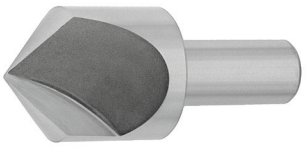


We've taken the guesswork out of your tap selection!

See Chapter C

Single Flute Countersinks HSS — 60°, 82°, 90°, 100°





STM PREMIUM

HSS

Flute Dia. (in.)	Shank Dia. (in.)	Shank Length (in.)	Overall Length (in.)	60° HSS Code No.	Price $	82° HSS Code No.	Price $	90° HSS Code No.	Price $	100° HSS Code No.	Price $
3/16	3/16	3/4	1-1/2	120739	**12.19**	120753	**12.19**	120767	**12.19**	-	**-**
1/4	1/4	3/4	2	120740	**12.44**	120754	**12.44**	120768	**12.44**	120782	**12.44**
5/16	1/4	1	2	120741	**14.70**	120755	**14.70**	120769	**14.70**	120783	**14.70**
3/8	1/4	1	2	120742	**17.08**	120756	**17.08**	120770	**17.08**	120784	**17.08**
1/2	1/4	1	2	120743	**21.35**	-	**-**	120771	**21.35**	120785	**21.35**
5/8	3/8	1-1/8	2	120744	**32.16**	120758	**32.16**	120772	**32.16**	120786	**32.16**
5/8	1/2	1-1/8	2-3/4	120745	**32.16**	120759	**32.16**	120773	**32.16**	120787	**34.29**
3/4	3/8	1-5/16	2-3/4	120746	**31.82**	120760	**36.04**	120774	**36.04**	120788	**36.04**
3/4	1/2	1-5/16	2-3/4	120747	**36.04**	120761	**36.04**	120775	**36.04**	120789	**31.82**
7/8	1/2	1-5/16	2-3/4	120748	**57.27**	120762	**57.27**	120776	**57.27**	120790	**88.78**
1	1/2	1-5/16	2-3/4	120749	**63.80**	120763	**63.80**	120777	**63.80**	120791	**63.80**
1-1/4	3/4	1-5/8	3-3/8	120750	**91.13**	120764	**103.22**	120778	**103.22**	-	**-**
1-1/2	3/4	1-5/8	3-1/2	120751	**143.27**	120765	**143.27**	120779	**143.27**	120793	**143.27**
2	3/4	1-5/8	3-3/4	-	**-**	120766	**236.19**	120780	**236.19**	120794	**208.54**
Sets											
5pc set contains:		1/4, 3/8, 1/2, 3/4, 1		120855	**157.59**	120858	**157.59**	120860	**157.59**	120862	**139.14**
9pc set contains:		3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1		120857	**276.88**	120850	**276.88**	120852	**276.88**	120863	**276.88**
12pc set contains:		3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/4, 1-1/2, 2		120840	**760.47**	120859	**760.47**	120861	**760.47**	120864	**760.47**

Single Flute TiN Coated Premium Cobalt Countersinks — 60°, 82°, 90°, 100°, 120°

- Excellent for countersinking abrasive, high-strength, heat resistant, exotic and other difficult to machine materials
- TiN coated for higher surface hardness and better lubricity to enhance productivity and longer tool life



STM PREMIUM

M42 HSS COBALT

TiN

Body Dia. (in.)	Shank Dia. (in.)	60°	60° Code No.	Price $	82°	82° Code No.	Price $	90°	90° Code No.	Price $
1/8	1/8	HSP1-1/8-60T	121609	**24.73**	HSP1-1/8-82T	121618	**26.19**	HSP1-1/8-90T	121627	**26.19**
3/16	3/16	HSP1-3/16-60T	121610	**27.87**	HSP1-3/16-82T	121619	**29.78**	HSP1-3/16-90T	121628	**29.78**
1/4	1/4	HSP1-1/4-60T	121611	**28.77**	HSP1-1/4-82T	121620	**28.77**	HSP1-1/4-90T	121629	**29.88**
3/8	1/4	HSP1-3/8-60T	121612	**38.16**	HSP1-3/8-82T	121621	**36.38**	HSP1-3/8-90T	121630	**36.38**
1/2	3/8	HSP1-1/2-60T	121613	**52.16**	HSP1-1/2-82T	121622	**51.60**	HSP1-1/2-90T	121631	**51.60**
5/8	3/8	HSP1-5/8-60T	121614	**73.54**	HSP1-5/8-82T	121623	**73.44**	HSP1-5/8-90T	121632	**73.44**
3/4	1/2	HSP1-3/4-60T	121615	**107.69**	HSP1-3/4-82T	121624	**111.03**	HSP1-3/4-90T	121633	**111.03**
1	1/2	HSP1-1-60T	121616	**154.14**	HSP1-1-82	121625	**155.04**	HSP1-1-90T	121634	**148.76**
1-1/4	1/2	HSP1-1-1/4-60T	121617	**240.22**	HSP1-1-1/4-82T	121626	**237.74**	HSP1-1-1/4-90T	121635	**240.22**

Body Dia. (in.)	Shank Dia. (in.)	100°	100° Code No.	Price $	120°	120° Code No.	Price $
1/8	1/8	HSP1-1/8-100T	121636	**27.87**	HSP1-1/8-120T	121645	**27.87**
3/16	3/16	HSP1-3/16-100T	121637	**27.87**	HSP1-3/16-120T	121646	**27.87**
1/4	1/4	HSP1-1/4-100T	121638	**28.33**	HSP1-1/4-120T	121647	**28.43**
3/8	1/4	HSP1-3/8-100T	121639	**37.49**	HSP1-3/8-120T	121648	**36.38**
1/2	3/8	HSP1-1/2-100T	121640	**54.29**	HSP1-1/2-120T	121649	**52.16**
5/8	3/8	HSP1-5/8-100T	121641	**73.54**	HSP1-5/8-120T	121650	**71.31**
3/4	1/2	HSP1-3/4-100T	121642	**110.70**	HSP1-3/4-120T	121651	**107.69**
1	1/2	HSP1-1-100T	121643	**150.23**	HSP1-1-120T	121652	**150.23**
1-1/4	1/2	HSP1-1-1/4-100T	121644	**220.17**	HSP1-1-1/4-120T	121653	**234.73**

Carbide Single Flute Countersinks — 60°, 82°, 90°, 100°

- For highly abrasive and hard to machine materials
- For production applications in cast iron, alloy steel, or glass reinforced plastics
- Long running carbide eliminates the high cost of tool changes in production situations
- Rigid set-up a must – not suited for hand held applications
- Tools 3/8" and over have solid carbide heads on hardened steel shanks



Body Dia. (in.)	Shank Dia. (in.)	Single Flute 60°	60° Code No.	Price $	Single Flute 82°	82° Code No.	Price $	Single Flute 90°	90° Code No.	Price $	Single Flute 100°	100° Code No.	Price $
1/8	1/8	C1-1/8-60	121740	**28.43**	C1-1/8-82	121756	**29.11**	C1-1/8-90	121772	**27.20**	C1-1/8-100	121788	**29.11**
3/16	3/16	C1-3/16-60	121741	**33.69**	C1-3/16-82	121757	**33.69**	C1-3/16-90	121773	**36.15**	C1-3/16-100	121789	**35.48**
1/4	1/4	C1-1/4-60	121742	**44.43**	C1-1/4-82	121758	**42.54**	C1-1/4-90	121774	**49.03**	C1-1/4-100	121790	**43.99**
3/8	1/4	C1-3/8-60	121743	**83.28**	C1-3/8-82	121759	**79.93**	C1-3/8-90	121775	**80.70**	C1-3/8-100	121791	**83.28**
1/2	3/8	C1-1/2-60	121744	**121.90**	C1-1/2-82	121760	**117.42**	C1-1/2-90	121776	**121.90**	C1-1/2-100	121792	**121.90**
5/8	1/2	C1-5/8-60	121745	**157.49**	C1-5/8-82	121761	**157.49**	C1-5/8-90	121777	**153.57**	C1-5/8-100	121793	**151.79**
3/4	1/2	C1-3/4-60	121746	**217.49**	C1-3/4-82	121762	**230.59**	C1-3/4-90	121778	**212.45**	C1-3/4-100	121794	**217.49**
1	1/2	C1-1-60	121747	**359.43**	C1-1-82	121763	**351.70**	C1-1-90	121779	**359.43**	C1-1-100	121795	**348.57**

Single Flute Double End HSS and Carbide Countersinks — 60°, 82°, 90°, 100°, 120°

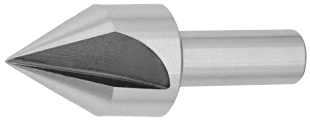
- Two cutting ends give you twice the tool life of a single end tool



Body Dia. (in.)	Overall Length (in.)	Material Grade	60°	60° Code No.	Price $	82°	82° Code No.	Price $	90°	90° Code No.	Price $
1/8	1-1/2	HSS	DHS1-1/8-60	121655	**31.57**	DHS1-1/8-82	121671	**29.88**	DHS1-1/8-90	121687	**29.88**
		Carbide	DC1-1/8-60	121656	**49.36**	DC1-1/8-82	121672	**49.36**	DC1-1/8-90	121688	**47.01**
3/16	2	HSS	DHS1-3/16-60	121657	**33.80**	DHS1-3/16-82	121673	**34.59**	DHS1-3/16-90	121689	**33.02**
		Carbide	DC1-3/16-60	121658	**68.62**	DC1-3/16-82	121674	**62.12**	DC1-3/16-90	121690	**59.33**
1/4	2	HSS	DHS1-1/4-60	121659	**35.82**	DHS1-1/4-82	121675	**35.82**	DHS1-1/4-90	121691	**33.69**
		Carbide	DC1-1/4-60	121660	**87.64**	DC1-1/4-82	121676	**79.47**	DC1-1/4-90	121692	**84.17**
5/16	2-1/2	HSS	DHS1-5/16-60	121661	**37.95**	DHS1-5/16-82	121677	**40.07**	DHS1-5/16-90	121693	**38.95**
		Carbide	DC1-5/16-60	121662	**142.05**	DC1-5/16-82	121678	**124.81**	DC1-5/16-90	121694	**118.66**
3/8	2-1/2	HSS	DHS1-3/8-60	121663	**44.89**	DHS1-3/8-82	121679	**44.89**	DHS1-3/8-90	121695	**42.98**
		Carbide	DC1-3/8-60	121664	**150.44**	DC1-3/8-82	121680	**149.32**	DC1-3/8-90	121696	**149.32**
1/2	3	HSS	DHS1-1/2-60	121665	**57.43**	DHS1-1/2-82	121681	**54.86**	DHS1-1/2-90	121697	**60.55**
		Carbide	DC1-1/2-60	121666	**205.52**	DC1-1/2-82	121682	**190.18**	DC1-1/2-90	121698	**205.52**
5/8	3-1/2	HSS	DHS1-5/8-60	121667	**82.39**	DHS1-5/8-82	121683	**82.39**	DHS1-5/8-90	121699	**77.46**
		Carbide	DC1-5/8-60	121668	**270.44**	DC1-5/8-82	121684	**270.44**	DC1-5/8-90	121700	**270.44**
3/4	4	HSS	DHS1-3/4-60	121669	**119.88**	DHS1-3/4-82	121685	**119.88**	DHS1-3/4-90	121701	**113.28**
		Carbide	DC1-3/4-60	121670	**383.59**	DC1-3/4-82	121686	**383.59**	DC1-3/4-90	-	**-**

Body Dia. (in.)	Overall Length (in.)	Material Grade	100°	100° Code No.	Price $	120°	120° Code No.	Price $
1/8	1-1/2	HSS	DHS1-1/8-100	121703	**30.67**	DHS1-1/8-120	121719	**29.88**
		Carbide	DC1-1/8-100	121704	**47.01**	DC1-1/8-120	121720	**46.34**
3/16	2	HSS	DHS1-3/16-100	121705	**32.81**	DHS1-3/16-120	121721	**34.59**
		Carbide	DC1-3/16-100	121706	**58.32**	DC1-3/16-120	121722	**59.88**
1/4	2	HSS	DHS1-1/4-100	121707	**35.82**	DHS1-1/4-120	121723	**33.80**
		Carbide	DC1-1/4-100	121708	**76.79**	DC1-1/4-120	121724	**74.88**
5/16	2-1/2	HSS	DHS1-5/16-100	121709	**40.07**	DHS1-5/16-120	121725	**40.07**
		Carbide	DC1-5/16-100	121710	**118.66**	DC1-5/16-120	121726	**118.66**
3/8	2-1/2	HSS	DHS1-3/8-100	121711	**44.89**	DHS1-3/8-120	121727	**44.89**
		Carbide	DC1-3/8-100	121712	**160.96**	DC1-3/8-120	121728	**141.82**
1/2	3	HSS	DHS1-1/2-100	121713	**60.55**	DHS1-1/2-120	121729	**55.30**
		Carbide	DC1-1/2-100	121714	**198.91**	DC1-1/2-120	121730	**205.52**
5/8	3-1/2	HSS	DHS1-5/8-100	121715	**77.46**	DHS1-5/8-120	121731	**77.46**
		Carbide	DC1-5/8-100	121716	**270.44**	DC1-5/8-120	121732	**270.44**
3/4	4	HSS	DHS1-3/4-100	121717	**113.28**	DHS1-3/4-120	121733	**119.88**
		Carbide	DC1-3/4-100	121718	**383.59**	DC1-3/4-120	121734	**383.59**

3 Flute Countersinks HSS — 60°, 82°, 90°, 100°



STM PREMIUM

HSS

Flute Dia. (in.)	Shank Dia. (in.)	Shank Length (in.)	Overall Length (in.)	60° HSS Code No.	Price $	82° HSS Code No.	Price $	90° HSS Code No.	Price $	100° HSS Code No.	Price $
1/4	3/16	3/4	1-1/2	120795	**14.20**	120804	**14.20**	120813	**14.20**	120822	**14.20**
3/8	1/4	7/8	1-3/4	120796	**19.72**	120805	**19.72**	120814	**19.72**	120823	**19.72**
1/2	3/8	1	2	120797	**24.36**	120806	**24.36**	120815	**24.36**	120824	**24.36**
5/8	3/8	1	2-1/4	120798	**37.04**	120807	**37.04**	120816	**37.04**	120825	**37.04**
3/4	1/2	1-1/4	2-5/8	120799	**41.57**	120808	**41.57**	120817	**41.57**	120826	**41.57**
1	1/2	1-1/4	2-3/4	120800	**73.21**	120809	**73.21**	120818	**73.21**	120827	**71.47**
1-1/4	3/4	1-1/4	3	120801	**118.67**	120976	**118.67**	120819	**118.67**	120828	**118.67**
1-1/2	3/4	1-1/4	3	120802	**164.89**	120811	**164.89**	120820	**164.89**	120829	**164.89**
2	3/4	1-1/4	3-1/4	120803	**271.23**	120812	**271.23**	120821	**271.23**	120830	**271.23**

3 Flute Countersinks HSS



STM PREMIUM

HSS

Flute Dia. (in.)	Shank Dia. (in.)	Overall Length (in.)	82° HSS Code No.	Price $	90° HSS Code No.	Price $
1/4	1/4	1-3/4	121038	**42.02**	121050	**43.49**
3/8	1/4	1-7/8	121040	**52.29**	121052	**52.29**
1/2	3/8	2-1/8	121042	**59.29**	121054	**59.29**
3/4	1/2	2-7/16	121044	**117.52**	121056	**117.54**
1	1/2	2-5/8	121046	**131.02**	121058	**131.02**

4 Flute Machine Countersinks HSS



STM PREMIUM

HSS

Flute Dia. (in.)	Shank Dia. (in.)	Shank Length (in.)	Overall Length (in.)	60° Code No.	Price $	82° Code No.	Price $	90° Code No.	Price $
1/2	1/2	2-1/4	3-7/8	120831	**60.77**	120950	**60.77**	120845	**60.77**
5/8	1/2	2-1/4	4	120832	**69.82**	120955	**69.82**	-	**-**
3/4	1/2	2-1/4	4-1/8	120833	**88.90**	120960	**88.90**	120847	**88.90**
7/8	1/2	2-1/4	4-1/4	120834	**98.06**	120965	**89.81**	120848	**98.06**
1	1/2	2-1/4	4-3/8	120835	**108.12**	120970	**108.12**	120849	**108.12**
1-1/4	1/2	2-1/4	5	120836	**164.89**	120975	**164.89**	120851	**164.89**
1-1/2	1/2	2-1/4	5-3/8	120837	**201.17**	120980	**201.17**	120853	**201.17**

3 Flute 82° Countersinks HSS



QUALITY IMPORT

HSS

Dia. (in.)	Shank Dia. (in.)	Code No.	Price $
1/2	1/2	120951	**21.52**
5/8	1/2	120956	**33.98**
3/4	1/2	120961	**38.08**
1	1/2	120971	**122.07**
1-1/4	3/4	120976	**118.67**
1-1/2	3/4	120981	**243.92**

GS TOOLING



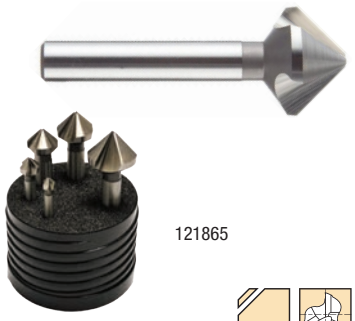
GS Tooling Drill Chucks

High precision, premium tolerance & TiN coated jaws for improved life.

See Pages G70-71

90° Cobalt 3 Flute Countersinks

- M35 Cobalt
- Wide flutes provide good chip evacuation
- Positive cut
- Constant profile aids regrinding of the tool
- Self-centering of the cutting mill (three bearing points) virtually eliminates vibration



121865

COBALT

Diameter	Overall Length	Shank Diameter	Code No.	Price $
Inch				
1/4"	45mm	1/4"	121899	**31.38**
5/16"	45mm	1/4"	121900	**36.20**
3/8"	50mm	1/4"	121901	**41.14**
1/2"	50mm	1/4"	121902	**50.99**
5/8"	60mm	3/8"	121903	**59.13**
3/4"	60mm	3/8"	121904	**68.99**
1"	70mm	3/8"	121905	**83.77**
7pc Set			121866	**370.53**
Metric				
6.3mm	45mm	5mm	121894	**36.20**
10.4mm	50mm	6mm	121895	**48.64**
16.5mm	60mm	10mm	121896	**68.34**
20.5mm	63mm	10mm	121897	**80.44**
25.0mm	67mm	10mm	121898	**97.91**
5pc Set			121865	**328.00**

90° Cobalt 3 Flute Countersinks - TiN Coated

- M35 Cobalt - TiN coated
- Wide flutes provide good chip evacuation
- Positive cut
- Constant profile aids regrinding of the tool
- Self-centering of the cutting mill (three bearing points) virtually eliminates vibration



121855

COBALT TiN

Diameter	Overall Length	Shank Diameter	Code No.	Price $
Inch				
1/4"	45mm	1/4"	121857	**41.14**
5/16"	45mm	1/4"	121858	**47.77**
3/8"	50mm	1/4"	121859	**52.59**
1/2"	50mm	1/4"	121862	**64.06**
5/8"	60mm	3/8"	121863	**75.52**
3/4"	60mm	3/8"	121864	**86.98**
1"	70mm	3/8"	121867	**103.37**
7pc Set			121856	**470.58**
Metric				
10.4mm	50mm	6mm	121850	**59.13**
16.5mm	60mm	10mm	121851	**85.48**
20.5mm	63mm	10mm	121852	**98.45**
25.0mm	67mm	10mm	121853	**117.51**
31.0mm	71mm	12mm	121854	**167.43**
5pc Set			121855	**508.28**

82° Cobalt 3 Flute Countersinks

- M35 Cobalt
- Wide flutes provide good chip evacuation
- Positive cut
- Constant profile aids regrinding of the tool
- Self-centering of the cutting mill (three bearing points) virtually eliminates vibration



121860

COBALT

Diameter	Overall Length	Shank Diameter	Code No.	Price $
Inch				
1/4"	45mm	1/4"	121875	**31.38**
5/16"	45mm	1/4"	121876	**36.20**
3/8"	50mm	1/4"	121877	**41.14**
1/2"	50mm	1/4"	121878	**50.99**
5/8"	60mm	3/8"	121879	**59.13**
3/4"	60mm	3/8"	121880	**68.99**
1"	70mm	3/8"	121881	**83.77**
7pc Set			121861	**370.53**
Metric				
6.3mm	45mm	5mm	121868	**36.20**
10.4mm	50mm	6mm	121869	**48.64**
16.5mm	61mm	10mm	121872	**68.34**
20.5mm	64mm	10mm	121873	**80.44**
25.0mm	68mm	10mm	121874	**97.91**
5pc Set			121860	**328.00**

82° Cobalt 3 Flute Countersinks - TiN Coated

- M35 Cobalt - TiN coated
- Wide flutes provide good chip evacuation
- Positive cut
- Constant profile aids regrinding of the tool
- Self-centering of the cutting mill (three bearing points) virtually eliminates vibration



121870

COBALT TiN

Diameter	Overall Length	Shank Diameter	Code No.	Price $
Inch				
1/4"	45mm	1/4"	121887	**41.14**
5/16"	45mm	1/4"	121888	**47.77**
3/8"	50mm	1/4"	121889	**52.59**
1/2"	50mm	1/4"	121890	**64.06**
5/8"	60mm	3/8"	121891	**75.52**
3/4"	60mm	3/8"	121892	**86.98**
1"	70mm	3/8"	121893	**103.37**
7pc Set			121871	**470.58**
Metric				
10.4mm	50mm	6mm	121882	**59.13**
16.5mm	61mm	10mm	121883	**85.48**
20.5mm	64mm	10mm	121884	**98.45**
25.0mm	68mm	10mm	121885	**117.51**
31.0mm	73mm	12mm	121886	**167.43**
5pc Set			121870	**508.28**

Six Flute Countersinks HSS — 60°, 82°, 90°, 100°, 110°, 120°



- Flutes are staggered to ensure smoother, chatter-free cutting action
- Steam black oxide surface treatment enhances tool life and prevents galling
- 100% CNC manufactured to tighter than industry standard tolerances

STM PREMIUM

BLACK OXIDE | HSS

Body Dia. (in.)	Shank Dia. (in.)	60°	60° HSS Code No.	Price $	82°	82° HSS Code No.	Price $	90°	90° HSS Code No.	Price $
1/8	1/8	HS6-1/8-60	121200	**20.59**	HS6-1/8-82	121230	**20.59**	HS6-1/8-90	121260	**20.59**
3/16	3/16	HS6-3/16-60	121202	**19.70**	HS6-3/16-82	121232	**21.16**	HS6-3/16-90	121262	**19.59**
1/4	1/4	HS6-1/4-60	121204	**21.61**	HS6-1/4-82	121234	**20.93**	HS6-1/4-90	121264	**20.93**
5/16	1/4	HS6-5/16-60	121206	**23.96**	HS6-5/16-82	121236	**22.50**	HS6-5/16-90	121266	**23.96**
3/8	1/4	HS6-3/8-60	121208	**26.64**	HS6-3/8-82	121238	**26.42**	HS6-3/8-90	121268	**24.96**
1/2	3/8	HS6-1/2-60	121210	**33.35**	HS6-1/2-82	121240	**33.35**	HS6-1/2-90	121270	**31.45**
5/8	3/8	HS6-5/8-60	121212	**50.71**	HS6-5/8-82	121242	**48.25**	HS6-5/8-90	121272	**48.02**
3/4	1/2	HS6-3/4-60	121214	**66.93**	HS6-3/4-82	121244	**66.93**	HS6-3/4-90	121274	**63.46**
7/8	1/2	HS6-7/8-60	121216	**89.77**	HS6-7/8-82	121246	**93.92**	HS6-7/8-90	121276	**88.88**
1	1/2	HS6-1-60	121218	**108.92**	HS6-1-82	121248	**108.92**	HS6-1-90	121278	**108.92**
1-1/4	1/2	HS6-1-1/4-60	121220	**153.91**	HS6-1-1/4-82	121250	**153.91**	HS6-1-1/4-90	121280	**153.91**
1-1/2	3/4	HS6-1-1/2-60	121222	**235.29**	HS6-1-1/2-82	121252	**238.42**	HS6-1-1/2-90	121282	**227.78**
2	3/4	HS6-2-60	121224	**404.98**	HS6-2-82	121254	**423.78**	HS6-2-90	121284	**417.29**
2-1/2	3/4	HS6-2-1/2-60	121226	**1,158.31**	HS6-2-1/2-82	121256	**1,120.92**	HS6-2-1/2-90	121286	**1,120.92**
3	3/4	HS6-3-60	121228	**1,308.75**	HS6-3-82	121258	**1,308.75**	HS6-3-90	121288	**1,417.66**

Body Dia. (in.)	Shank Dia. (in.)	100°	100° HSS Code No.	Price $	110°	110° HSS Code No.	Price $	120°	120° HSS Code No.	Price $
1/8	1/8	HS6-1/8-100	121261	**19.03**	HS6-1/8-110	121292	**20.59**	HS6-1/8-120	121318	**20.59**
3/16	3/16	HS6-3/16-100	121263	**19.59**	HS6-3/16-110	121294	**19.59**	HS6-3/16-120	121320	**19.59**
1/4	1/4	HS6-1/4-100	121265	**21.61**	HS6-1/4-110	121296	**20.04**	HS6-1/4-120	121322	**21.61**
5/16	1/4	HS6-5/16-100	121267	**25.18**	HS6-5/16-110	121298	**22.16**	HS6-5/16-120	121324	**23.06**
3/8	1/4	HS6-3/8-100	121269	**24.96**	HS6-3/8-110	121300	**25.18**	HS6-3/8-120	121326	**26.42**
1/2	3/8	HS6-1/2-100	121271	**33.35**	HS6-1/2-110	121302	**31.45**	HS6-1/2-120	121328	**33.48**
5/8	3/8	HS6-5/8-100	121273	**48.02**	HS6-5/8-110	121304	**48.02**	HS6-5/8-120	121330	**48.02**
3/4	1/2	HS6-3/4-100	121275	**66.26**	HS6-3/4-110	121306	**62.35**	HS6-3/4-120	121332	**66.93**
7/8	1/2	HS6-7/8-100	121277	**92.35**	HS6-7/8-110	121308	**87.20**	HS6-7/8-120	121334	**92.35**
1	1/2	HS6-1-100	121279	**103.99**	HS6-1-110	121310	**100.97**	HS6-1-120	121336	**103.99**
1-1/4	1/2	HS6-1-1/4-100	121281	**152.23**	HS6-1-1/4-110	121312	**142.83**	HS6-1-1/4-120	121338	**148.42**
1-1/2	3/4	HS6-1-1/2-100	121283	**235.29**	HS6-1-1/2-110	121314	**220.97**	HS6-1-1/2-120	121340	**230.02**
2	3/4	HS6-2-100	121285	**417.29**	HS6-2-110	121316	**392.34**	HS6-2-120	121342	**417.29**

6 Flute HSS Chatterless Countersinks



STM PREMIUM

HSS

Flute Dia. (in.)	Shank Dia. (in.)	60° Code No.	Price $	82° Code No.	Price $	90° Code No.	Price $
3/16	3/16	120700	**15.19**	120713	**15.19**	120726	**15.19**
1/4	1/4	120701	**15.94**	120714	**15.94**	120727	**15.94**
5/16	1/4	120702	**18.59**	120715	**18.59**	120728	**18.59**
3/8	1/4	120703	**22.10**	120716	**22.10**	120729	**22.10**
1/2	1/4	120704	**28.63**	120717	**28.63**	120730	**28.63**
5/8	1/2	120705	**42.06**	120718	**42.06**	120731	**42.06**
3/4	-	120706	**55.63**	120719	**55.63**	120732	**55.63**
7/8	1/2	120707	**73.59**	120720	**73.59**	120733	**73.59**
1	-	120708	**88.65**	120721	**88.65**	120734	**88.65**
1-1/4	3/4	120709	**129.84**	120722	**129.84**	120735	**129.84**
1-1/2	3/4	120710	**177.94**	120723	**177.94**	120736	**177.94**
1-3/4	1	120711	**231.80**	-	**-**	120737	**231.80**
2	1	120712	**276.88**	120725	**276.88**	120738	**276.88**

Six Flute TiN Coated Premium Cobalt Countersinks — 60°, 82°, 90°, 100°, 110°, 120°

- Excellent for countersinking abrasive, high-strength, heat resistant, exotic and other difficult to machine materials
- TiN coated for higher surface hardness and better lubricity to enhance productivity and longer tool life



M42 HSS COBALT | TiN

Body Dia. (in.)	Shank Dia. (in.)	60°	60° Code No.	Price $	82°	82° Code No.	Price $	90°	90° Code No.	Price $
1/8	1/8	HSP-1/8-60T	121350	**28.77**	HSP-1/8-82T	121372	**29.66**	HSP-1/8-90T	121394	**29.66**
3/16	3/16	HSP-3/16-60T	121352	**31.12**	HSP-3/16-82T	121374	**31.12**	HSP-3/16-90T	121396	**31.12**
1/4	1/4	HSP-1/4-60T	121354	**33.35**	HSP-1/4-82T	121376	**33.35**	HSP-1/4-90T	121398	**33.35**
5/16	1/4	HSP-5/16-60T	121356	**38.73**	HSP-5/16-82T	121378	**38.73**	HSP-5/16-90T	121400	**36.72**
3/8	1/4	HSP-3/8-60T	121358	**40.52**	HSP-3/8-82T	121380	**42.10**	HSP-3/8-90T	121402	**42.10**
1/2	3/8	HSP-1/2-60T	121360	**55.07**	HSP-1/2-82T	121382	**54.51**	HSP-1/2-90T	121404	**54.51**
5/8	3/8	HSP-5/8-60T	121362	**77.58**	HSP-5/8-82T	121384	**80.03**	HSP-5/8-90T	121406	**76.90**
3/4	1/2	HSP-3/4-60T	121364	**116.18**	HSP-3/4-82T	121386	**116.64**	HSP-3/4-90T	121408	**116.64**
7/8	1/2	HSP-7/8-60T	121366	**142.27**	HSP-7/8-82T	121388	**142.27**	HSP-7/8-90T	121410	**142.27**
1	1/2	HSP-1-60T	121368	**156.48**	HSP-1-82T	121390	**161.41**	HSP-1-90T	121412	**156.48**
1-1/4	1/2	HSP-1-1/4-60T	121370	**253.42**	HSP-1-1/4-82T	121392	**258.91**	HSP-1-1/4-90T	121414	**253.42**

Body Dia. (in.)	Shank Dia. (in.)	100°	100° Code No.	Price $	110°	110° Code No.	Price $	120°	120° Code No.	Price $
1/8	1/8	HSP-1/8-100	121416	**27.76**	HSP-1/8-110	121436	**27.76**	HSP-1/8-120	121456	**28.77**
3/16	3/16	HSP-3/16-100	121418	**31.12**	HSP-3/16-110	121438	**29.21**	HSP-3/16-120	121458	**32.81**
1/4	1/4	HSP-1/4-100	121420	**33.35**	HSP-1/4-110	121440	**31.23**	HSP-1/4-120	121460	**31.23**
5/16	1/4	HSP-5/16-100	121422	**38.73**	HSP-5/16-110	121442	**36.72**	HSP-5/16-120	121462	**36.72**
3/8	1/4	HSP-3/8-100	121424	**40.19**	HSP-3/8-110	121444	**40.07**	HSP-3/8-120	121464	**42.31**
1/2	3/8	HSP-1/2-100	121426	**57.20**	HSP-1/2-110	121446	**57.20**	HSP-1/2-120	121466	**57.20**
5/8	3/8	HSP-5/8-100	121428	**77.58**	HSP-5/8-110	121448	**77.68**	HSP-5/8-120	121468	**80.03**
3/4	1/2	HSP-3/4-100	121430	**116.18**	HSP-3/4-110	121450	**108.23**	HSP-3/4-120	121470	**116.18**
7/8	1/2	HSP-7/8-100	121432	**132.86**	HSP-7/8-110	121452	**132.86**	HSP-7/8-120	121472	**127.71**
1	1/2	HSP-1-100	121434	**156.48**	HSP-1-110	121454	**149.66**	HSP-1-120	121474	**156.48**

6 Flute Carbide Countersinks

For use on hardened steel up to 60HRC, high temperature alloys and other tough jobs.



Cutting Dia. (in.)	Shank Dia. (in.)	Included Angle	Code No.	Price $
1/4	1/4	60°	172920	**41.93**
1/4	1/4	82°	172921	**41.93**
1/4	1/4	90°	172922	**41.93**
3/8	1/4	60°	172923	**68.95**
3/8	1/4	82°	172924	**68.95**
3/8	1/4	90°	172925	**68.95**
1/2	1/4	60°	172926	**91.67**
1/2	1/4	82°	172927	**91.67**
1/2	1/4	90°	172928	**91.67**
5/8	3/8	60°	172929	**129.29**
5/8	3/8	82°	172930	**129.29**
5/8	3/8	90°	172931	**129.29**
3/4	3/8	60°	172932	**189.20**
3/4	3/8	82°	172933	**189.20**
3/4	3/8	90°	172934	**189.20**
1	1/2	60°	172935	**260.62**
1	1/2	82°	172936	**260.62**
1	1/2	90°	172937	**260.62**

Multi-Flute Carbide Countersinks

For use on hardened steel up to 60HRC to countersink or chamfer.



Cutting Dia. (in.)	Shank Dia. (in.)	Included Angle	Code No.	Price $
1/4	1/4	60°	172900	**39.00**
1/4	1/4	82°	172901	**39.00**
1/4	1/4	90°	172902	**39.00**
3/8	1/4	60°	172903	**43.51**
3/8	1/4	82°	172904	**43.51**
3/8	1/4	90°	172905	**43.51**
1/2	1/4	60°	172906	**61.94**
1/2	1/4	82°	172907	**61.94**
1/2	1/4	90°	172908	**61.94**
5/8	3/8	60°	172909	**85.11**
5/8	3/8	82°	172910	**85.11**
5/8	3/8	90°	172911	**85.11**
3/4	3/8	60°	172912	**114.38**
3/4	3/8	82°	172913	**114.38**
3/4	3/8	90°	172914	**114.38**
1	1/2	60°	172915	**182.64**
1	1/2	82°	172916	**182.64**
1	1/2	90°	172917	**182.64**

Carbide Six Flute Countersinks — 60°, 82°, 90°, 100°



PREMIUM

CARBIDE

Body Dia. (in.)	Shank Dia. (in.)	60°	60° Code No.	Price $	82°	82° Code No.	Price $	90°	90° Code No.	Price $	100°	100° Code No.	Price $
1/8	1/8	C6-1/8-60	121748	**30.56**	C6-1/8-82	121764	**30.23**	C6-1/8-90	121780	**28.99**	C6-1/8-100	121796	**30.23**
3/16	3/16	C6-3/16-60	121749	**36.15**	C6-3/16-82	121765	**37.49**	C6-3/16-90	121781	**36.15**	C6-3/16-100	121797	**35.48**
1/4	1/4	C6-1/4-60	121750	**46.34**	C6-1/4-82	121766	**46.78**	C6-1/4-90	121782	**46.78**	C6-1/4-100	121798	**44.33**
3/8	1/4	C6-3/8-60	121751	**84.84**	C6-3/8-82	121767	**87.64**	C6-3/8-90	121783	**87.64**	C6-3/8-100	121799	**87.64**
1/2	3/8	C6-1/2-60	121752	**126.14**	C6-1/2-82	121768	**134.55**	C6-1/2-90	121784	**133.31**	C6-1/2-100	121800	**126.14**
5/8	1/2	C6-5/8-60	121753	**162.31**	C6-5/8-82	121769	**179.88**	C6-5/8-90	121785	**164.33**	C6-5/8-100	121801	**164.33**
3/4	1/2	C6-3/4-60	121754	**228.91**	C6-3/4-82	121770	**223.53**	C6-3/4-90	121786	**242.68**	C6-3/4-100	121802	**228.91**
1	1/2	C6-1-60	121755	**348.57**	C6-1-82	121771	**376.10**	C6-1-90	121787	**348.57**	C6-1-100	121803	**348.57**

Six Flute Double End HSS and Carbide Countersinks — 60°, 82°, 90°, 100°, 120°

- Two cutting ends give you twice the tool life of a single end tool



PREMIUM

CARBIDE HSS

Body Dia. (in.)	Overall Length (in.)	Material Grade	60°	60° Code No.	Price $	82°	82° Code No.	Price $	90°	90° Code No.	Price $
1/8	1-1/2	HSS	DHS-1/8-60	121476	**31.12**	DHS-1/8-82	121492	**33.14**	DHS-1/8-90	121508	**31.34**
		Carbide	DC-1/8-60	121477	**48.69**	DC-1/8-82	121493	**51.72**	DC-1/8-90	121509	**54.63**
3/16	2	HSS	DHS-3/16-60	121478	**36.38**	DHS-3/16-82	121494	**34.59**	DHS-3/16-90	121510	**36.27**
		Carbide	DC-3/16-60	121479	**72.08**	DC-3/16-82	121495	**65.15**	DC-3/16-90	121511	**62.35**
1/4	2	HSS	DHS-1/4-60	121480	**35.82**	DHS-1/4-82	121496	**39.62**	DHS-1/4-90	121512	**35.82**
		Carbide	DC-1/4-60	121481	**84.62**	DC-1/4-82	121497	**80.70**	DC-1/4-90	121513	**88.44**
5/16	2-1/2	HSS	DHS-5/16-60	121482	**41.87**	DHS-5/16-82	121498	**42.31**	DHS-5/16-90	121514	**44.33**
		Carbide	DC-5/16-60	121483	**127.49**	DC-5/16-82	121499	**124.25**	DC-5/16-90	121515	**127.49**
3/8	2-1/2	HSS	DHS-3/8-60	121484	**49.58**	DHS-3/8-82	121500	**47.24**	DHS-3/8-90	121516	**44.67**
		Carbide	DC-3/8-60	121485	**156.71**	DC-3/8-82	121501	**156.71**	DC-3/8-90	121517	**152.68**
1/2	3	HSS	DHS-1/2-60	121486	**60.21**	DHS-1/2-82	121502	**60.21**	DHS-1/2-90	121518	**60.21**
		Carbide	DC-1/2-60	121487	**215.82**	DC-1/2-82	121503	**215.82**	DC-1/2-90	121519	**210.88**
5/8	3-1/2	HSS	DHS-5/8-60	121488	**81.37**	DHS-5/8-82	121504	**83.73**	DHS-5/8-90	121520	**86.42**
		Carbide	DC-5/8-60	121489	**283.75**	DC-5/8-82	121505	**283.75**	DC-5/8-90	121521	**306.48**
3/4	4	HSS	DHS-3/4-60	121490	**125.93**	DHS-3/4-82	121506	**125.93**	DHS-3/4-90	121522	**118.99**
		Carbide	DC-3/4-60	121491	**402.74**	DC-3/4-82	121507	**402.74**	DC-3/4-90	121523	**402.74**

Body Dia. (in.)	Overall Length (in.)	Material Grade	100°	100° Code No.	Price $	120°	120° Code No.	Price $
1/8	1-1/2	HSS	DHS-1/8-100	121524	**31.12**	DHS-1/8-120	121540	**32.35**
		Carbide	DC-1/8-100	121525	**48.69**	DC-1/8-120	121541	**48.69**
3/16	2	HSS	DHS-3/16-100	121526	**35.48**	DHS-3/16-120	121542	**36.38**
		Carbide	DC-3/16-100	121527	**65.15**	DC-3/16-120	121543	**61.45**
1/4	2	HSS	DHS-1/4-100	121528	**37.49**	DHS-1/4-120	121544	**37.49**
		Carbide	DC-1/4-100	121529	**83.28**	DC-1/4-120	121545	**80.70**
5/16	2-1/2	HSS	DHS-5/16-100	121530	**40.19**	DHS-5/16-120	121546	**41.87**
		Carbide	DC-5/16-100	121531	**130.97**	DC-5/16-120	121547	**127.49**
3/8	2-1/2	HSS	DHS-3/8-100	121532	**44.67**	DHS-3/8-120	121548	**47.24**
		Carbide	DC-3/8-100	121533	**157.71**	DC-3/8-120	121549	**145.41**
1/2	3	HSS	DHS-1/2-100	121534	**60.21**	DHS-1/2-120	121550	**60.21**
		Carbide	DC-1/2-100	121535	**213.57**	DC-1/2-120	121551	**215.82**
5/8	3-1/2	HSS	DHS-5/8-100	121536	**81.37**	DHS-5/8-120	121552	**83.96**
		Carbide	DC-5/8-100	121537	**283.75**	DC-5/8-120	121553	**283.75**
3/4	4	HSS	DHS-3/4-100	121538	**118.99**	DHS-3/4-120	121554	**125.93**
		Carbide	DC-3/4-100	121539	**402.74**	DC-3/4-120	121555	**402.74**

HSS Chucking Reamers

This high quality tool is designed for most standard reaming needs. Available in straight or spiral flutes.

Spiral Flute



Straight Flute



STM PREMIUM

HSS–M2

Dia.	Decimal Equiv. (in.)	No. of Flutes	Flute Length (in.)	Overall Length ASA	Shank Dia. (in.)	Straight Flute Code No.	Price $	R.H. Spiral Code No.	Price $	L.H. Spiral Code No.	Price $
1/8	0.1250	4	7/8	3-1/2	0.1190	111107	**27.50**	111105	**28.04**	128680	**31.88**
0.1260	0.1260	4	7/8	3-1/2	0.1190	111402	**27.50**	128682	**31.45**	128683	**34.43**
#30	0.1285	4	7/8	3-1/2	0.1190	128684	**27.50**	128685	**31.45**	128686	**34.43**
#29	0.1360	4	1	4	0.1275	128687	**32.30**	128688	**36.99**	128689	**42.43**
#28	0.1405	4	1	4	0.1350	128690	**32.30**	128691	**36.99**	128692	**42.43**
9/64	0.1406	4	1	4	0.1350	111112	**32.30**	111110	**36.99**	–	**-**
#27	0.1440	4	1	4	0.1350	128693	**32.30**	128694	**36.99**	128695	**42.43**
#26	0.1470	4	1	4	0.1430	128696	**32.30**	128697	**36.99**	128698	**42.43**
#25	0.1495	4	1	4	0.1430	128699	**32.30**	128700	**36.99**	128702	**42.43**
#24	0.1520	4	1	4	0.1460	128701	**32.30**	128703	**36.99**	128704	**42.43**
#23	0.1540	4	1	4	0.1460	128705	**32.30**	128706	**36.99**	128707	**42.43**
5/32	0.1562	4	1	4	0.1510	111117	**32.30**	111115	**36.99**	128708	**42.43**
#22	0.1570	6	1	4	0.1510	128709	**32.30**	128710	**36.99**	128711	**42.43**
#21	0.1590	6	1-1/8	4-1/2	0.1530	128712	**34.65**	128713	**39.77**	128714	**45.63**
#20	0.1610	6	1-1/8	4-1/2	0.1530	128715	**34.65**	128716	**39.77**	128717	**45.63**
#19	0.1660	6	1-1/8	4-1/2	0.1595	128718	**34.65**	128719	**39.77**	128720	**45.63**
#18	0.1695	6	1-1/8	4-1/2	0.1595	128721	**34.65**	128722	**39.77**	128723	**45.63**
11/64	0.1719	6	1-1/8	4-1/2	0.1645	111122	**34.65**	111120	**39.77**	128724	**45.63**
#17	0.1730	6	1-1/8	4-1/2	0.1645	128725	**34.65**	128726	**39.77**	128727	**45.63**
#16	0.1770	6	1-1/8	4-1/2	0.1704	128728	**34.65**	128729	**39.77**	128730	**45.63**
#15	0.1800	6	1-1/8	4-1/2	0.1755	128731	**34.65**	128732	**39.77**	128733	**45.63**
#14	0.1820	6	1-1/8	4-1/2	0.1755	128734	**34.65**	128735	**39.77**	128736	**45.63**
#13	0.1850	6	1-1/8	4-1/2	0.1805	128737	**34.65**	128738	**39.77**	128739	**45.63**
0.1855	0.1855	6	1-1/8	4-1/2	0.1805	128740	**54.48**	128741	**62.47**	–	**-**
0.1865	0.1865	6	1-1/8	4-1/2	0.1805	111404	**34.65**	128744	**39.77**	128745	**45.63**
0.1870	0.1870	6	1-1/8	4-1/2	0.1805	128746	**54.48**	128747	**62.47**	–	**-**
3/16	0.1875	6	1-1/8	4-1/2	0.1805	111127	**34.65**	111125	**39.77**	128749	**45.63**
0.1885	0.1885	6	1-1/8	4-1/2	0.1805	111406	**34.65**	128751	**39.77**	128752	**45.63**
#12	0.1890	6	1-1/8	4-1/2	0.1805	128753	**34.65**	128754	**39.77**	128755	**45.63**
#11	0.1910	6	1-1/4	5	0.1860	128756	**39.02**	128757	**44.45**	128758	**50.75**
#10	0.1935	6	1-1/4	5	0.1860	128759	**39.02**	128760	**44.45**	128761	**50.75**
#9	0.1960	6	1-1/4	5	0.1895	128762	**39.02**	128763	**44.45**	128764	**50.75**
#8	0.1990	6	1-1/4	5	0.1895	128765	**39.02**	128766	**44.45**	128767	**50.75**
#7	0.2010	6	1-1/4	5	0.1945	128768	**39.02**	128769	**44.45**	128770	**50.75**
13/64	0.2031	6	1-1/4	5	0.1945	111132	**39.02**	111130	**44.45**	128771	**50.75**
#6	0.2040	6	1-1/4	5	0.1945	128772	**39.02**	128773	**44.45**	128774	**50.75**
#5	0.2055	6	1-1/4	5	0.2016	128775	**39.02**	128776	**44.45**	128777	**50.75**
#4	0.2090	6	1-1/4	5	0.2016	128778	**39.02**	128779	**44.45**	128780	**50.75**
#3	0.2130	6	1-1/4	5	0.2075	128781	**39.02**	128782	**44.45**	128783	**50.75**
7/32	0.2188	6	1-1/4	5	0.2075	111137	**39.02**	111135	**44.45**	128784	**50.75**
#2	0.2210	6	1-1/2	6	0.2173	128785	**39.97**	128786	**45.95**	128787	**52.45**
#1	0.2280	6	1-1/2	6	0.2173	128788	**39.97**	128789	**45.95**	128790	**52.45**
A	0.2340	6	1-1/2	6	0.2265	128791	**39.97**	128792	**45.95**	128793	**52.45**
15/64	0.2344	6	1-1/2	6	0.2265	111142	**39.97**	111140	**45.95**	128794	**52.45**
B	0.2380	6	1-1/2	6	0.2329	128795	**42.00**	128796	**45.95**	128797	**52.45**
C	0.2420	6	1-1/2	6	0.2329	128798	**42.00**	128799	**45.95**	128800	**52.45**
D	0.2460	6	1-1/2	6	0.2329	128801	**42.00**	128802	**45.95**	128803	**52.45**
0.2480	0.2480	6	1-1/2	6	0.2405	128804	**54.48**	128805	**62.47**	–	**-**
0.2490	0.2490	6	1-1/2	6	0.2405	111408	**37.52**	128808	**55.01**	128809	**47.54**
0.2495	0.2495	6	1-1/2	6	0.2405	128810	**54.48**	128811	**62.47**	–	**-**
1/4 E	0.2500	6	1-1/2	6	0.2405	111147	**34.54**	111145	**45.95**	128813	**44.45**
0.2510	0.2510	6	1-1/2	6	0.2405	111410	**37.52**	128815	**45.95**	128816	**55.01**
F	0.2570	6	1-1/2	6	0.2485	128817	**42.00**	128818	**45.95**	128819	**55.01**
G	0.2610	6	1-1/2	6	0.2485	128820	**42.00**	128821	**45.95**	128822	**55.01**
17/64	0.2656	6	1-1/2	6	0.2485	111152	**46.48**	111150	**51.71**	128823	**57.14**
H	0.2660	6	1-1/2	6	0.2485	128824	**46.48**	128825	**51.71**	128826	**57.14**
I	0.2720	6	1-1/2	6	0.2485	128827	**46.48**	128828	**51.71**	128829	**57.14**
J	0.2770	6	1-1/2	6	0.2485	128830	**46.48**	128831	**51.71**	128832	**57.14**
K	0.2810	6	1-1/2	6	0.2485	128833	**46.48**	128834	**51.71**	128835	**52.88**
9/32	0.2812	6	1-1/2	6	0.2485	111157	**46.48**	111155	**51.71**	128836	**57.14**
L	0.2900	6	1-1/2	6	0.2792	128837	**47.01**	128838	**51.71**	128839	**57.14**
M	0.2950	6	1-1/2	6	0.2792	128840	**47.01**	128841	**77.39**	128842	**57.14**
19/64	0.2969	6	1-1/2	6	0.2792	111162	**47.01**	111160	**51.71**	128843	**57.14**
N	0.3020	6	1-1/2	6	0.2792	128844	**47.01**	128845	**51.71**	128846	**57.14**
0.3105	0.3105	6	1-1/2	6	0.2792	128847	**68.12**	128848	**77.39**	–	**-**
0.3115	0.3115	6	1-1/2	6	0.2792	111412	**44.45**	128851	**77.39**	128852	**57.14**
0.3120	0.3120	6	1-1/2	6	0.2792	128853	**68.12**	128854	**77.39**	–	**-**

Dia.	Decimal Equiv. (in.)	No. of Flutes	Flute Length (in.)	Overall Length ASA	Shank Dia. (in.)	Straight Flute Code No.	Price $	R.H. Spiral Code No.	Price $	L.H. Spiral Code No.	Price $
5/16	0.3125	6	1-1/2	6	0.2792	111167	**42.22**	111165	**46.59**	128856	**52.88**
0.3135	0.3135	6	1-1/2	6	0.2792	111414	**44.45**	128858	**48.62**	128859	**57.14**
O	0.3160	6	1-1/2	6	0.2792	–	**-**	128861	**51.81**	128862	**59.28**
P	0.3230	6	1-1/2	6	0.2792	128863	**50.32**	128864	**53.72**	128865	**62.25**
21/64	0.3281	6	1-1/2	6	0.2792	111172	**50.32**	111170	**55.01**	128866	**62.25**
Q	0.3320	6	1-1/2	6	0.2792	128867	**50.32**	128868	**55.01**	128869	**62.25**
R	0.3390	6	1-1/2	6	0.2792	128870	**50.32**	128871	**55.01**	128872	**62.25**
11/32	0.3438	6	1-1/2	6	0.2792	111177	**50.32**	111175	**55.01**	128873	**62.25**
S	0.3480	6	1-3/4	7	0.3105	128874	**50.32**	128875	**55.01**	128876	**62.25**
T	0.3580	6	1-3/4	7	0.3105	128877	**50.32**	128878	**55.01**	128879	**62.25**
23/64	0.3594	6	1-3/4	7	0.3105	111182	**50.32**	111180	**55.01**	128880	**62.25**
U	0.3680	6	1-3/4	7	0.3105	128881	**50.32**	128882	**55.01**	128883	**62.25**
0.3730	0.3730	6	1-3/4	7	0.3105	128884	**94.67**	–	**-**	–	**-**
0.3740	0.3740	6	1-3/4	7	0.3105	111416	**48.08**	128888	**55.01**	128889	**60.23**
3/8	0.3750	6	1-3/4	7	0.3105	111187	**45.31**	111185	**50.32**	128893	**57.14**
0.3760	0.3760	6	1-3/4	7	0.3105	111418	**48.08**	128895	**55.01**	128896	**60.23**
V	0.3770	6	1-3/4	7	0.3105	128897	**54.90**	128898	**60.23**	128899	**67.59**
W	0.3860	6	1-3/4	7	0.3105	128900	**54.90**	128901	**60.23**	128902	**67.59**
25/64	0.3906	6	1-3/4	7	0.3105	111192	**54.90**	111190	**60.23**	–	**-**
X	0.3970	6	1-3/4	7	0.3105	128903	**54.90**	128904	**60.23**	128905	**67.59**
Y	0.4040	6	1-3/4	7	0.3105	128906	**57.03**	128907	**62.79**	128908	**71.85**
13/32	0.4062	6	1-3/4	7	0.3105	111197	**53.52**	111195	**62.79**	128909	**71.85**
Z	0.4130	6	1-3/4	7	0.3730	128910	**57.03**	128911	**62.79**	128912	**71.85**
27/64	0.4219	6	1-3/4	7	0.3730	111202	**57.03**	111200	**62.79**	128913	**71.85**
0.4355	0.4355	6	1-3/4	7	0.3730	128914	**81.87**	128915	**87.74**	–	**-**
0.4365	0.4365	6	1-3/4	7	0.3730	111420	**57.03**	128918	**60.12**	128919	**71.85**
0.4370	0.4370	6	1-3/4	7	0.3730	128917	**81.87**	128923	**87.74**	–	**-**
7/16	0.4375	6	1-3/4	7	0.3730	111207	**52.88**	111205	**59.28**	128925	**67.59**
0.4385	0.4385	6	1-3/4	7	0.3730	111422	**57.03**	128926	**62.79**	128927	**71.85**
29/64	0.4531	6	1-3/4	7	0.3730	111212	**62.47**	111210	**68.44**	128928	**77.71**
15/32	0.4688	6	1-3/4	7	0.3730	111217	**62.47**	111215	**68.44**	128929	**77.71**
31/64	0.4844	6	2	8	0.4355	111222	**62.47**	111220	**68.44**	128930	**77.71**
0.4980	0.4980	6	2	8	0.4355	–	**-**	128931	**95.09**	–	**-**
0.4990	0.4990	6	2	8	0.4355	111424	**58.84**	128934	**68.44**	128935	**68.87**
0.4995	0.4995	6	2	8	0.4355	128936	**86.67**	128937	**95.09**	–	**-**
1/2	0.5000	6	2	8	0.4355	111227	**58.84**	111225	**68.44**	128939	**73.03**
0.5010	0.5010	6	2	8	0.4355	111426	**58.84**	128940	**148.71**	128941	**77.71**
33/64	0.5156	6	2	8	0.4355	111232	**76.22**	111230	**92.96**	–	**-**
17/32	0.5312	6	2	8	0.4355	111237	**76.22**	111235	**81.02**	128942	**88.81**
35/64	0.5469	6	2	8	0.4355	111242	**76.22**	111240	**97.22**	–	**-**
9/16	0.5625	6	2	8	0.4355	111247	**76.22**	111245	**82.41**	128943	**88.27**
37/64	0.5781	6	2	8	0.4355	111252	**76.22**	111250	**95.09**	–	**-**
19/32	0.5938	6	2	8	0.4355	111257	**76.22**	111255	**84.54**	128944	**88.81**
39/64	0.6094	6	2	8	0.4355	111262	**86.67**	111260	**126.75**	–	**-**
5/8	0.6250	8	2-1/4	9	0.5620	111267	**86.67**	111265	**95.09**	128945	**98.18**
41/64	0.6406	6	2-1/4	9	0.5620	111272	**86.67**	111270	**117.16**	–	**-**
21/32	0.6562	8	2-1/4	9	0.5620	111277	**92.96**	111275	**101.38**	128946	**109.59**
11/16	0.6875	8	2-1/4	9	0.5620	111282	**98.18**	111280	**107.78**	128947	**116.20**
23/32	0.7188	8	2-1/4	9	0.5620	111287	**104.69**	111285	**120.36**	128948	**129.96**
3/4	0.7500	8	2-1/2	9-1/2	0.6245	111292	**121.53**	111290	**120.36**	128949	**129.96**
25/32	0.7812	10	2-1/2	9-1/2	0.6245	111297	**121.53**	111295	**130.91**	128950	**143.07**
13/16	0.8125	10	2-1/2	9-1/2	0.6245	111302	**126.54**	111300	**133.15**	128951	**143.07**
27/32	0.8438	10	2-1/2	9-1/2	0.6245	111307	**145.72**	111305	**156.38**	128952	**166.94**
7/8	0.8750	10	2-5/8	10	0.7495	111312	**145.72**	111310	**161.50**	128953	**181.65**
29/32	0.9062	10	2-5/8	10	0.7495	111317	**161.50**	111315	**177.39**	128954	**244.87**
15/16	0.9375	10	2-5/8	10	0.7495	111322	**161.50**	111320	**177.39**	128955	**188.70**
31/32	0.9688	10	2-5/8	10	0.7495	111327	**171.10**	111325	**194.34**	128956	**209.05**
1	1.0000	10	2-3/4	10-1/2	0.8745	111332	**171.10**	111330	**194.34**	128957	**209.05**
1-1/16	1.0625	12	2-3/4	10-1/2	0.8745	111337	**190.08**	111335	**218.97**	128958	**232.30**
1-1/8	1.1250	12	2-7/8	11	0.8745	111342	**200.74**	111340	**228.13**	128959	**247.96**
1-3/16	1.1875	12	2-7/8	11	0.9995	111347	**242.84**	111345	**266.09**	128960	**289.22**
1-1/4	1.2500	12	3	11-1/2	0.9995	111352	**252.66**	111350	**287.09**	128961	**308.20**
1-5/16	1.3125	12	3	11-1/2	0.9995	111357	**295.51**	111355	**337.73**	128962	**358.73**
1-3/8	1.3750	12	3-1/4	12	0.9995	111362	**309.69**	111360	**356.80**	128963	**377.80**
1-7/16	1.4375	12	3-1/4	12	1.2495	111367	**331.43**	111365	**379.94**	128964	**414.37**
1-1/2	1.5000	12	3-1/2	12-1/2	1.2495	111372	**358.73**	111370	**365.98**	128965	**434.73**

Diameter Tolerances:	**D/P – Dowel pin reamers made to minus tolerance. All other reamers made to a plus tolerance.**	
Through 1/2"	**1/2" Through 5/8"**	**5/8" Through 1"**
+0.0002 +0.005 mm	+0.0002" +0.005 mm	+0.0005" +0.012 mm
-0.0000" - 0.0 mm	-0.0000" -0.000 mm	+0.001" +0.0025 mm
This tolerance table applies unless otherwise indicated throughout the catalogue		

Decimal Chucking Reamers HSS

STM PREMIUM

This high quality tool is designed for most standard reaming needs.

- Straight Flute



HSS-M2

Flute Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
0.1230	7/8	3-1/2	111500	**27.50**
0.1245	7/8	3-1/2	111501	**27.50**
0.1255	7/8	3-1/2	111503	**27.50**
0.1265	7/8	3-1/2	111504	**27.50**
0.1270	7/8	3-1/2	111505	**27.50**
0.1280	7/8	3-1/2	111506	**27.50**
0.1290	7/8	3-1/2	111507	**27.50**
0.1295	7/8	3-1/2	111508	**27.50**
0.1300	1	4	111509	**27.50**
0.1370	1	4	111510	**33.65**
0.1375	1	4	111511	**33.65**
0.1380	1	4	111512	**33.65**
0.1400	1	4	111513	**33.65**
0.1410	1	4	111514	**33.65**
0.1415	1	4	111515	**33.65**
0.1420	1	4	111516	**33.65**
0.1520	1	4	111517	**33.65**
0.1560	1	4	111518	**33.65**
0.1580	1-1/8	4-1/2	111519	**36.29**
0.1670	1-1/8	4-1/2	111520	**36.29**
0.1720	1-1/8	4-1/2	111521	**36.29**
0.1740	1-1/8	4-1/2	111522	**36.29**
0.1750	1-1/8	4-1/2	111523	**36.29**
0.1760	1-1/8	4-1/2	111524	**36.29**
0.1770	1-1/8	4-1/2	111525	**36.29**
0.1810	1-1/8	4-1/2	111526	**36.29**
0.1820	1-1/8	4-1/2	111527	**36.29**
0.1840	1-1/8	4-1/2	111528	**37.42**
0.1845	1-1/8	4-1/2	111529	**37.42**
0.1850	1-1/8	4-1/2	111530	**37.42**
0.1855	1-1/8	4-1/2	111531	**37.42**
0.1860	1-1/8	4-1/2	111532	**37.42**
0.1870	1-1/8	4-1/2	111533	**37.42**
0.1875	1-1/8	4-1/2	111534	**37.42**
0.1880	1-1/8	4-1/2	111535	**37.42**
0.1895	1-1/8	4-1/2	111536	**40.93**
0.1900	1-1/8	4-1/2	111537	**40.93**
0.1905	1-1/8	4-1/2	111538	**40.93**
0.1910	1-1/4	5	111539	**40.93**
0.1915	1-1/4	5	111540	**40.93**
0.1920	1-1/4	5	111541	**40.93**
0.1930	1-1/4	5	111542	**40.93**
0.1940	1-1/4	5	111543	**40.93**
0.1950	1-1/4	5	111544	**40.93**
0.1960	1-1/4	5	111545	**40.93**
0.1970	1-1/4	5	111546	**40.93**
0.1980	1-1/4	5	111547	**40.93**
0.1990	1-1/4	5	111548	**40.93**
0.2000	1-1/4	5	111549	**40.93**
0.2020	1-1/4	5	111550	**40.93**
0.2024	1-1/4	5	111551	**40.93**
0.2030	1-1/4	5	111552	**40.93**
0.2050	1-1/4	5	111553	**40.93**
0.2060	1-1/4	5	111554	**40.93**
0.2070	1-1/4	5	111555	**40.93**
0.2080	1-1/4	5	111556	**40.93**
0.2090	1-1/4	5	111557	**40.93**
0.2100	1-1/4	5	111558	**40.93**
0.2110	1-1/4	5	111559	**40.93**
0.2120	1-1/4	5	111560	**22.98**
0.2140	1-1/4	5	111561	**40.93**
0.2150	1-1/4	5	111562	**40.93**
0.2155	1-1/4	5	111563	**40.93**
0.2160	1-1/4	5	111564	**40.93**
0.2170	1-1/4	5	111565	**40.93**
0.2180	1-1/4	5	111566	**40.93**
0.2190	1-1/4	5	111567	**40.93**
0.2200	1-1/4	5	111568	**40.93**
0.2211	1-1/4	5	111569	**40.93**
0.2270	1-1/2	6	111570	**40.93**
0.2300	1-1/2	6	111571	**43.44**
0.2310	1-1/2	6	111572	**43.44**
0.2320	1-1/2	6	111573	**43.44**
0.2340	1-1/2	6	111574	**43.44**
0.2350	1-1/2	6	111575	**43.44**
0.2360	1-1/2	6	111576	**43.44**
0.2370	1-1/2	6	111577	**43.44**
0.2380	1-1/2	6	111578	**43.44**
0.2390	1-1/2	6	111579	**43.44**
0.2400	1-1/2	6	111580	**43.44**
0.2410	1-1/2	6	111581	**43.44**
0.2420	1-1/2	6	111582	**43.44**
0.2430	1-1/2	6	111583	**43.44**
0.2440	1-1/2	6	111584	**43.44**
0.2450	1-1/2	6	111585	**43.44**
0.2460	1-1/2	6	111586	**43.44**
0.2470	1-1/2	6	111587	**43.44**
0.2475	1-1/2	6	111588	**43.44**
0.2480	1-1/2	6	111589	**43.44**
0.2485	1-1/2	6	111590	**43.44**
0.2495	1-1/2	6	111591	**43.44**
0.2505	1-1/2	6	111592	**43.44**
0.2515	1-1/2	6	111593	**43.44**
0.2520	1-1/2	6	111594	**43.44**
0.2530	1-1/2	6	111595	**43.44**
0.2540	1-1/2	6	111596	**43.44**
0.2550	1-1/2	6	111597	**43.44**
0.2560	1-1/2	6	111598	**43.44**
0.2570	1-1/2	6	111599	**43.44**
0.2580	1-1/2	6	111600	**43.44**
0.2590	1-1/2	6	111601	**43.44**
0.2600	1-1/2	6	111602	**43.44**
0.2650	1-1/2	6	111603	**46.34**
0.2690	1-1/2	6	111604	**46.34**
0.2710	1-1/2	6	111605	**46.34**
0.2760	1-1/2	6	111606	**46.34**
0.2770	1-1/2	6	111607	**46.34**
0.2800	1-1/2	6	111608	**46.34**
0.2820	1-1/2	6	111609	**46.34**
0.2830	1-1/2	6	111610	**46.34**
0.2840	1-1/2	6	111611	**46.34**
0.2860	1-1/2	6	111612	**46.34**
0.2870	1-1/2	6	111613	**46.34**
0.2890	1-1/2	6	111614	**46.34**
0.2900	1-1/2	6	111615	**46.34**
0.2920	1-1/2	6	111616	**46.34**
0.2930	1-1/2	6	111617	**46.34**
0.2940	1-1/2	6	111618	**46.34**
0.2960	1-1/2	6	111619	**46.34**
0.2980	1-1/2	6	111620	**43.19**
0.2990	1-1/2	6	111621	**46.34**
0.3030	1-1/2	6	111622	**46.34**
0.3050	1-1/2	6	111623	**46.34**
0.3070	1-1/2	6	111625	**46.34**
0.3090	1-1/2	6	111626	**46.34**
0.3100	1-1/2	6	111627	**46.34**
0.3105	1-1/2	6	111628	**46.34**
0.3110	1-1/2	6	111629	**46.34**
0.3120	1-1/2	6	111630	**46.34**
0.3130	1-1/2	6	111631	**46.34**
0.3140	1-1/2	6	111632	**46.34**
0.3145	1-1/2	6	111633	**46.34**
0.3150	1-1/2	6	111634	**46.34**
0.3160	1-1/2	6	111635	**49.60**
0.3165	1-1/2	6	111636	**49.60**
0.3170	1-1/2	6	111637	**49.60**
0.3180	1-1/2	6	111638	**49.60**
0.3190	1-1/2	6	111639	**49.60**
0.3200	1-1/2	6	111640	**49.60**
0.3220	1-1/2	6	111641	**49.60**
0.3240	1-1/2	6	111642	**49.60**
0.3250	1-1/2	6	111643	**49.60**
0.3270	1-1/2	6	111644	**49.60**
0.3290	1-1/2	6	111646	**48.42**
0.3300	1-1/2	6	111647	**49.60**
0.3370	1-1/2	6	111649	**49.60**
0.3440	1-1/2	6	111650	**49.60**
0.3590	1-3/4	7	111653	**55.38**
0.3690	1-3/4	7	111654	**55.38**

Flute Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
0.3730	1-3/4	7	111655	**55.38**
0.3745	1-3/4	7	111656	**55.38**
0.3755	1-3/4	7	111657	**55.38**
0.3765	1-3/4	7	111658	**55.38**
0.3770	1-3/4	7	111659	**55.38**
0.3790	1-3/4	7	111660	**55.38**
0.3800	1-3/4	7	111661	**55.38**
0.3860	1-3/4	7	111662	**55.38**
0.3880	1-3/4	7	111663	**55.38**
0.4000	1-3/4	7	111664	**55.38**
0.4070	1-3/4	7	111665	**55.38**
0.4300	1-3/4	7	111666	**55.38**
0.4355	1-3/4	7	111668	**55.38**
0.4370	1-3/4	7	111669	**55.38**
0.4390	1-3/4	7	111670	**55.38**
0.4410	1-3/4	7	111671	**61.15**
0.4420	1-3/4	7	111672	**61.15**
0.4430	1-3/4	7	111673	**61.15**
0.4440	1-3/4	7	111674	**61.15**
0.4480	1-3/4	7	111675	**61.15**
0.4490	1-3/4	7	111676	**61.15**
0.4550	1-3/4	7	111677	**61.15**
0.4560	1-3/4	7	111678	**61.15**
0.4820	1-3/4	7	111679	**73.70**
0.4900	2	8	111680	**73.70**
0.4970	2	8	111681	**73.70**
0.4980	2	8	111682	**73.70**
0.4995	2	8	111683	**73.70**
0.5015	2	8	111684	**79.36**
0.5020	2	8	111685	**79.36**
0.5030	2	8	111686	**79.36**
0.5040	2	8	111687	**79.36**
0.5050	2	8	111688	**79.36**
0.5240	2	8	111689	**79.36**
0.5250	2	8	111690	**79.36**
0.5260	2	8	111691	**79.36**
0.5300	2	8	111692	**79.36**
0.5500	2	8	111693	**79.36**
0.5580	2	8	111694	**79.36**
0.5590	2	8	111695	**79.36**
0.5615	2	8	111696	**79.36**
0.5690	2	8	111697	**79.36**
0.5740	2	8	-	**-**
0.5840	2	8	111699	**85.64**
0.5850	2	8	111700	**85.64**
0.5860	2	8	111701	**85.64**
0.5880	2	8	111702	**85.64**
0.6050	2	8	111703	**91.54**
0.6220	2-1/4	9	111704	**91.54**
0.6240	2-1/4	9	111705	**91.54**
0.6250	2-1/4	9	111706	**91.54**
0.6255	2-1/4	9	111707	**91.54**
0.6260	2-1/4	9	111708	**91.54**
0.6300	2-1/4	9	111709	**91.54**
0.7480	2-1/4	9	111710	**123.18**
0.7490	2-1/4	9	111711	**123.18**
0.7510	2-1/2	9-1/2	111712	**126.58**
0.7580	2-1/2	9-1/2	111713	**126.58**

Dowel Pin Reamers HSS

STM PREMIUM

• Straight flute



Flute Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Code No.	Price $
0.1240	7/8	3-1/2	111400	**27.50**
0.1260	7/8	3-1/2	111402	**27.50**
0.1865	1-1/8	4-1/2	111404	**34.65**
0.1885	1-1/8	4-1/2	111406	**34.65**
0.2490	1-1/2	6	111408	**37.52**
0.2510	1-1/2	6	111410	**37.52**
0.3115	1-1/2	6	111412	**44.45**
0.3135	1-1/2	6	111414	**44.45**
0.3740	1-3/4	7	111416	**48.08**
0.3760	1-3/4	7	111418	**48.08**
0.4365	1-3/4	7	111420	**57.03**
0.4385	1-3/4	7	111422	**57.03**
0.4990	2	8	111424	**58.84**
0.5010	2	8	111426	**58.84**

GS TOOLING



GS Tooling Collet Chucks & Collets

Unmatched precision and performance, at a price point you'll love!

See Pages G18-43



Chucking Reamers HSS

QUALITY IMPORT

For general purpose reaming of almost any metal, in drill presses, turret lathes or screw machines.

- Cutting ends are ground with a 45° chamfer for easy hole entry
- Built for machine use, with shorter, deeper flutes than hand reamers
- Right Hand Spiral
- Right Hand Cut
- H7 Tolerance



Straight Flute

- Used for general purpose reaming

Spiral Flute

- Cut with smoother, chatter-free action than straight flute reamers
- Used on more difficult-to-ream materials and holes with irregularities such as keyways
- Easy to guide in the work

Flute Dia. (in.)	Decimal Equiv. (in.)	Flute Length	Overall Length	Spiral Flute Code No.	Price $	Straight Flute Code No.	Price $
1/8	0.1250	7/8	3-1/2	110105	**17.80**	110107	**13.30**
9/64	0.1460	1	4	110110	**27.61**	110112	**20.57**
5/32	0.1562	1	4	110115	**27.61**	110117	**18.69**
11/64	0.1719	1-1/8	4-1/2	110120	**22.31**	110122	**20.57**
3/16	0.1875	1-1/8	4-1/2	110125	**22.31**	110127	**18.69**
13/64	0.2031	1-1/4	5	110130	**31.74**	110132	**24.56**
7/32	0.2187	1-1/4	5	110135	**25.09**	110137	**23.90**
15/64	0.2344	1-1/2	6	110140	**31.74**	110142	**24.56**
1/4	0.2500	1-1/2	6	110145	**24.09**	110147	**21.66**
17/64	0.2656	1-1/2	6	110150	**28.59**	110152	**27.57**
9/32	0.2812	1-1/2	6	110155	**35.50**	110157	**27.57**
19/64	0.2969	1-1/2	6	110160	**35.50**	110162	**18.13**
5/16	0.3125	1-1/2	6	110165	**26.73**	110167	**25.77**
21/64	0.3281	1-1/2	6	110170	**39.73**	110172	**31.25**
11/32	0.3437	1-1/2	6	110175	**31.89**	110177	**31.25**
23/64	0.3594	1-3/4	7	110180	**39.73**	110182	**31.25**
3/8	0.3750	1-3/4	7	110185	**31.38**	110187	**27.57**
25/64	0.3906	1-3/4	7	110190	**36.15**	110192	**32.67**
13/32	0.4062	1-3/4	7	110195	**44.27**	110197	**33.76**
27/64	0.4219	1-3/4	7	110200	**44.27**	110202	**35.58**
7/16	0.4375	1-3/4	7	110205	**35.32**	110207	**32.61**
29/64	0.4531	1-3/4	7	110210	**49.58**	110212	**39.75**
15/32	0.4687	1-3/4	7	110215	**40.05**	110217	**38.52**
31/64	0.4844	2	8	110220	**47.36**	110222	**39.75**
1/2	0.5000	2	8	110225	**36.32**	110227	**35.58**
33/64	0.5156	2	8	110230	**56.14**	110232	**52.49**
17/32	0.5312	2	8	110235	**47.69**	110237	**43.92**
35/64	0.5469	2	8	110240	**72.94**	110242	**55.02**
9/16	0.5625	2	8	110245	**48.69**	110247	**42.85**
37/64	0.5781	2	8	110250	**80.55**	110252	**62.14**
19/32	0.5937	2	8	110255	**66.58**	110257	**50.17**
39/64	0.6094	2	8	110260	**66.85**	110262	**61.78**
5/8	0.6250	2-1/4	9	110265	**51.62**	110267	**50.17**
41/64	0.6406	2-1/4	9	110270	**97.54**	110272	**69.34**
21/32	0.6562	2-1/4	9	110275	**60.49**	110277	**57.54**
11/16	0.6875	2-1/4	9	110280	**60.49**	110282	**56.89**
23/32	0.7187	2-1/4	9	110285	**84.66**	110287	**65.80**
3/4	0.7500	2-1/2	9-1/2	110290	**67.29**	110292	**63.35**
25/32	0.7812	2-1/2	9-1/2	110295	**77.02**	110297	**73.88**
13/16	0.8125	2-1/2	9-1/2	110300	**77.02**	110302	**73.88**
27/32	0.8437	2-1/2	9-1/2	110305	**106.57**	110307	**83.75**
7/8	0.8750	2-5/8	10	110310	**86.67**	110312	**82.22**
29/32	0.9062	2-5/8	10	110315	**118.23**	110317	**138.41**
15/16	0.9375	2-5/8	10	110320	**96.17**	110322	**92.25**
31/32	0.9687	2-5/8	10	110325	**133.78**	110327	**103.83**
1	1.0000	2-3/4	10-1/2	110330	**108.70**	110332	**101.89**
1-1/16	1.0625	2-3/4	10-1/2	110335	**124.87**	110337	**119.71**
1-1/8	1.1250	2-7/8	11	110340	**137.54**	110342	**127.90**
1-3/16	1.1875	2-7/8	11	110345	**151.13**	110347	**144.25**
1-1/4	1.2500	3	11-1/2	110350	**167.86**	110352	**158.58**
1-5/16	1.3150	3	11-1/2	110355	**226.98**	110357	**183.71**
1-3/8	1.3750	3-1/4	12	110360	**248.69**	110362	**190.34**
1-7/16	1.4375	3-1/4	12	110365	**269.08**	110367	**227.59**
1-1/2	1.5000	3-1/2	12-1/2	110370	**234.51**	110372	**222.85**

Standard Metric Reamers HSS

QUALITY IMPORT

- 129 Series Made in USA



HSS

Dia. (mm)	Decimal Equiv. (in.)	Flutes	Flute Length (in.)	Overall Length (in.)	Shank Dia. (in.)	Straight Code No.	Price $	Spiral Code No.	Price $
1.00	0.0394	4	1/2	2-1/2	0.0390	129261	**32.30**	-	**-**
1.50	0.0591	4	1/2	2-1/2	0.0585	129263	**32.30**	129264	**36.99**
2.00	0.0787	4	3/4	3	0.0771	129265	**25.90**	129266	**30.07**
2.50	0.0984	4	7/8	3-1/2	0.0928	143050	**13.42**	129267	**30.07**
3.00	0.1181	4	7/8	3-1/2	0.1120	143051	**13.36**	129268	**31.45**
3.50	0.1378	4	1	4	0.1350	143053	**18.72**	129269	**36.99**
4.00	0.1575	6	1-1/8	4-1/2	0.1530	143054	**18.72**	129270	**36.99**
4.50	0.1772	6	1-1/8	4-1/2	0.1755	143055	**24.79**	129271	**39.77**
5.00	0.1969	6	1-1/4	5	0.1895	143056	**24.79**	129272	**44.45**
5.50	0.2165	6	1-1/4	5	0.2075	129273	**39.02**	129274	**44.45**
6.00	0.2362	6	1-1/2	6	0.2329	143057	**26.30**	129275	**45.95**
6.50	0.2559	6	1-1/2	6	0.2485	129276	**42.00**	129277	**45.95**
7.00	0.2756	6	1-1/2	6	0.2485	143058	**27.74**	129278	**51.71**
7.50	0.2953	6	1-1/2	6	0.2792	129279	**47.01**	129280	**51.71**
8.00	0.3150	6	1-1/2	6	0.2792	143059	**27.74**	129281	**51.81**
8.50	0.3346	6	1-1/2	6	0.2792	129282	**50.32**	129283	**55.01**
9.00	0.3543	6	1-3/4	7	0.3105	143060	**31.46**	129284	**55.01**
9.50	0.3740	6	1-3/4	7	0.3105	129285	**48.08**	129286	**55.01**
10.00	0.3937	6	1-3/4	7	0.3105	143061	**32.81**	129287	**60.23**
10.50	0.4134	6	1-3/4	7	0.3730	129288	**57.03**	129289	**62.79**
11.00	0.4331	6	1-3/4	7	0.3730	143062	**34.89**	129290	**62.79**
11.50	0.4528	6	1-3/4	7	0.3730	129291	**62.47**	129292	**68.44**
12.00	0.4724	6	2	8	0.4355	143063	**38.82**	129293	**68.44**
12.50	0.4921	6	2	8	0.4355	129294	**62.47**	129295	**68.44**
13.00	0.5118	6	2	8	0.4355	143064	**42.68**	129296	**92.96**
13.50	0.5315	6	2	8	0.4355	129297	**85.39**	129298	**92.96**
14.00	0.5512	6	2	8	0.4355	143065	**48.99**	129299	**103.52**
14.50	0.5709	6	2	8	0.4355	129300	**76.22**	129301	**79.96**
15.00	0.5906	6	2	8	0.4355	143066	**51.91**	129302	**95.09**
15.50	0.6102	8	2-1/4	9	0.5620	129303	**86.67**	129304	**114.18**
16.00	0.6299	8	2-1/4	9	0.5620	143067	**57.86**	129305	**117.16**
16.50	0.6496	8	2-1/4	9	0.5620	129306	**86.67**	129307	**117.16**
17.00	0.6693	8	2-1/4	9	0.5620	143068	**65.43**	129308	**128.88**
17.50	0.6890	8	2-1/4	9	0.5620	129309	**104.69**	129310	**133.15**
18.00	0.7087	8	2-1/4	9	0.5620	143069	**67.15**	129311	**135.18**
18.50	0.7283	8	2-1/2	9-1/2	0.6245	129312	**121.53**	129313	**149.99**
19.00	0.7480	8	2-1/2	9-1/2	0.6245	143070	**74.37**	129314	**153.19**
19.50	0.7677	8	2-1/2	9-1/2	0.6245	129315	**121.53**	129316	**153.19**
20.00	0.7874	8	2-1/2	9-1/2	0.6245	143071	**85.46**	129317	**161.50**
20.50	0.8071	8	2-1/2	9-1/2	0.6245	129318	**126.54**	129319	**161.50**
21.00	0.8268	8	2-1/2	9-1/2	0.6245	143072	**230.30**	129320	**166.62**
21.50	0.8465	8	2-5/8	10	0.7495	129321	**145.72**	129322	**190.08**
22.00	0.8661	8	2-5/8	10	0.7495	143073	**101.86**	129323	**190.08**
22.50	0.8858	8	2-5/8	10	0.7495	129324	**149.99**	129325	**193.17**
23.00	0.9055	8	2-5/8	10	0.7495	143074	**261.07**	129326	**193.17**
23.50	0.9252	8	2-5/8	10	0.7495	129327	**161.50**	129328	**209.05**
24.00	0.9449	8	2-5/8	10	0.7495	143075	**113.99**	129329	**209.05**
24.50	0.9646	8	2-5/8	10	0.7495	129330	**161.50**	129331	**209.05**
25.00	0.9843	8	2-3/4	10-1/2	0.8745	129332	**171.10**	129333	**220.46**
25.50	1.0039	10	2-3/4	10-1/2	0.8745	129334	**181.01**	129335	**244.87**

Taper Shank Chucking Reamers HSS — Fractional

STM PREMIUM

Designed and applied similar to straight shank reamers manufactured with American National Standard taper shanks.

- Right hand cut



HSS

Dia.	Decimal Equiv.	Flute Length	Overall Length	Morse Taper No.	No. of Flutes	Straight Flute Code No.	Price $	R.H. Spiral Code No.	Price $
1/4	0.2500	1-1/2	6	1	6	129431	**58.74**	129464	**67.59**
9/32	0.2812	1-1/2	6	1	6	129432	**61.41**	129465	**69.82**
5/16	0.3125	1-1/2	6	1	6	129433	**61.41**	129466	**69.82**
11/32	0.3438	1-1/2	6	1	6	129434	**67.59**	129467	**73.98**
3/8	0.3750	1-3/4	7	1	6	129435	**70.78**	129468	**76.22**
13/32	0.4062	1-3/4	7	1	6	129436	**73.56**	129469	**80.38**
7/16	0.4375	1-3/4	7	1	6	129437	**73.56**	129470	**81.34**
15/32	0.4688	1-3/4	7	1	6	129438	**75.58**	129471	**87.52**
1/2	0.5000	2	8	1	6	129439	**80.70**	129472	**89.13**
17/32	0.5312	2	8	1	6	129440	**89.33**	129473	**94.67**
9/16	0.5625	2	8	1	8	129441	**93.81**	129474	**99.35**
19/32	0.5938	2	8	1	8	129442	**97.86**	129475	**104.37**
5/8	0.6250	2-1/4	9	2	8	129443	**105.43**	129476	**108.20**
21/32	0.6562	2-1/4	9	2	8	129444	**108.10**	129477	**111.94**
11/16	0.6875	2-1/4	9	2	8	129445	**108.10**	129478	**114.28**
23/32	0.7188	2-1/4	9	2	8	129446	**115.35**	129479	**126.01**
3/4	0.7500	2-1/2	9-1/2	2	8	129447	**115.35**	129480	**126.01**
25/32	0.7812	2-1/2	9-1/2	2	10	129448	**135.18**	129481	**144.13**
13/16	0.8125	2-1/2	9-1/2	2	10	129449	**135.18**	129482	**144.13**
27/32	0.8438	2-1/2	9-1/2	2	10	129450	**145.94**	129483	**158.31**
7/8	0.8750	2-5/8	10	2	10	129451	**152.45**	129484	**158.31**
29/32	0.9062	2-5/8	10	2	10	129452	**165.88**	129485	**178.88**
15/16	0.9375	2-5/8	10	3	10	129453	**165.88**	129486	**178.88**
31/32	0.9687	2-5/8	10	3	10	129454	**180.37**	129487	**191.67**
1	1.0000	2-3/4	10-1/2	3	10	129455	**200.52**	129488	**191.67**
1-1/16	1.0625	2-3/4	10-1/2	3	12	129456	**194.34**	129489	**213.43**
1-1/8	1.1250	2-7/8	11	3	12	129457	**209.05**	129490	**233.68**
1-3/16	1.1875	2-7/8	11	3	12	129458	**241.78**	129491	**265.66**
1-1/4	1.2500	3	11-1/2	4	12	129459	**274.40**	129492	**294.97**
1-5/16	1.3125	3	11-1/2	4	12	129460	**295.51**	129493	**316.09**
1-3/8	1.3750	3-1/4	12	4	12	129461	**312.36**	129494	**335.81**
1-7/16	1.4375	3-1/4	12	4	12	129462	**335.59**	129495	**379.09**
1-1/2	1.5000	3-1/2	12-1/2	4	12	129463	**358.73**	129496	**402.65**

Taper Shank Chucking Reamers HSS

- Straight flute
- Spiral flute



QUALITY IMPORT

HSS

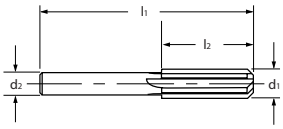
Flute Dia. (in.)	Flute Length (in.)	Overall Length (in.)	M.T. Shank	Spiral Flute Code No.	Price $	Straight Flute Code No.	Price $
1/4	1-1/2	6	1	110405	**55.43**	110407	**35.41**
9/32	1-1/2	6	1	110410	**58.14**	110412	**38.45**
5/16	1-1/2	6	1	110415	**55.43**	110417	**36.78**
11/32	1-1/2	6	1	110420	**60.46**	110422	**40.54**
3/8	1-3/4	7	1	110425	**44.69**	110427	**41.54**
13/32	1-3/4	7	1	110430	**88.90**	110432	**63.80**
7/16	1-3/4	7	1	110435	**61.43**	110437	**63.80**
15/32	1-3/4	7	1	110440	**98.82**	110442	**71.71**
1/2	2	8	1	110445	**109.00**	110447	**46.44**
17/32	2	8	1	110450	**78.17**	110452	**82.63**
9/16	2	8	1	110455	**119.16**	110457	**82.63**
19/32	2	8	1	110460	**119.16**	110462	**91.05**
5/8	2-1/4	9	2	110465	**67.58**	110467	**56.80**
21/32	2-1/4	9	2	110470	**90.50**	110472	**96.56**
11/16	2-1/4	9	2	110475	**91.54**	110477	**96.56**
23/32	2-1/4	9	2	110480	**102.70**	110482	**109.75**
3/4	2-1/2	9-1/2	2	110485	**82.96**	110487	**68.98**
25/32	2-1/2	9-1/2	2	110490	**95.39**	110492	**80.30**
13/16	2-1/2	9-1/2	2	110495	**117.57**	110497	**123.32**
27/32	2-1/2	9-1/2	2	110500	**134.28**	110502	**142.66**
7/8	2-5/8	10	2	110505	**109.20**	110507	**90.36**
29/32	2-5/8	10	2	110510	**146.76**	110512	**153.95**
15/16	2-5/8	10	3	110515	**146.76**	110517	**99.67**
31/32	2-5/8	10	3	110520	**164.99**	110522	**186.34**
1	2-3/4	10-1/2	3	110525	**132.81**	110527	**113.05**
1-1/16	2-3/4	10-1/2	3	110530	**151.11**	110532	**127.15**
1-1/8	2-7/8	11	3	110535	**166.86**	110537	**137.40**
1-3/16	2-7/8	11	3	110540	**315.69**	110542	**232.93**
1-1/4	3	11-1/2	4	110545	**199.47**	110547	**166.64**
1-5/16	3	11-1/2	4	-	**-**	110552	**290.83**
1-3/8	3-1/4	12	4	110555	**236.52**	110557	**196.89**
1-7/16	3-1/4	12	4	110560	**348.08**	110562	**331.77**
1-1/2	3-1/2	12-1/2	4	110565	**336.54**	110567	**227.94**

Diameter Tolerances:	D/P – Dowel pin reamers made to minus tolerance. All other reamers made to a plus tolerance	
Through 1/2"	**1/2" Through 5/8"**	**5/8" Through 1"**
+0.0002 +0.005 mm	+0.0002" +0.005 mm	+0.0005" +0.012 mm
-0.0000" - 0.0 mm	-0.0000" -0.000 mm	+0.001" +0.0025 mm
This tolerance table applies unless otherwise indicated throughout the catalogue		

Solid Carbide Chucking Reamers

STM PREMIUM

- Solid carbide
- Straight flute
- Fractional, wire and letter sizes





MICRO GRAIN CARBIDE

(d_1) Reamer Dia.	Decimal Equiv.	(l_2) Flute Length	(l_1) Overall Length	(d_2) Shank Dia.	Code No.	Price $
56	0.0465	3/8	1-1/2	0.0410	170941	**69.50**
3/64	0.0469	3/8	1-1/2	0.0410	170942	**69.50**
55	0.0520	3/8	1-1/2	0.0520	170943	**69.50**
54	0.0550	3/8	1-1/2	0.0520	170944	**65.10**
53	0.0595	3/8	1-1/2	0.0520	170945	**69.50**
1/16	0.0625	3/8	1-1/2	0.0520	170800	**73.24**
52	0.0635	3/8	1-1/2	0.0520	170946	**73.24**
51	0.0670	1/2	1-3/4	0.0625	170947	**73.24**
50	0.0700	1/2	1-3/4	0.0625	170948	**51.99**
49	0.0730	1/2	1-3/4	0.0625	170949	**73.24**
48	0.0760	1/2	1-3/4	0.0625	170950	**73.24**
5/64	0.0781	1/2	1-3/4	0.0625	170951	**73.24**
47	0.0785	1/2	1-3/4	0.0625	170952	**73.24**
46	0.0810	1/2	2	0.0781	170953	**74.48**
45	0.0820	1/2	2	0.0781	170954	**74.48**
44	0.0860	1/2	2	0.0781	170955	**74.48**
43	0.0890	1/2	2	0.0781	170956	**74.48**
42	0.0935	1/2	2	0.0781	170957	**74.48**
3/32	0.0938	1/2	2	0.0781	170802	**74.48**
41	0.0960	5/8	2-1/4	0.0938	170958	**75.16**
40	0.0980	5/8	2-1/4	0.0938	170959	**75.16**
39	0.0995	5/8	2-1/4	0.0938	170960	**75.16**
38	0.1015	5/8	2-1/4	0.0938	170961	**75.16**
37	0.1040	5/8	2-1/4	0.0938	170962	**75.16**
36	0.1065	5/8	2-1/4	0.0938	170963	**75.16**
7/64	0.1094	5/8	2-1/4	0.0938	170964	**75.16**
35	0.1100	5/8	2-1/4	0.0938	170965	**75.16**
34	0.1110	5/8	2-1/4	0.0938	170966	**75.16**
33	0.1130	5/8	2-1/4	0.0938	170967	**75.16**
32	0.1160	5/8	2-1/4	0.1094	170968	**77.08**
31	0.1200	5/8	2-1/4	0.1094	170969	**77.08**
1/8	0.1250	5/8	2-1/4	0.1094	170804	**77.08**
30	0.1285	5/8	2-1/4	0.1094	170970	**77.08**
29	0.1360	3/4	2-1/2	0.1250	170971	**81.38**
28	0.1405	3/4	2-1/2	0.1250	170972	**81.38**
9/64	0.1406	3/4	2-1/2	0.1250	170973	**81.38**
27	0.1440	3/4	2-1/2	0.1250	170974	**81.38**
26	0.1470	3/4	2-1/2	0.1406	170975	**81.38**
25	0.1495	3/4	2-1/2	0.1406	170976	**81.38**
24	0.1520	3/4	2-1/2	0.1406	170977	**81.38**
23	0.1540	3/4	2-1/2	0.1406	170978	**81.38**
5/32	0.1562	3/4	2-1/2	0.1406	170806	**81.38**
22	0.1570	3/4	2-1/2	0.1406	170979	**81.38**
21	0.1590	3/4	2-1/2	0.1406	170980	**81.38**
20	0.1610	7/8	2-3/4	0.1562	170981	**89.17**
19	0.1660	7/8	2-3/4	0.1562	170982	**89.17**
18	0.1695	7/8	2-3/4	0.1562	170983	**89.17**
11/64	0.1719	7/8	2-3/4	0.1562	170984	**89.17**
17	0.1730	7/8	2-3/4	0.1562	170985	**89.17**
16	0.1770	7/8	2-3/4	0.1719	170986	**95.85**
15	0.1800	7/8	2-3/4	0.1719	170987	**95.85**
14	0.1820	7/8	2-3/4	0.1719	170988	**95.85**
13	0.1850	7/8	2-3/4	0.1719	170989	**89.85**
3/16	0.1875	7/8	2-3/4	0.1719	170808	**95.85**
12	0.1890	7/8	2-3/4	0.1719	170990	**95.85**
11	0.1910	7/8	2-3/4	0.1875	170991	**95.85**
10	0.1935	7/8	2-3/4	0.1875	170992	**95.85**
9	0.1960	1	3	0.1875	170993	**106.58**
8	0.1990	1	3	0.1875	170994	**106.58**
7	0.2010	1	3	0.1875	170995	**106.58**
13/64	0.2031	1	3	0.1875	170996	**106.58**
6	0.2040	1	3	0.1875	170997	**106.58**
5	0.2055	1	3	0.1875	170998	**106.58**
4	0.2090	1	3	0.1875	170999	**106.58**
3	0.2130	1	3	0.1875	171000	**106.58**
7/32	0.2188	1	3	0.1875	171001	**106.58**
2	0.2210	1	3	0.1875	171002	**111.21**
1	0.2280	1	3	0.2188	171003	**111.21**
A	0.2340	1	3	0.2188	171004	**111.21**
15/64	0.2344	1	3	0.2188	171005	**111.21**
B	0.2380	1	3	0.2188	171006	**119.24**
C	0.2420	1	3	0.2188	171007	**119.24**
D	0.2460	1	3	0.2188	171008	**119.24**
1/4	0.2500	1	3	0.2188	170810	**119.24**
E	0.2500	1-1/8	3-1/4	0.2188	171009	**127.60**
F	0.2570	1-1/8	3-1/4	0.2500	171010	**127.60**
G	0.2610	1-1/8	3-1/4	0.2500	171011	**127.60**
17/64	0.2656	1-1/8	3-1/4	0.2500	171012	**127.60**
H	0.2660	1-1/8	3-1/4	0.2500	171013	**127.60**
I	0.2720	1-1/8	3-1/4	0.2500	171014	**127.60**
J	0.2770	1-1/8	3-1/4	0.2500	171015	**127.60**
K	0.2810	1-1/8	3-1/4	0.2500	171016	**127.60**
9/32	0.2812	1-1/8	3-1/4	0.2500	171017	**127.60**
L	0.2900	1-1/8	3-1/4	0.2812	171018	**132.80**
M	0.2950	1-1/8	3-1/4	0.2812	171019	**132.80**
19/64	0.2969	1-1/8	3-1/4	0.2812	171020	**132.80**
N	0.3030	1-1/8	3-1/4	0.2812	171021	**135.05**
5/16	0.3125	1-1/8	3-1/4	0.2812	170812	**135.05**
O	0.3160	1-1/8	3-1/4	0.3125	171022	**148.28**
P	0.3230	1-1/4	3-1/2	0.3125	171023	**164.90**
21/64	0.3281	1-1/4	3-1/2	0.3125	171024	**164.90**
Q	0.3320	1-1/4	3-1/2	0.3125	171025	**164.90**
R	0.3390	1-1/4	3-1/2	0.3125	171026	**164.90**
11/32	0.3438	1-1/4	3-1/2	0.3125	171028	**164.90**
S	0.3480	1-1/4	3-1/2	0.3125	171029	**177.56**
T	0.3580	1-1/4	3-1/2	0.3125	171030	**177.56**
23/64	0.3594	1-1/4	3-1/2	0.3125	171031	**177.56**
U	0.3680	1-1/4	3-1/2	0.3594	171032	**185.59**
3/8	0.3750	1-1/4	3-1/2	0.3594	170814	**174.16**
V	0.3770	1-1/4	3-1/2	0.3594	171033	**185.59**
W	0.3860	1-1/4	3-1/2	0.3594	171034	**185.59**
25/64	0.3906	1-1/4	3-1/2	0.3750	171035	**207.63**
X	0.3970	1-1/4	3-1/2	0.3750	171036	**207.63**
Y	0.4040	1-1/4	3-1/2	0.3750	171037	**225.47**
13/32	0.4062	1-1/4	3-1/2	0.3750	171038	**225.47**
Z	0.4130	1-1/4	3-1/2	0.3750	171039	**225.47**
27/64	0.4219	1-3/8	3-3/4	0.3750	171040	**252.39**
7/16	0.4375	1-3/8	3-3/4	0.3750	171041	**252.39**
29/64	0.4531	1-3/8	3-3/4	0.4375	171042	**299.28**
15/32	0.4688	1-3/8	3-3/4	0.4375	171043	**299.28**
31/64	0.4844	1-1/2	4	0.4375	171044	**336.24**
1/2	0.5000	1-1/2	4	0.4375	170816	**336.24**

Diameter Tolerances:

d_1	d_1	d_2	No. of Flutes
0.0465-0.2500	+0.0001/+0.0004	+0.000/-0.001	4
0.2570-0.5000	+0.0001/+0.0005	+0.000/-0.001	6

Taper Pin Reamers HSS

QUALITY IMPORT

- Straight flute
- Spiral flute
- Taper 1/4" per foot



Size	Small End Dia.	Large End Dia.	Flute Length	Overall Length	Straight Flute Code No.	Price $	Spiral Flute Code No.	Price $
3/0	0.1029	0.1302	1-5/16	2-5/16	109505	**41.57**	109605	**44.46**
2/0	0.1137	0.1462	1-9/16	2-9/16	109510	**37.67**	109610	**39.93**
0	0.1287	0.1638	1-11/16	2-15/16	109515	**35.04**	109615	**32.11**
1	0.1447	0.1798	1-11/16	2-15/16	109520	**37.67**	109620	**39.93**
2	0.1605	0.2008	1-15/16	3-3/16	109525	**28.95**	109625	**40.53**
3	0.1813	0.2294	2-5/16	3-11/16	109530	**37.67**	109630	**39.93**
4	0.2071	0.2604	2-9/16	4-1/16	109535	**41.57**	109635	**35.09**
5	0.2409	0.2994	2-13/16	4-5/16	109540	**46.34**	109640	**49.35**
6	0.2773	0.3540	3-11/16	5-7/16	109545	**58.26**	109645	**62.53**
7	0.3297	0.4220	4-7/16	6-5/16	109550	**75.35**	109650	**81.12**
8	0.3971	0.5050	5-3/16	7-3/16	109555	**110.00**	109655	**117.28**
9	0.4805	0.6066	6-1/16	8-5/16	109560	**140.26**	109660	**114.21**
10	0.5799	0.7216	6-13/16	9-5/16	109565	**164.37**	109665	**160.41**

Taper Bridge Reamers HSS

QUALITY IMPORT

- Straight flute
- Spiral flute



Full Dia.	Approx. Point Dia.	Flute Length	Overall Length	Taper No.	Spiral Flute Code No.	Price $	Straight Flute Code No.	Price $
5/16	11/64	4-3/8	8-1/4	2	109303	**83.93**	109431	**74.45**
13/32	7/32	4-3/8	8-1/4	2	109304	**67.87**	109432	**59.90**
7/16	17/64	4-3/8	8-1/4	2	109305	**83.93**	109433	**101.46**
15/32	9/32	5-1/8	9	2	109307	**78.31**	109434	**66.94**
1/2	5/16	5-1/8	9	2	109310	**72.02**	109435	**113.77**
17/32	11/32	5-1/8	9	2	109312	**104.61**	109436	**123.81**
9/16	3/8	5-1/8	9	2	109315	**78.16**	109437	**123.81**
5/8	25/64	6-1/8	10	2	109320	**88.46**	109438	**142.90**
11/16	13/32	7-1/8	11-3/4	3	109325	**130.61**	109439	**171.53**
3/4	15/32	7-3/8	12	3	109330	**194.58**	109440	**184.59**
13/16	35/64	7-3/8	12	3	109335	**176.14**	109441	**200.53**
7/8	39/64	7-3/8	12	3	109340	**220.07**	109442	**222.27**
15/16	43/64	7-3/8	12	3	109345	**291.84**	109443	**229.17**
1	47/64	7-3/8	12	3	109350	**276.63**	109444	**254.03**
1-1/16	13/16	7-3/8	12	3	109355	**304.48**	109445	**279.78**
1-1/8	55/64	7-3/8	12	3	109360	**425.38**	109446	**311.30**
1-3/16	59/64	7-3/8	12	3	109365	**362.61**	109447	**346.20**
1-1/4	63/64	7-3/8	13	4	109370	**522.89**	109448	**364.79**
1-5/16	1-1/16	7-3/8	13	4	109375	**610.85**	109449	**419.40**
1-3/8	1-1/8	7-3/8	13	4	109380	**675.63**	109450	**454.19**
1-7/16	1-1/8	7-3/8	13	4	109385	**761.81**	-	-
1-1/2	1-1/4	7-3/8	13	4	109390	**633.26**	109452	**552.40**
1-9/16	1-1/4	7-3/8	13	4	109395	**949.82**	-	-
1-5/8	1-1/4	7-3/8	13	4	109400	**865.89**	109454	**768.24**
1-11/16	1-3/8	7-3/8	13	4	109405	**710.36**	-	-
1-3/4	1-7/16	7-3/8	13	4	109410	**806.72**	-	-
1-13/16	1-7/16	7-3/8	13	4	109415	**1,013.01**	-	-
1-7/8	1-1/2	7-3/8	13	4	109420	**1,085.07**	-	-
1-15/16	1-1/2	7-3/8	13	4	109425	**947.56**	-	-
2	1-3/4	7-3/8	13	4	109430	**1,337.31**	-	-

Taper Pin Reamers HSS — Hand

STM PREMIUM

Used to ream holes into which standard taper pins will fit.

- Taper 1/4" per foot
- Ideally used in the attachment of gears, pulleys to shafts
- Straight and left hand spiral flutes are intended for hand reaming
- Recommended that the drilled hole be a few thousandths smaller than the small diameter of the finished reamed hole
- Straight flutes
- Straight shank
- Left hand spiral
- Right hand cut



HSS

Size No.	Small End Dia.	Large End Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flutes	Straight Flute Code No.	Price $	L.H. Spiral Flute Code No.	Price $
7/0	0.0497	0.0666	13/16	1-13/16	5/64	4	129560	**81.34**	129577	**84.01**
6/0	0.0611	0.0806	15/16	1-15/16	3/32	4	129561	**81.34**	129578	**84.01**
5/0	0.0719	0.0966	1-3/16	2-3/16	7/64	4	129562	**76.65**	129579	**82.41**
4/0	0.0869	0.1142	1-5/16	2-5/16	1/8	4	129563	**76.65**	129580	**82.41**
3/0	0.1029	0.1302	1-5/16	2-5/16	9/64	4	129564	**76.65**	129581	**82.41**
2/0	0.1137	0.1462	1-9/16	2-9/16	5/32	4	129565	**76.65**	129582	**82.41**
0	0.1287	0.1638	1-11/16	2-15/16	11/64	6	129566	**65.56**	129583	**69.82**
1	0.1447	0.1798	1-11/16	2-15/16	3/16	6	129567	**62.47**	129584	**69.82**
2	0.1605	0.2008	1-15/16	3-3/16	13/64	6	129568	**62.47**	129585	**69.82**
3	0.1813	0.2294	2-5/16	3-11/16	15/64	6	129569	**62.47**	129586	**69.82**
4	0.2071	0.2604	2-9/16	4-1/16	17/64	6	129570	**69.30**	129587	**75.37**
5	0.2409	0.2994	2-13/16	4-5/16	5/16	6	129571	**85.60**	129588	**81.02**
6	0.2773	0.3540	3-11/16	5-7/16	23/64	6	129572	**89.76**	129589	**99.79**
7	0.3297	0.4220	4-7/16	6-5/16	13/32	6	129573	**117.90**	129590	**126.65**
8	0.3971	0.5050	5-3/16	7-3/16	7/16	6	129574	**152.12**	129591	**166.94**
9	0.4805	0.6066	6-1/16	8-5/16	9/16	8	129575	**175.25**	129592	**194.24**
10	0.5799	0.7216	6-13/16	9-5/16	5/8	8	129576	**193.17**	129593	**216.41**

Taper Pin Reamers HSS — Helical Flute

STM PREMIUM

Designed for machine reaming of taper pin holes, helical flutes reduce chip packing thereby reducing breakage.

- Taper 1/4" per foot
- Straight shank



HSS

Size No.	Small End Dia.	Large End Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flutes	Code No.	Price $
7/0	0.0497	0.0666	13/16	1-13/16	5/64	2	129597	**85.71**
6/0	0.0611	0.0806	15/16	1-15/16	3/32	2	129598	**85.71**
5/0	0.0719	0.0966	1-3/16	2-3/16	7/64	3	129599	**85.71**
4/0	0.0869	0.1142	1-5/16	2-5/16	1/8	3	129600	**85.71**
3/0	0.1029	0.1302	1-5/16	2-5/16	9/64	3	129601	**85.71**
2/0	0.1137	0.1462	1-9/16	2-9/16	5/32	3	129602	**85.71**
0	0.1287	0.1638	1-11/16	2-15/16	11/64	3	129603	**72.59**
1	0.1447	0.1798	1-11/16	2-15/16	3/16	3	129604	**72.59**
2	0.1605	0.2008	1-15/16	3-3/16	13/64	3	129605	**77.07**
3	0.1813	0.2294	2-5/16	3-11/16	15/64	3	129606	**84.11**
4	0.2071	0.2604	2-9/16	4-1/16	17/64	3	129607	**93.49**
5	0.2409	0.2994	2-13/16	4-5/16	5/16	3	129608	**101.38**
6	0.2773	0.3540	3-11/16	5-7/16	23/64	3	129609	**123.24**
7	0.3297	0.4220	4-7/16	6-5/16	13/32	3	129610	**150.64**
8	0.3971	0.5050	5-3/16	7-3/16	7/16	3	129611	**175.25**
9	0.4805	0.6066	6-1/16	8-5/16	9/16	4	129612	**188.90**
10	0.5799	0.7216	6-13/16	9-5/16	5/8	4	129613	**236.98**

Taper Shank Jobber Reamers HSS

STM PREMIUM



Dia.	Decimal Equiv.	Flute Length	Overall Length	Morse Taper No.	No. of Flutes	Code No.	Price $
1/4	0.2500	2	5-3/16	1	6	129530	**109.91**
9/32	0.2812	2	5-3/16	1	6	129531	**109.91**
5/16	0.3125	2-1/4	5-1/2	1	6	129532	**110.55**
11/32	0.3438	2-1/4	5-1/2	1	6	129533	**125.79**
3/8	0.3750	2-1/2	5-13/16	1	6	129534	**134.54**
13/32	0.4062	2-1/2	5-13/16	1	6	129535	**142.53**
7/16	0.4375	2-3/4	6-1/8	1	6	129536	**146.05**
15/32	0.4688	2-3/4	6-1/8	1	6	129537	**153.19**
1/2	0.5000	3	6-7/16	1	6	129538	**157.56**
17/32	0.5312	3	6-7/16	1	6	129539	**165.13**
9/16	0.5625	3-1/4	6-3/4	1	8	129540	**177.60**
19/32	0.5938	3-1/4	6-3/4	1	8	129541	**181.76**
5/8	0.6250	3-1/2	7-9/16	2	8	129542	**188.58**
21/32	0.6562	3-1/2	7-9/16	2	8	129543	**193.38**
11/16	0.6875	3-7/8	8	2	8	129544	**201.06**
23/32	0.7188	3-7/8	8	2	8	129545	**209.48**
3/4	0.7500	4-3/16	8-3/8	2	8	129546	**220.46**
13/16	0.8125	4-9/16	8-13/16	2	10	129547	**240.93**
7/8	0.8750	4-7/8	9-3/16	2	10	129548	**265.45**
15/16	0.9375	5-1/8	10	3	10	129549	**295.30**
1	1.0000	5-7/16	10-3/8	3	10	129550	**318.96**
1-1/16	1.0625	5-5/8	10-5/8	3	12	129551	**367.36**
1-1/8	1.1250	5-13/16	10-7/8	3	12	129552	**390.49**
1-3/16	1.1875	6	11-1/8	3	12	129553	**413.31**
1-1/4	1.2500	6-1/8	12-9/16	4	12	129554	**455.41**
1-5/16	1.3125	6-1/4	12-11/16	4	12	129555	**559.25**
1-3/8	1.3750	6-5/16	12-13/16	4	12	129556	**738.66**
1-7/16	1.4375	6-7/16	13	4	12	129557	**865.10**
1-1/2	1.5000	6-1/2	13-1/8	4	12	129558	**1,012.96**

Jobber Reamers HSS

QUALITY IMPORT

- Taper Shank
- Straight Flute



HSS

Flute Dia.	Decimal Equiv.	Flute Length	Overall Length	Morse Taper	Code No.	Price $
1/4	0.2500	2	5-3/16	1	110580	**58.30**
9/32	0.2812	2	5-3/16	1	110582	**77.73**
5/16	0.3125	2-1/4	5-1/2	1	110584	**60.78**
11/32	0.3438	2-1/4	5-1/2	1	110586	**77.73**
3/8	0.3750	2-1/2	5-13/16	1	110588	**134.61**
13/32	0.4062	2-1/2	5-13/16	1	110590	**92.92**
15/32	0.4688	2-3/4	6-1/8	1	110605	**92.92**
1/2	0.5000	3	6-7/16	1	110610	**101.59**
17/32	0.5313	3	6-7/16	1	110615	**87.78**
9/16	0.5625	3-1/4	6-3/4	1	110620	**109.87**
19/32	0.5938	3-1/4	6-3/4	1	110625	**114.39**
5/8	0.6250	3-1/2	7-9/16	2	110630	**160.88**
21/32	0.6562	3-1/2	7-9/16	2	110635	**178.43**
11/16	0.6875	3-7/8	8	2	110640	**188.48**
23/32	0.7188	3-7/8	8	2	110645	**188.48**
3/4	0.7500	4-3/16	8-3/8	2	110650	**142.24**
13/16	0.8125	4-9/16	8-13/16	2	110655	**128.68**
7/8	0.8750	4-7/8	9-3/16	2	110660	**178.39**
15/16	0.9375	5-1/8	10	3	110665	**265.59**
1	1.0005	5-7/16	10-3/8	3	110670	**191.58**
1-1/8	1.1250	5-13/16	10-7/8	3	110680	**232.44**
1-3/16	1.1875	6	11-1/8	3	110685	**371.95**
1-5/16	1.3125	6-1/4	12-11/16	4	110695	**446.54**
1-3/8	1.3750	6-5/16	12-13/16	4	110700	**482.20**
1-7/16	1.4375	6-7/16	13	4	110705	**358.76**
1-1/2	1.5000	6-1/2	13-1/8	4	110710	**389.53**

Taper Pipe Reamers HSS

QUALITY IMPORT

- 3/4 in/ft, right-hand cut
- Straight flute
- Spiral flute



HSS

Size	Large End Dia.	Small End Dia.	Flute Length	Overall Length	Straight Flute Code No.	Price $	Spiral Flute Code No.	Price $
1/16	0.291	0.245	3/4	2	109666	**39.69**	109678	**47.97**
1/8	0.362	0.316	3/4	2-1/8	109667	**39.69**	109679	**47.97**
1/4	0.472	0.406	1-1/16	2-7/16	109668	**58.51**	109680	**70.20**
3/8	0.606	0.540	1-1/16	2-9/16	109669	**82.88**	109681	**99.82**
1/2	0.751	0.665	1-3/8	3-1/8	109670	**109.75**	109682	**131.98**
3/4	0.962	0.876	1-3/8	3-1/4	109671	**157.22**	109683	**74.88**
1	1.212	1.103	1-3/4	3-3/4	109672	**188.73**	109684	**227.53**
1-1/4	1.553	1.444	1-3/4	4	109673	**309.16**	109685	**370.05**
1-1/2	1.793	1.684	1-3/4	4-1/4	109674	**473.02**	109686	**522.37**
2	1.268	2.159	1-3/4	4-1/2	109675	**630.87**	109687	**696.42**

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Hand Reamers HSS

QUALITY IMPORT

- Helical and straight flute



HSS

Flute Dia.	Overall Length	Flute Length	Helical Flute Code No.	Price $	Straight Flute Code No.	Price $
1/8	3	1-1/2	109700	**61.03**	109800	**59.52**
5/32	3-1/4	1-5/8	109702	**66.56**	109802	**64.80**
3/16	3-1/2	1-3/4	109704	**72.57**	109804	**66.68**
7/32	3-3/4	1-7/8	109706	**72.57**	109806	**66.94**
1/4	4	2	109708	**72.57**	109808	**66.94**
9/32	4-1/4	2-1/8	109710	**68.19**	109810	**72.57**
5/16	4-1/2	2-1/4	109712	**77.23**	109812	**72.57**
11/32	4-3/4	2-3/8	109714	**93.04**	109814	**82.25**
3/8	5	2-1/2	109716	**93.04**	109816	**82.25**
13/32	5-1/4	2-5/8	109718	**102.71**	109818	**87.65**
7/16	5-1/2	2-3/4	109720	**102.71**	109820	**87.65**
15/32	5-3/4	2-7/8	109722	**60.35**	109822	**102.71**
31/64	6	3	109724	**75.97**	109824	**102.71**
1/2	6	3	109726	**113.26**	109826	**102.71**
17/32	6-1/4	3-1/8	109728	**113.20**	109828	**114.77**
9/16	6-1/2	3-1/4	109730	**128.20**	109830	**114.77**
19/32	6-3/4	3-3/8	109732	**138.50**	109832	**122.31**
5/8	7	3-1/2	109734	**138.50**	109834	**122.31**
21/32	7-3/8	3-11/16	109736	**131.94**	109836	**132.86**
11/16	7-3/4	3-7/8	109738	**149.44**	-	**-**
23/32	8-1/8	4-1/16	109740	**159.48**	109840	**143.90**
3/4	8-3/8	4-3/16	109742	**159.48**	109842	**143.90**
25/32	8-3/4	4-3/8	109744	**170.40**	109844	**154.46**
13/16	9-1/8	4-9/16	109746	**144.66**	109846	**154.46**
27/32	9-3/8	4-11/16	109748	**186.10**	109848	**170.40**
7/8	9-3/4	4-7/8	109750	**186.10**	109850	**170.40**
29/32	10	5	109752	**212.47**	109852	**191.75**
15/16	10-1/4	5-1/8	109754	**212.47**	109854	**191.75**
31/32	10-5/8	5-5/16	109756	**154.96**	109856	**207.81**
1	10-7/8	5-7/16	109758	**231.17**	109858	**207.81**
1-1/16	11-1/4	5-5/8	109760	**222.96**	109860	**231.17**
1-1/8	11-5/8	5-13/16	109762	**279.03**	109862	**255.29**
1-3/16	12	6	109764	**314.05**	109864	**286.94**
1-1/4	12-1/4	6-1/8	109766	**348.46**	109866	**314.05**
1-5/16	12-1/2	6-1/4	109768	**380.49**	109868	**345.32**
1-3/8	12-5/8	6-5/16	109770	**414.88**	109870	**371.81**
1-7/16	12-7/8	6-7/16	-	**-**	109872	**409.25**
1-1/2	13	6-1/2	109774	**488.86**	109874	**443.27**

Shell Reamer Arbors

QUALITY IMPORT

- Straight shank
- Taper shank



Size	Reamer Range	O.A.L.	Straight Shank Dia.	Straight Shank Code No.	Price $	Taper Shank M.T.	Taper Shank Code No.	Price $
4	21/32–25/32	9	1/2	400380	**162.58**	2	400360	**199.34**
5	13/16–1-1/32	9-1/2	5/8	400382	**180.29**	2	400362	**214.39**
6	1-1/16–1-9/32	10	3/4	400384	**201.53**	3	400364	**241.56**
7	1-5/16–1-5/8	11	7/8	400386	**217.90**	3	400366	**257.82**
8	1-11/16–2	12	1-1/8	400388	**242.89**	4	400368	**291.91**
9	2-1/16–2-1/2	13	1-3/8	400390	**286.57**	4	400370	**345.78**
10	2-9/16–3	14	1-5/8	400392	**465.29**	5	400372	**510.66**
11	3-1/16–3-1/2	15	2	400394	**624.10**	5	400374	**662.08**
12	3-9/16–4	16	2-1/8	400396	**769.08**	5	400376	**605.17**

Shell Reamers HSS

QUALITY IMPORT

- Straight flute
- Spiral flute



HSS

Flute Dia.	Overall Length	Hole Dia.	Fits Arbor No.	Straight Flute Code No.	Price $	Spiral Flute Code No.	Price $
3/4	2-1/4	3/8	4	108005	**127.39**	-	**-**
13/16	2-1/2	1/2	5	108010	**230.68**	109010	**173.55**
7/8	2-1/2	1/2	5	108015	**147.30**	109015	**178.32**
15/16	2-1/2	1/2	5	108020	**175.54**	109020	**180.56**
1	2-1/2	1/2	5	108025	**145.66**	109025	**145.66**
1-1/16	2-3/4	5/8	6	108030	**153.32**	109030	**147.68**
1-1/8	2-3/4	5/8	6	108035	**139.89**	109035	**157.22**
1-3/16	2-3/4	5/8	6	108040	**148.92**	109040	**168.77**
1-1/4	2-3/4	5/8	6	108045	**197.65**	109045	**154.58**
1-5/16	3	3/4	7	108050	**211.97**	109050	**168.39**
1-3/8	3	3/4	7	108055	**181.69**	109055	**179.70**
1-7/16	3	3/4	7	108060	**186.85**	109060	**191.24**
1-1/2	3	3/4	7	108065	**197.77**	109065	**196.01**
1-9/16	3	3/4	7	108070	**217.49**	109070	**215.11**
1-5/8	3	3/4	7	108075	**234.43**	109075	**231.31**
1-11/16	3-1/2	1	8	108080	**253.40**	109080	**250.76**
1-3/4	3-1/2	1	8	108085	**276.88**	109085	**274.12**
1-13/16	3-1/2	1	8	108090	**295.85**	109090	**293.09**
1-7/8	3-1/2	1	8	108095	**316.32**	109095	**313.43**
1-15/16	3-1/2	1	8	108100	**333.77**	109100	**330.75**
2	3-1/2	1	8	108105	**357.12**	109105	**352.87**
2-1/16	3-3/4	1-1/4	9	108110	**375.96**	109110	**447.53**
2-1/8	3-3/4	1-1/4	9	108115	**396.43**	109115	**470.65**
2-3/16	3-3/4	1-1/4	9	108120	**501.41**	109120	**495.50**
2-1/4	3-3/4	1-1/4	9	108125	**435.61**	109125	**481.44**
2-5/16	3-3/4	1-1/4	9	108130	**547.87**	109130	**543.47**
2-3/8	3-3/4	1-1/4	9	108135	**473.65**	109135	**563.94**
2-7/16	3-3/4	1-1/4	9	108140	**592.95**	109140	**584.15**
2-1/2	3-3/4	1-1/4	9	108145	**514.47**	109145	**508.69**
2-9/16	4	1-1/2	10	108150	**540.59**	109150	**642.43**
2-5/8	4	1-1/2	10	108155	**575.49**	109155	**680.34**
2-11/16	4	1-1/2	10	108160	**699.31**	109160	**692.03**
2-3/4	4	1-1/2	10	108165	**769.25**	109165	**761.97**
2-13/16	4	1-1/2	10	108170	**807.18**	109170	**798.51**
2-7/8	4	1-1/2	10	108175	**855.27**	109175	**846.47**
2-15/16	4	1-1/2	10	108180	**898.97**	109180	**891.56**
3	4	1-1/2	10	108185	**795.49**	109185	**791.10**
3-1/16	4-1/2	1-3/4	11	108190	**828.89**	109190	**817.48**
3-1/8	4-1/2	1-3/4	11	108195	**868.33**	109195	**1,034.45**
3-3/16	4-1/2	1-3/4	11	108200	**904.61**	109200	**1,066.48**
3-1/4	4-1/2	1-3/4	11	108205	**948.45**	109205	**1,123.24**
3-5/16	4-1/2	1-3/4	11	108210	**1,172.72**	109210	**1,156.89**
3-3/8	4-1/2	1-3/4	11	108215	**1,225.32**	109215	**1,209.26**
3-7/16	4-1/2	1-3/4	11	108220	**1,060.70**	-	**-**
3-1/2	4-1/2	1-3/4	11	108225	**1,089.84**	109225	**1,078.03**
3-9/16	5	2	12	108230	**1,363.59**	109230	**1,343.24**
3-5/8	5	2	12	108235	**1,429.00**	109235	**1,413.06**
3-11/16	5	2	12	108240	**1,475.71**	109240	**1,265.12**
3-3/4	5	2	12	108245	**1,563.12**	109245	**1,547.04**
3-13/16	5	2	12	108250	**1,619.87**	109250	**1,599.65**
3-7/8	5	2	12	108255	**1,469.82**	109255	**1,676.76**
3-15/16	5	2	12	108260	**1,788.89**	109260	**1,770.06**
4	5	2	12	108265	**1,577.68**	109265	**1,872.02**

Brown & Sharpe Taper Reamers HSS

STM PREMIUM

Finishing

For final finishing of Brown and Sharpe standard taper holes. Used for removing nicks or burrs in machine spindles.

- Straight shank
- Straight flute



HSS

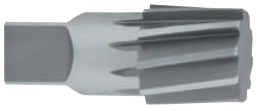
Size	Small End Dia.	Large End Dia.	Shank Dia.	Flute Length	Overall Length	Code No.	Price $
1	0.1974	0.3176	9/32	2-7/8	4-3/4	129637	**156.38**
2	0.2474	0.3781	11/32	3-1/8	5-1/8	129638	**175.25**
3	0.3099	0.4510	13/32	3-3/8	5-1/2	129639	**187.94**
4	0.3474	0.5017	7/16	3-11/16	5-7/8	129640	**195.41**
5	0.4474	0.6145	9/16	4	6-3/8	129641	**206.28**
6	0.4974	0.6808	5/8	4-3/8	6-7/8	129642	**221.32**
7	0.5974	0.8011	3/4	4-7/8	7-1/2	129643	**232.82**
8	0.7474	0.9770	13/16	5-1/2	8-1/8	129644	**316.09**
9	0.8974	1.1530	1	6-1/8	8-7/8	129645	**411.60**
10	1.0420	1.3376	1-1/8	6-7/8	9-3/4	129646	**517.04**

Taper Pipe Reamers HSS

STM PREMIUM

Used prior to tapping with American Standard taper pipe taps.

- Straight shank
- Left hand spiral
- Right hand cut
- Taper 3/4" per foot



HSS

Size	Large End Dia.	Small End Dia.	Flute Length	Shank Dia.	Square Size	Overall Length	Code No.	Price $
1/8	0.362	0.316	3/4	0.4375	0.328	2-1/8	129647	**109.91**
1/4	0.472	0.406	1-1/16	0.5625	0.421	2-7/16	129648	**122.60**
3/8	0.606	0.540	1-1/16	0.7000	0.531	2-9/16	129649	**135.18**
1/2	0.751	0.665	1-3/8	0.6875	0.515	3-1/8	129650	**166.94**
3/4	0.962	0.876	1-3/8	0.9063	0.679	3-1/4	129651	**236.45**
1	1.212	1.103	1-3/4	1.1250	0.843	3-3/4	129652	**354.57**
1-1/4	1.553	1.444	1-3/4	1.3125	0.984	4	129653	**497.85**
1-1/2	1.793	1.684	1-3/4	1.5000	1.125	4-1/4	129654	**628.97**
2	2.268	2.159	1-3/4	1.8750	1.406	4-1/2	129655	**839.94**

Morse Taper Reamers HSS

STM PREMIUM

Finishing

Straight shank, straight flute reamers. Used for final finishing or for removing burrs and nicks in machine spindles, reaming morse taper sockets.

- Straight or taper shank
- Straight flute



HSS

Flute/ Shank Taper	End Dia.	Small End Dia.	Large Shank Dia.	Flute Length	O.A.L.	Straight Shank Code No.	Price $	Taper Shank Code No.	Price $
0	0.2503	0.3674	5/16	2-1/4	3-3/4	129656	**105.75**	129662	**185.81**
1	0.3674	0.5170	7/16	3	5	129657	**136.03**	129663	**206.81**
2	0.5696	0.7444	5/8	3-1/2	6	129658	**160.76**	129664	**242.84**
3	0.7748	0.9881	7/8	4-1/4	7-1/4	129659	**263.64**	129665	**337.73**
4	1.0167	1.2893	1-1/8	5-1/4	8-1/2	129660	**382.16**	129666	**527.59**
5	1.4717	1.8005	1-1/2	6-1/4	9-3/4	129661	**600.19**	129667	**1,097.39**

Expansion Chucking Reamers HSS

STM PREMIUM

High Speed Steel

An economical high production reamer, expansion feature permits reamer to be resharpened many times to its original diameter, saving on replacement costs.



Dia.	Flute Length	O.A.L.	Shank Dia.	Morse Taper	Flutes	Straight Shank Code No.	Price $	Taper Shank Code No.	Price $
3/8	3/4	7	5/16	1	8	129336	**155.75**	129369	**189.22**
13/32	3/4	7	5/16	1	8	129337	**174.51**	129370	**201.06**
7/16	7/8	7	3/8	1	6	129338	**178.24**	129371	**206.28**
15/32	7/8	7	3/8	1	6	129339	**184.64**	129372	**210.97**
1/2	1	8	7/16	1	6	129340	**203.51**	129373	**213.53**
17/32	1	8	7/16	1	6	129341	**194.66**	129374	**218.11**
9/16	1-1/8	8	7/16	1	6	129342	**198.71**	129375	**223.55**
19/32	1-1/8	8	7/16	1	6	129343	**203.51**	129376	**226.74**
5/8	1-1/4	9	9/16	2	6	129344	**208.09**	129377	**231.54**
21/32	1-1/4	9	9/16	2	6	129345	**214.38**	129378	**241.89**
11/16	1-1/4	9	9/16	2	6	129346	**218.11**	129379	**245.09**
23/32	1-1/4	9	9/16	2	6	129347	**228.45**	129380	**249.14**
3/4	1-3/8	9-1/2	5/8	2	6	129348	**238.05**	129381	**254.04**
25/32	1-3/8	9-1/2	5/8	2	6	129349	**253.82**	129382	**265.98**
13/16	1-3/8	9-1/2	5/8	2	6	129350	**244.13**	129383	**275.78**
27/32	1-3/8	9-1/2	5/8	2	6	129351	**273.98**	129384	**285.06**
7/8	1-1/2	10	3/4	2	6	129352	**294.77**	129385	**303.18**
29/32	1-1/2	10	3/4	2	6	129353	**300.20**	129386	**314.59**
15/16	1-1/2	10	3/4	3	6	129354	**312.14**	129387	**324.30**
31/32	1-1/2	10	3/4	3	6	129355	**323.34**	129388	**337.73**
1	1-5/8	10-1/2	7/8	3	8	129356	**337.29**	129389	**351.80**
1-1/32	1-5/8	10-1/2	7/8	3	8	129357	**369.49**	129390	**379.09**
1-1/16	1-5/8	10-1/2	7/8	3	8	129358	**381.54**	129391	**390.92**
1-3/32	1-5/8	10-1/2	7/8	3	8	129359	**401.47**	129392	**413.52**
1-1/8	1-3/4	11	7/8	3	8	129360	**425.46**	129393	**443.05**
1-5/32	1-3/4	11	7/8	3	8	129361	**431.00**	129394	**453.92**
1-3/16	1-3/4	11	1	3	8	129362	**443.48**	129395	**474.82**
1-7/32	1-3/4	11	1	3	8	129363	**465.65**	129396	**548.80**
1-1/4	1-7/8	11-1/2	1	4	8	129364	**475.36**	129397	**507.66**
1-5/16	1-7/8	11-1/2	1	4	8	129365	**487.19**	129398	**517.04**
1-3/8	2	12	1	4	8	129366	**508.18**	129399	**548.80**
1-7/16	2	12	1-1/4	4	10	129367	**528.34**	129400	**573.96**
1-1/2	2-1/8	12-1/2	1-1/4	4	10	129368	**550.72**	129401	**590.91**

Adjustable Blade Reamers HSS

QUALITY IMPORT



HSS

Size	Size Range	Overall Length	Code No.	Price $
8/A	1/4-9/32	3-1/2	109900	**49.35**
7/A	9/32-5/16	3-3/4	109902	**49.35**
6/A	5/16-11/32	4	109904	**49.35**
5/A	11/32-3/8	4-1/4	109906	**49.35**
4/A	3/8-13/32	4-1/2	109908	**65.79**
3/A	13/32-7/16	4-3/4	109910	**65.79**
2/A	7/16-15/32	5	109912	**65.79**
A	15/32-17/32	5-1/4	109914	**75.46**
B	17/32-19/32	5-3/4	109916	**75.46**
C	19/32-21/32	6-1/4	109918	**75.46**
D	21/32-23/32	6-3/4	109920	**78.72**
E	23/32-25/32	7-1/4	109922	**78.72**
F	25/32-27/32	7-3/4	109924	**78.72**
G	27/32-15/16	8-1/4	109926	**108.12**
H	15/16-1.1/16	8-3/4	109928	**108.12**
I	1.1/16-1.3/16	10	109930	**120.43**
J	1.3/16-1.11/32	11	109932	**133.48**
K	1.11/32-1.1/2	12	109934	**152.82**
L	1.1/2-1.13/16	13	109936	**223.74**
M	1.13/16-2.7/32	15	109938	**279.15**
N	2.7/32-2.3/4	17	109940	**439.75**
O	2.3/4-3.11/32	19	109942	**483.70**

Speeds & Feeds - 3 & 5 X D Premium Class Sub-Micrograin Carbide Drills — Non-Coolant Fed

PC243, PC245

Hardness	<130HRB		<180HRB		<300HRB		Tensile Strength: 400 - 700N/mm²		Tensile Strength: 700 - 850N/mm²		Tensile Strength: <1,000N/mm²	
Work Material	Aluminum		Cast Iron Alloys				Structural Steel, Case Hardened Steel, Free Cutting Steel, Tempered Steel					
Cutting Speed	180 m/min		210 m/min		125 m/min		110 m/min		105 m/min		100 m/min	
Drill Dia. (mm)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)
3.0	19,100	0.160	22,280	0.125	13,260	0.125	11,670	0.100	11,140	0.125	10,610	0.100
3.5	16,710	0.180	19,500	0.140	11,610	0.140	10,210	0.110	9,750	0.140	9,290	0.110
4.0	14,320	0.200	16,710	0.160	9,950	0.160	8,750	0.130	8,360	0.160	7,960	0.130
4.5	12,890	0.200	15,040	0.160	8,960	0.160	7,880	0.130	7,520	0.160	7,170	0.130
5.0	11,460	0.200	13,370	0.160	7,960	0.160	7,000	0.130	6,680	0.160	6,370	0.130
5.5	10,510	0.225	12,260	0.180	7,300	0.180	6,420	0.140	6,130	0.180	5,840	0.140
6.0	9,550	0.250	11,140	0.200	6,630	0.200	5,840	0.160	5,570	0.200	5,310	0.160
6.5	8,950	0.265	10,450	0.210	6,220	0.210	5,480	0.170	5,220	0.210	4,980	0.170
7.0	8,360	0.280	9,750	0.230	5,800	0.230	5,110	0.180	4,880	0.230	4,650	0.180
7.5	7,760	0.300	9,060	0.240	5,390	0.240	4,750	0.190	4,530	0.240	4,310	0.190
8.0	7,160	0.315	8,360	0.250	4,970	0.250	4,380	0.200	4,180	0.250	3,980	0.200
8.5	6,800	0.335	7,940	0.270	4,720	0.270	4,160	0.210	3,970	0.270	3,780	0.210
9.0	6,450	0.360	7,520	0.280	4,480	0.280	3,940	0.230	3,760	0.280	3,580	0.230
9.5	6,090	0.380	7,100	0.300	4,230	0.300	3,720	0.240	3,550	0.300	3,380	0.240
10.0	5,730	0.400	6,680	0.320	3,980	0.320	3,500	0.250	3,340	0.320	3,180	0.250
10.5	5,490	0.400	6,400	0.320	3,820	0.320	3,360	0.250	3,200	0.320	3,050	0.250
11.0	5,250	0.400	6,130	0.320	3,650	0.320	3,210	0.250	3,070	0.320	2,920	0.250
11.5	5,010	0.400	5,850	0.320	3,490	0.320	3,070	0.250	2,930	0.320	2,780	0.250
12.0	4,770	0.400	5,570	0.320	3,320	0.320	2,920	0.250	2,790	0.320	2,650	0.250
12.5	4,600	0.415	5,370	0.330	3,200	0.330	2,820	0.260	2,690	0.330	2,560	0.260
13.0	4,430	0.425	5,170	0.340	3,080	0.340	2,710	0.270	2,590	0.340	2,460	0.270
13.5	4,260	0.440	4,970	0.350	2,960	0.350	2,610	0.270	2,490	0.350	2,370	0.270
14.0	4,090	0.450	4,770	0.360	2,840	0.360	2,500	0.280	2,390	0.360	2,270	0.280
14.5	3,960	0.465	4,620	0.370	2,750	0.370	2,420	0.290	2,320	0.370	2,200	0.290
15.0	3,840	0.475	4,480	0.380	2,670	0.380	2,350	0.300	2,240	0.380	2,130	0.300
15.5	3,710	0.490	4,330	0.390	2,580	0.390	2,270	0.310	2,170	0.390	2,060	0.310
16.0	3,580	0.500	4,180	0.400	2,490	0.400	2,190	0.320	2,090	0.400	1,990	0.320
16.5	3,490	0.515	4,075	0.415	2,428	0.415	2,135	0.325	2,038	0.415	1,940	0.325
17.0	3,400	0.530	3,970	0.430	2,370	0.430	2,080	0.340	1,990	0.430	1,890	0.340
17.5	3,310	0.550	3,865	0.440	2,303	0.440	2,025	0.345	1,933	0.440	1,840	0.345
18.0	3,220	0.565	3,760	0.450	2,240	0.450	1,970	0.360	1,880	0.450	1,790	0.360
18.5	3,130	0.580	3,655	0.465	2,178	0.465	1,915	0.370	1,828	0.465	1,740	0.370
19.0	3,040	0.595	3,550	0.480	2,120	0.480	1,860	0.380	1,780	0.480	1,690	0.380
19.5	2,950	0.615	3,445	0.490	2,053	0.490	1,805	0.390	1,723	0.490	1,640	0.390
20.0	2,860	0.630	3,340	0.500	1,990	0.500	1,750	0.400	1,670	0.500	1,590	0.400

Continued

Hardness	Tensile Strength: <1,200N/mm²		Tensile Strength: <820N/mm²		<30HRC		<60HRC	
Work Material	High Alloyed Steel		Stainless Steel		Special Alloys		Hardened Steel	
Cutting Speed	55 m/min		45 m/min		25 m/min		25 m/min	
Drill Dia. (mm)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)
3.0	5,840	0.080	4,770	0.065	2,650	0.065	2,650	0.040
3.5	5,110	0.090	4,180	0.070	2,320	0.070	2,320	0.045
4.0	4,380	0.100	3,580	0.080	1,990	0.080	1,990	0.050
4.5	3,940	0.100	3,220	0.080	1,790	0.080	1,790	0.050
5.0	3,500	0.100	2,860	0.080	1,590	0.080	1,590	0.050
5.5	3,210	0.115	2,630	0.090	1,460	0.090	1,460	0.055
6.0	2,920	0.125	2,390	0.100	1,330	0.100	1,330	0.065
6.5	2,740	0.135	2,240	0.105	1,250	0.105	1,250	0.065
7.0	2,560	0.145	2,090	0.115	1,160	0.115	1,160	0.070
7.5	2,370	0.150	1,940	0.120	1,080	0.120	1,080	0.075
8.0	2,190	0.160	1,790	0.125	990	0.125	990	0.080
8.5	2,080	0.170	1,700	0.135	940	0.135	940	0.085
9.0	1,970	0.180	1,610	0.145	900	0.145	900	0.090
9.5	1,860	0.190	1,520	0.150	850	0.150	850	0.095
10.0	1,750	0.200	1,430	0.160	800	0.160	800	0.100
10.5	1,680	0.200	1,370	0.160	770	0.160	770	0.100
11.0	1,610	0.200	1,310	0.160	730	0.160	730	0.100
11.5	1,530	0.200	1,250	0.160	700	0.160	700	0.100
12.0	1,460	0.200	1,190	0.160	660	0.160	660	0.100
12.5	1,410	0.220	1,150	0.165	640	0.165	640	0.105
13.0	1,360	0.240	1,110	0.170	620	0.170	620	0.105
13.5	1,300	0.260	1,060	0.175	590	0.175	590	0.110
14.0	1,250	0.280	1,020	0.180	570	0.180	570	0.110
14.5	1,210	0.275	990	0.185	550	0.185	550	0.115
15.0	1,170	0.265	960	0.190	540	0.190	540	0.120
15.5	1,130	0.260	930	0.195	520	0.195	520	0.120
16.0	1,090	0.250	900	0.200	500	0.200	500	0.125
16.5	1,060	0.260	880	0.205	490	0.205	490	0.130
17.0	1,040	0.265	860	0.215	480	0.215	480	0.135
17.5	1,010	0.275	830	0.220	460	0.220	460	0.140
18.0	990	0.280	810	0.225	450	0.225	450	0.145
18.5	960	0.290	790	0.230	440	0.230	440	0.145
19.0	930	0.300	770	0.240	430	0.240	430	0.150
19.5	910	0.305	740	0.245	410	0.245	410	0.155
20.0	880	0.315	720	0.250	400	0.250	400	0.160

Speeds & Feeds - 3, 5 & 8 X D Premium Class Sub-Micrograin Carbide Drills — Coolant Fed

PC253, PC255, PC258

Hardness	<130HRB		<180HRB		<300HRB		Tensile Strength: 400 - 700N/mm²		Tensile Strength: 700 - 850N/mm²		Tensile Strength: <1,000N/mm²	
Work Material	Aluminum		Cast Iron Alloys				Structural Steel, Case Hardened Steel, Free Cutting Steel, Tempered Steel					
Cutting Speed	220 m/min		210 m/min		125 m/min		110 m/min		105 m/min		100 m/min	
Drill Dia. (mm)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)
3.0	19,100	0.160	22,280	0.125	13,260	0.125	11,670	0.100	11,671	0.125	11,141	0.100
3.5	16,710	0.180	19,495	0.143	11,605	0.143	10,210	0.113	10,213	0.143	9,748	0.113
4.0	14,320	0.200	16,710	0.160	9,950	0.160	8,750	0.125	8,754	0.160	8,356	0.125
4.5	12,890	0.200	15,040	0.160	8,955	0.160	7,875	0.125	7,878	0.160	7,520	0.125
5.0	11,460	0.200	13,370	0.160	7,960	0.160	7,000	0.125	7,003	0.160	6,685	0.125
5.5	10,505	0.225	12,255	0.180	7,295	0.180	6,420	0.143	6,419	0.180	6,128	0.143
6.0	9,550	0.250	11,140	0.200	6,630	0.200	5,840	0.160	5,836	0.200	5,570	0.160
6.5	8,953	0.266	10,445	0.213	6,215	0.213	5,475	0.170	5,471	0.213	5,222	0.170
7.0	8,355	0.283	9,750	0.225	5,800	0.225	5,110	0.180	5,106	0.225	4,874	0.180
7.5	7,758	0.299	9,055	0.238	5,385	0.238	4,745	0.190	4,742	0.238	4,526	0.190
8.0	7,160	0.315	8,360	0.250	4,970	0.250	4,380	0.200	4,377	0.250	4,178	0.200
8.5	6,803	0.336	7,940	0.266	4,723	0.266	4,160	0.213	4,158	0.266	3,969	0.213
9.0	6,445	0.358	7,520	0.283	4,475	0.283	3,940	0.225	3,939	0.283	3,760	0.225
9.5	6,088	0.379	7,100	0.299	4,228	0.299	3,720	0.238	3,720	0.299	3,551	0.238
10.0	5,730	0.400	6,680	0.315	3,980	0.315	3,500	0.250	3,501	0.315	3,342	0.250
10.5	5,490	0.400	6,403	0.315	3,815	0.315	3,355	0.250	3,356	0.315	3,203	0.250
11.0	5,250	0.400	6,125	0.315	3,650	0.315	3,210	0.250	3,210	0.315	3,064	0.250
11.5	5,010	0.400	5,848	0.315	3,485	0.315	3,065	0.250	3,064	0.315	2,924	0.250
12.0	4,770	0.400	5,570	0.315	3,320	0.315	2,920	0.250	2,918	0.315	2,785	0.250
12.5	4,600	0.413	5,370	0.326	3,200	0.326	2,815	0.258	2,814	0.326	2,686	0.258
13.0	4,430	0.425	5,170	0.338	3,080	0.338	2,710	0.265	2,709	0.338	2,586	0.265
13.5	4,260	0.438	4,970	0.349	2,960	0.349	2,605	0.273	2,605	0.349	2,487	0.273
14.0	4,090	0.450	4,770	0.360	2,840	0.360	2,500	0.280	2,501	0.360	2,387	0.280
14.5	3,963	0.463	4,623	0.370	2,753	0.370	2,423	0.289	2,423	0.370	2,313	0.289
15.0	3,835	0.475	4,475	0.380	2,665	0.380	2,345	0.298	2,345	0.380	2,238	0.298
15.5	3,708	0.488	4,328	0.390	2,578	0.390	2,268	0.306	2,267	0.390	2,164	0.306
16.0	3,580	0.500	4,180	0.400	2,490	0.400	2,190	0.315	2,188	0.400	2,089	0.315
16.5	3,490	0.516	4,075	0.413	2,428	0.413	2,135	0.326	2,134	0.413	2,037	0.326
17.0	3,400	0.533	3,970	0.425	2,365	0.425	2,080	0.336	2,079	0.425	1,984	0.336
17.5	3,310	0.549	3,865	0.438	2,303	0.438	2,025	0.347	2,024	0.438	1,932	0.347
18.0	3,220	0.565	3,760	0.450	2,240	0.450	1,970	0.358	1,970	0.450	1,880	0.358
18.5	3,130	0.581	3,655	0.463	2,178	0.463	1,915	0.368	1,915	0.463	1,828	0.368
19.0	3,040	0.598	3,550	0.475	2,115	0.475	1,860	0.379	1,860	0.475	1,776	0.379
19.5	2,950	0.614	3,445	0.488	2,053	0.488	1,805	0.389	1,805	0.488	1,723	0.389
20.0	2,860	0.630	3,340	0.500	1,990	0.500	1,750	0.400	1,751	0.500	1,671	0.400

Continued

Hardness	Tensile Strength: <1,200N/mm²		Tensile Strength: <820N/mm²		<30HRC		<60HRC	
Work Material	High Alloyed Steel		Stainless Steel		Special Alloys		Hardened Steel	
Cutting Speed	55 m/min		45 m/min		25 m/min		25 m/min	
Drill Dia. (mm)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)
3.0	5,836	0.080	4,775	0.063	3,714	0.063	3,714	0.040
3.5	5,106	0.090	4,178	0.072	3,249	0.072	3,249	0.045
4.0	4,377	0.100	3,581	0.080	2,785	0.080	2,785	0.050
4.5	3,939	0.100	3,223	0.080	2,507	0.080	2,507	0.050
5.0	3,501	0.100	2,865	0.080	2,228	0.080	2,228	0.050
5.5	3,210	0.113	2,626	0.090	2,043	0.090	2,043	0.057
6.0	2,918	0.125	2,387	0.100	1,857	0.100	1,857	0.063
6.5	2,735	0.134	2,238	0.106	1,741	0.106	1,741	0.067
7.0	2,553	0.143	2,089	0.113	1,625	0.113	1,625	0.072
7.5	2,371	0.151	1,940	0.119	1,509	0.119	1,509	0.076
8.0	2,188	0.160	1,791	0.125	1,393	0.125	1,393	0.080
8.5	2,079	0.170	1,701	0.134	1,323	0.134	1,323	0.085
9.0	1,970	0.180	1,611	0.143	1,253	0.143	1,253	0.090
9.5	1,860	0.190	1,522	0.151	1,184	0.151	1,184	0.095
10.0	1,751	0.200	1,432	0.160	1,114	0.160	1,114	0.100
10.5	1,678	0.200	1,373	0.160	1,068	0.160	1,068	0.100
11.0	1,605	0.200	1,313	0.160	1,021	0.160	1,021	0.100
11.5	1,532	0.200	1,253	0.160	975	0.160	975	0.100
12.0	1,459	0.200	1,194	0.160	928	0.160	928	0.100
12.5	1,407	0.220	1,151	0.165	895	0.165	895	0.103
13.0	1,355	0.240	1,108	0.170	862	0.170	862	0.105
13.5	1,303	0.260	1,066	0.175	829	0.175	829	0.108
14.0	1,251	0.280	1,023	0.180	796	0.180	796	0.110
14.5	1,211	0.273	991	0.185	771	0.185	771	0.114
15.0	1,172	0.265	959	0.190	746	0.190	746	0.118
15.5	1,133	0.258	927	0.195	721	0.195	721	0.121
16.0	1,094	0.250	895	0.200	696	0.200	696	0.125
16.5	1,067	0.258	873	0.206	679	0.206	679	0.129
17.0	1,039	0.266	850	0.213	661	0.213	661	0.134
17.5	1,012	0.274	828	0.219	644	0.219	644	0.138
18.0	985	0.283	806	0.225	627	0.225	627	0.143
18.5	957	0.291	783	0.231	609	0.231	609	0.147
19.0	930	0.299	761	0.238	592	0.238	592	0.151
19.5	903	0.307	739	0.244	574	0.244	574	0.156
20.0	875	0.315	716	0.250	557	0.250	557	0.160

Speeds & Feeds for Solid Carbide Jobber Drills

STM PREMIUM

Work Material	Steels						Austenitic Stainless		Cast Irons				Non-Ferrous			
	Low Carbon Steels		Alloy Steels (up to 35 HRC) 4140		Alloy Steels (36-45 HRC) 4140		304/316		Gray Cast Iron A48 Class		Ductile Cast Iron A536/60-40-18		Plastic		Kevlar/ Graphite	
Cutting Speed	55 m/min		50 m/min		45 m/min		40 m/min		85 m/min		55 m/min		120 m/min		120 m/min	
Drill Dia. (mm)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)	Speed (/min)	Feed (mm/rev)
1.0	17,520	0.025	15,925	0.025	14,335	0.025	12,740	0.025	27,075	0.025	17,520	0.025	38,220	0.006	38,220	0.006
1.5	11,680	0.050	10,615	0.050	9,555	0.050	8,495	0.050	18,050	0.050	11,680	0.050	25,480	0.013	25,480	0.013
2.0	8,760	0.051	10,618	0.051	9,558	0.051	8,493	0.051	13,535	0.051	8,760	0.051	25,480	0.028	25,480	0.028
2.5	7,005	0.063	7,964	0.063	7,169	0.063	6,369	0.063	10,830	0.063	7,005	0.063	19,110	0.039	19,110	0.039
3.0	5,840	0.076	5,310	0.076	4,780	0.076	4,245	0.076	9,025	0.076	5,840	0.076	12,740	0.050	12,740	0.050
3.5	5,005	0.089	4,550	0.089	4,095	0.089	3,640	0.089	7,735	0.089	5,005	0.089	10,920	0.051	10,920	0.051
4.0	4,380	0.101	3,980	0.101	3,585	0.101	3,185	0.101	6,770	0.101	4,380	0.101	9,555	0.052	9,555	0.052
4.5	3,895	0.114	3,540	0.114	3,185	0.114	2,830	0.114	6,015	0.114	3,895	0.114	8,495	0.063	8,495	0.063
5.0	3,505	0.127	3,185	0.127	2,865	0.127	2,550	0.127	5,415	0.127	3,505	0.127	7,645	0.064	7,645	0.064
5.5	3,185	0.139	2,895	0.139	2,605	0.139	2,315	0.139	4,920	0.139	3,185	0.139	6,950	0.070	6,950	0.070
6.0	2,920	0.152	2,655	0.152	2,390	0.152	2,125	0.152	4,510	0.152	2,920	0.152	6,370	0.076	6,370	0.076
6.5	2,695	0.158	2,450	0.158	2,205	0.158	1,960	0.158	4,165	0.158	2,695	0.158	5,880	0.079	5,880	0.079
7.0	2,505	0.165	2,275	0.165	2,050	0.165	1,820	0.165	3,870	0.165	2,505	0.165	5,460	0.082	5,460	0.082
7.5	2,335	0.171	2,125	0.171	1,910	0.171	1,700	0.171	3,610	0.171	2,335	0.171	5,095	0.085	5,095	0.085
8.0	2,190	0.178	1,990	0.178	1,790	0.178	1,595	0.178	3,385	0.178	2,190	0.178	4,780	0.089	4,780	0.089
8.5	2,060	0.184	1,875	0.184	1,685	0.184	1,500	0.184	3,185	0.184	2,060	0.184	4,495	0.092	4,495	0.092
9.0	1,945	0.190	1,770	0.190	1,595	0.190	1,415	0.190	3,010	0.190	1,945	0.190	4,245	0.095	4,245	0.095
9.5	1,845	0.197	1,675	0.197	1,510	0.197	1,340	0.197	2,850	0.197	1,845	0.197	4,025	0.098	4,025	0.098
10.0	1,750	0.203	1,595	0.203	1,435	0.203	1,275	0.203	2,705	0.203	1,750	0.203	3,820	0.101	3,820	0.101
10.5	1,670	0.216	1,515	0.216	1,365	0.216	1,215	0.216	2,580	0.216	1,670	0.216	3,640	0.114	3,640	0.114
11.0	1,595	0.229	1,450	0.229	1,305	0.229	1,160	0.229	2,460	0.229	1,595	0.229	3,475	0.127	3,475	0.127
11.5	1,525	0.241	1,385	0.241	1,245	0.241	1,110	0.241	2,355	0.241	1,525	0.241	3,325	0.139	3,325	0.139
12.0	1,460	0.254	1,325	0.254	1,195	0.254	1,060	0.254	2,255	0.254	1,460	0.254	3,185	0.152	3,185	0.152

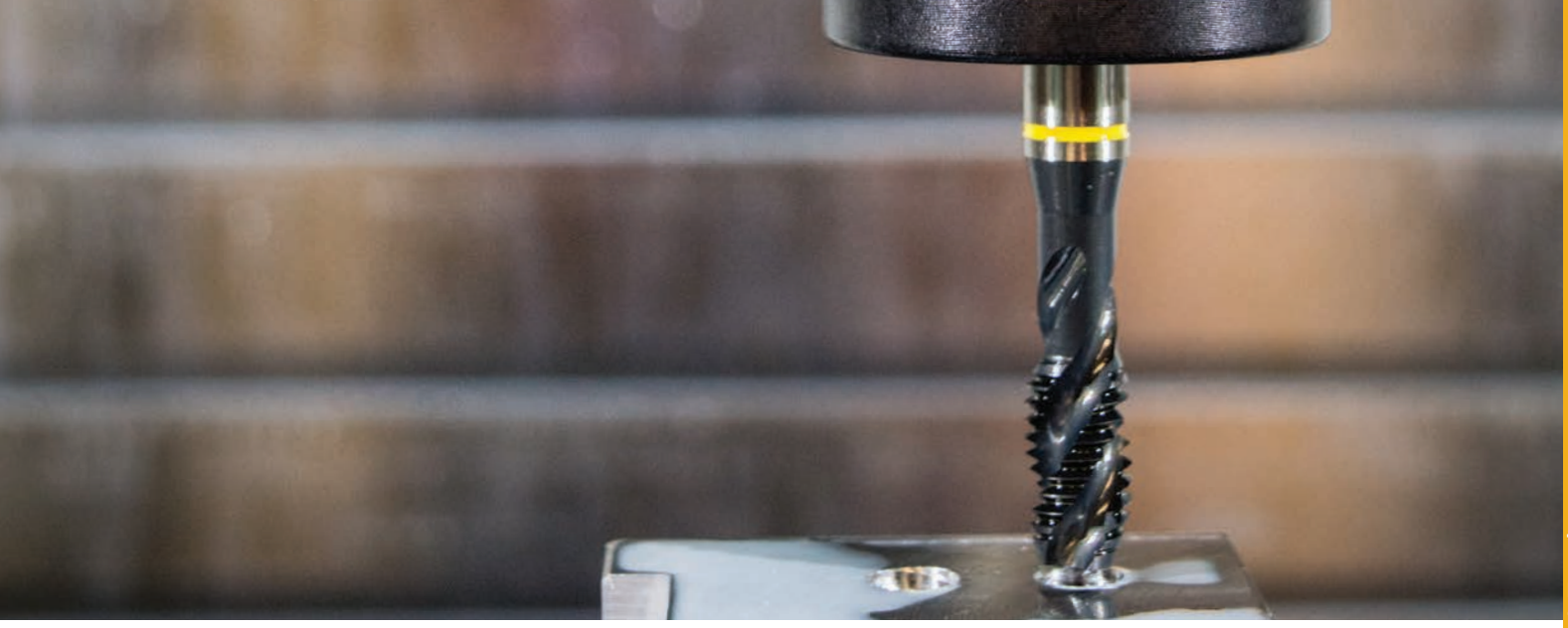
Speeds & Feeds for HSS TiAlN Tip Jobber Drills

SOWA

Carbon Steels (0.4 to 0.7% Carbon) 30HRC				High Alloy Tool Steels Up To 36HRC			Martensitic Stainless Steels (400 series) up to 24HRC			Austenitic Stainless Steels (300 series) up to 32HRC		
Size (in.)	Speed (ft/min)	RPM	Drill Feed (in/rev)	Speed (ft/min)	RPM	Drill Feed (in/rev)	Speed (ft/min)	RPM	Drill Feed (in/rev)	Speed (ft/min)	RPM	Drill Feed (in/rev)
1/16	33 - 49	2004 - 3006	0.0013	33 - 49	2004 - 3006	0.0013	39 - 52	2405 - 3207	0.0013	13 - 20	802 - 1203	0.0005
5/64	33 - 49	1603 - 2405	0.0016	33 - 49	1603 - 2405	0.0016	39 - 52	1924 - 2565	0.0016	13 - 20	641 - 962	0.0006
3/32	33 - 49	1336 - 2004	0.0019	33 - 49	1336 - 2004	0.0019	39 - 52	1603 - 2138	0.0019	13 - 20	534 - 802	0.0007
7/64	33 - 49	1145 - 1718	0.0022	33 - 49	1145 - 1718	0.0022	39 - 52	1374 - 1832	0.0022	13 - 20	458 - 687	0.0008
1/8	33 - 49	1002 - 1503	0.0025	33 - 49	1002 - 1503	0.0025	39 - 52	1203 - 1603	0.0025	13 - 20	401 - 601	0.0009
9/64	33 - 49	891 - 1336	0.0028	33 - 49	891 - 1336	0.0028	39 - 52	1069 - 1425	0.0028	13 - 20	356 - 534	0.0011
5/32	33 - 49	802 - 1203	0.0031	33 - 49	802 - 1203	0.0031	39 - 52	962 - 1283	0.0031	13 - 20	321 - 481	0.0012
11/64	33 - 49	729 - 1093	0.0034	33 - 49	729 - 1093	0.0034	39 - 52	875 - 1166	0.0034	13 - 20	292 - 437	0.0013
3/16	33 - 49	668 - 1002	0.0038	33 - 49	668 - 1002	0.0038	39 - 52	802 - 1069	0.0038	13 - 20	267 - 401	0.0014
13/64	33 - 49	617 - 925	0.0041	33 - 49	617 - 925	0.0041	39 - 52	740 - 987	0.0041	13 - 20	247 - 370	0.0015
7/32	33 - 49	573 - 859	0.0044	33 - 49	573 - 859	0.0044	39 - 52	687 - 916	0.0044	13 - 20	229 - 344	0.0016
15/64	33 - 49	534 - 802	0.0047	33 - 49	534 - 802	0.0047	39 - 52	641 - 855	0.0047	13 - 20	214 - 321	0.0018
1/4	33 - 49	501 - 752	0.0050	33 - 49	501 - 752	0.0050	39 - 52	601 - 802	0.0050	13 - 20	200 - 301	0.0019
17/64	33 - 49	472 - 707	0.0053	33 - 49	472 - 707	0.0053	39 - 52	566 - 755	0.0053	13 - 20	189 - 283	0.0020
9/32	33 - 49	445 - 668	0.0056	33 - 49	445 - 668	0.0056	39 - 52	534 - 713	0.0056	13 - 20	178 - 267	0.0021
19/64	33 - 49	422 - 633	0.0059	33 - 49	422 - 633	0.0059	39 - 52	506 - 675	0.0059	13 - 20	169 - 253	0.0022
5/16	33 - 49	401 - 601	0.0063	33 - 49	401 - 601	0.0063	39 - 52	481 - 641	0.0063	13 - 20	160 - 241	0.0023
21/64	33 - 49	382 - 573	0.0066	33 - 49	382 - 573	0.0066	39 - 52	458 - 611	0.0066	13 - 20	153 - 229	0.0025
11/32	33 - 49	364 - 547	0.0069	33 - 49	364 - 547	0.0069	39 - 52	437 - 583	0.0069	13 - 20	146 - 219	0.0026
23/64	33 - 49	349 - 523	0.0072	33 - 49	349 - 523	0.0072	39 - 52	418 - 558	0.0072	13 - 20	139 - 209	0.0027
3/8	33 - 49	334 - 501	0.0075	33 - 49	334 - 501	0.0075	39 - 52	401 - 534	0.0075	13 - 20	134 - 200	0.0028
25/64	33 - 49	321 - 481	0.0078	33 - 49	321 - 481	0.0078	39 - 52	385 - 513	0.0078	13 - 20	128 - 192	0.0029
13/32	33 - 49	308 - 463	0.0081	33 - 49	308 - 463	0.0081	39 - 52	370 - 493	0.0081	13 - 20	123 - 185	0.0030
27/64	33 - 49	297 - 445	0.0084	33 - 49	297 - 445	0.0084	39 - 52	356 - 475	0.0084	13 - 20	119 - 178	0.0032
7/16	33 - 49	286 - 429	0.0088	33 - 49	286 - 429	0.0088	39 - 52	344 - 458	0.0088	13 - 20	115 - 172	0.0033
29/64	33 - 49	276 - 415	0.0091	33 - 49	276 - 415	0.0091	39 - 52	332 - 442	0.0091	13 - 20	111 - 166	0.0034
15/32	33 - 49	267 - 401	0.0094	33 - 49	267 - 401	0.0094	39 - 52	321 - 428	0.0094	13 - 20	107 - 160	0.0035
31/64	33 - 49	259 - 388	0.0097	33 - 49	259 - 388	0.0097	39 - 52	310 - 414	0.0097	13 - 20	103 - 155	0.0036
1/2	33 - 49	251 - 376	0.0100	33 - 49	251 - 376	0.0100	39 - 52	301 - 401	0.0100	13 - 20	100 - 150	0.0038

Recommended Drilling Conditions Parabolic Drills

Material	Typical Grades	Hardness (HRC)	Speed SFM	Size	1mm	2mm	3mm	4mm	5mm	6mm	8mm	10mm	12mm	14mm	16mm
Carbon Steels	1020 1025 1040 1045 1050 1055 1060 1090	<25	80-100	rpm	7960	3980	2650	1990	1590	1330	990	800	660	570	500
				FEED ipr	0.0008	0.0016	0.0032	0.0035	0.0043	0.005	0.006	0.0078	0.009	0.0095	0.010
Alloy Steels	1435 4140 4615 5140	<25	65-80	rpm	6370	3180	2120	1590	1270	1060	800	640	530	450	400
				FEED ipr	0.0008	0.0016	0.0032	0.0035	0.0043	0.006	0.007	0.0083	0.01	0.01	0.011
Tool Steels	A2 A6 L7 01 02 06	<35	50-55	rpm	4770	2390	1590	1190	950	800	600	480	400	340	300
High Speed	M1, M2 D2, P20			FEED ipr	0.0008	0.0016	0.002	0.0024	0.0028	0.0032	0.0035	0.0043	0.005	0.006	0.0078
Cast Irons	SOFT	<15	115-135	rpm	11780	5890	3930	2940	2360	1960	1470	1180	980	840	740
				FEED ipr	0.0008	0.0032	0.0032	0.0039	0.0047	0.006	0.007	0.009	0.01	0.011	0.012
	HARD	<23	65-85	rpm	7000	3500	2330	1750	1400	1170	880	700	580	500	440
				FEED ipr	0.0008	0.0032	0.0032	0.0039	0.0047	0.006	0.007	0.009	0.01	0.011	0.012
	MALLEABLE	<23	65-85	rpm	5890	4300	2860	2150	1720	1430	1070	860	720	610	540
				FEED ipr	0.0008	0.002	0.0032	0.0032	0.0035	0.0039	0.005	0.006	0.007	0.0085	0.009
Aluminum Alloys, Cast			200-215	rpm	19740	9870	6580	4930	3950	3290	2470	1970	1640	1410	1230
				FEED ipr	0.0008	0.0032	0.0032	0.0043	0.006	0.007	0.0083	0.01	0.011	0.012	0.0136
Stainless Steels															
Ferretic, Martensitic 13-25% Cr	430F 405 434 436 442 443 446 449 409	<28	55-65	rpm	5410	2710	1800	1350	1080	900	680	540	450	390	340
				FEED ipr	0.0008	0.0016	0.002	0.0024	0.0032	0.0039	0.005	0.006	0.007	0.008	0.009
Austenitic Ni > 8%, 18-25% Cr	201 202 301 302 303 304 304L 305 321 347 348	<28	50-60	rpm	4470	2390	1590	1190	950	800	600	480	400	340	300
				FEED ipr	0.0008	0.0024	0.0032	0.0035	0.0047	0.006	0.007	0.009	0.01	0.0106	0.011
Austenitic Ni < 8%, 18-25% Cr	302B 309 309S 310 310S 314 316 316L 317 318 329 330	<20	30-40	rpm	2860	1430	950	720	570	480	360	290	240	200	180
				FEED ipr	0.0008	0.0016	0.002	0.0024	0.0032	0.0039	0.005	0.006	0.007	0.008	0.009
Martensitic quenched & tempered > 0.12% C	416 416F 410 414 422 431 420 501 440A 440B 440C	<45	50-60	rpm	4770	2390	1590	1190	950	800	600	480	400	340	300
				FEED ipr	0.0008	0.0016	0.002	0.0024	0.0032	0.0039	0.005	0.006	0.007	0.008	0.009



Threading & Tapping

SOWA HIGH PERFORMANCE TAP SELECTION C2

YELLOW RING TAPS, HSSE-V3 UP TO 35HRC

Spiral Point Taps - Black Oxide & Bright Finish C3
Spiral Flute Taps - Black Oxide & Bright Finish C4
UN8 DIN Length ANSI Shank Taps. C5
DIN Length ANSI Shank Spiral Point & Spiral Flute Taps C5
4" & 6" O.A.L. Spiral Point & Spiral Flute Taps C5
NPT Spiral Flute Pipe Taps C6

ORANGE RING TAPS, HSSE-V3 UP TO 35HRC FOR STAINLESS STEEL

Spiral Point Taps. C6
Spiral Flute Taps. C6

GENERAL PURPOSE TAPS

Hand Taps. C8
NPT Taps C9
Metric Spiral Point Taps C9
Tap & Die Sets C10
Hand Tap Sets C10
Tap & Drill Sets. C11
Adjustable Tap Wrench C11
'T' Ratchet Type Tap Wrench. C11
Screw Extractors C12
Adjustable Round Split Dies C12-13
Die Stocks C13
Hex Dies. C14

TAPPING SPEED GUIDE, CONVERSION TABLE, ANSI TAP DIMENSIONS, TAP/DRILL CHARTS C15-19

High Performance Taps
Recommended Cutting Conditions

We have taken the guesswork out of your tap selection!



HSSE-V3 ANSI SHANK Yellow Ring Pg. C3

Yellow Ring HSSE-V3 Steels and Other Materials Up to 35HRC

For Tough Materials including:

- HIGH CARBON STEEL
- HIGH ALLOY
- TITANIUM
- ALUMINUM

Materials Main Group	Materials Sub-Group	Condition	Hardness (HRC)	Cutting Speed (FPM)
Tool Steels	01, A-2, D-2, H-13, P-20	Annealed	<35	15-25
Medium Carbon	1030, 1035, 1038, 1040, 1045, 1050	Normalized	<28	20-40
Alloyed High Carbon	1065, 1070, 1080, 1090, 1095, 1561,1572	Normalized	<32	20-30
High Strength	4140, 4340	Normalized	<32	20-30
Titanium	Commercially Pure	Annealed	<32	15-30
Stainless Steel		Annealed	<29	20-30
Aluminum	Cast, Wrought	–	–	30-90



HSSE-V3 ANSI SHANK Orange Ring Pg. C6

Orange Ring HSSE-V3 for Stainless Steel and Other Materials

For STAINLESS STEEL as well as:

- LOW CARBON STEELS
- MEDIUM CARBON STEELS
- ALLOYED HIGH CARBON

Materials Main Group	Materials Sub-Group	Condition	Hardness (HRC)	Cutting Speed (FPM)
Stainless Steel	200 Series	Annealed	<28	20-35
	300 Series, 17-4 PH, 15-5, A286	Annealed	<28	20-35
	400 Series	Annealed	<29	20-35
	400 Series	Hardened	35-42	15-20
	17-4PH, 15-5, A286	Hardened	35-42	15-20
Low Carbon Steels	1010, 1018	Normalized	<20	25-50
Alloyed High Carbon	1050, 1065, 1070, 1080, 1090, 1095, 1561, 1572	Normalized	<25	20-30
Beryllium			<25	20-30



HSSE-V3 ANSI SHANK Green Series Pg. C7

Green Series HSSE-V3 for Aluminum and Other Materials

For ALUMINUM:

- PURE/LOW
- DIE CAST

Materials Main Group	Materials Sub-Group	Condition	Hardness (HRC)	Cutting Speed (FPM)
Steels	Sheet, Low/Medium Carbon, Stainless Steel	Hardened	<20	20-50
Aluminum	Pure/Low	–	–	30-60
Aluminum	Die Cast	–	–	30-60

Yellow Ring HSSE-V3 Spiral Point Taps — Black Oxide Finish

HSSE-V3% Vanadium

- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC

Designed for high-speed tapping applications. Developed to withstand the high stress and high heat associated with high-speed CNC production tapping. Features a unique free-cutting design with a special tempering and geometry which contributes to extra tool life.



HSSE-V3 | BLACK OXIDE | HOLE TYPE

Inch

• 4.5 Pitch lead (Intermediate)

Tap	No. Flutes	Overall Length (in.)	Thread Length (in.)	Black Oxide Code No.	H2 Limit Price $	Black Oxide Code No.	H3 Limit Price $	Black Oxide Code No.	H4 Limit Price $
2-56	2	1-3/4	0.433	122550	**22.05**	-	-	-	-
3-48	2	1-13/16	0.512	122552	**17.64**	-	-	-	-
4-40	2	1-7/8	0.433	123296	**14.55**	-	-	-	-
4-40	2	1-7/8	0.433	-	-	122554	**14.55**	-	-
6-32	3	2	0.512	-	-	123300	**12.13**	-	-
6-40	3	2	0.512	-	-	123334	**12.13**	-	-
8-32	3	2-1/8	0.512	-	-	123302	**12.13**	-	-
10-24	3	2-3/8	0.512	-	-	123304	**12.13**	-	-
10-32	3	2-3/8	0.512	-	-	123338	**12.13**	-	-
12-24	3	2-3/8	0.512	-	-	123306	**12.13**	-	-
1/4-20	3	2-1/2	0.630	-	-	123308	**13.34**	-	-
1/4-28	3	2-1/2	0.630	-	-	123342	**13.34**	-	-
5/16-18	3	2-23/32	0.748	-	-	123310	**15.00**	-	-
5/16-24	3	2-23/32	0.748	-	-	123344	**15.00**	-	-
3/8-16	3	2-15/16	0.748	-	-	123312	**16.97**	-	-
3/8-24	3	2-15/16	0.748	-	-	123346	**16.97**	-	-
7/16-14	3	3-5/32	0.866	-	-	123314	**22.05**	-	-
7/16-20	3	3-5/32	0.866	-	-	123348	**22.05**	-	-
1/2-13	3	3-3/8	0.945	-	-	123316	**25.47**	-	-
1/2-20	3	3-3/8	0.945	-	-	123350	**25.47**	-	-
5/8-11	3	3-13/16	1.102	-	-	123318	**46.30**	-	-
5/8-18	3	3-13/16	1.102	-	-	123352	**46.30**	-	-
3/4-10	3	4-1/4	1.220	-	-	123320	**72.54**	-	-
3/4-16	3	4-1/4	1.220	-	-	123353	**72.54**	-	-
7/8-9	3	4-11/16	1.339	-	-	-	-	123321	**103.84**
7/8-14	3	4-11/16	1.339	-	-	-	-	123359	**113.43**
1-8	4	5-1/8	1.496	-	-	-	-	123323	**138.35**
1-12	4	5-1/8	1.496	-	-	-	-	123361	**151.03**
1-14	4	5-1/8	1.496	-	-	-	-	123360	**151.03**
1-1/8-7	4	5-7/16	1.732	-	-	-	-	123364	**232.82**
1-1/8-12	4	5-7/16	1.732	-	-	-	-	123365	**247.71**
1-1/4-7	4	5-3/4	1.732	-	-	-	-	123367	**305.48**
1-1/4-12	4	5-3/4	1.732	-	-	-	-	123369	**309.66**
1-3/8-6	4	6-1/16	2.000	-	-	-	-	123371	**384.85**
1-3/8-12	4	6-1/16	2.000	-	-	-	-	123373	**387.71**
1-1/2-6	4	6-3/8	2.000	-	-	-	-	123363	**442.50**
1-1/2-12	4	6-3/8	2.000	-	-	-	-	123375	**452.20**

Metric

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Black Oxide Code No.	Price $
M2 x 0.4	2	D3	1-3/4	0.433	123502	**16.42**
M2.5 x 0.45	2	D3	1-13/16	0.512	123504	**16.42**
M3 x 0.5	3	D3	1-15/16	0.433	123505	**18.86**
M3.5 x 0.6	3	D4	2	0.512	123506	**16.75**
M4 x 0.7	3	D4	2-1/8	0.512	123507	**16.75**
M4.5 x 0.75	3	D4	2-3/8	0.512	123508	**15.87**
M5 x 0.8	3	D4	2-3/8	0.512	123509	**16.75**
M6 x 1	3	D5	2-1/2	0.630	123510	**16.75**
M7 x 1	3	D5	2-23/32	0.630	123511	**18.86**
M8 x 1	3	D5	2-23/32	0.748	123512	**18.86**
M8 x 1.25	3	D5	2-23/32	0.748	123513	**18.86**
M10 x 1.25	3	D5	2-15/16	0.748	123516	**26.24**
M10 x 1.5	3	D6	2-15/16	0.748	123515	**26.24**
M12 x 1.25	3	D5	3-3/8	0.945	123518	**31.42**
M12 x 1.75	3	D6	3-3/8	0.945	123517	**31.42**
M14 x 1.5	3	D7	3-19/32	0.984	123519	**46.74**

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Black Oxide Code No.	Price $
M14 x 2	3	D6	3-19/32	0.984	123520	**46.74**
M16 x 1.5	3	D6	3-13/16	1.102	123522	**56.77**
M16 x 2	3	D7	3-13/16	1.102	123521	**56.77**
M18 x 1.5	4	D6	4-1/32	1.102	123523	**79.59**
M18 x 2.5	4	D7	4-1/32	1.102	123524	**79.59**
M20 x 1.5	4	D5	4-15/32	1.220	123525	**114.21**
M20 x 2.5	4	D6	4-15/32	1.220	123526	**108.92**
M22 x 1.5	4	D6	4-11/16	1.339	123527	**121.70**
M22 x 2.5	4	D6	4-11/16	1.339	123528	**120.60**
M24 x 1.5	4	D5	4-29/32	1.339	123529	**169.00**
M24 x 3	4	D7	4-29/32	1.339	123530	**160.95**
M27 x 1.5	4	D7	5-1/8	1.181	123531	**277.14**
M27 x 3	4	D7	5-1/8	1.181	123532	**260.50**
M30 x 1.5	4	D7	5-7/16	1.378	123533	**347.14**
M30 x 3.5	4	D7	5-7/16	1.378	123534	**341.74**

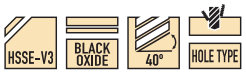
Yellow Ring HSSE-V3 Spiral Point Taps — Black Oxide Finish

HSSE-V3% Vanadium

- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC

Designed for high-speed tapping applications. Developed to withstand the high stress and high heat associated with high-speed CNC production tapping. Features a unique free-cutting design with a special tempering and geometry which contributes to extra tool life.





Inch

• 2.5 Pitch lead (Bottoming)

Tap	No. Flutes	Overall Length (in.)	Thread Length (in.)	Black Oxide Code No.	H2 Limit Price $	Black Oxide Code No.	H3 Limit Price $	Black Oxide Code No.	H4 Limit Price $
2-56	2	1-3/4	0.433	122500	**33.07**	-	-	-	-
3-48	2	1-13/16	0.512	122502	**26.57**	-	-	-	-
4-40	2	1-7/8	0.433	123362	**21.83**	-	-	-	-
4-40	2	1-7/8	0.433	-	-	122506	**21.83**	-	-
6-32	3	2	0.512	123366	**17.75**	-	-	-	-
8-32	3	2-1/8	0.512	123368	**17.75**	-	-	-	-
10-24	3	2-3/8	0.512	-	-	123370	**17.75**	-	-
10-32	3	2-3/8	0.512	-	-	123382	**17.75**	-	-
1/4-20	3	2-1/2	0.512	-	-	123372	**19.18**	-	-
1/4-28	3	2-1/2	0.512	-	-	123384	**19.18**	-	-
5/16-18	3	2-23/32	0.630	-	-	123374	**23.59**	-	-
5/16-24	3	2-23/32	0.630	-	-	123386	**23.59**	-	-
3/8-16	3	2-15/16	0.748	-	-	123376	**27.45**	-	-
3/8-24	3	2-15/16	0.748	-	-	123388	**27.45**	-	-
7/16-14	3	3-5/32	0.748	-	-	123378	**41.01**	-	-
7/16-20	3	3-5/32	0.748	-	-	123389	**41.01**	-	-
1/2-13	3	3-3/8	0.866	-	-	123380	**48.29**	-	-
1/2-20	3	3-3/8	0.866	-	-	123392	**48.29**	-	-
5/8-11	4	3-13/16	0.945	-	-	123452	**85.10**	-	-
5/8-18	4	3-13/16	0.945	-	-	123462	**85.10**	-	-
3/4-10	4	4-1/4	1.102	-	-	123454	**109.47**	-	-
3/4-16	4	4-1/4	1.102	-	-	123464	**109.47**	-	-
7/8-9	4	4-11/16	1.220	-	-	-	-	123466	**152.25**
7/8-14	4	4-11/16	1.220	-	-	-	-	123468	**159.41**
1-8	4	5-1/8	1.339	-	-	-	-	123469	**203.17**
1-12	4	5-1/8	1.339	-	-	-	-	123470	**213.31**
1-14	4	5-1/8	1.496	-	-	-	-	123465	**211.44**
1-1/8-7	4	5-7/16	1.496	-	-	-	-	123471	**295.99**
1-1/8-12	4	5-7/16	1.496	-	-	-	-	123472	**314.95**
1-1/4-7	4	5-3/4	1.732	-	-	-	-	123473	**389.37**
1-1/4-12	4	5-3/4	1.732	-	-	-	-	123474	**394.33**
1-3/8-6	4	6-1/16	1.732	-	-	-	-	123475	**461.91**
1-3/8-12	4	6-1/16	1.732	-	-	-	-	123476	**464.88**
1-1/2-6	4	6-3/8	2.000	-	-	-	-	123477	**531.24**
1-1/2-12	4	6-3/8	2.000	-	-	-	-	123478	**542.82**

Metric

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Black Oxide Code No.	Price $
M3 x 0.5	3	D3	1-15/16	0.197	123650	**27.23**
M3.5 x 0.6	3	D4	2	0.236	123651	**25.14**
M4 x 0.7	3	D4	2-1/8	0.276	123652	**25.14**
M5 x .8	3	D4	2-3/8	0.315	123654	**25.14**
M6 x 1	3	D5	2-1/2	0.394	123656	**25.14**
M7 x 1	3	D5	2-23/32	0.394	123657	**27.23**
M8 x 1	3	D5	2-23/32	0.492	123659	**27.23**
M8 x 1.25	3	D5	2-23/32	0.492	123658	**27.23**
M10 x 1.25	3	D5	2-15/16	0.591	123661	**38.37**
M10 x 1.5	3	D6	2-15/16	0.591	123660	**38.37**
M12 x 1.25	3	D5	3-3/8	0.689	123663	**46.30**
M12 x 1.75	3	D6	3-3/8	0.689	123662	**46.30**
M14 x 1.5	3	D6	3-19/32	0.787	123665	**69.78**
M14 x 2	3	D7	3-19/32	0.787	123667	**69.78**

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Black Oxide Code No.	Price $
M16 x 1.5	3	D6	3-13/16	0.787	123668	**82.01**
M16 x 2	3	D7	3-13/16	0.787	123669	**82.01**
M18 x 1.5	4	D6	4-1/32	0.984	123670	**118.62**
M18 x 2.5	4	D7	4-1/32	0.984	123671	**118.62**
M20 x 1.5	4	D5	4-15/32	0.984	123672	**163.37**
M20 x 2.5	4	D6	4-15/32	0.984	123673	**155.66**
M22 x 1.5	4	D6	4-11/16	0.984	123674	**174.51**
M22 x 2.5	4	D6	4-11/16	0.984	123675	**166.13**
M24 x 1.5	4	D5	4-29/32	1.181	123676	**239.66**
M24 x 3	4	D7	4-29/32	1.181	123677	**228.31**
M27 x 1.5	4	D7	5-1/8	1.181	123678	**323.99**
M27 x 3	4	D7	5-1/8	1.181	123679	**304.48**
M30 x 1.5	4	D7	5-7/16	1.378	123680	**381.87**
M30 x 3.5	4	D7	5-7/16	1.378	123681	**375.92**

Yellow Ring HSSE-V3 UN8 DIN Length ANSI Shank Taps

HSSE-V3% Vanadium
- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC



HSSE-V3 | BLACK OXIDE | 40° | HOLE TYPE

• 2.5 Pitch lead (Bottoming)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
1-8	4	H7	6.299	1.417	123055	**218.39**
1-1/8-8	4	H9	7.087	1.575	123056	**349.46**
1-1/4-8	4	H9	7.087	1.575	123079	**429.17**
1-3/8-8	5	H9	7.874	1.654	123080	**481.63**
1-1/2-8	5	H9	7.874	1.654	123057	**614.59**
1-3/4-8	6	H9	7.874	1.772	123058	**997.99**
2-8	6	H10	8.858	1.969	123059	**3,223.64**

HSSE-V3 DIN Length ANSI Shank Spiral Point Taps

HSSE-V3% Vanadium
- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC



These taps combine ANSI shank specifications with advantage of DIN lengths for added reach.

HSSE-V3 | BLACK OXIDE | HOLE TYPE

• 4.5 Pitch lead (Intermediate)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
10-24	3	H3	2.756	0.591	124820	**12.68**
1/4-20	3	H3	3.150	0.669	124822	**14.00**
5/16-18	3	H3	3.543	0.669	124824	**15.65**
3/8-16	3	H3	3.937	0.787	124826	**28.55**
7/16-14	3	H3	3.937	0.866	124828	**23.04**
1/2-13	3	H3	4.331	0.984	124830	**26.68**
5/8-11	3	H3	4.331	1.063	124832	**48.39**
3/4-10	3	H3	4.921	1.181	124834	**75.85**

HSSE-V3 DIN Length ANSI Shank Spiral Flute Taps

HSSE-V3% Vanadium
- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC



These taps combine ANSI shank specifications with advantage of DIN lengths for added reach.

HSSE-V3 | BLACK OXIDE | 40° | HOLE TYPE

• 2.5 Pitch lead (Bottoming)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
10-24	3	H3	2.756	0.417	124800	**18.52**
1/4-20	3	H3	3.150	0.500	124802	**20.06**
5/16-18	3	H3	3.543	0.556	124804	**24.59**
3/8-16	3	H3	3.937	0.625	124806	**28.55**
7/16-14	3	H3	3.937	0.714	124808	**42.66**
1/2-13	3	H3	4.331	0.769	124810	**50.27**
5/8-11	4	H3	4.331	0.909	124812	**88.52**
3/4-10	4	H3	4.921	1.000	124814	**113.88**

4" & 6" O.A.L. Spiral Point HSSE-V3 Taps — Inch

HSSE-V3% Vanadium
- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC



Designed for high-speed tapping applications. Developed to withstand the high stress and high heat associated with high-speed CNC production tapping. Features a unique free-cutting design with a special tempering and geometry which contributes to extra tool life. Designed for long reach applications.

HSSE-V3 | BLACK OXIDE | LONG LENGTH | HOLE TYPE

• 4.5 Pitch lead (Intermediate)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
4-40	2	H2	4"	0.433	122700	**54.45**
6-32	3	H3	4"	0.512	122702	**54.45**
8-32	3	H3	4"	0.512	122704	**53.80**
10-24	3	H3	6"	0.512	122706	**58.98**
10-32	3	H3	6"	0.512	122708	**58.98**
1/4-20	3	H3	6"	0.630	122710	**54.35**
1/4-28	3	H3	6"	0.630	122712	**54.35**
5/16-18	3	H3	6"	0.748	122714	**56.56**
5/16-24	3	H3	6"	0.748	122716	**56.56**
3/8-16	3	H3	6"	0.748	122718	**63.61**
3/8-24	3	H3	6"	0.748	122720	**63.61**
7/16-14	3	H3	6"	0.866	122722	**67.58**
7/16-20	3	H3	6"	0.866	122724	**67.58**
1/2-13	3	H3	6"	0.945	122726	**68.13**
1/2-20	3	H3	6"	0.945	122728	**68.13**
5/8-11	3	H3	6"	1.102	122730	**91.06**
3/4-10	3	H3	6"	1.220	122731	**137.03**
7/8-9	3	H4	6"	1.339	122732	**183.99**
1-8	4	H4	6"	1.496	122733	**237.23**

4" & 6" O.A.L. Spiral Flute HSSE-V3 Taps — Inch

HSSE-V3% Vanadium
- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC



Designed for high-speed tapping applications. Developed to withstand the high stress and high heat associated with high-speed CNC production tapping. Features a unique free-cutting design with a special tempering and geometry which contributes to extra tool life. Designed for long reach applications.

HSSE-V3 | BLACK OXIDE | LONG LENGTH | 40° | HOLE TYPE

• 2.5 Pitch lead (Bottoming)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
4-40	2	H2	4"	0.433	123060	**63.27**
6-32	3	H3	4"	0.512	123061	**63.27**
8-32	3	H3	4"	0.512	123062	**62.62**
10-24	3	H3	4"	0.512	123063	**59.75**
10-32	3	H3	6"	0.512	123073	**68.46**
1/4-20	3	H3	6"	0.630	123064	**63.06**
1/4-28	3	H3	6"	0.630	123074	**63.06**
5/16-18	3	H3	6"	0.748	123065	**65.93**
5/16-24	3	H3	6"	0.748	123075	**37.60**
3/8-16	3	H3	6"	0.748	123066	**73.98**
3/8-24	3	H3	6"	0.748	123076	**45.75**
7/16-14	3	H3	6"	0.866	123067	**78.38**
7/16-20	3	H3	6"	0.866	123077	**58.43**
1/2-13	3	H3	6"	0.945	123068	**79.26**
1/2-20	3	H3	6"	0.945	123078	**72.43**
5/8-11	4	H3	6"	1.102	123069	**105.83**
3/4-10	4	H3	6"	1.220	123070	**147.72**
7/8-9	4	H4	6"	1.339	123071	**202.29**
1-8	4	H4	6"	1.496	123072	**263.36**

Alloy / High Carbon Steels | Stainless Steel | Aluminum

Yellow Ring HSSE-V3 NPT Spiral Flute Pipe Taps



HSSE-V3% Vanadium
- Superior performance in hardened tool steels such as 4140, 4340, H13, D2
- Up to 35HRC

HSSE-V3 | BLACK OXIDE | 15° | HOLE TYPE

• 2.5 Pitch lead (Bottoming)

Tap	No. Flutes	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
1/16-27	4	2-1/8	0.688	123400	**42.33**
1/8-27	4	2-1/8	0.750	123402	**42.33**
1/4-18	4	2-7/16	1.063	123404	**46.63**
3/8-18	4	2-9/16	1.063	123406	**61.73**
1/2-14	4	3-1/8	1.375	123410	**98.11**
3/4-14	5	3-1/4	1.375	123412	**137.03**
1-11-1/2	5	3-3/4	1.750	123414	**208.47**
1-1/4-11-1/2	5	4	1.750	123416	**636.20**
1-1/2-11-1/2	5	4-1/4	1.750	123418	**817.76**
2-11-1/2	5	4-1/2	1.750	123420	**1,362.78**

Orange Ring HSSE-V3 Spiral Flute Taps — Inch



HSSE-V3% Vanadium
- Superior performance in stainless steels
- Up to 35HRC

HSSE-V3 | BLACK OXIDE | 45° | HOLE TYPE

• 2.5 Pitch lead (Bottoming)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
2-56	2	H2	1-3/4	0.433	124928	**43.11**
3-48	2	H2	1-13/16	0.512	124929	**37.81**
4-40	2	H2	1-7/8	0.250	124965	**31.30**
6-32	3	H2	2	0.313	124966	**25.57**
8-32	3	H2	2-1/8	0.313	124967	**25.47**
10-24	3	H3	2-3/8	0.417	124968	**26.12**
10-32	3	H3	2-3/8	0.417	124979	**26.12**
1/4-20	3	H3	2-1/2	0.500	124969	**28.66**
1/4-28	3	H3	2-1/2	0.500	124980	**28.66**
5/16-18	3	H3	2-23/32	0.556	124970	**31.86**
5/16-24	3	H3	2-23/32	0.556	124981	**31.86**
3/8-16	3	H3	2-15/16	0.625	124971	**35.50**
3/8-24	3	H3	2-15/16	0.625	124982	**35.50**
7/16-14	3	H3	3-5/32	0.714	124972	**45.75**
7/16-20	3	H3	3-5/32	0.714	124964	**45.75**
1/2-13	3	H3	3-3/8	0.769	124973	**53.80**
1/2-20	3	H3	3-3/8	0.769	124983	**53.80**
9/16-12	4	H3	3-19/32	0.880	124974	**86.87**
5/8-11	4	H3	3-13/16	0.909	124975	**102.41**
5/8-18	4	H3	3-13/16	0.909	124984	**102.41**
3/4-10	4	H3	4-1/4	1.000	124976	**130.85**
3/4-16	4	H3	4-1/4	1.000	124985	**130.85**
7/8-9	4	H4	4-11/16	1.111	124977	**175.95**
7/8-14	4	H4	4-11/16	1.111	124986	**175.95**
1-8	4	H4	5-1/8	1.250	124978	**225.99**
1-12	4	H4	5-1/8	1.250	124987	**225.99**

Orange Ring HSSE-V3 Spiral Point Taps — Inch

HSSE-V3% Vanadium
- Superior performance in stainless steels
- Up to 35HRC

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
2-56	2	H2	1-3/4	0.433	124926	**34.17**
3-48	2	H2	1-13/16	0.512	124927	**29.00**
4-40	2	H2	1-7/8	0.433	124930	**21.61**
6-32	3	H3	2	0.512	124931	**18.19**
8-32	3	H3	2-1/8	0.512	124932	**18.19**
10-24	3	H3	2-3/8	0.512	124933	**18.52**
10-32	3	H3	2-3/8	0.512	124945	**18.52**
1/4-20	3	H3	2-1/2	0.630	124934	**20.18**
1/4-28	3	H3	2-1/2	0.630	124946	**20.18**
5/16-18	3	H3	2-23/32	0.748	124935	**21.93**
5/16-24	3	H3	2-23/32	0.748	124947	**21.93**
3/8-16	3	H3	2-15/16	0.748	124936	**24.69**
3/8-24	3	H3	2-15/16	0.748	124948	**24.69**

Orange Ring HSSE-V3 Spiral Flute Taps — Metric



HSSE-V3% Vanadium
- Superior performance in stainless steels
- Up to 35HRC

HSSE-V3 | BLACK OXIDE | 45° | HOLE TYPE

• 2.5 Pitch lead (Bottoming)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
M3 x 0.5	3	D3	1-15/16	0.197	124988	**30.75**
M4 x 0.7	3	D4	2-1/8	0.276	124989	**29.55**
M5 x 0.8	3	D4	2-3/8	0.315	124990	**30.10**
M6 x 1	3	D5	2-1/2	0.394	124991	**33.19**
M8 x 1.25	3	D5	2-23/32	0.492	124992	**36.93**
M10 x 1.25	3	D5	2-15/16	0.591	124993	**52.58**
M10 x 1.5	3	D6	2-15/16	0.591	124994	**52.58**
M12 x 1.75	3	D6	3-3/8	0.689	124995	**62.62**
M14 x 2	3	D7	3-19/32	0.787	124996	**87.09**
M16 x 2	3	D7	3-13/16	0.787	124997	**58.76**
M18 x 2.5	4	D7	4-1/32	0.984	124998	**127.55**
M20 x 2.5	4	D6	4-15/32	0.984	124999	**130.85**
M22 x 2.5	4	D6	4-11/16	0.984	124943	**153.67**
M24 x 3	4	D7	4-29/32	1.181	124944	**207.69**

Orange Ring HSSE-V3 Spiral Point Taps — Metric



HSSE-V3% Vanadium
- Superior performance in stainless steels
- Up to 35HRC

HSSE-V3 | BLACK OXIDE | HOLE TYPE

• 4.5 Pitch lead (Intermediate)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
M3 x 0.5	3	D3	1-15/16	0.433	124955	**25.02**
M4 x 0.7	3	D4	2-1/8	0.512	124956	**20.73**
M5 x 0.8	3	D4	2-3/8	0.512	124957	**21.28**
M6 x 1	3	D5	2-1/2	0.630	124958	**23.37**
M8 x 1.25	3	D5	2-23/32	0.748	124959	**25.57**
M10 x 1.25	3	D5	2-15/16	0.748	124960	**36.93**
M10 x 1.5	3	D6	2-15/16	0.748	124961	**36.93**
M12 x 1.75	3	D6	3-3/8	0.945	124962	**42.66**
M14 x 2	3	D6	3-19/32	0.984	124897	**46.42**
M16 x 2	3	D7	3-13/16	1.102	124899	**89.63**
M18 x 2.5	3	D7	4-1/32	1.102	124901	**98.88**
M20 x 2.5	3	D6	4-1/4	1.220	124903	**118.51**
M22 x 2.5	3	D6	4-11/16	1.339	124905	**138.02**
M24 x 3	3	D7	4-29/32	1.339	124907	**185.20**



HSSE-V3 | BLACK OXIDE | HOLE TYPE

• 4.5 Pitch lead (Intermediate)

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
7/16-14	3	H3	3-5/32	0.866	124937	**31.86**
7/16-20	3	H3	3-5/32	0.866	124949	**31.86**
1/2-13	3	H3	3-3/8	0.945	124938	**37.26**
1/2-20	3	H3	3-3/8	0.945	124950	**37.26**
5/8-11	3	H3	3-13/16	1.102	124939	**68.23**
5/8-18	3	H3	3-13/16	1.102	124951	**68.23**
3/4-10	3	H3	4-1/4	1.220	124940	**108.04**
3/4-16	3	H3	4-1/4	1.220	124952	**108.04**
7/8-9	3	H4	4-11/16	1.339	124941	**140.77**
7/8-14	3	H4	4-11/16	1.339	124953	**140.77**
1-8	3	H4	5-1/8	1.496	124942	**186.97**
1-12	3	H4	5-1/8	1.496	124954	**186.97**

HSSE — V3 Spiral Flute Taps For Aluminum

Aluminum
High performance taps with special geometries and bright finish for Aluminum.



HSSE-V3 | BRIGHT | 45° | HOLE TYPE

- **2.5 Pitch lead (Bottoming)**

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
Inch						
4-40	2	H2	1-7/8	0.250	124400	**21.74**
6-32	2	H3	2	0.313	124405	**17.37**
8-32	2	H3	2-1/8	0.313	124415	**17.37**
10-24	2	H3	2-3/8	0.417	124420	**17.37**
10-32	2	H3	2-3/8	0.417	124425	**17.37**
1/4-20	2	H3	2-1/2	0.500	124430	**18.82**
1/4-28	2	H3	2-1/2	0.500	124440	**18.82**
5/16-18	2	H3	2-23/32	0.556	124445	**22.98**
5/16-24	2	H3	2-23/32	0.556	124455	**22.98**
3/8-16	2	H3	2-15/16	0.625	124465	**26.83**
3/8-24	2	H3	2-15/16	0.625	124475	**26.83**
Metric						
M3 x 0.5	2	D3	1-15/16	0.197	124600	**25.90**
M4 x 0.7	2	D4	2-1/8	0.276	124605	**23.82**
M5 x 0.8	2	D5	2-3/8	0.315	124610	**23.82**
M6 x 1.0	2	D5	2-1/2	0.394	124615	**23.82**
M8 x 1.25	2	D5	2-23/32	0.492	124620	**25.90**
M10 x 1.25	2	D5	2-15/16	0.591	124625	**36.40**
M10 x 1.5	2	D6	2-15/16	0.591	124630	**36.40**

HSS NPT Taps

Ground thread High Speed Steel pipe taps.



HSS | BRIGHT

Tap	No. Flutes	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
1/16-27	4	2-1/8	0.688	123430	**30.58**
1/8-27	4	2-1/8	0.750	123432	**30.58**
1/4-18	4	2-7/16	1.063	123434	**33.80**
3/8-18	4	2-9/16	1.063	123436	**44.72**
1/2-14	4	3-1/8	1.375	123438	**71.03**
3/4-14	5	3-1/4	1.375	123440	**99.22**
1-11-1/2	5	3-3/4	1.750	123442	**151.11**
1-1/4-11-1/2	5	4	1.750	123444	**351.04**
1-1/2-11-1/2	7	4-1/4	1.750	123446	**386.60**
2-11-1/2	7	4-1/2	1.750	123448	**565.95**

HSS 6" OAL NPT Taps

Long series high speed steel pipe taps for longer reach applications.



HSS | BRIGHT

Tap	No. Flutes	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
1/16-27	4	6"	0.688	122430	**43.68**
1/4-18	4	6"	1.063	122434	**109.10**
3/8-18	4	6"	1.063	122436	**128.86**
1/2-14	4	6"	1.375	122438	**186.16**

HSS Roll Form Taps

Extended life results from tap geometry that allows optimum cutting performance and close control over tapped hole size. Superior wear resistance, heat treated for toughness.

- Used for thread forming in copper, brass, aluminum, die castings, leaded steels, low carbon steels and stainless steels

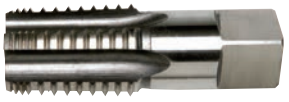


PREMIUM HSS | BRIGHT

Tap	Thread Limits	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
Inch					
4-40	H5	1-7/8	0.560	124650	**22.45**
6-32	H5	2	0.480	124655	**14.42**
8-32	H5	2-1/8	0.500	124660	**19.09**
10-24	H6	2-3/8	0.640	124665	**14.98**
10-32	H6	2-3/8	0.640	124670	**14.98**
1/4-20	H6	2-1/2	0.830	124675	**15.81**
1/4-28	H6	2-1/2	0.830	124680	**22.28**
5/16-18	H7	2-23/32	0.930	124685	**13.10**
5/16-24	H7	2-23/32	0.930	124690	**13.10**
3/8-16	H7	2-15/16	0.980	124695	**24.94**
3/8-24	H7	2-15/16	0.980	124700	**17.89**
1/2-13	H8	2-23/32	0.930	124705	**47.88**
1/2-20	H8	2-15/16	0.980	124710	**56.88**
Metric					
M3 x 0.5	D5	1-15/16	0.620	124750	**13.42**
M4 x 0.7	D6	2-1/8	0.500	124755	**14.89**
M5 x 0.8	D7	2-3/8	0.640	124760	**15.26**
M6 x 1.0	D8	2-1/2	0.830	124765	**16.10**
M8 x 1.25	D9	2-23/32	0.930	124770	**29.38**
M10 x 1.5	D10	2-15/16	0.980	124775	**24.08**

HSS NPT Interrupted Thread Taps

These taps are designed to produce less cutting pressure in a variety of applications.



HSS | BRIGHT

Tap	No. Flutes	Overall Length (in.)	Thread Length (in.)	Code No.	Price $
1/8-27	4	2-1/8	0.750	123700	**47.53**
1/4-18	4	2-7/16	1.063	123702	**52.83**
3/8-18	4	2-9/16	1.063	123704	**66.56**
1/2-14	4	3-1/8	1.375	123706	**106.29**
3/4-14	5	3-1/4	1.375	123708	**151.11**
1-11-1/2	5	3-3/4	1.750	123710	**231.30**

Alloy / High Carbon Steels | Stainless Steel | Aluminum

Hand Taps — Inch

High Speed Steel for hand tapping of through or blind holes in ferrous and non-ferrous alloys.



HSS BRIGHT

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Taper Code No.	Price $	Plug Code No.	Price $	Bottom Code No.	Price $
6-32	3	H3	2	0.688	123032	**6.55**	123034	**6.55**	123036	**6.55**
8-32	4	H3	2-1/8	0.750	123038	**6.76**	123040	**6.76**	123042	**6.76**
10-24	4	H3	2-3/8	0.875	123044	**6.97**	123046	**6.97**	123048	**6.97**
10-32	4	H3	2-3/8	0.875	123104	**6.97**	123106	**6.97**	123108	**6.97**
12-24	4	H3	2-3/8	0.938	123050	**7.38**	123052	**7.38**	123054	**7.38**
1/4-20	4	H3	2-1/2	1.000	123116	**7.49**	123118	**7.49**	123120	**7.49**
1/4-28	4	H3	2-1/2	1.000	123200	**7.49**	123202	**7.49**	123204	**7.49**
5/16-18	4	H3	2-23/32	1.125	123122	**9.15**	123124	**9.15**	123126	**9.15**
5/16-24	4	H3	2-23/32	1.125	123206	**9.15**	123208	**9.15**	123210	**9.15**
3/8-16	4	H3	2-15/16	1.250	123128	**10.40**	123130	**10.40**	123132	**10.40**
3/8-24	4	H3	2-15/16	1.250	123212	**10.40**	123214	**10.40**	123216	**10.40**
7/16-14	4	H3	3-5/32	1.438	123134	**17.78**	123136	**17.78**	123138	**17.78**
7/16-20	4	H3	3-5/32	1.438	123218	**17.78**	123220	**17.78**	123222	**17.78**
1/2-13	4	H3	3-3/8	1.656	123140	**18.72**	123142	**18.72**	123144	**18.72**
1/2-20	4	H3	3-3/8	1.656	123224	**21.01**	123226	**21.01**	123228	**21.01**
9/16-12	4	H3	3-19/32	1.656	123146	**31.20**	123148	**31.20**	123150	**31.20**
9/16-18	4	H3	3-19/32	1.656	123230	**31.20**	123232	**31.20**	123234	**31.20**
5/8-11	4	H3	3-13/16	1.813	123152	**37.44**	123154	**37.44**	123156	**37.44**
5/8-18	4	H3	3-13/16	1.813	123236	**37.44**	123238	**37.44**	123240	**37.44**
3/4-10	4	H3	4-1/4	2.000	123158	**52.42**	123160	**52.42**	123162	**52.42**
3/4-16	4	H3	4-1/4	2.000	123242	**52.42**	123244	**52.42**	123246	**52.42**
7/8-9	4	H4	4-11/16	2.219	123164	**73.11**	123166	**73.11**	123168	**73.11**
7/8-14	4	H4	4-11/16	2.219	123248	**73.11**	123250	**73.11**	123252	**73.11**
1-8	4	H4	5-1/8	2.500	123170	**97.34**	123172	**97.34**	123174	**97.34**
1-12	4	H4	5-1/8	2.500	123254	**100.46**	123256	**100.46**	123258	**100.46**
1-14	4	H4	5-1/8	2.500	123260	**100.46**	123262	**100.46**	123264	**100.46**
1-1/8-7	4	H4	5-7/16	2.562	123176	**157.56**	123178	**157.56**	123180	**157.56**
1-1/8-12	4	H4	5-7/16	2.562	123266	**167.65**	123268	**167.65**	123270	**167.65**
1-1/4-7	4	H4	5-3/4	2.562	123272	**206.75**	123274	**206.75**	123276	**206.75**
1-1/4-12	6	H4	5-3/4	2.562	123536	**209.98**	123538	**209.98**	123540	**209.98**
1-3/8-6	4	H4	6-1/16	3.000	123278	**260.42**	123280	**260.42**	123282	**260.42**
1-3/8-12	6	H4	6-1/16	3.000	123542	**262.08**	123544	**262.08**	123546	**262.08**
1-1/2-6	4	H4	6-3/8	3.000	123284	**299.52**	123286	**299.52**	123288	**299.52**
1-1/2-12	6	H4	6-3/8	3.000	123548	**305.97**	123550	**305.97**	123552	**305.97**

Hand Taps — Metric

High Speed Steel for hand tapping of through or blind holes in ferrous and non-ferrous alloys.



HSS BRIGHT

Tap	No. Flutes	Thread Limits	Overall Length (in.)	Thread Length (in.)	Taper Code No.	Price $	Plug Code No.	Price $	Bottom Code No.	Price $
M3 x 0.5	3	D3	1-15/16	5/8	123479	**11.13**	123480	**11.13**	123481	**11.13**
M4 x 0.7	3	D4	2-1/8	3/4	123496	**9.15**	123482	**9.15**	123483	**9.15**
M5 x 0.8	3	D4	2-3/8	7/8	123497	**9.15**	123484	**9.15**	123485	**9.15**
M6 x 1.0	4	D5	2-1/2	1	123498	**9.67**	123486	**9.67**	123487	**9.67**
M8 x 1.25	4	D5	2-23/32	1-1/8	123499	**10.61**	123488	**10.61**	123489	**10.61**
M10 x 1.25	4	D5	2-15/16	1-1/4	123500	**19.97**	123490	**19.97**	123491	**19.97**
M10 x 1.5	4	D6	2-15/16	1-1/4	123501	**19.97**	123492	**19.97**	123493	**19.97**
M12 x 1.75	4	D6	3-3/8	1-21/32	123503	**23.50**	123494	**23.40**	123495	**23.40**
M14 x 2.0	4	D7	3-19/32	1-21/32	123081	**34.94**	123082	**34.94**	123083	**34.94**
M16 x 2.0	4	D7	3-13/16	1-13/16	123084	**42.74**	123085	**42.74**	123086	**42.74**
M18 x 2.5	4	D7	4-1/32	1-13/16	123087	**57.41**	123088	**57.41**	123089	**57.41**
M20 x 2.5	4	D6	4-15/32	2	123090	**78.21**	123091	**78.21**	123092	**78.21**
M22 x 2.5	4	D6	4-11/16	2-7/32	123093	**85.59**	123094	**85.59**	123095	**85.59**
M24 x 3.0	4	D7	4-29/32	2-7/32	123096	**100.88**	123098	**100.88**	123097	**100.88**

Alloy / High Carbon Steels | Stainless Steel | Aluminum

HSS Ground Taps

QUALITY IMPORT

- High Speed hand taps
- High Speed spiral point
- 30° slow spiral ground thread taps



HSS

Tap	TPI NC	TPI NF	Taper Code No.	Price $	Plug Code No.	Price $	Bottom Code No.	Price $	Spiral Point Code No.	Price $	Spiral Flute Code No.	Price $
0		80	113056	12.51	113058	12.51	113060	12.51	113322	13.96	-	-
1	64		113002	8.70	113004	12.90	113006	12.90	113290	15.20	-	-
1		72	113062	8.70	113064	8.70	113066	8.70	113324	15.20	-	-
2	56		113008	8.10	113010	8.10	113012	8.10	113292	12.90	-	-
2		64	113068	8.10	113070	12.10	113072	8.10	113326	9.90	-	-
3	48		113014	8.50	113016	5.70	113018	5.70	113294	10.40	113358	12.10
3		56	113074	6.50	113076	6.80	113078	6.30	113328	11.50	113360	9.00
4	40		113020	5.20	113022	8.80	113024	5.90	113296	8.40	-	-
4		48	113080	5.10	113082	5.10	113084	5.10	113330	6.50	113354	6.50
5	40		113026	4.80	113028	4.80	113030	4.80	113298	5.60	113364	5.60
5		44	113086	5.10	113088	5.10	113090	5.10	113332	6.50	-	-
6	32		-	-	-	-	-	-	113300	4.20	113366	12.48
6		40	113092	4.00	113094	4.00	113096	5.80	113334	8.10	-	-
8	32		-	-	-	-	-	-	113302	4.30	113368	12.70
8		36	113098	4.00	113100	4.00	113102	4.00	113336	8.06	113357	9.10
10	24		-	-	-	-	-	-	113304	6.50	113370	8.30
10		32	-	-	-	-	-	-	113338	6.30	113382	8.30
12	24		-	-	-	-	-	-	113306	5.40	-	-
12		28	113110	4.60	113112	4.60	113114	4.60	113340	5.40	113383	9.10
1/4	20		-	-	-	-	-	-	113308	6.50	113372	4.90
1/4		28	-	-	-	-	113204	6.10	113342	6.10	113384	5.50
5/16	18		-	-	-	-	113126	6.50	113310	6.20	113374	5.90
5/16		24	-	-	-	-	-	-	113344	7.80	113386	8.70
3/8	16		-	-	-	-	-	-	113312	8.60	113376	10.40
3/8		24	-	-	-	-	-	-	113346	6.50	113388	7.60
7/16	14		-	-	-	-	-	-	113314	10.30	113378	17.40
7/16		20	-	-	-	-	-	-	113348	10.30	113390	17.40
1/2	13		-	-	-	-	-	-	113316	10.70	113380	25.12
1/2		20	-	-	-	-	-	-	113350	18.00	113392	20.80
9/16	12		-	-	-	-	-	-	113317	36.80	-	-
9/16		18	-	-	-	-	-	-	113351	16.70	-	-
5/8	11		-	-	-	-	-	-	113318	17.40	113452	39.30
5/8		18	-	-	-	-	-	-	113352	34.00	113462	26.70
3/4	10		-	-	-	-	-	-	113320	25.30	113454	55.30
3/4		16	-	-	-	-	-	-	113353	45.40	113464	55.30
7/8	9		-	-	-	-	-	-	113321	72.60	-	-
7/8		14	-	-	-	-	-	-	113359	72.60	-	-
1	8		-	-	-	-	-	-	113323	63.60	-	-
1		12	-	-	-	-	-	-	113361	97.80	-	-
1		14	-	-	-	-	113264	65.52	113363	97.80	-	-

HSS NPT Taps



QUALITY IMPORT

HSS

Tap	No. Flutes	Thread Length (in.)	Overall Length (in.)	Code No.	Price $
1/16-27	4	11/16	2-1/8	113430	9.00
1/8-27	4	3/4	2-1/8	113432	9.90
1/8-27*	4	3/4	2-1/8	113433*	6.60
1/4-18	4	1-1/16	2-7/16	113434	14.20
3/8-18	4	1-1/16	2-9/16	113436	14.50
1/2-14	4	1-3/8	3-1/8	113438	23.40
3/4-14	5	1-3/8	3-1/4	113440	36.00
1-11-1/2	5	1-3/4	3-3/4	113442	62.20
1-1/4-11-1/2	5	1-3/4	4	113444	104.80
1-1/2-11-1/2	7	1-3/4	4-1/4	113446	151.10
2-11-1/2	7	1-3/4	4-1/2	113448	254.40

* Small Shank

Metric Spiral Point Taps

QUALITY IMPORT

- High Speed spiral point



HSS

Tap	Code No.	Price $
M1.6 x 0.35	113500	27.25
M1.8 x 0.35	113501	27.25
M2 x 0.4	113502	22.72
M2.2 x 0.45	113503	16.57
M2.5 x 0.45	113504	18.21
M3 x 0.5	113505	14.06
M3.5 x 0.6	113506	14.06
M4 x 0.7	113507	11.92
M5 x .80	113509	11.92
M6 x 1.0	113510	11.92
M6.3 x 1.0	113511	11.42
M7 x 1.0	113512	12.93
M8 x 1.25	113513	12.93
M8 x 1.0	113514	14.06
M10 x 1.5	113515	17.96
M10 x 1.25	113516	19.83
M12 x 1.75	113517	30.01
M12 x 1.25	113518	33.15
M14 x 2.0	113519	44.33
M14 x 1.5	113520	44.33
M16 x 2.0	113521	50.86
M18 x 2.5	113522	66.05
M20 x 2.5	113523	73.96

Tap & Die Sets — Wooden Case

QUALITY IMPORT



Description	Code No.	Price $
1/4" - 1/2" **NC**, 2 taps per size (Set No. 521)	113620	**1,300.65**
1/4" - 1/2" **NC**, 3 taps per size (Set No. 521) Sets consist of the following: • 1/4", 5/16", 3/8", 7/16", 1/2" taps and dies • 1" and 1-1/2" die stocks • #1 and #3 tap wrenches	113625	**1,364.19**
1/4" - 3/4" **NC**, 2 taps per size (Set No. 527)	113630	**1,524.23**
1/4" - 3/4" **NF**, 2 taps per size (Set No. 527)	113633	**1,699.08**
1/4" - 3/4" **NC**, 3 taps per size (Set No. 527) Sets consist of the following: • 1/4", 5/16", 3/8", 7/16", 1/2", 5/8", 3/4" taps and dies • 1" and 1-1/2" die stocks • #1 and #3 tap wrenches	113635	**1,714.13**
1/4" - 3/4" **NC**, 2 taps per size (Set No. 5)	113610	**1,647.03**
1/4" - 3/4" **NF,** 2 taps per size (Set No. 5) Sets consists of the following: • 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 3/4" taps & dies • 1" and 1-1/2" dies stocks • #1 and #3 tap wrenches	113612	**1,651.61**
1/4" - 1" **NC**, 2 taps per size (Set No. 533)	113640	**2,039.15**
1/4" - 1" **NF**, 2 taps per size (Set No. 533) Sets consist of the following: • 1/4", 5/16", 3/8", 7/16", 1/2", 5/8", 3/4", 1" taps and dies • 1" and 1-1/2" die stocks • #1 and #3 tap wrenches	113643	**2,049.97**

Tap & Die Sets — Metal Case

QUALITY IMPORT





HSS

Description	Code No.	Price $
3 - 12 mm, 3 taps per size (Set No. P.V. 12) 29 piece set consists of the following: • 3, 4, 6, 8, 10, 12mm taps (Taper, Plug, Bottom) • 3, 4, 6, 8, 10, 12mm dies • 1 bar type, 1 ratchet type tap wrench • 1 die stock, 1 screw pitch gauge, 1 screw driver	113600	**386.00**
3-20 mm, 3 taps per size (Set No. P.V. 2) 52 piece set consists of the following: • 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20mm taps (T, P, B) • 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20mm dies • 2 bar type, 2 ratchet type tap wrenches • 2 die stocks, 1 screw pitch gauge, 1 screw driver	113605	**1,479.72**

HSS Hand Tap Sets

QUALITY IMPORT

Includes: 1pc ea. Taper, Plug and Bottoming in a convenient plastic case.



Tap	TPI	Code No.	Price $
6	32	113037	**19.65**
10	24	113049	**9.30**
10	32	113109	**9.60**
12	24	113055	**11.40**
1/4	20	113121	**22.47**
1/4	28	113205	**14.60**
5/16	18	113127	**27.45**
5/16	24	113211	**18.90**
3/8	16	113133	**31.20**
3/8	24	113217	**26.00**
7/16	14	113139	**53.34**
7/16	20	113223	**27.00**
1/2	13	113145	**56.16**
1/2	20	113229	**46.44**

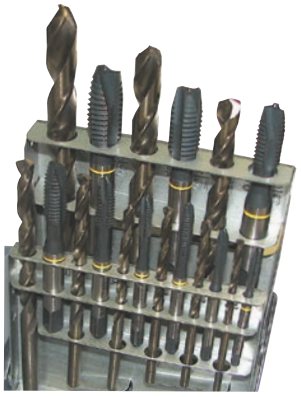
Yellow Ring Tap & Drill Set

Featuring:
Yellow Ring Spiral Point Taps for tough materials including:

- High Carbon Steel
- High Alloy
- Titanium
- Aluminum

Premium HSS Drills with 135° split points

Comes in metal case.



Description	Code No.	Price $
N.C. Yellow Ring Spiral Point tap and drill set Set consists of the following: **Taps** - 6-32 to 1/2-13 Drills - #36, #29, #25, #21, #7, F, 5/16, U, 27/64	113651	**222.04**
N.F. Yellow Ring Spiral Point tap and drill set Set consists of the following: **Taps** - 6-40 to 1/2-20 Drills - #36, #29, #25, #21, #7, F, 5/16, U, 27/64	113656	**235.49**
Metric Yellow Ring Spiral Point tap and drill set Set consists of the following: **Taps** - M2.5 to M12 Drills - #46, 40, 33, 30, 19, 9, H, Q	113657	**246.17**

Alloy / High Carbon Steels | Stainless Steel | Aluminum

HSS Hand Tap & Drill Sets

- High Speed Steel taps and drills
- Metal case



Description	Code No.	Price $
NC hand taps #6-1/2 NC tap and drill set Set consists of the following taps and drills plus metal box **Taps** - 6-32, 8-32, 10-24, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13 **Drills** - #36, #29, #7, F, 5/16, U, 27/64	113650	**156.75**
NF hand taps #6-1/2 NF tap and drill set Set consists of the following taps and drills plus metal box **Taps** - 6-40, 8-36, 10-32, 1/4-28, 5/16-24, 3/8-24, 7/16-20,1/2-20 **Drills** - #33, #29, #21, #3, #1, Q, 25/64, 29/64	113655	**192.27**

Adjustable Tap Wrench



Tool No.	For DIN Tap Size	For ANSI Tap	Square	Sq. Max	Length (mm)	Code No.	Price $
130/0	M1-8 1/16-1/4	M6 1/4	2.0-5.0	0.197	130	113717	**23.36**
130/1.5	M1-12 1/16-1/2 NPT-1/8	M10 3/8	2.1-8.0	0.315	176	113794	**25.29**
130/2	M4-12 5/32-1/2 NPT-1/8	M14 9/16	3.0-9.0	0.354	280	113725	**36.70**
130/3	M5-20 7/32-3/4 NPT-1/8-1/2	M18 3/4	4.9-12	0.472	380	113730	**56.62**
130/4	M11-27 7/16-1" NPT-1/4-3/4	M25 1"	5.5-16	0.630	505	113735	**92.25**
130/5L	M13-32 1/2-1-1/4 NPT-1/4-1	M30 1-1/4	7-20	0.787	700	113740	**147.68**

Adjustable Tap Wrench – 'T' Ratchet Type



Tool No.	For DIN Tap Size	For ANSI Tap	Length (mm)	Square	Sq. Max	Code No.	Price $
100/1	M3-10 1/8 - 3/8	M6 1/4	85	2.4-5.5	0.217	113700	**52.96**
100/2	M5-12 7/32 - 1/2	M12 1/2	100	4.5-8.0	0.315	113705	**65.23**
100/10	M3-10 1/8 - 3/8	M6 1/4	250	2.4-5.5	0.217	113710	**84.93**
100/20	M5-12 7/32 - 1/2	M12 1/2	300	4.5-8.0	0.315	113715	**98.28**

93 Series Tap Wrenches

- For holding taps, drills, reamers and small tools to be turned by hand
- Body is centered for use on lathe centres or drilling machines to start tap straight
- Jaws conform to the tool being held and are heat treated
- Wrenches have sliding handle which is frictionally held
- Designed to hold square shanks



Cap. Tap Size	Cap. Square Shank	Body Length	Starrett No.	Sowa Code No.	Price $
1/16-3/16"	1/16-5/32"	2"	93A	629100	**54.18**
7/32-7/16"	5/32-1/4"	2 1/2"	93B	629101	**57.41**
1/4-1/2"	3/16-5/16	3 1/2"	93C	629102	**73.53**

GS TOOLING



GS Tooling Taper Tension/ Compression Tap Holders

Quickly change your tools in seconds.

See Pages G63-67

Screw Extractors

Spiral Flute/Straight Flute

- For removing broken screws, studs, pipe fittings, etc., without damaging the threads



Tap	Drill Size	Screws & Bolts Sizes	Pipe Size	Spiral Flute Code No.	Price $	Straight Flute Code No.	Price $
1	5/64	3/16 - 1/4	-	110950	**4.87**	110962	**3.44**
2	7/64	1/4 - 5/16	-	110951	**5.33**	110963	**3.77**
3	5/32	5/16 - 7/16	-	110952	**6.32**	110964	**4.66**
4	7/32	7/16 - 9/16	1/8	110953	**6.65**	110965	**5.33**
5	17/64	9/16 - 3/4	1/4	110954	**8.21**	110966	**5.88**
6	13/32	3/4 - 1	3/8	110955	**18.63**	-	**-**
7	17/32	1 - 1-3/8	1/2	110956	**29.94**	-	**-**
8	13/16	1-3/8 - 1-3/4	3/4	110957	**40.91**	-	**-**
9	1-1/16	1-3/4 - 2-1/8	1	110958	**70.51**	-	**-**
10	1-9/32	2-1/8 - 2-1/2	1-1/4	110959	**97.01**	-	**-**
11	1-17/32	2-1/2 - 3	1-1/2	110960	**147.67**	-	**-**
12	1-15/16	3 - 3-1/2	2	110961	**234.93**	-	**-**

HSS Adjustable Round Split Dies — Inch

QUALITY IMPORT



HSS

Coarse Threads

Size	TPI	Code No.	Price $
13/16" O.D.			
2	56	140310	**16.46**
4	40	140320	**16.24**
5	40	140325	**16.24**
6	32	140330	**16.64**
8	32	140335	**16.24**
10	24	140340	**19.60**
12	24	140345	**19.14**
1/4	20	140350	**19.14**
5/16	18	140355	**19.14**
1" O.D.			
6	32	140360	**20.79**
8	32	140365	**20.30**
10	24	140370	**23.90**
12	24	140375	**23.90**
1/4	20	140380	**23.90**
5/16	18	140385	**23.90**
3/8	16	140390	**23.90**
7/16	14	140395	**23.90**
1/2	13	140400	**23.90**
1-1/2" O.D.			
1/4	20	140405	**40.18**
5/16	18	140410	**40.18**
3/8	16	140415	**40.18**
7/16	14	140420	**40.18**
1/2	13	140425	**40.18**
9/16	12	140430	**40.18**
5/8	11	140435	**40.18**
3/4	10	140437	**40.18**
2" O.D			
5/8	11	140440	**68.76**
3/4	10	140445	**68.76**
7/8	9	140450	**68.76**
1	8	140455	**68.76**

Screw Extractor Sets

- For removing broken screws, studs, pipe fittings, etc., without damaging the threads





Description	Spiral Flute Code No.	Price $	Straight Flute Code No.	Price $
5pc set incl. #1, 2, 3, 4, 5	110967	**34.71**	110969	**24.72**
4pc set incl. #6, 7, 8, 9	110968	**159.55**	-	**-**
9pc set incl. #1 through 9	110970	**190.36**	-	**-**

HSS Adjustable Round Split Dies — Inch

QUALITY IMPORT



HSS

Fine Threads

Size	TPI	Code No.	Price $
13/16" O.D.			
0	80	140460	**25.95**
2	64	140470	**16.24**
4	48	140480	**16.24**
5	44	140485	**16.24**
6	40	140490	**16.24**
8	36	140495	**16.24**
10	32	140500	**19.14**
12	28	140505	**19.14**
1/4	28	140510	**19.14**
5/16	24	140515	**19.14**
1" O.D.			
6	40	140520	**23.90**
8	36	140525	**23.90**
10	32	140530	**23.90**
12	28	140535	**23.90**
1/4	28	140540	**23.90**
5/16	24	140545	**23.90**
3/8	24	140550	**23.90**
7/16	20	140555	**23.90**
1/2	20	140560	**23.90**
1-1/2" O.D.			
1/4	28	140565	**40.18**
5/16	24	140570	**40.18**
3/8	24	140575	**40.18**
7/16	20	140580	**40.18**
1/2	20	140585	**40.18**
9/16	18	140590	**40.18**
5/8	18	140595	**40.18**
3/4	16	140597	**40.18**
2" O.D.			
5/8	18	140600	**68.76**
3/4	16	140605	**68.76**
7/8	14	140610	**68.76**
1	14	140615	**68.76**

HSS Adjustable Round Split Dies — Metric





QUALITY IMPORT

HSS

HSS Metric ISO Threads/Right Hand
- High Speed Steel
- Outside diameter in inches

Coarse Threads

Size (mm)	Pitch (mm)	Code No.	Price $
13/16" O.D.			
M1	0.25	140700	**25.95**
M1.2	0.25	140701	**25.95**
M1.8	0.35	140703	**25.95**
M2.5	0.45	140705	**25.95**
M4	0.70	140706	**29.38**
M4	0.75	140707	**29.38**
M5	0.8	140708	**29.38**
1" O.D.			
M2	0.4	140709	**22.10**
M2.2	0.45	140710	**27.93**
M2.3	0.4	140711	**27.93**
M2.5	0.45	140712	**27.93**
M2.6	0.45	140713	**27.93**
M3	0.5	140714	**33.65**
M3.5	0.5	140715	**33.65**
M3.5	0.6	140716	**33.65**
M4	0.7	140717	**33.65**
M4.5	0.75	140718	**33.65**
M5	1	140719	**33.65**
M5	0.8	140720	**33.65**
M5.5	0.9	140721	**33.65**
M6	1	140722	**33.65**
M6	1.25	140723	**33.65**
M6.3	1	140724	**32.86**
M7	1	140725	**33.65**
M8	1.25	140726	**17.25**
M9	1.25	140727	**33.65**
M10	1.5	140728	**33.65**
M11	1.5	140729	**33.65**
1-1/2" O.D.			
M10	1.5	140731	**53.12**
M11	1.5	140732	**53.12**
M12	1.75	140733	**53.12**
M14	2	140734	**53.12**
M16	2	140735	**53.12**
M18	2.5	140736	**53.12**
M20	2.5	140737	**53.12**
2" O.D.			
M18	2.5	140738	**100.46**
M20	2.5	140739	**100.46**
M22	2.5	140740	**100.46**
M24	3	140741	**100.46**
M27	3	140742	**100.46**
M30	3.5	140743	**100.46**
2-1/2" O.D.			
M36	4	140744	**157.59**
3" O.D.			
M42	4.5	140745	**257.43**
M45	4.50	140746	**245.87**
M48	5	140747	**257.43**

Fine Threads

Size (mm)	Pitch (mm)	Code No.	Price $
13/16" O.D.			
M4	0.5	140748	**29.38**
1" O.D.			
M4	0.5	140749	**33.65**
M4.5	0.5	140750	**33.65**
M5	0.5	140751	**33.65**
M6	0.75	140752	**33.65**
M6	0.5	140753	**33.65**
M7	0.75	140754	**33.65**
M8	1	140755	**33.65**
M8	0.75	140756	**33.65**
M10	1.25	140757	**33.65**
M10	1	140758	**33.65**
M10	0.75	140759	**33.65**
M12	1	140760	**33.65**
1-1/2" O.D.			
M9	1	140761	**53.12**
M10	1.25	140762	**53.12**
M10	1	140763	**53.12**
M10	0.75	140764	**53.12**
M11	1	140765	**53.12**
M12	1.5	140766	**53.12**
M12	1.25	140767	**53.12**
M14	1.5	140768	**53.12**
M14	1.25	140769	**53.12**
M14	1	140770	**53.12**
M15	1.5	140771	**53.12**
M16	1.5	140772	**53.12**
M16	1	140773	**53.12**
M17	1.5	140774	**53.12**
M18	2	140775	**53.12**
M18	1.5	140776	**53.12**
M18	1	140777	**53.12**
M20	1.5	140778	**53.12**
M20	1	140779	**53.12**
2" O.D.			
M20	2	140780	**100.46**
M20	1.5	140781	**100.46**
M20	1	140782	**100.46**
M22	2	140783	**100.46**
M22	1.5	140784	**100.46**
M22	1	140785	**100.46**
M24	2	140786	**100.46**
M24	1.5	140787	**100.46**
M26	1.5	140788	**100.46**
M27	2	140789	**100.46**
M28	1.5	140790	**100.46**
M30	2	140791	**100.46**
M30	1.5	140792	**100.46**
2-1/2" O.D.			
M33	2	140793	**157.59**
3" O.D.			
M21	3	140794	**245.87**

Die Stocks



Tool No.	(mm)	(in.)	Length (mm)	Code No.	Price $
13/16	20.6 x 6.35	13/16 x 1/4	200	113750	**17.12**
1	25.4 x 9.5	1 x 3/8	224	113755	**17.87**
1 1/2	38.1 x 12.7	1-1/2 x 1/2	315	113760	**29.39**
2	50.8 x 15.9	2 x 5/8	560	113765	**65.23**

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Hex Dies — Inch



QUALITY IMPORT

ISO Threads/Right Hand
- Carbon Steel
- Used for rethreading and cleaning threads

Coarse Threads

Size	TPI	Code No.	Price $
2	56	140800	**23.95**
4	40	140801	**23.95**
5	40	140803	**23.95**
6	32	140805	**23.95**
8	32	140807	**23.95**
10	24	140809	**23.95**
12	24	140811	**23.95**
1/4	20	140813	**23.95**
5/16	18	140815	**26.50**
3/8	16	140817	**27.93**
7/16	14	140819	**31.37**
1/2	13	140821	**33.59**
9/16	12	140823	**35.70**
5/8	11	140825	**41.24**
11/16	11	140827	**46.12**
3/4	10	140829	**54.66**
7/8	9	140831	**61.32**
1	8	140833	**70.07**
1-1/8	7	140836	**82.15**
1-1/4	7	140838	**98.56**
1-3/8	6	140840	**105.33**
1-1/2	6	140842	**114.08**
1-5/8	5-1/2	140844	**173.84**
1-3/4	5	140845	**210.21**
2	4-1/2	140846	**262.65**
2-1/4	4-1/2	140847	**422.07**
2-1/2	4	140848	**492.48**
2-3/4	4	140849	**668.33**
3	4	140850	**735.50**
3-1/4	4	140851	**924.43**
3-1/2	4	140852	**998.82**
3-3/4	4	140853	**1,072.65**
4	4	140854	**1,186.96**

Fine Threads

Size	TPI	Code No.	Price $
4	48	140802	**23.95**
5	44	140804	**23.95**
6	40	140806	**23.95**
8	36	140808	**23.95**
10	32	140810	**23.95**
12	28	140812	**23.95**
1/4	28	140814	**23.95**
5/16	24	140816	**26.50**
3/8	24	140818	**27.93**
7/16	20	140820	**31.37**
1/2	20	140822	**33.59**
9/16	18	140824	**35.70**
5/8	18	140826	**41.24**
11/16	16	140828	**46.12**
3/4	16	140830	**54.66**
7/8	14	140832	**61.32**
1	12	140834	**70.07**
1	14	140835	**70.07**
1-1/8	12	140837	**82.15**
1-1/4	12	140839	**98.56**
1-3/8	12	140841	**105.33**
1-1/2	12	140843	**114.08**

Hex Dies — Metric



QUALITY IMPORT

Metric ISO Threads/Right Hand
- Carbon Steel
- Used for rethreading and cleaning threads

Size (mm)	Pitch (mm)	Code No.	Price $
M3	0.5	140864	**22.51**
M3	0.6	140865	**22.51**
M3.5	0.5	140866	**21.95**
M3.5	0.6	140867	**22.51**
M4	0.7	140868	**22.51**
M4	0.75	140869	**22.51**
M4.5	0.75	140870	**22.51**
M5	0.8	140871	**22.51**
M5	0.9	140872	**24.29**
M6	1.00	140873	**23.73**
M6.3	1.00	140874	**23.73**
M7	1.00	140875	**26.72**
M8	0.75	140876	**26.72**
M8	1.00	140877	**26.72**
M8	1.25	140878	**26.72**
M9	1.00	140879	**27.83**
M9	1.25	140880	**27.83**
M10	1.25	140881	**31.27**
M10	1.50	140882	**31.27**
M11	1.50	140883	**31.27**
M12	1.25	140884	**33.70**
M12	1.50	140885	**33.70**
M12	1.75	140886	**33.70**
M14	1.25	140887	**35.81**
M14	1.50	140888	**35.81**
M14	2.00	140889	**35.81**
M16	1.50	140890	**41.02**
M16	2	140891	**41.02**
M18	1.50	140892	**61.32**
M18	2.00	140893	**61.32**
M20	1.50	140894	**61.32**
M20	2.00	140895	**61.32**
M22	1.50	140896	**78.83**
M22	2.5	140897	**78.83**
M24	2.00	140898	**78.83**
M24	3.00	140899	**78.83**
M27	2.00	140900	**87.59**
M27	3.00	140901	**87.59**
M30	1.50	140902	**105.87**
M30	2.00	140903	**105.87**
M30	3.00	140904	**105.87**
M33	2.00	140905	**116.42**
M33	3.50	140906	**116.42**
M36	3.00	140907	**128.38**
M36	4.00	140908	**128.38**
M39	3.00	140909	**140.36**
M39	4.00	140910	**140.36**
M42	3.00	140911	**174.51**

NPT Hex Dies — Inch

QUALITY IMPORT

- Carbon Steel
- Used for rethreading and cleaning threads

Size	TPI	Code No.	Price $
1/8	27	140855	**33.59**
1/4	18	140856	**50.01**
3/8	18	140857	**65.96**
1/2	14	140858	**86.71**
3/4	14	140859	**111.87**
1	11-1/2	140860	**147.34**
1-1/4	11-1/2	140861	**210.21**
1-1/2	11-1/2	140862	**307.77**
2	11-1/2	140863	**624.30**

Tapping Speed Guide

Tapping Speed Guide
Proper tapping speeds are very important in obtaining efficient tapping results. There are many factors which affect proper tapping speeds, some of which are listed below.

Material Factors:
- Thermo-conductivity of the material and wall thickness as it affects heat dispersion
- Variations in carbon content of steel
- Hard spots in material
- Depth of hole to be tapped
- Percentage of full thread to be tapped

Tap Factors:
- Major diameters, pitch and lead
- Style of tap
- Width of lands
- Amount of hook or rake
- Length of chamfer
- Bottoming taps normally require slower speeds than plug chamfered taps

Materials			Speed Feet/Minute
HSSE-V3 BLUE RING			
Low Carbon	1018, 1010, 1035	Normalized	20-50
Medium Carbon	1045, 1050, 1065	Normalized	20-40
Aluminum	Unalloyed, Cast	–	30-80
Brass/Bronze	–	–	30-80
Copper	–	–	25-60
Cast Iron	–	As Cast	20-40
HSSE-V3			
Stainless Steel	200 Series, 300 Series, 17-4, 15-5 AM286 400 Series	Annealed Annealed Annealed Annealed	20-35 20-35 15-25 20-35
Tool Steels	01, A-2, D-2, H-13, P-20	Annealed	15-25
Medium Carbon	1030, 1035, 1038, 1040, 1045, 1050	Normalized	20-40
Alloyed High Carbon	1065, 1070, 1080, 1090,1095, 1561, 1572	Normalized	20-30
High Strength	4140, 4340	Normalized	20-30
Titanium	Commercially Pure	Annealed	15-30
Aluminum	Cast, Wrought	–	30-90
P-HSS			
Stainless Steel	17-4PH, 15-5, 17-7PH, AM350	Hardened	12-20
Tool Steels	01, A-2, D-2, H-13, P-20,	Hardened	10-20
High Strength	4140, 4340, 50100	Hardened	15-20
Nickel Alloys	Inconel, Hastaloy, Waspaloy, Astraloy, Rene, Monel	Annealed/Hardened	5-20
Titanium	6 AL 4	Annealed/ Hardened	8-15
ALUMINUM			
Aluminum		25-60	
Die Cast Aluminum		30-80	
ROLL FORM			
Steels	Sheet, Low/Medium Carbon/Stainless Steels	Hardened	20-50
Aluminum/Copper	Pure/Low Alloyed		30-60
Aluminum Cast, Copper Alloys	Die Cast, Zinc Die Cast, Brass, Bronze		30-80

Conversion Table, Surface Feet Per Minute to Revolutions Per Minute

Proper tapping speeds are determined best by experiment. In the table below, speeds shown should be used as a guide only, and the suggested surface feet per minute adjusted upward or downward until the best results are obtained.

Surface Feet Per Minute	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150
Tap Size	**RPM**														
0	1273	1592	1910	2546	3183	3820	4456	5093	5730	6366	7003	7639	8276	8913	9549
1	1047	1308	1570	2093	2617	3140	3663	4186	4710	5233	5756	5279	6808	7326	7849
2	888	1110	1333	1777	2221	2665	3109	3554	3999	4442	4886	5330	5774	6218	6662
3	772	964	1157	1543	1929	2315	2701	3086	3472	3858	4244	4629	5015	3401	5787
4	682	853	1023	1364	1705	2046	2387	2728	3069	3411	3751	4092	4434	4775	5116
5	611	764	917	1222	1528	1833	2139	2445	2750	3056	3361	3667	3973	4278	4584
6	553	691	829	1106	1382	1658	1934	2211	2487	2764	3040	3316	3592	3869	4145
8	466	583	699	932	1165	1387	1631	1864	2097	2330	2563	2796	3029	3262	3495
10	402	502	603	804	1005	1208	1406	1607	1808	2009	2210	2411	2612	2813	3014
12	354	442	531	707	884	1061	1238	1415	1592	1769	1945	2122	2300	2476	2653
1/4	306	382	458	611	764	917	1070	1222	1375	1528	1681	1833	1986	2139	2292
5/16	245	306	367	489	611	733	856	978	1100	1222	1345	1467	1589	1711	1833
3/8	204	255	306	407	509	611	713	845	917	1019	1120	1222	1324	1426	1528
7/16	175	219	262	349	437	524	611	698	786	872	960	1048	1135	1222	1310
1/2	153	191	229	306	382	458	535	611	688	764	840	917	993	1070	1146
9/16	137	172	206	275	344	412	481	550	619	687	756	825	893	963	1031
5/8	122	153	183	244	306	367	428	489	550	611	672	733	794	856	917
3/4	102	128	153	203	255	306	357	407	458	509	560	611	662	713	764
7/8	87	109	131	175	218	262	306	350	392	437	480	524	568	611	655
1	76	96	115	153	191	230	268	306	344	382	420	458	497	535	573

Mechanical Factors:
- Type of tapping machine and holder; speeds for small diameter taps are often governed by the limitations of the machine
- Condition of tapping machine and spindle
- Type of fixture; vertical or horizontal tapping (faster speeds for vertical tapping)
- Method of feeding the tap
- Cutting fluid used and method of application
- The optimum speed for tapping is the highest speed that conditions permit, consistent with economic tool life

ANSI Tap Dimensions

Mach. Screw Size No.	Nominal Fractional Diameter (in.)	Nominal Metric Diameter (mm)	Tap Dimensions — Inches				
			Overall Length	Thread Length	Square Length	Shank Diameter	Size of Square
0	1/16	M1.6	1-5/8	5/16	3/16	0.141	0.110
1		M1.8	1-11/16	3/8	3/16	0.141	0.110
2		M2, M2.2	1-3/4	7/16	3/16	0.141	0.110
3	3/32	M2.5	1-13/16	1/2	3/16	0.141	0.110
4			1-7/8	9/16	3/16	0.141	0.110
5	1/8	M3, M3.15	1-15/16	5/8	3/16	0.141	0.110
6		M3.5	2	11/16	3/16	0.141	0.110
8	5/32	M4	2-1/8	3/4	1/4	0.168	0.131
10	3/16	M4.5, M5	2-3/8	7/8	1/4	0.194	0.152
12	7/32		2-3/8	15/16	9/32	0.220	0.165
14	1/4	M6, M6.3	2-1/2	1	5/16	0.255	0.191
	5/16	M7, M8	2-23/32	1-1/8	3/8	0.318	0.238
	3/8	M10	2-15/16	1-1/4	7/16	0.381	0.286
	7/16		3-5/32	1-7/16	13/32	0.323	0.242
	1/2	M12, 12.5	3-3/8	1-21/32	7/16	0.367	0.275
	9/16	M14	3-19/32	1-21/32	1/2	0.429	0.322
	5/8	M16	3-13/16	1-13/16	9/16	0.480	0.360
	11/16	M18	4-1/32	1-13/16	5/8	0.542	0.406
	3/4		4-1/4	2	11/16	0.590	0.442
	13/16	M20	4-15/32	2	11/16	0.652	0.489
	7/8	M22	4-11/16	2-7/32	3/4	0.697	0.523
	15/16	M24	4-29/32	2-7/32	3/4	0.760	0.570
	1	M25	5-1/8	2-1/2	13/16	0.800	0.600
	1-1/16	M27	5-1/8	2-1/2	7/8	0.895	0.672
	1-1/8		5-7/16	2-9/16	7/8	0.896	0.672
	1-3/16	M30	5-7/16	2-9/16	1	1.021	0.766
	1-1/4		5-3/4	2-9/16	1	1.021	0.766
	1-5/16	M33	5-3/4	2-9/16	1-1/16	1.108	0.831
	1-3/8		6-1/16	3	1-1/16	1.108	0.831
	1-7/16	M36	6-1/16	3	1-1/8	1.233	0.925
	1-1/2		6-3/8	3	1-1/8	1.233	0.925
	1-5/8	M39	6-11/16	3-3/16	1-1/8	1.305	0.979
	1-3/4	M42	7	3-3/16	1-1/4	1.430	1.072
	1-7/8		7-5/16	3-9/16	1-1/4	1.519	1.139
	2	M48	7-5/8	3-9/16	1-3/8	1.644	1.233

Nominal Size Inches	NPT Dimensions — Inches				
	Overall Length	Thread Length	Square Length	Shank Diameter	Size of Square
1/16	2-1/8	11/16	3/8	0.3125	0.234
1/8	2-1/8	3/4	3/8	0.3125	0.234
1/8	2-1/8	3/4	3/8	0.4375	0.328
1/4	2-7/16	1-1/16	7/16	0.5625	0.421
3/8	2-9/16	1-1/16	1/2	0.7000	0.531
1/2	3-1/8	1-3/8	5/8	0.6875	0.515
3/4	3-1/4	1-3/8	11/16	0.9063	0.679
1	3-3/4	1-3/4	13/16	1.1250	0.843
1-1/4	4	1-3/4	15/16	1.3125	0.984
1-1/2	4-1/4	1-3/4	1	1.5000	1.125
2	4-1/2	1-3/4	1-1/8	1.8750	1.406

Tap/Drill Chart — Inch

To minimize tapping problems and lengthen tool life, use the largest drill possible to produce a minor diameter that will result in the lowest percentage of full thread consistent with adequate strength. A minor diameter that provides a 55% to 65% thread is sufficient for most requirements, but in some cases a higher percentage of thread may be necessary to conform with the minor diameter limits of the thread class specified.

Tap Drill Sizes

Drills generally cut holes larger than their diameters. In the table to the right, the probable percentages of full thread were determined by the average amount oversize the various drills are expected to cut.

SUGGESTED PIPE TAP DRILL SIZES

Tap Size	Pipe Tap Drill Size	
	Taper	Straight
1/16	D	–
1/8	R	S
1/4	7/16	29/64
3/8	37/64	19/32
1/2	23/32	47/64
3/4	59/64	15/16
1	1-5/32	1-3/16
1-1/4	1-1/2	1-33/64
1-1/2	1-47/64	1-3/4
2	2-7/32	2-7/32
2-1/2	2-5/8	–
3	3-1/4	–

* Sizes given permit direct tapping without reaming the hole, but only give a full thread for the first two or three threads

† For Dryseal Straight Pipe Threads suggested drill sizes are as shown, except; 1/4" pipe, use 0.444 drill size

TAP/DRILL SELECTION

Tap	Tap Drill	Decimal Equiv. of Tap Drill	Theo. Oversize Mean (%)	Probable Oversize Mean	Probable Hole Size	% of Threads
0-80	56	0.0465	83	0.0015	0.0480	74
	3/64	0.0469	81	0.0015	0.0484	71
1-64	54	0.0550	89	0.0015	0.0565	81
	53	0.0595	67	0.0015	0.0610	59
1-72	53	0.0595	75	0.0015	0.0610	67
	1/16	0.0625	58	0.0015	0.0640	50
5-56	51	0.0670	82	0.0017	0.0687	74
	50	0.0700	69	0.0017	0.0717	62
	49	0.0730	56	0.0017	0.0747	49
2-64	50	0.0700	79	0.0017	0.0717	70
	49	0.0730	64	0.0017	0.0747	56
3-48	48	0.0760	85	0.0019	0.0779	78
	5/64	0.0781	77	0.0019	0.0800	70
	47	0.0785	76	0.0019	0.0801	69
	46	0.0810	67	0.0019	0.0829	60
	45	0.0820	61	0.0019	0.0839	56
3-56	46	0.0810	78	0.0019	0.0829	69
	45	0.0820	73	0.0019	0.0839	65
	44	0.0860	56	0.0020	0.0880	47
4-40	44	0.0860	80	0.0020	0.0880	74
	43	0.0890	71	0.0020	0.0910	65
	42	0.0935	57	0.0020	0.0955	51
	3/32	0.0938	56	0.0020	0.0958	50
4-48	42	0.0935	68	0.0020	0.0955	61
	3/32	0.0938	68	0.0020	0.0958	60
	41	0.0960	59	0.0020	0.0980	52
5-40	40	0.0980	83	0.0023	0.1003	76
	39	0.0995	79	0.0023	0.1018	71
	38	0.1015	72	0.0023	0.1038	65
	37	0.1040	65	0.0023	0.1063	58
5-44	38	0.1015	79	0.0023	0.1038	72
	37	0.1040	71	0.0023	0.1063	63
	36	0.1065	63	0.0023	0.1088	55
6-32	37	0.1040	84	0.0023	0.1063	78
	36	0.1065	78	0.0023	0.1088	72
	7/64	0.1094	70	0.0026	0.1120	64
	35	0.1100	69	0.0026	0.1126	63
	34	0.1110	67	0.0026	0.1136	60
	33	0.1130	62	0.0026	0.1156	55
6-40	34	0.1110	83	0.0026	0.1136	75
	33	0.1130	77	0.0026	0.1156	69
	32	0.1160	68	0.0026	0.1186	60
8-32	29	0.1360	69	0.0029	0.1389	62
	28	0.1405	58	0.0029	0.1434	51
8-36	29	0.1360	78	0.0029	0.1389	70
	28	0.1405	68	0.0029	0.1434	57
	9/64	0.1406	68	0.0029	0.1435	57
10-24	27	0.1440	85	0.0032	0.1472	79
	26	0.1470	79	0.0032	0.1502	74
	25	0.1495	75	0.0032	0.1527	69
	24	0.1520	70	0.0032	0.1552	64
	23	0.1540	67	0.0032	0.1572	61
	5/32	0.1563	62	0.0032	0.1595	56
	22	0.1570	61	0.0032	0.1602	55
10-32	5/32	0.1563	83	0.0032	0.1595	75
	22	0.1570	81	0.0032	0.1602	73
	21	0.1590	76	0.0032	0.1672	64
	20	0.1610	71	0.0032	0.1642	64
	19	0.1660	59	0.0032	0.1692	51
12-24	11/64	0.1719	82	0.0035	0.1754	75
	17	0.1730	79	0.0035	0.1765	73
	16	0.1770	72	0.0035	0.1805	66
	15	0.1800	67	0.0035	0.1835	60
	14	0.1820	63	0.0035	0.1855	56
12-28	16	0.1770	84	0.0035	0.1805	77
	15	0.1800	78	0.0035	0.1835	70
	14	0.1820	73	0.0038	0.1835	66
	13	0.1850	67	0.0035	0.1885	59
	3/16	0.1875	61	0.0035	0.1970	54

Tap/Drill Chart — Inch — Cont'd

Formula: Percentage of Full Thread

Threads Per Inch x $\frac{\text{Major Dia. of Tap - Drill Dia.}}{0.01299}$
= Percentage of Full Thread

Example: Determine percentage of full thread for 2" – 12N Tap, using 1.9219" Drill.

2.0000-1.9219 = 0.0781 ÷ 0.01299 = 6.012
Threads Per Inch = x 12
Theoretical Percentage of Full Threads = 72.144

Formula: Tap Drill Size

Major Dia. of Tap - $\frac{\text{0.1299 x Percent of Full Thread}}{\text{Number of threads Per inch}}$
= Drill Size

Example: Determine drill size for 2"–12N Tap, 70% Full Thread.
Basic Major Diameter of Tap = 2.0000"

0.01299 x 70 = 0.9093 ÷ 12 = 0.0758"
Theoretical Drill Size = 1.9242"
Nearest Standard Drill Size 1 59/64 = 1.9219"

	*Deep Hole Tapping	Average Commercial	Thin Sheet Stock or Stamping
FREE CUTTING MATERIAL			
Aluminum			
Brass			
Bronze			
Cast Iron	60%-70%	65%-70%	75%-85%
Copper			
Mild Steel			
Tool Steel			
FREE CUTTING MATERIAL			
Cast Steel			
Drop Forging			
Monel Metal	55%-65%	65%-70%	
Nickel Steel			
Stainless Steel			

* Sizes given permit direct tapping without reaming the hole, but only give a full thread for the first two or three threads

TAP/DRILL SELECTION

Tap	Tap Drill	Decimal Equiv. of Tap Drill	Theo. Oversize Mean (%)	Probable Oversize Mean	Probable Hole Size	% of Threads
1/4-20	9	0.1960	83	0.0038	0.1998	77
	8	0.1990	79	0.0039	0.2028	73
	7	0.2010	75	0.0038	0.2048	70
	13/64	0.2031	72	0.0038	0.2068	66
	6	0.2040	71	0.0038	0.2078	65
	5	0.2055	69	0.0038	0.2093	63
	4	0.2090	63	0.0038	0.2128	57
1/4-28	3	0.2130	80	0.0038	0.2168	72
	7/32	0.2188	67	0.0038	0.2226	59
	2	0.2210	63	0.0038	0.2248	55
5/16-18	F	0.2570	77	0.0038	0.2608	72
	G	0.2610	71	0.0041	0.2651	66
	17/64	0.2656	65	0.0041	0.2697	59
	H	0.2660	64	0.0041	0.2701	59
5/16-24	H	0.2660	86	0.0041	0.2701	78
	I	0.2720	75	0.0041	0.2761	67
	J	0.2770	66	0.0041	0.2811	58
3/8-16	5/16	0.3125	77	0.0044	0.3169	72
	O	0.3160	73	0.0044	0.3204	68
	P	0.3230	64	0.0044	0.3274	59
3/8-24	21/64	0.3281	87	0.0044	0.3325	79
	Q	0.3320	79	0.0044	0.3364	71
	R	0.3390	67	0.0044	0.3434	58
7/16-14	T	0.3580	86	0.0046	0.3626	81
	23/64	0.3594	84	0.0046	0.3640	79
	U	0.3680	75	0.0046	0.3726	70
	3/8	0.3750	67	0.0046	0.3796	62
	V	0.3770	65	0.0046	0.3816	61
7/16-20	W	0.3860	79	0.0046	0.3906	72
	25/64	0.3906	72	0.0046	0.3952	65
	X	0.3970	62	0.0046	0.4016	55
1/2-13	27/64	0.4219	78	0.0047	0.4266	73
	7/16	0.4375	63	0.0047	0.4422	58
1/2-20	29/64	0.4531	72	0.0047	0.4578	65
9/16-12	15/32	0.4688	87	0.0048	0.4736	82
	31/64	0.4844	72	0.0048	0.4892	68
9/16-18	1/2	0.5000	87	0.0048	0.5048	80
	33/64	0.5156	65	0.0048	0.5204	58
5/8-11	17/32	0.5313	79	0.0049	0.5362	75
	35/64	0.5469	66	0.0049	0.5618	62
5/8-18	9/16	0.5628	87	0.0049	0.5674	80
	37/64	0.5781	65	0.0049	0.5831	58
3/4-10	41/64	0.6406	84	0.0050	0.6456	80
	21/32	0.6563	72	0.0050	0.6613	68
3/4-16	11/16	0.6875	77	0.0050	0.6925	71
7/8-9	49/64	0.7656	76	0.0052	0.7708	72
	25/32	0.7812	65	0.0052	0.7864	61
7/8-14	51/64	0.7969	84	0.0052	0.8021	79
	13/16	0.8125	67	0.0052	0.8177	62
1-8	55/64	0.8594	87	0.0059	0.8653	83
	7/8	0.8750	77	0.0059	0.8809	73
	57/64	0.8906	67	0.0059	0.8965	64
	29/32	0.9063	58	0.0059	0.9122	54
1-12	29/32	0.9063	87	0.0059	0.9122	81
	59/64	0.9219	72	0.0060	0.9279	67
	15/16	0.9375	58	0.0060	0.9435	52
1-14	59/64	0.9219	84	0.0060	0.9279	78
	15/16	0.9375	67	0.0060	0.9435	61
1-1/8-7	31/21	0.9688	84	0.0062	0.9750	81
	63/64	0.9844	76	0.0067	0.9911	72
	1	1.0000	67	0.0070	1.0070	64
	1-1/64	1.0156	59	0.0070	1.0226	55
1-1/8-12	1-1/32	1.0313	87	0.0071	1.0384	80
	1-3/64	1.0469	72	0.0072	1.0541	66
1-1/4-7	1-3/32	1.0938	84	Reaming Recommended		
	1-7/64	1.1094	76			
	1-1/8	1.1250	67			
1-1/4-12	1-5/32	1.1563	87			
	1-11/64	1.1719	72			
1-3/8-6	1-3/16	1.1875	87			
	1-13/64	1.2031	79			
	1-7/32	1.2188	72			
	1-15/64	1.2344	65			
1-3/8-12	1-9/32	1.2813	87			
	1-19/64	1.2969	72			
1-1/2-6	1-5/16	1.3125	87			
	1-21/64	1.3281	79			
	1-11/32	1.3438	72			
	1-23/64	1.3594	65			
1-1/2-12	1-13/32	1.4063	87			
	1-27/64	1.4219	72			

Tap/Drill Chart — Metric

METRIC TAP DRILL SIZES

(Drill sizes based on approximate 72%-77% Full Thread)

Tap Size	Pitch Form	Tap Drill Size	Alt. Tap Drill	Tap Size	Pitch Form	Tap Drill Size	Alt. Tap Drill
I.S.O. METRIC COARSE				I.S.O. METRIC FINE			
1.6	0.35mm	1.25mm	3/64	3	0.35mm	2.65mm	37
1.7	0.35mm	1.35mm	55	4	0.35mm	3.65mm	27
1.8	0.35mm	1.45mm	54	4	0.50mm	3.50mm	29
2	0.40mm	1.60mm	1/16	4.5	0.45mm	4.06mm	21
2.2	0.45mm	1.75mm	50	5	0.50mm	4.50mm	16
2.3	0.40mm	1.90mm	49	5	0.70mm	4.30mm	18
2.5	0.45mm	2.05mm	46	5	0.75mm	4.25mm	18
2.6	0.45mm	2.15mm	44	5.5	0.50mm	5.00mm	9
3	0.5mm	2.50mm	40	6	0.50mm	5.50mm	7/32
3.5	0.60mm	2.90mm	33	6	0.75mm	5.25mm	5
4	0.70mm	3.30mm	30	7	0.75mm	6.25mm	D
4.5	0.75mm	3.70mm	27	8	0.50mm	7.50mm	M
5	0.80mm	4.20mm	19	8	1.00mm	7.00mm	J
5.5	0.90mm	4.60mm	15	9	0.50mm	8.50mm	Q
6	1.00mm	5.00mm	9	9	1.00mm	8.00mm	O
7	1.00mm	6.00mm	15/64	10	0.50mm	9.50mm	3/8
8	1.25mm	6.80mm	H	10	0.75mm	9.25mm	U
9	1.25mm	7.80mm	5/16	10	1.00mm	9.00mm	T
10	1.50mm	8.50mm	Q	10	1.25mm	8.75mm	11/32
11	1.50mm	9.50mm	3/8	11	1.00mm	10.00mm	X
12	1.75mm	10.20mm	Y	12	1.00mm	11.00mm	7/16
14	2.00mm	12.00mm	15/32	12	1.25mm	10.75mm	27/64
16	2.00mm	14.00mm	35/64	12	1.50mm	10.50mm	Z
18	2.50mm	15.50mm	39/64	13	1.50mm	11.50mm	29/64
20	2.50mm	17.50mm	11/16	13	1.75mm	11.25mm	7/16
22	2.50mm	19.50mm	49/64	14	1.25mm	12.75mm	1/2
24	3.00mm	21.00mm	53/64	14	1.50mm	12.50mm	31/64
27	3.00mm	24.00mm	61/64	15	1.50mm	13.50mm	17/32
30	3.50mm	26.50mm	1-3/64	16	1.00mm	15.00mm	19/32
33	3.50mm	29.50mm	1-5/32	16	1.25mm	14.75mm	37/64
36	4.00mm	32.00mm	1-1/4	16	1.50mm	14.50mm	9/16
39	4.00mm	35.00mm	1-3/8	18	1.00mm	17.00mm	43/64
				18	1.25mm	16.75mm	21/32
				18	1.50mm	16.50mm	41/64
				18	2.00mm	16.00mm	5/8
				20	1.00mm	19.00mm	3/4
				20	1.50mm	18.50mm	47/64
				20	2.00mm	18.00mm	45/64
				22	1.0mm	21.00mm	53/64
				22	1.50mm	20.50mm	13/16
				22	2.00mm	20.00mm	25/32
				24	1.00mm	23.00mm	29/32
				24	1.50mm	22.50mm	7/8
				24	2.00mm	22.00mm	55/64
				24	2.50mm	21.50mm	27/32

Cutting Tools

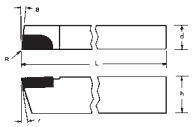


Cutting Tools

Cut-Off Blades D2
Brazed Tool Bits D2-3
HSS & Cobalt Tool Bits D4-5
Carbide Tipped, HSS & Indexable Boring Bars D5
Precision Boring Heads D5
Carbide & HSS Mini Bore Tools D5
Borite “Mini Tool Holders” D5
Counterbores D5-6
Annular Cutters D6
Corner Rounding End Mills D7
T-Slot Cutters, HSS, Cobalt M42 & M42 Roughers D7
Woodruff Keyseat Cutters D7
Concave & Convex, Shank Type Cutters D8
Dovetail Angular Cutters - 45° & 60° D8
Double Angle, Shank Type Cutters D8
Plain & Staggered Tooth Milling Cutters D8-11
Slitting Saws D11-12
Angle Cutters D12-13
Concave & Convex Cutters D13
Shell End Mills D14
Heavy Duty Plain Milling Cutters D14
Involute Gear Cutters D14
Screw Slotting Saws D14-15
Carbide Saw Blades D15
Knurling Tools D16
Broaches, Hassay-Savage D16-27

Turning Style "A" Brazed Tools

Grade C2 – Cast Iron
Grade C5 – Steel

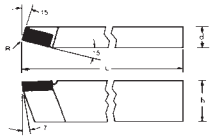




Tool Right Hand	Tool Left Hand	Shank (d)	Shank (h)	Shank (L)	Nose Radius	R.H. C2 Code No.	Price $	L.H. C2 Code No.	Price $	R.H. C5 Code No.	Price $	L.H. C5 Code No.	Price $
AR4	AL4	1/4	1/4	2	1/64	141500	**8.03**	141600	**3.52**	141700	**3.52**	141800	**3.52**
AR5	AL5	5/16	5/16	2-1/4	1/64	141502	**8.55**	141602	**8.55**	141702	**3.62**	141802	**3.62**
AR6	AL6	3/8	3/8	2-1/2	1/64	141504	**3.62**	141604	**3.62**	141704	**3.62**	141804	**3.62**
AR7	AL7	7/16	7/16	3	1/32	141506	**9.29**	-	-	141706	**9.67**	141806	**9.67**
AR8	AL8	1/2	1/2	3-1/2	1/32	141508	**5.38**	141608	**5.38**	141708	**5.38**	141808	**5.38**
AR10	AL10	5/8	5/8	4	1/32	141510	**8.59**	141610	**8.59**	141710	**8.59**	141810	**8.59**
AR12	AL12	3/4	3/4	4-1/2	1/32	141512	**43.08**	141612	**43.08**	141712	**54.37**	141812	**54.37**

Turning Style "B" Brazed Tools

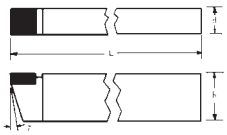
Grade C2 – Cast Iron
Grade C5 – Steel





Tool Right Hand	Tool Left Hand	Shank (d)	Shank (h)	Shank (L)	Nose Radius	R.H. C2 Code No.	Price $	L.H. C2 Code No.	Price $	R.H. C5 Code No.	Price $	L.H. C5 Code No.	Price $
BR4	BL4	1/4	1/4	2	1/64	141528	**8.03**	141628	**8.03**	141728	**8.03**	141828	**8.03**
BR5	BL5	5/16	5/16	2-1/4	1/64	141530	**15.75**	141630	**8.55**	141730	**8.55**	-	-
BR6	BL6	3/8	3/8	2-1/2	1/64	141532	**9.04**	141632	**9.04**	141732	**9.04**	141832	**9.04**
BR7	BL7	7/16	7/16	3	1/32	141534	**8.21**	141634	**9.29**	141734	**9.67**	-	-
BR8	BL8	1/2	1/2	3-1/2	1/32	141536	**13.05**	141636	**11.53**	141736	**13.05**	141836	**13.05**
BR10	BL10	5/8	5/8	4	1/32	141538	**20.47**	141638	**20.47**	141738	**20.47**	141838	**20.47**
BR12	BL12	3/4	3/4	4-1/2	1/32	141540	**44.33**	141640	**54.37**	141740	**54.37**	141840	**54.37**

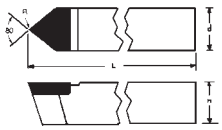
Turning/Facing Style "C" Brazed Tools





Tool Style	Shank (d)	Shank (h)	Shank (L)	Grade C2 Code No.	Price $	Grade C5 Code No.	Price $
C4	1/4	1/4	2	141542	**8.03**	141642	**3.52**
C5	5/16	5/16	2-1/4	141544	**16.08**	141644	**8.55**
C6	3/8	3/8	2-1/2	141546	**9.04**	141646	**3.83**
C7	7/16	7/16	3	141548	**8.21**	141648	**9.67**
C8	1/2	1/2	3-1/2	141550	**13.05**	141650	**5.90**
C10	5/8	5/8	4	141552	**20.47**	141652	**20.47**
C12	3/4	3/4	4-1/2	-	-	141654	**54.37**
C16	1	1	6	141556	**54.06**	141656	**58.26**

Chamfering Style "D" Brazed Tools

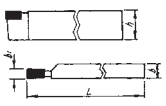




Tool Style	Shank (d)	Shank (h)	Shank (L)	Grade C2 Code No.	Price $	Grade C5 Code No.	Price $
D4	1/4	1/4	2	141558	**8.03**	141658	**8.03**
D5	5/16	5/16	2-1/4	141560	**8.55**	141660	**8.55**
D6	3/8	3/8	2-1/2	141562	**9.04**	141662	**3.83**
D7	7/16	7/16	3	141564	**9.29**	141664	**9.67**
D8	1/2	1/2	3-1/2	141566	**13.05**	141666	**5.18**
D10	5/8	5/8	4	141568	**20.47**	141668	**20.47**
D12	3/4	3/4	4-1/2	141570	**44.33**	141670	**54.37**

Carbide Tipped Brazed Cut-Off Tools

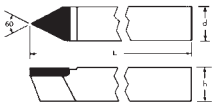
Grade C2 – Cast Iron
Grade C5 – Steel





Tool Right Hand	Tool Left Hand	Top Width	b	Shank (h)	L	R.H. C2 Code No.	Price $	L.H. C2 Code No.	Price $	R.H. C5 Code No.	Price $	L.H. C5 Code No.	Price $
CTR-11	CTL-11	1/8	1/2	1	5	141585	**31.27**	141685	**35.42**	141785	**35.42**	141885	**35.42**
CTR-22	CTL-22	3/16	1/2	1	5	141586	**35.91**	141686	**35.91**	141786	**35.91**	141886	**35.91**
CTR-33	CTL-33	1/4	1/2	1	5	141587	**36.91**	141687	**36.04**	141787	**36.91**	-	-
CTR-44	CTL-44	5/16	1/2	1	5	141588	**39.31**	141688	**39.31**	141788	**34.71**	141888	**39.31**
CTR-55	CTL-55	3/8	5/8	1-1/4	5	141589	**49.23**	141689	**49.23**	141789	**49.23**	141889	**49.23**

Threading Style "E" Brazed Tools





STM PREMIUM

Tool Style	Shank (d)	Shank (h)	Shank (L)	Grade C2 Code No.	Price $	Grade C5 Code No.	Price $
E4	1/4	1/4	2	-	-	141672	**3.52**
E5	5/16	5/16	2-1/4	141574	**8.55**	141674	**8.55**
E6	3/8	3/8	2-1/2	141576	**9.04**	141676	**3.83**
E8	1/2	1/2	3-1/2	141578	**13.05**	141678	**5.80**
E10	5/8	5/8	4	141580	**20.47**	141680	**20.47**
E12	3/4	3/4	4-1/2	141582	**44.33**	141682	**54.37**

Carbide Tipped Boring Bars

BORITE

- Black oxide coating retains lubrications to aid in wear-resistance and chip flow
- Carbide-tips cut faster than high speed steel
- Commonly used on ferrous and non-ferrous materials including cast iron, steel and steel alloys



BLACK OXIDE

Shank Dia.	Length	Bore Depth	Min. Bore	Tool No.	C2 Cast Iron Code No.	Price $	C6 Steel Code No.	Price $	Set Code No.	Price $
3/8	2	3/4	5/16	A5S	145200	**22.90**	145308	**22.90**	145218	**234.20**
3/8	2-3/8	1-1/8	5/16	A5M	145202	**23.20**	145310	**23.20**	(A-375-C2)	
3/8	2-3/4	1-1/2	5/16	A5L	145204	**24.00**	145312	**24.00**		
3/8	2-3/16	15/16	3/8	A3S	145206	**25.30**	145314	**25.30**		
3/8	2-21/32	1-13/32	3/8	A3M	145208	**26.20**	145316	**26.20**	145326	**234.20**
3/8	3-1/8	1-7/8	3/8	A3L	145210	**27.20**	145318	**27.20**	(A375-C6)	
3/8	2-3/8	1-1/8	7/16	A7S	145212	**27.80**	145320	**27.80**		
3/8	2-15/16	1-11/16	7/16	A7M	145214	**28.50**	145322	**28.50**		
3/8	3-1/2	2-1/4	7/16	A7L	145216	**29.60**	145324	**29.60**		
1/2	2-1/4	3/4	5/16	B5S	145220	**30.50**	145328	**30.50**		
1/2	2-5/8	1-1/8	5/16	B5M	145222	**31.30**	145330	**31.30**	145238	**306.60**
1/2	3	1-1/2	5/16	B5L	145224	**32.20**	145332	**32.20**	(B-500-C2)	
1/2	2-5/8	1-1/8	7/16	B7S	145226	**33.60**	145334	**33.60**		
1/2	3-3/16	1-11/16	7/16	B7M	145228	**34.20**	145336	**34.20**		
1/2	3-3/4	2-1/4	7/16	B7L	145230	**34.80**	145338	**34.80**	145346	**306.60**
1/2	3	1-1/2	9/16	B9S	145232	**36.20**	145340	**36.20**	(B-500-C6)	
1/2	3-3/4	2-1/4	9/16	B9M	145234	**36.80**	145342	**36.80**		
1/2	4-1/2	3	9/16	B9L	145236	**37.40**	145344	**37.40**		
5/8	2-1/4	3/4	5/16	D5S	145240	**36.70**	145348	**36.70**		
5/8	2-5/8	1-1/8	5/16	D5M	145242	**38.20**	145350	**38.20**		
5/8	3	1-1/2	5/16	D5L	145244	**39.40**	145352	**39.40**	145264	**550.20**
5/8	2-5/8	1-1/8	7/16	D7S	145246	**41.80**	145354	**41.80**	(D625-C2)	
5/8	3-3/16	1-11/16	7/16	D7M	145248	**43.40**	145356	**43.40**		
5/8	3-3/4	2-1/4	7/16	D7L	145250	**44.90**	145358	**44.90**		
5/8	3	1-1/2	9/16	D9S	145252	**46.90**	145360	**46.90**		
5/8	3-3/4	2-1/4	9/16	D9M	145254	**48.40**	145362	**48.40**	145372	**550.20**
5/8	4-1/2	3	9/16	D9L	145256	**49.60**	145364	**49.60**	(D625-C6)	
5/8	3-3/8	1-7/8	11/16	D11S	145258	**52.10**	145366	**52.10**		
5/8	4-5/16	2-13/16	11/16	D11M	145260	**53.90**	145368	**53.90**		
5/8	5-1/4	3-3/4	11/16	D11L	145262	**55.30**	145370	**55.30**		
3/4	3-1/8	1-1/8	7/16	C7S	145266	**42.70**	145374	**42.70**		
3/4	3-11/16	1-11/16	7/16	C7M	145268	**44.00**	145376	**44.00**		
3/4	4-1/4	2-1/4	7/16	C7L	145270	**45.60**	145378	**45.60**	145290	**631.60**
3/4	3-1/2	1-1/2	9/16	C9S	145272	**47.60**	145380	**47.60**	(C-750-C2)	
3/4	4-1/4	2-1/4	9/16	C9M	145274	**49.40**	145382	**49.40**		
3/4	5	3	9/16	C9L	145276	**50.70**	145384	**50.70**		
3/4	3-7/8	1-7/8	11/16	C11S	145278	**53.00**	145386	**53.00**		
3/4	4-13/16	2-13/16	11/16	C11M	145280	**55.00**	145388	**55.00**		
3/4	5-3/4	3-3/4	11/16	C11L	145282	**56.30**	145390	**56.30**	145398	**631.60**
3/4	4-1/4	2-1/4	13/16	C13S	145284	**60.50**	145392	**60.50**	(C-750-C6)	
3/4	5-3/8	3-3/8	13/16	C13M	145286	**62.50**	145394	**62.50**		
3/4	6-1/2	4-1/2	13/16	C13L	145288	**64.80**	145396	**64.80**		
1	5	3	9/16	E9L	145292	**83.90**	145400	**83.90**	145306	**725.30**
1	5-3/4	3-3/4	11/16	E11L	145294	**88.30**	145402	**88.30**	(E100-C2)	
1	6-1/2	4-1/2	7/8	E14L	145296	**93.80**	145404	**93.80**		
1	6-1/2	4-1/2	1-1/16	E18L	145298	**99.60**	145406	**99.60**	145414	**725.30**
1	7-3/4	5-3/4	1-1/4	E20L	145300	**106.70**	145408	**106.70**	(E100-C6)	

Square Ground Tool Bits — 5% Cobalt

STM PREMIUM

Cobalt HSS ground tool bits exhibit superior performance when cutting forgings, castings and cuts of a heavy nature.



COBALT

Square Size	Overall Length (in.)	5% Cobalt Code No.	Price $
1/8	2-1/2	102000	**5.93**
1/4	2-1/2	102006	**10.71**
1/4	3	102008	**9.05**
1/4	6	102010	**17.68**
5/16	2-1/2	102012	**10.50**
5/16	3	102014	**12.69**
5/16	6	102016	**24.34**
3/8	3	102018	**17.16**
3/8	4	102020	**22.36**
3/8	6	102022	**32.86**
7/16	3-1/2	102024	**25.69**
1/2	4	102026	**36.82**
1/2	6	102028	**54.29**
5/8	4-1/2	102030	**61.81**
5/8	5	102032	**68.33**
5/8	6	102034	**81.85**
3/4	6	102038	**114.71**
7/8	6	102040	**153.50**
1	7	102044	**227.45**

Rectangular Ground Tool Bits

STM

Cobalt HSS ground tool bits exhibit superior performance when cutting forgings, castings and cuts of a heavy nature.

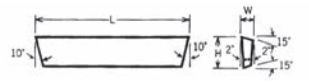


COBALT HSS

Width (in.)	Height (in.)	Length (in.)	HSS Code No.	Price $	5% Cobalt Code No.	Price $
1/4	3/8	2-1/2	-	-	102050	**11.02**
1/4	3/8	3	160305	**12.44**	102052	**13.00**
1/4	1/2	4	160310	**15.56**	102054	**21.63**
1/4	1/2	6	-	-	102056	**31.72**
1/4	3/4	5	160315	**28.13**	102058	**38.58**
1/4	1	6	160320	**43.19**	102060	**61.15**
5/16	1/2	4	-	-	102062	**24.96**
5/16	3/4	5	-	-	102064	**44.62**
5/16	1	6	-	-	102066	**69.89**
3/8	1/2	4	160325	**23.23**	102068	**29.12**
3/8	1/2	6	-	-	102070	**43.06**
3/8	5/8	4	160330	**31.64**	102072	**35.78**
3/8	5/8	5	-	-	102074	**43.99**
3/8	3/4	4	-	-	102076	**42.22**
3/8	3/4	5	160335	**40.93**	102078	**52.31**
3/8	3/4	6	-	-	102080	**62.40**
3/8	1	6	-	-	102082	**81.85**
1/2	3/4	5	-	-	102088	**67.08**
1/2	3/4	6	-	-	102090	**80.39**
1/2	1	7	160345	**90.53**	102092	**121.47**
1/2	1-1/4	7	160350	**111.00**	102094	**150.59**
1/2	1-1/2	7	-	-	102096	**179.19**
5/8	7/8	6	160360	**117.03**	102100	**113.88**
5/8	1	7	160365	**99.33**	102102	**149.24**
5/8	1-1/4	7	160370	**122.69**	-	-
3/4	1	6	160375	**117.28**	102104	**152.67**
3/4	1-1/4	6	160380	**142.90**	102106	**189.18**

Cut-Off Blades — 5% Cobalt

STM PREMIUM





COBALT

Width (in.)	Height (in.)	Length (in.)	5% Cobalt Code No.	Price $
1/8	3/4	5	104378	**32.34**
1/8	3/4	6	104380	**38.38**
1/8	7/8	6	104382	**43.37**
3/16	1	6-1/2	104384	**71.86**
3/16	1	7	104386	**77.38**
1/4	1-1/4	6-1/2	104390	**112.42**

Cut-Off Blades "P" Type (T-Shape) — Cobalt

STM PREMIUM





COBALT

Width (in.)	Height (in.)	Length (in.)	5% Cobalt Code No.	Price $
1/16	1/2	4-1/2	104890	**29.02**
3/32	1/2	4-1/2	104892	**29.02**
3/32	11/16	5	104894	**40.77**
1/8	11/16	5	104896	**63.00**
1/8	3/4	5	104898	**45.76**
5/32	11/16	5	104900	**49.19**
1/8	7/8	6	104902	**57.93**
5/32	7/8	6	104904	**67.18**
3/16	7/8	6	104906	**78.31**
1/4	7/8	6	104908	**98.90**

HSS Round Tool Bits

STM PREMIUM



HSS

Dia.	Length	Code No.	Price $
1/8	2	102110	**1.56**
3/16	2-1/2	102112	**1.98**
1/4	3	102114	**6.45**
5/8	6	102122	**40.56**
3/4	6	102124	**55.33**

HSS Round Tool Bits

QUALITY IMPORT



HSS

Dia.	Length	Code No.	Price $
1/8	2-3/4	160205	**3.14**
3/16	3-1/2	160210	**3.78**
1/4	4	160215	**6.66**
1/4	8	160255	**13.57**
5/16	4-1/2	160220	**11.92**
5/16	8	160260	**17.08**
3/8	5	160225	**17.46**
7/16	5-1/2	160230	**22.98**
1/2	6	160235	**28.76**
9/16	6	160240	**36.91**
5/8	6	160245	**40.44**
3/4	6	160250	**55.38**

Square Tool Bits



STM PREMIUM

COBALT HSS

Square Size	Overall Length (in.)	HSS Code No.	Price $	5% Cobalt Code No.	Price $
1/8	2-1/2	159002	**5.15**	160103	**8.66**
3/16	2-1/2	159004	**12.31**	160105	**14.41**
1/4	2-1/2	159006	**13.04**	160110	**16.13**
5/16	2-1/2	159008	**13.97**	160115	**18.88**
5/16	3	159010	**15.40**	160117	**20.36**
3/8	3	159012	**19.77**	160120	**22.08**
7/16	4	159014	**16.57**	160125	**37.64**
1/4	4	159016	**17.28**	160127	**21.67**
1/2	4	159018	**31.25**	160130	**38.56**
5/8	5	159020	**36.42**	160135	**71.16**
3/4	5	159022	**67.01**	160140	**103.76**
1/4	6	159024	**26.05**	-	**-**
5/16	6	159026	**26.99**	-	**-**
3/8	6	159028	**36.11**	-	**-**
1/2	6	159030	**46.30**	-	**-**
7/8	6	159032	**90.29**	160145	**117.03**
1	7	159034	**135.74**	160155	**240.47**
1-1/4	7	159036	**209.96**	160160	**358.50**

Precision Boring Heads

STM

- Ideal for mill or jig bore operation
- These heads readily adapt to many different machines due to interchangeable shanks



Shanks ➤ P. G79-80, G89

Head Dia.	Hole Size	Offset	Code No.	Price $
2	1/2	1/2	356001	**173.83**
3	3/4	3/4	356002	**250.57**
4	1	1	356003	**426.99**

Carbide Tipped Boring Bar Sets — C6

QUALITY IMPORT

These bars are made of extra heavy construction ensuring that more steel is behind the cutting face for chatter-free and heavier cuts.

- Extra heavy construction - 100% longer tool life
- All shanks ground to +0.0" - 0.0010"
- Designed so that the same bar can bore flat bottomed holes or face



Shank Size	Pieces per Set	Code No.	Price $
3/8	9	140920	**50.61**
1/2	9	140930	**57.44**
5/8	12	140940	**98.95**
3/4	12	140950	**98.95**
1	6	140960	**170.57**

C2 Grade Carbide Mini Bore Tools

BORITE

- Ease of precision in small hole boring
- All mini bore tools fit in any of the Mini Tool Holders
- Carbide tools are interchangeable in holders



Shank Dia.	Min. Bore Dia.	Max. Bore Dia.	Overall Length	Carbide Code No.	Price $
1/4	1/16	5/16	2	145022	**59.90**
1/4	3/32	15/32	2	145024	**66.00**
1/4	1/8	5/8	2	145026	**71.40**
1/4	5/32	25/32	2	145028	**79.80**
1/4	3/16	15/16	2	145030	**86.00**
1/4	1/4	1-1/4	2	145032	**100.40**

Borite "Mini Tool Holders"

BORITE

All mini-bore tools fit all holders.

Model No.	Shank Size	Code No.	Price $
1	3/8	145042	**43.90**
2	1/2	145044	**43.90**
3	5/8	145046	**49.50**
4	3/4	145048	**49.50**

Carbide Borite Mini Sets

BORITE

Set includes one each mini-tool boring bar plus holder.

Model No.	Shank Size	Carbide Code No.	Price $
1C-135	3/8	145034	**507.20**
2C-235	1/2	145036	**507.20**
3C-335	5/8	145038	**512.80**
4C-435	3/4	145040	**512.80**

HSCO Capscrew Counterbores

QUALITY IMPORT



HSCO COBALT

Capscrew Size	Pilot Dia.	Cutter Dia.	Shank Dia.	Capscrew Length	Overall Length	Code No.	Price $
#6	0.150	.242	7/32	1-1/16	3	150302	**36.96**
#8	11/64	19/64	1/4	1-1/16	3	150304	**36.96**
#10	13/64	21/64	5/16	1-1/16	3-1/2	150306	**41.30**
1/4	9/32	13/32	3/8	1-3/8	5	150308	**49.77**
5/16	11/32	1/2	7/16	1-3/8	5	150310	**59.10**
3/8	13/32	19/32	1/2	1-1/2	6	150312	**71.32**
7/16	15/32	11/16	1/2	1-3/4	7	150314	**89.02**
1/2	17/32	25/32	3/4	2	7-1/2	150316	**107.03**
9/16	9/16	13/16	3/4	2-3/8	7-1/2	150318	**122.69**
5/8	21/32	31/32	3/4	2-3/8	7-1/2	150320	**129.00**
3/4	13/16	1-3/16	3/4	2-3/8	7-1/2	150322	**157.08**
3/4	25/32	1-3/16	1	2-7/8	8	150324	**226.77**
7/8	15/16	1-3/8	1	2-7/8	8	150326	**294.84**
1	1-1/16	1-9/16	1	3-1/8	10	150328	**423.83**

HSS Solid Capscrew Counterbores, Straight Shank

QUALITY IMPORT



HSS

Screw Size	Pilot Dia.	Cutter Dia.	Shank Dia.	Overall Length	Grade C5 Code No.	Price $
#5	0.141	0.221	3/16	3	150105	**33.63**
#6	0.150	0.242	7/32	3	150110	**33.63**
#8	11/64	19/64	1/4	3	150115	**33.91**
#10	13/64	21/64	5/16	3-1/2	150120	**35.23**
1/4	9/32	13/32	3/8	5	150125	**44.27**
5/16	11/32	1/2	7/16	5	150130	**48.01**
3/8	13/32	19/32	1/2	6	150135	**73.02**
7/16	15/32	11/16	1/2	7	150140	**63.71**
1/2	17/32	25/32	1/2	7-1/2	150145	**77.59**
5/8	21/32	31/32	3/4	7-1/2	150150	**136.61**
3/4	13/16	1-3/16	1	8	150155	**242.89**
7/8	15/16	1-3/8	1	8	150160	**288.75**

HSCO Straight Shank Counterbores — Metric

QUALITY IMPORT



HSCO COBALT

Screw Size	Pilot Dia.	Cutter Dia.	Cutter Length	Shank Dia.	Code No.	Price $
M3	3.4	6	25.400	7/32	150400	**40.42**
M4	4.5	8	25.400	5/16	150405	**36.87**
M5	5.5	10	31.750	3/8	150410	**48.87**
M6	6.6	11	34.925	7/16	150415	**58.33**
M8	9	15	38.894	1/2	150420	**62.39**
M10	11	18	44.450	1/2	150425	**81.92**
M12	14	20	50.800	1/2	150430	**76.64**
M14	15	24	60.325	MT2	150435	**97.16**
M16	17	26	79.375	MT2	150440	**141.43**
M20	21	33	79.375	MT2	150445	**226.36**

HSS Taper Shank Counterbores — Inch

QUALITY IMPORT



HSS

Screw Size	Pilot Dia.	Cutter Dia.	Taper Shank	Overall Length	Code No.	Price $
5/8	21/32	31/32	MT 2	8-1/4	150205	**137.24**
3/4	13/16	1-3/16	MT 3	9	150210	**252.36**
7/8	15/16	1-3/8	MT 3	9	150220	**286.57**
1	1-1/16	1-9/16	MT 3	10	150230	**324.99**

HSS Straight Shank Counterbores — Metric

QUALITY IMPORT



HSS

Screw Size	Pilot Dia.	Cutter Dia.	Cutter Length	Shank Dia.	Code No.	Price $
M3	3.4	6	25.400	7/32	150170	**35.31**
M4	4.5	8	25.400	5/16	150171	**38.82**
M5	5.5	10	31.750	3/8	150172	**49.20**
M6	6.6	11	34.925	7/16	150173	**54.69**
M8	9	15	38.894	1/2	150174	**54.69**
M10	11	18	44.450	1/2	150175	**59.84**
M12	14	20	50.800	1/2	150176	**84.02**
M14	15	24	60.325	MT2	150177	**106.12**
M16	17	26	79.375	MT2	150178	**145.68**
M20	21	33	79.375	MT2	150179	**224.86**

Counterbore Sets — Straight Shank

QUALITY IMPORT



* block not included

COBALT HSS

Description	Code No.	Price $
Inch HSCO - 7pc Set Includes: #6, #8, #10, 1/4", 5/16", 3/8", 1/2"	150190	**402.44**
Inch HSS - 7pc Set Includes: #6, #8, #10, 1/4", 5/16", 3/8", 1/2"	150200	**345.66**
Metric HSCO - 7pc Set Includes: M3, M4, M5, M6, M8, M10, M12	150192	**405.44**
Metric HSS - 7pc Set Includes: M3, M4, M5, M6, M8, M10, M12	150195	**376.57**

HSS Annular Cutter Sets

STM



5pc Set	1" Depth Code No.	Price $	2" Depth Code No.	Price $
9/16, 11/16, 13/16, 15/16, 1-1/16	138148	**485.30**	138150	**735.40**

HSS Annular Cutters — Inch

STM

- Eliminate multi-step drilling
- Lower cost per hole
- Better finishing
- More accurate, cleaner holes
- Longer tool life
- 3/4" shank diameter with two flats
- Cutters are interchangeable with other standard hole cutting systems



Size	1" Depth Code No.	Price $	2" Depth Code No.	Price $	3" Depth Code No.	Price $
7/16	138000	**46.10**	138054	**65.90**	-	-
1/2	138002	**48.20**	138056	**68.20**	-	-
9/16	138004	**50.30**	138058	**69.20**	-	-
5/8	138006	**53.20**	138060	**69.20**	-	-
11/16	138008	**55.50**	138062	**77.90**	-	-
3/4	138010	**82.30**	138064	**87.80**	-	-
13/16	138012	**60.80**	138066	**94.40**	138108	**208.44**
7/8	138014	**65.70**	138068	**107.60**	138110	**229.43**
15/16	138016	**97.80**	138070	**145.50**	138112	**253.33**
1	138018	**77.30**	138072	**116.30**	138114	**253.33**
1-1/16	138020	**83.10**	138074	**163.40**	138116	**268.61**
1-1/8	138022	**93.00**	138076	**131.70**	138118	**301.86**
1-3/16	138024	**124.60**	138078	**170.20**	138120	**310.72**
1-1/4	138026	**104.10**	138080	**149.30**	138122	**325.76**
1-5/16	138028	**139.50**	138082	**191.40**	138124	**337.90**
1-3/8	138030	**154.40**	138084	**205.50**	138126	**368.10**
1-7/16	138032	**169.20**	138086	**224.00**	138128	**403.90**
1-1/2	138034	**184.10**	138088	**233.70**	138130	**434.23**
1-9/16	138036	**193.90**	138090	**250.10**	138132	**476.45**
1-5/8	138038	**199.10**	138092	**263.50**	138134	**494.28**
1-11/16	138040	**224.00**	138094	**293.50**	-	-
1-3/4	138042	**228.80**	138096	**298.30**	138138	**560.76**
1-13/16	138044	**258.70**	138098	**323.30**	-	-
1-7/8	138046	**258.70**	138100	**328.10**	138142	**536.60**
1-15/16	138048	**268.50**	138102	**348.00**	138144	**675.05**
2	138050	**288.30**	138104	**385.40**	138146	**717.40**
2-1/16	138052	**335.50**	138106	**407.40**	-	-

FOR ANNULAR CUTTER HOLDERS SEE PAGE G81

T-Slot Cutters, HSS, Cobalt M42 and M42 Roughers



M42 HSS COBALT | HSS

Bolt Size	Cutter Dia.	Cutter Width	Neck Dia.	Shank Dia.	HSS Code No.	Price $	Cobalt Code No.	Price $	Cobalt Rougher Code No.	Price $
1/4	9/16	15/64	17/64	1/2	120905	**100.29**	122005	**117.27**	-	-
5/16	21/32	17/64	21/64	1/2	120910	**108.57**	122010	**93.67**	-	-
3/8	25/32	21/64	13/32	3/4	120915	**133.62**	122015	**180.92**	-	-
1/2	31/32	25/64	17/32	3/4	120920	**150.70**	-	-	-	-
5/8	1-1/4	31/64	21/32	1	-	-	-	-	122065	**398.80**
3/4	1-15/32	5/8	25/32	1	-	-	122030	**317.54**	122070	**331.30**
1	1-27/32	53/64	1-1/32	1-1/4	120935	**370.94**	122035	**1,337.74**	122075	**890.93**
1-1/4	2-7/32	1-3/32	1-9/32	1-1/4	120940	**681.47**	122040	**584.98**	122080	**764.35**
1-1/2	2-21/32	1-11/32	1-17/32	1-1/4	120945	**943.29**	122045	**932.24**	122085	**913.39**

Ejector Pins For Annular Cutters



Depth	Diameter	Code No.	Price $
1"	4mm	138161	**17.50**
1"	6.35mm	138159	**17.50**
1"	8mm	138163	**40.80**
2"	4mm	138167	**21.30**
2"	6.35mm	138165	**21.30**
2"	8mm	138169	**31.90**
3"	1/4" (short)	138152	**17.23**
3"	6.35mm	138171	**56.60**
4"	6mm	138175	**94.20**
4"	1/4" (long)	138154	**18.57**
4"	8mm	138177	**106.00**
5"	5/16" (x-long)	138156	**26.93**

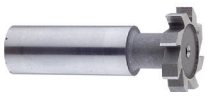
Corner Rounding End Mills



Radius	Shank Dia.	Largest Dia.	HSS Code No.	Price $	Cobalt Code No.	Price $
1/16	3/8	7/16	136750	**20.66**	122200	**108.37**
3/32	3/8	1/2	136751	**20.66**	122205	**114.28**
1/8	1/2	5/8	136752	**30.46**	122210	**143.79**
5/32	1/2	3/4	136753	**112.01**	122215	**178.57**
3/16	1/2	7/8	136754	**48.11**	122220	**179.07**
3/16	3/4	7/8	136755	**48.11**	122225	**187.81**
1/4	1/2	1	136756	**62.43**	122230	**203.55**
1/4	3/4	1	136757	**56.40**	122235	**233.57**
5/16	1/2	1-1/8	136758	**174.68**	122240	**282.92**
5/16	3/4	1-1/8	-	-	122245	**289.69**
5/16	7/8	1-1/8	-	-	122250	**340.92**
3/8	1/2	1-1/4	136760	**96.13**	122255	**328.13**
3/8	3/4	1-1/4	-	-	122260	**300.24**
3/8	7/8	1-1/4	136761	**45.96**	122265	**371.32**
7/16	3/4	1-3/8	136762	**63.40**	122270	**364.79**
7/16	1	1-3/8	136748	**279.52**	-	-
1/2	3/4	1-3/8	-	-	122275	**404.09**
1/2	1	1-1/2	136763	**156.29**	122280	**436.50**
5/8	3/4	1-15/16	136765	**229.28**	122285	**634.52**
3/4	3/4	1-7/8	136767	**161.46**	122290	**775.28**

Woodruff Keyseat Cutters

1/2" Shank Diameter
- Straight teeth
- Staggered teeth





Model No.	Mill Dia.	Face Width	Overall Length	Straight Teeth Code No.	Price $	Staggered Teeth Code No.	Price $
202	1/4	1/16	2-1/16	125005	**48.72**	125007	**69.82**
202-1/2	5/16	1/16	2-1/16	125010	**48.72**	125012	**69.82**
203	3/8	1/16	2-1/16	125020	**48.72**	125022	**69.82**
204	1/2	1/16	2-1/16	125105	**67.80**	125107	**53.12**
302-1/2	5/16	3/32	2-3/32	125015	**48.72**	125017	**69.82**
303	3/8	3/32	2-3/32	125023	**48.72**	125024	**70.26**
304	1/2	3/32	2-3/32	125110	**65.04**	125112	**63.42**
305	5/8	3/32	2-3/32	125115	**40.93**	125117	**63.42**
403	3/8	1/8	2-1/8	125025	**48.72**	125027	**57.76**
404	1/2	1/8	2-1/8	125120	**65.04**	125122	**53.12**
405	5/8	1/8	2-1/8	125125	**71.44**	125127	**63.42**
406	3/4	1/8	2-1/8	125130	**76.73**	125132	**58.01**
505	5/8	5/32	2-5/32	125135	**71.96**	125137	**63.42**
506	3/4	5/32	2-5/32	125145	**51.10**	125147	**69.69**
507	7/8	5/32	2-5/32	125155	**57.27**	125157	**84.38**
605	5/8	3/16	2-3/16	125140	**40.93**	125142	**53.12**
606	3/4	3/16	2-3/16	125160	**85.39**	125162	**58.01**
607	7/8	3/16	2-3/16	125165	**57.27**	125167	**84.38**
608	1	3/16	2-3/16	125175	**105.36**	125177	**78.86**
609	1-1/8	3/16	2-3/16	125190	**111.00**	125192	**104.23**
610	1-1/4	3/16	2-3/16	125215	**114.52**	125217	**127.21**
707	7/8	7/32	2-7/32	125170	**68.93**	125172	**74.50**
708	1	7/32	2-7/32	125180	**113.64**	125182	**94.56**
709	1-1/8	7/32	2-7/32	125205	**116.79**	125207	**104.23**
710	1-1/4	7/32	2-7/32	125220	**93.80**	125222	**113.64**
806	3/4	1/4	2-1/4	125150	**85.39**	125152	**58.01**
807	7/8	1/4	2-1/4	125195	**57.27**	125197	**84.38**
808	1	1/4	2-1/4	125200	**107.24**	125202	**78.86**
809	1-1/8	1/4	2-1/4	125210	**102.34**	125212	**104.23**
810	1-1/4	1/4	2-1/4	125225	**78.35**	125227	**113.64**
811	1-3/8	1/4	2-1/4	125230	**101.46**	125232	**126.44**
812	1-1/2	1/4	2-1/4	125235	**102.71**	125237	**113.77**
1008	1	5/16	2-5/16	125240	**67.80**	125242	**94.56**
1009	1-1/8	5/16	2-5/16	125245	**88.78**	125247	**104.23**
1010	1-1/4	5/16	2-5/16	125250	**82.12**	125252	**173.55**
1011	1-3/8	5/16	2-5/16	125255	**108.62**	125257	**134.86**
1012	1-1/2	5/16	2-5/16	125260	**105.48**	125262	**146.67**
1208	1	3/8	2-3/8	125185	**112.01**	125187	**119.92**
1210	1-1/4	3/8	2-3/8	125265	**82.12**	125267	**105.36**
1211	1-3/8	3/8	2-3/8	125270	**146.16**	125272	**134.86**
1212	1-1/2	3/8	2-3/8	125275	**172.17**	125277	**122.31**
8 Piece Set: No. 204, 304, 305, 406, 605, 606, 608, 806				125276	**448.80**	125258	**559.55**
9 Piece Set: No. 204, 404, 406, 806, 606, 608, 808, 610, 1210				-	-	125259	**734.34**
41 Piece Set: includes all sizes				125279	**3,169.67**	-	-

Dovetail Angular Cutters — 45°

- R.H. cut–weldon shank
- 45° angle cutters

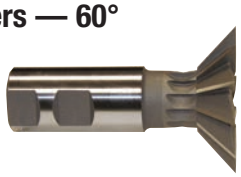


HSS COBALT

Dia.	Width	Shank	Length	HSS Code No.	Price $	Cobalt Code No.	Price $
3/8	1/8	3/8	2-1/8	125303	**125.45**	122100	**116.40**
1/2	5/32	3/8	2-1/8	125305	**121.05**	122105	**116.40**
3/4	1/4	3/8	2-1/8	125310	**109.75**	122110	**118.79**
1-3/8	7/16	5/8	2-7/8	125315	**176.55**	122115	**240.60**
1-7/8	9/16	7/8	3-1/4	125320	**301.75**	122120	**511.20**
2-1/4	5/8	1	3-3/4	125325	**366.41**	122125	**655.74**

Dovetail Angular Cutters — 60°

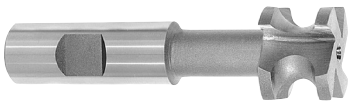
- R.H. cut–weldon shank
- 60° angle cutters



HSS COBALT

Dia.	Width	Shank	Length	HSS Code No.	Price $	Cobalt Code No.	Price $
3/8	3/16	3/8	2-1/8	125328	**133.36**	122130	**116.40**
1/2	1/4	3/8	2-1/8	125330	**122.94**	122135	**116.40**
3/4	5/16	3/8	2-1/8	125335	**109.26**	122140	**118.79**
1-3/8	9/16	5/8	2-7/8	125340	**170.40**	122145	**240.09**
1-7/8	13/16	7/8	3-1/4	125345	**336.04**	122150	**511.20**
2-1/4	1-1/16	1	3-3/4	125350	**366.41**	122155	**652.59**

Concave, Shank Type Cutters, HSS



HSS

Radius	Shank Dia.	Overall Length	Cutter Dia.	No. Flutes	Code No.	Price $
1/32	1/2	3	3/4	6	126070	**149.44**
1/16	1/2	3	3/4	6	126071	**134.36**
3/32	1/2	3	3/4	6	126072	**119.92**
1/8	3/4	3-1/2	1	6	126073	**163.87**
5/32	3/4	3-1/2	1	6	126074	**182.84**
3/16	3/4	3-1/2	1	6	126075	**171.90**
1/4	3/4	4	1-1/4	4	126076	**217.99**
5/16	3/4	4	1-1/4	4	126077	**271.74**
3/8	3/4	4-3/16	1-1/2	4	126078	**306.28**

Convex, Shank Type Cutters, HSS

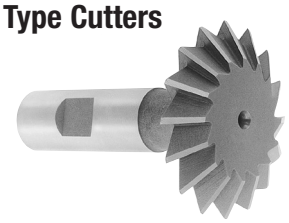


HSS

Radius	Shank Dia.	Overall Length	Cutter Dia.	No. Flutes	Code No.	Price $
1/32	1/2	3	3/4	6	126079	**121.81**
1/16	1/2	3	3/4	6	126080	**103.72**
3/32	1/2	3	7/8	6	126081	**110.00**
1/8	3/4	3-1/2	1-1/4	6	126082	**164.00**
5/32	3/4	3-1/2	1-5/16	6	126083	**180.70**
3/16	3/4	3-1/2	1-3/8	6	126084	**189.49**
1/4	3/4	4	1-1/2	6	126085	**220.25**
5/16	3/4	4	1-5/8	6	126086	**299.74**
3/8	3/4	4-3/16	1-3/4	6	126087	**322.97**

Double Angle, Shank Type Cutters

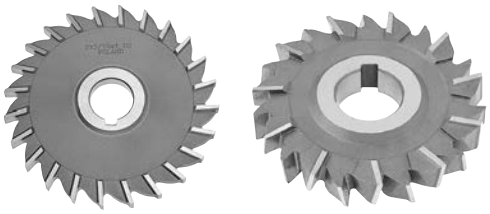
- Right hand cut



HSS

Incl. Angle	Cutter Dia.	Shank Dia.	Overall Length	Cutter Thickness	Code No.	Price $
60°	3/4	3/8	2-3/8	3/16	126088	**108.62**
60°	1	1/2	2-27/32	5/16	126089	**130.71**
60°	1-3/8	5/8	3-7/32	7/16	126090	**197.65**
60°	1-1/2	5/8	3-3/8	1/2	126091	**226.15**
60°	1-7/8	3/4	3-25/32	5/8	126092	**340.69**
60°	2-1/4	7/8	4-5/32	3/4	126093	**356.51**
60°	2-1/4	3/4	3-1/8	1/2	126094	**267.22**
90°	3/4	3/8	2-7/16	1/4	126095	**105.36**
90°	1	1/2	2-29/32	3/8	126096	**126.20**
90°	1-3/8	5/8	3-9/32	1/2	126097	**194.13**
90°	1-1/2	5/8	3-7/16	9/16	126098	**214.10**
90°	1-7/8	3/4	3-25/32	5/8	126099	**256.91**
90°	2-1/4	7/8	4-5/32	3/4	126100	**308.74**

Plain & Staggered Tooth Milling Cutters — HSS



HSS

Dia.	Width	Bore	No. of Teeth	Plain Tooth Code No.	Price $	No. of Teeth	Stagg. Tooth Code No.	Price $
2	3/16	1/2	14	125405	**96.70**	-	-	-
2	1/4	1/2	14	125410	**101.46**	-	-	-
2	3/8	1/2	14	125415	**109.37**	-	-	-
2	3/16	5/8	14	125420	**96.44**	-	-	-
2	1/4	5/8	14	125425	**99.33**	-	-	-
2	3/8	5/8	14	125430	**110.00**	-	-	-
2	1/4	7/8	14	125435	**101.97**	-	-	-
2	5/16	7/8	14	125440	**106.61**	-	-	-
2	3/8	7/8	14	125445	**111.26**	-	-	-
2	7/16	7/8	14	125450	**135.99**	-	-	-
2-1/2	3/16	7/8	16	125455	**132.86**	16	130605	**110.63**
2-1/2	1/4	7/8	16	125460	**138.25**	16	130610	**118.79**
2-1/2	5/16	7/8	16	125465	**126.69**	16	130615	**124.56**
2-1/2	3/8	7/8	16	125470	**132.35**	16	130620	**128.71**
2-1/2	7/16	7/8	16	125475	**138.88**	16	130625	**117.28**
2-1/2	1/2	7/8	16	125480	**144.79**	16	130630	**142.28**
2-1/2	3/16	1	16	125485	**131.85**	-	-	-
2-1/2	1/4	1	16	125490	**139.39**	16	130635	**117.92**
2-1/2	5/16	1	16	125495	**146.30**	-	-	-
2-1/2	3/8	1	16	125500	**153.32**	-	-	-
2-1/2	7/16	1	16	125505	**137.37**	16	130640	**134.61**
2-1/2	1/2	1	16	125510	**167.89**	16	130645	**118.91**
2-1/2	5/8	1	16	125515	**156.58**	-	-	-
3	3/16	1	18	125520	**137.64**	16	130650	**145.41**
3	7/32	1	18	125525	**121.18**	16	130655	**128.95**
3	1/4	1	18	125530	**147.17**	16	130660	**154.83**
3	9/32	1	18	125535	**126.69**	16	130665	**136.75**
3	5/16	1	18	125540	**131.09**	16	130670	**161.60**
3	11/32	1	18	125545	**134.61**	-	-	-
3	3/8	1	18	125550	**162.87**	16	130675	**169.91**
3	13/32	1	18	125555	**143.79**	-	-	-
3	7/16	1	18	125560	**147.30**	16	130680	**152.56**
3	1/2	1	18	125565	**176.30**	16	130685	**185.09**
3	9/16	1	18	125570	**164.00**	16	-	-
3	5/8	1	18	125575	**169.91**	16	130695	**178.81**
3	11/16	1	18	125580	**177.30**	16	130700	**188.48**
3	3/4	1	18	125585	**187.35**	-	-	-



Plain & Staggered Tooth Milling Cutters — Cont'd

Dia.	Width	Bore	No. of Teeth	Plain Tooth Code No.	Price $	No. of Teeth	Stagg. Tooth Code No.	Price $
3	13/16	1	18	125590	**196.27**	16	130710	**218.24**
3	7/8	1	18	125595	**205.06**	-	-	-
3	15/16	1	18	-	-	16	130720	**276.38**
3	1	1	18	125605	**250.27**	16	130725	**276.38**
3	3/16	1-1/4	-	-	-	16	130730	**123.93**
3	1/4	1-1/4	18	125610	**111.64**	16	130735	**132.35**
3	5/16	1-1/4	18	125615	**131.09**	16	130740	**136.75**
3	3/8	1-1/4	18	125620	**138.50**	16	130745	**142.90**
3	7/16	1-1/4	18	125625	**173.17**	16	130750	**152.56**
3	1/2	1-1/4	18	125630	**178.57**	16	130755	**158.85**
3	9/16	1-1/4	-	-	-	16	130760	**170.40**
3	5/8	1-1/4	18	125635	**170.40**	16	130765	**179.07**
3	11/16	1-1/4	-	-	-	16	130770	**188.99**
3	3/4	1-1/4	18	125640	**188.73**	16	130775	**198.40**
3	13/16	1-1/4	-	-	-	16	130780	**218.24**
3	7/8	1-1/4	18	-	-	16	130785	**198.40**
3	15/16	1-1/4	-	-	-	16	130790	**224.90**
3	1	1-1/4	18	125650	**250.27**	16	130795	**284.29**
3-1/2	3/16	1	20	125655	**150.57**	-	-	-
3-1/2	1/4	1	20	125660	**155.21**	18	130800	**201.17**
3-1/2	5/16	1	20	125665	**166.76**	-	-	-
3-1/2	3/8	1	20	125670	**173.17**	18	130805	**218.87**
3-1/2	7/16	1	20	125675	**198.02**	-	-	-
3-1/2	1/2	1	20	125680	**198.02**	18	130810	**241.60**
3-1/2	5/8	1	20	125685	**229.41**	18	130815	**262.45**
3-1/2	7/16	1-1/4	20	125690	**179.95**	-	-	-
3-1/2	1/2	1-1/4	20	125695	**198.02**	-	-	-
4	3/16	1	-	125700	**200.42**	18	130825	**205.19**
4	7/32	1	22	125705	**175.43**	18	130830	**186.60**
4	1/4	1	22	125710	**214.98**	18	130835	**218.37**
4	9/32	1	22	125715	**182.21**	18	130840	**198.52**
4	5/16	1	22	125720	**223.02**	18	130845	**225.65**
4	11/32	1	22	125725	**194.88**	18	130850	**210.59**
4	3/8	1	22	125730	**234.95**	18	130855	**236.95**
4	7/16	1	22	125735	**219.76**	18	130860	**222.51**
4	13/32	1	22	125740	**214.34**		-	-
4	1/2	1	22	125745	**274.12**	18	130865	**274.62**
4	9/16	1	22	125750	**256.91**	18	130870	**262.20**
4	5/8	1	22	125755	**313.05**	18	130875	**321.72**
4	11/16	1	22	125760	**284.05**	18	130880	**224.90**
4	3/4	1	22	125765	**298.73**	18	130885	**306.14**
4	13/16	1	22	125770	**314.80**	18	130890	**320.71**
4	7/8	1	22	125775	**336.79**	18	130895	**339.54**
4	15/16	1	22	125780	**237.71**	18	130900	**358.50**
4	1	1	22	125785	**365.92**	18	130905	**374.70**
4	3/16	1-1/4	-	-	-	18	130910	**205.19**
4	7/32	1-1/4	22	125790	**175.05**	18	130915	**186.60**
4	1/4	1-1/4	22	125795	**187.35**	18	130920	**218.49**
4	9/32	1-1/4	22	125800	**183.83**	18	130925	**198.52**
4	5/16	1-1/4	22	125805	**190.74**	18	130930	**225.16**
4	11/32	1-1/4	22	125810	**194.51**	18	130935	**210.59**
4	3/8	1-1/4	22	125815	**204.06**	18	130940	**236.95**
4	7/16	1-1/4	22	125820	**219.76**	18	130945	**222.51**
4	13/32	1-1/4	22	125825	**179.95**	-	-	-
4	1/2	1-1/4	22	125830	**274.62**	18	130950	**274.50**
4	9/16	1-1/4	22	125835	**256.91**	18	130955	**262.20**
4	5/8	1-1/4	22	125840	**314.56**	18	130960	**322.59**
4	11/16	1-1/4	22	125845	**284.29**	18	-	-
4	3/4	1-1/4	22	125850	**298.73**	18	130970	**306.14**
4	13/16	1-1/4	22	125855	**234.19**	18	130975	**277.76**
4	7/8	1-1/4	22	125860	**333.77**	18	130980	**339.54**
4	15/16	1-1/4	22	125865	**237.71**	18	130985	**301.26**
4	1	1-1/4	22	125870	**364.28**	18	130990	**378.85**
4	1-1/8	1-1/4	22	125875	**399.32**	18	130995	**402.21**
4	1-3/16	1-1/4	-	-	-	18	135105	**422.68**
4	1-1/4	1-1/4	22	125880	**432.97**	18	135110	**453.19**
4	1-1/2	1-1/4	22	125885	**498.27**	18	135115	**613.42**
4-1/2	1/2	1	-	-	-	20	135120	**323.60**
4-1/2	3/8	1-1/4	24	125890	**267.34**	-	-	-
4-1/2	1/2	1-1/4	24	125895	**267.34**	20	135125	**323.60**
5	1/4	1	24	125900	**293.59**	22	135130	**298.61**
5	9/32	1	24	125905	**257.80**	-	-	-
5	5/16	1	24	125910	**257.80**	22	135135	**306.14**
5	11/32	1	24	125915	**267.34**	-	-	-

Dia.	Width	Bore	No. of Teeth	Plain Tooth Code No.	Price $	No. of Teeth	Stagg. Tooth Code No.	Price $
5	3/8	1	24	125920	**267.34**	22	135140	**336.90**
5	13/32	1	24	125925	**301.75**	-	-	-
5	7/16	1	24	125930	**307.66**	22	135145	**323.60**
5	1/2	1	24	125935	**385.25**	22	135150	**378.22**
5	9/16	1	-	-	-	22	135155	**375.96**
5	5/8	1	24	125945	**383.24**	22	135160	**396.43**
5	11/16	1	24	125950	**413.89**	22	135165	**434.23**
5	3/4	1	24	125955	**432.97**	22	135170	**453.19**
5	13/16	1	24	125960	**272.50**	22	135175	**479.42**
5	7/8	1	24	125965	**361.77**	22	135180	**505.67**
5	15/16	1	24	125970	**361.77**	-	-	-
5	1	1	24	125975	**533.43**	-	-	-
5	1/4	1-1/4	24	125980	**257.80**	22	135185	**291.20**
5	5/16	1-1/4	24	125985	**257.80**	22	135190	**318.08**
5	11/32	1-1/4	24	125990	**257.80**	-	-	-
5	3/8	1-1/4	24	125995	**267.34**	22	135195	**323.60**
5	13/32	1-1/4	24	130105	**298.73**	-	-	-
5	7/16	1-1/4	24	130110	**297.35**	22	135200	**323.60**
5	1/2	1-1/4	24	130115	**384.13**	22	135205	**391.66**
5	9/16	1-1/4	24	130120	**362.91**	22	135210	**374.70**
5	5/8	1-1/4	24	130125	**383.24**	22	135215	**397.94**
5	11/16	1-1/4	-	-	-	22	135220	**428.58**
5	3/4	1-1/4	24	130135	**435.61**	22	135225	**444.40**
5	13/16	1-1/4	24	130140	**313.43**	-	-	-
5	7/8	1-1/4	24	130145	**479.42**	22	135235	**492.61**
5	15/16	1-1/4	24	130150	**314.56**	22	135240	**533.43**
5	1	1-1/4	24	130155	**540.59**	22	135245	**544.98**
5	1-1/4	1-1/4	24	130160	**645.55**	-	-	-
6	1/4	1	26	130165	**343.81**	24	135250	**399.95**
6	5/16	1	26	130170	**343.81**	24	135255	**393.66**
6	3/8	1	26	130175	**380.36**	24	135260	**461.73**
6	7/16	1	26	130180	**409.61**	24	135265	**415.40**
6	1/2	1	26	130185	**448.80**	24	135270	**533.43**
6	9/16	1	26	130190	**488.22**	24	135275	**505.67**
6	5/8	1	26	130195	**370.44**	24	135280	**533.43**
6	11/16	1	26	130200	**549.37**	24	135285	**566.83**
6	3/4	1	26	130205	**584.15**	24	135290	**598.85**
6	13/16	1	26	130210	**615.04**	24	135295	**656.99**
6	7/8	1	26	130215	**491.99**	24	135300	**665.78**
6	15/16	1	26	130220	**690.65**	-	-	-
6	1	1	26	130225	**728.44**	24	135305	**756.07**
6	1-1/4	1	26	130230	**559.30**	-	-	-
6	1/4	1-1/4	26	130235	**343.81**	24	135310	**393.66**
6	9/32	1-1/4	26	130240	**343.81**	24	135315	**393.66**
6	5/16	1-1/4	26	130245	**343.81**	24	135320	**393.66**
6	11/32	1-1/4	26	130250	**349.72**	-	-	-
6	3/8	1-1/4	26	130255	**380.36**	24	135325	**394.93**
6	13/32	1-1/4	26	130260	**399.32**	-	-	-
6	7/16	1-1/4	26	130265	**411.00**	24	135330	**415.40**
6	1/2	1-1/4	26	130270	**448.80**	24	135335	**457.57**
6	9/16	1-1/4	26	130275	**491.11**	24	135340	**526.01**
6	5/8	1-1/4	26	130280	**518.86**	24	135345	**534.81**
6	11/16	1-1/4	-	-	-	24	135350	**501.16**
6	3/4	1-1/4	26	130290	**584.15**	24	135355	**598.85**
6	13/16	1-1/4	26	130295	**615.04**	24	135360	**656.99**
6	7/8	1-1/4	26	130300	**491.99**	24	135365	**664.52**
6	15/16	1-1/4	26	130305	**427.81**	24	135370	**706.72**
6	1	1-1/4	26	130310	**724.05**	24	135375	**743.00**
6	1-1/8	1-1/4	26	130315	**776.53**	24	135380	**808.68**
6	1-3/16	1-1/4	-	-	-	24	135385	**845.22**
6	1-1/4	1-1/4	26	130320	**861.05**	24	135390	**882.90**
6	1-1/2	1-1/4	-	-	-	24	135395	**1,009.59**
6	1	1-1/2	-	-	-	24	135400	**558.28**
7	1/4	1-1/4	28	130325	**582.91**	26	135405	**677.58**
7	5/16	1-1/4	28	130330	**598.85**	26	135410	**677.58**
7	3/8	1-1/4	28	130335	**622.21**	26	135415	**737.11**
7	7/16	1-1/4	28	130340	**638.28**	26	135420	**776.53**
7	1/2	1-1/4	28	130345	**563.54**	26	135425	**801.40**
7	9/16	1-1/4	28	130350	**730.07**	26	135430	**830.53**
7	5/8	1-1/4	28	130355	**770.75**	26	135435	**861.05**
7	11/16	1-1/4	28	130360	**811.57**	26	135440	**949.95**
7	3/4	1-1/4	28	130365	**862.55**	26	135445	**949.95**
7	13/16	1-1/4	28	130370	**897.58**	26	135450	**1,067.85**
7	7/8	1-1/4	28	130375	**955.72**	26	135455	**1,067.85**

Plain & Staggered Tooth Milling Cutters — HSS, Cont'd

Dia.	Width	Bore	No. of Teeth	Plain Tooth Code No.	Price $	No. of Teeth	Stagg. Tooth Code No.	Price $
7	15/16	1-1/4	28	130380	**1,006.70**	26	135460	**1,166.94**
7	1	1-1/4	28	130385	**1,066.48**	26	135465	**1,166.94**
7	3/8	1-1/2	-	-	-	26	135470	**670.05**
7	7/16	1-1/2	-	-	-	26	135475	**801.40**
7	1/2	1-1/2	-	-	-	26	135480	**522.57**
7	5/8	1-1/2	-	-	-	26	135485	**782.69**
7	3/4	1-1/2	-	-	-	26	135490	**949.95**
7	7/8	1-1/2	-	-	-	26	135495	**1,062.22**
7	1	1-1/2	-	-	-	26	135500	**1,044.26**
8	1/4	1	32	130390	**849.50**	28	135505	**801.40**
8	5/16	1	32	130395	**894.57**	-	-	-
8	3/8	1	32	130400	**933.88**	28	135510	**894.57**
8	7/16	1	32	130405	**898.71**	-	-	-
8	1/2	1	32	130410	**989.38**	-	-	-
8	1/4	1-1/4	32	130415	**853.89**	28	135520	**801.40**
8	5/16	1-1/4	32	130420	**813.83**	28	135525	**842.08**
8	3/8	1-1/4	32	130425	**933.88**	28	-	-
8	7/16	1-1/4	32	130430	**989.38**	28	135535	**938.26**
8	1/2	1-1/4	32	130435	**989.38**	28	135540	**938.26**
8	9/16	1-1/4	32	130440	**910.40**	28	135545	**1,086.82**
8	5/8	1-1/4	32	130445	**1,032.95**	28	135550	**1,086.82**
8	11/16	1-1/4	32	130450	**1,069.24**	28	135555	**1,075.27**
8	3/4	1-1/4	32	130455	**1,098.62**	28	135560	**1,183.00**
8	13/16	1-1/4	32	130460	**903.73**	28	135565	**1,037.85**
8	7/8	1-1/4	32	130465	**1,053.92**	28	135570	**1,312.60**
8	15/16	1-1/4	32	130470	**1,273.29**	28	135575	**1,408.66**
8	1	1-1/4	32	130475	**1,321.26**	28	135580	**1,408.66**
8	1/4	1-1/2	-	-	-	28	135585	**634.01**
8	5/16	1-1/2	-	-	-	28	135590	**842.08**
8	3/8	1-1/2	-	-	-	28	135595	**888.80**
8	7/16	1-1/2	-	-	-	28	135600	**938.26**
8	1/2	1-1/2	-	-	-	28	135605	**938.26**
8	5/8	1-1/2	-	-	-	28	135615	**1,086.82**
8	11/16	1-1/2	-	-	-	28	135620	**1,183.00**
8	3/4	1-1/2	-	-	-	28	135625	**1,183.00**
8	13/16	1-1/2	-	-	-	28	135630	**1,312.60**
8	7/8	1-1/2	-	-	-	28	135635	**1,193.30**
8	15/16	1-1/2	-	-	-	28	135640	**1,408.66**
8	1	1-1/2	-	-	-	28	135645	**1,280.71**
8	1-1/8	1-1/2	-	-	-	28	135650	**1,501.95**
8	1-1/4	1-1/2	-	-	-	28	135655	**1,440.93**
8	1-1/2	1-1/2	-	-	-	28	135660	**1,804.97**
9	1/4	1-1/4	34	130485	**1,114.58**	-	-	-
9	3/8	1-1/4	34	130490	**1,271.79**	30	135665	**1,254.33**
9	1/2	1-1/4	34	130495	**1,413.06**	30	135670	**1,408.66**
9	5/8	1-1/4	34	130500	**1,355.17**	30	135675	**1,501.95**
9	3/4	1-1/4	34	130505	**1,580.56**	30	135680	**1,637.33**
9	1	1-1/4	34	130510	**1,604.17**	30	135685	**2,234.54**
9	1/4	1-1/2	-	-	-	30	135690	**1,114.58**
9	3/8	1-1/2	-	-	-	30	135695	**1,139.94**
9	1/2	1-1/2	-	-	-	30	135700	**1,280.71**
9	5/8	1-1/2	-	-	-	30	135705	**1,501.95**
9	3/4	1-1/2	-	-	-	30	135710	**1,637.33**
9	1	1-1/2	-	-	-	30	135715	**1,601.42**
10	3/8	1-1/4	-	-	-	32	135720	**1,755.24**
10	5/8	1-1/4	36	130515	**1,657.05**	-	-	-
10	3/4	1-1/4	36	130520	**2,218.60**	-	-	-
10	13/16	1-1/4	-	-	-	32	135725	**2,319.17**
10	1/4	1-1/2	36	130525	**1,481.48**	32	135730	**1,516.53**
10	5/16	1-1/2	36	130530	**1,628.67**	32	135735	**1,659.30**
10	3/8	1-1/2	36	130535	**1,726.22**	32	135740	**1,752.48**
10	7/16	1-1/2	36	130540	**1,899.64**	32	135745	**1,519.79**
10	1/2	1-1/2	36	130545	**1,970.97**	32	135750	**1,991.44**
10	9/16	1-1/2	36	130550	**1,835.23**	32	135755	**2,036.51**
10	5/8	1-1/2	36	130555	**2,096.29**	32	135760	**1,913.83**
10	11/16	1-1/2	36	130560	**1,713.17**	32	135765	**2,179.42**
10	3/4	1-1/2	-	-	-	32	135770	**2,222.99**
10	13/16	1-1/2	36	130570	**2,314.79**	32	135775	**2,319.17**
10	7/8	1-1/2	36	130575	**2,410.85**	32	135780	**2,425.41**
10	15/16	1-1/2	36	130580	**2,514.32**	32	135785	**2,299.34**
10	1	1-1/2	36	130585	**2,350.45**	32	135790	**2,649.67**
10	1-1/8	1-1/2	-	-	-	32	135800	**2,538.55**
10	1-1/4	1-1/2	36	130590	**2,830.50**	32	135805	**3,137.78**
10	1-1/2	1-1/2	36	130595	**2,906.60**	32	135810	**3,571.74**

Plain Tooth Slitting Saws

- Plain tooth with side chip clearance



HSS

Dia.	No. of Teeth	Thickness	Hole Size	Code No.	Price $
2	22	1/16	5/8	135870	**112.90**
2	22	5/64	5/8	135871	**96.70**
2	22	3/32	5/8	135872	**98.44**
2	22	1/8	5/8	135874	**99.58**
2	22	5/32	5/8	135877	**103.22**
2-1/2	28	1/16	7/8	135878	**115.41**
2-1/2	28	1/16	1	135879	**114.28**
2-1/2	28	5/64	7/8	135880	**106.23**
2-1/2	28	3/32	7/8	135900	**115.65**
2-1/2	28	3/32	1	135901	**115.65**
2-1/2	28	7/64	7/8	135902	**103.99**
2-1/2	28	1/8	7/8	135905	**117.92**
2-1/2	28	1/8	1	135903	**117.78**
2-1/2	28	9/64	7/8	135904	**95.55**
2-1/2	28	11/64	7/8	135907	**95.55**
3	32	1/16	1	135911	**151.81**
3	32	5/64	1	135906	**131.60**
3	32	3/32	1	135910	**134.86**
3	32	7/64	1	135912	**136.75**
3	32	7/64	1-1/4	135914	**102.22**
3	32	1/8	1	135915	**137.12**
3	32	9/64	1	135917	**140.90**
3	32	9/64	1-1/4	135916	**140.15**
3	32	5/32	1	135920	**143.79**
3	32	11/64	1	135921	**129.38**
3	32	11/64	1-1/4	135922	**122.56**
3	32	3/16	1	135925	**148.92**
3	32	3/16	1-1/4	135926	**149.94**
3	32	7/32	1	135927	**152.82**
3	32	7/32	1-1/4	135928	**102.22**
3	32	1/4	1	135929	**158.85**
3	32	1/4	1-1/4	135931	**160.36**
4	36	1/16	1	135933	**204.93**
4	36	1/16	1-1/4	135934	**201.29**
4	36	5/64	1	135936	**182.46**
4	36	3/32	1	135930	**186.72**
4	36	3/32	1-1/4	135938	**184.59**
4	36	7/64	1	135932	**190.74**
4	36	7/64	1-1/4	135939	**104.48**
4	36	1/8	1	135935	**190.62**
4	36	1/8	1-1/4	135941	**190.62**
4	36	9/64	1	135937	**195.51**
4	36	9/64	1-1/4	135942	**197.65**
4	36	5/32	1	135940	**202.93**
4	36	5/32	1-1/4	135943	**200.04**
4	36	11/64	1	135944	**204.69**
4	36	11/64	1-1/4	135946	**164.37**
4	36	3/16	1	135945	**208.83**
4	36	3/16	1-1/4	135947	**207.20**
4	36	7/32	1	135948	**212.47**
4	36	7/32	1-1/4	135949	**215.11**
4	36	1/4	1	135951	**223.40**
4	36	1/4	1-1/4	135953	**224.39**
5	40	1/16	1	135954	**272.36**
5	40	1/16	1-1/4	135956	**274.12**
5	40	3/32	1	135950	**245.49**
5	40	3/32	1-1/4	135952	**254.53**
5	40	7/64	1	135957	**251.40**
5	40	7/16	1-1/4	135958	**142.14**
5	40	1/8	1	135955	**251.14**
5	40	1/8	1-1/4	135960	**260.18**
5	40	9/64	1	135959	**266.97**
5	40	9/64	1-1/4	135961	**270.73**
5	40	5/32	1	135970	**275.01**
5	40	5/32	1-1/4	135965	**278.65**
5	40	11/64	1	135962	**281.65**
5	40	11/64	1-1/4	135963	**197.91**
5	40	3/16	1	135975	**286.31**
5	40	3/16	1-1/4	135977	**286.42**

Plain Tooth Slitting Saws — Cont'd

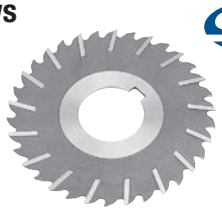
Dia.	No. of Teeth	Thickness	Hole Size	Code No.	Price $
5	40	7/32	1	135964	**296.35**
5	40	7/32	1-1/4	135966	**293.59**
5	40	1/4	1	135967	**307.90**
5	40	1/4	1-1/4	135968	**308.65**
6	42	1/16	1	135969	**368.68**
6	42	1/16	1-1/4	135971	**368.68**
6	42	3/32	1	135972	**321.84**
6	42	3/32	1-1/4	135973	**321.34**
6	42	7/64	1	135974	**330.26**
6	42	7/64	1-1/4	135976	**297.35**
6	42	1/8	1	135980	**332.64**
6	42	1/8	1-1/4	135985	**332.89**
6	42	9/64	1	135986	**341.43**
6	42	9/64	1-1/4	135987	**335.15**
6	42	5/32	1	135988	**358.00**
6	42	5/32	1-1/4	135989	**354.86**
6	42	11/64	1	135991	**335.15**
6	42	11/64	1-1/4	135992	**335.15**
6	42	3/16	1	135990	**377.58**
6	42	3/16	1-1/4	135995	**366.55**
6	42	1/4	1	135993	**397.06**
6	42	1/4	1-1/4	135994	**347.57**
8	48	1/8	1	135857	**506.56**
8	48	1/8	1-1/4	135996	**572.23**
8	48	3/16	1-1/4	135997	**643.56**
8	48	1/4	1-1/4	135998	**726.30**
10	50	3/16	1-1/4	135863	**1,141.32**
10	50	3/16	1-1/2	135864	**1,141.32**
10	50	1/4	1-1/2	135866	**854.76**



Hand Tools **See Chapter K**

Staggered Tooth Slitting Saws

- Staggered tooth with side chip clearance



HSS

Dia.	No. of Teeth	Thickness	Hole Size	Code No.	Price $
3	32	1/16	1	138900	**179.32**
3	32	1/16	1-1/4	138901	**179.44**
3	32	5/64	1	138902	**164.12**
3	32	5/64	1-1/4	138903	**163.87**
3	32	3/32	1	138904	**164.12**
3	32	3/32	1-1/4	138905	**164.12**
3	32	7/64	1	138906	**166.76**
3	32	1/8	1	140102	**166.76**
3	32	9/64	1	138909	**169.64**
3	32	9/64	1-1/4	138910	**169.39**
3	32	5/32	1	140103	**172.66**
3	32	5/32	1-1/4	138911	**172.66**
3	32	11/64	1	138912	**154.99**
3	32	3/16	1	140105	**157.97**
3	32	3/16	1-1/4	138914	**158.71**
3	32	7/32	1	138915	**162.36**
3	32	1/4	1	140106	**168.89**
4	34	1/16	1	138917	**231.06**
4	34	1/16	1-1/4	138918	**231.31**
4	34	5/64	1	138919	**212.34**
4	34	5/64	1-1/4	138920	**212.34**
4	34	3/32	1	138921	**216.61**
4	34	3/32	1-1/4	139922	**217.11**
4	34	7/64	1	139923	**221.88**
4	34	7/64	1-1/4	139924	**168.19**
4	34	1/8	1	139925	**220.14**
4	34	1/8	1-1/4	139926	**218.62**
4	34	9/64	1	140107	**225.65**
4	34	9/64	1-1/4	139927	**225.77**
4	34	5/32	1	140108	**230.68**
4	34	5/32	1-1/4	139928	**228.28**
4	34	11/64	1-1/4	139930	**158.88**
4	34	3/16	1	140110	**234.95**
4	34	3/16	1-1/4	139931	**238.59**
4	34	7/32	1	139932	**220.51**
4	34	1/4	1	140111	**229.93**
4	34	1/4	1-1/4	140112	**230.04**
5	38	3/32	1	139934	**282.92**
5	38	1/8	1	139935	**291.20**
5	38	1/8	1-1/4	140113	**290.83**
5	38	9/64	1	139937	**196.46**
5	38	9/64	1-1/4	139938	**196.46**
5	38	5/32	1	139939	**299.86**
5	38	5/32	1-1/4	139940	**218.30**
5	38	11/64	1	140114	**207.44**
5	38	11/64	1-1/4	139941	**228.06**
5	38	3/16	1	140115	**311.30**
5	38	3/16	1-1/4	140117	**310.41**
5	38	1/4	1	140120	**318.20**
5	38	1/4	1-1/4	139942	**309.65**
6	42	1/8	1	139943	**368.68**
6	42	1/8	1-1/4	140121	**353.73**
6	42	9/64	1	139944	**230.79**
6	42	5/32	1	139946	**377.34**
6	42	5/32	1-1/4	140122	**380.98**
6	42	11/64	1	139947	**389.15**
6	42	3/16	1	140125	**394.68**
6	42	3/16	1-1/4	140130	**397.19**
6	42	1/4	1	140135	**409.25**
6	42	1/4	1-1/4	140140	**405.72**
7	46	1/8	1	139949	**534.56**
7	46	3/16	1-1/4	139952	**574.49**
8	50	3/16	1	139953	**692.66**
8	50	3/16	1-1/4	140145	**690.01**
8	50	1/4	1-1/4	140150	**756.81**
10	60	3/16	1-1/4	139954	**1,188.77**
10	60	1/4	1-1/4	140155	**1,174.22**

Plain Metal Slitting Saws



HSS

Dia.	No. of Teeth	Face Width	Hole Size	Code No.	Price $
1-3/4	28	1/32	1/2	139150	**47.59**
2	28	3/32	1/2	139152	**45.21**
2	28	1/16	1/2	136001	**42.20**
2	28	1/8	1/2	139164	**47.59**
2-1/2	28	3/64	3/8	136003	**47.59**
2-1/2	28	1/32	3/8	139153	**47.59**
2-1/2	28	1/32	7/8	136004	**47.59**
2-1/2	28	3/64	7/8	136005	**47.59**
2-1/2	28	1/16	7/8	136006	**47.59**
2-1/2	28	3/32	7/8	139154	**47.59**
2-1/2	28	1/8	7/8	136007	**47.59**
2-1/2	28	1/16	1	136008	**47.59**
3	30	1/64	1	136009	**88.65**
3	30	1/32	1	136010	**52.11**
3	30	3/64	1	136011	**52.11**
3	30	1/16	1	136012	**55.38**
3	30	5/64	1	136013	**55.38**
3	30	3/32	1	136014	**55.38**
3	30	7/64	1	136015	**56.89**
3	30	1/8	1	136016	**56.89**
3	30	9/64	1	136017	**59.27**
3	30	5/32	1	136018	**59.27**
3	30	3/16	1	136019	**63.91**
3-1/2	30	1/32	1	136020	**73.96**
3-1/2	30	3/64	1	136021	**76.47**
3-1/2	30	1/16	1	136022	**76.47**
3-1/2	30	3/32	1	136023	**80.62**
3-1/2	30	1/8	1	136024	**85.01**
3-1/2	36	1/8	1	139155	**85.01**
3-1/2	30	9/64	1	139156	**67.18**
3-1/2	30	3/16	1	136027	**93.18**
4	36	1/64	1	136028	**120.67**
4	36	1/32	1	136029	**73.96**
4	36	3/64	1	136030	**76.47**
4	36	1/16	1	136031	**76.47**
4	36	5/64	1	136032	**80.62**
4	36	3/32	1	136033	**80.62**
4	36	7/64	1	136034	**85.01**
4	36	1/8	1	136035	**85.01**
4	36	9/64	1	136036	**88.40**
4	36	5/32	1	136037	**88.40**
4	36	3/16	1	136038	**93.18**
4-1/2	36	1/32	1	136039	**120.67**
4-1/2	36	3/64	1	136040	**102.22**
4-1/2	36	1/16	1	136041	**102.22**
4-1/2	36	3/32	1	136042	**111.51**
4-1/2	36	1/8	1	136043	**116.40**
5	40	3/64	1	136044	**102.22**
5	40	1/16	1	136045	**102.22**
5	40	5/64	1	136046	**108.24**
5	40	3/32	1	136047	**111.51**
5	40	7/64	1	136048	**116.40**
5	40	1/8	1	136049	**116.40**
5	40	9/64	1	136050	**123.32**
5	40	5/32	1	136051	**123.32**
5	40	3/16	1	136052	**130.71**
5	40	1/16	1-1/4	136053	**102.22**
5	40	3/32	1-1/4	136054	**111.51**
5	40	1/8	1-1/4	136055	**116.40**
5	40	5/32	1-1/4	136056	**123.32**
5	42	3/16	1-1/4	136057	**130.71**
6	42	3/64	1	136058	**151.81**
6	42	1/16	1	136059	**133.48**
6	42	5/64	1	136060	**141.77**
6	42	3/32	1	136061	**154.46**
6	42	7/64	1	136062	**168.89**
6	42	1/8	1	136063	**159.48**
6	42	9/64	1	136064	**170.02**

Plain Metal Slitting Saws — Cont'd

Dia.	No. of Teeth	Face Width	Hole Size	Code No.	Price $
6	42	5/32	1	136065	**185.72**
6	42	3/16	1	136066	**190.62**
6	42	1/16	1-1/4	136067	**133.48**
6	42	3/32	1-1/4	136068	**154.07**
6	42	1/8	1-1/4	136069	**159.48**
6	42	5/32	1-1/4	136070	**185.09**
6	42	3/16	1-1/4	136071	**168.29**
8	48	3/32	1	139159	**300.13**
8	48	1/8	1	136072	**335.15**
8	48	3/16	1	136073	**376.84**
8	48	3/32	1-1/4	136074	**300.13**
8	48	1/8	1-1/4	136075	**335.15**
8	48	3/16	1-1/4	136076	**376.84**
10	56	3/32	1-1/4	139162	**495.39**
10	56	1/8	1-1/4	136077	**495.39**
10	56	3/16	1-1/4	136078	**597.84**
10	62	1/4	1-1/4	139163	**597.84**

Single Angle Cutters

- Right hand and left hand
- 45° and 60° angles



HSS

Dia.	Face Width	No. of Teeth	Hole Size	Angle	Right Code No.	Price $	Left Code No.	Price $
2-1/2	1/2	18	7/8	45°	136550	**193.76**	136583	**274.75**
2-1/2	1/2	18	7/8	60°	136551	**183.34**	136584	**275.01**
2-3/4	1/2	18	1	45°	136552	**180.94**	136585	**225.27**
2-3/4	1/2	18	1	60°	136553	**182.08**	136586	**195.02**
3	1/2	22	1	45°	136554	**220.14**	136587	**248.38**
3	1/2	22	1	60°	136555	**219.00**	136588	**247.76**
3	1/2	22	1-1/4	45°	136556	**251.27**	136589	**247.39**
3	1/2	22	1-1/4	60°	136557	**229.04**	136590	**130.60**
3	5/8	22	1	45°	136558	**314.31**	136591	**299.86**
3	5/8	22	1	60°	136559	**313.93**	136592	**216.11**
3	5/8	22	1-1/4	45°	136560	**312.92**	136593	**237.46**
3	5/8	22	1-1/4	60°	136561	**313.05**	136594	**237.46**
3	3/4	22	1	45°	136562	**333.64**	136595	**345.20**
3	3/4	22	1	60°	136563	**333.64**	136596	**347.71**
3	3/4	22	1-1/4	60°	136564	**352.35**	136597	**347.45**
4	1/2	26	1	45°	136565	**429.33**	136598	**429.83**
4	1/2	26	1	60°	136566	**429.33**	136599	**306.14**
4	1/2	26	1-1/4	45°	136567	**336.79**	136600	**429.83**
4	1/2	26	1-1/4	60°	136568	**379.06**	136601	**336.79**
4	3/4	26	1	45°	136569	**508.69**	136602	**501.04**
4	3/4	26	1	60°	136570	**508.69**	136603	**501.04**
4	3/4	26	1-1/4	45°	136571	**508.69**	136604	**501.04**
4	3/4	26	1-1/4	60°	136572	**508.69**	136605	**501.04**
4	1	26	1-1/4	45°	136573	**560.43**	136606	**552.26**
4	1	26	1-1/4	60°	136574	**560.43**	136607	**552.26**
5	3/4	28	1-1/4	45°	136575	**484.71**	136608	**626.61**
5	3/4	28	1-1/4	60°	136576	**616.68**	136609	**607.38**
5	1	28	1-1/4	45°	136577	**737.87**	136610	**726.81**
5	1	28	1-1/4	60°	136578	**737.87**	136611	**726.81**
6	3/4	30	1-1/4	45°	136579	**829.27**	136612	**760.47**
6	3/4	30	1-1/4	60°	136580	**760.47**	136613	**671.43**
6	1	30	1-1/4	45°	136581	**954.09**	136614	**954.09**
6	1	30	1-1/4	60°	136582	**954.09**	136615	**954.09**

Concave Cutters



HSS

Circle Dia.	Cutter Dia.	Hole Size	No. of Teeth	Code No.	Price $
1/16	2-1/4	1	14	136655	**102.44**
3/32	2-1/4	1	14	136656	**116.02**
1/8	2-1/4	1	14	136657	**133.48**
5/32	2-1/4	1	14	136658	**257.80**
3/16	2-1/4	1	14	136659	**203.92**
7/32	2-1/4	1	14	136660	**262.95**
1/4	2-1/2	1	12	136661	**185.47**
9/32	2-1/2	1	12	136662	**288.44**
5/16	2-3/4	1	12	136663	**220.51**
11/32	2-3/4	1	12	136664	**251.40**
3/8	2-3/4	1	12	136665	**217.25**
13/32	2-3/4	1	12	136666	**199.67**
7/16	3	1	12	136667	**291.44**
1/2	2-1/4	7/8	12	136668	**399.32**
1/2	3	1	12	136669	**303.63**
9/16	3	1	12	136671	**330.75**
5/8	2-3/4	1	12	136672	**483.83**
5/8	3	1	12	136673	**326.49**
5/8	3-1/2	1-1/4	12	136674	**418.28**
11/16	3	1	12	136675	**320.33**
3/4	3	1	12	136676	**438.74**
3/4	3-3/4	1-1/4	12	136677	**492.61**
13/16	3-1/4	1-1/4	12	136679	**391.04**
7/8	3-1/4	1	12	136680	**654.24**
7/8	4	1-1/4	12	136681	**391.04**
15/16	3-1/2	1	10	136682	**476.16**
1	3-1/4	1	10	136683	**590.19**
1	4-1/4	1-1/4	10	136684	**695.03**
1-1/16	4	1-1/4	10	136685	**888.80**
1-1/8	4	1-1/4	10	136686	**755.82**
1-3/16	3-1/4	1	10	136687	**755.82**
1-1/4	4	1-1/4	10	136688	**1,127.63**
1-3/8	4-1/4	1-1/4	10	136689	**899.97**
1-1/2	4-1/4	1-1/4	10	136690	**1,083.93**
1-5/8	5-1/2	1-1/4	10	136691	**1,101.88**
1-3/4	5-1/2	1-1/4	10	136692	**2,301.47**
1-7/8	6	1-1/2	10	136693	**1,421.96**
2	6	1-1/2	10	136694	**2,637.63**

Convex Cutters

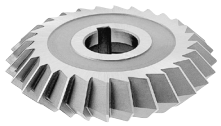


HSS

Circle Dia.	Cutter Dia.	Hole Size	No. of Teeth	Code No.	Price $
1/16	2-1/4	1	14	136700	**175.81**
3/32	2-1/4	1	14	136702	**173.17**
1/8	2	7/8	14	136703	**188.73**
1/8	2-1/4	1	14	136704	**174.41**
5/32	2-1/4	1	14	136705	**178.57**
3/16	2	7/8	14	136706	**99.56**
3/16	2-1/4	1	14	136707	**154.46**
7/32	2-1/4	1	14	136708	**157.22**
1/4	2	7/8	14	136709	**160.10**
1/4	2-1/4	1	14	136710	**181.32**
1/4	2-1/2	1	14	136711	**156.84**
9/32	2-1/2	1	14	136712	**186.85**
11/32	2-3/4	1	12	136714	**216.23**
3/8	2-1/4	7/8	12	136715	**406.60**
3/8	2-3/4	1	12	136716	**195.14**
3/32	2-3/4	1	12	136717	**226.15**
7/16	3	1	12	136718	**357.12**
1/2	2-1/4	7/8	12	136719	**195.14**
1/2	3	1	12	136720	**218.37**
9/16	2-3/4	1	12	136721	**378.85**
9/16	3	1	12	136722	**325.10**
5/8	2-3/4	1	12	136723	**307.66**
5/8	3	1	12	136724	**319.21**
5/8	3-1/2	1-1/4	12	136725	**373.08**
11/16	3	1	12	136726	**342.56**
3/4	3	1	12	136727	**295.85**
3/4	3-3/4	1-1/4	12	136728	**443.02**
7/8	3-1/4	1	12	136730	**416.64**
7/8	4	1-1/4	12	136731	**520.13**
15/16	3-1/2	1	12	136732	**404.09**
1	3-1/4	1	12	136733	**445.91**
1	4-1/4	1-1/4	12	136734	**565.45**
1-1/8	4	1-1/4	12	136735	**712.49**
1-1/4	4	1-1/4	12	136736	**712.49**
1-3/8	4-1/4	1-1/4	12	136737	**811.57**
1-1/2	4-1/4	1-1/4	12	136738	**895.95**
1-5/8	5-1/2	1-1/4	12	136739	**1,289.23**
1-3/4	5-1/2	1-1/4	12	136740	**1,084.68**
1-7/8	6	1-1/2	12	136741	**1,182.62**
2	6	1-1/2	12	136742	**1,086.54**

Double Angle Cutters

- 45°, 60°, and 90° angles



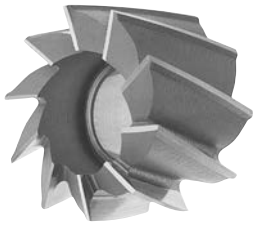
HSS

Dia.	Face Width	Hole Size	No. of Teeth	Angle	Code No.	Price $
2-3/4	1/2	1	18	45°	136620	**218.24**
2-3/4	1/2	1	18	60°	136621	**214.60**
2-3/4	1/2	1	18	90°	136622	**179.57**
3	5/8	1	22	45°	136623	**345.07**
3	5/8	1	22	60°	136624	**309.28**
3	5/8	1	22	90°	136625	**306.14**
3	3/4	1	22	60°	136626	**378.47**
3	3/4	1	22	90°	136627	**378.47**
4	1/2	1-1/4	26	45°	136628	**486.72**
4	1/2	1-1/4	26	60°	136629	**424.43**
4	1/2	1-1/4	26	90°	136630	**486.72**
4	3/4	1	26	45°	136631	**576.76**
4	3/4	1	26	60°	136632	**480.82**
4	3/4	1	26	90°	136633	**576.76**
4	3/4	1-1/4	26	45°	136634	**576.76**
4	3/4	1-1/4	26	60°	136635	**576.76**
4	3/4	1-1/4	26	90°	136636	**576.76**

Dia.	Face Width	Hole Size	No. of Teeth	Angle	Code No.	Price $
4	1	1-1/4	26	60°	136637	**635.65**
4	1	1-1/4	26	90°	136638	**635.65**
5	3/4	1-1/4	28	45°	136639	**499.77**
5	3/4	1-1/4	28	60°	136640	**752.93**
5	3/4	1-1/4	28	90°	136641	**699.18**
5	1	1-1/4	28	45°	136642	**891.56**
5	1	1-1/4	28	60°	136643	**881.77**
5	1	1-1/4	28	90°	136644	**836.68**
6	3/4	1-1/4	30	45°	136645	**786.95**
6	3/4	1-1/4	30	60°	136646	**947.44**
6	3/4	1-1/4	30	90°	136647	**940.53**
6	1	1-1/4	30	45°	136648	**1,139.06**
6	1	1-1/4	30	60°	136649	**1,139.06**
6	1	1-1/4	30	90°	136650	**1,139.06**
6	1-1/2	1-1/4	30	45°	136651	**1,459.27**
6	1-1/2	1-1/4	30	60°	136652	**1,407.53**
6	1-1/2	1-1/4	30	90°	136653	**1,407.53**

Shell End Mills

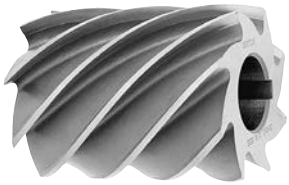
- Right hand



Mill Dia.	Hole Size	Length of Cut	No. of Teeth	Right Code No.	Price $
1-1/4	1/2	1	8	140160	**141.64**
1-1/2	1/2	1-1/8	8	140162	**154.96**
1-3/4	3/4	1-1/4	8	140164	**174.93**
2	3/4	1-3/8	10	140166	**222.89**
2-1/4	1	1-1/2	10	140168	**253.40**
2-1/2	1	1-5/8	10	140170	**341.43**
2-3/4	1	1-5/8	10	140172	**380.23**
3	1-1/4	1-3/4	10	140174	**448.30**
3-1/2	1-1/4	1-7/8	12	140176	**578.89**
4	1-1/2	2-1/4	14	140178	**907.26**
4-1/2	1-1/2	2-1/4	14	140180	**630.87**
5	1-1/2	2-1/4	16	140182	**1,476.72**
5-1/2	2	2-1/4	16	140184	**1,650.51**
6	2	2-1/4	16	140186	**1,836.72**

Heavy Duty Plain Milling Cutters

- Right hand



HSS

Mill Dia.	Hole Size	Length of Cut	No. of Teeth	Right Code No.	Price $
3	1-1/4	1-1/4	8	140215	**305.76**
4	1-1/2	2	10	140245	**480.94**
4	1-1/2	3	10	140250	**709.49**
4-1/2	2	6	10	140265	**2,022.83**

Involute Gear Cutters

Used to mill spur gears having a 14-1/2° pressure angle. For each diametral pitch priced, 8 cutters are required to produce a full set of gears from 12 teeth to a rack. Eight cutters are made for each diametral pitch. When ordering state diametral pitch and the number of cutters from the table in accordance with the number of teeth to be cut. Specify arbor hole where choice exists.

These cutters may be sharpened repeatedly without changing their original form.



HSS

Cutter No.	Range of Teeth Cut
1	135 to Rack
2	55 to 134
3	35 to 54
4	26 to 34
5	21 to 25
6	17 to 20
7	14 to 16
8	12 to 13

Screw Slotting Saws

High Speed Steel
Standard screw slotting saws are available in 1-3/4" diameter with 90 teeth, 2-1/4" diameter with 60 teeth and 2-3/4" diameter with 72 teeth. Also available in a 2-3/4" diameter and 1" hole with 56 teeth.



HSS

With 90 teeth

Dia.	Face Width	Hole Size	90 Teeth Code No.	Price $
1-3/4	0.010	1/2	137078	**29.38**
1-3/4	0.012	1/2	137079	**26.50**
1-3/4	0.020	1/2	137080	**19.72**
1-3/4	0.008	5/8	137081	**31.40**
1-3/4	0.010	5/8	137082	**29.38**
1-3/4	0.012	5/8	137083	**26.50**
1-3/4	0.014	5/8	137084	**21.60**
1-3/4	0.016	5/8	137085	**21.10**
1-3/4	0.018	5/8	137086	**20.47**
1-3/4	0.020	5/8	137087	**19.72**
1-3/4	0.023	5/8	137088	**19.72**
1-3/4	0.025	5/8	137089	**19.72**
1-3/4	0.028	5/8	137090	**19.72**
1-3/4	0.032	5/8	137091	**19.72**
1-3/4	0.036	5/8	137092	**20.47**
1-3/4	0.040	5/8	137093	**20.47**
1-3/4	0.045	5/8	137094	**20.47**
1-3/4	0.051	5/8	137095	**20.47**
1-3/4	0.057	5/8	137096	**21.60**
1-3/4	0.064	5/8	137097	**22.98**
1-3/4	0.072	5/8	137098	**22.98**

With 60 teeth

Dia.	Face Width	Hole Size	60 Teeth Code No.	Price $
2-1/4	0.008	5/8	137099	**32.53**
2-1/4	0.010	5/8	137100	**43.08**
2-1/4	0.012	5/8	137101	**36.66**
2-1/4	0.014	5/8	137102	**31.14**
2-1/4	0.016	5/8	137103	**31.14**
2-1/4	0.018	5/8	137104	**25.87**
2-1/4	0.020	5/8	137105	**25.87**
2-1/4	0.023	5/8	137106	**25.87**
2-1/4	0.025	5/8	137107	**25.87**
2-1/4	0.028	5/8	137108	**24.61**
2-1/4	0.032	5/8	137109	**24.61**
2-1/4	0.035	5/8	137110	**24.61**
2-1/4	0.036	5/8	137111	**24.61**
2-1/4	0.040	5/8	137112	**25.87**
2-1/4	0.045	5/8	137113	**27.12**
2-1/4	0.051	5/8	137114	**27.12**
2-1/4	0.057	5/8	137115	**27.12**
2-1/4	0.064	5/8	137116	**27.12**
2-1/4	0.072	5/8	137117	**27.12**
2-1/4	0.081	5/8	137118	**29.13**
2-1/4	0.091	5/8	137119	**31.40**
2-1/4	0.102	5/8	137120	**33.91**

Screw Slotting Saws — Cont'd

With 72 teeth

Dia.	Face Width	Hole Size	72 Teeth Code No.	Price $
2-3/4	0.010	3/4	137001	**52.11**
2-3/4	0.012	3/4	137002	**36.04**
2-3/4	0.016	3/4	137004	**41.57**
2-3/4	0.020	3/4	137006	**27.12**
2-3/4	0.023	3/4	137007	**20.72**
2-3/4	0.025	3/4	137008	**27.12**
2-3/4	0.028	3/4	137009	**27.12**
2-3/4	0.032	3/4	137010	**27.12**
2-3/4	0.036	3/4	137011	**27.12**
2-3/4	0.040	3/4	137012	**27.12**
2-3/4	0.045	3/4	137013	**32.53**
2-3/4	0.051	3/4	137014	**32.53**
2-3/4	0.057	3/4	137015	**32.53**
2-3/4	0.064	3/4	137016	**32.53**
2-3/4	0.072	3/4	137017	**32.53**
2-3/4	0.081	3/4	137018	**37.67**
2-3/4	0.091	3/4	137019	**40.93**
2-3/4	0.102	3/4	137020	**42.70**
2-3/4	0.114	3/4	137021	**44.19**
2-3/4	0.128	3/4	137022	**45.46**
2-3/4	0.162	3/4	137023	**56.89**
2-3/4	0.182	3/4	137024	**66.94**

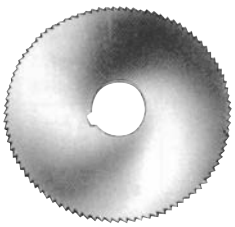
With 72 Teeth and 56 Teeth

Dia.	Face Width	Hole Size	72 Teeth Code No.	Price $	56 Teeth Code No.	Price $
2-3/4	0.010	1	137025	**52.11**	-	**-**
2-3/4	0.012	1	137026	**47.59**	137052	**47.59**
2-3/4	0.013	1	137027	**47.59**	-	**-**
2-3/4	0.014	1	137028	**44.83**	137055	**44.83**
2-3/4	0.016	1	137029	**41.57**	137056	**41.57**
2-3/4	0.018	1	137030	**39.31**	137057	**39.31**
2-3/4	0.020	1	137031	**27.12**	137058	**27.12**
2-3/4	0.023	1	137032	**27.12**	137059	**27.12**
2-3/4	0.025	1	137033	**27.12**	137060	**27.12**
2-3/4	0.028	1	137034	**27.12**	137061	**27.12**
2-3/4	0.032	1	137035	**27.12**	137062	**27.12**
2-3/4	0.036	1	137036	**27.12**	137063	**27.12**
2-3/4	0.040	1	137037	**27.12**	137064	**27.12**
2-3/4	0.045	1	137038	**32.53**	137065	**32.53**
2-3/4	0.051	1	137039	**32.53**	137066	**32.53**
2-3/4	0.057	1	137040	**32.53**	137067	**32.53**
2-3/4	0.064	1	137041	**32.53**	137068	**32.53**
2-3/4	0.072	1	137042	**32.53**	137069	**32.53**
2-3/4	0.081	1	137043	**37.67**	137070	**37.67**
2-3/4	0.091	1	137044	**40.93**	-	**-**
2-3/4	0.102	1	137045	**42.70**	137072	**42.70**
2-3/4	0.114	1	137046	**44.19**	137073	**44.19**
2-3/4	0.128	1	137047	**45.46**	137074	**45.46**
2-3/4	0.144	1	137048	**52.11**	137075	**52.11**
2-3/4	0.162	1	137049	**56.89**	137076	**56.89**
2-3/4	0.182	1	137050	**66.94**	-	**-**

Solid Tungsten Carbide Saw Blades

Slotting, Slitting, Mica Undercutting

- Standards
- Metrics
- Radius Saws
- Circular Slitting Knives
- Specials
- "V" Cutters
- Re-Sharpening
- All saws are hollow ground to our standards, or your specifications
- Sizes priced are considered standard saws
- For metrics, special sizes, or tolerances, call or write for availability and prices. Many variations can be made, some at no additional cost
- If you need engineering assistance in selecting or designing a saw, we're only a phone call way and delighted to help
- When ordering, specify: O.D.; I.D.; thickness; no. of teeth; hub (if desired); and any special tolerances or extras. Various quantity discounts are available on all saws
- Although not standard on carbide saws, the manufacturer can provide keyways upon request, at an additional cost



MICRO GRAIN CARBIDE

O.D.	I.D. +0.001-0.000			No. of Teeth	Thickness Range (dec.)	Thickness Range (in.)
5/16		1/8		12	0.011 - 0.045	1/32 - 3/64
3/8	1/8		3/16	14	0.011 - 0.045	1/32 - 3/64
1/2	1/8		3/16	14	0.011 - 0.045	1/32 - 3/64
9/16	3/16		1/4	16	0.011 - 0.045	1/32 - 3/64
5/8	3/16		1/4	16	0.011 - 0.0625	1/32 - 1/16
11/16	3/16		1/4	16	0.011 - 0.0625	1/32 - 1/16
3/4	1/4		5/16	18	0.011 - 0.0625	1/32 - 1/16
7/8	5/16		3/8	18	0.011 - 0.0625	1/32 - 1/16
1	1/4		9/32			
	5/16	3/8	1/2	20	0.011 - 0.0625	1/32 - 1/16
1-1/8	3/8		1/2	22	0.011 - 0.0625	1/32 - 1/16
1-1/4	5/16	3/8	1/2	24	0.011 - 0.0625	1/32 - 1/16
1-3/8		1/2		24	0.015 - 0.080	1/32 - 3/32
1-1/2	5/16		1/2	32	0.015 - 0.080	1/32 - 3/32
1-3/4	1/2		5/8	32	0.015 - 0.080	1/32 - 3/32
2	1/2		1	40	0.015 - 0.125	1/32 - 1/8
2-1/4	5/8		1	44	0.015 - 0.125	1/32 - 1/8
2-3/8	5/8		1	48	0.015 - 0.125	1/32 - 1/8
2-1/2	1/2		1	48	0.015 - 0.125	1/32 - 1/8
2-3/4		1		56	0.015 - 0.125	1/32 - 1/8
3		1		60	0.020 - 0.150	1/32 - 3/16
4		1		72	0.020 - 0.150	1/32 - 1/4
5		1		90	0.030 - 0.150	1/16 - 1/4
6		1		120	0.020 - 0.150	1/32 - 1/4

Revolving Knurling Tool Holder

narex

The Revolving Head Knurling Tools embody all the features of standard model Knurling Tools plus one important extra – these tools are fitted with four pairs of knurls; any of which can be instantly brought to bear on the workpiece. No time is lost changing knurls. Furnished with press-style, standard face diamond pattern knurls in fine and coarse pitch.



Holder

Holder Size	Dia.	Knurl Face Size	Hole	Code No.	Price $
20 x 30 x 200mm	20mm	10mm	6mm	474200	**483.11**

Replacement Knurls

Size	Replacement Knurls	Pitch	Code No.	Price $
20 x 10 x 6mm	Straight coarse	20 x 1	474230	**16.93**
20 x 10 x 6mm	Straight fine	20 x 0.6	474235	**16.93**
20 x 10 x 6mm	Diagonal coarse right hand	20 x 1	474240	**16.93**
20 x 10 x 6mm	Diagonal fine right hand	20 x 0.6	474245	**16.93**
20 x 10 x 6mm	Diagonal left hand coarse	20 x 1	474250	**16.93**
20 x 10 x 6mm	Diagonal left hand fine	20 x 0.6	474255	**16.93**

Keyway Broach Sets With Collared Bushings

- Specialty tools designed for cutting keyways in machined holes
- Typically used manually with an arbor press or hydraulic press to produce the keyways
- Well suited for use in a variety of ferrous and non-ferrous materials



Hassay Savage

HSS

Model No.	Description		Dura Case EDP No.	Code No.	Price $
#1	3 Broaches: 5 Bushings:	1/16-I, 3/32-I, 1/8-I 1/4-I, 5/16-I, 3/8-I,7/16-I, 1/2-I 15 Keyway Combinations	15315	182050	**454.01**
C-1	4 Broaches: 9 Bushings:	1/8-II, 3/16-II, 1/4-III, 3/8-III 1/2-II, 5/8-II, 3/4-II, 7/8-II, 1-III, 1-1/8-III, 1-1/4-III, 1-3/8-III, 1-1/2-III 18 Keyway Combinations	15318	182052	**792.99**
C-1A	4 Broaches: 9 Bushings	1/8-II, 3/16-II, 1/4-III, 3/8-III, 9/16-II, 11/16-II, 13/16-II, 15/16-III, 1-1/16-III, 1-3/16-III, 1-5/16-III, 1-7/16-III, 1-9/16-III 18 Keyway Combinations	15319	182054	**792.99**
C-2	3 Broaches: 9 Bushings:	1/8-II, 3/16-III, 1/4-III 9/16-II, 11/16-II, 13/16-II, 15/16-III, 1-1/16-III, 1-3/16-III, 1-5/16-III, 1-7/16-III, 1-9/16-III 15 Keyway Combinations	15320	182056	**672.50**
C-2A	3 Broaches: 9 Bushings:	1/8-II, 3/16-III, 1/4-III 1/2-II, 5/8-II, 3/4-II, 7/8-II, 1-III, 1-1/8-III, 1-1/4-III, 1-3/8-III, 1-1/2-III 15 Keyway Combinations	15321	182058	**672.50**
C-10A	3 Broaches: 18 Bushings:	1/8-II, 3/16-III, 1/4-III 1/2-II, 9/16-II, 5/8-II, 11/16-II, 3/4-II, 13/16-II, 7/8-II, 15/16-III, 1-III, 1-1/16-III, 1-1/8-III, 1-3/16-III, 1-1/4-III, 1-5/16-III, 1-3/8-III, 1-7/16-III, 1-1/2-III, 1-9/16-III 30 Keyway Combinations	15330	182060	**959.71**
C-10	4 Broaches: 18 Bushings:	1/8-II, 3/16-II, 1/4-III, 3/8-III 1/2-II, 9/16-II, 5/8-II, 11/16-II, 3/4-II, 13/16-II, 7/8-II, 15/16-III, 1-III, 1-1/16-III, 1-1/8-III, 1-3/16-III, 1-1/4-III, 1-5/16-III, 1-3/8-III, 1-7/16-III, 1-1/2-III, 1-9/16-III 36 Keyway Combinations	15336	182062	**1,014.95**
#10 Metric	2 Broaches: 5 Bushings:	2mm-I, 3mm-I 6mm-I, 7mm-I, 8mm-I, 9mm-I, 10mm-I 10 Keyway Combinations	15410	182064	**406.80**
#18 Metric	4 Broaches: 9 Bushings:	4mm-II, 5mm-II, 6mm-III, 8mm-III 12mm-II, 14mm-II, 16mm-II, 18mm-II, 20mm-III, 22mm-III, 24mm-III, 26mm-III, 28mm-III 18 Keyway Combinations	15418	182066	**926.86**
#40 Metric	6 Broaches: 18 Bushings:	2mm-I, 3mm-I, 4mm-II, 5mm-II, 6mm-III, 8mm-III 8mm-I, 10mm-I, 12mm-II, 14mm-II, 16mm-II, 18mm-II, 18mm-III, 19mm-III, 20mm-III, 22mm-III, 24mm-III, 25mm-III 26mm-III, 28mm-III, 30mm-III, 32mm-III, 34mm-III, 36mm-III 36 Keyway Combinations	15440	182068	**1,509.66**

Keyway Broach Sets With Plain Bushings

- Specialty tools designed for cutting keyways in machined holes
- Typically used manually with an arbor press or hydraulic press to produce the keyways
- Well suited for use in a variety of ferrous and non-ferrous materials



Hassay Savage

HSS

Model No.	Description		Wooden Case EDP No.	Code No.	Price $
3-D	4 Broaches: 8 Bushings:	5/16-IV, 3/8-IV, 7/16-IV, 1/2-IV 1-1/2-IV, 1-5/8-IV, 1-3/4-IV, 1-7/8-IV, 2-IV, 2-1/8-IV, 2-1/4-IV, 2-1/2-IV 32 Keyway Combinations	15024	182014	**1,587.67**
3-DA	4 Broaches: 8 Bushings:	5/16-IV, 3/8-IV, 7/16-IV, 1/2-IV 1-7/16-IV, 1-9/16-IV, 1-11/16-IV, 1-13/16-IV, 1-15/16-IV, 2-3/16-IV, 2-7/16-IV, 2-15/16-IV 32 Keyway Combinations	15124	182016	**1,587.67**
4E	2 Broaches: 6 Bushings:	5/8-V, 3/4-V 2-3/8-V, 2-1/2-V, 2-5/8-V, 2-3/4-V, 2-7/8-V, 3-V 12 Keyway Combinations	15012	182018	**1,636.22**
4F	2 Broaches: 6 Bushings:	5/8-V, 3/4-V 2-5/16-V, 2-7/16-V, 2-9/16-V, 2-11/16-V, 2-13/16-V, 2-15/16-V 12 Keyway Combinations	15014	182020	**1,636.22**
#5	3 Broaches: 17 Bushings:	1/2-IV, 5/8-V, 3/4-V 2-IV, 2-1/16-IV, 2-1/8-IV, 2-3/16-IV, 2-1/4-IV, 2-5/16-IV, 2-3/8-IV, 2-7/16-IV 2-1/2-V, 2-9/16-V, 2-5/8-V, 2-11/16-V, 2-3/4-V, 2-13/16-V, 2-7/8-V, 2-15/16-V, 3-V 26 Keyway Combinations	15026	182022	**2,350.49**
#100	9 Broaches: 43 Bushings:	1/8-II, 3/16-II, 1/4-III, 5/16-III, 3/8-IV, 7/16-IV, 1/2-IV, 5/8-V, 3/4-V 1/2-II, 9/16-II, 5/8-II, 11/16-II, 3/4-II, 13/16-II, 7/8-II, 15/16-III, 1-III, 1-1/16-III 1-1/8-III, 1-3/16-III, 1-1/4-III, 1-5/16-III, 1-3/8-III, 1-1/2-III, 1-9/16-III, 1-7/16-IV 1-1/2-IV, 1-9/16-IV, 1-5/8-IV, 1-11/16-IV, 1-3/4-IV, 1-13/16-IV, 1-7/8-IV, 1-15/16-IV, 2-IV, 2-1/16-IV, 2-1/8-IV, 2-3/16-IV, 2-1/4-IV, 2-5/16-V, 2-3/8-V, 2-7/16-V, 2-1/2-V 2-9/16-V, 2-5/8-V, 2-11/16-V, 2-3/4-V, 2-13/16-V, 2-7/8-V, 2-15/16-V, 3-V 102 Keyway Combinations	15100	182024	**5,484.86**
#24 Metric	3 Broaches: 8 Bushings:	10mm-IV, 12mm-IV, 14mm-IV 34mm-IV, 36mm-IV, 38mm-IV, 40mm-IV, 42mm-IV, 44mm-IV, 46mm-IV, 48mm-IV 24 Keyway Combinations	15224	182036	**1,561.34**
#12 Metric	2 Broaches: 6 Bushings:	16mm-V, 18mm-V 54mm-V, 56mm-V, 58mm-V, 60mm-V, 62mm-V, 64mm-V 12 Keyway Combinations	15212	182038	**2,101.30**
#30 Metric	3 Broaches: 17 Bushings:	14mm-IV, 16mm-V, 18mm-V 44mm-IV, 45mm-IV, 46mm-IV, 48mm-IV, 50mm-IV, 52mm-V, 54mm-V, 55mm-V, 56mm-V, 58mm-V, 60mm-V, 62mm-V, 64mm-V, 65mm-V, 66mm-V, 68mm-V, 70mm-V 29 Keyway Combinations	15230	182040	**3,465.93**

STM



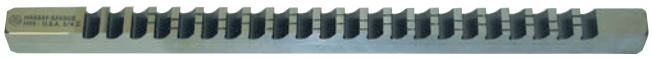
Arbor Presses

See Page H19

Keyway Broaches — Inch

Hassay Savage

- Specialty tools designed for cutting keyways in machined holes
- Typically used manually with an arbor press or hydraulic press to produce the keyways
- Well suited for use in a variety of ferrous and non-ferrous materials



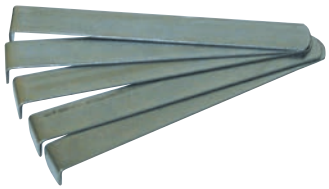
HSS

Broach	Keyway Width Tol.	Dim.	No. Shims	Cut Length Min/Max	Hassay EDP No.	Code No.	Price $
1/16-I (A)	0.0625-0.0635	1/8 x5-1/4	0	13/64–1-1/8	10104	182070	**108.89**
3/32-I (A)	0.0937-0.0947	1/8 x 5-1/4	0	13/64–1-1/8	10106	182072	**108.89**
1/8-I (A)	0.1252-0.1262	1/8 x 5-1/4	1	13/64–1-1/8	10108	182074	**108.89**
3/32-II (B)	0.0937-0.0947	3/16 x 7	0	19/64–1-11/16	10206	182076	**129.41**
1/8-II (B)	0.1252-0.1262	3/16 x 7	1	19/64–1-11/16	10208	182078	**129.41**
5/32-II (B)	0.1564-0.1574	3/16 x 7	1	19/64–1-11/16	10210	182080	**129.41**
3/16-II (B)	0.1877-0.1887	3/16 x 7	1	19/64–1-11/16	10212	182082	**129.41**
3/16-III (C)	0.1877-0.1887	3/8 x 11-7/8	1	13/32–2-1/2	10312	182084	**163.15**
1/4-III (C)	0.2502-0.2512	3/8 x 11-7/8	1	13/32–2-1/2	10316	182086	**163.15**
5/16-III (C)	0.3127-0.3137	3/8 x 11-7/8	1	13/32–2-1/2	10320	182088	**163.15**
3/8-III (C)	0.3755-0.3765	3/8 x 11-7/8	2	13/32–2-1/2	10324	182090	**163.15**
5/16-IV (D)	0.3127-0.3137	9/16 x 13-7/8	1	3/4–6	10420	182092	**249.45**
3/8-IV (D)	0.3755-0.3765	9/15 x 13-7/8	2	3/4–6	10424	182094	**249.45**
7/16-IV (D)	0.4380-0.4390	9/16 x 13-7/8	2	3/4–6	10428	182096	**249.45**
1/2-IV (D)	0.5006-0.5016	9/16 x 13-7/8	3	3/4–6	10432	182098	**249.45**
9/16-IV (D)	0.5630-0.5640	9/16 x 13-7/8	3	3/4–6	10436	182100	**249.45**
5/8-V (E)	0.6260-0.6270	3/4 x 15-1/4	4	3/4–6	10540	182102	**416.35**
3/4-V (E)	0.7515-0.7525	3/4 x 15-1/4	5	3/4–6	10548	182104	**416.35**
7/8-VI (F)	0.8765-0.8775	1 x 19-1/4	6	3/4–6	10656	182106	**857.16**
1-VI (F)	1.0015-1.0025	1 x 19-1/4	7	3/4–6	10664	182108	**857.16**
1-1/8	1.1260-1.1270	1-1/8 x 23	8	3/4–6	10666	182110	**2,040.43**
1-1/4	1.2510-1.2520	1-1/4 x 23	9	3/4–6	10668	182112	**2,280.43**
1-3/8	1.3760-1.3770	1-3/8 x 23	10	3/4–6	10670	182114	**2,574.86**
1-1/2	1.5020-1.5030	1-1/2 x 23	11	3/4–6	10672	182116	**2,972.47**

Shim Sets For Keyway Broaches — Inch

Hassay Savage

NOTE:
Extra shims are available in sets. Please refer to the column Shims Required in the broach chart. Note that shims correspond to broach size, not the bushing type.



Size	Thickness	Length x Width	Hassay EDP No.	Set Size	Code No.	Price $
1/8-I (A)	0.031	1-3/8 x 1/8	30108	1	182140	**7.85**
1/8-II (B)	0.031	1-7/8 x 3/16	30208	1	182142	**7.85**
5/32-II (B)	0.042	1-7/8 x 3/16	30210	1	182144	**7.85**
3/16-II (B)	0.050	1-7/8 x 3/16	30212	1	182146	**7.85**
3/16-III (C)	0.050	2-7/8 x 3/8	30312	1	182148	**7.85**
1/4-III (C)	0.062	2-7/8 x 3/8	30316	1	182150	**7.85**
5/16-III (C)	0.078	2-7/8 x 3/8	30320	2	182152	**15.53**
3/8-III (C)	0.062	2-7/8 x 3/8	30324	2	182154	**15.53**
5/16-IV (D)	0.078	6-1/4 x 9/16	30420	2	182156	**21.33**
3/8-IV (D)	0.062	6-1/4 x 9/16	30424	2	182158	**21.33**
7/16-IV (D)	0.075	6-1/4 x 9/16	30428	3	182160	**33.02**
1/2-IV (D)	0.062	6-1/4 x 9/16	30432	3	182162	**33.02**
5/8-V (E)	0.062	6-3/4 x 3/4	30540	4	182164	**44.45**
3/4-V (E)	0.062	6-3/4 x 3/4	30548	5	182166	**54.17**
7/8-VI (F)	0.062	6-3/4 x 3/4	30656	6	182168	**77.20**
1-VI (F)	0.062	6-3/4 x 3/4	30664	7	182170	**90.86**
1-1/8	0.062	7 x 1-1/8	30740	8	182172	**102.37**
1-1/4	0.062	7 x 1-1/8	30750	9	182174	**233.75**

Collared & Plain Bushings — Inch

Hassay Savage

- Used in conjunction with keyway broaches and shims to cut the keyway
- Used manually with an arbor press or hydraulic press and broaches to produce the keyways
- Straight precision slot acts as a guide for the broach

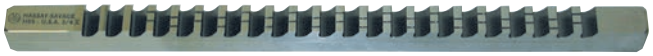


Diameter	Length	Hassay EDP No.	Code No.	Price $
I (A) Collared Bushings				
1/4	1-1/8	20116	182180	**30.88**
5/16	1-1/8	20120	182182	**30.88**
3/8	1-1/8	20124	182184	**30.88**
7/16	1-1/8	20128	182186	**22.22**
1/2	1-1/8	20132	182188	**30.88**
II (B) Collared Bushings				
1/2	1-11/16	20232	182190	**27.22**
9/16	1-11/16	20236	182192	**27.22**
5/8	1-11/16	20240	182194	**27.22**
11/16	1-11/16	20244	182196	**19.55**
3/4	1-11/16	20248	182198	**27.22**
13/16	1-11/16	20252	182200	**19.55**
7/8	1-11/16	20256	182202	**27.22**
III (C) Collared Bushings				
3/4	2-1/2	20348	182204	**34.90**
13/16	2-1/2	20352	182206	**34.90**
7/8	2-1/2	20356	182208	**34.90**
15/16	2-1/2	20360	182210	**34.90**
1	2-1/2	20364	182212	**34.90**
1-1/16	2-1/2	20368	182214	**34.90**
1-1/8	2-1/2	20372	182216	**38.65**
1-3/16	2-1/2	20376	182218	**40.70**
1-1/4	2-1/2	20380	182220	**40.70**
1-5/16	2-1/2	20384	182224	**31.51**
1-3/8	2-1/2	20388	182226	**40.70**
1-7/16	2-1/2	20392	182228	**40.70**
1-1/2	2-1/2	20396	182230	**40.70**
1-9/16	2-1/2	20400	182232	**40.70**
IV (D) Plain Bushings				
1-7/16	4	21492	182238	**38.02**
1-1/2	4	21496	182240	**42.57**
1-9/16	4	21500	182242	**44.45**
1-5/8	4	21504	182246	**44.45**
1-11/16	4	21508	182248	**45.87**
1-3/4	4	21512	182250	**57.92**
1-13/16	5	21516	182252	**45.87**
1-7/8	5	21520	182254	**59.98**
1-15/16	5	21524	182256	**61.85**
2	5	21528	182258	**61.85**
2-1/16	5	21532	182260	**48.20**
2-1/8	5	21536	182262	**61.85**
2-3/16	5	21540	182264	**63.72**
2-1/4	5	21544	182266	**81.13**
2-5/16	5	21548	182268	**64.35**
2-3/8	6	21552	182270	**85.06**
2-7/16	6	21556	182272	**81.04**
2-1/2	6	21560	182274	**81.84**
2-9/16	6	21564	182276	**110.22**
2-5/8	6	21568	182278	**110.22**
2-11/16	6	21572	182280	**81.84**
2-3/4	6	21576	182282	**110.22**
2-13/16	6	21580	182284	**110.22**
2-7/8	6	21584	182286	**110.22**
2-15/16	6	21588	182288	**112.10**
3	6	21592	182290	**112.10**
V (E) Plain Bushings				
2-5/16	6	21688	182292	**94.69**
2-3/8	6	21692	182294	**94.69**
2-7/16	6	21696	182296	**96.57**
2-1/2	6	21700	182298	**96.57**
2-9/16	6	21704	182300	**115.85**
2-5/8	6	21708	182302	**115.85**
2-11/16	6	21712	182306	**115.85**
2-3/4	6	21716	182308	**115.85**
2-13/16	6	21720	182310	**119.77**
2-7/8	6	21724	182312	**119.77**
2-15/16	6	21728	182314	**87.91**
3	6	21732	182316	**119.77**

Keyway Broaches — Metric

Hassay Savage

- Specialty tools designed for cutting keyways in machined holes
- Typically used manually with an arbor press or hydraulic press to produce the keyways
- Well suited for use in a variety of ferrous and non-ferrous materials



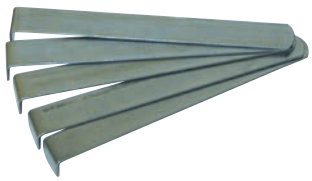
HSS

Broach	Keyway Width Tol.	Dim.	No. Shims	Cut Length Min/Max	Hassay EDP No.	Code No.	Price $
2mm-I (A)	0.0787-0.0792	1/8 x 5-1/4	0	13/64-1-1/8	11102	182318	**108.89**
3mm-I (A)	0.1181-0.1186	1/8 x 5-1/4	1	13/64-1-1/8	11103	182320	**108.89**
4mm-II (B)	0.1575-0.1580	1/4 x 7	1	19/64-1-11/16	11204	182322	**129.41**
5mm-II (B)	0.1968-0.1973	1/4 x 7	1	19/64-1-11/16	11205	182324	**129.41**
5mm-III (C)	0.1968-0.1973	3/8 x 11-7/8	1	13/32-2-1/2	11305	182326	**163.33**
6mm-III (C)	0.2362-0.2367	3/8 x 11-7/8	1	13/32-2-1/2	11306	182328	**163.33**
7mm-III (C)	0.2756-0.2761	3/8 x 11-7/8	1	13/32-2-1/2	11307	182330	**163.33**
8mm-III (C)	0.3150-0.3155	3/8 x 11-7/8	1	13/32-2-1/2	11308	182332	**163.33**
10mm-IV (D)	0.3937-0.3942	9/16 x 13-7/8	2	3/4-6	11410	182334	**249.45**
12mm-IV (D)	0.4724-0.4730	9/16 x 13-7/8	2	3/4-6	11412	182336	**249.45**
14mm-IV (D)	0.5512-0.5519	9/16 x 13-7/8	2	3/4-6	11414	182338	**249.45**
16mm-V (E)	0.6299-0.6306	3/4 x 15-1/4	3	3/4-6	11516	182340	**416.35**
18mm-V (E)	0.7087-0.7093	3/4 x 15-1/4	3	3/4-6	11518	182342	**416.35**
20mm-VI (F)	0.7874-0.7883	1 x 19-1/4	3	3/4-6	11620	182344	**857.16**
22mm-VI (F)	0.8661-0.8669	1 x 19-1/4	4	3/4-6	11622	182346	**857.16**
24mm-VI	0.9449-0.9458	1 x 19-1/4	4	3/4-6	11624	182348	**857.16**
25mm-VI	0.9842-0.9851	1 x 19-1/4	4	3/4-6	11625	182350	**857.16**
28mm	1.1030-1.1040	1-1/8 x 23	5	3/4-6	11628	182352	**2,190.46**
30mm	1.1817-1.1827	1-1/4 x 23	5	3/4-6	11630	182354	**2,475.44**
32mm	1.2605-1.2615	1-1/4 x 23	5	3/4-6	11632	182356	**2,494.18**
36mm	1.4180-1.4190	1-7/16 x 23	5	3/4-6	11636	182358	**3,022.90**

Shim Sets For Keyway Broaches — Metric

Hassay Savage

NOTE:
Extra shims are available in sets. Please refer to the column Shims Required in the broach chart. Note that shims correspond to broach size, not the bushing type.



Size	Length Thickness	Hassay x Width	EDP No.	Set Size	Code No.	Price $
3mm-I (A)	0.031	1-3/8 x 1/8	31103	1	182370	**7.50**
4mm-II (B)	0.038	1-7/8 x 1/4	31204	1	182372	**7.14**
5mm-II (B)	0.050	1-7/8 x 1/4	31205	1	182374	**7.14**
5mm-III (C)	0.047	2-7/8 x 3/8	31305	1	182376	**7.14**
6mm-III (C)	0.062	2-7/8 x 3/8	31306	1	182378	**7.14**
7mm-III (C)	0.062	2-7/8 x 3/8	31307	1	182380	**7.85**
8mm-III (C)	0.078	2-7/8 x 3/8	31308	2	182382	**14.82**
10mm-IV (D)	0.056	6-1/4 x 9/16	31410	2	182384	**18.39**
12mm-IV (D)	0.056	6-1/4 x 9/16	31412	2	182386	**18.39**
14mm-IV (D)	0.062	6-1/4 x 9/16	31414	2	182388	**18.39**
16mm-V (E)	0.062	6-3/4 x 3/4	31516	3	182390	**28.20**
18mm-V (E)	0.062	6-3/4 x 3/4	31518	3	182392	**28.20**
20mm-VI (F)	0.062	6-3/4 x 1	31620	3	182394	**36.77**
22mm-VI (F)	0.062	6-3/4 x 1	31622	4	182396	**44.63**
24mm-VI (F)	0.062	6-3/4 x 1	31624	5	182398	**55.87**
25mm-VI (F)	0.062	6-3/4 x 1	31625	4	182400	**44.63**
28mm	0.062	7 x 1	31628	5	182402	**55.87**
32mm	0.062	7 x 1-1/4	31632	5	182406	**113.70**

Collared & Plain Bushings — Metric

Hassay Savage

- Used in conjunction with keyway broaches and shims to cut the keyway
- Used manually with an arbor press or hydraulic press and broaches to produce the keyways
- Straight precision slot acts as a guide for the broach



Diameter (mm)	Diameter (in.)	Hassay EDP No.	Code No.	Price $
I (A) Collared Bushings				
6mm	0.2362	22106	182410	**24.92**
7mm	0.2756	22107	182412	**30.88**
8mm	0.3150	22108	182414	**28.74**
9mm	0.3543	22109	182416	**30.88**
10mm	0.3937	22110	182418	**30.88**
II (B) Collared Bushings				
11mm	0.4331	22211	182420	**30.88**
12mm	0.4724	22212	182422	**30.88**
13mm	0.5118	22213	182424	**30.88**
14mm	0.5512	22214	182426	**30.88**
15mm	0.5905	22215	182428	**24.74**
16mm	0.6299	22216	182430	**30.88**
17mm	0.6693	22217	182432	**33.02**
18mm	0.7087	22218	182434	**33.02**
19mm	0.7480	22219	182436	**33.02**
III (C) Collared Bushings				
17mm	0.6693	22317	182440	**36.77**
18mm	0.7087	22318	182442	**36.77**
19mm	0.7480	22319	182444	**36.77**
20mm	0.7874	22320	182446	**36.77**
22mm	0.8661	22322	182448	**36.77**
24mm	0.9449	22324	182450	**38.65**
25mm	0.9842	22325	182452	**38.65**
26mm	1.0236	22326	182454	**38.65**
27mm	1.0630	22327	182456	**38.65**
28mm	1.1024	22328	182458	**42.57**
30mm	1.1811	22330	182460	**42.57**
32mm	1.2598	22332	182462	**44.45**
34mm	1.3386	22334	182464	**44.45**
35mm	1.3779	22335	182466	**44.45**
36mm	1.4173	22336	182468	**44.45**
IV (D) Plain Bushings				
32mm	1.2598	22432	182451	**56.05**
34mm	1.3386	22434	182453	**56.05**
35mm	1.3779	22435	182455	**56.05**
36mm	1.4173	22436	182457	**56.05**
38mm	1.4961	22438	182459	**56.05**
40mm	1.5748	22440	182461	**61.85**
42mm	1.6535	22442	182463	**61.85**
44mm	1.7323	22444	182465	**61.85**
45mm	1.7716	22445	182467	**67.65**
46mm	1.8110	22446	182469	**67.65**
48mm	1.8898	22448	182470	**71.58**
50mm	1.9685	22450	182472	**71.58**
52mm	2.0472	22452	182474	**96.57**
54mm	2.1260	22454	182476	**96.57**
55mm	2.1653	22455	182478	**96.57**
56mm	2.2047	22456	182480	**96.57**
V (E) Plain Bushings				
52mm	2.0472	22552	182482	**119.77**
54mm	2.1260	22554	182484	**119.77**
55mm	2.1653	22555	182486	**121.65**
56mm	2.2047	22556	182488	**121.65**
58mm	2.2835	22558	182490	**121.65**
60mm	2.3622	22560	182492	**123.70**
62mm	2.4409	22562	182494	**123.70**
64mm	2.5197	22564	182496	**133.25**
65mm	2.5590	22565	182498	**133.25**
66mm	2.5984	22566	182500	**135.12**
68mm	2.6772	22568	182502	**135.12**
70mm	2.7559	22570	182504	**135.12**
72mm	2.8346	22572	182506	**135.12**

One Pass Keyway Broaches — Inch

Hassay Savage

* OP designates one-pass, no chamfer
** COP designates chamfer, one-pass



Broach	Keyway Width Tol.	Dim. (in.)	Cut Length Min/Max	Hassay EDP No.	Code No.	Price $
1/8-II	0.1252-0.1262	3/16 x 10-3/4	1/4-1-1/2	10208-OP	182120	**421.97**
5/32-II	0.1564-0.1574	3/16 x 10-3/4	1/4-1-1/2	10210-COP	182122	**421.97**
3/16-II	0.1877-0.1887	3/16 x 10-3/4	1/4-1-1/2	10212-OP	182124	**374.67**
1/4-III	0.2502-0.2512	3/8 x 18-1/2	5/16-1-11/16	10316-COP	182128	**432.15**
5/16-III	0.3127-0.3137	3/8 x 18-1/2	5/16-1-11/16	10320-COP	182130	**514.44**
3/8-III	0.3755-0.3765	3/8 x 18-1/2	5/16-1-11/16	10324-OP	182132	**446.16**

One Pass Keyway Broaches — Metric

Hassay Savage

* OP designates one-pass, no chamfer
** COP designates chamfer, one-pass



Broach	Keyway Width Tol.	Dim. (in.)	Cut Length Min/Max	Hassay EDP No.	Code No.	Price $
3mm-I	0.1185-0.1190	1/8 x 8-1/2	13/64-1-1/8	11103-OP	182360	**384.40**
4mm-II	0.1581-0.1585	1/4 x 10-3/4	1/4-1-1/2	11204-COP	182362	**422.51**
5mm-II	0.1975-0.1979	1/4 x 10-3/4	1/4-1-1/2	11205-COP	182364	**422.51**
6mm-III	0.2372-0.2376	3/8 x 18-1/2	5/16-1-11/16	11306-COP	182366	**509.62**
8mm-III	0.3159-0.3163	3/8 x 18-1/2	5/16-1-11/16	11308-COP	182368	**536.93**

Square Broaches

Hassay Savage

- Used to machine internal and external surfaces, such as holes, keyways, and teeth of internal gears
- Designed to be used manually with an arbor press to produce the square holes
- Well suited for use in a variety of ferrous and non-ferrous materials
- Each tooth is progressively larger and each cuts slightly deeper than the tooth before





HSS

Square Size	Keyway Width Tol.	Broach Length	Pilot Diameter	Drill Size	Min/Max	Hassay EDP No.	Code No.	Price $
Inch								
1/8	0.1250-0.1260	4-5/8	0.1280	No. 30	3/16–1/2	13008	182510	**237.49**
5/32	0.1565-0.1575	5-5/8	0.1585	No. 21	1/4–1/2	13010	182512	**270.25**
3/16	0.1880-0.1890	5-11/16	0.1930	No. 10	1/4–5/8	13012	182514	**239.55**
7/32	0.2190-0.2200	6-7/8	0.2275	No. 1	1/4–3/4	13014	182516	**270.25**
1/4	0.2505-0.2515	7	0.2651	17/64	1/4–3/4	13016	182518	**237.49**
9/32	0.2815-0.2825	7-1/4	19/64	19/64	3/8–1	13018	182520	**295.42**
5/16	0.3130-0.3140	8-1/8	21/64	21/64	3/8–1	13020	182522	**241.42**
11/32	0.3440-0.3450	9-5/8	23/64	23/64	3/8–1-1/4	13022	182524	**388.15**
3/8	0.3755-0.3765	9-7/8	25/64	25/64	3/8–1-1/4	13024	182526	**310.95**
13/32	0.4065-0.4075	10-7/8	27/64	27/64	1/2–1-3/8	13026	182528	**463.30**
7/16	0.4385-0.4395	11-3/8	29/64	29/64	1/2–1-3/8	13028	182530	**393.95**
15/32	0.4690-0.4700	12-1/2	1/2	1/2	1/2–1-3/8	13030	182532	**610.02**
1/2	0.5005-0.5015	12-5/8	17/32	17/32	1/2–1-3/8	13032	182534	**453.75**
9/16	0.5630-0.5640	14-7/8	19/32	19/32	1/2–1-1/2	13036	182536	**584.94**
5/8	0.6260-0.6270	16-13/16	21/32	21/32	5/8–1-5/8	13040	182538	**685.44**
11/16	0.6885-0.6895	18-1/2	3/4	3/4	5/8–1-5/8	13044	182540	**795.40**
3/4	0.7510-0.7520	18-7/8	13/16	13/16	5/8–1-5/8	13048	182544	**922.85**
7/8	0.8765-0.8775	22-3/4	15/16	15/16	5/8–2	13056	182546	**1,332.06**
1	1.0020-1.0030	24-1/2	1-3/32	1-3/32	5/8–2	13064	182548	**1,420.86**
Metric								
4mm	0.1580-0.1585	5-9/16	0.1655	4.2	5/16-5/8	17001	182560	**283.90**
5mm	0.1973-0.1983	6-7/8	0.2047	5.2	3/8-3/4	17002	182562	**353.34**
6mm	0.2367-0.2377	7	0.2500	6.35	3/8-3/4	17003	182564	**353.34**
8mm	0.3155-0.3165	8-3/16	0.3267	8.3	7/16-7/8	17004	182566	**357.27**
10mm	0.3942-0.3952	10-7/8	0.4057	10.3	1/2-1	17005	182568	**409.30**
12mm	0.4729-0.4739	12-1/2	0.4921	12.5	5/8-1-1/4	17006	182570	**604.22**
14mm	0.5517-0.5527	14-7/8	0.5905	15.0	3/4-1-1/2	17007	182572	**725.87**
16mm	0.6310-0.6320	16-13/16	0.6693	17.0	7/8-1-3/4	17008	182574	**845.64**
18mm	0.7092-0.7102	18-1/2	0.7874	20.0	7/8-1-3/4	17009	182576	**1,121.69**
20mm	0.7879-0.7889	18-7/8	0.8661	22.0	7/8-1-3/4	17010	182578	**1,415.06**
22mm	0.8666-0.8676	23-1/4	0.9448	24.0	7/8-1-3/4	17011	182580	**1,482.71**
24mm	0.9454-0.9464	24-9/16	1.0236	26.0	7/8-1-3/4	17012	182582	**1,675.76**
25mm	0.9848-0.9858	24-9/16	1.0630	27.0	7/8-1-3/4	17013	182584	**1,683.43**

Full Square Broaches — Inch

Hassay Savage

- Used to machine internal and external surfaces, such as holes, keyways, and teeth of internal gears
- Designed to be used manually with an arbor press to produce the square holes
- Well suited for use in a variety of ferrous and non-ferrous materials





HSS

Square Size	Tol.	Broach Length	Pilot Dia.	Cut Length Min/Max	Hassay EDP No.	Code No.	Price $
3/16	0.1880 - 0.1890	6-1/4	0.1870	3/16-1/2	14012	182550	**323.35**
1/4	0.2505 - 0.2515	8-5/8	0.2495	1/4-5/8	14016	182552	**323.35**
5/16	0.3130 - 0.3140	10-1/4	0.3120	1/4-3/4	14020	182554	**342.10**
3/8	0.3755 - 0.3765	12-1/4	0.3745	3/8-1	14024	182556	**422.87**
1/2	0.5005 - 0.5015	14-7/16	0.4995	3/8-1	14032	182558	**618.50**

Hexagon Broaches

Hassay Savage

- For cutting hexagonal shaped holes in round machined holes
- Designed to be used manually with an arbor press or hydraulic press
- Well suited for use in a variety of ferrous and non-ferrous materials





HSS

Hex Broach	Tol.	Broach Length	Pilot Dia.	Cut Length Min/Max	Hassay EDP No.	Code No.	Price $
Inch							
1/8	0.1255 - 0.1260	4-5/8	0.1245	3/16-3/8	12008	182590	**272.30**
5/32	0.1565 - 0.1570	5-1/2	0.1557	1/4-1/2	12010	182594	**314.16**
3/16	0.1880 - 0.1890	5-9/16	0.1870	1/4-5/8	12012	182596	**289.53**
7/32	0.2190 - 0.2200	6	0.2182	1/4-3/4	12014	182598	**345.58**
1/4	0.2505 - 0.2515	6-1/2	0.2495	1/4-3/4	12016	182600	**289.53**
9/32	0.2815 - 0.2825	7-3/4	0.2807	3/8-1	12018	182602	**363.25**
5/16	0.3130 - 0.3140	8-1/4	0.3120	3/8-1	12020	182604	**303.27**
11/32	0.3440 - 0.3450	8-1/4	0.3432	3/8-1-1/4	12022	182606	**443.84**
3/8	0.3755 - 0.3765	9	0.3745	3/8-1-1/4	12024	182608	**360.03**
13/32	0.4065 - 0.4075	10	0.4057	1/2-1-3/8	12026	182610	**536.57**
7/16	0.4385 - 0.4395	10-3/4	0.4370	1/2-1-3/8	12028	182612	**453.75**
15/32	0.4690 - 0.4700	12-3/8	0.4682	1/2-1-3/8	12030	182614	**647.51**
1/2	0.5005 - 0.5015	12-1/2	0.4995	1/2-1-3/8	12032	182616	**529.07**
9/16	0.5630 - 0.5640	14-1/4	0.5620	1/2-1-1/2	12036	182618	**647.15**
5/8	0.6260 - 0.6270	16-7/8	0.6245	5/8-1-5/8	12040	182620	**600.92**
11/16	0.6880 - 0.6890	17	0.6870	5/8-1-5/8	12044	182622	**662.15**
3/4	0.7510 - 0.7520	17-7/8	0.7495	5/8-1-5/8	12048	182624	**866.44**
7/8	0.8755 - 0.8765	18-7/8	0.8745	5/8-1-5/8	12056	182626	**1,362.22**
1	1.0020 - 1.0030	19-7/8	0.9995	5/8-1-5/8	12064	182628	**1,428.54**
Metric							
4mm	0.1580-0.1585	5-1/2	0.1575	1/4-1/2	12104	182640	**659.38**
5mm	0.1973-0.1983	6	0.1968	1/4-3/4	12105	182642	**690.88**
6mm	0.2367-0.2377	6-1/2	0.2362	1/4-3/4	12106	182644	**719.71**
7mm	0.2760-0.2770	7-3/4	0.2756	3/8-1	12107	182646	**818.69**
8mm	0.3155-0.3165	8-1/4	0.3150	3/8-1	12108	182648	**816.46**
10mm	0.3942-0.3952	10	0.3937	1/2-1-3/8	12110	182650	**1,014.50**
12mm	0.4729-0.4739	12-3/8	0.4724	1/2-1-3/8	12112	182652	**1,064.04**
14mm	0.55170.5527	14-1/4	0.5512	1/2-1-1/2	12114	182654	**1,275.38**
16mm	0.6310-0.6320	16-7/8	0.6290	5/8-1-5/8	12116	182656	**1,405.87**
18mm	0.7092-0.7102	17	0.7087	5/8-1-5/8	12118	182658	**1,696.02**
20mm	0.7879-0.7889	17-7/8	0.7874	5/8-1-5/8	12120	182660	**1,860.59**
22mm	0.8666-0.8676	18-7/8	0.8661	5/8-1-5/8	12122	182662	**1,915.31**
24mm	0.9454-0.9464	19-7/8	0.9449	5/8-1-5/8	12124	182664	**2,057.21**
25mm	0.9848-0.9858	19-7/8	0.9842	5/8-1-5/8	12125	182666	**2,070.69**

Keyseating Broaches

Hassay Savage

- Side relief eliminates drag in multiple-pass broaching
- Precision grinding of the rake face insures consistent performance and free cutting action after several sharpenings
- An undercut pilot allows easier entry on each pass



Broach Size	Keyway Width Tol.	Dim. WxHxL	Cut Length Min/Max	Hassay EDP No.	Code No.	Price $
Inch						
1/16	0.0625-0.0635	3/16 x 3/8 x 16	5/8-1-7/8	10701	182670	**390.02**
3/32	0.0937-0.0947	3/16 x 3/8 x 16	5/8-1-7/8	10702	182672	**390.02**
1/8	0.1252-0.1262	3/16 x 7/16 x 16	5/8-1-7/8	10703	182674	**390.02**
5/32	0.1564-0.1574	3/16 x 1/2 x 16	5/8-1-7/8	10704	182676	**390.02**
3/16	0.1877-0.1887	3/16 x 9/16 x 16	5/8-1-7/8	10705	182678	**409.30**
3/16	0.1877-0.1887	3/16 x 3/4 x 20	5/8-3-1/8	10706	182680	**427.51**
1/4	0.2502-0.2512	1/4 x 3/4 x 16	5/8-1-5/8	10707	182682	**438.40**
1/4	0.2502-0.2512	1/4 x 3/4 x 20	5/8-3-1/8	10708	182684	**494.27**
5/16	0.3127-0.3137	5/16 x 7/8 x 16	1-1/16-3-3/16	10709	182686	**461.42**
5/16	0.3127-0.3137	5/16 x 7/8 x 20	1-1/16-5-3/16	10710	182688	**515.60**
3/8	0.3755-0.3765	3/8 x 7/8 x 16	1-1/16-3-3/16	10711	182690	**484.72**
3/8	0.3755-0.3765	3/8 x 7/8 x 20	1-1/16-5-5/16	10712	182692	**563.79**
7/16	0.4380-0.4390	7/16 x 1 x 16	1-1/16-3-3/16	10713	182694	**541.12**
7/16	0.4380-0.4390	7/16 x 1 x 20	1-1/16-5-3/16	10714	182696	**588.87**
1/2	0.5006-0.5016	1/2 x 1 x 20	1-1/16-5-3/16	10715	182698	**604.22**
9/16	0.5630-0.5640	9/16 x 1 x 20	1-1/16-5-3/16	10716	182700	**652.60**
5/8	0.6260-0.6270	5/8 x 1 x 20	1-1/16-5-3/16	10717	182702	**666.07**
3/4	0.7515-0.7525	3/4 x 1 x 20	1-1/16-5-3/16	10718	182704	**725.87**
7/8	0.8765-0.8775	7/8 x 1 x 20	1-1/16-5-3/16	10719	182706	**863.05**
1	1.0015-1.0025	1 x 1 x 20	1-1/16-5-3/16	10720	182708	**897.77**
Metric						
2mm	0.0787-0.0792	3/16 x 3/8 x 16	5/8-1-7/8	11701	182710	**426.79**
3mm	0.1181-0.1186	3/16 x 7/16 x 16	5/8-1-7/8	11702	182712	**426.79**
4mm	0.1575-0.1580	3/16 x 1/2 x 16	5/8-1-7/8	11703	182714	**432.59**
5mm	0.1968-0.1973	5mm x 9/16 x 16	5/8-1-7/8	11704	182716	**432.59**
5mm	0.1968-0.1973	5mm x 3/4 x 20	5/8-3-1/8	11705	182718	**453.75**
6mm	0.2362-0.2367	6mm x 3/16 x 16	5/8-1-7/8	11706	182720	**453.75**
6mm	0.2362-0.2367	6mm x 3/4 x 20	5/8-3-1/8	11707	182722	**507.74**
8mm	0.3150-0.3155	8mm x 7/8 x 20	1-1/16-3-3/16	11708	182724	**474.90**
8mm	0.3150-0.3155	8mm x 7/8 x 20	1-1/16-5-5/16	11709	182726	**552.19**
10mm	0.3937-0.3942	10mm x 7/8 x 16	1-1/16-5-5/16	11710	182728	**525.50**
10mm	0.3937-0.3942	10mm x 7/8 x 20	1-1/16-5-5/16	11711	182730	**604.22**
12mm	0.4724-0.4730	12mm x 1 x 20	1-1/16-5-5/16	11712	182732	**675.62**
14mm	0.5512-0.5519	14mm x 1 x 20	1-1/16-5-5/16	11713	182734	**724.00**
16mm	0.6299-0.6306	16mm x 1 x 20	1-1/16-5-5/16	11714	182736	**783.79**
18mm	0.7087-0.7093	18mm x 1 x 20	1-1/16-5-5/16	11715	182738	**847.52**
20mm	0.7874-0.7883	20mm x 1 x 20	1-1/16-5-5/16	11716	182740	**915.17**
22mm	0.8661-0.8669	22mm x 1 x 20	1-1/16-5-5/16	11717	182742	**973.09**
24mm	0.9449-0.9458	24mm x 1 x 20	1-1/16-5-5/16	11718	182744	**1,042.44**
25mm	0.9843-0.9853	25mm x 1 x 20	1-1/16-5-5/16	11719	182746	**1,069.66**

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Hex Rotary/Punch Broaches

- For cutting mild steel applications



Hassay Savage

HSS-M2

With 0.315" Shank — Inch

Hex Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
0.051	5/64	1-1/4	66002	182750	**109.24**
1/16	3/32	1-1/4	66004	182752	**109.24**
5/64	7/64	1-1/4	66005	182754	**109.24**
3/32	9/64	1-1/4	66006	182756	**109.24**
7/64	5/32	1-1/4	66007	182758	**109.24**
1/8	3/16	1-1/4	66008	182760	**109.24**
9/64	7/32	1-1/4	66009	182762	**109.24**
5/32	1/4	1-1/4	66010	182764	**109.24**
3/16	9/32	1-1/4	66012	182766	**109.24**
7/32	11/32	1-1/4	66014	182768	**109.24**
1/4	3/8	1-1/4	66016	182770	**109.24**
9/32	3/8	1-1/4	66018	182772	**144.23**
5/16	3/8	1-1/4	66020	182774	**144.23**
11/32	7/16	1-1/4	66022	182776	**144.23**
3/8	1/2	1-1/4	66024	182778	**150.21**
13/32	1/2	1-1/4	66026	182780	**150.21**
7/16	1/2	1-1/4	66028	182782	**150.21**
15/32	1/2	1-1/4	66030	182784	**150.21**
1/2	1/2	1-1/4	66032	182786	**150.21**

With 0.315" Shank — Metric

Hex Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
1.3mm	3/32	1-1/4	662013	182790	**109.24**
1.5mm	3/32	1-1/4	662015	182791	**109.24**
2mm	7/64	1-1/4	66202	182792	**109.24**
2.5mm	5/32	1-1/4	662025	182794	**109.24**
3mm	3/16	1-1/4	66203	182796	**109.24**
4mm	1/4	1-1/4	66204	182798	**109.24**
5mm	5/16	1-1/4	66205	182800	**109.24**
6mm	3/8	1-1/4	66206	182802	**109.24**
7mm	3/8	1-1/2	66207	182804	**148.60**
8mm	3/8	1-1/2	66208	182806	**148.60**
9mm	3/8	1-1/2	66209	182808	**148.60**
10mm	1/2	1-1/2	66210	182810	**148.60**
11mm	1/2	1-1/2	66211	182812	**148.60**
12mm	1/2	1-1/2	66212	182814	**148.60**

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With 0.500" Shank — Inch

Hex Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
3/32	9/64	1-3/4	66106	182820	**128.34**
7/64	5/32	1-3/4	66107	182824	**128.34**
1/8	3/16	1-3/4	66108	182826	**128.34**
9/64	7/32	1-3/4	66109	182828	**128.34**
5/32	1/4	1-3/4	66110	182830	**128.34**
3/16	9/32	1-3/4	66112	182832	**128.34**
7/32	9/32	1-3/4	66114	182834	**128.34**
1/4	3/8	1-3/4	66116	182836	**128.34**
9/32	7/16	1-3/4	66118	182838	**128.34**
5/16	1/2	1-3/4	66120	182840	**128.34**
3/8	9/16	1-3/4	66124	182844	**128.34**
7/16	5/8	1-3/4	66128	182848	**170.82**
15/32	5/8	1-3/4	66130	182850	**170.82**
1/2	5/8	1-3/4	66132	182852	**170.82**
9/16	5/8	1-3/4	66136	182856	**175.73**
5/8	3/4	1-3/4	66140	182860	**179.93**
11/16	7/8	1-3/4	66144	182864	**185.55**
3/4	7/8	1-3/4	66148	182868	**189.21**

With 0.500" Shank — Metric

Hex Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
2mm	5/32	1-1/2	66302	182870	**128.34**
2.5mm	5/32	1-1/2	663025	182872	**128.52**
3mm	3/16	1-1/2	66303	182874	**128.34**
4mm	1/4	1-1/2	66304	182876	**128.34**
5mm	5/16	1-1/2	66305	182878	**128.34**
6mm	3/8	1-1/2	66306	182880	**128.34**
7mm	1/2	1-1/2	66307	182882	**128.34**
8mm	1/2	1-1/2	66308	182884	**128.34**
9mm	1/2	1-1/2	66309	182886	**128.34**
10mm	9/16	1-1/2	66310	182888	**128.34**
11mm	9/16	2	66311	182890	**153.24**
12mm	5/8	2	66312	182892	**170.82**
13mm	5/8	2	66313	182894	**170.82**
14mm	5/8	2	66314	182896	**175.73**
15mm	5/8	2	66315	182898	**175.73**
16mm	5/8	2	66316	182900	**179.93**
17mm	7/8	2	66317	182902	**179.93**
18mm	7/8	2	66318	182904	**189.21**
19mm	7/8	2	66319	182906	**189.21**

With 0.750" Shank — Inch

Hex Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
3/8	1/2	2-1/2	66524	182908	**170.82**
7/16	1/2	2-1/2	66528	182910	**170.82**
1/2	1/2	2-1/2	66532	182912	**170.82**
9/16	3/4	2-1/2	66536	182914	**236.87**
5/8	3/4	2-1/2	66540	182916	**236.87**
3/4	7/8	2-3/4	66548	182918	**249.81**
7/8	7/8	2-3/4	66556	182920	**249.81**
1	7/8	2-3/4	66564	182922	**268.02**

Hex Rotary/Punch Broaches — M42 Cobalt

Hassay Savage

- Provides edge toughness for standard operations, and resists heat to better effect tool life in machining most metals
- For broaching materials such as ductile iron, tool steel, stainless steels, titanium alloys. This superior grade of HSS provides significantly longer tool life with these more difficult to machine alloys.



M42 HSS COBALT

With 0.315" Shank — Inch

Square Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
1/16	3/32	1-1/4	66004-M42	182213	**134.95**
5/64	7/64	1-1/4	66005-M42	182215	**134.95**
3/32	9/64	1-1/4	66006-M42	182217	**134.95**
7/64	5/32	1-1/4	66007-M42	182219	**134.95**
1/8	3/16	1-1/4	66008-M42	182221	**134.95**
9/64	7/32	1-1/4	66009-M42	182223	**134.95**
5/32	1/4	1-1/4	66010-M42	182225	**134.95**
3/16	9/32	1-1/4	66012-M42	182227	**134.95**
7/32	11/32	1-1/4	66014-M42	182229	**134.95**
1/4	3/8	1-1/4	66016-M42	182231	**134.95**
9/32	3/8	1-1/4	66018-M42	182233	**146.73**
5/16	3/8	1-1/4	66020-M42	182235	**146.73**
11/32	7/16	1-1/4	66022-M42	182237	**146.73**
3/8	1/2	1-1/4	66024-M42	182239	**146.73**

With 0.315" Shank — Metric

Square Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
2mm	7/64	1-1/4	66202-M42	182241	**134.95**
2.5mm	5/32	1-1/4	662025-M42	182243	**134.95**
3mm	3/16	1-1/4	66203-M42	182245	**134.95**
3.5mm	3/16	1-1/4	662035-M42	182247	**134.95**
4mm	1/4	1-1/4	66204-M42	182249	**134.95**
4.5mm	1/4	1-1/4	662045-M42	182251	**134.95**

With 0.500" Shank — Inch

Hex Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
3/32	9/64	1-3/4	66106-M42	182253	**167.70**
7/64	5/32	1-3/4	66107-M42	182255	**167.70**
1/8	3/16	1-3/4	66108-M42	182257	**167.70**
9/64	7/32	1-3/4	66109-M42	182259	**167.70**
5/32	1/4	1-3/4	66110-M42	182261	**167.70**
3/16	9/32	1-3/4	66112-M42	182263	**167.70**
7/32	9/32	1-3/4	66114-M42	182265	**167.70**
1/4	3/8	1-3/4	66116-M42	182267	**167.70**
9/32	7/16	1-3/4	66118-M42	182269	**167.70**
5/16	1/2	1-3/4	66120-M42	182271	**167.70**
11/32	9/16	1-3/4	66122-M42	182273	**167.70**
3/8	9/16	1-3/4	66124-M42	182275	**167.70**

Square Rotary/ Punch Broaches

Hassay Savage

- For cutting mild steel applications



HSS-M2

With 0.315" Shank — Inch

Square Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
1/16	1/8	1-1/4	68004	182930	**109.24**
3/32	9/64	1-1/4	68006	182932	**109.24**
1/8	3/16	1-1/4	68008	182934	**109.24**
5/32	1/4	1-1/4	68010	182936	**109.24**
3/16	9/32	1-1/4	68012	182938	**109.24**
7/32	11/32	1-1/4	68014	182940	**109.24**
1/4	3/8	1-1/2	68016	182942	**148.42**
9/32	3/8	1-1/2	68018	182944	**148.42**
5/16	3/8	1-1/2	68020	182946	**148.42**
11/32	3/8	1-1/2	68022	182948	**150.74**
3/8	3/8	1-1/2	68024	182950	**150.74**

With 0.315" Shank — Metric

Square Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
1.5mm	3/32	1-1/4	682015	182277	**109.24**
2mm	7/64	1-1/4	68202	182279	**109.24**
2.5mm	5/32	1-1/4	682025	182281	**109.24**
3mm	3/16	1-1/4	68203	182283	**109.24**
3.5mm	3/16	1-1/4	682035	182285	**109.24**
4mm	1/4	1-1/4	68204	182287	**109.24**
4.5mm	1/4	1-1/4	662045	182289	**109.24**
5mm	5/16	1-1/4	68205	182291	**109.24**
6mm	3/8	1-1/4	68206	182293	**109.24**
7mm	3/8	1-1/4	68207	182295	**148.60**
8mm	3/8	1-1/4	68208	182297	**148.60**
9mm	3/8	1-1/4	68209	182299	**148.60**
10mm	1/2	1-1/4	68210	182301	**148.60**

With 0.500" Shank — Inch

Square Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
3/32	9/64	1-1/2	68106	182960	**128.52**
1/8	3/16	1-1/2	68108	182962	**128.52**
5/32	1/4	1-1/2	68110	182964	**128.52**
3/16	9/32	1-1/2	68112	182966	**128.52**
7/32	11/32	1-1/2	68114	182968	**128.52**
1/4	3/8	1-1/2	68116	182970	**128.52**
9/32	7/16	1-1/2	68118	182972	**128.52**
5/16	1/2	1-1/2	68120	182974	**128.52**
11/32	9/16	1-1/2	68122	182976	**180.29**
3/8	5/8	2	68124	182978	**180.29**
7/16	5/8	2	68128	182980	**180.29**
1/2	5/8	2	68132	182982	**180.29**
9/16	3/4	2	68136	182984	**189.21**
5/8	7/8	2	68140	182986	**189.21**

With 0.500" Shank — Metric

Square Size	Depth of Cut	Overall Length	Hassay EDP No.	Code No.	Price $
1.5mm	3/32	1-3/4	683015	182303	**128.52**
2mm	7/64	1-3/4	68302	182305	**128.52**
2.5mm	5/32	1-3/4	683025	182307	**128.52**
3mm	3/16	1-3/4	68303	182309	**128.52**
3.5mm	3/16	1-3/4	683035	182311	**128.52**
4mm	1/4	1-3/4	68304	182313	**128.52**
4.5mm	1/4	1-3/4	683045	182315	**128.52**
5mm	5/16	1-3/4	68305	182317	**128.52**
6mm	3/8	1-3/4	68306	182319	**128.52**
7mm	3/8	1-3/4	68307	182321	**128.52**
8mm	3/8	1-3/4	68308	182323	**128.52**
9mm	3/8	1-3/4	68309	182325	**128.52**
10mm	1/2	1-3/4	68310	182327	**128.52**
11mm	9/16	1-3/4	68311	182329	**170.82**
12mm	5/8	1-3/4	68312	182331	**170.82**

CNC — Single Point Keyway Broaches

Hassay Savage

A CNC Broaching Alternative

Broaching keyways on CNC machines today is as common as turning a part. It will eliminate part handling and improve your control when you design your process to incorporate short effective nibbling broaches that take the place of much longer tools and sometimes timely set up on secondary machines.

Blind hole and through hole CNC keyway broaching with standard tools that are off the shelf, will give you a profitable alternative and save you time.

Blind hole or through hole CNC keyway broaching is achieved through the use of single point nibbling cutters that are designed with two separate cutting surfaces at 180° apart. The one piece construction is created on a high speed tooling blank that is a common size round shank with ground timing flats to align the keyway for timing to the part it is broaching. These tools will offer long tool life, and can be easily sharpened many times for extended tool life. Ideally designed for either CNC lathe or CNC vertical machining centres, these tools can get the job done quickly and effectively:

- For a CNC lathe, the tool is mounted directly into the turret on centreline while a setscrew-locking holder will lock the tool in place and position
- For a CNC vertical machining centre, a collet will hold the tool shank and provide timing orientation. With the spindle locked, the broach can be brought in line with the pre-prepared bore diameter and chamferlead of the part to start broaching

With the spindle locked, the broach can be brought in line with the pre-prepared bore diameter and chamfer lead of the part to start broaching the keyway at a speed of 10 - 30 in/min and an in-feed of 0.003 -0.005 depth per pass, using a flood coolant for lubrication during the cut. The in-feeding cycle is repeated until the desired depth of the keyway is achieved. Chips can be removed from the bottom of the hole in a couple of ways:

- If the hole is a blind hole bore, remove the chips by either prior trepanning the bottom of the keyway area and allow chips to fall away
- Or pre-drill a hole from the outside to the inside of the part at the bottom of the keyway location.
- With a through hole, you can broach right through, but do not disengage with the part, and simply de-burr the keyway upon completion.

Things That You Should Know:

- Standard tooling will come with common shank diameters
- The keyway size and length or depth of cut will determine the shank size
- Strength and rigidity in the set-up will give you longer tool life
- Consider using the larger shank size to process your jobs
- Keyway production will achieve excellent finishes and better accuracy
- You can design and create your own special tool with our help

The Advantages

- Complete the part on one machine
- Only way to keyway a blind hole
- Cut down on set-up time
- Become more flexible with machining
- Manage small lot production
- Use cost effective standard tooling
- No bushing guide required
- No hydraulic press or pull required
- No additional operator needed



Inch Shank

Size	Tolerance (in.)	Shank Dia. (in.)	Overall Length (in.)	Max L.O.C. (in.)	Hassay EDP No.	Code No.	Price $
1/8	0.1265	0.625	3.75	1.50	69008	182627	**587.89**
4mm	0.159	0.625	3.75	1.50	69004	182629	**587.89**
3/16	0.189	0.625	3.75	1.50	69012	182630	**587.89**
5mm	0.198	0.625	3.75	1.50	69005	182631	**587.89**
6mm	0.238	0.875	4.50	2.00	69106	182632	**631.27**
1/4	0.252	0.875	4.50	2.00	69116	182633	**631.27**
5/16	0.314	0.875	4.50	2.00	69120	182634	**631.27**
8mm	0.317	0.875	4.50	2.00	69108	182635	**631.27**
3/8	0.377	1.00	4.50	2.00	69224	182636	**692.04**
10mm	0.396	1.00	4.50	2.00	69210	182637	**692.04**
12mm	0.4745	1.00	4.50	2.00	69212	182638	**692.04**
1/2	0.502	1.00	4.50	2.00	69232	182639	**692.04**

Metric Shank

Size	Tolerance (in.)	Shank Dia. (mm)	Overall Length (in.)	Max L.O.C. (in.)	Hassay EDP No.	Code No.	Price $
1/8	0.127	16	3.75	1.5	69308	182189	**496.32**
4mm	0.159	16	3.75	1.5	69304	182191	**496.32**
3/16	0.189	16	3.75	1.5	69312	182193	**496.32**
5mm	0.198	16	3.75	1.5	69305	182195	**496.32**
6mm	0.238	20	4.50	2	69406	182197	**549.16**
1/4	0.252	20	4.50	2	69416	182199	**549.16**
5/16	0.314	20	4.50	2	69420	182201	**588.43**
8mm	0.317	20	4.50	2	69408	182203	**588.43**
3/8	0.377	25	4.50	2	69524	182205	**659.11**
10mm	0.396	25	4.50	2	69510	182207	**659.11**
12mm	0.474	25	4.50	2	69512	182209	**659.11**
1/2	0.502	25	4.50	2	69532	182211	**659.11**

GS TOOLING

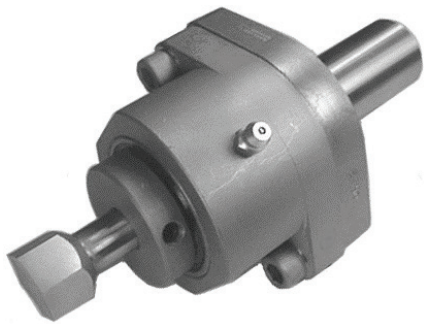
Use GS CAT40 ER Collet Chucks & Collets to hold your CNC Single Point Keyway Broaches.

See Pages G18-32



Adjustable Rotary Broach Holders

Hassay Savage



For Broaches With 0.315 Diameter Shanks

Overall Length	Shank Dia.	Shank Length	Broach Shank Depth	Hassay EDP No.	Code No.	Price $
3-27/64	5/8	1-1/2	9/16	P-67040	182173	**2,153.07**
3-59/64	3/4	2	9/16	P-67048S	182175	**2,224.11**

For Broaches With 0.500 Diameter Shanks

Overall Length	Shank Dia.	Shank Length	Broach Shank Depth	Hassay EDP No.	Code No.	Price $
4-17/32	3/4	2	0.742	P-67048	182177	**2,412.61**
4-17/32	1	2	0.742	P-67064	182179	**2,479.72**
5-17/32	1-1/4	3	0.742	P-67068	182181	**2,554.69**
5-17/32	1-1/2	3	0.742	P-67072	182183	**2,318.72**

For Broaches With 0.750 Diameter Shanks - Heavy Duty

Overall Length	Shank Dia.	Shank Length	Broach Shank Depth	Hassay EDP No.	Code No.	Price $
7-9/16	1-1/2	3	1.25	P-67072HDS	182185	**4,796.12**
7-9/16	1-3/4	3	1.25	P-67076HD	182187	**4,453.58**

Applications

ROTARY/PUNCH BROACHES: Used in a variety of machines to cut polygons in blind holes: Any type of CNC or manual turning, milling, drilling or screw machine. The practical forming length of rotary/punch broaching is usually up to 1-1/2 times the size of the broach (measured across flats).

ROTARY BROACH HOLDERS: For optimal tool life in large production settings these broaches are used in Rotary Broach Holders. Holders and broaches are sold separately and available from stock for immediate delivery. These holders are for use on any type CNC or manual turning, milling, drilling or screw machine. The holder has an internal live spindle, which holds the end cutting broach tool. The centreline of the cutting tool is offset at 1° from the centreline of the workpiece. This causes the broach to wobble creating a shearing effect as the broach is advanced into the workpiece or vise versa as described below.

BROACHING A ROTATING WORKPIECE: In a turning or screw machine, the holder is mounted stationary while its internal live spindle and the broach rotates after contact with the rotating workpiece. At the appropriate feed, the workpiece is “sheared" by the pressure of the broach through a wobbling type action producing the polygon shape desired.

BROACHING A STATIONARY WORKPIECE: In a milling or drilling machine, the holder is mounted into and rotates with the machine spindle while its internal live spindle along with the broach remains stationary upon contact with the stationary workpiece. While the machine spindle is rotating, the broach’s pressure shears the polygon shape into the workpiece (wobbling type action).

PUNCHING VERSUS ROTARY BROACHING: Many applications can be achieved without the rotary broach holder. For the purpose of merely punching a polygon into an existing pilot hole, these broaches have successfully been used with universal machining methods.

Rotary Broaching Set-Up Plugs

Hassay Savage

For hex broach set-up only.



8mm Shank

Size	Plug Dia. (-0.001")	Shank Dia. (-0.0050")	Plug Depth	Overall Length	Hassay EDP No.	Code No.	Price $
1/8	0.129	8mm	5/16	1-1/4	67008	182063	**54.80**
3/16	0.193	8mm	5/16	1-1/4	67012	182065	**54.80**
1/4	0.257	8mm	5/16	1-1/4	67016	182067	**54.80**
3/8	0.387	8mm	1/2	1-1/4	67024	182071	**54.80**
1/2	0.515	8mm	1/2	1-1/4	67032	182073	**54.80**

0.500" Shank

Size	Plug Dia. (-0.001")	Shank Dia. (-0.0050")	Plug Depth	Overall Length	Hassay EDP No.	Code No.	Price $
3/16	0.193	0.500	5/16	1-3/4	67112	182075	**76.67**
1/4	0.257	0.500	5/16	1-3/4	67116	182077	**76.67**
3/8	0.387	0.500	5/16	1-3/4	67124	182079	**76.67**
1/2	0.515	0.500	1/2	1-3/4	67132	182081	**76.67**
5/8	0.643	0.500	1/2	1-3/4	67140	182083	**76.67**

0.750" Shank

Size	Plug Dia. (-0.001")	Shank Dia. (-0.0050")	Plug Depth	Overall Length	Hassay EDP No.	Code No.	Price $
3/8	0.387	0.750	1/2	2-1/2	67524	182085	**91.93**
1/2	0.515	0.750	1/2	2-1/2	67532	182087	**91.93**
5/8	0.643	0.750	3/4	2-1/2	67540	182089	**91.93**
3/4	0.771	0.750	3/4	2-3/4	67548	182091	**91.93**

Swiss Style Rotary Hex Punch Broaches

Hassay Savage

For use with Swiss Style Non-Adjustable Holders

- Consistent high tolerance forms for long production runs
- Superb surface finishes
- Outstanding tool life in Stainless & Titanium
- M2 for use with mild steel (HSS)
- PM-M4 for use with Stainless Steel, Titanium & other high alloy steels



8mm Shank — Inch

Hex Size	Across Flats (±0.0002")	Max Depth of Cut	Overall Length	Hassay EDP No.	M2 Code No.	Price $	Hassay EDP No.	PMM4 Code No.	Price $
0.051	0.0510	5/64	28mm	76002	182093	**110.31**	77002	182115	**127.98**
1/16	0.0645	3/32	28mm	76004	182095	**110.31**	77004	182117	**127.98**
5/64	0.0801	7/64	28mm	76005	182097	**110.31**	77005	182119	**127.98**
3/32	0.0958	9/64	28mm	76006	182099	**110.31**	77006	182121	**127.98**
7/64	0.1113	5/32	28mm	76007	182101	**110.31**	77007	182123	**127.98**
1/8	0.1270	3/16	28mm	76008	182103	**110.31**	77008	182125	**127.98**
9/64	0.1426	7/32	28mm	76009	182105	**110.31**	77009	182127	**127.98**
5/32	0.1585	1/4	28mm	76010	182107	**110.31**	77010	182129	**127.98**
3/16	0.1895	9/32	28mm	76012	182109	**110.31**	77012	182131	**127.98**
7/32	0.2207	11/32	28mm	76014	182111	**110.31**	77014	182133	**127.98**
1/4	0.2520	3/8	28mm	76016	182113	**110.31**	77016	182135	**127.98**

8mm Shank — Metric

Hex Size	Across Flats (±0.0002")	Max Depth of Cut	Overall Length	Hassay EDP No.	M2 Code No.	Price $	Hassay EDP No.	PMM4 Code No.	Price $
1.5mm	0.0610	3/32	28mm	762015	182137	**110.31**	772015	182155	**127.98**
2mm	0.0807	5/32	28mm	76202	182139	**110.31**	77202	182157	**127.98**
2.5mm	0.1004	5/32	28mm	762025	182141	**110.31**	772025	182159	**127.98**
3mm	0.1201	3/16	28mm	76203	182143	**110.31**	77203	182161	**127.98**
3.5mm	0.1398	3/16	28mm	762035	182145	**110.31**	772035	182163	**127.98**
4mm	0.1595	1/4	28mm	76204	182147	**110.31**	77204	182165	**127.98**
4.5mm	0.1792	1/4	28mm	762045	182149	**110.31**	772045	182167	**127.98**
5mm	0.1989	5/16	28mm	76205	182151	**110.31**	77205	182169	**127.98**
6mm	0.2382	3/8	28mm	76206	182153	**110.31**	77206	182171	**127.98**

Swiss Style Non-Adjustable Rotary Broach Holders

Hassay Savage

Swiss Style Holders

- No centre indicating required – self-centering
- Smaller head diameter eliminates interference on tool blocks
- Longer shank can be cut to proper length
- Short head length for limited back work space
- Built in wobble cutting feature 1° angle
- Heavy duty bearing takes 2,250 lbs. pushing force
- Swiss made quality high-precision
- Fits most swiss type tool blocks and gang machines
- Holds 8mm shank swiss style rotary punch broaches



Shank Dia.	Shank Length	Hassay EDP No.	Code No.	Price $
5/8	1-1/2	HSP-2160-158-038	182033	**2,047.40**
3/4	4	HSP-2160-190-100	182035	**2,047.40**
1	4-3/4	HSP-2160-254-120	182037	**2,047.40**
12mm	38mm	HSP-2160-120-038	182039	**2,047.40**
14mm	38mm	HSP-2160-140-038	182041	**2,047.40**
16mm	38mm	HSP-2160-160-038	182043	**2,047.40**
20mm	100mm	HSP-2160-200-100	182045	**2,047.40**
22mm	100mm	HSP-2160-220-100	182047	**2,047.40**
25mm	120mm	HSP-2160-250-120	182049	**2,047.40**

Self Centering Holders

Designed for CNC machines, the new 2100 Series Broach Holder meets the challenge. Faster and easier setup.

- Places rotary broach on centre, eliminates the need to indicate the holder
- Cylindrical shank design with Weldon Notch perfect for lathe or machining centre applications
- Micro-manufacturing includes medical, dental, automotive and aircraft micro components, with micro precision systems that require high precision tolerance and quality
- Holds 8mm shank Swiss Style Rotary Punch Broaches



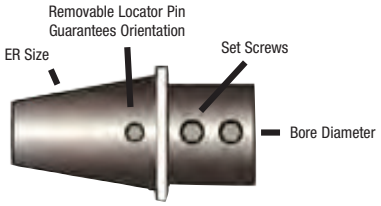
Shank Dia.	Shank Length	Hassay EDP No.	Code No.	Price $
15.87mm	38mm	HSP-2100-58	182051	**1,755.10**
19.05mm	38mm	HSP-2102	182053	**1,901.03**
25.4mm	38mm	HSP-2104	182055	**1,755.10**
16mm	38mm	HSP-2100-16	182057	**1,755.10**
20mm	38mm	HSP-2101	182059	**1,755.10**
25mm	50mm	HSP-2103	182061	**1,755.10**

Quick Change ER Collet Punch & Index Broach ER Holder Systems

Hassay Savage

For Swiss and CNC machining

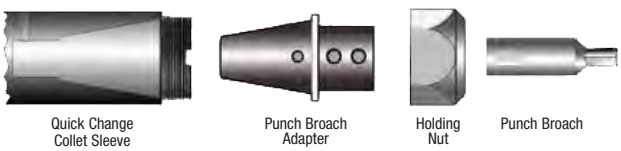
When orientation and concentricity of an internal polygon profile is crucial, an ER holder can be used to securely hold a punch or index broach tool and accurately align the tool to centre, while ensuring perfect alignment of the profile orientation. **These quick change holders can be preset and reloaded in seconds.**





Punch Broach / Boring Adaptors & Nuts

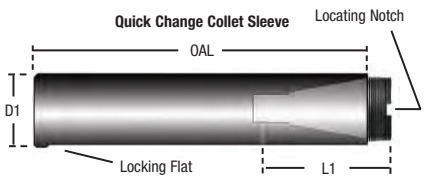
ER Size	Bore Dia.	Nut Thread	Hassay EDP No.	Code No.	Price $
ER16	0.250	M19 x 1mm Nut & Locator Pin	HSP-PA16-25001	182001	**190.82**
ER16	8mm	M19 x 1mm Nut & Locator Pin	HSP-PA16-31501	182003	**190.82**
ER20	0.250	M24 x 1mm Nut & Locator Pin	HSP-PA20-25001	182005	**190.82**
ER20	8mm	M24 x 1mm Nut & Locator Pin	HSP-PA20-31501	182007	**190.82**



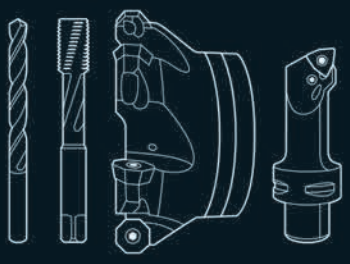
Quick Change Collet Sleeves

For shank only holders.

Collet	D1	L1	Overall Length	Hassay EDP No.	Code No.	Price $
ER16	0.500	1.1	4.5	HSP-CS16-160500	182009	**182.25**
ER16	0.625	1.1	4.5	HSP-CS16-160625	182011	**182.25**
ER16	0.750	1.1	4.5	HSP-CS16-160750	182013	**193.49**
ER16	20mm	28mm	71mm	HSP-CS16-160787	182015	**165.29**
ER16	22mm	28mm	118mm	HSP-CS16-160866	182017	**165.29**
ER16	25mm	28mm	95mm	HSP-CS16-160984	182019	**182.25**
ER16	1	1.1	4.5	HSP-CS16-161000	182021	**193.49**
ER20	0.750	1.2	4.5	HSP-CS20-200750	182023	**193.49**
ER20	22mm	30mm	114mm	HSP-CS20-200866	182025	**193.49**
ER20	1.00	1.2	4.5	HSP-CS20-201000	182027	**193.49**
ER20	1.250	1.2	4.5	HSP-CS20-201250	182029	**193.49**
ER20	32mm	30mm	118mm	HSP-CS20-201260	182031	**193.49**



WALTER
Engineering Kompetenz

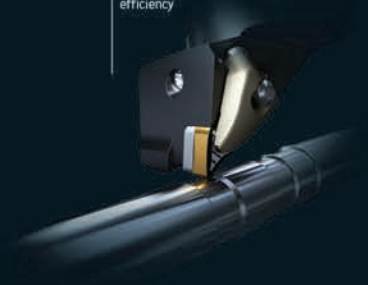


With around 45,000 standard tools for turning, milling, holemaking and threading, Walter offers you outstanding productivity and reliabilty from an extensive range of precision, high-quality machining tools from the Walter, Walter Titex and Walter Prototyp competence brands.

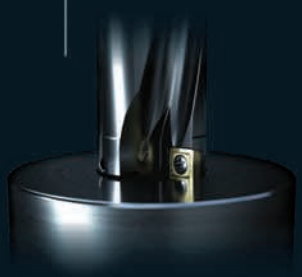
Tiger·tec® Gold



High-performance turning
Reliable improvements in cost-efficiency



High-performance holemaking
Guaranteed process reliability



High-performance milling
Significant improvements in productivity



The new generation of cutting tool materials from Walter has arrived and is already redefining peak performance in machining. But how can we set new standards in a segment that already seems to be optimized?

Walter raises the bar through a determination to better ourselves over and over again. Along with superior technology, Walter also has our customers to thank, whose challenges are at the heart of Walter's drive. Having mastered milling and holemaking, Tiger·tec® Gold has conquered the third machining discipline – turning.

www.walter-tools.com

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Indexable Cutting Tools

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Turning Inserts for Aluminum E34-37
C.B.N. Turning Inserts E38
CERAMIC Inserts E39-41
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TECHNICAL INFORMATION E173-195

Sowa Indexable Grade Identification

This is your **quick reference colour band guide** that you will see throughout this catalog. It will make your insert choice **quick, easy, and accurate.**

Material Group

P	M	K	S
Steel	Stainless Steel	Cast Iron - Alum	Heat Resistant Alloy

P	T	10	C
Material	Application	ISO Grade	Coating

Material	
P	Steel
M	Stainless Steel
K	Cast Iron Aluminum
S	Heat Resistant Alloy Titanium Alloy

Application
T = Turning
M = Milling

ISO Grade
10 = ISO 10 Grade
20 = ISO 20 Grade
30 = ISO 30 Grade
40 = ISO 40 Grade

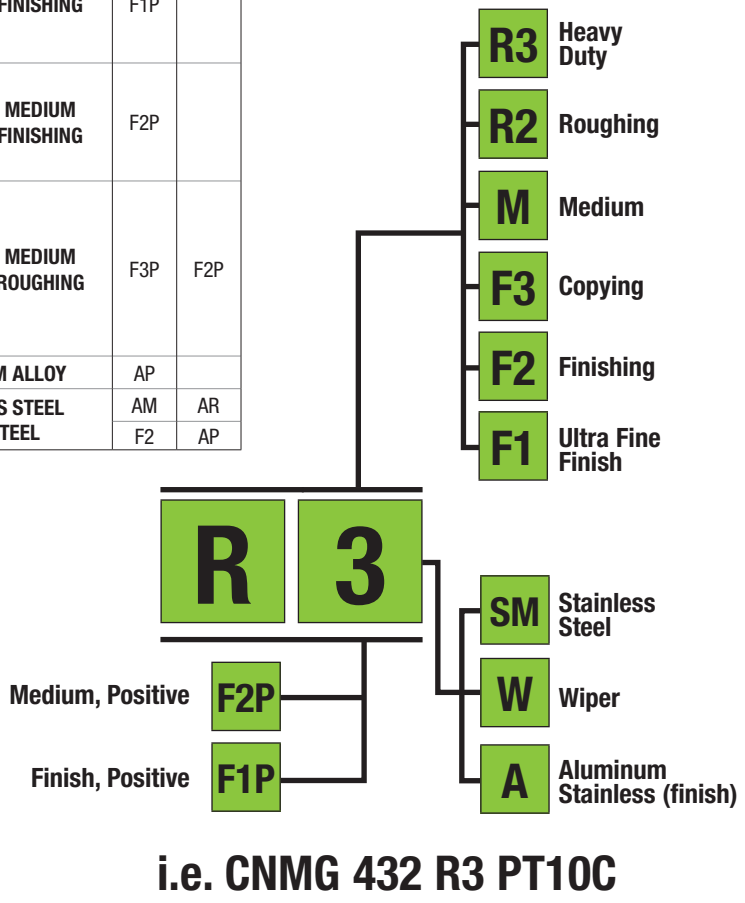
Coating
C = C.V.D. Coated
U = Uncoated
S = Cermet
P = P.V.D. Coated

Chipbreaker Quick Choice

APPLICATION			SOWA MAIN	SOWA SUB
NEGA•TYPE	STEELS	EXTREME FINISHING	F1	VF
		FINISHING	F2	
		MEDIUM FINISHING	F3	M
		MEDIUM ROUGHING	M	
		ROUGHING	R2	R1
		HEAVY	R3	
		WIPER	W	
	GENERAL			
	STAINLESS STEEL MILD STEEL		G	R2
			A	F3
			SM	M
			MM	R1
			MI	VM
	CAST IRON			G
			R1	R2
	ALUMINUM		A	

APPLICATION			SOWA MAIN	SOWA SUB
POSI•TYPE	STEEL	CAST IRON FINISHING	F1P	
		CAST IRON MEDIUM FINISHING	F2P	
		CAST IRON MEDIUM ROUGHING	F3P	F2P
	ALUMINUM ALLOY		AP	
	STAINLESS STEEL MILD STEEL		AM	AR
			F2	AP

Code Key



i.e. CNMG 432 R3 PT10C

Sowa Indexable Grades

Coated Carbide

- Turning
  - P: PT10C | PT25C | PT30C | PT40C | PTM50C
  - M: MT20C | PT30C | MT30P | SM20P
  - K: KT05C | KT10C | KT15C
  - S: ST10P
- Milling
  - P: PM10P | PM25C | PM30C | PM30P | PM35P | PTM50P
  - M: PM25C | PM30P | PM30C | MM30P | SM20P
  - K: KM20C | KT10P

Cermet

- Turning: PT10S | PT20S
- Milling: PM20S | PM30S

CBN

KB320 | KB330 | KB350 | KB360 | KB420

Ceramic

- Turning: GP100 | GP300
- Milling: S400

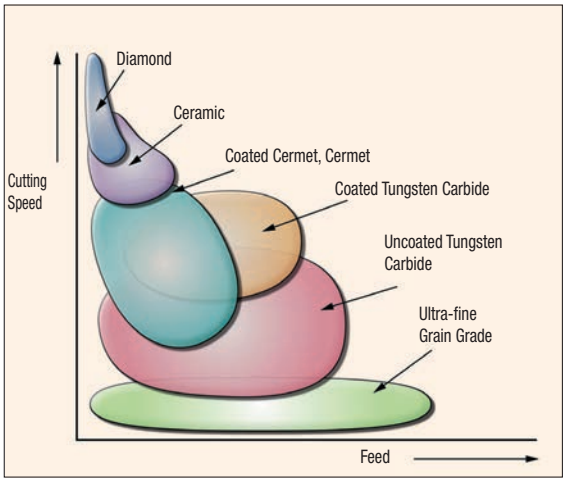
Diamond Coated Carbide

- Turning: ND100
- Milling: ND200
- Drill, Endmill: ND300

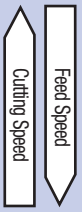
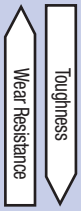
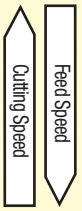
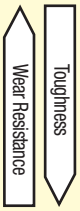
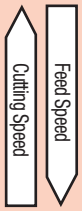
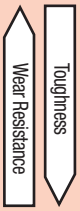
Un-Coated Carbide

- Turning
  - P: PT20U
  - M: PTM30U
  - K: KT10U | KTM10U
- Milling
  - P: PTM30U
  - K: KTM10U

Application Range



Tungsten Carbide ISO Grade

Class	Class of Symbol	Work-Piece	Way of Cut	Working Condition	High Performance Diection	
					Cutting Condition	Quality of Tip
P	P01	Steels, Cast Steels	Precision Turning, Precision Boring	Small cutting area in high cutting speed. Expect good dimension and surface with no vibration.		
	P10	Steels, Cast Steels	Turning, Copy Machining, Threading Cutting, Surface Finish Milling	Small cutting area in high cutting speed or good working condition.		
	P20	Steels, Cast Steels, Malleable Cast Iron	Turning, Copy Machining, Milling, Planing	Medium cutting area in medium cutting speed and small cutting area in planing.		
	P30	Steels, Cast Steels, Malleable Cast Iron	Turning, Milling, Planing	Medium/large cutting area in low/medium cutting speed or poor working condition.		
M	M10	Steels, Cast Steels, Cast Iron	Turning, Milling	Small/medium cutting area in medium/high cutting speed or using in common for castability cast iron.		
	M20	Steels, Cast Steels, Cast Iron	Turning, Milling	Medium cutting area in medium cutting speed or no using in common for steels, cast iron. Or poor working condition.		
		Hadfield, Steels, Austenite Steels, Special Cast Iron	Turning, Milling	Medium cutting area in medium cutting speed or poor working condition.		
	M30	Steels, Cast Steels, Cast Iron, Austenite Steels, Special Cast Iron, Heat Resisting Alloy	Turning, Milling, Planing, Cutting-Off	Medium/large cutting area in medium cutting speed. Or working condition is worse than M20.		
K	K01	Cast Iron	Precision Turning, Precision Boring, Surface Finish Milling	Small cutting arear in high cutting speed or no vibration.		
		High Hardness Cast Iron, Quenched Steels	Turning	Small cutting area in exfrom low cutting speed or no vibration.		
		Black Lead, Hard Paper, Ceramic High Si-Al		No vibration.		
	K10	Cast Iron, Malleable Cast Iron	Turning, Milling, Boring, Reamer	Small/medium cutting area in medium cutting speed. Or Generd working in comparating.		
		Quenched Steels	Turning	Small cutting area in low cutting speed or no vibration in comparative.		
		Si-Al Alloy, High Hardness Copper, Glass, Ceramic, Hard Rubber, Hard Paper, Synthetic Resin		No vibration in comparative.		
	K20	Cast Iron (Hb200 and Below)	Turning, Milling, Planing, Boring, Reamer, Broach	Medium/large cutting speed in medium cutting speed or general working demanding high toughness.		
	K30	Low Hardness Cast Iron, Copper, Aluminum	Turning, Milling, Planing, Copy Machining	Large cutting area or poor working condition.		

Grade Application

Turning

Cutting Condition		ISO	Coated Carbide	Cermet	C.B.N.	Ceramic	Uncoated Carbide
P	Intermittent & Heavy Duty	P50	PT40C, PTM50C				
	Low Speed	P40					
	Medium Speed	P30	PT30C				
		P20	PT25C	PT20S		GP300	PT20U
	High Speed	P10	PT10C	PT10S		GP100	
		P01					
M	Low Speed	M40	MT30P				
	Medium Speed	M30	PT30C				
		M20	MT20C				
	High Speed	M10					
K	Low Speed	K40					
		K30					
	Medium Speed	K20	KT10C		KB360	GP300	KTM10U
		K10	KT05C		KB350	GP100	KT10U
	High Speed	K01					
S	Continuous Cutting	S10	ST10P				
	Interrupted Cutting	S20					

Milling

Cutting Condition		ISO	Coated Carbide	Cermet	C.B.N.	Ceramic	Uncoated Carbide
P	Intermittent & Heavy Duty	P50	PM40P				
	Low Speed	P40					
	Medium Speed	P30	PM30C, PM30P	PT30S			PTM30U
		P20	PM25C	PM20S		GP300	PM20U
	High Speed	P10				GP100	
		P01	PM10C				
M	Low Speed	M40					
	Medium Speed	M30	MM30P				
		M20	PTM50P				
	High Speed	M10	PM10P				
K	Low Speed	K40					
		K30					
	Medium Speed	K20	KM20C		KB360	GP300	KTM10U
		K10	KT15C		KB350	GP100	
	High Speed	K01	KT10P				

Drilling

Coated Carbide
PM10P
PM10P
PM10P

Turning Insert Code System

1 Insert Shape

			
C	D	E	K
			
L	R	S	T
			
V	W		

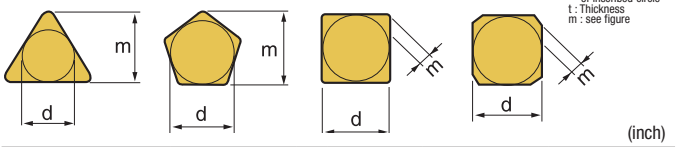
2 Clearance Angle

			
B	C	D	E
			
F	N	P	
Special			
O			

T N M G

1 2 3 4

3 Tolerance



(inch)

class	d	m	t
A	+_ 0.0010	+_ 0.0002	+_ 0.0010
C	+_ 0.0010	+_ 0.0005	+_ 0.0010
H	+_ 0.0005	+_ 0.0005	+_ 0.0010
E	+_ 0.0010	+_ 0.0010	+_ 0.0010
G	+_ 0.0010	+_ 0.0010	+_ 0.005
J	+_ 0.002 - +_ 0.006	+_ 0.0002	+_ 0.001
K	+_ 0.002 - +_ 0.006	+_ 0.0005	+_ 0.001
L	+_ 0.002 - +_ 0.006	+_ 0.0010	+_ 0.001
M	+_ 0.002 - +_ 0.006	+_ 0.003 - 0.008	+_ 0.005
U	+_ 0.003 - +_ 0.01	+_ 0.005 - 0.015	+_ 0.005

Tolerance on C, H, R, T, W class (exceptional)

d	Tolerance on d		Tolerance on m	
	J, K, L, M, N	U	M, N	U
1/4	+_ 0.002	+_ 0.003	+_ 0.003	+_ 0.005
3/8	+_ 0.002	+_ 0.003	+_ 0.003	+_ 0.005
1/2	+_ 0.003	+_ 0.005	+_ 0.005	+_ 0.008
5/8	+_ 0.004	+_ 0.007	+_ 0.06	+_ 0.011
3/4	+_ 0.004	+_ 0.007	+_ 0.06	+_ 0.011
1	+_ 0.005	+_ 0.01	+_ 0.07	+_ 0.015

Tolerance on D class (exceptional)

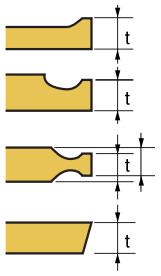
d	Tolerance on d	Tolerance on m
1/4	+_ 0.002	+_ 0.0043
3/8	+_ 0.002	+_ 0.0043
1/2	+_ 0.003	+_ 0.006
5/8	+_ 0.004	+_ 0.007
3/4	+_ 0.004	+_ 0.007

4 Cross Section Type

	 C'Sink 70° - 90°
A	B
 C'Sink 70° - 90°	
C	F
	 C'Sink 70° - 90°
G	H
 C'Sink 70° - 90°	
J	M
	 C'Sink 40° - 60°
N	Q
	 C'Sink 40° - 60°
R	T
 C'Sink 40° - 60°	 C'Sink 40° - 60°
U	W
Special Type	
X	

Turning Insert Code System

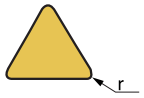
6 Height of Cutting Edge



Symbol		Height of Cutting Edge (t)	
Metric	Inch	mm	Inch
-	0.5(1)	0.79	1/32
T0	0.6	1.00	0.040
01	1(2)	1.59	1/16
T1	1.2	1.98	5.64
02	1.5(3)	2.38	3/32
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
12	8	12.70	1/2

( ) Symbol for small size insert

7 Nose Corner Radius (Nose R)



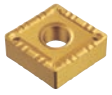
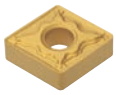
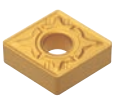
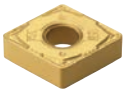
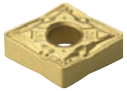
Symbol		Corner Radius	
Metric	Inch	mm	Inch
01	0	0.1	0.004
02	0.5	0.2	0.008
04	1	0.4	1/64
08	2	0.8	1/32
12	3	1.2	3/64
16	4	1.6	1/16
20	5	2.0	5/64
24	6	2.4	3/32
28	7	2.8	7/64
32	8	3.2	1/8
00	-	Round Insert (Inch)	
M0	-	Round Insert (Metric)	



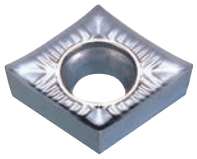
5 Cutting Edge Length, Diameter of Inscribed Circle

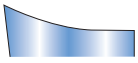
Symbol								IC
C	D	S	T	R	V	W		
Metric							Inch	d(inch)
03	04	03	06	03	-	02	1.2(5)	5/32
04	05	04	08	04	08	S3	1.5(6)	3/16
05	06	05	09	05	09	03	1.8(7)	7/32
-	-	-	-	06	-	-	-	0.236
06	07	06	11	06	11	04	2	1/4
08	09	07	13	07	13	05	2.5	5/16
-	-	-	-	08	-	-	-	0.315
09	11	09	16	09	16	06	3	3/8
-	-	-	-	10	-	-	-	0.394
11	13	11	19	11	19	07	3.5	7/16
-	-	-	-	12	-	-	-	0.472
12	15	12	22	12	22	08	4	1/2
14	17	14	24	14	24	09	4.5	9/16
16	19	15	27	15	27	10	5	5/8
-	-	-	-	16	-	-	-	0.630
17	21	17	30	17	30	11	5.5	11/16
19	23	19	33	19	33	13	6	3/4
-	-	-	-	20	-	-	-	0.787
22	27	22	38	22	38	15	7	7/8
-	-	-	-	25	-	-	-	0.984
25	31	25	44	25	44	17	8	1
32	38	31	54	31	54	21	10	1-1/4
-	-	-	-	32	-	-	-	1.260

8 Chip Breaker for Turning

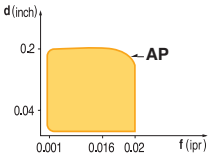
			
A	AM	AP	F1P
			
F2P	F3P	F1	F2
			
F3	G	M	M1
			
MM	R1	R2	R3
			
SM	WF	WM	

CCGT-AP (AP Chipbreaker is for Aluminum)

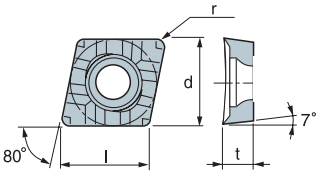




- Exclusive chip breaker for aluminum and aluminum alloy

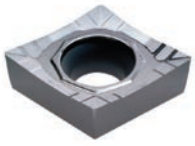


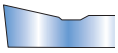
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
CCGT 21.51-AP	060204												146024 $ 18.92	0.256	1/4	3/32	1/64	Turning	
CCGT 32.50.5-AP	09T302												146027 $ 22.17	0.382	3/8	5/32	0.008	SCACR/L	E55
CCGT 32.51-AP	09T304											146701 $ 142.41	146011 $ 22.17	0.382	3/8	5/32	1/64	Boring	
CCGT 32.52-AP	09T308												146012 $ 22.17	0.382	3/8	5/32	1/32	SCLCR/L	E69
CCGT 431-AP	120404												146627 $ 25.68	0.508	1/2	3/16	1/64		
CCGT 432-AP	120408												146023 $ 25.68	0.508	1/2	3/16	1/32		

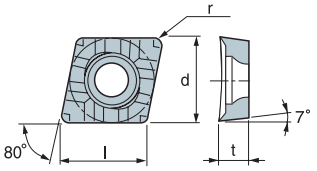
CCGT-AM (AM Chipbreaker is for Aluminum)





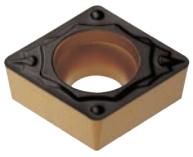
- High stability of cutting edge secures great performance in high speed and interrupted cutting
- High speed of medium and interrupted operation

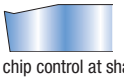
- USE
  Aluminum Cutting
- Recommendation
  d = 0.020~0.157inch
  f = 0.002~0.020ipr



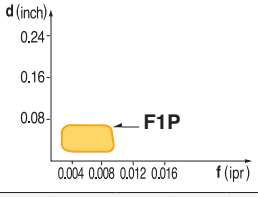
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CCGT 21.50.5-AM	060202													145661 $ 18.92	0.256	1/4	3/32	0.008	Turning	
CCGT 21.51-AM	060204													145681 $ 18.92	0.256	1/4	3/32	1/64	SCACR/L	E55
CCGT 21.52-AM	060208													145682 $ 18.92	0.256	1/4	3/32	1/32	Boring	
CCGT 32.50.5-AM	09T302													145662 $ 22.17	0.382	3/8	5/32	0.008	SCLCR/L	E69
CCGT 32.51-AM	09T304													145683 $ 22.17	0.382	3/8	5/32	1/64		
CCGT 430.5-AM	120402													145684 $ 25.68	0.508	1/2	3/16	0.008		
CCGT 431-AM	120404													145685 $ 25.68	0.508	1/2	3/16	1/64		
CCGT 432-AM	120408													145686 $ 25.68	0.508	1/2	3/16	1/32		

CCGT-F1P

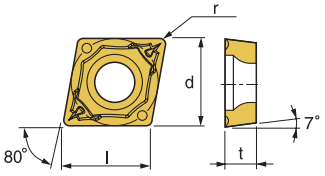




- Excellent chip control at shallow depth of cut and low feed rate
- Excellent surface finish of work piece due to reduced cutting force
- Suitable for fine boring



- USE
  Finishing
- Recommendation
  F1P d = 0.004~0.06inch
  f = 0.002~0.01ipr

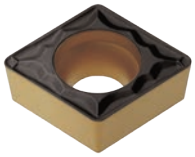


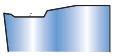
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CCGT 32.50.5-F1P	09T302							145626 $ 23.57			145627 $ 23.57				0.382	3/8	5/32	0.008	Turning	
CCGT 32.51-F1P	09T304				149289 $ 23.92	145691 $ 23.57							149177 $ 19.15		0.382	3/8	5/32	1/64	SCACR/L	E55
CCGT 32.52-F1P	09T308							145693 $ 23.57							0.382	3/8	5/32	1/32	Boring	
																			SCLCR/L	E69

Quick Choice Grade Selection

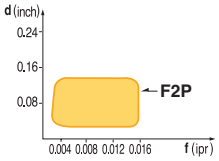
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

CCMT-F1P/F2P

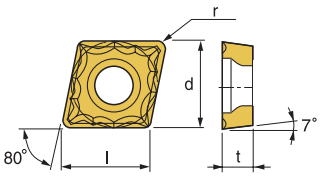




- Excellent chip control at wide range of cutting conditions
- Suitable for stainless steel cutting

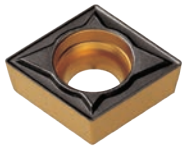


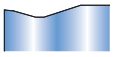
- USE
  Medium
- Recommendation
  F2P d = 0.02~0.14inch
  f = 0.002~0.016ipr



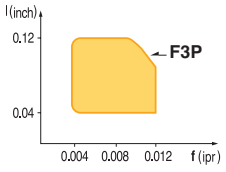
		Coated Carbide											Cermet	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CCMT 21.50.5-F1P	060202														0.256	1/4	3/32	0.008	Turning	
CCMT 32.51-F1P	09T304				149257 $ 14.00										0.382	3/8	5/32	1/64	SCACR/L Boring	E55
CCMT 21.50.5-F2P	060202		149494 $ 13.35		149252 $ 13.36										0.256	1/4	3/32	0.008	SCLCR/L	E69
CCMT 21.51-F2P	060204		149495 $ 13.36		149227 $ 13.35		149255 $ 13.36					148450 $ 13.35			0.256	1/4	3/32	1/64		
CCMT 21.52-F2P	060208		149496 $ 13.35		149497 $ 13.36										0.256	1/4	3/32	1/32		
CCMT 32.50.5-F2P	09T302		149498 $ 13.77									148452 $ 13.77			0.382	3/8	5/32	0.008		
CCMT 32.51-F2P	09T304		149499 $ 13.77		149220 $ 13.77	149010 $ 13.77	149238 $ 13.77		145698 $ 13.77			148453 $ 13.77			0.382	3/8	5/32	1/64		
CCMT 32.52-F2P	09T308		149501 $ 13.77		149221 $ 13.77	148549 $ 13.77	149247 $ 13.77					148454 $ 13.77			0.382	3/8	5/32	1/32		
CCMT 431-F2P	120404					145718 $ 18.20			145732 $ 18.20						0.508	1/2	3/16	1/64		
CCMT 432-F2P	120408				149299 $ 18.21		149337 $ 18.21		145632 $ 18.20						0.508	1/2	3/16	1/32		

CCMT-F3P

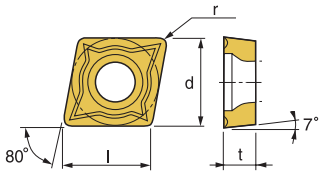




- Suitable for intermittent cutting and cast iron machining
- Good surface finish due to low cutting force
- Suitable for both boring and outer diameter turning

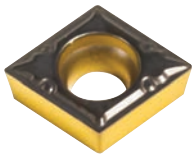


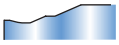
- USE
  Medium
- Recommendation
  F3P d = 0.04~0.12inch
  f = 0.004~0.012ipr



		Coated Carbide									Cermet		Uncoated Carbide		(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	PT10S	PT20S	KT10U	PM20U	l	d	t	r	Holder	Page No.
CCMT 21.51-F3P	060204				149241 $ 13.35	145735 $ 13.35									0.256	1/4	3/32	1/64	Turning	
CCMT 21.52-F3P	060208					145750 $ 13.35				145773 $ 3.82					0.256	1/4	3/32	1/32	SCACR/L Boring	E55
CCMT 32.51-F3P	09T304				149230 $ 13.77	145774 $ 13.77		145779 $ 13.77							0.382	3/8	5/32	1/64	SCLCR/L	E69
CCMT 32.52-F3P	09T308				149242 $ 13.77			145797 $ 13.77							0.382	3/8	5/32	1/32		
CCMT 431-F3P	120404				149262 $ 18.20	145894 $ 18.20									0.508	1/2	3/16	1/64		
CCMT 432-F3P	120408				149287 $ 18.20	146159 $ 18.20									0.508	1/2	3/16	1/32		

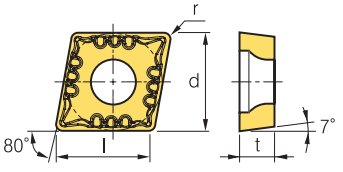
CCMT-FVL





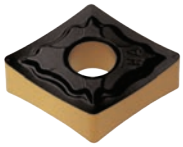
- Stable chip control in high toughness material; low carbon steel, pipe steel and steel plates
- Improved chip control for facing, copy machining, and better surface finish

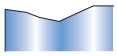
- USE
  Finishing
- Recommendation
  FVL d = 0.008~0.059inch
  f = 0.004~0.014ipr



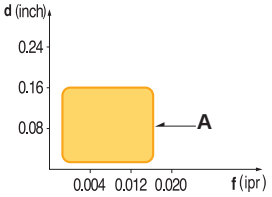
		Coated Carbide											Cermet	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CCMT 21.50.5-FVL	060202		149468 $ 13.55												0.256	1/4	3/32	0.008	Turning SCACR/L Boring	E55
																			SCLCR/L	E69

CNMG-A

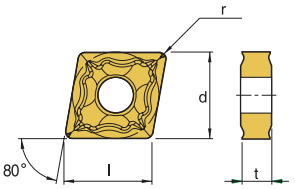




- Sharp cutting edge generates low cutting force
- Specially designed tough main cutting edge
- Suitable for cutting of low carbon steel, stainless steel, aluminum

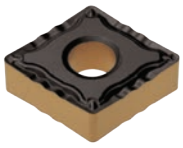


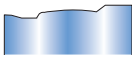
- USE
  Light & Medium
- Recommendation
  A d = 0.03~0.16inch
  f = 0.002~0.016ipr



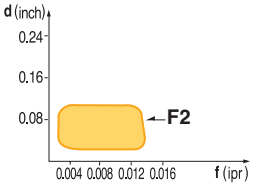
		Coated Carbide										Cermet		Uncoated Carbide					(inch)	Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CNMG 431-A	120404													**147524 $ 13.02**	0.508	1/2	3/16	1/64	**Turning**	
																			MCKNR/L	E48
																			MCLNR/L	E48
																			MCRNR/L	E49
CNMG 432-A	120408				**149285 $ 16.22**			**147525 $ 16.20**			**148378 $ 16.20**			**147526 $ 13.02**	0.508	1/2	3/16	1/32	**Boring**	
																			MCLNR/L	E64
																			PCLNR/L	E67

CNMG-F2

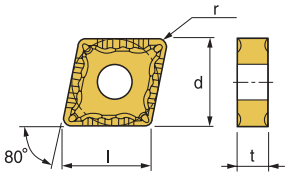




- Excellent chip control at varied depth of cutting
- Strong cutting edge toughness due to special design

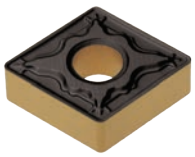


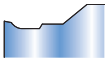
- USE
  Finishing
- Recommendation
  F2 d = 0.01~0.1inch
  f = 0.002~0.014ipr



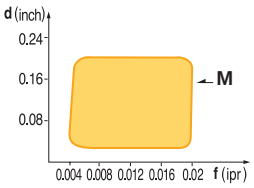
		Coated Carbide										Cermet		Uncoated Carbide					(inch)	Applicable Holders	
Designation	ISO	PT10C	PT15C	PT25C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	KT15C	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CNMG 431-F2	120404		**149333 $ 16.20**												0.508	1/2	3/16	1/64	**Turning**	
																			MCKNR/L	E48
																			MCLNR/L	E48
																			MCRNR/L	E49
CNMG 432-F2	09T304		**149390 $ 16.20**	**149391 $ 16.20**											0.508	1/2	3/16	1/32	**Boring**	
																			MCLNR/L	E64
																			PCLNR/L	E67

CNMG-M/M1

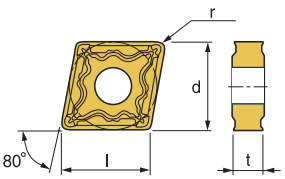




- Wide available chip control range from medium-finishing to medium-roughing
- Suitable chip breaker for CNC machining

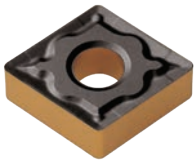


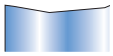
- USE
  Medium
- Recommendation
  M d = 0.04~0.2inch
  f = 0.004~0.02ipr



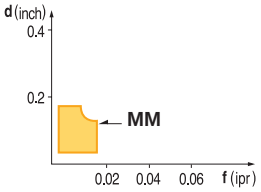
		Coated Carbide										Cermet		Uncoated Carbide					(inch)	Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CNMG 431-M	120404				**149394 $ 16.20**	**147531 $ 16.20**		**148819 $ 16.20**							0.508	1/2	3/16	1/64	**Turning**	
																			MCKNR/L	E48
CNMG 431-M1	120404				**149251 $ 16.20**										0.508	1/2	3/16	1/64	MCLNR/L	E48
																			MCRNR/L	E49
CNMG 432-M1	120408		**149393 $ 16.20**		**149377 $ 16.20**										0.508	1/2	3/16	1/32	**Boring**	
																			MCLNR/L	E64
CNMG 432-M	120408				**149231 $ 16.20**	**147535 $ 16.20**									0.508	1/2	3/16	1/32	PCLNR/L	E67
CNMG 433-M	120412				**149375 $ 16.20**	**147538 $ 16.20**									0.508	1/2	3/16	3/64		
CNMG 433-M1	120142		**149555 $ 16.20**												0.508	1/2	3/16	3/64		
CNMG 543-M	160612					**148306 $ 25.59**									0.634	5/8	1/4	3/64		
CNMG 643-M	190612										**148949 $ 27.70**				0.760	3/4	1/4	3/64		

CNMG-MM

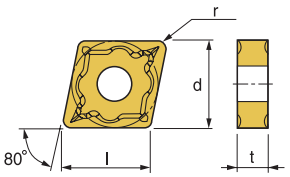




- Excellent choice for a variety of steels including Stainless Steel

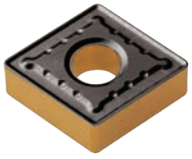


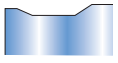
- USE
  Steels/Stainless Steels
- Recommendation
  MM d = 0.04~0.16inch
  f = 0.004~0.016ipr



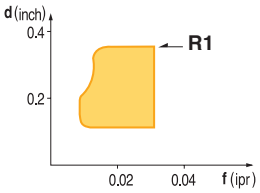
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT15C	PT20C	PT25C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
																			Turning	
CNMG 432-MM	120408			**149256 $ 16.53**		**149322 $ 16.48**		**146014 $ 16.20**							0.508	1/2	3/16	1/32	MCKNR/L	E48
																			MCLNR/L	E48
																			MCRNR/L	E49
																			Boring	
CNMG 433-MM	120412							**146019 $ 16.20**							0.508	1/2	3/16	3/64	MCLNR/L	E64
																			PCLNR/L	E67

CNMG-R1

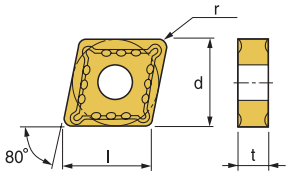




- Suitable for deep depth of cut and fast feed cutting of steel and cast iron
- Suitable for intermittent cutting

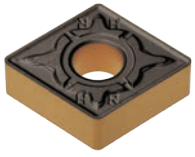


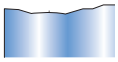
- USE
  Roughing
- Recommendation
  R1 d = 0.12~0.32inch
  f = 0.012~0.032ipr



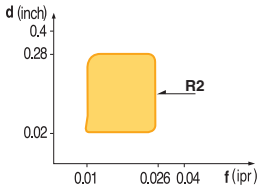
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	PT40C	MT30P	KT05C	KT10C	KT15C	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
																			Turning	
CNMG 432-R1	120408				**149254 $ 16.20**	**147485 $ 16.20**	**146025 $ 16.20**								0.508	1/2	3/16	1/32	MCKNR/L	E48
CNMG 543-R1	160612				**149345 $ 25.20**	**146187 $ 25.20**									0.634	5/8	1/4	3/64	MCLNR/L	E48
																			MCRNR/L	E49
CNMG 544-R1	160616					**146028 $ 25.20**									0.634	5/8	1/4	1/16	**Boring**	
CNMG 643-R1	190612				**149330 $ 33.73**	**146198 $ 33.73**									0.760	3/4	1/4	3/64	MCLNR/L	E64
																			PCLNR/L	E67
CNMG 644-R1	190616					**146033 $ 33.73**									0.760	3/4	1/4	1/16		

CNMG-R2

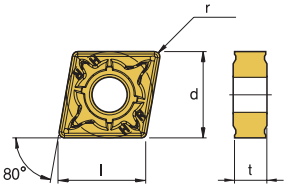




- Excellent chip control at deep depth of cut and fast feed rate
- Strong cutting edge makes excellent cutting performance at intermittent cutting



- USE
  Roughing
- Recommendation
  R2 d = 0.1~0.28inch
  f = 0.01~0.026ipr



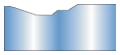
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT25C	PT30C	PT40C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
																			Turning	
CNMG 432-R2	120408			**149398 $ 16.48**											0.508	1/2	3/16	1/32	MCKNR/L	E48
CNMG 433-R2	120412				**147495 $ 16.20**										0.508	1/2	3/16	3/64	MCLNR/L	E48
																			MCRNR/L	E49
CNMG 543-R2	160612			**149399 $ 16.48**		**148700 $ 25.64**									0.634	5/8	1/4	3/64	**Boring**	
CNMG 642-R2	190608				**147500 $ 34.23**										0.760	3/4	1/4	1/32	MCLNR/L	E64
																			PCLNR/L	E67
CNMG 643-R2	190612			**149409 $ 25.59**	**147501 $ 33.73**	**148699 $ 33.73**									0.760	3/4	1/4	3/64		

Quick Choice Grade Selection

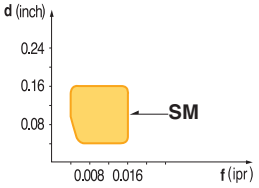
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

CNMG-SM (SM Chipbreaker is for Stainless Steel medium feed.)

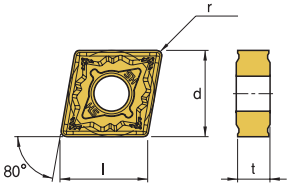




- Exclusive design for stainless steel cutting provides longer tool life
- Wear resistance has been reinforced through high rake angle of chip breaker land



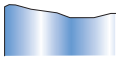
- USE
  Stainless Steel
- Recommendation
  SM d = 0.04~0.16inch
  f = 0.004~0.016ipr



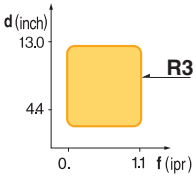
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CNMG 431-SM	120404					149296 $ 16.53		147487 $ 16.20			148379 $ 16.20				0.508	1/2	3/16	1/64	**Turning**	
CNMG 432-SM	120408							147489 $ 16.20			148380 $ 16.20				0.508	1/2	3/16	1/32	MCKNR/L MCLNR/L MCRNR/L	E48 E48 E49
CNMG 433-SM	120412							146040 $ 16.20			148855 $ 16.20				0.508	1/2	3/16	3/64	**Boring**	
CNMG 543-SM	160612							148940 $ 25.20							0.634	5/8	1/4	3/64	MCLNR/L PCLNR/L	E64 E67
CNMG 643-SM	190612							148939 $ 33.73			148952 $ 33.73				0.760	3/4	1/4	3/64		

CNMM-R3

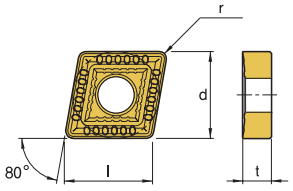




- Specially designed toughest cutting edge provides superior cutting performance at deep depth of cut and fast feed rate
- Unique design of dot on cutting edge makes smooth chip flow and reduce cutting force



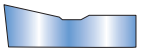
- USE
  Heavy Duty
- Recommendation
  R3 d = 0.16~0.52inch
  f = 0.018~0.06ipr



		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CNMM 432-R3	120408				147505 $ 16.48										0.508	1/2	3/16	1/32	**Turning**	
CNMM 643-R3	190612				147508 $ 33.73										0.760	3/4	1/4	3/64	MCKNR/L MCLNR/L MCRNR/L	E48 E48 E49
																			Boring	
																			MCLNR/L PCLNR/L	E64 E67

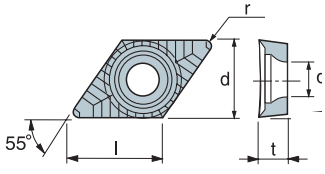
DCGT-AM (AM Chipbreaker is for Aluminum)





- Exclusive chip breaker for aluminum and aluminum alloy

- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.020~0.157inch
  f = 0.002~0.020ipr

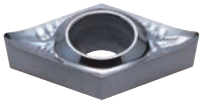


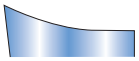
		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
DCGT 21.50.5-AM	070202												146048 $ 18.92	0.307	1/4	3/32	0.008	**Turning**	
DCGT 21.52-AM	070208												146052 $ 18.92	0.307	1/4	3/32	1/32	SDJCR/L SDNCN	E56 E57
DCGT 32.50.5-AM	11T302												145664 $ 22.17	0.457	3/8	5/32	0.008	**Boring**	
DCGT 32.51-AM	11T304												146059 $ 22.17	0.457	3/8	5/32	1/64	SDQCR SDUCR SDZCR/L	E70 E70 E71
DCGT 32.52-AM	11T308												146063 $ 22.17	0.457	3/8	5/32	1/32		

Quick Choice Grade Selection

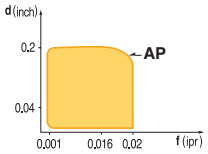
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

DCGT-AP (AP Chipbreaker is for Aluminum)

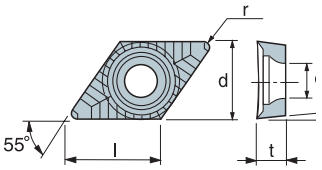




- Exclusive chip breaker for aluminum and aluminum alloy

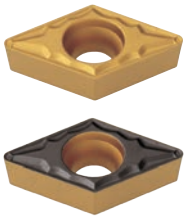


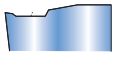
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



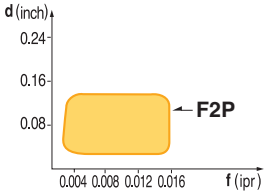
		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
DCGT 21.50.5-AP	070202												146988 $ 18.92	0.307	1/4	3/32	0.008	**Turning**	
DCGT 21.51-AP	070204												146989 $ 18.92	0.307	1/4	3/32	1/64	SDJCR/L SDNCN	E56 E57
DCGT 32.50.5-AP	11T302												146990 $ 22.17	0.457	3/8	5/32	0.008	**Boring**	
DCGT 32.51-AP	11T304											146703 $ 142.41	146991 $ 22.17	0.457	3/8	5/32	1/64	SDQCR SDUCR SDZCR/L	E70 E70 E71
DCGT 32.52-AP	11T308											146704 $ 142.41	146992 $ 22.17	0.457	3/8	5/32	1/32		
DCGT 32.53-AP	120404												147764 $ 22.17	0.457	3/8	5/32	3/64		

DCMT-F1P/F2P

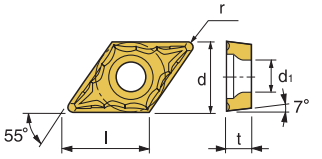




- Excellent chip control at wide range of cutting conditions
- Suitable for stainless steel cutting

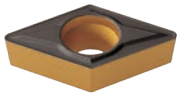


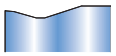
- USE
  Medium
- Recommendation
  F2P d = 0.02~0.14inch
  f = 0.002~0.016ipr



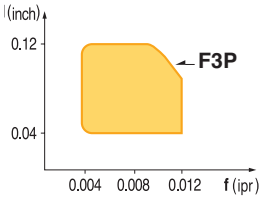
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	MT15C	MT20C	MT30P	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
DCMT 21.51-F2P	070204		149503 $ 13.88		149260 $ 15.39				149011 $ 15.39						0.307	1/4	3/32	1/64	**Turning**	
DCMT 21.52-F2P	070208		149505 $ 13.88		149507 $ 13.88						148457 $ 15.39				0.307	1/4	3/32	1/32	SDJCR/L SDNCN	E56 E57
DCMT 32.50.5-F2P	11T302		149509 $ 17.13												0.457	3/8	5/32	0.008	**Boring**	
DCMT 32.51-F2P	11T304		149511 $ 17.13		149222 $ 17.13	146069 $ 17.13	149250 $ 17.13				148459 $ 17.13				0.457	3/8	5/32	1/64	SDQCR SDUCR SDZCR/L	E70 E70 E71
DCMT 32.52-F2P	11T308		149513 $ 17.13		149226 $ 17.13		149292 $ 17.13				148460 $ 17.13				0.457	3/8	5/32	1/32		

DCMT-F3P

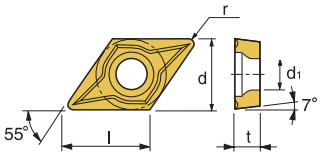




- Excellent chip control at shallow depth of cut and low feed rate
- Excellent surface finish of work piece due to reduced cutting force
- Suitable for fine boring

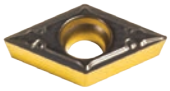


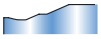
- USE
  Medium
- Recommendation
  F3P d = 0.04~0.12inch
  f = 0.004~0.012ipr



		Coated Carbide									Cermet		Uncoated Carbide		(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT22C	PT25C	PT30C	MT15C	MT30P	KT05C	KT10C	PT10S	PT20S	KTM10U	PM20U	l	d	t	r	Holder	Page No.
DCMT 21.51-F3P	070204				149332 $ 15.39										0.307	1/4	3/32	1/64	**Turning**	
DCMT 32.51-F3P	11T304				149267 $ 17.13	146030 $ 17.13									0.457	3/8	5/32	1/64	SDJCR/L SDNCN	E56 E57
DCMT 32.52-F3P	11T308		149329 $ 17.13		149328 $ 17.13	146032 $ 17.13									0.457	3/8	5/32	1/32	**Boring**	
																			SDQCR SDUCR SDZCR/L	E70 E70 E71

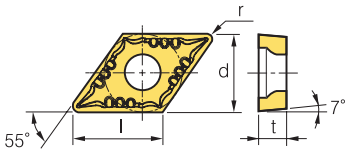
DCMT-FVL





- Stable chip control in high toughness material; low carbon steel, pipe steel, and steel plates
- Improved chip control for facing, copy machining, and better surface finish

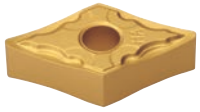
- USE
  Finishing
- Recommendation
  FVL d = 0.008~0.059inch
  f = 0.004~0.014ipr

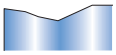


		Coated Carbide									Cermet		Uncoated Carbide		(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT22C	PT25C	PT30C	MT15C	MT30P	KT05C	KT10C	PT10S	PT20S	KTM10U	PM20U	l	d	t	r	Holder	Page No.
																			Turning	
																			SDJCR/L	E56
																			SDNCN	E57
DCMT 21.50.5-FVL	070202		**149469 $ 13.88**												0.307	1/4	3/32	0.008	**Boring**	
																			SDQCR	E70
																			SDUCR	E70
																			SDZCR/L	E71

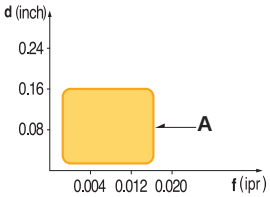
DNM_ 55° Negative Turning Inserts

DNMG-A

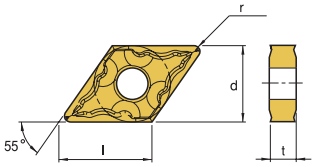




- Sharp cutting edge generates low cutting force
- Specially designed tough main cutting edge
- Suitable for cutting of low carbon steel, stainless steel, aluminum

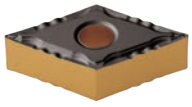


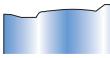
- USE
  Light & Medium
- Recommendation
  A d = 0.03~0.16inch
  f = 0.002~0.016ipr



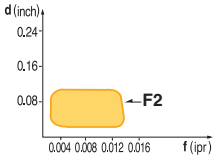
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
																			Turning	
DNMG 431-A	150404							**147577 $ 19.87**			**148381 $ 19.87**			**147578 $ 15.92**	0.610	1/2	3/16	1/64	MDJNR/L	E49
																			Boring	
DNMG 432-A	150408					**149338 $ 19.88**		**147580 $ 19.87**			**148382 $ 19.87**			**147581 $ 15.92**	0.610	1/2	3/16	1/32	PDSNR/L	E67
																			PDUNR/L	E68

DNMG-F2

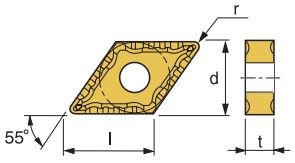




- Excellent chip control at varied depth of cutting
- Strong cutting edge toughness due to special design



- USE
  Finishing
- Recommendation
  F2 d = 0.015~0.1inch
  f = 0.002~0.014ipr

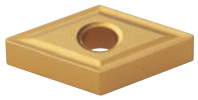


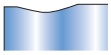
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PM10P	MT20C	MT30P	KT05C	KT10C	KT15C	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
																			Turning	
DNMG 431-F2	150404		**149298 $ 19.87**												0.610	1/2	3/16	1/64	MDJNR/L	E49
																			Boring	
DNMG 432-F2	150408		**149435 $ 19.87**		**149437 $ 19.87**										0.610	1/2	3/16	1/32	PDSNR/L	E67
																			PDUNR/L	E68

Quick Choice Grade Selection

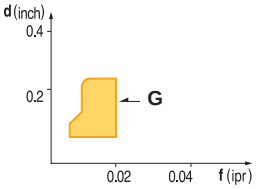
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

DNMG-G

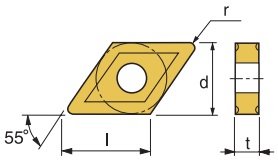




- Suitable for general cutting

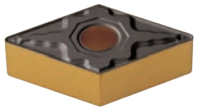


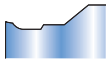
- USE
  General Cutting
- Recommendation
  G d = 0.16~0.4inch
  f = 0.02~0.04ipr



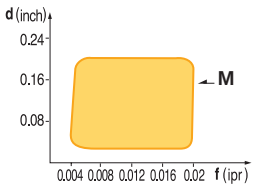
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
DNMG 432-G	150408				147554 $ 19.87										0.610	1/2	3/16	1/32	**Turning** MDJNR/L **Boring** PDSNR/L PDUNR/L	 E49 E67 E68

DNMG-M/M1

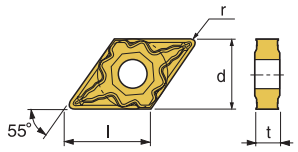




- Wide available chip control range from medium-finishing to medium-roughing
- Suitable chip breaker for CNC machining



- USE
  Medium
- Recommendation
  M d = 0.04~0.2inch
  f = 0.004~0.02ipr



		Coated Carbide									Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
DNMG 431-M	150404				149261 $ 20.22									0.610	1/2	3/16	1/64	**Turning** MDJNR/L **Boring** PDSNR/L PDUNR/L	 E49 E67 E68
DNMG 432-M	150408		149334 $ 20.20		149233 $ 19.87									0.610	1/2	3/16	1/32		
DNMG 441-M	150604		149441 $ 20.20		149445 $ 20.20									0.610	1/2	1/4	1/64		
DNMG 431-M1	150404		149439 $ 19.88											0.610	1/2	3/16	1/64		
DNMG 432-M1	150408				149243 $ 19.87	145651 $ 19.87								0.610	1/2	3/16	1/32		

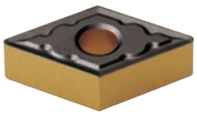


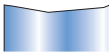


Chip Hooks and Magnetic Chip Collectors

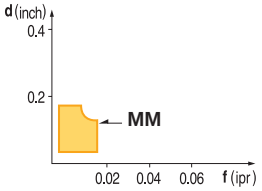
Find them on Page I7

DNMG-MM

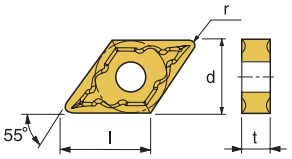




- Excellent choice for a variety of steels including Stainless Steel



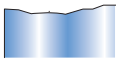
- USE
  Steels/Stainless Steels
- Recommendation
  MM d = 0.04~0.16inch
  f = 0.004~0.016ipr



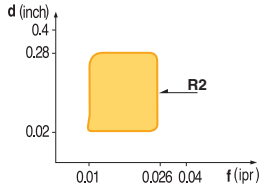
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
DNMG 431-MM	150404				149258 $ 20.22										0.610	1/2	3/16	1/64	Turning MDJNR/L Boring	E49
DNMG 432-MM	150408				149279 $ 20.22										0.610	1/2	3/16	1/32	PDSNR/L PDUNR/L	E67 E68

DNMG-R2

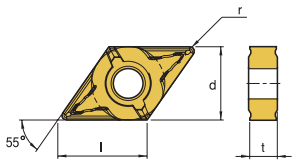




- Excellent chip control at deep depth of cut and fast feed rate
- Strong cutting edge makes excellent cutting performance at intermittent cutting

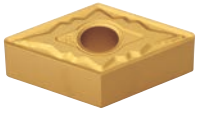


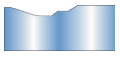
- USE
  Roughing
- Recommendation
  F3 d = 0.1~0.28inch
  f = 0.01~0.026ipr



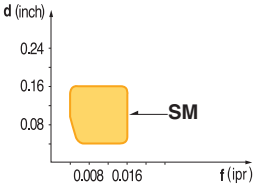
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
DNMG 432-R2	150408				147564 $ 20.22										0.610	1/2	3/16	1/32	Turning MDJNR/L Boring PDSNR/L PDUNR/L	E49 E67 E68

DNMG-SM

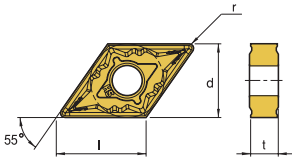




- Exclusive design for stainless steel cutting provides longer tool life
- Wear resistance has been reinforced through high rake angle of chip breaker land



- USE
  Stainless Steel
- Recommendation
  SM d = 0.04~0.16inch
  f = 0.004~0.016ipr



		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
DNMG 431-SM	150404					149297 $ 20.20					148383 $ 19.87				0.610	1/2	3/16	1/64	Turning MDJNR/L Boring	E49
DNMG 432-SM	150408							147561 $ 19.87			148384 $ 19.87				0.610	1/2	3/16	1/32	PDUNR/L	E68

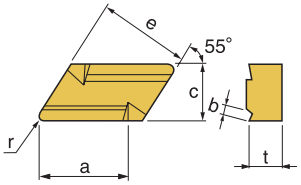
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

KNUX 55° Negative Turning Inserts



- USE
  General Cutting

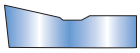


		Coated Carbide									Uncoated Carbide		(inch)						Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	PT20U	PTM30U	a	e	t	r	c	b	Holder	Page No.
KNUX 160405 R11					149223 $ 25.89	147597 $ 25.89						146853 $ 20.78	0.630	0.636	3/16	0.0197	3/8	0.087	Turning CKJNR/L	E47
KNUX 160410 R11						147599 $ 25.89							0.630	0.636	3/16	0.0394	3/8	0.087		
KNUX 160405 L11					149266 $ 25.89								0.630	0.636	3/16	0.0197	3/8	0.087		
KNUX 160410 L11					149336 $ 25.89								0.630	0.636	3/16	0.0394	3/8	0.126		

RC_ _ Positive Turning Inserts

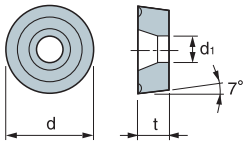
RCGT-AM (“AM” Chipbreaker is for Aluminum)





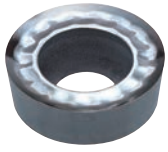
- Exclusive chip breaker for aluminum and aluminum alloy

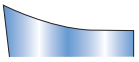
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.020~0.157inch
  f = 0.002~0.020ipr



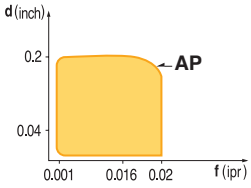
		Coated Carbide									Cermet		Uncoated Carbide		(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	PT10S	PT20S	KT10U	PM20U	l	d	t	d1	Holder	Page No.
RCGT 0803M0-AM													146078 $ 20.78			0.315	1/8	9/64	Turning PRDCN	E55
RCGT 1003M0-AM													146081 $ 26.39			0.394	1/8	5/32		
RCGT 10T3M0-AM													145665 $ 26.39			0.394	5/32	11/64		
RCGT 1204M0-AM													145666 $30.95			0.472	3/16	11/64		

RCGT-AP (“AP” Chipbreaker is for Aluminum)

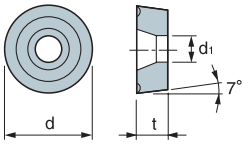




- Exclusive chip breaker for aluminum and aluminum alloy



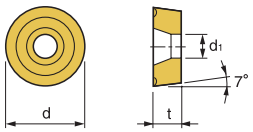
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



		Coated Carbide									Cermet		Uncoated Carbide		(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	PT10S	PT20S	KT10U	PM20U	l	d	t	d1	Holder	Page No.
RCGT 0803M0-AP													146315 $ 20.78			0.315	1/8	9/64	Turning PRDCN	E55
RCGT 10T3M0-AP													147377 $ 26.39			0.394	5/32	11/64		
RCGT 1204M0-AP													148421 $ 30.95			0.472	3/16	11/64		

RCMX

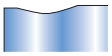




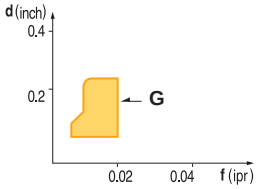
		Coated Carbide									Cermet		Uncoated Carbide					(inch)	Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PM10P	MT20C	MT30P	KT05C	KT10C	PT10S	PT20S	KT10U	PM20U	l	d	t	d1	Holder	Page No.
RCMX 1003M0					149294 $ 13.67											0.394	1/8	0.142	Turning PRDCN	 E55
RCMX 1204M0					149272 $ 17.50											0.472	3/16	0.165		

RNMG Negative Turning Inserts

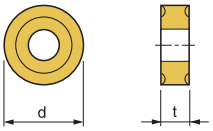




· Suitable for general cutting



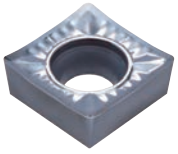
- USE
  General Cutting
- Recommendation
  G d = 0.16~0.4inch
  f = 0.02~0.04ipr

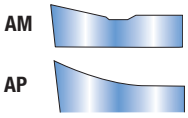


		Coated Carbide									Cermet		Uncoated Carbide					(inch)	Applicable Holders	
Designation	ISO	PT10C	PT22C	PT30C	PM25C	PM10P	MT20C	MT30P	KT05C	KT10C	PT10S	PT20S	KT10U	PM20U	l	d	t	d1	Holder	Page No.
RNMG 43-G	120400			148724 $ 16.75												1/2	3/16	13/64		
RNMG 64-G	190600			146783 $ 32.33												3/4	1/4	5/16		
RNMG 84-G	250600			146092 $ 60.29												1	1/4	23/64		

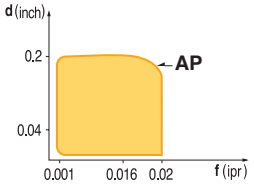
SC_T 90° Positive Turning Inserts

SCGT-AM/AP (AM & AP Chipbreakers are for Aluminum)

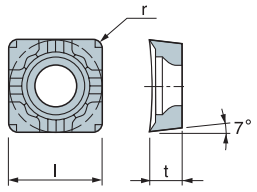




· Exclusive chip breakers for aluminum and aluminum alloy



- USE
  Aluminum Cutting
- Recommendation
  AM d = 0.020~0.157inch
  f = 0.002~0.020ipr
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr

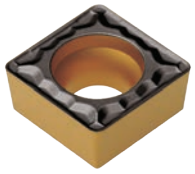


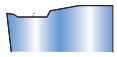
		Coated Carbide										Diamond Coated	Uncoated Carbide				(inch)	Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	t	r	Holder	Page No.
SCGT 32.51-AM	09T304												146094 $ 23.13	3/8	5/32	1/64	Turning SSBCR/L	 E57
SCGT 32.52-AM	09T308												145667 $ 23.13	3/8	5/32	1/32	SSSCR/L	E58
SCGT 431-AM	120404												146101 $ 25.68	1/2	3/16	1/64	Boring SSKCR/L	 E71
SCGT 432-AM	120408												145668 $ 25.68	1/2	3/16	1/32		
SCGT 32.51-AP(K)	09T304												146993 $ 23.13	3/8	5/32	1/64		
SCGT 32.52-AP	09T308												146994 $ 23.13	3/8	5/32	1/32		
SCGT 431-AP	120404												146996 $ 25.68	1/2	3/16	1/64		
SCGT 432-AP	120408												146995 $ 25.68	1/2	3/16	1/32		

Quick Choice Grade Selection

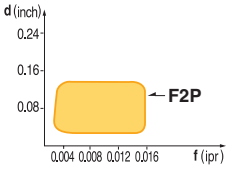
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

SCMT-F2P

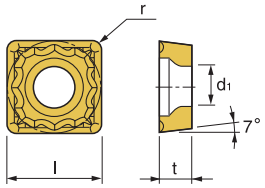




- Excellent chip control at wide range of cutting conditions
- Suitable for stainless steel cutting

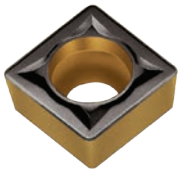


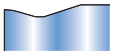
- USE
  Medium
- Recommendation
  F2P d = 0.02~0.14inch
  f = 0.002~0.016ipr



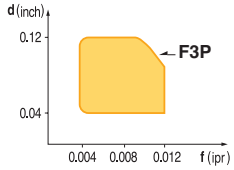
		Coated Carbide							Cermet			Diamond Coated	Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT30C	PM10P	KT05C	KT10C	PT10S	PT20S	ST10P	ND100	KT10U	l	t	r	Holder	Page No.
																	Turning	
SCMT 32.52-F2P	09T308		**149281 $ 13.77**		**146932 $ 13.77**									3/8	5/32	1/32	SSBCR/L	E57
																	SSSCR/L	E58
																	Boring	
																	SSKCR/L	E71

SCMT-F3P

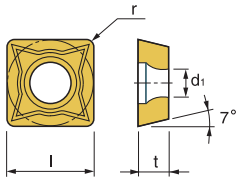




- Suitable for intermittent cutting and cast iron machining
- Good surface finish due to low cutting force
- Suitable for both boring and outer diameter turning



- USE
  Medium
- Recommendation
  F3P d = 0.04~0.12inch
  f = 0.004~0.012ipr

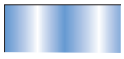


		Coated Carbide							Cermet		Diamond Coated	Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	KT10C	KT15C	PT20S	PT30S	ND100	KT10U	l	t	r	Holder	Page No.
																Turning	
SCMT 21.51-F2P	070204					**146107 $ 13.35**							1/4	3/32	1/64	SSBCR/L	E57
SCMT 32.51-F3P	09T304					**146109 $ 13.77**							3/8	5/32	1/64	SSSCR/L	E58
																Boring	
SCMT 32.52-F3P	09T308				**149281 $ 13.77**	**148830 $ 13.77**		**149224 $ 13.77**					3/8	5/32	1/32	SSKCR/L	E71
SCMT 431-F3P	120404				**149319 $ 18.20**								1/2	3/16	1/64		
SCMT 432-F3P	120408		**149320 $ 18.20**										1/2	3/16	1/32		

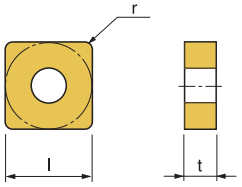
SNM_ 90° Negative Turning Inserts

SNMA



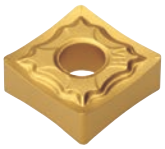


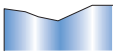
- Flat top geometry for the machining of Cast Iron & Hardened steels



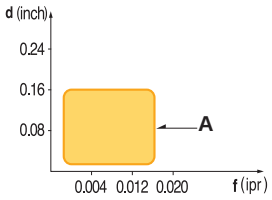
		Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	KT15C	PT10S	PT20S	KTM10U	l	t	r	Holder	Page No.
																		Turning	
SNMA 434	120416										**149327 $ 16.20**				1/2	3/16	1/16	MSDNN	E50
																		MSKNR/L	E50
																		MSRNR/L	E51
																		Boring	
																		PSKNR/L	E68

SNMG-A

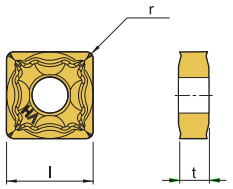




- Sharp cutting edge generates low cutting force
- Specially designed tough main cutting edge
- Suitable for cutting of low carbon steel, stainless steel, aluminum

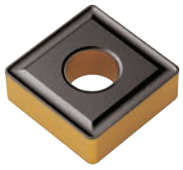


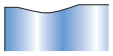
- USE
  Light & Medium
- Recommendation
  A d = 0.03~0.14inch
  f = 0.004~0.016ipr



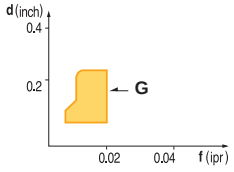
		Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	t	r	Holder	Page No.
																		Turning	
SNMG 431-A	120404							147710 $ 16.20							1/2	3/16	1/64	MSDNN	E50
																		MSKNR/L	E50
SNMG 432-A	120408							147713 $ 16.20						147714 $ 13.02	1/2	3/16	1/32	MSRNR/L	E51
																		Boring	
																		PSKNR/L	E68

SNMG-G

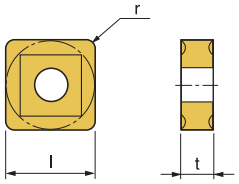




- Suitable for general cutting condition cutting

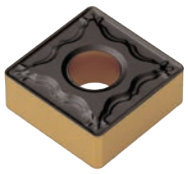


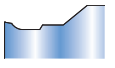
- USE
  General Cutting
- Recommendation
  G d = 0.16~0.4inch
  f = 0.02~0.04ipr



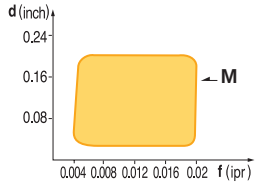
		Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	t	r	Holder	Page No.
																		Turning	
SNMG 431-G	120404					147741 $ 16.20									1/2	3/16	1/64	MSDNN	E50
SNMG 432-G	120408				149280 $ 16.20										1/2	3/16	1/32	MSKNR/L	E50
																		MSRNR/L	E51
SNMG 642-G	190608					146436 $ 33.73									3/4	1/4	1/32	Boring	
																		PSKNR/L	E68
SNMG 866-G	250924					146156 $ 69.38									1.00	3/8	3/32		

SNMG-M

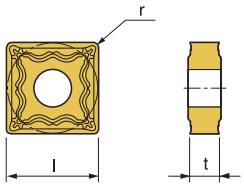




- Wide available chip control range from medium-finishing to medium-roughing
- Suitable chip breaker for CNC machining



- USE
  Medium
- Recommendation
  M d = 0.04~0.2inch
  f = 0.004~0.02ipr



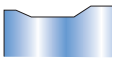
		Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	t	r	Holder	Page No.
																		Turning	
SNMG 432-M	120408				149325 $ 16.53										1/2	3/16	1/32	MSDNN	E50
																		MSKNR/L	E50
																		MSRNR/L	E51
																		Boring	
																		PSKNR/L	E68

Quick Choice Grade Selection

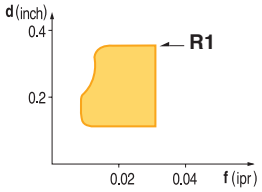
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

SNMG-R1

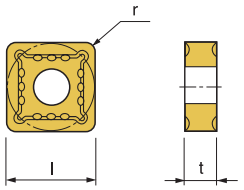




- Excellent chip control at deep depth of cut and fast feed rate
- Strong cutting edge makes excellent cutting performance at intermittent cutting



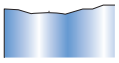
- USE
  Roughing
- Recommendation
  R1 d = 0.12~0.32inch
  f = 0.012~0.032ipr



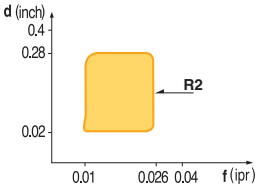
		Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	t	r	Holder	Page No.
SNMG 433-R1	120412				146415 $ 16.20										1/2	3/16	3/64	**Turning**	
SNMG 543-R1	150612				146429 $ 25.83										5/8	1/4	3/64	MSDNN MSKNR/L MSRNR/L	E50 E50 E51
SNMG 643-R1	190612				146079 $ 33.73										3/4	1/4	3/64	**Boring** PSKNR/L	E68

SNMG(M)-R2

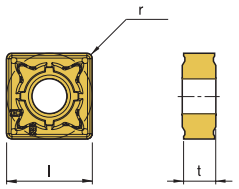




- Suitable for heavy duty cutting due to strong cutting edge
- Wide chip control range with low cutting force



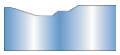
- USE
  Roughing
- Recommendation
  R2 d = 0.12~0.44inch
  f = 0.012~0.052ipr



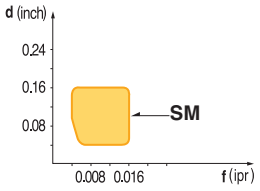
		Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PT40C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PM20U	l	t	r	Holder	Page No.
SNMG 433-R2	120412				147753 $ 16.53										1/2	3/16	3/64	**Turning**	
SNMG 543-R2	150612				147757 $ 25.83										5/8	1/4	3/64	MSDNN MSKNR/L MSRNR/L	E50 E50 E51
SNMG 643-R2	190612				146412 $ 33.73	148626 $ 34.23									3/4	1/4	3/64	**Boring** PSKNR/L	E68
SNMG 644-R2	190616				146377 $ 33.73										3/4	1/4	1/16		

SNMG-SM

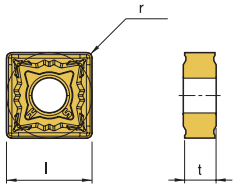




- Exclusive design for stainless steel cutting provide longer tool life
- Wear resistance has been reinforced through high rake angle of chip breaker land



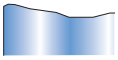
- USE
  Stainless Steel
- Recommendation
  SM d = 0.04~0.16inch
  f = 0.004~0.016ipr



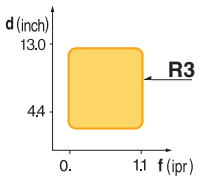
		Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	t	r	Holder	Page No.
SNMG 431-SM	120404							148161 $ 16.20							1/2	3/16	1/64	**Turning**	
SNMG 432-SM	120408							147747 $ 16.20							1/2	3/16	1/32	MSDNN MSKNR/L MSRNR/L	E50 E50 E51
																		Boring PSKNR/L	E68

SNMM-R3

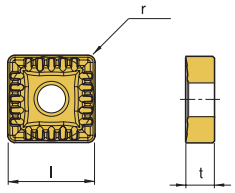




- Specially designed toughest cutting edge provides superior cutting performance at deep depth of cut and fast feed rate
- Unique design of dot on cutting edge makes smooth chip flow and reduce cutting force



- USE
  Heavy Duty
- Recommendation
  R3 d = 0.16~0.52inch
  f = 0.018~0.06ipr



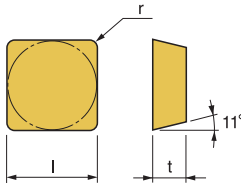
Designation	ISO	Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
		PT10C	PT20C	PT22C	PT30C	PT40C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PM20U	l	t	r	Holder	Page No.
SNMM 643-R3	190612				**147703 $ 34.23**										3/4	1/4	3/64	**Turning**	
																		MSDNN	E50
																		MSKNR/L	E50
SNMM 856-R3	250724				**147706 $ 61.74**										1.00	5/16	3/32	MSRNR/L	E51
																		Boring	
																		PSKNR/L	E68

SP_ _ 90° Positive Turning Inserts

SPG



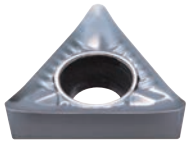


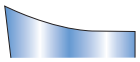


Designation	ISO	Coated Carbide										Cermet		Uncoated Carbide	(inch)			Applicable Holders	
		PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PM20U	l	t	r	Holder	Page No.
SPG 633	190412													**146463 $ 29.51**	3/4	3/16	3/64		

TC_T 60° Positive Turning Inserts

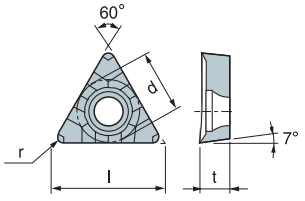
TCGT-AM (AM Chipbreaker is for Aluminum)





- Exclusive chip breaker for aluminum and aluminum alloy

- USE
  Aluminum Cutting
- Recommendation
  AM d = 0.020~0.157inch
  f = 0.002~0.020ipr



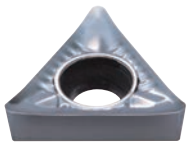
Designation	ISO	Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
		PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
TCGT 21.51-AM	110204												**146120 $ 19.26**	0.433	1/4	3/32	1/64	**Turning**	
																		STFCR/L	E58
TCGT 21.52-AM	110208												**146121 $ 19.26**	0.433	1/4	3/32	1/32	STGCR/L	E59
																		Boring	
TCGT 32.50.5	16T302												**146123 $ 24.38**	0.650	3/8	5/32	1/64	STFCR/L	E72
																		Chamfer	
TCGT 32.51-AM	16T304												**146135 $ 24.38**	0.650	3/8	5/32	1/64	CT45°	E142
TCGT 32.52-AM	16T308												**146137 $ 24.38**	0.650	3/8	5/32	1/32		

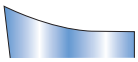
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

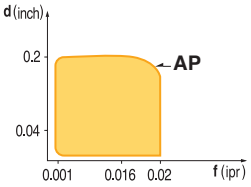
TC_T 60° Positive Turning Inserts

TCGT-AP (AP Chipbreaker is for Aluminum)

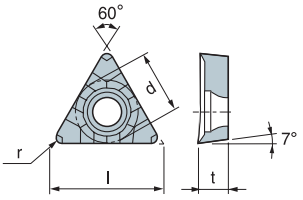




- Exclusive chip breaker for aluminum and aluminum alloy

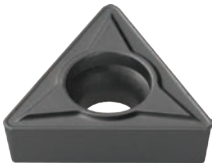


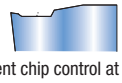
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



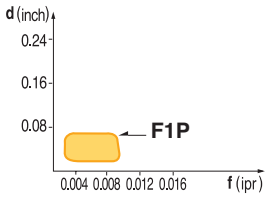
		Coated Carbide										Diamond Coated	Uncoated Carbide				(inch)	Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
TCGT 21.50.5-AP	110202												146504 $ 19.26	0.433	1/4	3/32	0.008	**Turning**	
TCGT 21.51-AP	110204												146505 $ 19.26	0.433	1/4	3/32	1/64	STFCR/L STGCR/L	E58 E59
TCGT 21.52-AP	110208												146506 $ 19.26	0.433	1/4	3/32	1/32	**Boring** STFCR/L	E72
TCGT 32.51-AP(K)	16T304												146507 $ 24.38	0.650	3/8	5/32	1/64	**Chamfer** CT45°	E142
TCGT 32.52-AP(K)	16T308												146508 $ 24.38	0.650	3/8	5/32	1/32		

TCGT-F1P

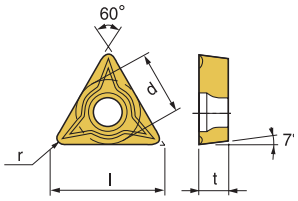




- Excellent chip control at wide range of cutting conditions
- Suitable for stainless steel cutting

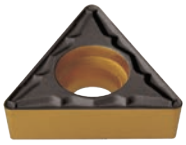


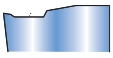
- USE
  Medium
- Recommendation
  F1P d = 0.004~0.06inch
  f = 0.002~0.01ipr



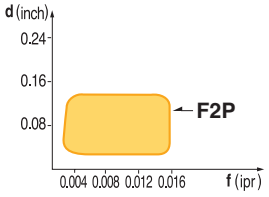
		Coated Carbide										Cermet		Uncoated Carbide				(inch)	Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PM30C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KT10U	l	d	t	r	Holder	Page No.
TCGT 1.81.51-F1P	090204													146690 $ 10.96	0.378	7/32	3/32	1/64	**Turning** STFCR/L STGCR/L **Boring** STFCR/L **Chamfer** CT45°	 E58 E59 E72 E142

TCMT-F1P/F2P

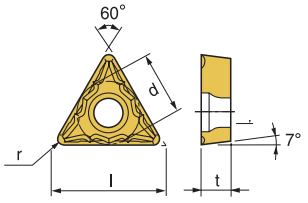




- Excellent chip control at wide range of cutting conditions
- Suitable for stainless steel cutting

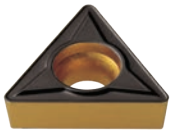


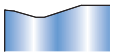
- USE
  Medium
- Recommendation
  F2P d = 0.02~0.14inch
  f = 0.002~0.016ipr



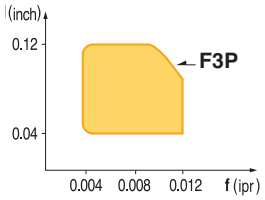
		Coated Carbide											Cermet					(inch)	Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PM30C	PT30C	MT15C	MT20C	MT30P	KT10C		PT10S	PT20S	l	d	t	r	Holder	Page No.
TCMT 32.50.5-F1P	16T302		149517 $ 16.00												0.650	3/8	5/32	0.008	**Turning**	
TCMT 21.50.5-F2P	110202		149514 $ 13.08												0.433	1/4	3/32	0.008	STFCR/L STGCR/L	E58 E59
TCMT 21.51-F2P	110204		149515 $ 13.07		149282 $ 13.07		146138 $ 13.08	149331 $ 13.08		146140 $ 13.08					0.433	1/4	3/32	1/64	**Boring** STFCR/L	E72
TCMT 21.52-F2P	110208		149516 $ 13.07		149286 $ 13.07	146142 $ 13.08									0.433	1/4	3/32	1/32	**Chamfer** CT45°	E142
TCMT 32.51-F2P	16T304		149518 $ 15.76		149232 $ 15.76										0.650	3/8	5/32	1/64		
TCMT 32.52-F2P	16T308		149343 $ 15.76		149362 $ 15.76	146613 $ 16.04		149263 $ 15.76							0.650	3/8	5/32	1/32		

TCMT-F3P

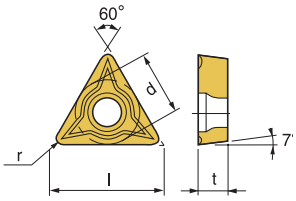




- Suitable for intermittent cutting and cast iron machining
- Good surface finish due to low cutting force
- Suitable for both boring and outer diameter turning



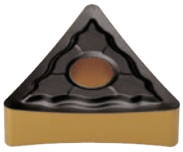
- USE
  Medium
- Recommendation
  F3P d = 0.04~0.12inch
  f = 0.004~0.012ipr

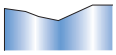


		Coated Carbide								Cermet		Uncoated Carbide		(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	MT30P	KT05C	KT10C	PT10S	PT20S	KTM30U	PM20U	l	d	t	r	Holder	Page No.
TCMT 21.51-F3P	110204				149253 $ 13.08	146503 $ 13.08								0.433	1/4	3/32	1/64	**Turning**	
TCMT 21.52-F3P	110208					146144 $ 13.08								0.433	1/4	3/32	1/32	STFCR/L STGCR/L	E58 E59
TCMT 32.51-F3P	16T304				149235 $ 15.76									0.650	3/8	5/32	1/64	**Boring** STFCR/L	E72
TCMT 32.52-F3P	16T308		149342 $ 15.76		149239 $ 15.76									0.650	3/8	5/32	1/32	**Chamfer** CT45°	E142

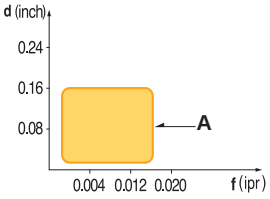
TNMG 60° Negative Turning Inserts

TNMG-A

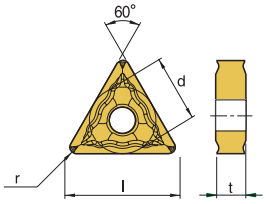




- Sharp cutting edge generates low cutting force
- Specially designed tough main cutting edge
- Suitable for cutting of low carbon steel, stainless steel, aluminum



- USE
  Light & Medium
- Recommendation
  A d = 0.03~0.16inch
  f = 0.002~0.016ipr



		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
TNMG 331-A	160404					149290 $ 14.18		147632 $ 14.18						147633 $ 11.43	0.650	3/8	3/16	1/64	**Turning**	
TNMG 332-A	160408				149346 $ 14.18			147635 $ 14.18						147636 $ 11.43	0.650	3/8	3/16	1/32	MTCNN MTFNR/L MTENN MTGNR/L MTJNR/L	E51 E52 E52 E53 E53
TNMG 432-A	220408				149293 $ 20.14									148375 $ 16.07	0.866	1/2	3/16	1/32	**Boring** MTFNR MTUNR PTFNR/L	E65 E65 E69

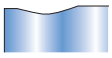
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

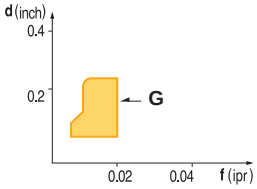
TNMG 60° Negative Turning Inserts

TNMG-G

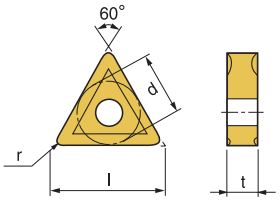




- Suitable for general cutting condition cutting

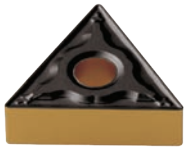


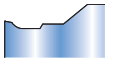
- USE
  General Cutting
- Recommendation
  G d = 0.16~0.4inch
  f = 0.02~0.04ipr



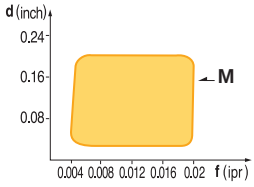
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
TNMG 321-G	160304					146270 $ 13.02									0.650	3/8	1/8	1/64	**Turning**	
TNMG 322-G	160308					146093 $ 13.02									0.650	3/8	1/8	1/32	MTCNN	E51
TNMG 431-G	220404				149324 $ 20.14										0.886	1/2	3/16	1/64	MTFNR/L	E52
TNMG 432-G	220408				149283 $ 20.14										0.886	1/2	3/16	1/32	MTENN	E52
TNMG 433-G	220412					146633 $ 20.14									0.886	1/2	3/16	3/64	MTGNR/L	E53
TNMG 438-G	220432					146726 $ 20.14									0.886	1/2	3/16	1/8	MTJNR/L	E53
TNMG 543-G	270612				149275 $ 32.33										1.083	5/8	1/4	3/64	**Boring**	
TNMG 544-G	270616					148550 $ 32.33									1.083	5/8	1/4	1/16	MTFNR	E65
																			MTUNR	E65
																			PTFNR/L	E69

TNMG-M/M1

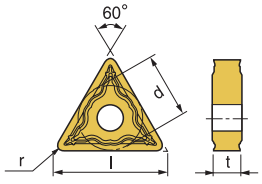




- Wide available chip control range from medium-finishing to medium-roughing
- Suitable chip breaker for CNC machining



- USE
  Medium
- Recommendation
  M d = 0.04~0.2inch
  f = 0.004~0.02ipr

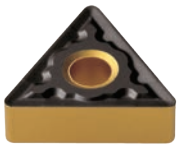


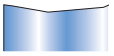
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
TNMG 331-M1	160404				149259 $ 14.18										0.650	3/8	3/16	1/64	**Turning**	
TNMG 332-M	160408					147641 $ 14.18									0.650	3/8	3/16	1/32	MTCNN	E51
TNMG 431-M	220404				149240 $ 20.49										0.886	1/2	3/16	1/64	MTFNR/L	E52
TNMG 432-M	220408		149449 $ 20.14		149228 $ 20.49	147645 $ 20.14									0.886	1/2	3/16	1/32	MTENN	E52
TNMG 432-M1	220408				149278 $ 20.14										0.886	1/2	3/16	1/32	MTGNR/L	E53
TNMG 433-M	220412				149288 $ 20.45										0.886	1/2	3/16	3/64	MTJNR/L	E53
																			Boring	
																			MTFNR	E65
																			MTUNR	E65
																			PTFNR/L	E69

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

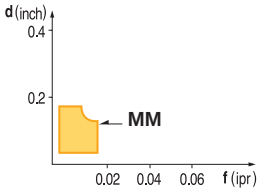
Images are representational only and may not reflect actual product.

TNMG-MM

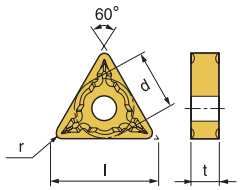




- Excellent choice for a variety of steels including stainless steel



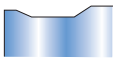
- USE
  Steels/Stainless Steels
- Recommendation
  MM d = 0.04~0.16inch
  f = 0.004~0.016ipr



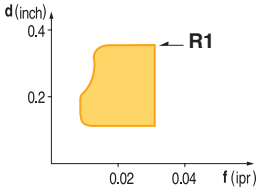
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
TNMG 332-MM	160408				**149323 $ 15.11**										0.650	3/8	3/16	1/32	**Turning**	
																			MTCNN	E51
																			MTFNR/L	E52
TNMG 431-MM	220404				**149244 $ 20.45**										0.886	1/2	3/16	1/64	MTENN	E52
																			MTGNR/L	E53
																			MTJNR/L	E53
																			Boring	
TNMG 432-MM	220408				**149234 $ 20.49**										0.886	1/2	3/16	1/32	MTFNR	E65
																			MTUNR	E65
																			PTFNR/L	E69

TNMG-R1

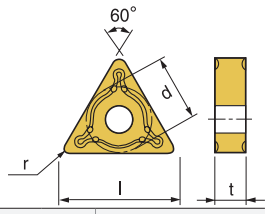




- Excellent chip control at deep depth of cut and fast feed rate
- Strong cutting edge makes excellent cutting performance at intermittent cutting

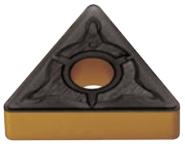


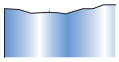
- USE
  Roughing
- Recommendation
  R1 d = 0.1~0.28inch
  f = 0.010~0.026ipr



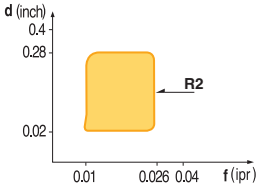
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
TNMG 332-R1	160408				**146573 $ 14.18**										0.650	3/8	3/16	1/32	**Turning**	
																			MTCNN	E51
																			MTFNR/L	E52
TNMG 432-R1	220408				**146621 $ 20.14**										0.886	1/2	3/16	1/32	MTENN	E52
																			MTGNR/L	E53
																			MTJNR/L	E53
																			Boring	
TNMG 433-R1	220412				**146638 $ 20.14**										0.886	1/2	3/16	3/64	MTFNR	E65
																			MTUNR	E65
																			PTFNR/L	E69

TNMG-R2

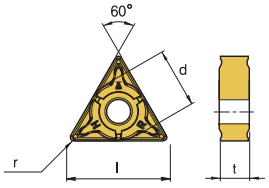




- Suitable for heavy duty cutting due to strong cutting edge
- Wide chip control range with low cutting force



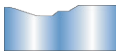
- USE
  Roughing
- Recommendation
  R2 d = 0.12~0.44inch
  f = 0.012~0.052ipr



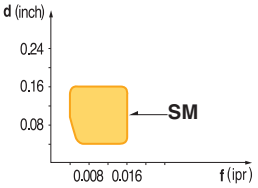
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
TNMG 432-R2	220408		**149340 $ 16.22**		**147623 $ 20.14**										0.886	1/2	3/16	1/32	**Turning**	
																			MTCNN	E51
																			MTFNR/L	E52
																			MTENN	E52
																			MTGNR/L	E53
																			MTJNR/L	E53
																			Boring	
TNMG 433-R2	220412				**147625 $ 20.45**										0.886	1/2	3/16	3/64	MTFNR	E65
																			MTUNR	E65
																			PTFNR/L	E69

TNMG-SM

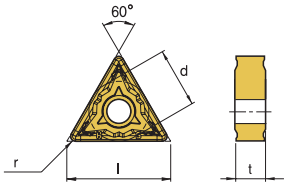




- Exclusive design for stainless steel cutting provide longer tool life
- Wear resistance has been reinforced through high rake angle of chip breaker land



- USE
  Stainless Steel
- Recommendation
  SM d = 0.04~0.16inch
  f = 0.004~0.016ipr

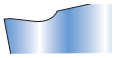


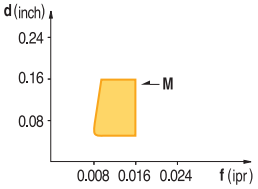
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
																			Turning	
TNMG 331-SM	160404							146169 $ 14.18							0.650	3/8	3/16	1/64	MTCNN MTFNR/L	E51 E52
TNMG 332-SM	160408							147614 $ 14.18							0.650	3/8	3/16	1/32	MTENN MTGNR/L MTJNR/L	E52 E53 E53
																			Boring	
TNMG 432-SM	220408					149271 $ 20.45		147616 $ 20.14							0.886	1/2	3/16	1/32	MTFNR MTUNR PTFNR/L	E65 E65 E69

TPMR 60° Positive Turning Inserts

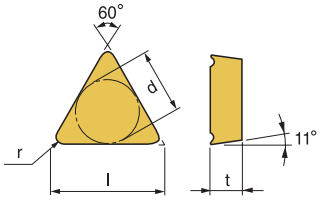
TPMR-F/TPMR-M







- Recommendation
  M d = 0.06~0.16inch
  f = 0.008~0.016ipr

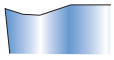


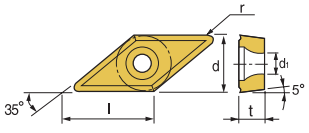
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
TPMR 321-F	160304				149268 $ 14.36										0.650	3/8	1/8	1/64		
TPMR 322-M	160308				149229 $ 14.36										0.650	3/8	1/8	1/32		
TPMR 432-M	220408					147957 $ 27.47									0.886	1/2	3/16	1/32		

V_ _ T 35° Positive Turning Inserts

VBMT/VBMT-F2P







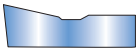
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
																			Boring	
VBMT 331	160404				149276 $ 22.80	146846 $ 22.80									0.650	3/8	3/16	1/64	SVQBR/L	E72
VBMT 332	160408				149269 $ 22.80	146849 $ 22.80									0.650	3/8	3/16	1/32	SVUBR/L	E73
VBMT 32.51-F2P	16T304							145633 $ 17.13							0.650	3/8	5/32	1/64		
VBMT 331-F2P	160404					146171 $ 22.80									0.650	3/8	3/16	1/64		
VBMT 332-F2P	160408							145622 $ 22.80			145623 $ 22.80				0.650	3/8	3/16	1/32		

Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

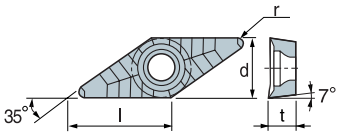
VCGT-AM (AM Chip breaker is for Aluminum)





- Exclusive chip breaker for aluminum and aluminum alloy

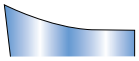
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.020~0.157inch
  f = 0.002~0.020ipr



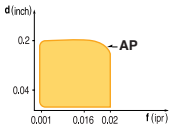
		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
VCGT 221-AM	110304												145670 $ 23.26	0.354	1/4	1/8	1/64	Turning SVJCR/L	E59
VCGT 222-AM	110308												145671 $ 23.26	0.354	1/4	1/8	1/32		
VCGT 330.5-AM	160402												145672 $ 26.53	0.650	3/8	3/16	0.008		
VCGT 331-AM	160404												146177 $ 26.53	0.650	3/8	3/16	1/64		
VCGT 332-AM	160408												146180 $ 26.53	0.650	3/8	3/16	1/32		
VCGT 333-AM	160412												146181 $ 26.53	0.650	3/8	3/16	3/64		

VCGT-AP (AP Chip breaker is for Aluminum)

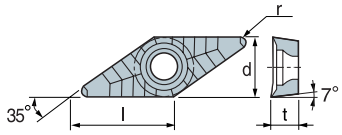




- Exclusive chip breaker for aluminum and aluminum alloy



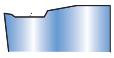
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



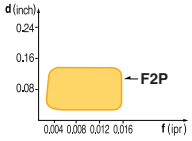
		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
VCGT 331-AP	160404												146850 $ 26.53	0.650	3/8	3/16	1/64	Turning SVJCR/L	E59
VCGT 332-AP	160408												146545 $ 26.53	0.650	3/8	3/16	1/32		
VCGT 333-AP	160412												146852 $ 26.53	0.650	3/8	3/16	3/64		

VCMT-F2P

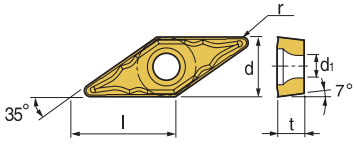




- Excellent chip control at wide range of cutting conditions
- Suitable for stainless steel cutting



- USE
  Medium
- Recommendation
  F2P d = 0.02~0.14inch
  f = 0.002~0.016ipr



		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
VCMT 331-F2P	160404										148461 $ 22.86				0.650	3/8	3/16	1/64	Turning SVJCR/L	E59
VCMT 332-F2P	160408				149273 $ 22.87						148462 $ 22.86				0.650	3/8	3/16	1/32		

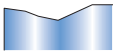
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

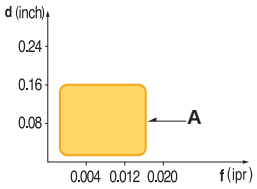
VNMG 35° Negative Turning Inserts

VNMG-A

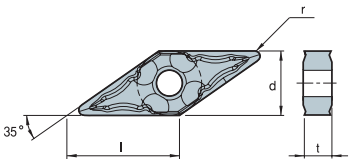




- Sharp cutting edge generates low cutting force
- Specially designed tough main cutting edge
- Suitable for cutting of low carbon steel, stainless steel, aluminum

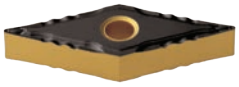


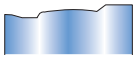
- USE
  Light & Medium
- Recommendation
  A d = 0.03~0.16inch
  f = 0.002~0.016ipr



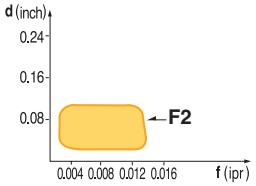
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
VNMG 331-A	160404										148385 $ 20.64			145546 $ 16.47	0.654	3/8	3/16	1/64	Turning MVJNR/L	E54
VNMG 332-A	160408										148386 $ 20.64			145547 $ 16.47	0.654	3/8	3/16	1/32		

VNMG-F2

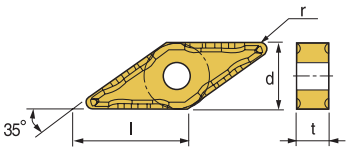




- Excellent chip control at varied depth of cutting
- Strong cutting edge toughness due to special design



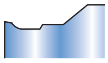
- USE
  Finishing
- Recommendation
  F2 d = 0.012~0.1inch
  f = 0.002~0.014ipr



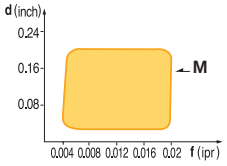
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
VNMG 330.5-F2	160402				149270 $ 20.65								147660 $ 16.72		0.654	3/8	3/16	0.008	Turning MVJNR/L	E54
VNMG 331-F2	160404				149321 $ 20.64								147661 $ 16.47		0.654	3/8	3/16	1/64		
VNMG 332-F2	160408												147662 $ 16.72		0.654	3/8	3/16	1/32		

VNMG-M/M1

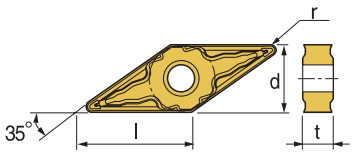




- Wide available chip control range from medium-finishing to medium-roughing
- Suitable chip breaker for CNC machining



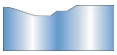
- USE
  Medium
- Recommendation
  M d = 0.04~0.2inch
  f = 0.004~0.02ipr



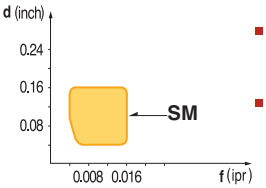
		Coated Carbide									Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT25C	PT30C	MT15C	MT20C	KT05C	KT10C	ST10P	PT10S	PT20S	KT10U	l	d	t	r	Holder	Page No.
VNMG 331-M	160404			149284 $ 20.97										0.653	3/8	3/16	1/64	Turning MVJNR/L	E54
VNMG 332-M	160408			149265 $ 20.64		149339 $ 20.97								0.653	3/8	3/16	1/32	Boring MVUNR/L	E66
VNMG 333-M	160412				148866 $ 20.97									0.653	3/8	3/16	3/64		
VNMG 333-M1	160412			149274 $ 20.65										0.653	3/8	3/16	3/64		

VNMG-SM

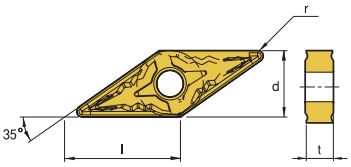




- Exclusive design for stainless steel cutting provide longer tool life
- Wear resistance has been reinforced through high rake angle of chip breaker land



- USE
  Stainless Steel
- Recommendation
  SM d = 0.04~0.16inch
  f = 0.004~0.016ipr

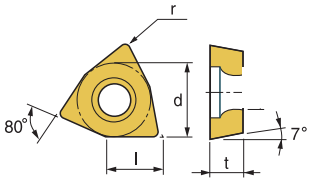


		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	PTM30U	l	d	t	r	Holder	Page No.
VNMG 332-SM	160408										148390 $ 20.64				0.654	3/8	3/16	1/32	Turning MVJNR/L	E54

W_ _ T 80° Positive Turning Inserts

WCMT-C20/C21



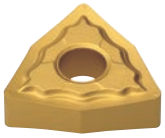


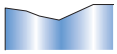
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	PM35P	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
WCMT 1.81.52-C20	030208					146242 $ 19.33								146537 $ 15.47	0.149	7/32	3/32	1/32	Boring SWLCR/L	E73
WCMT 21.52-C20	040208					146237 $ 19.38								147155 $ 15.49	0.169	1/4	3/32	1/32		
WCMT 2.522-C20	050308					146236 $ 20.64									0.212	5/16	1/8	1/32		
WCMT 32.52-C20	06T308					146235 $ 20.64								146539 $ 16.49	0.256	3/8	5/32	1/32		
WCMT 432-C20	080408					146855 $ 25.26									0.342	1/2	3/16	1/32		
WCMT 433-C20	080412					146000 $ 25.26								146563 $ 20.22	0.342	1/2	3/16	3/64		

Quick Choice Grade Selection

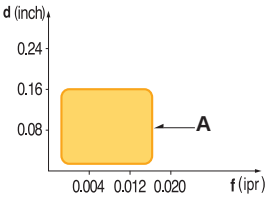
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

WNMG-A

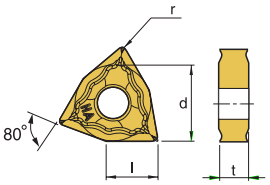




- Sharp cutting edge generates low cutting force
- Specially designed tough main cutting edge
- Suitable for cutting of low carbon steel, stainless steel, aluminum

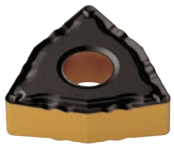


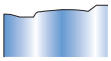
- USE
  Light & Medium
- Recommendation
  A d = 0.032~0.16inch
  f = 0.004~0.016ipr



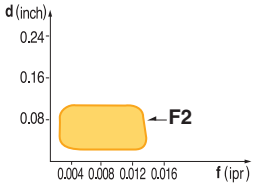
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
WNMG 431-A	080404							147689 $ 16.20			148422 $ 16.20			147690 $ 13.02	0.343	1/2	3/16	1/64	Turning MWLNR/L	E54
WNMG 432-A	080408							147692 $ 16.20			148423 $ 16.20			147693 $ 13.02	0.343	1/2	3/16	1/32	Boring MWLNR/L	E66

WNMG-F2

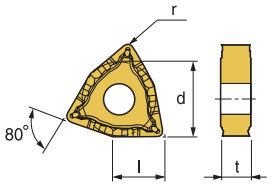




- Excellent chip control at varied depth of cutting
- Strong cutting edge toughness due to special design



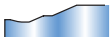
- USE
  Finishing
- Recommendation
  F2 d = 0.01~0.1inch
  f = 0.002~0.014ipr



		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
WNMG 431-F2	080404		149411 $ 16.20												0.343	1/2	3/16	1/64	Turning MWLNR/L Boring	E54
																			MWLNR/L	E66

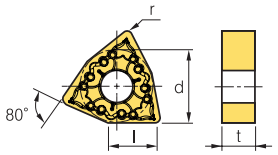
WNMG-FVL





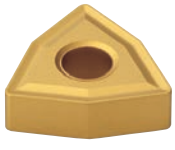
- Stable chip control in high toughness material; low carbon steel, pipe steel, and steel plates
- Improved chip control for facing, copy machining, and better surface finish

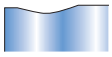
- USE
  Finishing
- Recommendation
  FVL d = 0.008~0.059inch
  f = 0.004~0.014ipr



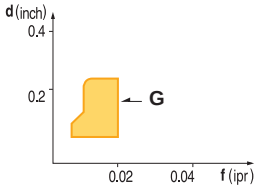
		Coated Carbide									Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
WNMG 432-FVL	080404		149413 $ 16.22		149415 $ 16.20									0.343	1/2	3/16	1/64	Turning MWLNR/L Boring	E54
																		MWLNR/L	E66

WNMG-G

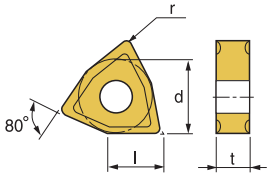




- Suitable for general cutting

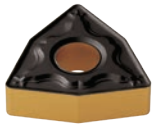


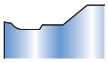
- USE
  General Cutting
- Recommendation
  G d = 0.16~0.4inch
  f = 0.02~0.04ipr



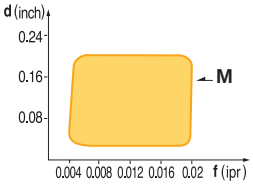
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
WNMG 432-G	080408				146861 $ 16.20										0.343	1/2	3/16	1/32	Turning MWLNR/L Boring	E54
																			MWLNR/L	E66

WNMG-M/M1

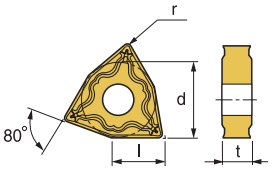




- Wide available chip control range from medium-finishing to medium-roughing
- Suitable chip breaker for CNC machining

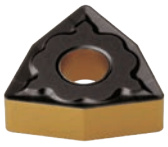


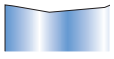
- USE
  Medium
- Recommendation
  M d = 0.04~0.2inch
  f = 0.004~0.02ipr



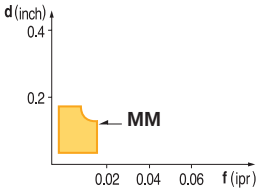
		Coated Carbide									Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT15C	PT20C	PT25C	PT30C	PTM50C	MT30P	KT10C	ST10P	PT10S	PT20S	KT10U	l	d	t	r	Holder	Page No.
WNMG 431-M	080404		149417 $ 16.20		149326 $ 16.48									0.343	1/2	3/16	1/64	Turning MWLNR/L	E54
WNMG 432-M	080408		149335 $ 16.48		149248 $ 16.53	147695 $ 16.20								0.343	1/2	3/16	1/32	Boring MWLNR/L	E66
WNMG 431-M1	080404				149423 $ 16.22									0.343	1/2	3/16	1/64		
WNMG 432-M1	080408		149419 $ 16.20		149425 $ 16.20		145639 $ 20.64	145660 $ 16.20						0.343	1/2	3/16	1/32		
WNMG 433-M1	080412		149421 $ 16.20		149427 $ 16.20									0.343	1/2	3/16	3/64		

WNMG-MM

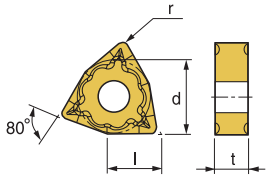




- Excellent choice for a variety of steels including stainless steel

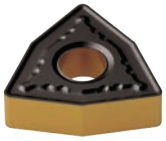


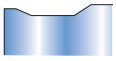
- USE
  Steels/Stainless Steels
- Recommendation
  MM d = 0.04~0.16inch
  f = 0.004~0.016ipr



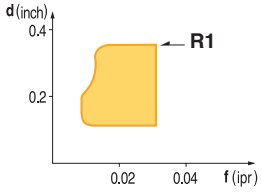
		Coated Carbide									Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
WNMG 432-MM	080408				149249 $ 16.48	149318 $ 16.48		146188 $ 16.20							0.343	1/2	3/16	1/32	Turning MWLNR/L Boring	E54
																			MWLNR/L	E66

WNMG-R1

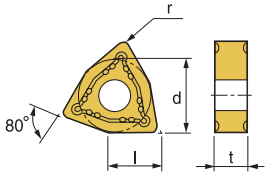




- Excellent chip control at deep depth of cut and fast feed rate
- Strong cutting edge makes excellent cutting performance at intermittent cutting



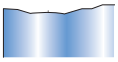
- USE
  Roughing
- Recommendation
  R1 d = 0.1~0.28inch
  f = 0.010~0.026ipr



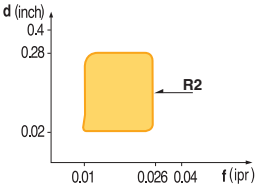
		Coated Carbide									Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT25C	PT30C	PT40C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
WNMG 432-R1	080408				149277 $ 16.20	146857 $ 16.20	146194 $ 16.20								0.343	1/2	3/16	1/32	Turning MWLNR/L	E54
WNMG 433-R1	080412					146862 $ 16.20	146199 $ 16.20								0.343	1/2	3/16	1/64	Boring MWLNR/L	E66

WNMG-R2

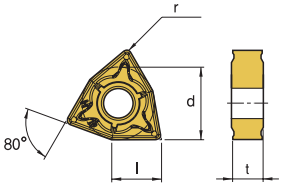




- Suitable for heavy duty cutting due to strong cutting edge
- Wide chip control range with low cutting force



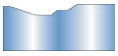
- USE
  Roughing
- Recommendation
  R2 d = 0.12~0.44inch
  f = 0.012~0.052ipr



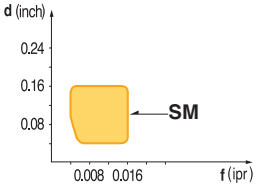
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KT10U	l	d	t	r	Holder	Page No.
WNMG 432-R2	080408				148170 $ 16.20										0.343	1/2	3/16	1/32	Turning MWLNR/L	E54
WNMG 433-R2	080412				147684 $ 16.53										0.343	1/2	3/16	3/64	Boring MWLNR/L	E66

WNMG-SM

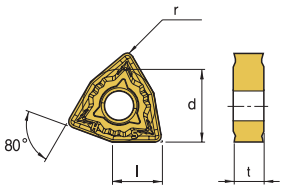




- Exclusive design for stainless steel cutting providing longer tool life
- Wear resistance has been reinforced through high rake angle of chip breaker land



- USE
  Stainless Steel
- Recommendation
  SM d = 0.04~0.16inch
  f = 0.004~0.016ipr



		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	MT15C	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KT10U	l	d	t	r	Holder	Page No.
WNMG 331-SM	060404							146201 $ 13.63							0.256	3/8	3/16	1/64	Turning MWLNR/L	E54
WNMG 332-SM	060408					149344 $ 13.84		146202 $ 13.63							0.256	3/8	3/16	1/32	Boring MWLNR/L	E66
WNMG 431-SM	080404							146204 $ 16.20			148424 $ 16.20				0.343	1/2	3/16	1/64		
WNMG 432-SM	080408							147677 $ 16.20			148425 $ 16.20				0.343	1/2	3/16	1/32		
WNMG 433-SM	080412							147678 $ 16.20							0.343	1/2	3/16	3/64		

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

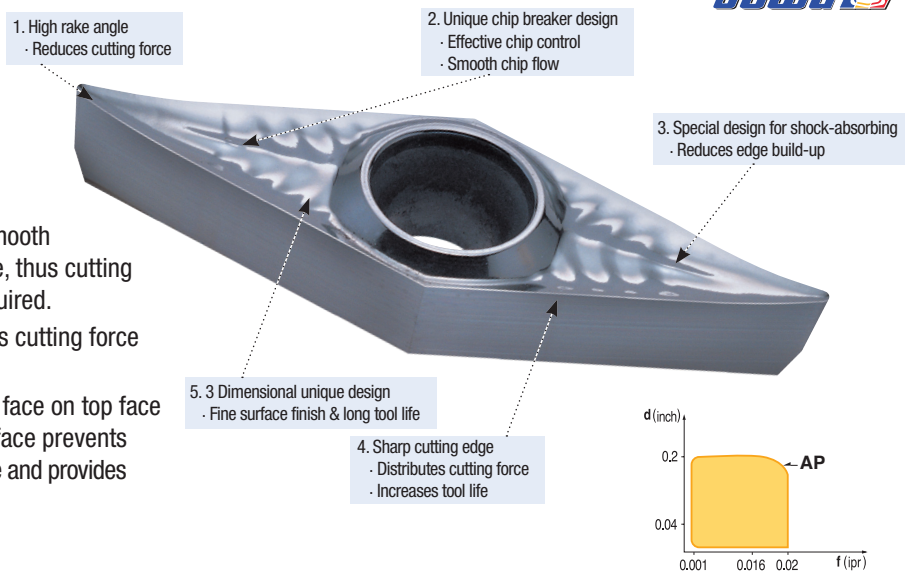
Aluminum Machining Chip Breaker AP

Recommended Cutting Condition

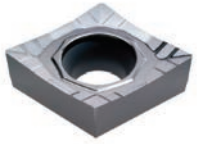
d=0.004~0.200inch
f=0.0012~0.0020ipr

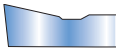
Special Features

1) Uniquely designed inclined plane provides smooth chip flow and chip breaking at the same time, thus cutting force is lower and longer tool life can be acquired.
2) High rake angle of main cutting edge reduces cutting force and prolongs tool life.
3) "AP" type chip breaker equipped with mirror face on top face through special buffing process. This mirror face prevents sticking of work piece material on cutting edge and provides smooth chip flow.



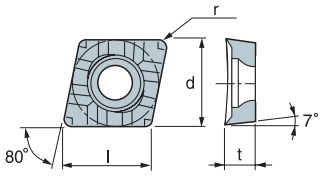
CCGT-AM (AM Chip breaker is for Aluminum)





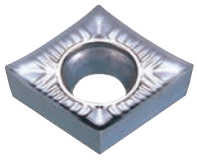
- High stability of cutting edge secures great performance in high speed and interrupted cutting
- High speed of medium and interrupted operation

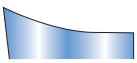
- USE
  Aluminum Cutting
- Recommendation
  W d = 0.020~0.157inch
  f = 0.002~0.020ipr



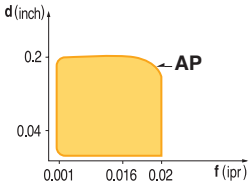
		Coated Carbide										Cermet		Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	PT10S	PT20S	KTM10U	l	d	t	r	Holder	Page No.
CCGT 21.50.5-AM	060202													145661 $ 18.92	0.256	1/4	3/32	0.008	Turning	
CCGT 32.50.5-AM	09T302													145662 $ 22.17	0.382	3/8	5/32	0.008	SCACR/L SCLCR/L	E55 E56
CCGT 32.51-AM	09T304													145683 $ 22.17	0.382	3/8	5/32	1/64	Boring SCLCR/L	E69
CCGT 430.5-AM	120402													145684 $ 25.68	0.508	1/2	3/16	0.008		
CCGT 431-AM	120404													145685 $ 25.68	0.508	1/2	3/16	1/64		
CCGT 432-AM	120408													145686 $ 25.68	0.508	1/2	3/16	1/32		

CCGT-AP (AP Chip breaker is for Aluminum)

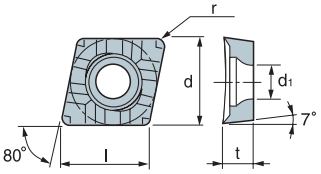




- Exclusive chip breaker for aluminum and aluminum alloy



- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr

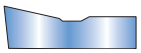


		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
CCGT 21.51-AP	060204												146024 $ 18.92	0.256	1/4	3/32	1/64	Turning	
CCGT 32.50.5-AP	09T302												146027 $ 22.17	0.382	3/8	5/32	0.008	SCACR/L SCLCR/L	E55 E56
CCGT 32.51-AP	09T304											146701 $ 142.41	146011 $ 22.17	0.382	3/8	5/32	1/64	Boring SCLCR/L	E69
CCGT 32.52-AP	09T308												146012 $ 22.17	0.382	3/8	5/32	1/32		
CCGT 431-AP	120404												146627 $ 25.68	0.508	1/2	3/16	1/64		
CCGT 432-AP	120408												146023 $ 25.68	0.508	1/2	3/16	1/32		



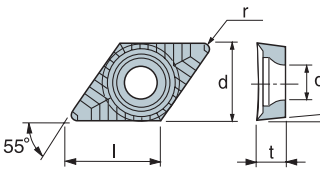
DCGT-AM (AM Chip breaker is for Aluminum)





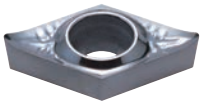
· Exclusive chip breaker for aluminum and aluminum alloy

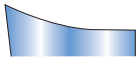
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.020~0.157inch
  f = 0.002~0.020ipr



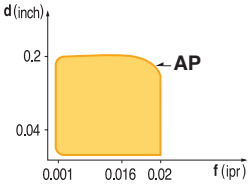
		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
DCGT 21.50.5-AM	070202												146048 $ 18.92	0.307	1/4	3/32	0.008	**Turning**	
DCGT 21.52-AM	070208												146052 $ 18.92	0.307	1/4	3/32	1/32	SDJCR/L SDNCN	E56 E57
DCGT 32.50.5-AP	11T302												145664 $ 22.17	0.457	3/8	5/32	0.008	**Boring** SDQCR/L SDUCR/L	E70 E70
DCGT 32.52-AP	11T308												146063 $ 22.17	0.457	3/8	5/32	1/32	SDZCR/L	E71

DCGT-AP (AP Chip breaker is for Aluminum)

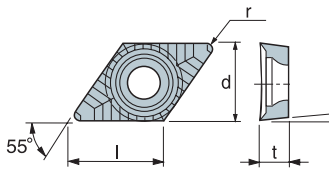




· Exclusive chip breaker for aluminum and aluminum alloy



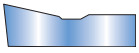
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
DCGT 21.50.5-AP	070202												146988 $ 18.92	0.307	1/4	3/32	0.008	**Turning**	
DCGT 21.51-AP	070204												146989 $ 18.92	0.307	1/4	3/32	1/64	SDJCR/L SDNCN	E56 E57
DCGT 32.50.5-AP	11T302												146990 $ 22.17	0.457	3/8	5/32	0.008	**Boring** SDQCR/L SDUCR/L	E70 E70
DCGT 32.51-AP	11T304											146703 $ 142.41	146991 $ 22.17	0.457	3/8	5/32	1/64	SDZCR/L	E71
DCGT 32.52-AP	11T308											146704 $ 142.41	146992 $ 22.17	0.457	3/8	5/32	1/32		
DCGT 32.53-AP	120404												147764 $ 22.17	0.457	3/8	5/32	3/64		

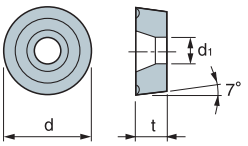
RCGT-AM (AM Chip breaker is for Aluminum)





· Exclusive chip breaker for aluminum and aluminum alloy

- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.020~0.157inch
  f = 0.002~0.020ipr

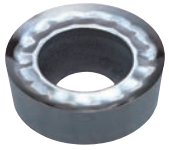


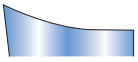
		Coated Carbide									Cermet		Uncoated Carbide		(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	PT10S	PT20S	KT10U	PM20U	l	d	t	d1	Holder	Page No.
RCGT 0803M0-AM													146078 $ 20.78			0.315	1/8	0.008	**Turning**	
RCGT 1003M0-AP													146081 $ 26.39			0.394	1/8	9/64	PRDCN	E55
RCGT 10T3M0-AM													145665 $ 26.39			0.394	5/32	1/64		
RCGT 1204M0-AM													145666 $ 30.95			0.472	3/16	1/32		

Quick Choice Grade Selection

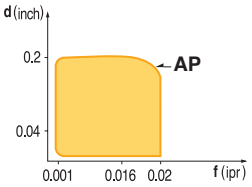
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

RCGT-AP (AP Chip breaker is for Aluminum)

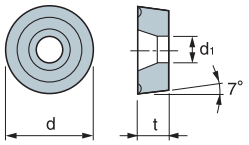




· Exclusive chip breaker for aluminum and aluminum alloy

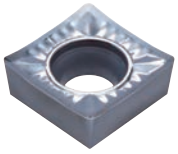


- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.02inch
  f = 0.001~0.02ipr

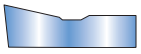


		Coated Carbide									Cermet		Uncoated Carbide		(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	PT10S	PT20S	KT10U	PM20U	d	t	d1	Holder	Page No.
RCGT 0803MO-AP													146315 $ 20.78		0.315	1/8	0.008	Turning PRDCN	E55
RCGT 10T3MO-AP													147377 $ 26.39		0.394	5/32	1/64		
RCGT 1204MO-AP													148421 $ 30.95		0.472	3/16	1/32		

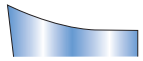
SCGT-AM/AP (AM & AP Chip breakers are for Aluminum)



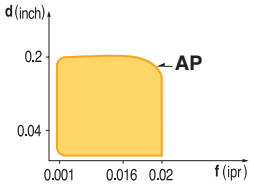
AM



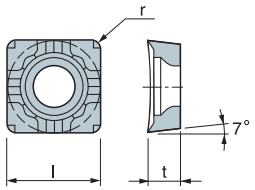
AP



· Exclusive chip breakers for aluminum and aluminum alloy

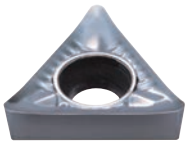


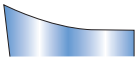
- USE
  Aluminum Cutting
- Recommendation
  AM d = 0.020~0.157inch
  f = 0.002~0.020ipr
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)			Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	t	r	Holder	Page No.
SCGT 32.51-AM	09T304												146094 $ 23.13	3/8	5/32	1/64	Turning SSBCR/L	E57
SCGT 431-AM	120404												146101 $ 25.68	1/2	3/16	1/64	SSSCR/L	E58
SCGT 432-AM	120408												145668 $ 25.68	1/2	3/16	1/32	Boring SSKCR/L	E71
SCGT 32.51-AP(K)	09T304												146993 $ 23.13	3/8	5/32	1/64		
SCGT 32.52-AP	09T308												146994 $ 23.13	3/8	5/32	1/32		
SCGT 431-AP	120404												146996 $ 25.68	1/2	3/16	1/64		
SCGT 432-AP	120408												146995 $ 25.68	1/2	3/16	1/32		

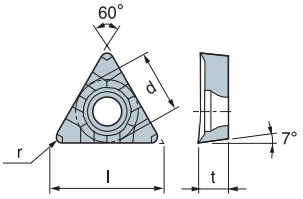
TCGT-AM (AM Chip breaker is for Aluminum)





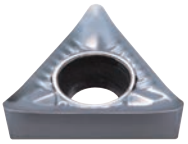
· Exclusive chip breaker for aluminum and aluminum alloy

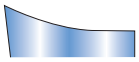
- USE
  Aluminum Cutting
- Recommendation
  AM d = 0.020~0.157inch
  f = 0.002~0.020ipr



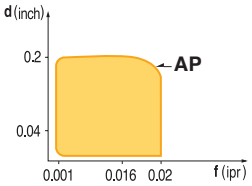
		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
TCGT 21.51-AM	110204												146120 $ 19.26	0.433	1/4	3/32	1/64	Turning STFCR/L	E58
TCGT 21.52-AM	110208												146121 $ 19.26	0.433	1/4	3/32	1/32	STGCR/L	E59
TCGT 32.50.5	16T302												146123 $ 24.38	0.650	3/8	5/32	1/64	Boring STFCR/L	E72
TCGT 32.51-AM	16T304												146135 $ 24.38	0.650	3/8	5/32	1/64		
TCGT 32.52-AM	16T308												146137 $ 24.38	0.650	3/8	5/32	1/32		

TCGT-AP (AP Chip breaker is for Aluminum)

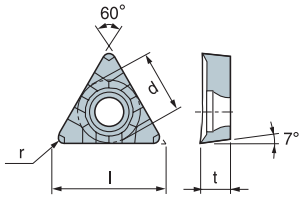




· Exclusive chip breaker for aluminum and aluminum alloy



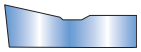
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
TCGT 21.50.5-AP	110202												146504 $ 19.26	0.433	1/4	3/32	0.008	Turning	
TCGT 21.51-AP	110204												146505 $ 19.26	0.433	1/4	3/32	1/64	STFCR/L	E58
TCGT 21.52-AP	110208												146506 $ 19.26	0.433	1/4	3/32	1/32	STGCR/L	E59
TCGT 32.51-AP(K)	16T304												146507 $ 24.38	0.650	3/8	5/32	1/64	Boring	
TCGT 32.52-AP(K)	16T308												146508 $ 24.38	0.650	3/8	5/32	1/32	STFCR/L	E72

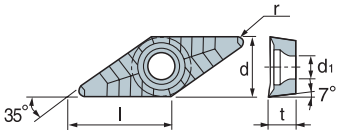
VCGT-AM (AM Chip breaker is for Aluminum)





· Exclusive chip breaker for aluminum and aluminum alloy

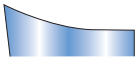
- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.020~0.157inch
  f = 0.002~0.020ipr



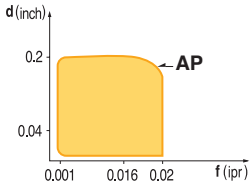
		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
VCGT 222-AM	110308												145671 $ 23.26	0.354	1/4	1/8	1/32	Turning	
VCGT 330.5-AM	160402												145672 $ 26.53	0.650	3/8	3/16	0.008	SVJCR/L	E59
VCGT 331-AM	160404												146177 $ 26.53	0.650	3/8	3/16	1/64		
VCGT 332-AM	160408												146180 $ 26.53	0.650	3/8	3/16	1/32		
VCGT 333-AM	160412												146181 $ 26.53	0.650	3/8	3/16	3/64		

VCGT-AP (AP Chipbreaker is for Aluminum)

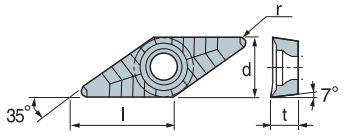




· Exclusive chip breaker for aluminum and aluminum alloy



- USE
  Aluminum Cutting
- Recommendation
  AP d = 0.005~0.2inch
  f = 0.001~0.02ipr



		Coated Carbide										Diamond Coated	Uncoated Carbide	(inch)				Applicable Holders	
Designation	ISO	PT10C	PT20C	PT22C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	ST10P	ND100	KT10U	l	d	t	r	Holder	Page No.
VCGT 331-AP	160404												146850 $ 26.53	0.650	3/8	3/16	1/64	Turning	
VCGT 332-AP	160408												146545 $ 26.53	0.650	3/8	3/16	1/32	SVJCR/L	E59
VCGT 333-AP	160412												146852 $ 26.53	0.650	3/8	3/16	3/64		

Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

C.B.N. Turning Inserts

SOWA C.B.N. products are made from Cubic Boron Nitride powder and special ceramic binder.
SOWA C.B.N. can provide excellent cutting performance for hardened steel and cast iron having high hardness.
Using a C.B.N. can replace additional grinding processes, thus saving costs.

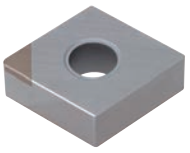
· Suitable for sintered alloy, hard material, heat treated alloy · Excellent surface finish at the cutting of hardened steel.
· Excellent for cast iron cutting

Recommended Cutting Condition

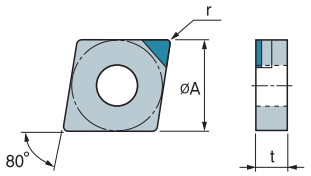
*For additional technical information see page **E179**

Work piece	Speed (sfm)	Feed Turning(ipr) Milling(ipt)	Depth (inch)	1st Recommended Grade
Gray Cast Iron (180~230HRB)	1325 ~ 3275	0.004 ~ 0.02	0.005 ~ 0.04	KB350
	1325 ~ 3275	0.004 ~ 0.02	0.005 ~ 0.04	KB360
Heat Treated Steel (over 45HRC)	325 ~ 450	0.001 ~ 0.012	0.005 ~ 0.04	KB320 KB330
High Temp Alloy (over 45HRC)	175 ~ 600	0.002 ~ 0.008	0.005 ~ 0.04	KB360
Sintered Alloy	175 ~ 825	0.001 ~ 0.008	0.005 ~ 0.04	KB360
Carbide Roll, High Speed Steel Roll	150 ~ 200	0.024 ~ 0.031	0.08 ~ 0.16	KB360

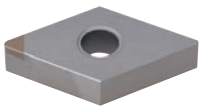
CNMA



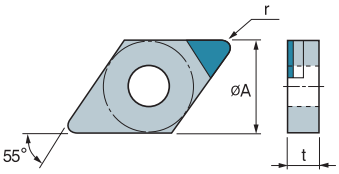
		C.B.N.			(inch)			Applicable Holders	
Designation	ISO	KB320	KB350	KB360	A	t	r	Holder	Page No.
CNMA 432	120408	**146131 $ 133.53**	**147886 $ 133.53**	**147965 $ 133.53**	1/2	3/16	1/32	**Turning**	
								MCKNR/L	E48
								MCLNR/L	E48
								Boring	
								MCLNR/L	E64
								PCLNR/L	E67



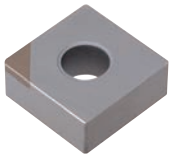
DNMA



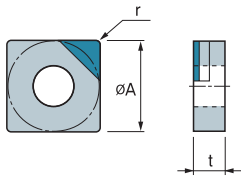
		C.B.N.			(inch)			Applicable Holders	
Designation	ISO	KB320	KB350	KB360	A	t	r	Holder	Page No.
DNMA 432	120408	**146132 $ 133.53**			1/2	3/16	1/32	**Turning**	
								MDJNR/L	E49
								Boring	
								PSDNR/L	E67
								PDUNR/L	E68



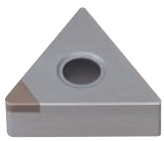
SNMA



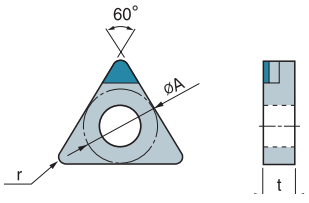
		C.B.N.			(inch)			Applicable Holders	
Designation	ISO	KB320	KB350	KB360	A	t	r	Holder	Page No.
SNMA 432	120408	**146133 $ 133.53**			1/2	3/16	1/32	**Turning**	
								MSDNN	E50
								MSKNR/L	E50
SNMA-433	120412	**146134 $ 133.53**			1/2	3/16	3/64	MSRNR/L	E51
								Boring	
								PSKNR/L	E68



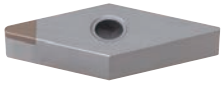
TNMA



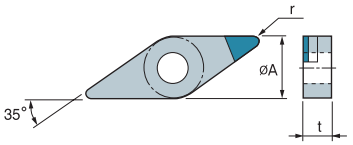
		C.B.N.			(inch)			Applicable Holders	
Designation	ISO	KB320	KB350	KB360	A	t	r	Holder	Page No.
TNMA 332	160408	**146139 $ 125.73**			3/8	3/16	1/32	**Turning**	
								MTFNR/L	E52
								MTENN	E52
TNMA-432	220408	**146141 $ 138.14**			1/2	3/16	1/32	MTJNR/L	E53
								Boring	
								PTFNR/L	E69



VNMA



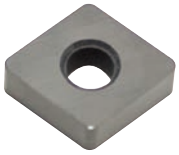
		C.B.N.			(inch)				Applicable Holders	
Designation	ISO	KB320	KB350	KB360	A	t	r	Hole	Holder	Page No.
VNMA 331	160402			**147968 $ 142.31**	3/8	3/16	1/64		**Turning**	
									MVJNR/L	E54



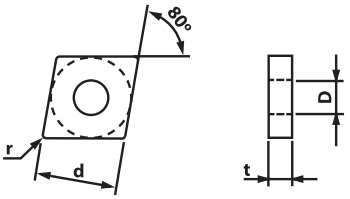
CERAMIC Inserts

CNGA

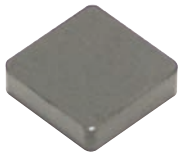
*For additional technical information see page **E181-182**



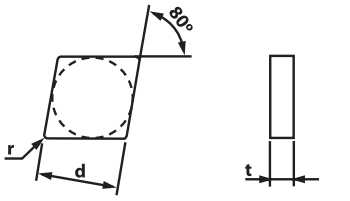
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
CNGA 431	120404	149416 $ 14.32	149418 $ 15.05		0.500	0.187	0.016	**Turning**	
CNGA 432	120408	149420 $ 20.38	149422 $ 18.55		0.500	0.187	0.031	MCKNR/L MCLNR/L MCRNR/L	E48 E48 E49
CNGA 433	120412	149424 $ 14.32	149426 $ 18.55		0.500	0.187	0.047	**Boring**	
CNGA 434	120416	149428 $ 14.32	149430 $ 15.05		0.500	0.187	0.063	MCLNR/L PCLNR/L	E64 E67
CNGA 452	120708	149432 $ 17.36	149434 $ 18.28		0.500	0.313	0.031		
CNGA 453	120712	149436 $ 17.36	149438 $ 18.28		0.500	0.313	0.047		



CNGN



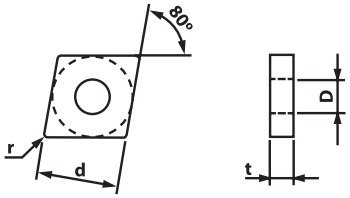
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
CNGN 431	150404	149400 $ 14.32	149402 $ 15.05		0.500	0.187	0.016		
CNGN 432	150408	149404 $ 14.32	149406 $ 15.05		0.500	0.187	0.031		
CNGN 433	150412	149408 $ 14.32	149410 $ 15.05		0.500	0.187	0.047		
CNGN 434	150416	149412 $ 14.32	149414 $ 15.05		0.500	0.187	0.063		



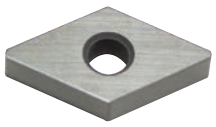
CNMA



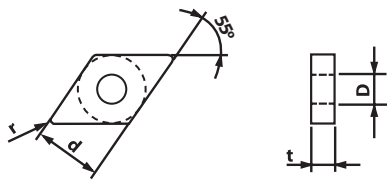
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
CNMA 432	150404			149558 $ 24.16	0.500	0.187	0.031	**Turning**	
CNMA 433	150412			149592 $ 26.40	0.500	0.187	0.047	MCKNR/L MCLNR/L MCRNR/L	E48 E48 E49
CNMA 434	150416			149562 $ 24.16	0.500	0.187	0.063	**Boring**	
CNMA 544	160416			149564 $ 35.31	0.625	0.250	0.063	MCLNR/L PCLNR/L	E64 E67



DNGA



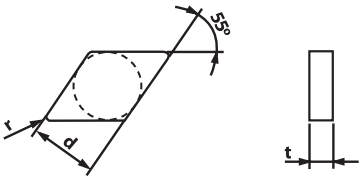
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
DNGA 431	150404	149448 $ 25.20	149450 $ 21.45		0.500	0.187	0.016	**Turning**	
DNGA 432	150408	149452 $ 20.46	149454 $ 25.20		0.500	0.187	0.031	MDJNR/L **Boring**	E49
DNGA 441	150604	149456 $ 21.71	149458 $ 22.84		0.500	0.250	0.016	PDSNR/L PDUNR/L	E67 E68
DNGA 442	150608	149460 $ 21.71	149462 $ 20.46		0.500	0.250	0.031		
DNGA 443	150612	149464 $ 21.71	149466 $ 22.84		0.500	0.250	0.047		



DNGN



		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
DNGN 432	150408	149440 $ 20.46			0.500	0.187	0.031		
DNGN 433	150412	149442 $ 20.46			0.500	0.187	0.047		
DNGN 442	150608	149444 $ 21.71			0.500	0.250	0.031		
DNGN 443	150612	149446 $ 21.71			0.500	0.250	0.047		



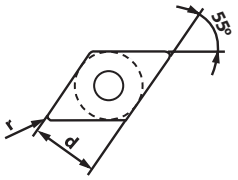
CERAMIC Inserts

DNMA

*For additional technical information see page **E181-182**



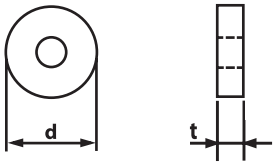
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
DNMA 443	150612			149576 $ 38.08	0.500	0.250	0.047	Turning MDJNR/L Boring PDSNR/L PDUNR/L	 E49 E67 E68



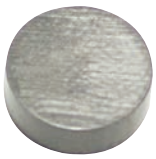
RNGA



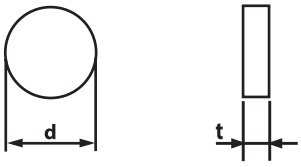
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
RNGA 43	120400	149480 $ 16.43	149482 $ 17.29		0.500	0.187			



RNG

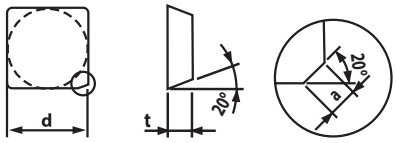


		CERAMIC			(inch)		Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	Holder	Page No.
RNG 32	090300	149470 $ 12.47			0.375	0.125		
RNG 33	090400	149472 $ 13.13	149474 $ 13.79		0.375	0.187		
RNG 43	120400	149476 $ 16.43	149478 $ 13.72		0.500	0.187		



SEKN (For Milling)

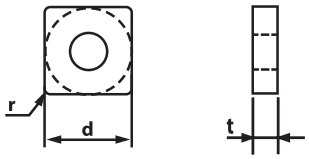
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S300	d	t	r	Holder	Page No.
SEKN 42 AFTN	1203AFTN			149556 $ 32.80	0.500	0.125	0.079		



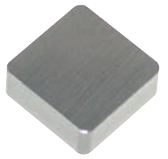
SNGA



		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
SNGA 432	120408	149586 $ 13.07			0.500	0.187	0.031	Turning MSDNN MSKNR/L MSRNR/L Boring PSKNR/L	 E51 E50 E51 E68
SNGA 433	120412	149588 $ 13.07	149590 $ 13.73		0.500	0.187	0.047		



SNGN



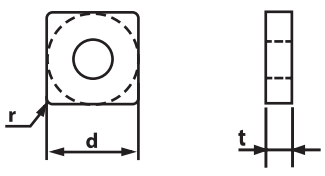
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
SNGN 432	120408	149580 $ 13.07			0.500	0.187	0.031		
SNGN 433	120412	149582 $ 13.07	149584 $ 13.73		0.500	0.187	0.047		



SNMA



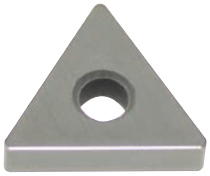
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
SNMA 433	120412			149560 $ 24.16	0.500	0.187	0.047	Turning MSDNN MSKNR/L MSRNR/L Boring PSKNR/L	 E51 E50 E51 E68
SNMA 434	120416			149594 $ 19.60	0.500	0.187	0.063		



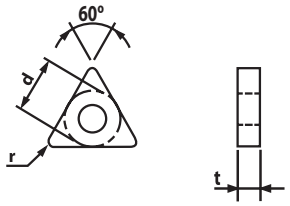
CERAMIC Inserts

TNGA

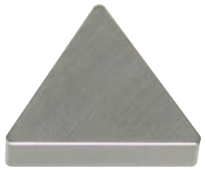
*For additional technical information see page **E181-182**



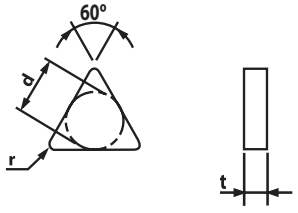
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
TNGA 222	110308	149403 $ 11.22	149401 $ 11.81		0.250	0.125	0.031	**Turning**	
TNGA 331	160404	149520 $ 12.34	149522 $ 12.94		0.375	0.187	0.016	MTCNN MTENN	E51 E52
TNGA 332	160408	149524 $ 12.34	149526 $ 11.21		0.375	0.187	0.031	MTFNR/L MTGNR/L	E52 E53
TNGA 333	160412	149528 $ 12.34	149529 $ 12.94		0.375	0.187	0.047	MTJNR/L **Boring**	E53
TNGA 432	220408	149530 $ 21.84			0.500	0.187	0.031	MTFNR/L MTUNR/L	E65 E65
TNGA 433	220412	149532 $ 18.88			0.500	0.187	0.047	PTFNR/L	E69
TNGA 434	220416	149534 $ 18.88			0.500	0.187	0.063		



TNG



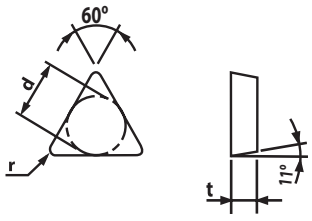
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
TNG 321	160304	149500 $ 12.01			0.375	0.125	0.016		
TNG 332	160408	149502 $ 12.34	149504 $ 11.80		0.375	0.187	0.031		
TNG 333	160412	149506 $ 12.34			0.375	0.187	0.047		
TNG 431	220404	149508 $ 18.88			0.500	0.187	0.016		
TNG 432	220408	149510 $ 18.88			0.500	0.187	0.031		
TNG 433	220412	149512 $ 18.88			0.500	0.187	0.047		



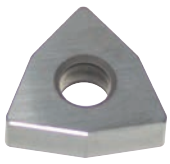
TPG



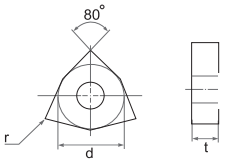
		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
TPG 221	110304	149536 $ 16.10	149538 $ 16.90		0.250	0.125	0.016		
TPG 222	110408	149540 $ 16.10	149542 $ 16.90		0.250	0.125	0.031		
TPG 321	160304	149544 $ 17.16	149546 $ 18.02		0.375	0.125	0.016		
TPG 322	160308	149548 $ 17.16	149550 $ 15.12		0.375	0.125	0.031		
TPG 323	160312	149552 $ 17.16	149554 $ 18.02		0.375	0.125	0.047		



WNGA

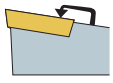
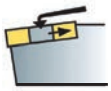
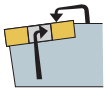
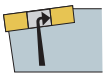
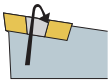


		CERAMIC			(inch)			Applicable Holders	
Designation	ISO	GP100	GP300	S400	d	t	r	Holder	Page No.
WNGA 432	080408		149628 $ 21.56	149630 $ 32.87	0.500	0.187	0.031		
WNGA 433	080412		149632 $ 21.05	149634 $ 32.87	0.500	0.187	0.047		



Turning Toolholder Code System

1 Method of Mounting of Insert

 Top clamping without hole	 Top clamping with hole (Double Clamp Lock)	 Top and Hole clamping (Multi clamp, Pin and Clamp)	 Hole Clamping (Pin Lock)
C	D	M	P
 Screw on			
S			

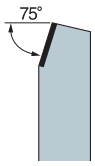
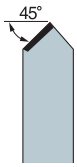
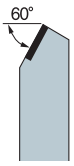
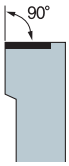
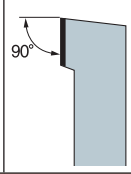
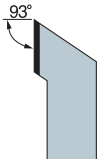
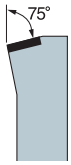
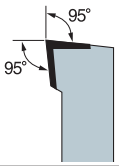
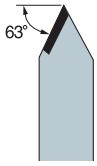
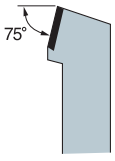
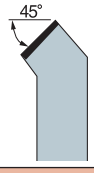
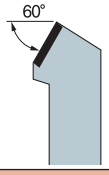
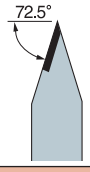
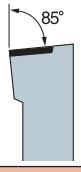
2 Insert Shape

			
C	D	E	K
			
L	R	S	T
			
V	W		

M S K N R

1 2 3 4 5

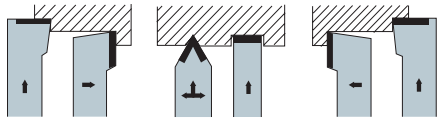
3 Holder Style

				
B	D	E	F	G
				
J	K	L	N	R
				
S	T	V	Y	

4 Clearance Angle of Insert

	
B	C
	
N	P

5 Hand of Tool

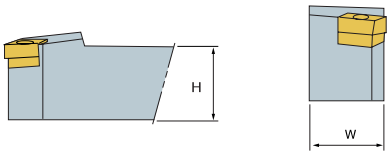


L	N	R

6 Pocket Style

C	Single Wall (full construction)
	Otherwise Full Wall

7 Holder Size



No.	Width	Height	No.	Width	Height
10	0.625	0.625	06	0.375	0.375
12	0.75	0.75	05	0.3125	0.3125
16	1.00	1.00	64	0.75	1.00
20	1.25	1.25	66	0.75	1.50
24	1.50	1.50	85	1.00	1.25
32	2.00	2.00	86	1.00	1.50
08	0.50	0.50	91	1.25	1.50

S **16** **4** **D**

6 7 8 9

8 Insert Size IC

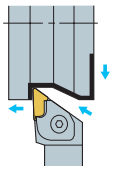
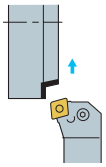
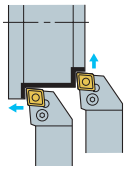
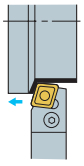
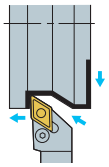
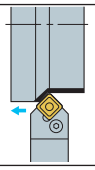
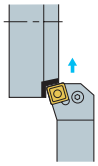
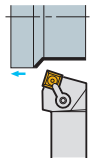
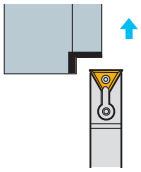
Number of 1/8" of inscribed circle

2 : 0.25
3 : 0.375
4 : 0.5
5 : 0.625
6 : 0.75
7 : 0.875
8 : 1.0
9 : 1.125
10 : 1.250
11 : 1.375
12 : 1.50

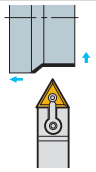
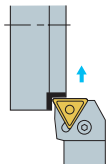
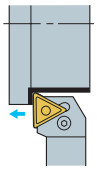
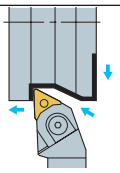
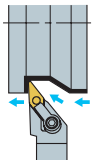
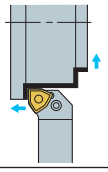
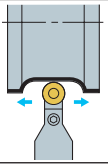
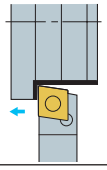
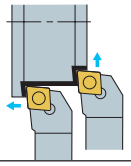
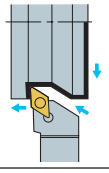
9 Qualified Surface & Length

A	Qualified back and end 4" long
B	Qualified back and end 4.5" long
C	Qualified back and end 5" long
D	Qualified back and end 6" long
E	Qualified back and end 7" long
F	Qualified back and end 8" long
M	Qualified front and end 4"
N	Qualified front and end 4.5"
P	Qualified front and end 5"
R	Qualified front and end 6"
S	Qualified front and end 7"
T	Qualified front and end 8"
G	Qualified back and end 10" long
H	Qualified back and end 12" long
I	Qualified back and end 2.5" long
J	Qualified back and end 2.75" long
K	Qualified back and end 3.15

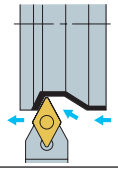
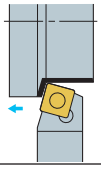
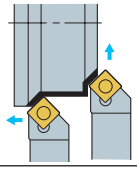
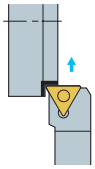
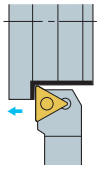
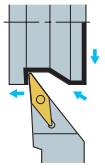
Turning Toolholder Index

Cutting Shape		Cat. No.	Turning	Copying	Facing	Chamfering	Available Inserts
CKJNR/L ➤ P. E47		**2525-M16** **3232-P16**	●	●			KN ☐☐ 1604☐☐ ➤ P. E17
MCKNR/L ➤ P. E48		**12-4B** **16-4D** **20-4D** **86-4D** **16-4D-3** **86-4D-3**			●		CN ☐☐ 43 ☐ 44 ☐ ➤ P. E10-12, E38-39
MCLNR/L ➤ P. E48		**12-4B** **16-4D** **85-4D** **20-5D** **20-6D** **24-8E**	●		●		CN ☐☐ 32 ☐ 43 ☐ 54 ☐ 64 ☐ 86 ☐ ➤ P. E10-12, E38-39
MCRNR/L ➤ P. E49		**16-4D** **20-4D** **20-5D** **20-6D** **24-6E**	●				CN ☐☐ 43 ☐ 54 ☐ 64 ☐ 86 ☐ ➤ P. E10-12, E39
MDJNR/L ➤ P. E49		**12-4B** **16-4D** **20-4D** **24-4D**	●	●			DN ☐☐ 33 ☐ 43 ☐ 44 ☐ ➤ P. E14-16, E38-40
MSDNN ➤ P. E50		**12-4B** **16-4D** **85-4D** **20-5** **85-5D** **24-6E**	●	●			SN ☐☐ 32 ☐ 43 ☐ 54 ☐ 64 ☐ 85 ☐ ➤ P. E19-22, E38, E40
MSKNR/L ➤ P. E50		**16-4D** **20-5D** **20-6D** **24-6E**			●		SN ☐☐ 32 ☐ 43 ☐ 54 ☐ 64 ☐ ➤ P. E19-22, E38, E40
MSRNR/L ➤ P. E51		**12-4B** **16-4D** **20-5D** **20-6D** **24-6E**	●				SN ☐☐ 32 ☐ 43 ☐ 54 ☐ 64 ☐ 85 ☐ ➤ P. E19-22, E38-40
MTCNN ➤ P. E51		**12-4B**	●				TN ☐☐ 33 ☐ 32.5 ☐ 44 ☐ ➤ P. E24-27, E41

Turning Toolholder Index

Cutting Shape		Cat. No.	Turning	Copying	Facing	Chamfering	Available Inserts
MTENN ➤ P. E52		**10-3B** **12-3B** **16-4D** **20-5D**	●	●			TN ☐☐ 33 ☐ 32.5 ☐ 44 ☐ ➤ P. E24-27, E38, E41
MTFNR/L ➤ P. E52		**12-3B** **16-3D** **16-4D** **20-5D**			●		TN ☐☐ 33 ☐ 43 ☐ 54 ☐ ➤ P. E24-27, E38, E41
MTGNR/L ➤ P. E53		**10-3B** **12-3B** **16-3D** **16-4D** **20-4D** **16-5D** **20-5D**	●				TN ☐☐ 21.5 ☐ 33 ☐ 43 ☐ 54 ☐ ➤ P. E24-27, E41
MTJNR/L ➤ P. E53		**10-3B** **12-3B** **16-3D** **16-4D** **20-4D** **20-5D**	●	●	●		TN ☐☐ 33 ☐ 43 ☐ ➤ P. E24-27, E41
MVJNR/L ➤ P. E54		**8-3A** **12-3C** **16-3D** **20-4D**	●	●			VN ☐☐ 33 ☐ ➤ P. E29, E38
MWLNR/L ➤ P. E54		**12-3B** **12-4D** **16-4D** **20-4D**	●		●		WN☐☐ 43 ☐ ➤ P. E31-33
PRDCN ➤ P. E55		**2525-M12**	●	●			RCMX M0 ☐ M0 ☐ ➤ P. E18, E36
SCACR/L **Screw On System** ➤ P. E55		**06-2J** **08-3K** **12-4B**	●				CC☐☐ 21.5 ☐ 32.5 ☐ ➤ P. E8-9
SCLCR/L ➤ P. E56		**06-2** **12-3** **08-2** **16-3** **08-3** **12-4** **10-3** **16-4**	●		●		CC☐T 21.5 ☐ 32.5 ☐ ➤ P. E34
SDJCR/L ➤ P. E56		**06-2J** **10-3A** **08-2K** **12-3B** **10-2A** **16-3D** **12-2B**	●	●			DC☐T 21.5 ☐ 32.5 ☐ ➤ P. E14, E35

Turning Toolholder Index

Cutting Shape		Cat. No.	Turning	Copying	Facing	Chamfering	Available Inserts
SDNCN ➤ P. E57		**06-2J** **08-2K** **08-3A** **10-3A** **12-3B**	●	●			DC☐T 21.5 ☐ 32.5 ☐ ➤ P. E14, E35
SSBCR/L ➤ P. E57		**08-3K** **10-3A** **12-4B**	●				SC☐T 32.5 ☐ 43 ☐ ➤ P. E19, E36
SSSCR/L ➤ P. E58		**10-3A** **12-4B**	●		●		SC☐T 32.5 ☐ 43 ☐ ➤ P. E19, E36
STFCR/L ➤ P. E58		**06-1.8J** **08-2K** **10-2A** **10-3A** **12-3B**			●		TC☐T 1.81.5 ☐ 21.5 ☐ 32.5 ☐ ➤ P. E22-24
STGCR/L **Screw On System** ➤ P. E59		**05-1.8I** **06-1.8J** **08-2K** **10-2A** **8-3** **12-3B** **16-3D**	●				TC☐T 1.81.5 ☐ 21.5 ☐ 32.5 ☐ ➤ P. E22-24
SVJCR/L ➤ P. E59		**08-2K** **12-2.5B** **10-2A** **10-3A** **12-B** **12-3B** **08-2.5K** **16-3D** **10-2.5A**	●	●			VC☐T 22 ☐ VC☐T 2.52 ☐ VC☐T 33 ☐ ➤ P. E28

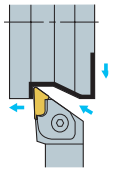
Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

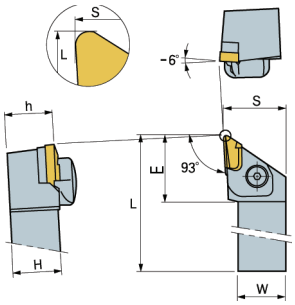
External Turning Toolholders

CKJNR/L





Feed direction



Right-hand shown

Ref	Holder Style	Application	Inserts	Parts
Comment	J Style, Approach Angle 93°	Turning, Copying		

Designation		Code #	Price $	H	W	L	S	h	E	Inserts	Clamp	Clamping Screw	Spring	Pin	Shim	Shim Screw	Wrench
CKJNR	2525-M16	145857	**221.99**	0.984	0.984	5.900	1.260	0.984	1.260	KN□□1604□□R	CTH6R1	CHX0625	SR3	PN0515	SK33C	SHX0310	HW20L
	3232-P16	145858	**244.68**	1.26	1.260	6.900	1.575	1.260	1.260		**146151**	**146541**	**146153**	**146152**	**146955**	**146155**	**146954**
											$ 38.74	**$ 27.39**	**$ 3.47**	**$ 4.44**	**$ 26.19**	**$ 10.10**	**$ 2.83**
CKJNL	2525-M16	145715	**221.99**	0.984	0.984	5.900	1.260	0.984	1.260	KN□□1604□□L	CTH6L1	CHX0625	SR3	PN0515	SK33CL	SHX0310	HW20L
	3232-P16	146266	**244.68**	1.26	1.260	6.900	1.575	1.260	1.260		**146542**	**146541**	**146153**	**146152**	**146264**	**146155**	**146954**
											$ 42.62	**$ 27.39**	**$ 3.47**	**$ 4.44**	**$ 26.19**	**$ 10.10**	**$ 2.83**

➤ P. E17



G3 TOOLING

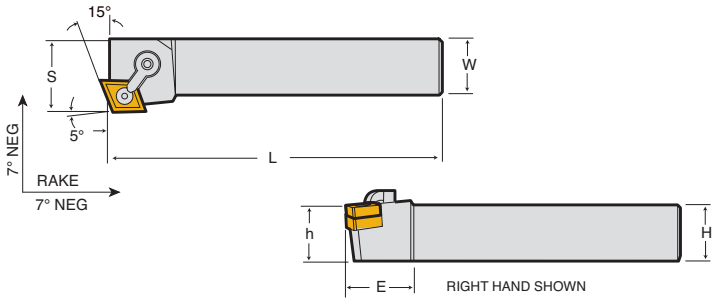
High Performance Live Centres

Precision.
Quality.
Performance.

See Pages H114-118

MCKNR/L

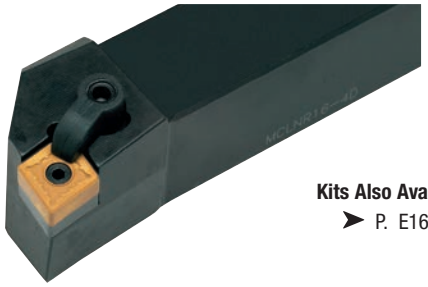




Ref	Holder Style				Application						Inserts	Parts				
Comment	K Style, Approach Angle 75°				Facing											
MCKNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin	Wrench
16-4D	145820	**204.41**	145821	**209.38**	1.000	1.000	6.000	1.250	1.000	1.25	WN□□43□	CL-20	XNS-48	ICSN-432	NL-46	
20-4D	145822	**251.35**	145823	**251.35**	1.250	1.250	6.000	1.500	1.000	1.25		**146918**	**146922**	**146908**	**146912**	
												$ 8.39	**$ 1.98**	**$ 9.19**	**$ 4.34**	
20-5D	145824	**138.31**	145825	**138.31**	1.250	1.250	6.000	1.500	1.375	1.47	CN□□54□	CL-12	XNS-510	ICSN-533	NL-58	
												146917	**146920**	**146909**	**146913**	
												$ 8.39	**$ 1.98**	**$ 11.36**	**$ 4.71**	
20-6D	145826	**150.34**	145827	**150.34**	1.250	1.250	6.000	1.500	1.500	1.44	CN□□64□	CL-12	XNS-510	ICSN-633	NL-68	
												146917	**146920**	**146910**	**146914**	
												$ 8.39	**$ 1.98**	**$ 13.11**	**$ 5.28**	

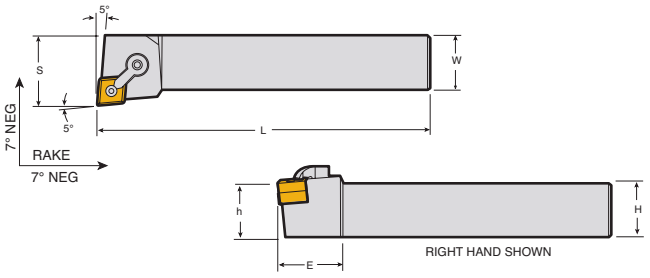
➤ P. E10-12, E38-39

MCLNR/L



Kits Also Available

➤ P. E168

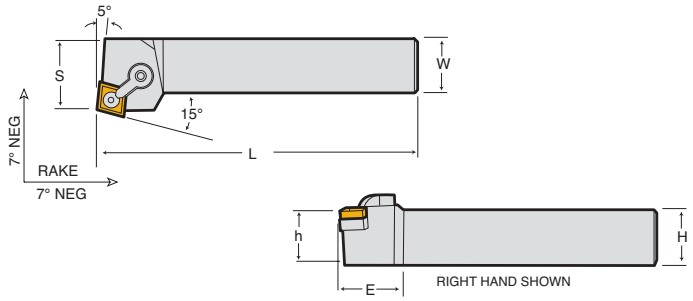


Ref	Holder Style				Application						Inserts	Parts			
Comment	L Style, Approach Angle 95°				Turning, Facing										
MCLNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
12-4B	145780	**185.61**	145745	**185.61**	0.750	0.750	4.500	1.000	0.750	1.200	CN□□43□	CL-20	XNS-48	ICSN-432	NL-46
16-4D	145828	**209.38**	145829	**204.41**	1.000	1.000	6.000	1.250	1.000	1.200		**146918**	**146922**	**146908**	**146912**
20-4D	145838	**245.40**	145782	**251.35**	1.250	1.250	6.000	1.500	1.250	1.300		**$ 8.39**	**$ 1.98**	**$ 9.19**	**$ 4.34**
20-5D	145830	**251.35**	145831	**251.35**	1.250	1.250	6.000	1.500	1.250	1.370	CN□□54□	CL-12	XNS-510	ICSN-533	NL-58
												146917	**146920**	**146909**	**146913**
												$ 8.39	**$ 1.98**	**$ 11.36**	**$ 4.71**
20-6D	145832	**251.35**	145833	**251.35**	1.250	1.250	6.000	1.500	1.250	1.370	CN□□64□	CL-12	XNS-510	ICSN-633	NL-68
24-6E	145834	**295.77**			1.500	1.500	7.00	2.000	1.500	1.496		**146917**	**146920**	**146910**	**146914**
												$ 8.39	**$ 1.98**	**$ 13.11**	**$ 5.28**

➤ P. E10-12, E38-39

MCRNR/L





Ref	Holder Style				Application						Inserts	Parts			
Comment	R Style, Approach Angle 75°				Turning, Facing										
MCRNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
16-4D	145835	**209.38**	145836	**209.38**	1.000	1.000	6.000	1.25	1.000	1.24	CN□□43□	CL-20	XNS-48	ICSN-432	NL-46
20-4D	145837	**245.20**	145778	**256.02**	1.250	1.250	6.000	1.50	1.250	1.24		**146918**	**146922**	**146908**	**146912**
												$ 8.39	**$ 1.98**	**$ 9.19**	**$ 4.34**
20-5D	145839	**251.35**	145840	**251.35**	1.250	1.250	6.000	1.50	1.250	1.34	CN□□54□	CL-12	XNS-510	ICSN-533	NL-58
												146917	**146920**	**146909**	**146913**
												$ 8.39	**$ 1.98**	**$ 11.36**	**$ 4.71**
20-6D	145841	**251.35**	145842	**112.91**	1.250	1.250	6.000	1.25	1.250	1.24	CN□□64□	CL-12	XNS-510	ICSN-633	NL-68
24-6E	145843	**295.77**	145844	**167.87**	1.500	1.500	7.000	2.00	1.500	1.49		**146917**	**146920**	**146910**	**146914**
												$ 8.39	**$ 1.98**	**$ 13.11**	**$ 5.28**

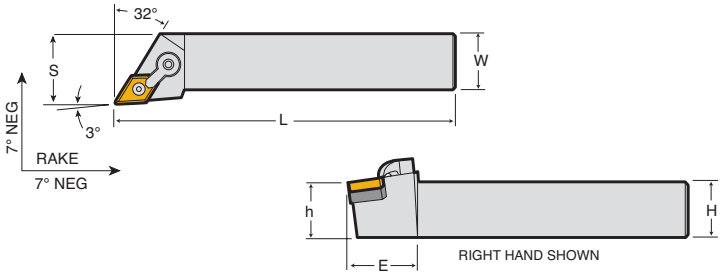
➤ P. E10-12, E39

MDJNR/L



Kits Also Available

➤ P. E168

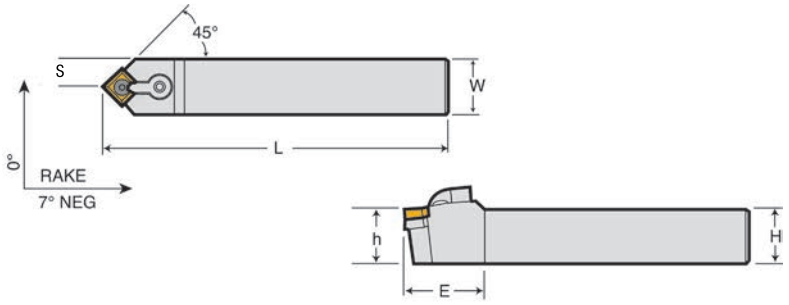


Ref	Holder Style				Application						Inserts	Parts			
Comment	J Style, Approach Angle 93°				Turning, Copying										
MDJNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
12-4B	146328	**185.61**	146330	**185.61**	0.750	0.750	4.500	1.000	0.750	1.200	DN□□44□	CL-12	XNS-59	IDSN-432	NL-46
16-4D	145845	**204.41**	145846	**204.41**	1.000	1.000	6.000	1.250	1.000	1.250		**146917**	**146921**	**146907**	**146912**
20-4D	145847	**251.35**	145848	**251.35**	1.250	1.250	6.000	1.500	1.250	1.240		**$ 8.39**	**$ 1.98**	**$ 8.39**	**$ 4.34**

➤ P. E14-16, E38-40

MSDNN



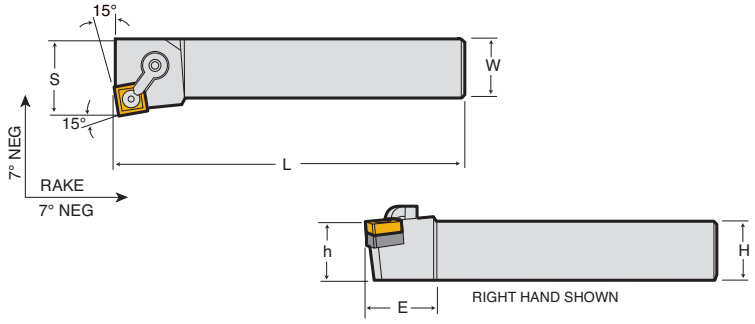


Ref	Holder Style		Application						Inserts	Parts			
Comment	D Style, Approach Angle 45°		Turning, Copying										
MSDNN	Code #	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
12-4B	145860	**70.72**	0.750	0.750	4.500	0.375	0.750	1.375	SN□□43□	CL-20 **146918** **$ 8.39**	XNS-48 **146922** **$ 1.98**	ISSN-432 **146903** **$ 9.05**	NL-46 **146912** **$ 4.34**
16-4D 85-4D	145799 145759	**204.41** **251.35**	1.000 1.250	1.000 1.000	6.000 6.000	0.500 0.500	1.000 1.000	1.375 1.375		CL-9 **146916** **$ 8.39**	XNS-59 **146921** **$ 1.98**	ISSN-432 **146903** **$ 9.05**	NL-46 **146912** **$ 4.34**
20-5E 85-5D	147227 145763	**147.16** **147.16**	1.250 1.250	1.250 1.000	7.000 6.000	0.625 0.500	1.250 1.250	1.610 1.610	SN□□54□	CL-12 **146917** **$ 8.39**	XNS-510 **146920** **$ 1.98**	ISSN-533 **146904** **$ 10.75**	NL-58 **146913** **$ 4.71**
20-6D 24-6E	145866 147404	**251.35** **167.87**	1.250 1.500	1.250 1.500	6.000 7.000	0.625 0.750	1.250 1.500	1.750 1.750	SN□□64□	CL-12 **146917** **$ 8.39**	XNS-510 **146920** **$ 1.98**	ISSN-633 **146905** **$ 12.68**	NL-68 **146914** **$ 5.28**

➤ P. E19-22, E38, E40

MSKNR/L



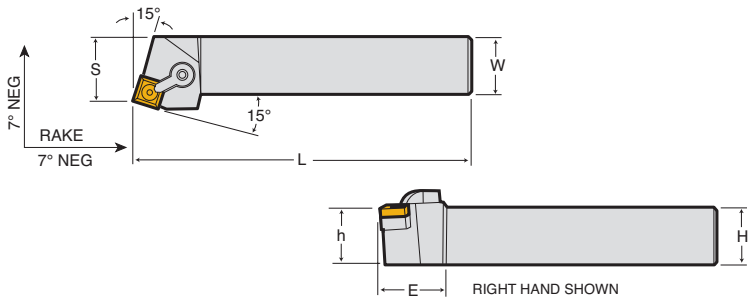


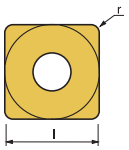
Ref	Holder Style				Application						Inserts	Parts			
Comment	K Style, Approach Angle 75°				Facing										
MSKNR/L	Code #		Code #		H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
	Right	Price $	Left	Price $											
16-4D	145849	**209.38**	145850	**209.38**	1.000	1.000	6.000	1.250	1.000	1.250	SN□□43□	CL-9 **146916** **$ 8.39**	XNS-59 **146921** **$ 1.98**	ISSN-432 **146903** **$ 9.05**	NL-46 **146912** **$ 4.34**
20-6D 24-6E	145853 145855	**251.35** **295.77**			1.250 1.500	1.250 1.500	6.000 7.000	1.500 2.000	1.250 1.500	1.560 1.560	SN□□64□	CL-12 **146917** **$ 8.39**	XNS-510 **146920** **$ 1.98**	ISSN-633 **146905** **$ 12.68**	NL-68 **146914** **$ 5.28**

➤ P. E19-22, E38, E40

MSRNR/L





Ref	Holder Style	Application	Inserts	Parts
Comment	R Style, Approach Angle 75°	Turning		   

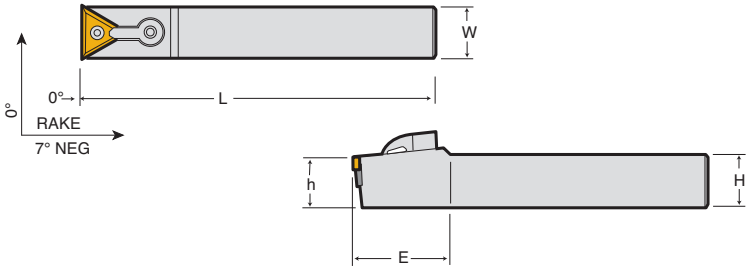
MSRNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E	Clamp	Clamp Screw	Shim	Pin
12-4B	145869	**82.29**	145870	**82.29**	0.750	0.750	4.500	0.878	0.750	1.230	CL-12	XNS-48	ISSN-432	NL-46
16-4D	145800	**209.38**	145801	**209.38**	1.000	1.000	6.000	1.128	1.000	1.230	**146917**	**146922**	**146903**	**146912**
											$ 8.39	**$ 1.98**	**$ 9.05**	**$ 4.34**
20-5D	145802	**251.35**	145803	**108.52**	1.250	1.250	6.000	1.350	1.250	1.375	CL-12	XNS-59	ISSN-533	NL-58
											146917	**146921**	**146904**	**146913**
											$ 8.39	**$ 1.98**	**$ 10.75**	**$ 4.71**
20-6D	145804	**251.35**	145805	**251.35**	1.250	1.250	6.000	1.318	1.250	1.500	CL-12	XNS-510	ISSN-633	NL-68
24-6E	145806	**295.77**	145807	**295.77**	1.500	1.500	7.000	1.818	1.500	1.500	**146917**	**146920**	**146905**	**146914**
											$ 8.39	**$ 1.98**	**$ 12.68**	**$ 5.28**

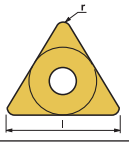
SN☐☐43☐ | SN☐☐54☐ | SN☐☐64☐

➤ P. E19-22, E38, E40

MTCNN





Ref	Holder Style	Application	Inserts	Parts
Comment	C Style	Turning		   

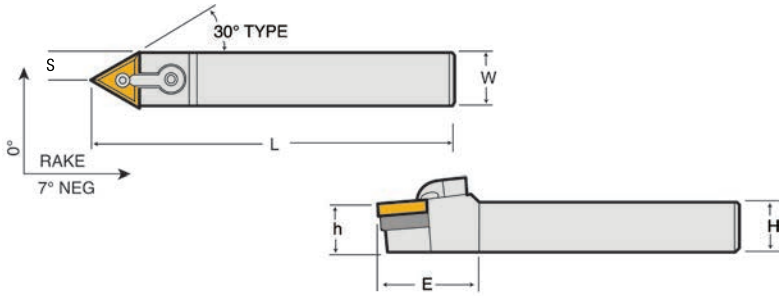
MTCNN	Code #	Price $	H	W	L	h	E	Clamp	Clamp Screw	Shim	Pin
12-4B	145859	**249.19**	0.750	0.750	4.500	0.750	1.430	CL-12	XNS-59	ITSN-432	NL-46
								146917	**146921**	**146901**	**146912**
								$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**

TN☐☐43☐

➤ P. E24-27, E41

MTENN



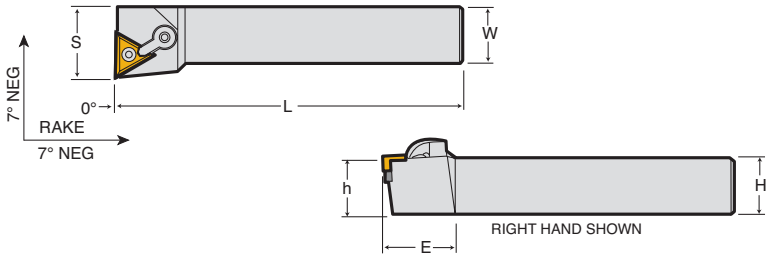


Ref	Holder Style		Application						Inserts	Parts			
Comment	E Style, Approach Angle 60°		Turning, Copying										
MTENN	Code #	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
10-3B	145889	**66.87**	0.625	0.625	4.500	0.313	0.625	1.125	TN☐☐33☐	CL-6	XNS-36	ITSN-332	NL-34L
12-3B	145890	**69.04**	0.750	0.750	4.500	0.375	0.750	1.125		**146915**	**146919**	**147114**	**146911**
										$ 8.39	**$ 1.98**	**$ 6.69**	**$ 4.71**
16-4D	145754	**209.38**	1.000	1.000	6.000	0.500	1.000	1.250	TN☐☐43☐	CL-9	XNS-59	ITSN-432	NL-46
										146916	**146921**	**146901**	**146912**
										$ 8.39	**$ 1.98**	**$ 1.98**	**$ 4.34**
20-5D	145896	**147.16**	1.250	1.250	6.000	0.625	1.250	1.625	TN☐☐54☐	CL-9	XNS-510	ITSN-533	NL-58
										146916	**146920**	**146902**	**146913**
										$ 8.39	**$ 1.98**	**$ 13.34**	**$ 4.71**

➤ P. E24-27, E38, E41

MTFNR/L





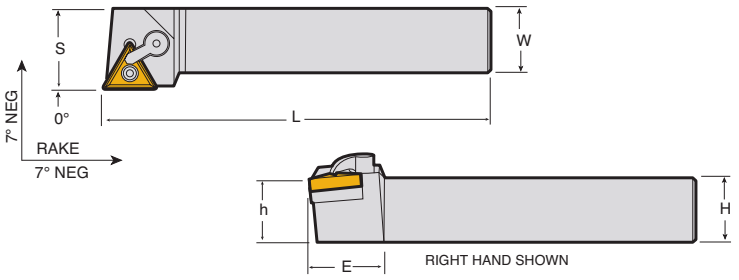
Ref	Holder Style				Application						Inserts	Parts			
Comment	F Style, Approach Angle 90°				Facing										
MTFNR/L	Code #		Code #		H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
	Right	Price $	Left	Price $											
12-3B	145760	**82.29**	145761	**82.29**	0.750	0.750	4.500	1.000	0.750	0.787	TN☐☐33☐	CL-20	XNS-48	ITSN-332	NL-34L
16-3D	145787	**209.38**			1.000	1.000	6.000	1.250	1.000	0.787		**146918**	**146922**	**147114**	**146911**
												$ 8.39	**$ 1.98**	**$ 6.69**	**$ 4.71**
16-4D	147370	**92.56**	147272	**209.38**	1.000	1.000	6.000	1.250	1.000	0.984	TN☐☐43☐	CL-20	XNS-48	ITSN-433	NL-46
												146918	**146922**	**146977**	**146912**
												$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**
20-5D	147277	**102.90**	147273	**147.16**	1.250	1.250	6.000	1.500	1.250	1.299	TN☐☐54☐	CL-12	XNS-510	ITSN-533	NL-58
												146917	**146920**	**146902**	**146913**
												$ 8.39	**$ 1.98**	**$ 13.34**	**$ 4.71**

➤ P. E24-27, E38, E41

MTGNR/L



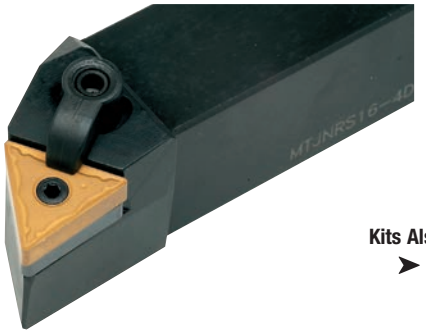
Kits Also Available
➤ P. E168



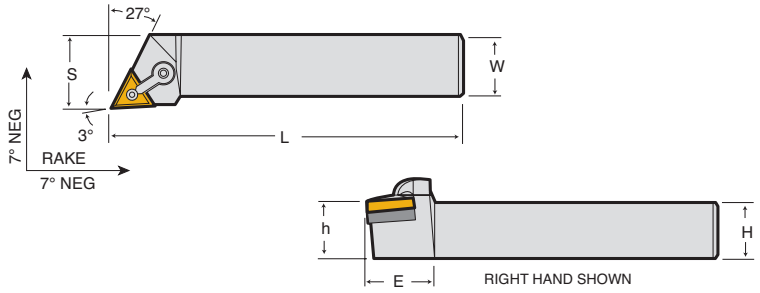
Ref	Holder Style				Application						Inserts	Parts			
Comment	G Style, Approach Angle 90°				Turning										
MTGNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
10-3B	145861	**84.65**	145862	**84.65**	0.625	0.625	4.500	0.875	0.625	1.120	TN☐☐33☐	CL-6	XNS-36	ITSN-332	NL-34L
12-3B	145863	**190.11**	145864	**190.11**	0.750	0.750	4.500	1.000	0.750	1.120		**146915**	**146919**	**147114**	**146911**
16-3D	145812	**209.38**	145813	**209.38**	1.000	1.000	6.000	1.250	1.000	1.120		**$ 8.39**	**$ 1.98**	**$ 6.69**	**$ 4.71**
16-4D	145814	**209.38**	145815	**209.38**	1.000	1.000	6.000	1.250	1.000	1.300	TN☐☐43☐	CL-9	XNS-59	ITSN-432	NL-46
20-4D	145816	**251.35**	145817	**251.35**	1.250	1.250	6.000	1.500	1.250	1.300		**146916**	**146921**	**146901**	**146912**
												$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**
16-5D	145730	**116.76**			1.000	1.000	6.000	1.250	1.000	1.440	TN☐☐54☐	CL-12	XNS-510	ITSN-533	NL-58
20-5D	145818	**108.52**	145819	**108.52**	1.250	1.250	6.000	1.500	1.250	1.440		**146917**	**146920**	**146902**	**146913**
												$ 8.39	**$ 1.98**	**$ 13.34**	**$ 4.71**

➤ P. E24-27, E41

MTJNR/L



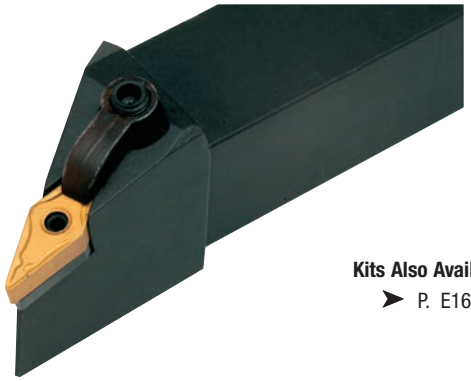
Kits Also Available
➤ P. E169



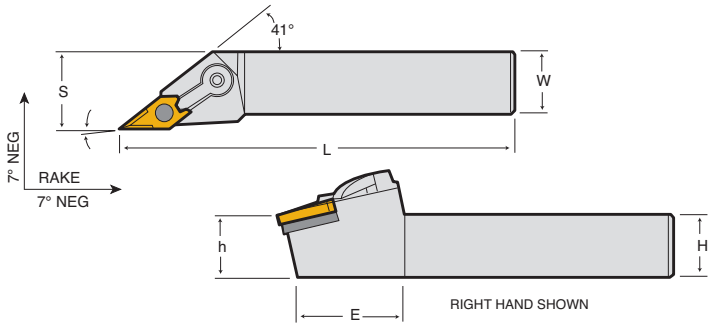
Ref	Holder Style				Application						Inserts	Parts			
Comment	J Style, Approach Angle 93°				Turning, Copying, Facing										
MTJNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
10-3B	145891	**165.75**	145892	**165.75**	0.625	0.625	4.500	0.875	0.625	1.120	TN☐☐33☐	CL-6	XNS-36	ITSN-332	NL-34L
												146915	**146919**	**147114**	**146911**
												$ 8.39	**$ 1.98**	**$ 6.69**	**$ 4.71**
12-3D	145887	**173.27**	145888	**173.27**	0.750	0.750	6.000	1.000	0.750	1.100		CL-20	XNS-48	ITSN-332	NL-34L
16-3D	145783	**190.83**	148323	**116.76**	1.000	1.000	6.000	1.250	1.000	1.299		**146918**	**146922**	**147114**	**146911**
												$ 8.39	**$ 1.98**	**$ 6.69**	**$ 4.71**
16-4D	145757	**190.83**	145756	**190.83**	1.000	1.000	6.000	1.250	1.000	1.325	TN☐☐43☐	CL-20	XNS-48	ITSN-432	NL-46
20-4D	147147	**229.09**	147213	**229.09**	1.250	1.250	6.000	1.500	1.250	1.325		**146918**	**146922**	**146901**	**146912**
												$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**
20-5D	147033	**147.16**	147035	**147.16**	1.250	1.250	6.000	1.500	1.250	1.440	TN☐☐54☐	CL-12	XNS-510	ITSN-533	NL-58
												146917	**146920**	**146902**	**146913**
												$ 8.39	**$ 1.98**	**$ 13.34**	**$ 4.71**

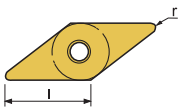
➤ P. E24-27, E41

MVJNR/L



Kits Also Available
➤ P. E169



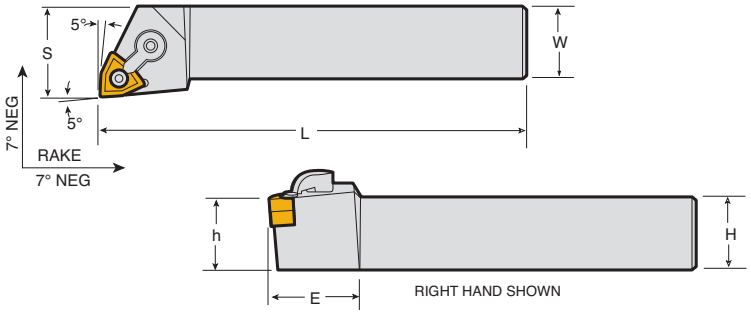
Ref	Holder Style				Application						Inserts	Parts			
Comment	J Style, Approach Angle 93°				Turning, Copying										
MVJNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
12-3C	147265	**131.85**	147417	**131.85**	0.750	0.750	5.000	1.000	0.750	1.660	VN□□33□	CL-30	XNS-59	IVSN-322	NL-34L
16-3D	145893	**204.41**	145738	**204.41**	1.000	1.000	6.000	1.250	1.000	1.660		**147214**	**146921**	**146983**	**146911**
												$ 14.80	**$ 1.98**	**$ 7.45**	**$ 4.71**
20-4D	147226	**151.42**	147225	**148.39**	1.250	1.250	6.000	1.500	1.250	2.000	VN□□43□	CL-30	XNS-510	IVSN-433	NL-46
												147214	**146920**	**148287**	**146912**
												$ 14.80	**$ 1.98**	**$ 9.95**	**$ 4.34**

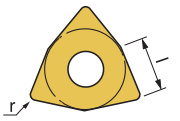
➤ P. E29, E38

MWLNR/L



Kits Also Available
➤ P. E169

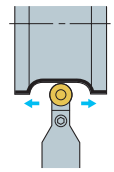


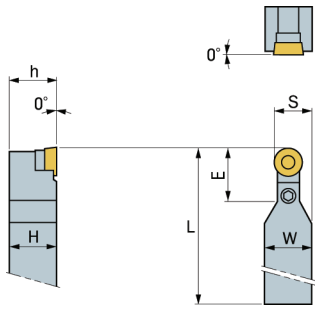
Ref	Holder Style				Application						Inserts	Parts			
Comment	L Style, Approach Angle 95°				Turning, Facing										
MWLNR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Clamp	Clamp Screw	Shim	Pin
12-3B	145744	**88.02**	147148	**82.17**	0.750	0.750	4.500	1.000	0.750	1.000	WN□□33□	CL-6	XNS-36	IWSN-322	NL-34L
												146915	**146919**	**147139**	**146911**
												$ 8.39	**$ 1.98**	**$ 18.81**	**$ 4.71**
12-4B	145875	**185.61**	145876	**185.61**	0.750	0.750	4.500	1.000	0.750	1.250	WN□□43□	CL-20	XNS-48	IWSN-432	NL-46
16-4D	145808	**94.78**	145809	**204.41**	1.000	1.000	6.000	1.250	1.000	1.250		**146918**	**146922**	**146906**	**146912**
20-4D	145810	**245.40**	145811	**251.35**	1.250	1.250	6.000	1.500	1.250	1.250		**$ 8.39**	**$ 1.98**	**$ 13.20**	**$ 4.34**

➤ P. E31-33

PRDCN



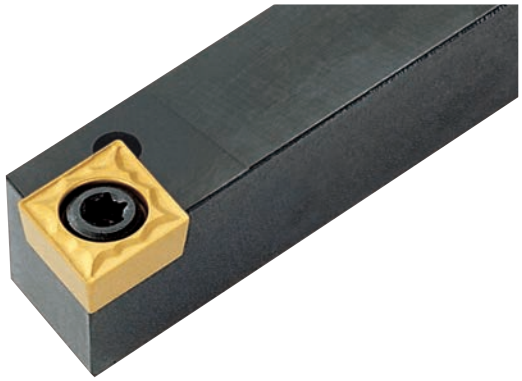


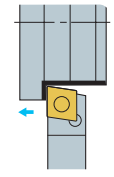


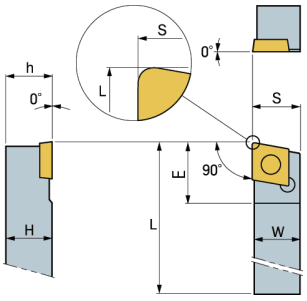
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PRDCN	Code #	Price $	H	W	L	S	h	E		Lever	Screw	Shim	Shim Pin	Wrench
12-10B	148243	**84.54**	0.750	0.750	4.500	0.500	0.750	0.866	RCMX 1003 M0	LR10 **148227** **$ 23.06**	VHX0514 **148228** **$ 13.40**	SR10 **148229** **$ 6.66**	SP3 **146929** **$ 5.69**	HW20L **146954** **$ 2.83**
16-12D	145719	**97.74**	1.000	1.000	6.000	0.728	1.000	0.945	RCMX 1204 M0	LR12 **145723** **$ 23.06**	VHX0617 **146926** **$ 11.44**	SR12 **145725** **$ 6.66**	SP3 **146929** **$ 5.69**	HW25L **146956** **$ 2.83**

➤ P. E18, E36

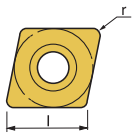
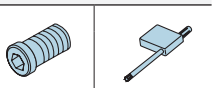
SCACR/L





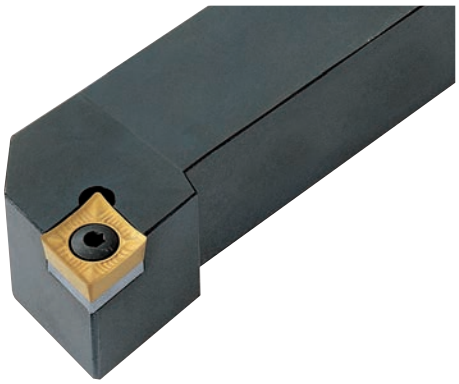


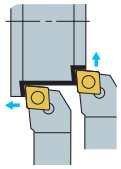
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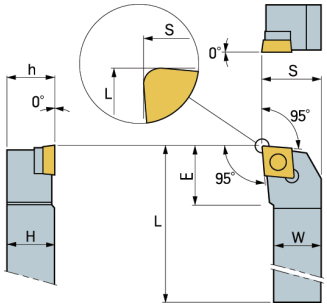
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	Right	Price $	Left	Price $											
08-3K	146327	**114.32**	145993	**114.32**	0.500	0.500	3.150	0.500	0.500	0.630	CC□□32.5□	FTGA03508 **146931** **$ 12.73**	-	-	TW15P **146940** **$ 14.94**

➤ P. E8-9

SCLCR/L





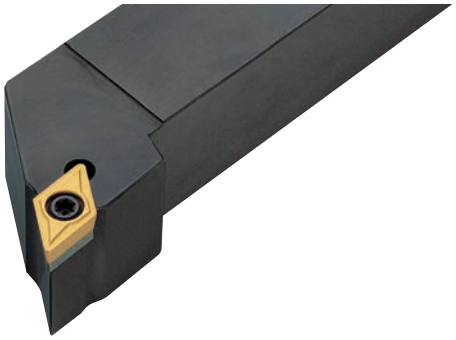


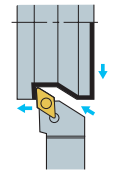
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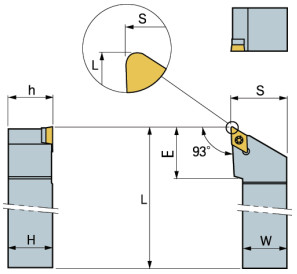
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Comment	L Style, Approach Angle 95°				Turning, Facing										
SCLCR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Screw	Shim	Shim Screw	Wrench
06-2J	146981	**70.47**	147291	**68.80**	0.375	0.375	2.750	0.500	0.375	0.394	CC☐T 21.5☐	FTKA02565			TW07P
08-2A	146784	**78.03**	146785	**78.03**	0.500	0.500	4.000	0.625	0.500	0.490		**146930**	-	-	**146939**
												$ 13.75			**$ 14.32**
10-3A	146257	**86.21**	146787	**114.32**	0.625	0.625	4.000	0.750	0.625	0.630	CC☐T 32.5☐	FTGA03508			TW15P
12-3B	146788	**139.34**	147215	**88.02**	0.750	0.750	4.500	1.000	0.750	0.630		**146931**	-	-	**146940**
16-3D	146352	**94.56**	146353	**145.27**	1.000	1.000	6.000	1.250	1.000	0.670		**$ 12.73**			**$ 14.94**
12-4B	145994	**139.34**	146789	**139.34**	0.750	0.750	4.500	1.000	0.750	0.984	CC☐T 43☐	FTGA0411F	SC42S	SHXN0610F	TW15P
16-4D	146790	**148.80**	146791	**148.80**	1.000	1.000	6.000	1.250	1.000	1.024		**146944**	**146936**	**145998**	**146940**
												$ 11.70	**$ 12.72**	**$ 19.78**	**$ 14.94**

➤ P. E34

SDJCR/L







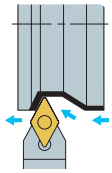
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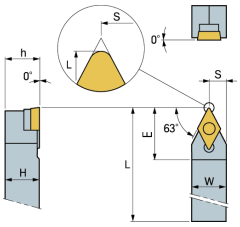
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Comment	J Style, Approach Angle 93°				Turning, Copying										
SDJCR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Screw	Shim	Shim Screw	Wrench
12-3B	145798	**128.01**	147146	**131.85**	0.750	0.750	4.500	1.000	0.750	0.945	DC☐T 32.5☐	FTGA03512	SD32S	SHXN0509F	TW15P
16-3D	145985	**145.27**	147230	**145.27**	1.000	1.000	6.000	1.250	1.000	1.142		**146933**	**146937**	**146935**	**146940**
												$ 12.73	**$ 12.85**	**$ 19.49**	**$ 14.94**

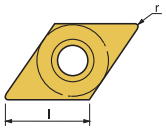
➤ P. E14, E35

SDNCN







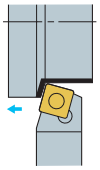
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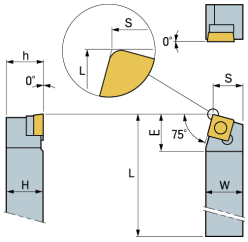
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12-3B	145986	**136.04**	0.750	0.750	4.500	0.375	0.750	1.181	DC☐T 32.5☐	FTGA03512	SD32S	SHXN0509F	TW15P
										146933	**146937**	**146935**	**146940**
										$ 12.73	**$ 12.85**	**$ 19.49**	**$ 14.94**

➤ P. E14, E35

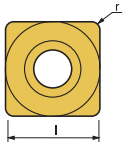
SSBCR







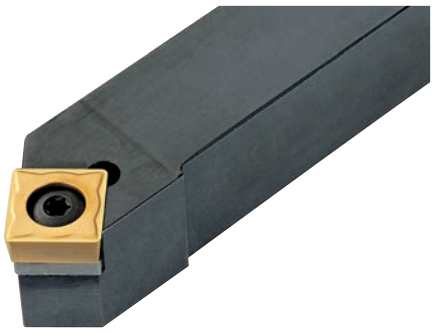
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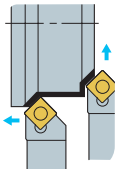
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SSBCR	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Screw	Shim	Shim Screw	Wrench
08-3K	145989	**114.32**			0.500	0.500	3.150	0.450	0.500	0.630	SC☐T 32.5☐	FTGA03508			TW15P
												146931	-	-	**146940**
												$ 12.73			**$ 14.94**
12-4B	145995	**139.34**			0.750	0.750	4.500	0.600	0.750	0.984	SC☐T 43☐	FTGA0411F	SS42S	SHXN0610F	TW15P
												146944	**145997**	**145998**	**146940**
												$ 11.70	**$ 12.85**	**$ 19.78**	**$ 14.94**

➤ P. E19, E36

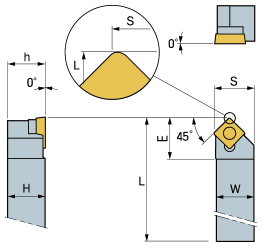
SSSCR





Feed direction

Right-hand shown

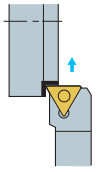


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Comment	S Style, Approach Angle 45°				Turning, Facing										
SSSCR	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Screw	Shim	Shim Screw	Wrench
10-3A	145992	**114.32**			0.625	0.625	4.000	0.670	0.625	0.610	SC☐T 32.5☐	FTGA03512 **146933** **$ 12.73**	-	-	TW15P **146940** **$ 14.94**
12-4B	145996	**136.04**			0.750	0.750	4.500	0.659	0.750	0.945	SC☐T 43☐	FTGA0411F **146944** **$ 11.70**	SS42S **145997** **$ 12.85**	SHXN0610F **145998** **$ 19.78**	TW15P **146940** **$ 14.94**

➤ P. E19, E36

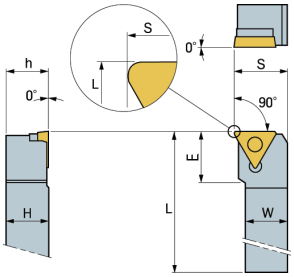
STFCR





Feed direction

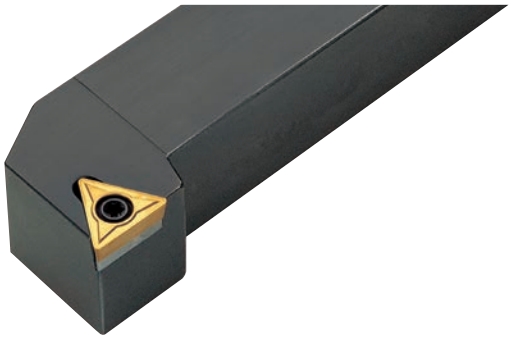
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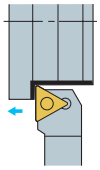


Ref	Holder Style				Application						Inserts	Parts			
Comment	F Style, Approach Angle 90°				Facing										
STFCR	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Screw	Shim	Shim Screw	Wrench
10-2A	145777	**170.32**			0.625	0.625	4.000	0.750	0.625	0.551	TC☐T 21.5☐	FTKA02565 **146930** **$ 13.75**	-	-	TW07P **146939** **$ 14.32**
12-3B	145987	**139.34**			0.750	0.750	4.500	1.000	0.750	0.748	TC☐T 32.5☐	FTGA03512 **146933** **$ 12.73**	ST32S **145999** **$ 16.77**	SHXN0509F **146935** **$ 19.49**	TW15P **146940** **$ 14.94**

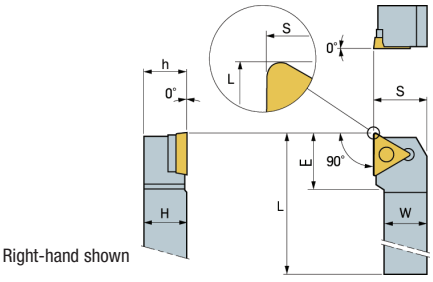
➤ P. E22-24

STGCR/L

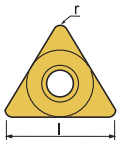
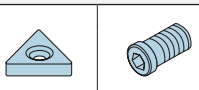




Feed direction



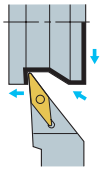
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Comment	G Style, Approach Angle 90°				Turning										
STGCR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Screw	Shim	Shim Screw	Wrench
08-2K	145988	**111.61**	146713	**114.32**	0.500	0.500	3.150	0.625	0.500	0.551	TC☐T 21.5☐	FTKA02565 **146930** **$ 13.75**	-	-	TW07P **146939** **$ 14.32**
08-3K			146714	**61.96**	0.500	0.500	3.150	0.625	0.500	0.551		FTGA03512	ST32S	SHXN0509F	TW15P
12-3B	145991	**136.04**	146715	**139.34**	0.750	0.7500	4.500	1.000	0.750	0.827	TC☐T 32.5☐	**146933**	**145999**	**146935**	**146940**
16-3D	145793	**121.03**			1.000	1.000	6.000	1.250	1.000	0.827		**$ 12.73**	**$ 16.77**	**$ 19.49**	**$ 14.94**

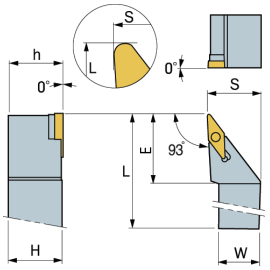
➤ P. E22-24

SVJCR/L

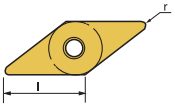
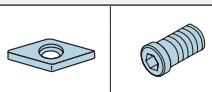




Feed direction



Right-hand shown

Ref	Holder Style				Application						Inserts	Parts			
Comment	J Style, Approach Angle 93°				Turning, Copying										
SVJCR/L	Code # Right	Price $	Code # Left	Price $	H	W	L	S	h	E		Screw	Shim	Shim Screw	Wrench
12-3C	148061	**136.04**			0.750	0.750	5.000	1.000	0.750	1.575	VC☐T 33☐	FTGA03512	SV32S	SHXN0509F	TW15P
16-3D	147229	**87.23**	147382	**148.80**	1.000	1.000	6.000	1.250	1.000	1.575		**146933**	**146950**	**146935**	**146940**
												$ 12.73	**$ 16.30**	**$ 19.49**	**$ 14.94**

➤ P. E28

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

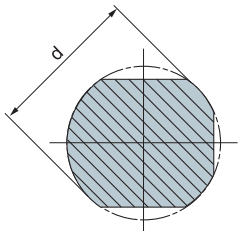
Boring Bar Code System

1 Type of Bar

A	Solid Steel with coolant hole
B	Solid Steel with anti-vibration
C	Carbide bar with fixed steel head
D	Solid steel bar with anti-vibration device and coolant hole
E	Carbide bar with fixed steel head and coolant hole
G	Carbide bar with fixed steel head and anti-vibration device and coolant hole
H	Solid heavy metal bar
J	Solid heavy metal with coolant
S	Solid steel bar
X	Special bar

2 Bar Diameter

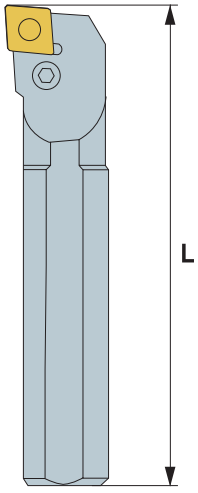
Two characters to describe bar diameter (number of sixteenths)



03	0.1875	16	1.0
04	0.250	20	1.250
05	0.3125	24	1.50
06	0.37	28	1.750
08	0.50	32	2.0
10	0.625	36	2.25
12	0.750	40	2.50

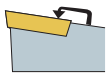
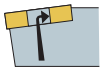
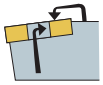
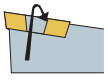
S	24	U	M	C
1	2	3	4	5

3 Type of Bar

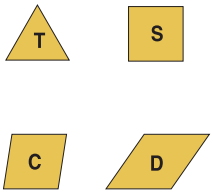


F	3
G	3.5
H	4
J	4.5
K	5.0
L	5.5
M	6
N	6.5
P	6.75
Q	7.0
R	8.0
S	10.3
T	12.0
U	14.0
V	16.0
W	18.0
Y	20.0
X	Special length

4 Method of Mounting Insert

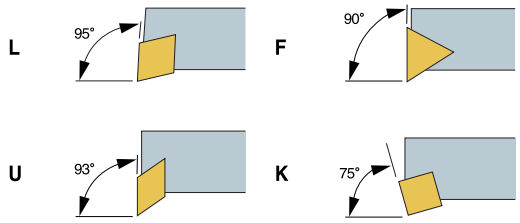
			
Top Clamping	Hole Clamping	Top and Hole Clamping	Screw On
C	P	M	S

5 Insert Shape



C	80° Rhombic
D	55° Rhombic
R	Round
S	Square
T	Triangle
V	35° Rhombic
W	80° Trigon

6 Bar Geometry

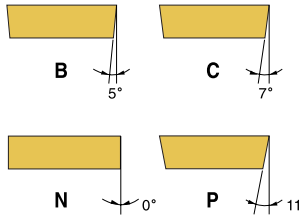


F	90°	Q	107.5°
K	75°	U	93°
L	95°	S	62.5°
P	117.5°	Z	Negative 5° pull boring

L N R 4 □

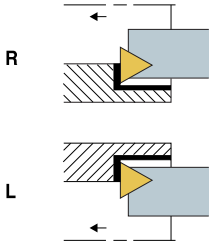
6 7 8 9 10

7 Insert Clearance Angle



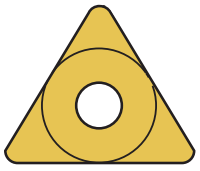
B	5°	F	25°
C	7°	G	30°
D	15°	N	0°
E	20°	P	11°

8 Hand of Bar



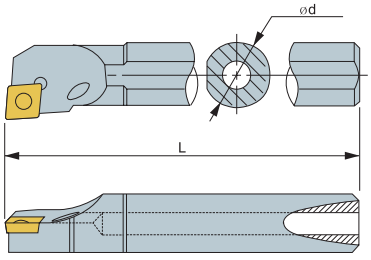
R	Right Hand
L	Left Hand
N	Neutral

9 Insert Size IC



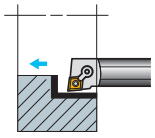
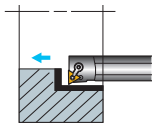
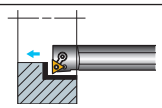
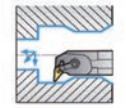
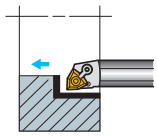
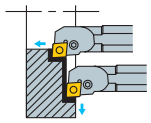
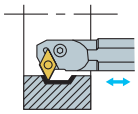
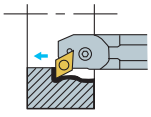
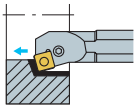
1.2	0.156	4	0.5
1.5	0.188	5	0.625
1.8	0.219	6	0.75
2	0.25	8	1.0
2.5	0.3125	10	1.250
3	0.375		

Boring Bar with Coolant Hole

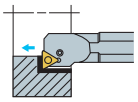
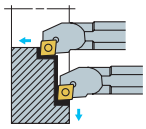
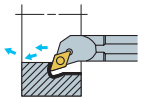
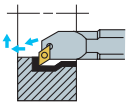
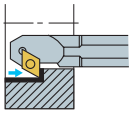
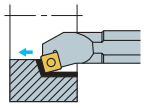


10 Manufacturing Option

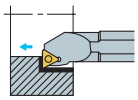
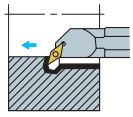
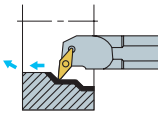
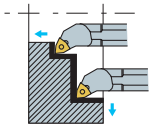
Boring Bar Index

Cutting Shape		Cat. No.	Facing	Copying	Through Hole Machining	Blind Hole Machining	Copying and Relief	Back Copying	Available Inserts
MCLNR/L **Clamp System** ➤ P. E64		**S10R-MCLNR/L3** **S12U-MCLNR/L3** **S16T-MCLNR/L3** **S16T-MCLNR/L4** **S20U-MCLNR/L4** **S24V-MCLNR/L4** **A16T-MCLNR/L4** **A20U-MCLNR/L4**	●		●	●			CN ☐☐ 33 ☐ CN ☐☐ 43 ☐ CN ☐☐ 64 ☐ CN ☐☐ 43 ☐ ➤ P. E10-12, E38-39
MTFNR/L ➤ P. E65		**S20V-MTFNR-4** **S32V-MTFNR-4** **A16T-MTFNR/L-4**	●		●	●			TN ☐☐ 33 ☐ 43 ☐ 54 ☐ ➤ P. E24-27, E41
MTUNR/L ➤ P. E65		**S32V-MTUNR-4**	●		●	●			TN ☐☐ 33 ☐ 43 ☐ 54 ☐ ➤ P. E24-27, E41
MVUNR/L ➤ P. E66		**A16T-MVUNR/L- 4**		●	●	●			VN ☐☐ 43 ☐ ➤ P. E29
MWLNR/L ➤ P. E66		**S10R-MWLNR/L3** **S12U-MWLNR/L3** **S16T-MWLNR/L3** **S16T-MWLNR/L4** **S20U-MWLNR/L4** **S24V-MWLNR/L4** **A16T-MWLNR/L4** **A20U-MWLNR/L4**	●		●	●			WN ☐☐ 43 ☐ ➤ P. E31-33
PCLNR/L **Lever Lock System** ➤ P. E67		**S10R-PCLNR/L3** **S12U-PCLNR/L3** **S16T-PCLNR/L3** **S16T-PCLNR/L4** **S20U-PCLNR/L4** **S24V-PCLNR/L4** **S32W-PCLNR/L4** **S32W-PCLNR/L6** **A16R-PCLNR/L4** **A20S-PCLNR/L4**	●		●	●			CN ☐☐ 33 ☐ CN ☐☐ 43 ☐ CN ☐☐ 65 ☐ CN ☐☐ 43 ☐ ➤ P. E10-12, E38-39
PDSNR ➤ P. E67		**S20U-PDSNR/L4** **S24V-PDSNR/L4** **S20U-PDSNR/L4-3** **S24V-PDSNR/L4-3** **A20S-PDSNR/L4** **A20S-PDSNR/L4-3**		●	●				DN ☐☐ 44 ☐ 43 ☐ ➤ P. E14-16, E39-40
PDUNR ➤ P. E68		**S12S-PDUNR/L 3** **S16T-PDUNR/L 3** **S20U-PDUNR/L 3** **S20U-PDUNR/L 4** **S24V-PDUNR/L 4** **S32W-PDUNR/L 4** **S20U-PDUNR/L 4-3** **S24V-PDUNR/L 4-3** **A20S-PDUNR/L 4** **A20S-PDUNR/L 4-3**		●	●	●			DN ☐☐ 33 ☐ 44 ☐ 43 ☐ ➤ P. E14-16, E39-40
PSKNR/L ➤ P. E68		**S16T-PSKNR/L 4** **S20U-PSKNR/L 4** **S24V-PSKNR/L 4** **A16R-PSKNR/L 4** **A20S-PSKNR/L 4**			●				SN ☐☐ 43 ☐ ➤ P. E19-22, E38, E40

Boring Bar Index

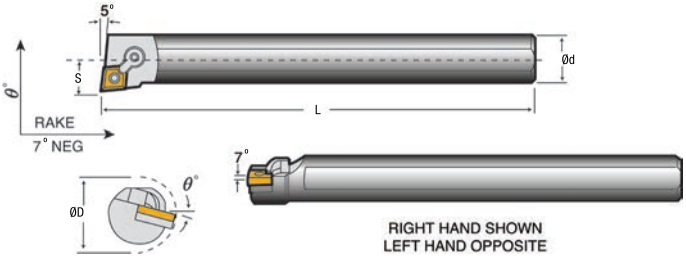
Cutting Shape		Cat. No.	Facing	Copying	Through Hole Machining	Blind Hole Machining	Copying and Relief	Back Copying	Available Inserts
PTFNR/L **Lever Lock System** ➤ P. E69		S16T-PTFNR/L 2 S20S-PTFNR/L 2 S16T-PTFNR/L 2 S16T-PTFNR/L 3 S20U-PTFNR/L 3 S24V-PTFNR/L 3 A16R-PTFNR/L 3 A20S-PTFNR/L 3	●		●	●			TN☐☐ 32 ☐ 33 ☐ ➤ P. E24-27, E38, E41
SCLCR/L **Screw On System** ➤ P. E69		S05K-SCLCR/L 2 S06M-SCLCR/L 2 S08M-SCLCR/L 2 S08M-SCLCR/L 3 S10R-SCLCR/L 3 S12S-SCLCR/L 3 S16T-SCLCR/L 3 S16T-SCLCR/L 4 S20U-SCLCR/L 4 S24V-SCLCR/L 4 A05F-SCLCR/L 2 A06H-SCLCR/L 2 A08K-SCLCR/L 2 A08K-SCLCR/L 3 A10M-SCLCR/L 3 A12Q-SCLCR/L 3 A16R-SCLCR/L 3 A16R-SCLCR/L 4 A20S-SCLCR/L 4 C06-SCLCR/L 2 C08-SCLCR/L 2 C10-SCLCR/L 3 C12-SCLCR/L-3	●		●	●			CC☐T 21.5 ☐ 32.5 ☐ 43 ☐ ➤ P. E8-9
SDQCR/L ➤ P. E70		S16M-SDQCR/L 2 S08M-SDQCR/L 2 S10R-SDQCR/L 2 S12S-SDQCR/L 2 S10R-SDQCR/L 2 S16T-SDQCR/L 2 A06H-SDQCR/L 2 A08K-SDQCR/L 2 A10M-SDQCR/L 2 A12Q-SDQCR/L 2 A16R-SDQCR/L 2		●	●	●			DC☐T 21.5 ☐ 32.5 ☐ ➤ P. E14
SDUCR ➤ P. E70		S06M-SDUCR/L 2 S08M-SDUCR/L 2 S10R-SDUCR/L 3 S12S-SDUCR/L 3 S16T-SDUCR/L 3 S20U-SDUCR/L 3 A06H-SDUCR/L 2 A08K-SDUCR/L 2 A10M-SDUCR/L 2 A12Q-SDUCR/L 3 A16R-SDUCR/L 3 C06 SDUCR/L 2		●		●			DC☐T 21.5 ☐ 32.5 ☐ ➤ P. E14
SDZCR/L ➤ P. E71		S10R-SDZCR/L 2 S12R-SDZCR/L 2 S16T-SDZCR/L 3 S20U-SDZCR/L 3 S24V-SDZCR/L 3 A16R-SDZCR/L 3 A20S-SDZCR/L 3		●		●			DC☐T 43 ☐ ➤ P. E14
SSKCR/L ➤ P. E71		S08M-SSKCR 3 S10R-SSKCR 3 S12S-SSKCR 3 S16T-SSKCR 4 S20U-SSKCR 4 A08K-SSKCR 3 A10M-SSKCR 3 A12Q-SSKCR 3 A16R-SSKCR 4 A20S-SSKCR 4			●				SC☐T 32.5 ☐ 43 ☐ ➤ P. E19

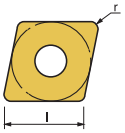
Boring Bar Index

Cutting Shape		Cat. No.	Facing	Copying	Through Hole Machining	Blind Hole Machining	Copying and Relief	Back Copying	Available Inserts
STFCR/L **Screw On System** ➤ P. E72		**S06M-STFCR/L 1.8** **S08M-STFCR/L 1.8** **S08M-STFCR/L 2** **S10R-STFCR/L 2** **S12S-STFCR/L 2** **S12S-STFCR/L 3** **S16T-STFCR/L 3** **S20U-STFCR/L 3** **S24V-STFCR/L 3** **A06H-STFCR/L 1.8** **A08K-STFCR/L 1.8** **A08K-STFCR/L 2** **A10M-STFCR/L 2** **A12Q-STFCR/L 2** **A16R-STFCR/L 3** **A20S-STFCR/L 3** **C06-STFCR/L 2** **C08-STFCR/L 2** **C10-STFCR/L-3**	●		●	●			TC☐T 1.81.5 ☐ 21.5 ☐ 32.5 ☐ ➤ P. E22-24
SVQBR ➤ P. E72		**S20U-SVQBR/L 3** **S24V-SVQBR /L 3** **A20S-SVQBR /L 3**					●		VB☐T 33 ☐ ➤ P. E27
SVUBR/L ➤ P. E73		**S20U-SVUBR/L 3** **S24V-SVUBR/L 3** **A20S-SVUBR/L 3**		●	●		●		VB☐T 33 ☐ ➤ P. E27
SWLCR/L ➤ P. E73		**S16T-SWLCR/L 4** **S20U-SWLCR/L 4** **A16R-SWLCR/L 4** **A20S-SWLCR/L 4**	●		●	●			WCMT 43 ☐ ➤ P. E30

MCLNR/L





Ref	Holder Style	Application	Inserts	Parts
Comment	L Style, Approach Angle 95°	Facing, Through Hole, Blind Hole Machining		   

Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	L	S	θ°			Clamp	Clamp Screw	Shim	Pin
S16T-MCLNR/L4	145872	**235.50**	145871	**229.92**	1.280	1.00	12.0	0.640	14°			CL-20	XNS-48	ICSN-432	NL-46
S20U-MCLNR/L4	145874	**333.72**	145873	**341.82**	1.530	1.25	14.0	0.765	14°			**146918**	**146922**	**146908**	**146912**
S24U-MCLNR/L4	145884	**347.56**	145762	**381.34**	1.780	1.50	14.0	0.890	11°			**$ 8.39**	**$ 1.98**	**$ 9.19**	**$ 4.34**
S32V-MCLNR/L4	147270	**524.85**	-	-	2.400	2.00	16.0	1.281	11°						
※ **A16T-MCLNR/L4**	148363	**299.33**	148364	**306.59**	1.280	1.00	12.0	0.640				CL-20	XNS-48	ICSN-432	NL-46
※ **A20U-MCLNR/L4**	148365	**333.72**	148367	**341.82**	1.530	1.25	14.0	0.765				**146918**	**146922**	**146908**	**146912**
												$ 8.39	**$ 1.98**	**$ 9.19**	**$ 4.34**

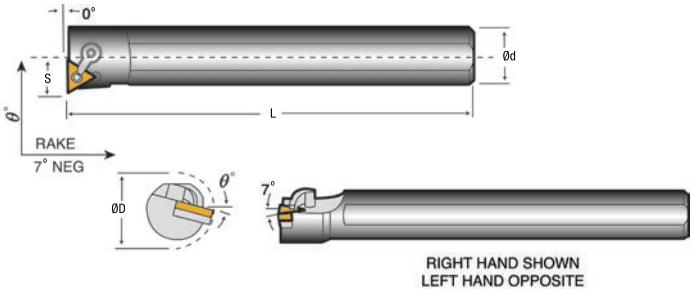
CN☐☐43☐

※ Coolant Hole Boring Bar

➤ P. E10-12, E38-39

MTFNR/L





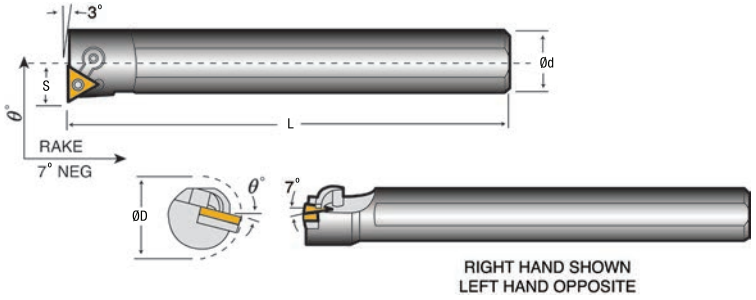
Ref	Holder Style				Application					Inserts	Parts			
Comment	F Style 90° End Cutting Angle				Facing, Through Hole, Blind Hole Machining									
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	L	S	θ°		Clamp	Clamp Screw	Shim	Pin
S20U-MTFNR-4	147271	**284.28**			1.470	1.25	14.0	0.765	10°	TNM□□43□	CL-20	XNS-48	ITSN-432	NL-46
S32U-MTFNR-4	145882	**412.53**			2.562	2.00	16.0	1.281	11°		**146918**	**146922**	**146901**	**146912**
											$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**
※ A16T-MTFNR/L-4			148371	**119.84**	1.280	1.00	12.0	0.641	10°		CL-9	XNS-59	ITSN-432	NL-46
											146916	**146921**	**146901**	**146912**
											$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**

※ Coolant Hole Boring Bar

➤ P. E24-27, E41

MTUNR



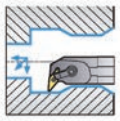


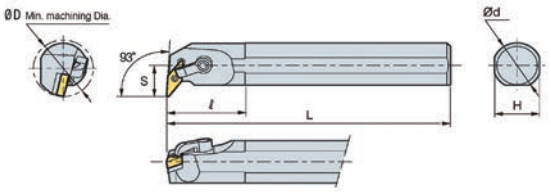
Ref	Holder Style				Application					Inserts	Parts			
Comment	Neg. 3° Edge Cutting Edge Angle				Facing, Through Hole, Blind Hole Machining									
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	L	S	θ°		Clamp	Clamp Screw	Shim	Pin
S24U-MTUNR-4	145772	**443.97**			2.000	1.50	14.0	1.125	11°	TNM□□43□	CL-20	XNS-48	ITSN-432	NL-46
											146918	**146922**	**146901**	**146912**
											$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**
S32U-MTUNR-4	145883	**1,025.15**			2.562	2.00	14.0	1.281	11°		CL-9	XNS-59	ITSN-432	NL-46
											146916	**146921**	**146901**	**146912**
											$ 8.39	**$ 1.98**	**$ 10.37**	**$ 4.34**

➤ P. E24-27, E41

MVUNR/L







Ref	Holder Style	Application	Inserts	Parts
Comment	U Style, Approach Angle 93°	Copying, Through Hole, Blind Hole Machining		

Designation	Code # Right	Code # Right Price $	Code # Left	Code # Left Price $	ØD	Ød	L	S	H	ℓ		Clamp	Clamp Screw	Shim	Pin
※ A16T-MVUNR/L-4	148361	**537.24**			1.200	1	8.0	0.640	0.921	1.417		CL-30 **147214** **$ 14.80**	XNS-59 **146921** **$ 1.98**	IVSN-433 **148287** **$ 9.95**	NL-46 **146912** **$ 4.34**

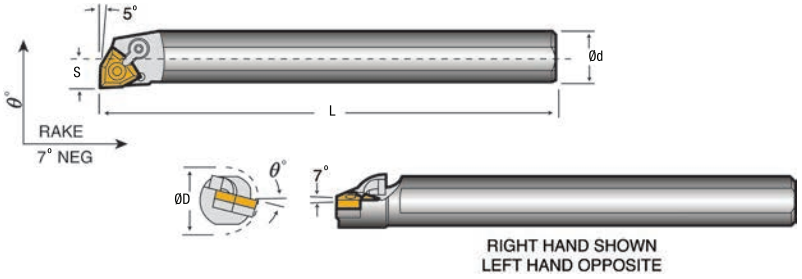
VN□□43□

※ Coolant Hole Boring Bar

➤ P. E29

MWLNR/L





Ref	Holder Style	Application	Inserts	Parts
Comment	L Style, Approach Angle 95°	Facing, Through Hole, Blind Hole Machining		

Designation	Code # Right	Code # Right Price $	Code # Left	Code # Left Price $	ØD	Ød	L	S	θ°			Clamp	Clamp Screw	Shim	Pin
S16T-MWLNR/L-4	145881	**229.92**	145879	**285.08**	1.280	1.00	12.0	0.640	14°			CL-20 **146918** **$ 8.39**	XNS-48 **146922** **$ 1.98**	- 	NL-44 **146985** **$ 4.71**
S20U-MWLNR/L-4	145877	**308.24**	145878	**315.72**	1.530	1.25	14.0	0.765	14°			CL-20 **146918** **$ 8.39**	XNS-48 **146922** **$ 1.98**	IWSN-432 **146906** **$ 13.20**	NL-46 **146912** **$ 4.34**
S24U-MWLNR/L-4	145865	**353.70**	145880	**353.70**	1.780	1.50	14.0	0.890	11°						
※ A16T-MWLNR/L-4	148353	**278.33**	148354	**285.08**	1.280	1.00	12.0	0.640				CL-20 **146918** **$ 8.39**	XNS-48 **146922** **$ 1.98**	IWSN-432 **146906** **$ 13.20**	NL-46 **146912** **$ 4.34**
※ A20U-MWLNR/L-4	148355	**349.11**	148356	**315.72**	1.530	1.25	14.0	0.765							

WNM□43□

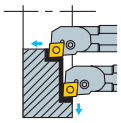
※ Coolant Hole Boring Bar

➤ P. E31-33

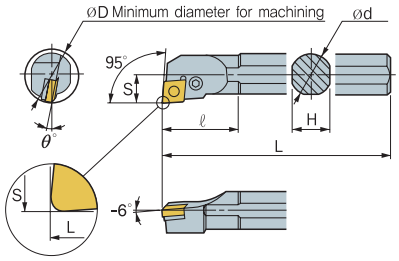


PCLNR/L





Feed direction



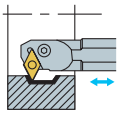
Right-hand shown

Ref	Holder Style				Application							Inserts	Parts				
Comment	L Style, Approach Angle 95°				Facing, Through Hole, Blind Hole Machining												
Designation	Code # Right	Code # Price $	Code # Left	Code # Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Lever	Shim	Shim Pin
S16T-PCLNR/L-4	145903	**171.21**	145904	**191.71**	1.200	1.000	0.921	12.0	0.640	-12°	1.575	CN□□43□	VHX0613A **146941** **$ 16.75**	HW25L **146956** **$ 2.83**	LV4A **146942** **$ 22.86**	- -	-
S20U-PCLNR/L-4	145905	**243.27**	-	-	1.470	1.250	1.171	14.0	0.765	-11°	1.969		VHX0821	HW30L	LV4	SC42B	SP4
S24V-PCLNR/L-4	145907	**306.75**	145908	**273.93**	1.760	1.500	1.382	16.0	0.890	-10°	2.165		**146925** **$ 12.73**	**146953** **$ 3.51**	**146924** **$ 21.24**	**146943** **$ 12.85**	**146928** **$ 5.69**

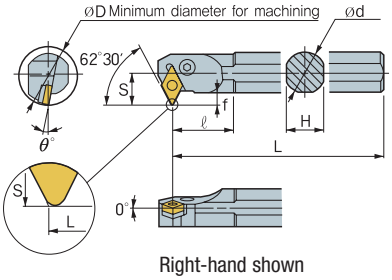
➤ P. E10-12. E38-39

PDSNR





Feed direction



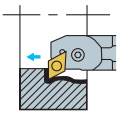
Right-hand shown

Ref	Holder Style				Application							Inserts	Parts				
Comment	S Style, Approach Angle 62° 30'				Copying, Through Hole Machining												
Designation	Code # Right	Code # Price $	Code # Left	Code # Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Lever	Shim	Shim Pin
S20U-PDSNR-4	145909	**243.27**			1.705	1.250	1.171	14.0	1.000	-11°	1.772	DN□□44□	VHX0821	HW30L	LV4	SD42	SP4
S24V-PDSNR-4	145910	**306.75**			2.000	1.500	1.382	16.0	1.125	-11°	1.693		**146925** **$ 12.73**	**146953** **$ 3.51**	**146924** **$ 21.24**	**146927** **$ 15.90**	**146928** **$ 5.69**

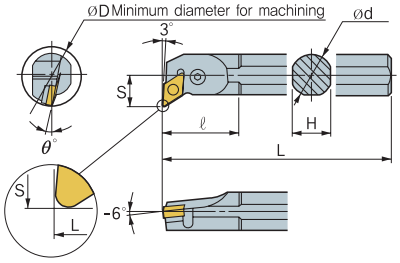
➤ P. E14-16, E39-40

PDUNR





Feed direction



Right-hand shown

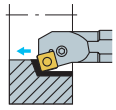
Ref	Holder Style	Application	Inserts	Parts
Comment	U Style, Approach Angle 93°	Copying, Through Hole, Blind Hole Machining		

Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ	Screw	Wrench	Lever	Shim	Shim Pin
S20U-PDUNR-4	145911	**243.27**			1.705	1.250	1.171	14.0	1.000	-16°	1.969	VHX0821	HW30L	LV4B	SD42	SP4
S24V-PDUNR-4	145912	**306.75**			2.000	1.500	1.382	16.0	1.125	-11°	1.969	DN□□43□	**146925**	**146953**	**145558**	**146927**	**146928**
													$ 12.73	**$ 3.51**	**$ 23.06**	**$ 15.90**	**$ 5.69**

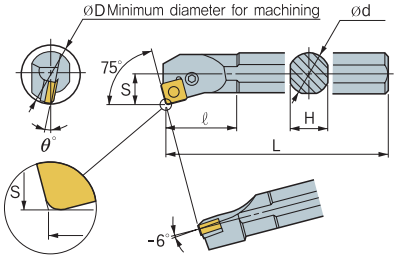
➤ P. E14-16, E39-40

PSKNR/L





Feed direction



Right-hand shown

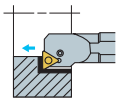
Ref	Holder Style	Application	Inserts	Parts
Comment	K Style, Approach Angle 75°	Through Hole Machining		

Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ	Screw	Wrench	Lever	Shim	Shim Pin
S16T-PSKNR/L 4	145913	**171.21**	145914	**171.21**	1.200	1.000	0.921	12.0	0.640	-12°	1.654	VHX0613A	HW25L	LV4A		
												146941	**146956**	**146942**	-	-
												$ 16.75	**$ 2.83**	**$ 22.86**		
S20U-PSKNR/L 4	145915	**217.24**	145916	**217.24**	1.470	1.250	1.171	14.0	0.765	-10°	1.969	SN□□43□				
												VHX0821	HW30L	LV4	SS42B	SP4
S24V-PSKNR/L 4	145917	**356.13**	145918	**273.93**	1.760	1.500	1.382	16.0	0.890	-10°	2.165	**146925**	**146953**	**146924**	**146973**	**146928**
												$ 12.73	**$ 3.51**	**$ 21.24**	**$ 12.85**	**$ 5.69**

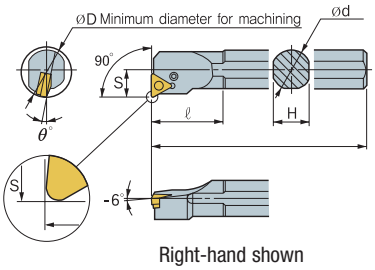
➤ P. E19-22, E38, E40

PTFNR/L





Feed direction



Right-hand shown

Ref	Holder Style				Application							Inserts	Parts				
Comment	F Style, Approach Angle 90°				Copying, Through Hole, Blind Hole Machining												
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Lever	Shim	Shim Pin
S16T-PTFNR/L 3	145919	**171.21**	145920	**191.71**	1.200	1.000	0.921	12.0	0.640	-12°	1.575	TN□□33□	VHX0512B **146976** **$ 21.69**	HW20L **146954** **$ 2.83**	LV3 **146923** **$ 19.78**	-	-
S20U-PTFNR 3	145921	**243.27**			1.470	1.250	1.171	14.0	0.765	-10°	1.969		VHX0617 **146926** **$ 11.44**	HW25L **146956** **$ 2.83**	LV3 **146923** **$ 19.78**	ST317B **146974** **$ 12.72**	SP3 **146929** **$ 5.69**
S24V-PTFNR 3	145923	**306.75**			1.760	1.500	1.382	16.0	0.890	-10°	2.165		VHX0617 **146926** **$ 11.44**	HW20L **146954** **$ 2.83**	LV3 **146923** **$ 19.78**	-	-

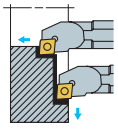
➤ P. E24-27, E38, E41

SCLCR/L

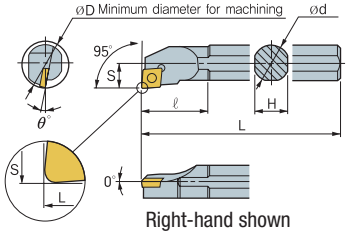


Kits Also Available

➤ P. E170



Feed direction



Right-hand shown

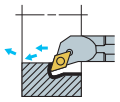
Ref	Holder Style				Application							Inserts	Parts			
Comment	L Style, Approach Angle 95°				Copying, Through Hole, Blind Hole Machining											
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Shim	Shim Pin
S06M-SCLCR 2	147978	**112.14**			0.480	0.375	0.336	6.0	0.250	-13°		CC□T 21.5□	FTKA02565	TW07P		
S08M-SCLCR 2	147979	**85.26**			0.600	0.500	0.461	6.0	0.312	-10°			**146930** **$ 13.75**	**146939** **$ 14.32**	-	-
S08M-SCLCR 3	147203	**93.55**			0.600	0.500	0.461	6.0	0.312	-10°			FTGA03508	TW15P		
S10R-SCLCR/L 3	145925	**113.39**	145928	**110.70**	0.770	0.625	0.586	8.0	0.406	-12°	1.280	CC□T 32.5□	**146931** **$ 12.73**	**146940** **$ 14.94**		
S12S-SCLCR/L 3	145926	**138.83**	145929	**135.54**	0.930	0.750	0.671	10.0	0.500	-8°	1.496		FTGA03510		-	-
S16T-SCLCR/L 3	145927	**171.21**	145930	**225.91**	1.200	1.000	0.921	12.0	0.640	-6°	1.772		**146957** **$ 11.87**			
S16T-SCLCR/L 4	145931	**94.33**	145934	**174.38**	1.200	1.000	0.921	12.0	0.640	-6°	1.772		FTGA0411F	TW15P	SC42S	SHXN0610F
S20U-SCLCR/L 4	145932	**114.78**	145935	**212.08**	1.470	1.250	1.171	14.0	0.765	-10°	1.969	CC□T 43□	**146944** **$ 11.70**	**146940** **$ 14.94**	**146936** **$ 12.72**	**145998** **$ 19.78**
※ A05F-SCLCR 2	146589	**137.31**			0.415	0.3125	0.293	3.0	0.219	-5°			FTKA02565	TW07P		
※ A06H-SCLCR 2	146590	**125.70**			0.480	0.375	0.355	4.0	0.250	-13°		CC□T 21.5□	**146930** **$ 13.75**	**146939** **$ 14.32**	-	-
※ A08K-SCLCR 2	146591	**136.04**			0.600	0.500	0.480	5.0	0.312	-10°						
※ A10M-SCLCR 2	147348	**145.67**			0.770	0.625	0.605	6.0	0.406	-10°		CC□T 21.5□	FTGA03508 **146931** **$ 12.73**	TW15P **146940** **$ 14.94**	-	-
Carbide Shank																
C06-SCLCR 2	147297	**469.81**			0.480	0.375	0.355	4.0	0.250	13°		CC□T 21.5□	FTKA02565 **146930** **$ 13.75**	TW07P **146939** **$ 14.32**		
C08-SCLCR 2	147298	**614.37**			0.600	0.500	0.480	5.0	0.312	10°			FTGA03508 **146931** **$ 12.73**	TW15P **146940** **$ 14.94**	-	-
C10-SCLCR 3	147299	**926.20**			0.770	0.625	0.605	6.0	0.406	12°	1.280	CC□T 32.5□	FTGA03508 **146931** **$ 12.73**	TW15P **146940** **$ 14.94**	-	-
C12-SCLCR/L 3	147300	**957.05**	147347	**938.05**	0.930	0.750	0.711	7.0	0.500	-8°	1.496					

※ Coolant Hole Boring Bar

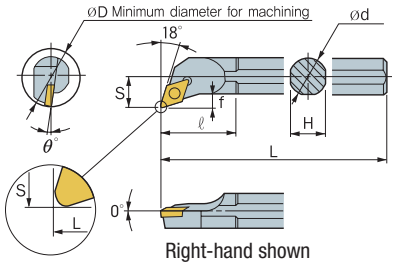
➤ P. E8-9

SDQCR





Feed direction



Right-hand shown

Ref	Holder Style				Application								Inserts	Parts	
Comment	Q Style, Approach Angle 108°				Facing, Through Hole, Blind Hole Machining										
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ	f		Screw	Wrench
S12S-SDQCR 3	145937	**135.54**			0.980	0.750	0.671	10.0	0.562	-6°	1.260	0.177	DC□ T 32.5□	FTGA03508 **146931** **$ 12.73**	TW15P
S16T-SDQCR 3	145938	**174.38**			1.300	1.000	0.921	12.0	0.750	-6°	1.260	0.276		FTGA03510 **146957** **$ 11.87**	**146940** **$ 14.94**

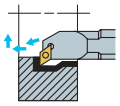
➤ P. E14

SDUCR

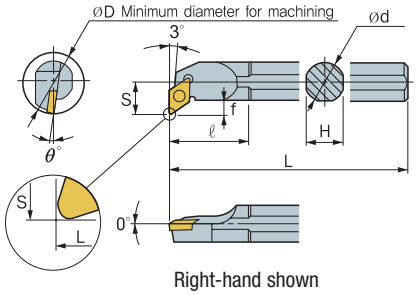


Kits Also Available

➤ P. E171



Feed direction



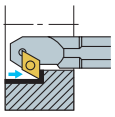
Right-hand shown

Ref	Holder Style				Application								Inserts	Parts	
Comment	U Style, Approach Angle 93°				Facing, Through Hole, Blind Hole Machining										
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ	f		Screw	Wrench
S06M-SDUCR 2	145939	**84.26**			0.600	0.375	0.336	6.0	0.375	-8°		0.098	DC□ T 21.5□	FTKA02565	TW07P
S08M-SDUCR 2	145940	**91.33**			0.730	0.500	0.461	6.0	0.437	-8°	0.866	0.138		**146930**	**146939**
S10R-SDUCR 2	145941	**110.70**			0.850	0.625	0.586	8.0	0.500	-6°	1.063	0.157		**$ 13.75**	**$ 14.32**
S12S-SDUCR 3	145942	**135.54**			0.980	0.750	0.671	10.0	0.562	-6°	1.575	0.169	DC□ T 32.5□	FTGA03508 **146931** **$ 12.73**	TW15P
S16T-SDUCR 3	145943	**261.06**			1.300	1.000	0.921	12.0	0.750	-6°	1.811	0.268		FTGA03510 **146957** **$ 11.87**	**146940** **$ 14.94**
Carbide Shank C06-SDUCR-2	147301	**520.25**			0.600	0.375	0.336	6.0	0.375	-8°		0.098	DC□ T 21.5□	FTKA02565 **146930** **$ 13.75**	TW07P **146939** **$ 14.32**

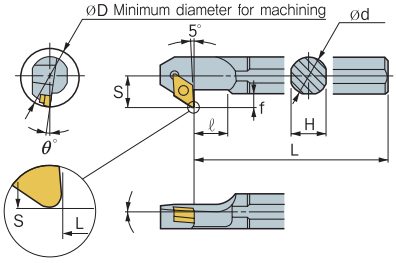
➤ P. E14

SDZCR/L





Feed direction



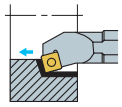
Right-hand shown

Ref	Holder Style				Application								Inserts	Parts			
Comment	Z Style, Approach Angle 85°				Copying, Blind Hole Machining												
Designation	Code # Right	Code # Price $	Code # Left	Code # Price $	ØD	Ød	H	L	S	θ°	ℓ	f		Screw	Wrench	Shim	Shim Screw
S16T-SDZCR/L 3	145944	**171.21**			1.200	1.000	0.921	12.0	0.640	-6°	1.181	0.272	DC☐T 32.5☐	FTGA03510 **146957** **$ 11.87**	TW15P **146940** **$ 14.94**	-	-
S20U-SDZCR/L 3	145946	**233.18**	145947	**198.31**	1.470	1.250	1.171	14.0	0.765	-6°	1.535	0.331	DC☐T 32.5☐	FTGA03512 **146933** **$ 12.73**	TW15P **146940** **$ 14.94**	SD32S **146937** **$ 12.85**	SHXN0509F **146935** **$ 19.49**

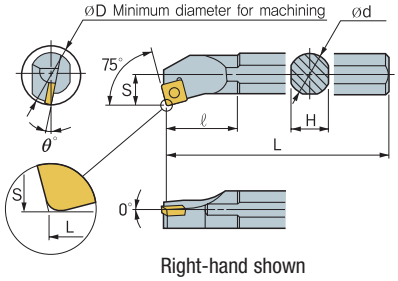
➤ P. E14

SSKCR/L





Feed direction



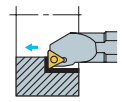
Right-hand shown

Ref	Holder Style				Application							Inserts	Parts			
Comment	K Style, Approach Angle 75°				Through Hole Machining											
Designation	Code # Right	Code # Price $	Code # Left	Code # Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Shim	Shim Screw
S08M-SSKCR 3	145948	**93.55**			0.600	0.500	0.461	6.0	0.312	-10°	1.024	SC☐T 32.5☐	FTGA03508 **146931** **$ 12.73**	TW15P **146940** **$ 14.94**	-	-
S12S-SSKCR 3	145949	**138.83**			0.930	0.750	0.671	10.0	0.500	-8°	1.358					
S16T-SSKCR 4	145950	**174.38**			1.200	1.000	0.921	12.0	0.640	-8°	1.429	SC☐T 43☐	FTGA0411F **146944** **$ 11.70**	TW15P **146940** **$ 14.94**	SS42S **145997** **$ 12.85**	SHXN0610F **145998** **$ 19.78**

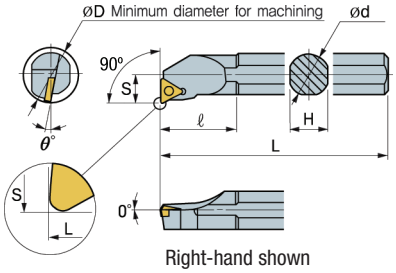
➤ P. E19

STFCR/L





Feed direction



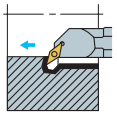
Right-hand shown

Ref	Holder Style				Application							Inserts	Parts			
Comment	F Style, Approach Angle 90°				Facing, Through Hole, Blind Hole Machining											
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Shim	Shim Screw
S06M-STFCR 2	146001	**58.14**			0.480	0.375	0.336	6.0	0.250	-13°	0.906	TC□T 21.5□	FTKA02565	TW07P		
S08M-STFCR 2	146022	**93.55**			0.600	0.500	0.461	6.0	0.312	-10°	1.181					
S10R-STFCR/L 2	145954	**110.70**	147275	**124.65**	0.770	0.625	0.586	8.0	0.406	-6°	1.378		**146930**	**146939**	-	-
S12S-STFCR/L 2	145955	**138.83**			0.930	0.750	0.671	10.0	0.500	-3°	1.417		**$ 13.75**	**$ 14.32**		
S16T-STFCR 3	146042	**201.76**			1.200	1.000	0.921	12.0	0.640	-6°	1.929	TC□T 32.5□	FTGA03510	TW15P		
													146957	**146940**	-	-
													$ 11.87	**$ 14.94**		
S20U-STFCR 3	146818	**233.18**			1.470	1.250	1.171	14.0	0.765	-10°	1.969		FTGA03512	TW15P	ST32S	SHXN0509F
													146933	**146940**	**145999**	**146935**
													$ 12.73	**$ 14.94**	**$ 16.77**	**$ 19.49**
Carbide Shank																
C06-STFCR 2	147302	**406.70**			0.480	0.375	0.461	6.0	0.312	-10°	1.102	TC□T 21.5□	FTKA02565	TW07P		
C08-STFCR 2	147303	**531.39**			0.600	0.500	0.461	6.0	0.312	-10°	1.181		**146930**	**146939**	-	-
C10-STFCR 2	147304	**759.92**			0.770	0.625	0.586	8.0	0.406	-6°	1.378		**$ 13.75**	**$ 14.32**		

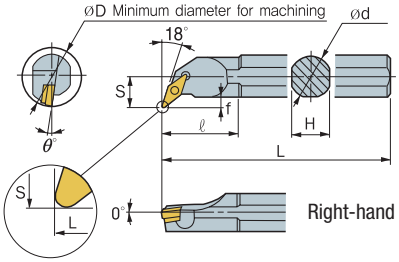
➤ P. E22-24

SVQBR





Feed direction



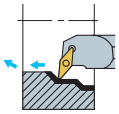
Right-hand shown

Ref	Holder Style				Application							Inserts	Parts			
Comment	Q Style, Approach Angle 108°				Copying, Relief Machining											
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Shim	Shim Screw
S20U-SVQBR 3	145977	**233.18**			1.705	1.250	1.171	14.0	1.000	-8°	2.205	VB□T 33□	FTGA03512	TW15P	SV32S	SHXN0509F
S24V-SVQBR 3	145978	**297.65**			2.000	1.500	1.382	16.0	1.125	-8°	2.520		**146933**	**146940**	**146950**	**146935**
													$ 12.73	**$ 14.94**	**$ 16.30**	**$ 19.49**

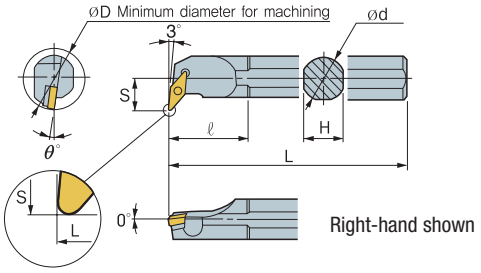
➤ P. E27

SVUBR/L





Feed direction



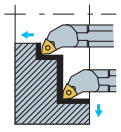
Right-hand shown

Ref	Holder Style				Application							Inserts	Parts			
Comment	U Style, Approach Angle 93°				Copying											
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench	Shim	Shim Screw
S20U-SVUBR 3	145979	**233.18**			1.705	1.250	1.171	14.0	1.000	-8°	1.929	VB ☐ T 33☐	FTGA03512	TW15P	SV32S	SHXN0509F
S24V-SVUBR/L 3	145980	**297.65**	146529	**253.14**	2.000	1.500	1.382	16.0	1.125	-8°	1.224		**146933**	**146940**	**146950**	**146935**
													$ 12.73	**$ 14.94**	**$ 16.30**	**$ 19.49**

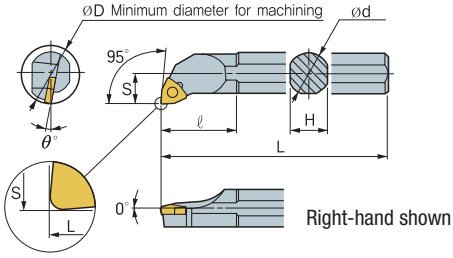
➤ P. E27

SWLCR/L





Feed direction



Right-hand shown

Ref	Holder Style				Application							Inserts	Parts	
Comment	L Style, Approach Angle 95°				Facing, Through Hole, Blind Hole Machining									
Designation	Code # Right	Price $	Code # Left	Price $	ØD	Ød	H	L	S	θ°	ℓ		Screw	Wrench
S16T-SWLCR/L 4	145981	**174.38**	145901	**157.72**	1.200	1.000	0.921	12.0	0.640	-7°	1.835	WCMT 43 ☐	FTGA0411F	TW15P
S20U-SWLCR/L 4	145900	**259.85**	145902	**206.65**	1.470	1.250	1.171	14.0	0.765	-5°	2.031		**146944**	**146940**
													$ 11.70	**$ 14.94**

➤ P. E30

Indexable Boring Bars

BORITE

- Chipbreaker eliminates long stringer chips. Round shanks allow the operator toset positive or negative rake
- A new cutting edge may be presented by simply indexing the insert. It is not necessary to remove the tool from chuck or tool post



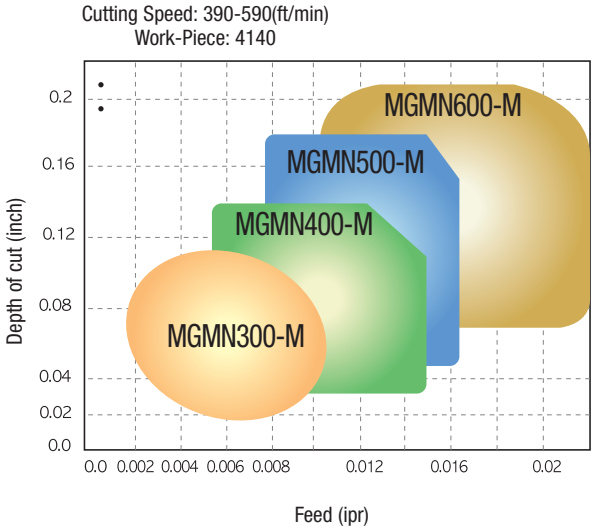
Shank Dia.	Length	Bore Depth	Min. Bore	Tool No.	Code No.	Price $	Set Code No.	Price $
1/2	2-3/4	1-1/4	7/16	7SB	145500	**52.50**		
1/2	3-5/8	2-1/8	7/16	7LB	145502	**53.50**	145550	**214.10**
1/2	3	1-1/2	1/2	8SB	145504	**53.50**	(IB500)	
1/2	4	2-1/2	1/2	8LB	145506	**54.60**		

Shank Dia.	Length	Bore Depth	Min. Bore	Tool No.	Code No.	Price $	Set Code No.	Price $
5/8	3	1-1/4	7/16	7SD	145510	**59.70**		
5/8	3-7/8	2-1/8	7/16	7LD	145512	**60.80**		
5/8	3-1/4	1-1/2	1/2	8SD	145514	**60.20**	145560	**366.70**
5/8	4-1/4	2-1/2	1/2	8LD	145516	**61.70**	(ID625)	
5/8	3-1/2	1-3/4	9/16	9SD	145518	**61.70**		
5/8	4-5/8	2-7/8	9/16	9LD	145520	**62.80**		
3/4	3-3/8	1-3/8	7/16	7SC	145530	**65.90**		
3/4	4-1/4	2-1/4	7/16	7LC	145532	**66.90**		
3/4	3-5/8	1-5/8	1/2	8SC	145534	**67.90**	145570	**553.40**
3/4	4-5/8	2-5/8	1/2	8LC	145536	**69.00**	(IC750)	
3/4	3-7/8	1-7/8	9/16	9SC	145538	**70.00**		
3/4	5	3	9/16	9LC	145540	**71.00**		
3/4	4-1/4	2-1/4	11/16	11SC	145542	**71.00**		
3/4	5-1/2	3-1/2	11/16	11LC	145544	**72.00**		

Indexable Boring Bar Inserts & Screws

Insert No.	Description	Code No.	Price $
TT-221	C2 Insert	145575	**9.42**
TT-221	C5 Insert	145580	**9.42**
TT-222	C2 Insert	145585	**8.90**

Insert No.	Description	Code No.	Price $
TT-222	C5 Insert	145590	**8.90**
ICS-2	Set Screw	145595	**2.25**





Depth of Cut, Feed and Width of Cutting Edge

- If the depth of cut and feed are greater than the width of cutting edge, the insert may break due to the increased cutting resistance of the insert
- If the depth of cut and feed are smaller than the width of cutting edge, it may lead to vibration or unstable machining due to no formation of the sub-cutting edge relief angle against no direct influence of tool deflection

Depth of Cut in Grooving Operation

- It can be performed as deep as Tmax of the holder

The Basis of Selection for Grades

Work Piece			The Basis of Selection for Grades (Grooving, Turning)				
ISO	Material	Grade	Wear Resistance ◄——► Toughness				
			01	10	20	30	40
P	Carbon Steel Alloy Steel	CVD	PT10C	PT25C		PT30C	
		PVD	PM30P				
		Cermet	PT10S		PM20S		
M	Stainless Steel	CVD	PT22C		PT30C		
		PVD	PM30P				
K	Cast Iron	CVD			KM20C		
		PVD		PC215K			
	Aluminum	Uncoated	KTM10U				

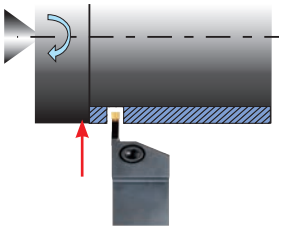
: Primary Recommendation



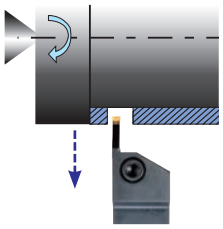
Insert	Steel					Stainless Steel		Cast Iron		Aluminum
	CVD		PVD	Cermet		CVD	PVD	CVD	Carbide	Carbide
	PT20C	PT30C	PM30P	PM20S	PT10S	PT30C	PM30P	KM20C	G10	KTM10U
MGMN200-G	●	△	△	-	-	△	△	△	△	-
MGMN300-G	△	△	△	-	-	△	△	△	△	-
MGMN400-G	△	△	△	-	-	△	△	△	△	-
MGMN500-G	△	△	△	-	-	△	△	△	△	-
MGMN300-M	●	●	●	-	-	●	●	●	△	-
MGMN400-M	●	●	●	-	-	●	●	●	△	-
MGMN500-M	●	△	●	-	-	△	●	△	△	-
MGMN600-M	●	△	△	-	-	△	△	△	△	-
MGMN800-M	△	△	△	-	-	△	△	△	△	-
MGGN300-00-M	-	-	-	△	△	-	-	-	-	-
MGGN400-00-M	-	-	-	△	△	-	-	-	-	-
MGGN500-00-M	-	-	-	△	△	-	-	-	-	-
MGGN600-00-M	-	-	-	△	△	-	-	-	-	-
MRMN300-M	●	△	△	-	-	△	△	△	△	-
MRMN400-M	●	△	△	-	-	△	△	△	△	-
MRMN500-M	●	△	△	-	-	△	△	△	△	-
MRMN600-M	●	△	△	-	-	△	△	△	△	-
MRMN800-M	△	△	△	-	-	△	△	△	△	-
MRGN600-A	-	-	-	-	-	-	-	-	-	●
MRGN800-A	-	-	-	-	-	-	-	-	-	●

Note / ● : Stock △ : Order Made

M.T.G. Applications



Grooving

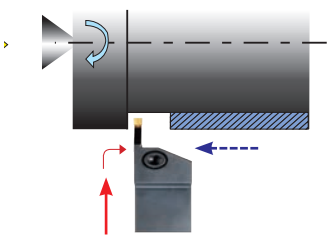


Grooving

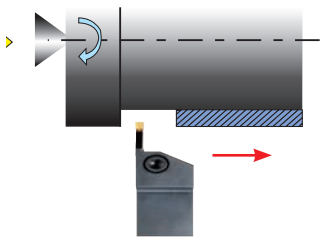
Feed by Cat. No.		Recommended Cutting Speed by Workpiece v(sfm)											
Cat. No.	Feed (ipr)	Carbon Steel			High Hardened Alloy Steel			Hardened Steel			STS	Cast Iron	Al
		PT25C	PT30C	PM20S PT10S	PT25C	PT30C PM30P	PM20S CT10	PT25C	PT30C	PM20S PT10S	PM30P	PC215K	KTM10U
MGMN200-G	0.002	490											
	0.004	425											
	0.006	330											
MGMN300-M(G) MGGN300-00-M MRMN300-M	0.003	625	525	525	525	425	425	400	300	300	525	650	
	0.006	550	450	450	450	350	350	325	225	225	450	600	
	0.01	450	350	350	400	300	300	200	125	125	400	500	
MGMN400-M(G) MGGN400-00-M MRMN400-M	0.005	650	550	550	600	500	500	425	325	325	525	700	
	0.01	550	450	450	525	425	425	350	250	250	450	600	
	0.014	400	325	325	425	325	325	225	175	175	400	425	
MGMN500-M(G) MGGN500-00-M MRMN500-M	0.006-0.008	600	500	500	525	425	425	400	300	300	500	600	
	0.012	500	400	400	425	325	325	225	175	175	400	425	
	0.016	400	325	325	325	250	250	200	125	125	325	400	
MGMN600-M(G) MGGN600-00-M MRMN600-M	0.01	625	525	525	525	425	425	325	225	225	525	625	
	0.014	500	400	400	325	250	250	225	175	175	350	500	
	0.02	400	300	300	250	175	175	175	100	100	250	400	
MRMN800-M	0.01	625	525	525	525	425	425	325	225	225	525	625	
	0.014	500	400	400	325	250	250	225	175	175	350	500	
	0.016	400	300	300	250	175	175	175	100	100	250	400	
MRGN 300-A 400-A 500-A 600-A	0.004												825~3275
	0.01												825~2625
	0.016												825~2300
MRGN800-A	0.004												825~3275
	0.01												825~2625
	0.016												825~2300

• Recommendations written above are subject to change as per machine, workpiece, etc.

M.T.G. Applications



Cornering



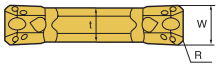
Turning

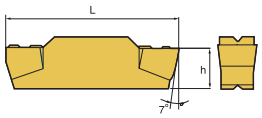


MGMN-G(M) For Grooving & Turning



Note:
G - Grooving only
M - Grooving & Turning

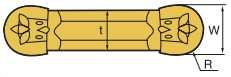




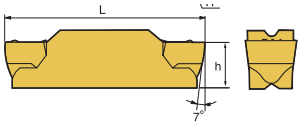
	Coated Carbide										Cermet		Uncoated Carbide	(inch)					Applicable Holders	
Designation	PT20C	PT22C	PT25C	PT30C	PM30P	PTM50P	MT15C	MT20C	MT30C	KT15P	PT10S	PT20S	KTM10U	W	R	L	t	h	Holder	Page No.
MGMN 200-G			149245 $ 21.67	147365 $ 21.67										0.079	0.008	0.629	0.063	0.138	MGEHR/L MGEVR/L	E78 E79
MGMN 300-G										148314 $ 23.07				0.118	1/64	0.827	0.093	0.189	MGIVR/L	E80
MGMN 300-M			149225 $ 22.72	147363 $ 22.72		148837 $ 18.66	149264 $ 23.07		148782 $ 22.72					0.118	1/64	0.827	0.093	0.189		
MGMN 400-G										148315 $ 24.93				0.157	1/64	0.827	0.130	0.189		
MGMN 400-M			149237 $ 24.49	147364 $ 24.49	146211 $ 20.12	148843 $ 24.49								0.157	1/64	0.827	0.130	0.189		
MGMN 600-M			149291 $ 34.61											0.236	1/32	1.024	0.197	0.228		

MRMN-M For Relief, Copying





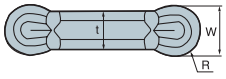
W =± 0.05

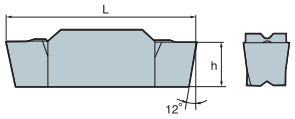


	Coated Carbide									Cermet		Uncoated Carbide	(inch)					Applicable Holders	
Designation	PT10C	PT20C	PT30C	PM30P	PM30.1P	MT20C	MT30P	KT05C	KT15P	PT10S	PT20S	KTM10U	W	R	L	t	h	Holder	Page No.
MRMN 200-M													0.079	0.039	0.630	0.063	0.138	MGEHR/L MGEUR/L	E78 E79
MRMN-300-M					146106 $ 22.72								0.118	0.059	0.827	0.093	0.189	MGEVR/L MGIUR/L	E79 E80
MRMN 500-M			147245 $ 31.35										0.197	0.098	1.024	0.161	0.228	MGIVR/L	E80
MRMN 800-M				147041 $ 54.84									0.315	0.157	1.220	0.236	0.256		

MRGN-A For Aluminum Machining







* -AH : Relief Angle 17°

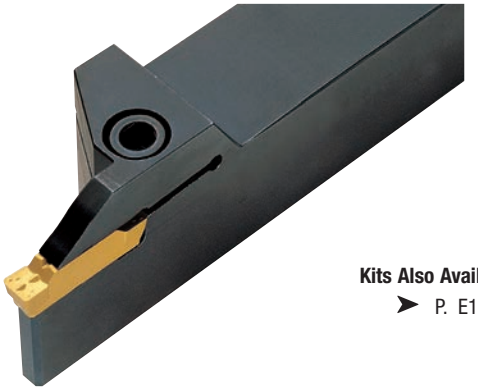
W =± 0.03

	Coated Carbide									Cermet		Uncoated Carbide	(inch)					Applicable Holders	
Designation	PT10C	PT15C	PT20C	PT30C	PM30P	MT20C	MT30P	KT05C	KT15P	PT10S	PT20S	KT10U	W	R	L	t	h	Holder	Page No.
MRGN 300-A												148428 $ 39.68	0.118	0.059	0.827	0.093	0.189	MGEUR/L MGIUR/L	E79 E80
MRGN 400-A												148153 $ 41.33	0.157	0.078	0.827	0.130	0.189		
MRGN 500-A												148154 $ 44.05	0.197	0.098	1.024	0.161	0.228		
MRGN 600-A												148155 $ 47.51	0.236	0.118	1.024	0.197	0.228		

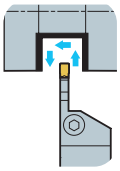
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

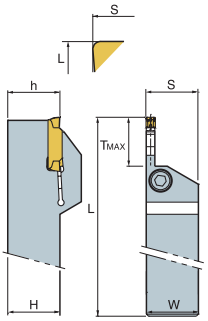
MGEHR/L



Kits Also Available
➤ P. E172



Feed direction



Right-hand shown

Ref	Holder Style				Application					Inserts	Parts	
Comment					External Grooving, Turning							
									(inch)			
MGEHR/L	Code # Right	Price $	Code # Left	Price $	H(h)	W	L	S	TMAX		Screw	Wrench
12-2	148244	**195.23**			0.750	0.750	4.921	0.760	0.47	MGMN200-G/M	MHA 0512	HW 40L
16-2	148245	**209.91**	148587	**209.91**	1.000	1.000	5.906	1.010	0.47		**147984**	**148290**
											$ 13.01	**$ 3.51**
12-3	148062	**195.23**	148064	**195.23**	0.750	0.750	4.921	0.764	0.70			
12-3-T03	148063	**195.23**	148065	**195.23**	0.750	0.750	4.921	0.764	0.39	MGMN300-M		
16-3	148066	**209.91**	148067	**209.91**	1.000	1.000	5.906	1.014	0.70			
16-3-T03	148068	**209.91**	148069	**209.91**	1.000	1.000	5.906	1.014	0.39	MRMN300-M		
20-3	148070	**226.93**	148071	**226.93**	1.250	1.250	6.693	1.264	0.70			
20-3-T03	148072	**226.93**	148073	**226.93**	1.250	1.250	6.693	1.264	0.39			
16-4	148074	**209.91**	148075	**209.91**	1.000	1.000	5.906	1.016	0.70	MGMN400-M		
16-4-T03	148076	**209.91**	148077	**209.91**	1.000	1.000	5.906	1.016	0.39	MRMN400-M	BHA0616	HW 50L
20-4	148078	**226.93**	148079	**226.93**	1.250	1.250	6.693	1.264	0.70		**146958**	**148186**
20-4-T03	148082	**226.93**	148083	**226.93**	1.250	1.250	6.693	1.264	0.39		**$ 10.44**	**$ 7.87**
16-5	148080	**209.91**	148081	**209.91**	1.000	1.000	5.906	1.020	0.90	MRMN500-M		
20-5	148084	**226.93**	148085	**226.93**	1.250	1.250	6.693	1.270	0.90			
16-6	148086	**209.91**	148087	**209.91**	1.000	1.000	5.906	1.024	0.90	MGMN600-M		
20-6	148088	**226.93**	148089	**226.93**	1.250	1.250	6.693	1.274	0.90	MRMN600-M		
16-8	148090	**209.91**	148091	**209.91**	1.000	1.000	5.906	1.043	1.10	MGMN800-M		
20-8	148092	**226.93**			1.250	1.250	6.693	1.293	1.10	MRMN800-M		

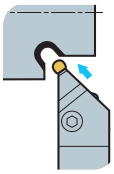
➤ P. E77

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

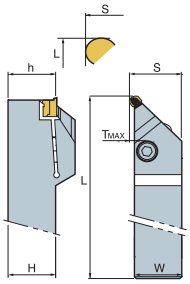
Images are representational only and may not reflect actual product.

MGEUR/L





Feed direction



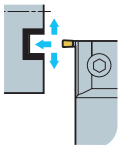
Right-hand shown

Ref	Holder Style				Application					Inserts	Parts	
Comment					External Relief Grooving							
									(inch)			
MGEUR/L	Code # Right	Price $	Code # Left	Price $	H(h)	W	L	S	TMAX		Screw	Wrench
12-3	148105	**183.07**	148106	**183.07**	0.750	0.750	4.921	0.967	0.21	MRMN300-M		
16-3	148107	**198.49**	148108	**198.49**	1.000	1.000	5.906	1.217	0.21			
20-3	148109	**213.86**	148110	**213.86**	1.250	1.250	6.693	1.467	0.21			
16-4	148111	**198.49**	148112	**198.49**	1.000	1.000	5.906	1.217	0.21	MRMN400-M		
20-4	148113	**213.86**	148114	**213.86**	1.250	1.250	6.693	1.467	0.21			
16-5	148115	**198.49**	148116	**198.49**	1.000	1.000	5.906	1.276	0.27	MRMN500-M	BHA0616	HW 50L
20-5	148117	**213.86**	148118	**213.86**	1.250	1.250	6.693	1.526	0.27		**146958**	**148186**
16-6	148119	**198.49**	148120	**198.49**	1.000	1.000	5.906	1.276	0.27	MRMN600-M	**$ 10.44**	**$ 7.87**
20-6	148121	**213.86**	148122	**213.86**	1.250	1.250	6.693	1.526	0.27			
16-8	148123	**198.49**	148124	**198.49**	1.000	1.000	5.906	1.354	0.35	MRMN800-M		
20-8	148125	**213.86**	148126	**213.86**	1.250	1.250	6.693	1.604	0.35			
16-6A	148127	**198.49**	148128	**198.49**	1.000	1.000	5.906	1.276	0.27	MRGN600-A		
16-8A	148129	**198.49**	148130	**198.49**	1.000	1.000	5.906	1.354	0.35	MRGN800-A		

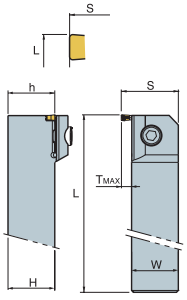
➤ P. E77

MGEVR/L





Feed direction



Right-hand shown

Ref	Holder Style				Application					Inserts	Parts	
Comment					Facial Grooving, Turning							
									(inch)			
MGEVR/L	Code # Right	Price $	Code # Left	Price $	H(h)	W	L	S	TMAX		Screw	Wrench
12-2	148266	**183.07**	148267	**183.07**	0.750	0.750	4.921	0.868	0.11	MGMN200-G		
16-2	148268	**198.49**	148269	**198.49**	1.000	1.000	5.906	1.118	0.11		BHA0616	HW 50L
12-3	148270	**183.07**	148271	**183.07**	0.750	0.750	4.921	0.967	0.21	MGMN300-M	**146958**	**148186**
16-3	148272	**198.49**	148273	**198.49**	1.000	1.000	5.906	1.217	0.21		**$ 10.44**	**$ 7.87**
20-3	148274	**213.86**	148275	**213.86**	1.250	1.250	6.693	1.467	0.21	MRMN300-M		

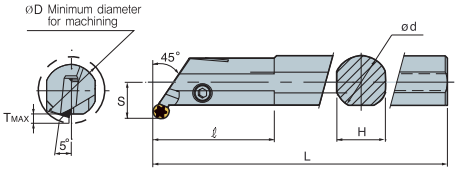
➤ P. E77

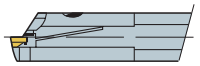
MGIUR/L





Feed direction





Right-hand shown

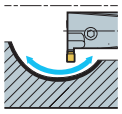
Ref	Holder Style				Application							Inserts	Parts	
Comment					Internal Relief Grooving									
											(inch)			
MGIUR/L	Code #		Code #		øD	ød	L	ℓ	TMAX	H	S		Screw	Wrench
	Right	Price $	Left	Price $										
2312-3	148131	**204.26**			1.437	0.750	5.906	1.772	0.13	0.670	0.512	MRMN300-M	MHA0512	HW 40L
2616-3	148133	**205.94**			1.625	1.000	7.874	1.772	0.13	0.920	0.610			
3220-3	148135	**273.52**			2.000	1.250	9.843	2.559	0.13	1.170	0.748		**147984**	**148290**
3220-4	148139	**273.52**			2.000	1.250	9.843	2.559	0.13	1.170	0.748	MRMN400-M	**$ 13.01**	**$ 3.51**

➤ P. E77

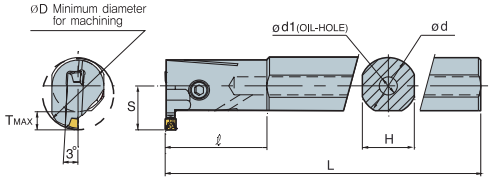
MGIVR/L

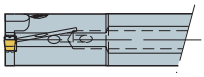


Coolant through



Feed direction





Right-hand shown

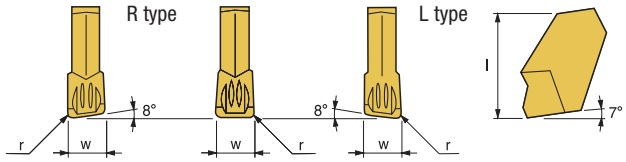
Ref	Holder Style				Application								Inserts	Parts	
Comment					Internal Grooving, Turning										
												(inch)			
MGIVR/L	Code #		Code #		øD	ød	L	l	TMAX	ød1	H	S		Screw	Wrench
	Right	Price $	Left	Price $											
1210-2	148233	**199.46**			0.750	0.625	4.921	1.378	0.15	0.236	0.630	0.476	MGMN200-G	MHB0310 **148671 $ 10.44**	HW25L **146956 $ 2.83**
1612-2	148234	**234.61**			1.000	0.750	5.906	1.772	0.15	0.315	0.630	0.585			
1612-3	148235	**234.61**			1.000	0.750	5.906	1.772	0.23	0.236	0.670	0.614	MGMN300-M		
2016-3	148236	**273.25**	148237	**273.25**	1.250	1.000	7.874	1.772	0.23	0.315	0.920	0.744		MHA0512	HW 40L
2420-3	148238	**321.28**			1.500	1.250	9.843	2.559	0.23	0.315	1.170	0.846		**147984**	**148290**
1612-4	148239	**234.61**			1.000	0.750	5.906	1.772	0.23	0.315	0.670	0.614	MGMN400-M	**$ 13.01**	**$ 3.51**
2016-4	148240	**273.25**	148241	**273.25**	1.250	1.000	7.874	1.772	0.23	0.315	0.920	0.744			
2420-4	148242	**321.28**			1.500	1.250	9.843	2.559	0.23	0.315	1.170	0.846			

➤ P. E77

Pro Part Inserts

SP Inserts (For Parting Off)





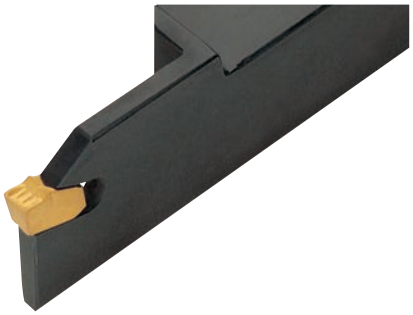
	Coated Carbide									Cermet		Uncoated Carbide	(inch)			Applicable Holders	
Designation	PT10C	PT20C	PT22C	PT30C	MT15C	MT20C	MT30P	KT05C	KT15P	PT10S	PM30S	PTM30U	w	l	r	Holder	Page No.
SP 200				146450 $ 20.22									0.087	0.366	0.008	PP-B PP-INT	E82 E81
SP 200R				146533 $ 20.22			146233 $ 20.22						0.087	0.366	0.008		
SP 300				146452 $ 20.45	149246 $ 19.48		145617 $ 20.45					146451 $ 16.34	0.122	0.445	0.008		
SP 300R				146446 $ 20.45									0.122	0.445	0.008		
SP 300L				146447 $ 20.45									0.122	0.445	0.008		
SP 400				146454 $ 21.10								146453 $ 16.83	0.161	0.445	0.009		
SP 400R				146455 $ 21.10									0.161	0.445	0.009		
SP 400L				146057 $ 21.10									0.161	0.445	0.009		
SP 500				146456 $ 22.17									0.201	0.449	0.011		
SP 500R				147373 $ 22.17									0.201	0.449	0.011		
SP 500L				146058 $ 22.17									0.201	0.449	0.011		
SP 600				146458 $ 23.82									0.252	0.449	0.014		

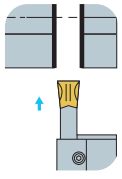
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

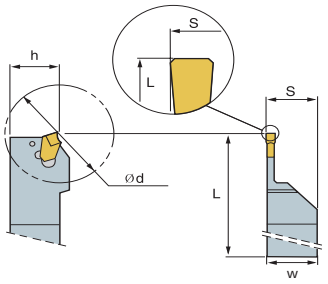
Pro Part-Off Integral Shank Holder

PP-INT





Feed direction



Ref	Holder Style		Application					Inserts	Parts
Comment			Parting Off						
							(inch)		
PP-INT	Code #	Price $	h	w	L	ød	S		Wrench
075-3	147433	172.75	0.750	0.750	4.724	1.575	0.750	SP300, 300R/L	
100-3	148231	172.75	1.000	1.000	5.906	2.362	1.000	SP300, 300R/L	SW 50L
100-4	148232	172.75	1.000	1.000	5.906	2.756	1.000	SP400, 400R/L	146960 $ 3.35

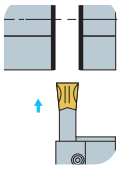
➤ P. E81

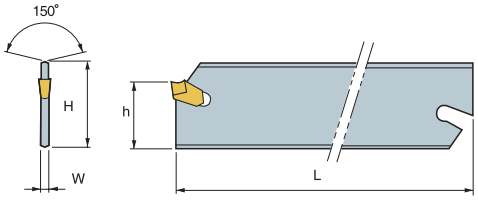
Pro Part-Off Blades

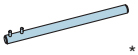
PP-B Pro Part-Off Blades



Kits Also Available
➤ P. E172





Ref	Holder Style	Application	Inserts	Parts
Comment		Parting Off		 * Purchase separately

(inch)

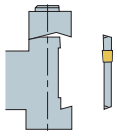
PP-B	Code #	Price $	H	W	L	h	Wrench
226S	146532	**177.08**	1.023	0.063	4.331	0.827	SP200, 200R/L	
326S	146232	**170.27**	1.023	0.094	4.331	0.827	SP300, 300R/L	
232S	146717	**177.08**	1.259	0.063	5.906	0.984	SP200, 200R/L	SW 15S
332S	146898	**161.39**	1.259	0.094	5.906	0.984	SP300, 300R/L	**146771**
432S	146899	**161.39**	1.259	0.126	5.906	0.984	SP400, 400R/L	**$ 34.60**
532S	146962	**177.08**	1.259	0.157	5.906	0.984	SP500, 500R/L	
632S	148538	**177.08**	1.259	0.205	5.906	0.984	SP600, 600R/L	

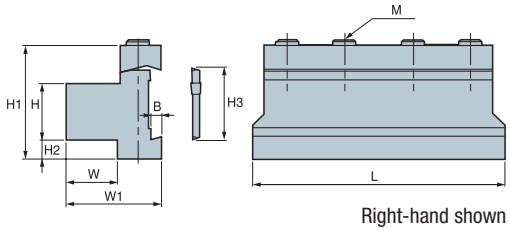
➤ P. E81

Pro Part-Off Blocks

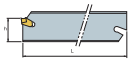
P.O.B. Block For Pro Part-Off Blades







Right-hand shown

Ref	Holder Style	Application	Inserts	Parts
Comment		Saw-Man Blade Block		

(inch)

P.O.B.	Code #	Price $	H(h)	W	H3	L	H1	H2	W1	B	M	Wrench
19-5	146510	**222.54**	0.750	0.750	1.023	3.50	2.10	0.354	1.375	0.209	3-M6	PPB 226 & 326	SW 50L
25;4-6	145895	**193.74**	1.000	0.875	1.259	4.50	2.125	0.157	1.500	0.209	4-M6	PPB 232 - 532	**146960** **$ 3.35**

➤ P. E82

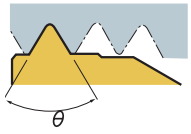
Threading Insert

Ref	for External	Pitch	for Internal	Pitch
Metric Thread 60°	**3000type**		**2000type**	
	ECTR3100~3300	1.0~3.0mm	ICTR2050~2200	0.5~2.0mm
	ECTR3150F	0.5~1.5mm	ICTR2150F	0.5~1.5mm
	ECTR3300F	1.5~3.0mm	**3000type**	
	4000type		ICTR3100~3300	1.0~3.0mm
	ECTR4350~4500	3.5~5.0mm	ICTR3150F	0.5~1.5mm
	ECTR4500F	3.5~5.0mm	ICTR3300F	1.5~3.0mm
			4000type	
			ICTR4350~4500	3.5~5.0mm
			ICTR4500F	3.5~5.0mm
Unified Thread 60°	**3000type**		**2000type**	
	ECTR3028UN~3008UN	28~08 pitch/Inch	ICTR2032UN~2014UN	24~14 pitch/Inch
	ECTR3028UNF	28~14 pitch/Inch	ICTR2048UNF	48~16 pitch/Inch
	ECTR3014UNF	14~08 pitch/Inch	**3000type**	
	4000type		ICTR3028UN~3008UN	28~08 pitch/Inch
	ECTR4007UN~4005UN	07~05 pitch/Inch	ICTR3028UNF	28~14 pitch/Inch
	ECTR4007UNF	07~05 pitch/Inch	ICTR3014UNF	14~08 pitch/Inch
			4000type	
			ICTR4007UN~4005UN	07~05 pitch/Inch
			ICTR4007UN	07~05 pitch/Inch
Whitworth Thread 55°	**3000type**		**2000type**	
	ECTR3028W~3008W	28~08 pitch/Inch	ICTR2020W~2014W	20~14 pitch/Inch
	ECTR3028WF	28~14 pitch/Inch	ICTR2048UNF	48~16 pitch/Inch
	ECTR3014WF	14~08 pitch/Inch	**3000type**	
	4000type		ICTR3028W~3008W	28~08 pitch/Inch
	ECTR4007W~4005W	07~05 pitch/Inch	ICTR3028WF	28~14 pitch/Inch
	ECTR4007WF	07~05 pitch/Inch	ICTR3014WF	14~08 pitch/Inch
			4000type	
			ICTR4007W~4005W	07~05 pitch/Inch
			CTR4007WF	07~05 pitch/Inch

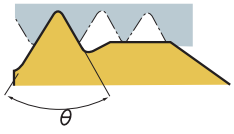
Workpiece	Recommended Grade & Cutting Speed(sfm)			
	Coated Grade	Uncoated		Cermet
	PM30P	ST10	PTM30U	PM20S
Carbon Steel	400(250-500)	325(300-400)	300(250-325)	450(400-550)
Alloy Steel	325(250-425)	300(250-375)	250(225-325)	375(325-425)
Hardened Steel	100(25-175)	75(25-100)		
Heating Resistant Alloys	125(75-200)	100(25-100)		
Stainless Steel	300(225-375)	125(100-175)	225(200-300)	325(300-400)
Cast Iron	400(325-425)	250(225-300)		
Non-ferrous Metal (Copper Alloy Plastic)	975(325-1975)	825(325-1650)		

Cutting Edge Type

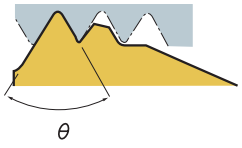
A type



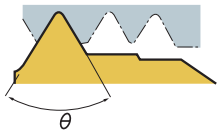
B type



C type



D type



Effective Inclination and Relief Angle of Threading

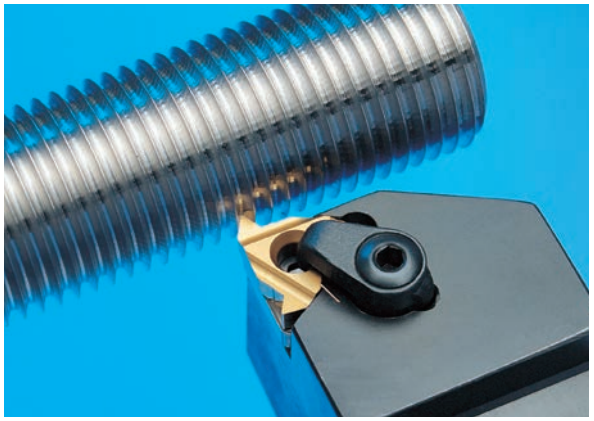
Inclination angle of the Thread (β) in the figure is decided by effective diameter (d) and lead (ℓ) of thread

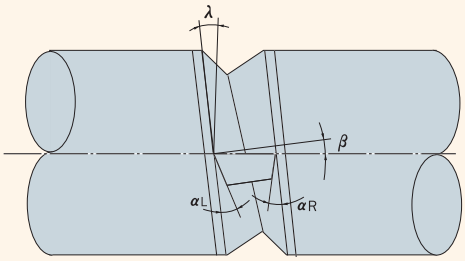
The angle of inclination of the Thread (β) is calculated by using the formula.

$$\tan\beta = \frac{\ell}{\pi d}$$

ℓ: lead

n:No.of Pitch, p:Pitch, d:Effective Diameter of Thread

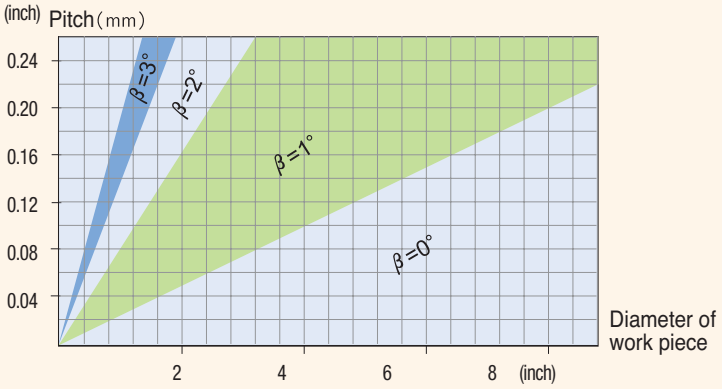




α - Side Relief Angle ($\alpha L = \alpha R$)

λ - Helix Angle

β - Angle of Inclination

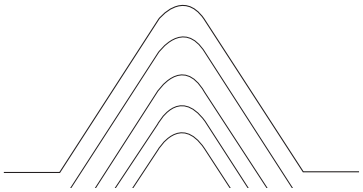
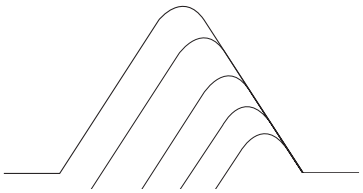
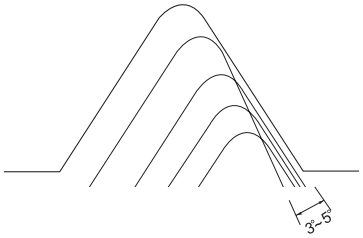
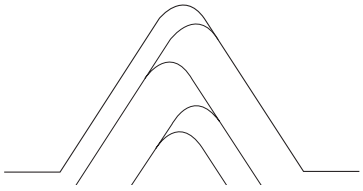


Effective Angle of Inclination of Each Cutting Condition

Revision Method of Effective Inclination Angle

Threading holders (ETH, ITH) are drawn with revision of inclination angle, 1°~ 2° to be used for detailed threading.
But, shims are produced without revision of inclination angle (ST32C1, ST42C1).
If pitch of thread is bigger or diameter of thread is smaller, inclination angle of thread will be bigger and bigger inclination angle will make Insert relief angle (L, R) smaller.
This effects the shape of thread crest and tool life but revising inclination angle can solve it.

Choosing Type of Infeed for Threading Operation

Type of Infeed	Features
 Radial infeed	• Most commonly used • Suitable for relatively small pitch threading on soft material • Chattering may occur easily because of longer chip touch length and bigger load on nose of the insert • Bad chip control due to V type chip being produced
 Flank infeed	• Suitable for bigger pitch thread or mild material, it can reduce chattering • Bigger wear may occur on right cutting edge • Good chip control either direction
 Modified flank infeed	• Modified type of flank infeed • Suitable for bigger pitch thread or mild material, this method can reduce chattering • Good chip control with either way of chip flow • Wear can be reduced with infeeding right cutting edge • Recommended for 2 pitches thread
 Incremental infeed	• Suitable for bigger pitch thread or mild material, it can reduce chattering • This method gives the insert even wear and longer tool life with using both side of cutting edge by turns • Coiling of chip from right and left may be occurred due to the chip flow in turn

Cutting Depth and Passes — Metric

ISO Metric 60° External

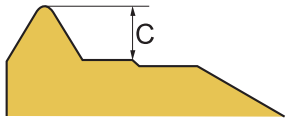
Pitch		6.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	0.75	0.5
Infeed Value(mm)		3.83	3.52	3.19	2.87	2.53	2.23	1.92	1.60	1.25	1.13	0.93	0.81	0.65	0.48	0.33
Pass	1	0.46	0.43	0.41	0.37	0.34	0.34	0.28	0.27	0.24	0.22	0.22	0.21	0.18	0.16	0.11
	2	0.43	0.40	0.39	0.34	0.32	0.31	0.26	0.24	0.22	0.20	0.20	0.17	0.16	0.14	0.09
	3	0.35	0.32	0.32	0.28	0.25	0.25	0.21	0.20	0.18	0.17	0.17	0.14	0.12	0.11	0.07
	4	0.30	0.28	0.27	0.24	0.22	0.21	0.18	0.17	0.16	0.14	0.14	0.11	0.11	0.07	0.06
	5	0.29	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.10	0.08		
	6	0.26	0.24	0.24	0.22	0.18	0.18	0.15	0.15	0.12	0.10	0.08	0.08			
	7	0.24	0.21	0.22	0.20	0.17	0.16	0.14	0.12	0.11	0.10					
	8	0.23	0.20	0.20	0.18	0.15	0.15	0.13	0.11	0.08	0.08					
	9	0.22	0.19	0.19	0.17	0.14	0.14	0.12	0.11							
	10	0.19	0.18	0.18	0.16	0.13	0.12	0.11	0.08							
	11	0.18	0.17	0.16	0.14	0.12	0.11	0.10								
	12	0.16	0.15	0.15	0.13	0.12	0.08	0.08								
	13	0.15	0.14	0.12	0.12	0.11										
	14	0.14	0.13	0.10	0.10	0.08										
	15	0.13	0.12													
	16	0.10	0.10													

ISO Metric 60° Internal

Pitch		6.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	0.75	0.5
Infeed Value(mm)		3.54	3.25	2.96	2.65	2.33	2.05	1.78	1.48	1.17	1.05	0.85	0.75	0.60	0.46	0.31
Pass	1	0.46	0.43	0.42	0.37	0.34	0.32	0.28	0.26	0.23	0.22	0.20	0.17	0.17	0.16	0.10
	2	0.43	0.40	0.40	0.34	0.31	0.30	0.26	0.25	0.21	0.20	0.18	0.17	0.15	0.13	0.08
	3	0.35	0.33	0.32	0.28	0.24	0.24	0.21	0.18	0.17	0.15	0.15	0.14	0.11	0.10	0.07
	4	0.30	0.26	0.26	0.23	0.21	0.19	0.16	0.15	0.15	0.13	0.13	0.10	0.09	0.07	0.06
	5	0.26	0.22	0.22	0.21	0.18	0.17	0.14	0.13	0.12	0.11	0.11	0.09	0.08		
	6	0.22	0.20	0.20	0.19	0.15	0.15	0.13	0.12	0.11	0.09	0.08	0.08			
	7	0.20	0.18	0.17	0.16	0.14	0.14	0.12	0.11	0.10	0.08					
	8	0.19	0.17	0.16	0.15	0.13	0.13	0.11	0.10	0.08	0.08					
	9	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.10							
	10	0.16	0.15	0.15	0.12	0.13	0.11	0.10	0.08							
	11	0.15	0.14	0.14	0.12	0.11	0.10	0.09								
	12	0.15	0.14	0.14	0.12	0.10	0.08	0.08								
	13	0.14	0.13	0.12	0.11	0.10										
	14	0.13	0.12	0.10	0.10	0.08										
	15	0.12	0.12													
	16	0.10	0.10													

Note

1) Above conditions are calculated upon using PM30P and PM20S grade.
2) Total D.O.C is based on C+ 0.05 ~ +0.08mm and no more excess is necessary.
3) D.O.C, 0.05 ~ 0.1mm is recommended for pass
4) To avoid breakage of the insert at the first pass, make chamfer of 0.3~0.5 on the corner of workpiece.
5) Using coolant helps improve insert tool life and surface finish.



Cutting Depth and Passes — Unified

Unified 60° External

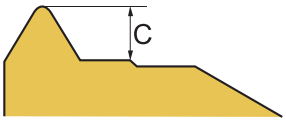
Pitch		5	6	7	8	9	10	11	12	14	16	18	19	20	24	28	32
Infeed Value(mm)		0.130	0.107	0.092	0.082	0.072	0.065	0.060	0.055	0.051	0.047	0.041	0.037	0.033	0.028	0.024	0.021
Pass	1	0.017	0.014	0.014	0.012	0.011	0.011	0.011	0.011	0.010	0.00	0.009	0.009	0.008	0.007	0.007	0.007
	2	0.016	0.013	0.013	0.011	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
	3	0.014	0.011	0.010	0.010	0.008	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.004	0.005
	4	0.012	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.007	0.0066	0.006	0.006	0.005	0.005	0.004	0.003
	5	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	
	6	0.009	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003			
	7	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.003	0.003					
	8	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.003						
	9	0.007	0.006	0.006	0.005	0.005	0.004	0.003									
	10	0.007	0.006	0.005	0.005	0.004	0.003										
	11	0.007	0.005	0.004	0.004	0.003											
	12	0.006	0.005	0.003	0.003												
	13	0.005	0.004														
	14	0.004	0.004														

Unified 60° Internal

Pitch		5	6	7	8	9	10	11	12	14	16	18	19	20	24	28	32
Infeed Value(mm)		0.118	0.097	0.084	0.074	0.065	0.059	0.054	0.049	0.045	0.042	0.037	0.033	0.030	0.025	0.022	0.019
Pass	1	0.017	0.014	0.013	0.012	0.011	0.011	0.011	0.011	0.010	0.009	0.009	0.009	0.008	0.007	0.007	0.007
	2	0.015	0.013	0.013	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.006
	3	0.013	0.010	0.009	0.009	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.004
	4	0.011	0.008	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003
	5	0.009	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	
	6	0.008	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003			
	7	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.006					
	8	0.007	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003						
	9	0.006	0.005	0.005	0.004	0.004	0.004	0.006									
	10	0.006	0.005	0.005	0.004	0.004	0.003										
	11	0.006	0.005	0.004	0.004	0.003											
	12	0.006	0.004	0.003	0.003												
	13	0.005	0.004														
	14	0.004	0.004														

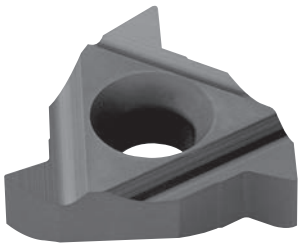
Note

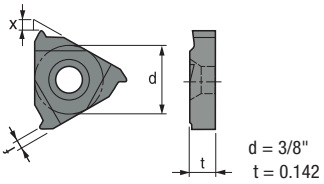
1) Above conditions are calculated upon using PM30P and PM20S grade.
2) Total D.O.C is based on C+ 0.05 ~ +0.08mm and no more excess is necessary.
3) D.O.C, 0.05 ~ 0.1mm is recommended for pass
4) To avoid breakage of the insert at the first pass, make chamfer of 0.3~0.5 on the corner of workpiece.
5) Using coolant helps improve insert tool life and surface finish.



External Threading Inserts

ECTR

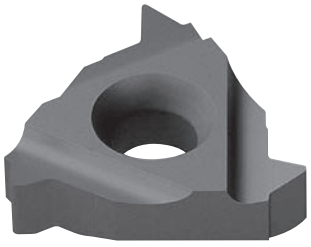


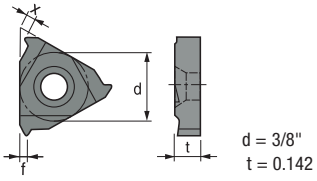


	Coated Carbide									Uncoated Carbide			(inch)					Applicable Holders	
Designation	PT10C	PT15C	PT20C	PT30C	PM30P	MT20C	MT30P	KT05C	KT15P	PT10S	PTM30U	KTM10U	Pitch	f	θ	x	Cutting Edge	Holder	Page No.
ECTR 20UN					146524 $ 48.34								20	0.039	60°	0.051	A	ETH3---	E89
ECTR 16UN					146489 $ 39.11								16	0.039	60°	0.051	A		
ECTR 12UN					146250 $ 39.11								12	0.047	60°	0.051	A		
ECTR 10UN					146249 $ 48.34								10	0.059	60°	0.059	A		
ECTR 08UN					146248 $ 48.34								08	0.059	60°	0.059	A		
ECTR 300 8-28					146597 $ 48.34								28~8	0.039	60°	0.051	D		

Internal Threading Inserts

ICTR





	Coated Carbide									Uncoated Carbide			(inch)					Applicable Holders	
Designation	PT10C	PT15C	PT20C	PT30C	PM30P	MT20C	MT30P	KT05C	KT15P	PT10S	PTM30U	KTM10U	Pitch	f	θ	x	Cutting Edge	Holder	Page No.
ICTR 16UN					146514 $ 40.26								16	0.039	60°	0.051	A	ITH3---	E89
ICTR 12UN					146253 $ 60.59								12	0.047	60°	0.051	A		
ICTR 10UN					146252 $ 48.34								10	0.059	60°	0.059	A		
ICTR 300 8-28					146610 $ 48.34								28~8	0.039	60°	0.051	D		

Cutting Edge Type

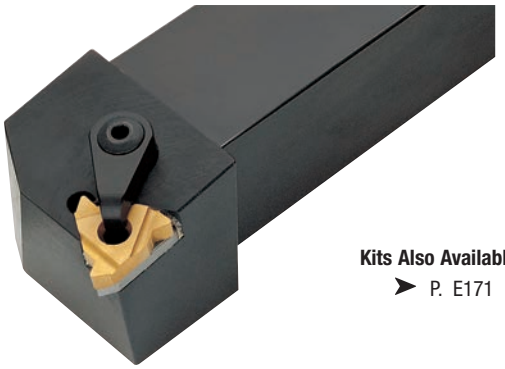


Quick Choice Grade Selection

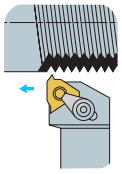
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

External Threading Holders

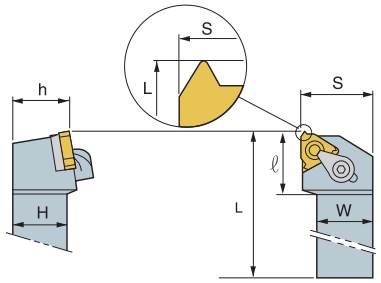
ETH3



Kits Also Available
➤ P. E171



Feed direction



Ref	Holder Style	Application	Inserts	Parts					
Comment		External Threading							
		(inch)							
ETH3	Code #	Price $	H=(h)	W	L	S	ℓ		Clamp	Clamp Screw	Shim	Screw	C Ring	Wrench
3/4	146708	**115.66**	0.750	0.750	6.000	1.205	1.100	ECTR	CH5R3	CHX0513	ST32C1	SHX0310	CR04	HW20L
1"	146290	**128.86**	1.000	1.000	6.000	1.205	1.100		**146474**	**146475**	**146476**	**146155**	**146477**	**146954**
									$ 37.39	**$ 21.01**	**$ 16.66**	**$ 10.10**	**$ 3.51**	**$ 2.83**

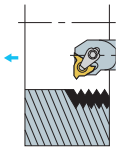
➤ P. E88

Internal Threading Holders

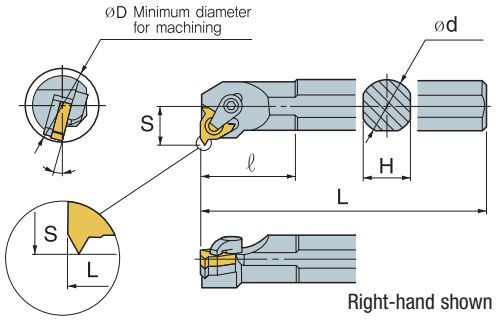
ITH3



Kits Also Available
➤ P. E171



Feed direction



Right-hand shown

Ref	Holder Style	Application	Inserts	Parts					
Comment		Internal Threading							
		(inch)							
ITH3	Code #	Price $	øD	ød	H	L	ℓ	S	Clamp	Clamp Screw	Shim	Screw	C Ring	Wrench
3/4	146255	**175.45**	0.950	0.750	0.625	7.00	2.00	0.520	ICTR	CH5R3	CHX0513	ST32C1	SHX0310	CR04	HW20L
1"	146254	**208.52**	1.150	1.000	0.750	8.00	2.50	0.650		**146474**	**146475**	**146476**	**146155**	**146477**	**146954**
1.25"	146256	**276.80**	1.460	1.250	1.250	10.00	2.50	0.780		**$ 37.39**	**$ 21.01**	**$ 16.66**	**$ 10.10**	**$ 3.51**	**$ 2.83**

➤ P. E88

Milling Insert Code System

1 Insert Shape

			
C	D	H	L
			
O	R	S	T
			
V	W		

2 Clearance Angle

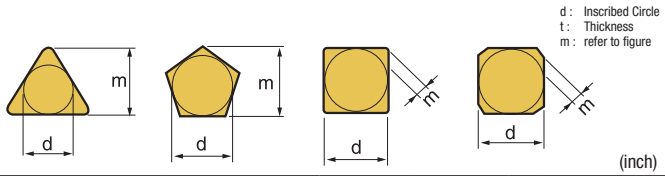
		
A	B	C
		
D	E	F
		
G	N	P

S P K R 4

1 2 3 4 5

3 Tolerance

(mm)



(inch)

class	d	m	t
A	+_ 0.0010	+_ 0.0002	+_ 0.0010
C	+_ 0.0010	+_ 0.0005	+_ 0.0010
H	+_ 0.0005	+_ 0.0005	+_ 0.0010
E	+_ 0.0010	+_ 0.0010	+_ 0.0010
G	+_ 0.0010	+_ 0.0010	+_ 0.005
J	+_ 0.002 - +_ 0.006	+_ 0.0002	+_ 0.0010
K	+_ 0.002 - +_ 0.006	+_ 0.0005	+_ 0.0010
L	+_ 0.002 - +_ 0.006	+_ 0.0010	+_ 0.0010
M	+_ 0.002 - +_ 0.006	+_ 0.003 - 0.008	+_ 0.005
U	+_ 0.003 - +_ 0.01	+_ 0.005 - 0.015	+_ 0.005

Tolerance on C, H, R, T, W class (exceptional)

d	Tolerance on d		Tolerance on m	
	J, K, L, M, N	U	M, N	U
1/4	+_ 0.002	+_ 0.003	+_ 0.003	+_ 0.005
3/8	+_ 0.002	+_ 0.003	+_ 0.003	+_ 0.005
1/2	+_ 0.003	+_ 0.005	+_ 0.005	+_ 0.008
5/8	+_ 0.004	+_ 0.007	+_ 0.06	+_ 0.01
3/4	+_ 0.004	+_ 0.007	+_ 0.06	+_ 0.011
1	+_ 0.005	+_ 0.01	+_ 0.07	+_ 0.015

Tolerance on D class (exceptional)

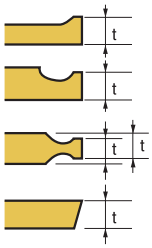
d	Tolerance on d	Tolerance on m
1/4	+_ 0.002	+_ 0.0043
3/8	+_ 0.002	+_ 0.0043
1/2	+_ 0.003	+_ 0.006
5/8	+_ 0.004	+_ 0.007
3/4	+_ 0.004	+_ 0.007

4 Cross Section Type

	 C'Sink 70° - 90°
A	B
 C'Sink 70° - 90°	
C	F
	 C'Sink 70° - 90°
G	H
 C'Sink 70° - 90°	
J	M
	 C'Sink 40° - 60°
N	Q
	 C'Sink 40° - 60°
R	T
 C'Sink 40° - 60°	 C'Sink 40° - 60°
U	W
Special Type	
X	

Milling Insert Code System

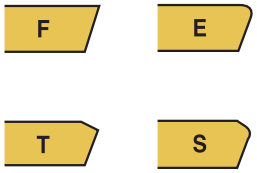
6 Height of Cutting Edge



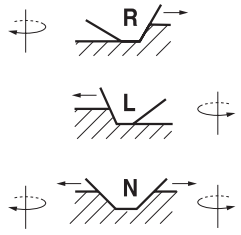
Symbol		Height of Cutting Edge (t)	
Metric	Inch	mm	Inch
-	0.5(1)	0.79	1/32
T0	0.6	1.00	0.040
01	1(2)	1.59	1/16
T1	1.2	1.98	5.64
02	1.5(3)	2.38	3/32
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
12	8	12.70	1/2

* ( ) Symbol for small size insert

8 Edge Preparation



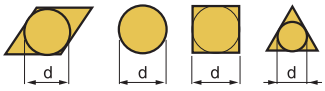
9 Hand of Tool



3 (6) **ED 2** (7) **S** (8) **R** (9) **F3** (10)

5 Cutting Edge Length, Diameter of Inscribed Circle





Use 1/32" unit for an insert having smaller I.C under 1/4"

Use 1/8" unit for an insert having larger I.C. over 1/4"

✻ Indicate cutting edge length in case of tetragon & rhombus



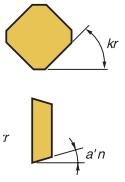
■ Cross over chart for Metric and Inch system

	06	09	11	16	22	27	33	44
	03	05	06	09	12	15	19	25
55°	04	06	07	11	15	19	23	31
80°	03	05	06	09	12	16	19	25
Inscribed Circle	5/32"	7/32"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
Inch System	5	7	2(8)	3	4	5	6	8

7 Nose Corner Radius (Nose R)

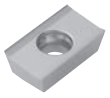
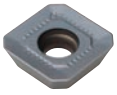


r		Symbol		r		Symbol	
mm	inch	mm	inch	mm	inch	mm	inch
00	0	0.0		12	3	1.2	3/64
02		0.2		15		1.5	
04	1	0.4	1/64	16	4	1.6	4/64
05		0.5		24	6	2.4	6/64
08	2	0.8	2/64	32	8	3.2	8/64
10		1.0		40		4.0	



Parallel Land	Relief Angle	
kr	a'n	
A-45°	A-3°	F-25°
D-60°	B-5°	G-30°
E-75°	C-7°	N-0°
F-85°	D-15°	P-11°
P-90°	E-20°	
Z-Special		

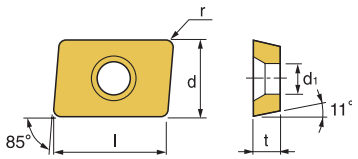
10 Chip Breaker for Milling

			
A	F2	M	F3
			
F2	M	R8	A
			
C20	C21		

APKT

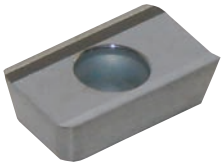


Features
Strong edge geometry

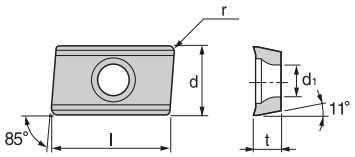


	Coated Carbide										Uncoated Carbide								(inch)		Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM25P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
APKT 160416R PDR-A		146010 $ 29.45											0.646	3/8	3/16	1/32	0.173	APFM16	E131
APKT 160432R PDR-A			146087 $ 29.95										0.646	3/8	3/16	1/32	0.173		

APKT-A (For Aluminum & Plastic)



Features
Excellent cutting geometry
for aluminum and plastics

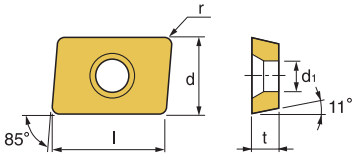


	Coated Carbide										Uncoated Carbide								(inch)		Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
APKT 160416R PDR-A												146548 $ 23.59	0.646	3/8	3/16	1/16	0.173	APFM16	E131
APKT 160432R PDR-A												146547 $ 23.99	0.646	3/8	3/16	1/8	0.173		
APKT 1604 PDR-A												146006 $ 23.59	0.646	3/8	3/16	0.008	0.173		
APKT 1604 PDFR-AH (Helical)												148496 $ 23.59	0.646	3/8	3/16	0.031	0.173		

APKT-X24



Features
Free cutting geometry



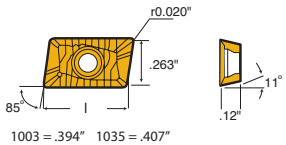
	Coated Carbide										Uncoated Carbide								(inch)		Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
APKT 1604 PDR-X24		147181 $ 29.95										146007 $ 23.99	0.646	3/8	3/16	3/64	0.173	APFM16	E131

APKT 1003 - ADKT 1505

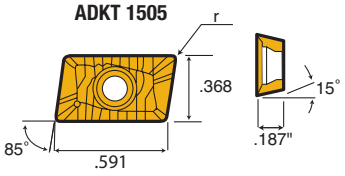


Features
Excellent general purpose geometry
for a variety of applications

APKT 1003/1035



ADKT 1505

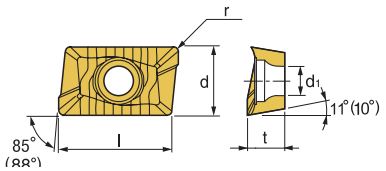


	Coated Carbide										Uncoated Carbide								(inch)		Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
APKT 1003 PDSR											147877 $ 17.57		0.394	0.263	0.120	0.020	0.173	AP 10	E125
ADKT 1505 PDFR-A												147980 $ 22.01	0.591	0.368	0.187	0.020	0.177	AD 15	E125
ADKT 1505 PDSR		148358 $ 27.20									147879 $ 22.37		0.591	0.368	0.187	0.020	0.177		

APKT 1604



Features
Excellent free cutting geometries
for a variety of applications

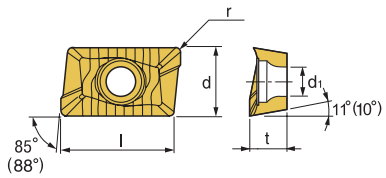


	Coated Carbide									Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM30.1P	KM10P	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
APKT 1604 PDSR-M		146530 $ 29.45				145637 $ 29.45	147339 $ 29.45			146755 $ 23.59		0.650	0.376	0.227	1/32	0.175	AP 16	E130
APKT 160416R-M							148397 $ 31.46					0.650	0.376	0.227	1/16	0.175		
APKT 160424R-M					146105 $ 29.95							0.650	0.376	0.227	3/32	0.175		
APKT 160432R-M		146149 $ 29.45					148401 $ 29.45					0.650	0.376	0.227	1/8	0.175		
APKT 160464R-M							148403 $ 29.95			146168 $ 23.97		0.650	0.376	0.227	1/4	0.175		

APMT



Features
Excellent free cutting geometries
for a variety of applications



	Coated Carbide									Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM10C	PM25C	PM10P	PM30P	PM35P	PTM50P	KM10P	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
APMT0602PDFR-A												148528 $ 18.45	0.236	0.167	0.102	0.016	0.079	APFM06M AP06M	E128 E122
APMT0602PDSR-M						147103 $ 20.96		147104 $ 20.96					0.236	0.167	0.102	0.016	0.079		
APMT11T3PDER-F2		148556 $ 21.61											0.441	0.255	0.142	0.020	0.112		
APMT11T3PDER-M		148547 $ 21.61				148544 $ 21.61		148555 $ 21.61					0.441	0.255	0.142	0.020	0.112	APFM11M AP11M	E129 E124
APMT11T3PDFR-A												148543 $ 18.95	0.441	0.255	0.142	0.047	0.112		
APMT1604PDFR-A												148584 $ 23.59	0.646	0.370	0.227	0.031	0.177		
APMT1604PDFR-M						148588 $ 26.79							0.646	0.370	0.227	0.031	0.177		
APMT1604PDSR-F2		148597 $ 22.00				148602 $ 26.79							0.646	0.370	0.227	0.031	0.177	APFM16M AP16M	E129 E124
APMT1604PDSR-M		148589 $ 26.79				149009 $ 26.79	148595 $ 26.79						0.646	0.370	0.227	0.031	0.177		
APMT160416PDSR-M		148603 $ 27.21											0.646	0.370	0.227	0.063	0.177		
APMT160432PDSR-M		148605 $ 26.79											0.646	0.370	0.227	0.126	0.177		
APMT1806PDER-M						148610 $ 35.92							0.685	0.432	0.250	0.047	0.177	APFM18M AP18M	E132 E127
APMT1806PDSR-M		147105 $ 36.45				145641 $ 35.92		147106 $ 35.92					0.685	0.432	0.250	0.047	0.177		

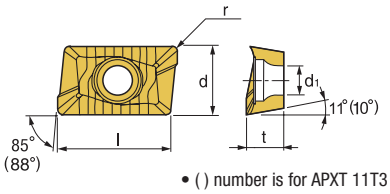
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

APXT 11T3 & 1604



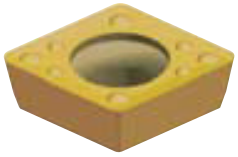
Features
Excellent free cutting geometries
for a variety of applications



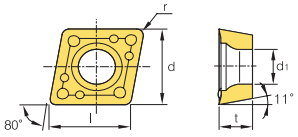
• ( ) number is for APXT 11T3

	Coated Carbide									Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30.1P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
APXT 11T3 PDSR-F2		146796 $ 21.95					148485 $ 21.61					0.445	0.260	0.142	0.020	0.112	AP 11 APFM 11	E122-123 E130-132
APXT 11T3 PDSR-M		146356 $ 21.61		146110 $ 21.94			147340 $ 21.61			146357 $ 17.60		0.445	0.260	0.142	0.020	0.112		
APXT 11T312R-M		146359 $ 21.95										0.445	0.260	0.142	3/64	0.112		
APXT 11T316R-M					147379 $ 21.95							0.445	0.260	0.142	1/16	0.112		
APXT 11T3 PDR-A											146358 $ 17.64	0.445	0.260	0.142	0.020	0.112		
APXT 1604 PDSR-F2						147408 $ 29.91			148502 $ 22.04			0.650	0.376	0.227	1/32	0.175	AP 16 APFM 16	E127-123 E130-132
APXT 1604 PDSR-M		148178 $ 26.79	148521 $ 29.95	146388 $ 29.95			147338 $ 26.79					0.650	0.376	0.227	1/32	0.175		
APXT 160416R-M			147156 $ 29.95							146167 $ 23.97		0.650	0.376	0.227	1/16	0.175		
APXT 160416R PDSR-M		146553 $ 26.79				147468 $ 29.91						0.650	0.376	0.227	1/16	0.175		
APXT 160432R-M		147720 $ 26.79										0.650	0.376	0.227	1/8	0.175		

CPMT-M



Features
Stronger geometry for roughing
applications in a variety of steels

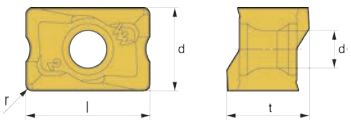


	Coated Carbide									Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PM10P	PM25C	PM30P	PM40P	PC210F	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
CPMT09T308-M				147111 $ 14.94									0.381	3/8	0.156	1/32	0.173	TSC	E145

LNEX-F2/M



Features
Stronger geometry for roughing
applications in a variety of steels



	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PT30P	PM25C	PM30P	PM35P	PM40P	KM10P	MM30P	PC9530	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
LNEX100605PNR-F2							148594 $ 34.31						0.391	0.258	0.258	3/128	0.318	End Mill DS4	E128
LNEX100605PNR-M							148612 $ 34.31						0.391	0.258	0.258	3/128	0.318	Face Mill DS4	E135
LNEX151008PNR-F2							148619 $ 42.54						0.594	0.391	0.391	1/32	0.177		

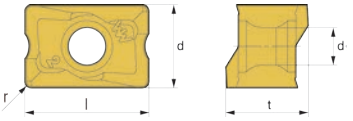
Quick Choice Grade Selection

P	M	K	S
Steel	Stainless Steel	Cast Iron - Alum	Heat Resistant Alloy

LNMX-F2/M

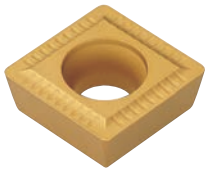


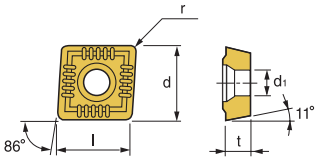
Features
Stronger geometry for roughing applications in a variety of steels



	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PT30P	PM25C	PM30P	PM40P	PM45P	KM10P	MM30P	PC9530	SM20P	PM20U	KTM10U	ℓ	d	t	r	d1	Cutter	Page No.
LNMX100605PNR-F2							146277 $ 29.16			146278 $ 23.97			0.391	0.258	0.258	3/128	0.318	End Mill DS4	E128
LNMX100605PNR-M							146281 $ 29.16	146284 $ 29.16					0.391	0.258	0.258	3/128	0.318	Face Mill DS4	E135
LNMX151008PNR-F2			145604 $ 40.48				148903 $ 36.15			145602 $ 32.48			0.594	0.391	0.391	1/32	0.177		
LNMX151008PNR-M			145603 $ 36.15		149351 $ 36.15								0.594	0.391	0.391	1/32	0.177		

MPMT



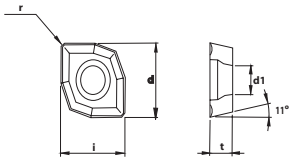


		Coated Carbide									Uncoated Carbide		(inch)					Applicable Cutter	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PTM30U	KTM10U	l	d	t	r	d1	Cutter	Page No.
MPMT 322	090308									147761 $ 20.39		146075 $ 16.07		0.374	3/8	1/8	1/32	0.173		
MPMT 432	120408									147762 $ 23.85				0.500	1/2	3/16	1/32	0.216		

NPET-AD Drilling Insert



Features
Excellent geometry for non-ferrous materials

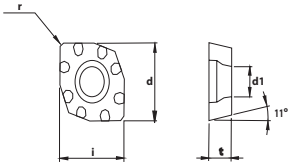


	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PM10P	PM25C	PM30P	PM40P	PC210F	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
NPET222408-AD												147937 $ 21.05	0.327	0.323	0.098	0.031	0.110	PRO-NP Drill	E149
NPET252808-AD												147938 $ 27.28	0.366	0.362	0.130	0.031	0.134		
NPET293208-AD												147939 $ 22.42	0.413	0.409	0.130	0.031	0.134		
NPET334008-AD												147940 $ 23.75	0.512	0.508	0.156	0.031	0.157		
NPET415508-AD												147941 $ 33.63	0.602	0.598	0.187	0.031	0.177		

NPET-RD Drilling Insert



Features
Stronger geometry for roughing applications in a variety of steels

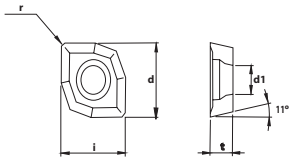


	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PM10P	PM25C	PM30P	PM40P	PC210F	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
NPMT33400-RD				148337 $ 24.02									0.602	0.598	0.187	0.031	0.177	PRO-NP Drill	E149

NPMT-MD Drilling Insert

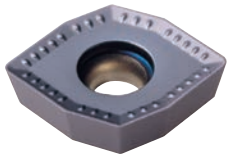


Features
Excellent geometry for a variety of steels and cast iron

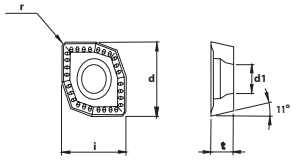


	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PM10P	PM25C	PM30P	PM40P	PC210F	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
NPMT252808-MD			147928 $ 21.03										0.366	0.362	0.130	0.031	0.134	PRO-NP Drill	E149
NPMT293208-MD			147929 $ 20.97										0.413	0.409	0.130	0.031	0.134		

NPMT-SD Drilling Insert

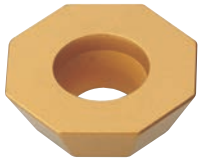


Features
Excellent geometry for stainless steel

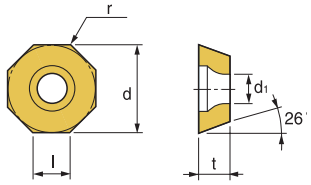


	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PM10P	PM25C	PM30P	PM40P	PC210F	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
NPMT252808-SD								147933 $ 21.03					0.366	0.362	0.130	0.031	0.134	PRO-NP Drill	E149
NPMT293208-SD								147934 $ 20.97					0.413	0.409	0.130	0.031	0.134		
NPMT334008-SD								147935 $ 21.80					0.512	0.508	0.156	0.031	0.157		
NPMT415508-SD								147936 $ 25.69					0.602	0.598	0.187	0.031	0.177		

OFCW



Features
Flat top geometry for more difficult applications

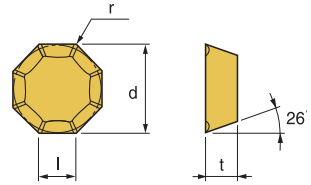


	Coated Carbide									Cermet	Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PTM30U	KTM10U	l	d	t	r	d1	Cutter	Page No.
OFCW 05T3SN		146841 $ 28.91											0.205	1/2	5/32	0.020	0.173	OKT MAX	E134

OFKR-F2, M, A



Features
Excellent geometries for a variety of materials

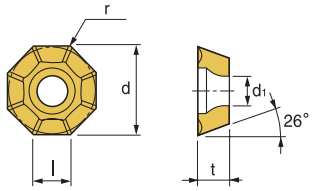


	Coated Carbide									Cermet	Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PTM30U	KTM10U	l	d	t	r	Cutter	Page No.
OFKR 0704SN-F2							147974 $ 30.69						0.291	0.709	3/16	0.020		
OFKR 070408SN-M		146417 $ 33.58						147759 $ 33.58					0.291	0.709	3/16	0.031		
OFKR 0704N-A												146303 $ 26.75	0.291	0.709	3/16	0.020		

OFKT-F2, M, A



Features
Excellent geometries for
a variety of materials

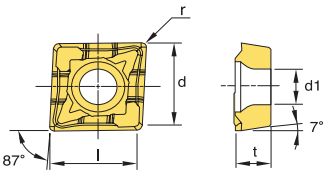


	Coated Carbide									Cermet	Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
OFKT 05T3SN-F2							147760 $ 26.38						0.205	1/2	5/32	0.020	0.173	OKT MAX	E134
OFKT 05T3SN-M		146843 $ 26.00									146676 $ 20.88		0.205	1/2	5/32	0.020	0.173		
OFKT 05T3FN-A												146559 $ 20.88	0.205	1/2	5/32	0.020	0.173		

QCMT



Features
Excellent free cutting geometries
for a variety of applications

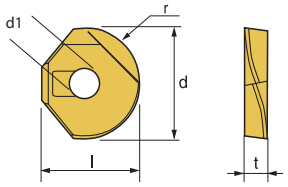


	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PT10C	PT20C	PT22C	PT30C	PM10P	PTM50P	KM20C	MM30P	PC9530	SM20P	PM20U	KT10C	l	d	t	r	d1	Cutter	Page No.
QCMT-050204-CM						147241 $ 26.71							0.197	0.213	0.038	0.016	0.091	CTD	E150
QCMT-060204-CM						147436 $ 26.71							0.236	0.252	0.094	0.016	0.098		
QCMT-070304-CM						146364 $ 26.71							0.276	0.291	0.125	0.016	0.110		
QCMT-080304-CM						147044 $ 27.27							0.315	0.331	0.125	0.016	0.134		
QCMT-10T304-CM						147472 $ 32.10							0.394	0.409	0.156	0.016	0.157		

RC



Features
Excellent for contour milling
in a variety of materials



	Coated Carbide									Cermet	Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	PM10P	KM20C	MM30P	MT30P	PT30S	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
RC 5/8						147858 $ 108.06							0.622	0.625	0.138	0.315	0.228	Mold Mill	E140
RC 3/4						147859 $ 125.59							0.701	0.750	0.157	0.394	0.228		
RC 1						147860 $ 155.78							0.866	1.000	0.197	0.492	0.268		
RC 1-1/8						147861 $ 204.35							1.055	1.125	0.236	0.591	0.346		
RC 1-1/4						147862 $ 204.35							1.094	1.250	0.236	0.630	0.346		

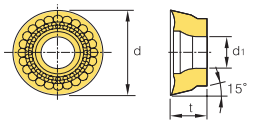
Quick Choice Grade Selection

P	M	K	S
Steel	Stainless Steel	Cast Iron - Alum	Heat Resistant Alloy

RDKT-F2/M



Features
Excellent geometries for
a variety of materials

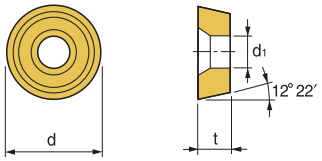


	Coated Carbide										Uncoated Carbide		(inch)			Applicable Cutter	
Designation	PTM50P	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	d	t	d1	Cutter	Page No.
RDKT10T3MO-F2				148340 $ 17.28				146896 $ 16.83					25/64	0.156	0.152	End Mill	
RDKT1204MO-F2								146998 $ 21.50					15/32	0.187	0.177	BMSS Face Mill	E133
RDKT10T3MO-M			147130 $ 17.28					146961 $ 16.83		146946 $ 17.28			25/64	0.156	0.152	BMSC	E133
RDKT1204MO-M	146552 $ 21.50	145614 $ 18.53						147072 $ 21.50		147070 $ 22.07			15/32	0.187	0.177		

RPMM



Features
Excellent geometries for
a variety of applications

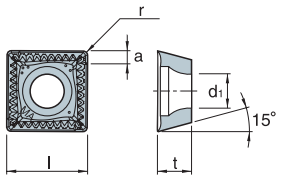


	Coated Carbide										Uncoated Carbide		(inch)			Applicable Cutter	
Designation	PT20C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	d	t	d1	Cutter	Page No.
RPMM 1204 ENN		147779 $ 23.39	146127 $ 23.39										1/2	3/16	0.216	Mold Max	E142
RPMM 1204 X165		146147 $ 23.78											1/2	3/16	0.216		

SDXT-A



Features
Aluminum geometry

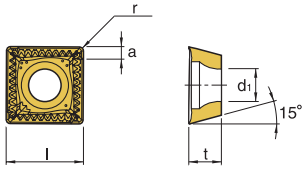


	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM20C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	t	r	a	d1	Cutter	Page No.
SDXT 09M405R-A												146803 $ 14.47	0.375	0.157	0.011	0.047	0.157	MM90°FM	E135

SDXT-F2, M

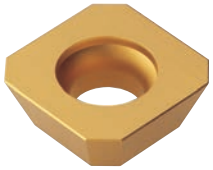


Features
General purpose geometries
for a variety of materials



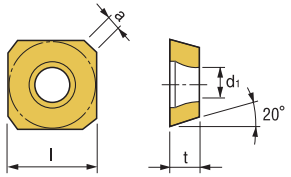
	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM20C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	t	r	a	d1	Cutter	Page No.
SDXT 09M405R-F2		147085 $ 18.36					147410 $ 14.83						0.375	0.157	0.011	0.047	0.157	MM90°FM	E135
SDXT 130508R-F2		146810 $ 21.80											0.531	0.219	0.031	0.087	0.219		
SDXT 09M405R-M		147089 $ 18.36	146802 $ 18.06				147718 $ 18.35	147719 $ 18.06					0.375	0.157	0.011	0.047	0.157		
SDXT 130508R-M		146812 $ 21.80	146813 $ 21.80				148319 $ 22.12	147721 $ 21.80			146815 $ 17.51		0.531	0.219	0.031	0.087	0.219		

SECA/SEHT



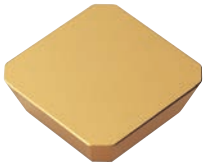
SECA

Features
Flat top geometry for more difficult applications

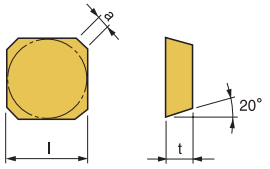


		Coated Carbide									Cermet	Uncoated Carbide		(inch)				Applicable Cutter	
Designation	ISO	PM20C	PM25C	PM35C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PM20U	KTM10U	l	t	a	d1	Cutter	Page No.
SECA 43 AFTN	1204		146749 $ 25.62						147780 $ 25.62		146750 $ 20.50	146751 $ 20.84		1/2	3/16	0.105	0.219		
SECA 43 AFFN	1204												146036 $ 20.50	1/2	3/16	0.105	0.219		
SEHT 43 AFN-A	1204												146747 $ 23.39	1/2	3/16	0.105	0.219		
SEHT 43 AFTN X45	1204		146130 $ 28.24											1/2	3/16	0.105	0.219		

SECN



Features
Flat top geometry for a variety of applications

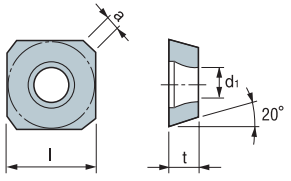


		Coated Carbide										Uncoated Carbide		(inch)			Applicable Cutter	
Designation	ISO	PM20C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	t	a	Cutter	Page No.
SECN 43 AFFN	1203												146666 $ 19.16	1/2	1/8	0.091		
SECN 53 AFTN	1504		146661 $ 33.75											5/8	3/16	0.094		

SEET-A



Features
Excellent geometry for softer materials such as aluminum

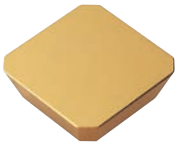


	Coated Carbide									Cermet	Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PM20C	PM25C	PM35C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PM20U	KTM10U	l	t	a	d1	Cutter	Page No.
SEET 0903AGFN-A												147727 $ 17.80	3/8	1/8	0.083	0.134	MM45°FM	E137
SEET 14M4AGFN-A												147732 $ 21.61	0.551	0.157	0.104	0.173		

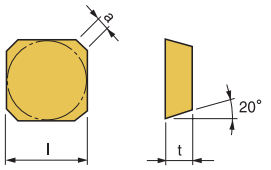
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

SEK(T)

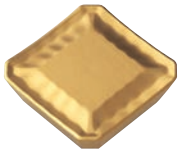


Features
Excellent general purpose geometry

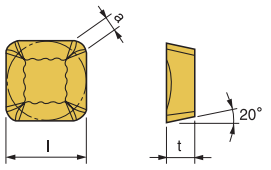


		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)			Applicable Cutter	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PM20S	PM30S	S300	PM20U	PTM30U	l	t	a	Cutter	Page No.
SEK 42 AFTN	1203		146340 $ 23.82	146318 $ 24.17				147733 $ 24.17		146322 $ 17.21	149556 $ 32.80	146317 $ 19.51	146320 $ 19.51	1/2	1/8	0.091		
SEK 42 AFEN	1203						147734 $ 19.59							1/2	1/8	0.091		
SEK 43 AFTN	1204		146380 $ 26.88										146360 $ 23.78	1/2	3/16	0.094		
SEK 53 AFTN	1504		146385 $ 30.69					147735 $ 33.75				146386 $ 27.16		5/8	3/16	0.094		
SEKT 13T3AGSN-M			148586 $ 28.80											0.531	0.156	0.060		
SEKT 13T3AGSN-R8			148585 $ 28.80											0.531	0.156	0.060		

SEKR-F3



Features
Excellent geometry for a variety of steels including stainless

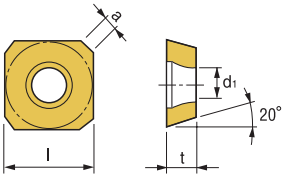


		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)			Applicable Cutter	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	l	t	a	Cutter	Page No.
SEKR 42 AFSN-F3	1203		146347 $ 23.82	145674 $ 24.17				147770 $23.82				146348 $ 19.16		1/2	1/8	0.091		
SEKR 42 AFTN-F3	1203		146346 $ 25.36											1/2	1/8	0.091		
SEKR 43 AFSN-F3	1204		146351 $ 25.26					147989 $ 25.26						1/2	3/16	0.094		

SEXT-F2

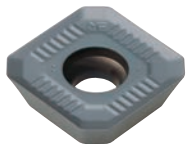


Features
Excellent general purpose geometry

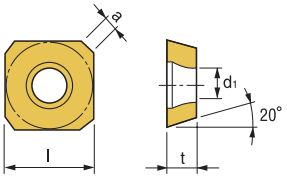


	Coated Carbide									Cermet	Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PM20C	PM25C	PM30C	PM30P	PM35P	PT30P	KM20C	MM30P	SM20P	PT30S	PM20U	KTM10U	l	t	a	d1	Cutter	Page No.
SEXT 0903AGSN-F2			148183 $ 19.33				147724 $ 19.30						3/8	1/8	0.083	0.134	MM45°FM	E137
SEXT 14M4AGSN-F2		147728 $ 22.77	148184 $ 23.15					148506 $ 22.77	148500 $ 23.15				0.551	0.157	0.104	0.173		

SEXT-M



Features
Excellent general purpose geometry

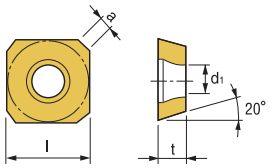


	Coated Carbide									Cermet	Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PM20C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	SM20P	PT30S	PM20U	KTM10U	l	t	a	d1	Cutter	Page No.
SEXT 0903AGSN-M		147725 $ 19.02											3/8	1/8	0.083	0.134	MM45°FM	E137
SEXT 14M4AGSN-M		147730 $ 22.77					148307 $ 22.77	148507 $ 22.77					0.551	0.157	0.104	0.173		

SEXT-R8



Features
Geometry designed for medium to roughing applications

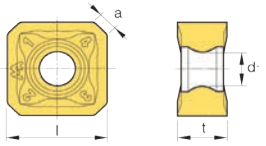


	Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	KM10P	KM20C	PT20S	PT30S	S300	PM20U	PTM30U	l	t	a	d1	Cutter	Page No.
SEXT 14M4AGSN-R8		147731 $ 22.77				148926 $ 22.77	148308 $ 23.15						0.551	0.157	0.104	0.173	MM45°FM	E137

SNEX-A



Features
Aluminum geometry

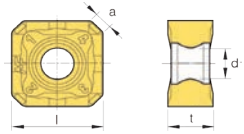


	Coated Carbide										Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PTM50P	PT30P	PM25C	PM30P	PM35P	PM40P	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	d	t	a	d1	Cutter	Page No.
SNEX1206ANN-A												148969 $ 25.57	1/2	1/4	0.093	0.177	Face Mill DS8	E136

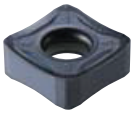
SNEX-F2/M



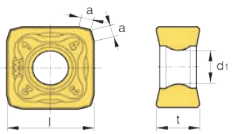
SNEX-F2



Features
Excellent geometries for a variety of materials



SNEX-M

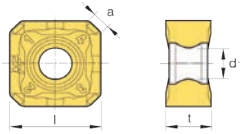


	Coated Carbide										Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PTM50P	PT30P	PM25C	PM30P	PM35P	PM40P	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	d	t	a	d1	Cutter	Page No.
SNEX1206ANN-F2								148835 $ 31.99					1/2	1/4	0.093	0.177	Face Mill DS8	E136

SNMX-M



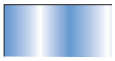
Features
General purpose geometries for a variety of materials

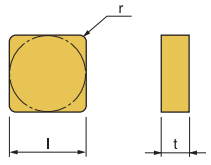


	Coated Carbide										Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PTM50P	PT30P	PM25C	PM30P	PM35P	PM40P	KM10P	MM30P	PC9530	SM20P	PM20U	KTM10U	l	t	a	d1	Cutter	Page No.
SNMX1206ANN-M	145673 $ 27.19		148796 $ 27.19				148791 $ 27.19	148904 $ 27.19					1/2	1/4	0.093	0.177	Face Mill DS8	E136

SNU







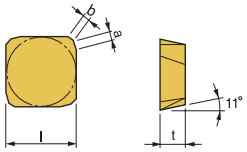
	Coated Carbide									Cermet	Uncoated Carbide			(inch)			
Designation	PM20C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PM20U	PTM30U	KTM10U	l	t	r	
SNU 433											146457 $ 15.94	146449 $ 15.70		1/2	3/16	3/64	

Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

SPC

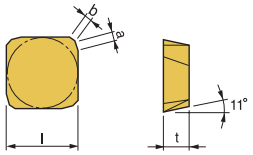




		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)			
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	l	t	a	b
SPC 42 EDTR	1203		147731 $ 22.77											1/2	1/8	0.055	0.039

SPK

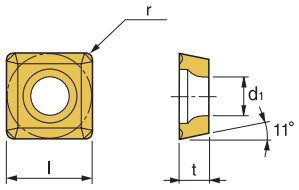




		Coated Carbide										Uncoated Carbide		(inch)				Applicable Cutter	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	PTM30U	l	t	a	b	Cutter	Page No.
SPK 42 EDR	1203		146480 $ 22.84											1/2	1/8	0.055	0.039		
SPK 43 EDR	1204												146485 $ 20.32	1/2	3/16	0.055	0.039		

SPMT



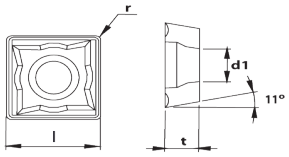


		Coated Carbide								Cermet	Uncoated Carbide			(inch)			
Designation	ISO	PM20C	PM25C	PM30C	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PM20U	PTM30U	KTM10U	l	t	r	d1
SPMT 432	120408		146145 $ 22.38								146143 $ 18.17			1/2	3/16	1/32	0.220

SPMT-MD Drilling Insert



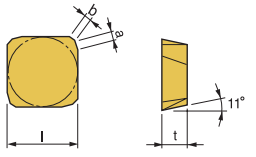
Features
Suitable geometry for a variety of steels



		Coated Carbide									Uncoated Carbide		(inch)				Applicable Cutter	
Designation		PTM50P	PM10P	PM25C	PM30P	PM40P	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	l	t	r	d1	Cutter	Page No.
SPMT070204-MD					146378 $ 19.38								0.28	0.100	0.020	0.110	PRO-SP Drill	E149

SPU



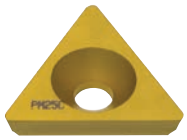


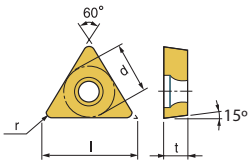
		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)			
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	l	t	a	b
SPU 422	120308												146493 $ 12.07	1/2	1/8	0.055	0.039
SPU 633	190412												146495 $ 20.64	3/4	3/16	0.079	0.039

Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

TDGW

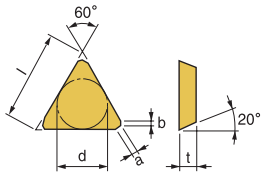




		Coated Carbide									Cermet	Uncoated Carbide		(inch)			
Designation	ISO	PM20C	PM25C	PM35C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	PT30S	PTM30U	KTM10U	l	d	t	r
TDGW 21.51	110204		147177 $ 20.06											0.433	1/4	3/32	1/64
TDGW 321	160304		147178 $ 17.05											0.650	3/8	1/8	1/64
TDGW 432	220408		147179 $ 27.99											0.866	1/2	3/16	1/32

TEC(E)(K)N

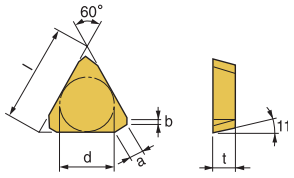




		Coated Carbide							Cermet	Uncoated Carbide			(inch)						
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT30S	ST30A	PM20U	PTM30U	l	d	t	a	b	r	sharp
TECN 32TR												146071 $ 18.35	0.649	3/8	1/8	0.039	-	1/32	R
TEEN 43TR										146561 $ 25.06			0.866	1/2	0.187	0.059	-	1/32	-
TEKN 43TR												146564 $ 25.48	0.866	1/2	0.187	0.020	0.075	1/32	R

TPK





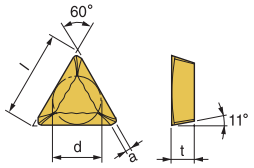
		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)				
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	l	d	t	a	b
TPK 32 PPR	1603												146724 $ 13.64	0.650	3/8	1/8	0.047	0.039~ 0.047
TPK 32 PDR	1603		146680 $ 19.33											0.650	3/8	1/8	0.047	0.039~ 0.047
TPK 43 PDR	2204		146720 $ 27.55									146695 $ 20.39	146700 $ 20.39	0.866	1/2	3/16	0.05~ 0.055	0.28~ 0.05

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

TPKR-F3

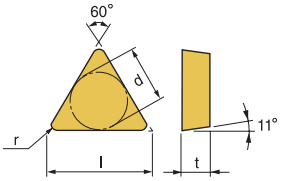




		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)				
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	l	d	t	r	a
TPKR 43 PDSR-F3	2204											146129 $ 22.09		0.866	1/2	3/16	0.039	0.055
TPKR 43 PDR-F3	2204		146128 $ 27.55											0.866	1/2	3/16	0.039	0.055

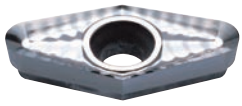
TPU

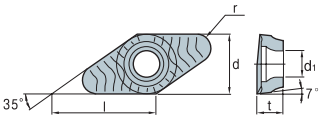




		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)					
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	l	d	t	r	Cutter	Page No.
TPU 212	110208												146631 $ 7.79	0.433	1/4	3/32	1/32	STM Cutters	E148
TPU 221	110304												146740 $ 9.01	0.433	1/4	1/8	1/64		
TPU 222	110308		147267 $ 11.47										146741 $ 9.01	0.433	1/4	1/8	1/32		
TPU 321	160304												146760 $ 9.91	0.650	3/8	1/8	1/64		
TPU 322	160308		146709 $ 12.32										146780 $ 9.91	0.650	3/8	1/8	1/32		
TPU 323	160312		145545 $ 12.53									146421 $ 10.09		0.650	3/8	1/8	3/64		
TPU 431	220404												146800 $ 13.98	0.866	1/2	3/16	1/64		
TPU 432	220408		146711 $ 17.78										146820 $ 13.98	0.866	1/2	3/16	1/32		
TPU 433	220412		146712 $ 17.78										146840 $ 13.98	0.866	1/2	3/16	3/64		
TPU 434	220416												146845 $ 14.22	0.866	1/2	3/16	1/16		

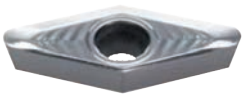
VCKT-A

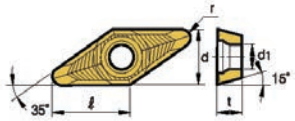




		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)					Applicable Holder	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	KT10U	l	d	t	r	d1	Cutter	Page No.
VCKT 43.57.5N-A	220530												147425 $ 46.80	0.790	1/2	7/32	0.118	0.220	Alumi Mill AME AMFM	 E145 E146

VDKT-MA





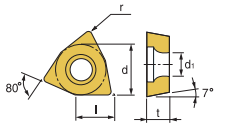
		Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)					Applicable Holder	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	KT10U	l	d	t	r	d1	Cutter	Page No.
VDKT11T210N-MA													148936 $ 34.49	0.346	1/4	0.113	0.039	0.110	Alumi Mill AME	 E145

Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

WCMT-C20/C21 Drilling Insert

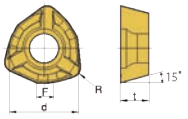




		Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	PM40P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
WCMT 1.81.52-C20	030208		146242 $ 19.33										146537 $ 15.47	0.149	7/32	3/32	1/32	0.110	MAX DRILL	E156-160
WCMT 21.52-C20	040208		146237 $ 19.38											0.169	1/4	3/32	1/32	0.118		
WCMT 2.522-C20	050308		146236 $ 20.64											0.212	5/16	5/16	1/32	0.134		
WCMT 32.52-C20	06T308		146235 $ 20.64										146539 $ 16.49	0.256	3/8	5/32	1/32	0.157		
WCMT 432-C20	080408		146855 $ 25.26											0.342	1/2	3/16	1/32	0.169		
WCMT 433-C20	080412		146000 $ 25.26										146563 $ 20.22	0.342	1/2	3/16	3/64	0.169		

WDKT



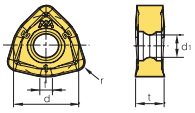


	Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)				Applicable Cutter	
Designation	PM10C	PM25C	PM30P	PM35P	PM40P	KM10P	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	d	t	F	r	Cutter	Page No.
WDKT 080316 ZDSR-MH						146261 $ 17.83	146267 $ 17.83						0.315	1/8	3/64	1/16	HFPA HFPC	E118 E118
WDKT 10T320 ZDSR-MH						146271 $ 25.26	146274 $ 25.26						0.394	3/32	0.059	0.079		
WDKT 130520 ZDSR-MH						146275 $ 35.36	148623 $ 35.36						0.531	7/32	0.083	0.079		

WNMX



Features
Excellent geometries for a variety of materials



	Coated Carbide									Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PM25C	PM30P	PM35P	PM40P	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	d	t	r	d1	f	Cutter	Page No.
WNMX09T316ZNN-M	145640 $ 27.06						146891 $ 27.06					0.375	0.156	0.063	0.142	0.067	HFNA	E120
WNMX130520ZNN-M	145675 $ 42.42								147080 $ 34.86			0.500	0.219	0.079	0.185	0.098	HFNC	E121

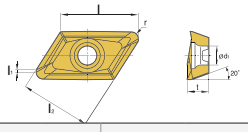
XEKT-MA



Top



Bottom

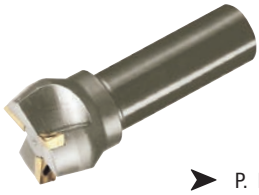


		Coated Carbide								Uncoated Carbide		(inch)						Applicable Cutter	
Designation		PT10C	PT20C	PT30C	PM10P	MT20C	MT30P	KT05C	KT10C	PT20U	KTM10U	l	l2	l1	t	r	d1	Cutter	Page No.
XEKT 19M504FR-MA	A										145610 /$ 45.34	0.709	0.646	0.055	0.197	1/64	0.173	End Mill AME-X	E147
XEKT 19M508FR-MA	A										145611 $ 45.34	0.709	0.646	0.039	0.197	1/32	0.173	Face Mill AMFM-X	E147
XEKT 19M512FR-MA	A										146367 $ 45.34	0.709	0.646	0.024	0.197	3/64	0.173		
XEKT 19M516FR-MA	A										145612 $ 45.34	0.689	0.646	0.020	0.197	1/16	0.173		
XEKT 19M520FR-MA	A										146368 $ 45.34	0.689	0.646	0.020	0.197	0.079	0.173		
XEKT 19M530FR-MA	A										146369 $ 45.34	0.689	0.646	0.028	0.197	0.118	0.173		
XEKT 19M532FR-MA	A										145613 $ 45.34	0.689	0.646	0.020	0.197	1/8	0.173		
XEKT 19M540FR-MA	B										146370 $ 45.34	0.650	0.646	0.020	0.197	0.157	0.173		
XEKT 19M550FR-MA	B										146375 $ 45.34	0.630	0.646	0.016	0.197	0.197	0.173		

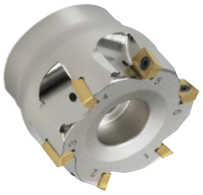
Cutter Index

Shape	Features	Cutter Diameter	Available Inserts
High Feed Mills			
HFPA & HFPC High Feed Mills  ➤ P. E118	• Powerful and economic milling tool with double clamping and 3 corner-use insert • Longer tool life with various insert grades • Shortened machining cycle time • Long tool life by low cutting resistant chip breaker • Decrease cutting resistance and realization of high feed cutting (Max. fz=3.5 mm/tooth, 0.14 ipt)	0.750 ~ 3.0	**WDKT 080316 ZDSR-MH** **10T320 ZDSR-MH** **130520 ZDSR-MH** ➤ P. E105, 119
HFNA & HFNC High Feed Mills  ➤ P. E120-121	• Powerful and economic milling tool with simple screw on system and double sided insert (6 corners) • Negative geometry designed for rigidity of cutting edge • Symmetrical cutting edge good for R and L type tooling • Long tool life by low cutting resistance chip breaker • High rake angle cutting edge reduces cutting load making this excellent for high feed and multi-functional machining	1.00 ~ 4.00	**WNMX 90T316ZNN-M** **130520ZNN-M** ➤ P. E105, E121
AP / AD Mills			
AP 06 - 90° End Mills  ➤ P. E122	• Multi-functional indexable end mill for facing, slotting, square shoulder milling, etc • Excellent performance at large depth of cut due to strong cutting edge and low cutting resisitance	0.5 ~ 1.25	**APMT 0602PDSR-M** ➤ P. E93
AP 11/16 - 90 End° Mills  ➤ P. E122-123	• Indexable end mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	0.5 ~ 2.0	**APXT 11T3PDSR-F2** **11T3PDSR-M** **11T3PDR-A** **1604PDSR-F2** **1604PDSR-M** **APKT 1604PDFR-A** ➤ P. E94
AP 11M/16M - 90° End Mills  ➤ P. E124	• Indexable end mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	0.5 ~ 2.0	**APMT 11T3PDER** **11T3PDER-F2** **11T3PDER-M** **11T3PDFR-A** **11T3PDSR-M** **1604PDFR-A** **1604PDFR-M** **1604PDSR-F2** **1604PDSR-M** **160416PDSR-M** **160432PDSR-M** ➤ P. E93

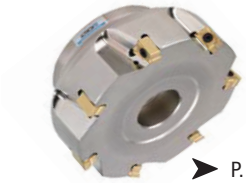
Cutter Index

Shape	Features	Cutter Diameter	Available Inserts
AP 10 & AD 15 - 90° End Mills  ➤ P. E125	• Indexable end mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	0.375 ~ 1.25	**APKT 1003** **ADKT 1505** ➤ P. E92
AP 11 - 15° End Mills  ➤ P. E125	• Indexable end mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	1.0 ~ 1.5	**APXT 11T3PDSR-F2** **11T3PDSR-M** **11T3PDR-A** ➤ P. E94
AP 16 Chamfer Mills 30° to 60°  ➤ P. E126	• Indexable Chamfering • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance	0.5 ~ 1.5	**APLT 347** ➤ P. E126
AP 18 - 90° End Mills  ➤ P. E127	• Multi-functional indexable end mill for facing, slotting, square shoulder milling, etc • Excellent performance at large depth of cut due to strong cutting edge and low cutting resisitance	1.25 ~ 2.5	**APMT 1806PDSR-M** ➤ P. E93
APCC - Centre Cut  ➤ P. E127	• Indexable end mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	1.0 ~ 1.5	**APXT 11T3PDSR-F2** **11T3PDSR-M** **11T3PDR-A** **1604PDSR-F2** **1604PDSR-M** ➤ P. E94
DS4 End Mills  ➤ P. E128	• Double sided insert with 4 usable cutting edges • Strong negative insert with high rake angle cutting edges • Multi-functional tool covers facing, side cutting, shouldering, slotting, ramping, and helical cutting	0.625 ~ 2.00	**LNMX 100605PNR-M** ➤ P. E94-95
APFM 06 - 90°  ➤ P. E128	• Multi-functional indexable face mill for facing, slotting, square shoulder milling, etc • Excellent performance at large depth of cut due to strong cutting edge and low cutting resisitance	1.5 ~ 2.5	**APMT 0602PDSR-M** ➤ P. E93

Cutter Index

Shape	Features	Cutter Diameter	Available Inserts
APFM 11M/16M - 90° Face Mills  ➤ P. E129	• Indexable face mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	1.5 ~ 4.0	**APMT** 11T3PDER 11T3PDER-F2 11T3PDER-M 11T3PDFR-A 11T3PDSR-M 1604PDFR-A 1604PDFR-M 1604PDSR-F2 1604PDSR-M 160416PDSR-M 160432PDSR-M ➤ P. E93
APFM 11/16 - 90° Face Mills  ➤ P. E130-131	• Indexable face mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	2.0 ~ 6.0	**APXT** 11T3PDSR-F2 11T3PDSR-M 11T3PDR-A 1604PDSR-F2 1604PDSR-M **APKT** 1604 ➤ P. E93-94
AP(D)FM 10/15 - 90° Face Mills  ➤ P. E131	• Indexable face mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	2.0 ~ 4.0	**APKT** 1003 **ADKT** 1505 ➤ P. E92
APFM 11/16 - 15° Face Mills  ➤ P. E132	• Indexable face mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	2.5 ~ 5.0	**APXT** 11T3PDSR-F2 11T3PDSR-M 11T3PDR-A 1604PDSR-F2 1604PDSR-M ➤ P. E94
APFM 18 - 90° Face Mills  ➤ P. E132	• Indexable face mill for slotting, shoulder milling, and plane milling • Outstanding chip control and prominent machining in Medium and Roughing by coated insert combined toughness with wear resistance and designed 3 dimension chip breaker	2.0 ~ 5.0	**APMT** 1806PDSR-M ➤ P. E93
Button Mills  ➤ P. E133	• High tensile aluminum body can be used for high speed cutting, tapping centre, and on low power machines • Due to the high rake angle, it provides low cutting loads and good surface finish • Wide chip pocket area provides excellent chip evacuation	0.75 ~ 5.0	**RDKT** 10T3M0-F2 10T3M0-M 1204M0-A 1204M0-F2 1204M0-M ➤ P. E98
OKT-MAX  ➤ P. E134	• High rake angle • 8 corner, economical insert • 45° angle of cut • Good for Steel, Alloy Steel, Cast Iron	1.5 ~ 6.00	**OFCW** 05T3SN **OFKT** 05T3SN-F2 **OFKT** 05T3SN-M **OFKT** 05T3SN-A ➤ P. E96-97

Cutter Index

Shape	Features	Cutter Diameter	Available Inserts
Max Mill Face Mills - 90°  ➤ P. E135	• Square shouldering cutter can do square shouldering, slotting and facing with 4 corner insert • Tool life has been increased through 3 dimensional chip breakers and superb coating grades having optimal wear resistance and toughness • Combination of tough cutting edge and low cutting force design provides excellent cutting performance	2.5 ~ 6.0	**SDXT130508R-A** **SDXT130508R-F2** **SDXT130508R-M** ➤ P. E98
DS4 Face Mills  ➤ P. E135	• Double sided insert with 4 usable cutting edges • Strong negative insert with high rake angle cutting edges • Multi-functional tool covers facing, side cutting, shouldering, slotting, ramping, and helical cutting	1.5 ~ 6.0	**LNMX 100605PNR-F2** **100605PNR-M** **151008PNR-F2** **151008PNR-M** ➤ P. E94-95
DS8 Face Mills - 45°  ➤ P. E136	• Innovative double-sided, high rake angle insert makes it possible to use 8 cutting edges • Low cutting load due to the positive setting and high rake angle chip breaker • Designed wiper technology in minor cutting edge provides excellent surface finish • Smooth and stable chip control	2.0 ~ 8.0	**SNEX 1206ANN-A** **1206ANN-F2** **1206ANN-M** **1206ANN-W** **SNMX 1206ANN-M** ➤ P. E101
Max Mill Face Mills - 45°  ➤ P. E137	• High quality machining with precise design of insert and cutter • Various choice can be offered through variety of combination of insert and cutter • Excellent machining performance with light cutter and smooth chip control	1.5 ~ 8.0	**SEET14M4AGFN-A** **SEET14M4AGSN-F2** **SEET14M4AGSN-M** **SEXT14M4AGSN-F2** **SEXT14M4AGSN-M** **SEXT14M4AGSN-R8** ➤ P. E99-101
Jet Mill  ➤ P. E139	• Indexable end mill for mold finishing • Easy clamping with simple screw on system • MQL System provides improved chip control, prolonged tool life, and increased surface quality	0.312 ~ 1.25	**JMCF 5/8 ~ 1** **JMFH 3/8 ~ 1-1/4** **JMBH 3/8 ~ 1-1/4** **JMBS 5/16 ~ 1-1/4**
Mold Mill  ➤ P. E140	• Distinguished cutting performance by S type edge and optimal design • High accuracy in finish machining by the cutting edge designed after Solid Ball End Mill • Simple assembly and hard clamping with two screws	0.625 ~ 1.250	**RC 5/8** **RC 3/4** **RC 1"** **RC 1-1/8** **RC 1-1/4** ➤ P. E97
Mold Max **MMEM**  ➤ P. E141	• High strength of cutting edge and excellent surface finish by R type inserts • Outstanding efficiency in cutting performance with difficult-to-cut material of high degree of hardness • Suitable to curved surface of moulds • Economical cutter body assembling with screw	1.25 ~ 2.0	**RPMM 120400** ➤ P. E98

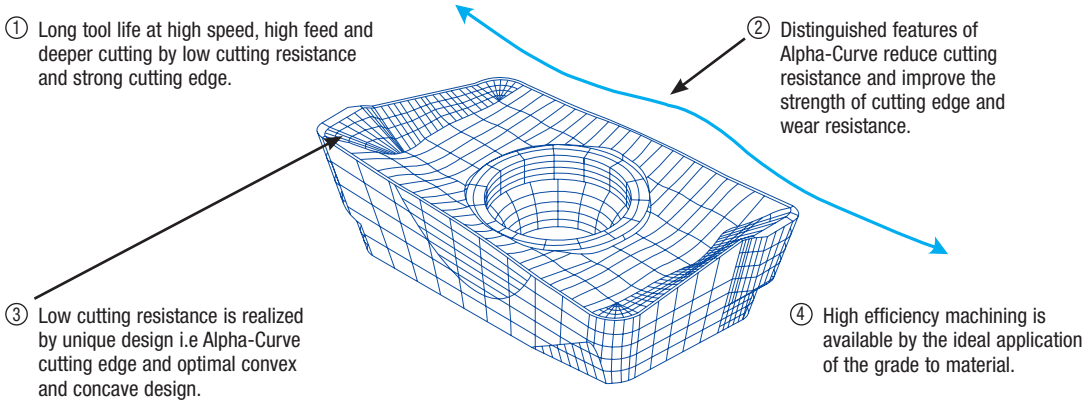
Cutter Index

Shape	Features	Cutter Diameter	Available Inserts
Mold Max **MMFM**  ➤ P. E142	• High strength of cutting edge and excellent surface finish by R type inserts • Outstanding efficiency in cutting performance with difficult-to-cut material of high degree of hardness • Suitable to curved surface of moulds • Economical cutter body assembling with screw	1.969 ~ 6.299 (50 ~ 160mm)	**RPMM 120400** ➤ P. E98
Multi-functional 45° Chamfer Tool  ➤ P. E143	• For centering, grooving, and chamfering • Up to 1.14" chamfering is available	Ø0 ~ Ø1.14	**TWX 16R-KC** **22R-KC**
Chamfer-Mill 45°  ➤ P. E142	• Triangular positive insert provides smooth machining • General milling is available as well	0.125 ~ 1.125	**TC_T 21.5** **32.5** ➤ P. E22-24
Alumi Mills **Alumi-Mills**  ➤ P. E145-146	• Buffing treatment on top face of insert provides smooth chip flow and prevention of build-up-edge • Fine surface finish of workpiece due to high rake angle of insert which lead low cutting force • Square shouldering and contouring is possible • High rigidity of cutter allows high speed machining	1.25 ~ 4.0	**VCKT 43.57.5N-MA** ➤ P. 104
Alumi-X Mills  ➤ P. E147	• Buffed mirror face provides outstanding chip control and prevents edge build-up • Multi-functional aluminum milling tool for shouldering, slotting, helical ramping, and copying • Multi-dimensional clamping surface prevents micro-vibrations at during high speed machining	1.25 ~ 4.0	**XEKT 19M5-FR-A** **19M5-FR-MA** ➤ P. E105
T-Slot Cutter  ➤ P. E145	• Indexable T-Slot cutter	0.83 ~ 1.97	**CPMT 060204-M** **080308-M** **09T308-M** **CPMH 432-M** ➤ P. E94
GP Indexable Drill  ➤ P. E149	• GP (Indexable Drill) • Indexable drill using indexable insert • 5~6 times higher machining speed provides higher productivity • Available for turning and milling	0.625 ~ 2.00	**WCMT 030208-C20** **040208-C20** **050308-C20** **06T308-C20** **080408-C20** **080412-C20** ➤ P. E105

Cutter Index

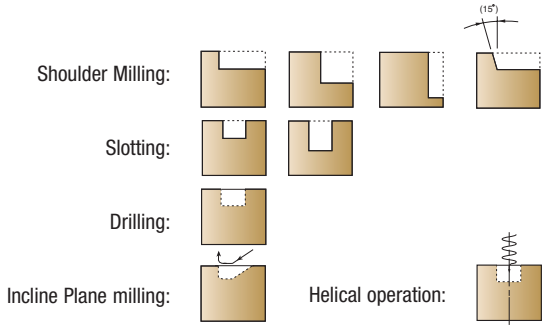
Shape	Features	Cutter Diameter	Available Inserts
Pro SP/NP Drill  ➤ P. E149	• High rigidity drills • Excellent chip evacuation due to the specially designed flute • Strengthened drill body and shank for better performance even in difficult cutting conditions • Available for turning and milling	0.50 ~ 2.0	**NPET-AD** **NPET-RD** **NPMT-MD** **SPMT-MD** ➤ P. E195-96, E102
Combo Turning & Drilling Tool  ➤ P. E150	• For external/internal turning, facing, and drilling • Double coolant system provides excellent chip evacuation and extended tool life • Ideal flute design minimizes stress concentrations	0.394 ~ 0.787	**QCMT 050204-CM** **060204-CM** **070204-CM** **070304-CM** **080204-CM** **080304-CM** **10T304-CM** ➤ P. E97
Max Drill Deep Hole Drilling  ➤ P. E156-160		1.77 ~ 7.09	**WCMT 030208-C20** **040208-C20** **050308-C20** **06T308-C20** **080408-C20** **080412-C20** ➤ P. 105, E157
Nine9®			
NC Spot Drills - 90°, 82°, 60°  ➤ P. E151-153	• Spotting produces better hole position and geometrically uniform holes • Long tool life • Up to 4 cutting edges per insert • Suitable for spotting, chamfering, grooving, and engraving	6mm ~ 14mm	**N9MT0802** **N9MT11T3CT** **V0820802** **V08212T3** **V9MT08** **V9MT12** ➤ P. E151-153
Engraving - 45°, 60°  ➤ P. E155	• High positive rake angle suitable for all types of materials, such as plastic, non-ferrous metals, aluminum, copper, carbon steel, and stainless steel • Multi-side grinding - performs excellently without producing burrs • High speed, high feed rate - designed to run at speeds up to 40,000rpm. Feed rate 0.08mm (0.003")/rev apply to aluminum; 0.05mm (0.002")/rev apply to stainless steel	0 ~ 2.1mm	**V04506T1W06** **V06006T1W06** ➤ P. E155

AP/AD Multifunctional Insert



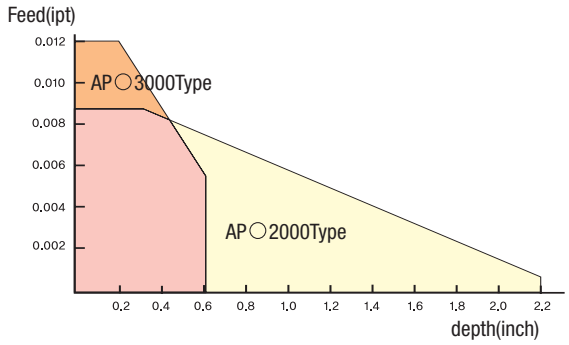
Inserts Feature & Application

- Innovative curve cutting edge and chip-breaker design ensuresideal 90 degree cutting and lower cutting resistance
- Various applications are available with multi-functional cutters (Facing, Slotting, Square Shoulder Milling, etc.)
- Application specific optimization improves insert life
- Excellent performance ensured at large depth of cutting operations due to strong cutting edge and low cutting resistance



Chip Breaker	Cutting Edge Shape		Recommendation C/B and Grades (● : 1st Choice)									
			Low Carbon Steels Soft Steels		High Carbon Steels Alloy Steels		Stainless Steels		Cast Irons		Aluminum Alloys	
			C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
F2		Low Cutting Resistance Type	●	○ PM25C ○ PM30P ● PM30C	-	● PM25C ○ PM30P ○ PM30C	●	○ PM25C ○ PM30P ● PM30C	●	● KM20C	-	-
M		Reinforced Cutting Edge Type	-	○ PM25C ○ PM30P ● PM30C	●	● PM25C ○ PM30P ○ PM30C	●	○ PM25C ○ PM30P ● PM30C	●	● KM20C	-	-
A		Sharp Cutting Edge Type	-	-	-	-	-	-	-	-	●	● KTM10U

AP / AD Mill Application Range

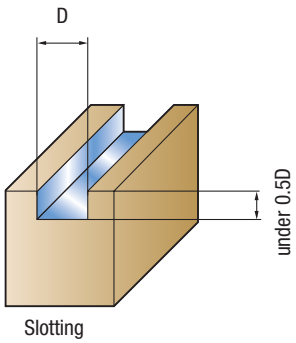


Tips

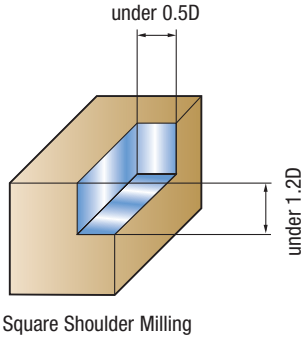
1. The cutting speed and feed can be adjusted in accordance with the machine's power and conditions of workpiece.
2. We recommend you operate them with small radial depth (RD) and large axial depth (AD) at the square shoulder milling applications.
3. We recommend you use compressed air during the slotting and pocket milling applications for better chip removal.
4. When encountering chattering during the operation, decrease the cutting speed.

AP/AD Recommended Depth of Cuts

(D : Cutting Diameter)



Slotting



Square Shoulder Milling

Recommended Cutting Conditions (for Single-Edge Type)

(Standard for side cutting, reduce condition 20~30% for slotting)

Workpiece Material	Grade	Cutting Diameter							
		~ ø0.625		ø0.625, ø1.000		ø1.25, ø1.50		ø3.000, ø4.000	
		V(sfm)	fz(ipt)	V(sfm)	fz(ipt)	V(sfm)	fz(ipt)	V(sfm)	fz(ipt)
Low Carbon Steels, Soft Steels	PM25C PM30P	195~395	0.002~0.006	260~590	0.004~0.006	395~820	0.001~0.006	490~820	0.004~0.006
High Carbon Steels, Alloy Steels	PM25C PM30P	165~330	0.002~0.006	260~490	0.002~0.006	330~655	0.004~0.06	330~655	0.004~0.006
Stainless Steel	PM30C MM30P	165~330	0.002~0.006	260~490	0.002~0.006	330~590	0.004~0.006	330~590	0.004~0.006
Cast Iron	KM20C	260~395	0.003~0.008	330~425	0.006~0.008	395~655	0.002~0.008	395~655	0.006~0.008
Aluminum Alloy	KTM10U	855~2955	0.006~0.012	985~3120	0.006~0.012	1310~3280	0.004~0.016	1310~3280	0.004~0.016



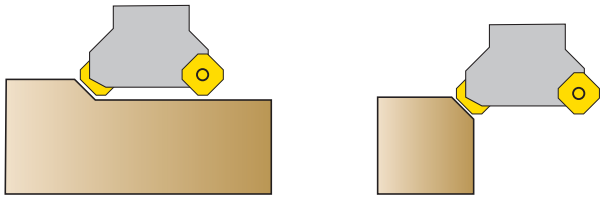
Max Mill Technical Information

Comprehensive Milling Cutter with High Productivity

1. Adjustable pitch of cutter by changing the number of inserts for the specific cutter diameter, and several chip breakers offer a wide application range.
2. Light cutter body allows high speed machining without chattering, thus it is possible to use a low horse power machine.
3. Smooth cutting with low cutting force accomplished with high rake angle.



Machining Example



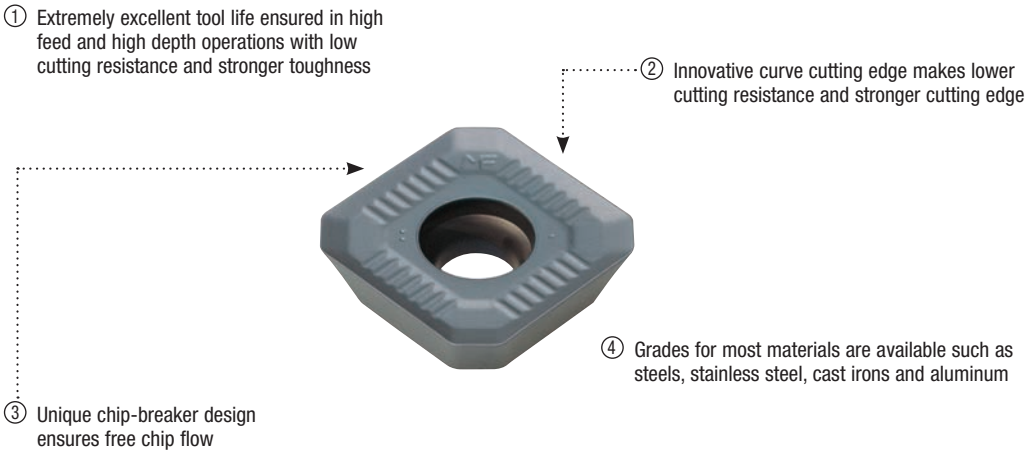
Chip-Breakers

	Chip-Breakers	Cutting Edge Shape	Use and Features of Chip Breakers
Light Cutting	Non C/B		Superior surface roughness at finishing due to ground-type cermet insert.
	F2		Superior cutting quality for light and difficult-to-cut material cutting through the low-cutting-resistance type of chip breaker.
General Cutting	M		Suitable for wide range of cutting due to special shape design for general cutting.
Roughing	R8		Tough cutting edge provides stable and consistent cutting performance even at severe intermittent cutting.
For Aluminum	A		Superior quality for aluminum cutting resulting from applying proper cutting-edge treatment and buffing of surface.

Recommended Cutting Condition

ISO	Grade	C/B	F2		M		R8		A	
			V(sfm)	fz(ipt)	V(sfm)	fz(ipt)	V(sfm)	fz(ipt)	V(sfm)	fz(ipt)
P	PM25C		650~1000	0.002~0.008	500~1000	0.004~0.012	500~800	0.004~0.012	-	-
	PM30P		650~1000	0.002~0.008	500~1000	0.004~0.012	330~800	0.004~0.012	-	-
M	MM30P		330~600	0.002~0.006	390~600	0.004~0.012	-	-	-	-
	PM30C		390~650	0.002~0.006	390~650	0.004~0.012	-	-	-	-
K	NCM320K		500~800	0.002~0.008	500~800	0.004~0.012	-	-	-	-
	-		-	-	-	-	-	-	-	-
	-		-	-	-	-	-	-	-	-
Aluminum	KTM10U		-	-	-	-	-	-	1150~3300	0.004~0.014

Features of Max Mill Insert



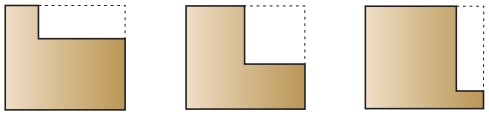
Inserts Feature & Application

- Innovative curve cutting edge and chip-breaker design ensures ideal 90 degree cutting and lower cutting resistance
- Various applications are available with multi-functional cutters (Facing, Slotting, Square Shoulder Milling, etc.)
- Application specific optimization improves insert life
- Excellent performance ensured at large depth of cutting operations due to strong cutting edge and low cutting resistance

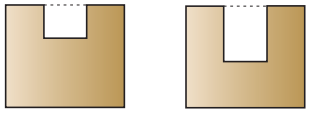
Chip-Breaker	Cutting Edge Sharp		Recommendation C/B and Grades (:1st Choice)									
			Low Carbon Steels Soft Steels		High Carbon Steels Alloy Steels		Stainless Steels		Cast Irons		Aluminum Alloys	
			C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
F2		Low Cutting Resistance Type	●	○ PM25C ○ PM30P ● PM30C	-	● PM25C ○ PM30P ○ PM30C	-	○ PM25C ○ PM30P ● PM30C	●	● KM20C	-	-
M		Reinforced Cutting Edge Type	-	○ PM25C ○ PM30P ● PM30C	●	● PM25C ○ PM30P ○ PM30C	-	○ PM25C ○ PM30P ● PM30C	●	● KM20C	-	-
A		Sharp Cutting Edge Type	-	-	-	-	-	-	-	-	-	● KTM10U

Advice

1. The cutting speed and feed can be adjusted in accordance with the machine's power and conditions of workpiece.
2. We recommend you operate them with small radial depth (RD) and large axial depth (AD) on square shoulder milling applications.
3. We recommend you use compressed air during the slotting and pocket milling applications for the better chip removal.
4. For chattering during the operation, decrease the cutting speed.



Square Shoulder Milling



Slotting

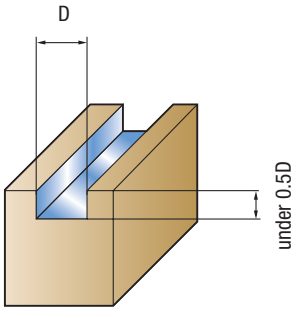
Max Mill Technical Information

Insert Choice(Chip Breaker/Grade)

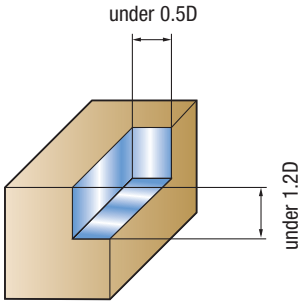
ISO(Workpiece)	Low Cutting Resistance Type	General Type	Stronger Cutting Edge Type
P	F2 / PM25C	M / PM25C	M / PM30P
M	F2 / PM30C	F2 / PM30C	M / PM30C
K	F2 / KM20C	F2 / KM20C	F2 / KM20C
Al	KTM10U	KTM10U	KTM10U

Recommended Cutting Conditions

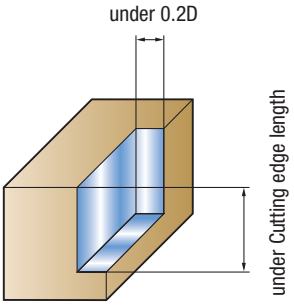
Workpiece	Insert Grade	Cutter Diameter (ø)	ø1.25 ~ 2.50		ø3.150 ~ 4.921	
			V(sfm)	fz(ipt)	V(sfm)	fz(ipt)
P	PM25C		325 ~ 825	0.002 ~ 0.012	400 ~ 825	0.003 ~ 0.012
	PM30C		325 ~ 725	0.002 ~ 0.01	400 ~ 725	0.003 ~ 0.01
	PM30P		325 ~ 725	0.002 ~ 0.01	325 ~ 725	0.004 ~ 0.01
M	PM30C		250 ~ 600	0.002 ~ 0.008	250 ~ 600	0.004 ~ 0.001
K	KM20C		600 ~ 825	0.003 ~ 0.01	600 ~ 825	0.004 ~ 0.001
Aluminum	KTM10U		1300 ~ 3275	0.002 ~ 0.016	1300 ~ 3275	0.004 ~ 0.016



Slotting



Square Shoulder Milling



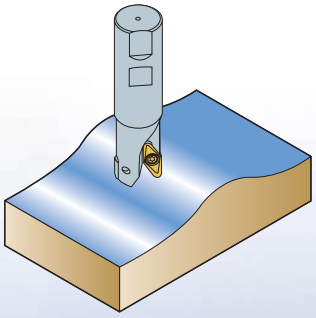
Square Shoulder Milling

Special Features of Alumi Mill

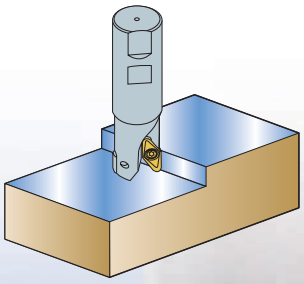
1. Mirror face of insert top provides smooth chip flow and prevent edge build-up.
2. High rake angle of cutting edge provides high quality surface finish through reduce cutting force.
3. Square shouldering and contouring is available.
4. Rigid cutter allows high speed machining.
5. Suitable for high speed machining which provides high productivity.
6. Precise ground insert and high rake angle reduces cutting force significantly.



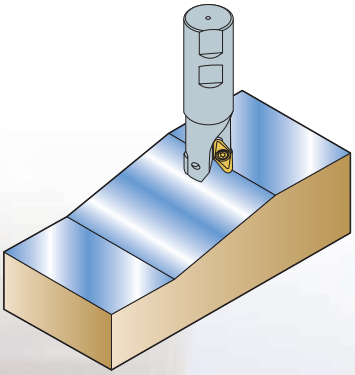
Machining Examples of Alumi Mill



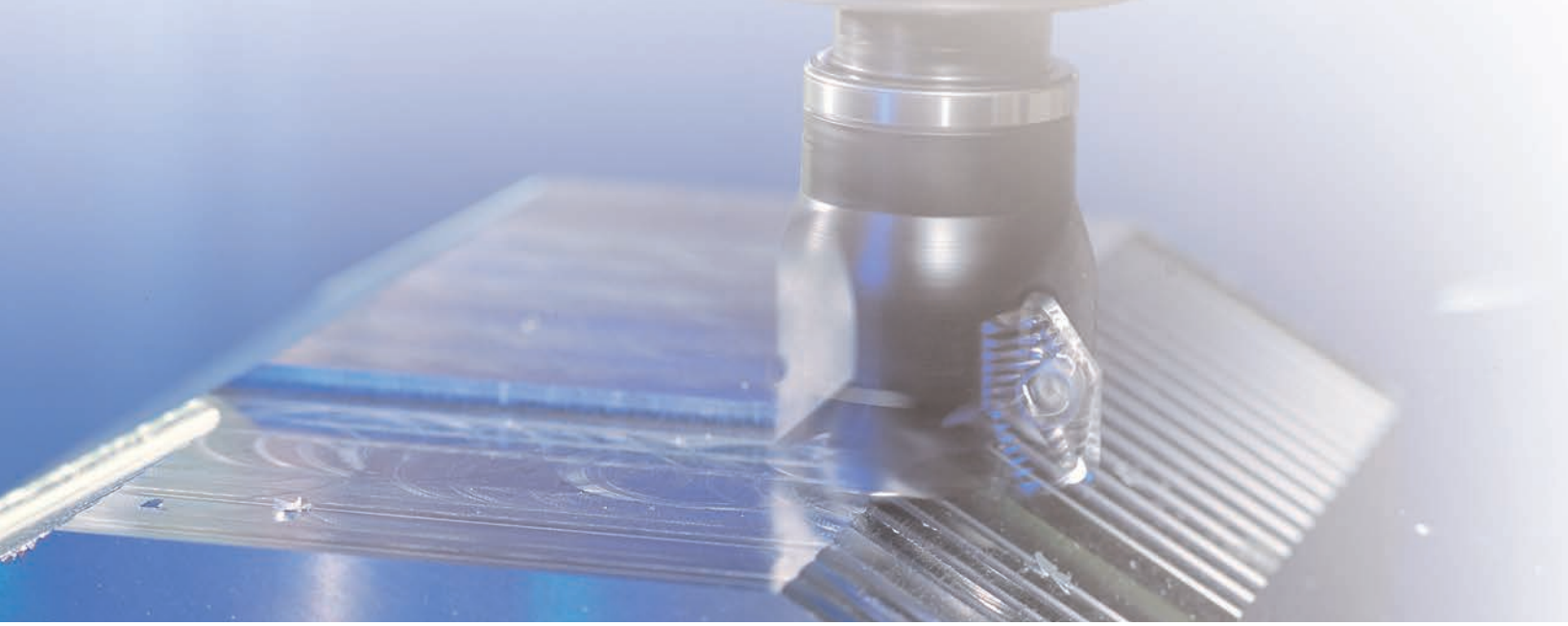
Contouring



Square Shouldering



Ramping

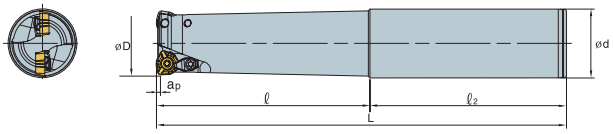


HFPA High Feed End Mills



Coolant through

Kits Also Available
➤ P. E162

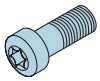
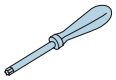


(inch)

Designation		Code No.	Price $	ØD	Ød	l	l2	L	No. of Inserts	Insert
HFPA	3/4	148642	**468.16**	0.750	0.750	1.969	3.150	5.119	2	WDKT 080316 ZDSR-MH
	1	148644	**499.88**	1.000	1.000	2.363	3.150	5.512	2	WDKT 10T320 ZDSR-MH
	1	148645	**516.49**	1.000	1.000	4.725	3.150	7.874	2	WDKT 10T320 ZDSR-MH
	1-1/4	148646	**538.95**	1.250	1.250	2.756	3.150	5.906	2	WDKT 130520 ZDSR-MH
	1-1/4	148647	**555.07**	1.250	1.250	4.725	3.150	7.874	2	WDKT 130520 ZDSR-MH
	1-1/2	148648	**555.07**	1.500	1.500	2.363	3.544	5.906	3	WDKT 130520 ZDSR-MH
	1-1/2	148649	**906.37**	1.500	1.500	5.119	4.725	9.843	3	WDKT 130520 ZDSR-MH

➤ P. E115

Parts

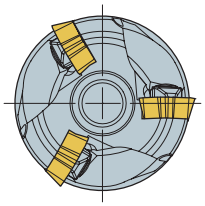
Cutter	Screw	Clamp	Clamp Screw	C-Ring	Wrench	Wrench
						
3/4	FTNA 0306	-	-	-	TW09P	-
	145548 **$ 8.69**				146951 **$ 14.32**	
1.000	FTKA 0408	CHH3.5R1	CTX03510	CR03	-	TW15S
	146968 **$ 11.07**	145552 **$ 32.95**	145554 **$ 13.04**	145556 **$ 3.52**		146801 **$ 40.80**
1-1/4	FTGA 0510-P	**CCH4.541**	CTX04513H	CR03	-	TW20
	145549 **$ 11.87**	145553 **$ 33.25**	145555 **$ 13.13**	145556 **$ 3.52**		148291 **$ 19.78**
1-1/2	FTGA 0512-P	**CCH4.5R1**	CTX04513H	CR03	-	TW20
	145551 **$ 12.73**	145553 **$ 33.25**	145555 **$ 13.13**	145556 **$ 3.52**		148291 **$ 19.78**

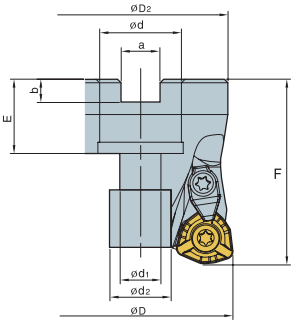
HFPC High Feed Face Mills



Coolant through

Kits Also Available
➤ P. E162



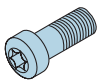


(inch)

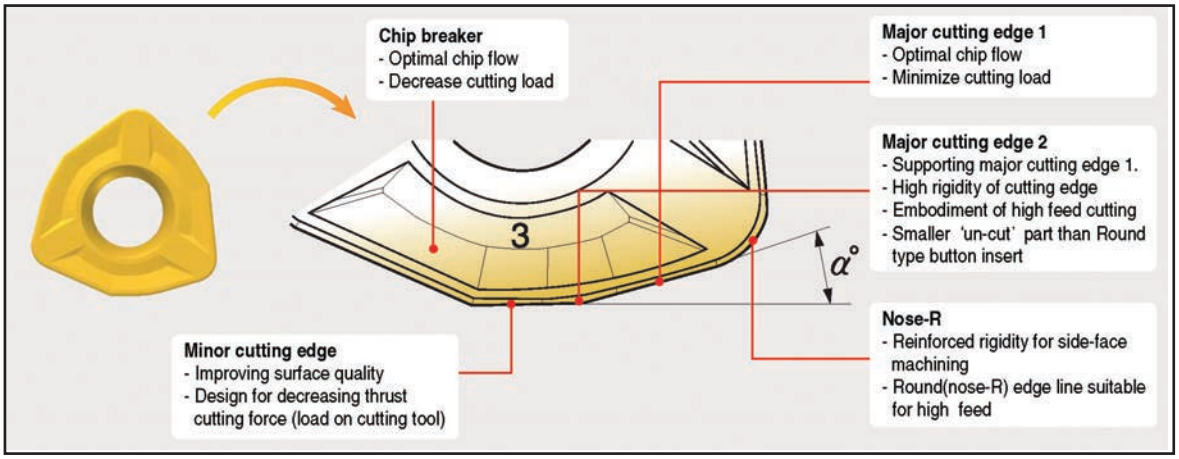
Designation		Code No.	Price $	ØD	Ød	ØD2	Ød2	a	b	E	F	No. of Inserts	Insert
HFPC	13200R-4	148637	**1,107.09**	2.000	0.750	1.772	0.630	0.321	0.221	0.778	1.969	4	WDKT 130520 ZDSR-MH
	13250R-4	148639	**1,136.39**	2.500	0.750	1.772	0.630	0.321	0.221	0.778	1.969	4	WDKT 130520 ZDSR-MH
	13300R-5	148641	**1,445.85**	3.000	1.000	2.205	0.827	0.384	0.248	0.985	2.756	5	WDKT 130520 ZDSR-MH

➤ P. E115

Parts

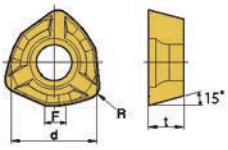
Cutter	Screw	Clamp	Clamp Screw	C-Ring	Wrench	
						
2, 2-1/2, 3	FTGA0513-P	CCH4.5R1	CTX04513H	CR03	TW20-100	-
	148194 **$ 12.23**	145553 **$ 33.25**	145555 **$ 13.13**	145556 **$ 3.52**	145557 **$ 38.78**	

HIGH FEED MILLING INSERTS



WDKT





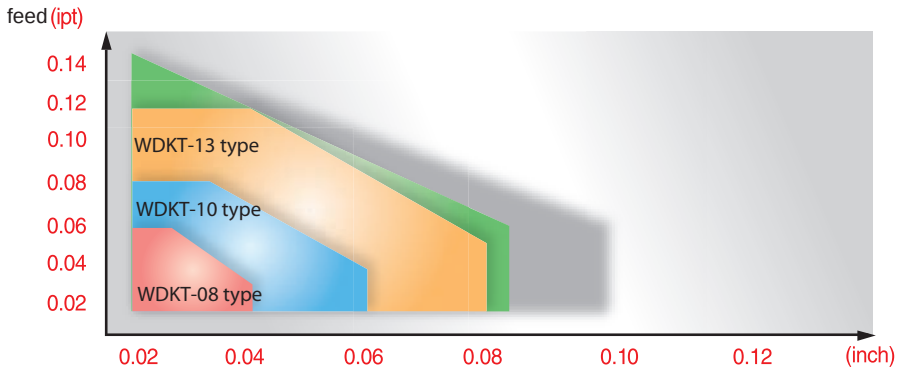
	Coated Carbide							Cermet		Ceramic	Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	PT20S	PT30S	S300	PM20U	PTM30U	d	t	F	r	a°	Cutter	Page No.
WDKT 080316 ZDSR-MH					148563 $ 17.83								0.315	1/8	3/64	1/16	15	HFPA HFPC	E128 E128
WDKT 130520 ZDSR-MH							148623 $ 35.36						0.531	7/32	0.083	0.079	15		

Application

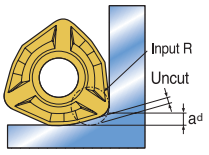
S.F.M.

PM10C - Die Steels 300-500 sfm
(P05-P15) - Alloy Steels 400-650 sfm

PM35P - Die Steels 300-400 sfm
(P05-P15) - Alloy Steel 350-500 sfm
- Stainless Steel 300-400 sfm



- Information for uncut part by using Input.R for CAM program.
- Uncut can be changed by poor machine condition or weak clamp of workpiece, etc.

Designation	Condition		Approx. R(inch)		Configuration
	Max ad (inch)	Max fz (ipt)	Input.R	Uncut	
WDKT080316ZDSR-MH	0.048	0.08	0.08	0.0152	
WDKT10T320ZDSR-MH	0.06	0.08	0.1	0.0188	
WDKT130520ZDSR-MH	0.08	0.12	0.12	0.0288	
WDKT150625ZDSR-MH	0.1	0.12	0.12	0.0352	

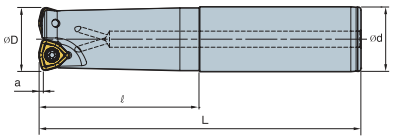
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

HFNA High Feed End Mills



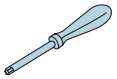
Coolant through



(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	Insert
HFNA	09100HR-2S100	148930	499.88	1.0000	1.00	0.06	2.362	5.512	2	
	09100HR-2M100	148946	516.49	1.0000	1.00	0.06	4.724	7.874	2	
	09118HR-3S125	148982	572.68	1.1875	1.25	0.06	2.756	5.906	3	
	09118HR-3M125	149035	590.26	1.1875	1.25	0.06	4.724	7.874	3	
	09125HR-3S125	148983	572.68	1.2500	1.25	0.06	2.756	5.906	3	WNMX09T316ZNN-M
	09125HR-3M125	148984	590.26	1.2500	1.25	0.06	4.724	7.874	3	
	09137HR-4S125	148985	727.33	1.3750	1.25	0.06	1.969	5.906	4	
	09150HR-4S125	148990	736.82	1.5000	1.25	0.06	1.969	5.906	4	
	09150HR-4M125	148991	749.63	1.5000	1.25	0.06	1.969	9.843	4	
	13125HR-2S125	149028	538.95	1.250	1.250	0.08	2.756	5.906	2	
	13125HR-2M125	149029	555.07	1.250	1.250	0.08	4.724	7.874	2	
	13131HR-2L125	145599	663.20	1.313	1.250	0.08	2.756	11.811	2	
	13131HR-2M125	145598	580.46	1.313	1.250	0.08	2.874	7.874	2	
	13131HR-2S125	145597	539.12	1.313	1.250	0.08	2.756	5.906	2	
	13137HR-2L125	146798	684.55	1.375	1.250	0.08	1.969	11.811	2	
	13137HR-2M125	146759	598.24	1.375	1.250	0.08	1.969	7.874	2	
	13137HR-2S125	146630	555.15	1.375	1.250	0.08	1.969	5.906	2	
	13150HR-3M150	149033	906.37	1.500	1.500	0.08	5.118	9.843	3	WNMX130520-ZNN-M
	13150HR-3S150	149032	753.25	1.500	1.500	0.08	2.362	5.906	3	
	13150HR-3L150	146400	906.37	1.500	1.500	0.08	7.087	11.811	3	
	13162HR-3L125	146868	848.26	1.625	1.250	0.08	1.969	11.811	3	
	13162HR-3L150	146871	965.64	1.625	1.500	0.08	1.969	11.811	3	
	13162HR-3M125	146859	808.14	1.625	1.250	0.08	1.969	9.843	3	
	13162HR-3M150	146870	906.37	1.625	1.500	0.08	1.969	9.843	3	
	13162HR-3S125	146856	753.25	1.625	1.250	0.08	1.969	5.906	3	
	13162HR-3S150	146869	879.17	1.625	1.500	0.08	1.969	5.906	3	

Parts

Designation	Insert	Screw			Wrench		
							
HFNA 09xxxHR	WNMX09T316ZNN-M	FTKA0307	148210	$ 13.75	TW09S	146951	$ 14.32
HFNA 13xxxHR	WMNX130520ZNN-M	FTKA0412B	146969	$ 11.07	TW15S	146801	$ 40.80

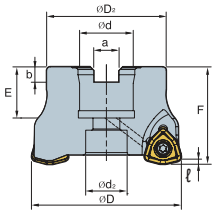
Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

HFNC High Feed Face Mills



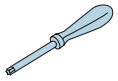
Coolant through



Designation		Code No.	Price $	ØD	Ød	ØD2	Ød2	a	b	E	F	ℓ	No. of Inserts	Insert
HFNC	09250HR-6	148798	**1,310.84**	2.5	0.750	2.205	0.630	0.315	0.220	0.787	1.750	0.06	6	
	09300HR-7	148813	**1,497.14**	3.0	1.000	2.205	0.827	0.374	0.236	0.866	2.000	0.06	7	WNMX09T316ZNN-M
	09400HR-8	148815	**1,681.86**	4.0	1.250	2.874	1.024	0.500	0.315	0.866	2.000	0.06	8	
	13200HR-3	146872	**882.94**	2.0	0.75	1.772	0.630	0.315	0.220	0.787	1.75	0.08	3	
	13200HR-4	146873	**1,107.09**	2.0	0.75	1.772	0.630	0.315	0.220	0.787	1.75	0.08	4	
	13250HR-4	146881	**1,136.39**	2.5	0.75	1.772	0.630	0.315	0.220	0.787	1.75	0.08	4	
	13250HR-5	146882	**1,420.50**	2.5	0.75	1.772	0.630	0.315	0.220	0.787	1.75	0.08	5	
	13300HR-5	146883	**1,445.85**	3.0	1.00	2.205	0.827	0.374	0.236	0.866	2.0	0.08	5	WNMX130520-ZNN-M
	13300HR-6	146884	**1,565.36**	3.0	1.00	2.205	0.827	0.374	0.236	0.866	2.0	0.08	6	
	13400HR-6	146885	**1,565.36**	4.0	1.25	2.874	1.024	0.500	0.315	0.866	2.0	0.08	6	
	13400HR-7	146886	**1,800.16**	4.0	1.25	2.874	1.024	0.500	0.315	0.866	2.0	0.08	7	

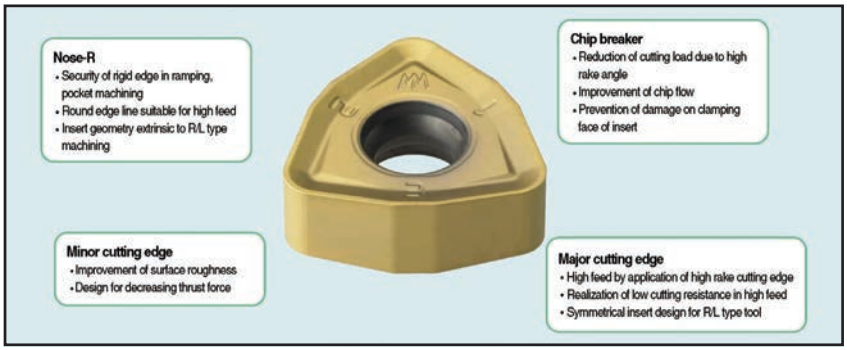
AA:76°, AR:-7°, RR:-12°~ -4°

Parts

Designation	Insert	Screw			Wrench		
							
HFNC 09250 - 09400HR	WNMX09T316ZNN-M	FTKA0307	148210	**$ 13.75**	TW09S	146951	**$ 14.32**
HFNC 13200 - 13400HR	WNMX130520-ZNN-M	FTKA0412B	146969	**$ 11.07**	TW15S	146801	**$ 40.80**

Double Sided High Feed Milling Inserts

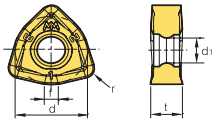
- High rake angle cutting edge reduces cutting load making this insert excellent for high feed and multi-functional machining
- Double sided design makes this a very economical insert
- Negative geometry has been designed for rigidity of cutting edge and double sided function
- Symmetrical cutting edge is applicable for both R and L type tools



WNMX



Features
Excellent geometries
for a variety of materials



	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
Designation	PTM50P	PT30P	PM25C	PM30P	PM35P	PM40P	KM20C	MM30P	PC9530	SM20P	PM20U	KTM10U	d	t	r	d1	f	Cutter	Page No.
WNMX09T316ZNN-M	145640 $ 27.06							146891 $ 27.06					0.375	0.156	0.063	0.142	0.067	HFNA	E120
WNMX130520ZNN-M	145675 $ 42.42									147080 $ 34.86			0.500	0.219	0.079	0.185	0.098	HFNC	E121

Quick Choice Grade Selection

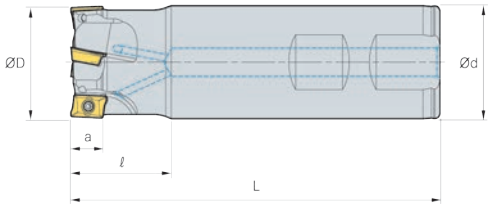
P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

AP 06 - 90° End Mills



Coolant through

Features
- Lower cutting resistance
- Better chip control
- Longer tool life

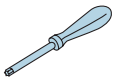


AR: 7.5° ~ 13°

(inch)

Designation	Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	Insert
AP06-90 1050HS-3	145568	**203.22**	0.500	0.500	0.220	0.984	3.150	3	APMT 0602 PDSR-M
AP06-90 1063HS-3	145569	**248.33**	0.625	0.625	0.220	0.984	3.543	3	
AP06-90 1075HS-4	145572	**270.92**	0.750	0.750	0.220	1.181	4.331	4	

Parts

Designation	Insert	Screw			Wrench		
							
AP 06-09	APMT 0602 PDSR-M	FTKA 01842	148717	**$ 13.36**	TW 06S-A	147186	**$40.84**

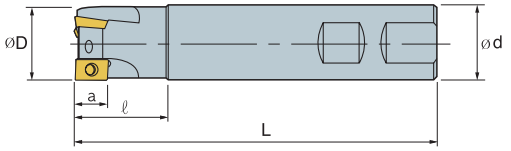
➤ P. E93

AP 11/16 - 90° End Mill H13 Hardened Bodies 48HRC



H13 HARDENED CUTTER BODIES 48HRC

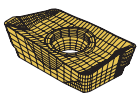
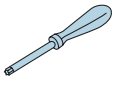
Features
- Longer insert life
- Longer body life
- Higher rigidity
- Better feed rates



(inch)

Designation	Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	AR	Insert
AP 11-90 2075S	148822	**40.84**	0.750	0.750	0.433	1.181	3.937	2	9°	APXT 11T3
3100S	148812	**177.73**	1.000	1.000	0.630	1.378	4.528	2	9°	AP_T 1604
3125S	148814	**223.32**	1.250	1.000	0.630	1.574	4.921	3	9°	
AP 16-90 3125S 1 1/4 SHK	148816	**223.32**	1.250	1.250	0.630	1.575	4.921	3	9°	
3150S	148818	**223.32**	1.500	1.250	0.630	1.575	5.125	3	9°	

Parts

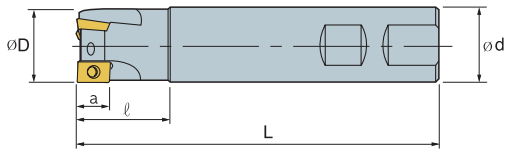
Designation	Insert	Screw			Wrench		
							
AP 11 90°	APXT 11T3~	FTKA 02565S	146595	**$ 13.75**	TW 08S	146728	**$ 40.80**
AP 13 90°	AP_T 1604~	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E94

AP 11/16 - 90° End Mills



Kits Also Available
➤ P. E162, E163

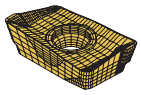
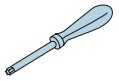


(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	AR	Insert
AP 11-90	2050S	146371	**140.30**	0.500	0.625	0.433	0.984	3.346	1	5°	
Short Length	2062S	146372	**140.30**	0.625	0.625	0.433	0.984	3.543	2	7°	
	2075S	146373	**140.30**	0.750	0.750	0.433	1.181	3.937	2	9°	APXT 11T3
	2075S 3 Flute	147376	**167.17**	0.750	0.750	0.433	1.181	3.937	3	9°	
	2100S 3/4 Shank	146374	**161.61**	1.000	0.750	0.433	1.378	3.500	3	9°	
	2100S 1" Shank	148414	**161.61**	1.000	1.000	0.433	1.378	4.528	3	9°	
Medium Length	2125M	147131	**188.48**	1.250	1.250	0.433	1.575	4.921	4	9°	
	2150M	147132	**215.54**	1.500	1.250	0.433	1.654	5.118	5	9°	APXT 11T3
	2200M	147133	**301.16**	2.000	1.250	0.433	1.772	5.315	6	9°	
Long Length	2062L	147284	**140.30**	0.625	0.625	0.433	0.984	6.500	2	7°	
	2075L	147285	**140.30**	0.750	0.750	0.433	1.181	6.500	2	9°	APXT 11T3
	2100L	147286	**161.61**	1.000	1.000	0.433	1.378	6.500	3	9°	
AP 16-90	3100S	145705	**161.61**	1.000	1.000	0.630	1.378	4.528	2	9°	
Short Length	3125S	145706	**188.48**	1.250	1.000	0.630	1.574	4.921	3	9°	
	3125S 1 1/4 SHK	146866	**423.51**	1.250	1.250	0.630	1.575	4.921	3	9°	AP_T 1604
	3150S	145707	**215.54**	1.500	1.250	0.630	1.575	5.125	3	9°	
	3200S	145708	**255.76**	2.000	1.250	0.630	1.772	5.315	5	9°	
Medium Length	3100M	147282	**188.48**	1.000	1.000	0.630	1.378	6.500	2	9°	AP_T 1604
	3125M	147283	**188.48**	1.250	1.250	0.630	1.574	6.500	3	9°	
Long Length	3100L	147136	**242.41**	1.000	1.000	0.630	1.378	8.000	2	9°	AP_T 1604
	3125L	147137	**323.02**	1.250	1.250	0.630	1.574	8.500	3	9°	

*AA:0°

Parts

Designation	Insert	Screw			Wrench		
							
AP 11 90°	APXT 11T3~	FTKA 02565S	146595	**$ 13.75**	TW 08S	146728	**$ 40.80**
AP 13 90°	AP_T 1604~	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E94

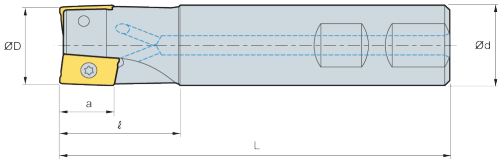
Recommended Cutting Condition

Workpiece	Cutting Condition		Grade
	V(sfm)	f(ipt)	
P	320~980	0.003~0.010	Coated (PM10, 20, 30C) Uncoated (PM20U)
M	160~600	0.002~0.008	Coated (MM30P)
K	Cast Iron 490~820 Alum 500~1000	0.003~0.012	Coated (KM20C) Uncoated (KTM10U)

AP11M/16M-90 End Mills



Coolant through



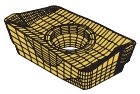
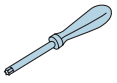
(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	AR	Insert
AP11M-90	2050S	146889	**184.35**	0.500	0.625	0.433	1.181	3.346	1	3°-14°	APMT 11T3
	2062S	147001	**225.22**	0.625	0.625	0.433	0.984	3.543	2	3°-14°	
	2062L	147003	**258.08**	0.625	0.625	0.433	1.181	7.087	2	3°-14°	
	2075S	147005	**245.72**	0.750	0.750	0.433	1.181	3.937	2	3°-14°	
	2075M	147010	**273.25**	0.750	0.750	0.433	1.181	8.268	2	3°-14°	
	2100S	147012	**286.77**	1.000	1.000	0.433	1.378	4.528	3	3°-14°	
	2100L	147014	**318.31**	1.000	1.000	0.433	1.575	7.087	3	3°-14°	
	2125S	147016	**382.26**	1.250	1.250	0.433	1.575	4.921	4	3°-14°	
	2150S	147020	**450.51**	1.500	1.250	0.433	1.654	5.118	5	3°-14°	
	2200S	147022	**632.19**	2.000	1.250	0.433	1.250	5.315	6	3°-14°	
AP16M-90	3100S	147024	**313.05**	1.000	1.000	0.630	1.378	4.528	2	3°-14°	APMT 1604
	3100M	147046	**347.47**	1.000	1.000	0.630	1.378	7.087	2	3°-14°	
	3100L	147050	**334.96**	1.000	1.000	0.630	2.362	8.661	2	3°-14°	
	3125S	147074	**423.94**	1.250	1.250	0.630	1.575	4.921	3	3°-14°	
	3125M	148387	**380.13**	1.250	1.250	0.630	1.575	7.874	2	3°-14°	
	3125L	148388	**531.20**	1.250	1.250	0.630	2.559	10.236	2	3°-14°	
	3150S	148411	**507.36**	1.500	1.250	0.630	1.654	5.118	4	3°-14°	
	3200S	148415	**587.36**	2.000	1.250	0.630	1.772	5.315	5	3°-14°	

AP11M: AA:0°, AR:3°~14°, RR:-25°~-18°

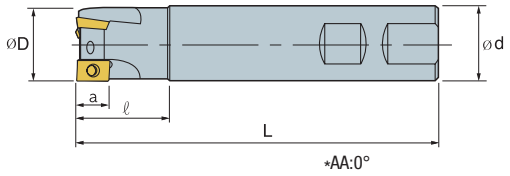
AP16M: AA:0°, AR:3°~14°, RR:-18°~-10°

Parts

Designation	Insert	Screw			Wrench		
							
AP11M-90 2050S	APMT 11T3~	FTKA 02555S	148624	**$ 13.36**	TW 08S	146728	**$ 40.80**
AP11M-90 2062S~2200S		FTKA 02565S	146595	**$ 13.75**			
AP16M-90 3100	APMT 1604	FTKA 0408	146968	**$ 11.07**	TW 15S	146801	**$ 40.80**
AP16M-90 3125~3200		FTKA 0410	146969	**$ 11.07**			

AP 10/ AD 15 - 90° End Mills

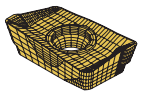
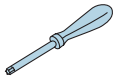




(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	AR	Insert
AP 10 90°	3/8	147835	**140.30**	0.375	0.375	0.394	0.984	3.375	1	-	AP_T 1003
	1/2	147836	**140.30**	0.500	0.625	0.394	0.984	3.346	1	5°	AP_T 1003
	5/8	147837	**140.30**	0.625	0.625	0.394	0.984	3.543	2	7°	AP_T 1003
	3/4	147838	**140.30**	0.750	0.750	0.394	1.181	3.937	2	9°	AP_T 1003
	1"	147839	**161.61**	1.000	1.000	0.394	1.378	4.528	3	9°	AP_T 1003
	1 1/2	147841	**215.54**	1.500	1.250	0.394	1.654	5.118	5	9°	AP_T 1003
AD 15 90°	3/4	147845	**140.30**	0.750	0.750	0.591	1.181	3.940	1	9°	ADKT 1505
	1"	147846	**161.61**	1.000	1.000	0.591	1.378	4.528	2	9°	ADKT 1505
	1 1/2	147848	**201.82**	1.500	1.250	0.591	1.575	4.921	4	14°	ADKT 1505

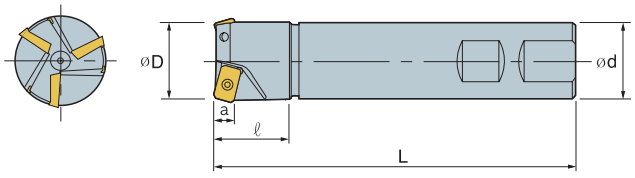
Parts

Designation	Insert	Screw			Wrench		
							
AP 10 90°	APKT / APXT 1003~	FTKA 02565S	146595	**$ 13.75**	TW 08S	146728	**$ 40.80**
AD 15 90°	ADKT 1505~	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E92

AP 11 15° End Mills



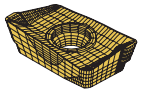
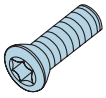
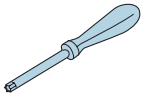


(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	AR
AP11 15°	2100SE	147134	**172.36**	1.000	1.000	0.157	1.181	4.528	2	-1°

*AA:0°

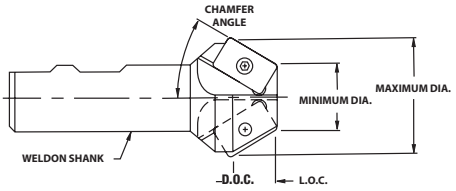
Parts

Designation	Insert	Screw			Wrench		
							
AP11 15° 2000SE	APXT 11T3~	FTKA 02565S	146595	**$ 13.75**	TW 08S	146728	**$ 40.80**

➤ P. E94

AP 16 Chamfer Mills

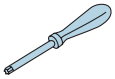




(inch)

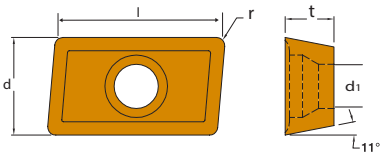
Designation		Code No.	Price $	Min. Dia.	Max. Dia.	Weldon Shank	Chamfer Angle	No. of Inserts	Depth of Cut
AP 16 CHM	750-30	147187	**257.46**	0.750	1.303	3/4"	30°	2	0.479
	688-41	147188	**257.46**	0.688	1.414	3/4"	41°		0.418
	688-45	147189	**257.46**	0.688	1.471	3/4"	45°		0.391
	500-60	147190	**257.46**	0.500	1.458	3/4"	60°		0.277
	1.000-30	147191	**281.19**	1.000	1.553	1"	30°	3	0.479
	938-41	147192	**281.19**	0.938	1.664	1"	41°		0.418
	938-45	147193	**281.19**	0.938	1.721	1"	45°		0.391
	750-60	147194	**281.19**	0.750	1.708	1"	60°		0.277
	1.250-30	147195	**344.25**	1.250	1.803	1 1/4"	30°	3	0.479
	1.188-41	147196	**344.25**	1.188	1.914	1 1/4"	41°		0.418
	1.188-45	147197	**344.25**	1.188	1.971	1 1/4"	45°		0.391
	1.000-60	147198	**344.25**	1.000	1.958	1 1/4"	60°		0.277
	1.500-30	147199	**441.30**	1.500	2.053	1 1/2"	30°		0.479
	1.438-41	147200	**441.30**	1.438	2.164	1 1/2"	41°		0.418
	1.438-45	147201	**441.30**	1.438	2.221	1 1/2"	45°		0.391
	1.250-60	147202	**441.30**	1.250	2.208	1 1/2"	60°		0.277

Parts

Designation	Insert	Screw			Wrench		
							
AP16 CHM	APLT 347	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

APLT-347





Designation	Coated Carbide										Uncoated Carbide		(inch)					Applicable Cutter	
	PM10C	PM25C	PM30C	PM25P	PM35P	PM40P	KM30P	MM30P	MT30P	SM20P	PM20U	KTM20U	l	d	t	r	d1	Cutter	Page No.
APLT 347		149195 $ 32.80	149194 $ 33.50									149196 $ 27.80	0.591	3/8	0.187	0.015	0.173	AP16 CHM	

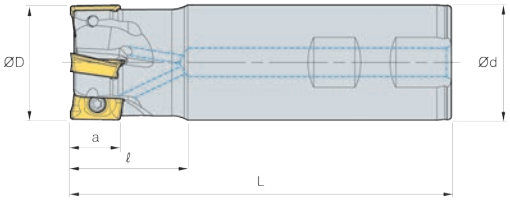
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

AP 18 - 90° End Mills



Features
- Lower cutting resistance
- Better chip control
- Longer tool life

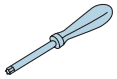


AR: 7° ~ 13°

(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	Insert
AP 18-90	4125HS	145577	**445.12**	1.250	1.250	0.669	1.575	4.921	3	APMT 1806 PDSR-M
AP 18-90	4150HS	145578	**532.94**	1.500	1.250	0.669	1.575	5.118	4	
AP 18-90	4200HS	145579	**616.74**	2.000	1.250	0.669	1.575	5.315	5	
AP 18-90	4250HS	145581	**782.82**	2.500	1.250	0.669	1.575	5.315	9	

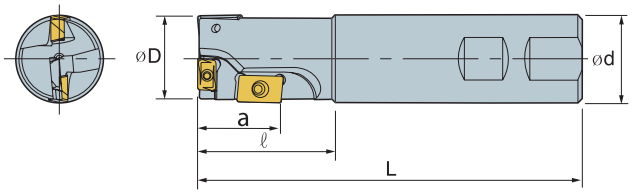
Parts

Designation	Insert	Screw			Wrench		
							
AP 18-90	APMT 1806 PDSR-M	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E93

APCC Centre Cut End Mills



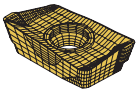
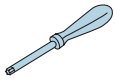


(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	APXT11T3~	APXT1604~
APCC	2100MH	148246	**292.64**	1.000	1.000	0.787	1.575	5.118	3	3	-
	2125MH	148247	**361.39**	1.250	1.250	1.181	1.969	5.512	3	1	2
APCC	3150MH	148248	**430.52**	1.500	1.250	1.575	2.362	5.906	4	-	4

*AA:0°, AR:9°~7°, RR-12°~10°

Parts

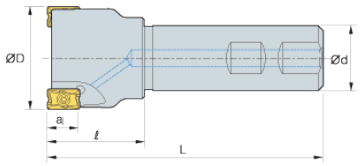
Designation	Insert	Screw			Wrench		
							
APCC 2100MH	APXT 11T3~	FTKA 02565S	146595	**$ 13.75**	TW 08S	146728	**$ 40.80**
2125MH	APXT 1604~	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E94

DS4 End Mills



Coolant through

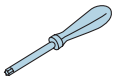


(inch)

Designation		Code No.	Price $	ØD	Ød	ℓ	L	a	No. of Inserts	Insert
DS4	3062HR	148614	**238.70**	0.625	0.625	0.984	3.543	0.354	1	
	3075HR	146379	**340.89**	0.750	0.750	1.181	3.937	0.354	2	
	3075HR	146381	**420.11**	0.750	0.750	1.181	3.937	0.354	3	LNMX 100605
	3100HR	146384	**665.01**	1.000	1.000	1.378	4.528	0.354	2	
	3100HR	146389	**473.28**	1.000	1.000	1.378	4.528	0.354	3	

AR: -6°, RR -39°~ -16°

Parts

Designation	Insert	Screw			Wrench		
							
LNMX 100605PNR-M	LNEX	FTKA0307	148210	**$ 13.75**	TW09S	148191	**$ 40.80**

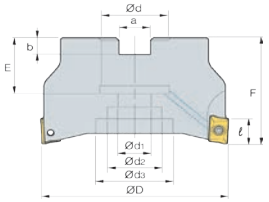
➤ P. E94-95

APFM 06 - 90° Face Mills



Coolant through

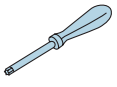
Features:
- Lower cutting resistance
- Better chip control
- Longer tool life



Designation		Code No.	Price $	ØD	Ød	Ød1	Ød2	a	b	E	F	ℓ	No. of Inserts
APFM 06-90	1150HS	145582	**662.54**	1.50	0.500	0.287	0.433	0.252	0.169	0.630	1.500	0.220	10
	1200HS	145583	**782.05**	2.00	0.750	0.433	0.630	0.321	0.220	0.787	1.750	0.220	12
	1250HS	145584	**1,000.38**	2.50	0.750	0.433	0.630	0.321	0.220	0.787	1.750	0.220	14

*AA:0°, AR:9°-13°, RR:-14 ~ 5°

Parts

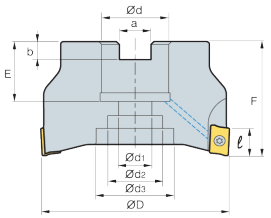
Designation	Insert	Screw			Wrench		
							
APFM 06 90°	APMT 0602 PDSR-M	FTKA 01842	148717	**$ 13.36**	TW 06S-A	147186	**$ 40.84**

➤ P. E93

APFM 11M/16M - 90° Face Mills



Coolant through

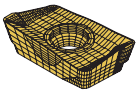
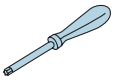


(inch)

Designation		Code No.	Price $	ØD	Ød	Ød1	Ød2	Ød3	a	b	E	F	ℓ	No. of Inserts	Insert
APFM 11M-90	2150	148416	**578.90**	1.500	0.500	0.287	0.433	-	0.252	0.169	0.630	1.500	0.433	5	
	2200	148434	**683.32**	2.000	0.750	0.433	0.630	-	0.321	0.220	0.787	1.750	0.433	6	
	2250	148445	**874.10**	2.500	1.000	0.433	0.630	-	0.321	0.220	0.787	1.750	0.433	8	APMT 11T3
	2300	148446	**959.17**	3.000	1.000	0.551	1.260	1.378	0.384	0.248	0.866	2.000	0.433	10	
	2400	148469	**1,192.99**	4.000	1.250	0.709	1.024	1.575	0.510	0.319	0.866	2.000	0.433	12	
APFM 16M-90	3150	148510	**578.90**	1.500	0.500	0.287	0.433	-	0.250	0.169	0.630	1.500	0.630	4	
	3200	148513	**681.37**	2.000	0.750	0.413	0.630	-	0.313	0.220	0.787	1.750	0.630	5	
	3250	148514	**803.36**	2.500	1.000	0.551	0.827	-	0.375	0.248	0.787	1.750	0.630	6	APMT 1604
	3300	148517	**926.54**	3.000	1.000	0.551	0.827	-	0.375	0.248	0.866	2.000	0.630	7	
	3400	148518	**1,070.15**	4.000	1.250	-	1.722	-	0.500	0.319	0.866	2.000	0.630	8	

APFM 11M: AA:0°, AR:9°~13°, RR:-14°~5°
APFM 16M: AA:0°, AR:14°, RR:-12°~8°

Parts

Designation	Insert	Screw			Wrench		
							
APFM 11M 90°	APMT 11T3	FTKA 02565S	146595	**$ 13.75**	TW 08S	146728	**$ 40.80**
APFM 16M 90°	APMT 1604	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

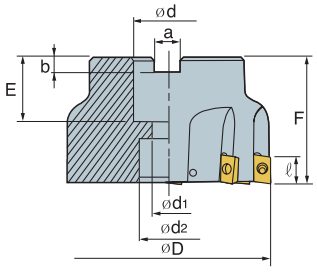
Images are representational only and may not reflect actual product.

APFM 11/16 - 90° Face Mill



Kits Also Available

➤ P. E163

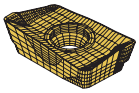
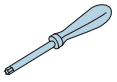


(inch)

Designation		Code No.	Price $	ØD	Ød	Ød1	Ød2	a	b	E	F	ℓ	No. of Inserts
APFM 11-90	2.00	147138	310.06	2.000	0.750	0.413	0.630	0.321	0.220	0.787	1.750	0.433	5
	2.50	148249	361.39	2.500	1.000	0.551	0.827	0.384	0.248	0.787	1.750	0.433	8
	3.00	148250	452.94	3.000	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.433	8
APFM 16-90	2.00C	147009	310.06	2.000	0.750	0.413	0.630	0.321	0.220	0.787	1.750	0.630	4
	2.00	147117	361.39	2.000	0.750	0.413	0.630	0.321	0.220	0.787	1.750	0.630	5
	2.50C	147011	403.46	2.500	1.000	0.551	0.827	0.384	0.248	0.787	1.750	0.630	5
	2.50	147118	403.46	2.500	1.000	0.551	0.827	0.384	0.248	0.787	1.750	0.630	6
	3.00C	147013	464.81	3.000	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.630	5
	3.00	147119	464.81	3.000	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.630	7
	4.00C	147000	564.88	4.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	6
	4.00	147120	564.88	4.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	8
	5.00C	147015	629.51	5.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	6
	5.00	147121	1,517.00	5.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	9
	6.00C	147017	2,047.93	6.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	7
	6.00	147122	2,025.62	6.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	9

*AA:0°, AR:9°, RR:-10 ~ -5° **C = Coarse Pitch**

Parts

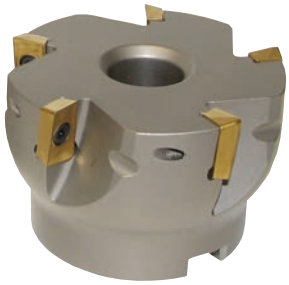
Designation	Insert	Screw			Wrench		
							
APFM 11 90°	APXT 11T3~	FTKA 02565S	146595	$ 13.75	TW 08S	146728	$ 40.80
APFM 16 90°	APKT 1604~	FTKA 0410	146969	$ 11.07	TW 15S	146801	$ 40.80

➤ P. E94

Recommended Cutting Condition

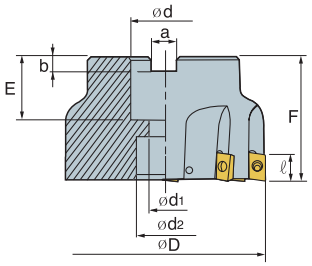
Workpiece	Cutting Condition		Grade
	V(sfm)	f(ipt)	
P	490~980	0.003~0.010	Coated (PM10, 20, 30C, PM30P) Uncoated (PM20U)
M	320~480	0.003~0.008	Coated (MM30P)
K	Alum 500~1000	0.003~0.012	Coated (KM20C) Uncoated (KTM10U)

APFM 16 - 90° Face Mill H13 Hardened Bodies 48HRC



H13 HARDENED CUTTER BODIES 48HRC

Features:
- Longer insert life
- Longer body life
- Higher rigidity
- Better feed rates

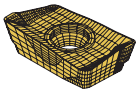
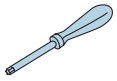


(inch)

Designation		Code No.	Price $	ØD	Ød	Ød1	Ød2	a	b	E	F	ℓ	No. of Inserts
APFM 16-90	2.00C	148809	**309.49**	2.000	0.750	0.413	0.630	0.321	0.220	0.787	1.750	0.630	4
	2.00	148805	**309.49**	2.000	0.750	0.413	0.630	0.321	0.220	0.787	1.750	0.630	5
	3.00C	148804	**465.17**	3.000	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.630	5
	3.00	148806	**465.17**	3.000	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.630	7
	4.00C	148808	**580.82**	4.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	6
	4.00	148810	**580.82**	4.000	1.500	-	2.205	0.636	0.394	1.181	2.500	0.630	8

*AA:0°, AR:9°, RR:-10 ~ -5° **C = Coarse Pitch**

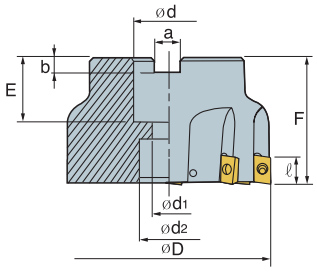
Parts

Designation	Insert	Screw			Wrench		
							
APFM 16 90°	APKT 1604~	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E93

AP(D)FM 10/15 90° Face Mill



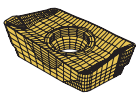
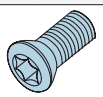
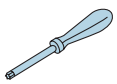


(inch)

Designation		Code No.	Price $	ØD	Ød	Ød1	Ød2	a	b	E	F	ℓ	No. of Inserts	Insert
APFM 10-90	2.00	147842	**310.06**	2.000	0.750	0.413	0.630	0.321	0.220	0.787	1.750	0.394	5	
	2.50	147843	**361.39**	2.500	1.000	0.551	0.827	0.384	0.248	0.787	1.750	0.394	8	AP_T 1003
	3.00	147844	**464.81**	3.000	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.394	8	
ADFM 15-90	2.00	147849	**310.06**	2.000	0.750	0.413	0.630	0.321	0.220	0.787	1.750	0.591	5	
	2.50	147850	**361.39**	2.500	1.000	0.551	0.827	0.384	0.248	0.787	1.750	0.591	6	ADKT 1505
	3.00	147851	**464.81**	3.000	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.591	7	
	4.00	147852	**583.23**	4.000	1.250	-	2.205	0.636	0.394	1.181	2.000	0.591	8	

*AA:0°, AR:9°, RR:-10 ~ -5°

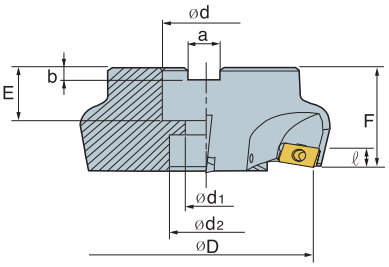
Parts

Designation	Insert	Screw			Wrench		
							
APFM 10 90° 1003	APKT / APXT 1003	FTKA 02565S	146595	**$ 13.75**	TW 08S	146728	**$ 40.80**
ADFM 15 90° 1505	ADKT 1505	FTKA 0410	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E92

APFM 11/16 - 15° Face Mill

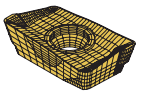
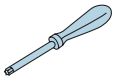




(inch)

Designation	Code No.	Price $	ØD	Ød	Ød1	Ød2	a	b	E	F	ℓ	No. of Inserts
APFM 11-15 2.50	147123	361.39	2.50	1.000	0.551	0.827	0.384	0.248	0.787	1.750	0.157	6
APFM 16-15 3.00	147124	464.81	3.00	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.236	5
4.00	147371	583.23	4.00	1.500	-	2.205	0.636	0.394	1.181	2.000	0.236	6
5.00	147372	752.99	5.00	1.500	-	2.205	0.636	0.394	1.181	2.500	0.236	6

Parts

Designation	Insert	Screw			Wrench		
							
APFM 11 15°	APXT 11T3~	FTKA 02565S	146595	$ 13.75	TW 08S	146728	$ 40.80
APFM 16 15°	APKT 1604~	FTKA 0410	146969	$ 11.07	TW 15S	146801	$ 40.80

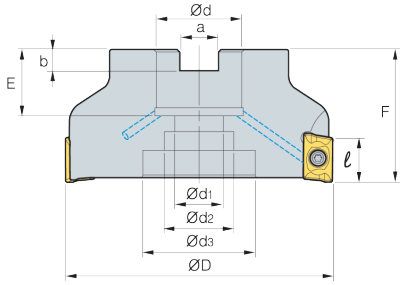
➤ P. E94

APFM 18 - 90° Face Mill



Coolant through

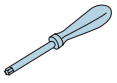
Features:
- Lower cutting resistance
- Better chip control
- Longer tool life



(inch)

Designation	Code No.	Price $	ØD	Ød	Ød1	Ød2	a	b	E	F	ℓ	No. of Inserts
APFM 18-90 4200HS	145586	715.46	2.00	0.750	0.433	0.630	0.321	0.220	0.827	1.750	0.669	5
APFM 18-90 4250HS	145587	843.55	2.50	0.750	0.433	0.630	0.321	0.220	0.827	1.750	0.669	6
APFM 18-90 4300HS	145588	972.87	3.00	1.000	0.551	0.827	0.384	0.248	0.866	2.000	0.669	7
APFM 18-90 4500HS	145591	1,224.32	5.00	1.500	0.827	1.142	0.636	0.394	1.181	2.000	0.669	9

Parts

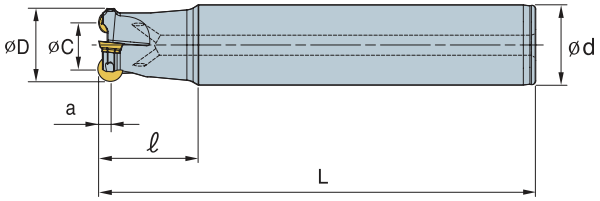
Designation	Insert	Screw			Wrench		
							
AP 18 90°	APMT 1806 PDSR-M	FTKA 0410	146969	$ 11.07	TW 15S	146801	$ 40.80

➤ P. E93

Button End Mill



Coolant through



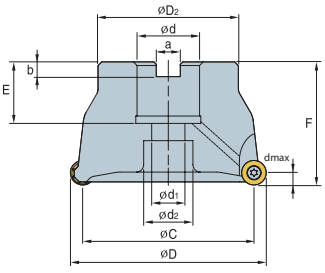
(inch)

Designation	Code No.	Price $	ØD	Ød	ØC	ℓ	L	a	No. of Inserts	Insert
BMSS 3075HRD-M	147028	**162.66**	0.750	0.750	0.358	1.575	5.906	0.197	1	RDKT 10T3M0
BMSS 3100HRD-M	147030	**394.99**	1.000	1.000	0.606	2.756	7.874	0.197	2	
BMSS 3125HRD-M	147032	**482.70**	1.250	1.250	0.858	2.756	7.874	0.197	3	
BMSS 3150HRD-M	147034	**614.33**	1.500	1.250	1.106	2.756	7.874	0.197	4	
BMSS 4125HRD-M	147036	**394.99**	1.250	1.250	0.780	2.756	7.874	0.236	2	RDKT 1204M0
BMSS 4150HRD-M	147038	**491.64**	1.500	1.250	1.028	2.756	7.874	0.236	3	
BMSS 4200HRD-M	147040	**614.33**	2.000	1.500	1.528	1.969	9.843	0.236	4	

Button Face Mill



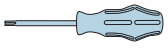
Coolant through



(inch)

Designation	Code No.	Price $	ØD	Ød	ØC	Ød1	Ød2	a	b	E	F	No. of Inserts	d max	Insert
BMSC 3200HRD	147048	**435.27**	2.0	0.75	1.61	0.433	0.630	0.313	0.220	0.787	1.75	4	0.196	RDKT 10T3
BMSC 3200HRD-H	147052	**482.66**	2.0	0.75	1.61	0.433	0.630	0.313	0.220	0.787	1.75	5	0.196	
BMSC 3300HRD-H	147058	**643.62**	3.0	1.00	2.61	0.551	0.827	0.375	0.248	0.866	2.00	7	0.196	
BMSC 4200HRD	149007	**488.45**	2.0	0.75	1.53	0.433	0.630	0.313	0.220	0.787	1.75	4	0.236	RDKT 1204
BMSC 4300HRD-M	147064	**752.34**	3.0	1.00	2.53	0.551	0.827	0.375	0.248	0.866	2.00	6	0.236	
BMSC 4400HRD-M	147066	**884.94**	4.0	1.25	3.53	0.709	1.024	0.500	0.319	0.827	2.00	7	0.236	
BMSC 4500HRD-M	147068	**1,045.84**	5.0	1.50	4.53	0.827	1.220	0.626	0.394	1.063	2.50	8	0.236	

Inserts / Parts

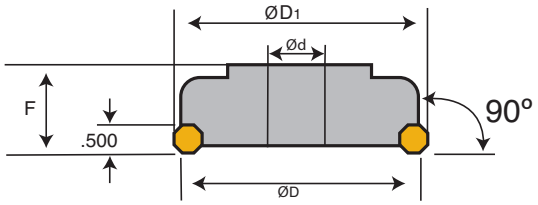
Designation	Available Insert	Screw			Wrench		
							
BMSS/C 3000 Series	RDKT 10T3M0	FTGA 03508	146931	**$ 12.73**	TW 15S	146801	**$ 40.80**
BMSS/C 4000 Series	RDKT 1204M0	FTKA 0410	146969	**$ 11.07**			

➤ P. E98

OKT-MAX - 45° Face Mill



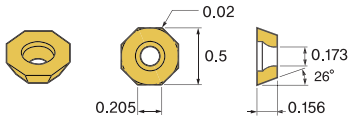
Kits Also Available
➤ P. E166



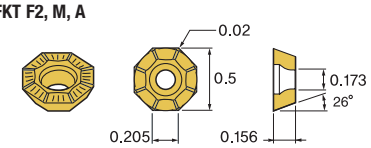
Designation		Code No.	Price $	ØD	Ød	Ød1	F	No. of Inserts
OKT-Max	2"R	147019	**625.93**	2.0	0.750	2.319	1.57	4
	3"R	147021	**864.71**	3.0	1.000	3.315	2.00	6
	4"R	147023	**987.05**	4.0	1.500	4.315	2.00	7
	5"R	147025	**1,227.75**	5.0	1.500	5.307	2.00	8
	6"R	147027	**1,570.56**	6.0	1.500	6.307	2.00	9

Available Inserts

OFCW



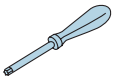
OFKT F2, M, A



Designation	
OFCW	05T3SN
	05T3FN
	05T308FN
OFKT	05T3SN-F2
	05T308SN-F2
	05T3SN-M
	05T308SN-M
	05T3FN-A
	05T3EN-A

➤ P. E96,97

Parts

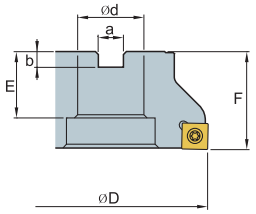
					
FTKA0408	146968	**$ 11.07**	TW15S	146801	**$ 40.80**

Recommended Cutting Condition

Workpiece	Cutting Condition		Grade
	V(sfm)	f(ipt)	
P	490~980	0.003~0.010	Coated (PM10, 20, 30C, PM30P) Uncoated (PM20U)
M	320~480	0.003~0.008	Coated (MM30P)
K	Alum 500~1000	0.003~0.012	Coated (KM20C) Uncoated (KTM10U)

Max Mill 90° Face Mill



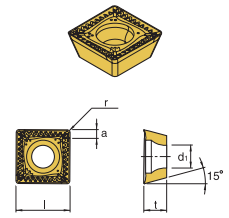


Ø3.937 ~Ø6.299

(inch)

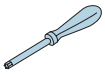
Designation		Code No.	Price $	ØD	Ød	Ød1	a	b	E	F	No. of Inserts	Insert
MM 90°	4250FM	146805	**633.76**	2.500	1.000	0.551	0.370	0.248	0.787	1.575	4	
	4300FM	146806	**760.81**	3.000	1.000	0.551	0.384	0.248	0.866	1.969	5	
	4400FM	146807	**809.30**	4.000	1.250	-	0.510	0.319	0.866	1.969	6	SDXT1305
	4500FM	146808	**1,078.84**	5.000	1.500	-	0.636	0.394	1.181	2.480	8	
	4600FM	146809	**2,567.55**	6.000	2.000	-	0.758	0.433	1.181	2.480	8	

Available Insert

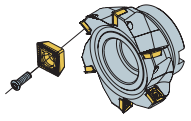
SDXT	Designation
	SDXT130508R- F2 M A

➤ P. E98

Parts

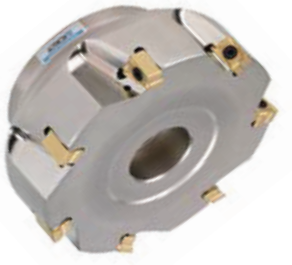
Screw			Wrench		
					
FTNC 04511	146424	**$ 7.53**	TW20S	147216	**$ 40.80**

Assembling

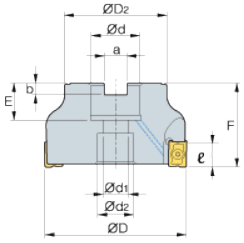


See pages E124 through E126 for Cutting Conditions

DS4 Face Mill



Coolant through

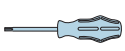


*AR:-6°, RR:-19° ~ 13°

(inch)

Designation		Code No.	Price $	ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	No. of Inserts	ℓ	Insert
DS4	3200HR	148373	**1,029.98**	2.00	1.772	0.75	0.413	0.630	0.313	0.220	0.787	1.75	7	0.354	LNMX100605PNR
	3400HR	148391	**1,975.53**	4.00	2.874	1.25	0.709	1.024	0.500	0.319	0.866	2.00	12	0.354	
	4250HR-M	148876	**1,200.19**	2.50	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	6	0.551	LNMX151008PNR
	4300HR	148877	**1,265.28**	3.00	2.205	1.00	0.551	0.827	0.375	0.248	0.866	2.00	5	0.551	

Inserts / Parts

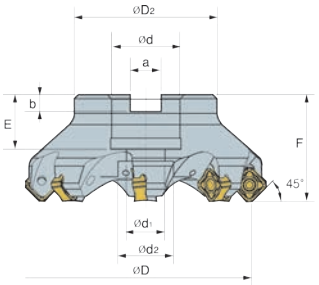
Designation	Available Insert	Screw			Wrench		
							
LNMX100605PNR-F2	LNMX	FTKA 0307	148210	**$ 13.75**	TW09S	148191	**$ 40.80**
LNMX151008PNR-M		FTKA 0421B	146969	**$ 11.07**	TW 15S	146801	**$ 40.80**

➤ P. E94-95

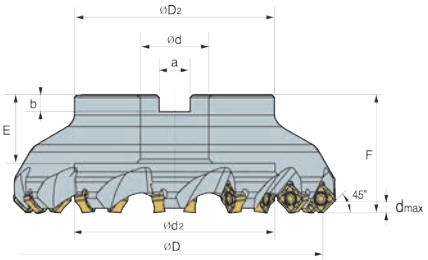
DS8 45° Face Mill



Coolant through



2" - 5" (coolant hole)



6" - 8" (no coolant hole)

Features:

- Innovative double-sided, high rake angle insert makes it possible to use 8 cutting edges
- Low cutting load due to the positive setting and high rake angle chip breaker
- Designed wiper technology in minor cutting edge provides excellent surface finish
- Smooth and stable chip control

Kits Also Available

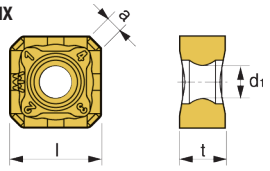
➤ P. E164

(inch)

Designation		Code No.	Price $	ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	No. of Inserts	d max
DS8-45	4200HR-M	148979	**778.78**	2.00	1.772	0.750	0.413	0.630	0.313	0.220	0.787	1.75	4	0.236
	4250HR-M	148980	**974.47**	2.50	2.205	1.00	0.551	0.827	0.375	0.248	0.866	1.75	6	0.236
	4300HR	148885	**1,072.98**	3.00									5	
	4300HR-M	148886	**1,190.99**	3.00	2.205	1.00	0.551	0.827	0.384	0.248	0.866	2.00	7	0.236
	4300HR-H	148887	**1,607.82**	3.00									10	
	4400HR	148888	**1,270.60**	4.00									6	
	4400HR-M	-	**-**	4.00	2.874	1.25	0.709	1.024	0.510	0.319	0.866	2.00	8	0.236
	4400HR-H	148890	**1,904.02**	4.00									12	
	4500HR	148891	**1,738.27**	5.00									8	
	4500HR-M	148892	**1,877.32**	5.00	3.386	1.50	0.827	1.220	0.636	0.394	1.181	2.50	10	0.236
	4500HR-H	148893	**2,534.46**	5.00									16	
	4600HR	148894	**2,019.16**	6.00									10	
	4600HR-M	148895	**2,019.16**	6.00	4.882	2.00	-	4.213	0.758	0.433	1.181	2.50	12	0.236
	4600HR-H	148896	**3,189.24**	6.00									18	
	4800HR-M	148897	**3,100.81**	8.00	5.118	2.50	-	5.315	1.012	0.551	1.496	2.50	14	0.236
	4800HR-H	148898	**4,186.15**	8.00									24	

Available Insert

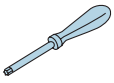
SNEX / SNMX



Designation
SNEX 1206ANN-A
SNEX 1206ANN-F2
SNEX 1206ANN-M
SNEX 1206ANN-W
SNMX 1206ANN-M

➤ P. E100-101

Parts

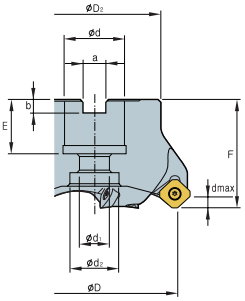
					
FTKA0410	146969	**$ 11.07**	TW15S	146801	**$ 40.80**

Max Mill 45° Face Mill

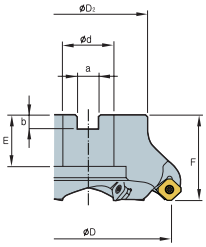


Kits Also Available

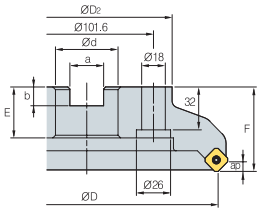
➤ P. E166



Ø2.000 ~ Ø2.500



Ø3.000 ~ Ø6.000



Ø8.000

(inch)

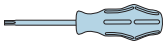
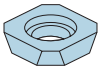
Designation		Code No.	Price $	ØD	Ød	ØD2	Ød1	Ød2	a	b	E	F	No. of Inserts	d max	Insert
MM 45°	Coarse Pitch														
	4200FM	147811	**406.89**	2.000	0.750	1.654	0.413	0.630	0.321	0.220	0.787	1.750	3		
	4250FM	147812	**522.27**	2.500	0.750	1.654	0.413	0.630	0.321	0.220	0.787	1.750	4		
	4300FM	147813	**781.73**	3.000	1.000	1.969	0.551	0.827	0.384	0.248	0.866	2.000	5		
	4400FM	147814	**962.53**	4.000	1.250	2.362	-	1.772	0.510	0.319	0.866	2.000	5		
	4500FM	147815	**1,186.72**	5.000	1.500	3.425	-	2.205	0.636	0.394	1.181	2.500	6		
	4600FM	147816	**1,365.21**	6.000	2.000	3.937	-	2.953	0.758	0.433	1.181	2.500	7		
	4800FM	147817	**1,783.13**	8.000	2.500	5.197	-	-	1.012	0.551	1.496	2.500	8		
	Medium Pitch														
	4300M	148276	**859.89**	3.000	1.000	2.244	0.551	0.8271	0.384	0.248	0.866	2.000	6	0.256	SE__ 14M4
	4400M	148277	**1,058.83**	4.000	1.250	2.638	-	1.772	0.510	0.315	0.866	2.000	7		
	4500M	148278	**1,305.35**	5.000	1.500	3.425	-	2.205	0.636	0.394	1.181	2.500	8		
	4600M	148279	**1,501.73**	6.000	2.000	4.213	-	2.953	0.758	0.433	1.181	2.500	10		
	4800M	148280	**1,963.37**	8.000	2.500	5.118	-	-	1.012	0.551	1.496	2.500	12		
	Fine Pitch														
	4300H	148281	**1,070.96**	3.000	1.000	2.244	0.551	0.827	0.384	0.248	0.866	2.000	8		
	4400H	148282	**1,323.55**	4.000	1.250	2.638	-	1.772	0.510	0.315	0.866	2.000	10		
	4500H	148283	**1,631.72**	5.000	1.500	3.425	-	2.205	0.636	0.394	1.181	2.500	12		
	4600H	148284	**1,877.16**	6.000	2.000	4.213	-	2.953	0.758	0.433	1.181	2.500	16		
	4800H	148285	**2,454.27**	8.000	2.500	5.118	-	-	1.012	0.551	1.496	2.500	18		

Available Insert

SEET / SEXT	Designation
	**SEET14M4AGFN-A**
	SEET14M4AGSN-F2
	SEET14M4AGSN-M
	SEXT14M4AGSN-FN
	SEXT14M4AGSN-M
	SEXT14M4AGSN-R8

➤ P. E199-100

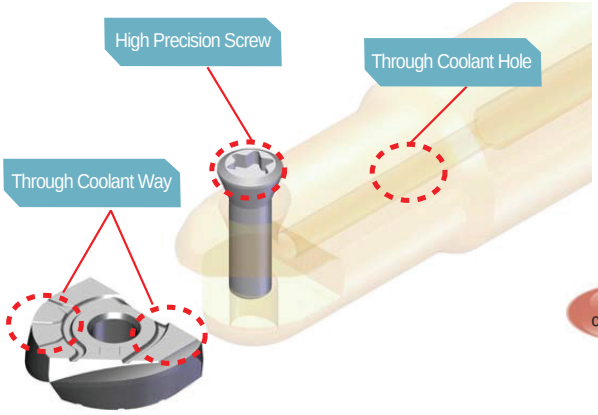
Parts

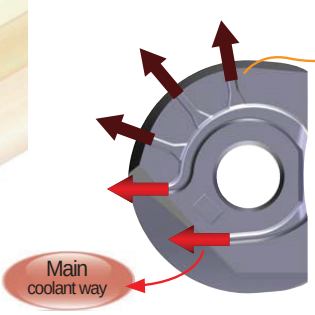
Screw			Wrench			Wrench for Shim			Shim Screw			Shim		
														
FTGA03512	146933	**$ 12.73**	TW15S	146801	**$ 40.80**	HW35L	148192	**$ 3.51**	SHXN0509F	146935	**$ 19.49**	SS42SAF	148193	**$ 12.85**

See pages E124 through E126 for Cutting Conditions

Jet Mill Technical Information







- **High tolerance insert**
  - Run-out of cutting edge : under 0.00079inch
  - Radius form accuracy : under 0.00039inch
- **Through coolant system**

JMBE



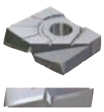
- Four types of inserts are available with one holder
- Single screw for clamping
  : Simple clamping system
- MQL system - Suitable for longer tool life & improving surface quality



Ball
- Helical cutting edge
- Suitable for harder material with high feed
- **JMBH : Ball type**



Ball
- Straight cutting edge
- Suitable for precise carving
- **JMBS : Ball type**



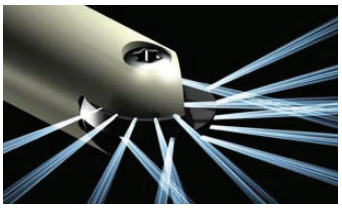
High Feed
- Helical cutting edge
- Suitable for high feed
- **JMFH : High Feed**



Chamfer
- Straight cutting edge
- Center drilling and chamfering
- **JMCF : Chamfer**

Advantages of MQL system

(Minimum quantity lubricant)



- **Environmental friendly system**
- **Decreased coolant cost**
- **Lubrication of cutting edge**
- **Improved chip control**
  (Injection of coolant directly to the cutting edge)
- **Increased tool life & improved surface quality**

JMBE Jet Mill Cutting Conditions

Workpiece	Hardness (HRC)	vc (stm)	fz (ipt)	ap (inch)	ae (inch
Carbon & Alloy Steel	Under 30	350 ~ 800	0.008 ~ 0.01	0.0028D	0.0028D
Carbon & Alloy Steel	30 ~ 40	250 ~ 500	0.004 ~ 0.01	0.0028D	0.0028D
Die Tool Steel, Pre-hardened Steel	30 ~ 40	250 ~ 500	0.004 ~ 0.008	0.002D	0.002D
GC, GCD	-	350 ~ 650	0.01 ~ 0.015	0.0028D	0.0028D
Hardened Steel	50 ~ 60	350 ~ 500	0.004 ~ 0.01	0.0012D	0.0012D
Stainless Steel	-	250 ~ 500	0.004 ~ 0.01	0.002D	0.002D
Aluminum Alloy	-	650 ~ 1000	0.006 ~ 0.020	0.006D	0.006D

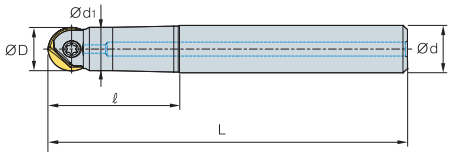
Jet Mill



Coolant through

Features:

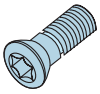
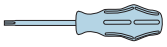
- High accuracy indexable end mill for mold finishing
- Optimum machining of mold has been achieved due to the MQL system
- Easy clamping with simple screw on system



(inch)

Designation	Code No.	Price $	ØD	Ød	ℓ	L	d1	Clamp Screw	Wrench	Insert Size ø
JMBE031138T-S050	148777	**429.34**	5/16	1/2	1.378	3.583	0.283	ETND02506F	TWP07S	5/16
JMBE031217T-S050	147430	**444.82**	5/16	1/2	2.165	4.370	0.283	ETND02506F	TWP07S	5/16
JMBE031295T-S050	147431	**460.36**	5/16	1/2	2.953	5.157	0.283	ETND02506F	TWP07S	5/16
JMBE037138T-S050	147883	**429.34**	3/8	1/2	1.378	3.583	0.335	ETND0307F	TWP08S	3/8
JMBE037217T-S050	147442	**444.82**	3/8	1/2	2.165	4.370	0.335	ETND0307F	TWP08S	3/8
JMBE050217T-S050	147637	**444.82**	1/2	1/2	2.165	4.370	0.433	ETND03509	TWP10S	1/2
JMBE062256T-S062	147638	**475.90**	5/8	5/8	2.559	4.921	0.571	ETND0413	TWP15S	5/8
JMBE062394T-S075	147663	**526.58**	5/8	3/4	3.937	6.693	0.571	ETND0413	TWP15S	5/8
JMBE075453T-S100	147664	**684.88**	3/4	1	4.528	7.677	0.689	ETKD0516	TWP20	3/4
JMBE100354T-S100	147722	**674.51**	1	1	3.543	6.693	0.906	ETKD0620	TWP25	1
JMBE100532T-S125	147723	**731.43**	1	1-1/4	5.315	8.858	0.906	ETKD0620	TWP25	1
JMBE125413T-S125	147776	**698.35**	1-1/4	1-1/4	4.134	7.677	1.142	ETGD0825	TWP40	1-1/4
JMBE125630T-S125	147777	**764.48**	1-1/4	1-1/4	6.299	9.843	1.142	ETGD0825	TWP40	1-1/4

Parts

Clamp Screw							
	ETND02506F	ETND0307F	ETND03509	ETND0413	ETKD0516	ETKD0620	ETGD0825
	147332	147334	147378	147385	147392	147395	147421
	$ 15.57	**$ 15.57**	**$ 13.56**	**$ 15.57**	**$ 18.04**	**$ 18.03**	**$ 18.04**
Wrench							
	TWP07S	TWP08S	TWP10S	TWP15S	TWP20	TWP25	TWP40
	147224	147246	147249	147295	147318	147321	147330
	$ 40.84	**$ 40.84**	**$ 40.84**	**$ 40.84**	**$ 22.29**	**26.89**	**$ 32.31**

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Images are representational only and may not reflect actual product.

Mold Mill



Kits Also Available
➤ P. E167

Figure 1

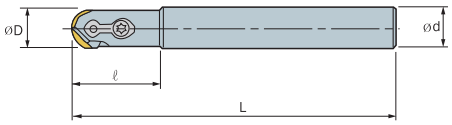
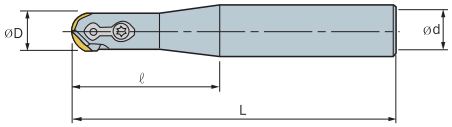


Figure 2

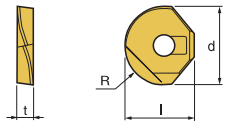


(inch)

Designation		Code No.	Price $	Figure	ØD	Ød	ℓ	L	Available Insert	Parts				
										Screw	Clamp	Clamp Screw	C-Ring	Wrench
MM	5/8"-S	148094	**704.33**	1	0.625	0.625	1.417	5.51	RC 5/8	FTGA0513	CBH4.5R1	CTX04513	ER03	TW20
	5/8"-M	147853	**736.28**	2	0.625	0.625	2.559	6.69						
	5/8"-L	148095	**775.45**	2	0.625	0.625	2.559	7.87						
	3/4"-S	148096	**754.12**	1	0.750	0.750	1.772	6.30	RC 3/4	FTGA0517	CBH4.5R2	CTX04513	ER03	TW20
	3/4"-M	147854	**797.39**	2	0.750	0.750	3.150	7.87						
	3/4"-L	148097	**840.91**	2	0.750	0.750	3.150	9.84						
	1"-S	148098	**811.94**	1	1.000	1.000	1.772	6.30	RC 1	FTGA0621	CBH5R1	CTX0517	ER04	TW20
	1"-M	147855	**870.83**	2	1.000	1.000	3.543	8.27						
	1"-L	148099	**952.57**	2	1.000	1.000	3.543	11.81						
	1-1/8"-S	148100	**841.59**	1	1.125	1.125	2.559	6.89	RC 1-1/8	FTGA0826	CBH6R1	CTX0621	ER05	TW25
	1-1/8"-M	147856	**1,200.98**	2	1.125	1.125	3.937	9.84						
	1-1/4"-S	148103	**871.10**	1	1.250	1.250	2.205	6.89	RC 1-1/4	FTGA0826	CBH6R1	CTX0621	ER05	TW25
	1-1/4"-M	147857	**950.30**	1	1.250	1.250	3.937	9.84						
	1-1/4"-L	148104	**1,040.77**	1	1.250	1.250	3.937	13.78						

Available Insert

RC



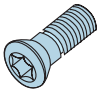
Designation
RC 5/8
RC 3/4
RC 1
RC 1-1/8
RC 1-1/4

➤ P. E97

Recommended Cutting Condition

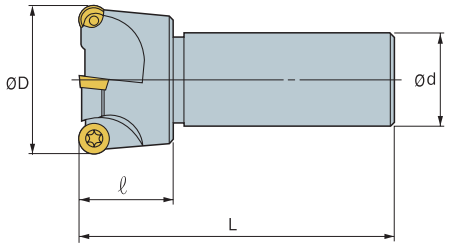
Workpiece	V(sfm)	f(ipt)
Steel HB over 180, Steel (SS41, SM25C)	600~1000	0.004~0.012
Alloy Steel HB under 300, Alloy Steel (SM55C, SCM)	400~800	0.004~0.008
Cast Iron HB under 300 Cast Iron	400~800	0.004~0.012

Parts

Screw		Clamp		Clamp Screw		C-Ring		Wrench	
									
FTGA0513	FTGA0621	CBHR.5R1	CBH5R1	CTX04513	CTX0517	ER03	ER04	TW20	TW25
148194	148196	148198	148214	148217	148218	148220	148221	148291	148223
$ 12.23	**$ 15.53**	**$ 50.84**	**$ 50.84**	**$ 13.04**	**$ 12.23**	**$ 2.17**	**$ 2.17**	**$ 19.78**	**$ 23.84**
FTGA0517	FTGA0826	CBH4.5R2	CBH6R1		CTX0621		ER05		
148195	148197	148213	148215	-	148219	-	148222	-	-
$ 12.10	**$ 13.04**	**$ 50.84**	**$ 50.84**		**$ 15.36**		**$ 2.17**		

Mold Max

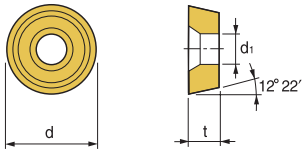




(inch)

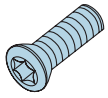
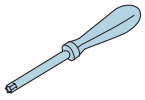
Designation		Code No.	Price $	ØD	Ød	ℓ	L	No. of Inserts	Maximum Depth of Cut	Approach Angle	Axial Rake Angle	Radial Rake Angle
MMEM	4125R	147830	**215.54**	1.250	1.250	1.575	4.724	2	0.197		6°	-3°
	4150R	147831	**269.28**	1.500				3				
	4200R	147832	**323.02**	2.000				4				

Available Insert

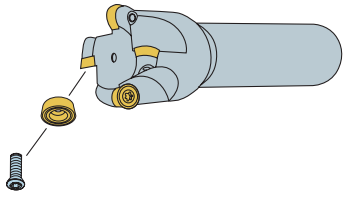
RPMM	Designation
	**RPMM 120400**

➤ P. E98

Parts

Screw			Wrench		
					
FTNC 04511	146424	**$ 7.53**	TW20S	147216	**$ 40.80**

Assembling



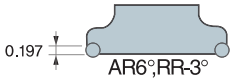
Recommended Cutting Condition

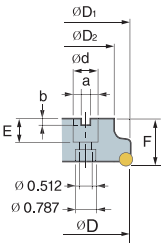
Workpiece	Cutting Condition		Grade
	V(sfm)	f(ipt)	
P	490~980 230~590	0.003~0.012	Coated (PM25C, PM30P) Uncoated (PM20U)
M			
K			

M & K Class grades available, none are stock standard

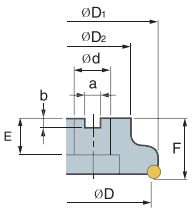
Mold Max Face Mill







Ø3.150



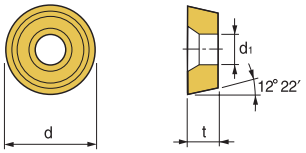
Ø3.937 ~ Ø6.299

(inch)

Designation		Code No. R	Price $	Code No. L	Price $	ØD	Ød	ØD1	ØD2	a	b	E	F	No. of Inserts
MMFM	4050R/L	146997	**329.71**			1.969(50)	0.750	-	1.750	0.321	0.220	0.750	1.620	4
	4080R/L	146125	**527.07**			3.150(80)	1.000	3.646	2.126	0.384	0.248	0.984	1.969	5
	4100R/L	146126	**677.75**			3.937(100)	1.250	4.433	2.756	0.500	0.315	1.260	1.969	6
	4125R/L	148259	**745.11**			4.921(125)	1.500	5.417	2.953	0.626	0.394	1.496	2.480	7
	4160R/L	148260	**965.53**			6.299(160)	2.000	6.795	3.937	0.748	0.433	1.496	2.480	8

Available Insert

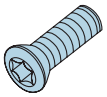
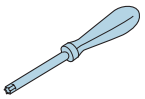
RPMM



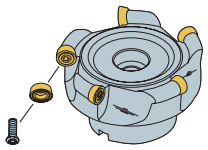
Designation
RPMM 120400

➤ P. E98

Parts

Screw			Wrench		
					
FTNC 04511	146424	**$ 7.53**	TW20S	147216	**$ 40.80**

Assembling



45° Chamfer Mill



Kits Also Available

➤ P. E167

Designation	Chamfer Range	Code No.	Price $	Shank	No. of Inserts	Insert
CT 45 - 0.625	0.125" - 0.625" 45°	147113	**364.33**	3/4	1	TC_T 21.5_
CT 45 - 1.125	0.470" - 1.125" 45°	147112	**205.07**	3/4	2	TC_T 32.5_

➤ P. E22-24

Parts

Screw			Wrench		
					
FTKA02565	146930	**$ 13.75**	TW08P	146596	**$ 14.22**
*FTGA03510	146957	**$ 11.87**	*TW15P	146940	**$ 14.94**

Recommended Cutting Condition

Workpiece	Cutting Condition V(sfm)	Cutting Condition f(ipt)	Grade
P	490~980 230~590	0.003~0.012	Coated (PM25C, PM30P) Uncoated (PM20U)
M			
K			

M & K Class grades available, none are stock standard

Multi-functional 45° Chamfer Tool



Uses
- Centering
- Grooving
- Chamfering

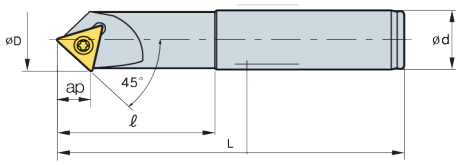


Fig. 1

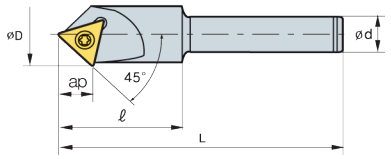


Fig. 2

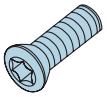
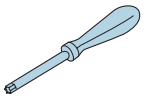
*AR: -12~15° (inch)

Designation	Code No.	Price $	ØD	Ød	ℓ	L	ap	Fig.	Insert
CTP45 1600R-S050	147543	**226.92**	0.87	0.50	1.6	3.5	0.4	2	TWX16R-KC
CTP45 1600R-S075	147548	**178.19**	0.87	0.75	2.0	4.5	0.4	1	
CTP45 1600R-L075	147552	**186.29**	0.87	0.75	2.4	8.0	0.4	1	
CTP45 2200R-S050	147930	**259.38**	1.14	0.50	1.6	3.5	0.6	2	TWX22R-KC
CTP45 2200R-S100	147931	**198.50**	1.14	1.00	2.0	4.5	0.6	1	
CTP45 2200R-L100	147932	**218.79**	1.14	1.00	2.4	8.0	0.6	1	

Available Insert

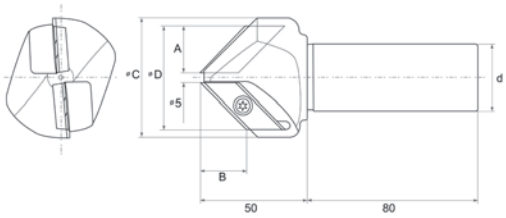
TWX	Designation
	**TWX16R-KC** **TWX22R-KC**

Parts

Screw			Wrench		
					
FTNA0408	146948	**$ 8.51**	TW15L	148225	**$ 3.19**

Indexable Chamfer Tool

- Designed for large chamfers and countersinking
- 1" shank

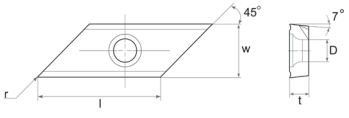


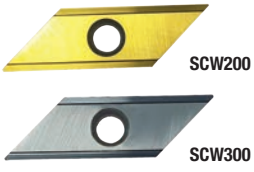


Model No.	Angle	Dia. Range (mm)	A (mm)	B (mm)	ØC (mm)	ØD (mm)	d (mm)	Inserts	Code No.	Price $
CSC05031R-41-A	82°	6-42.9	19.0	21.8	56	42.9	25.4	2	149096	**484.00**
CSC05031R-45-A	90°	6-46.9	21.0	21.0	56	46.9	25.4	2	149097	**484.00**

Insert

SCW200 - TiN coated carbide grade for heavier duty applications
SCW300 - TiAlN coated carbide for higher speed applications





SCW200

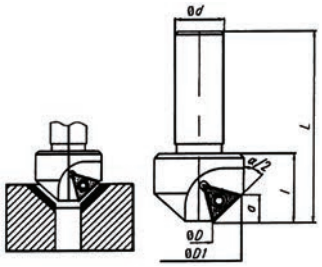
SCW300

Model No.	l (mm)	w (mm)	t (mm)	D (mm)	r (mm)	Code No.	Price $
XCET310404 ER SCW200	22.0	12.70	4.50	5.60	0.4	149094	**75.43**
XCET310404 ER SCW300	22.0	12.70	4.50	5.60	0.4	149095	**83.54**

Indexable Countersink End Mills

45°, 60°, 82° and 90°,
RH Cut with Weldon Shank





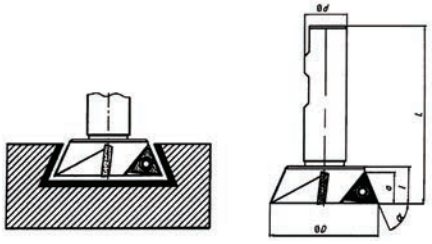
Cutter Body ØD Min.	Cutter Body ØD1 Max.	Shank Dia. Ød	a	l	L	Angle	No. of Inserts	Insert Style	Cutter Code No.	Locking Cutter Price $	Locking Screw Code No.	Torx Screw Price $	Torx Key Code No.	Key Price $
1/2	31/32	1/2	0.559	1	2-1/2	45°	1	TDGW-321	143768	**256.10**	143762	**1.83**	143752	**27.55**
3/4	1-15/64	3/4	0.559	1-1/4	3-1/2	45°	1	TDGW-321	-	-	143762	**1.83**	143752	**27.55**
1/4	21/32	3/8	0.335	1	2-1/4	60°	1	TDGW-21.51	-	-	143790	**34.94**	143792	**27.90**
1/2	1-1/8	1/2	0.524	1	2-1/2	60°	1	TDGW-321	-	-	143762	**1.83**	143752	**27.55**
3/4	1-3/8	3/4	0.524	1-1/4	3-1/2	60°	3	TDGW-321	143776	**461.40**	143762	**1.83**	143752	**27.55**
1/4	51/64	3/8	0.291	1	2-1/4	82°	1	TDGW-21.51	-	-	143790	**34.94**	143792	**27.90**
1/2	1-11/32	1/2	0.453	1	2-1/2	82°	1	TDGW-321	-	-	143762	**1.83**	143752	**27.55**
3/4	1-9/16	3/4	0.453	1-1/4	3-1/2	82°	3	TDGW-321	-	-	143762	**1.83**	143752	**27.55**
1/4	53/64	3/8	0.272	1	2-1/4	90°	1	TDGW-21.51	-	-	143790	**34.94**	143792	**27.90**
1/2	1-25/64	1/2	0.425	1	2-1/2	90°	1	TDGW-321	-	-	143762	**1.83**	143752	**27.55**
3/4	1-41/64	3/4	0.425	1-1/4	3-1/2	90°	3	TDGW-321	-	-	143762	**1.83**	143752	**27.55**

➤ P. E103

60° Indexable Dovetail Milling Cutter

RH Cut with Weldon Shank
Note: Cutters are furnished without inserts.





Cutting Dia. ØD	Shank Dia. Ød	Cutting Length a	l	Overall Length L	No. of Inserts	Insert Style	Cutter Code No.	Cutter Price $	Locking Screw Code No.	Locking Screw Price $	Torx Key Code No.	Torx Key Price $
1/2	3/8	0.325	0.142	2.300	1	TDGW-21.5	143794	**224.30**	143790	**34.94**	143792	**27.90**
3/4	3/8	0.325	0.202	2.390	2	TDGW-21.5	143796	**279.60**	143790	**34.94**	143792	**27.90**
1	1/2	0.325	0.375	2-5/8	3	TDGW-21.5	143798	**337.10**	143790	**34.94**	143792	**27.90**
1-3/8	5/8	0.510	0.550	2.862	3	TDGW-32	143800	**337.10**	143762	**1.83**	143752	**27.55**
1-7/8	7/8	0.510	0.550	3	3	TDGW-32	143802	**381.10**	143762	**1.83**	143752	**27.55**
2-1/4	1	0.700	0.750	3-1/2	3	TDGW-43	143804	**448.00**	-	-	143752	**27.55**

➤ P. E103

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

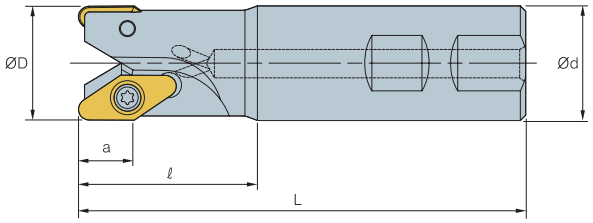
Images are representational only and may not reflect actual product.

Alumi Mill End Mill



Coolant through

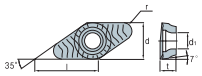
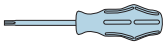
- High rake angle ensures excellent finish and reduces cutting resistance
- For shouldering, curved surface, and slanted shouldering
- Buffed mirror finish of inserts allows outstanding chip control and prevents edge build up



(inch)

Designation		Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	Insert
AME	2050HR	146887	**376.93**	0.500	0.625	0.315	0.984	3.346	1	VDKT 11T210N-MA
AME	4125HR	-	-	1.250	1.250	0.590	1.969	4.921	2	VCKT 43.57.5N-A
AME	4150HR	-	-	1.500	1.250	0.590	1.969	5.512	3	

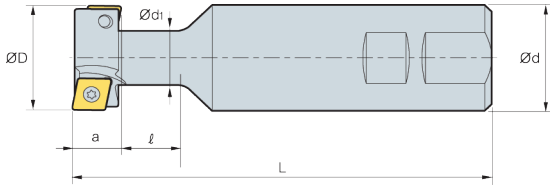
Inserts / Parts

Designation		Available Insert	Screw			Wrench		
								
AME	2050 & 2062	VDKT 11T210N-MA	ETNA 02505	147870	**$ 13.84**	TW07S	148209	**$ 40.80**
AME	2075 -2150		ETNA 02506	147596	**$ 13.84**			
AME	4000 type	VCKT 43.57.5N-A	FTNC 04509	146752	**$ 7.50**	TW20S	147216	**$ 40.80**

➤ P. E104

TSC



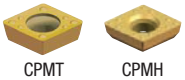
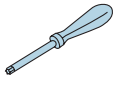


(inch)

Designation		Code No.	Price $	ØD	Ød	Ød1	a	ℓ	L	No. of Inserts	Insert
TSC	083100R	147892	**624.57**	0.83	1.00	0.41	0.35	0.79	4.25	2	CPMT060204-M
	098100R	147925	**654.65**	0.98	1.00	0.49	0.43	0.83	4.50	2	CPMT080308-M
	126125R	147973	**695.58**	1.26	1.25	0.65	0.55	1.02	5.00	2	CPMT09T308-M
	157125R	147982	**887.37**	1.57	1.25	0.81	0.71	1.26	5.25	2	
	197125R	147985	**1,176.22**	1.97	1.25	1.00	1.30	1.50	5.50	4	CPMH432-M

AA:0°, AR:5°, RR:-5°

Parts

Designation		Insert	Screw			Wrench		
		 CPMT CPMH						
CPMT	083100R	CPMT	FTNA02555	147769	**$ 8.69**	TW 08S	146728	**$ 40.80**
CPMT	098100R		FTNA0306	145548	**$ 8.69**	TW 09S	148191	**$ 40.80**
CPMT	126125R		FTNA0407	148006	**$ 10.71**	TW 15S	146801	**$ 40.80**
CPMT	157125R		PTMA0511A	147235	**$ 12.73**	TW 15S	146801	**$ 40.80**
CPMH	197125R	CPMH	PTMA0511A	147235	**$ 12.73**	TW 15S	146801	**$ 40.80**

➤ P. E94

Alumi Mill Face Mill

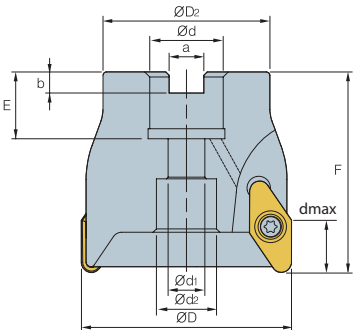


Coolant through

- High rake angle ensures excellent finish and reduces cutting resistance
- For shouldering, curved surface, and slanted shouldering
- Buffed mirror finish of inserts allows outstanding chip control and prevents edge build up

Kits Also Available

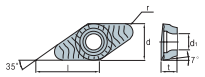
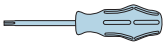
➤ P. E180



(inch)

Designation		Code No.	Price $	ØD	Ød	ØD2	a	b	E	F	dmax	No. of Inserts
AMFM	4150R	147833	**588.58**	1.500	0.500	1.417	0.252	0.169	0.630	2.165	0.59	3
	4200R	147424	**597.92**	2.000	0.750	1.772	0.321	0.220	0.787	2.165	0.59	3
	4250R	147834	**734.15**	2.500	0.750	1.970	0.321	0.220	0.787	2.362	0.59	4
	4300R	147470	**772.40**	3.000	1.000	2.205	0.384	0.248	0.866	2.362	0.59	4
	4400R	147471	**946.10**	4.000	1.250	2.874	0.510	0.319	1.260	2.362	0.59	5

Inserts / Parts

Designation		Available Insert	Screw				Wrench		
									
AMFM	4150 4200 - 4400	VCKT 43.57.5N-MA	*FTNC04509	146752	**$ 7.50**	FTNC04511	146424	**$ 7.53**	TW20S	147216	**$ 40.80**

➤ P. E104

* For 4150R

Recommended Cutting Condition

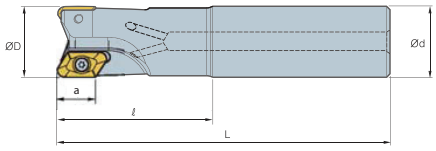
Workpiece	Cutting Condition		Grade
	V(sfm)	f(ipt)	
P			
M			
K	Aluminum 750~2000	0.002~0.010	Uncoated (KTM10U)

Alumi Mill-X End Mill



Coolant through

- Multi-dimensional clamping face prevents micro-vibrations during high speed machining
- Buffed mirror finish of inserts allows outstanding chip control and prevents edge build up
- Multi-functional aluminum milling tool: Shouldering, Slotting, Helical Ramping, and Copying

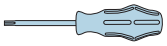


(inch)

Designation	Code No.	Price $	ØD	Ød	a	ℓ	L	No. of Inserts	Insert
AME-X 5100HR-A	146411	487.07	1.00	1.00	0.669	2.362	5.512	2	XEKT 19M5
AME-X 5100HR-B	146413	487.07	1.00	1.00	0.669	2.362	5.512	2	
AME-X 5125HR-A	146419	519.63	1.25	1.25	0.669	2.756	5.901	2	
AME-X 5125HR-B	146423	519.63	1.25	1.25	0.669	2.756	5.901	2	
AME-X 5150HR-A	146431	705.68	1.50	1.50	0.669	2.756	6.229	3	
AME-X 5150HR-B	146432	705.68	1.50	1.50	0.669	2.756	6.229	3	

* Type A: Insert Nose R 1/64"~1/8" Type B: Insert Nose R 0.157"~0.197

Inserts / Parts

Designation	Available Insert	Screw			Wrench		
							
AME-X HR-A AME-X HR-B	XEKT 19M50 to 19M53 XEKT 19M54 to 19M55	PTKA 0408	148716	$ 10.08	TW15S	146801	$ 40.80

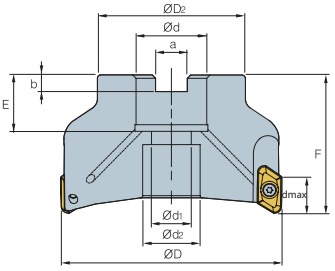
➤ P. E105

Alumi Mill-X Face Mill



Coolant through

- Multi-dimensional clamping face prevents micro-vibrations during high speed machining
- Buffed mirror finish of inserts allows outstanding chip control and prevents edge build up
- Multi-functional aluminum milling tool: Shouldering, Slotting, Helical Ramping, and Copying

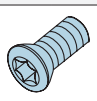
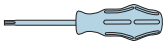


(inch)

Designation	Code No.	Price $	ØD	Ød	ØD2	a	b	E	F	dmax	No. of Inserts
AMFM-X 5150HR-A	146434	671.96	1.50	0.50	1.417	0.252	0.169	0.630	1.50	0.67	3
AMFM-X 5150HR-B	146445	671.96	1.50	0.50	1.417	0.252	0.169	0.630	1.50	0.67	3
AMFM-X 5200HR-A	146467	716.65	2.00	0.75	1.772	0.321	0.220	0.787	1.75	0.67	4
AMFM-X 5200HR-B	146469	716.65	2.00	0.75	1.772	0.321	0.220	0.787	1.75	0.67	4
AMFM-X 5250HR-A	146481	802.33	2.50	0.75	1.772	0.321	0.220	0.787	1.75	0.67	5
AMFM-X 5250HR-B	146490	802.33	2.50	0.75	1.772	0.321	0.220	0.787	1.75	0.67	5
AMFM-X 5300HR-A	146525	832.49	3.00	1.00	2.205	0.384	0.248	0.866	2.00	0.67	5
AMFM-X 5300HR-B	146526	832.49	3.00	1.00	2.205	0.384	0.248	0.866	2.00	0.67	5
AMFM-X 5400HR-A	146534	948.99	4.00	1.50	3.386	0.636	0.394	1.181	2.50	0.67	6
AMFM-X 5400HR-B	146535	948.99	4.00	1.50	3.386	0.636	0.394	1.181	2.50	0.67	6
AMFM-X 5500HR-A	146544	1,225.99	5.00	1.50	3.386	0.636	0.394	1.181	2.50	0.67	7
AMFM-X 5500HR-B	146550	1,225.99	5.00	1.50	3.386	0.636	0.394	1.181	2.50	0.67	7

* Type A: Insert Nose R 1/64"~1/8" Type B: Insert Nose R 0.157"~0.197

Inserts / Parts

Designation	Available Insert	Screw			Wrench		
							
AMFM-X HR-A AMFM-X HR-B	XEKT 19M50 to 19M53 XEKT 19M54 to 19M55	PTKA 0408	148716	$ 10.08	TW15S	146801	$ 40.80

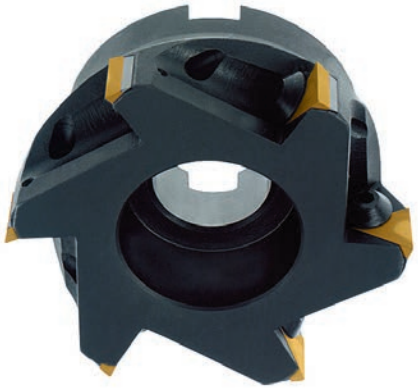
➤ P. E105

Square Shoulder Milling Cutters 90°

Positive Rake 90° Right Hand Cut

Note: Square shoulder milling cutters are furnished without cutting inserts. Precision and utility inserts can be used.

Tool Angles
- Cutting rake 0°
- Setting angle 90°
- Axial rake 0°



Cutting Dia.	Shank Arbor Hole	No. of Inserts	Insert	Code No.	Price $
2	3/4	3	TPG	141220	**623.98**
2-1/2	1	3	TPU 43_	141200	**910.67**
3	1	4	TPU 43_	141202	**1,139.37**
4	1-1/2	5	TPU 43_	141204	**1,457.36**
5	1-1/2	6	TPU 43_	141206	**2,056.94**
6	2	7	TPU 43_	141208	**4,193.96**

➤ P. E104

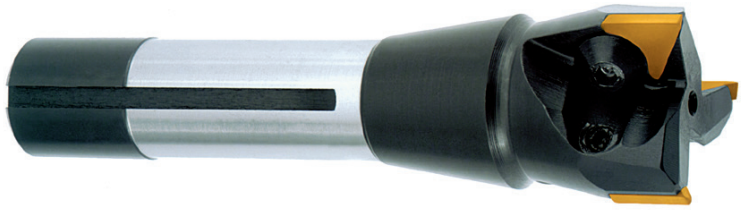
Spare Parts

Cutting Dia.	For 2" Cutters		For 2-1/2" to 6" Cutters	
	Code No.	Price $	Code No.	Price $
Clamp Screw	141061	**14.07**	141210	**33.49**
Shim	-	-	141212	**12.74**
Shim Screw	-	-	141214	**10.43**
Hex Key	-	-	-	-

Carbide Insert End Mills 90°

Note: Insert End Mills are furnished without cutting inserts. Precision and utility inserts can be used.

Tool Angles
- Cutting rake 0°
- Setting angle 90°
- Axial rake 0°



Cutting Dia.	Shank	No. of Inserts	Insert	Code No.	Price $
1/2	1/2" Str. Shk. Weldon	1	TPG/TPU-21	141000	**248.11**
3/4	3/4" Str. Shk. Weldon	2	TPG/TPU-21	141002	**239.01**
1	3/4" Str. Shk. Weldon	2	TPG/TPU-22	141003	**294.09**
1-1/4	3/4" Str. Shk. Weldon	2	TPG/TPU/TPC-32	141004	**378.05**
1-1/2	3/4" Str. Shk. Weldon	3	TPG/TPU/TPC-32	141005	**501.20**
1-3/4	3/4" Str. Shk. Weldon	3	TPG/TPU/TPC-32	141006	**509.20**
2	3/4" Str. Shk. Weldon	3	TPG/TPU/TPC-32	141007	**656.74**
1	1" Str. Shk. Weldon	2	TPG/TPU-22	141008	**233.90**
1-1/4	1" Str. Shk. Weldon	2	TPG/TPU/TPC-32	141009	**259.30**
1-1/2	1" Str. Shk. Weldon	3	TPG/TPU/TPC-32	141010	**462.37**
2	1" Str. Shk. Weldon	3	TPG/TPU/TPC-32	141012	**629.32**
1-1/4	R-8 Bridgeport	2	TPG/TPU/TPC-32	141013	**435.20**
1-1/2	R-8 Bridgeport	3	TPG/TPU/TPC-32	141014	**560.76**
1-3/4	R-8 Bridgeport	3	TPG/TPU/TPC-32	141015	**617.06**
2	R-8 Bridgeport	3	TPG/TPU/TPC-32	141016	**720.80**

➤ P. E104

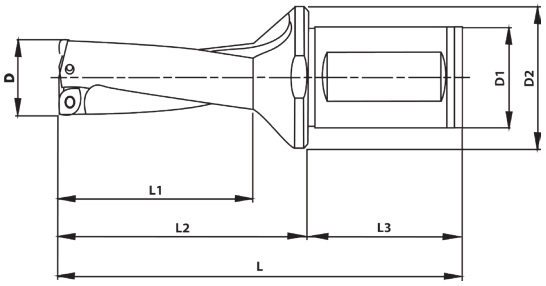
Spare Parts

Description	Code No.	Price $
Screw for 1/2"	141244	**20.27**
Screw for 3/4", 7/8", 1"	141060	**13.72**
Screw for 1-1/2"	141064	**13.47**
All other sizes	141061	**14.07**

Pro SP/NP Drill (3XD)



- Strong shank and excellent design optimizes the performance of hole-making
- Special abrasive wear resistant surface treatment protects the shank from machined chips, increasing tool life
- Strengthened drill body provides better performance even in difficult cutting conditions
- Specially designed flute guarantees excellent chip evacuation and long durability



(inch)

Designation		Code No.	Price $	D	D1	D2	L	L1	L2	L3	Insert	Screw	Wrench
PRO-SP	0500 - 1/2	147894	**677.37**	0.500	0.75	-	4.14	1.50	1.97	2.17		FTNA 0204	TW06P
	0531 - 17/32	147895	**677.37**	0.531	0.75	-	4.23	1.59	1.97	2.26	SPMT 050203-MD	**148207**	**147222**
	0562 - 9/16	147896	**677.37**	0.562	0.75	-	4.36	1.69	1.97	2.39		**$ 13.40**	**$ 14.32**
	0625 - 5/8	147897	**677.37**	0.625	1.00	-	4.59	1.88	1.97	2.62		FTKA 02206S	
	0687 - 11/16	147898	**677.37**	0.687	1.00	1.40	5.01	2.07	2.20	2.81	SPMT 060204-MD	**148208**	TW07S
	0750 - 3/4	147899	**677.37**	0.750	1.00	1.40	5.24	2.25	2.20	3.04		**$ 13.36**	**148209**
	0812 - 13/16	147900	**779.56**	0.812	1.00	1.40	5.50	2.44	2.20	3.30	SPMT 070204-MD	FTKA 02565	**$ 40.80**
	0875 - 7/8	147901	**779.56**	0.875	1.00	1.40	5.69	2.63	2.20	3.49		**146930**	
PRO-NP	0937 - 15/16	147902	**779.55**	0.937	1.25	1.80	6.12	2.81	2.36	3.76	NPMT 222408-00	**$ 13.75**	
	1000 - 1"	147903	**844.05**	1.000	1.25	1.80	6.34	3.00	2.36	3.98			
	1031 - 1-1/32	147904	**844.05**	1.031	1.25	1.80	6.44	3.09	2.36	4.08	NPMT 252808-00	FTKA 0307	
	1062 - 1-1/16	147905	**844.05**	1.062	1.25	1.80	6.53	3.19	2.36	4.17		**148210**	
	1125 - 1-1/8	147906	**844.05**	1.125	1.25	1.80	6.80	3.38	2.36	4.44		**$ 13.75**	
	1187 - 1-3/16	147907	**844.05**	1.187	1.25	1.80	7.06	3.56	2.36	4.70	NPMT 293208-00		
	1250 - 1-1/4	147908	**952.67**	1.250	1.25	1.80	7.25	3.75	2.36	4.89			
	1312 - 1-5/16	147909	**952.67**	1.312	1.50	2.00	7.92	3.94	2.76	5.16		FTKA 03508	
	1375 - 1-3/8	147910	**952.67**	1.375	1.50	2.00	8.17	4.16	2.76	5.41	NPMT 334008-00	**148212**	
	1500 - 1-1/2	147912	**1,004.39**	1.500	1.50	2.00	8.60	4.50	2.76	5.84		**$ 12.50**	
	1562 - 1-9/16	147913	**1,004.39**	1.562	1.50	2.00	8.78	4.69	2.76	6.02			
	1625 - 1-5/8	147914	**1,079.17**	1.625	1.50	2.00	9.09	4.88	2.76	6.33			TW15S
	1687 - 1-11/16	147915	**1,079.17**	1.687	1.50	2.00	9.32	5.06	2.76	6.56			**146801**
	1750 - 1-3/4	147916	**1,079.17**	1.750	1.50	2.00	9.51	5.25	2.76	6.75		FTKA 0410	**$ 40.80**
	1812 - 1-13/16	147917	**1,141.84**	1.812	1.50	2.00	9.73	5.44	2.76	6.97	NPMT 415008	**146969**	
	1875 - 1-7/8	147918	**1,141.84**	1.875	1.50	2.00	9.96	5.63	2.76	7.20		**$ 11.07**	
	1937 - 1-15/16	147919	**1,141.84**	1.937	1.50	2.00	10.22	5.81	2.76	7.46			
	2000 - 2"	147920	**1,141.84**	2.000	1.50	2.60	10.41	6.00	2.76	7.65			

➤ P. E95-96

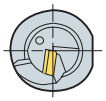
Recommended Cutting Condition

Workpiece	Cutting Condition	
	V(sfm)	f(ipr)
P	250~720	0.004~0.010
M Stainless Steel	120~500	0.004~0.008
K	250~750	0.004~0.016

Combo Turning & Drilling Tool

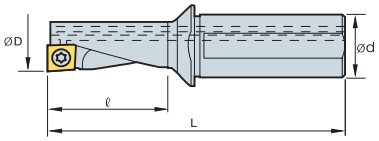


Coolant through



Features
- Double coolant system
- Excellent chip evacuation and tool life
- Ideal flute design minimizing stress concentrations

Uses
- External/Internal turning
- Facing
- Drilling



(inch)

Designation	Code No.	Price $	ØD	Ød	ℓ	L	Insert
CTD10R-2.25D	147993	**480.18**	0.394	0.472	0.886	2.736	QCMT 050204-CM
CTD12R-2.25D	147243	**495.00**	0.472	0.630	1.063	1.890	QCMT 060204-CM
CTD14R-2.25D	147698	**505.13**	0.551	0.630	1.240	3.287	QCMT 070304-CM
CTD16R-2.25D	147008	**515.42**	0.630	0.787	1.417	3.701	QCMT 080304-CM
CTD20R-2.25D	147061	**606.38**	0.787	0.984	1.772	4.370	QCMT 10T304-CM

Available Insert

QCMT-CM



Tool Designation	Insert						
	Designation	Screw			Wrench		
CTD10R-2.25D	QCMT 050204-CM	FTNA0204S	147736	**$ 11.28**	TW06P	147222	**$ 14.32**
CTD12R-2.25D	QCMT 060204-CM	FTNA02205S	147756	**$ 13.29**	TW06P	147222	**$ 14.32**
CTD14R-2.25D	QCMT 070304-CM	FTNA02555	147769	**$ 8.69**	TW07P	146939	**$ 14.32**
CTD16R-2.25D	QCMT 080304-CM	FTNA0306	145548	**$ 8.69**	TW09P	146951	**$ 14.32**
CTD20R-2.25D	QCMT 10T304-CM	FTNA03508	147771	**$ 8.69**	TW15P	146940	**$ 14.94**

➤ P. E97

Store and organize all your Indexables in a chest that is just the right size for you and your shop.

Find them in Chapter L



NC Spot Drills

NC Spot Drill with indexable carbide insert.
High efficiency! Low cost!
CNC lathes, CNC turning centres, and machining centres.



Features
- Spotting produces better hole position and geometrically uniform holes
- Available in a variety of shank diameters
- One tool will perform multiple applications
- Long tool life
- Each insert has 2 cutting or 4 cutting edges
- Suitable for spotting, chamfering, grooving, and engraving
- 45°, 60°, 82°, 90°, 100°, 120°, 142° angle for different applications
- Increase cutting speed with coated carbide inserts



- **a** Engraving
- **b** Spotting
- **c** Chamfering
- **d** Grooving

Inserts

NC10
- High positive angle and fully ground cutting edge and relief angle
- Universal grade for non-ferrous metal, cast iron, and stainless steel

NC40
- General purpose, universal grade for all unhardened steel
- Fully ground cutting edge and relief angle

NC60
- Cermet insert, for hardened steel up to 56HRC
- Reduces heat and low tool wearing at the cutting edge

NC9076
- High positive geometry and sharp edge
- For non-ferrous material such as aluminum, titanium, brass, copper, and long cutting chip metal
- Produces excellent surface finish on non-ferrous metal

NC2071
- Universal grade for all unhardened steel, free cutting steel and tool steel up to 750N/mm2
- Cutting geometry has been designed to optimize the tool's performance and to use in high speed machining

		P	M	K	N	H	S
Grade	Coating	Steel	Stainless Steel	Cast Iron	Non-Ferrous	Hardened Up to 56HRC	Titanium
NC10	TiAlN		•••	•••	••		
NC40	TiN	•••	•	••			
NC2071	TiN	•••	••	•	••		
NC9076	DLC		••		•••		••
NC60	Cermet	••				•••	

••• Best •• Suited • Possible

90° NC Spot Drills

Mini Spotting Drill — N9MT05T1 Insert



Insert not included

- Smallest indexable spotting drill holder
- Single cutting edge design gives higher precision when spotting
- Applications:
  - Spotting, engraving, and chamfering on milling machines, machining centres
  - Spotting, facing on CNC lathes

Shank	Model No.	Length	Insert	Max Depth	Max Dia.	Application	Code No.	Price $
6mm	00-99616-06-6	35mm	N9MT05T1CT-N2071	2.8mm	6mm	Universal	612514	**73.00**

Available Insert



Insert	Coating	Cutting Edges	Application	Code No.	Price $
N9MT05T1CT-N2071	TiN	2	Universal	612516	**28.00**

90° NC Spot Drills

NC Spotting Drill — N9MT0802 Inserts



- Single cutting edge design gives higher precision when spotting
- Applications:
  - Spotting, engraving, grooving, and chamfering on milling machines, machine centres
  - Spotting, facing, on CNC lathes

Insert not included

Shank	Model No.	Length	Insert	Max Depth	Max Dia.	Code No.	Price $
3/8"	00-99616-10-3/8	90mm	N9MT0802	4.5mm	10mm	612518	**89.00**

Available Inserts



Insert	Coating	Cutting Edges	Application	Code No.	Price $
N9MT080208CT-NC40	TiN	4	Unhardened Steel	612036	**30.50**
N9MT080204CT-NC40	TiN	4	Unhardened Steel	612520	**29.00**
N9MT080204CT-NC10	TiAlN	4	Non-Ferrous, Cast Iron, Stainless	612034	**30.50**
N9MT0802CT2T-H-NC40	TiN	2	Universal	612038	**29.00**
N9MT0802CT2T-H-NC9076	DLC	2	Non-Ferrous	612522	**35.00**

Single Sets

User friendly, each set is fitted with one complimentary insert.

Model	Shank	Insert	Code No.	Price $
00-99616-10-3/8-02S	3/8"	N9MT080208CT-NC40	612084	**114.00**

Starter Packages

Selected package for starter who wants to try NC Spot Drill
• Includes 6 inserts, 1 toolholder, and 1 key

Model	Shank	Insert	Code No.	Price $
00-99616-10-IN6	3/8"	N9MT080204CT-NC40	612524	**240.00**

NC Spotting Drill — N9MT11T3 Inserts



- Single cutting edge design gives higher precision when spotting
- Applications:
  - Spotting, engraving, grooving, and chamfering on milling machines, machine centres
  - Spotting, facing, on CNC lathes

Insert not included

Shank	Model No.	Length	Insert	Max Depth	Max Dia.	Code No.	Price $
16mm	00-99616-14-150L	150mm	N9MT11T3	7mm	14mm	612526	**142.00**
1/2"	00-99616-14-1/2	100mm	N9MT11T3	7mm	14mm	612528	**89.00**
5/8"	00-99616-14-5/8	100mm	N9MT11T3	7mm	14mm	612530	**89.00**

Available Inserts



Insert	Coating	Cutting Edges	Application	Code No.	Price $
N9MT11T3CT2T-NC40	TiN	4	Unhardened Steel	612040	**31.00**
N9MT11T3CT2T-NC10	TiAlN	4	Non-Ferrous, Cast Iron, Stainless	612042	**31.00**
N9MT11T3CT-NC60	Cermet	4	Hardened Steel Up To 56HRC	612044	**38.00**
N9MT11T3CT-H-NC40	TiN	2	Universal	612532	**29.00**
N9MT11T3CT-H-NC9076	DLC	2	Non-Ferrous	612534	**35.00**

Single Sets

User friendly, each set is fitted with one complimentary insert.

Model	Shank	Insert	Code No.	Price $
00-99616-14-5/8-02S	5/8"	N9MT11T3CT-NC40	612010	**114.00**
00-99616-14-5/8-02SAL	5/8"	N9MT11T3CT-NC10	612536	**134.11**

Starter Packages

Selected package for starter who wants to try NC Spot Drill
• Includes 6 inserts, 1 toolholder, and 1 key

Model	Shank	Insert	Code No.	Price $
00-99616-14-IN6	5/8"	N9MT11T3CT-NC40	612058	**240.00**
00-99616-14-IN6AL	5/8"	N9MT11T3CT-NC10	612060	**240.00**

82° NC Spot Drills

NC Spotting Drill — V0820802/V08212T3 Inserts



- Single cutting edge design gives higher precision when spotting
- Applications:
  - Spotting, engraving, grooving, and chamfering on milling machines, machine centres
  - Spotting, facing, on CNC lathes

Insert not included

Shank	Model No.	Length	Insert	Max Depth	Max Dia.	Code No.	Price $
3/8"	00-99619-V082-3/8	90mm	V0820802	4.8mm	9mm	612538	**89.00**
5/8"	00-99619-V082-5/8	100mm	V08212T3	7.5mm	14mm	612151	**89.00**

Available Inserts

- Match the geometry of American standard flat head screw hole
- Special geometry with supporting edges for use in high speed machining



Insert	Coating	Cutting Edges	Application	Code No.	Price $
V0820802-NC2071	TiN	2	Universal	612540	**35.00**
V08212T3-NC2071	TiN	2	Universal	612085	**47.00**

60° NC Spot Drills

NC Spotting Drill — V9MT0802/V9MT12T3 Inserts



- Single cutting edge design gives higher precision when spotting
- Applications:
  - Spotting, engraving, grooving, and chamfering on milling machines, machine centres
  - Spotting, facing, on CNC lathes

Insert not included

Shank	Model No.	Length	Insert	Max Depth	Max Dia.	Code No.	Price $
8mm	00-99616-09V	60mm	V9MT08	7.3mm	9mm	612544	**89.00**
5/8"	00-99616-13V-5/8	100mm	V9MT12	10.3mm	13mm	612546	**89.00**

Available Inserts

- Special geometry with supporting edges for use in high speed machining
- Excellent tool for grooving



Insert	Coating	Cutting Edges	Application	Code No.	Price $
V9MT0802CT-NC2071	TiN	2	Universal	612548	**35.00**
V9MT12T3CT-NC2071	TiN	2	Universal	612550	**48.00**

Engraving 45°/60°

This is a revolutionary new concept of engraving tools with indexable carbide inserts. They offer the ability to produce HIGH QUALITY ENGRAVING in most materials. The latest coated carbide grades help you to obtain higher speed and feed rate, dramatically reducing your cycle time.





Features

- High Positive Rake Angle - suitable for engraving all types of materials, such as plastic, non-ferrous metals, aluminum, copper, carbon steel, stainless steel
- Multi-Side grinding - full peripherally ground insert to ensure efficient repeatability. It performs excellently without producing burrs, especially in copper, aluminum, and stainless steel
- High Speed, High Feed Rate - Designed to run at speeds up to 40,000rpm. Feed rate 0.08mm (0.003")/rev apply to aluminum; 0.05mm (0.002")/rev apply to stainless steel
- Economical - Each insert has 2 cutting edges. No resharpening required. Tool length is unchanged. No need to reset after changing insert or cutting edge. Excellent repeatability.

Inserts

NC2032
- For all kinds of steel from 30~50 HRC, carbon steel, alloy steel and cast iron
- TiAlN coating provides longer tool life

NC2071
- Universal grade for all kinds of steel <30HRC, non-ferrous metal, and stainless steel
- The cutting geometry of this insert has been designed with a strong cutting edge

NC9031
- For non-ferrous metal, aluminum, brass, copper, plastic, acrylic, and stainless steal
- Very sharp edge for shallow engraving

NC2035
- For steel with heat treatment up to 56HRC
- Latest ALDURA coating to reduce heat and tool wear

		P	M	K	N	H	S
Grade	Coating	Steel	Stainless Steel	Cast Iron	Non-Ferrous	Hardened Up to 56HRC	Titanium
NC2032	TiAlN	●●●	●	●●●			
NC2071	TiN	●●	●●●		●●		
NC9031	TiN		●●		●●●		
NC2035	ALDURA	●●		●		●●●	

●●● Best ●● Suited ● Possible

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Engraving Tool 45°



* • Carbide shank holders designed for shrink fit holders, engraving machines, high speed cutting

** • XL (100mm length) is only for Al, Al-alloy cutting, unbalanced <0.6gm

Insert not included

Shank	Model No.	Length	Insert	Max Depth	Max Dia.	Code No.	Price $
6mm	00-99619-V045-06	40mm	V04506T1W06	2.0mm	2.1mm	612552	**75.00**
6mm	*00-99619-V045-06L	60mm	V04506T1W06	2.0mm	2.1mm	612554	**175.29**
6mm	**00-99619-V045-06XL	100mm	V04506T1W06	2.0mm	2.1mm	612556	**189.00**

Available Inserts



Insert	Coating	Cutting Edges	Application	Code No.	Price $
V04506T1W06-NC2071	TiN	2	Universal	612558	**31.00**
V04506T1W06-NC2032	TiAlN	2	Steel 30~50 HRC	612560	**35.00**
V04506T1W06-NC9031	TiN	2	Non-Ferrous	612562	**35.00**

Starter Packages

- Includes 3 inserts, 1 toolholder, and 1 T7 key

Model	Shank	Insert	Code No.	Price $
00-99619-V045-03K-71	6mm	V04506T1W06-NC2071	612564	**163.00**
00-99619-V045-03K-32	6mm	V04506T1W06-NC2032	612566	**173.00**
00-99619-V045-03K-31	6mm	V04506T1W06-NC9031	612568	**173.00**



Engraving Tool 60°



* • Carbide shank holders designed for shrink fit holders, engraving machines, high speed cutting

** • XL (100mm length) is only for Al, Al-alloy cutting, unbalanced <0.6gm

Insert not included

Shank	Model No.	Length	Insert	Max Depth	Max Dia.	Code No.	Price $
6mm	00-99619-V060-06	40mm	V06006T1W06	2.0mm	2.7mm	612570	**75.00**
6mm	*00-99619-V060-06L	60mm	V06006T1W06	2.0mm	2.7mm	612572	**149.00**
6mm	**00-99619-V060-06XL	100mm	V06006T1W06	2.0mm	2.7mm	612574	**189.00**

Available Inserts



Insert	Coating	Cutting Edges	Application	Code No.	Price $
V06006T1W06-NC2071	TiN	2	Universal	612576	**31.00**
V06006T1W06-NC2032	TiAlN	2	Steel 30~50 HRC	612578	**35.00**
V06006T1W06-NC2035	ALDURA	2	Heat treated steel up to 56HRC	612580	**38.00**
V06006T1W06-NC9031	TiN	2	Non-Ferrous	612582	**35.00**

Starter Packages

- Includes 3 inserts, 1 toolholder, and 1 T7 key

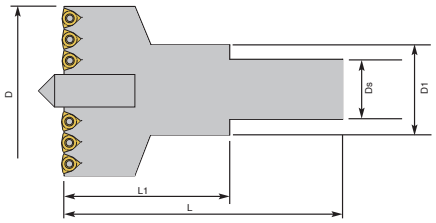
Model	Shank	Insert	Code No.	Price $
00-99619-V060-03K-71	6mm	V06006T1W06-NC2071	612584	**163.00**
00-99619-V060-03K-32	6mm	V06006T1W06-NC2032	612586	**173.00**
00-99619-V060-03K-35	6mm	V06006T1W06-NC2035	612588	**183.00**
00-99619-V060-03K-31	6mm	V06006T1W06-NC9031	612590	**173.00**



Milling Cutters

VMD Max Drill - MX Modular Shank Type





Note: Drill head complete with cartridges - Pilot Drill not included

(mm)

Model	Code No.	Price $	D	Ds	D_1	L_1	L	Pilot Drill	Cartridge
VMD-045050	156000	**1,142.33**	1.77-1.97	13	28	50	85	PLD-1035 TiN-H	VMC-045050N/T
VMD-050055	156002	**1,142.33**	1.97-2.17	13	28	50	85	PLD-1035 Tin-H	VMC-050055N/T
VMD-055060	156004	**1,196.48**	2.17-2.36	16	32	60	100	PLD-1238 Tin-H	VMC-055060N/T
VMD-060065	156006	**1,196.48**	2.36-2.56	16	32	60	100	PLD-1238 Tin-H	VMC-060065N/T
VMD-065070	156008	**1,310.38**	2.56-2.76	16	32	60	100	PLD-1238 Tin-H	VMC-065070N/T
VMD-070075	156010	**1,310.38**	2.76-2.95	22	40	70	115	PLD-1238 Tin-H	VMC-070075N/T
VMD-075080	156012	**1,364.98**	2.95-3.15	22	40	70	115	PLD-1645 Tin-H	VMC-075080N/T
VMD-080085	156014	**1,446.89**	3.15-3.35	22	40	70	115	PLD-1645 Tin-H	VMC-080085N/T
VMD-085090	156016	**1,268.65**	3.35-3.54	27	48	70	120	PLD-1645 Tin-H	VMC-085090N/T
VMD-090095	156018	**1,446.89**	3.54-3.74	27	48	70	120	PLD-1645 Tin-H	VMC-090095N/T
VMD-095100	156020	**1,556.07**	3.74-3.94	27	48	70	120	PLD-1645 Tin-H	VMC-095100N/T
VMD-100105	156022	**1,556.07**	3.94-4.13	32	58	80	130	PLD-2045 Tin-H	VMC-100105N/T
VMD-105110	156024	**1,556.07**	4.13-4.33	32	58	80	130	PLD-2045 Tin-H	VMC-105110N/T
VMD-110115	156026	**1,556.07**	4.33-4.53	32	58	80	130	PLD-2045 Tin-H	VMC-110115N/T
VMD-115120	156028	**1,856.39**	4.53-4.72	40	70	90	145	PLD-2045 Tin-H	VMC-115120N/T
VMD-120125	156030	**2,074.80**	4.72-4.92	40	70	90	145	PLD-2556 Tin-H	VMC-120125N/T
VMD-125130	156032	**1,775.27**	4.92-5.12	40	70	90	145	PLD-2556 Tin-H	VMC-125130N/T
VMD-130135	156034	**2,074.80**	5.12-5.32	40	70	90	145	PLD-2556 Tin-H	VMC-130135N/T
VMD-135140	156036	**2,074.80**	5.32-5.51	40	70	90	145	PLD-2556 Tin-H	VMC-135140N/T
VMD-140150	156038	**2,511.58**	5.51-5.91	50	80	100	160	PLD-2556 Tin-H	VMC-140150N/T
VMD-150160	156040	**2,511.58**	5.91-6.30	50	80	100	160	PLD-2556 Tin-H	VMC-150160N/T
VMD-160170	156042	**2,566.18**	6.30-6.69	50	80	100	160	PLD-3068 Tin-H	VMC-160170N/T
VMD-170180	156043	**3,275.96**	6.69-7.09	50	80	100	160	PLD-3068 Tin-H	VMC-170180N/T

➤ P. E157 ➤ P. E158

Recommended Speed & Feeds for VMD Max Drill

Material		Cutting Speed	Feed F (mm/rev) For Drill Diameter D (mm)						
			ø45~ø55	ø55~ø60	ø60~ø75	ø75~ø100	ø100~ø105	ø105~ø150	ø150~ø180
Low Alloy Steel	<0.25%	120-180	0.06 - 0.10	0.07 - 0.11	0.08 - 0.12	0.1 - 0.14	0.14 - 0.2	0.08 - 0.12	0.1 - 0.14
High Alloy Steel	>0.25%	110-170	0.06 - 0.10	0.07 - 0.11	0.08 - 0.12	0.1 - 0.14	0.12 - 0.18	0.08 - 0.12	0.1 - 0.14
Low Alloy Steel	<300HRB	90-130	0.06 - 0.10	0.07 - 0.11	0.08 - 0.12	0.1 - 0.14	0.12 - 0.18	0.08 - 0.12	0.1 - 0.14
High Alloy Steel	>300HRB	60-100	0.05 - 0.07	0.05 - 0.07	0.06 - 0.08	0.06 - 0.1	0.09 - 0.13	0.06 - 0.08	0.06 - 0.1
Stainless Steel		60-110	0.04 - 0.07	0.04 - 0.11	0.06 - 0.12	0.08 - 0.14	0.1 - 0.18	0.06 - 0.12	0.08 - 0.14
Grey Cast Iron		120-180	0.07 - 0.13	0.07 - 0.15	0.08 - 0.16	0.1 - 0.18	0.12 - 0.22	0.08 - 0.16	0.1 - 0.18
Cast Iron & Nodular Cast Iron		100-180	0.04 - 0.13	0.07 - 0.15	0.08 - 0.16	0.1 - 0.25	0.12 - 0.26	0.08 - 0.16	0.1 - 0.25
Aluminum Forging Alloys		180-280	0.04 - 0.06	0.07 - 0.12	0.08 - 0.13	0.09 - 0.15	0.12 - 0.2	0.08 - 0.13	0.09 - 0.15
Aluminum Cast Alloys		120-270	0.04 - 0.06	0.06 - 0.12	0.08 - 0.13	0.09 - 0.15	0.12 - 0.2	0.08 - 0.13	0.09 - 0.15

Conversion examples:
0.08mm= 0.0031 In/Rev
0.12mm= 0.00472 In/Rev
0.16mm= 0.0063 In/Rev

Conversion examples:
60-100 (195-325 sfm)
120-180 (390-585 sfm)



Milling Cutters

Cartridges for VMD Max Drill



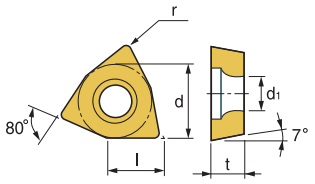
Specify Inner or Outer when ordering

Drilling Range (mm)	Inner Cartridge	Inner Code No.	Inner Price $	Outer Cartridge	Outer Code No.	Outer Price $	Screw	No. of Inserts	Insert
45-50	**VMC-045050N**	156044	**160.16**	**VMC-045050T**	156090	**160.16**	TSB-22045	2	WCMT 1.81.51
50-55	**VMC-050055N**	156046	**200.51**	**VMC-050055T**	156092	**200.73**			
55-60	**VMC-055060N**	156048	**216.14**	**VMC-055060T**	156094	**217.38**	TSB-25055	2	WCMT 21.52
60-65	**VMC-060065N**	156050	**217.41**	**VMC-060065T**	156096	**216.04**			
65-70	**VMC-065070N**	156052	**176.18**	**VMC-065070T**	156098	**176.18**	TSB-30070	2	WCMT 2.522
70-75	**VMC-070075N**	156054	**176.18**	**VMC-070075T**	156100	**176.18**			
75-80	**VMC-075080N**	156056	**271.99**	**VMC-075080T**	156102	**273.77**			
80-85	**VMC-080085N**	156058	**192.19**	**VMC-080085T**	156104	**192.19**			
85-90	**VMC-085090N**	156060	**192.19**	**VMC-085090T**	156106	**192.19**	TSB-35090	2	WCMT 32.52
90-95	**VMC-090095N**	156062	**271.99**	**VMC-090095T**	156108	**272.32**			
95-100	**VMC-095100N**	156064	**192.19**	**VMC-095100T**	156110	**192.19**			
100-105	**VMC-100105N**	156066	**398.13**	**VMC-100105T**	156112	**398.30**	TSB-30070	3	WCMT 2.522
105-110	**VMC-105110N**	156068	**240.20**	**VMC-105110T**	156114	**240.20**			
110-115	**VMC-110115N**	156070	**240.20**	**VMC-110115T**	156116	**240.20**			
115-120	**VMC-115120N**	156072	**240.20**	**VMC-115120T**	156118	**240.20**			
120-125	**VMC-120125N**	156074	**240.20**	**VMC-120125T**	156120	**240.20**	TSB-35090	3	WCMT 32.52
125-130	**VMC-125130N**	156076	**398.65**	**VMC-125130T**	156122	**240.20**			
130-135	**VMC-130135N**	156078	**240.20**	**VMC-130135T**	156124	**240.20**			
135-140	**VMC-135140N**	156080	**397.81**	**VMC-135140T**	156126	**398.13**			
140-150	**VMC-140150N**	156082	**256.26**	**VMC-140150T**	156128	**256.26**			
150-160	**VMC-150160N**	156084	**256.26**	**VMC-150160T**	156130	**256.26**	TSB-40110	3	WCMT 432
160-170	**VMC-160170N**	156086	**398.13**	**VMC-160170T**	156132	**256.26**			
170-180	**VMC-170180N**	156088	**256.26**	**VMC-170180T**	156134	**256.26**			

• Outer cartridge can be ground to achieve the size in the range of head

WCMT-C20/C21 Drilling Inserts for VMD Max Drill





		Coated Carbide									Uncoated Carbide		(inch)					Applicable Cutter	
Designation	ISO	PM10C	PM25C	PM30C	PM30P	PM35P	KM20C	MM30P	MT30P	SM20P	PM20U	KTM10U	l	d	t	r	d1	Cutter	Page No.
WCMT 1.81.52-C20	030208		**146242 $ 19.33**									**146537 $ 15.47**	0.149	7/32	3/32	1/32	0.110	MAX DRILL	E156-160
WCMT 21.52-C20	040208		**146237 $ 19.38**									**147155 $ 15.49**	0.169	1/4	3/32	1/32	0.118		
WCMT 2.522-C20	050308		**146236 $ 20.64**										0.212	5/16	5/16	1/32	0.134		
WCMT 32.52-C20	06T308		**146235 $ 20.64**									**146539 $ 16.49**	0.256	3/8	5/32	1/32	0.157		
WCMT432-C20	080408		**146855 $ 25.26**										0.342	1/2	3/16	1/32	0.169		
WCMT 433-C20	080412		**146000 $ 25.26**									**146563 $ 20.22**	0.342	1/2	3/16	3/64	0.169		

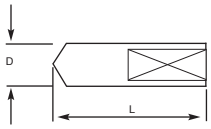
Quick Choice Grade Selection

P Steel	M Stainless Steel	K Cast Iron - Alum	S Heat Resistant Alloy

Milling Cutters

Parts for VMD Max Drill

PILOT DRILL

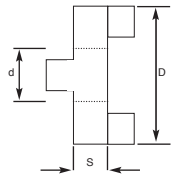




(mm)

Model	Code No.	Price $	D	L
PLD-1035 TiN-H	156146	72.24	10	35
PLD-1238 TiN-H	156148	72.24	12	38
PLD-1645 TiN-H	156150	111.90	16	45
PLD-2045 TiN-H	156152	131.48	20	45
PLD-2556 TiN-H	156154	158.65	25	56
PLD-3068 TiN-H	156156	200.17	30	68

DRIVE RING





(mm)

Model	Code No.	Price $	D	d	S
DVR-281310	156158	82.35	28	13	10
DVR-321610	156160	67.08	32	16	10
DVR-402212	156162	85.44	40	22	12
DVR-482712	156164	97.66	48	27	12
DVR-583214	156166	166.35	58	32	14
DVR-704014	156168	155.58	70	40	14
DVR-805016	156170	192.19	80	50	16

SET SCREW



(mm)

Model	Code No.	Price $	Size	Hex Driver
MTB-08115	156206	7.64	M8 x 11.5mm	4
MTB-10145	156208	7.64	M10 x 14.5mm	5
MTB-12175	156210	7.64	M12 x 17.5mm	6
MTB-12195	156212	7.64	M12 x 19.5mm	6
MTB-16260	156214	9.15	M16 x 26.5mm	8

INSERT SCREW



(mm)

Model	Code No.	Price $	Size	Hex Driver
TSB-22045	156136	4.75	M2.2 x 4.5mm	T-6
TSB-25055	156138	4.71	M2.5 x 5.5mm	T-8
TSB-30070	156140	4.71	M3 x 7.0mm	T-8
TSB-35090	156142	5.14	M3.5 x 9.0mm	T-15
TSB-40110	156144	5.14	M4 x 11.0mm	T-15

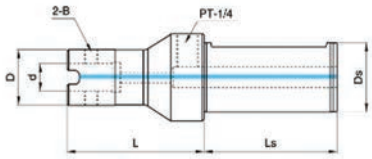
Assembly for VMD Max Drill



Milling Cutters

MX Holders for VMD Max Drill — Cylindrical Shank Type



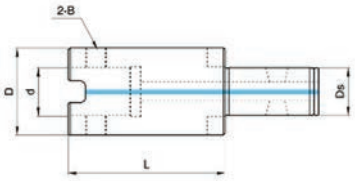


(mm)

Model	Code No.	Price $	Ds	d	L	D	Ls	Screw (B)	Drive Ring
MXA-3213115	156172	244.04	32	13	115	28	70	MTB-08115	DVR-281310
MXA-3213200	156174	366.08	32	13	200	28	70	MTB-08115	DVR-281310
MXA-3213300	156176	366.08	32	13	300	28	70	MTB-08115	DVR-281310
MXA-4016125	156178	274.56	40	16	125	32	80	MTB-08115	DVR-321610
MXA-4016200	156180	305.08	40	16	200	32	80	MTB-08115	DVR-321610
MXA-4016300	156182	395.73	40	16	300	32	80	MTB-08115	DVR-321610
MXA-4022148	156184	305.08	40	22	148	40	80	MTB-10145	DVR-402212
MXA-4022200	156186	366.08	40	22	200	40	80	MTB-10145	DVR-402212
MXA-4022300	156188	427.13	40	22	300	40	80	MTB-10145	DVR-402212
MXA-4027168	156190	366.08	40	27	168	48	80	MTB-12175	DVR-482712
MXA-4027300	156192	488.12	40	27	300	48	80	MTB-12175	DVR-482712
MXA-4032186	156194	427.13	40	32	186	58	80	MTB-12195	DVR-583214
MXA-4032300	156196	488.12	40	32	300	58	80	MTB-12195	DVR-583214
MXA-5040186	156198	488.12	50	40	186	70	100	MTB-16260	DVR-704014
MXA-5040300	156200	610.12	50	40	300	70	100	MTB-16260	DVR-704014
MXA-5050184	156202	549.12	50	50	184	80	100	MTB-16260	DVR-805016
MXA-5050300	156204	701.69	50	50	300	80	100	MTB-16260	DVR-805016

MXB Extension Holders for VMD Max Drill





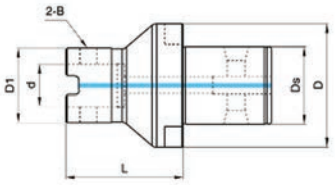
(mm)

Model	Code No.	Price $	Ds	d	L	D	Screw (B)	Drive Ring
MXB-2813115	156216	244.04	13	13	115	28	MTB-08115	DVR-281310
MXB-2813150	156218	259.27	13	13	150	28	MTB-08115	DVR-281310
MXB-2813200	156220	259.27	13	13	200	28	MTB-08115	DVR-281310
MXB-2813300	156222	305.08	13	13	300	28	MTB-08115	DVR-281310
MXB-3216115	156224	259.19	16	16	115	32	MTB-08115	DVR-321610
MXB-3216200	156226	274.56	16	16	200	32	MTB-08115	DVR-321610
MXB-3216300	156228	335.56	16	16	300	32	MTB-08115	DVR-321610
MXB-4022113	156230	274.56	22	22	113	40	MTB-10145	DVR-402212
MXB-4022200	156232	305.08	22	22	200	40	MTB-10145	DVR-402212
MXB-4022300	156234	366.08	22	22	300	40	MTB-10145	DVR-402212
MXB-4827113	156236	305.08	27	27	113	48	MTB-12175	DVR-482712
MXB-1827200	156238	366.08	27	27	200	48	MTB-12175	DVR-482712
MXB-4827300	156240	427.13	27	27	300	48	MTB-12175	DVR-482712
MXB-5832186	156242	396.55	32	32	186	58	MTB-12195	DVR-583214
MXB-5832300	156244	488.12	32	32	300	58	MTB-12195	DVR-583214
MXB-7040186	156246	427.13	40	40	186	70	MTB-16260	DVR-704014
MXB-7040300	156248	549.12	40	40	300	70	MTB-16260	DVR-704014
MXB-7040500	156250	762.68	40	40	500	70	MTB-16260	DVR-704014
MXB-8050204	156252	488.12	50	50	204	80	MTB-16260	DVR-805016
MXB-8050300	156254	671.11	50	50	300	80	MTB-16260	DVR-805016
MXB-8050500	156256	915.20	50	50	500	80	MTB-16260	DVR-805016

Milling Cutters

Reducers for VMD Max Drill



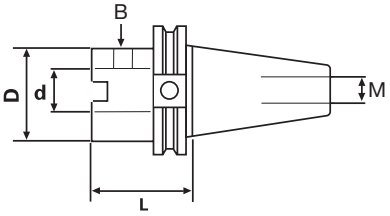


(mm)

Model	Code No.	Price $	Ds	d	L	D	D1	Screw (B)	D1/Drive Ring	D/Drive Ring
MXR-1613100	156270	244.04	16	13	100	32	28	MTB-08115	DVR-28130	DVR-32610
MXR-2216100	156272	244.04	22	16	100	40	32	MTB-08115	DVR-321610	DVR-402212
MXR-2722100	156274	244.04	27	22	100	48	40	MTB-10145	DVR-402212	DVR-482712
MXR-3227100	156276	305.08	32	27	100	58	48	MTB-12175	DVR-482712	DVR-583214

SK MXA Holders for VMD Max Drill



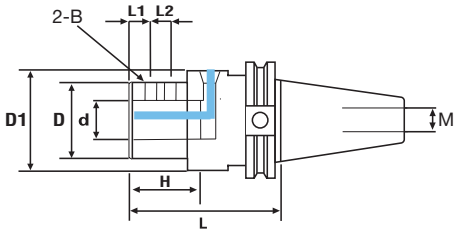


(mm)

Model	Code No.	Price $	d	L	D	M	Screw (B)
SK40-MXA-32065	156258	305.03	32	65	58	M16	MTB-12195
SK50-MXA-32070	156260	457.60	32	70	58	M24	MTB-12195
SK50-MXA-50070	156262	549.12	50	70	80	M24	MTB-16260

SK OMS Side Lock Coolant Feed Holders for VMD Max Drill





(mm)

Model	Code No.	Price $	d	L	D	D1	H	L1	L2	Screw (B)	M
SK40-OMS-20110	156201	854.20	20	110	50	78	50	20	-	M12	M16
SK40-OMS-25125	156203	854.20	25	125	50	78	60	20	20	M12	M16
SK40-OMS-32130	156205	854.20	32	130	65	88	70	20	20	M14	M16
SK50-OMS-20105	156207	976.20	20	105	50	78	50	20	-	M12	M24
SK50-OMS-25120	156209	976.20	25	120	50	78	60	20	20	M12	M24
SK50-OMS-32125	156211	976.20	32	125	65	98	70	20	20	M14	M24
SK50-OMS-40135	156213	976.20	40	135	65	98	80	20	25	M16	M24

INDEXABLE KITS



MILLING KITS
PAGES E162-167

TURNING KITS
PAGES E168-169

BORING KITS
PAGES E170-171

THREADING KITS
PAGE E171

PARTING & GROOVING KITS
PAGE E172

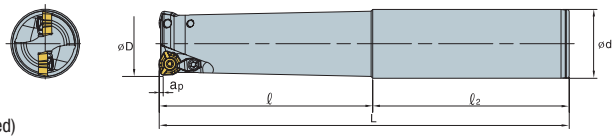
ASK ABOUT OUR GUARANTEED TEST POLICY

HFPA End Mill Kits

Coolant through



Consists of:
1 - HFPA End Mill
10 - WDKT 130520 Inserts (Coated)



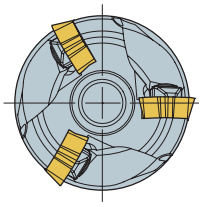
Model No.	Cutting Dia. (ØD)	Shank Dia.(Ød)	l	l2	L	Insert	No. of Inserts	Kit Code No.	Price $
HFPA 1-1/4 (148646)	1-1/4	1.000	2.756	3.150	5.906	WDKT 130520 ZDSR-MH PM10C (148653)	10	149990	**650.50**
HFPA 1-1/4 (148647)	1-1/4	1.000	4.725	3.150	7.874	WDKT 130520 ZDSR-MH PM10C (148653)	10	149991	**908.67**

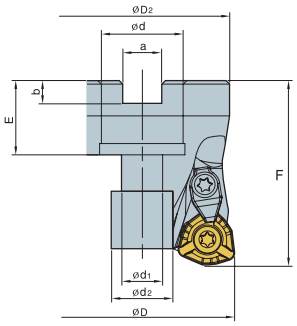
HFPC Face Mill Kits

Coolant through



Consists of:
1 - HFPC Face Mill
10 - WDKT 130520 Inserts (Coated)





Model No.	Cutting Dia. (ØD)	Bore Dia.(Ød)	ØD2	Ød2	a	b	E	F	Insert	No. of Inserts	Kit Code No.	Price $
HFPC 13200R-3 (148636)	2.000	0.750	1.772	0.630	0.321	0.221	0.778	1.969	WDKT 130520 ZDSR-MH PM10C (148653)	10	149992	**1,235.69**
HFPC 13250R-4 (148639)	2.500	0.750	1.772	0.630	0.321	0.221	0.778	1.969	WDKT 130520 ZDSR-MH PM10C (148653)	10	149993	**979.30**
HFPC 13300R-5 (148641)	3.000	1.000	2.205	0.827	0.384	0.248	0.985	2.756	WDKT 130520 ZDSR-MH PM10C (148653)	10	149994	**1,799.45**

AP11 End Mill Kits





Consists of:
1 - AP11-90 End Mill
10 - APXT 11T3 Inserts (Coated)

Kit Contents	Insert	Kit Code No.	Price $
3/4" ø 2-Flute Mini End Mill (3/4" Shank) (146373)	10 - APXT 11T3 Coated Inserts (146356)	149864	**356.40**
1" ø 3-Flute Mini End Mill (3/4" Shank) (146374)	10 - APXT 11T3 Coated Inserts (146356)	149865	**377.71**

Note: Each Kit Contains 146-596 T8 Torx Wrench

AP11 Master End Mill Kit





Consists of:
1 - Each 1/2", 5/8", 3/4", 1" AP11-90 End Mills
20 - APXT 11T3 Inserts (Coated)

Kit Contents	Insert	Kit Code No.	Price $
1/2" ø, 5/8" ø, 3/4" ø, and 1" ø Mini-Mill	20 - APXT 11T3 PM25C Inserts (146356)	149866	**1,014.71**
(146371, 146372, 146373, 146374)			
Note: Each Kit Contains 146596 T8 Torx Wrench			

AP16 End Mill Kits





Consists of:
1 - AP16-90 Endmills
10 - APKT 1604 Inserts (Coated)

Kit Contents	Insert	Kit Code No.	Price $
1" 2-Fl. End Mill (1" Shank) (145705)	10 - APKT 1604PDSR M PM30P Coated Inserts (147333)	149900	**456.11**
1-1/4" 3-Fl. End Mill (1" Shank) (145706)	10 - APKT 1604PDSR M PM30P Coated Inserts (147333)	149901	**482.98**
1-1/2" 3-Fl. End Mill (1-1/4" Shank) (145707)	10 - APKT 1604PDSR M PM30P Coated Inserts (147333)	149902	**510.04**
Note: Each Kit Contains 146-596 T8 Torx Wrench			

APFM Face Mill Kits





Consists of:
1 - APFM 16-90 Face Mill
10 - APKT 1604 Inserts (Coated)

Kit Contents		Insert	Kit Code No.	Price $
2" Face Mill (147009)	c/w 10 inserts (147333)	APKT 1604 PDSR M PM30P	149907	**604.56**
2-1/2" Face Mill (147011)	c/w 10 inserts (147333)	APKT 1604 PDSR M PM30P	149908	**759.31**
3" Face Mill (147013)	c/w 10 inserts (147333)	APKT 1604 PDSR M PM30P	149909	**759.31**
4" Face Mill (147000)	c/w 10 inserts (147333)	APKT 1604 PDSR M PM30P	149910	**859.38**
5" Face Mill (147015)	c/w 10 inserts (147333)	APKT 1604 PDSR M PM30P	149911	**924.01**

R8 Milling Cutter & Insert Kit



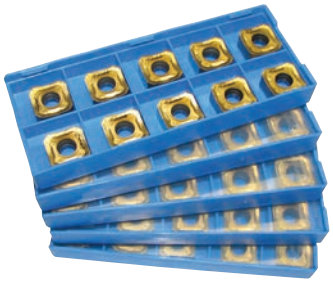
Kit Contents		Insert	Kit Code No.	Price $
2" R8 (Bridgeport shank) End Mill (141016)	c/w 10 inserts (146709)	TPU 322 PM25C Inserts (Coated)	500732	**967.20**



Consists of:
1 - R8 Shank End Mill 2" Dia.
10 - TPU 322 Inserts (Coated)

DS8 45° Milling Kits





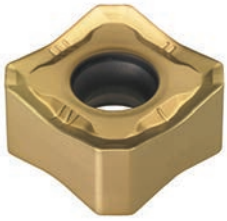
Consists of:
1 - DS8 45° Face Mill
20-80 SNMX 1206ANN-M Inserts

Coolant through

Kit Contents			Insert	Kit Code No.	Price $
2"	(Z=4) DS8 4200HR-M (148979)	c/w 20 inserts (145679)	SNMX 1206ANN-M PM30P	149779	**586.80**
2-1/2"	(Z=6) DS8 4250HR-M (148980)	c/w 20 inserts (145679)	SNMX 1206ANN-M PM30P	149778	**944.40**
3"	(Z=5) DS8 4300HR (148885)	c/w 30 inserts (145679)	SNMX 1206ANN-M PM30P	149777	**1,888.68**
3"	(Z=7) DS8 4300HR-M (148887)	c/w 30 inserts (145679)	SNMX 1206ANN-M PM30P	149776	**1,500.20**
3"	(Z=10) DS8 4300HR-H (148886)	c/w 30 inserts (145679)	SNMX 1206ANN-M PM30P	149775	**2,006.69**
4"	(Z=6) DS8 4400HR (148888)	c/w 40 inserts (145679)	SNMX 1206ANN-M PM30P	149774	**1,403.20**
4"	(Z=8) DS8 4400HR-M (148890)	c/w 40 inserts (145679)	SNMX 1206ANN-M PM30P	149773	**1,836.30**
4"	(Z=12) DS8 4400HR-H (148889)	c/w 40 inserts (145679)	SNMX 1206ANN-M PM30P	149772	**1,498.60**
5"	(Z=8) DS8 4500HR (148891)	c/w 50 inserts (145679)	SNMX 1206ANN-M PM30P	149771	**2,401.00**
5"	(Z=10) DS8 4500HR-M (148893)	c/w 50 inserts (145679)	SNMX 1206ANN-M PM30P	149764	**2,315.90**
5"	(Z=16) DS 4500HR-H (148892)	c/w 50 inserts (145679)	SNMX 1206ANN-M PM30P	149770	**1,951.50**
6"	(Z=10) DS8 4600HR (148894)	c/w 60 inserts (145679)	SNMX 1206ANN-M PM30P	149769	**2,182.10**
6"	(Z=12) DS8 4600HR-M (148896)	c/w 60 inserts (145679)	SNMX 1206ANN-M PM30P	149768	**4,820.64**
6"	(Z=18) DS8 4600HR-H (148895)	c/w 60 inserts (145679)	SNMX 1206ANN-M PM30P	149767	**1,769.80**
8"	(Z=14) DS8 4800HR-M (148898)	c/w 80 inserts (145679)	SNMX 1206ANN-M PM30P	149766	**3,930.90**
8"	(Z=24) DS8 4800HR-H (148897)	c/w 80 inserts (145679)	SNMX 1206ANN-M PM30P	149765	**3,188.80**

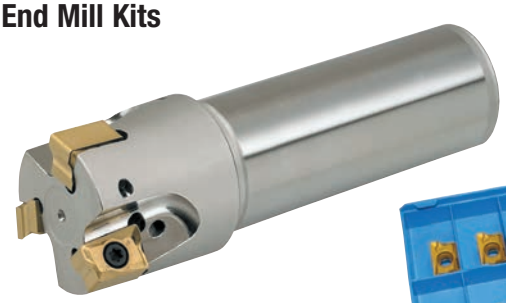
2"- 5" With Coolant hole
6"- 8" No Coolant Hole

Features of the DS8 Insert



- Innovative double-sided high rake angle insert makes it possible to use 8 cutting edges
- Smooth cutting with low cutting load that has been acquired from the unique geometry and high rake angle of cutting edge guarantees excellent surface finish
- The combination of the innovative geometries and the variety of grades provides wide coverage for milling applications
- Applicable for various workpieces including Steel, Cast Iron and Stainless Steel

DS4 End Mill Kits





Coolant through

Consists of:
1 - DS4 90° End Mill
10-20 LNMX100605PNR-F2 Inserts or
10-20 LNMX151008PNR-M Inserts



Features of the DS4 Insert

- Chip breaker has a high rake angle for smooth chip control
- Step design improves chip control by reducing the cutting load
- Major cutting edge for low cutting
- Concave design to avoid interference between each cutting edge
- Specially designed minor cutting edge improves surface finish
- Periphery face has a strong and negative face (Clearance angle 0°).

Kit Contents		Insert	Kit Code No.	Price $
1-1/4" (Z=3) DS4 3125HR-S125 (146390)	c/w 10 inserts (145636)	LNMX100605PNR-F2 PM30P	149763	**809.72**
1-1/4" (Z=4) DS4 3125HR-S125M (146391)	c/w 10 inserts (145636)	LNMX100605PNR-F2 PM30P	149780	**637.20**
1-1/4" (Z=2) DS4 4125HR-S125 (148870)	c/w 10 inserts (145678)	LNMX151008PNR-M PM30P	149781	**882.09**
1-1/2" (Z=3) DS4 4150HR-S125 (148871)	c/w 10 inserts (145678)	LNMX151008PNR-M PM30P	149782	**661.40**
2" (Z=4) DS4 4200HR-S125M (148872)	c/w 10 inserts (145678)	LNMX151008PNR-M PM30P	149783	**782.50**
1-1/2" (Z=4) DS4 3150HR-S125 (146392)	c/w 20 inserts (145636)	LNMX100605PNR-F2 PM30P	149784	**673.60**
2" (Z=5) DS4 3200HR-S125 (146394)	c/w 20 inserts (145636)	LNMX100605PNR-F2 PM30P	149786	**1,384.85**
2" (Z=7) DS4 3200HR-S125M (146395)	c/w 20 inserts (145636)	LNMX100605PNR-F2 PM30P	149787	**1,068.60**

DS4 Face Mill Kits





Coolant through

Consists of:
1 - DS4 90° Face Mill
20-30 LNMX100605PNR-F2 Inserts or
20-60 LNMX151008PNR-M Inserts



Kit Contents		Insert	Kit Code No.	Price $
1-1/2" (Z=5) DS4 3150HR-M (146393)	c/w 20 inserts (145636)	LNMX100605PNR-F2 PM30P	149788	**920.40**
2-1/2" (Z=9) DS4 3250HR-M (148374)	c/w 30 inserts (145636)	LNMX100605PNR-F2 PM30P	149789	**1,904.78**
3" (Z=10) DS4 3300HR-M (148376)	c/w 30 inserts (145636)	LNMX100605PNR-F2 PM30P	149790	**2,445.38**
4" (Z=12) DS4 3400HR-M (148391)	c/w 30 inserts (145636)	LNMX100605PNR-F2 PM30P	149791	**2,051.50**
2-1/2" (Z=4) DS4 4250HR (148875)	c/w 20 inserts (145678)	LNMX151008PNR-M PM30P	149792	**1,041.30**
2-1/2" (Z=6) DS4 4250HR-M (148876)	c/w 20 inserts (145678)	LNMX151008PNR-M PM30P	149793	**1,923.19**
3" (Z=5) DS4 4300HR (148877)	c/w 30 inserts (145678)	LNMX151008PNR-M PM30P	149794	**1,441.00**
4" (Z=8) DS4 4400HR-M (146880)	c/w 40 inserts (145678)	LNMX151008PNR-M PM30P	149795	**3,268.16**
5" (Z=7) DS4 4500HR (148881)	c/w 50 inserts (125678)	LNMX151008PNR-M PM30P	149796	**2,348.90**
5" (Z=10) DS4 4500HR-M (148882)	c/w 50 inserts (145678)	LNMX151008PNR-M PM30P	149797	**2,700.60**
6" (Z=8) DS4 4600HR (148883)*	c/w 60 inserts (145678)	LNMX151008PNR-M PM30P	149798	**2,663.70**
6" (Z=11 DS4 4600HR-M (148884)*	c/w 60 inserts (145678)	LNMX151008PNR-M PM30P	149799	**3,045.00**

* non-coolant through

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OKT-MAX Face Mill Kits



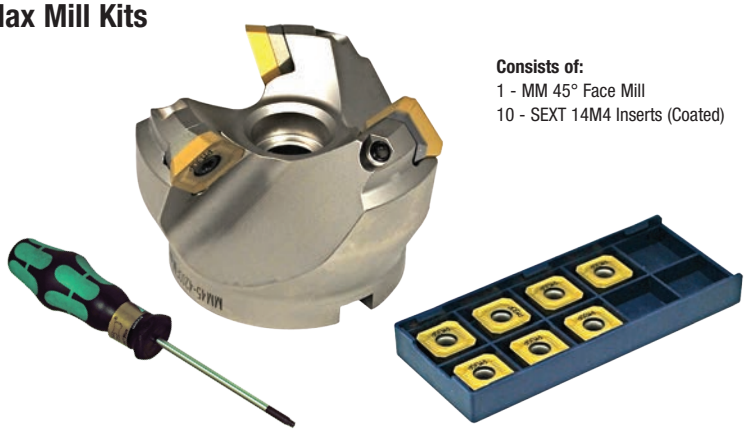


Consists of:
1 - OKT-MAX Face Mill
10 - OFKT 05T3 Inserts (Coated)

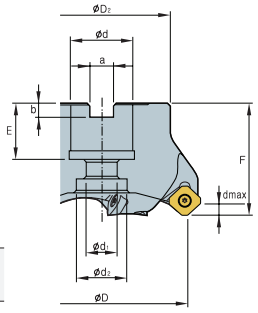
Kit Contents			Insert	Kit Code No.	Price $
2"	OKT-MAX Face Mill (147019)	c/w 10 inserts (146843)	OFKT 05T3 PM25C Inserts (Coated)	149863	**885.93**

Note: Each Kit Contains 146940 T15 Torx Wrench

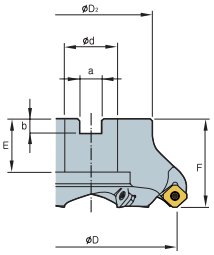
45° Max Mill Kits



Consists of:
1 - MM 45° Face Mill
10 - SEXT 14M4 Inserts (Coated)



Ø50 ~ Ø63



Ø3.150 ~ Ø6.299

Designation		Cutter No.	ØD	Ød	ØD₂	Ød₁	Ød₂	a	b	E	F	No. of Inserts	d max
MM 45°	Coarse Pitch												
	4200FM	**147811**	2.000	0.750	1.654	0.433	0.709	0.321	0.181	0.787	1.575	3	
	4250FM	**147812**	2.500	0.750	1.654	0.433	0.709	0.321	0.181	0.787	1.575	4	0.256
	4300FM	**147813**	3.000	1.000	1.969	0.551	0.827	0.384	0.248	0.866	1.969	5	
	4400FM	**147814**	4.000	1.250	2.362	-	1.772	0.510	0.319	0.866	1.969	5	

Kit Contents			Insert	Kit Code No.	Price $
2"	Cutter (147811)	c/w 10 inserts (147730)	SEXT 14M4 AGSN PM25C	149932	**634.59**
2"	Cutter (147811)	c/w 10 inserts (148182)	SEXT 14M4 AGSN PM30P	149933	**634.59**
2 1/2"	Cutter (147812)	c/w 10 inserts (147730)	SEXT 14M4 AGSN PM25C	149934	**749.97**
2 1/2"	Cutter (147812)	c/w 10 inserts (148182)	SEXT 14M4 AGSN PM30P	149935	**749.97**
3"	Cutter (147813)	c/w 10 inserts (147730)	SEXT 14M4 AGSN PM25C	149936	**1,009.43**
3"	Cutter (147813)	c/w 10 inserts (148182)	SEXT 14M4 AGSN PM30P	149937	**1,009.43**
4"	Cutter (147814)	c/w 10 inserts (147730)	SEXT 14M4 AGSN PM25C	149938	**1,190.23**
4"	Cutter (147814)	c/w 10 inserts (148182)	SEXT 14M4 AGSN PM30P	149939	**1,190.23**

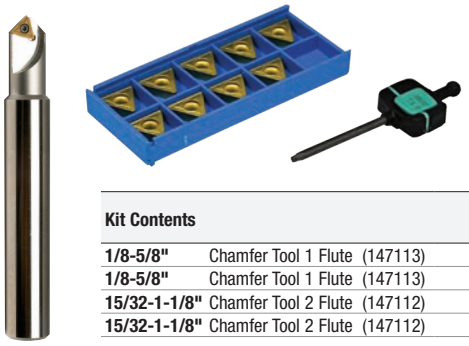
Alumimill Kits



Consists of:
1 - AMFM Face Mill Complete With
VCKT 43.57.5 Inserts (Polished)

Kit Contents			Insert	Kit Code No.	Price $
2"	Face Mill (147424)	c/w 3 inserts (147425)	VCKT 43.57.5 NA KT10U	149927	**738.32**
2-1/2"	Face Mill (147834)	c/w 4 inserts (147425)	VCKT 43.57.5 NA KT10U	149928	**921.35**
3"	Face Mill (147470)	c/w 4 inserts (147425)	VCKT 43.57.5 NA KT10U	149929	**959.60**
4"	Face Mill (147471)	c/w 5 inserts (147425)	VCKT 43.57.5 NA KT10U	149930	**1,180.10**

Chamfer Tool Kits



Consists of:
1 - CT 45° Chamfer Tool
10 - TCMT/TCGT Inserts

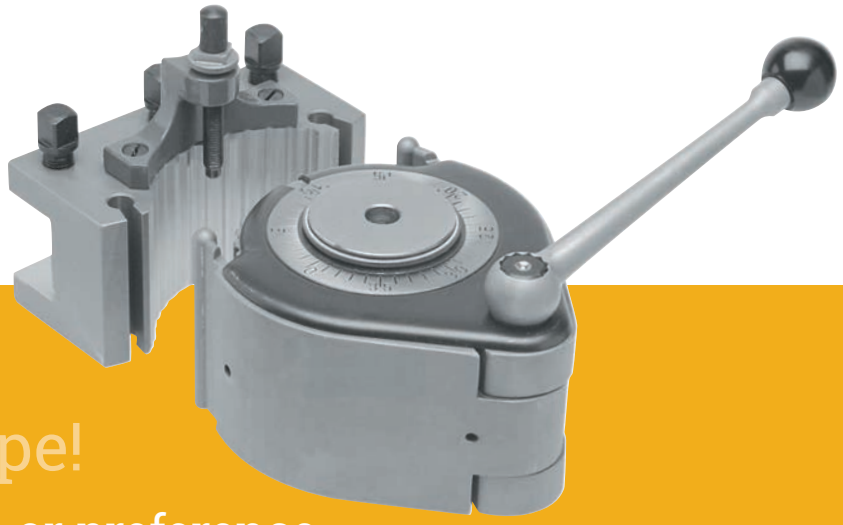
Kit Contents			Insert	Kit Code No.	Price $
1/8-5/8"	Chamfer Tool 1 Flute (147113)	c/w 10 inserts (148811)	TCMT 21.51 Inserts (Coated)	149853	**495.13**
1/8-5/8"	Chamfer Tool 1 Flute (147113)	c/w 10 inserts (146506)	TCGT 21.52 Inserts For **Aluminum**	149854	**556.93**
15/32-1-1/8"	Chamfer Tool 2 Flute (147112)	c/w 10 inserts (148707)	TCMT 32.52 Inserts (Coated)	149855	**362.67**
15/32-1-1/8"	Chamfer Tool 2 Flute (147112)	c/w 10 inserts (146508)	TCGT 32.52 Inserts For **Aluminum**	149856	**448.87**

Mold Mill Kits



Consists of:
1 - Mold Mill
2 - RC Inserts (Coated)

KIT CONTENTS			Kit Code No.	Price $
5/8"	Standard Length Moldmill (148094)	c/w 2pcs RC-5/8 Inserts (147858)	149912	**920.45**
5/8"	Medium Length Moldmill (147853)	c/w 2pcs RC-5/8 Inserts (147858)	149913	**957.70**
5/8"	Long Length Moldmill (148095)	c/w 2pcs RC-5/8 Inserts (147858)	149914	**991.57**
3/4"	Standard Length Moldmill (148096)	c/w 2pcs RC-3/4 Inserts (147859)	149915	**656.00**
3/4"	Medium Length Moldmill (147854)	c/w 2pcs RC-3/4 Inserts (147859)	149916	**686.80**
3/4"	Long Length Moldmill (148097)	c/w 2pcs RC-3/4 Inserts (147859)	149917	**717.70**
1"	Standard Length Moldmill (148098)	c/w 2pcs RC-1 Inserts (147860)	149918	**1,123.50**
1"	Medium Length Moldmill (147855)	c/w 2pcs RC-1 Inserts (147860)	149919	**767.60**
1"	Long Length Moldmill (148099)	c/w 2pcs RC-1 Inserts (147860)	149920	**1,264.13**
1-1/8"	Standard Length Moldmill (148100)	c/w 2pcs RC-1-1/8 Inserts (147861)	149923	**1,250.29**
1-1/8"	Medium Length Moldmill (147856)	c/w 2pcs RC-1-1/8 Inserts (147861)	149924	**691.50**
1-1/8"	Long Length Moldmill (148102)	c/w 2pcs RC-1-1/8 Inserts (147861)	149925	**1,724.04**
1-1/4"	Standard Length Moldmill (148103)	c/w 2pcs RC-1-1/4 Inserts (147862)	149921	**1,279.80**
1-1/4"	Medium Length Moldmill (147857)	c/w 2pcs RC-1-1/4 Inserts (147862)	149922	**870.50**
1-1/4"	Long Length Moldmill (148104)	c/w 2pcs RC-1-1/4 Inserts (147862)	149926	**934.60**



We've got your type!

No matter your machine or preference, we've got the tool post and holders you need.

See Pages H132-135

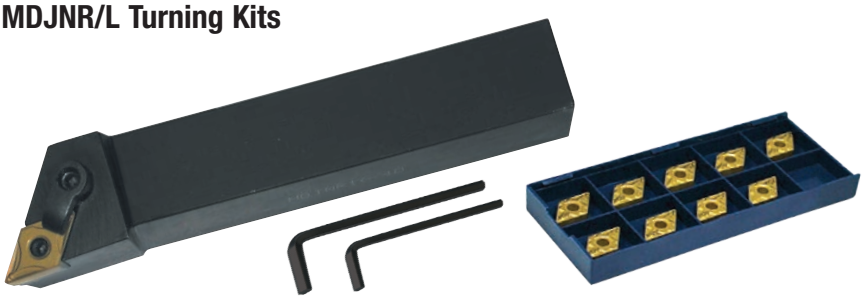
MCLNR/L Turning Kits



Consists of:
1 - MCLNR/L Toolholder
10 - CNMG 432 Inserts (Coated)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $	Left Hand Kit Code No.	Price $
Finishing	Steel	1pc MCLNR 16-4D (145828) 10pcs CNMG 432 F2 PT15C (149390)	149348	**371.38**	-	**-**
Medium/Finishing	Steel	1pc MCLNR 16-4D (145828) 10pcs CNMG 432 M PT25C (149231)	149363	**371.38**	-	**-**
Medium	Steel	1pc MCLNR 16-4D (145828)/MCLNL 16-4D (145-829) 10pcs CNMG 432 MM PT25C (149256)	149374	**374.68**	149379	**369.71**
Roughing	Steel	1pc MCLNR 16-4D (145828) 10pcs CNMG 432 R1 PT25C (149254)	149395	**371.38**	-	**-**
Medium	Stainless Steel	1pc MCLNR 16-4D (145828) 10pcs CNMG 432 MM MT20C (146765)	149803	**371.38**	-	**-**
Medium	Cast Iron	1pc MCLNR 16-4D (145828) 10pcs CNMA 432 KT10C (147473)	149804	**371.38**	-	**-**

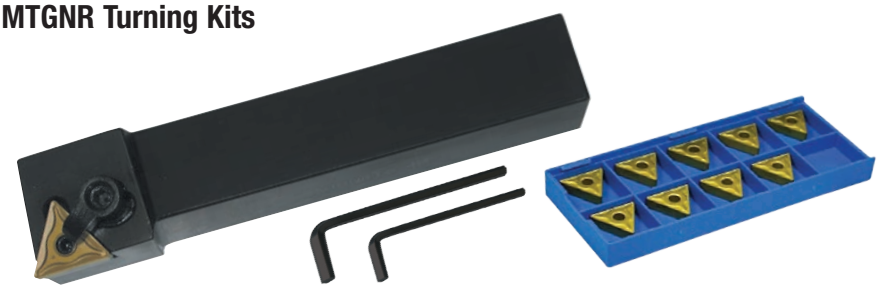
MDJNR/L Turning Kits



Consists of:
1 - MDJNR/L Toolholder
10 - DNMG 432 Inserts (Coated)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $	Left Hand Kit Code No.	Price $
Finishing	Steel	1pc MDJNR 16-4D (145845) 10pcs DNMG 432 F2 PT15C (149435)	149396	**299.00**	-	**-**
Medium/Finishing	Steel	1pc MDJNR 16-4D (145845) 10pcs DNMG 432 M PT25C (149233)	149397	**403.11**	-	**-**
Medium	Steel	1pc MDJNR 16-4D (145845)/MDJNL 16-4D (145-846) 10pcs DNMG 432 MM PT25C (149279)	149429	**406.61**	149431	**406.61**
Medium	Stainless Steel	1pc MDJNR 16-4D (145845) 10pcs DNMG 432 MM MT20C (146768)	149810	**403.11**	-	**-**

MTGNR Turning Kits



Consists of:
1 - MTGNR Toolholder
10 - TNMG 432 Inserts (Coated)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $
Medium/Finishing	Steel	1pc MTGNR 16-4D (145814) 10pcs TNMG 432 M PT25C (149228)	149433	**414.28**
Roughing	Steel	1pc MTGNR 16-4D (145814) 10pcs TNMG 432 MM PT25C (149234)	149443	**414.28**

MTJNR/L Turning Kits



Consists of:
1 - MTJNR/L Toolholder
10 - TNMG 432 Inserts (Coated)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $	Left Hand Kit Code No.	Price $
Medium Finishing	Steel	1pc MTJNR 16-4D (145757) 10pcs TNMG 432 M PT25C (149228)	149447	**395.73**	-	**-**
Medium	Steel	1pc MTJNR 16-4D 1" Shank (145757)/MTJNL 16-4D (145756) 10pcs TNMG 432 MM PT25C (149234)	149451	**395.73**	149453	**395.73**
Medium	Steel	1pc MTJNR 12-3D 3/4" Shank (145887)/MTJNL 12-3B (145888) 10pcs TNMG 322 G PT30C (146093)	149818	**303.47**	149821	**303.47**
Medium	Steel	1pc MTJNR 10-3B 5/8" Shank (145891)/MTJNL 10-3B (145892) 10pcs TNMG 322 G PT30C (146093)	149819	**295.95**	149822	**295.95**

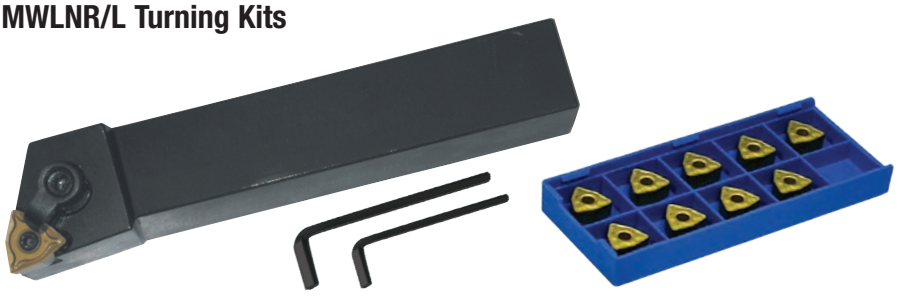
MVJNR/L Turning Kits



Consists of:
1 - MVJNR/L Toolholder
10 - VNMG 332 Inserts (Coated)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $	Left Hand Kit Code No.	Price $
Medium	Steel	1pc MVJNR 16-3D (145893)/MVJNL 16-3D (145738) 10pcs VNMG 332 M PT25C (149265)	149455	**410.81**	149457	**410.81**

MWLNR/L Turning Kits



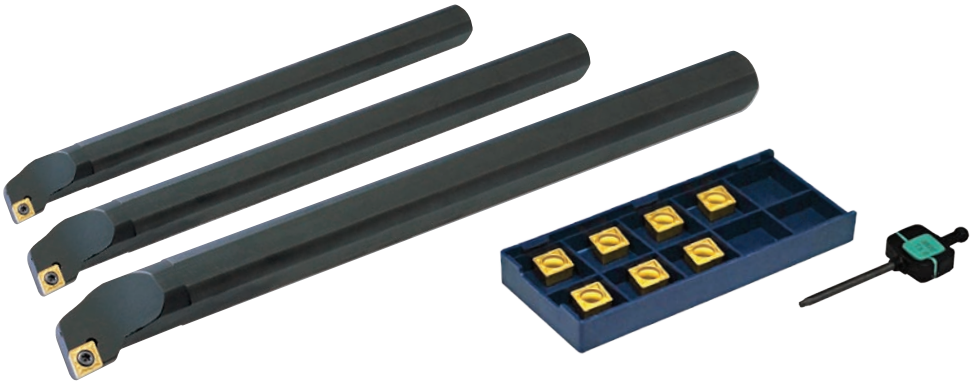
Consists of:
1 - MWLNR/L Toolholder
10 - WNMG 432 Inserts (Coated)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $	Left Hand Kit Code No.	Price $
Medium Finish	Steel	1pc MWLNR 16-4D (145808) 10pcs WNMG 432 M PT25C (149248)	149459	**260.08**	-	**-**
Medium	Steel	1pc MWLNR 16-4D 1" Shank (145808)/MWLNL 16-4D (145809) 10pcs WNMG 432 MM PT25C (149249)	149461	**259.58**	149463	**369.21**
Medium	Steel	1pc MWLNR 12-4D 3/4" Shank (145875)/MWLNL 12-4D (145876) 10pcs WNMG 432 MM PT25C (149249)	149465	**350.41**	149467	**350.41**
Medium	Stainless Steel	1pc MWLNR 16-4D (145808) 10pcs WNMG 432 MM MT20C (146769)	149827	**260.08**	-	**-**
Medium	Cast Iron	1pc MWLNR 16-4D (145808) 10pcs WNMA 432 KT05C (147429)	149828	**371.38**	-	**-**
Roughing	Cast Iron	1pc MWLNR 16-4D (145808) 10pcs WNMA 432 KT10C (147672)	149829	**227.98**	-	**-**

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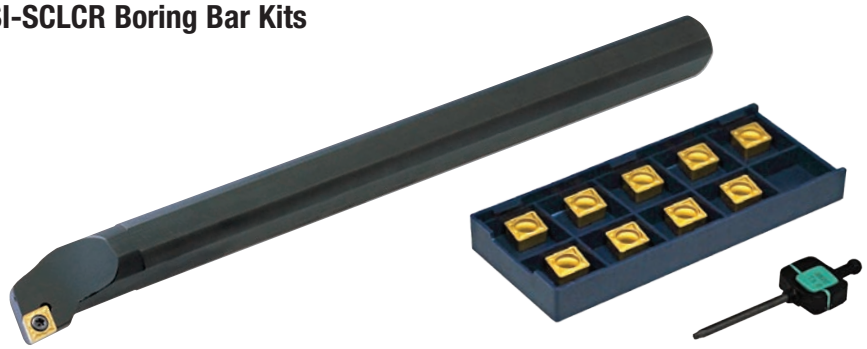
SI-SCLCR/L Master Boring Bar Kits



Consists of:
1 - 5/8" ø B/Bar, SI-SCLCR 10-3 (145925)
1 - 3/4" ø B/Bar, SI-SCLCR 12-3 (145926)
1 - 1" ø B/Bar, SI-SCLCR 16-3 (145927)
10 - CCMT 32.51 inserts
1- wrench (146940)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $	Left Hand Kit Code No.	Price $
Medium	Steel	1pc SI SCLCR 5/8", 3/4", 1" Boring Bars 10pcs CCMT 32.51 F2P PT25C (149220)	149471	**561.13**	-	**-**
Medium	Steel	1pc SI SCLCL 5/8", 3/4", 1" Boring Bars 10pcs CCMT 32.51 F2P PT25C (149220)	-	**-**	149473	**624.79**
Medium	Aluminum	1pc SI SCLCR 5/8", 3/4", 1" Boring Bars 10pcs CCGT 32.51 AP KT10U (146011)	149847	**645.13**	-	**-**

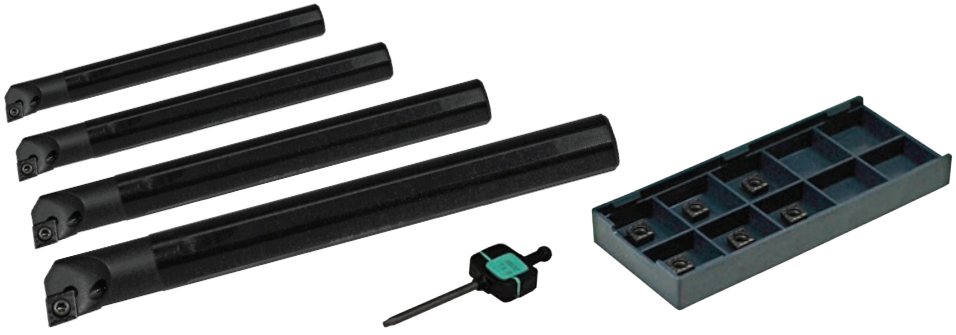
SI-SCLCR Boring Bar Kits



Consists of:
1 - SI-SCLCR Boring Bar
10 - CCMT 32.51 Inserts (Coated)

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $
Medium	Steel	1pc SI SCLCR 10-3(5/8")(145925) 10pcs CCMT 32.51 F2P PT25C (149220)	149475	**251.09**
Medium	Steel	1pc SI SCLCR 12-3(3/4")(145926) 10pcs CCMT 32.51 F2P PT25C (149220)	149477	**276.53**
Medium	Steel	1pc SI SCLCR 16-3(1")(145927) 10pcs CCMT 32.51 F2P PT25C (149220)	149479	**308.91**

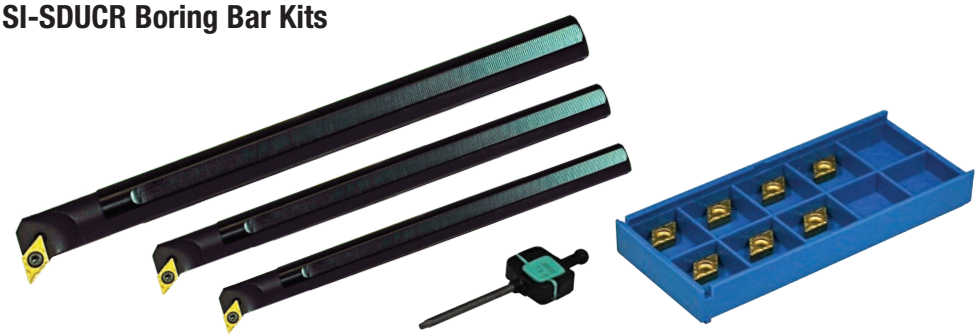
A-SCLCR Coolant Through Boring Bar Kits



Consists of:
1 - 5/16" ø B/Bar, A-SCLCR 5-2 (146589)
1 - 3/8" ø B/Bar, A-SCLCR 6-2 (146590)
1 - 1/2" ø B/Bar, A-SCLCR 8-2 (146591)
1 - 5/8" ø B/Bar, A-SCLCR 10-2 (147348)
1 - wrench (146939)
10 - CC_T21.51 Inserts

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $
Finishing	Steel	1pc A-SCLCR 5/16", 3/8", 1/2", 5/8 10pcs CCMT 21.50.5 F2P PT25C (149252)	149481	**692.64**
Medium	Steel	1pc A-SCLCR 5/16", 3/8", 1/2", 5/8 10pcs CCMT 21.51 F2P PT25C (149227)	149483	**692.54**
Medium	Aluminum	1pc A-SCLCR 5/16", 3/8", 1/2", 5/8 10pcs CCGT 21.51 AP KT10U (146024)	149850	**602.57**

SI-SDUCR Boring Bar Kits



Consists of:
1 - 3/8" ø B/Bar, SI-SDUCR 6-2 (145939)
1 - 1/2" ø B/Bar, SI-SDUCR 8-2 (145940)
1 - 5/8" ø B/Bar, SI-SDUCR 10-2 (145941)
10 DC__T21.51 Inserts

Application	Material	Kit Contents	Right Hand Kit Code No.	Price $
Medium	Steel	1pc SI-SDUCR 3/8", 1/2", 5/8" Boring Bars 10pcs DCMT 21.51 F2P PT25C (149260)	149485	**455.13**
Medium	Aluminum	1pc SI-SDUCR 3/8", 1/2", 5/8" Boring Bars 10pcs DCGT 21.51 AP KT10U (146989)	149852	**475.49**

External Threading Kits



Consists of:
1 - ETH3 Toolholder
2 - ECTR 300 Inserts (Coated)

Kit Contents	Insert	Kit Code No.	Price $
3/4" Toolholder (146708) c/w 2pcs 3/8" Partial Profile inserts Coated (146597)	ECTR 300 8-28 PM30P	149839	**212.34**
1" Toolholder (146290) c/w 2pcs 3/8" Partial Profile inserts Coated (146597)	ECTR 300 8-28 PM30P	149840	**225.54**

Internal Threading Kits



Consists of:
1 - ITH3 Toolholder
2 - ICTR 300 Inserts (Coated)

Kit Contents	Insert	Kit Code No.	Price $
3/4" Toolholder (146255) c/w 2pcs - 3/8" Partial Profile inserts Coated (146610)	ICTR 300 8-28 PM30P	149842	**272.13**
1" Toolholder (146254) c/w 2pcs - 3/8" Partial Profile inserts Coated (146610)	ICTR 300 8-28 PM30P	149843	**305.20**
1-1/4" Toolholder (146256) c/w 2pcs - 3/8" Partial Profile inserts Coated (146610)	ICTR 300 8-28 PM30P	149879	**373.48**

PRO Part Off Kits



Consists of:
1 - PP-B Part Off Blade
10 - SP 300 Inserts (Coated)
1 - SW15S Wrench

Kit Contents	Insert	Kit Code No.	Price $
PP-B 326S 1" Blade (146232) c/w 10-1/8" inserts (146452)	SP300 PT30C	149835	**409.37**
PP-B 332S 1-1/4" Blade (146898) c/w 10-1/8" inserts (146452)	SP300 PT30C	149836	**400.49**
PP-B 432S 1-1/4" Blade (146899) c/w 10-0.161" inserts (146454)	SP400 PT30C	147441	**406.99**

PRO Part Off Kits



Consists of:
1 - PP-B Part Off Blade
1 - P.O.B. Part Off Block
10 - SP 300 Inserts (Coated)
1 - SW15S Wrench

Kit Contents	Insert	Kit Code No.	Price $
PP-B 326S 1" Blade (146232) c/w 10-1/8" inserts (146452) & P.O.B. 19-5 Part Off Block (146510)	SP300 PT30C	149837	**631.91**
PP-B 326S 1-1/4" Blade (146898) c/w 10-1/8" inserts (146452) & P.O.B. 25; 4-6 Part Off Block (145895)	SP300 PT30C	149838	**594.23**

MTG — Multi Turn Groove Kits



Consists of:
1 - MGEHR Toolholder
5 - MGMN Inserts (Coated)

Kit Contents	Insert	Kit Code No.	Price $
MGEHR 16-3 1" Shank (148066) c/w 5-3mm inserts (149225)	MGMN 300M PT25C	149640	**323.51**
MGEHR 16-4 1" Shank (148074) c/w 5-4mm inserts (149237)	MGMN 400M PT25C	149642	**332.36**

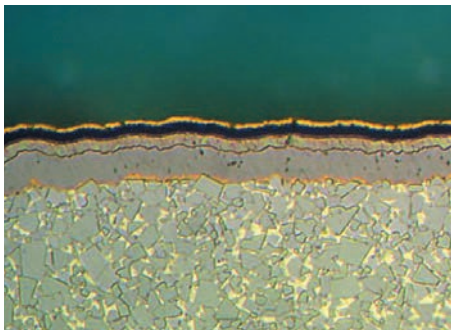
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Images are representational only and may not reflect actual product.

Special Features

1) Having superior wear resistance and toughness at the same time due to special crystalline structure of film

2) High bonding strength between film and substrate by adopting new-coating technology.



TiN Reduces Friction-Force

Al_2O_3 Wear Resistance, Prevents Edge Build-Up

TiC Wear Resistance

TiCN Enhancing Wear-resistance and toughness by adopting New-Coating Tech.

Cross-sectional view of CVD coating film

Guide of Grade Selection

Turning

Workpiece	Cutting Condition	1st Choice	Cutting Speed (sfm)	ISO	Application Range
Steel	Continuous Cutting			P01	PT10C, PT15C, PT25C, PT30C, PT40C
		PT10C	925(725 ~ 1150)	P10	
		PT25C	918(590 ~ 1,246)	P20	
	Intermittent Cutting	PT20C	600(500 ~ 650)	P30	
		PT30C	500(400 ~ 650)S	P40	
Cast Iron	Continuous Cutting	KT05C	825(500 ~ 975)	K01	KT05C, KT10C
		KT10C	725(500 ~ 875)	K10	
	Intermittent Cutting	KT10C	600(500 ~ 825)	K20	
				K30	
Stainless Steel	Continuous Cutting	MT20C	550(400 ~ 725)	M01	MT20C, PT30C
				M10	
	Intermittent Cutting	PT30C	325(250 ~ 400)	M20	
				M30	

Milling

Workpiece	1st Choice	Cutting Speed (sfm)	ISO	Application Range
Steel	PM25C	825(500 ~ 975)	P20 M20	PM25C, PM30C
			P30 M30	
	PM30C	650(500 ~ 825)	P40 M40	
Cast Iron			K10	KM20C
			K20	
	KM20C	650(500 ~ 825)	K30	

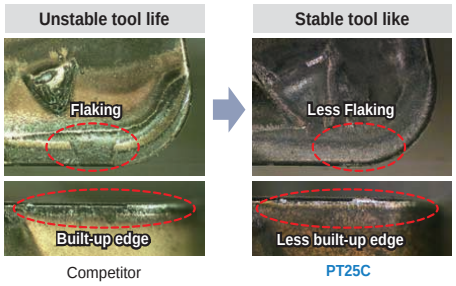
Introducing The New & Improved PT25C

Features of PT25C [New coating layer with oxidation resistance and adhesion]

- Universal grade especially for machining forged automobile components and bearing steel both in continuous and interrupted cutting
- Available for all kinds of steels - carbon steel, alloy steel, rolled steel, tool steel, mild steel, bearing steel and other special kinds of steel
- New coating technology increases welding resistance and chipping resistance, which leads to longer tool life

Stable tool life
> Higher production stability

Longer tool life & Higher removal rate
> High cutting conditions and shorter cutting time available



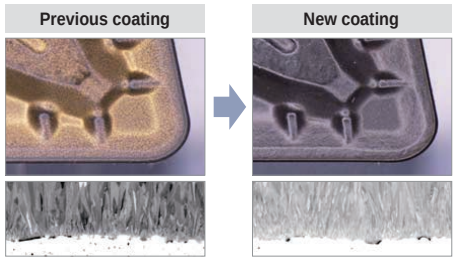
Competitor PT25C

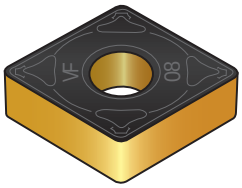
Ideal combination of a grade and chip breakers
> Prolongs tool life
> Wide applications ranging from roughing to finishing



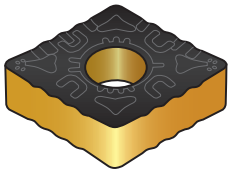
Competitor PT25C

Disperse cutting force > Reduce chipping > Increase tool life > Improved productivity

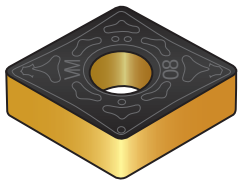




[For Finishing]



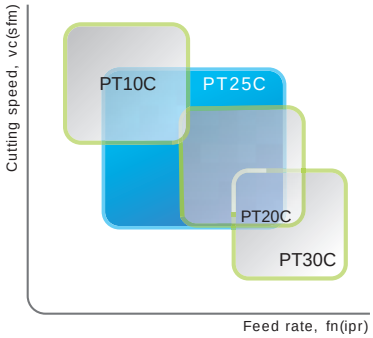
[For medium- finishing]



[For medium machining

Increased wear resistance, welding resistance, and chipping resistance

Application and Features

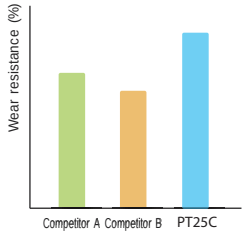


- General grade for all kinds of steel (carbon steel, alloy steel, rolled steel, tool steel, mild steel, bearing steel, etc.) in both continuous and interrupted machining
- Longer tool life in high speed machining due to improved wear resistance and plastic deformation resistance
- Improved coating layer with superior adhesion improves chipping resistance and stability of machining
- Fine finished coating surface provides welding resistance, superior lubrication, and lower cutting load

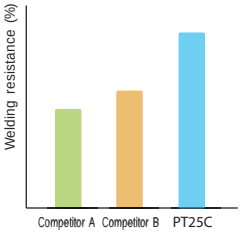
Recommended Cutting

Workpiece			Recommended grade	vc(sfm)	ISO	Application range
P	Steel	Continuous cutting	PT10C	984(656~ 1,312)	P01, P10, P15	PT10C
			PT25C	918(590~ 1,246)	P20	PT25C
			PT20C	820(492~ 1,148)	P20	PT20C
		Interrupted cutting	PT30C	656(492~ 820)	P30	PT30C
			PTM50C	623(328~ 754)	P35, P40	PTM50C

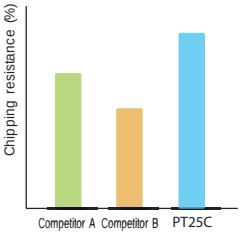
• Wear resistance



• Welding resistance



• Chipping resistance



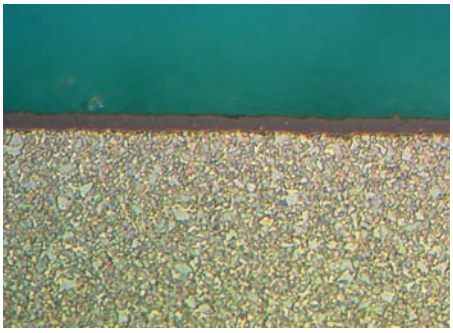


CVD Coating Grades

Grade	ISO	Special Features	Use
PT10C	**P05 - P15**	• For high speed machining of steel • Optimal for high speed machining of steel due to the combination of high hardness substrate and CVD Al_2O_3 film • MT-TiCN + Al_2O_3 + TiN	Turning
PT15C	**P10 - P20**	• For medium to high speed machining of steel • Excellent combination of toughness and wear resistance • Stable consistent cutting performance • MT-TiCN + Al_2O_3 + TiN	Turning
PT25C	**P15 - P30**	• For medium cutting of steel • Excellent combination of tough substrate and coating having superior chipping resistance providing stable and consistent cutting performance • MT-TiCN + Al_2O_3 + TiN	Turning
PT30C	**P25 - P35** **M15 - M25**	• For medium to roughing and intermittent cutting of steel and stainless steel • Toughest substrate provides wide available application range • MT-TiCN + Al_2O_3 + TiN	Turning
PT40C	**P25 - P40** **M15 - M25**	• For medium to roughing and intermittent cutting of steel and stainless steel • Toughest substrate provides wide available application range • MT-TiCN + Al_2O_3 + TiN	Turning
KT05C	**K05 - K15**	• For high speed cutting of cast iron • High hardness substrate and thick CVD Al_2O_3 coating provide excellent wear resistance • MT-TiCN + Al_2O_3 + TiN	Turning
KT10C	**K10 - K25**	• For general, high efficient cutting of cast iron • Special substrate suitable for fast feed and deep depth of cut and thick CVD Al_2O_3 coating provide stable and consistent cutting performance • MT-TiCN + Al_2O_3 + TiN	Turning
MT20C	**M10 - M20**	• For high speed cutting of stainless steel • Special substrate having excellent thermal properties and CVD coating having superior chipping resistance provide longer tool life • MT-TiCN + Al_2O_3 + TiN	Turning
PM10C	**P05 - P15**	• For high speed machining of steel • Optimal for high speed machining of steel due to the combination of high hardness substrate and CVD Al_2O_3 film • MT-TiCN + Al_2O_3 + TiN	Milling
PM25C	**P20 - P30** **M20 - M30**	• For high speed milling of steel and stainless steel • Optimal substrate and coating having optimal wear resistance and toughness provide consistent tool life • MT-TiCN + Al_2O_3 + TiN	Milling
PM30C	**P30 - P40** **M30 - M40**	• For intermittent and rough milling of steel and stainless steel • Tough substrate provide stable cutting even at severe intermittent cutting • MT-TiCN + Al_2O_3 + TiN	Milling
KM20C	**K15 - K25**	• For general milling of cast iron • Tough substrate and fine grain size Al_2O_3 coating provide wide available cutting range for both dry and wet cutting • MT-TiCN + Al_2O_3	Milling

Special Features

1) PVD coating technique has inherent advantage such as superior chipping resistance of coated film itself and maintains the toughness of carbide substrate. Thus it is possible to increase the tool life approximately 2~4 times longer than carbide cutting tools.
2) PVD coating can make sharp cutting edge without blunting of sharp substrate.
3) Ti-base coating film can provide excellent surface finish and high accuracy machining due to the low affinity of Ti film and workpiece.



Cross-sectional view of PVD coating film

SOWA PVD Trio

PM30P Steel milling grade equipped with tough substrate and Nano-TiAlN coating film.

MT30P Exclusive grade for turning of stainless steel consisting of tough substrate and TiAlN coating film.

MM30P Exclusive grade for milling of stainless steel consisting ultra fine grain size substrate and TiAlN coating film.

Guide of Grade Selection

Turning

Workpiece	Cutting Condition	1st Choice	Cutting Speed (sfm)	ISO	Application Range
Steel	TiAlN		600(400 ~ 750)	P10	
				P20	
	TiCN		425(305 ~ 525)	P30	
				P40	
Cast Iron	TiAlN		650(500 ~ 825)	K01	
			550(400 ~ 700)	K10	
	TiAlN		500(325 ~ 650)	K20	
Stainless Steel	TiAlN	MT30P	420(160 ~ 260)	M20	
				M30	
				M40	MT30P

Milling

Workpiece	Cutting Condition	1st Choice	Cutting Speed (sfm)	ISO	Application Range
Steel	TiAlN	PM10P	650(500 ~ 825)	P10	PM10P
				P20	
		PM30P PM40P	400(325 ~ 500)	P30	PM30P
				P40	PM40P
Cast Iron	TiAlN		650(500 ~ 825)	K01	
			550(400 ~ 700)	K10	
	TiAlN		500(325 ~ 650)	K20	
Stainless Steel	TiAlN	MM30P	420(160 ~ 260)	M20	
				M30	
				M40	MM30P



PVD Coating Grades

Grade	ISO	Special Features	Use
PM10P	**P05 - P15**	• For milling of steel • Tough exclusive substrate with Nano-TiAlN coating provides excellent wear resistance and toughness at the same time. • Nano-TiAlN coating	Milling
PM30P	**P10 - P25**	• For milling of steel • Tough exclusive substrate with Nano-TiAlN coating provides excellent wear resistance and toughness at the same time. • Nano-TiAlN coating	Milling
PM35P	**P25 - P40**	• For milling of steel • Tough exclusive substrate with Nano-TiAlN coating provides excellent wear resistance and toughness at the same time. • Nano-TiAlN coating	Milling
PM40P	**P25 - P40**	• For milling of steel • Tough exclusive substrate with Nano-TiAlN coating provides excellent wear resistance and toughness at the same time. • Nano-TiAlN coating	Milling
MT30P	**M20 - M35**	• For medium to roughing, intermittent turning of stainless steel • Toughest sub-micron substrate with PVD TiAlN coating prevents edge build-up, thus providing extended and consistent tool life. • TiAlN coating	Turning Threading
MM30P	**M35 - M45**	• For medium to rough milling of Stainless Steel • Toughest sub-micron substrate provides excellent cutting performance at fast feed machining. • TiAlN coating	Milling
KT15P	**K10 - K20**	• Optimal grade for milling of cast iron at medium to low speed cutting • Available for machining aluminum as well. • TiAlN coating	Milling
SM20P	**S20**	• For milling high temp alloys (inconel, titanium, stellite, haynes hastelloy) • Special substrate with increased toughness for better shock resistance • Special coating for increased oxidation resistance and anti-adhesion • TiAl(ME)N coating	Milling
ST10P	**S10**	• For turning high temp alloys (inconel, titanium, stellite, haynes hastelloy) • Unique substrate combining high wear resistance and toughness • Special PVD coating provides good wear resistance and anti-adhesion • TiAl(ME)N coating	Turning

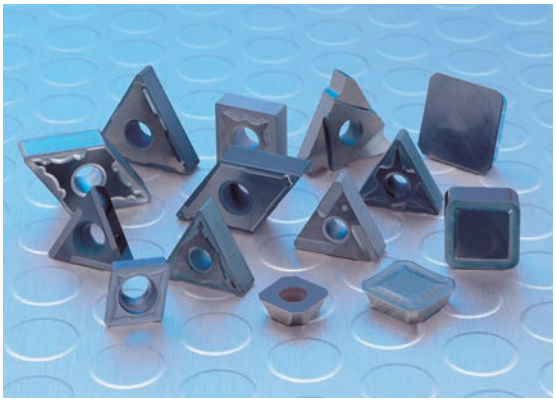
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Cermet Grades

Comparing with Coated Carbide

1. Suitable for light cutting (finishing)
2. Better wear resistance and surface finish can be acquired at the same cutting condition



Guide of Grade Selection

Turning

Workpiece	Cutting Condition	1st Choice	Cutting Speed (sfm)	ISO	Application Range
Steel	Finishing			P01	
	Light to Medium Cutting	PT10S	650(500 ~ 825)	P10	PT10S
		PT20S	650(425 ~ 825)	P20	PT20S

Milling

Workpiece	Cutting Condition	1st Choice	Cutting Speed (sfm)	ISO	Application Range
Steel	Finishing	PM20S	750(500 ~ 975)	P01	
				P10	PM20S
	Light to Medium Cutting	PM30S	650(500 ~ 825)	P20	PM30S

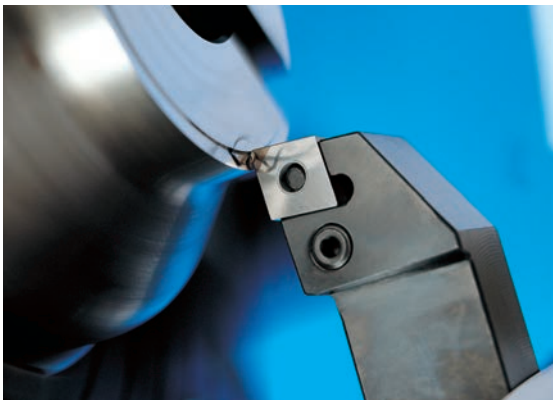
Cermet Grades

SOWA Grade	ISO	Special Features	Use
PT10S	P05 - P15	For turning of steel. * Hard cermet having superior wear resistance	Milling Turning
PM20S	P10 - P20	For milling and turning of steel. * General grade has optimal wear resistance and toughness at the same time.	Milling Turning
PT20S	P05 - P15	Comprehensive grade can cover from roughing to finishing of steel. * Special cermet developed with Functionally-Gradiented-Material technology.	Turning
PM30S	P20 - P30	Exclusive for steel milling	Milling

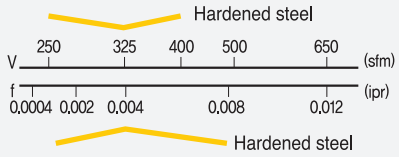
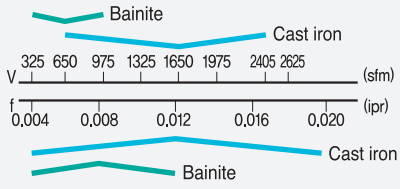
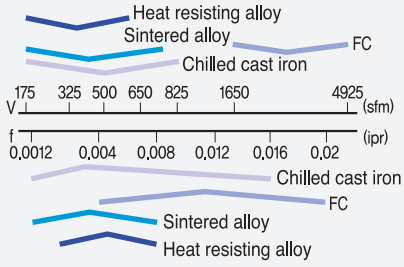


Special Features

CBN is a cutting tool material made under ultra high pressure and temperature sintering mixture of cubic boron nitride and special ceramic binder material. CBN tool is suitable for machining of high speed precise machining of hardened steels and cast irons. Machining with CBN can replace conventional grinding process effectively.



SOWA CBN Grades

Cutting Condition	Special Features	Workpiece
	**KB320** • Suitable for general cutting, intermittent and continuous cutting • Superior toughness • Comprehensive grade having optimal wear resistance and toughness	**Hardened Steel** HRC : 40 ~ 65
	**KB330** • Suitable for intermittent cutting	**Hardened Steel** HRC : 40 ~ 65
	**KB350** • Suitable for high speed finishing of cast iron • Comprehensive grade for machining of cast iron	**Cast Iron** HRB : 180 ~ 250
	**KB360** • Suitable for high speed cutting of cast iron and milling of high hardness roll, sintered alloy as well	**FC, Sintered Alloy, Heat Resisting Alloy , Carbide Roll**
	**KB420** • Unsurpassed tool life at high speed cut • High productivity	**Hardened Steel** HRC : 40 ~ 65

Cutting Conditions

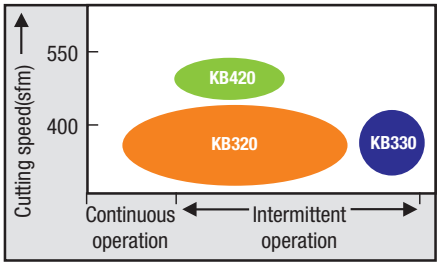
Hardened Steel

Grade

Grade	Application Range	Hardness	TRS (kgm²)
KB320	Comprehensive grade for hardened steel	>45HRC	100 ~ 110
KB330	Severe intermittent cutting	>45HRC	110 ~ 120
KB420	For difficult intermittent operations	>45HRC	110 ~ 120

TRS = Transverse ruptural strength

Application



Cast Iron

Grade

Grade	Application Range	Hardness	TRS (kgm²)
KB350	Cast Iron, Ductile Cast Iron	180 ~ 230HRB	100 ~ 110
KB360	Machining of Cast Iron	180 ~ 230HRB	95 ~ 110

TRS = Transverse ruptural strength

Application range

Workpiece	Hardness (HRB)	Part Name	Cutting Speed (sfm)
GC250 (Ferrite & Pearlite)	180	Oil Pump Housing Brake Disc	325 650 1325 1975 2625
GC300 Pearlite		Engine Block Scroll Compressor	KB350 KB360
Alloy Iron Pearlite	250	Brake Drum Liner	
GCD400 Ferrite & Pearlite	150	Differential Case Brake Body	KB350
GCD700 Bainite	300	Knuckle	

Sintered Alloy

Grade

Grade	Application Range	Hardness	TRS (kgm²)
KB360	Machining of sintered alloy, roll, heat resistant alloy	180 ~ 230HRB	95 ~ 110

TRS = Transverse ruptural strength

Heat Resistant Alloy

Grade

Grade	Application Range	Hardness	TRS (kgm²)
KB360	Machining of sintered alloy, roll, heat resistant alloy	180 ~ 230HRB	95 ~ 110

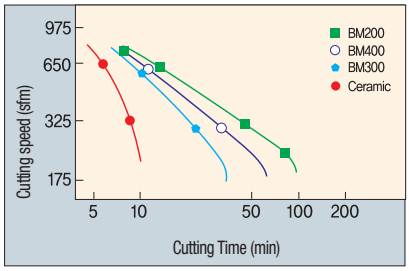
TRS = Transverse ruptural strength

Application range

	Valve seat of gasoline engine	Valve seat of gasoline engine
Flange Cutting	KB360 KB320	KB360 KB330
Traverse Cutting	KB360 KB350	KB360 KB350
Hardness of Workpiece	low Hv300 high	low Hv300 high

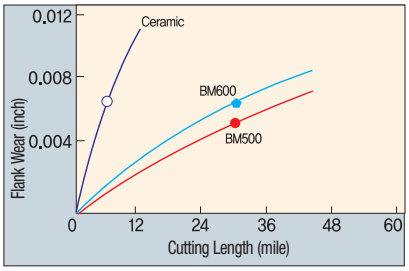
Cutting Test Examples

Heat Treated Steels



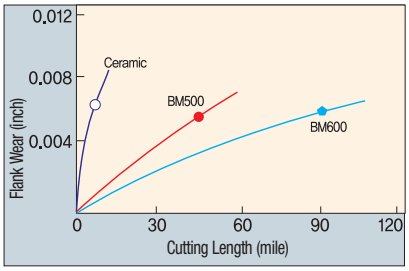
Workpiece : SUJ2(62~64 HRC) Cutting condition : V=250, 325, 650, 825sfm
Insert : SNGN 432 f=0.004ipr d=0.008inch
Cutting condition : BM200,BM300,BM400

Gray Cast Iron (No45B)



Workpiece : Gray cast irons (No35B) Cutting condition : V=1650sfm f=0.012ipr d=0.005inch, Wet cut

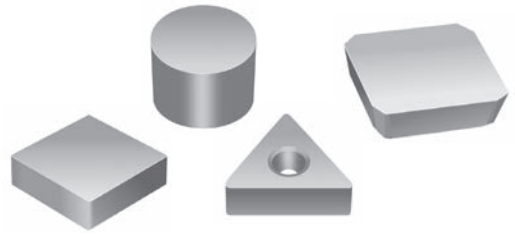
Gray Cast Iron (No35B)



Workpiece : Gray cast irons No35B) Cutting condition : V=2300sfm f=0.01ipr d=0.01inch, Wet cut



SOWA Ceramic Grades



SOWA Grade	ISO	Special Features	Use
GP100	**P01 - P10** **K01 - K10**	Universal grade for machining cast iron and hardened steel. Tougher alternative to GP300. High thermal shock resistance. Al_2O_3+TiC grade with micrograin structure.	Turning
GP300	**P01 - P15** **K01 - K15**	GP300 was developed for extremely hardened steel and high hardness alloy steel. It is a Al_2O_3+TiCN grade with micrograin structure.	Turning
S300	**P01 - P15** **K01 - K15**	Designed for high cutting speed of cast iron with heavy interruption.	Milling
S400	**P01 - P20** **K01 - K20**	The toughness and hardness of the edge were highly improved against wear for high speed cutting with heavy interruption. Especially in the automobile industry.	Milling

Recommended Cutting Condition

Turning

Grade	Workpiece		Cutting Style	Speed (sfm)	Feed (in/rev)	Depth (D.O.C.) (in)
GP100	Gray Cast Iron	• Gray Cast Iron (FC) • Malleable (FCMB) • Ductile Cast Iron (FCD)	Rough Finish	450 ~ 2,400 600 ~ 3,600	0.008 ~ 0.02 0.012 ~ 0.02	0.118 ~ 0.236 0.004 ~ 0.020
		• Chilled Cast Iron	Rough Finish	90 ~ 300 150 ~ 600	0.004 ~ 0.008 0.002 ~ 0.006	0.020 ~ 0.059 0.004 ~ 0.020
GP300	Steel	• Carbon Steel • Alloy Steel • Bearing Steel	Rough Finish	450 ~ 1,200 600 ~ 2,400	0.008 ~ 0.02 0.002 ~ 0.008	0.079 ~ 0.197 0.004 ~ 0.020
		• Hard Steel (45HRC >)	Rough Finish	60 ~ 300 120 ~ 600	0.004 ~ 0.008 0.002 ~ 0.02	0.020 ~ 0.059 0.004 ~ 0.020

Milling

Grade		Cutting Style	Speed (sfm)	Feed (in/rev)	Depth (D.O.C.) (in)
S300	• Gray Cast Iron	Rough Finish	300 ~ 3,600 450 ~ 4,500	0.012 ~ 0.020 0.012 ~ 0.028	0.118 ~ 0.236 0.004 ~ 0.020
S400	• Ductile Cast Iron • Alloy Steel	Rough Medium Finish	270 ~ 1,500 300 ~ 2,100 600 ~ 4,500	0.004 ~ 0.012 0.004 ~ 0.016 0.004 ~ 0.020	<0.197 <0.118 <0.118

Guide of Grade Selection

Turning

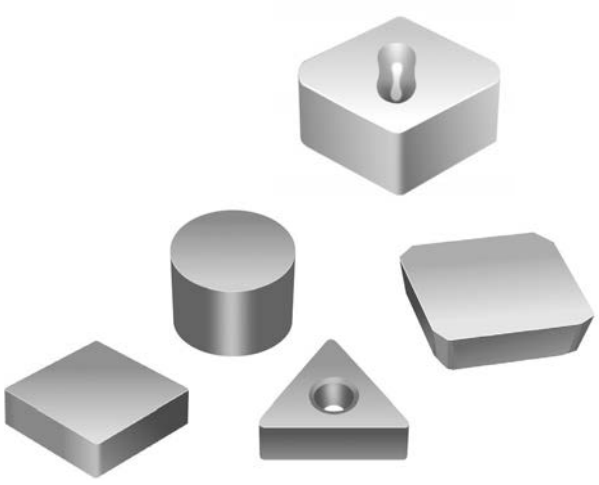
ISO	Application Range	ISO	Application Range
P01		K01	
P10	GP100	K10	GP100
P20	GP300	K20	GP300

Milling

ISO	Application Range	ISO	Application Range
P01		K01	
P10	S300	K10	S300
P20	S400	K20	S400

Choice of Ceramic

	Workpiece / Grade	GP 100 GP 300	GP 100 GP 300
Cast Iron	Gray Cast Iron	●	●
	Chilled Cast Iron	●	●
	Ductile Cast Iron	○	○
Steel	Mild Steel		
	Carbon Steel		
	Alloy Steel	●	
	Forged Steel	●	
	Heat Treated Steel	●	
	High Speed Steel	●	
	High Manganese Steel	○	○
	Stainless Steel		
	Heat Resistant Steel	○	○
	Super Alloys Steel	○	○





Special Features

SOWA uncoated carbide grades have exceptional wear resistance and toughness at the same time through special alloy design with WC, Co, and additives like TaC, TiC etc.

1. Excellent resistance to thermal crack allows cutting with coolant.
2. Specially designed alloys have fine micro structure and low affinity with workpiece.
3. They have excellent toughness in general.



Special Features

ISO	Composition	Characteristics	Workpiece
P	WC-TiC-TaC-Co	Excellent thermal shock resistance and resistance against plastic deformation	Carbon Steel, Alloy Steel
M	WC-TiC-TaC-Co	Comprehensive grades have excellent thermal shock resistance and superior strength	Alloy Steel, Stainless Steel
K	WC-Co	Hard and strong grades	Cast Iron, Non-ferrous metal, Plastic, Acryl, etc

ISO	Grade	Hardness (HRA)	TRS (kg/mm^2)	Young's Modulus ($x103kg/mm^2$)	Thermal Conductivity (cal/cm·Sec·°C)	Thermal Expansion Coefficient ($x10^{-6}$/°C)
P	PT20U	91.8	180	5.6	0.10	5.2
	PM20U	91.5	200	5.3	-	5.2
	PTM30U	91.3	210	5.3	-	5.2
M						
K	KT10U	92.8	190	6.6	0.26	4.7

Special Features

For Turning

Workpiece	1st Choice	Recommended Cutting Speed (sfm)	ISO	Application Range
Steel			P10	
			P20	PT20U, PM20U
	PT20U	425(225 ~ 600)	P30	PTM30U
	PM20U, PTM30U	425(225 ~ 600)		
Cast Iron			K01	
	KTM10U	500(325 ~ 650)	K10	KTM10U
			K20	KT10U
Aluminum Alloy	KT10U	1650(975 ~ 2625)		
Copper, Bronze	KT10U	650(500 ~ 975)	K30	

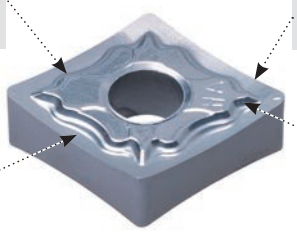
For Milling

Workpiece	1st Choice	Recommended Cutting Speed (sfm)	ISO	Application Range
Steel	PM20U	425(225 ~ 600)	P20	PM20U
	PTM30U	425(225 ~ 600)	P30	PTM30U
Cast Iron	KTM10U	500(325 ~ 650)	K01	
			K10	KTM10U
Aluminum Alloy	KTM10U	1650(975 ~ 2625)	K20	
Copper, Bronze	KTM10U	650(500 ~ 975)	K30	

Aluminum Machining — Chipbreaker A

1. Wide Chip Pocket & High Rake Angle
   - Smooth chip evacuation
   - Prevents edge build-up
   - Reduces cutting force

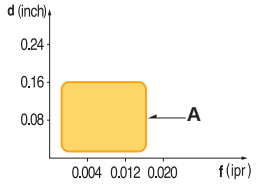
2. Reinforce Cutting Edge Strength
   - Increases main cutting edge toughness
   - Induces smooth chip flow at shallow depth of cut
   - Prevent chipping



4. Curved Cutting Edge
   - Sharp cutting edge provides effective shallow cutting
   - Excellent surface finish of workpiece and smooth cut

3. 2 Step Chip Breaker
   - Induces smooth chip curl.
   - Reduces cutting force at high speed, high feed machining

Recommended Cutting Condition

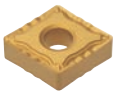
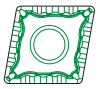
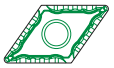
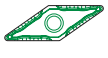
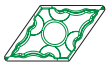
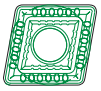


Cutting Condition

Workpiece	Hardness	Recommended Grade	Recommended Cutting Condition		
			Speed (sfm)	Feed (ipr)	Depth of Cut (inch)
Aluminum and Aluminum Alloy	20°~125HRB	KT10U KTM10U	650 ~ 2650	0.004-0.016	0.020-0.040

1. Workpiece Material : 1010, 1015, 12L14, 5015, 1112, etc.
Soft Steel
Hardness : Under 180HRB (18HRC)

Chipbreaker, Grade, Cutting Condition Recommendation

Workpiece	Chipbreaker & Grade Selection				Insert Shape					
	Chipbreaker & Feed		Grade & Cutting Speed		80°	80°	55°	60°	35°	90°
Depth of Cut (inch)	Chipbreaker	Feed (ipr)	Grade	Cutting Speed (sfm)	[NEG] CN□G	[NEG] WN□G	[NEG] DN□G	[NEG] TN□G	[NEG] VN□G	[NEG] SN□G
0.008 ~ 0.020 ~ 0.039 Ultra Finishing	F1 	0.002 ~ 0.004 ~ 0.008	PT10S PT20S	925 850						
0.020 ~ 0.039 ~ 0.079 Finishing	F2 	0.003 ~ 0.006 ~ 0.012	PT10C PT25C PT20S	1025 957 875 875	CNMG  P. E10	WNMG  P. E31	DNMG  P. E14		VNMG  P. E29	
0.03 ~ 0.08 ~ 0.14 Medium-Finishing	A 	0.004 ~ 0.010 ~ 0.016	PT25C PT30C	1000 750	CNMG  P. E10	WNMG  P. E31	DNMG  P. E14	TNMG  P. E24		SNMG  P. E20
0.031 ~ 0.059 ~ 0.138 Medium-Finishing	F3 	0.004 ~ 0.008 ~ 0.014	PT10C PT30C PT20S	975 950 825 825			DNMG  P. E15			
0.059 ~ 0.098 ~ 0.197 Medium Cutting, Medium-Roughing	M 	0.006 ~ 0.01 ~ 0.02	PT10C PT25C PT30C PT20S	875 825 750 700 725	CNMG  P. E10	WNMG  P. E32	DNMG  P. E15	TNMG  P. E25	VNMG  P. E29	SNMG  P. E20
0.100 ~ 0.160 ~ 0.280 Roughing	R2 	0.01 ~ 0.018 ~ 0.026	PT10C PT25C PT30C	500 475 425 325	CNMG  P. E11	WNMG  P. E33		TNMG  P. E26		SNMG  P. E21
0.197 ~ 0.280 ~ 0.440 Heavy Duty	R3 	0.02 ~ 0.04 ~ 0.044	PT25C PT30C	500 425 325	CNMM  P. E12					SNMM  P. E21
Depth of Cut (inch)	**Chipbreaker**	**Feed (ipr)**	**Grade**	**Cutting Speed (sfm)**	[POS] CC□T	[POS] WC□T	[POS] DC□T	[POS] TC□T	[POS] VC□T VB□T	[POS] SC□T
0.004 ~ 0.020 ~ 0.059 Finishing	F1P 	0.002 ~ 0.006 ~ 0.01	PT10C PT25C	925 850 825 825	CCGT  P. E8					
0.020 ~ 0.059 ~ 0.138 Medium Cutting, Medium-Roughing	F2P 	0.003 ~ 0.008 ~ 0.016	PT10C PT25C PT20S	850 800 750 750	CCMT  P. E9		DCMT  P. E13	TCMT  P. E23		SCMT  P. E19
0.039 ~ 0.079 ~ 0.118 Medium Cutting	F3P 	0.004 ~ 0.01 ~ 0.014	PT10C PT25C	825 750 725	CCMT  P. E9		DCMT  P. E13	TCMT  P. E24		SCMT P. E19

: 1st Recommended cutting condition

2. Workpiece Material : 1045,1050,4130, 4140 etc.
General Steel
Hardness : 180~260HRB (up to 26HRC)

Chipbreaker, Grade, Cutting Condition Recommendation

Workpiece	Chipbreaker & Grade Selection				Insert Shape					
	Chipbreaker & Feed		Grade & Cutting Speed		80°	80°	55°	60°	35°	90°
Depth of Cut (inch)	Chipbreaker	Feed (ipr)	Grade	Cutting Speed (sfm)	[NEG] CN□G	[NEG] WN□G	[NEG] DN□G	[NEG] TN□G	[NEG] VN□G	[NEG] SN□G
0.020 ~ 0.039 ~ 0.079 Finishing	F2	0.003 ~ 0.006 ~ 0.012	PT10C PT25C PT20S	725 650 625 600	CNMG P. E10	WNMG P. E31	DNMG P. E14		VNMG P. E29	
1.031 ~ 0.059 ~ 0.138 Medium-Finishing	F3	0.004 ~ 0.008 ~ 0.014	PT10C PT25C PT30C PT20S	700 950 600 525 500			DNMG P. E15			
0.059 ~ 0.098 ~ 0.197 General Medium	M	0.004 ~ 0.010 ~ 0.016	PT10C PT25C PT30C PT20S	650 600 550 500 525	CNMG P. E10	WNMG P. E32	DNMG P. E15	TNMG P. E25	VNMG P. E29	SNMG P. E20
0.098 ~ 0.138 ~ 0.280 Roughing	R2	0.01 ~ 0.018 ~ 0.026	PT10C PT25C PT30C	550 525 500 425	CNMG P. E11	WNMG P. E33		TNMG P. E26		SNMG P. E21
0.160 ~ 0.280 ~ 0.520 Heavy Duty	R3	0.016 ~ 0.028 ~ 0.044	PT10C PT25C PT30C	425 400 375 300	CNMM P. E12					SNMM P. E21
Depth of Cut (inch)	**Chipbreaker**	**Feed (ipr)**	**Grade**	**Cutting Speed (sfm)**	[POS] CC□T	[POS] WC□T	[POS] DC□T	[POS] TC□T	[POS] VC□T VB□T	[POS] SC□T
0.004 ~ 0.020 ~ 0.059 Finishing	F1P	0.002 ~ 0.006 ~ 0.01	PT10C PT25C	725 650 600 650	CCGT P. E8					
0.020 ~ 0.059 ~ 0.138 Medium-Finishing, General Medium	F2P	0.003 ~ 0.008 ~ 0.016	PT10C PT25C PT30C PT20S	700 625 600 500 550	CCMT P. E9		DCMT P. E13	TCMT P. E23		SCMT P. E19
0.039 ~ 0.079 ~ 0.118 Medium-Roughing	F3P	0.004 ~ 0.01 ~ 0.014	PT10C PT25C PT30C	650 600 550 500	CCMT P. E9		DCMT P. E13	TCMT P. E24		SCMT P. E19

: 1st Recommended cutting condition

3. Workpiece Material : 3310, 8640, 4340.
Hardened Steels
Hardness : 260~350HRB (26-35 HRC)

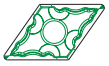
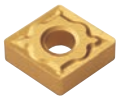
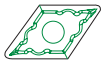
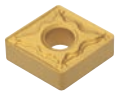
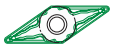
Chipbreaker, Grade, Cutting Condition Recommendation

Workpiece	Chipbreaker & Grade Selection				Insert Shape					
	Chipbreaker & Feed		Grade & Cutting Speed		80°	80°	55°	60°	35°	90°
Depth of Cut (inch)	Chipbreaker	Feed (ipr)	Grade	Cutting Speed (sfm)	[NEG] CN□G	[NEG] WN□G	[NEG] DN□G	[NEG] TN□G	[NEG] VN□G	[NEG] SN□G
0.020 ~ 0.039 ~ 0.079 Finishing	F2	0.003 ~ 0.006 ~ 0.012	PT10C PT25C PT20S	425 400 375 375	CNMG P. E10	WNMG P. E31	DNMG P. E14		VNMG P. E29	
0.031 ~ 0.059 ~ 0.138 Medium-Finishing	F3	0.004 ~ 0.008 ~ 0.014	PT25C PT30C PT20S	500 425 525 500			DNMG P. E15			
0.079 ~ 0.118 ~ 0.197 General Medium	M	0.006 ~ 0.01 ~ 0.02	PT10C PT25C PT20S	425 400 325 300	CNMG P. E10	WNMG P. E32	DNMG P. E15	TNMG P. E25	VNMG P. E29	SNMG P. E20
0.1 ~ 0.14 ~ 0.24 Roughing	R2	0.01 ~ 0.014 ~ 0.024	PT10C PT25C PT30C	325 300 300 275	CNMG P. E11	WNMG P. E33		TNMG P. E26		SNMG P. E21
0.197 ~ 0.24 ~ 0.4 Heavy Duty	R3	0.02 ~ 0.024 ~ 0.04	PT10C PT25C PT30C	300 275 275 225	CNMM P. E12					SNMM P. E21
Depth of Cut (inch)	**Chipbreaker**	**Feed (ipr)**	**Grade**	**Cutting Speed (sfm)**	[POS] CC□T	[POS] WC□T	[POS] DC□T	[POS] TC□T	[POS] VC□T VB□T	[POS] SC□T
0.004 ~ 0.020 ~ 0.059 Finishing	F1P	0.002 ~ 0.006 ~ 0.01	PT10C PT25C	425 400 375 400	CCGT P. E8					
0.008 ~ 0.039 ~ 0.118 Medium-Finishing, General Medium	F2P	0.003 ~ 0.008 ~ 0.016	PT10C PT25C PT20S	400 375 375 325	CCMT P. E9		DCMT P. E13	TCMT P. E23		SCMT P. E19
0.020 ~ 0.059 ~ 0.098 Medium-Roughing	F3P	0.004 ~ 0.01 ~ 0.014	PT10C PT25C PT30C	375 325 325 300	CCMT P. E9		DCMT P. E13	TCMT P. E24		SCMT P. E19

: 1st Recommended cutting condition

4. Workpiece Material : 430, 444, 416, 432, etc.
Stainless Steels
Hardness : 180~260HRB (up to 26HRC)

Chipbreaker, Grade, Cutting Condition Recommendation

Workpiece	Chipbreaker & Grade Selection				Insert Shape					
	Chipbreaker & Feed		Grade & Cutting Speed		80°	80°	55°	60°	35°	90°
Depth of Cut (inch)	Chipbreaker	Feed (ipr)	Grade	Cutting Speed (sfm)	[NEG] CN□G	[NEG] WN□G	[NEG] DN□G	[NEG] TN□G	[NEG] VN□G	[NEG] SN□G
0.02 ~ 0.060 ~ 0.100 Medium-Finishing	A 	0.0012 ~ 0.006 ~ 0.012	MT20C MT30P	625 575	CNMG  P. E10	WNMG  P. E31	DNMG  P. E14	TNMG  P. E24		SNMG  P. E20
0.04 ~ 0.1 ~ 0.16 Medium-Cutting	SM 	0.004 ~ 0.01 ~ 0.016	MT20C MT30P	600 525	CNMG  P. E12	WNMG  P. E33	DNMG  P. E16	TNMG  P. E27		SNMG  P. E21
0.031 ~ 0.079 ~ 0.157 Medium-Finishing	MM 	0.003 ~ 0.01 ~ 0.016	MT20C MT30P	450 560	CNMG  P. E11	WNMG  P. E32	DNMG  P. E16	TNMG  P. E26		
0.039 ~ 0.079 ~ 0.157 General Medium	M 	0.004 ~ 0.010 ~ 0.016	MT20C MT30P	525 400	CNMG  P. E10	WNMG  P. E32	DNMG  P. E15	TNMG  P. E25	VNMG  P. E29	SNMG  P. E20
Depth of Cut (inch)	**Chipbreaker**	**Feed (ipr)**	**Grade**	**Cutting Speed (sfm)**	[POS] CC□T	[POS] WC□T	[POS] DC□T	[POS] TC□T	[POS] VC□T VB□T	[POS] SC□T
0.005 ~ 0.02 ~ 0.06 Finishing	F1P 	0.002 ~ 0.006 ~ 0.01	MT20C MT30P	600 525	CCGT  P. E8					
0.02 ~ 0.04 ~ 0.12 Medium-Finishing, General Medium	F2P 	0.004 ~ 0.008 ~ 0.012	MT20C MT30P	525 400	CCMT  P. E9		DCMT  P. E13	TCMT  P. E23		SCMT  P. E19
0.04 ~ 0.06 ~ 0.012 Medium-Roughing	F3P 	0.006 ~ 0.01 ~ 0.014	MT20C MT30P	500 525	CCMT  P. E9		DCMT  P. E13	TCMT  P. E24		SCMT  P. E19

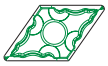
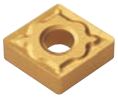
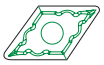
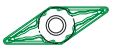
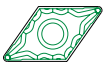
: 1st Recommended cutting condition

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

5. Workpiece Material : 304, 316, 202, etc.
Austenitic Stainless Steel
Hardness : 260~350HRB (26-35 HRC)

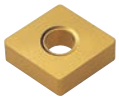
Chipbreaker, Grade, Cutting Condition Recommendation

Workpiece	Chipbreaker & Grade Selection				Insert Shape					
	Chipbreaker & Feed		Grade & Cutting Speed		80°	80°	55°	60°	35°	90°
Depth of Cut (inch)	Chipbreaker	Feed (ipr)	Grade	Cutting Speed (sfm)	[NEG] CN□G	[NEG] WN□G	[NEG] DN□G	[NEG] TN□G	[NEG] VN□G	[NEG] SN□G
0.02 ~ 0.060 ~ 0.100 Medium-Finishing	**A** 	0.0012 ~ 0.006 ~ 0.012	MT20C MT30P	530 450	CNMG  P. E10	WNMG  P. E31	DNMG  P. E14	TNMG  P. E24		SNMG  P. E20
0.04 ~ 0.1 ~ 0.16 Medium-Cutting	**SM** 	0.004 ~ 0.01 ~ 0.016	MT20C MT30P	500 425	CNMG  P. E12	WNMG  P. E33	DNMG  P. E16	TNMG  P. E27		SNMG  P. E21
0.031 ~ 0.08 ~ 0.16 Medium-Finishing	**MM** 	0.004 ~ 0.008 ~ 0.016	MT20C MT30P	450 560	CNMG  P. E11	WNMG  P. E32	DNMG  P. E16	TNMG  P. E26		
0.04 ~ 0.08 ~ 0.16 General Medium	**M** 	0.004 ~ 0.008 ~ 0.016	MT20C MT30P	425 400	CNMG  P. E10	WNMG  P. E32	DNMG  P. E15	TNMG  P. E25	VNMG  P. E29	SNMG  P. E20
Depth of Cut (inch)	**Chipbreaker**	**Feed (ipr)**	**Grade**	**Cutting Speed (sfm)**	[POS] CC□T	[POS] WC□T	[POS] DC□T	[POS] TC□T	[POS] VC□T VB□T	[POS] SC□T
0.005 ~ 0.02 ~ 0.06 Finishing	**F1P** 	0.002 ~ 0.004 ~ 0.008	MT20C MT30P	500 425	CCGT  P. E8					
0.02 ~ 0.04 ~ 0.12 Medium-Finishing, General Medium	**F2P** 	0.003 ~ 0.006 ~ 0.012	MT20C MT30P	450 400	CCMT  P. E9		DCMT  P. E13	TCMT  P. E23		SCMT  P. E19
0.04 ~ 0.06 ~ 0.012 Medium-Roughing	**F3P** 	0.004 ~ 0.008 ~ 0.012	MT20C MT30P	425 350	CCMT  P. E9		DCMT  P. E13	TCMT  P. E24		SCMT  P. E19

: 1st Recommended cutting condition

6. Workpiece Material : G1800, G2500, G3000, G3500, M3210, M4504 etc.
Gray Cast Iron, Ductile Cast Iron
Hardness : 135~185HRB (up to 18HRC)
Tensile Strength : Under 450N/ß±

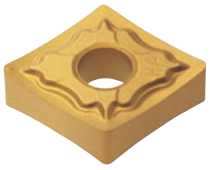
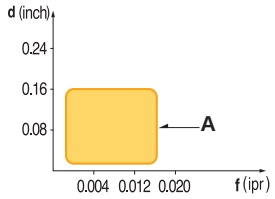
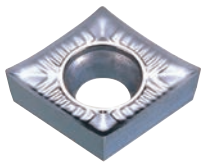
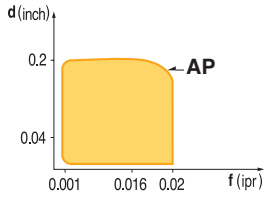
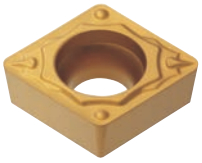
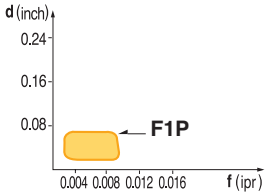
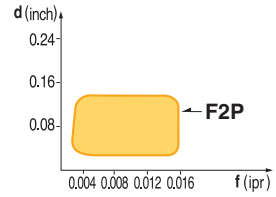
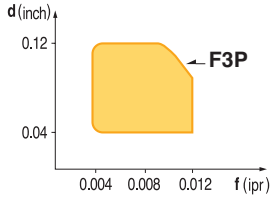
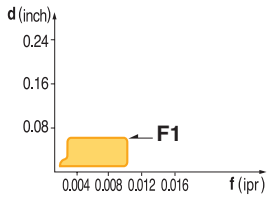
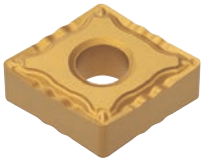
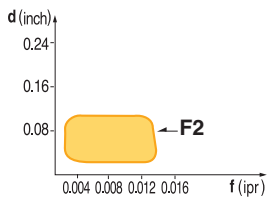
Chipbreaker, Grade, Cutting Condition Recommendation

Workpiece	Chipbreaker & Grade Selection				Insert Shape					
	Chipbreaker & Feed		Grade & Cutting Speed		80° (80°)	80° (80°)	55° (55°)	60° (60°)	35° (35°)	90° (90°)
Depth of Cut (inch)	Chipbreaker	Feed (ipr)	Grade	Cutting Speed (sfm)	CNMG CNGG	WNMG WNGG	DNMG DNGG	TNMG TNGG	VNMG WNGG	SNMG SNGG
0.005 ~ 0.015 ~ 0.04 Finishing		0.002 ~ 0.004 ~ 0.02	KB350 KT05C	650 ~ 1650 ~ 2300 975						SNMA  P. E19
0.02 ~ 0.08 ~ 0.14 Medium-Finishing	G 	0.004 ~ 0.008 ~ 0.012	KT05C	425 ~ 825 ~ 1150			DNMG  P. E15	TNMG  P. E25		SNMG  P. E20
0.04 ~ 0.1 ~ 0.16 General Medium	M 	0.006 ~ 0.012 ~ 0.02	KT05C KT10C	500 ~ 825 ~ 1150	CNMG  P. E10	WNMG  P. E32	DNMG  P. E15	TNMG  P. E25	VNMG  P. E24	SNMG  P. E20
0.004 ~ 0.12 ~ 0.18 Medium-Roughing	R1 	0.008 ~ 0.014 ~ 0.02	KT05C KT10C	825 725	CNMG  P. E11	WNMG  P. E32		TNMG  P. E26		SNMG  P. E21
0.01 ~ 0.14 ~ 0.24 Roughing	R2 	0.01 ~ 0.014 ~ 0.024	PT10C PT22C PT30C	325 300 300 275	CNMG  P. E11	WNMG  P. E33		TNMG  P. E26		SNMG  P. E21
0.16 ~ 0.26 ~ 0.4 Heavy Duty	R3 	0.012 ~ 0.0028 ~ 1.043	KT10C	500	CNMM  P. E12					SNMM  P. E21
Depth of Cut (inch)	**Chipbreaker**	**Feed (ipr)**	**Grade**	**Cutting Speed (sfm)**	[POS] CCMT	[POS] WCMT	[POS] DCMT	[POS] TCMT	[POS] VCMT VBMT	[POS] SCMT
0.02 ~ 0.06 ~ 0.12 Medium-Finishing	F2P 	0.003 ~ 0.008 ~ 0.016	KT05C KT10C	825 725	CCMT  P. E8		DCMT  P. E14	TCMT  P. E25		SCMT  P. E20
0.04 ~ 0.08 ~ 0.14 Medium Cutting	F3P 	0.004 ~ 0.01 ~ 0.016	KT05C KT10C	825 725	CCMT  P. E9		DCMT  P. E14	TCMT  P. E26		SCMT  P. E20

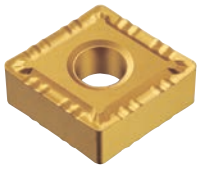
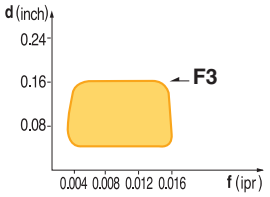
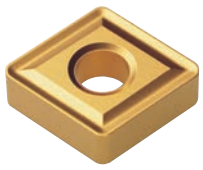
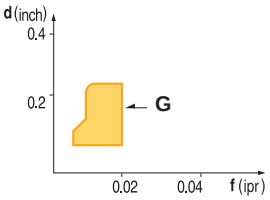
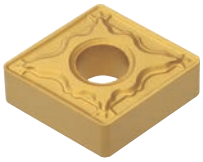
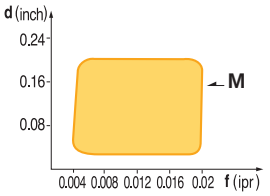
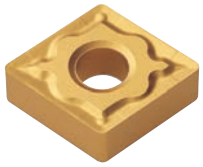
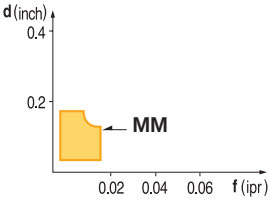
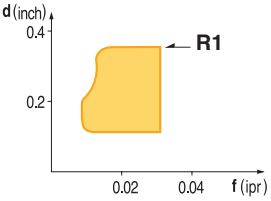
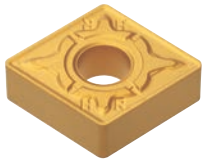
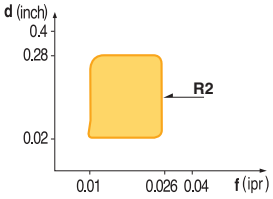
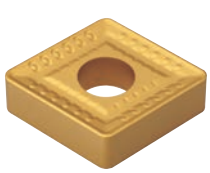
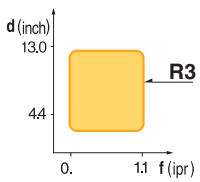
: 1st Recommended cutting condition

Turning Chipbreakers

TURNING CHIPBREAKERS

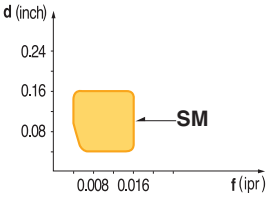
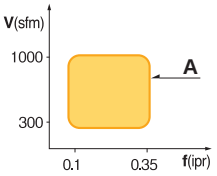
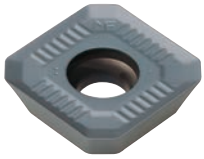
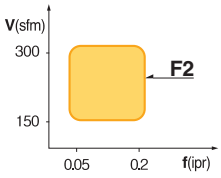
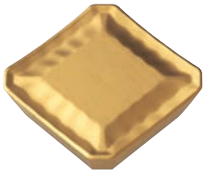
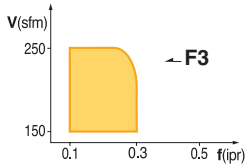
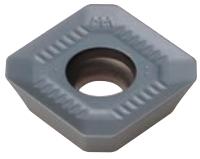
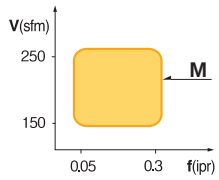
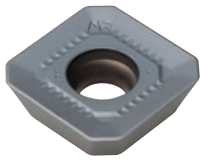
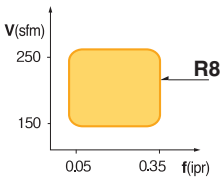
Shape	Application Range	Special Feature
A (Neg) 		**For Light-Alloy, Stainless-Steel Machining** · Sharp cutting edge generates low cutting force. · Specially designed tough main cutting edge. · Suitable for cutting of low carbon steel, stainless steel, aluminum. **Recommended Cutting Conditions** d = 0.03 ~ 0.16inch f = 0.004 ~ 0.016ipr
AP (Pos) 		**For Aluminum Cutting** · Exclusive chip breaker for aluminum and aluminum alloy. **Recommended Cutting Conditions** d = 0.04 ~ 0.2inch f = 0.001 ~ 0.02ipr
F1P (Pos) 		**For Finishing** · Excellent chip control at shallow depth of cut and low feed rate. · Excellent surface finish of workpiece due to reduced cutting force. · Suitable for fine boring. **Recommended Cutting Conditions** d = 0.004 ~ 0.06inch f = 0.002 ~ 0.01ipr
F2P (Pos) 		**For Medium cutting** · Excellent chip control at wide range of cutting conditions. · Suitable for stainless steel cutting. **Recommended Cutting Conditions** d = 0.02 ~ 0.14inch f = 0.002 ~ 0.016ipr
F3P (Pos) 		**For Medium Cutting** · Suitable for intermittent cutting and cast iron machining. · Good surface finish due to low cutting force. · Suitable for both boring and outer diameter turning. **Recommended Cutting Conditions** d = 0.04 ~ 0.12inch f = 0.004 ~ 0.012ipr
F1 (Neg) 		**For Ultra-Fine Finishing, Finishing** · Suitable for applications requiring fine surface finish · Generates low cutting force due to sharp cutting edge design. · Specially designed chip breaker ensures stable chip control at ultra fine-finishing condition. **Recommended Cutting Conditions** d = 0.004~0.006inch f = 0.0012~0.01ipr
F2 (Neg) 		**For Finishing** · Excellent chip control at varied depth of cut cutting. · Strong cutting edge toughness due to special design. **Recommended Cutting Conditions** d = 0.012 ~ 0.1inch f = 0.002 ~ 0.14ipr

Neg = Negative
Pos = Positive

	Shape	Application Range	Special Feature
TURNING CHIPBREAKERS	**F3** (Neg) 		**For Medium to Finish Cutting** · Excellent for copying of special shape. · Smooth chip control at shallow cut as well as deep depth of cut. **Recommended Cutting Conditions** d = 0.03 ~ 0.16inch f = 0.003 ~ 0.016ipr
	G (Neg) 		**For General Cutting** · Suitable for general cutting condition cutting. **Recommended Cutting Conditions** d = 0.08 ~ 0.24inch f = 0.01 ~ 0.02ipr
	M (Neg) 		**For Medium Cutting** · Wide available chip control range from medium-finishing to medium-roughing. · Suitable chip breaker for CNC machining. **Recommended Cutting Conditions** d = 0.01 ~ 0.2inch f = 0.004 ~ 0.02ipr
	MM (Neg) 		**For Medium to Roughing of Stainless-Steel** · Exclusive chip breaker for stainless steel. **Recommended Cutting Conditions** d = 0.04 ~ 0.2inch f = 0.004 ~ 0.02ipr
	R1 (Neg) 		**For Medium to Roughing** · Suitable for deep depth of cut and fast feed cutting of steel and cast iron. · Suitable for intermittent cutting. **Recommended Cutting Conditions** d = 0.12 ~ 0.32inch f = 0.012 ~ 0.032ipr
	R2 (Neg) 		**For Roughing** · Excellent chip control at deep depth of cut and fast feed rate. · Strong cutting edge makes excellent cutting performance at intermittent cutting. **Recommended Cutting Conditions** d = 0.1 ~ 0.28inch f = 0.01 ~ 0.028ipr
	R3 (Neg) 		**For Heavy Duty Cutting** · Specially designed toughest cutting edge provides superior cutting performance at deep depth of cut and fast feed rate. · Unique design of dot on cutting edge makes smooth chip flow and reduce cutting force. **Recommended Cutting Conditions** d = 0.16 ~ 0.5inch f = 0.018 ~ 0.04ipr

Neg = Negative



	Shape	Application Range	Special Feature
	SM (Neg) 		**For Medium Cutting of Stainless-Steel** · Exclusive design for stainless steel cutting provides longer tool life · Wear resistance has been reinforced through high rake angle of chip breaker land. **Recommended Cutting Conditions** d = 0.04 ~ 0.16inch f = 0.004 ~ 0.016ipr
MILLING CHIPBREAKERS	**A** (Pos) 		**For Aluminum Milling** · Suitable design for aluminum machining, has sharp cutting edge, mirror face of insert top which prevent build up edge, provides excellent cutting performance. **Recommended Cutting Conditions** d = 0.02 ~ 0.2inch f = 0.004 ~ 0.014ipr
	F2 (Pos) 		**For Finishing of Milling** · Special design for light cutting of gummy materials like stainless steel and hard to machine material provides fine surface finish and longer tool life. **Recommended Cutting Conditions** d = 0.02 ~ 0.2inch f = 0.002 ~ 0.008ipr
	F3 (Pos) 		**For General Milling** · Possible to increase productivity through increase feed and depth. · Excellent heat resistance due to the special chip breaker design of top face of insert. **Recommended Cutting Conditions** d = 0.004 ~ 0.2inch f = 0.004 ~ 0.012ipr
	M (Pos) 		**For Medium Cutting of Milling** · Chip breaker, designed general cutting conditions, provides wide range of available applications. · Ground type and sintered type are available. **Recommended Cutting Conditions** d = 0.04 ~ 0.2inch f = 0.002 ~ 0.012ipr
	R8 (Pos) 		**For Roughing of Milling** · Strongest cutting edge strength provides stable tool life even in case of severe cutting with heavy intermittent and heavy roughing. **Recommended Cutting Conditions** d = 0.06 ~ 0.2inch f = 0.002 ~ 0.014ipr

Neg = Negative
Pos = Positive

APPLICATION			SOWA	KORLOY	SUMITO-MO	SANDVIK	KENNA-METAL	KYOCERA	MITSUBISHI	ISCAR	TOSHIBA	SECO	WALTER	DIJECT
NEGA•TYPE	STEELS	EXTREME FINISHING	F1	HU	FA	QF	FF	GP DP CF	FH	SF	TF	FF1 F1, F2		F1 FA
		FINISHING	F2	HF	SU, SK SP LU	PF	FN FP FW	CQ HQ	SH	NF	TS, AS 11 17	MF2	NF NF3 NF5	FT UA
		MEDIUM FINISHING	F3	HC	SX UU	SM		CQ HQ	SH	NF RF LF	MJ	MF1	NS4 NS8	GP UR PF
		MEDIUM ROUGHING	M	HM	GU UX UG	PM QM	MN MP MW	GS HS CS	MA MH	TF PP	TM	M3 MR3	NM, NM4 NM5, NM6 NM7	UB GG
		ROUGHING	R2	HR	MU MX	PR	RN CT	GT HT ★	GH	NR	TH	MR4 M5 MR7	NR5 NR7	UD
		HEAVY	R3	HH	HG MP HP	HR	RH SP HP	HX	HZ, HV HH HX	TNM	TU 57 65	RR9 R4		UC
		WIPER	W	HW	LUW GUW	WF WM WR	MW FW	WQ	MW SW	WF WG	ASW	M3 M5	NF, PF NM, PM	
	GENERAL		G	B25	UZ	23	MG	★	MT, MV	GN				GN
	STAINLESS STEEL MILD STEEL		A SM MM	HA HS	SU, EX MU, FL (GU)	MF MM, QM MR	FF, FW FP, MP MW, RN	GU, HU XP, XQ XS	FS, FJ SH, MJ MS, GJ GH	PP TF	TF SS SA TU, MS	MF1 MF3 M5	NS4 NM4 NR7	SF
	CAST IRON		R2	GR	UZ UX ★	KF KM, QM KR, QR	FF, FW MP, MW RN	GC ★ ZS	★ ★	GN	★ 33, CM ★	MF3 M5	NS4, NS8 ★ NM4	
	ALUMINUM		A	HA			F GP MS	AH		PP				
POSI•TYPE	STEEL CAST IRON	FINISHING	F1P	HFP	FP FK	PF KF	MT-UF MT-LF GT-LF	GP DP HQ	FV SQ	°/ SM	01 PF	F1	PF4 PF5	FT
	STEEL CAST IRON	MEDIUM FINISHING	F2P	HMP	SJ, SU SK	(PM) (KM)	MF	XQ HQ	R/L R/L-F	14, SM 17, 19	PS 23 PM	F1 F2	PS4 PS5	
	STEEL CAST IRON	MEDIUM ROUGHING	F3P	C25	SF MU	(PR) (KR)	MT-MF GM	★ G	MV MQ ★	19	24 ★	F2	PM2, PM5 (PR5)	
	ALUMINUM & ALLOY		AP	AK	AG	AL	HP	A3		AS	PP	AI		ALU ACB
	STAINLESS STEEL MILD STEEL		F2P	HMP	MU	MF, MM MR	LF	(XQ)	FV ★	14, SM 17, 19	SS		PS4 PM5	

★No Name ★Simple Type

TURNING

ISO	SOWA			KORLOY			SUMITOMO			KYOCERA			ISCAR			SANDVIK			SECO			KENNAMETAL			TOSHIBA			MITSUBISHI			HITACHI			VALENITE			WALTER		
	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET	TUNGSTEN CARBIDE	COATED	CERMET
P		PT10C	PT10S	ST05		CN100	ST10P	AC700G	T110A		CR7015	TN30			IC20N	S1P	GC4005	CT5005	TTX	TP100		K45	KC9010	HT2		T9005	NS520	UE6005	NX1010	SRN5	GM8015	CH350	S1F	SV305			WAP10		
				ST10	NC310	CT10						PV30★	IC70	IC507				CT5015					KC9125	K125															
		PT20S		ST15	NC3015	CC115★	ST20E	AC900G	T2000Z★				IC50M	IC9015	IC520N★	SMA	GC4015		TTM	TP1000	CM		KC9025	HTX	TX10S	T9015	GT530★		STi10T	UC6010		WS20B		CZ25★	VC6	SV310	VC83		
	PT20U			ST20								PV60★						CT525												NX2525									
	PM20U	PT20C	PT20S	MA2	NC3020	CN200	A30	AC2000	T1200A	PW30	CR7025	TN60		IC9025		SM30						KM	KC8050	PS5	TX20	T9025	NS530	STi20T	UE6020	AP25N★	EX35	GM8020	CH530	VC5	SV325			WAP20	
								New AC2000	T3000Z★						IC30N★	S30T	GC4025	GC1525°/		TP200	C15M		KC935	KZ205						UP35N★								
	PTM30U			ST30A		CN20	ST40E		T130A		CA5025	TN6020	IC54	IC3028★	IC40T				TTR	TP2000				KT175	TX30	T9035	NS540	UTi20T	UC6025		EX40		CH550		SV330			
				ST30N																		K420	KC9040							NX335									
		PT30C		ST40	NC330			AC3000	CN8000			TN90			IC530N★	S6	GC4035			TP300			KC9045		TX40	TD930	N308		UE6035		EX45	GM8035	CH570	VC56			WAP30		
M		MT20C	PT20S	U10			U10E				CA6015	PV60★	IC08			H13A	GC2015		AT10	TP400		K313	KC9150	K125			NS520		US7020	AP25N★	WAM10B	GM25		VC27					
				U20	NC9020	CN200	U2	AC304			CA5045	TN60		IC9025			GC2025	CT525	AT15			K68	KC9215	PS5	TU10	T6020			UP20M★	NX2525									
							A30		T1200A															KT175			NS530												
				U40			A40	AC3000			PR905★	TN6020	IC28					GC1525°/				K420	KC5010★	HT2	TU20			UTi20T								WAM20		
		PT30C			NC330						PR915★	TN90		IC3028★		H10F	GC2035		TTR	CP50★			KC9245	KZ205		T6030	NS540		US735			US735		EX35	GX30		VC28		
		MT30P			PC9030★						PR930★	PV90★											KC5025★		TU40													
K		KT05C		H02	NC305K			AC300G	T110A		CA4010	TN30	IC4	IC9015		H1P	GC3005	CT515		TX100		K313	KC9315		TH03	T5010	NS520	HTi05T	UC5005	NX1010		GM3005		VC3	SV405				
	KT10U	KT10C		H01	NC6010		H1	EH510★	T1200A	KW10H		PV30★		IC428			GC3205		THM			K68		HTX		T1015		HTi10T	GP10H★	AP25N★	WH05			VC2	SV415		WTA13		
		KT10C		H05	NC315K			AC500G			CR7015					H10F	GC3210			TX150		K1	KC9325		TH10	T5020		HTi20T	UC5015	NX2525		GM8015		VC1	SV515				
	KTM10U			H10			G10E	EH520Z★					IC20	IC4050		H13A	GC3015		THR				KC7310★		KS20			UTi20T	UP10H★		WH20						WTA33		
											PR610★		IC28				GC3215						KC7315★						UC6010										
				G10				AC700G									GC3025																						

MILLING

ISO	SOWA		KORLOY		SUMITOMO		KYOCERA		ISCAR		SANDVIK		SECO		KENNAMETAL		TOSHIBA		MITSUBISHI		HITACHI		VALENITE		WALTER	
	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET	COATED	CERMET
P	PM25C		NCM325	CN100	AC230	T12A		TN60	IC520M		GC1015★		T20M		KC725M★	KT175	T325		F7030	V45N					WQM15	
	PM30P	PM20S	PC230★	CN20	ACZ330★	T1200A	PR630★	TN100M	IC635		GC1025★		T25M		KC792M		AH330★	AT520★	GP20M★	NX2525	CY150★	CH550	SV935★		WTL41	
	PM30P		PC3530★	CC125★		T250A	PR730★		IC950★		GC4020		CP200★			HT2	T3030	NS540							WQM25	
	PM30C	PM30S	NCM335	CN30				TC60M	IC908★	IC30N	GC4030		T200M		KC935M	HT5	AH740★	AT530★	AP20M★	NX55	CY250★	CH570	SM245		WTL71	
							PR830★				GC1120★		CP300★			KZ205		GT530★		NX4545					WQM35	
									IC1008★		GC4040		T350M			KT195M										
M			PC130★		EH510Z★		PR660★		IC908★		GC1005★		CP200★		KC9240	KT175	T325	AT520★	VP15TF★		HC844★				WQM25	
	PM30C	PM30S	NCM335	CN30	EH520Z★	T250A	PR730★	TN100M				CT520				KZ205										
	MM30P		PC9530★	CN300				TC60M	IC328★		GC2030	CT530	CP50★		KC705M★	HT5	AH140★	AT530★	VP20RT★							
							PR830★		IC928★							KT195M		GT530★								
					ACZ350						GC2040					HT7										
K			NCM310K		AC211			TN60	IC4050				T15M		KC915M	HT5	T1015	AT520★	F5010						WTA11	
	KM20C		PC205K★				PR510★		IC907★		GC3020				KC992M		T1020						V01			
			NCM320K		ACZ310★				IC910★		GC1020★				KC709M★		AH110★	AT530★	AP10H★		CY10H★		VN8		WTA21	
			PC215K★								GC3040						AH120★	GT530★								

* Coated★ : PVD
Cermet★ : Cermet+PVD



Measuring & Inspecting





Measuring & Inspecting

MICROMETERS

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Exactly what you need.

Everything we do is as exacting as the tools we make. Asimeto is the creator and manufacturer of high-precision measuring instruments - designed and registered exclusively in Germany. Asimeto tools are very competitively priced and are sold through the Asimeto distribution network. Our ultimate commitment to quality allows us to ensure strict production standards and reliable technical service for our global customers.

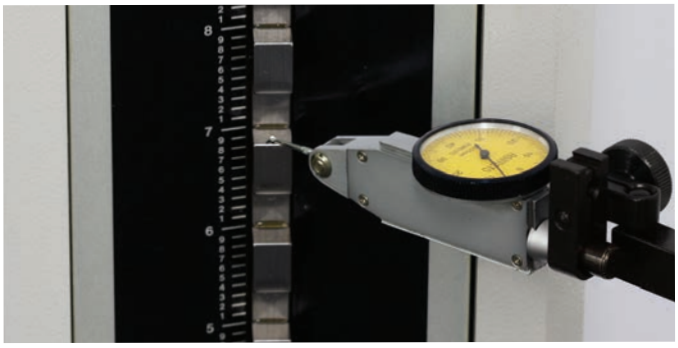
The quality and measuring accuracy of all Asimeto precision tools is guaranteed by the Asimeto Calibration Laboratory. All tools are inspected for conformance to the Asimeto design specifications and are then processed through the Asimeto calibration laboratory. Only the latest state of the art calibration equipment has been selected, from the leading global manufacturers, to ensure that the calibration costs are contained by increasing throughput, without compromising measurement accuracy or repeatability.

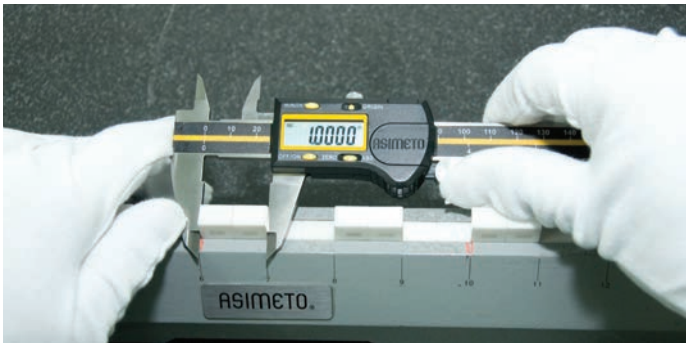
CALIBRATION

Every Asimeto tool is supplied with its own calibration certificate. All tools are calibrated by our **ISO 17025** accredited lab at no extra charge to the customer.

12 + 12 CARE PROGRAM

To supplement the industry standard 12 month warranty an additional 12 month warranty is available by registering your individual purchase online at www.asimeto.com within 30 days from the date of purchase.











Digital Outside Micrometers with SPC Output

ASIMETO

- Accuracy: Per B89.1.13-2001 specification
- Carbide measuring faces
- Automatic on/off to maximize battery life
- Inch/Metric conversion
- Absolute or incremental measuring modes



IP 65

Range	Inch Resolution	Accuracy	Range	Metric Resolution	Accuracy	Thimble Type	Code No.	Price $
0-1	0.00005"	0.0001"	0-25	0.001mm	0.002mm	Ratchet	7105015	**251.52**
1-2	0.00005"	0.0002"	25-50	0.001mm	0.002mm	Ratchet	7105025	**309.44**
2-3	0.00005"	0.0002"	50-75	0.001mm	0.003mm	Ratchet	7105035	**345.87**
3-4	0.00005"	0.0002"	75-100	0.001mm	0.003mm	Ratchet	7105045	**357.51**
4-5	0.00005"	0.0002"	100-125	0.001mm	0.003mm	Ratchet	7105055	**409.21**
5-6	0.00005"	0.0002"	125-150	0.001mm	0.003mm	Ratchet	7105065	**442.94**
8-9	0.00005"	0.0002"	200-225	0.001mm	0.004mm	Ratchet	-	**-**
Sets								
0-3	0.00005"		0-75	0.001mm		Ratchet	7105639	**1,231.81**

Economic Digital Outside Micrometers

ASIMETO

- Carbide tipped measuring faces
- Painted frame
- Friction thimble
- Inch/Metric conversion
- Absolute or incremental measuring modes



Range	Resolution	Accuracy	Code No.	Price $
0-1"/0-25mm	0.00005"/0.001mm	±0.00016"/0.004mm	7116011	**148.75**
1-2"/25-50mm	0.00005"/0.001mm	±0.00016"/0.004mm	7116021	**178.52**
2-3"/50-75mm	0.00005"/0.001mm	±0.0002"/0.005mm	7116031	**218.84**

QuantuMike

Mitutoyo

Speed

- Get the job done four times faster! Mitutoyo's patented high precision lead screw feeds the spindle by 2mm per revolution of the thimble instead of the standard 0.5mm.



Reliability

- Expect excellent repeatability results thanks to the patented ratchet thimble mechanism. It transmits microvibrations along the spindle to the contact face to provide a constant measuring force and encourage good workpiece contact.

Ergonomic

- The ratchet works from the thimble as well as the speeder, so it's always easy to use - even when taking one-handed measurements

Features:

- 0.00005" / 0.001mm resolution
- +/- 0.00005" / 1um accuracy

Mitutoyo Model No.	Range (in./mm)	SPC	Sowa Code No.	Price $
293-180-30	0-1" / 0-25.4 mm	YES	849302	**334.00**
293-181-30	1-2" / 25.4-50.8 mm	YES	846306	**380.00**
293-185-30	0-1" / 0-25.4 mm	NO	846307	**285.00**
293-186-30	1-2" / 25.4-50.8 mm	NO	849178	**328.00**

MDC LITE Digimatic Micrometers

Mitutoyo

- Extra large LCD readout
- Carbide face
- Inch/Metric conversion



Mitutoyo Model No.	Range (in./mm)	Grad (in./mm)	Thimble	Sowa Code No.	Price $
293-831	0-1" / 0-25.4mm	0.00005" / 0.001mm	Ratchet Stop	842888	**174.00**
293-832	0-1" / 0-25.4mm	0.00005" / 0.001mm	Friction Thimble	845774	**183.00**

Digimatic Micrometers

Mitutoyo

- Graduation: 0.00005"/0.001mm
- Ratchet stop or ratchet thimble
- Extra large LCD readout
- Carbide face
- Measurement hold button
- Inch/Metric conversion



Mitutoyo Model No.	Range (in./mm)	SPC	Sowa Code No.	Price $
293-330-30	0-1" / 0-25.4 mm	YES	840181	**302.00**
293-331-30	1-2" / 25.4-50.8 mm	YES	840182	**357.00**
293-340-30	0-1" / 0-25.4 mm	NO	840184	**235.00**
293-344-30*	0-1" / 0-25.4 mm	NO	848665	**235.00**

* Ratchet thimble

Micrometer Stands

ASIMETO

These stands are designed to allow bench top use with hand micrometers.



Notes	Code No.	Price $
Painted Cast-Iron Base	7109021	**53.53**

Micrometer Stand

Mitutoyo

These stands are designed to allow bench top use with hand micrometers with range up to 4" or other gauges. Adjustable angle type.



Mitutoyo Model No.	Sowa Code No.	Price $
156-101-10	840086	**111.00**

Outside Micrometers — Inch

ASIMETO

- Locking clamp
- Carbide faces
- Satin chrome finish



Ratchet Thimble

Range	Graduation	Accuracy	Thimble Type	Code No.	Price $
0-1"	0.001"	±0.0001"	Ratchet	7101011	**103.39**
1-2"	0.001"	±0.0002"	Ratchet	7101021	**114.25**
0-1"	0.0001"	±0.0001"	Ratchet	7101013	**51.75**
1-2"	0.0001"	±0.0002"	Ratchet	7101023	**54.26**
2-3"	0.0001"	±0.0002"	Ratchet	7101033	**64.14**
3-4"	0.0001"	±0.00015"	Ratchet	7101043	**72.51**
4-5"	0.0001"	±0.00015"	Ratchet	7101053	**89.60**
5-6"	0.0001"	±0.00015"	Ratchet	7101063	**101.37**
6-7"	0.0001"	±0.0002"	Ratchet	7101073	**114.81**
7-8"	0.0001"	±0.0002"	Ratchet	7101083	**129.25**
8-9"	0.0001"	±0.0002"	Ratchet	7101093	**142.44**
9-10"	0.0001"	±0.00025"	Ratchet	7101103	**144.33**
10-11"	0.0001"	±0.00025"	Ratchet	7101113	**174.58**
11-12"	0.0001"	±0.00025"	Ratchet	7101123	**186.37**

Outside Micrometers Sets — Inch

ASIMETO

- Locking clamp
- Carbide faces
- Satin chrome finish



Range	Grad.	Notes	Code No.	Price $
0-3" (3pc)	0.0001"	0-1"+1-2" Friction 2-3" Ratchet	7101637	**151.57**
0-6" (6pc)	0.0001"	0-1"+1-2" Friction 2-3" to 5-6" Ratchet	7101667	**371.65**
6-12" (6pc)	0.0001"	All Ratchet Stop	7101827	**1,259.58**
0-12" (12pc)	0.0001"	0-1"+1-2" Friction 2-3" to 11-12" Ratchet	7101727	**899.00**

Outside Micrometers — Metric

ASIMETO

- Locking clamp
- Carbide faces
- Satin chrome finish



Ratchet Thimble

Range	Graduation	Accuracy	Thimble Type	Code No.	Price $
0-25mm	0.001mm	±0.004mm	Ratchet	7101012	**85.46**

Outside Micrometers

STM

- Deluxe heat insulated forged steel frame up to 4"
- Chrome clad
- Complete with standards (2" and up)
- Carbide faces
- Ratchet stop for exact and repetitive reading
- Fitted case



Range (in.)	Graduation (in.)	Code No.	Price $
0-1"	0.0001"	200570	**43.40**
1-2"	0.0001"	200572	**48.43**

Outside Micrometer Sets

STM

- Ratchet and lock nut
- Complete with standards (2" and up)
- Carbide faces
- Fitted wood case



Range (in.)	Graduation (in.)	Code No.	Price $
0-6"	0.0001"	200580	**424.05**

Outside Micrometers

Mitutoyo

- Carbide faces
- Positive locking clamp
- Ratchet stop for exact repetitive readings
- Baked enamel finished frame
- Clear graduations on satin chrome finish



Mitutoyo Model No.	Range (in./mm)	Grad (in./mm)	Sowa Code No.	Price $
101-114	1 - 2" (satin finish)	0.0001"	840017	**193.00**
103-177	0 - 1"	0.001"	840029	**111.00**
103-128	1 - 2" (friction thimble)	0.001"	840022	**116.00**
103-178	1 - 2"	0.001"	840030	**128.00**
103-179	2 - 3"	0.001"	840031	**159.00**
103-180	3 - 4"	0.001"	840032	**179.00**
103-181	4 - 5"	0.001"	840033	**191.00**
103-182	5 - 6"	0.001"	840034	**205.00**
103-183	6 - 7"	0.001"	840845	**236.00**
103-260	0 - 1"	0.0001"	840044	**140.00**
103-135	0 - 1" (friction thimble)	0.0001"	840023	**141.00**
103-262	1 - 2"	0.0001"	840045	**162.00**
103-217	2 - 3"	0.0001"	840037	**186.00**
103-218	3 - 4"	0.0001"	840038	**203.00**
103-219	4 - 5"	0.0001"	840039	**222.00**
103-220	5 - 6"	0.0001"	840040	**239.00**
103-221	6 - 7"	0.0001"	840041	**267.00**
103-137	0 - 25mm	0.01mm	840025	**128.00**
103-138	25 - 50mm	0.01mm	840026	**147.00**
103-139-10	50 - 75mm	0.01mm	840027	**174.00**

Outside Micrometer Sets

Mitutoyo

- Carbide faces
- Positive locking clamp
- Ratchet stop for exact repetitive readings
- Baked enamel finished frame
- Clear graduations on satin chrome finish



Mitutoyo Model No.	Range (in./mm)	Grad. Type (in./mm)	Sowa Code No.	Price $
103-929	0 - 3"	0.001" / Ratchet	840055	**427.00**
103-904-10	0 - 6"	0.001" / Ratchet	840046	**1,090.00**
103-906	6 - 12"	0.001" / Ratchet	840047	**2,088.00**
103-908-01	0 - 12"	0.0001" / Ratchet	840049	**2,515.00**
103-922	0 - 3"	0.0001" / Friction/Ratchet	840053	**482.00**
103-907-40	0 - 6"	0.0001" / Friction/Ratchet	848080	**998.00**
103-909	6 - 12"	0.0001" / Friction/Ratchet	840050	**2,205.00**
103-905-10	0 - 12"	0.001" / Ratchet	840628	**3,300.00**
103-927-10	0 - 75 mm	0.01 mm / Ratchet	840054	**496.00**
103-913-31	0 - 150 mm	0.01mm / Ratchet	840051	**843.00**

T444 Outside Micrometers

Starrett

- No-glare satin chrome finish which resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Balanced frame and thimble design to ensure easy handling and better readability
- Provides quick and easy adjustment
- Graduation: 0.0001"



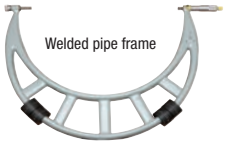
Range	Starrett No.	Sowa Code No.	List $
0-1"	T444.1XRL-1	633913	**163.83**
1-2"	T444.1XRL-2	633901	**193.50**
2-3"	T444.1XRL-3	633902	**211.56**
3-4"	T444.1XRL-4	633961	**250.26**
4-5"	T444.1XRL-5	633962	**269.61**
5-6"	T444.1XRL-6	633963	**299.28**

Interchangeable Anvil Micrometers

ASIMETO

- Ratchet stop
- Locking clamp
- Carbide faces
- Satin chrome finish
- Sizes over 12" have a welded pipe frame





Range	Grad.	Accuracy	Notes	Code No.	Price $
0-6"	0.001"	± 0.0002"	with 6 Anvils & 5 Standards	7111061	**568.40**
6-12"	0.001"	± 0.0003"	with 6 Anvils & 6 Standards	7111121	**383.50**
12-16"	0.001"	± 0.0004"	with 4 Anvils & 2 Standards	7111161	**707.85**
16-20"	0.001"	± 0.0005"	with 4 Anvils & 2 Standards	7111201	**787.43**
20-24"	0.001"	± 0.0006"	with 4 Anvils & 2 Standards	7111241	**1,213.74**
24-28"	0.001"	± 0.0006"	with 4 Anvils & 2 Standards	7111281	**1,460.17**
28-32"	0.001"	± 0.0007"	with 4 Anvils & 2 Standards	7111321	**1,767.34**
32-36"	0.001"	± 0.0008"	with 4 Anvils & 2 Standards	7111361	**1,441.15**
36-40"	0.001"	± 0.0008"	with 4 Anvils & 2 Standards	7111401	**2,243.88**

Note: The individual anvils are matched as a set with the frame.
The accuracy cannot be guaranteed if used with a different frame.

Interchangeable Anvil Micrometers

Mitutoyo

- Graduation: 0.001"
- 6 anvils
- Quick change anvils
- Anvils are microlapped
- 0.250" dia. spindle is microlapped & carbide tipped
- Ratchet stop



Mitutoyo Model No.	Range (in.)	Grad. (in.)	Sowa Code No.	Price $
104-137	0 - 6"	0.001"	840058	**486.00**
104-138	6 - 12"	0.001"	840059	**835.00**
104-201	12 - 18"	0.001"	840062	**1,024.00**

Digital Disc Micrometers — Non-Rotating Spindle

ASIMETO

- Resolution: 0.00005"/0.001mm
- Non rotating spindle
- Ratchet stop
- Inch/Metric conversion
- Absolute or incremental measuring modes
- Automatic On/Off
- Sizes over 1" come with standard



IP 65

Range	Accuracy	Notes	Code No.	Price $
0-1" / 0-25mm	±0.0001"	Disc Diameter 0.79"	7145011	**581.88**
1-2" / 25-50mm	±0.0002"	Disc Diameter 0.79" with Standard	7145021	**636.97**
2-3" / 50-75mm	±0.0002"	Disc Diameter 0.79" with Standard	7145031	**708.63**
3-4" / 75-100mm	±0.0002"	Disc Diameter 0.79" with Standard	7145041	**785.73**

Digimatic Disc Micrometer

Mitutoyo

- With SPC Output
- Resolution 0.00005"/0.001mm

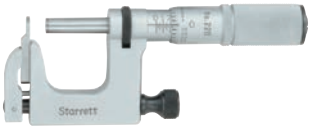


Mitutoyo Model No.	Range (in.)	Grad (in./mm)	Sowa Code No.	Price $
323-350	0 - 1	0.001"/0.01mm	840656	**632.00**

220 Series Mul-T-Anvil Micrometer

Starrett

- Graduation: 0.001"
- Balanced frame and thimble design
- Ring-type knurled lock nut
- Interchangeable anvils rigidly held in vise type frame, and are quickly interchanged by a single lock screw adjustment



- Two hardened anvils furnished – round 0.120" diameter (3mm) and flat 0.125" (3mm) and 0.060" (1.5mm) thick – sizes approximate
- Accommodates special anvils up to 5/16" (8mm) thick
- Can be used as height gauge by removing vise jaw
- Satin chrome finish
- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle
- Micro-lapped measuring faces

Range	Starrett No.	Sowa Code No.	Price $
0-1"	220XFL-1	629813	**425.70**

Digital Blade Micrometers

ASIMETO

- For measuring the groove diameter of shafts, keyways, and other hard to reach portions
- Ratchet stop
- Non-rotating spindle
- Carbide measuring faces
- Inch/Metric conversion
- Absolute or incremental measuring modes



IP 65

Range	Resolution	Accuracy	Blade Dimensions Depth x Length	Code No.	Price $
0-1" / 0-25mm	0.00005" / 0.001mm	±0.0001"	0.030" x 0.250"	7117011	**660.54**
1-2" / 25-50mm	0.00005" / 0.001mm	±0.0002"	0.030" x 0.250"	7117021	**700.31**
2-3" / 50-75mm	0.00005" / 0.001mm	±0.0002"	0.030" x 0.250"	7117031	**696.21**
3-4" / 75-100mm	0.00005" / 0.001mm	±0.0002"	0.030" x 0.250"	7117041	**747.58**

Digital Screw Thread Micrometers

ASIMETO

- For measuring various screw threads
- Automatic on/off to maximize battery life
- Inch/Metric conversion
- Absolute or incremental measuring modes
- Ratchet stop
- Interchangeable tips are optional
- Non-rotating spindle



IP 65

Range (in.)	Inch Resolution	Accuracy	Range (mm)	Metric Resolution	Accuracy	Code No.	Price $
0-1"	0.00005"	±0.0001"	0-25	0.001mm	±0.004mm	7136011	**458.09**
1-2"	0.00005"	±0.0002"	25-50	0.001mm	±0.004mm	7136021	**499.75**

Screw Thread Micrometers

ASIMETO

- For measuring various screw threads
- Friction thimble
- Interchangeable tips are optional



Range	Grad.	Accuracy	Notes	Code No.	Price $
0-1"	0.001"	±0.0001"		7132011	**173.42**
1-2"	0.001"	±0.0002"	with Standard	7132021	**193.27**
2-3"	0.001"	±0.0002"	with Standard	7132031	**225.67**
3-4"	0.001"	±0.0002"	with Standard	7132041	**247.22**

Anvils

ASIMETO

- For screw 60° ISO



T.P.I.		Pitch (in./mm)	Notes	Code No.	Price $
64-48	(M1)	0.016-0.019"/0.4-0.5mm	1 pair	7130610	**33.36**
44-28	(M2)	0.024-0.035"/0.6-0.9mm	1 pair	7130620	**33.36**
24-14	(M3)	0.04-0.068"/1.0-1.75mm	1 pair	7130630	**33.36**
13-9	(M4)	0.079-0.118"/2.0-3.0mm	1 pair	7130640	**33.36**
8-5	(M5)	0.138-0.196"/3.5-5.0mm	1 pair	7130650	**33.36**
4.5-3.5	(M6)	0.217-0.275"/5.5-7.0mm	1 pair	7130660	**33.36**
64-3.5		0.016-0.275"/0.4-7.0mm	6 Pair Set	7130600	**205.73**

Micrometer Standards

ASIMETO

- Used for zero point setting of outside micrometers
- Heat insulating handle to prevent heat expansion due to body temperature
- Flat measuring face



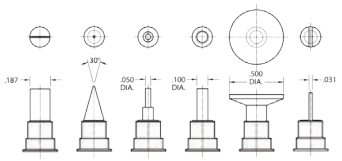
Size	Accuracy	Diameter	Code No.	Price $
1"	±0.00005"	0.276"	7110011	**9.00**
2"	±0.0001"	0.276"	7110021	**10.12**
3"	±0.0001"	0.276"	7110031	**12.25**
4"	±0.0001"	0.315"	7110041	**15.54**
5"	±0.00015"	0.315"	7110051	**18.89**
6"	±0.00015"	0.315"	7110061	**21.00**
7"	±0.00015"	0.315"	7110071	**24.13**
8"	±0.00015"	0.315"	7110081	**27.52**
9"	±0.00020"	0.315"	7110091	**30.48**
10"	±0.00020"	0.315"	7110101	**34.74**
11"	±0.00020"	0.315"	7110111	**37.80**
12"	±0.00025"	0.630"	7110121	**85.63**
13"	±0.00025"	0.630"	7110131	**85.63**
14"	±0.00025"	0.630"	7110141	**102.52**
15"	±0.00025"	0.630"	7110151	**85.63**
16"	±0.00025"	0.630"	7110161	**102.52**
17"	±0.00025"	0.630"	7110171	**90.76**
18"	±0.00025"	0.630"	7110181	**104.29**
19"	±0.00030"	0.630"	7110191	**90.76**
20"	±0.00030"	0.630"	7110201	**108.70**
21"	±0.00030"	0.630"	7110211	**104.34**
23"	±0.00030"	0.630"	7110221	**114.60**

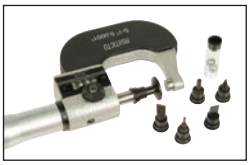
Micrometer Anvil Attachments

ASIMETO

- A must accessory for every micrometer
- Each anvil is 1/2" long & comes with reinforced holding boot
- Anvils are hardened steel with Black Oxide finish
- Fits 0.235" and 0.250" spindle diameters







Description	Notes	Code No.	Price $
7pc Set		7146700	**121.47**
Knife	30 degrees		
Comparator	30 degrees		
Super Spline	0.050" face		
Spline	0.100" face		
Disc	0.500" face		
Blade	0.300" thick		
Ball Attachment	0.200"		

Digital Inside Micrometers

ASIMETO

- Resolution: 0.00005"/0.001mm
- Carbide faces
- Ratchet Stop
- 0.2"-1.2"/5-30mm & 1.0"-2.0"/25-50mm ranges are supplied with setting rings





Range	Resolution	Accuracy	Code No.	Price $
Inch Thimble				
0.2"-1.2" / 5-30mm	0.00005"/0.001mm	±0.0001"	7207011	**582.10**
1.0"-2.0" / 25-50mm	0.00005"/0.001mm	±0.0002"	7207021	**508.90**
2.0"-3.0" / 50-75mm	0.00005"/0.001mm	±0.0002"	7207031	**534.85**
3.0"-4.0" / 75-100mm	0.00005"/0.001mm	±0.0002"	7207041	**557.36**

Inside Micrometers

ASIMETO

- Carbide measuring faces
- Graduation: Inch: 0.001"
- Ratchet stop
- Caliper type jaws are made of high grade tool steel





Range	Grad.	Accuracy	Notes	Code No.	Price $
0.2"-1.18"	0.001"	±0.0001"	c/w ring gauge	7203011	**129.01**
1-2"	0.001"	±0.0002"	c/w ring gauge	7203021	**146.76**
2-3"	0.001"	±0.0002"		7203031	**227.58**
3-4"	0.001"	±0.0002"		7203041	**267.99**

Digital Two & Three Point Internal Micrometers

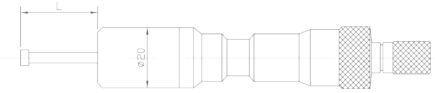
ASIMETO

- Resolution: 0.00005"/0.001mm
- Carbide tipped contact points
- Ratchet Stop
- Protection level IP65
- Setting rings supplied
- Measuring contact points are designed to allow measurements near to the bottom of blind holes
- Models up to 6mm or 0.24" have two measuring points and models over 7mm or 0.275" have three measuring points

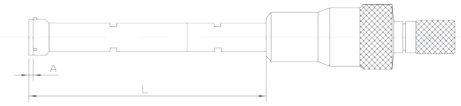


Range	Thimble Graduation	Accuracy	Setting Rings	L	A	Extension Rods	Code No.	Price $
0.5 - 0.65"	0.0002"	±0.00016"	0.65"	80mm	0.5mm	150mm	7208241	**1,084.15**
0.65 - 0.8"	0.0002"	±0.00016"	0.65"	80mm	0.5mm	150mm	7208251	**1,084.15**
0.8 - 1.0"	0.0002"	±0.00016"	1"	90mm	0.5mm	150mm	7208261	**1,128.87**
1 - 1.2"	0.0002"	±0.00016"	1"	90mm	0.5mm	150mm	7208271	**1,128.87**
1.2 - 1.6"	0.0002"	±0.00016"	1.6"	97mm	0.5mm	150mm	7208281	**1,247.19**
1.6 - 2.0"	0.0002"	±0.0002"	1.6"	97mm	0.5mm	150mm	7208291	**1,247.17**
2.0 - 2.5"	0.0002"	±0.0002"	2.5"	114mm	0.5mm	150mm	7208301	**1,347.82**
2.5 - 3.0"	0.0002"	±0.0002"	2.5"	114mm	0.5mm	150mm	7208311	**1,511.64**
3.0 - 3.5"	0.0002"	±0.0002"	3.5"	114mm	0.5mm	150mm	7208321	**1,481.57**
3.5 - 4.0"	0.0002"	±0.0002"	3.5"	114mm	0.5mm	150mm	7208331	**1,640.87**

Dimension 0.08 - 0.24"



Dimension 0.275" and over

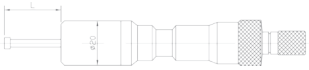


Two & Three Point Internal Micrometers

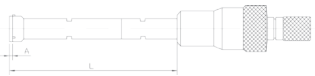
ASIMETO

- Carbide tipped contact points
- Ratchet stop
- Setting rings supplied (sizes up to 4")
- Measuring contact points are designed to allow measurements near to the bottom of blind holes
- Models up to 6mm or 0.24" have two measuring points and models over 7mm or 0.275" have three measuring points

Dimension 2-6mm/0.08 - 0.24"



Dimension 6mm/0.275" and over





Range	Graduation	Accuracy	Setting Rings	L	A	Extension Rods	Code No.	Price $
0.5 - 0.65"	0.0002"	±0.00016"	0.65"	80mm	0.5mm	150mm	7209241	**484.82**
0.65 - 0.8"	0.0002"	±0.00016"	0.65"	80mm	0.5mm	150mm	7209251	**484.82**
0.8 - 1.0"	0.0002"	±0.00016"	1"	90mm	0.5mm	150mm	7209261	**681.16**
1 - 1.2"	0.0002"	±0.00016"	1"	90mm	0.5mm	150mm	7209271	**595.04**
1.2 - 1.6"	0.0002"	±0.00016"	1.6"	97mm	0.5mm	150mm	7209281	**732.80**
1.6 - 2.0"	0.0002"	±0.0002"	1.6"	97mm	0.5mm	150mm	7209291	**851.01**
2.0 - 2.5"	0.0002"	±0.0002"	2.5"	114mm	0.5mm	150mm	7209301	**922.46**
2.5 - 3.0"	0.0002"	±0.0002"	2.5"	114mm	0.5mm	150mm	7209311	**989.29**
3.0 - 3.5"	0.0002"	±0.0002"	3.5"	114mm	0.5mm	150mm	7209321	**1,033.94**
3.5 - 4.0"	0.0002"	±0.0002"	3.5"	114mm	0.5mm	150mm	7209331	**1,075.07**

Wireless Data Transfer

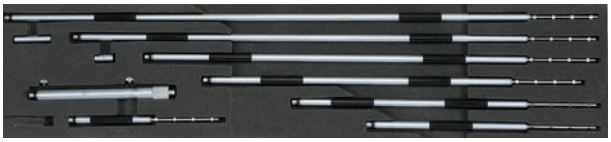
ASIMETO

	Used For	Function	Frequency	Code No.	Price $
	ABS Digital Calipers Digital Micrometers Heavy Duty Digital Calipers	Output	2.4G	7901001	**159.31**
	IP65 Digital Indicators	Output	2.4G	7901002	**159.31**
	ABS Digital Calipers Digital Micrometers Heavy Duty Digital Calipers IP65 Digital Indicators	Input	2.4G	7901003	**92.99**

Inside Micrometers — Interchangeable Rod Type

ASIMETO

- Graduation: Inch: 0.001"
- Rods marked with its measuring range
- Satin chrome finish throughout
- All contact points hardened for extra long tool life



Range	Head Travel	Grad.	Spacing Collar	Rod Dia.	Notes	Code No.	Price $
1-2"	0.25"	0.001"	0.250"	0.248"	1" Mic head & 2 Rods	7242021	**315.97**
2-12"	0.50"	0.001"	0.500"	0.248"	2" Mic head & 10 Rods	7242121	**348.16**
8-40"	1.00"	0.001"	1", 2"	0.355"	8" Mic head & 8 Rods	7242401	**1,682.44**

Note: individual rods are matched with micrometer and should not be interchanged with other sets.

823 Series Tubular Inside Micrometers

Starrett



- Graduation: 0.001"
- Extension rods made of steel tubing, light in weight, extremely rigid
- Rods are approximately 3/8" (9.5mm) diameter
- Rods are insulated, with the exception of 1/2" (13mm) and 1" (25mm) sizes
- Each rod marked with length
- Hardened and ground anvils on rods are adjustable for length
- Head anvil is hardened and ground
- Interchangeable anvils on both 1/2" (13mm) and 1" (25mm) heads
- Quick reading figures – every thousandth numbered on inch reading tools
- Lock nut furnished on 1" (25mm) heads



Range	Description	Starrett No.	Sowa Code No.	Price $
1 1/2-8"	With 5 Rods & Handle	823AZ	629521	**472.14**
1 1/2-12"	With 8 Rods & Handle	823BZ	629023	**567.60**
4-24"	With 7 Rods	823CZ	629024	**735.30**
4-32"	With 8 Rods	823DZ	630264	**813.99**

124 Series Inside Micrometers

Starrett



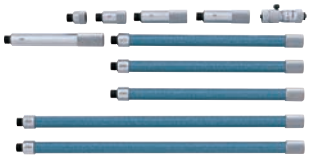
- Graduation: 0.001"
- Rod diameters are approximately 1/4" (6mm)
- Rods are insulated
- Each rod marked with length
- Hardened and ground anvils on rods, adjustable for length
- Head anvil is hardened and ground
- Quick-reading figures – every thousandth numbered on inch reading tools
- Furnished with case



Range	No. of Rods	Starrett No.	Sowa Code No.	Price $
2-8"	6	124AZ	629581	**397.32**
2-12"	10	124BZ	629021	**474.72**

Tubular Inside Micrometers

Mitutoyo



- Ideal for fast, accurate inside measurement of cylinders, rings and parallel surfaces
- Adjustable zero-setting helps provide accuracy
- Scale on thimble and sleeve is laser etched for easier reading in all conditions
- Carbide measuring surfaces provide better accuracy and wear resistance

Mitutoyo Model No.	Range (in.)	Grad (in.)	Sowa Code No.	Price $
137-212	2-12	0.001"	844684	**458.00**
137-214	2-40	0.001"	840984	**736.00**

Inside Micrometers — Rod Type

Mitutoyo

- Interchangeable measuring rods and spacers achieve the full specified measuring range
- Each interchangeable rod is marked with its measuring range
- An extension handle to help you measure deep bores is included in sets up to 300mm range



Mitutoyo Model No.	Range (in.)	Grad (in.)	Sowa Code No.	Price $
141-208	2 - 8"	0.001"	840071	**227.00**
141-233	2 - 12"	0.001"	840072	**280.00**
141-121	8 - 20"	0.001"	841523	**474.00**

Digital Depth Micrometers

ASIMETO

- Resolution: 0.00005"
- 0.157 Dia. interchangeable rod lengths can be adjusted after wear on the measuring tip
- Ratchet stop
- Satin Chrome finish throughout
- Protection level IP65
- Absolute and incremental measuring modes
- Auto On/Off
- Inch/Metric conversion

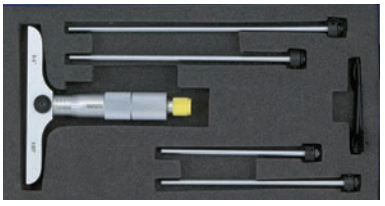


Range	Thimble Grad.	Accuracy	Base Length	Notes	Code No.	Price $
0-4"	0.0001"	±0.0002"	2.5"	With Int. Rods: 4pcs	7205041	**660.79**
0-6"	0.0001"	±0.0002"	2.5"	With Int. Rods: 6pcs	7205061	**683.73**
0-4"	0.0001"	±0.0002"	4.0"	With Int. Rods: 4pcs	7205043	**678.10**
0-6"	0.0001"	±0.0002"	4.0"	With Int. Rods: 6pcs	7205063	**683.73**

Depth Micrometers

ASIMETO

- 0.157 Dia. interchangeable rod lengths can be adjusted after wear on the measuring tip
- Ratchet stop
- Satin Chrome finish throughout

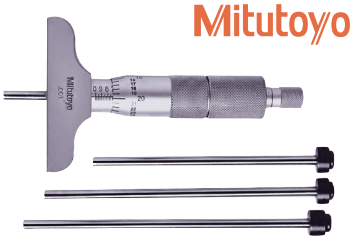


Range	Grad.	Accuracy	Base Length	Notes	Code No.	Price $
0-4"	0.001"	+0.0002"	2.5"	With Int. Rods: 4pcs	7201041	**202.57**
0-6"	0.001"	+0.0002"	2.5"	With Int. Rods: 6pcs	7201061	**213.82**
0-4"	0.001"	+0.0002"	4.0"	With Int. Rods: 4pcs	7201043	**356.51**
0-6"	0.001"	+0.0002"	4.0"	With Int. Rods: 6pcs	7201063	**261.58**

Depth Micrometers

Mitutoyo

- ø4mm interchangeable rods, with lapped measuring surfaces, enable you to make wide-range measurement
- The ratchet stop provides constant measuring force
- Measuring rod lock



Mitutoyo Model No.	Range (in.)	Grad (in.)	Base (in.)	No. of Rods	Sowa Code No.	Price $
129-127	0 - 4"	0.001"	2-1/2"	4	840066	**232.00**
129-132	0 - 6"	0.001"	4"	6	840069	**305.00**
129-150	0 - 12"	0.001"	4"	12	841092	**491.00**

445 Series Depth Micrometers

Starrett

- Ratchet Stop, Lock Nut, Carbide Faces, in fitted case
- Graduation: 0.001" • Base: 3" • Rod Diameter: 5/32
- Combination ratchet and speeder for uniform pressure and quicker adjustment
- Ring-type lock nut
- Satin chrome finish
- Measuring rods are adjustable



Range	No. of Rods	Starrett No.	Sowa Code No.	Price $
0-3"	3	445AZ-3RL	630665	**396.03**
0-6"	6	445AZ-6RL	629027	**468.27**

IP67 Coolant Proof Digital Calipers

ASIMETO

- Absolute function, there is no need to set the zero
- Hold function for easy reading
- Absolute or incremental measuring modes
- Inch/Metric conversion
- Metal Housing, the design will allow the caliper to be used in normal workshop conditions and is resistant to coolant, water, dust or oil
- Auto power on/off
- Power: 3V lithium battery



Range	Resolution	Accuracy	Code No.	Price $
0-6" / 0-150mm	0.0005" / 0.01mm	±0.001"	7305062	**209.82**
0-8" / 0-200mm	0.0005" / 0.01mm	±0.0015"	7305082	**361.67**
0-12" / 0-300mm	0.0005" / 0.01mm	±0.0015"	7305122	**419.37**

IP67 Big Screen Coolant Proof Digital Calipers

ASIMETO

- Absolute function, there is no need to set the zero
- Hold function for easy reading
- Absolute or incremental measuring modes
- Inch/Metric conversion
- Big Screen design allows for very easy reading while also remaining resistant to coolant, water, dust or oil
- Auto power on/off
- Power: 3V lithium battery



Range	Resolution	Accuracy	Code No.	Price $
0-6" / 0-150mm	0.0005" / 0.01mm	±0.001"	7305065	**245.11**
0-8" / 0-200mm	0.0005" / 0.01mm	±0.0015"	7305085	**375.65**
0-12" / 0-300mm	0.0005" / 0.01mm	±0.0015"	7305125	**452.38**

IP67 Coolant Proof Digital Calipers — Sylvac

ASIMETO

- Conforms to IP67 rating
- Inch/Metric conversion
- Auto power on/off
- Sylvac system



SWISS MADE

Range	Resolution	Accuracy	Code No.	Price $
0-6" / 0-150mm	0.0005" / 0.01mm	±0.001"/0.02mm	7301060	**380.82**

Coolant Proof Digimatic Calipers

Mitutoyo

IP67 Series

- IP67 Dust/Water Protection
- Resolution: 0.0005"/0.01mm
- Accuracy: +/- 0.001"
- Single Battery Operation
- 3 Year Battery Life



Mitutoyo Model No.	Measuring Range	Sowa Code No.	Price $
500-752-20	0 - 6"/ 0 - 150mm	843223	**264.00**
500-753-20	0 - 8"/ 0 - 200mm	843555	**355.00**

Digital Calipers

ASIMETO

- Large LCD readout
- Inch/Metric conversion
- With thumb wheel



Range	Resolution	Accuracy	Code No.	Price $
0-6" / 0-150mm	0.0005" / 0.01mm	±0.001"	7307065	**72.46**
0-8" / 0-200mm	0.0005" / 0.01mm	±0.0015"	7307085	**104.00**
0-12" / 0-300mm	0.0005" / 0.01mm	±0.0015"	7307125	**175.52**

798 Series Coolant Proof Digimatic Calipers

Starrett

- Large, easy to read LCD display
- IP67 level of protection against coolant, water, dirt and dust
- Hardened stainless steel measuring surface for long life
- Resolution is 0.0005" (0.01mm)
- Output data to Starrett SPC Plus hardware and software and to PCs



Range	Starrett No.	Sowa Code No.	Price $
0-6" / 150mm	798B-6/150	632747	**381.84**
0-8" / 200mm	798B-8/200	632800	**456.66**
0-12" / 300mm	798B-12/300	633046	**726.27**

Digital Calipers

STM

- Inside, outside, step and depth measurements
- Inch/Metric conversion
- Auto on, auto shutoff
- 0.0005"/0.01mm resolution
- Zero button



Range (in./mm)	Resolution (in./mm)	Code No.	Price $
0-6" / 150mm	0.0005" x 0.01mm	200645	**67.56**
0-8" / 200mm	0.0005" x 0.01mm	200646	**100.00**
0-12" / 300mm	0.0005" x 0.01mm	200647	**149.78**
0-24" / 600mm	0.0005" x 0.01mm	200648**	**724.17**

**no depth gauge

Large Display Digital Calipers

STM

- Large face for easy reading
- Inside, outside, step and depth measurements
- Inch/Metric conversion
- Auto on, auto shutoff
- 0.0005"/0.01mm resolution
- Zero button

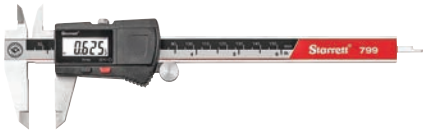


Range (in./mm)	Resolution (in./mm)	Code No.	Price $
0-6" / 150mm	0.0005" / 0.01mm	200540	**67.56**
0-8" / 200mm	0.0005" / 0.01mm	200541	**100.00**

799 Series Electronic Calipers

Starrett

- Inch/millimeter conversion reads 0.0005" or 0.01mm
- Last measuring position retained when shut off
- Resolution is 0.0005" (0.01mm)



6", 8" & 12" Calipers Only

- Large easy-to-read LCD, 0.32" high characters
- Integrated depth rod

Extended Range 24" & 40" Calipers

- Preset and hold feature
- Minimum and maximum limits set
- I.D. jaw dimension is 0.800"/20.32mm
- LCD characters are 0.50" high



Range	Starrett No.	Sowa Code No.	Price $
0-6" / 150mm	EC799A-6/150	634002	**215.43**
0-8" / 200mm	EC799A-8/200	632081	**309.60**
0-12" / 300mm	EC799A-12/300	632465	**500.52**
0-24" / 600mm	799AZ-24/600	632466	**1,243.56**
0-40" / 1000mm	799AZ-40/1000	632467	**2,401.98**

Absolute Digital Calipers

ASIMETO

- Inch/Metric conversion
- The ZERO/ABS changes the measurement mode from absolute to incremental



Range	Resolution	Accuracy	Code No.	Price $
0-6" / 0-150mm	0.0005" / 0.01mm	±0.001"	7307563	**163.00**
0-8" / 0-200mm	0.0005" / 0.01mm	±0.0015"	7307583	**174.93**
0-12" / 0-300mm	0.0005" / 0.01mm	±0.0015"	7307623	**252.13**

ABSOLUTE Digimatic Calipers

Mitutoyo

- Both AN/LED Display and Imprinted/INC Scale
- Smaller models offer a convenient thumb wheel
- Stainless steel construction
- Linear scale embedded in epoxy
- Inside, Outside, Depth and Step measurements
- Repeatability: 0.005"
- Display: LCD 5-Digit
- Response speed: 1m (40")/Sec
- Absolute Encoder Technology always remembers its position



Mitutoyo Model No.	Measuring Range	Sowa Code No.	Price $
500-196-30	0 - 6"/0 - 150mm	848467 *	**198.00**
500-197-30	0 - 8" / 0 - 200 mm / 0.0005	840586 *	**285.00**
500-193	0 - 12" / 0 - 300 mm / 0.0005	840448 *	**563.00**
500-505-10	0 -18" / 0 - 450 mm / 0.0005	840190	**1,038.00**
500-506-10	0 - 24" / 0 - 600 mm / 0.0005	840191	**1,141.00**
500-507-10	0 - 40" / 0 - 1,000 mm / 0.0005	840449	**2,196.00**
500-171-30	0 - 6" w/ spc output	840188	**232.00**
500-172-30	0-8" w/ spc output	840189	**306.00**

* without SPC

Dial Calipers — Stainless Steel

ASIMETO

- Hardened Stainless Steel
- Preloaded dual pinions eliminate backlash and provides better repeatability

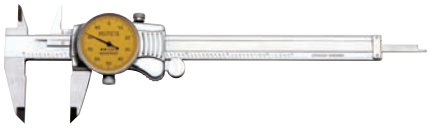


Range	Graduation	Range per Rev	Accuracy	Code No.	Price $
0-6"	0.001"	0.100"	±0.001"	7303061	**87.15**
0-8"	0.001"	0.100"	±0.0015"	7303081	**115.42**
0-12"	0.001"	0.100"	±0.0015"	7303121	**211.20**

Dial Calipers — Diecast Aluminum

ASIMETO

- Sturdy Aluminum diecast housing can be used in the harshest of manufacturing environments, including situations with hot steel chips without damage
- The dual pinion mechanism offers ultra smooth feel
- Preloaded pinion offers better repeatability



Range	Grad.	Range per Rev	Accuracy	Code No.	Price $
0-6"	0.001"	0.100"	±0.001"	7304065	**138.11**
0-12"	0.001"	0.100"	±0.0015"	7304125	**313.79**

Dial Calipers

Mitutoyo

- Extra rigid (3-4mm thick) main beam
- Extra large dial face
- Hardened stainless steel
- 4-way measurements
- Easy-read point re-adjustment with adjuster supplies



Mitutoyo Model No.	Range (in.)	Per Rev (in.)	Sowa Code No.	Price $
505-742	0 - 6"	0.100"	850043	**169.00**
505-743	0 - 8"	0.100"	850028	**223.00**
505-746	0 - 12"	0.100"	840199	**363.00**
505-720	0 - 12"	0.200"	840194	**331.00**

Dial Calipers

STM

- Covered rack
- Accurate to 0.001 per 6"
- Made of Stainless Steel
- Clamp for repetitive setting
- Deluxe case
- 0.100" Revolution



Range	Graduation	Code No.	Price $
0-6"	0.001"	200582	**66.89**
0-8"	0.001"	200584	**88.70**
0-12"	0.001"	200586	**155.48**

120 Series Dial Calipers

Starrett

- Sharp, clear dial graduations of 0.001" or 0.02mm – 0.100" or 2mm in one revolution
- Sharp, black graduations on satin finished bar, every 0.100" or 1mm
- Knife-edge contacts for inside and outside measurements
- Thumb-operated fine adjustment roll
- Positive split-gear anti-backlash control
- Rack teeth point down to shed foreign matter more easily

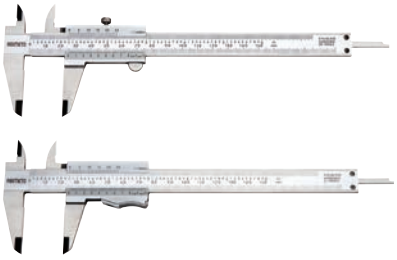


Range	Graduation	Starrett No.	Sowa Code No.	Price $
0-6"	0.001"	120A-6	629034	**299.28**
0-9"	0.001"	120A-9	629036	**490.20**
0-12"	0.001"	120-12	630877	**558.57**

Vernier Calipers

ASIMETO

- Can measure OD, ID, depth and steps
- Available in Plain, Thumb Clamp and Fine adjustment
- Stainless Steel
- Measuring surfaces allow for the measurement of external diameters, internal diameters, depths, and steps
- Upper and lower scales on the slider are angles to reduce parallax error



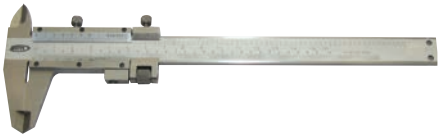
Range		Graduation				
Lower	Upper	Lower	Upper	Accuracy	Code No.	Price $
Plain Vernier						
0-150mm	0-6"	0.02mm	0.001"	±0.03mm	7341064	**54.92**
Thumb Clamp						
0-150mm	0-6"	0.02mm	0.001"	±0.03mm	7351064	**74.03**

Vernier Calipers With Fine Adjustment

STM

Precision Stainless Steel Vernier Calipers

- Satin chrome finish
- Extra long vernier to insure accuracy
- Made of fully hardened stainless steel throughout
- Jaws designed for outside, inside, and thread measurement
- All measurements can be read directly from vernier scale 1/1000" x 1/20 mm
- Raised sliding surfaces prevent defacement and wear of graduations: clear black engravings

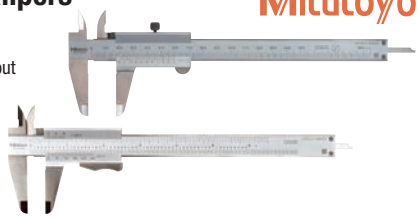


Range (in x mm)	Graduation (in x mm)	Code No.	Price $
0-6" x 150mm	1/1000" x 1/20mm	200600	**46.10**

Precision Vernier Calipers

Mitutoyo

- Graduations photo engraved
- Hardened stainless steel throughout
- Satin chrome finish
- All measuring surfaces are ground and capped



Mitutoyo Model No.	Range (in./mm)	Vernier Reading Upper Scale	Vernier Reading Lower Scale	Sowa Code No.	Price $
Plain Type					
530-312	0-6"/0-150mm	0.001"	0.02mm	840225	**113.00**
530-118	0-8"/0-200mm	0.001"	0.02mm	840224	**141.00**
530-115	0-12"/0-300mm	1/128	0.05mm	840222	**300.00**
Thumb Clamp					
531-128	0-6"/0-150mm	0.001"	0.02mm	841207	**122.00**
531-129	0-8"/0-200mm	0.001"	0.02mm	841858	**169.00**

125 Series Vernier Calipers

Starrett

- High quality basic vernier caliper
- Graduation: 0.001"/0.02mm



Range	Starrett No.	Sowa Code No.	Price $
0-6"/150mm	125MEA-6/150	631977	**174.15**
0-8"/200mm	125MEA-8/200	631978	**205.11**
0-12"/300mm	125MEA-12/300	631979	**365.07**

ABS Heavy Duty Digital Calipers

ASIMETO

- Resolution: 0.0005" / 0.01mm
- Designed with fine adjustment to allow precise movement of the slider
- Internal measurement jaws are rounded to provide accurate measurement of internal diameters
- Minimum internal diameter measurement capability of 20mm
- Inch/Metric conversion
- Zero setting at any position
- Without upper jaws

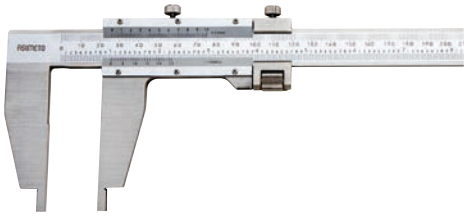


Range	Jaw Length	Accuracy	Code No.	Price $
0-12"/0-300mm	90mm	±0.04mm	7315126	**335.69**
0-24"/0-600mm	100mm	±0.05mm	7315246	**1,161.50**
0-40"/0-1000mm	150mm	±0.10mm	7315406	**2,125.10**

Heavy Duty Vernier Calipers

ASIMETO

- Graduation: Lower Scale: 0.001" Upper Scale: 0.02mm
- Nib style jaws and fine adjustment



Range Lower	Range Upper	Graduation Lower	Graduation Upper	Accuracy	Jaw Depth	Code No.	Price $
0-12"	0-300mm	0.001"	0.02mm	±0.0015"	75mm	7311121	**256.55**
0-18"	0-450mm	0.001"	0.02mm	±0.002"	100mm	7311181	**442.30**
0-24"	0-600mm	0.001"	0.02mm	±0.002"	100mm	7311241	**505.16**
0-40"	0-1000mm	0.001"	0.02mm	±0.003"	150mm	7311401	**1,105.68**
0-60"	0-1500mm	0.001"	0.02mm	±0.004"	200mm	7311601	**3,048.14**
0-80"	0-2000mm	0.001"	0.02mm	±0.005"	200mm	7311801	**4,265.69**

Digital Caliper With Adjustable Measuring Jaw

ASIMETO

- Resolution: 0.0005"/0.01mm
- Stationary jaw on the beam is designed with vertical movement for the purpose of measuring various steps of different heights
- Inch/Metric conversion
- Zero setting at any position



Range	Adjustable Jaw Length	Accuracy	Code No.	Price $
0-6"/150mm	110mm	±0.0015"/0.04mm	7317060	**333.88**
0-12"/300mm	130mm	±0.0020"/0.05mm	7317120	**590.98**

Digimatic Scale

Mitutoyo

- No rack, no pinion, no glass scale. Digimatic Scale is safely embedded in the hardened stainless steel blade
- All units come with two mounting brackets, each located at either end of the scale
- Battery life approximately 2 years



Mitutoyo Model No.	Range (in./mm)	Resolution (in./mm)	Output	Sowa Code No.	Price $
572-211-20	6"/150mm	0.0005"/0.01mm	YES	847859	**313.00**

Centreline Gauges

Mitutoyo

- Measures centreline distances
- Easily attaches to Dial, vernier, and Digital Calipers
- 60° conical points
- Hardened steel with Black Oxide finish
- Attaches with set screws
- Supplied in High Impact Tubes with hex wrench



Calipers	Minimum Measuring	Dia.	Overall Length	Slot Width	Code No.	Price $
4", 6", 8"	3/8"	0.375"	2-5/16"	0.127"	7300130	**60.84**
12"	1/2"	0.500"	2.762"	0.144"	7300140	**90.63**

Universal Caliper Accessory Kit

ASIMETO

- The original caliper jaw attachment accessory
- The square bodies attach to the jaws of any 4", 6", and 8" caliper. Threaded holes are located in the front, both sides, and the bottom of the bodies, allowing the use of the points on any side
- Measures slots, grooves, shoulders, holes, pockets, and takes ID and OD measurements
- Steel with Black Oxide finish



Kit Contents	Quantity	Notes	Kit Code No.	Price $
Universal Caliper Bodies	1 pair	3/8" square x 2" length, Slot for caliper jaws is 0.147 wide. 4-40 holes for set screws fasten the body to the caliper jaw.	7300110	**93.36**
Flat Points	1 pair	3/16" diameter x 0.810" length, 4-48 threads		
Cone Points	1 pair	3/16" diameter x 0.810" length, 4-48 threads		
Stem Points	1 pair	3/16" body diameter, 0.084 stem diameter x 0.820" length, 4-48 threads		
Ball Points	1 pair	3/16" diameter x 0.810" length, 4-48 threads		

Digital Indicators

ASIMETO

- Tolerance measurement feature
- Inch/Metric conversion
- The maximum, minimum, or runout value can be displayed during measurement
- Absolute and incremental measuring modes
- SR44 battery
- Flat Back (attached) and Lug Back supplied
- 3/8" stem diameter for inch models and 8mm stem diameter for metric models



Range	Resolution	Accuracy	Code No.	Price $
0-0.5"/0-12.5mm	0.00005"/0.001mm	±0.0003"/±0.007mm	7405955	**500.84**
0-0.5"/0-12.5mm	0.0005"/0.01mm	±0.0008"/±0.02mm	7405951	**228.39**
0-1"/0-25mm	0.0005"/0.01mm	±0.0012"/±0.03mm	7405011	**275.67**
0-2"/0-50mm	0.0005"/0.01mm	±0.0012"/±0.02mm	7405021	**639.68**

IP65 Absolute Digital Indicators

ASIMETO

- Absolute or incremental measuring modes
- Tolerance measurement feature allows for the upper and lower tolerance for maximum and minimum
- Inch/Metric conversion
- Flat back (attached) and lug back supplied
- 3/8" stem diameter
- 360 deg. screen rotation
- Cable data output: 7900070
- Wireless data transfer: 7901002

IP 65



7407013



7407023

Range	Resolution	Accuracy	Code No.	Price $
0-0.5"/0-12.5mm	0.0005"/0.01mm	±0.0008"/±0.02mm	7407013	**177.57**
0-1"/0-25mm	0.0005"/0.01mm	±0.0012"/±0.02mm	7407023	**190.92**
0-2"/0-50mm	0.0005"/0.01mm	±0.0012"/±0.02mm	7407033	**443.20**

Digimatic Indicators ID-N/B

Mitutoyo

- Proven ABSOLUTE sensor
- Rated to IP66 water- and dust-proofing standard and oil resistance improved
- Slim body design is advantageous for multi-point measurements
- Improvement in workability with the LCD readout-rotation function
- Back plunger design (ID-B).
- Built-in tolerance judgment function
- Switchable resolution
- Waterproof data output connector
- Built-in hold/preset function



Slim type ID-N



Back plunger type ID-B



Mitutoyo Model No.	Range (in./mm)	Resolution (in./mm)	Sowa Code No.	Price $
543-571 ID-N	0.500"/12.7 mm	0.0008"/0.02 mm	846425	**457.00**
543-576 ID-N	0.500"/12.7 mm	0.00012"/0.003 mm	846426	**634.00**
543-581 ID-B	0.220"/5.6 mm	0.0005"/0.01 mm	846424	**504.00**
543-586 ID-B	0.220"/5.6mm	0.00005"/0.001 mm	846185	**682.00**

ID-S Digimatic Indicators

Mitutoyo

- 2-3/8 dial face
- ABS sensor
- Absolute linear encoder track or pin
- 3/8 stem diameter



With ABSOLUTE ENCODER

Mitutoyo Model No.	Type	Range (in./mm)	Resolution (in./mm)	Sowa Code No.	Price $
543-392B	Flat Back	0-0.5"/0-12.7mm	0.00005"/0.001mm	840616	**538.00**
543-262	Lug Back*	0-0.5"/0-12.7mm	0.00005"/0.001mm	842932	**601.00**
543-263	Lug Back*	0-0.5"/0-12.7mm	0.0001"/0.001mm	842477	**601.00**
543-472B	Flat Back	0-1.00"/0-25mm	0.00005"/0.001mm	846486	**797.00**
543-683	Lug Back	0-.05"/0-12.7mm	0.0005"/0.01mm	841419	**224.00**

*Peak Hold Feature

3600 Series Electronic Indicator

Starrett

- Large, easy-to-read LCD
- Range: 0.500" or 12.7mm
- Resolution: 0.0005" or 0.01mm
- Lug-on-centre back + additional flat back



Range	Resolution	Starrett No.	Sowa Code No.	Price $
0.500"/12.7mm	0.0005"/ 0.01mm	3600-5	632014	**259.96**

AGD1 Dial Indicators

ASIMETO

- Graduation: Inch: 0.001" Metric: 0.01mm
- Dial face dia. 1.65"
- Jeweled bearings
- Lug Back



Range	Dial Reading	Range per Rev	Stem Dia.	Code No.	Price $
0 - 0.25"	0-100	0.1"	3/8	7401061	**60.52**

AGD2 Dial Indicators

ASIMETO

- Dial face dia. 2.20"
- Lug Back
- Easy to read dial face



7402265



7402267

Range	Grad.	Dial Reading	Range per Rev.	Stem Dia.	Code No.	Price $
Inch						
0-0.05"	0.0001"	0-50-0	0.01"	3/8	7402013	**132.21**
0-0.05"	0.0001"	10-0	0.01"	3/8	7402011	**132.21**
0-0.05"	0.0001"	0-5-0	0.01"	3/8	7402015	**166.23**
0-0.25"	0.0005"	0-25-0	0.05"	3/8	7402065	**79.99**
0-0.5"	0.0005"	0-50	0.05"	3/8	7402125	**61.98**
0-1"	0.0005"	0-50	0.05"	3/8	7402265	**63.80**
0-0.25"	0.001"	0-100	0.1"	3/8	7402061	**53.62**
0-0.25"	0.001"	0-50-0	0.1"	3/8	7402063	**79.99**
0-0.5"	0.001"	0-100	0.1"	3/8	7402121	**56.27**
0-0.5"	0.001"	0-50-0	0.1"	3/8	7402123	**63.56**
0-1"	0.001"	0-100	0.1"	3/8	7402261	**45.27**
0-1"	0.001"	0-50-0	0.1"	3/8	7402263	**63.80**
0-2"	0.001"	0-100	0.1"	3/8	7402511	**122.99**
Metric						
0-10mm	0.01mm	0-100	1mm	3/8	7402101	**100.51**
0-25mm	0.01mm	0-50-0	1mm	3/8	7402253	**177.24**
IP54 Water Proof						
0-0.4"	0.001"	0-100	0.1"	3/8	7402267	**119.19**
0-0.4"	0.0005"	0-50	0.05"	3/8	7402269	**119.19**

Dial Indicators



- Reverse counter
- Stainless steel components
- Rotating bezel with clamp
- Lugback (1/4" hole)
- Interchangeable point
- Conforms to AGD 2 standards

Travel Range	Dial Reading	Grad.	Dial Colour	Code No.	Price $
1/2"	0-100"	0.001"	White	200718	**42.28**
1"	0-100"	0.001"	White	200720	**40.16**
1"	0-50"	0.0005"	White	200755	**48.43**
2"	0-100"	0.001"	White	200725	**93.29**
Magnetic Back					
For AGD2 series				200722	**20.47**

Dial Indicators



- Jewelled bearings
- Reversible contact point is adjustable within 220°
- Fully adjustable bevel/dial face, 1.27" easy to read

Series #1- 1-5/8" dia. dial face
Series #2- 2-1/4" dia. dial face

Mitutoyo Model No.	Range (in./mm)	Grad (in./mm)	Reading	Sowa Code No.	Price $
1044S	5mm	0.01mm	0-100	841286	**127.00**
1410S	0.250"	0.001"	0-100	841696	**136.00**
1411S	0.250"	0.001"	0-50-0	848586	**130.00**
2046S	10mm	0.01mm	0-100	840249	**123.00**
2047S-01	10mm	0.01mm	0-50-0	842938	**114.00**
2414S	0.500"	0.001"	0-100	840417	**133.00**
2416S	1.00"	0.001"	0-100	840254	**132.00**
2416S-10	1.00"	0.001"	0-100	840255	**154.00**
2424S-19	2.00"	0.001"	0-100	847987	**267.00**
2804S-10	0.050"	0.0001"	0-10	840258	**209.00**
2923S-10	0.050"	0.0001"	0-5-0	840260	**205.00**
2923SB-10	0.050"	0.0001"	0-5-0	843450	**194.00**
2971	0.5mm	0.01mm	25-0-25	843498	**105.00**

"S" = flat crystal & flat back "-10" = jewelled bearings "-01" = metric ind. with ANSI specs

196 Series Dial Indicators



- Inch reading
- Graduation: 0.001"
- Dial reading: 0-100
- Shank Diameter 1/4"
- Accurate, reliable, and simple to operate
- Rugged with few moving parts
- Smooth in operation

Range	Supplied With	Starrett No.	Sowa Code No.	Price $
0.200"	3 Contact Pts & Adapter, 4 attachments* in Case	196A1Z	628864	**366.36**
0.200"	3 Contact Pts & Adapter Only	196B1	629144	**211.56**

*Attachments include clamp, tool post holder, snug and hole attachment

25 Series Dial Indicators



- Lug-on-centre back
- Graduation: 0.001"
- Range: 0.250"
- Shockless hardened steel gear train and jewel bearings
- Contact point is interchangeable
- Easy-to-read dial style

Range per Rev.	Dial Reading	Starrett No.	Sowa Code No.	Price $
0.100"	0-50-0	25-141J	629457	**233.49**

Holding Bars



- Scalloped design
- Black oxide coating for corrosion resistance

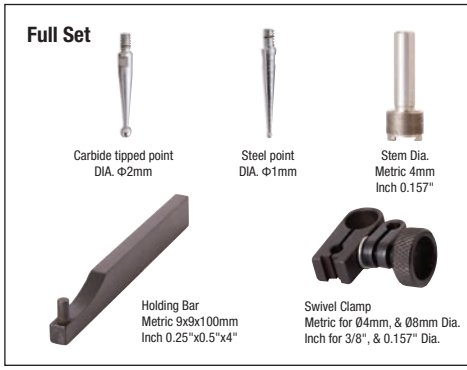
Shank Dia.	Length	Code No.	Price $
1/4 x 1/2	4"	7500213	**33.10**
9mm x 9mm	50mm	7500210	**36.21**
9mm x 9mm	100mm	7500212	**34.66**

Test Indicators

- Jeweled bearings
- Inch units come with 3/8 & 8mm dovetail stems
- Easy to read yellow face
- 32mm and 40mm face diameters available



Vertical



Grad.	Range	Dial Reading	Accuracy	Type	Code No.	Price $
Inch						
0.0001"	0.008"	0-4-0	±0.0001"	Horizontal	7501783	**145.22**
0.0001"	0.008"	0-4-0	±0.0001"	Vertical	7501785	**204.20**
0.0005"	0.03"	0-15-0	±0.0005"	Horizontal	7501733	**129.83**
0.0005"	0.03"	0-15-0	±0.0005"	Vertical	7501735	**125.24**
0.0005"	0.03"	0-15-0	±0.0005"	Horizontal/Long Point (1.25")	7501736	**193.20**
Inch Sets						
0.0001"	0.008"	0-4-0	±0.0001"	Horizontal	7501787	**145.22**
0.0005"	0.03"	0-15-0	±0.0005"	Horizontal	7501738	**158.27**

Test Indicators and Sets



- Available in bezel or dial
- Contact point adjustable through 230°
- Fully jeweled movement
- Extremely light contact pressure
- Clear, easy to read, white face
- Dovetails on top and back for all-around positioning
- Sets include 5/32" and 3/8" mounting shanks and 3/8" bar

Dial Dia. (in.)	Grad. (in.)	Range (in.)	Reading (in.)	Point Length (in.)	Code No.	Price $
1.250"	0.0005"	0.030"	0-15-0	0.700"	200730	**84.40**

Quick Set / True Test Indicators

Mitutoyo

Basic Model Includes:

- Horizontal type, series 513
- 0.078" carbide contact point
- 3/8 dovetail and nut

Complete Model Includes:

- All basic accessories
- 0.039 and 0.118 contact points
- Swivel clamp for 5/32 and 3/8 dovetail
- 5/32 dovetail arm



Mitutoyo Model No.	Range (in./mm)	Grad (in./mm)	Sowa Code No.	Price $
Basic Model				
513-402	0.030"	0.0005"	840211	**152.00**
513-403	0.008"	0.0001"	840212	**176.00**
Complete Model				
513-402T	0.030"	0.0005"	840215	**170.00**
513-403T	0.008"	0.0001"	840216	**251.00**
513-405T	0.2mm	0.002mm	840476	**242.00**
513-406T	0.030"/0.7mm (dual)	0.0005"/0.01mm	840217	**214.00**
513-412-10T (long point)	0.030"	0.0005"	849370	**272.00**

Pocket Test Indicators

Mitutoyo

- Jewelled bearings
- Reversable contact point is adjustable within 220°
- Fully adjustable bevel/dial face, 1.27" easy to read



Mitutoyo Model No.	Range (in./mm)	Grad (in./mm)	Reading	Sowa Code No.	Price $
513-518T (set)	0.040"	0.001"	0-20-0	840208	**185.00**
513-518 (ind)	0.040"	0.001"	0-20-0	840473	**163.00**
513-515 (ind)	1.00mm	0.01mm	0-50-0	842594	**193.00**

Extended Range Dial Test Indicators

ASIMETO

- Jeweled bearing design and resistant to magnetic fields
- Stem diameter: Inch: 3/8", Metric: 8mm
- Carbide contact point swivels 210°



Range	Graduation	Dial Reading	Accuracy	Type	Code No.	Price $
0.060"	0.001"	0-15-0	±0.0012"	Horizontal w/ 30mm dial	7503061	**239.95**
0.060"	0.0005"	0-15-0	±0.0012"	Horizontal w/ 30mm dial	7503561	**239.95**
0.060"	0.0005"	0-15-0	±0.0012"	Horizontal w/ 38mm dial	7504561	**239.95**
0.060"	0.001"	0-15-0	±0.0012"	Vertical w/ 30mm dial	7503063	**244.26**
0.060"	0.0005"	0-15-0	±0.0012"	Vertical w/ 30mm dial	7503563	**184.13**
0.060"	0.0005"	0-15-0	±0.0012"	Vertical w/ 38mm dial	7504563	**214.99**

Centering Indicators

ASIMETO

- Operating speed not to exceed 800rpm
- Range: Internal: 5/32" - 12"
  External: Up to 12"
- Includes: 6pc feeler set, centre locating feeler



Dial Range	Graduation	Accuracy	Stem Dia.	Code No.	Price $
0-0.15"	0.0005"	±0.0002"	0.375"	7469008	**307.39**

Parts

Description	Length	Capacity	Code No.	Price $
ID Feeler	2"/50mm	4"/100mm	7469012	**6.20**
ID Feeler	4"/100mm	8"/200mm	7469013	**5.94**
ID Feeler	6"/150mm	12"/300mm	7469014	**6.20**
OD Feeler	2"/50mm	4"/100mm	7469015	**6.20**
OD Feeler	4"/100mm	8"/200mm	7469016	**6.20**
OD Feeler	6"/150mm	12"/300mm	7469017	**5.94**
Centre Locating Feeler			7469018	**18.83**
Feeling Rod			7469019	**6.66**

711 Series Dial Test Indicators

Starrett

- Graduation: 0.001" Dial Reading 0-15-0
- Steel contact points length: 5/32" (4mm)
- Steel contact points ball diameters: 0.035" (0.9mm), 0.062" (1.6mm), 0.120" (3mm)
- Ideal for precise measurements in machining, layout, and inspection work
- Smooth, jeweled lever action
- Positive reversing switch
- Hard chrome-plated ratchet contact point
- Swiveling tubular body
- Easy reading dials, half-shaded yellow for clarity



Range	Contact Length (in./mm)	Steel Contact Points Ball Dia. (in./mm)	Starrett No.	Sowa Code No.	Price $
0.030"	5/32"/4mm	3pc: 0.035"/0.9mm 0.062"/1.6mm 0.120"/3mm	711GCSZ	629140	**388.29**

708 Series Dial Test Indicators

Starrett

- With Attachments: Attachments include dovetail body clamp, tool post holder, swivel post snug with dovetail indicator clamp, and snug and rod unit
- Large 1 3/8" (35mm) dial diameter
- Carbide contact points 13/16 x 0.078" dia
- Precision gear driven design with accurate, smooth, jeweled movement
- Furnished in case



Range	Grad.	Dial Reading	Starrett No.	Sowa Code No.	Price $
0.010"	0.0001"	0-5-0	708ACZ	629138	**562.44**
0.030"	0.0005"	0-15-0	709ACZ	629139	**454.08**

Universal Dovetail Indicator Holder

ASIMETO

- 1/4" shank diameter with 3" reach
- This spring loaded holder locks in any of (4) 90 degree quadrants, and allows many variable angles of holding
- Brass contact will not scar indicator
- Fits all dovetail equipped indicators
- Stainless steel



Description	Code No.	Price $
Universal Dovetail Indicator Holder	7500410	**33.78**

Extended Range Dial Test Indicator Sets #1

ASIMETO

- Double the range of most indicators
- Jeweled movement

Standard Accessories:

- Calibration certificate, instruction manual, warranty card, indicator, wrench
- Height gauge bar with swivel clamp w/ 5/32", 7/32", 1/4" holes
- Axial support with 3/8" stem and dovetail
- Reduction sleeve 3/8" to 5/32"
- Two dovetail stems, 3/8" and 5/32"
- Three contact points: 0.4" (hardened steel), 0.08", 0.12" (Tungsten Carbide) x 5/8" long



Range	Graduation	Accuracy	Dial Dia.	Indicator	Code No.	Price $
0.060"	0.0005"	±0.0012"	38mm	Horizontal (7504561)	7504811	**286.35**
0.060"	0.0005"	±0.0012"	30mm	Horizontal (7503561)	7504813	**278.63**
0.060"	0.001"	±0.0012"	30mm	Horizontal (7503061)	7504815	**267.06**

Extended Range Dial Test Indicator Sets #2

ASIMETO

- Double the range of most indicators
- Jeweled movement

Standard Accessories:

- Calibration certificate, instruction manual, warranty card, indicator, wrench
- Xtra-Mag magnetic base with 2 universal ball sockets
- Micro-fine adjustment screw
- 3-9/16" extension arm
- Two dovetail stems, 3/8" and 5/32"
- Three contact points: 0.4" (hardened steel), 0.08", 0.12" (Tungsten Carbide) x 5/8" long



Range	Graduation	Accuracy	Dial Dia.	Indicator	Code No.	Price $
0.060"	0.0005"	±0.0012"	38mm	Horizontal (7504561)	7504821	**280.68**

Axial Support Bracket

ASIMETO

- Used for mounting indicators with dovetails or rods
- 3/8" diameter body for secure clamping, with 5-1/2" overall reach
- Bends in many directions





Shank Dia.	Overall Length	Code No.	Price $
3/8"	5-3/8"	7500260	**176.91**

Dovetail Stem Sets

ASIMETO

- Includes stem and knurled clamping ring
- Used in conjunction with a magnetic base clamp to mount a test indicator with a dovetail



Size	Code No.	Price $
3/8"	7500311	**9.17**
5/32"	7500313	**9.17**

Swivel Clamp

ASIMETO

- Used to mount an indicator via either a dovetail stem or directly by a dovetail
- Clamps directly onto the main post of a magnetic base



Description	Code No.	Price $
For 3/8" & 5/32" Dia. Dovetail Stems	7500251	**45.35**
For 8mm & 6mm Dia. Dovetail Stems	7500252	**44.68**

Centering Holders

ASIMETO

- Allows large diameter cylinder or holes to be centered



Description	Code No.	Price $
8mm Dia. Stem	7500350	**47.76**
0.25" Dia. Stem	7500351	**30.63**

Half Round Combination Holder

STM

- Two-point adjustment
- 1/4" shank
- For dovetail and 5/32" stem indicators



Description	Code No.	Price $
Half Round Combination Holder	200816	**24.83**

Test Indicator Points

ASIMETO

- Carbide, Steel, or Ruby ball

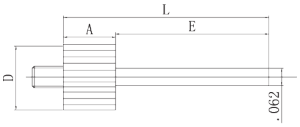


Ball Dia.	Tip Length	Ind. Range/ Resolution	Code No.	Price $
Carbide Ball				
2mm	16.2mm	0.03"/0.0005"	7500622	**11.18**
3mm	16.7mm	0.03"/0.0005"	7500632	**14.28**
3mm	16.7mm	0.008"/0.0001"	7500732	**14.28**
2mm	21.8mm	0.06"/0.0005"	7500822	**8.07**
3mm	22.3mm	0.06"/0.0005"	7500832	**12.05**
2mm	16.2mm	0.2mm/0.002mm	7500722	**10.32**
Steel Ball				
1mm	15.9mm	0.03"/0.0005"	7500611	**10.92**
2mm	16.2mm	0.03"/0.0005"	7500621	**5.46**
3mm	16.7mm	0.03"/0.0005"	7500631	**5.46**
3mm	16.7mm	0.008"/0.0001"	7500731	**5.46**
1mm	21.3mm	0.06"/0.0005"	7500811	**5.22**
2mm	21.8mm	0.06"/0.0005"	7500821	**5.46**
3mm	22.3mm	0.06"/0.0005"	7500831	**5.46**
Ruby Ball				
2mm	16.2mm	0.03"/0.0005"	7500623	**16.02**
2mm	21.8mm	0.06"/0.0005"	7500823	**12.05**

Stem Indicator Points

ASIMETO

- Point is carefully manufactured of stainless steel
- 4-48 Threads for use in AGD 1, 2, 3, 4 indicators





Type	D	A	E	L	Code No.	Price $
Single Stem	3/16"	3/16"	1-5/32"	1-5/32"	7477057	**10.80**

Contact Point Adapter

ASIMETO

- Point is 7/32" diameter, 1/2" length
- Steel, soft and Black Oxide plated
- Metric to English Conversion point



Description	Code No.	Price $
4-48 Internal Threads to M2.5 External Threads	7477381	**12.38**

Straight Metric Indicator Stem Bushing

ASIMETO

- Accepts 8mm stem, converts to 3/8" diameter stem
- Straight bushing, no head
- 0.500" length
- Brass, Nickel Plated



Description	Code No.	Price $
Straight Metric Indicator Stem Bushing	7500320	3.21

Select-A-Point Kit

STM

The most useful accessory kit for all dial indicators - a complete set of 22 different points, increasing the versatility of your indicators.

- Fits all AGD 1, 2, 3, 4 drop style indicators, 4-48 threads

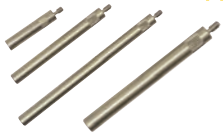


Description	Code No.	Price $
Select-A-Point Kit	200820	16.80

Dial Indicator Extension Rods & Sets

ASIMETO

- Use to gain extra length
- 7/32" diameter points
- Stainless Steel



Length	Thread	Code No.	Price $
1/2"	4-48	7477107	9.86
3/4"	4-48	7477117	9.86
1"	4-48	7477127	9.86
1-1/4"	4-48	7477137	10.28
1-1/2"	4-48	7477147	11.01
1-3/4"	4-48	7477157	11.01
2"	4-48	7477167	32.92
2-1/2"	4-48	7477177	16.15
3"	4-48	7477187	16.47
4"	4-48	7477197	19.62
6"	4-48	7477207	28.74
Sets			
1", 2", 3" in each set	4-48	7477038	36.40

Articulating Arm Magnetic Bases

ASIMETO

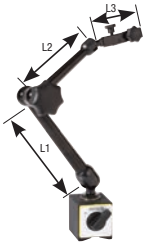
- Accepts test indicators with dovetail clamping mechanism
- Dial gauges can be held by the 3/8" or 8mm diameter stem or by the lug backing plate
- Arm has 3 articulating joints that can be locked with the single hand knob
- The rotary knob switches natural magnet on or off
- The precision surfaces and the bottom V are securely fastened to the ferrous work piece or machine table when the rotary knob is in the on position
- Slot: 6.5mm
- Working Angle 150°
- 7602011 does not have fine adjustment



Magnetic Power	Magnetic Base (L x W x H)	Height	Code No.	Price $
30 kg	36 x 30 x 35mm	195mm	7602011	75.00
80 kg	60 x 50 x 55mm	350mm	7602021	212.76
80 kg	60 x 50 x 55mm	440mm	7602031	94.00
130 kg	117 x 50 x 55mm	690mm	7602051	281.94

Dimensional Data

L1	L2	L3
65mm	55mm	60mm
120mm	105mm	60mm
160mm	140mm	75mm
345mm	230mm	60mm



Hydraulic Magnetic Base

ASIMETO

- Accepts test indicators with dovetail clamping mechanism
- Dial gauges can be held by the 3/8" or 8mm diameter stem or by the lug backing plate
- The rotary knob switches natural magnet on or off
- The precision surfaces and the bottom V are securely fastened to the ferrous work piece or machine table when the rotary knob is in the on position
- Working Angle 150°



Magnetic Power	Magnetic Base (L x W x H)	Height	Code No.	Price $
80 kg	60 x 50 x 55mm	385mm	7603010	212.57

Permanent Magnetic Base

ASIMETO

- With permanent magnetic base, without On/Off switch
- Dovetail groove included



Magnetic Power	Main Body	Main Stem Length	Dia. of Hole	Slot	Code No.	Price $
17 kg	Ø30 x 25mm	85mm	Ø6mm	6mm	7601120	41.75

Standard Magnetic Bases

ASIMETO

- For Indicators with 3/8 stems and or Lug backs with 1/4 hole diameter
- On/Off switch
- 132 lbf Magnetic pull



Model	Pull Action	Code No.	Price $
With 6" Rod and Universal clamp	132 lbf	7601011	33.79
With 6" Adjustable Rod / Fine Adjustment	132 lbf	7601021	32.00

Standard Magnetic Bases

ASIMETO

Base only with M8 threaded hole for uses limited only by your imagination.



Magnetic Power	Magnetic Base (L x W x H)	Female Thread	Code No.	Price $
60 kg	60 x 50 x 55mm	M8	7600011	51.05
80 kg	60 x 50 x 55mm (metal switch)	M8	7600012	27.50

STM Magnetic Bases

STM



Standard Model BA-1 Code No.	Price $	Fine Adj. Model BA-1F Code No.	Price $
225705	35.46	225700	32.77

Universal Magnetic Indicator Holder



- Two universal ball sockets permit adjustment to any angle or position
- Fine adjustment
- Dovetail clamp for test indicators
- 1/4" hole for 1/4" stem indicators

Description.	Code No.	Price $
Universal magnetic indicator holder	200825	**20.80**

Single Action Dial Gauge Holder



Articulated arm style magnetic base positions and locks easily; includes ON/OFF switch and central locking knob. One knob mechanically tightens both arms. Dial gauge holder includes fine adjustment and full 360° swivel.

Description	Code No.	Price $
Dial gauge holder	200875	**137.25**

Magnetic Stands



- On/Off switch
- 6" Rod and Universal Clamp

Mitutoyo Model No.	Pull Action	Type	Sowa Code No.	Price $
70105-10	132 lb	standard	846997	**121.00**
7011SN	132 lb	fine adjustment	840262	**123.00**
7033B	132 lb	universal mag stand	847852	**367.00**

Holders With Fine Adjustment On Top



New Fine Adjustment on top with universal clamp.

- Holds 6mm, 3/8", dovetail and lug back
- Unique central locking mechanism with spring loaded bearing
- Dial gauge holder is 3 dimensional
- Powerful on/off magnetic base
- Instant fixation in any position
- Fast and easy to set up gauges into required position
- Black finished arms

	Arm Length and Diameter			
Model	Bottom Arm Length(mm)	Top Arm Length(mm)	Code No.	Price $
NF61003	56	51	165498	**199.74**
DG61003	110	101	165500	**252.45**
MG61003	133	113	165502	**317.01**
MA61003	326	242	165425	**516.42**

Holders With Fine Adjustment On Base



Unique single direction fine adjustment at base.

- Powerful on/off magnetic base
- Holds 3/8" and dovetail
- Unique central locking mechanism with spring loaded bearing
- Five axis holder
- Instant fixation in any position
- Easy to set up into required position
- Black finished arms

	Arm Length and Diameter			
Model	Bottom Arm Length(mm)	Top Arm Length(mm)	Code No.	Price $
NF10433	56	51	165504	**217.13**
DG10533	110	101	165506	**270.06**
MG10533	133	113	165508	**318.63**

Holder With Double Fine Adjustment — MG6161



- New double fine adjustment
  - Bottom: unique single direction
  - Top: universal swivel clamp
- Holds 6mm, 8mm, 3/8", dovetail, and lug back
- Five axis holder
- Unique central locking mechanism with Noga designed spring loaded bearing
- Powerful magnetic base 80kgf

Model No.	Code No.	Price $
MG6161	165501	**355.04**

PH Holders With Fine Adjustment At Base



- Single direction fine adjustment at base
- Powerful on/off magnetic base
- Universal Swivel Clamp for all dial & test indicators
- Holds 6mm, 3/8", dovetail and lug back
- Strong arm lock by using the unique 3-point system
- Easy to set up gauges into required system
- Black finished arms

		Arm Length and Diameter			
Model	Post Dia. x Length(mm)	Arm Dia. x Length(mm)	Code No.	Price $
PH3100	10 x 120	8 x 110	165471	**82.37**
PH2040	14 x 203	12 x 185	165365	**100.85**

Noga Economy Magnetic Base — PH6400



- Solid arm locked by using Noga unique 3-point clamping system
- Universal swivel clamp for 3/8", 8mm, 6mm, dovetail and back lug
- Improved fine adjustment on the magnet base
- Powerful 176 lbf on/off magnetic base
- Post - 14mmX200mm Arm - 12mmX190mm

Model	Code No.	Price $
PH6400	165472	**152.90**

Noga Standard Holder — DG1033



- 11" Reach
- Noga central locking mechanism with Noga designed spring loaded bearing
- Powerful On/Off magnetic base 80kgf
- Dial gauge holder is 3 dimensional

		Arm Length and Diameter		
Model	Bottom Arm Length(mm)	Top Arm Length(mm)	Code No.	Price $
DG1033	110	101	165350	**270.06**

Noga Heavy Duty Holder — MG1033

- Has fine adjustment
- Noga central locking mechanism with spring loaded bearing
- Powerful magnetic base 80 kgf



Model	Arm Length and Diameter: Bottom Arm Length(mm)	Arm Length and Diameter: Top Arm Length(mm)	Code No.	Price $
MG1033	133	113	165355	**324.83**

Five Axis Holder — NF1024

- Unique, 5 axis, 3 dimensional holder
- Patented 360 degree fine adjustment at the base
- Central locking mechanism
- On/Off magnetic base 17 kgf



Model	Code No.	Price $
NF1024	165360	**250.93**

Noga Centerflex — NF1018

- Centerflex, holds indicators with dovetails and 3/8" diameter stems
- Test Indicator holder arm with 5/16" diameter and 1-9/16" long stem
- Most useful for centering holes on milling machines



Model	Code No.	Price $
NF1018	165420	**146.82**

F/A Top Attachment — FA1500

- Holds indicators with 3/8", 6mm, 8mm stems and dovetails
- M6 thread
- Fine adjustment



Model	Code No.	Price $
FA1500	165421	**70.53**

Universal Surface Gauges

Fully hardened and ground base serves as an accurate reference surface. Machined Vee groove in the base allows the gauge to be used conveniently on curved surfaces.



Base Dim. (in.)	Spindle Length (in.)	Scriber Length (in.)	Model No.	Code No.	Price $
2-3/16 x 1-5/8	7" with extra 4" spindle	3	SG/4-7	231246	**71.12**
3-1/8 x 2-1/2	12" with extra 9" spindle	7	SG/9-12	231248	**103.00**

Digital Interchangeable Rod Type Depth Gauges

- The total measuring range is accomplished with threaded depth rods in 1"
- The base surface is precisely finished and hardened for accurate repeatable measurements
- Inch/Metric conversion
- Stroke 12.7mm
- Includes 10 rods



Range	Resolution	Accuracy	Base Length	Code No.	Price $
0-4"/100mm	0.0005"/0.01mm	±0.001"/0.02mm	63x17mm	7475040	**421.00**

Absolute Digital Depth Calipers

- Extra large LCD readout
- Inch/Metric conversion
- Precision ground measuring surfaces



Range	Resolution	Accuracy	Code No.	Price $
0-6" / 0-150mm	0.0005" / 0.01mm	±0.001"	7327067	**126.48**
0-8" / 0-200mm	0.0005" / 0.01mm	±0.0015"	7327087	**157.07**
0-12" / 0-300mm	0.0005" / 0.01mm	±0.0015"	7327127	**370.15**

Absolute Digital Depth Calipers With Single Hook

- Stationary measuring surface on the beam protrudes at right angles (hook) to allow for measurement of depths, internal groove positions, and other intricate measurements
- All measuring surfaces are hardened



Range	Resolution	Accuracy	Code No.	Price $
0-6" / 0-150mm	0.0005" / 0.01mm	±0.001"/0.02mm	7322067	**168.69**
0-8" / 0-200mm	0.0005" / 0.01mm	±0.0015"/0.03mm	7322087	**206.30**
0-12" / 0-300mm	0.0005" / 0.01mm	±0.0015"/0.04mm	7322127	**418.10**

Dial Interchangeable Rod Type Depth Gauges

- The total measuring range is accomplished with threaded depth rods in 1"
- The base surface is precisely finished and hardened for accurate repeatable measurements
- Stroke 1"
- Includes 4 rods



Range	Graduation	Accuracy	Base Length	Code No.	Price $
0-4"	0.001"	±0.002"	2.5"x0.63"	7473041	**275.27**
0-4"	0.001"	±0.002"	4"x0.63"	7473043	**313.82**

Digital Tire Depth Gauge

- The origin point is retained throughout the life of the battery
- Inch/Metric conversion
- Spherical end anvil



Range	Resolution	Accuracy	Base Length	Code No.	Price $
0-1.2"/0-30mm	0.0005"/0.01mm	±0.0015"/0.03mm	60mm	7321010	**123.39**

Dial / Digital Bore Gauges

Mitutoyo

- Interchangeable anvils
- Carbide ball contact point for durability
- Optional extension rods can be attached
- A digimatic indicator can be attached in place of the dial gauge



Mitutoyo Model No.	Capacity (in.)	Grad (in.)	Sowa Code No.	Price $
511-741	0.7 - 1.4	0.0005	840460	**451.00**
511-742	1.4 - 2.5	0.0005	846411	**451.00**
511-743	2.0 - 6.0	0.0005	840202	**504.00**
511-751	0.7 - 1.4	0.0001	840203	**460.00**
511-752	1.4 - 2.5	0.0001	847567	**505.00**
511-753	2.0 - 6.0	0.0001	847344	**496.00**
Digital	**Range**	**Resolution**		
511-521	1.8-4"/45-100mm	0.00005"/0.001mm	843940	**1,620.00**

Digital Bore Gauges

ASIMETO

- Resolution: 0.00005"
- Dynamic carbide contact point
- 0.24-0.4" range is with fixed anvils
- 0.4-0.7" range is with plate guide and fixed anvils
- 0.7-1.4" range is with canister and fixed anvils
- Over 1.4" range is with wheel guide and inserting anvils



Range	No. Anvils	No. Spacers	No. Sub-anvils	Probe Depth	Code No.	Price $
0.24-0.4"	9	-	-	2"	7485111	**629.40**
0.4-0.7"	9	1	-	4"	7485121	**606.62**
0.7-1.4"	10	2	-	4"	7485211	**606.62**
1.4-2.4"	6	3	-	6"	7485221	**583.03**
2-6"	11	3	1	6"	7485311	**603.60**
6-10"	6	5	1	16"	7485321	**664.27**
10-16"	6	5	2	16"	7485331	**736.45**

Dial Bore Gauges

ASIMETO

- Graduation: 0.0001" / 0.01mm
- Fixed measuring points made of steel
- Movable probe pin with carbide ball





Range	No. Anvils	No. Spacers	No. Sub-Anvils	Probe Depth	Code No.	Price $
Inch						
0.24"-0.4"	9 pcs	-	-	2"	7483111	**329.21**
0.4"-0.7"	9 pcs	1	-	4"	7483121	**297.17**
0.7"-1.5"	10 pcs	2	-	6"	7483211	**272.72**
1.4"-2.4"	6 pcs	4	-	6"	7483221	**246.76**
2.0"-6.0"	11 pcs	4	1	6"	7483311	**260.01**
6.0"-10.0"	6 pcs	6	1	10"	7483321	**324.13**
10.0"-16.0"	6 pcs	6	2	16"	7483331	**456.62**

Note: For 0.0005" Graduation Purchase Code # 7402065 Dial Indicator

ABSOLUTE Digimatic Snap Bore Gauges

Mitutoyo

- TiN coated contact points
- Large LCD digits for error-free reading
- 330° rotatable display unit for easy reading at any angle
- GO/NO-GO judgment function
- ABSOLUTE linear encoder eliminates over-speed errors
- With SPC output
- Can measure deep holes by attaching optional extension rod
- Supplied in fitted wooden case



Mitutoyo Model No.	Range (in./mm)	Setting Rings Included	Sowa Code No.	Price $
568-965	0.275" - 0.5"/ 6.985 - 12.7mm	0.35" dia. 0.425" dia.	847863	**6,313.00**
568-966	0.5" - 1"/ 12.7 - 25.4mm	0.65" dia. 0.8" dia.	847864	**6,590.00**
568-967	1" - 2"/ 25.4 - 50.8mm	1.2" dia. 1.6" dia.	847865	**6,880.00**
568-968	2" - 3"/ 50.8 - 76.2mm	2.5" dia. 3.5" dia.	847866	**4,927.00**
568-969	3" - 4"/ 76.2 - 101.6mm	2.5" dia. 3.5" dia.	847867	**5,468.00**

Single Beam Digital Height Gauges With Hand Wheel

ASIMETO

- Large LCD display
- Hand wheel design for fine adjustment
- Inch/Metric conversion
- Carbide tipped scriber
- Zero setting on any position



Range	Resolution	Accuracy	Code No.	Price $
0-12" / 0-300mm	0.0005" / 0.01mm	±0.0015"/0.04mm	7626120	**699.00**
0-18" / 0-450mm	0.0005" / 0.01mm	±0.0015"/0.04mm	7626180	**1,029.68**
0-24" / 0-600mm	0.0005" / 0.01mm	±0.0020"/0.05mm	7626240	**999.00**

Digital Height Gauges

ASIMETO

- Fine adjustment
- Easy to read large LCD display
- Inch/Metric conversion
- Origin memory eliminates the need to zero the reading each time the height gauge is turned on
- The base is designed with a thermal heat isolation hand grip



Range	Resolution	Accuracy	Code No.	Price $
0-12"/0-300mm	0.0005"/0.01mm	±0.0015"	7625120	**620.79**
0-24"/0-600mm	0.0005"/0.01mm	±0.0020"	7625240	**1,329.62**

Double Beam Digital Height Gauges w/ Hand Wheel

ASIMETO

- Large LCD display
- Hand wheel design for fine adjustment
- Inch/Metric conversion
- Carbide tipped scriber
- Zero setting on any position



Range	Resolution	Accuracy	Code No.	Price $
0-12" / 0-300mm	0.001" / 0.01mm	±0.0015"/0.04mm	7627120	**689.00**
0-18" / 0-450mm	0.001" / 0.01mm	±0.0015"/0.04mm	7627180	**1,333.11**
0-24" / 0-600mm	0.001" / 0.01mm	±0.0020"/0.05mm	7627240	**989.00**

Digimatic Height Gauges

Mitutoyo

- New design ergonomic base
- New lever clamp secures main unit against beam
- Large LCD display
- Absolute Encoder Technology always remembers its position
- SPC output capability



Mitutoyo Model No.	Range (in./mm)	SPC	Resolution (in./mm)	Sowa Code No.	Price $
570-312	12/300	YES	0.0005"/0.01mm	841069	**795.00**
570-314	24/600	YES	0.0005"/0.01mm	844528	**1,428.00**

Twin Column Digimatic Height Gauges

Mitutoyo

- Inch/metric conversion
- Resolution 0.0005"/0.01mm
- Carbide tipped scriber
- Double-column structure ensures high measuring accuracy
- Large LCD Display



Mitutoyo Model No.	Range (in./mm)	SPC	Accuracy	Sowa Code No.	Price $
192-630-10	12/300	NO	±0.001	842050	**1,638.00**
192-631-10	18/450	NO	±0.002	842174	**2,664.00**
192-632-10	24/600	NO	±0.002	842172	**2,856.00**
192-671-10	18/450	YES	±0.0015	842213	**2,778.00**
192-672-10	24/600	YES	±0.0015	841282	**3,652.00**

Double Beam Digit Counter Height Gauges

ASIMETO

- Graduation: 0.001"
- Dial and digit counter reading
- Hand wheel for easier travel
- Carbide tipped scriber
- The digit counter provides bi-directional positioning and the capability of setting zero at any position



Range	Dial Grad.	Counter Grad.	Accuracy	Code No.	Price $
0-12"	0.001"	0.1" (Dual Reading)	±0.0015"	7623121	**559.97**
0-18"	0.001"	0.1" (Dual Reading)	±0.002"	7623181	**707.09**
0-24"	0.001"	0.1" (Dual Reading)	±0.002"	7623241	**1,057.51**

Vernier Height Gauges

ASIMETO

- Fine adjustment for easy setting
- Satin chrome finish
- Carbide tipped scriber



Range	Grad.	Accuracy	Code No.	Price $
0-12"/0-300mm	1/128"/0.05mm	±0.0015"	7621120	**362.41**
0-24"/0-600mm	1/128"/0.05mm	±0.002"	7621240	**756.99**

Black Granite Surface Plates 0-Ledge

STM

Imported Precision Toolroom Black Granite Surface Plates
These plates are made of the highest quality – True Black – Fine Grained – Non-porous – Jewel Hardness – Granite available to give years of long lasting service.



Specifications:
Compressive Strength 7329 lbs. / in^2
Water Absorptivity 0.13%

Size (in.)	Thickness (in.)	Shipping Weight (lb)	(±)	Code No.	Price $
Grade B-Tool Room- No Ledge					
9 x 12"	3"	40	±0.0001	255100	**102.59**
12 x 18"	3"	110	±0.0001	255105	**159.45**
18 x 24"	4"	189	±0.00015	255110	**423.28**
24 x 36"	4"	475	±0.0002	255115	**777.26**
36 x 48"	6"	1427	±0.0004	255120	**2,108.34**
Grade A-Inspection					
12 x 18"	3"	110	±0.000050	255130	**244.19**
18 x 24"	3"	145	±0.000075	255135	**394.67**
24 x 36"	4"	475	±0.0001	255140	**856.98**

Steel Surface Plate Stands

STM

- Fabricated from 2" x 2" 1/4" thick angle iron, welded together for extra strength–easily support more than twice the weight of the surface plate
- No assembly required; ready to use
- Gray enamel finish
- For exact height, add stand height listed in chart to surface plate thickness
- Made in Canada



Plate Size (in.)	Weight (lb)	Stand Height (in.)	Code No.	Price $
12 x 18"	80"	33"	255200	**1,110.30**
18 x 24"	95"	33"	255205	**2,287.10**
24 x 36"	125"	32"	255210	**2,109.40**
36 x 48"	175"	30"	255215	**2,882.10**
48 x 72"	300"	28"	255220	**2,300.00**

Radius Gauges

STM

- Satin Finish Stainless Steel
- No. L300 Series



Model No.	Specifications	Code No.	Price $
L 300 CX	1/64–17/64 x 64ths 9/32–1/2 x 32nds	225005	**158.83**
L 300 MX	0.5mm–13mm x 0.5mm	225010	**292.97**

Surface Plate Cleaners

ASIMETO

- An exclusive formulation that is extremely effective for the cleaning and care of granite surface plates
- Works quickly and effectively, leaves no residue on the granite



Description	Code No.	Price $
Pint	7607510	**10.39**
Pint Spray Pump	7607520	**12.48**
1/2 Gallon	7607540	**31.78**
Gallon	7607550	**43.43**
5 Gallon	7607560	**108.99**

Radius Gauges

ASIMETO

- Size is marked on each gauge leaf
- Gauge profiles have both convex and concave radii



Range	Qty	Composition	Notes	Code No.	Price $
1/32-17/64"	16 pairs	1/32-17/64 x 64ths	90° arc	7605401	**31.67**
1/32-1/4"	15 pairs	1/32-1/4 x 64ths	180° arc	7605411	**28.90**
1/64-1/2"	25 pairs	1/64-17/64 x 64ths, 9/32-1/2x3nd	-	7605441	**72.20**

No. 272 Fillet or Radius Gauges

STM



Model No.	Specifications	Code No.	Price $
272A	1/32–17/64 x 64ths	225230	**43.04**

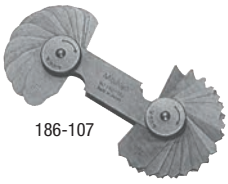
Radius Gauges

Mitutoyo

- Each radius gauge has five measuring locations
- The gauges have a satin finish



186-901



186-107

Mitutoyo Model No.	No. of Leaves	Description	Sowa Code No.	Price $
186-901	25	1/64 - 17/64 x 64ths 9/32-1/2 x 32nds	840159	**169.00**
186-101	15	1/32-1/4 x 64ths	840155	**48.00**
186-107	30	15.5mm - 25mm	840372	**102.00**

Feeler Gauge

STM

- 26 tapered leaf thickness gauges
- 3" long



Range (in.)	Code No.	Price $
0.0015 to 0.025"	606050	**41.58**

Small Hole Gauge Set

Mitutoyo

- Extra long for gauging deep and shallow holes, slots and similar work



Mitutoyo Model No.	Description	Sowa Code No.	Price $
154-901	0.125"-0.500"	840077	**140.00**

S829 Series Small Hole Gauge Set

Starrett

- Hardened-ball measuring surface with two-point contact
- Radius on each gauge is less than the minimum diameter to be measured, which provides the two-point contact necessary for maximum accuracy
- Smooth, sensitive adjustment for better feel, giving more accurate measurements
- The adjustment of the gauges beyond their range is restricted by a safety stop that prevents breakage



Description	Starrett No.	Sowa Code No.	Price $
Set of 4 in case, Nos. 829A, B, C, D	S829EZ	629059	**247.68**

S579 Series Telescoping Gauge Sets

Starrett





- Gauges have two telescoping contacts
- Handles are rigidly attached to contact plungers and are automatically self-centering
- Constant spring tension gives uniform contact pressure
- Both plungers are easily locked at any desired setting
- Supplied with protective case

Description	Starrett No.	Sowa Code No.	Price $
Set of 4, 5/16" - 2 1/8" (8mm - 54mm)	S579GZ	629060	**229.62**
Set of 6, 5/16" - 6" (8mm - 150mm)	S579HZ	629061	**390.87**

Telescoping Gauges

ASIMETO

- Plunger is spring loaded and expands within the bore, allowing measurement of the internal diameter



Range	Depth	Model	Code No.	Price $
0.315"-0.500"	4.2"	A	7487011	**12.19**
0.500"-0.748"	4.4"	B	7487021	**13.38**
0.748"-1.26"	4.4"	C	7487031	**15.84**
1.26"-2.126"	5.85"	D	7487041	**16.74**
2.126"-3.54"	5.85"	E	7487051	**18.40**
3.54"-5.90"	5.85"	F	7487061	**16.08**
0.315-5.90" Set of 6		A, B, C, D, E, F	7487869	**57.57**
0.315"-0.500"	12"		7487013	**23.30**
0.500"-0.748"	12"		7487023	**22.71**
0.748"-1.26"	12"		7487033	**18.56**
1.26"-2.126"	12"		7487043	**25.83**
2.126"-3.54"	12"		7487053	**27.23**
3.54"-5.90"	12"		7487063	**25.83**

Telescoping Gauge Set

STM

- Plunger is spring loaded and expands within the bore, allowing measurement of the internal diameter



Sizes Consisting of:	Code No.	Price $
5/16–1/2, 1/2–3/4, 3/4–1-1/4, 1-1/4–2-1/8, 2-1/8–3-1/2, 3-1/2–6	200710	**45.40**

Telescoping Gauges

Mitutoyo

- Plunger is spring loaded and expands within the bore, allowing measurement of the internal diameter
- Knurled clamp
- Supplied in a fitted pouch



Mitutoyo Model No.	Description	Sowa Code No.	Price $
155-121	5/16 - 1/2"	840078	**35.00**
155-122	1/2 - 3/4"	840079	**39.00**
155-123	3/4 - 1-1/4"	840080	**42.00**
155-124	1-1/4 - 2-1/8"	840081	**44.00**
155-125	2-1/8 - 3-1/2"	840348	**51.00**
155-126	3-1/2 - 6"	840349	**58.00**
155-903	5/16 - 6 SET	840082	**260.00**
155-907	5/16 - 2-1/8 SET	840085	**154.00**

Centre Gauges

STM

- Satin-chrome finish
- American National Standard



Model	Description	Code No.	Price $
5031	U.S. Standard, 60°	225410	**21.51**
5032	Metric Standard, 60°	225415	**21.51**

Centre Gauge

Mitutoyo

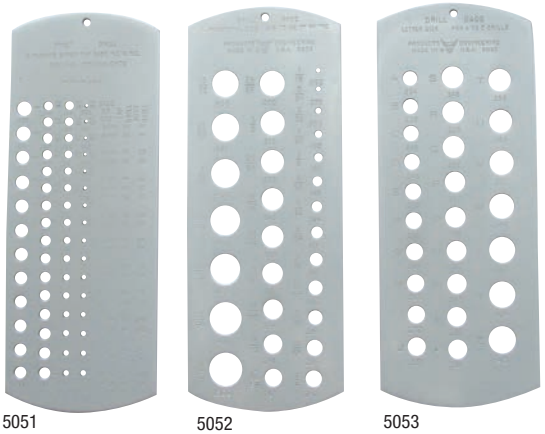
- Hardened with lapped edges and notches
- Meets requirements of the American National and US 60° standards



Mitutoyo Model No.	Description	Sowa Code No.	Price $
950-201	Centre Gauge	840235	**20.00**

Drill Gauges

- Made of high quality steel
- Satin chrome finish
- Offer a quick and accurate way of checking drill and rod sizes



5051 5052 5053

1-60 Drill/Machine Screw Tap Gauge

STM

- Tells at a glance the correct size tap drill for machine screw tap in "NF" National Fine or "NC" National Coarse thread series
- Shows the correct body size drill to use, 60 sizes shown with number and decimal equivalent of drill at each hole

Model No.	Description	Code No.	Price $
5051	1-60 Drill/Machine Screw Tap Gauge	606314	**54.30**

1/16 - 1/2 Drill Gauge

STM

- Gauge has 29 measuring holes for determining twist drill sizes from 1/16" to 1/2" in 1/64" increments
- Shows drill sizes in inches and decimal equivalents

Model No.	Description	Code No.	Price $
5052	1/16-1/2 Drill Gauge	606316	**54.73**

A-Z Drill Gauge

STM

- Used to select or check drill sizes from "A" to "Z"
- Each gauge hole is marked by letter and its decimal equivalent from 0.234 inch diameter through 0.413 inch diameter

Model No.	Description	Code No.	Price $
5053	A-Z Drill Gauge	606318	**52.02**

Thread Pitch Gauges

ASIMETO

- Each individual gauge is stamped with the thread pitch size



Metric Screw Pitch Gauges (60°)

Range	No. of Leaves	Composition of Leaves	Code No.	Price $
0.25-2.5mm	28	0.25 - 0.90mm by 0.05mm, 1 - 2mm x 0.1mm step, Plus 1.25, 1.75, 2.5mm	7605500	**19.33**
0.35-6mm	22	0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6mm, and 60° angle gauge	7605510	**23.32**
0.4-7mm	21	0.4, 0.5, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7mm	7605520	**20.11**
0.4-7mm	18	0.4, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7mm	7605530	**15.91**

Unified Screw Pitch Gauges (60°)

Range	No. of Leaves	Composition of Leaves	Code No.	Price $
4-42 TPI	30	4, 4-1/2, 5, 5-1/2, 6, 7, 8, 9, 10, 11,11-1/2, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42 TPI	7605502	**19.33**
4-84 TPI	51	4, 4-1/2, 5, 5-1/2, 6, 7, 8, 9, 10, 11, 11-1/2, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30 - 84 by 2 , TPI	7605512	**34.37**

Metric and Unified Screw Pitch Gauges (60°)

Range	No. of Leaves	Composition of Leaves	Code No.	Price $
0.4-7mm 4-42 TPI	51	7605520 and 7605502	7605508	**33.58**

Thread Measuring Wire Set

ASIMETO

- 48 wires - 16 different sizes
- Measures all threads from 3 - 48 threads per inch
- Measures all metric threads from 0.5mm to 6mm
- Also measures ACME threads
- Laminated chart included



Description	Code No.	Price $
Thread Wire Set	7697300	**31.31**

Screw Pitch Gauges

STM

- With locking devices

Inch range of pitches:

- 4, 4-1/2, 5, 5-1/2, 6, 7, 8, 9, 10, 11, 11-1/2, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82 and 84

Metric range of pitches:

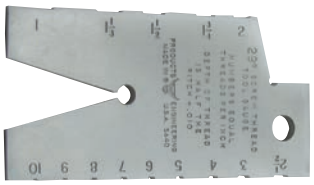
- 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 1, 1.10, 1.20, 1.25, 1.30, 1.40, 1.50, 1.60, 1.70, 1.75, 1.80, 1.90, 2, 2.50, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7mm



Model No.	No. of Leaves	Ranges of Pitch	Code No.	Price $
5651	51	4 to 84	225315	**89.20**
156m	28	0.25 to 2.50 mm	225320	**47.53**
5628	28	4 to 80	225325	**47.51**
5617	18	0.5 to 7.00mm and 60° angle gauge	225330	**41.56**
5629	28	4 to 56 0.5-6.0mm	225335	**47.51**

Acme Gauge

STM



Description	Code No.	Price $
1-10 TPI (29°)	225450	**52.30**

U.S. Standard Wire Gauge

Mitutoyo

- Individual gauge sizes embossed on gauge
- Satin-chrome finish
- Made of high quality steel



Mitutoyo Model No.	Description	Sowa Code No.	Price $
950-203	No. 0-36	840236	**50.00**

Wide Rigid Rules (3/64 Thick)

Mitutoyo

- Constructed with tempered stainless steel to ensure accuracy and provide better durability for a longer instrument life span
- Clear graduations are easy to read on the satin-chrome finish
- Rigid steel rulers are designed to not flex



Mitutoyo Model No.	Size	Graduations	Width	Sowa Code No.	Price $
182-101	6" 4R	1/8, 1/16, 1/32, 1/64"	3/4"	840112	**18.00**
182-102	6" 16R	1/32, 1/64, 1/50, 1/100"	3/4"	840113	**18.00**
182-104	6" 3R	1/32, 1/64, 1/10, 1/50"	3/4"	840114	**19.00**
182-105	6" / 150mm	1/32, 1/64, 1mm, 1/2mm	3/4"	840115	**18.00**
182-106	6" / 150mm	1/50, 1/100, 1mm, 1/2mm	3/4"	840778	**27.00**
182-111	150mm	1mm, 0.5mm, 1mm, 0.5mm	19mm	840118	**18.00**
182-125	12" / 300mm	1/32, 1/64, 1mm, 1/2mm	1"	840120	**39.00**
182-126	12"/ 300mm	1/30, 1/100, 1mm, 1/2mm	1"	840121	**50.00**

Rigid and Flexible Scales

STM



Size (in.)	Type	Graduation	Code No.	Price $
6	Flex	4R 1/8, 1/16, 1/32, 1/64"	606001	**21.87**
6	Flex	3R 1/32, 1/64, 1/10, 1/50"	606012	**21.87**
6	Flex	– 1/32, 1/64, 0.5mm, 1mm	606015	**21.87**
6	Rigid	4R 1/8, 1/16, 1/32, 1/64"	606017	**23.18**
12	Flex	4R 1/8, 1/16, 1/32, 1/64"	606002	**42.28**
12	Flex	3R 1/32, 1/64, 1/10, 1/50"	606013	**42.28**
12	Flex	– 1/32, 1/64, 0.5mm, 1mm	606016	**42.28**
12	Rigid	– 1/32, 1/64, 0.5mm, 1mm	606033	**46.47**
12	Rigid	4R 1/8, 1/16, 1/32, 1/64"	606018	**46.51**
24	Flex	3R 1/32, 1/64, 1/10, 1/50"	606014	**91.83**

Flex Rules (1/64 Thick)

Mitutoyo

- Constructed with tempered stainless steel to ensure accuracy and provide better durability for a longer instrument life span
- Clear graduations are easy to read on the satin-chrome finish



Mitutoyo Model No.	Size	Graduations	Width	Sowa Code No.	Price $
182-201	6" 4R	1/8, 1/16, 1/32, 1/64"	1/2"	840127	**18.00**
182-202	6" 16R	1/32, 1/64, 1/50, 1/100"	1/2"	840128	**18.00**
182-203	6" 5R	1/32, 1/64, 1/10,1/100"	1/2"	840129	**18.00**
182-204	6" 3R	1/32, 1/64, 1/10, 1/50"	1/2"	840130	**18.00**
182-205	6" / 150mm	1/32, 1/64, 1mm, 1/2mm	1/2"	840131	**18.00**
182-206	6" / 150mm	1/50, 1/100, 1mm, 1/2mm	1/2"	840132	**18.00**
182-207	6" / 150mm	1/10, 1/100, 1mm, 0.5mm	1/2"	840133	**18.00**
182-208	6" / 150mm	1/10, 1/50, 1mm, 0.5mm	1/2"	840134	**26.00**
182-211	150mm	1mm, 0.5mm, 1mm, 0.5mm	12mm	840135	**27.00**
182-222	12" 16R	1/32, 1/64, 1/50, 1/100"	1/2"	840137	**35.00**
182-225	12"/ 300mm	1/32, 1/64, 1mm, 1/2mm	1/2"	840140	**34.00**
182-226	12"/ 300mm	1/50, 1/100, 1mm, 1/2mm	1/2"	840141	**49.00**
182-231	300mm	1mm, 0.5mm, 1mm, 0.5mm	12mm	840142	**35.00**

Pocket Rules (1/64 Thick)

Mitutoyo

- Constructed with tempered stainless steel to ensure accuracy and provide better durability for a longer instrument life span
- Clear graduations are easy to read on the satin-chrome finish



Mitutoyo Model No.	Size	Graduations	Width	Sowa Code No.	Price $
950-300	6" / 150mm	1mm, 1/64"	1/2"	840244	**13.00**

Drill Point Gauge

Mitutoyo

- For measuring properly ground 59° drill tips
- Rule and slide made of steel
- Satin chrome finish
- Slide graduated in 32nds
- End clip is adjustable and removable
- Versatile - Can be used as Rule, Hook Rule, Try Square, Depth Gauge or Caliper, and for Layout



Mitutoyo Model No.	Size	Rule Graduation	Code No.	Price $
950-275	6"	1/8, 1/16, 1/32, 1/64"	845589	**46.00**

Narrow Rules & Depth Gauge Rules

STM



Model No.	Description	Graduations	Code No.	Price $
7305-006	6" with clip	32nds one face, 64ths other face	606156	**14.23**
7305-012	12" with clip	32nds one face, 64ths other face	606158	**25.52**
7305-006	6" without clip	32nds one face, 64ths other face	606160	**14.20**
7305-012	12" without clip	32nds one face, 64ths other face	606162	**31.40**
7305-M06	6" with clip	32nds one face, 0.5 mm other face	606164	**17.76**
7305-M12	12" with clip	32nds one face, 0.5 mm other face	606166	**31.83**
7305-M06	6" without clip	32nds one face, 0.5 mm other face	606168	**14.19**
7305-M12	12" without clip	32nds one face, 0.5 mm other face	606170	**25.66**
7305-M15	150 mm with clip	mm one face, 0.5 mm other face	606172	**14.23**
7305-M30	300 mm with clip	mm one face, 0.5 mm other face	606174	**25.92**
7305-M15	150 mm without clip	mm one face, 0.5 mm other face	606176	**14.20**
7305-M30	300 mm without clip	mm one face, 0.5 mm other face	606178	**25.67**

Specialty Rules — Round End

STM



Model No.	Description	Graduations	Code No.	Price $
7202-SS6	6" flex, not plated, round end rule with clip Decimal equivalent chart on back	32nds, 64ths	606180	**6.57**
7203-SS6	6" flex, not plated, round end rule with clip Metric equivalent chart on back	mm, 64ths	606182	**6.57**
7202-C06	6" flex, chrome plated, round end rule with clip Decimal equivalent chart on back	32nds, 64ths	606184	**11.56**
7203-C06	6" flex, chrome plated, round end rule with clip Metric equivalent chart on back	mm, 64ths	606186	**11.54**

12" Combination Square Set

ASIMETO

- Graduation: Protractor: 1°
  Blade: 64ths, 32nds, 1mm, 0.5mm (E/M)
  8ths, 16ths, 32nds, 64ths (4R)
- Blade is hardened and tempered
- Heads are hardened cast finish in baked enamel
- 45° Centre Gauge



Description	Blade Length	Code No.	Price $
4pc Set (With E/M rule)	12"/300mm	7490208	**189.25**
4pc Set (With 4R rule)	12"/300mm	7490218	**210.83**
Parts			
12" 4R Stainless Steel Rule		7490210	**29.26**
12"/300mm E/M Stainless Steel Rule		7910051	**29.26**
45° Centre Gauge		7490250	**38.91**
Dial Scale Protractor Head		7490260	**57.68**
Square Head		7490270	**45.53**
Lock Nut		7490220	**8.14**

Combination Set

STM

- Used for layout, set-up, checking heights, depths and setting angles
- Square head, centre head and reversible protractor head
- Hardened cast iron heads



Blade for Combination Set



Graduation	Length of Rule	Code No.	Price $
1/32, 1/64, 0.5 mm, 1 mm	12"	220850	**424.07**
Rules for Combination Set			
1/32, 1/64, 0.5 mm, 1 mm	12"	606044	**83.20**
1/8, 1/16, 1/32, 1/64	24"	606046	**163.27**
Locking Assembly		220851	**8.76**

6" Pocket Rule

ASIMETO

- Stainless steel, hardened and tempered
- Includes removable pocket clip

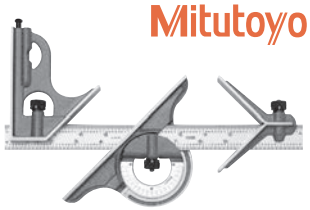


Size	Code No.	Price $
6"	7606009	**3.48**

Combination Square Sets

Mitutoyo

- Three measuring heads are attached to the stainless steel rule (blade), allowing versatile measurements on various types of workpieces
- Measuring heads are hardened



Mitutoyo Model No.	Type	Features	Sowa Code No.	Price $
180-907B	12" / 300mm	32", 64", 1mm, 1/2mm	848591	**364.00**

Blades For Combination Square Sets

Mitutoyo

Mitutoyo Model No.	Length (in./mm)	Graduations	Sowa Code No.	Price $
180-502B	12"	32,64,50,100ths (16R)	840095	**75.00**
180-603B	24"/600mm	32,64ths/1, 0.5mm	840100	**151.00**

Heads For Combination Square Sets

Mitutoyo

Mitutoyo Model No.	Type	Features	Sowa Code No.	Price $
180-102B	Square head for 12-24"	Hardened Cast Iron	840090	**83.00**
180-202B	Centre head for 12-24"	Hardened Cast Iron	840366	**78.00**
180-301B	Protractor head for 12-24"	Cast Iron - Not Hardened	840091	**134.00**

Centre Finder

STM

- Satin chrome finish
- Accurately and quickly locates centre on round workpieces
- Place tool in drill chuck or collet and line up pointer with line scribed on shaft



Model No.	Size (in.)	Code No.	Price $
4200-100	Centre finder	606340	**32.43**

Depth & Angle Gauge

STM

The ability to measure depths and angles is combined in this versatile tool. The head is made from selected steel and has an attractive black finish. It is graduated both left and right to 15°, 30° and 45° and the rule can be set to any of these angles. A 6" (150mm) steel rule is fitted to the head and can be locked in final position for depth or angular measurements by a knurled nut.



Rule Length	Code No.	Price $
6"	231274	**23.30**

Bore Gauges (Taper Gauges)

STM

Manufactured from stainless steel, these have permanently engraved graduations. Accurate taper throughout the length of the gage. Available with imperial or metric graduations.

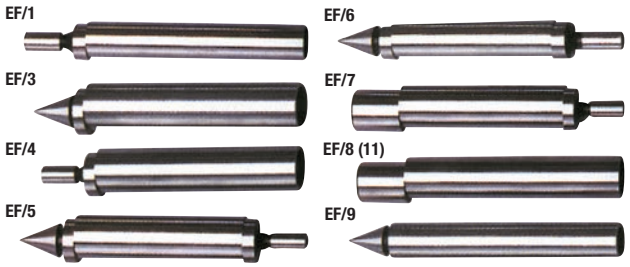


Range	Model No.	Code No.	Price $
1/32"-5/8"	DG/1-15	231276	**29.15**
1-16mm	BG/1-15	231277	**29.17**

Edge & Centre Finders

STM

Edge and Centre Finders are time saving positioning tools for use on jig boring, milling machines etc. These are used for accurate locating work edges, shoulders, grooves, centre points and scribed lines.

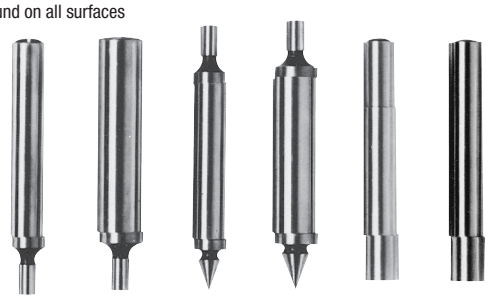


Model	Tip Dia.	Shank Dia.	Code No.	Price $
Centre Finder				
EF/3		1/2"	231302	**22.40**
EF/9		3/8"	231304	**21.62**
Combination Edge & Centre Finder				
EF/6	0.200"	3/8"	231306	**24.01**
EF/5	0.200"	1/2"	231308	**25.51**
Edge Finder				
EF/1	0.200"	3/8"	231310	**18.84**
EF/4	0.200"	1/2"	231312	**22.40**
EF/11	10mm	3/8"	231314	**22.40**
EF/8	1/2"	1/2"	231316	**21.62**
Double Edge Finder				
EF/7	0.200"	1/2"	231318	**24.01**

Edge & Centre Finders

Mitutoyo

- Hardened and ground on all surfaces



Mitutoyo Model No.	Shank Dia. (in./mm)	Tip Dia.	Description	Sowa Code No.	Price $
050101	3/8" / 0.375"	0.20"	Edge type	840009	**30.00**
050102	1/2" / 0.500"	0.20"	Edge type	840010	**29.00**
050103	3/8" / 0.375"	0.20"	Edge & Centre type	840011	**34.00**
050104	1/2" / 0.500"	0.20"	Edge & Centre type	840012	**28.00**
050105	0.375" / 10mm	10mm	Edge type	840837	**23.00**
050106	10mm	10mm	Edge type	840269	**23.00**

827 Series Edge Finders

Starrett

- 0.200" Contact Diameter
- Locate work surfaces easily, quickly and accurately
- Body and contacts made of tool steel, hardened, ground and lapped to close tolerances for diameter and concentricity
- Furnished in protective case



Description	Body Dia.	Starrett No.	Sowa Code No.	Price $
Single End	0.375"	827A	629087	**39.35**
Double End 0.200" and pointed contact	0.500"	827B	629086	**48.38**

Wiggler or Centre Finder

Comes with four interchangeable attachments. They can be snapped onto the chuck without removing the collet. Spring tension on the ball of the point.



Description		Code No.	Price $
Centre Finder complete with 4 attachments	WCF/WZ-6	231300	**54.21**

S828 Series Wiggler or Centre Finder

- Attachments are interchangeable
- Attachments are snapped in the chuck, clamped by a ball swivel-joint which permits adjustment to an angular position or true concentricity



Description	Starrett No.	Sowa Code No.	Price $
Complete with case and 4 attachments, Nos. 828B Ball Contact 0.250"/6.3mm C- Disc Contact 0.100"/2.5mm, D- Offset Indicator Holder, PT09186 Pointed Shank	S828HZ	629091	**95.46**

Digital Protractors — Level Type

- This protractor provides an immediate digital reading of any angle in a full circle with 0°-90°-0°-90°-0° readings
- ABS/ZERO button allows two measuring modes, Standard and Alternate Reference
- Four 90° quadrants for display purposes
- HOLD button for freezing a reading in an unreadable position
- V-grooves on top and bottom for use on curved surfaces
- 7490162 comes with a magnetic bottom for easy fixing



Range	Resolution	Accuracy	Code No.	Price $
360°	0.1°	±0.1°	7490160	**243.26**
360°	0.1°	±0.1°	7490162	**205.64**

STM Universal Bevel Protractor

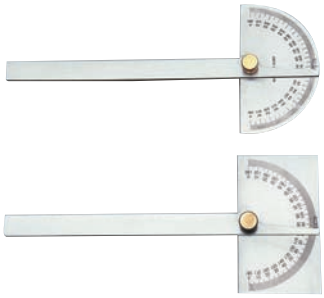


- Base available for setting up jobs on surface plates, milling machines, etc.
- Dial face and vernier are finished in satin chrome to insure easy reading
- Vernier reading in 5 minutes of the arc
- Blades is fastened by a knurled thumb lock which can be set at any desired point
- An angle attachment for acute angle measuring is also available
- Blade slides full length
- Fine adjustment knob for measuring or setting of minute angles
- Protractor dial is graduated over 360° (in 0° to 90° sectors) and rotates around the full circle
- Hardened stainless steel, rust and wear resistant for long life
- With magnifier glass for easy and faster reading
- Protractor accepts both 6" and 12" blade
- Positive rigid locking clamps
- Includes fitted case

Description	Blade Size	Code No.	Price $
Protractor head with magnifier lens	6 and 12	205610	**146.30**
Magnifier	–	205645	**35.67**

Degree Protractors

This stainless steel protractor comes with either a semi-circular or a rectangular head. The head has permanently deep etched graduations, 0 to 180° in opposite directions thus permitting reading an angle directly and also its supplement. The 6" (150 mm) blade has a graduation line on one end that permits accurate setting and reading of angles.



Type	Code No.	Price $
Round	231266	**27.28**
Rectangular	231268	**29.53**

Depth Gauge with Protractor

A versatile tool, the Depth Gauge with Protractor allows for measurement of both angles and depths.

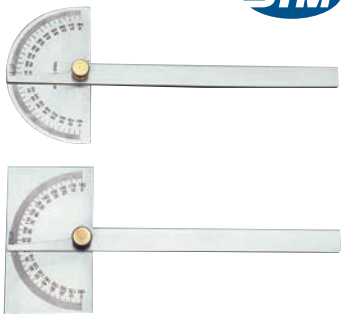
- Stainless steel
- Graduations: 0-180° in opposite directions
- 6" (150 mm) steel rule



Type	Code No.	Price $
Round	231270	**30.34**
Rectangular	231272	**33.04**

Protractors

- Measures angles from 0-180°
- Used for drawing radial lines, transferring angles and setting bevels
- Head measures 3-5/16" x 2"
- Features 6" arm and knurled thumb lock nut
- Blade secured firmly by lock nut at any angle
- Made of tempered steel with satin chrome finish



Model No.	Style	Description	Code No.	Price $
5170	Rectangle	Supplied with 6" arm	606150	**54.18**
5180	Semi-Circle	Supplied with 6" arm	606152	**54.18**
5190	Rectangle	With 6" graduated rule	606154	**63.23**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Spring Calipers & Dividers

- Styles include solid nut or quick nut
- Spring joint for precision settings
- Legs pivot on a roller
- Legs tensioned by bow spring



Model No.	USA Solid Nut Code No.	Price $	STM Solid Nut Code No.	Price $	Model No.	STM Quick Nut Code No.	Price $
Inside Calipers							
ID/3			231148	**12.32**	ID/Q-3	231160	**15.60**
ID/4			231150	**12.32**	ID/Q-4	231162	**15.60**
ID/6	606105	**21.70**	231152	**17.15**	ID/Q-6	231164	**20.31**
ID/8			231154	**21.62**	ID/Q-8	231166	**24.61**
ID/10			231156	**28.50**	ID/Q-10	231168	**31.04**
ID/12			231158	**33.79**	ID/Q-12	231170	**36.34**
Outside Calipers							
OD/3			231172	**12.32**	OD/Q-3	231184	**15.60**
OD/4			231174	**12.32**	OD/Q-4	231186	**15.60**
OD/6	606110	**21.70**	231176	**17.15**	OD/Q-6	231188	**20.31**
OD/8			231178	**21.62**	OD/Q-8	231190	**24.61**
OD/10			231180	**28.50**	OD/Q-10	231192	**31.04**
OD/12			231182	**33.79**	OD/Q-12	231194	**36.34**
Spring Dividers							
DD/3			231196	**12.37**	DD/Q-3	231208	**15.59**
DD/4			231198	**12.37**	DD/Q-4	231210	**15.59**
DD/6	606100	**22.03**	231200	**17.20**	DD/Q-6	231212	**20.35**
DD/8			231202	**21.66**	DD/Q-8	231214	**24.60**
DD/10			231204	**28.44**	DD/Q-10	231216	**30.97**
DD/12			231206	**33.77**	DD/Q-12	231218	**36.37**

Jenny Calipers — Hermaphrodite Calipers

Manufactured from selected steel, the legs are exceptionally rugged and well finished. The leg that holds the adjustable point is offset. The locating lug is incorporated in the straight leg.



Size (in.)	Model No.	Code No.	Price $
6"	JC/6	231244	**14.51**

Spring Caliper

- Contact ends fully rounded to give accurate dimensions



Mitutoyo Model No.	Description	Sowa Code No.	Price $
950-222	6"	840240	**45.00**

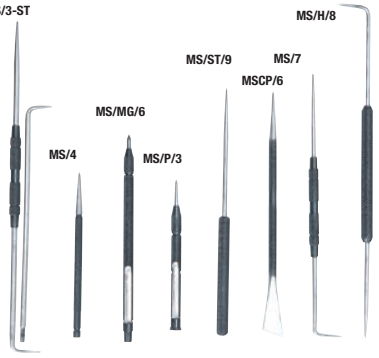
STM Pen Scriber



Description	Code No.	Price $
STM Pen Scriber c/w carbide point	201060	**7.70**
Replacement carbide point	201065	**2.30**

Scribers

MS/3-ST
3 interchangeable threaded points, short straight, short bent and long bent
MS/4
Single ended light duty
MS / MG/6
Tungsten carbide tip for marking on hard materials. Permanent magnet on the other end for picking up small metal parts
MS/P/3
Scriber point is held by a knurled chuck and can be reversed when not in use
MS/ST/9 - Single ended heavy duty
MSCP/6 - Double ended – combining a needle point with a chisel end
MS/7 - Double ended with one straight point and one point bent at 90°
MS/H/8 - Double ended heavy duty with one straight point, the other bent at 90°



Overall Length	Model No.	Code No.	Price $
9 & 12"	MS/3-ST	231250	**8.31**
4-1/2"	MS/4	231252	**3.34**
6"	MS/MG/6	231254	**14.13**
3-1/2"	MS/P/3	231256	**7.85**
7"	MS/ST/9	231258	**5.27**
6-3/4"	MSCP/6	231260	**6.20**
7-1/2"	MS/7	231262	**5.27**
9-3/16"	MS/H/8	231264	**6.18**

Engineer's Tool Sets

ETS/1
Contains: Inside Caliper 4", Outside Caliper 4", Screw Cutting Gauge, Steel Rule 6", Pocket Scriber 3-1/2", and Centre Punch 5/32".

ETS/2
Contains: Engineer's Precision Square 4", Jenny Caliper 6", Steel Rule 6", Double Ended Scriber 7-1/2", Centre Punch 5/32", Adjustable Tap and Reamer Wrench, and Spring Divider 4".

ETS/1



ETS/2



Model No.	Code No.	Price $
ETS/1	231278	**77.18**
ETS/2	231280	**108.65**

Steel Squares

- Made of precision ground hardened stainless steel



Inch Size	Metric Size	Squareness	Style	Code No.	Price $
General Type					
2" x 1.6"	50 x 40mm	00	Bevel	7639210	**43.98**
3" x 2"	75 x 50mm	00	Bevel	7639220	**72.35**
4" x 2.75"	100 x 70mm	00	Bevel	7639230	**79.29**
6" x 4"	150 x 100mm	00	Bevel	7639240	**138.18**
8" x 5"	200 x 130mm	00	Bevel	7639250	**177.15**

Diemaker's Square Set

ASIMETO

- Use for precise miniature layouts
- Hardened and ground with very fine finish, extremely accurate
- Set includes: 3 hardened beveled edge squares; 3/4", 1-1/4", 2-3/8" plus 1- 1/2" triangular straight edge with handle complete in a fitted case
- Straight edge sides are machined in the middle for clearance of burs and dirt



Specifications of Squares:

Beam	Blade
1-15/16"	2-15/16"
1-1/8"	1-9/16"
3/4"	1"

Description	Code No.	Price $
Diemaker's Square Set	7606670	**247.24**

Centre Square

STM

The knife edge is made from Spring Steel and is hardened and ground for extended life.



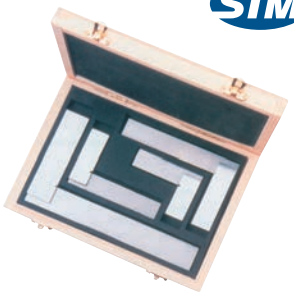
Work Dia.	Model No.	Code No.	Price $
1-1/2"	CS/1	231320	**30.33**
3"	CS/2	231322	**57.75**

Engineer's Precision Squares

STM

Hardened spring steel blades are permanently fixed to the stock by means of tapered self-locking rivets which ensure complete rigidity. Both the blade andstock are precisely ground to ensure straightness and parallelism.

- Internal and external squareness as per BS939 Grade B



Blade Length (in.)	Model No.	Squareness	Code No.	Price $
2"	SS/A/2	0.00063"	231000	**29.19**
3"	SS/A/3	0.00063"	231010	**29.19**
4"	SS/A/4	0.00063"	231015	**40.53**
6"	SS/A/6	0.00063"	231020	**51.69**
9"	SS/A/9	0.00094"	231030	**129.15**
12"	SS/A/12	0.00094"	231040	**193.97**
Set 1	SS/A/2-3-4-6		231045	**172.16**
Set 2	SS/A/2-4-6		231050	**143.09**

Set 1 contains one each of 2", 3", 4" and 6" Squares
Set 2 contains one each of 2", 4" and 6" Squares

Magnetic Cylinder Square

Suburban

- Designed to easily check squareness on component parts
- Base is perpendicular to shaft within 0.0001" over the length of the square. Magnetic base eliminates clamping distortion and speeds set-up
- Manufactured from steel selected and normalized to insure stability and uniformity



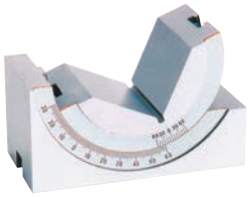
Model No.	Length	Base Dia.	Shaft Dia.	Shaft Length	Weight lbs	Code No.	Price $
MCS-4	4-1/2"	1-7/16"	1/2"	3-1/2"	3	251926	**740.98**
MCS-6	6-1/2"	3-3/8"	1"	5-1/2"	7	251928	**874.09**

Adjustable Angle Block 0-60°

STM

Made from fully hardened (50-55) HRC and ground tool steel. The block is fully adjustable from 0°-60° and can be set at any desired position by locking of the hex screw located in the base.

- Sold Individually



Block Length (in.)	Block Height (in.)	Block Width (in.)	Model No.	Code No.	Price $
3-3/4"	2"	1-3/4"	PAB/01	231096	**289.65**
3-3/4"	2"	1-3/16"	PAB/02	231098	**235.27**
3"	1-11/32"	1"	PAB/03	231100	**190.13**

Precision Square Levels

STM

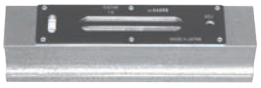


Model	Dimensions (mm)	Weight (kg)	Code No.	Price $
VSL-200A	200x200x39.5	4.10	230370	**530.38**
VSL-300A	250x250x44.6	8.83	230380	**779.80**

Horizontal Leveling Instrument

STM

- 0.02mm/100mm tolerance



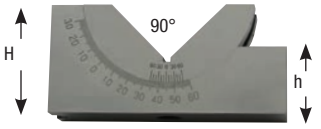
Model	Dimensions (mm)	Weight (kg)	Code No.	Price $
VLI-200A	200x50x45	2.1	230390	**467.99**

Precision Angle Plates

STM

YCT-AP Angle Plate

- Material: SK2
- Hardness: 50-54 HRC
- Squareness: within 0.005 mm
- Tolerance of angle: 10"
- Angular measures from 0-60°



Model No.	H	W	L	h	Net Wt.	Code No.	Price $
AP-1	47	46	102	28	1.5 kg	230745	**115.83**
AP-3	32	25	75	22	0.5 kg	230755	**107.13**

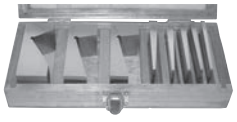
STM Universal Angle Block Sets

STM

- Set complete in fitted case
- Hardened steel, precision ground
- Size 3" long by 1/4" thick
- Accuracy ± .0001" per inch



DK33-006



DK32-027

Model No.	Description	Code No.	Price $
DK 32-027	1pc. each 1°, 2°, 3° 4°, 5°, 10°, 15°, 30°	230865	**286.90**
DK 33-006	1pc. each 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25°, 30°	230867	**93.87**

Rectangular Gauge Block Sets — Inch

ASIMETO



- Individual serial numbers on each block, regardless of grade
- A complete certificate of calibration traceable to the N.I.S.T. showing the deviation of each block
- All sets are supplied in deluxe fitted wooden case
- Mirror polished surfaces provide superior wringing characteristics

Blocks per Set	Blocks In Set	Grade	Former Grade	Code No.	Price $
81	1 Block: 0.050" 10 Blocks: 0.1000"-0.1009" x 0.0001" steps 49 Blocks: 0.101"-0.149" x 0.001" steps 17 Blocks: 0.150"-0.950" x 0.050" steps 4 Blocks: 1.000"-4.000" x 1.000" steps	0 AS-1 AS-2	(2) (3) (B)	7650010 7650011 7650012	**1,095.12** **595.45** **417.30**
36	1 Block: 0.050" 10 Blocks: 0.1000"-0.1009" x 0.0001" steps 9 Blocks: 0.101"-0.109" x 0.001" steps 9 Blocks: 0.110"-0.190" x 0.010" steps 4 Blocks: 0.200"-0.500" x 0.100" steps 3 Blocks: 1,2,4"	0 AS-1 AS-2	(2) (3) (B)	7650020 7650021 7650022	**475.86** **355.09** **268.41**

Individual Rectangular Gauge Blocks

ASIMETO



- Grade 0
- Individual serial numbers on each block
- Mirror polished surfaces provide superior wringing characteristics

Size (in.)	Code No.	Price $
0.050"	7651010	**23.90**
0.100"	7651150	**23.90**
0.200"	7651800	**24.45**
0.250"	7651820	**42.84**
0.500"	7651870	**47.64**
1.000"	7651970	**47.63**

Rectangular Gauge Block Sets — Metric

ASIMETO



- Individual serial numbers on each block, regardless of grade
- A complete certificate of calibration traceable to the N.I.S.T. showing the deviation of each block
- All sets are supplied in deluxe fitted wooden case
- Mirror polished surfaces provide superior wringing characteristics

Blocks per Set	Blocks In Set	Grade	Former Grade	Code No.	Price $
88	1 Block: 1.0005mm 9 Blocks: 1.001-1.009mm x 0.01mm steps 49 Blocks: 1.01-1.49mm x 0.01mm steps 19 Blocks: 0.5-9.5 x 0.5mm steps 10 Blocks: 10-100mm x 10mm steps	AS-1	(3)	7650181	**1,095.22**

Standard Rectangular Gauge Block Sets

STM

Workshop Grade B

- All blocks are manufactured to the same high standards as our premium sets
- Each set is supplied with a certificate guaranteeing that each block is manufactured to meet or exceed federal spec GGG-G-15C, and is within tolerance (±0.000050)
- This certificate does not show the individual deviation of each block
- Each set is provided in a fitted wooden case



No. Blocks	Blocks Included	Code No.	Price $
81 piece set	9–0.1001-0.1009 in 0.0001 steps, 49–0.101-0.149 in 0.001 steps 19–0.050-0.950 in 0.050 steps 4–1.000-4.000 in 1.000 steps	200715	**458.90**

Pin Gauge Sets

ASIMETO

- Furnished in molded plastic case



Plus Tolerance +0.0002"/-0

Qty	Range	Finish	Code No.	Price $
50	0.011"-0.060" x 0.001" step	Bright	7697010	**97.18**
190	0.061"-0.250" x 0.001" step	Bright	7697020	**250.47**
250	0.251"-0.500" x 0.001" step	Bright	7697030	**453.16**
125	0.501"-0.625" x 0.001" step	Bright	7697040	**453.16**
125	0.626"-0.750" x 0.001" step	Bright	7697050	**542.41**

Minus Tolerance +0/-0.0002"

Qty	Range	Finish	Code No.	Price $
50	0.011"-0.060" x 0.001" step	Bright	7697012	**104.96**
190	0.061"-0.250" x 0.001" step	Bright	7697022	**234.69**
250	0.251"-0.500" x 0.001" step	Bright	7697032	**424.47**
125	0.501"-0.625" x 0.001" step	Bright	7697042	**453.16**

Ergonomic Pin Gauge Handles

ASIMETO

- Comfortable, ergonomically designed handle for pin gauges
- Can be used with GO pin (green) on one end, NO GO (red) on opposite end



Range	Code No.	Price $
0.011" - 0.060"	7697410	**30.21**
0.061" - 0.250"	7697411	**38.08**
0.251" - 0.500"	7697412	**45.32**
0.501" - 0.625"	7697413	**42.69**
0.626" - 0.750"	7697414	**46.47**

Precision Steel Pin Gauge Sets

STM

- Hardness: heat treated to a hardness of 60-62 Rockwell C Drill Rod
- All members 2" long, centerless lapped
- Size Electro etched in each piece
- Finish: Each gauge inspected and has 10 micron finish or better
- Deluxe box with insert
- Tolerance: Minus -0.0002"/+0.0000"



Gauge Set No.	Range	No. of Gauges	Minus Code No.	Price $
P-1	0.061"-0.250"	190	255040	**150.40**
P-2	0.251"-0.500"	250	255045	**297.90**

Precision Inspection Gauge Ball Sets

ASIMETO

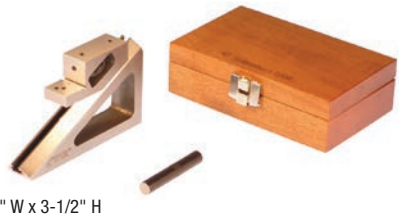
- Meets all grade 25 AFBMA standards
- Chrome alloy steel, hardened to 63HRC
- Surface finish to 1.5 micro-inches
- Within 0.0001"/0.0025mm of actual size
- Spherical accuracy within 0.000025"/0.0006mm



Quantity	Description	Code No.	Price $
26 Pair	1/8" - 1"	7679901	**158.08**
25 Pair	1mm to 25mm by 1mm increments	7679900	**158.08**

Suburban Planer Gauges

- 7/16" to 10" range
- Parallelism of gauging surfaces to base within 0.0002" in any position
- All surfaces square and parallel for use in any plane
- 1-1/8" wide body
- Beveled ways eliminate side play
- Most accurate planer gauge made
- Base dimensions: 6-3/16" L x 1-1/8" W x 3-1/2" H
- Fitted wooden case and 3" extension included



Model	Weight (lb)	Code No.	Price $
PG-613	6 lb	251320	**751.33**

Metric Ring Gauges

- Made of the finest steel alloy



Size	6G GO Code No.	Price $	6G NO GO Code No.	Price $
M3.0 x 0.5	222144	**361.80**	222164	**297.60**
M4.0 x 0.7	222146	**337.00**	222166	**337.00**
M5.0 x 0.80	222148	**337.00**	222168	**337.00**
M6.0 x 1.0	222150	**309.40**	222170	**309.40**
M8.0 x 1.25	222152	**309.40**	222172	**254.10**
M8.0 x 1.0	222154	**254.10**	222174	**309.40**
M10.0 x 1.5	222156	**337.00**	222176	**337.00**
M10.0 x 1.25	222158	**337.00**	222178	**337.00**
M12.0 x 1.75	222160	**358.60**	-	-
M12.0 x 1.25	222162	**346.30**	222180	**346.30**

Standard Ring Gauges

- Made of the finest steel alloy
- Please specify class of fit



Size	GO 2A Code No.	Price $	GO 3A Code No.	Price $	NO GO 2A Code No.	Price $	NO GO 3A Code No.	Price $	Holders Code No.	Price $
2-56	222220	**352.30**	222276	**290.40**	222332	**290.40**	222388	**290.40**	-	-
4-40	222222	**324.60**	222278	**268.60**	222334	**324.60**	222390	**268.60**	-	-
5-40	222224	**234.80**	222280	**234.80**	222336	**284.60**	222392	**234.80**	-	-
6-32	222226	**284.60**	222282	**234.80**	222338	**284.60**	222394	**234.80**	-	-
8-32	222228	**272.20**	222284	**225.10**	222340	**272.20**	222396	**225.10**	-	-
10-24	222230	**272.20**	222286	**225.10**	222342	**272.20**	222398	**225.10**	-	-
10-32	222232	**272.20**	222288	**225.10**	222344	**272.20**	222400	**225.10**	222450	**55.90**
1/4-20	222234	**227.50**	222290	**227.50**	222346	**275.20**	222402	**227.50**	-	-
1/4-28	222236	**275.20**	222292	**227.50**	222348	**275.20**	222404	**227.50**	-	-
5/16-18	222238	**265.90**	222294	**220.30**	222350	**265.90**	222406	**220.30**	-	-
5/16-24	222240	**265.90**	222296	**220.30**	222352	**265.90**	222408	**220.30**	222452	**62.10**
3/8-16	222242	**296.80**	222298	**244.40**	222354	**296.80**	222410	**244.40**	-	-
3/8-24	222244	**296.80**	222300	**244.40**	222356	**296.80**	222412	**244.40**	-	-
7/16-14	222246	**234.80**	222302	**234.80**	222358	**234.80**	222414	**234.80**	-	-
7/16-20	222248	**284.60**	222304	**234.80**	222360	**284.60**	222416	**234.80**	-	-
1/2-13	222250	**296.80**	222306	**244.40**	222362	**296.80**	222418	**244.40**	-	-
1/2-20	222252	**296.80**	222308	**296.80**	222364	**296.80**	222420	**296.80**	222454	**62.10**
9/16-12	222254	**346.30**	222310	**285.50**	222366	**285.50**	222422	**285.50**	-	-
9/16-18	222256	**346.30**	222312	**285.50**	222368	**285.50**	222424	**285.50**	-	-
5/8-11	222258	**346.30**	222314	**285.50**	222370	**346.30**	222426	**346.30**	-	-
5/8-18	222260	**346.30**	222316	**346.30**	222372	**346.30**	222428	**346.30**	-	-
3/4-10	222262	**426.60**	222318	**350.80**	222374	**426.60**	222430	**350.80**	-	-
3/4-16	222264	**350.80**	222320	**426.60**	222376	**426.60**	222432	**426.60**	222456	**71.50**
7/8-9	222266	**457.50**	222322	**377.50**	222378	**457.50**	222434	**377.50**	-	-
7/8-14	222268	**457.50**	222324	**457.50**	222380	**377.50**	222436	**457.50**	-	-
1"-8	222270	**562.40**	222326	**464.50**	222382	**562.40**	222438	**464.50**	-	-
1"-12	222272	**562.40**	222328	**464.50**	222384	**464.50**	222440	**464.50**	-	-
1"-14	222274	**562.40**	222330	**464.50**	222386	**562.40**	222442	**464.50**	222458	**96.20**

Metric Plug Thread Gauges

- Made of the finest steel alloy



Size	6H GO Plug Code No.	Price $	6H NO GO Plug Code No.	Price $	Handle Code No.	Price $	Double End w/ Handle	Price $
M2.0 x 0.4	222460	**121.20**	222500	**142.60**	222540	**28.10**	222182	**315.20**
M2.5 x 0.45	222462	**133.10**	222502	**133.10**	222540	**28.10**	222184	**296.80**
M3.0 x 0.5	222464	**133.10**	222504	**133.10**	222540	**28.10**	222186	**251.60**
M3.5 x 0.6	222468	**96.90**	222506	**114.50**	222540	**28.10**	222188	**259.90**
M4.0 x 0.7	222470	**114.50**	222508	**114.50**	222540	**28.10**	222190	**212.40**
M5.0 x 0.8	222472	**96.90**	222510	**114.50**	222540	**28.10**	222192	**259.90**
M6.0 x 1.0	222474	**72.70**	222512	**86.90**	222542	**28.10**	222194	**167.10**
M8.0 x 1.25	222476	**86.90**	222514	**86.90**	222542	**28.10**	222196	**201.20**
M8.0 x 1.0	222478	**86.90**	222516	**72.70**	222542	**28.10**	222198	**201.20**
M10.0 x 1.5	222480	**90.00**	222518	**90.00**	222544	**28.10**	222200	**207.30**
M10.0 x 1.25	222482	**90.00**	222520	**90.00**	222544	**28.10**	222202	**207.30**
M12 x 1.75	222484	**105.40**	222522	**105.40**	222544	**28.10**	222204	**238.30**
M12 x 1.25	222486	**111.50**	222524	**94.50**	222544	**28.10**	222206	**238.30**
M14.0 x 2.0	222488	**99.30**	222526	**99.30**	222546	**28.10**	222208	**262.90**
M14 x 1.5	222490	**117.80**	222528	**99.30**	222546	**28.10**	222210	**220.30**
M16 x 2.0	222492	**117.80**	222530	**99.30**	222546	**28.10**	222212	**262.90**
M16 x 1.5	222494	**117.80**	222532	**99.30**	222546	**28.10**	222214	**220.30**
M20.0 x 2.5	222496	**164.20**	222534	**164.20**	222548	**28.10**	222216	**355.60**

Standard Plug Thread Gauges

- Made of the finest steel alloy



Size	GO Class 2B Code No.	Price $	NO GO Class 2B Code No.	Price $	Double End 2B Code No.	Price $
2-56	222000	**130.00**	222048	**130.00**	222096	**303.10**
4-40	222002	**105.40**	222050	**105.40**	222098	**241.20**
5-40	222004	**96.20**	222052	**96.20**	222100	**222.60**
6-32	222006	**86.90**	222054	**86.90**	222102	**204.10**
8-32	222008	**86.90**	222056	**86.90**	222104	**204.10**
10-24	222010	**72.70**	222058	**72.70**	222106	**204.10**
10-32	222012	**86.90**	222060	**72.70**	222108	**204.10**
1/4-20	222014	**80.60**	222062	**80.60**	222110	**157.40**
1/4-28	222016	**80.60**	222064	**80.60**	222112	**188.70**
5/16-18	222018	**80.60**	222066	**80.60**	222114	**188.70**
5/16-24	222020	**67.90**	222068	**67.90**	222116	**188.70**
3/8-16	222022	**67.90**	222070	**80.60**	222118	**157.40**
3/8-24	222024	**80.60**	222072	**80.60**	222120	**188.70**
7/16-14	222026	**83.80**	222074	**83.80**	222122	**195.00**
7/16-20	222028	**70.30**	222076	**83.80**	222124	**177.50**
1/2-13	222030	**86.90**	222078	**72.70**	222126	**167.10**
1/2-20	222032	**72.70**	222080	**72.70**	222128	**201.20**
9/16-18	222034	**99.30**	222082	**99.30**	222130	**220.30**
5/8-11	222036	**120.90**	222084	**101.70**	222132	**225.10**
5/8-18	222038	**120.90**	222086	**101.70**	222134	**225.10**
3/4-10	222040	**127.00**	222088	**127.00**	222136	**281.40**
3/4-16	222042	**127.00**	222090	**127.00**	222138	**281.40**
7/8-9	222044	**133.10**	222092	**133.10**	222140	**251.60**
7/8-14	222046	**139.20**	222094	**139.20**	222142	**309.40**

Rockwell Type Hardness Tester

ASIMETO

- For testing the hardness of various materials to determine the Rockwell hardness to scales A, B, and C
- Unit is designed with mechanical loads for precise hardness readings
- Conform to the requirements of ASTM E18, ISO 6508-2, and GB/T 230.2 standards
- Readings provided to a minimum resolution 0.5HR



Standard Acessories:

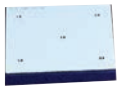
- Diamond cone penetrator 1pc
- V-notch anvil 1pc
- Small flat anvil 1pc
- Large flat anvil 1pc
- Rockwell standard 5pcs
- 1/16" steel ball penetrator 1pc
- Instruction manual 1pc

Range	Test Force	Test Height	Throat Depth	Code No.	Price $
20-88 HRA, 20-100 HRB, 20-70 HRC	588.4, 980.7, 1471N (60, 100, 150kgf)	170mm	135mm	7640010	**3,728.98**

Hardness Test Block

ASIMETO

- To be used with Asimeto Impact Hardness Tester



Range of Hardness		Dimensions	Weight	Code No.	Price $
20-30 HRC 35-55 HRC 60-70 HRC	80-88 HRA 85-95 HRB	60 x 40 x 10mm	0.19kg	7640810	**240.36**

Impact Hardness Tester

ASIMETO

Features:

- Used for determining the hardness of ferrous and non-ferrous metals
- Hardness is displayed in an "L" value that can be converted into Brinell, Rockwell, Vickers, and Shore Hardness



Specifications:

- Range: 330-890HL
- Impact capacity: 11 Nmm
- Testing direction: Arbitrary
- Power: DC 6.0 V
- Mass of impact body: 5.5g
- Diameter of carbide ball: 3mm

Description	Code No.	Price $
Impact Hardness Tester	7640171	**2,095.08**

Hardness Tester Penetrators

ASIMETO



Description	Specifications	Code No.	Price $
For Rockwell Hardness Tester	120° diamond cone penetrator Ø1.588mm (1/16") steel ball	7640830	**576.50**
For Brinell Hardness Tester	Ø2.5, 5, 10mm tungsten carbide ball penetrators	7640840	**518.99**

Surface Roughness Standards Set

ASIMETO

- Used for the visual comparison of surface roughness
- Set of 30 specimens, 7/8" x 3/8" electro-formed, solid nickel



Code No.: 7506010 **Price $ 339.56**

Qty.	Desc.	Roughness
2	Flat Lapping	0.05; 0.1µm (2; 4µ")
4	Reaming	0.2; 0.4; 0.8; 1.6µm (8; 16; 32; 63µ")
6	Grinding	0.05; 0.1; 0.2; 0.4; 0.8; 1.6µm (2; 4; 8; 16; 32; 63µ")
6	Horiz. Milling	0.4; 0.8; 1.6; 3.2; 6.3; 12.5µm (16; 32; 63; 125; 250; 500µ")
6	Vert. Milling	0.4; 0.8; 1.6; 3.2; 6.3; 12.5µm (16; 32; 63; 125; 250; 500µ")
6	Turning	0.4; 0.8; 1.6; 3.2; 6.3; 12.5µm (16; 32; 63; 125; 250; 500µ")

Profile Projector — PH-A14

Mitutoyo

High Performance

- Mitutoyo's lens technology and workmanship unite to provide a bright, crisp image for error free inspection
- The PH-14's generous XY workstage travel (8x4) provides users with ample range to cover application needs
- The workstage provide high accuracy and can handle a workload of up to 100lbs

Affordability

- Our customer's will benefit in acquisition savings from Mitutoyo's Global manufacturing strength and efficiency. We have brought together proven quality components and combined them to produce for our customers our new PH-14 optical comparator

Flexibility

- Mitutoyo has designed the PH-14 for your toughest in-process, shop floor, or quality room inspection needs
- A wide variety of lens, magnifications and other accessories are available to fit your every measuring need

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Save Time. Save Money. Save Now!

Absolute AT715 Linear Scales

- Absolute electro-magnetic induction system achieves IP67 rating to resist the harshest contamination found in machine tool environments
- Patented ABSOLUTE technology system detects and outputs an absolute position - no reference point setup needed at every power-on
- Scale position detection is not affected by electric noise such as power spike, brown out or power-off
- Water and splash-proof signal cable connector for easy installation and maintenance

KA Display Counter

- High cost performance 2 axis counter with many standard functions
- Can be used as "standard counter" or "lathe counter" by modifying parameters
- Selectable resolution



IP67

Choose from these popular sizes, or call us for many other custom size options to fit your application needs.

12" x 30" Knee Mill Package

Mitutoyo

Package Contains:

- 174183A 2 Axis KA Counter
- 539805 12" AT715 Scale
- 539814 30" AT715 Scale
- Y axis bracket
- X axis screw kit
- Tray with arm

Model No.	Code No.	Price $
D950-989	847858	**1,530.00**

16" x 36" Knee Mill Package

Mitutoyo

Package Contains:

- 174183A 2 Axis KA Counter
- 539807 16" AT715 Scale
- 539816 36" AT715 Scale
- Y axis bracket
- X axis screw kit
- Tray with arm

Model No.	Code No.	Price $
D950-992	847363	**1,555.00**

Precision Parallel Set

ASIMETO

- Hardened and ground high grade alloy steel
- Hardness 52-58 HRC
- 6" length
- Absolute heights are nominal
- Supplied in durable plastic case
- Width Accuracy: ±0.0008" Length Accuracy: ±0.0006"



Description	Range	Parallelism	Paired Accuracy	Code No.	Price $
8 Pair 1/2"	7/8" to 1-3/4" x 1/8"	±0.0003"	±0.0003"	7607080	**268.92**
9 Pair 1/4"	3/4" to 1-3/4" x 1/8"	±0.0002"	±0.0002"	7607090	**254.53**
10 Pair 1/8"	1/2" to 1-5/8" x 1/8"	±0.0002"	±0.0002"	7607100	**161.33**
10 Pair 1/32"	1/2" to 1-5/8" x 1/8"	±0.0002"	±0.0002"	7607101	**120.68**

Precision Parallel Sets

STM

- Matched pairs
- Made of high grade steel alloy
- Hardened and ground
- Tolerance ± 0.0003"



Model No.	Dimensions per Pair	Code No.	Price $
DK 32-045	3/16 x 1 x 6, 3/16 x 1-1/4 x 6, 3/16 x 1-1/2 x 6, 3/16 x 1-3/4 x 6	230850	**100.12**
DK 32-012	3/16 x 1 x 6, 3/16 x 1-1/4 x 6, 1/2 x 1-1/2 x 6, 1/2 x 1-3/4 x 6	230853	**94.69**
DK 32-050	1/2 x 1 x 6, 1/2 x 1-1/4 x 6, 1/2 x 1-1/2 x 6, 1/2 x 1-3/4 x 6	230855	**111.87**
DK 32-064	1/4 x 3/4 x 6, 1/4 x 7/8 x 6, 1/4 x 1 x 6, 1/4 x 1-1/8 x 6, 1/4 x 1-3/8 x 6, 1/4 x 1-1/2 x 6, 1/4 x 1-5/8 x 6, 1/4 x 1-3/4 x 6	230857	**183.48**
DK 32-073	1/2 x 7/8 x 6, 1/2 x 1 x 6, 1/2 x 1-1/8 x 6, 1/2 x 1-1/4 x 6, 1/2 x 1-3/8 x 6, 1/2 x 1-5/8 x 6, 1/2 x 1-3/4 x 6	230860	**165.91**

Steel Parallel Set

STM

All 10 Pairs Including Fitted Case

- Thin style, 1/8" thick
- Matched pairs
- Made of high grade steel alloy
- Hardened and ground
- Tolerance ± 0.0003"



Width	Height	Length
1/8"	1/2"	6
1/8"	5/8"	6
1/8"	3/4"	6
1/8"	7/8"	6
1/8"	1"	6
1/8"	1-1/8"	6
1/8"	1-1/4"	6
1/8"	1-3/8"	6
1/8"	1-1/2"	6
1/8"	1-5/8"	6

Code No.: 230863 **Price $: 105.21**

Ultra Precision Wavy Parallel Set

ASIMETO

- Made of high quality spring steel, hardened, stress relieved, and precision ground
- Parallel within ±0.0002", paired ±0.0002"
- Includes 9 pairs 4-1/4" long with the following heights: 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2
- Shims can be compressed, useful for the holding of thin parts



Description	Code No.	Price $
Ultra Precision Wavy Parallel Set	7607660	**152.19**

Precision Thin Steel Parallels

STM

- Thin style, 1/8" thick
- Sold in matched pairs
- Made of high grade alloy steel
- Hardened and ground
- 2 holes in each parallel
- Accuracy: ±0.0002" parallelism in height ±0.001" to size in height



W x H x L	Hole Size	Code No.	Price $
1/8 x 1/2 x 6"	13/64"	230200	**14.78**
1/8 x 5/8 x 6"	1/4"	230205	**16.07**
1/8 x 3/4 x 6"	5/16"	230210	**16.07**
1/8 x 7/8 x 6"	5/16"	230215	**16.07**
1/8 x 1 x 6"	5/16"	230220	**15.85**
1/8 x 1-1/8 x 6"	3/8"	230225	**14.20**
1/8 x 1-1/4 x 6"	3/8"	230230	**16.07**
1/8 x 1-3/8 x 6"	7/16"	230235	**16.07**
1/8 x 1-1/2 x 6"	1/2"	230240	**16.07**
1/8 x 1-5/8 x 6"	1/2"	230245	**16.07**

2-Way Steel Parallels — Matched Pairs

Suburban

- Made of tool steel, hardened to 58-62 HRC and ground in matched pairs on two side
- Provides an economical alternative to 4-way ground parallels, when only two parallel sides required
- Size tolerance of the ground height is ±0.001" while being held to a total of 0.0001" between the pieces of a matched pair
- Total parallelism over the 6" length is 0.0001"



Model No.	Length	Width	Height	Weight (lb)	Code No.	Price $
TWP-001	6"	1/4	3/8	1	251786	**127.19**
TWP-002	6"	1/4	7/16	1	251788	**127.19**
TWP-003	6"	1/4	1/2	1	251789	**127.19**
TWP-004	6"	1/4	9/16	1	251790	**127.19**
TWP-005	6"	1/4	5/8	1	251792	**127.19**
TWP-006	6"	1/4	11/16	1	251793	**127.19**
TWP-007	6"	1/4	3/4	1	251794	**127.19**
TWP-008	6"	1/4	13/16	1	251795	**127.19**
TWP-009	6"	1/4	7/8	1	251796	**127.19**
TWP-010	6"	1/4	15/16	2	251797	**127.19**
TWP-011	6"	1/4	1"	2	251798	**127.19**
TWP-012	6"	1/4	1-1/16	2	251799	**127.19**
TWP-013	6"	1/4	1-1/8	2	251800	**127.19**
TWP-014	6"	1/4	1-3/16	2	251801	**127.19**
TWP-015	6"	1/4	1-1/4	2	251802	**127.19**
TWP-016	6"	1/4	1-5/16	2	251803	**127.19**
TWP-017	6"	1/4	1-3/8	2	251804	**127.19**
TWP-018	6"	1/4	1-7/16	2	251805	**127.19**
TWP-019	6"	1/4	1-1/2	2	251806	**127.19**
TWP-020	6"	1/4	1-9/16	2	251807	**127.19**
TWP-021	6"	1/4	1-5/8	2	251808	**127.19**
TWP-022	6"	1/4	1-11/16	2	251809	**127.19**
TWP-023	6"	1/4	1-3/4	2	251810	**127.19**
TWP-024	6"	1/4	1-13/16	2	251811	**127.19**
TWP-025	6"	1/4	1-7/8	2	251812	**127.19**
TWP-026	6"	1/4	1-15/16	2	251813	**127.19**
TWP-027	6"	1/4	2"	2	251814	**127.19**

2-Way Steel Parallels — Sets of Matched Pairs

Starrett

- Includes matched pairs 6" long x 1/4" wide in 1/16" height increments
- Furnished in a wooden holder, marked with sizes



TWP9-SET



TWP22-SET

Model No.	Pairs/ Set	Size Range	Weight (lb)	Code No.	Price $
TWP9-SET-A	9	3/8 through 7/8	9	251815	**1,174.33**
TWP9-SET-B	9	15/16 through 1-7/16	13	251816	**1,174.33**
TWP9-SET-C	9	1-1/2 through 2"	18	251817	**1,174.33**
TWP22-SET	22	1/2 through 1-13/16	30	251818	**2,844.12**

4-Way Steel Parallels – Sets of Matched Pairs

Suburban

- Each set includes four pairs of parallels in the sizes shown
- Furnished in a wooden holder marked with sizes
- Parallel specifications same as for matched pairs of the same size



Model No.	Pairs/ Set	Size Range	Weight (lb)	Code No.	Price $
P4W-SET-A	4	6x1/4x1/2, 6x1/4x3/4, 6x1/2x3/4, 6x1/2x1	6	251847	**1,597.32**
P4W-SET-B	4	8x1/2x1, 8x3/4x1, 12x3/4x1, 12x1x2	30	251848	**3,484.52**

4-Way Steel Parallels – Individual

Suburban

- Hardened steel parallels are ground to such close tolerances on four sides that there is no need to buy matched pairs for many common uses
- Can be used individually or matched with any other individual 4-way parallel at any time
- Different sizes can be used together - for example a 6"x1/2"x1" can be used with a 8"x3/4"x1" on the 1" dimension
- Held to size ±0.00025" on four sides
- Adjacent sides within 0.0005" per square inch
- Opposite sides parallel within 0.0001" per 6 inches



Model No.	Length	Width	Height	Weight (lb)	Code No.	Price $
P-06025038	6"	1/4	3/8	1	251849	**128.67**
P-06025050	6"	1/4	1/2	1	251850	**130.15**
P-06025063	6"	1/4	5/8	1	251851	**130.15**
P-06025075	6"	1/4	3/4	1	251852	**139.03**
P-06025100	6"	1/4	1"	1	251853	**144.94**
P-06038050	6"	3/8	1/2	1	251854	**139.03**
P-06038063	6"	3/8	5/8	1	251855	**144.94**
P-06038075	6"	3/8	3/4	1	251856	**144.94**
P-06050063	6"	1/2	5/8	1	251857	**167.13**
P-06050075	6"	1/2	3/4	1	251858	**176.00**
P-06050100	6"	1/2	1"	2	251859	**180.44**
P-08050100	8"	1/2	1"	2	251860	**273.62**
P-08075100	8"	3/4	1"	3	251861	**295.80**
P-08075125	8"	3/4	1-1/4	3	251862	**313.55**
P-12075100	12"	3/4	1"	4	251863	**350.52**
P-12100150	12"	1"	1-1/2	6	251864	**412.64**
P-12100200	12"	1"	2"	8	251865	**458.49**
P-12150200	12"	1-1/2	2"	11	251866	**630.05**
P-12150300	12"	1-1/2	3"	16	251867	**736.54**

4-Way Steel Parallels – Matched Pairs

Suburban

- Made of tool steel, hardened to 58-62 HRC and ground in matched pairs on four sides. For use where extra precision is required
- Pairs are matched in size on the width and height to a tolerance of ±0.0002" on 6", 8" & 12" lengths and 0.0003" for longer lengths
- Total parallelism, straightness over the full length and size tolerance between pieces of a matched pair is 0.0001" on 6" & 8" lengths, 0.0002" on 12" lengths & 0.0003" on longer lengths
- Adjacent ground sides are square with each other within 0.0004", except the 6"x1/4"x3/4", 6"x1/4"x3/8" and 6"x1/4"x1/2" sizes, which are square within 0.0005"



Model No.	Length	Width	Height	Weight (lb)	Code No.	Price $
P-06025038-M	6"	1/4	3/8	1	251822	**319.46**
P-06025050-M	6"	1/4	1/2	1	251823	**323.90**
P-06025063-M	6"	1/4	5/8	1	251824	**323.90**
P-06025075-M	6"	1/4	3/4	1	251825	**340.17**
P-06038050-M	6"	3/8	1/2	1	251826	**340.17**
P-06038075-M	6"	3/8	3/4	2	251827	**346.09**
P-06050063-M	6"	1/2	5/8	2	251828	**412.64**
P-06050075-M	6"	1/2	3/4	2	251829	**431.87**
P-06050100-M	6"	1/2	1"	2	251830	**440.74**
P-06063100-M	6"	5/8	1"	3	251831	**458.49**
P-06075100-M	6"	3/4	1"	3	251832	**434.83**
P-06075150-M	6"	3/4	1-1/2	5	251833	**504.34**
P-08050100-M	8"	1/2	1"	3	251834	**681.82**
P-08063150-M	8"	5/8	1-1/2	5	251835	**681.82**
P-08075100-M	8"	3/4	1"	4	251836	**726.19**
P-08075125-M	8"	3/4	1-1/4	5	251837	**766.12**
P-08075163-M	8"	3/4	1-5/8	6	251838	**835.64**
P-12075100-M	12"	3/4	1"	6	251839	**877.05**
P-12100150-M	12"	1"	1-1/2	11	251840	**1,030.86**
P-12100200-M	12"	1"	2"	14	251841	**1,134.39**
P-12150200-M	12"	1-1/2	2"	21	251842	**1,572.18**
P-12150300-M	12"	1-1/2	3"	32	251843	**1,839.88**
P-18100200-M	18"	1"	2"	22	251844	**1,870.94**
P-24100200-M	24"	1"	2"	29	251845	**2,524.65**
P-36100200-M	36"	1"	2"	53	251846	**4,061.33**

Tool Steel Straight Edges

Suburban

- Extremely accurate reference line
- Can be used for checking surfaces for straightness
- Precision ground and finely finished
- Perfect for drawing or scribing straight lines
- Graduated & non-graduated models available
- Straight within 0.0005" per foot



Model No.	Length	Width	Thickness	Weight (lb)	Code No.	Price $
Graduated - Beveled Edge						
SE-24-TSBG	24"	1-13/32	11/64	3	251718	**390.46**
SE-36-TSBG	36"	2-13/32	7/32	12	251720	**696.61**
SE-48-TSBG	48"	2-13/32	7/32	17	251722	**1,632.82**
Non-Graduated - Square Edge						
SE-12-TS	12"	1-13/32	11/64	2	251724	**84.30**
SE-24-TS	24"	1-13/32	11/64	3	251726	**136.07**
SE-36-TS	36"	2-13/32	7/32	12	251728	**289.88**
SE-48-TS	48"	2-13/32	7/32	17	251730	**457.01**
SE-72-TS	72"	3-5/32	9/32	36	251732	**732.11**
Non-Graduated - Beveled Edge						
SE-12-TSB	12"	1-13/32	11/64	2	251734	**106.49**
SE-24-TSB	24"	1-13/32	11/64	3	251736	**245.51**
SE-36-TSB	36"	2-13/32	7/32	12	251738	**346.09**
SE-48-TSB	48"	2-13/32	7/32	17	251740	**569.42**
SE-72-TSB	72"	3-5/32	9/32	36	251742	**865.22**
SE-96-TSB	96"	3-1/4	5/16	51	251744	**1,335.54**

Cast Iron Straight Edges

Suburban

- Made of stress-relieved, cast iron for maximum stability
- Cored and ribbed for increased rigidity and reduced weight
- Top and bottom faces are precision ground parallel and straight to within 0.0001" per 12"
- Use for setting up and leveling machinery and equipment and for checking the flatness of surfaces or scribing
- Also can be used for positioning above and parallel to a surface



Model No.	Length	Width	Thickness	Weight (lb)	Code No.	Price $
Non-Graduated - Square Edge						
SE-24-CI	24"	1"	2"	10	251776	**1,075.23**
SE-36-CI	36"	1-1/2	3"	27	251778	**1,561.82**
SE-48-CI	48"	1-1/2	3"	36	251780	**2,001.09**
SE-6024-CI	60"	2"	4"	95	251782	**3,227.18**
SE-72-CI	72"	2"	4"	110	251784	**3,512.63**
SE-96-CI	96"	3"	8"	400	251785	**11,332.10**

Stainless Steel Straight Edges

Suburban

- Extremely accurate reference line
- Can be used for checking surfaces for straightness
- Precision ground and finely finished
- Perfect for drawing or scribing straight lines
- Graduated & non-graduated models available
- Stainless steel models have hang-up hole
- Straight within 0.0005" per foot



Model No.	Length	Width	Thickness	Weight (lb)	Code No.	Price $
Non-Graduated - Beveled Edge						
SE-12-SSBHD	12"	1-1/2	3/16	2	251748	**357.92**
SE-24-SSBHD	24"	2"	3/16	4	251750	**427.43**
SE-36-SSBHD	36"	2"	1/4	12	251752	**640.41**
SE-48-SSBHD	48"	2-1/2	1/4	18	251754	**931.77**
SE-60-SSBHD	60"	3"	1/4	28	251756	**1,270.46**
SE-72-SSBHD	72"	3"	1/4	34	251758	**1,524.85**
SE-96-SSBHD	96"	3-1/4	5/16	76	251760	**2,323.51**
Non-Graduated - Square Edge						
SE-12-SSHD	12"	1-1/2	3/16	2	251762	**350.52**
SE-24-SSHD	24"	2"	3/16	4	251764	**386.02**
SE-36-SSHD	36"	2"	1/4	13	251766	**575.33**
SE-48-SSHD	48"	2-1/2	1/4	19	251768	**835.64**
SE-60-SSHD	60"	3"	1/4	29	251770	**1,149.18**
SE-72-SSHD	72"	3"	1/4	35	251772	**1,372.51**
SE-96-SSHD	96"	3-1/4	5/16	78	251774	**2,076.52**

Precision 1-2-3 Blocks

- These blocks are very useful in mounting work for precision grinding, layout work, etc.
- Blocks are hardened to 58-60 HRC and ground to surface finish 6-10 micro inches
- Tolerances are guaranteed to 0.0001" for squareness per inch
- 0.0002" for parallelism
- Blocks are matched and measure 1" x 2" x 3"



Description	Code No.	Price $
2 Piece set	230876	**52.17**

1-2-3 or 2-4-6 Blocks

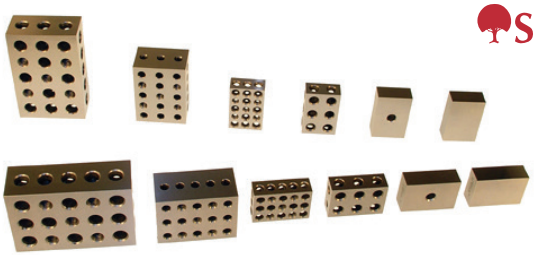
- Heat treated and case hardened to 55-60 HRC
- Precision ground and case hardened
- Squareness of all sides is within 0.0001"
- Parallel Accuracy 0.0003"
- Surface finish 6–16 micro inches
- 23 holes–5 are tapped in 3/8-16
- Supplied in pairs



Size	Description	Code No.	Price $
1-2-3	23 Holes	230870	**38.36**
2-4-6	23 Holes	230872	**310.10**
1-2-3	No Hole (Pair)	230874	**53.56**

Precision Tri Blocks

- Hardened steel, ground on all six sides.
- Available as single blocks or in matched pairs, per chart below
- B-123-H1-M has one 1/2" through hole in 2" x 3" face
- 11-hole models have 5/16-18 tapped holes
- 23-hole models have 3/8-16 tapped holes
- All models, except PB123, come with fitted, wooden box
- B-123-H11-M, B-123-H23M, B-234-H23-M & B-246-H23-M have drilled, counter-bored and tapped holes to allow screw mounting and conversion into angle plates and other precision set-ups



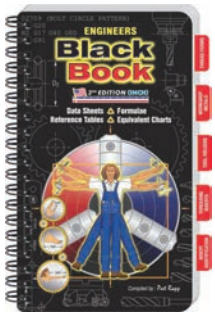
Model No.	Single or Pair	Holes	Square	Flat & Parallel	Size	Weight lbs	Code No.	Price $
B-123-H11-M	Pair	11	0.0001"/1"	0.0002"	1" x 2" x 3" +0.0002"	3	251958	**281.01**
B-123-H1-M	Pair	1	0.0001"/1"	0.0002"	1" x 2" x 3" +0.0001"/+0.0003"	3	251960	**220.37**
B-123-H23-M	Pair	23	0.0001"/1"	0.0002"	1" x 2" x 3" +0.0001"/+0.0003"	3	251962	**341.65**
B-123-NH-M	Pair	None	0.0001"/1"	0.0002"	1" x 2" x 3" +0.0001"/+0.0003"	3	251964	**189.31**
B-234-H23-M	Pair	23	0.0001"/1"	0.0003"	2" x 3" x 4" +0.0001"/+0.0004"	12	251966	**766.12**
B-246-H23-M	Pair	23	0.0001"/1"	0.0003"	2" x 4" x 6" +0.0001"/+0.0004"	24	251968	**1,181.72**
PB-123	Single	None	0.0002" Total	0.0002"	1" x 2" x 3" +0.0001"	2	251970	**149.38**

Engineers Black Book — 3rd Edition — Imperial Edition

The all new 3rd Edition has been released with 40% more page content.
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- Hardening and Tempering
- Geometrical Construction
- Sharpening Information
- Illustrations
- Lubricants-Coolants
- Plastics
- Weights of Metals
- Equivalent Charts
- Tungsten Carbide



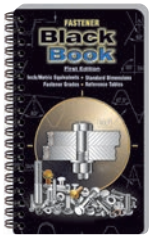
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Engineers Black Book Imperial Version	180151	**61.10**

Fastener Black Book

- Inch
- ISO & DIN Specifications
- Fastener Platings & Finishes
- Pre-Loads & Tightening Torques
- Thread Terminology & Classifications
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Information for do-it-yourselfers, engineers, craftsmen, students, teachers, managers, maintenance & industrial personnel, and travelers. The ultimate reference and problem solver. The uses for this book are endless! 864 pages of valuable information in an easy to use pocket reference book. 3.2" x 5.4" x 0.8"

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- Math
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- Conversion tables
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Description	Code No.	Price $
Pocket Reference Book	180175	**25.90**

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Description	Code No.	Price $
Machinery Handbook	180105	**215.70**
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Machinery Handbook Guide	180110	**32.00**

5pc Precision Tool Kit

ASIMETO

- 6" x 0.0005" Sylvac Digital Caliper (7301060)
- 03" x 0.0005" Dial Test Indicator (7501733)
- 1" x 0.001" AGD2 Dial Indicator (7402261)
- 0-1" x 0.0001" Outside Micrometer (7101013)
- Articulating Arm Magnetic Base (7602021)



Description	Code No.	Price $
5pc Precision Tool Kit	7960161	820.43

Asimeto Precision Tools Kit #1

ASIMETO



Description	Code No.	Price $
Includes 1 each of the following: • 7101013 (0-1" micrometer 0.0001") • 7101023 (1-2" micrometer 0.0001") • 7307065 (6" digital caliper) • 7402261 (0-1" dial indicator 0.001") • 7601011 (magnetic base) • 7501733 (0.0005" x 0.030" dial test indicator) • 606180 (6" pocket rule) • 180151 (Engineers Black Book)(Imperial)	500122	450.15

Asimeto Precision Tools Kit #2

ASIMETO



Description	Code No.	Price $
Includes 1 each of the following: • 7101637 (0-3" 0.0001" outside micrometer set) • 7307065 (6" digital caliper) • 7402261 (0-1" dial indicator 0.001") • 7601011 (magnetic base) • 7501733 (0.0005" x 0.030" dial test indicator) • 896919 (6" pocket rule with Sowa logo) • 180151 (Engineers Black Book)(Imperial)	500128	497.50

Asimeto Indicator/Mag Base Kit #1

ASIMETO



Description	Code No.	Price $
Includes 1 each of the following: • 7602021 (Type II triple jointed magnetic base) • 7401061 (0-.25" 0.001" AGD1 dial indicator)	500216	273.28

Asimeto Indicator/Mag Base Kit #2

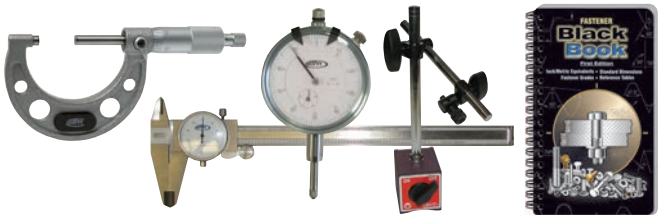
ASIMETO



Description	Code No.	Price $
Includes 1 each of the following: • 7602031 (Type III triple jointed magnetic base) • 7402261 (0-1" 0.001" AGD2 dial indicator)	500730	139.27

Toolmakers Kit

STM



Description	Code No.	Price $
Includes 1 each of the following: • 200582 (6" 0.001" dial caliper) • 200570 (0-1" 0.0001" outside micrometer) • 200720 (1" travel 0.001" dial indicator) • 225001 (BA-1 magnetic base) • 180156 (Fastener Black Book)	500193	275.75

Water Resistant Dial Indicator & Mag Base Combo

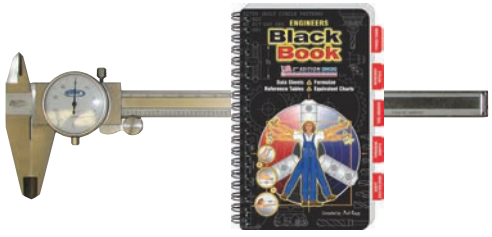
STM



Description	Code No.	Price $
Includes 1 each of the following: • 225700 (STM fine adjustment magnetic base) • 200075 (0-0.4" 0.0005" water resistant dial indicator)	500006	340.71

8" STM Dial Caliper & Engineers Black Book Combo

STM



Description	Code No.	Price $
Includes 1 each of the following: • 200584 (8" 0.001" STM dial caliper) • 180151 (Engineers Black Book)(imperial)	500135	143.00


Tool Holding



Tool Holding

END MILL HOLDERS

End Mill Holder Index G3
End Mill Holders G4-10
Retention Knobs G11

SHELL MILL HOLDERS

Shell Mill Holders G13-15
Milling Arbors G15-16

COLLET CHUCKS & SHRINK FIT TOOLING

Collet Chucks & Collets. G18-43
Shrink Fit Tooling G43-46

ANGLE HEADS

GS Driven Tooling G48
Right Angle Heads G48-61

TAPPING CHUCKS & COLLETS

Tapping Chuck & Collets Index G62
Tapping Chucks G63-65
Tap Collets, Reducers & Sets G65
Synchrolize Tapping System G66-67
Tapping Heads G68
Air Tapping Units. G68

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Drill Chucks G70-74
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MISC

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Touch Point Sensors G90
NC/CNC Trolley G90
Draw Bar for Bridgeport Machine G90
Tool Locks G91
Spindle Taper Wipers G91



Which one works best for your application?

NEW

STM PREMIUM

The perfect economic tooling solution for general purpose machining applications.

VS

GS TOOLING

Superior tooling performance when speed and accuracy matter most.

42CrMo	**Material Grade**	16NiCr4 (Premium European Alloy Steel)
AT3 or better (0.00024-0.00036in/ft)	**Taper Accuracy**	AT2 or better (0.00012-0.00024in/ft)
0.0002"	**Runout Accuracy**	0.0001"
CAT40 End Mill Holders: Balanced to G2.5 / 8,000rpm CAT50 End Mill Holders: Balanced to G2.5 / 6,000rpm CAT40 Collet Chucks: Balanced to G2.5 / 20,000rpm CAT50 Collet Chucks: Balanced to G2.5 / 15,000rpm	**Balance**	CAT40 End Mill Holders: Balanced to G6.3 / 30,000rpm CAT50 End Mill Holders: Balanced to G6.3 / 25,000rpm CAT40 Collet Chucks: Balanced to G2.5 / 30,000rpm CAT50 Collet Chucks: Balanced to G2.5 / 25,000rpm
AD/B DIN coolant through flange	**Coolant Features**	AD/B DIN coolant through flange
H6 = basic plus 0.0025-0.0030" (standard class of fit)	**Thread Tolerance**	H4 = basic plus 0.0015-0.0020" (premium class of fit)
Limited to the most popular items	**SKU Offering**	Wide selection



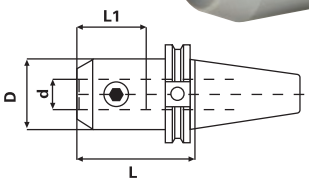
End Mill Holders

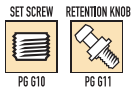
CAT40 End Mill Holders G4
CAT40 Dual Contact End Mill Holders G5
CAT40 Direct Coolant End Mill Holders G5
CAT50 End Mill Holders G6
CAT50 Dual Contact End Mill Holders G6
CAT50 Direct Coolant End Mill Holders G7
BT30 End Mill Holders G7
BT30 Direct Coolant End Mill Holders G7
BT40 End Mill Holders G8
BT40 Direct Coolant End Mill Holders G8
BT50 End Mill Holders G8
HSK63A End Mill Holders G9
HSK100A End Mill Holders G9
NMTB40 End Mill Holders G9
NMTB50 End Mill Holders G9
R8 End Mill Holders G10
Straight Shank End Mill Holders G10
Blank Bars G10
Replacement Set Screws G10
HSK Coolant Tubes & Coolant Tube Wrenches G10
Replacement O-Rings For Direct Coolant Holders G10
Retention Knobs G11

CAT40 End Mill Holders

- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel
- AT2 Taper Accuracy
- RFID chip hole







PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

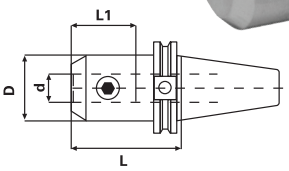
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT40	1/8	1.35*	0.59	0.75	8-32	531069	**156.82**
CT40	1/8	2.50	0.59	0.75	8-32	531070	**138.52**
CT40	1/8	4.00	0.59	0.75	8-32	531071	**211.70**
CT40	3/16	1.38*	0.79	0.75	10-32	531072	**156.82**
CT40	3/16	2.50	0.79	0.75	10-32	531073	**138.52**
CT40	3/16	4.00	0.79	0.75	10-32	531074	**211.70**
CT40	1/4	1.38*	1.18	0.79	1/4-28	531000	**138.52**
CT40	1/4	2.50	1.18	0.79	1/4-28	531002	**138.52**
CT40	1/4	4.00	1.18	0.79	1/4-28	531004	**138.52**
CT40	1/4	9.00	1.18	0.79	1/4-28	531005	**294.03**
CT40	5/16	1.38*	1.18	0.87	5/16-24	531006	**138.52**
CT40	5/16	2.50	1.18	0.87	5/16-24	531008	**138.52**
CT40	5/16	4.00	1.18	0.87	5/16-24	531010	**138.52**
CT40	5/16	9.00	1.18	0.87	5/16-24	531011	**294.03**
CT40	3/8	1.38*	1.57	1.00	3/8-24	531012	**138.52**
CT40	3/8	2.50	1.57	1.00	3/8-24	531014	**138.52**
CT40	3/8	4.00	1.57	1.00	3/8-24	531016	**138.52**
CT40	3/8	5.00	1.57	1.00	3/8-24	531018	**252.21**
CT40	3/8	9.00	1.57	1.00	3/8-24	531031	**294.03**
CT40	7/16	2.50	1.50	1.38	7/16-20	531020	**138.52**
CT40	7/16	4.00	1.50	1.38	7/16-20	531022	**138.52**
CT40	7/16	9.00	1.50	1.38	7/16-20	531033	**294.03**
CT40	1/2	1.75*	2.56	1.38	7/16-20	531024	**138.52**
CT40	1/2	2.50	2.56	1.38	7/16-20	531026	**138.52**
CT40	1/2	4.00	2.56	1.38	7/16-20	531028	**180.34**
CT40	1/2	5.00	3.07	1.38	7/16-20	531030	**215.62**
CT40	1/2	9.00	2.56	1.38	7/16-20	531035	**294.03**
CT40	5/8	1.75*	1.97	1.65	9/16-18	531032	**138.52**
CT40	5/8	3.00	2.76	1.65	9/16-18	531034	**138.52**
CT40	5/8	4.00	2.76	1.65	9/16-18	531036	**156.82**
CT40	5/8	5.50	2.76	1.65	9/16-18	531038	**199.94**
CT40	5/8	9.00	3.50	1.65	9/16-18	531037	**294.03**
CT40	3/4	1.75*	2.01	1.89	5/8-18	531040	**138.52**
CT40	3/4	3.00	2.56	1.75	5/8-18	531042	**138.52**
CT40	3/4	4.00	2.56	1.75	5/8-18	531044	**156.82**
CT40	3/4	5.50	2.56	1.75	5/8-18	531046	**188.18**
CT40	3/4	9.00	3.86	1.75	5/8-18	531039	**294.03**
CT40	7/8	1.75*	2.17	1.94	5/8-18	531048	**156.82**
CT40	7/8	3.50	3.15	2.00	5/8-18	531050	**156.82**
CT40	7/8	6.00	4.22	2.00	5/8-18	531052	**218.24**
CT40	7/8	9.00	4.22	2.00	5/8-18	531041	**333.23**
CT40	1	2.00*	2.32	2.25	3/4-16	531054	**156.82**
CT40	1	4.00	3.54	2.36	3/4-16	531056	**156.82**
CT40	1	6.00	3.54	2.36	3/4-16	531058	**218.24**
CT40	1	9.00	4.50	2.36	3/4-16	531043	**385.51**
CT40	1-1/4	2.00*	2.44	2.25	3/4-16	531060‡	**171.19**
CT40	1-1/4	4.00	3.54	2.48	3/4-16	531062	**171.19**
CT40	1-1/4	6.00	3.54	2.48	3/4-16	531064	**243.06**
CT40	1-1/2	4.50	2.95	2.99	3/4-16	531066	**196.02**
CT40	1-1/2	6.00	3.20	2.99	3/4-16	531068	**254.83**

* Stubby Length ‡ Not DIN Coolant

STM CAT40 End Mill Holders

- DIN coolant option - standard
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0002" OD to ID
- RFID chip hole





BALANCE CERTIFICATE
G2.5 at 8,000rpm
INCLUDED

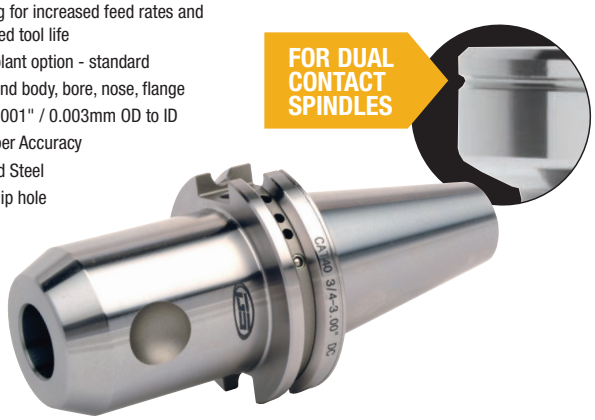
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT40	1/8	2.50	0.63	0.75	8-32	525070	**85.00**
CT40	1/8	4.00	0.63	0.75	8-32	525071	**85.00**
CT40	3/16	2.50	0.86	0.75	10-32	525073	**85.00**
CT40	3/16	4.00	0.86	0.75	10-32	525074	**85.00**
CT40	1/4	2.50	1.10	0.79	1/4-28	525002	**85.00**
CT40	1/4	4.00	1.10	0.79	1/4-28	525004	**85.00**
CT40	5/16	2.50	1.26	0.87	5/16-24	525008	**85.00**
CT40	3/8	2.50	1.26	1.00	3/8-24	525014	**85.00**
CT40	3/8	4.00	1.26	1.00	3/8-24	525016	**85.00**
CT40	1/2	1.75*	1.50	1.38	7/16-20	525024	**85.00**
CT40	1/2	2.50	1.50	1.38	7/16-20	525026	**85.00**
CT40	1/2	4.00	1.50	1.38	7/16-20	525028	**85.00**
CT40	5/8	1.75*	1.61	1.65	9/16-18	525032	**85.00**
CT40	5/8	3.00	1.61	1.65	9/16-18	525034	**85.00**
CT40	3/4	1.75*	1.77	1.89	5/8-18	525040	**85.00**
CT40	3/4	3.00	1.77	1.75	5/8-18	525042	**85.00**
CT40	1	2.00*	2.36	2.25	3/4-16	525054	**85.00**
CT40	1	4.00	2.36	2.36	3/4-16	525056	**85.00**
CT40	1-1/4	2.00*	2.28	2.25	3/4-16	525060‡	**85.00**

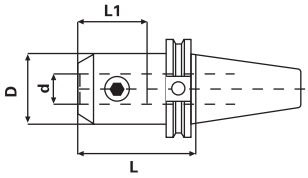
* Stubby Length ‡ Not DIN Coolant

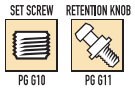


CAT40 DUAL CONTACT End Mill Holders

- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

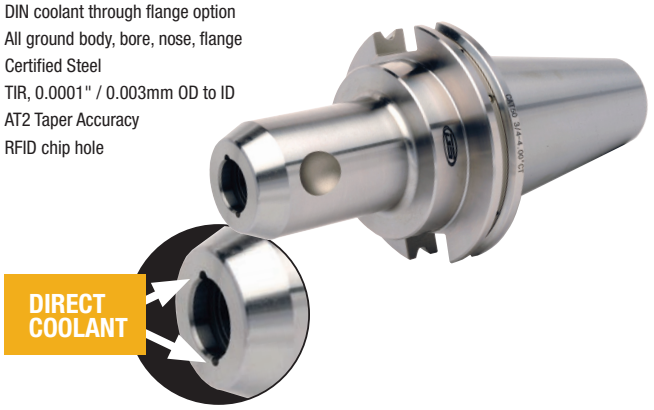
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT40	1/2	2.50	2.56	1.38	7/16-20	521026	**184.01**
CT40	1/2	4.00	2.56	1.38	7/16-20	521028	**184.01**
CT40	1/2	5.00	2.56	1.38	7/16-20	521030	**230.01**
CT40	5/8	3.00	3.50	1.65	9/16-18	521034	**200.84**
CT40	5/8	4.00	3.50	1.65	9/16-18	521036	**226.64**
CT40	5/8	5.50	3.50	1.65	9/16-18	521038	**246.84**
CT40	3/4	3.00	3.86	1.75	5/8-18	521042	**206.45**
CT40	3/4	4.00	3.86	1.75	5/8-18	521044	**206.45**
CT40	3/4	5.50	3.86	1.75	5/8-18	521046	**327.62**
CT40	1	2.00	2.36	2.36	3/4-16	521054	**227.77**
CT40	1	4.00	4.21	2.36	3/4-16	521056	**227.77**
CT40	1	6.00	4.21	2.36	3/4-16	521058	**392.70**
CT40	1-1/4	2.00*	2.36	2.25	3/4-16	521060‡	**232.25**
CT40	1-1/4	4.00	3.54	2.48	3/4-16	521062	**232.25**
CT40	1-1/4	6.00	3.54	2.48	3/4-16	521064	**392.70**
CT40	1-1/2	4.50	2.95	2.99	3/4-16	521066	**252.45**

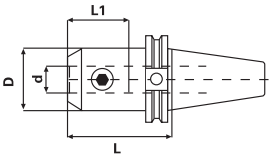
* Stubby Length ‡ Not DIN Coolant

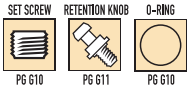
CAT40 DIRECT COOLANT End Mill Holders

NOW 3 COOLANT OPTIONS ALL IN ONE!

- Coolant through the spindle and body
- DIN coolant through flange option
- All ground body, bore, nose, flange
- Certified Steel
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- RFID chip hole







PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT40	1/4	1.38*	1.18	0.79	1/4-28	522014	**190.08**
CT40	1/4	2.50	1.18	0.79	1/4-28	522016	**190.08**
CT40	1/4	4.00	1.18	0.79	1/4-28	522018	**258.51**
CT40	5/16	1.38*	1.18	0.87	5/16-24	522022	**190.08**
CT40	5/16	2.50	1.18	0.87	5/16-24	522024	**190.08**
CT40	5/16	4.00	1.18	0.87	5/16-24	522026	**258.51**
CT40	3/8	1.38*	1.57	1.00	3/8-24	522030	**190.08**
CT40	3/8	2.50	1.57	1.00	3/8-24	522032	**190.08**
CT40	3/8	4.00	1.57	1.00	3/8-24	522034	**258.51**
CT40	3/8	5.00	1.57	1.00	3/8-24	522036	**297.79**
CT40	1/2	1.75*	2.56	1.38	7/16-20	522046	**190.08**
CT40	1/2	2.50	2.56	1.38	7/16-20	522048	**190.08**
CT40	1/2	4.00	2.56	1.38	7/16-20	522050	**258.51**
CT40	1/2	5.00	2.56	1.38	7/16-20	522052	**325.67**
CT40	5/8	1.75*	2.72	1.65	9/16-18	522056	**190.08**
CT40	5/8	3.00	2.56	1.65	9/16-18	522058	**190.08**
CT40	5/8	4.00	2.56	1.65	9/16-18	522060	**190.08**
CT40	3/4	1.75*	2.56	1.89	5/8-18	522066	**190.08**
CT40	3/4	3.00	2.56	1.75	5/8-18	522068	**190.08**
CT40	3/4	4.00	2.56	1.75	5/8-18	522070	**258.51**
CT40	3/4	5.50	2.56	1.75	5/8-18	522072	**325.67**
CT40	1	2.00*	2.36	2.25	3/4-16	522080	**190.08**
CT40	1	4.00	3.54	2.36	3/4-16	522082	**190.08**
CT40	1-1/4	2.00*	2.44	2.25	3/4-16	522088	**190.08**
CT40	1-1/4	4.00	3.54	2.48	3/4-16	522090	**221.76**
CT40	1-1/2	4.50	2.95	2.99	3/4-16	522094	**228.10**

* Stubby Length

Spindle Taper Wipers

Clean spindle holes easily and quickly!

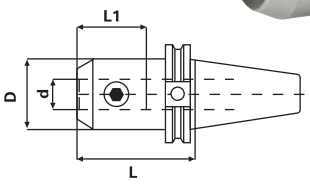
See Page G91

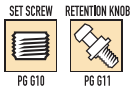
CAT50 End Mill Holders

G3 TOOLING

- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







PREMIUM BALANCE
G6.3 at 25,000rpm
CERTIFICATE INCLUDED

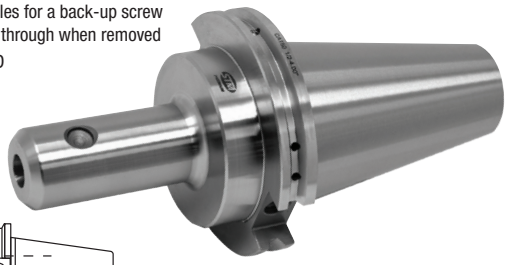
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT50	1/4	1.38*	0.71	0.79	1/4-28	531082	**182.95**
CT50	1/4	2.50	1.18	0.79	1/4-28	531084	**182.95**
CT50	1/4	4.00	1.18	0.79	1/4-28	531086	**211.70**
CT50	1/4	6.00	1.18	0.79	1/4-28	531088	**239.14**
CT50	1/4	8.00	1.18	0.79	1/4-28	531090	**318.86**
CT50	5/16	2.50	1.18	0.87	5/16-24	531092	**182.95**
CT50	5/16	4.00	1.18	0.87	5/16-24	531094	**211.70**
CT50	5/16	6.00	1.18	0.87	5/16-24	531096	**239.14**
CT50	3/8	1.38*	1.57	1.00	3/8-24	531098	**182.95**
CT50	3/8	2.50	1.57	1.00	3/8-24	531100	**182.95**
CT50	3/8	4.00	1.57	1.00	3/8-24	531102	**211.70**
CT50	3/8	6.00	1.57	1.00	3/8-24	531104	**239.14**
CT50	3/8	8.00	1.57	1.00	3/8-24	531106	**279.66**
CT50	3/8	14.00	1.57	1.00	3/8-24	531107	**855.95**
CT50	7/16	2.50	1.50	1.38	7/16-20	531108	**182.95**
CT50	7/16	4.00	1.50	1.38	7/16-20	531110	**211.70**
CT50	7/16	6.00	1.50	1.38	7/16-20	531112	**243.06**
CT50	7/16	14.00	1.48	1.38	7/16-20	531113	**855.95**
CT50	1/2	1.75*	1.50	1.38	7/16-20	531116	**182.95**
CT50	1/2	2.63	1.77	1.38	7/16-20	531118	**182.95**
CT50	1/2	4.00	1.77	1.38	7/16-20	531120	**211.70**
CT50	1/2	6.00	1.77	1.38	7/16-20	531122	**243.06**
CT50	1/2	8.00	1.77	1.38	7/16-20	531124	**279.66**
CT50	1/2	14.00	1.77	1.38	7/16-20	531125	**855.95**
CT50	9/16	6.00	1.77	1.65	9/16-18	531133	**243.06**
CT50	5/8	1.75*	1.73	1.65	9/16-18	531126	**211.70**
CT50	5/8	3.00	1.77	1.65	9/16-18	531128	**211.70**
CT50	5/8	4.00	1.77	1.65	9/16-18	531130	**211.70**
CT50	5/8	6.00	1.77	1.65	9/16-18	531132	**243.06**
CT50	5/8	8.00	1.77	1.65	9/16-18	531134	**279.66**
CT50	5/8	14.00	1.57	1.65	9/16-18	531131	**855.95**
CT50	3/4	1.75*	2.76	1.89	5/8-18	531136	**211.70**
CT50	3/4	3.00	2.76	1.89	5/8-18	531138	**211.70**
CT50	3/4	4.00	2.76	1.89	5/8-18	531140	**211.70**
CT50	3/4	6.00	2.76	1.89	5/8-18	531142	**243.06**
CT50	3/4	8.00	2.76	1.89	5/8-18	531144	**279.66**
CT50	3/4	14.00	3.86	1.89	5/8-18	531145	**855.95**
CT50	7/8	1.75*	3.15	2.00	5/8-18	531146	**211.70**
CT50	7/8	3.75	3.15	2.00	5/8-18	531148	**211.70**
CT50	1	2.00*	2.32	2.36	3/4-16	531152	**211.70**
CT50	1	4.00	3.54	2.36	3/4-16	531154	**211.70**
CT50	1	6.00	3.54	2.36	3/4-16	531156	**218.24**
CT50	1	8.00	3.54	2.36	3/4-16	531158	**253.52**
CT50	1-1/4	2.00*	2.56	2.75	3/4-16	531160	**211.70**
CT50	1-1/4	4.00	3.54	2.48	3/4-16	531162	**216.93**
CT50	1-1/4	6.00	3.54	2.48	3/4-16	531164	**252.21**
CT50	1-1/4	8.00	3.54	2.48	3/4-16	531166	**290.11**
CT50	1-1/2	2.25*	2.83	2.75	3/4-16	531168	**216.93**
CT50	1-1/2	4.50	3.15	2.99	3/4-16	531170	**216.93**
CT50	1-1/2	7.00	3.15	2.99	3/4-16	531172	**392.04**
CT50	1-1/2	9.00	3.15	2.99	3/4-16	531174	**673.00**
CT50	2	3.63*	3.66	3.74	1-14	531176	**300.56**
CT50	2	5.37	4.13	3.74	1-14	531178	**359.37**
CT50	2	8.00	4.13	3.74	1-14	531180	**666.47**
CT50	2	10.00	4.13	3.74	1-14	531182	**673.00**
CT50	2-1/2	6.00	3.94	4.25	1-14	531184	**405.11**

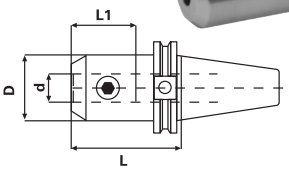
* Stubby Length

STM CAT50 End Mill Holders

STM PREMIUM

- DIN coolant option - standard
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0002" OD to ID
- RFID chip hole





BALANCE CERTIFICATE
G2.5 at 6,000rpm
INCLUDED

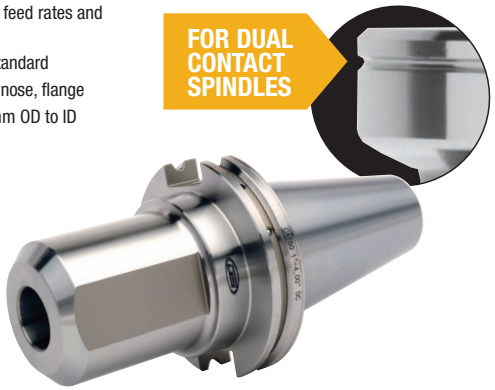
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT50	1/2"	4.00"	1.50"	1.38"	7/16-20	525120	**107.00**
CT50	3/4"	4.00"	1.77"	1.89"	5/8-18	525140	**107.00**
CT50	1"	4.00"	2.36"	2.36"	3/4-16	525154	**129.00**
CT50	1-1/4"	4.00"	2.55"	2.48"	3/4-16	525162	**129.00**

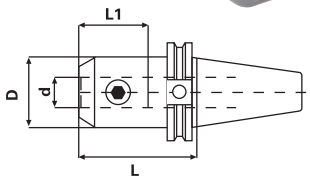
CAT50 DUAL CONTACT End Mill Holders

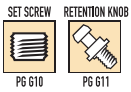
G3 TOOLING

- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole

FOR DUAL CONTACT SPINDLES







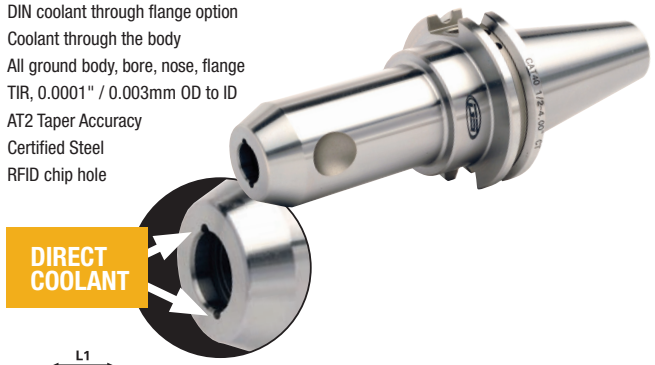
PREMIUM BALANCE
G6.3 at 25,000rpm
CERTIFICATE INCLUDED

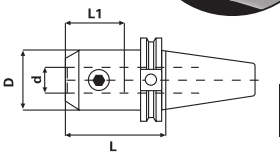
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT50	1/2	4.00	1.77	1.38	7/16-20	521120	**325.38**
CT50	1/2	6.00	1.77	1.38	7/16-20	521122	**322.01**
CT50	5/8	4.00	1.77	1.65	9/16-18	521130	**314.16**
CT50	5/8	6.00	1.77	1.65	9/16-18	521132	**392.70**
CT50	3/4	3.00	3.86	1.89	5/8-18	521138	**302.94**
CT50	3/4	4.00	3.86	1.89	5/8-18	521140	**319.77**
CT50	3/4	6.00	3.86	1.89	5/8-18	521142	**325.38**
CT50	1	4.00	4.21	2.36	3/4-16	521154	**325.38**
CT50	1	6.00	4.21	2.36	3/4-16	521156	**332.11**
CT50	1	8.00	4.21	2.36	3/4-16	521158	**381.48**
CT50	1-1/4	4.00	3.54	2.48	3/4-16	521162	**347.82**
CT50	1-1/4	6.00	3.54	2.48	3/4-16	521164	**352.31**
CT50	1-1/4	8.00	3.54	2.48	3/4-16	521166	**398.31**
CT50	1-1/2	4.50	3.15	2.99	3/4-16	521170	**347.82**
CT50	1-1/2	7.00	3.15	2.99	3/4-16	521172	**574.46**
CT50	2	5.37	4.13	3.74	1-14	521178	**375.87**

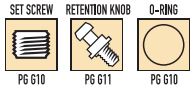
CAT50 DIRECT COOLANT End Mill Holders

NOW 3 COOLANT OPTIONS ALL IN ONE!

- Coolant through the spindle
- DIN coolant through flange option
- Coolant through the body
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







PREMIUM BALANCE
G6.3 at 25,000rpm
CERTIFICATE INCLUDED

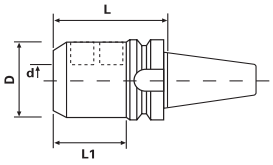
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
CT50	1/4	2.50	1.18	0.79	1/4-28	522102	**231.90**
CT50	1/4	4.00	1.18	0.79	1/4-28	522104	**274.98**
CT50	5/16	4.00	1.26	0.87	5/16-24	522112	**274.98**
CT50	3/8	2.50	1.57	1.00	3/8-24	522118	**231.90**
CT50	3/8	4.00	1.57	1.00	3/8-24	522120	**274.98**
CT50	3/8	6.00	1.57	1.00	3/8-24	522122	**302.86**
CT50	3/8	8.00	1.26	1.00	3/8-24	522124	**339.61**
CT50	7/16	4.00	1.50	1.38	7/16-20	522130	**274.98**
CT50	1/2	1.75*	1.50	1.38	7/16-20	522134	**231.90**
CT50	1/2	2.63	1.77	1.38	7/16-20	522136	**231.90**
CT50	1/2	4.00	1.77	1.38	7/16-20	522138	**285.12**
CT50	1/2	6.00	1.77	1.38	7/16-20	522140	**296.52**
CT50	1/2	8.00	1.48	1.38	7/16-20	522142	**339.61**
CT50	5/8	1.75*	1.77	1.65	9/16-18	522148	**231.90**
CT50	5/8	3.00	1.77	1.65	9/16-18	522150	**259.78**
CT50	5/8	4.00	1.77	1.65	9/16-18	522152	**296.52**
CT50	5/8	6.00	1.61	1.65	9/16-18	522154	**296.52**
CT50	3/4	1.75*	2.76	1.89	5/8-18	522158	**259.78**
CT50	3/4	3.00	2.76	1.89	5/8-18	522160	**259.78**
CT50	3/4	4.00	2.76	1.89	5/8-18	522162	**296.52**
CT50	3/4	6.00	2.76	1.89	5/8-18	522164	**296.52**
CT50	3/4	8.00	2.76	1.89	5/8-18	522166	**339.61**
CT50	1	2.00*	2.32	2.36	3/4-16	522176	**259.78**
CT50	1	4.00	3.54	2.36	3/4-16	522178	**296.52**
CT50	1	6.00	3.54	2.36	3/4-16	522180	**296.52**
CT50	1	8.00	3.54	2.36	3/4-16	522182	**306.66**
CT50	1	12.00	2.36	2.36	3/4-16	522183	**741.31**
CT50	1-1/4	2.00*	2.56	2.75	3/4-16	522186	**259.78**
CT50	1-1/4	4.00	3.54	2.48	3/4-16	522188	**302.86**
CT50	1-1/4	6.00	3.54	2.48	3/4-16	522190	**306.66**
CT50	1-1/2	2.25*	2.83	2.75	3/4-16	522196	**259.78**
CT50	1-1/2	4.50	3.15	2.99	3/4-16	522198	**318.07**
CT50	2	3.63*	3.66	3.74	1-14	522204	**302.86**
CT50	2	5.37	4.13	3.74	1-14	522206	**318.07**
CT50	2	8.00	4.13	3.74	1-14	522208	**741.31**
CT50	2	10.00	4.13	3.74	1-14	522210	**823.68**

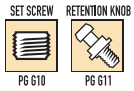
* Stubby Length

BT30 End Mill Holders

- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







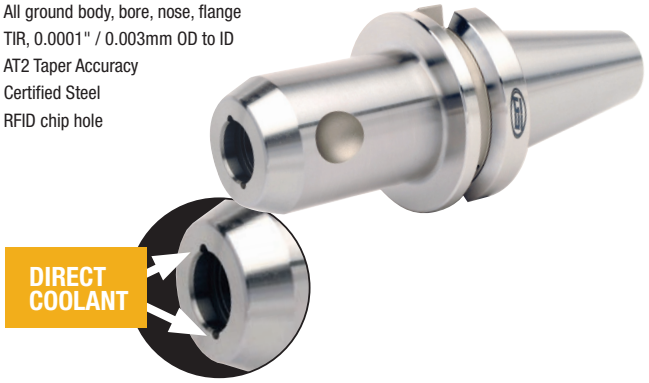
PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

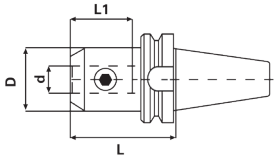
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
BT30	1/8	2.36	0.59	0.75	8-32	532001	**134.60**
BT30	3/16	2.36	0.79	0.75	10-32	532003	**134.60**
BT30	1/4	2.36	1.18	0.79	1/4-28	532000	**134.60**
BT30	5/16	2.36	1.18	0.87	5/16-24	532002	**134.60**
BT30	3/8	2.36	1.18	1.00	3/8-24	532004	**134.60**
BT30	7/16	2.36	1.50	1.38	7/16-20	532006	**134.60**
BT30	1/2	2.36	2.95	1.38	7/16-20	532008	**134.60**
BT30	5/8	2.50	1.61	1.65	9/16-18	532010	**134.60**
BT30	3/4	3.00	1.77	1.88	5/8-18	532012	**134.60**
BT30	7/8	3.54	2.09	2.00	5/8-18	532014	**150.28**
BT30	1	3.54	2.32	2.36	3/4-16	532016	**150.28**

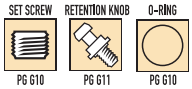
BT30 DIRECT COOLANT End Mill Holders

NOW 2 COOLANT OPTIONS ALL IN ONE!

- Coolant through the spindle
- Coolant through the body
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







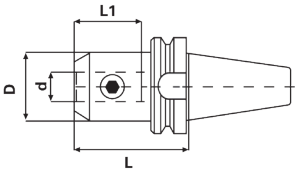
PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

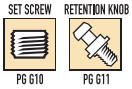
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
BT30	1/4	2.36	1.10	0.79	1/4-28	522218	**148.51**
BT30	5/16	2.36	1.26	0.87	5/16-24	522220	**148.51**
BT30	3/8	2.36	1.26	1.00	3/8-24	522222	**148.51**
BT30	1/2	2.36	1.50	1.38	7/16-20	522224	**148.51**
BT30	3/4	3.00	1.77	1.88	5/8-18	522228	**148.51**

BT40 End Mill Holders

- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
BT40	1/8	1.38*	0.59	1.75	8-32	531019	**138.52**
BT40	1/8	2.50	0.59	0.75	8-32	531021	**167.27**
BT40	1/8	4.00	0.59	0.75	8-32	531023	**211.70**
BT40	3/16	1.38*	0.79	0.75	10-32	531025	**138.52**
BT40	3/16	2.50	0.79	0.75	10-32	531027	**167.27**
BT40	3/16	4.00	0.79	0.75	10-32	531029	**211.70**
BT40	1/4	1.38*	1.18	0.79	1/4-28	532018	**167.27**
BT40	1/4	2.50	1.18	0.79	1/4-28	532020	**167.27**
BT40	1/4	4.00	1.18	0.79	1/4-28	532022	**211.70**
BT40	5/16	1.38*	1.18	0.87	5/16-24	532024	**167.27**
BT40	5/16	2.50	1.18	0.87	5/16-24	532026	**167.27**
BT40	5/16	4.00	1.18	0.87	5/16-24	532028	**211.70**
BT40	3/8	1.38*	1.57	1.00	3/8-24	532030	**167.27**
BT40	3/8	2.50	1.57	1.00	3/8-24	532032	**167.27**
BT40	3/8	4.00	1.57	1.00	3/8-24	532034	**211.70**
BT40	7/16	2.50	1.50	1.38	7/16-20	532036	**167.27**
BT40	1/2	1.75*	1.50	1.38	7/16-20	532038	**167.27**
BT40	1/2	2.50	2.56	1.38	7/16-20	532040	**167.27**
BT40	1/2	4.00	2.56	1.38	7/16-20	532042	**211.70**
BT40	5/8	1.75*	1.97	1.65	9/16-18	532044	**167.27**
BT40	5/8	2.50	2.76	1.65	9/16-18	532046	**167.27**
BT40	5/8	4.00	3.50	1.65	9/16-18	532048	**211.70**
BT40	3/4	1.75*	2.01	1.89	5/8-18	532050	**167.27**
BT40	3/4	2.50	2.56	1.89	5/8-18	532052	**167.27**
BT40	3/4	4.00	2.56	1.89	5/8-18	532054	**211.70**
BT40	7/8	3.38	4.06	2.00	5/8-18	532056	**216.93**
BT40	7/8	6.00	2.08	2.00	5/8-18	532058	**224.77**
BT40	1	2.00*	2.32	2.25	3/4-16	532060	**216.93**
BT40	1	3.56	3.54	2.36	3/4-16	532062	**216.93**
BT40	1	6.00	3.54	2.36	3/4-16	532064	**224.77**
BT40	1-1/4	2.00*	2.36	2.25	3/4-16	532066‡	**224.77**
BT40	1-1/4	3.56	3.54	2.48	3/4-16	532068	**224.77**
BT40	1-1/4	6.00	3.54	2.48	3/4-16	532070	**274.43**
BT40	1-1/2	4.50	3.15	2.99	3/4-16	532072	**224.77**
BT40	1-1/2	6.00	3.15	2.99	3/4-16	532074	**274.43**

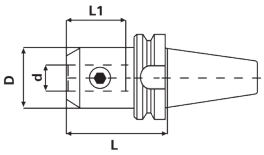
* Stubby Length ‡ Not DIN Coolant

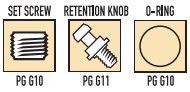
BT40 DIRECT COOLANT End Mill Holders

NOW 3 COOLANT OPTIONS ALL IN ONE!

- Coolant through the spindle
- DIN coolant through flange option
- Coolant through the body
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







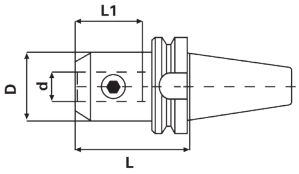
PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

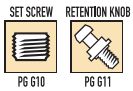
Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
BT40	1/4	4.00	1.10	0.79	1/4-28	522246	**239.31**
BT40	3/8	2.50	1.57	1.00	3/8-24	522256	**237.34**
BT40	3/8	4.00	1.57	1.00	3/8-24	522258	**239.31**
BT40	1/2	2.50	2.56	1.38	7/16-20	522264	**239.31**
BT40	1/2	4.00	2.56	1.38	7/16-20	522266	**239.31**
BT40	3/4	2.50	2.56	1.89	5/8-18	522276	**239.31**
BT40	3/4	4.00	2.56	1.89	5/8-18	522278	**239.31**
BT40	1	2.00*	2.32	2.25	3/4-16	522282	**237.34**

BT50 End Mill Holders

- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







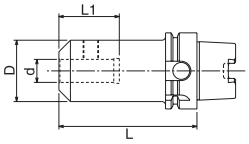
PREMIUM BALANCE
G6.3 at 25,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
BT50	3/8	2.50	1.57	1.00	3/8-24	532075	**384.20**
BT50	3/8	5.31	1.57	1.00	3/8-24	532076	**555.39**
BT50	1/2	2.75	1.77	1.38	7/16-20	532077	**384.20**
BT50	1/2	5.31	1.77	1.38	7/16-20	532078	**555.39**
BT50	5/8	3.00	1.77	1.65	9/16-18	532079	**384.20**
BT50	5/8	5.31	1.77	1.65	9/16-18	532081	**555.39**
BT50	3/4	3.00	2.76	1.75	5/8-18	532083	**384.20**
BT50	3/4	6.00	3.82	1.75	5/8-18	532085	**555.39**
BT50	1	4.00	4.21	2.36	3/4-16	532087	**384.20**
BT50	1	6.00	3.54	2.36	3/4-16	532089	**581.53**
BT50	1-1/4	4.00	3.54	2.48	3/4-16	532091	**384.20**
BT50	1-1/4	6.00	3.54	2.48	3/4-16	532093	**594.59**
BT50	1-1/2	4.13	3.15	2.99	3/4-16	532095	**607.66**
BT50	1-1/2	7.00	3.15	2.99	3/4-16	532097	**686.07**
BT50	2	4.72	4.13	3.86	1-14	532099	**607.66**

HSK63A End Mill Holders

- High rigidity and torque transmission
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel
- AT2 Taper Accuracy
- RFID chip hole





SET SCREW
PG G10

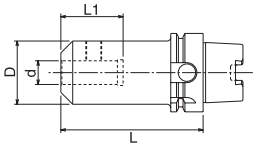
PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
HSK63A	3/16	3.00	0.866	0.748	10-32X1/4	536002	**482.21**
HSK63A	3/16	5.00	0.866	0.748	10-32X1/4	536004	**482.21**
HSK63A	1/4	3.00	1.102	0.787	1/4-28X1/4	536006	**482.21**
HSK63A	1/4	5.00	1.102	0.787	1/4-28X1/4	536008	**482.21**
HSK63A	5/16	3.00	1.417	0.874	5/16-24X1/4	536010	**482.21**
HSK63A	5/16	5.00	1.417	0.874	5/16-24X1/4	536012	**482.21**
HSK63A	3/8	3.50	1.574	1.00	3/8-24X5/16	536014	**482.21**
HSK63A	3/8	5.00	1.574	1.00	3/8-24X5/16	536016	**482.21**
HSK63A	7/16	5.00	1.771	1.378	7/16-20X3/8	536020	**482.21**
HSK63A	1/2	4.00	1.771	1.378	7/16-20X3/8	536022	**482.21**
HSK63A	1/2	5.00	1.771	1.378	7/16-20X3/8	536024	**482.21**
HSK63A	5/8	4.00	1.889	1.654	9/16-18X1/2	536026	**482.21**
HSK63A	3/4	4.50	1.968	1.889	5/8-18X1/2	536030	**482.21**
HSK63A	3/4	6.00	1.968	1.889	5/8-18X1/2	536032	**482.21**
HSK63A	1	4.50	2.755	2.363	3/4-16X11/16 (2)	536034	**482.21**
HSK63A	1-1/4	4.50	2.952	2.88	3/4-16X11/16 (2)	536038	**482.21**

HSK100A End Mill Holders

- High rigidity and torque transmission
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel
- AT2 Taper Accuracy
- RFID chip hole





SET SCREW
PG G10

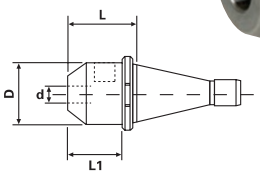
PREMIUM BALANCE
G6.3 at 25,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
HSK100A	3/16	4.00	0.867	0.748	10-32X1/4	536042	**588.06**
HSK100A	3/16	6.00	0.867	0.748	10-32X1/4	536044	**642.95**
HSK100A	1/4	4.00	1.102	0.787	1/4-28X1/4	536046	**588.06**
HSK100A	1/4	6.00	1.102	0.787	1/4-28X1/4	536048	**642.95**
HSK100A	5/16	4.00	1.220	0.866	5/16-24X1/4	536050	**588.06**
HSK100A	5/16	6.00	1.220	0.866	5/16-24X1/4	536052	**642.95**
HSK100A	3/8	4.00	1.260	1.00	3/8-24X5/16	536054	**588.06**
HSK100A	3/8	6.00	1.260	1.00	3/8-24X5/16	536056	**642.95**
HSK100A	1/2	4.00	1.575	1.378	7/16-20X3/8	536062	**588.06**
HSK100A	1/2	6.00	1.575	1.378	7/16-20X3/8	536064	**642.95**
HSK100A	5/8	4.00	1.693	1.654	9/16-18X1/2	536066	**588.06**
HSK100A	3/4	4.00	2.56	1.890	5/8-18X1/2	536070	**588.06**
HSK100A	3/4	6.00	1.969	1.890	5/8-18X1/2	536072	**642.95**
HSK100A	1	4.00	2.559	2.362	3/4-16X11/16 (2)	536074	**588.06**
HSK100A	1	6.00	2.559	2.362	3/4-16X11/16 (2)	536076	**642.95**
HSK100A	1-1/4	4.00	2.559	2.480	3/4-16X11/16 (2)	536078	**588.06**
HSK100A	1-1/4	6.00	2.559	2.480	3/4-16X11/16 (2)	536080	**642.95**

NMTB40 End Mill Holders

- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel





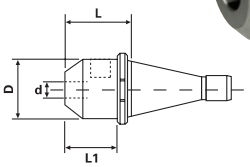
SET SCREW
PG G10

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
NMTB40	1/4	2.31	1.97	0.79	1/4-28	534000	**155.61**
NMTB40	5/16	2.31	1.18	0.87	5/16-24	534002	**155.61**
NMTB40	3/8	2.31	1.57	1.00	3/8-24	534004	**155.61**
NMTB40	1/2	2.31	2.56	1.38	7/16-20	534008	**155.61**
NMTB40	5/8	2.31	2.76	1.65	9/16-18	534010	**155.61**
NMTB40	3/4	2.31	2.76	1.89	5/8-18	534012	**155.61**
NMTB40	7/8	2.94	3.15	2.01	5/8-18	534014	**155.61**
NMTB40	1	3.37	3.54	2.36	3/4-16	534016	**155.61**
NMTB40	1-1/4	3.69	3.54	2.48	3/4-16	534018	**155.61**
NMTB40	1-1/2	3.95	2.95	2.99	3/4-16	534019	**160.14**

NMTB50 End Mill Holders

- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel





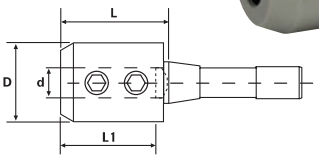
SET SCREW
PG G10

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
NMTB50	1/4	2.75	1.57	0.79	1/4-28	534020	**214.07**
NMTB50	3/8	2.75	1.57	1.00	3/8-24	534022	**214.07**
NMTB50	1/2	2.75	1.50	1.38	7/16-20	534026	**214.07**
NMTB50	1/2	4.50	1.50	1.38	7/16-20	534028	**224.64**
NMTB50	5/8	2.75	1.77	1.65	9/16-18	534030	**214.07**
NMTB50	3/4	2.88	1.77	1.89	5/8-18	534034	**214.07**
NMTB50	3/4	4.50	2.76	1.89	5/8-18	534036	**224.64**
NMTB50	7/8	2.88	2.17	2.01	5/8-18	534038	**222.23**
NMTB50	1	3.50	2.36	2.36	3/4-16	534042	**228.73**
NMTB50	1-1/4	3.50	2.56	2.48	3/4-16	534046	**256.67**
NMTB50	2	4.69	4.13	3.74	1-14	534054	**306.38**

R8 End Mill Holders

- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel





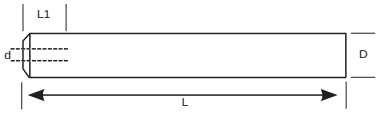
SET SCREW
PG G10

Taper	Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
R8	1/4	1.33	1.18	0.79	1/4-28	534056	**87.78**
R8	5/16	1.75	1.26	0.87	5/16-24	534058	**87.78**
R8	3/8	1.33	1.26	1.00	3/8-24	534060	**87.78**
R8	1/2	1.33	2.56	1.38	7/16-20	534064	**87.78**
R8	5/8	1.50	1.61	1.65	9/16-18	534066	**87.78**
R8	3/4	2.37	1.77	1.89	5/8-18	534068	**100.61**
R8	1	3.25	2.76	2.36	3/4-16	534072	**111.95**
R8	1-1/4	3.25	3.15	2.48	3/4-16	534074	**117.38**

Straight Shank End Mill Holders

- Can be used to extend the reach of the cutting tool as well as machining within tight clearances
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel





SET SCREW
PG G10

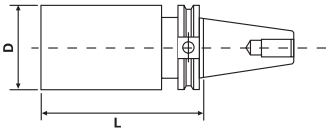
Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Price $
1/4	6.00	1.18	0.750	1/4-28	534078	**112.56**
5/16	6.00	1.18	0.750	5/16-24	534080	**106.65**
3/8	6.00	1.57	1.00	3/8-24	534082	**113.76**
1/2	6.00	1.77	1.00	1/4-28	534084	**113.76**

Blank Bars

Blank bars are suitable for all applications, including deep boring. While the tapers are ground and hardened, the projections are not.

- Traverse ground shank to obtain optimum accuracy
- Meets or exceeds ANSI specifications
- Material to be machined - SNCM 415H



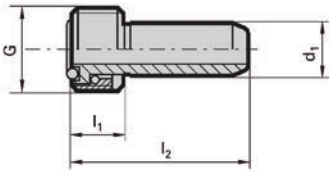


RETENTION KNOB
PG G11

Taper	L	D	Code No.	Price $
CAT Taper				
CAT 40	13	2.50	531592	**405.18**
CAT 50	13	3.88	531594	**455.94**
NMTB Taper				
NMTB50	13	3.88	534602	**418.63**

HSK Coolant Tubes

- Designed specifically to be used with HSK holders
- Leak-proof screwed connection





Used with Taper	d1	G	l1	l2	Code No.	Price $
HSK63A	12	M18x1	36.5	11.5	536600	**47.52**
HSK100A	16	M24x1.5	44.0	15.5	536602	**66.00**

Coolant Tube Wrenches

- Designed to lock and unlock the HSK coolant supply units



Description	Used with Taper	Code No.	Price $
Coolant Tube Wrench	HSK63A	536604	**60.72**
Coolant Tube Wrench	HSK100A	536606	**65.34**

Replacement O-Rings For DIRECT COOLANT Holders

- Can be used in all tapers of Direct Coolant Holders



Holder Size	Code No.	Price $
1/4	522390	**2.27**
5/16	522391	**2.27**
3/8	522392	**2.27**
1/2	522393	**2.27**
5/8	522394	**2.27**
3/4	522395	**2.27**
1	522396	**2.27**
1-1/4	522397	**2.27**

Replacement Set Screws



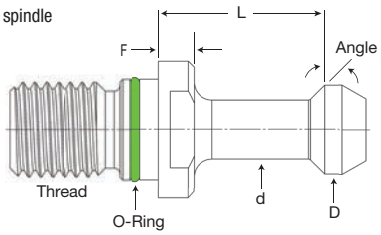
Size	Size of Holder	Code No.	Price $
8-32 x 5/16	1/8	534109	**0.76**
10-32 x 5/16	3/16	534111	**0.76**
1/4-28 x 1/4	1/4	534110	**3.48**
5/16-24 x 1/4	5/16	534112	**3.48**
3/8-24 x 5/16	3/8, 7/16	534114	**5.29**
7/16-20 x 3/8	1/2	534116	**6.35**
9/16-18 x 1/2	5/8	534118	**4.99**
5/8-18 x 1/2	3/4, 7/8	534120	**8.61**
3/4-16 x 9.5mm	1, 1-1/4, 1-1/2	534119	**8.22**
3/4-16 x 11/16	1, 1-1/4, 1-1/2	534122	**9.37**
1-14 x 7/8	2	534124	**30.82**

Retention Knobs

- Ground Pilot
- O-Ring on Pilot to prevent coolant penetration into the spindle

Can't find your retention knob?
We invite your inquiries.
Please have ready the following information when calling:

- Taper of Machine
- Make and Model No. of the Machine
- Draw Bar Thread Diameter and Pitch
- Taper Angle required underneath head of stud





Taper	Model	Coolant Through	D	d	L	F	Angle	Thread	Code No.	Price $
BT30	GS585X45	N	0.433	0.276	0.709	0.197	45	M12x1.75	366000	**31.08**
BT30	GS585X60	N	0.433	0.276	0.709	0.197	60	M12x1.75	366002	**31.70**
BT40	PS444X15	N	0.748	0.551	0.905	0.275	15	M16x2	366003	**39.85**
BT40	GSC444X15	Y	0.748	0.551	0.905	0.275	15	M16x2	366004	**42.27**
BT40	GS444X45	N	0.590	0.390	1.102	0.236	45	M16x2	366006	**31.08**
BT40	GS444X60	N	0.590	0.390	1.102	0.236	60	M16x2	366008	**31.70**
BT40	PS444X90	N	0.590	0.390	1.102	0.236	90	M16x2	366010	**31.08**
BT40	GSC444X45	Y	0.590	0.390	1.102	0.236	45	M16x2	366012	**33.67**
BT40	GSC444X60	Y	0.590	0.390	1.102	0.236	60	M16x2	366014	**34.34**
BT40	PSC444X90	Y	0.590	0.390	1.102	0.236	90	M16x2	366016	**36.69**
BT40	PS477	N	0.740	0.490	0.552	0.236	45	M16X2	366018	**34.96**
BT40	PSC478	Y	0.740	0.490	0.440	0.120	45	M16x2	366020	**33.67**
BT40	PSC479	Y	0.740	0.490	0.552	0.120	45	M16x2	366022	**39.85**
BT40	GSC477	Y	0.740	0.490	0.552	0.236	45	M16x2	366024	**39.85**
BT40	PSC480X15	Y	0.748	0.551	0.900	0.157	15	M16x2	366026	**42.01**
BT40	PS534X45	N	0.590	0.390	0.990	0.236	45	M16x2	366028	**37.84**
BT40	PS554	N	0.594	0.406	1.250	0.187	45	M16x2	366030	**37.84**
BT40	PSC554	Y	0.594	0.406	1.250	0.187	45	M16x2	366032	**46.19**
CT40	GSC470X15	Y	0.748	0.551	0.787	0.157	15	5/8x11	366034	**25.90**
CT40	GS474	N	0.740	0.490	0.440	0.118	45	5/8x11	366036	**25.90**
CT40	GSC474	Y	0.740	0.490	0.440	0.118	45	5/8x11	366038	**25.90**
CT40	GSC475	Y	0.740	0.490	0.440	0.120	45	5/8x11	366040	**25.90**
CT40	GS475	N	0.740	0.490	0.440	0.120	45	5/8x11	366042	**25.90**
CT40	PS498	N	0.590	0.390	0.777	0.200	90	5/8x11	366044	**33.67**
CT40	PS531X45	N	0.590	0.390	1.000	0.236	45	5/8x11	366046	**28.78**
CT40	GS532X15	N	0.748	0.551	0.792	0.275	15	5/8x11	366048	**26.42**
CT40	GS532X45	N	0.590	0.390	0.990	0.236	45	5/8x11	366050	**25.90**
CT40	GS532X60	N	0.590	0.390	0.990	0.236	60	5/8x11	366052	**26.42**
CT40	GS532X90	N	0.590	0.390	0.990	0.236	90	5/8x11	366054	**26.42**
CT40	GSC532X15	Y	0.748	0.551	0.792	0.275	15	5/8x11	366056	**25.90**
CT40	GSC532X45	Y	0.590	0.390	0.990	0.236	45	5/8x11	366058	**25.90**
CT40	GSC532X60	Y	0.590	0.390	0.990	0.236	60	5/8x11	366060	**26.42**
CT40	GSC532X90	Y	0.590	0.390	0.990	0.236	90	5/8x11	366062	**26.42**
CT40	PS552	N	0.594	0.406	1.139	0.187	45	5/8x11	366064	**35.68**
CT40	PSC552	Y	0.594	0.406	1.139	0.187	45	5/8x11	366066	**44.17**
CT40	GS572X45	N	0.590	0.390	0.990	0.120	45	5/8x11	366068	**25.90**
CT40	PS572X60	N	0.590	0.390	0.990	0.120	60	5/8x11	366070	**37.55**
CT40	PS572X90	N	0.590	0.390	0.990	0.120	90	5/8x11	366072	**28.78**
CT40	PSC572X45	Y	0.590	0.390	0.990	0.120	45	5/8x11	366074	**35.11**
CT40	PSC572X60	Y	0.590	0.390	0.990	0.120	60	5/8x11	366076	**42.73**
CT40	PSC572X90	Y	0.590	0.390	0.990	0.120	90	5/8x11	366078	**28.78**
CT45	PSC375	Y	0.940	0.605	0.580	0.160	45	3/4x10	366080	**33.67**
BT50	PSC278	Y	1.140	0.820	0.700	0.200	45	M24x3	366082	**44.17**
BT50	GS446X45	N	0.906	0.669	1.378	0.394	45	M24x3	366084	**62.08**
BT50	PS446X60	N	0.906	0.669	1.378	0.394	60	M24x3	366086	**60.86**
BT50	PS446X90	N	0.906	0.669	1.378	0.394	90	M24x3	366088	**46.62**
BT50	GSC446X45	Y	0.906	0.669	1.378	0.394	45	M24x3	366090	**64.72**
CT50	GS275	N	1.140	0.820	0.700	0.200	45	1x8	366092	**33.02**
CT50	PSC274	Y	1.140	0.820	0.700	0.200	45	1x8	366094	**46.19**
CT50	GSC275	Y	1.140	0.820	0.700	0.200	45	1x8	366096	**32.37**
CT50	GS536X45	N	0.906	0.669	1.386	0.394	45	1x8	366098	**33.02**
CT50	GS536X60	N	0.906	0.669	1.386	0.394	60	1x8	366100	**32.37**
CT50	GS536X90	N	0.906	0.669	1.386	0.394	90	1x8	366102	**33.02**
CT50	GSC536X45	Y	0.906	0.669	1.386	0.394	45	1x8	366104	**32.37**
CT50	GSC536X60	Y	0.906	0.669	1.386	0.394	60	1x8	366106	**32.37**
CT50	GSC536X90	Y	0.906	0.669	1.386	0.394	90	1x8	366108	**32.37**

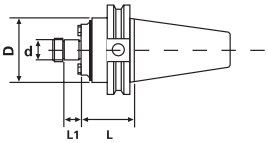
Shell Mill Holders & Milling Arbors

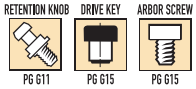
CAT40 Shell Mill Holders. G13
CAT40 Dual Contact Shell Mill Holders G13
CAT50 Shell Mill Holders. G13
CAT50 Dual Contact Shell Mill Holders G13
CAT50 Face Mill Holders. G14
BT Taper Shell Mill Holders. G14
HSK63 Shell Mill Holders G14
HSK100 Shell Mill Holders G14
NMTB Taper Shell Mill & Face Mill Holders G14
R8 Shell Mill Holders G14
Replacement Drive Keys & Arbor Screws G15
Shell End Mill Arbors For MT Spindles G15
STM Face Mill Holders G15
CAT & BT Taper Stub Arbors G15
Slitting Saw Arbor. G15
Milling Machine Arbors. G16
Arbor Spacers & Bushings With Keyways G16
Arbor Nuts G16

CAT40 Shell Mill Holders

- DIN coolant option - standard
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole



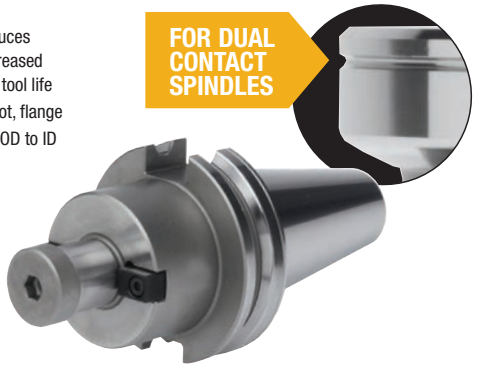


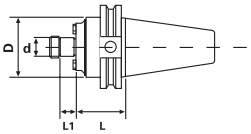


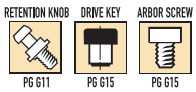
Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
CT40	1/2	1.75	1.38	0.57	1/4	1/4-28	531190	**207.78**
CT40	3/4	1.75	1.75	0.67	5/16	3/8-24	531192	**188.18**
CT40	3/4	4.00	1.75	0.67	5/16	3/8-24	531194	**252.21**
CT40	3/4	6.00	1.75	0.67	5/16	3/8-24	531195	**283.58**
CT40	1	1.75	2.38	0.67	3/8	1/2-20	531196	**188.18**
CT40	1	4.00	2.38	0.67	3/8	1/2-20	531198	**252.21**
CT40	1	6.00	2.38	0.67	3/8	1/2-20	531199	**283.58**
CT40	1-1/4	2.00	2.88	0.67	1/2	5/8-18	531200	**199.94**
CT40	1-1/4	4.00	2.88	0.67	1/2	5/8-18	531202	**283.58**
CT40	1-1/4	6.00	2.88	0.67	1/2	5/8-18	531203	**291.42**
CT40	1-1/2	2.00	3.80	0.93	5/8	3/4-16	531204	**220.85**
CT40	1-1/2	4.00	3.80	0.93	5/8	3/4-16	531206	**316.25**

CAT40 DUAL CONTACT Shell Mill Holders

- DIN coolant through the flange option - Standard
- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole





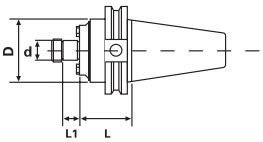


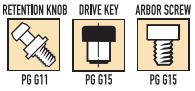
Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
CT40	3/4	1.75	1.75	0.67	5/16	3/8-24	521192	**225.52**
CT40	3/4	4.00	1.75	0.67	5/16	3/8-24	521194	**327.62**
CT40	3/4	6.00	1.75	0.67	5/16	3/8-24	521195	**365.77**
CT40	1	1.75	2.38	0.67	3/8	1/2-20	521196	**230.01**
CT40	1	4.00	2.38	0.67	3/8	1/2-20	521198	**327.62**
CT40	1	6.00	2.38	0.67	3/8	1/2-20	521199	**371.38**
CT40	1-1/4	2.00	2.88	0.67	1/2	5/8-18	521200	**246.84**
CT40	1-1/4	4.00	2.88	0.67	1/2	5/8-18	521202	**381.48**
CT40	1-1/2	2.00	3.80	0.93	5/8	3/4-16	521204	**269.28**
CT40	1-1/2	4.00	3.80	0.93	5/8	3/4-16	521206	**403.92**

CAT50 Shell Mill Holders

- DIN coolant option - Standard
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole



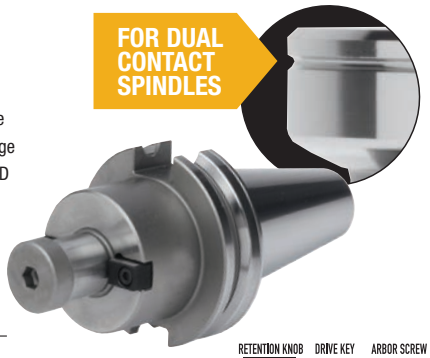


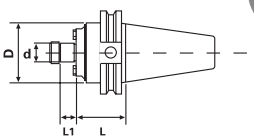


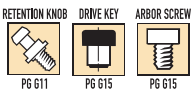
Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
CT50	3/4	1.75	2.00	0.67	5/16	3/8-24	531208	**224.77**
CT50	3/4	4.00	2.00	0.67	5/16	3/8-24	531210	**291.42**
CT50	3/4	6.00	2.00	0.67	5/16	3/8-24	531212	**373.74**
CT50	3/4	8.00	2.00	0.67	5/16	3/8-24	531214	**463.91**
CT50	1	1.75	2.75	0.69	3/8	1/2-20	531216	**233.92**
CT50	1	4.00	2.75	0.69	3/8	1/2-20	531218	**316.25**
CT50	1	6.00	2.75	0.69	3/8	1/2-20	531220	**406.41**
CT50	1	8.00	2.75	0.69	3/8	1/2-20	531222	**463.91**
CT50	1-1/4	1.75	2.88	0.69	1/2	5/8-18	531224	**266.59**
CT50	1-1/4	4.00	2.88	0.69	1/2	5/8-18	531226	**316.25**
CT50	1-1/4	6.00	2.88	0.69	1/2	5/8-18	531228	**406.41**
CT50	1-1/4	8.00	2.88	0.69	1/2	5/8-18	531230	**495.28**
CT50	1-1/2	2.00	3.80	0.93	5/8	3/4-16	531232	**266.59**
CT50	1-1/2	4.00	3.80	0.93	5/8	3/4-16	531234	**316.25**
CT50	1-1/2	6.00	3.80	0.93	5/8	3/4-16	531236	**406.41**
CT50	1-1/2	8.00	3.80	0.93	5/8	3/4-16	531238	**529.25**
CT50	2	2.00	4.38	0.93	3/4	1-14	531240	**334.54**
CT50	2	4.00	4.38	0.93	3/4	1-14	531242	**597.21**
CT50	2	6.00	4.38	0.93	3/4	1-14	531244	**718.74**

CAT50 DUAL CONTACT Shell Mill Holders

- DIN Coolant through the flange option - Standard
- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole





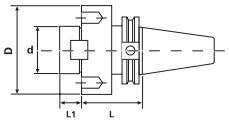


Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
CT50	3/4	1.75	2.00	0.67	5/16	3/8-24	521208	**298.45**
CT50	3/4	4.00	2.00	0.67	5/16	3/8-24	521210	**376.99**
CT50	3/4	6.00	2.00	0.67	5/16	3/8-24	521212	**471.24**
CT50	1	1.75	2.75	0.69	3/8	1/2-20	521216	**273.77**
CT50	1	4.00	2.75	0.69	3/8	1/2-20	521218	**403.92**
CT50	1	6.00	2.75	0.69	3/8	1/2-20	521220	**504.90**
CT50	1	8.00	2.75	0.69	3/8	1/2-20	521222	**626.08**
CT50	1-1/4	1.75	2.88	0.69	1/2	5/8-18	521224	**273.77**
CT50	1-1/4	4.00	2.88	0.69	1/2	5/8-18	521226	**403.92**
CT50	1-1/4	6.00	2.88	0.69	1/2	5/8-18	521228	**504.90**
CT50	1-1/4	8.00	2.88	0.69	1/2	5/8-18	521230	**626.08**
CT50	1-1/2	2.00	3.80	0.93	5/8	3/4-16	521232	**298.45**
CT50	1-1/2	4.00	3.80	0.93	5/8	3/4-16	521234	**403.92**
CT50	1-1/2	6.00	3.80	0.93	5/8	3/4-16	521236	**504.90**
CT50	1-1/2	8.00	3.80	0.93	5/8	3/4-16	521238	**626.08**
CT50	2	2.00	4.38	0.93	3/4	1-14	521240	**512.75**
CT50	2	4.00	4.38	0.93	3/4	1-14	521242	**721.45**

CAT50 Face Mill Holders

- All ground body
- 4 bolts, 5/8-11
- 4" bolt circle
- AT2 Taper Accuracy
- RFID chip hole



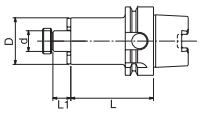


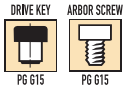
Taper	d	L	D	L1	Key Size	Code No.	Price $
CT50	2	2.95	5.06	0.86	3/4	531246	**382.37**
CT50	2-1/2	2.95	5.00	1.18	1	531248	**393.69**

HSK63A Shell Mill Holders

- High rigidity and torque transmission
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel
- AT2 Taper Accuracy
- RFID chip hole





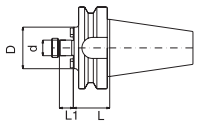


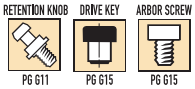
Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
HSK63A	3/4	3.00	1.693	0.669	5/16	3/8-24	536082	**555.39**
HSK63A	3/4	5.00	1.693	0.669	5/16	3/8-24	536084	**555.39**
HSK63A	1	3.00	2.165	0.669	3/8	1/2-20	536086	**555.39**
HSK63A	1	5.00	2.165	0.669	3/8	1/2-20	536088	**555.39**
HSK63A	1-1/4	3.00	2.756	0.669	1/2	5/8-18	536090	**555.39**
HSK63A	1-1/4	5.00	2.756	0.669	1/2	5/8-18	536092	**555.39**

BT Taper Shell Mill Holders

- DIN coolant option - standard
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole







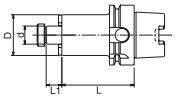
Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
BT30								
BT30	1/2	1.19	1.38	0.57	1/4	1/4-28	532080‡	**203.86**
BT30	3/4	1.19	2.00	0.67	5/16	3/8-24	532082‡	**184.26**
BT30	1	1.77	2.38	0.69	3/8	1/2-20	532084‡	**160.74**
BT40								
BT40	1/2	1.75	1.38	0.57	1/4	1/4-28	532086	**228.69**
BT40	3/4	1.75	1.75	0.67	5/16	3/8-24	532088	**216.93**
BT40	3/4	4.00	1.75	0.67	5/16	3/8-24	532111	**260.05**
BT40	3/4	6.00	1.75	0.67	5/16	3/8-24	532114	**359.37**
BT40	1	1.75	2.38	0.67	3/8	1/2-20	532090	**216.93**
BT40	1	4.00	2.38	0.67	3/8	1/2-20	532115	**243.06**
BT40	1	6.00	2.38	0.67	3/8	1/2-20	532117	**313.63**
BT40	1-1/4	2.00	2.88	0.67	1/2	5/8-18	532092	**267.89**
BT40	1-1/4	4.00	2.88	0.67	1/2	5/8-18	532119	**342.38**
BT40	1-1/4	6.00	2.88	0.67	1/2	5/8-18	532121	**352.84**
BT40	1-1/2	2.00	3.80	0.92	5/8	3/4-16	532094	**342.38**
BT50								
BT50	1	1.75	2.75	0.69	3/8	1/2-20	532101	**435.16**
BT50	1-1/4	1.75	2.88	0.69	1/2	5/8-18	532103	**435.16**
BT50	1-1/2	1.75	3.80	0.92	5/8	3/4-16	532105	**365.90**
BT50	2	1.75	4.38	0.92	3/4	1-14	532107	**524.03**

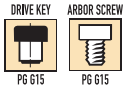
‡ Not DIN Coolant

HSK100A Shell Mill Holders

- High rigidity and torque transmission
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel
- AT2 Taper Accuracy
- RFID chip hole





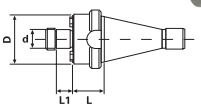


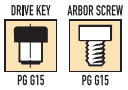
Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
HSK100A	3/4	4.00	1.693	0.669	5/16	3/8-24	536094	**646.87**
HSK100A	3/4	6.00	1.693	0.669	5/16	3/8-24	536096	**693.91**
HSK100A	1	4.00	2.165	0.669	3/8	1/2-20	536098	**646.87**
HSK100A	1	6.00	2.165	0.669	3/8	1/2-20	536100	**693.91**
HSK100A	1-1/2	4.00	3.504	0.902	5/8	3/4-16	536106	**671.70**
HSK100A	1-1/2	6.00	3.504	0.902	5/8	3/4-16	536108	**751.41**

NMTB Taper Shell Mill Holders

- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel





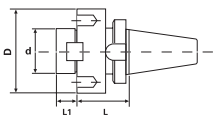


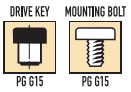
Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
NMTB40								
NMTB40	1/2	0.87	1.38	0.57	1/4	1/4-28	534130	**191.86**
NMTB40	3/4	0.87	1.94	0.67	5/16	3/8-24	534132	**191.86**
NMTB40	1	1.31	2.38	0.67	3/8	1/2-20	534134	**191.86**
NMTB40	1-1/4	1.50	2.88	0.67	1/2	5/8-18	534136	**191.86**
NMTB40	1-1/2	1.63	3.50	0.93	5/8	3/4-16	534138	**191.86**
NMTB50								
NMTB50	3/4	1.25	2.00	0.67	5/16	3/8-24	534140	**241.57**
NMTB50	1	1.88	2.38	0.67	3/8	1/2-20	534142	**248.81**
NMTB50	1-1/4	1.88	2.88	0.67	1/2	5/8-18	534144	**253.50**
NMTB50	1-1/2	1.88	3.50	0.93	5/8	3/4-16	534146	**278.59**
NMTB50	2	1.88	4.38	0.93	3/4	1-14	534148	**281.15**

NMTB50 Taper Face Mill Holders

- All ground body
- 4 bolts, 5/8-11
- 4" bolt circle





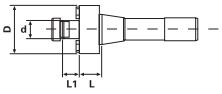


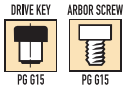
Taper	d	L	D	L1	Key Size	Code No.	Price $
NMTB50	2-1/2	3.00	5.00	1.18	1	534152	**281.15**

R8 Shell Mill Holders

- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel







Taper	d	L	D	L1	Key Size	Arbor Thread	Code No.	Price $
R8	1/2	1.00	1.38	0.57	1/4	1/4-28	534154	**115.12**
R8	3/4	1.00	2.00	0.69	5/16	3/8-24	534156	**115.12**
R8	1	1.00	2.38	0.69	3/8	1/2-20	534158	**120.40**
R8	1-1/4	1.00	2.88	0.69	1/2	5/8-18	534160	**123.58**
R8	1-1/2	1.75	3.50	0.94	5/8	3/4-16	534162	**138.09**

Replacement Drive Keys



Spigot Dia.	Description	Code No.	Price $
1/2	Two 1/4 Drive keys	534164	**19.03**
3/4	Two 5/16	534166	**23.27**
1	Two 3/8	534168	**27.50**
1-1/4	Two 1/2	534170	**30.37**
1-1/2	Two 5/8	534172	**32.93**
2	Two 3/4	534174	**40.49**
2-1/2	Two 1	534176	**34.75**

Replacement Arbor Screws

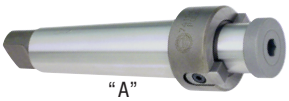


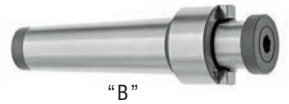
Thread Size	Size of Holder	Code No.	Price $
5/8-11	Face Mill Mounting Bolt	534178	**17.82**
1/4-28	1/2	534180	**17.82**
3/8-24	3/4	534182	**19.33**
1/2-20	1	534184	**21.46**
5/8-18	1-1/4	534186	**24.32**
3/4-16	1-1/2	534188	**39.13**
1-14	2	534190	**55.44**

Shell End Mill Arbors For Morse Taper Spindles

Style "B" with Draw Bar End
Style "A" with Tang End
Machined from one piece forgings, hardened and precisely ground; hardness 52-56 HRC. Maximum misalignment of taper in shank, in which the tool is fixed: 0.0006". The drive keys are pressed in.

- Draw bar threads for #4 MT: 1/2"-13
- Draw bar threads for #5 MT: 5/8"-11


"A"

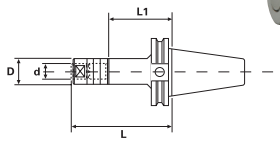

"B"

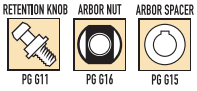
Draw Bar Arbor No.	M.T.	For Bore Dia.	Dia. for Range of Shell End Mill	Style "B" Draw Bar End Code No.	Price $	Style "A" Tang End Code No.	Price $
MT4–1/2	4	1/2	1-1/4 to 1-1/2	410405	**286.33**	410305	**366.64**
MT4–3/4	4	3/4	1-3/4 to 2	410410	**301.50**	410310	**371.87**
MT4–1	4	1	2-1/4 to 2-3/4		-	410315	**397.10**
MT4–1-1/4	4	1-1/4	3 to 3-1/2		-	410320	**449.15**
MT4–1-1/2	4	1-1/2	4 to 5		-	410325	**472.68**
MT5–1-1/4	5	1-1/4	3 to 3-1/2	410435	**414.69**	410335	**470.62**
MT5–1-1/2	5	1-1/2	4 to 5		-	410340	**502.53**

CAT Taper Stub Arbors

- Each arbor equipped with 1/8, 1/4, 3/8, 1/2 spacers



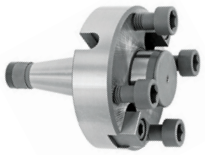


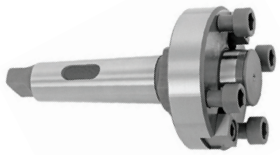


Taper	d	L	D	L1	Code No.	Price $
CAT40						
CT40	1	6.17	1.50	4.00	531580	**215.58**
CT40	1-1/4	6.29	1.75	4.00	531582	**220.26**
CT40	1-1/2	6.60	2.12	4.00	531584	**226.92**
CAT50						
CT50	1	6.17	1.50	4.00	531586	**321.18**
CT50	1-1/4	6.28	1.75	4.00	531588	**327.83**
CT50	1-1/2	6.60	2.12	4.00	531590	**337.66**

Face Mill Holders

Made of selected steel, hardened and precision ground
- These holders have 4 mounting holes and bolts with 5/8-11 threads on a 4" bolt circle





Taper	Fore Bore Dia.	Length of Arbor	Screw Size	Code No.	Price $
ISA40	2	6.20	5/8-11	410190	**1,072.27**
ISA40	2-1/2	6.20	5/8-11	410192	**1,064.02**
ISA50	2	7.56	5/8-11	410194	**1,207.67**
ISA50	2-1/2	7.56	5/8-11	410196	**1,199.66**
MT 5	2	9.57	5/8-11	410202	**1,779.35**
MT 5	2-1/2	9.57	5/8-11	410204	**1,772.20**
MT 6	2	13.58	5/8-11	410206	**2,223.64**
MT 6	2-1/2	13.58	5/8-11	410208	**2,216.49**

Replacement Stub Arbor Spacers



Description	Code No.	Price $
1/8" Spacer for 3/4" Holder	534568	**13.60**
1/4" Spacer for 3/4" Holder	534570	**13.60**
3/8" Spacer for 3/4" Holder	534572	**13.60**
1/2" Spacer for 3/4" Holder	534574	**13.60**
1/8" Spacer for 1" Holder	534576	**13.90**
3/8" Spacer for 1" Holder	534580	**13.90**
1/8" Spacer for 1-1/4" Holder	534584	**15.11**
3/8" Spacer for 1-1/4" Holder	534588	**15.11**
1/8" Spacer for 1-1/2" Holder	534592	**15.72**
3/8" Spacer for 1-1/2" Holder	534596	**15.72**
1/2" Spacer for 1-1/2" Holder	534598	**15.72**

Slitting Saw Arbor



Diameter of Arbor (in.)	Length (in.)	Fits Following Hole Size (in.)	Code No.	Price $
1/2	2-9/16	1/2, 5/8, 3/4, 7/8, 1	400150	**103.61**

R8 Stub Milling Machine Arbor

To fit Bridgeport and other popular machines. Furnished complete with assorted spacers.



Arbor No.	Arbor Dia. (in.)	Length of Shoulder to Nut (in.)	Thread of Nut	Code No.	Price $
R8S1	1	2	1 - 14	400350	**513.82**

Milling Machine Arbors

For 30-40-50 National Standard Taper Spindles

Milling Machine Arbors are made of top quality one piece forgings. Carefully heat treated and surfaces ground with extremely narrow tolerances assure a rigid setup and accurate machining operations. All threads are ground. Arbors are equipped with assorted width solid spacers and necessary running bushings with standard keyways and threaded arbor nut.

Drawbar Threads for #30 Taper - 1/2" - 13
Drawbar Threads for #40 Taper - 5/8" - 11
Drawbar Threads for #50 Taper - 1" - 8

* Style A



Style B



Arbor No.	Taper	Arbor Dia. (in.)	Length of Shoulder to Nut (in.)	Dimensions of Running Bushing Dia. x L (in.)	Bushing Furnished	Code No.	Price $
31-B2	30	1	2	None	None	400205	**795.29**
41-A8	40	1	8	None	None	400030*	**1,081.38**
40-7/8-B14-3	40	7/8	14	1-7/8 x 3-1/8	1	400210	**1,060.62**
40-7/8-B16-3	40	7/8	16	1-7/8 x 3-1/8	1	400215	**1,494.00**
41-B3	40	1	3	None	None	400220	**763.99**
41-B14-3	40	1	14	1-7/8 x 3-1/8	1	400225	**1,692.37**
41-B20-3	40	1	20	1-7/8 x 3-1/8	1	400230	**1,908.93**
41-1/4-B3	40	1-1/4	3	None	None	400235	**820.53**
41-1/4-B14-3	40	1-1/4	14	1-7/8 x 3-1/8	1	400240	**1,679.14**
41-1/4-B20-3	40	1-1/4	20	1-7/8 x 3-1/8	1	400245	**2,056.83**
41-1/2-B20-4	40	1-1/2	20	2-1/8 x 3-3/4	1	400250	**2,592.47**
51-B3-1/2	50	1	3-1/2	None	None	400255	**910.06**
51-B15-4	50	1	15	2-1/8 x 3-3/4	1	400260	**1,679.14**
51-B18-4	50	1	18	2-1/8 x 3-3/4	2	400265	**2,058.53**
51-B24-4	50	1	24	2-1/8 x 3-3/4	2	400270	**2,414.49**
51-1/4-B3-1/2	50	1-1/4	3-1/2	None	None	400275	**1,106.85**
51-1/4-B15-4	50	1-1/4	15	2-1/8 x 3-3/4	1	400280	**2,084.25**
51-1/4-B18-4	50	1-1/4	18	2-1/8 x 3-3/4	2	400285	**2,213.34**
51-1/4-B24-4	50	1-1/4	24	2-1/8 x 3-3/4	2	400290	**2,569.30**
51-1/4-B30-4	50	1-1/4	30	2-1/8 x 3-3/4	2	400295	**3,229.31**
51-1/2-B3-1/2	50	1-1/2	3-1/2	None	None	400300	**1,132.93**
51-1/2-B18-4	50	1-1/2	18	2-1/8 x 3-3/4	2	400305	**2,391.44**
51-1/2-B24-5	50	1-1/2	24	2-3/4 x 4-1/4	2	400310	**2,847.74**
51-1/2-B30-5	50	1-1/2	30	2-3/4 x 4-1/4	2	400315	**3,472.08**
51-1/2-B36-5	50	1-1/2	36	2-3/4 x 4-1/4	2	400320	**2,438.88**
52-B24-5	50	2	24	2-3/4 x 4-1/4	2	400325	**3,459.22**
52-B30-5	50	2	30	2-3/4 x 4-1/4	2	400330	**3,827.93**
52-B36-5	50	2	36	2-3/4 x 4-1/4	2	400335	**3,737.54**
52-1/2 - B36-6	50	2-1/2	36	3-3/8 x 4-1/4	2	400340	**5,746.92**

* Style A

Arbor Running Bushings With Keyways

Standard keyways on bushing allow fixed mounting on arbor and prevent rotation.



Bushing No.	Bushing O.D.	Hole Dia.	Bushing Length	Code No.	Price $
2 - 7/8	1-5/8	7/8	2-5/8	400900	**125.45**
2 - 1	1-5/8	1	2-5/8	400905	**131.89**
2 - 1-1/4	1-7/8	1-1/4	2-5/8	400910	**158.82**
3 - 1	1-7/8	1	3-1/8	400920	**165.37**
3 - 1-1/4	1-7/8	1-1/4	3-1/8	400925	**175.08**
4 - 7/8	2-1/8	7/8	3-3/4	400930	**210.13**
4 - 1	2 -1/8	1	3-3/4	400935	**187.57**
4 - 1-1/4	2-1/8	1-1/4	3-3/4	400940	**187.33**
4 - 1-1/2	2-1/8	1-1/2	3-3/4	400945	**190.61**
5 - 1	2-3/4	1	4-1/4	400955	**233.56**
5 - 1-1/4	2-3/4	1-1/4	4-1/4	400960	**230.40**
5 - 1-1/2	2-3/4	1-1/2	4-1/4	400965	**246.90**
5 - 2	2-3/4	2	4-1/4	400970	**238.52**

Arbor Nuts

Arbor nuts are hardened and have a ground thread and shoulder.



Thread Size	For Arbor Diameter	Code No.	Price $
7/8 - 14RH	7/8	405105	**99.73**
1 - 14RH	1	405110	**124.96**
1-1/4 - 12RH	1-1/4	405115	**142.32**
1-1/2 - 12RH	1-1/2	405120	**246.29**
2 - 12RH	2	405125	**341.41**
2-1/2 - 12RH	2-1/2	405130	**495.73**

Arbor Solid Spacers With Keyways

Spacers are hardened and have parallel and perpendicular surfaces precisely ground to ensure precise operation of cutters on milling machine arbors.



400585 Width of Spacer	7/8" Hole 1-3/8" O.D. Code No.	Price $	1" Hole 1-1/2" O.D. Code No.	Price $	1-1/4" Hole 1-3/4" O.D. Code No.	Price $	1-1/2" Hole 2-1/8" O.D. Code No.	Price $	2" Hole 2-3/4" O.D Code No.	Price $
1/16	400405	**34.94**	400490	**35.80**	400575	**34.70**	400660	**45.02**	400745	**22.45**
3/32	400410	**34.10**	400495	**36.64**		**-**	400665	**45.74**	400750	**22.45**
1/8	400415	**37.01**	400500	**37.37**	400585	**36.77**	400670	**47.07**	400755	**62.12**
3/16	400420	**36.52**	400505	**39.68**	400590	**38.82**	400675	**50.11**	400760	**66.13**
1/4	400425	**39.79**	400510	**43.43**	400595	**44.53**	400680	**53.51**	400765	**70.37**
5/16	-	**-**	400515	**45.02**	400600	**45.74**	400685	**55.69**	400770	**82.02**
3/8	400435	**43.08**	400520	**46.72**	400605	**48.17**	400690	**58.24**	400775	**77.29**
7/16	400440	**49.74**	-	**-**	400610	**55.45**	400695	**67.10**	-	**-**
1/2	400445	**45.74**	400530	**49.99**	400615	**51.08**	400700	**62.12**	400785	**84.93**
5/8	400450	**48.66**	400535	**52.66**	400620	**54.35**	-	**-**	400790	**70.50**
3/4	400455	**57.02**	400540	**59.93**	400625	**62.85**	400710	**73.28**	400795	**99.61**
7/8	400460	**66.37**	400545	**69.77**	400630	**62.97**	-	**-**	400800	**83.60**
1	400465	**61.39**	400550	**63.09**	400635	**67.94**	400720	**81.05**	400805	**112.10**
1-1/4	400470	**76.56**	400555	**76.32**	400640	**80.56**	400725	**89.30**	400810	**140.25**
1-1/2	400475	**81.41**	-	**-**	400645	**79.23**	400730	**48.53**	400815	**108.59**
2	400480	**83.11**	400565	**89.54**	400650	**98.03**	400735	**129.09**	400820	**166.83**
3	400485	**48.53**	400570	**122.78**	400655	**119.38**	400740	**174.22**	400825	**203.71**



Collet Chucks

ER Collet Chucks - CAT, BT, HSK, NMTB & R8 Taper G18-21
Dual Contact ER Collet Chucks G18-19
ER Collet Chuck Extensions G21
ER Collets G22-32
ER Collet Chuck Sets G23
ER Collet Sets G31-32
ER Chuck Nuts, Wrenches, Backup Screws G32
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SA Collets G33-34
TG Collet Chucks G34-35
TG 75, 100, 150 Collets & Sets G35-37
TG Chuck Nuts, Wrenches, Backup Screws G38
Milling Chucks G38-39
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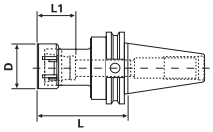
Shrink Fit Tooling

Introduction to GS Shrink Fit Tooling G43
CAT40 Shrink Fit Holders G44
CAT50 Shrink Fit Holders G44
BT30 Shrink Fit Holders G45
BT40 Shrink Fit Holders G45
HSK63 Shrink Fit Holders G46
HSK100 Shrink Fit Holders G46

CAT40 ER Collet Chucks

- DIN coolant option - standard
- All ground body
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0003" at 4xDia.
- RFID Chip Hole
- Wrench not included
- AT2 Taper Accuracy







PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED

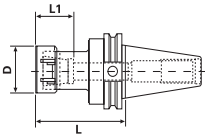
Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT40	ER11**	0.019-0.275	2.50	0.65	0.75	29.8	531400	**239.14**
CT40	ER11**	0.019-0.275	4.00	0.65	0.75	29.8	531402	**239.14**
CT40	ER11**	0.019-0.275	6.00	0.65	0.75	29.8	531404	**313.63**
CT40	ER16**	0.019-0.406	2.50	0.87	1.26	56.9	531406	**239.14**
CT40	ER16**	0.019-0.406	3.50	0.87	1.26	56.9	531408	**241.76**
CT40	ER16**	0.019-0.406	4.00	0.87	1.26	56.9	531405	**241.76**
CT40	ER16**	0.019-0.406	6.00	0.87	1.26	56.9	531410	**267.89**
CT40	ER16**	0.019-0.406	9.00	0.87	1.26	56.9	531411	**299.26**
CT40	ER20**	0.039-0.511	2.50	1.06	1.38	81.3	531412	**239.14**
CT40	ER20**	0.039-0.511	4.00	1.06	1.38	81.3	531414	**241.76**
CT40	ER20**	0.039-0.511	6.00	1.06	1.38	81.3	531416	**278.35**
CT40	ER20**	0.039-0.511	9.00	1.06	1.38	81.3	531417	**367.21**
CT40	ER25	0.039-0.629	2.50	1.18	1.65	128.8	531418	**239.14**
CT40	ER25	0.039-0.629	4.00	1.18	1.65	128.8	531420	**260.05**
CT40	ER25	0.039-0.629	6.00	1.18	1.65	128.8	531422	**267.89**
CT40	**ER32**	**0.078-0.787**	**0.750**				**531401***	**211.70**
CT40	ER32	0.078-0.787	2.50	1.34	1.97	169.5	531421	**257.44**
CT40	ER32	0.078-0.787	3.13	1.34	1.97	169.5	531424	**257.44**
CT40	ER32	0.078-0.787	4.00	1.34	1.97	169.5	531423	**257.44**
CT40	ER32	0.078-0.787	5.00	1.34	1.97	169.5	531426	**290.11**
CT40	ER32	0.078-0.787	6.00	1.34	1.97	169.5	531425	**290.11**
CT40	ER32	0.078-0.787	9.00	1.34	1.97	169.5	531419	**324.09**
CT40	ER40	0.118-1.023	2.50	1.50	2.48	219.6	531427	**267.89**
CT40	ER40	0.118-1.023	3.13	1.50	2.48	219.6	531428	**267.89**
CT40	ER40	0.118-1.023	4.00	1.50	2.48	219.6	531429	**260.05**
CT40	ER40	0.118-1.023	5.00	1.50	2.48	219.6	531430	**316.25**
CT40	ER40	0.118-1.023	6.00	1.50	2.48		531431	**316.25**

* ER Shorty collet chuck, Not DIN coolant ** Hex Nut

CAT40 DUAL CONTACT ER Collet Chucks

- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- DIN coolant option - standard
- All ground body
- TIR, 0.0003" at 4xDia.
- AT2 Taper Accuracy
- RFID Chip Hole







PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED

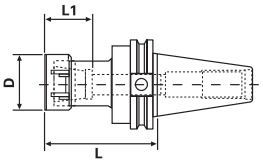
Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT40	ER11**	0.019-0.275	2.50	0.65	0.75	29.8	521630	**299.57**
CT40	ER11**	0.019-0.275	4.00	0.65	0.75	29.8	521632	**308.55**
CT40	ER11**	0.019-0.275	6.00	0.65	0.75	29.8	521634	**332.11**
CT40	ER16**	0.019-0.406	2.50	0.87	1.26	56.9	521406	**299.57**
CT40	ER16**	0.019-0.406	4.00	0.87	1.26	56.9	521405	**256.94**
CT40	ER16**	0.019-0.406	6.00	0.87	1.26	56.9	521410	**332.11**
CT40	ER20**	0.039-0.511	4.00	1.06	1.38	81.3	521646	**295.09**
CT40	ER32	0.078-0.787	2.50	1.34	1.97	169.5	521656	**322.01**
CT40	ER32	0.078-0.787	3.13	1.34	1.97	169.5	521424	**322.01**
CT40	ER32	0.078-0.787	4.00	1.34	1.97	169.5	521423	**308.55**
CT40	ER32	0.078-0.787	6.00	1.34	1.97	169.5	521425	**317.53**
CT40	ER40	0.118-1.023	2.50	1.50	2.48	219.6	521666	**313.04**

** Hex Nut

STM CAT40 ER Collet Chucks

- DIN coolant option - standard
- Factory balanced to save spindle life, tool life and increased productivity
- TIR, 0.0002" at 4xDia.
- Wrench not included
- AT2 Taper Accuracy
- RFID Chip Hole





BALANCE CERTIFICATE
G2.5 at 20,000rpm
INCLUDED

Taper	Collet Series	Collet Range	L	L1	D	Code No.	Price $
CT40	ER11*	0.019-0.275"	2.50"	0.65"	0.75"	525400	**79.00**
CT40	ER11*	0.019-0.275"	4.00"	0.65"	0.75"	525402	**85.00**
CT40	ER11*	0.019-0.275"	6.00"	0.65"	0.75"	525404	**107.00**
CT40	ER16*	0.019-0.413"	2.50"	0.87"	1.26"	525406	**79.00**
CT40	ER16*	0.019-0.413"	3.50"	0.87"	1.26"	525408	**85.00**
CT40	ER16*	0.019-0.413"	4.00"	0.87"	1.26"	525405	**85.00**
CT40	ER16*	0.019-0.413"	6.00"	0.87"	1.26"	525410	**107.00**
CT40	ER20*	0.019-0.551"	2.50"	1.06"	1.38"	525412	**79.00**
CT40	ER20*	0.019-0.551"	4.00"	1.06"	1.38"	525414	**85.00**
CT40	ER20*	0.019-0.551"	6.00"	1.06"	1.38"	525416	**107.00**
CT40	ER25	0.059-0.675"	2.50"	1.18"	1.65"	525418	**79.00**
CT40	ER25	0.059-0.675"	4.00"	1.18"	1.65"	525420	**85.00**
CT40	ER32	0.078-0.787"	2.50"	1.34"	1.97"	525421	**79.00**
CT40	ER32	0.078-0.787"	3.13"	1.34"	1.97"	525424	**79.00**
CT40	ER32	0.078-0.787"	4.00"	1.34"	1.97"	525423	**85.00**
CT40	ER32	0.078-0.787"	6.00"	1.34"	1.97"	525425	**107.00**

* Hex Nut



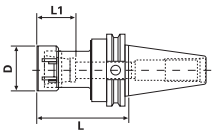
Grab a Tool Trolley with 4 Tool Trays and Inserts for all your Holders.

See Page G90

CAT50 ER Collet Chucks

- DIN coolant option - standard
- All ground body
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0003" at 4xDia.
- Wrench not included
- AT2 Taper Accuracy
- RFID Chip Hole







PREMIUM BALANCE
G2.5 at 25,000rpm
CERTIFICATE INCLUDED

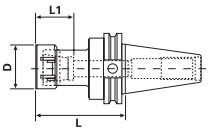
Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT50	ER16**	0.019-0.406	4.12	0.87	1.26	56.9	531432	**291.42**
CT50	ER16**	0.019-0.406	6.00	0.87	1.26	56.9	531434	**316.25**
CT50	ER16**	0.019-0.406	8.00	0.87	1.26	56.9	531436	**416.87**
CT50	ER16**	0.019-0.406	12.00	0.87	1.26	56.9	531437	**764.48**
CT50	ER20**	0.039-0.511	2.50	1.06	1.38	81.3	531438	**299.26**
CT50	ER20**	0.039-0.511	4.00	1.06	1.38	81.3	531440	**299.26**
CT50	ER20**	0.039-0.511	6.00	1.06	1.38	81.3	531442	**299.26**
CT50	ER20**	0.039-0.511	8.00	1.06	1.38	81.3	531444	**416.87**
CT50	ER20**	0.039-0.511	12.00	1.06	1.38	81.3	531445	**764.48**
CT50	ER25	0.039-0.629	2.50	1.18	1.65	128.8	531446	**283.58**
CT50	ER25	0.039-0.629	4.00	1.18	1.65	128.8	531448	**283.58**
CT50	ER25	0.039-0.629	6.00	1.18	1.65	128.8	531450	**314.94**
CT50	ER25	0.039-0.629	8.00	1.18	1.65	128.8	531452	**416.87**
CT50	**ER32**	**0.078-0.787**	**0.750**				**531403***	**274.43**
CT50	ER32	0.078-0.787	4.00	1.34	1.97	169.5	531454	**283.58**
CT50	ER32	0.078-0.787	6.00	1.34	1.97	169.5	531456	**331.93**
CT50	ER32	0.078-0.787	8.00	1.34	1.97	169.5	531458	**373.74**
CT50	ER32	0.078-0.787	12.00	1.34	1.97	169.5	531459	**764.48**
CT50	ER40	0.118-1.023	4.00	1.50	2.48	219.6	531460	**299.26**
CT50	ER40	0.118-1.023	6.00	1.50	2.48	219.6	531462	**348.92**
CT50	ER40	0.118-1.023	8.00	1.50	2.48	219.6	531464	**429.94**

* ER Shorty collet chuck, Not DIN coolant ** Hex Nut

CAT50 DUAL CONTACT ER Collet Chucks

- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- DIN coolant option - standard
- All ground body
- TIR, 0.0003" at 4xDia.
- AT2 Taper Accuracy
- RFID Chip Hole







PREMIUM BALANCE
G2.5 at 25,000rpm
CERTIFICATE INCLUDED

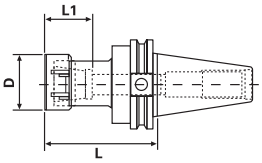
Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT50	ER16**	0.019-0.406	4.12	0.87	1.26	56.9	521432	**419.63**
CT50	ER16**	0.019-0.406	6.00	0.87	1.26	56.9	521434	**438.70**
CT50	ER16**	0.019-0.406	8.00	0.87	1.26	56.9	521436	**506.02**
CT50	ER32	0.078-0.787	4.00	1.34	1.97	169.5	521454	**411.77**
CT50	ER32	0.078-0.787	6.00	1.34	1.97	169.5	521456	**499.29**
CT50	ER32	0.078-0.787	8.00	1.34	1.97	169.5	521458	**481.34**

** Hex Nut

STM CAT50 ER Collet Chucks

- DIN coolant option - standard
- Factory balanced to save spindle life, tool life and increased productivity
- TIR, 0.0002" at 4xDia.
- Wrench not included
- AT2 Taper Accuracy
- RFID Chip Hole





BALANCE CERTIFICATE
G2.5 at 15,000rpm
INCLUDED

Taper	Collet Series	Collet Range	L	L1	D	Code No.	Price $
CT50	ER16*	0.019-0.413"	4.12"	0.87"	1.26"	525432	**112.00**
CT50	ER16*	0.019-0.413"	6.00"	0.87"	1.26"	525434	**135.00**
CT50	ER20*	0.019-0.551"	4.00"	1.06"	1.38"	525440	**112.00**
CT50	ER20*	0.019-0.551"	6.00"	1.06"	1.38"	525442	**135.00**
CT50	ER32	0.078-0.787"	4.00"	1.34"	1.97"	525454	**112.00**
CT50	ER32	0.078-0.787"	6.00"	1.34"	1.97"	525456	**135.00**

* Hex Nut

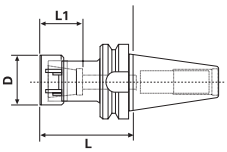


From simple to delux, we have a Tool Setting Stand to suit your needs.

See Page G91

BT Taper ER Collet Chucks

- DIN coolant option - standard
- All ground body
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- Wrench not included
- AT2 Taper Accuracy
- RFID Chip Hole





RETENTION KNOB PG G11 | NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

PREMIUM BALANCE G2.5 at 30,000rpm CERTIFICATE INCLUDED — BT30 & BT40

PREMIUM BALANCE G2.5 at 25,000rpm CERTIFICATE INCLUDED — BT50

Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
BT30								
BT30	ER11**	0.019-0.275	2.00	0.65	0.75	29.8	532150*	**207.78**
BT30	ER11**	0.019-0.275	4.00	0.65	0.75	29.8	532152*	**210.39**
BT30	ER16**	0.019-0.406	2.36	0.87	1.26	56.9	532154*	**207.78**
BT30	ER16**	0.019-0.406	4.00	0.87	1.26	56.9	532156*	**210.39**
BT30	ER16**	0.019-0.406	5.00	0.87	1.26	56.9	532158*	**216.93**
BT30	ER16**	0.019-0.406	6.00	0.87	1.26	56.9	532160*	**241.76**
BT30	ER20**	0.039-0.511	2.50	1.06	1.38	81.3	532162*	**207.78**
BT30	ER20**	0.039-0.511	4.00	1.06	1.38	81.3	532164*	**241.76**
BT30	ER25	0.039-0.629	2.00	1.18	1.65	128.8	532166*	**252.21**
BT30	ER25	0.039-0.629	4.00	1.18	1.65	128.8	532168*	**252.21**
BT30	ER32	0.078-0.787	3.00	1.34	1.97	169.5	532170*	**213.01**
BT30	ER32	0.078-0.787	5.00	1.34	1.97	169.5	532172*	**258.75**
BT40								
BT40	ER11**	0.019-0.275	4.00	0.65	0.75	29.8	532176	**233.92**
BT40	ER11**	0.019-0.275	6.00	0.65	0.75	29.8	532178	**263.97**
BT40	ER16**	0.019-0.406	3.50	0.87	1.26	56.9	532180	**233.92**
BT40	ER16**	0.019-0.406	5.00	0.87	1.26	56.9	532182	**257.44**
BT40	ER20**	0.039-0.511	2.50	1.06	1.38	81.3	532184	**233.92**
BT40	ER20**	0.039-0.511	4.00	1.06	1.38	81.3	532186	**233.92**
BT40	ER20**	0.039-0.511	6.00	1.06	1.38	81.3	532188	**267.89**
BT40	ER25	0.039-0.629	2.25	1.18	1.65	128.8	532190	**241.76**
BT40	ER25	0.039-0.629	4.00	1.18	1.65	128.8	532192	**196.02**
BT40	ER25	0.039-0.629	6.00	1.18	1.65	128.8	532194	**273.12**
BT40	**ER32**	**0.078-0.787**	**1.06**				**‡532191***	**211.70**
BT40	ER32	0.078-0.787	3.13	1.34	1.97	169.5	532196	**233.92**
BT40	ER32	0.078-0.787	5.00	1.34	1.97	169.5	532198	**267.89**
BT40	ER40	0.118-1.023	3.13	1.50	2.50	219.6	532200	**267.89**
BT40	ER40	0.118-1.023	5.00	1.50	2.50	219.6	532202	**299.26**
BT50								
BT50	ER16**	0.019-0.406	2.50	0.87	1.26	56.9	532203	**316.25**
BT50	ER25	0.039-0.629	4.00	1.18	1.65	128.8	532206	**316.25**

* Not DIN Coolant
** Hex Nut
‡ ER Shorty Collet Chuck

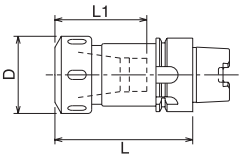
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Images are representational only and may not reflect actual product.

HSK63A ER Collet Chucks

- All ground body
- High rigidity and torque transmission
- Wrench not included
- AT2 Taper Accuracy
- RFID chip hole





NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

PREMIUM BALANCE G2.5 at 30,000rpm CERTIFICATE INCLUDED

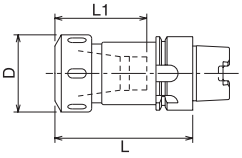
Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
HSK63A	ER16**	0.019-0.393	3.00	0.866	1.260	56.9	536114	**456.07**
HSK63A	ER16**	0.019-0.393	5.00	0.866	1.260	56.9	536116	**456.07**
HSK63A	ER20**	0.039-0.511	3.00	1.062	1.378	81.3	536118	**456.07**
HSK63A	ER20**	0.039-0.511	5.00	1.062	1.378	81.3	536120	**456.07**
HSK63A	ER25	0.039-0.629	3.00	1.181	1.654	128.8	536122	**456.07**
HSK63A	ER25	0.039-0.629	5.00	1.181	1.654	128.8	536124	**456.07**
HSK63A	ER32	0.078-0.787	4.00	1.260	1.969	169.5	536126	**456.07**
HSK63A	ER32	0.078-0.787	6.00	1.260	1.969	169.5	536128	**531.87**
HSK63A	ER40	0.118-1.023	4.00	1.496	2.480	219.6	536130	**490.05**

** Hex Nut

HSK100A ER Collet Chucks

- All ground body
- High rigidity and torque transmission
- Wrench not included
- AT2 Taper Accuracy
- RFID chip hole





NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

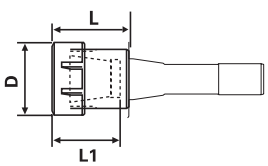
PREMIUM BALANCE G2.5 at 25,000rpm CERTIFICATE INCLUDED

Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
HSK100A	ER16**	0.019-0.393	4.00	0.866	1.260	56.9	536134	**522.72**
HSK100A	ER16**	0.019-0.393	6.00	0.866	1.260	56.9	536136	**659.93**
HSK100A	ER20**	0.039-0.511	4.00	1.062	1.378	81.3	536138	**522.72**
HSK100A	ER20**	0.039-0.511	6.00	1.062	1.378	81.3	536140	**659.93**
HSK100A	ER25	0.039-0.629	6.00	1.181	1.654	128.8	536144	**659.93**
HSK100A	ER32	0.078-0.787	4.00	1.260	1.969	169.5	536146	**671.70**
HSK100A	ER32	0.078-0.787	6.00	1.260	1.969	169.5	536148	**720.05**
HSK100A	ER40	0.118-1.023	6.00	1.496	2.480	219.6	536152	**823.28**

** Hex Nut

R8 Taper ER Collet Chucks





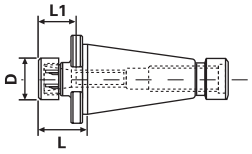
NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
R8	ER16	0.019-0.406	1.25	2.83	1.25	56.9	534360	**144.88**
R8	ER20	0.039-0.511	2.00	1.50	1.38	81.3	534362	**144.88**
R8	ER25	0.039-0.629	2.50	1.64	1.66	128.8	534364	**150.33**

NMTB Taper ER Collet Chucks

- Wrench not included





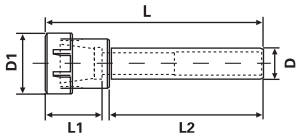
NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
NMTB40								
NMTB40	ER16	0.019-0.406	1.77	0.87	1.26	56.9	534352	**189.30**
NMTB40	ER25	0.039-0.629	2.00	1.18	1.65	128.8	534354	**197.75**
NMTB40	ER32	0.078-0.787	2.00				534260	**180.83**
NMTB50								
NMTB50	ER16	0.019-0.406	2.00	0.87	1.26	56.6	534356	**227.82**

ER Collet Chuck Extensions

- Wrench not included





NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

Collet Series	Collet Range	Shank Dia. (D)	D1	L	L1	L2	Tightening Torque (Nm)	Code No.	Price $
ER11	0.019-0.275	1/2	0.740	6.11	0.091	5.00	29.8	534368	**169.88**
ER11	0.019-0.275	5/8	0.740	6.11	0.091	5.00	29.8	534370	**199.94**
ER11	0.019-0.275	3/4	0.740	5.65	0.091	5.00	29.8	534372	**198.21**
ER16	0.019-0.406	5/8	1.26	6.48	1.28	5.00	56.9	534374	**184.26**
ER16	0.019-0.406	3/4	1.26	6.48	1.28	5.00	56.9	534376	**199.94**
ER16	0.019-0.406	1	1.26	5.89	1.28	5.00	56.9	534378	**212.27**
ER20	0.039-0.511	3/4	1.38	6.67	1.48	5.00	81.3	534380	**156.82**
ER20	0.039-0.511	1	1.38	6.40	1.48	5.00	81.3	534382	**211.70**
ER20	0.039-0.511	1-1/4	1.38	6.40	1.48	5.00	81.3	534384	**212.27**
ER25	0.039-0.629	3/4	1.65	6.85	1.65	5.00	128.8	534386	**212.86**
ER25	0.039-0.629	1	1.65	6.85	1.65	5.00	128.8	534388	**199.94**
ER25	0.039-0.629	1-1/4	1.65	6.00	1.65	5.00	128.8	534390	**212.86**
ER32	0.078-0.787	1	1.97	7.09	1.85	5.00	169.5	534392	**341.07**
ER32	0.078-0.787	1-1/4	1.97	6.30	2.13	4.00	169.5	337805	**238.37**
ER32	0.078-0.787	1-1/4	1.97	7.09	1.85	5.00	169.5	534394	**254.83**

R8 Taper ER Collet Chucks

- Wrench not included



NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

Collet Series	Gauge Length	Nose Dia.	Draw Bar	Code No.	Price $
ER32	40mm	50mm	7/16-20 UNF-3	337815	**238.37**
ER40	70mm	63mm	7/16-20 UNF-3B	337820	**291.16**

NMTB Taper ER Collet Chucks

- Wrench not included

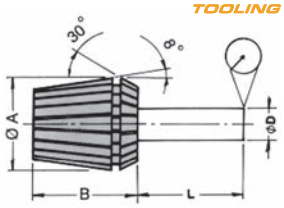


NUT PG G32 | WRENCH PG G32 | ER COLLETS PG G22-30

Taper	Collet Series	Gauge Length	Nose Dia.	Draw Bar	Code No.	Price $
NMTB30	ER32	55	50	1/2-13	337825	**238.37**
NMTB30	ER40	85	63	1/2-13	337830	**291.16**
NMTB40	ER40	55	63	5/8-11	337835	**296.54**
NMTB50	ER40	58	63	1-8	337840	**397.05**

ER Spring Collet Dimensional Data

ER collet system is made of special elastic steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

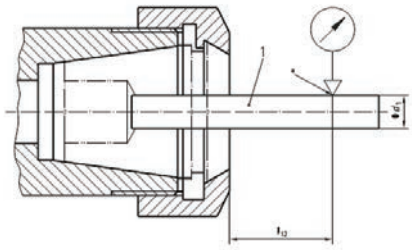


Type	A (mm)	B (mm)	L (mm)	øD (mm)	DIN 6343 Precision	GS Precision
ER11	11.5	18	-	-	0.02	0.010
ER16	17	27	6	1.0-1.4	0.02	0.010
ER20	21	31	10	1.5-2.9	0.02	0.010
ER25	26	35	16	3.0-5.9	0.02	0.010
ER32	33	40	25	6.0-9.9	0.02	0.010
ER40	41	46	40	10.0-17.9	0.03	0.010
ER50	52	60	50	18.0-26.9	0.03	0.010

Mounting Instructions for ER Collets

- Place collet inside nut and rotate the nut to engage with the extractor spiral in collet groove
- Only then mount nut and collet together into the collet holder or machine spindle
  Note: Never use a 12-11mm collet to clamp a 12mm diameter, but rather use a 13-12mm collet

5 Micron AA ER Collet Tolerance Values



Collet Run-Out Tolerance Values

d1 H7 Nominal Diameter		I12	Run-Out Tolerance A	
Above	Up To (included)		Class 1	Class 2
1 (included)	1.6	6	0.005	0.015
1,6	3	10		
3	6	16		
6	10	25		
10	18	40	0.005	0.020
18	26	50		

Introducing...

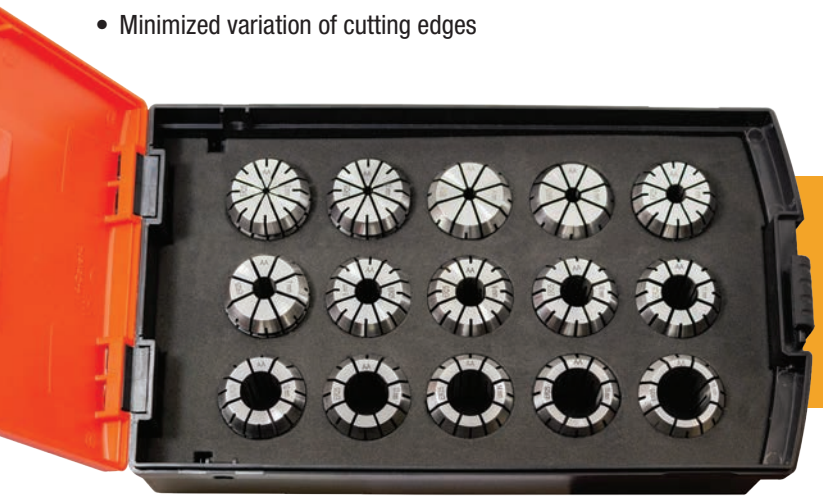
EXTREME PRECISION 5 MICRON COLLETS

Nothing else compares.

DIN 6343 Precision Collets have a runout of 20-30 microns (0.02 - 0.03mm)
GS High Precision Collets have a runout of 10-20 microns (0.01 - 0.02mm)
The new **GS Extreme Precision AA Collets** have a runout of only 5 microns (0.005mm)

Features & Benefits:

- 16 slots allows sufficient collapse while increasing the area of contact with less tendency to distort
- All edges are deburred and rounded to promote good interface with the taper of the chuck without the tendency to damage it. This results in more consistent repeatability
- Collets are polished to eliminate blemishes that promote corrosion. Better corrosion resistance will result in longer product life of both the collet and the holder between the collet and the cutting tool shank
- Minimized variation of cutting edges
- Maximized Concentricity
- Evenly distributed cutting edges for high performance machining
- Highly polished OD surfaces reduce the amount of force absorbed by friction between the collet and the collet chuck seat, increasing the grip force on the cutting tool. The inside bore of the collet is intentionally left unpolished to increase the friction
- Improve system performance and lower cost per piece when used with quality GS chucks
- Consistent cutting profiles ensure the job stays within desired tolerances



The result of an improved AA collet in a quality GS chuck is increased gripping force, improved rigidity, decreased runout, and a renewed confidence in your collet chuck system.

5 Micron AA ER Collet Sets

Series	No. Pcs.	Range	Code No.	Price $
Metric				
ER11	Metric 13pc Set	1-7mm x 0.5mm	336986	**607.81**
ER16	Metric 10pc Set	1-10mm x 1.0mm	336987	**487.87**
ER20	Metric 12pc Set	2-13mm x 1.0mm	336988	**622.04**
ER25	Metric 15pc Set	2-16mm x 1.0mm	336989	**792.79**
ER32	Metric 18pc Set	3-20mm x 1.0mm	336990	**951.35**
ER40	Metric 23pc Set	4-26mm x 1.0mm	336991	**1,332.50**
Inch				
ER11	Inch 7pc Set	1/16-1/4 x 1/32	336992	**327.28**
ER16	Inch 11pc Set	1/16-3/8 x 1/32	336993	**536.66**
ER20	Inch 15pc Set	1/16-1/2 x 1/32	336994	**777.55**
ER25	Inch 18pc Set	3/32-5/8 x 1/32	336995	**951.35**
ER32	Inch 21pc Set	1/8-3/4 x 1/32	336996	**1,109.91**
ER40	Inch 15pc Set	1/8-1" x 1/16	336997	**869.02**



ER Collet Chuck Sets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

- Wrench included





Shank	Collet Set	Code No.	Price $
ER16			
3/4 x 4	10 collets in set (range 0.019 - 0.393)	337700	**495.00**
3/4 x 6	10 collets in set (range 0.019 - 0.393)	337705	**534.60**
R8	10 collets in set (range 0.019- 0.393)	337710	**534.60**
ER20			
3/4 x 4	12 collets in set (range 0.039 - 0.511)	337715	**613.80**
3/4 x 6	12 collets in set (range 0.039 - 0.511)	337720	**653.40**
ER32			
1-1/4 x 4	11 collets in set (range 0.080 - 0.787)	337730	**679.80**
ISO-30	11 collets in set (range 0.080 - 0.787)	337735	**679.80**
R8	11 collets in set (range 0.080 - 0.787)	337740	**877.80**
ER40			
R8	15 collets in set (range 0.120 - 1.020)	337745	**745.80**
ISO-30	15 collets in set (range 0.120 - 1.020)	337750	**930.60**
ISO-40	15 collets in set (range 0.120 - 1.020)	337755	**1,006.95**
ISO-50	23 collets in set (range 0.120 - 1.020)	337760	**1,372.80**

ER11 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

- Size range: 0.5mm - 7mm (0.019" - 0.275")
- ER11 collets collapse approximately 1/64" with full accuracy

AA Collets have a runout of only 5 microns (0.005mm)



REGULAR

Size (mm)	Size (in.)	Code No.	Price $	AA Code No.	Price $
Metric					
0.5-1	0.019-0.039	337650*	**35.57**	336700*	**52.85**
1-1.5	0.039-0.059	337652*	**35.57**	336702*	**52.85**
1.5-2	0.059-0.078	337654*	**35.57**	336705*	**52.85**
2-2.5	0.078-0.098	337656*	**35.57**	336707*	**52.85**
2.5-3	0.098-0.118	337658*	**29.48**	336709*	**46.75**
3-3.5	0.118-0.137	337660*	**29.48**	336711*	**46.75**
3.5-4	0.137-0.157	337662*	**29.48**	336714*	**46.75**
4-4.5	0.157-0.177	337664*	**29.48**	336716*	**46.75**
4.5-5	0.177-0.196	337666*	**29.48**	336718*	**46.75**
5-5.5	0.196-0.216	337668*	**29.48**	336720*	**46.75**
5.5-6	0.216-0.236	337670*	**29.48**	336723*	**46.75**
6-6.5	0.236-0.255	337672*	**29.48**	336725*	**46.75**
6.5-7	0.255-0.275	337674*	**29.48**	336727*	**46.75**
13pc Set	**1-7mm**	337379	**386.23**	336986	**607.81**
Inch					
	3/64	337609	**35.57**	336701	**52.85**
	1/16	337610*	**36.59**	336703*	**52.85**
	5/64	337611	**35.57**	336704	**52.85**
	3/32	337613*	**35.57**	336706*	**52.85**
	7/64	337614	**35.57**	336708	**52.85**
	1/8	337615*	**29.48**	336710*	**46.75**
	9/64	337617	**29.48**	336712	**46.75**
	5/32	337618*	**29.48**	336713*	**46.75**
	11/64	337619	**29.48**	336715	**46.75**
	3/16	337651*	**29.48**	336717*	**46.75**
	13/64	337653	**29.48**	336719	**46.75**
	7/32	337655*	**29.48**	336721*	**46.75**
	15/64	337657	**29.48**	336722	**46.75**
	1/4	337659*	**29.48**	336724*	**46.75**
	17/64	337661	**29.48**	336726	**46.75**
	9/32	337627	**35.57**	336728	**52.85**
7pc Set	**1/16-1/4**	337401	**210.39**	336992	**327.28**

* Part of Set

ER8 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

- Size range: 0.5mm - 5mm (0.019" - 0.196")
- ER8 collets collapse approximately 0.3mm with full accuracy



Size (mm)	Size (in.)	Code No.	Price $
Metric			
0.5-1.0	0.019-0.039	337635	**36.59**
1.0-1.5	0.039-0.059	337637	**36.59**
2.0-2.5	0.078-0.098	337641	**36.59**
2.5-3.0	0.098-0.118	337643	**36.59**
3.0-3.5	0.118-0.137	337645	**36.59**
3.5-4.0	0.137-0.157	337647	**36.59**
4.0-4.5	0.157-0.177	337648	**36.59**
4.5-5.0	0.177-0.196	337649	**36.59**
Inch			
	1/16	337629	**36.59**
	1/8	337631	**36.59**
	3/16	337625	**36.59**

ER11 Sealed Collets

- Sealed for coolant through applications
- Pressure resistance tested to 500 psi
- Size range: 3/6 - 17/64", 4.0 - 7.0mm



Size (in/mm)	Code No.	Price $
Metric		
4.5	337636	**72.93**
5.5	337640	**72.93**
6.0	337642	**72.93**
6.5	337644	**72.93**
7.0	337646	**72.93**
7pc Set	337930	**510.51**
Inch		
3/16	337622	**72.93**
13/64	337624	**72.93**
7/32	337626	**72.93**
15/64	337628	**72.93**
1/4	337630	**72.93**
17/64	337632	**72.93**
6pc Set	337929	**437.58**

ER11 Tap Collets

- For synchronous, rigid tapping operations using ER collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity

Tap	Shank Dia.	Size of Square	Code No.	Price $
Metric				
M1.4 - M1.8	2.5mm	2.1mm	337911	**58.34**
M2 - M2.6	2.8mm	2.1mm	337913	**58.34**
M2 - M2.6	3.0mm	2.5mm	337915	**58.34**
Inch				
#0-#6	0.141"	0.110"	337966	**58.34**
#8	0.168"	0.131"	337967	**58.34**
#10	0.194"	0.152"	337968	**58.34**
#12	0.220"	0.165"	337969	**58.34**

- **See page G31, G32 for Sets**
- **See page G21 for Dimensional Data**

ER16 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

- Size range: 0.5mm-10mm (0.019" - 0.393")
- ER16 collets collapse approximately 1/32" with full accuracy

AA Collets have a runout of only 5 microns (0.005mm)



REGULAR

Size (mm)	Size (in.)	Code No.	Price $	AA Code No.	Price $
Metric					
0.5-1	0.019-0.039	337302*	**41.67**	336729*	**58.95**
1-1.5	0.039-0.059			336730	**58.95**
1-2	0.039-0.078	337304*	**41.67**		
1.5-2	0.059-0.078			336732*	**58.95**
2-2.5	0.078-0.098			336734	**58.95**
2-3	0.078-0.118	337306*	**31.51**		
2.5-3	0.098-0.118			336735*	**48.79**
3-3.5	0.118-0.137			336737	**48.79**
3-4	0.118-0.157	337308*	**31.51**		
3.5-4	0.137-0.157			336740*	**48.79**
4-4.5	0.157-0.177			336741	**48.79**
4-5	0.157-0.196	337310*	**31.51**		
4.5-5	0.177-0.196			336743*	**48.79**
5-5.5	0.196-0.217			336744	**48.79**
5-6	0.196-0.236	337312*	**31.51**		
5.5-6	0.217-0.236			336746*	**48.79**
6-6.5	0.236-0.256			336748	**48.79**
6-7	0.236-0.275	337314*	**31.51**		
6.5-7	0.256-0.275			336749*	**48.79**
7-7.5	0.275-0.295			336751	**48.79**
7-8	0.275-0.314	337316*	**31.51**		
7.5-8	0.295-0.314			336753*	**48.79**
8-8.5	0.314-0.335			336754	**48.79**
8-9	0.314-0.354	337318*	**31.51**		
8.5-9	0.335-0.354			336756*	**48.79**
9-9.5	0.354-0.374			336757	**48.79**
9-10	0.354-0.393	337320*	**31.51**		
9.5-10	0.374-0.393			336759*	**48.79**
10pc Set	**1-10mm**	337380	**287.64**	336987	**487.87**
Inch					
	1/16	337531*	**41.67**	336731*	**58.95**
	3/32	337532*	**31.51**	336733*	**58.95**
	1/8	337533*	**31.51**	336736*	**48.79**
	9/64	337529	**29.48**	336738	**48.79**
	5/32	337534*	**31.51**	336739*	**48.79**
	3/16	337535*	**31.51**	336742*	**48.79**
	7/32	337536*	**31.51**	336745*	**48.79**
	1/4	337537*	**31.51**	336747*	**48.79**
	9/32	337538*	**31.51**	336750*	**48.79**
	5/16	337540*	**31.51**	336752*	**48.79**
	11/32	337541*	**31.51**	336755*	**48.79**
	3/8	337542*	**31.51**	336758*	**48.79**
	13/32	337543	**31.51**	336760	**48.79**
11pc Set	**1/16-3/8**	337403	**346.59**	336993	**536.66**

* Part of Set

ER16 Sealed Collets

- Sealed for coolant through applications
- Pressure resistance tested to 2000 psi



Metric Size	Metric Code No.	Price $	Inch Size	Inch Code No.	Price $
3.0	338290	**58.34**	1/8	337841*	**59.47**
3.5	338291	**59.47**	5/32	337842*	**59.47**
4.0	338292*	**59.47**	3/16	337843*	**59.47**
4.5	338294*	**59.47**	13/64	337826	**59.47**
5.0	338296*	**59.47**	7/32	337844*	**59.47**
5.5	338298*	**59.47**	15/64	337827	**59.47**
6.0	338300*	**59.47**	1/4	337845*	**59.47**
6.5	338302*	**59.47**	17/64	337828	**59.47**
7.0	338304*	**59.47**	9/32	337846*	**59.47**
7.5	338305*	**59.47**	19/64	337829	**59.47**
8.0	338306*	**59.47**	5/16	337847*	**59.47**
8.5	338307*	**59.47**	21/64	337831	**59.47**
9.0	338308*	**59.47**	11/32	337848*	**59.47**
9.5	338309*	**59.47**	23/64	337832	**59.47**
10.0	338310*	**59.47**	3/8	337849*	**59.47**
			25/64	337833	**59.47**
			13/32	337834*	**59.47**
13pc Set	337932	**773.11**	**10pc Set**	337931	**585.68**

* Part of Set

ER16 Tap Collets

- Alloy steel
- For synchronous, rigid tapping operations using ER collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity
- See page G63-64 for rigid tapping holders



Tap	Shank Dia.	Size of Square	Code No.	Price $
Metric				
M1.4-M1.8	2.5mm	2.1mm	338095	**60.59**
M2	2.8mm	2.1mm	338111	**60.59**
M2-M2.6	3.0mm	2.5mm	338096	**60.59**
M3	2.25mm	1.8mm	338097	**60.59**
M3	3.5mm	2.7mm	338113	**60.59**
M3	4mm	3.0mm	338099	**60.59**
M3.5	2.5mm	2.0mm	338098	**60.59**
M4-M5	5mm	4.0mm	338101	**60.59**
M4-M6	4.5mm	3.4mm	338115	**60.59**
M4-M6	5.5mm	4.3mm	338116	**60.59**
M5-M5.5	4.5mm	4.5mm	338103	**60.59**
M5-M5.5	5.5mm	4.5mm	338105	**60.59**
M5-M8	6mm	4.9mm	338117	**60.59**
M6	6mm	4.5mm	338118	**60.59**
M8	6.2mm	5.0mm	338119	**60.59**
M8	8mm	6.2mm	338121	**60.59**
M8-M11	8mm	6.0mm	338107	**60.59**
M10	7mm	5.5mm	338123	**60.59**
M10	10mm	8.0mm	338125	**60.59**
M12	8.5mm	6.5mm	338127	**60.59**
M12	9mm	7.0mm	338129	**60.59**
Inch				
0-6	0.141	0.110	‡ 337850*	**60.59**
8	0.168	0.131	‡ 337851*	**60.59**
10	0.194	0.152	‡ 337852*	**60.59**
12	0.220	0.165	‡ 337853*	**60.59**
1/4	0.255	0.191	‡ 337854*	**60.59**
5/16	0.318	0.238	‡ 337855	**60.59**
3/8	0.381	0.286	‡ 337824	**60.59**
7/16	0.323	0.242	‡ 337839	**60.59**
1/2	0.367	0.275	‡ 337838	**60.59**
5pc Set			337986	**302.94**
9pc Set			337343	**545.29**

* Part of 5pc Set ‡ Part of 9pc Set

ER20 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

- Size range: 1mm - 13mm (0.039" - 0.511")
- ER20 collets collapse approximately 1/32" with full accuracy

AA Collets have a runout of only 5 microns (0.005mm)



REGULAR

Size (mm)	Size (in.)	Code No.	Price $	AA Code No.	Price $
Metric					
1-1.5	0.039-0.059	337446	**41.67**		
1.5-2	0.059-0.078			336763*	**58.95**
1-2	0.039-0.078	337473*	**41.67**		
2-2.5	0.078-0.098	337447	**41.67**	336765	**58.95**
2-3	0.078-0.118	337474*	**34.56**		
2.5-3	0.098-0.118			336766*	**51.84**
2.5-3.5	0.098-0.137	337471	**34.56**		
3-3.5	0.118-0.137			336768	**51.84**
3-4	0.118-0.157	337475*	**34.56**		
3.5-4	0.137-0.157			336770*	**51.84**
4-4.5	0.157-0.177	337448	**34.56**	336771	**51.84**
4-5	0.157-0.196	337476*	**34.56**		
4.5-5	0.177-0.196			336773*	**51.84**
5-5.5	0.196-0.217	337449	**34.56**	336774	**51.84**
5-6	0.196-0.236	337477*	**34.56**		
5.5-6	0.217-0.236			336776*	**51.84**
6-6.5	0.236-0.256	337451	**34.56**	336778	**51.84**
6-7	0.236-0.275	337478*	**34.56**		
6.5-7	0.256-0.275			336779*	**51.84**
7-7.5	0.275-0.295	337453	**34.56**	336781	**51.84**
7-8	0.275-0.314	337479*	**34.56**		
7.5-8	0.295-0.314			336783*	**51.84**
8-8.5	0.314-0.335	337455	**34.56**	336784	**51.84**
8-9	0.314-0.354	337480*	**34.56**		
8.5-9	0.335-0.354			336786*	**51.84**
9-9.5	0.354-0.374	337457	**34.56**	336787	**51.84**
9-10	0.354-0.393	337481*	**34.56**		
9.5-10	0.374-0.393			336789*	**51.84**
10-10.5	0.393-0.413	337459	**34.56**	336791	**51.84**
10-11	0.393-0.433	337482*	**34.56**		
10.5-11	0.413-0.433			336792*	**51.84**
11-11.5	0.433-0.452	337469	**34.56**	336794	**51.84**
11-12	0.433-0.472	337483*	**34.56**		
11.5-12	0.452-0.472			336796*	**51.84**
12-12.5	0.472-0.492	337463	**34.56**	336797	**51.84**
12-13	0.472-0.511	337484*	**34.56**		
12.5-13	0.492-0.511			336799*	**51.84**
13-13.5	0.511-0.531			336800	**51.84**
13.5-14	0.531-0.551			336801	**51.84**
12pc Set	**2-13mm**	337382	**393.35**	336988	**622.04**
Inch					
	1/16	337621*	**41.67**	336762*	**58.95**
	3/32	337623*	**41.67**	336764*	**58.95**
	1/8	337663*	**34.56**	336767*	**51.84**
	5/32	337665*	**34.56**	336769*	**51.84**
	3/16	337667*	**34.56**	336772*	**51.84**
	7/32	337669*	**34.56**	336775*	**51.84**
	1/4	337671*	**34.56**	336777*	**51.84**
	9/32	337673*	**34.56**	336780*	**51.84**
	5/16	337675*	**34.56**	336782*	**51.84**
	11/32	337676*	**34.56**	336785*	**51.84**
	3/8	337677*	**34.56**	336788*	**51.84**
	13/32	337678*	**34.56**	336790*	**51.84**
	7/16	337679*	**34.56**	336793*	**51.84**
	15/32	337681*	**34.56**	336795*	**51.84**
	1/2	337682*	**34.56**	336798*	**51.84**
15pc Set	**1/16-1/2**	337404	**518.36**	336994	**777.55**

* Part of set

- See page G31, G32 for Sets
- See page G21 for Dimensional Data

ER20 Sealed Collets

- Sealed for coolant through applications
- Pressure resistance tested to 2000 psi



Size (in/mm)	Code No.	Price $
Metric		
4.0	338325**	**63.95**
4.5	338299**	**59.47**
5.0	338330	**63.95**
5.5	338334	**63.95**
6.0	338336	**63.95**
6.5	338337	**63.95**
7.0	338338	**63.95**
7.5	338339	**63.95**
8.0	338340	**63.95**
8.5	338341	**63.95**
9.0	338342	**63.95**
9.5	338343	**63.95**
10.0	338344	**63.95**
10.5	338345	**63.95**
11.0	338346	**63.95**
11.5	338347	**63.95**
12.0	338348	**63.95**
12.5	338349	**63.95**
13.0	338350	**63.95**
17pc Set	337935	**1,086.10**
Inch		
1/8	337856**	**63.95**
5/32	337857	**63.95**
3/16	337858	**63.95**
7/32	337859	**63.95**
1/4	337860	**63.95**
9/32	337861	**63.95**
5/16	337862	**63.95**
11/32	337863	**63.95**
3/8	337864	**63.95**
13/32	337865	**63.95**
7/16	337866	**63.95**
15/32	337867	**63.95**
1/2	337868	**63.95**
12pc Set	337933	**779.47**

** Not Part of Set

ER20 Tap Collets

- For synchronous, rigid tapping operations using ER collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity



Tap	Shank Dia.	Size of Square	Code No.	Price $
Metric				
M4 -M6	4.5mm	3.4mm	338131	**60.59**
M4-M6	5.5mm	4.3mm	338133	**60.59**
M5-M8	6mm	4.9mm	338135	**60.59**
M8	8mm	6.2mm	338137	**60.59**
M10	7mm	5.5mm	338139	**60.59**
M10	10mm	8.0mm	338141	**60.59**
M12	9mm	7.0mm	338143	**60.59**
M14	11mm	9.0mm	338145	**60.59**
M16	12mm	9.0mm	338147	**60.59**
Inch				
0-6	0.141	0.110	337869*	**60.59**
8	0.168	0.131	337870*	**60.59**
10	0.194	0.152	337871*	**60.59**
12	0.220	0.165	337872*	**60.59**
1/4	0.255	0.191	337873*	**60.59**
5/16	0.318	0.238	337874*	**60.59**
3/8	0.381	0.286	337875*	**60.59**
7/16	0.323	0.242	337876*	**60.59**
1/2	0.367	0.275	337877*	**60.59**
9pc Set			337345	**545.29**

* Part of Set

ER25 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

AA Collets have a runout of only 5 microns (0.005mm)



REGULAR

Size (mm)	Size (in.)	Code No.	Price $	AA Code No.	Price $
Metric					
1-2	0.039-0.078	337330*	**42.69**		
1.5-2	0.059-0.078			336802*	**59.97**
2-2.5	0.078-0.098	337274	**42.69**	336804	**59.97**
2-3	0.078-0.118	337332*	**35.57**		
2.5-3	0.098-0.118			336805*	**52.85**
2.5-3.5	0.098-0.137	337333	**35.57**		
3-3.5	0.118-0.137			336807	**52.85**
3-4	0.118-0.157	337334*	**35.57**		
3.5-4	0.137-0.157			336809*	**52.85**
4-4.5	0.157-0.177	337486	**35.57**	336810	**52.85**
4-5	0.157-0.196	337336*	**35.57**		
4.5-5	0.177-0.196			336812*	**52.85**
5-5.5	0.196-0.217	337487	**35.57**	336813	**52.85**
5-6	0.196-0.236	337338*	**35.57**		
5.5-6	0.217-0.236			336815*	**52.85**
6-6.5	0.236-0.256	337488	**35.57**	336816	**52.85**
6-7	0.236-0.275	337340*	**35.57**		
6.5-7	0.256-0.275			336818*	**52.85**
7-7.5	0.275-0.295	337489	**35.57**	336820	**52.85**
7-8	0.275-0.314	337342*	**35.57**		
7.5-8	0.295-0.314			336822*	**52.85**
8-8.5	0.314-0.335	337490	**35.57**	336823	**52.85**
8-9	0.314-0.354	337344*	**35.57**		
8.5-9	0.335-0.354			336825*	**52.85**
9-9.5	0.354-0.374	337491	**35.57**	336826	**52.85**
9-10	0.354-0.393	337346*	**35.57**		
9.5-10	0.374-0.393			336828*	**52.85**
10-10.5	0.393-0.413	337492	**35.57**	336830	**52.85**
10-11	0.393-0.433	337348*	**35.57**		
10.5-11	0.413-0.433			336831*	**52.85**
11-11.5	0.433-0.452	337349	**35.57**	336833	**52.85**
11-12	0.433-0.472	337350*	**35.57**		
11.5-12	0.452-0.472			336835*	**52.85**
12-12.5	0.472-0.492	337493	**35.57**	336836	**52.85**
12-13	0.472-0.511	337352*	**35.57**		
12.5-13	0.492-0.511			336838*	**52.85**
13-13.5	0.511-0.531	337494	**35.57**	336840	**52.85**
13-14	0.511-0.551	337354*	**35.57**		
13.5-14	0.531-0.551			336841*	**52.85**
14-14.5	0.551-0.571	337495	**35.57**		
14-15	0.551-0.590	337356*	**35.57**		
14.5-15	0.571-0.590			336844*	**52.85**
15-15.5	0.590-0.610	337497	**35.57**	336846	**52.85**
15-16	0.590-0.629	337358*	**35.57**		
15.5-16	0.610-0.629			336848*	**52.85**
16-16.5	0.629-0.650	337499	**64.03**		
16.5-17	0.650-0.669	337301	**64.03**		
15pc Set	**2-16mm**	337383	**502.10**	336989	**792.79**
Inch					
	3/32	337602**	**42.69**	336803**	**59.97**
	1/8	337683	**35.57**	336806	**52.85**
	5/32	337684	**35.57**	336808	**52.85**
	3/16	337685	**35.57**	336811	**52.85**
	7/32	337686	**35.57**	336814	**52.85**
	1/4	337687	**35.57**	336817	**52.85**
	9/32	337688	**35.57**	336819	**52.85**
	5/16	337689	**35.57**	336821	**52.85**
	11/32	337691	**35.57**	336824	**52.85**
	3/8	337692	**35.57**	336827	**52.85**
	13/32	337693	**35.57**	336829	**52.85**
	7/16	337694	**35.57**	336832	**52.85**
	15/32	337696	**35.57**	336834	**52.85**
	1/2	337697	**35.57**	336837	**52.85**
	17/32	337698	**35.57**	336839	**52.85**
	9/16	337699	**35.57**	336842	**52.85**
	19/32	337701	**35.57**	336845	**52.85**
	5/8	337702	**35.57**	336847	**52.85**
17pc Set	**1/8-5/8**	337405	**604.76**	336995	**951.35**

** Not Part of Set * Part of Set

ER25 Sealed Collets



- Steel sealed for coolant through applications
- Pressure resistance tested to 2000 psi

Metric Size	Metric Code No.	Price $	Inch Size	Inch Code No.	Price $
3.0	338297	**70.69**	1/8	337878	**70.69**
3.5	338326	**70.69**	5/32	337879	**70.69**
4.0	338327	**70.69**	3/16	337880	**70.69**
4.5	338373	**70.69**	7/32	337881	**70.69**
5.0	338329	**70.69**	1/4	337882*	**70.69**
5.5	338331	**70.69**	17/64	338352	**70.69**
6.0	338360*	**70.69**	9/32	337883*	**70.69**
6.5	338362*	**70.69**	19/64	338354	**70.69**
7.0	338364*	**70.69**	5/16	337884*	**70.69**
7.5	338366*	**70.69**	21/64	338356	**70.69**
8.0	338368*	**70.69**	11/32	337885*	**70.69**
8.5	338370*	**70.69**	23/64	338358	**70.69**
9.0	338372*	**70.69**	3/8	337886*	**70.69**
9.5	338374*	**70.69**	25/64	337916	**70.69**
10.0	338376*	**70.69**	13/32	337887*	**70.69**
10.5	338378*	**70.69**	27/64	337917	**70.69**
11.0	338380*	**70.69**	7/16	337888*	**70.69**
11.5	338382*	**70.69**	29/64	337918	**70.69**
12.0	338384*	**70.69**	15/32	337889*	**70.69**
12.5	338386*	**70.69**	31/64	337919	**70.69**
13.0	338388*	**70.69**	1/2	337890*	**70.69**
13.5	338390*	**70.69**	33/64	337920	**70.69**
14.0	338392*	**70.69**	17/32	337891*	**70.69**
14.5	338394*	**70.69**	35/64	337921	**70.69**
15.0	338396*	**75.17**	9/16	337892*	**70.69**
15.5	338398*	**70.69**	37/64	337922	**70.69**
16.0	338400*	**70.69**	19/32	337893*	**70.69**
			39/64	337923	**70.69**
			5/8	337894*	**70.69**
21pc Set	337939	**1,418.28**	**13pc Set**	337938	**918.92**

* Part of Set

ER25 Tap Collets



- For synchronous, rigid tapping operations using ER collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity

Tap	Shank Dia.	Size of Square	Code No.	Price $
Metric				
M4-M6	4.5mm	3.4mm	338149	**60.59**
M4-M6	5.5mm	4.3mm	338151	**60.59**
M4-M8	6mm	4.9mm	338153	**60.59**
M10	7mm	5.5mm	338155	**60.59**
M8	8mm	6.2mm	338157	**60.59**
M10	10mm	8.0mm	338159	**68.44**
M12	9mm	7.0mm	338161	**68.44**
M14	11mm	9.0mm	338162	**68.44**
M16	12mm	9.0mm	338163	**68.44**
M16	12.5mm	10.0mm	338164	**68.44**
M18	14mm	11.0mm	338165	**68.44**
M20	15mm	12.0mm	338166	**68.44**
M20	16mm	12.0mm	338167	**68.44**
Inch				
0-6	0.141	0.110	337895*	**68.44**
8	0.168	0.131	337896*	**68.44**
10	0.194	0.152	337897*	**68.44**
12	0.220	0.165	337898*	**68.44**
1/4	0.255	0.191	337899*	**68.44**
5/16	0.318	0.238	337900*	**68.44**
3/8	0.381	0.286	337901*	**68.44**
7/16	0.323	0.242	337902*	**68.44**
1/2	0.367	0.275	337903*	**68.44**
9/16	0.429	0.322	337904*	**68.44**
5/8	0.480	0.360	337905*	**68.44**
11/16	0.542	0.406	337983	**68.44**
11pc Set			337347	**752.84**
NPT				
1/16, 1/8-SS (small shank)	0.3125	0.234	337909	**68.44**
1/8-LS (large shank)	0.4375	0.328	337910	**68.44**

* Part of Set

ER32 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

AA Collets have a runout of only 5 microns (0.005mm)



REGULAR

Size (mm)	Size (in.)	Code No.	Price $	AA Code No.	Price $
Metric					
2-2.5	0.078-0.098	337415	**35.57**	336852	**52.85**
2-3	0.078-0.118	337361*	**35.57**		
2.5-3	0.098-0.118			336853*	**52.85**
2.5-3.5	0.098-0.137	337359	**35.57**		
3-3.5	0.118-0.137			336855	**52.85**
3-4	0.118-0.157	337362*	**35.57**		
3.5-4	0.137-0.157			336857*	**52.85**
4-4.5	0.157-0.177	337217	**35.57**	336858	**52.85**
4-5	0.157-0.196	337363*	**35.57**		
4.5-5	0.177-0.196			336860*	**52.85**
5-5.5	0.196-0.217	337218	**35.57**	336861	**52.85**
5-6	0.196-0.236	337364*	**35.57**		
5.5-6	0.217-0.236			336863*	**52.85**
6-6.5	0.236-0.256	337219	**35.57**	336864	**52.85**
6-7	0.236-0.275	337365*	**35.57**		
6.5-7	0.256-0.275			336866*	**52.85**
7-7.5	0.275-0.295	337289	**35.57**	336868	**52.85**
7-8	0.275-0.314	337366*	**35.57**		
7.5-8	0.295-0.314			336870*	**52.85**
8-8.5	0.314-0.335	337221	**35.57**	336871	**52.85**
8-9	0.314-0.354	337367*	**35.57**		
8.5-9	0.335-0.354			336873*	**52.85**
9-9.5	0.354-0.374	337222	**35.57**	336874	**52.85**
9-10	0.354-0.393	337368*	**35.57**		
9.5-10	0.374-0.393			336876*	**52.85**
10-10.5	0.393-0.413	337223	**35.57**	336878	**52.85**
10-11	0.393-0.433	337369*	**35.57**		
10.5-11	0.413-0.433			336879*	**52.85**
10.5-11.5	0.413-0.452	337357	**35.57**		
11-11.5	0.433-0.452			336881	**52.85**
11-12	0.433-0.472	337370*	**35.57**		
11.5-12	0.452-0.472			336883*	**52.85**
12-12.5	0.472-0.492	337227	**35.57**	336884	**52.85**
12-13	0.472-0.511	337371*	**35.57**		
12.5-13	0.492-0.511			336886*	**52.85**
13-13.5	0.511-0.531	337229	**35.57**	336888	**52.85**
13-14	0.511-0.551	337372*	**35.57**		
13.5-14	0.531-0.551			336889*	**52.85**
14-14.5	0.551-0.571	337249	**35.57**	336891	**52.85**
14-15	0.551-0.590	337373*	**35.57**		
14.5-15	0.571-0.590			336892*	**52.85**
15-15.5	0.590-0.610	337255	**35.57**	336894	**52.85**
15-16	0.590-0.629	337374*	**35.57**		
15.5-16	0.610-0.629			336896*	**52.85**
16-16.5	0.629-0.650	337256	**35.57**	336897	**52.85**
16-17	0.629-0.669	337375*	**35.57**		
16.5-17	0.650-0.669			336899*	**52.85**
17-17.5	0.669-0.689	337272	**35.57**	336901	**52.85**
17-18	0.669-0.708	337376*	**35.57**		
17.5-18	0.689-0.708			336902*	**52.85**
18-18.5	0.708-0.728	337215	**35.57**	336904	**52.85**
18-19	0.708-0.748	337377*	**35.57**		
18.5-19	0.728-0.748			336905*	**52.85**
18.5-19.5	0.728-0.767	337355	**35.57**		
19-19.5	0.748-0.767			336907	**52.85**
19-20	0.748-0.787	337378*	**35.57**		
19.5-20	0.767-0.787			336909*	**52.85**
18pc Set	**3-20mm**	337384	**595.61**	336990	**951.35**
Inch					
	3/32			336851	**65.05**
	1/8	337703*	**35.57**	336854*	**52.85**
	5/32	337704*	**35.57**	336856*	**52.85**
	3/16	337706*	**35.57**	336859*	**52.85**
	7/32	337707*	**35.57**	336862*	**52.85**
	1/4	337708*	**35.57**	336865*	**52.85**
	9/32	337709*	**35.57**	336867*	**52.85**
	5/16	337711*	**35.57**	336869*	**52.85**
	11/32	337712*	**35.57**	336872*	**52.85**
	3/8	337713*	**35.57**	336875*	**52.85**
	13/32	337714*	**35.57**	336877*	**52.85**
	7/16	337716*	**35.57**	336880*	**52.85**
	15/32	337717*	**35.57**	336882*	**52.85**
	1/2	337718*	**35.57**	336885*	**52.85**
	17/32	337719*	**35.57**	336887*	**52.85**
	9/16	337721*	**35.57**	336890*	**52.85**
	19/32	337722*	**35.57**	336893*	**52.85**
	5/8	337723*	**35.57**	336895*	**52.85**
	21/32	337724*	**35.57**	336898*	**52.85**
	11/16	337725*	**35.57**	336900*	**52.85**
	23/32	337726*	**35.57**	336903*	**52.85**
	3/4	337727*	**35.57**	336906*	**52.85**
	25/32	337605	**35.57**	336908	**52.85**
21pc Set	**1/8-3/4**	337407	**747.05**	336996	**1,109.91**

* Part of Set

- See page G31, G32 for Sets
- See page G21 for Dimensional Data

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Images are representational only and may not reflect actual product.

ER32 Sealed Collets

- Sealed for coolant through applications
- Pressure resistance tested to 2000 psi



Metric Size	Code No.	Price $	Inch Size	Code No.	Price $
3.0	338335	**75.17**	1/8	338200	**75.17**
3.5	338351	**75.17**	5/32	338201	**75.17**
4.0	338353	**75.17**	3/16	338202	**75.17**
4.5	338333	**75.17**	7/32	338203	**75.17**
5.0	338355	**75.17**	1/4	338204*	**75.17**
5.5	338363	**75.17**	17/64	338301	**75.17**
6.0	338320	**75.17**	9/32	338205*	**75.17**
6.5	338365	**75.17**	19/64	338303	**75.17**
7.0	338357	**75.17**	5/16	338206*	**75.17**
7.5	338367	**75.17**	21/64	338311	**75.17**
8.0	338324	**75.17**	11/32	338207*	**75.17**
8.5	338369	**75.17**	23/64	338312	**75.17**
9.0	338359	**75.17**	3/8	338208*	**75.17**
9.5	338361	**75.17**	25/64	338313	**75.17**
10.0	338328	**75.17**	13/32	338209*	**75.17**
10.5	338404*	**75.17**	27/64	338314	**75.17**
11.0	338406*	**75.17**	7/16	338210*	**75.17**
11.5	338371*	**75.17**	29/64	338315	**75.17**
12.0	338332*	**75.17**	15/32	338211*	**75.17**
12.5	338408*	**75.17**	31/64	338316	**75.17**
13.0	338410*	**75.17**	1/2	338212*	**75.17**
13.5	338412*	**75.17**	33/64	338317	**75.17**
14.0	338414*	**75.17**	17/32	338213*	**75.17**
14.5	338416*	**75.17**	35/64	338318	**75.17**
15.0	338418*	**75.17**	9/16	338214*	**75.17**
15.5	338420*	**75.17**	37/64	338319	**75.17**
16.0	338422*	**75.17**	19/32	338215*	**75.17**
16.5	338424*	**75.17**	39/64	338321	**75.17**
17.0	338426*	**75.17**	5/8	338216*	**75.17**
17.5	338428*	**75.17**	41/64	337924	**75.17**
18.0	338430*	**75.17**	21/32	338217*	**75.17**
18.5	338432*	**75.17**	43/64	337925	**75.17**
19.0	338434*	**75.17**	11/16	338218*	**75.17**
19.5	338436*	**75.17**	45/64	337926	**75.17**
20.0	338438*	**75.17**	23/32	338219*	**75.17**
			47/64	337927	**75.17**
			3/4	338220*	**75.17**
			49/64	337928	**75.17**
			25/32	338322	**75.17**
20pc Set	337942	**1,503.40**	**17pc Set**	337940	**1,277.96**

* Part of set

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ER32 Tap Collets

- For synchronous, rigid tapping operations using ER collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity



Tap	Shank Dia.	Size of Square	Code No.	Price $
Metric				
M3	2.5mm	1.8mm	338168	**71.81**
M3.5	2.5mm	2.0mm	338169	**71.81**
M4	2.8mm	2.1mm	338170	**71.81**
M3-M5	3.5mm	2.7mm	338171	**71.81**
M3-M5	4mm	3.0mm	338172	**71.81**
M4-M5	5mm	4.0mm	338197	**71.81**
M4-M6	4.5mm	3.4mm	338173*	**71.81**
M4-M6	5.5mm	4.3mm	338174	**71.81**
M5-M5.5	4.5mm	4.5mm	338198	**71.81**
M5-M5.5	5.5mm	4.5mm	338175	**71.81**
M4-M8	6mm	4.9mm	338176	**71.81**
M5-M8	6mm	4.5mm	338177*	**71.81**
M7-M8	6.2mm	5.0mm	338178	**71.81**
M8	8mm	6.2mm	338179	**71.81**
M9-M10	7mm	5.5mm	338180*	**71.81**
M8-M11	8mm	6.0mm	338181*	**71.81**
M10	10mm	8.0mm	338182*	**71.81**
M12	8.5mm	6.5mm	338199	**71.81**
M12	9mm	7.0mm	338183*	**71.81**
M14	11mm	9.0mm	338184*	**71.81**
M14	10.5mm	8.0mm	338185	**71.81**
M16	12mm	9.0mm	338186*	**71.81**
M16	12.5mm	10.0mm	338187	**71.81**
M18	14mm	11.0mm	338188*	**71.81**
M20	15mm	12.0mm	338189	**71.81**
M20	16mm	12.0mm	338190*	**71.81**
M22	17mm	13.0mm	338191	**71.81**
M22-M24	18mm	14.5mm	338192	**71.81**
M24-M25	19mm	15.0mm	338193	**71.81**
M26-M27	20mm	15.0mm	338194*	**71.81**
M27-M30	20mm	16.0mm	338195	**71.81**
M30	22mm	18.0mm	338196	**71.81**
11pc Set			337992	**789.89**
Inch				
0-6	0.141	0.110	338221*	**71.81**
8	0.168	0.131	338222*	**71.81**
10	0.194	0.152	338223*	**71.81**
12	0.220	0.165	338224*	**71.81**
1/4	0.255	0.191	338225*	**71.81**
5/16	0.318	0.238	338226*	**71.81**
3/8	0.381	0.286	338227*	**71.81**
7/16	0.323	0.242	338228*	**71.81**
1/2	0.367	0.275	338229*	**71.81**
9/16	0.429	0.322	338230*	**71.81**
5/8	0.480	0.360	338231*	**71.81**
11/16	0.542	0.406	338232*	**71.81**
3/4	0.590	0.442	338233*	**71.81**
13/16	0.652	0.489	338234*	**71.81**
NPT				
1/16, 1/8-SS (small shank)	0.3125	0.234	338235*	**71.81**
1/8-LS (large shank)	0.4375	0.328	338236	**71.81**
1/4	0.5625	0.421	338237*	**71.81**
16pc Set			337351	**1,148.93**

* Part of Set

ER40 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.

AA Collets have a runout of only 5 microns (0.005mm)



REGULAR

Size (mm)	Size (in.)	Code No.	Price $	AA Code No.	Price $
Metric					
3.0	0.1181			336985	**57.93**
3-3.5	0.118-0.137	337545	**40.66**	336911	**57.93**
3-4	0.118-0.157	337501*	**40.66**		
3.5-4	0.137-0.157			336913*	**57.93**
4-4.5	0.157-0.177	337546	**40.66**	336914	**57.93**
4-5	0.157-0.196	337502*	**40.66**		
4.5-5	0.177-0.196			336916*	**57.93**
5-5.5	0.196-0.216	337547	**40.66**	336917	**57.93**
5-6	0.196-0.236	337503*	**40.66**		
5.5-6	0.216-0.236			336919*	**57.93**
6-6.5	0.236-0.256	337548	**40.66**	336920	**57.93**
6-7	0.236-0.275	337505*	**40.66**		
6.5-7	0.256-0.275			336922*	**57.93**
7-7.5	0.275-0.295	337549	**40.66**	336924	**57.93**
7-8	0.275-0.314	337506*	**40.66**		
7.5-8	0.295-0.314			336926*	**57.93**
8-8.5	0.314-0.335	337554	**40.66**	336927	**57.93**
8-9	0.314-0.354	337507*	**40.66**		
8.5-9	0.335-0.354			336929*	**57.93**
9-9.5	0.354-0.374	337557	**40.66**	336930	**57.93**
9-10	0.354-0.393	337509*	**40.66**		
9.5-10	0.374-0.393			336932*	**57.93**
10-10.5	0.393-0.413	337558	**40.66**	336934	**57.93**
10-11	0.393-0.433	337510*	**40.66**		
10.5-11	0.413-0.433			336935*	**57.93**
10.5-11.5	0.413-0.452	337498	**40.66**		
11-11.5	0.433-0.452			336937	**57.93**
11-12	0.433-0.472	337511*	**40.66**		
11.5-12	0.452-0.472			336939*	**57.93**
12-12.5	0.472-0.492	337559	**40.66**	336940	**57.93**
12-13	0.472-0.511	337513*	**40.66**		
12.5-13	0.492-0.511			336942*	**57.93**
13-13.5	0.511-0.531	336562	**65.56**	336944	**57.93**
13-14	0.511-0.551	337514*	**40.66**		
13.5-14	0.531-0.551			336945*	**57.93**
14-14.5	0.551-0.571	337563	**40.66**	336947	**57.93**
14-15	0.551-0.590	337515*	**40.66**		
14.5-15	0.571-0.590			336948*	**57.93**
15-15.5	0.590-0.610	337564	**40.66**	336950	**57.93**
15-16	0.590-0.629	337517*	**40.66**		
15.5-16	0.610-0.629			336952*	**57.93**
16-16.5	0.629-0.650	337567	**40.66**	336953	**57.93**
16-17	0.629-0.669	337518*	**40.66**		
16.5-17	0.650-0.669			336955*	**57.93**
17-17.5	0.669-0.689	337568	**40.66**	336957	**57.93**
17-18	0.669-0.708	337519*	**40.66**		
17.5-18	0.689-0.708			336958*	**57.93**
18-18.5	0.708-0.728	337569	**40.66**	336960	**57.93**
18-19	0.708-0.748	337521*	**40.66**		
18.5-19	0.728-0.748			336961*	**57.93**
18.5-19.5	0.728-0.767	337496	**40.66**		
19-19.5	0.748-0.767			336963	**57.93**
19-20	0.748-0.787	337522*	**40.66**		
19.5-20	0.767-0.787			336965*	**57.93**
20-20.5	0.787-0.807	337572	**40.66**	336966	**57.93**
20-21	0.787-0.826	337523*	**40.66**		
20.5-21	0.807-0.826			336968*	**57.93**
21-21.5	0.826-0.846	337573	**40.66**	336970	**57.93**
21-22	0.826-0.866	337524*	**40.66**		
21.5-22	0.846-0.866			336971*	**57.93**
22-22.5	0.866-0.886	337574	**40.66**	336973	**57.93**
22-23	0.866-0.905	337525*	**40.66**		
22.5-23	0.886-0.905			336974*	**57.93**
23-23.5	0.905-0.925	337577	**40.66**	336976	**57.93**
23-24	0.905-0.944	337526*	**40.66**		
23.5-24	0.925-0.944			336978*	**57.93**
24-24.5	0.944-0.965	337578	**40.66**	336979	**57.93**
24-25	0.944-0.984	337527*	**40.66**		
24.5-25	0.965-0.984			336981*	**57.93**
25-25.5	0.984-1.004	337579	**40.66**	336983	**57.93**
25-26	0.984-1.023	337528*	**40.66**		
25.5-26	1.004-1.023			336984*	**57.93**
23pc Set	**3.5-26mm**	337386	**843.61**	336991	**1,332.50**
Inch					
	1/8	337728*	**40.66**	336910*	**57.93**
	5/32	337729*	**40.66**	336912	**57.93**
	3/16	337731*	**40.66**	336915*	**57.93**
	7/32	337732*	**40.66**	336918	**57.93**
	1/4	337733*	**40.66**	336921*	**57.93**
	9/32	337734*	**40.66**	336923	**57.93**
	5/16	337736*	**40.66**	336925*	**57.93**
	11/32	337737*	**40.66**	336928	**57.93**
	3/8	337738*	**40.66**	336931*	**57.93**
	13/32	337739*	**40.66**	336933	**57.93**
	7/16	337741*	**40.66**	336936*	**57.93**
	15/32	337742*	**40.66**	336938	**57.93**
	1/2	337743*	**40.66**	336941*	**57.93**
	17/32	337744*	**40.66**	336943	**57.93**
	9/16	337746*	**40.66**	336946*	**57.93**
	19/32	337747*	**40.66**	336949	**57.93**
	5/8	337748*	**40.66**	336951*	**57.93**
	21/32	337749*	**40.66**	336954	**57.93**
	11/16	337751*	**40.66**	336956*	**57.93**
	23/32	337752*	**40.66**	336959	**57.93**
	3/4	337753*	**40.66**	336962*	**57.93**
	25/32	337754*	**40.66**	336964	**57.93**
	13/16	337756*	**40.66**	336967*	**57.93**
	27/32	337757*	**40.66**	336969	**57.93**
	7/8	337758*	**40.66**	336972*	**57.93**
	29/32	337759*	**40.66**	336975	**57.93**
	15/16	337761*	**40.66**	336977*	**57.93**
	31/32	337762*	**40.66**	336980	**57.93**
	1	337763*	**40.66**	336982*	**57.93**
15pc Set	**1/8-1**			336997	**869.02**
29pc Set	**1/8-1**	337409	**1,179.02**		

* Part of Set

ER40 Sealed Collets



- Sealed for coolant through applications
- Pressure resistance tested to 2000 psi

Metric Size	Code No.	Price $	Inch Size	Code No.	Price $
6.0	338441	**80.78**	1/8	338238	**80.78**
6.5	338435	**80.78**	5/32	338239	**80.78**
7.0	338443	**80.78**	3/16	338240	**80.78**
7.5	338437	**80.78**	7/32	338241	**80.78**
8.0	338445	**80.78**	1/4	338242	**80.78**
8.5	338439	**80.78**	9/32	338243	**80.78**
9.0	338447	**80.78**	5/16	338244	**80.78**
9.5	338449	**80.78**	11/32	338245	**80.78**
10.0	338440*	**80.78**	3/8	338246	**80.78**
10.5	338442*	**80.78**	13/32	338247	**80.78**
11.0	338444*	**80.78**	7/16	338248	**80.78**
11.5	338446*	**80.78**	15/32	338249	**80.78**
12.0	338448*	**80.78**	1/2	338250	**80.78**
12.5	338450*	**80.78**	17/32	338251	**80.78**
13.0	338452*	**80.78**	9/16	338252	**80.78**
13.5	338454*	**80.78**	19/32	338253	**80.78**
14.0	338456*	**80.78**	5/8	338254	**80.78**
14.5	338458*	**80.78**	21/32	338255	**80.78**
15.0	338460*	**80.78**	11/16	338256	**80.78**
15.5	338462*	**80.78**	23/32	338257	**80.78**
16.0	338464*	**80.78**	3/4	338258	**80.78**
16.5	338468*	**80.78**	25/32	338259	**80.78**
17.0	338470*	**80.78**	13/16	338260	**80.78**
17.5	338472*	**80.78**	27/32	338261	**80.78**
18.0	338474*	**80.78**	7/8	338262	**80.78**
18.5	338476*	**80.78**	29/32	338263	**80.78**
19.0	338478*	**80.78**	15/16	338264	**80.78**
19.5	338480*	**80.78**	31/32	338265	**80.78**
20.0	338482*	**80.78**	1	338266	**80.78**
20.5	338484*	**80.78**			
21.0	338486*	**80.78**			
21.5	338488*	**80.78**			
22.0	338490*	**80.78**			
22.5	338492*	**80.78**			
23.0	338494*	**80.78**			
23.5	338496*	**80.78**			
24.0	338498*	**80.78**			
24.5	338500*	**80.78**			
25.0	338502*	**80.78**			
25.5	338504*	**80.78**			
26.0	338506*	**80.78**			

ER50 Collets

Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling and tapping as well as for grinding operation, and is available for all sizes.



- ER50 collets collapse approximately 5/64" with full accuracy

Size (mm)	Size (in.)	Code No.	Price $
10-12	0.394-0.472	337450*	**70.13**
12-14	0.472-0.551	337452*	**70.13**
14-16	0.551-0.630	337454*	**70.13**
16-18	0.630-0.709	337456*	**70.13**
18-20	0.709-0.789	337458*	**70.13**
20-22	0.789-0.866	337460*	**70.13**
22-24	0.866-0.945	337461*	**70.13**
24-26	0.945-1.024	337462*	**70.13**
26-28	1.024-1.102	337464*	**70.13**
28-30	1.102-1.181	337466*	**70.13**
30-32	1.181-1.260	337468*	**70.13**
11pc Set	**0.394-1.260**	337387	**841.58**

ER40 Tap Collets



- For synchronous, rigid tapping operations using ER collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity

Tap Inch	Shank Dia.	Size of Square	Code No.	Price $
Metric				
M4	2.8mm	2.1mm	338387	**84.15**
M3-M5	3.5mm	2.7mm	338389	**84.15**
M3-M5	4mm	3.0mm	338391	**84.15**
M4-M6	4.5mm	3.4mm	338393	**84.15**
M4-M6	5.5mm	4.3mm	338383	**84.15**
M4-M5	5mm	4.0mm	338395	**84.15**
M5-M5.5	4.5mm	4.5mm	338397	**84.15**
M4-M8	6mm	4.9mm	338385	**84.15**
M5-M8	6mm	4.5mm	338399	**84.15**
M7-M8	6.2mm	5.0mm	338401	**84.15**
M8-M11	8mm	6.0mm	338405	**84.15**
M8	8mm	6.2mm	338409	**84.15**
M10	7mm	5.5mm	338403	**84.15**
M10	10mm	8.0mm	338413	**84.15**
M12	8.5mm	6.5mm	338407	**84.15**
M12	9mm	7.0mm	338411	**84.15**
M14	10.5mm	8.0mm	338415	**84.15**
M14	11mm	9.0mm	338417	**84.15**
M16	12mm	9.0mm	338419	**84.15**
M16	12.5mm	10.0mm	338421	**84.15**
M18	14mm	11.0mm	338423	**84.15**
M20	15mm	12.0mm	338425	**84.15**
M20	16mm	12.0mm	338427	**84.15**
M22	17mm	13.0mm	338429	**84.15**
M22-M24	18mm	14.5mm	338431	**84.15**
M27-M30	20mm	16.0mm	338433	**84.15**
Inch				
0-6	0.141	0.110	338267*	**84.15**
8	0.168	0.131	338268*	**84.15**
10	0.194	0.152	338269*	**84.15**
12	0.220	0.165	338270*	**84.15**
1/4	0.255	0.191	338271*	**84.15**
5/16	0.318	0.238	338272*	**84.15**
3/8	0.381	0.286	338273*	**84.15**
7/16	0.323	0.242	338274*	**84.15**
1/2	0.367	0.275	338275*	**84.15**
9/16	0.429	0.322	338276*	**84.15**
5/8	0.480	0.360	338277*	**84.15**
11/16	0.542	0.406	338278*	**84.15**
3/4	0.590	0.442	338279*	**84.15**
13/16	0.652	0.489	338280*	**84.15**
7/8	0.697	0.523	338281*	**84.15**
15/16	0.760	0.570	338282*	**84.15**
1	0.800	0.600	338283*	**84.15**
NPT				
1/16, 1/8-SS (small shank)	0.3125	0.234	338284*	**84.15**
1/8-LS (large shank)	0.4375	0.328	338285	**84.15**
1/4	0.5625	0.421	338286*	**84.15**
3/8	0.7000	0.531	338287*	**84.15**
1/2	0.6875	0.515	338288*	**84.15**
21pc Set			337353	**1,767.15**

* Part of set

- See page G31, G32 for Sets
- See page G21 for Dimensional Data

ER Collet Sets



* Case may not be as shown

ER11 / 13 Pieces		ER16 / 10 Pieces		ER20 / 12 Pieces		ER25 / 15 Pieces	
Code No. 337379	Price $ 386.23	Code No. 337380	Price $ 287.64	Code No. 337382	Price $ 393.35	Code No. 337383	Price $ 502.10
Code No.	**Size**	**Code No.**	**Size**	**Code No.**	**Size**	**Code No.**	**Size**
337650	0.019-0.039	337302	0.019-0.039	337473	0.059-0.078	337330	0.059-0.078
337652	0.039-0.059	337304	0.059-0.078	337474	0.098-0.118	337332	0.098-0.118
337654	0.059-0.078	337306	0.098-0.118	337475	0.137-0.157	337334	0.137-0.157
337656	0.078-0.098	337308	0.137-0.157	337476	0.177-0.196	337336	0.177-0.196
337658	0.098-0.118	337310	0.177-0.196	337477	0.217-0.236	337338	0.217-0.236
337660	0.118-0.137	337312	0.217-0.236	337478	0.256-0.275	337340	0.256-0.275
337662	0.137-0.157	337314	0.256-0.275	337479	0.295-0.314	337342	0.295-0.314
337664	0.157-0.177	337316	0.295-0.314	337480	0.335-0.354	337344	0.335-0.354
337666	0.177-0.196	337318	0.335-0.354	337481	0.374-0.393	337346	0.374-0.393
337668	0.196-0.216	337320	0.374-0.393	337482	0.413-0.433	337348	0.413-0.433
337670	0.216-0.236			337483	0.452-0.472	337350	0.452-0.472
337672	0.236-0.255			337484	0.492-0.511	337352	0.492-0.511
337674	0.255-0.275					337354	0.531-0.551
						337356	0.571-0.590
						337358	0.610-0.629

ER Collet Sets

- Shipped as set, no plastic container



Collet	Description	Range	Code No.	Price $
ER16	Inch 11pc Collet Set	1/16-3/8 x 32nds	337440	**346.59**
ER25	Inch 17pc Collet Set	1/8-5/8 x 32nds	337442	**604.76**
ER32	Inch 21pc Collet Set	1/8-3/4 x 32nds	337444	**747.05**

ER Sealed Collet Sets



Collet	Description	Range	Code No.	Price $
ER11	Inch 6pc Sealed Collet Set	3/16-17/64 x 64ths	337929	**437.58**
ER11	Metric 7pc Sealed Collet Set	3.9-7.0mm x 0.5mm	337930	**510.51**
ER16	Inch 10pc Sealed Collet Set	1/8-13/32 x 32nds	337931	**585.68**
ER16	Metric 13pc Sealed Collet Set	4.0-10.0mm x 0.5mm	337932	**773.11**
ER20	Inch 12pc Sealed Collet Set	5/32-1/2 x 32nds	337933	**779.47**
ER20	Metric 17pc Sealed Collet Set	5.0-13.0mm x 0.5mm	337935	**1,086.10**
ER25	Inch 13pc Sealed Collet Set	1/4-5/8 x 32nds	337938	**918.92**
ER25	Metric 21pc Sealed Collet Set	6.0-16.0mm x 0.5mm	337939	**1,418.28**
ER32	Inch 17pc Sealed Collet Set	1/4-3/4 x 32nds	337940	**1,277.96**
ER32	Metric 20pc Sealed Collet Set	10.5-20.0mm x 0.5mm	337942	**1,503.40**
ER40	Metric 33pc Sealed Collet Set	10.0-26.0mm x 0.5mm	337944	**2,665.87**



ER32 / 18 Pieces		ER40 / 23 Pieces		ER50 / 11 Pieces	
Code No. 337384	Price $ 595.61	Code No. 337386	Price $ 843.61	Code No. 337387	Price $ 841.58
Code No.	**Size**	**Code No.**	**Size**	**Code No.**	**Size**
337361	0.098-0.118	337501	0.137-0.157	337450	0.394-0.472
337362	0.137-0.157	337502	0.177-0.196	337452	0.472-0.551
337363	0.177-0.196	337503	0.216-0.236	337454	0.551-0.630
337364	0.217-0.236	337505	0.256-0.275	337456	0.630-0.709
337365	0.256-0.275	337506	0.295-0.314	337458	0.709-0.789
337366	0.295-0.314	337507	0.335-0.354	337460	0.789-0.866
337367	0.335-0.354	337509	0.374-0.393	337461	0.866-0.945
337368	0.374-0.393	337510	0.413-0.433	337462	0.945-1.024
337369	0.413-0.433	337511	0.452-0.472	337464	1.024-1.102
337370	0.452-0.472	337513	0.492-0.511	337466	1.102-1.181
337371	0.492-0.511	337514	0.531-0.551	337468	1.181-1.260
337372	0.531-0.551	337515	0.571-0.590		
337373	0.571-0.590	337517	0.610-0.629		
337374	0.610-0.629	337518	0.650-0.669		
337375	0.650-0.669	337519	0.689-0.708		
337376	0.689-0.708	337521	0.728-0.748		
337377	0.728-0.748	337522	0.767-0.787		
337378	0.767-0.787	337523	0.807-0.826		
		337524	0.846-0.866		
		337525	0.886-0.905		
		337526	0.925-0.944		
		337527	0.965-0.984		
		337528	1.004-1.023		

ER Tap Collet Sets

- For synchronous, rigid tapping operations using ER collet chucks
- Collet bore is exact tool diameter with square drive for accuracy and rigidity
- See page 89 for rigid tapping holders



Collet	Description	Range	Code No.	Price $
Metric				
ER32	11pc Tap Collet Set	M4 - M26	337992	**789.89**
Inch				
ER16	5pc Tap Collet Set	#6 - 1/4"	337986	**302.94**
ER16	9pc Tap Collet Set	#6 - 1/2	337343	**545.29**
ER20	9pc Tap Collet Set	#6 - 1/2	337345	**545.29**
ER25	11pc Tap Collet Set	#6 - 5/8	337347	**752.84**
ER32	16pc Tap Collet Set	#6 - 13/16	337351	**1,148.93**
ER40	21pc Tap Collet Set	#6 - 1"	337353	**1,767.15**

ER Inch Collet Sets



ER11 / 7 Pieces		ER16 / 11 Pieces		ER20 / 15 Piece		ER25 / 17 Pieces		ER32 / 21 Pieces		ER40 / 13 Pieces		ER40 / 29 Pieces	
Code No. 337401	Price $ 210.39	Code No. 337403	Price $ 346.59	Code No. 337404	Price $ 518.36	Code No. 337405	Price $ 604.76	Code No. 337407	Price $ 747.05	Code No. 337417	Price $ 639.76	Code No. 337409	Price $ 1,179.02
Code No.	Size	Code No.	Size	Code No.	Size	Code No.	Size	Code No.	Size	Code No.	Size	Code No.	Size
337610	1/16	337531	1/16	337621	1/16	337683	1/8	337703	1/8	337728	1/8	337728	1/8
337613	3/32	337532	3/32	337623	3/32	337684	5/32	337704	5/32	337731	3/16	337729	5/32
337615	1/8	337533	1/8	337663	1/8	337685	3/16	337706	3/16	337733	1/4	337731	3/16
337618	5/32	337534	5/32	337665	5/32	337686	7/32	337707	7/32	337736	5/16	337732	7/32
337651	3/16	337535	3/16	337667	3/16	337687	1/4	337708	1/4	337738	3/8	337733	1/4
337655	7/32	337536	7/32	337669	7/32	337688	9/32	337709	9/32	337741	7/16	337734	9/32
337659	1/4	337537	1/4	337671	1/4	337689	5/16	337711	5/16	337743	1/2	337736	5/16
		337538	9/32	337673	9/32	337691	11/32	337712	11/32	337746	9/16	337737	11/32
		337540	5/16	337675	5/16	337692	3/8	337713	3/8	337748	5/8	337738	3/8
		337541	11/32	337676	11/32	337693	13/32	337714	13/32	337751	11/16	337739	13/32
		337542	3/8	337677	3/8	337694	7/16	337716	7/16	337753	3/4	337741	7/16
				337678	13/32	337696	15/32	337717	15/32	337758	7/8	337742	15/32
				337679	7/16	337697	1/2	337718	1/2	337763	1	337743	1/2
				337681	15/32	337698	17/32	337719	17/32			337744	17/32
				337682	1/2	337699	9/16	337721	9/16			337746	9/16
						337701	19/32	337722	19/32			337747	19/32
						337702	5/8	337723	5/8			337748	5/8
								337724	21/32			337749	21/32
								337725	11/16			337751	11/16
								337726	23/32			337752	23/32
								337727	3/4			337753	3/4
												337754	25/32
												337756	13/16
												337757	27/32
												337758	7/8
												337759	29/32
												337761	15/16
												337762	31/32
												337763	1

Replacement ER Chuck Nuts







Collet Nut for ER32 Shorty Collet Chuck

	Steam Oxide		Balanced & Bright	
Description	Code No.	Price $	Code No.	Price $
ER11 Nut (Hex)	337680	60.72	534790	36.96
ER16 Nut (Hex)	337389	60.72	534792	36.96
ER20 Nut (Hex)	337391	60.72	534794	42.24
ER25 Nut (Notched)	337390	66.00	534796	46.20
ER32 Nut (Notched)	337392	64.68	534798	51.48
ER40 Nut (Notched)	337393	69.96	534800	55.44
ER50 Nut (Notched)	337385	155.76		
ER32 Shorty Collet Nut				
Fits ER32 Shorty Chucks (M40 x 1.5 Thread)			337411	110.13

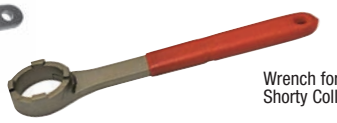
Replacement Backup Screws



Description	Code No.	Price $
ER11 Backup Screws	534814	9.15
ER16 Backup Screws	534816	10.45
ER20 Backup Screws	534818	10.45
ER25 Backup Screws	534820	13.07
ER32 Backup Screws	534822	11.63
ER40 Backup Screws	534824	15.68

ER Chuck Nut Wrenches





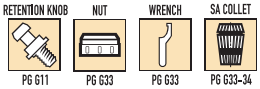
Wrench for ER32 Shorty Collet Chuck

Description	Code No.	Price $
Fits ER11 Chucks (Hex)	337388	25.08
Fits ER16 Chucks (Hex)	337395	25.08
Fits ER20 Chucks (Hex)	337397	36.96
Fits ER25 Chucks (Notched)	337396	30.36
Fits ER32 Chucks (Notched)	337398	36.96
Fits ER40 Chucks (Notched)	337399	43.56
ER32 Shorty Chuck Wrench		
Fits ER32 Shorty Chucks	337381	118.89

CAT Taper SA High Precision Collet Chucks

- DIN coolant through the flange at no extra charge
- Run out accuracy is > 5µm at 4xD of the cutting tool shank
- 8° tapered collet seats deeper in the body of the holder providing increased rigidity. This results in concentricity and stronger gripping power
- Wrench not included
- AT2 Taper Accuracy
- RFID chip hole





PREMIUM BALANCE G2.5 at 25,000rpm CERTIFICATE INCLUDED — CAT50

PREMIUM BALANCE G2.5 at 30,000rpm CERTIFICATE INCLUDED — CAT40

Taper	Collet Series	Collet Range	Gauge Length	Code No.	Price $
CAT40					
CT40	SA10	0.069-0.394	3.54	531756	**345.50**
CT40	SA10	0.069-0.394	4.72	531758	**363.63**
CT40	SA16	0.108-0.630	3.54	531762	**362.12**
CT40	SA16	0.108-0.630	5.91	531766	**436.45**
CT40	SA25	0.630-1.00	3.54	531768	**395.07**
CAT50					
CT50	SA10	0.069-0.394	4.13	531776	**477.55**
CT50	SA16	0.108-0.630	4.13	531782	**479.96**
CT50	SA25	0.630-1.00	4.13	531788	**532.54**

Replacement SA Collet Nuts



Description	Code No.	Price $
SA10 Nut (Hex)	536588	**82.48**
SA16 Nut (Notched)	536590	**88.68**
SA25 Nut (Notched)	536592	**92.00**

SA Collet Chuck Wrenches



Description	Code No.	Price $
Fits SA10	536580	**34.90**
Fits SA16	536582	**34.90**
Fits SA25	536584	**34.90**

SA Collet Extractors



Description	Code No.	Price $
SA10	536572	**14.80**
SA16	536574	**18.74**
SA25	536576	**25.84**

SA10 Collets



Size	Collapse Range (mm)	Collapse Range (in.)	Code No.	Price $
Metric				
2.0mm	1.75-2.0	0.068-0.078	338564	**95.37**
2.25mm	2.0-2.25	0.078-0.088	338566	**95.37**
2.5mm	2.25-2.5	0.088-0.098	338568	**95.37**
3.0mm	2.75-3.0	0.108-0.118	338572	**95.37**
3.5mm	3.0-3.5	0.118-0.137	338574	**95.37**
4.0mm	3.5-4.0	0.137-0.157	338576	**95.37**
4.5mm	4.0-4.5	0.157-0.177	338578	**95.37**
5.0mm	4.5-5.0	0.177-0.196	338580	**95.37**
5.5mm	5.0-5.5	0.196-0.216	338582	**95.37**
6.0mm	5.5-6.0	0.216-0.236	338583	**95.37**
6.5mm	6.0-6.5	0.236-0.255	338584	**95.37**
7.0mm	6.5-7.0	0.255-0.275	338586	**95.37**
7.5mm	7.0-7.5	0.275-0.295	338588	**95.37**
8.0mm	7.5-8.0	0.295-0.314	338590	**95.37**
8.5mm	8.0-8.5	0.314-0.334	338592	**95.37**
9.0mm	8.5-9.0	0.334-0.354	338594	**95.37**
9.5mm	9.0-9.5	0.354-0.374	338596	**95.37**
10.0mm	9.5-10.0	0.374-0.393	338598	**95.37**
Inch				
1/8	-	-	338602	**95.37**
3/16	-	-	338604	**95.37**
1/4	-	-	338606	**95.37**
5/16	-	-	338608	**95.37**
3/8	-	-	338610	**95.37**

SA25 Collets



Size	Collapse Range (mm)	Collapse Range (in.)	Code No.	Price $
Metric				
16.5mm	16.0-16.5	0.629-0.649	338694	**116.42**
17.0mm	16.5-17.0	0.649-0.669	338696	**116.42**
17.5mm	17.0-17.5	0.669-0.688	338698	**116.42**
18.0mm	17.5-18.0	0.688-0.708	338700	**116.42**
18.5mm	18.0-18.5	0.708-0.728	338702	**116.42**
19.0mm	18.5-19.0	0.728-0.748	338704	**116.42**
20.0mm	19.5-20.0	0.767-0.787	338708	**116.42**
20.5mm	20.0-20.5	0.787-0.807	338710	**116.42**
21.0mm	20.5-21.0	0.807-0.826	338712	**116.42**
21.5mm	21.0-21.5	0.826-0.846	338714	**116.42**
22.0mm	21.5-22.0	0.846-0.866	338716	**116.42**
23.0mm	22.5-23.0	0.885-0.905	338720	**116.42**
24.0mm	23.5-24.0	0.925-0.944	338724	**116.42**
24.5mm	24.0-24.5	0.944-0.964	338726	**116.42**
25.0mm	24.5-25.0	0.964-0.984	338728	**116.42**
25.4mm	25.0-25.4	0.984-1.000	338730	**116.42**
Inch				
1/4	-	-	338736	**116.42**
5/16	-	-	338738	**116.42**
3/8	-	-	338740	**116.42**
7/16	-	-	338742	**116.42**
1/2	-	-	338744	**116.42**
5/8	-	-	338746	**116.42**
3/4	-	-	338748	**116.42**

SA16 Collets

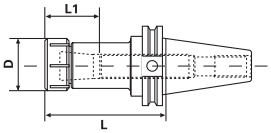


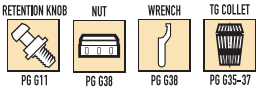
Size	Collapse Range (mm)	Collapse Range (in.)	Code No.	Price $
Metric				
2.0mm			338614	**95.37**
2.5mm			338616	**95.37**
3.0mm	2.75-3.0	0.108-0.118	338618	**95.37**
3.5mm	3.0-3.5	0.118-0.137	338620	**95.37**
4.0mm	3.5-4.0	0.137-0.157	338622	**95.37**
4.5mm	4.0-4.5	0.157-0.177	338624	**95.37**
5.0mm	4.5-5.0	0.177-0.196	338626	**95.37**
5.5mm	5.0-5.5	0.196-0.216	338628	**95.37**
6.0mm	5.5-6.0	0.216-0.236	338630	**95.37**
6.5mm	6.0-6.5	0.236-0.255	338632	**95.37**
7.0mm	6.5-7.0	0.255-0.275	338634	**95.37**
7.5mm	7.0-7.5	0.275-0.295	338636	**95.37**
8.0mm	7.5-8.0	0.295-0.314	338638	**95.37**
8.5mm	8.0-8.5	0.314-0.334	338640	**95.37**
9.0mm	8.5-9.0	0.334-0.354	338642	**95.37**
9.5mm	9.0-9.5	0.354-0.374	338644	**95.37**
10.0mm	9.5-10.0	0.374-0.393	338646	**95.37**
10.5mm	10.0-10.5	0.393-0.413	338648	**95.37**
11.0mm	10.5-11.0	0.413-0.433	338650	**95.37**
11.5mm	11.0-11.5	0.433-0.452	338652	**95.37**
12.0mm	11.5-12.0	0.452-0.472	338654	**95.37**
12.5mm	12.0-12.5	0.472-0.492	338656	**95.37**
13.0mm	12.5-13.0	0.492-0.511	338658	**95.37**
13.5mm	13.0-13.5	0.511-0.531	338660	**95.37**
14.0mm	13.5-14.0	0.531-0.551	338662	**95.37**
14.5mm	14.0-14.5	0.551-0.570	338664	**95.37**
15.0mm	14.5-15.0	0.570-0.590	338666	**95.37**
15.5mm	15.0-15.5	0.590-0.610	338668	**95.37**
16.0mm	15.5-16.0	0.610-0.629	338670	**95.37**
Inch				
1/8	-	-	338674	**95.37**
3/16	-	-	338676	**95.37**
1/4	-	-	338678	**95.37**
5/16	-	-	338680	**95.37**
3/8	-	-	338682	**95.37**
7/16	-	-	338684	**95.37**
1/2	-	-	338686	**95.37**
9/16	-	-	338688	**95.37**
5/8	-	-	338690	**95.37**

CAT Taper TG Collet Chucks

- DIN coolant through the flange
- Shank traverse ground to obtain optimum accuracy
- Meets or exceeds ANSI specifications
- Wrench not included
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0006"
- AT2 Taper Accuracy
- RFID chip hole







PREMIUM BALANCE G6.3 at 25,000rpm CERTIFICATE INCLUDED — CAT50

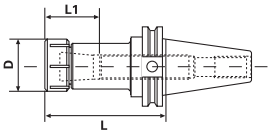
PREMIUM BALANCE G6.3 at 30,000rpm CERTIFICATE INCLUDED — CAT40

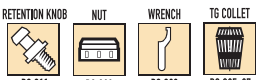
Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CAT40								
CT40	TG75	3/64-3/4	3.00	1.61	1.89	81.3	531284	**342.38**
CT40	TG75	3/64-3/4	5.00	1.61	1.89	81.3	531286	**175.11**
CT40	TG100	3/64-1	3.00	2.13	2.50	81.3	531288	**252.21**
CT40	TG100	3/64-1	3.50	2.13	2.50	81.3	531290	**252.21**
CT40	TG100	3/64-1	5.50	2.13	2.50	81.3	531292	**252.21**
CT40	TG150	1/2-1-1/2	6.00	2.88	3.50	94.9	531294	**252.21**
CAT50								
CT50	TG75	3/64-3/4	3.50	1.61	1.89	81.3	531296	**241.76**
CT50	TG100	3/64-1	3.50	2.13	2.50	81.3	531300	**241.76**
CT50	TG100	3/64-1	5.50	2.13	2.50	81.3	531302	**329.31**
CT50	TG100	3/64-1	7.50	2.13	2.50	81.3	531304	**456.07**
CT50	TG100	3/64-1	10.00	2.13	3.50	81.3	531306	**516.19**
CT50	TG150	1/2-1-1/2	3.50	2.88	3.50	94.9	531308	**359.37**
CT50	TG150	1/2-1-1/2	6.00	2.88	3.50	94.9	531310	**398.57**

BT Taper TG Collet Chucks

- DIN coolant through the flange
- Shank traverse ground to obtain optimum accuracy
- Meets or exceeds ANSI specifications
- Wrench not included
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0006"
- AT2 Taper Accuracy
- RFID chip hole







PREMIUM BALANCE G6.3 at 25,000rpm CERTIFICATE INCLUDED — BT50

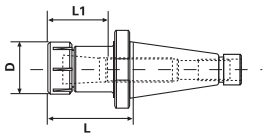
PREMIUM BALANCE G6.3 at 30,000rpm CERTIFICATE INCLUDED — BT30/40

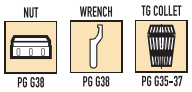
Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
BT30								
BT30	TG75	3/64-3/4	2.50	1.61	1.89	81.3	532128‡	**342.38**
BT30	TG100	3/64-1	3.94	2.24	2.50	81.3	532130‡	**184.26**
BT40								
BT40	TG75	3/64-3/4	3.00	1.61	1.89	81.3	532132	**342.38**
BT40	TG100	3/64-1	3.50	2.13	2.50	81.3	532134	**184.26**
BT40	TG100	3/64-1	5.50	2.13	2.50	81.3	532136	**202.55**
BT50								
BT50	TG100	3/64-1	4.00	2.13	2.50	81.3	532139	**299.26**
BT50	TG100	3/64-1	6.00	2.13	2.50	81.3	532140	**385.51**

‡ Not DIN Coolant

NMTB Taper TG Collet Chucks



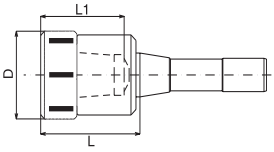


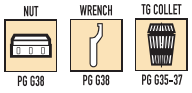


Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
NMTB40	TG100	3/64-1	3.00	2.12	2.50	81.3	534304	**151.68**
NMTB50	TG75	3/64-3/4	3.00	1.61	1.89	81.3	534308	**183.56**
NMTB50	TG100	3/64-1	3.50	2.12	2.50	81.3	534310	**242.48**

R8 Taper TG Collet Chuck



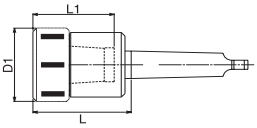


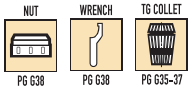


Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
R8	TG100	3/64-1	3.25	2.17	2.50	81.3	534314	**164.67**

Morse Taper TG Collet Chucks



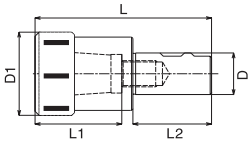


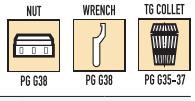


Taper	Collet Series	Collet Range	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
MT3	TG100	3/64-1	3.25	2.73	2.50	81.3	534322	**260.90**
MT4	TG100	3/64-1	3.25	2.73	2.50	81.3	534324	**274.50**

Straight Shank TG Collet Chucks







Shank Dia.	Collet Series	Collet Range	L	L1	L2	D1	Tightening Torque (Nm)	Code No.	Price $
1-1/2	TG100	3/64-1	9.00	2.73	6.00	2.50	81.3	534320	**195.34**

TG75 Standard & Sealed Collets

- 1/64" collapse per collet
- 0.0005" in TIR precision per DIN 6341
- 80 ft/lbs maximum tightening torque

Sealed Collets

- Sealed for coolant-through applications
- Pressure resistance tested to 1000 psi
- Sealed with rubber



REGULAR SEALED

Size (in.)	Regular Code No.	Price $	Sealed Code No.	Price $
3/64	334790	**34.56**	-	-
1/16	334791	**34.56**	-	-
5/64	334792	**34.56**	-	-
3/32	334800	**34.56**	-	-
7/64	334801	**34.56**	-	-
1/8	334802	**33.54**	334843	**69.56**
9/64	334803	**34.56**	334844	**69.56**
5/32	334804	**34.56**	334845	**69.56**
11/64	334805	**33.54**	334846	**69.56**
3/16	334806	**34.56**	334847	**69.56**
13/64	334807	**33.54**	334848	**69.56**
7/32	334808	**34.56**	334849	**69.56**
15/64	334809	**33.54**	334850	**69.56**
1/4	334810	**33.54**	334851	**69.56**
17/64	334811	**33.54**	334852	**69.56**
9/32	334812	**34.56**	334853	**69.56**
19/64	334813	**33.54**	334854	**69.56**
5/16	334814	**34.56**	334855	**69.56**
21/64	334815	**33.54**	334856	**69.56**
11/32	334816	**33.54**	334857	**69.56**
23/64	334817	**34.56**	334858	**69.56**
3/8	334818	**34.56**	334859	**69.56**
25/64	334819	**34.56**	334860	**69.56**
13/32	334820	**33.54**	334861	**69.56**
27/64	334821	**34.56**	334862	**69.56**
7/16	334822	**34.56**	334863	**69.56**
29/64	334823	**34.56**	334864	**69.56**
15/32	334824	**33.54**	334865	**69.56**
31/64	334825	**34.56**	334866	**69.56**
1/2	334826	**33.54**	334867	**69.56**
33/64	334827	**34.56**	334868	**69.56**
17/32	334828	**33.54**	334869	**69.56**
35/64	334829	**34.56**	334870	**69.56**
9/16	334830	**34.56**	334871	**69.56**
37/64	334831	**34.56**	334872	**69.56**
19/32	334832	**33.54**	334873	**69.56**
39/64	334833	**34.56**	334874	**69.56**
5/8	334834	**34.56**	334875	**69.56**
41/64	334835	**34.56**	334876	**69.56**
21/32	334836	**33.54**	334877	**69.56**
43/64	334837	**34.56**	334878	**69.56**
11/16	334838	**33.54**	334879	**69.56**
45/64	334839	**34.56**	334880	**69.56**
23/32	334840	**34.56**	334881	**69.56**
47/64	334841	**34.56**	334882	**69.56**
3/4	334842	**34.56**	334883	**69.56**

• See page G38 for Dimensional Data

TG75 Tapping Collets

- For synchronous, rigid tapping operations using TG collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity



Tap Inch	Shank Dia. (in.)	Size of Square (in.)	Code No.	Price $
0-6	0.141	0.110	334884	**61.71**
8	0.168	0.131	334885	**61.71**
10	0.194	0.152	334886	**61.71**
12	0.220	0.165	334887	**61.71**
1/4	0.255	0.191	334888	**61.71**
5/16	0.318	0.238	334889	**61.71**
3/8	0.381	0.286	334890	**61.71**
7/16	0.323	0.242	334891	**61.71**
1/2	0.367	0.275	334892	**61.71**
9/16	0.429	0.322	334893	**61.71**
5/8	0.480	0.360	334894	**61.71**
11/16	0.542	0.406	334895	**61.71**
3/4	0.590	0.442	334896	**61.71**
NPT				
1/16, 1/8 NPT-ss*	0.3125	0.234	334897	**61.71**
1/8 NPT-LS*	0.4375	0.328	334898	**61.71**
1/4 NPT	0.5625	0.421	334899	**61.71**

*ss = small shank
*LS = large shank

Standard TG75 Collet Sets

- 1/64" collapse per collet
- 0.0005" in TIR precision per DIN 6341
- 80 ft/lbs maximum tightening torque



No. of Pieces	Range (in.)	Increment (in.)	Code No.	Price $
43	3/32-3/4	1/64	334900	**1,469.71**
41	1/8-3/4	1/64	334901	**1,401.62**
33	1/4-3/4	1/64	334902	**1,128.20**
25	3/8-3/4	1/64	334903	**854.79**
22	3/32-3/4	1/32	334904	**750.10**
13	3/8-3/4	1/32	334905	**444.17**
11	1/8-3/4	1/16	334906	**376.07**

• See page G38 for Dimensional Data

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

TG100 Standard & Sealed Collets

- 1/64" collapse per collet
- 0.0005" in TIR precision per DIN 6341
- 90 ft/lbs maximum tightening torque

Sealed Collets
- Sealed for coolant-through applications
- Pressure resistance tested between 650 - 750 psi
- Sealed with rubber



REGULAR



SEALED

Size (in.)	Regular Code No.	Price $	Sealed Code No.	Price $
3/64	334418	**34.56**	-	-
5/64	334423	**34.56**	-	-
3/32	334425N	**34.56**	-	-
7/64	334426	**34.56**	-	-
1/8	334427N	**34.56**	-	-
9/64	334428	**34.56**	-	-
5/32	334429N	**34.56**	334907	**75.17**
11/64	334430	**34.56**	334908	**75.17**
3/16	334431N	**34.56**	334909	**75.17**
13/64	334432	**34.56**	334910	**75.17**
7/32	334433N	**34.56**	334911	**75.17**
15/64	334434	**34.56**	334912	**75.17**
1/4	334435N	**34.56**	334913	**75.17**
17/64	334436	**34.56**	334914	**75.17**
9/32	334437N	**34.56**	334915	**75.17**
19/64	334438	**34.56**	334916	**75.17**
5/16	334439N	**34.56**	334917	**75.17**
21/64	334440	**34.56**	334918	**75.17**
11/32	334441N	**34.56**	334919	**75.17**
23/64	334442	**34.56**	334920	**75.17**
3/8	334443N	**34.56**	334921	**75.17**
25/64	334444	**34.56**	334922	**75.17**
13/32	334445N	**34.56**	334923	**75.17**
27/64	334446	**34.56**	334924	**75.17**
7/16	334447N	**34.56**	334925	**75.17**
29/64	334448	**34.56**	334926	**75.17**
15/32	334449N	**34.56**	334927	**75.17**
31/64	334450	**34.56**	334928	**75.17**
1/2	334451N	**34.56**	334929	**75.17**
33/64	334452	**34.56**	334930	**75.17**
17/32	334453N	**34.56**	334931	**75.17**
35/64	334454	**34.56**	334932	**75.17**
9/16	334455N	**34.56**	334933	**75.17**
37/64	334456	**34.56**	334934	**75.17**
19/32	334457N	**34.56**	334935	**75.17**
39/64	334458	**34.56**	334936	**75.17**
5/8	334459N	**34.56**	334937	**75.17**
41/64	334460	**34.56**	334938	**75.17**
21/32	334461N	**34.56**	334939	**75.17**
43/64	334462	**34.56**	334940	**75.17**
11/16	334463N	**34.56**	334941	**75.17**
45/64	334464	**34.56**	334942	**75.17**
23/32	334465N	**34.56**	334943	**75.17**
47/64	334466	**34.56**	334944	**75.17**
3/4	334467N	**34.56**	334945	**75.17**
49/64	334468	**34.56**	334946	**75.17**
25/32	334469N	**34.56**	334947	**75.17**
51/64	334470	**34.56**	334948	**75.17**
13/16	334471N	**34.56**	334949	**75.17**
53/64	334472	**34.56**	334950	**75.17**
27/32	334473N	**34.56**	334951	**75.17**
55/64	334474	**34.56**	334952	**75.17**
7/8	334475N	**34.56**	334953	**75.17**
57/64	334476	**34.56**	334954	**75.17**
29/32	334477N	**34.56**	334955	**75.17**
59/64	334478	**34.56**	334956	**75.17**
15/16	334479N	**34.56**	334957	**75.17**
61/64	334480	**34.56**	334958	**75.17**
31/32	334481N	**34.56**	334959	**75.17**
63/64	334482	**34.56**	334960	**75.17**
1	334483N	**34.56**	334961	**75.17**

TG100 Tapping Collets

- For synchronous, rigid tapping operations using TG collet chuck
- Collet bore is exact tool diameter with square drive for accuracy and rigidity



Tap Inch	Shank Dia.	Size of Square	Code No.	Price $
0-6	0.141	0.110	334963	**65.08**
8	0.168	0.131	334964	**65.08**
10	0.194	0.152	334965	**65.08**
12	0.220	0.165	334966	**65.08**
1/4	0.255	0.191	334967	**65.08**
5/16	0.318	0.238	334968	**65.08**
3/8	0.381	0.286	334969	**65.08**
7/16	0.323	0.242	334970	**65.08**
1/2	0.367	0.275	334971	**65.08**
9/16	0.429	0.322	334972	**65.08**
5/8	0.480	0.360	334973	**65.08**
11/16	0.542	0.406	334974	**65.08**
3/4	0.590	0.442	334975	**65.08**
13/16	0.652	0.489	334976	**65.08**
7/8	0.697	0.523	334977	**65.08**
15/16	0.760	0.570	334978	**65.08**
1	0.800	0.600	334979	**65.08**
NPT				
1/16, 1/8 NPT-ss*	0.3125	0.234	334980	**65.08**
1/8 NPT-LS*	0.4375	0.328	334981	**65.08**
1/4 NPT	0.5625	0.421	334982	**65.08**
3/8 NPT	0.7000	0.531	334983	**65.08**
1/2 NPT	0.6875	0.515	334984	**65.08**

*ss = small shank
*LS = large shank

Standard TG100 Collet Sets

- 1/64" collapse per collet
- 0.0005" in TIR precision per DIN 6341
- 90 ft/lbs maximum tightening torque



No. of Pieces	Range (in.)	Increment (in.)	Code No.	Price $
59	3/32-1	1/64	334575	**2,038.90**
41	3/8-1	1/64	334570	**1,416.86**
30	3/32-1	1/32	334565	**1,036.73**
21	3/8-1	1/32	334560	**725.71**
15	1/8-1	1/16	334561	**518.36**

• See page G38 for Dimensional Data

TG150 Standard Collets

- Unique 8" taper design affords highest gripping power
- True double angle, for extreme concentricity
- 16 jaws giving powerful gripping and parallel clamping
- A unique self releasing system is built into the collet and clamping nut to eliminate cutting tools sticking in collets
- 1/64" collapse per collet
- 0.0005" in TIR precision per DIN 6341



Size (in.)	Code No.	Price $	Size (in.)	Code No.	Price $
1/2	334485N	**48.79**	1-1/64	334518	**48.79**
33/64	334486	**48.79**	1-1/32	334519N	**48.79**
17/32	334487N	**48.79**	1-3/64	334520	**48.79**
35/64	334488	**48.79**	1-1/16	334521N	**48.79**
9/16	334489N	**48.79**	1-5/64	334522	**48.79**
37/64	334490	**48.79**	1-3/32	334523N	**48.79**
19/32	334491N	**48.79**	1-7/64	334524	**48.79**
39/64	334492	**48.79**	1-1/8	334525N	**48.79**
5/8	334493N	**48.79**	1-9/64	334526	**48.79**
41/64	334494	**48.79**	1-5/32	334527N	**48.79**
21/32	334495N	**48.79**	1-11/64	334528	**48.79**
43/64	334496	**48.79**	1-3/16	334529N	**48.79**
11/16	334497N	**48.79**	1-13/64	334530	**48.79**
45/64	334498	**48.79**	1-7/32	334531N	**48.79**
23/32	334499N	**48.79**	1-15/64	334532	**48.79**
47/64	334500	**48.79**	1-1/4	334533N	**48.79**
3/4	334501N	**48.79**	1-17/64	334534	**48.79**
49/64	334502	**48.79**	1-9/32	334535N	**48.79**
25/32	334503N	**48.79**	1-19/64	334536	**48.79**
51/64	334504	**48.79**	1-5/16	334537N	**48.79**
13/16	334505N	**48.79**	1-21/64	334538	**48.79**
53/64	334506	**48.79**	1-11/32	334539N	**48.79**
27/32	334507N	**48.79**	1-23/64	334540	**48.79**
55/64	334508	**48.79**	1-3/8	334541N	**48.79**
7/8	334509N	**48.79**	1-25/64	334542	**48.79**
57/64	334510	**48.79**	1-13/32	334543N	**48.79**
`29/32	334511N	**48.79**	1-27/64	334544	**48.79**
59/64	334512	**48.79**	1-7/16	334545N	**48.79**
15/16	334513N	**48.79**	1-29/64	334546	**48.79**
61/64	334514	**48.79**	1-15/32	334547N	**48.79**
31/32	334515N	**48.79**	1-31/64	334548	**48.79**
63/64	334516	**48.79**	1-1/2	334549N	**48.79**
1	334517N	**48.79**			

Standard TG150 Collet Sets

- Unique 8" taper design affords highest gripping power
- True double angle, for extreme concentricity
- 16 jaws giving powerful gripping and parallel clamping
- A unique self releasing system is built into the collet and clamping nut to eliminate cutting tools sticking in collets
- 1/64" collapse per collet
- 0.0005" in TIR precision per DIN 6341



No. of Pieces	Range (in.)	Increment (in.)	Code No.	Price $
17	1/2-1-1/2	1/16	334580	**829.43**
33	1/2-1-1/2	1/32	334585	**1,609.98**

• See page G38 or Dimensional Data

Replacement TG Chuck Nuts



Description	Tightening Torque (Nm)	Code No.	Price $
*TG75 Nut	81.3	534760	**103.24**
*TG100 Nut	81.3	534762	**67.95**
*TG150 Nut	94.9	534764	**102.43**
TG75 Nut, Solid	81.3	534830	**103.24**
TG100 Nut, Solid	81.3	534832	**67.95**

* Photo Shown / This style is supplied with chuck

TG Chuck Wrenches



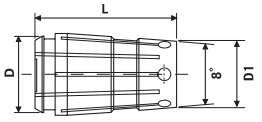
Description	Code No.	Price $
Fits TG75 Chuck	534772	**62.73**
Fits TG100 Chuck	534774	**37.90**
Fits TG150 Chuck	534776	**66.93**

Replacement TG Backup Screws



Description	Code No.	Price $
TG75	534778	**11.03**
TG100	534782	**11.03**
TG150	534786	**12.54**
TG150 Coolant	534788	**14.36**

TG Collet Dimensional Data

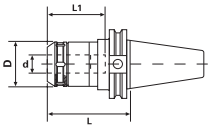


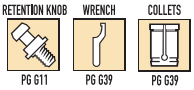
Style	D	D1	L	Collet Range
TG25	0.425	0.325	0.709	3/64-1/4
TG50	0.760	0.594	1.437	1/8-1/2
TG75	1.063	0.871	1.844	3/64-3/4
TG100	1.278	1.121	2.386	3/64-1
TG150	1.875	1.678	3.000	1/2-1-1/2

CAT40 Milling Chucks

- DIN coolant through the flange at no extra charge
- Rough milling or 'hogging' operations
- Improved tool life over regular end mill holders
- '360°' gripping contact
- Extreme rigidity over taper collets
- TIR, 0.0002"
- AT2 Taper Accuracy
- RFID chip hole







Taper	Collet Series	Collet Range	d	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT40	GS 3/4	0.125-0.750	0.750	3.54	3.15	2.05	50-70	531253	**695.22**
CT40	GS 3/4	0.125-0.750	0.750	4.14	3.15	2.05	50-70	531250	**695.22**
CT40	GS 1	0.125-1.00	1.00	3.54	3.15	2.41	50-70	531255‡	**695.22**
CT40	GS 1	0.125-1.00	1.00	4.14	3.15	2.41	50-70	531254	**695.22**
CT40	GS 1-1/4	0.187-1.25	1.25	3.54	3.34	2.88	60-80	531257‡	**695.22**
CT40	GS 1-1/4	0.187-1.25	1.25	4.14	3.34	2.88	60-80	531256	**695.22**
CT40	GS 1-1/4	0.187-1.25	1.25	5.32	4.73	2.88	60-80	531258	**718.74**

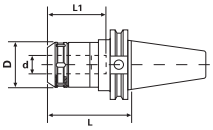
‡ Not DIN Coolant

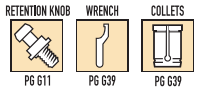
CAT40 DUAL CONTACT Milling Chucks

- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- DIN coolant through the flange at no extra charge
- Rough milling or 'hogging' operations
- '360°' gripping contact
- Improved tool life over regular end mill holders
- Extreme rigidity over taper collets
- TIR, 0.0002"
- RFID chip hole
- AT2 Taper Accuracy

FOR DUAL CONTACT SPINDLES







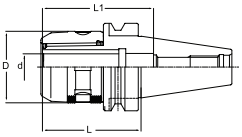
Taper	Collet Series	Collet Range	d	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT40	GS 3/4	0.125-0.750	0.750	3.54	3.15	2.05	50-70	521253	**596.90**
CT40	GS 1	0.125-1.00	1.00	3.54	3.15	2.41	50-70	521255‡	**596.90**
CT40	GS 1-1/4	0.187-1.25	1.25	3.54	3.34	2.88	60-80	521257‡	**596.90**

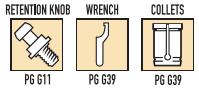
‡ Not DIN Coolant

BT Taper Milling Chucks

- TIR 0.0004"
- AT2 Taper Accuracy
- RFID chip hole







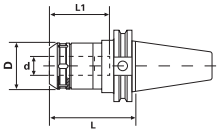
Taper	Collet Series	Collet Range	d	L	L1	D	Code No.	Price $
BT30								
BT30	GS 3/4	0.125-0.750	0.750	3.55	3.15	2.05	532096‡	**695.22**
BT40								
BT40	GS 3/4	0.125-0.750	0.750	4.14	3.15	2.05	532098	**695.22**
BT40	GS 3/4	0.125-0.750	0.750	4.73	3.15	2.05	532100	**695.22**
BT40	GS 1	0.125-1.00	1.00	4.14	3.15	2.41	532102	**695.22**
BT40	GS 1-1/4	0.187-1.25	1.25	4.14	3.34	2.88	532104	**695.22**
BT50								
BT50	GS 1-1/4	0.187-1.25	1.25	4.20	3.34	2.88	532113	**893.85**

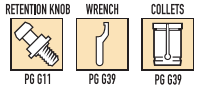
‡ Not DIN Coolant

CAT50 Milling Chucks

- DIN coolant through the flange at no extra charge
- Rough milling or 'hogging' operations
- Improved tool life over regular end mill holders
- '360°' gripping contact
- Extreme rigidity over taper collets
- TIR, 0.0002"
- AT2 Taper Accuracy
- RFID chip hole



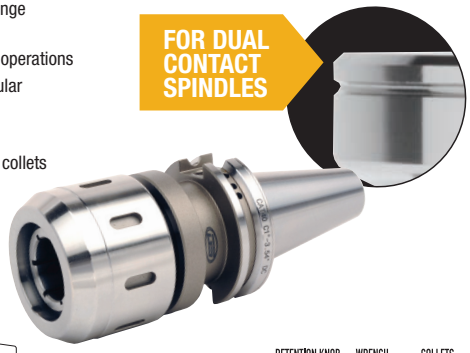


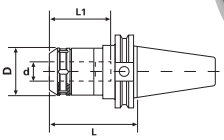


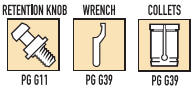
Taper	Collet Series	Collet Range	d	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT50	GS 3/4	0.125-0.750	0.750	4.14	3.15	2.05	50-70	531260	**893.85**
CT50	GS 3/4	0.125-0.750	0.750	5.32	3.15	2.05	50-70	531262	**908.23**
CT50	GS 3/4	0.125-0.750	0.750	6.49	3.15	2.05	50-70	531263	**908.23**
CT50	GS 1	0.125-1.00	1.00	4.14	3.15	2.41	50-70	531264	**893.85**
CT50	GS 1-1/4	0.187-1.25	1.25	3.54	4.73	2.88	60-80	531265	**893.85**
CT50	GS 1-1/4	0.187-1.25	1.25	4.14	4.73	2.88	60-80	531266	**893.85**
CT50	GS 1-1/4	0.187-1.25	1.25	5.32	4.73	2.88	60-80	531268	**908.23**
CT50	GS 1-1/4	0.187-1.25	1.25	6.49	4.73	2.88	60-80	531269	**908.23**

CAT50 DUAL CONTACT Milling Chucks

- Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life
- DIN coolant through the flange at no extra charge
- Rough milling or 'hogging' operations
- Improved tool life over regular end mill holders
- '360°' gripping contact
- Extreme rigidity over taper collets
- TIR, 0.0002"
- RFID chip hole
- AT2 Taper Accuracy







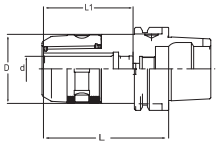
Taper	Collet Series	Collet Range	d	L	L1	D	Tightening Torque (Nm)	Code No.	Price $
CT50	GS 1-1/4	0.187-1.25	1.25	4.14	4.73	2.88	50-70	521266	**767.45**

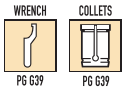
HSK Milling Chucks

HSK Advantages:

- High rigidity and torque transmission (almost double the rigidity of V-flange holders)
- Extreme concentricity enhance tool life performance
- Coolant through capabilities
- TIR 0.0004"
- RFID chip hole
- AT2 Taper Accuracy







Taper	Collet Series	Collet Range	d	L	L1	D	Code No.	Price $
HSK63A								
HSK63A	GS3/4	0.125-0.750	0.750	3.740	2.480	2.047	536154	**686.64**
HSK63A	GS1	0.125-1.000	1.000	5.118	3.150	2.362	536160	**912.18**
HSK63A	GS1-1/4	0.187-1.250	1.250	4.331	3.268	2.717	536162	**901.45**
HSK100A								
HSK100A	GS3/4	0.125-0.750	0.750	5.315	3.150	2.047	536170	**1,272.94**
HSK100A	GS32	3mm - 32mm	32mm	5.315	4.055	2.717	536180	**930.01**
HSK100A	GS2	1.000-2.000	2.000	4.921	3.543	4.134	536182	**1,666.50**

Milling Chuck Wrenches



Chuck Cap.	Code No.	Price $
3/4	534208	**57.10**
1	534210	**57.10**
1-1/4	534212	**57.10**

GS Milling Collets



I.D.	GS 3/4" Code No.	Price $	GS 1" Code No.	Price $	GS 11/4" Code No.	Price $
Metric						
6mm	534668	**54.98**	534702	**54.98**	534740	**54.98**
7mm	534670	**54.98**	-	-	-	-
8mm	534672	**54.98**	534704	**54.98**	534742	**54.98**
10mm	534674	**54.98**	534706	**54.98**	534744	**54.98**
12mm	534676	**54.98**	534708	**54.98**	534746	**54.98**
14mm	534678	**54.98**	534710	**54.98**	534748	**54.98**
16mm	534680	**54.98**	534712	**54.98**	534750	**54.98**
18mm	-	-	534714	**54.98**	-	-
20mm	-	-	534716	**54.98**	534752	**54.98**
25mm	-	-	-	-	534754	**54.98**
Inch						
1/8	534650	**54.98**	534682	**54.98**	-	-
3/16	331469N	**54.98**	534684	**54.98**	331481N	**54.98**
1/4	331470N	**54.98**	534686	**54.98**	331482N	**54.98**
5/16	331472N	**54.98**	534688	**54.98**	331484N	**54.98**
3/8	331474N	**54.98**	534690	**54.98**	331486N	**54.98**
7/16	534660	**54.98**	534692	**54.98**	534726	**54.98**
1/2	331476N	**54.98**	534694	**54.98**	331488N	**54.98**
9/16	331477N	**54.98**			331489N	**54.98**
5/8	331478N	**54.98**	534696	**54.98**	331490N	**54.98**
3/4	-	-	534698	**54.98**	331492N	**54.98**
7/8	-	-	-	-	331494N	**54.98**
1	-	-	-	-	331496N	**54.98**

Replacement DA Chuck Nuts

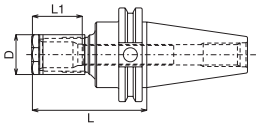


Description	Code No.	Price $
DA100, Complete Replacement	534264	**90.49**
DA180 Nut, Complete Replacement	534270	**93.82**
DA200 Nut, Complete Replacement	534276	**90.03**
DA300 Nut, Complete Replacement	534277	**93.82**

CAT40 DA Collet Chucks

- DIN coolant through the flange
- All ground body
- AT2 Taper Accuracy
- TIR 0.0010"
- RFID chip hole







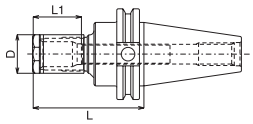
PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

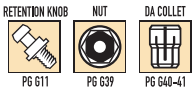
Taper	Collet Series	Collet Range	L	L1	D	Nut Tightening Torque (ft. lbs.)	Code No.	Price $
CT40	DA100	3/64-9/16	3.50	1.15	1.06	35	531270	**217.24**
CT40	DA100	3/64-9/16	6.00	1.15	1.06	35	531272	**233.71**
CT40	DA180	3/64-3/4	4.00	1.50	1.44	40	531273	**217.24**
CT40	DA180	3/64-3/4	6.00	1.50	1.44	40	531274	**233.71**
CT40	DA200	3/64-3/8	3.00	1.03	0.86	30	531275	**217.24**
CT40	DA300	3/64-1/4	3.00	0.84	0.55	25	531276	**208.94**

CAT50 DA Collet Chucks

- DIN coolant through the flange
- All ground body
- AT2 Taper Accuracy
- TIR 0.0010"
- RFID chip hole







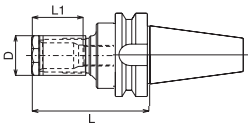
PREMIUM BALANCE
G6.3 at 25,000rpm
CERTIFICATE INCLUDED

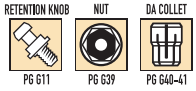
Taper	Collet Series	Collet Range	L	L1	D	Nut Tightening Torque (ft. lbs.)	Code No.	Price $
CT50	DA180	3/64-3/4	4.00	1.50	1.44	40	531278	**305.17**
CT50	DA180	3/64-3/4	6.00	1.50	1.44	40	531280	**305.17**

BT30 DA Collet Chucks

- All ground body
- AT2 Taper Accuracy
- TIR 0.0010"
- RFID chip hole







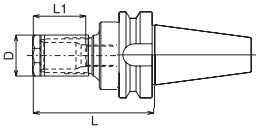
PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

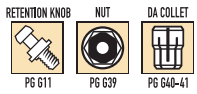
Taper	Collet Series	Collet Range	L	L1	D	Nut Tightening Torque (ft. lbs.)	Code No.	Price $
BT30	DA100	3/64-9/16	3.00	1.15	1.06	35	532108	**206.67**
BT30	DA180	3/64-3/4	3.00	1.51	1.44	40	532110	**206.67**
BT30	DA200	3/64-3/8	3.00	1.03	0.86	30	532112	**206.67**
BT30	DA300	3/64-1/4	3.00	1.04	0.55	25	532125	**208.94**

BT40 DA Collet Chucks

- DIN coolant through the flange
- All ground body
- AT2 Taper Accuracy
- TIR 0.0010"
- RFID chip hole



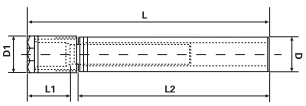


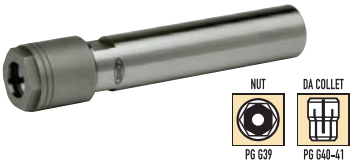


PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Collet Series	Collet Range	L	L1	D	Nut Tightening Torque (ft. lbs.)	Code No.	Price $
BT40	DA100	3/64-9/16	6.00	1.15	1.06	35	532118	**257.13**
BT40	DA180	3/64-3/4	4.00	1.51	1.44	40	532120	**239.00**
BT40	DA180	3/64-3/4	6.00	1.51	1.44	40	532122	**257.13**
BT40	DA200	3/64-3/8	3.00	1.03	0.86	30	532124	**239.00**

DA Collet Chuck Extensions





Collet Series	Collet Range	Shank Dia. (D)	O.A.L. L	L1	L2	D1	Code No.	Price $
DA100	3/64-9/16	1	5.00	1.66	3.00	1.06	534220	**215.13**
DA100	3/64-9/16	1	7.50	1.66	5.50	1.06	534222	**236.29**
DA180	3/64-3/4	1-1/4	5.00	1.83	3.00	1.44	534224	**211.96**
DA180	3/64-3/4	1-1/4	7.50	1.83	5.50	1.44	534226	**236.29**
DA200	3/64-3/8	3/4	4.50	1.34	3.00	0.86	534228	**217.09**
DA200	3/64-3/8	3/4	7.00	1.34	5.50	0.86	534230	**236.29**
DA300	3/64-1/4	1/2	6.80	1.30	5.50	0.51	534232	**167.01**

Backup Screws For DA Collet Chucks

Description	Code No.	Price $
DA180 Replacement Backup Screws	534288	**23.27**

DA100 Collets

- Collapse - 1/32"
- 0.001" TIR collet accuracy
- Made from 4140 alloy steel for improved strength, hardness, wear resistance, and corrosion resistance
- For most drilling, reaming and tapping applications



Fractional Inch	Decimal (in.)	Code No.	Price $
3/64	0.047	331323	**18.30**
1/16	0.062	331325	**18.30**
5/64	0.078	331327	**18.30**
3/32	0.094	331329	**18.30**
7/64	0.109	331333	**18.30**
1/8	0.125	331335	**18.30**
9/64	0.141	331337	**18.30**
5/32	0.156	331339	**18.30**
11/64	0.172	331341	**18.30**
3/16	0.188	331343	**18.30**
13/64	0.203	331345	**18.30**
7/32	0.219	331347	**18.30**
15/64	0.234	331349	**18.30**
1/4	0.250	331351	**18.30**
17/64	0.266	331353	**18.30**
9/32	0.281	331355	**18.30**
19/64	0.297	331357	**18.30**
5/16	0.312	331359	**18.30**
21/64	0.328	331503	**18.30**
11/32	0.344	331505	**18.30**
23/64	0.359	331507	**18.30**
3/8	0.375	331322	**18.30**
25/64	0.391	331509	**18.30**
13/32	0.406	331324	**18.30**
27/64	0.422	331511	**18.30**
7/16	0.438	331326	**18.30**
29/64	0.453	331513	**18.30**
15/32	0.469	331328	**18.30**
31/64	0.484	331515	**18.30**
1/2	0.500	331330	**18.30**
33/64	0.516	331517	**18.30**
17/32	0.531	331332	**18.30**
35/64	0.547	331519	**18.30**
9/16	0.562	331521	**18.30**

DA100 Collet Sets

Collet	Pieces	Range	Code No.	Price $
DA100	8pc	1/8-9/16 x 16ths	331356	**146.36**
DA100	11pc	1/4-9/16 x 32nds	331358	**201.25**
DA100	15pc	1/8-9/16 x 32nds	331362	**274.43**
DA100	17pc	1/16-9/16 x 32nds	331384	**311.02**
DA100	21pc	1/4-9/16 x 64ths	331385	**384.20**
DA100	29pc	1/8-9/16 x 64ths	331386	**530.56**
DA100	33pc	1/16-9/16 x 64ths	331387	**603.74**

DA180 Collets



- Collapse - 1/32"
- 0.001" TIR collet accuracy
- Made from 4140 alloy steel for improved strength, hardness, wear resistance, and corrosion resistance
- For most drilling, reaming and tapping applications

Fractional Inch	Decimal (in.)	Code No.	Price $
3/64	0.046	331523	**23.38**
1/16	0.062	331525	**23.38**
5/64	0.078	331527	**23.38**
3/32	0.094	331529	**23.38**
7/64	0.109	331533	**23.38**
1/8	0.125	331535	**23.38**
9/64	0.141	331537	**23.38**
5/32	0.156	331539	**23.38**
11/64	0.172	331541	**23.38**
3/16	0.188	331543	**23.38**
13/64	0.203	331545	**23.38**
7/32	0.219	331547	**23.38**
15/64	0.234	331549	**23.38**
1/4	0.250	331551	**23.38**
17/64	0.266	331553	**23.38**
9/32	0.281	331555	**23.38**
19/64	0.297	331557	**23.38**
5/16	0.312	331559	**23.38**
21/64	0.328	331561	**23.38**
11/32	0.344	331563	**23.38**
23/64	0.359	331565	**23.38**
3/8	0.375	331567	**23.38**
25/64	0.391	331569	**23.38**
13/32	0.406	331571	**23.38**
27/64	0.422	331573	**23.38**
7/16	0.438	331575	**23.38**
29/64	0.453	331577	**23.38**
15/32	0.469	331579	**23.38**
31/64	0.484	331581	**23.38**
1/2	0.500	331583	**23.38**
33/64	0.516	331585	**23.38**
17/32	0.531	331587	**23.38**
35/64	0.547	331589	**23.38**
9/16	0.562	331334	**23.38**
37/64	0.578	331595	**23.38**
19/32	0.594	331336	**23.38**
39/64	0.609	331597	**23.38**
5/8	0.625	331338	**23.38**
41/64	0.641	331601	**23.38**
21/32	0.656	331340	**23.38**
43/64	0.672	331603	**23.38**
11/16	0.688	331342	**23.38**
45/64	0.703	331605	**23.38**
23/32	0.719	331344	**23.38**
47/64	0.734	331607	**23.38**
3/4	0.750	331346	**23.38**

DA180 Collet Sets

Collet	Pieces	Range	Code No.	Price $
DA180	9pc	1/4-3/4 x 16ths	331388	**210.39**
DA180	17pc	1/4-3/4 x 32nds	331389	**397.41**
DA180	21pc	1/8-3/4 x 32nds	331390	**490.92**
DA180	33pc	1/4-3/4 x 64ths	331391	**771.45**
DA180	41pc	1/8-3/4 x 64ths	331392	**958.47**

DA200 Collets



- Collapse - 1/32"
- 0.001" TIR collet accuracy
- Made from 4140 alloy steel for improved strength, hardness, wear resistance, and corrosion resistance
- For most drilling, reaming and tapping applications

Fractional Inch	Decimal (in.)	Code No.	Price $
3/64	0.047	331297	**18.30**
1/16	0.062	331299	**18.30**
5/64	0.078	331301	**18.30**
3/32	0.094	331303	**18.30**
7/64	0.109	331305	**18.30**
1/8	0.125	331307	**18.30**
9/64	0.141	331309	**18.30**
5/32	0.156	331311	**18.30**
11/64	0.172	331313	**18.30**
3/16	0.188	331315	**18.30**
13/64	0.203	331302	**18.30**
7/32	0.219	331304	**18.30**
15/64	0.234	331306	**18.30**
1/4	0.250	331308	**18.30**
17/64	0.266	331310	**18.30**
9/32	0.281	331312	**18.30**
19/64	0.297	331314	**18.30**
5/16	0.312	331316	**18.30**
21/64	0.328	331318	**18.30**
11/32	0.344	331320	**18.30**
23/64	0.359	331317	**18.30**
3/8	0.375	331319	**18.30**
25/64	0.391	331321	**18.30**

DA200 Collet Sets

Collet	Pieces	Range	Code No.	Price $
DA200	9pc	1/8-3/8 x 32nds	331393	**164.66**
DA200	11pc	1/16-3/8 x 32nds	331394	**201.25**
DA200	17pc	1/8-3/8 x 64ths	331395	**311.02**
DA200	21pc	1/16-3/8 x 64ths	331396	**384.20**

DA300 Collets



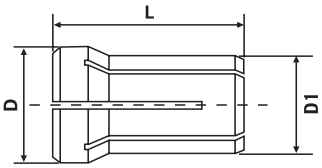
- Collapse - 1/32"
- 0.001" TIR collet accuracy
- Made from 4140 alloy steel for improved strength, hardness, wear resistance, and corrosion resistance
- For most drilling, reaming and tapping applications

Fractional Inch	Decimal (in.)	Code No.	Price $
3/64	0.047	331277	**18.30**
1/16	0.062	331283	**18.30**
5/64	0.078	331285	**18.30**
3/32	0.094	331287	**18.30**
7/64	0.109	331290	**18.30**
1/8	0.125	331292	**18.30**
9/64	0.141	331294	**18.30**
5/32	0.156	331296	**18.30**
11/64	0.172	331298	**18.30**
3/16	0.188	331300	**18.30**
13/64	0.203	331289	**18.30**
7/32	0.219	331291	**18.30**
15/64	0.234	331293	**18.30**
1/4	0.250	331295	**18.30**

DA300 Collet Sets

Collet	Pieces	Range	Code No.	Price $
DA300	7pc	1/16-1/4 x 32nds	331397	**128.07**
DA300	9pc	1/8-1/4 x 64ths	331398	**164.70**
DA300	13pc	1/16-1/4 x 64ths	331399	**237.84**
DA300	14pc	3/64-1/4 x 64ths	331400	**256.13**

DA Collet Dimensional Data



Collet	D	D1	L	Collet Range
100DA	0.769	0.635	1.441	3/64-9/16
180DA	1.035	0.873	1.637	3/64-3/4
200DA	0.539	0.453	1.193	3/64-3/8
300DA	0.375	0.300	1.000	3/64-1/4

Type 25 & Type 32 Collet Chuck Sets

Set includes:
1 chuck, 1 wrench, 1 each collet and fitted case

Type 25
- 1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1"

Type 32
- 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16",1", 1-1/8", 1-1/4"



Chuck	Code No.	Price $
COLLET SETS CONSIST OF 10 COLLETS 1/8" - 1" (TYPE 25)		
ISA-30	334600	**594.88**
ISA-40	334605	**594.88**
ISA-50	334608	**698.14**
M.T.3	334610	**594.88**
M.T.4	334615	**594.88**
R-8	334620	**594.88**
COLLET SETS CONSIST OF 15 COLLETS 1/4" - 1-1/4" (TYPE 32)		
ISA-40	334625	**1,356.37**
ISA-50	334630	**1,424.98**
M.T.5	334635	**1,408.09**

Component Parts For 1" Type 25 Sets

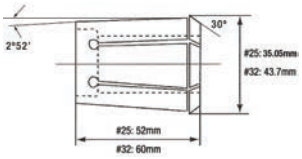
Description	Type 25	Code No.	Price $
Wrench	1 (Type 25)	334650	**15.73**
Nuts	1 (Type 25)	334645	**92.80**
Fitted Case	1 (Type 25)	334640	**27.13**
Chuck ISA-30	1 (Type 25)	334655	**275.33**
Chuck ISA-40	1 (Type 25)	334660	**275.33**
Chuck ISA-50	1 (Type 25)	334663	**378.26**
Chuck MT 3	1 (Type 25)	334665	**275.33**
Chuck MT 4	1 (Type 25)	334670	**275.33**
Chuck R-8	1 (Type 25)	334675	**275.33**

Component Parts For 1-1/4" Type 32 Sets

Description	Type 25	Code No.	Price $
Wrench	1-1/4 (Type 32)	334690	**42.33**
Nuts	1-1/4 (Type 32)	334685	**119.19**
Fitted Case	1-1/4 (Type 32)	334680	**53.63**
Chuck ISA-40	1-1/4 (Type 32)	334695	**378.26**
Chuck ISA-50	1-1/4 (Type 32)	334700	**446.98**
Chuck MT 5	1-1/4 (Type 32)	334705	**429.78**

Type 25 & Type 32 Collets

- Type 25 have a collapsability of 0.2mm
- Type 32 have a collapsability of 0.3mm





Size (in.)	Type 25 Code No.	Price $	Type 32 Code No.	Price $
Metric				
3 mm	336504	**32.20**	-	-
4 mm	336506	**32.20**	-	-
5 mm	336508	**32.20**	336549	**65.56**
6 mm	336510	**32.20**	336550	**65.56**
7 mm	336512	**32.20**	336552	**65.56**
8 mm	336514	**32.20**	336554	**65.56**
9 mm	336516	**32.20**	336556	**65.56**
10 mm	336518	**32.20**	336560	**65.56**
11 mm	336520	**32.20**	336562	**65.56**
12 mm	336522	**32.20**	336564	**65.56**
13 mm	336524	**32.20**	336566	**65.56**
14 mm	336526	**32.20**	336568	**65.56**
15 mm	336528	**32.20**	336570	**65.56**
16 mm	336530	**32.20**	336572	**65.56**
17 mm	336532	**32.20**	336574	**65.56**
18 mm	336534	**32.20**	336576	**65.56**
19 mm	336536	**32.20**	336578	**65.56**
20 mm	336538	**32.20**	336580	**65.56**
21 mm	336540	**32.20**	336582	**65.56**
22 mm	336542	**32.20**	336584	**65.56**
23 mm	336544	**32.20**	336586	**65.56**
24 mm	336546	**32.20**	336588	**65.56**
25 mm	336548	**32.20**	336590	**65.56**
26 mm	-	-	336592	**65.56**
28 mm	-	-	336596	**65.56**
29 mm	-	-	336597	**65.56**
30 mm	-	-	336598	**65.56**
32 mm	-	-	336600	**65.56**
Inch				
1/8	336400	**32.20**	-	-
3/16	336402	**32.20**	-	-
1/4	336404	**32.20**	336430	**65.56**
5/16	336406	**32.20**	336432	**65.56**
3/8	336408	**32.20**	336434	**65.56**
7/16	336409	**32.20**	336436	**65.56**
1/2	336410	**32.20**	336438	**65.56**
9/16	336411	**32.20**	336440	**65.56**
5/8	336412	**32.20**	336442	**65.56**
11/16	-	-	336444	**65.56**
3/4	336414	**32.20**	336446	**65.56**
13/16	-	-	336448	**65.56**
7/8	336416	**32.20**	336450	**65.56**
15/16	-	-	336452	**65.56**
1	336418	**32.20**	336454	**65.56**
1-1/8	-	-	336456	**65.56**
1-1/4	-	-	336458	**65.56**

Collet Rack

- Holds 5C, C32, or Type 25 collets
- 220x110x6mm
- Plastic

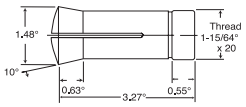


* Collets not included

Model	Code No.	Price $
VMS-5	325305	**44.34**

5C Collets

- Made of tool steel, hardened and ground to maintain original accuracy

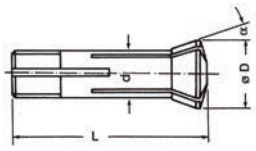




Size (in.)	GS Code No.	Price $	STM Code No.	Price $
1/8	325317	**30.01**	325315	**15.04**
3/16	325322	**30.01**	325320	**15.04**
1/4	325327	**30.01**	325325	**15.04**
5/16	325332	**30.01**	325330	**15.04**
3/8	325337	**30.01**	325335	**15.04**
7/16	325342	**30.01**	325340	**15.04**
1/2	325347	**30.01**	325345	**15.04**
9/16	325354	**30.01**	325350	**15.04**
5/8	325357	**30.01**	325355	**15.04**
11/16	325362	**30.01**	325360	**15.04**
3/4	325367	**30.01**	325365	**15.04**
13/16	325372	**30.01**	325370	**15.04**
7/8	325377	**30.01**	325375	**15.04**
15/16	325382	**30.01**	325380	**15.04**
1	325387	**30.01**	325385	**15.04**
5C Collet Set 1/8-1"			325310	**225.60**

Emergency Type Collet

- Nylon
- Can be bored to custom internal diameters to hold unusual sized workpieces

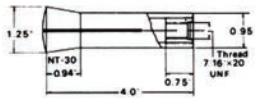




Model	Length (mm)	D (mm)	d (mm)	Head Angle α	Code No.	Price $
VE-5CN	87	37.5	31.75	10°	325312	**64.45**

R8 Collets & Set

Manufactured of hardened and ground tool steel, these collets can be recommended for their accuracy and fine finish.



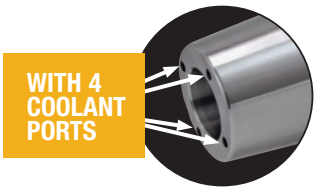


Size (in.)	GS Code No.	Price $	STM Code No.	Price $
1/8	325167	**30.01**	325165	**10.63**
5/32	325172	**30.01**	325170	**13.34**
3/16	325177	**30.01**	325175	**13.34**
7/32	325182	**30.01**	325180	**13.34**
1/4	325187	**30.01**	325185	**13.34**
9/32	325192	**30.01**	325190	**13.34**
5/16	325197	**30.01**	325195	**13.34**
11/32	325202	**30.01**	325200	**13.34**
3/8	325207	**30.01**	325205	**13.34**
13/32	325212	**30.01**	325210	**13.34**
7/16	325217	**30.01**	325215	**13.34**
15/32	325222	**30.01**	325220	**13.34**
1/2	325227	**30.01**	325225	**13.34**
9/16	325232	**30.01**	325230	**13.34**
19/32	325237	**30.01**	325235	**13.34**
5/8	325242	**30.01**	325240	**13.34**
21/32	325247	**30.01**	325245	**13.34**
11/16	325252	**30.01**	325250	**13.34**
23/32	325257	**30.01**	325255	**13.34**
3/4	325262	**30.01**	325260	**13.34**
R8 Collet Set 1/8-3/4			325300	**264.09**

BALANCEABLE SHRINK FIT TOOLING



Requires a balancing machine



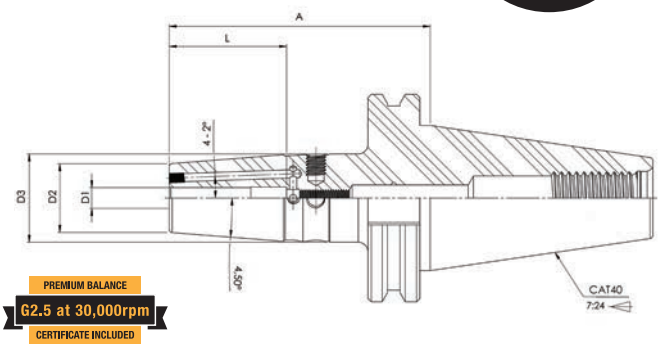
Features and Benefits

- With threaded holes on holders over 6mm I.D. in order to balance.
- Improved concentricity.
- Improved balance design with no moving pieces.
- Low Centrifugal Forces due to low holder mass.
- Maximum gripping power with exceptional concentricity.
- Concentricity 0.0001"/0.003mm
- Chip load distributed evenly along cutting edge of tool which results in longer tool life.
- Constructed of H13 Tool Steel for exceptional durability and cycle life. With proper use, toolholder life should exceed that of standard end mill holders.
- Tool is gripped 360° along the entire length of bore resulting in an evenly distributed clamping force.
- Short projections are possible because no mechanical clamping devices are used. This results in greater rigidity and resistance to bending.
- Simple and fast to use. The total time elapsed to remove one cutting tool and insert another is less than 10 seconds.
- Through-spindle coolant capability.
- Coolant through holders require no special backup screws or seals. The fit between the I.D. of the tool holder and cutting tool shank forms the seal, preventing the coolant from flowing anywhere else except through the coolant ports. Coolant ports can be closed with a 3mm set screw. The use of Heat Shrink Tooling allows for greater speeds and feeds, better finishes, increased tool life, and increased productivity due to its High Speed Machining capability and simplicity of use.
- Note: No coolant ports or threaded balance holes on holders under 6mm I.D.

CAT40 Shrink Fit Holders With Coolant Ports

- Holders are balanceable with a balancing machine
- Balanced to G2.5 at 30,000rpm
- 4 threaded Coolant ports in the nose, can be closed with a 3mm set screw
- Maximum gripping power with exceptional concentricity
- TIR ≤0.0001" / 0.003mm
- AT2 Taper Accuracy
- Tool is gripped 360° along the entire length of bore resulting in an evenly distributed clamping force
- Material: H13 Tool Steel
- The hot hardness (hot strength) of H13 resists thermal fatigue cracking which occurs as a result of cyclic heating and cooling cycles
- RFID chip hole



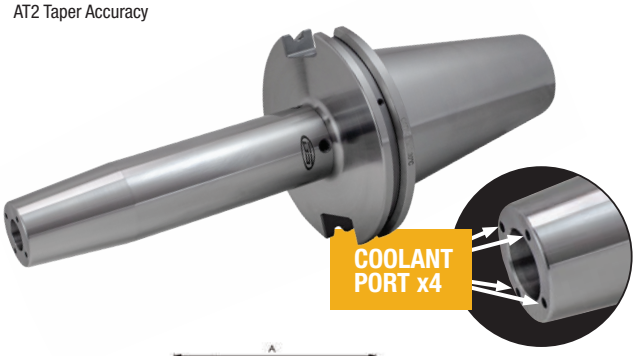


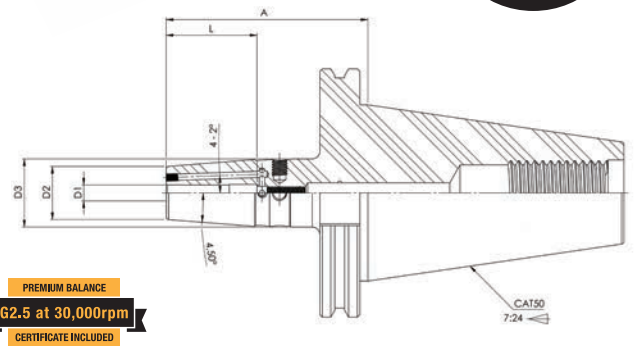
PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (D1)	Gage Length (A)	D2	D3	L	Code No.	Price $
Inch							
CAT40	1/8"	3.15"	0.59"	0.787"	0.35"	541838	**397.98**
CAT40	3/16"	3.15"	0.59"	0.787"	0.47"	541840	**397.98**
CAT40	1/4"	3.15"	0.83"	1.06"	1.42"	541842	**397.98**
CAT40	1/4"	6.30"	0.83"	1.06"	1.42"	541844	**486.42**
CAT40	5/16"	3.15"	0.83"	1.06"	1.42"	541846	**397.98**
CAT40	5/16"	6.30"	0.83"	1.06"	1.42"	541848	**459.89**
CAT40	3/8"	3.15"	0.94"	1.26"	1.65"	541850	**397.98**
CAT40	3/8"	6.30"	0.94"	1.26"	1.65"	541852	**486.42**
CAT40	1/2"	3.15"	0.94"	1.26"	1.65"	541854	**397.98**
CAT40	1/2"	6.30"	0.94"	1.26"	1.65"	541856	**486.42**
CAT40	5/8"	3.15"	1.06"	1.34"	1.97"	541858	**397.98**
CAT40	3/4"	3.15"	1.30"	1.65"	2.05"	541862	**415.67**
CAT40	3/4"	6.30"	1.30"	1.65"	2.05"	541864	**521.80**
CAT40	1"	3.94"	1.73"	2.09"	2.28"	541866	**442.20**
CAT40	1"	6.30"	1.73"	2.09"	2.28"	541868	**521.80**
CAT40	1-1/4"	3.94"	1.73"	2.09"	2.28"	541870	**442.20**
CAT40	1-1/4"	6.30"	1.73"	2.09"	2.28"	541872	**521.80**
Metric							
CAT40	4mm	80mm	15mm	20mm	12mm	541802	**468.73**
CAT40	6mm	80mm	21mm	27mm	36mm	541806	**468.73**
CAT40	6mm	160mm	21mm	27mm	36mm	541808	**539.48**
CAT40	8mm	80mm	21mm	27mm	36mm	541810	**468.73**
CAT40	8mm	160mm	21mm	27mm	36mm	541812	**539.48**
CAT40	10mm	80mm	24mm	32mm	42mm	541814	**468.73**
CAT40	10mm	160mm	24mm	32mm	42mm	541816	**539.48**
CAT40	12mm	80mm	24mm	32mm	47mm	541818	**468.73**
CAT40	12mm	160mm	24mm	32mm	47mm	541820	**539.48**
CAT40	16mm	80mm	27mm	34mm	50mm	541822	**468.73**
CAT40	16mm	160m	27mm	34mm	50mm	541824	**539.48**
CAT40	20mm	80mm	33mm	42mm	52mm	541826	**419.21**
CAT40	25mm	100mm	44mm	53mm	58mm	541830	**521.80**
CAT40	32mm	100mm	44mm	53mm	58mm	541834	**521.80**

CAT50 Shrink Fit Holders With Coolant Ports

- Holders are balanceable with a balancing machine
- Balanced G2.5 at 30,000rpm
- 4 threaded Coolant ports in the nose, can be closed with a 3mm set screw
- Maximum gripping power with exceptional concentricity
- TIR ≤0.0001" / 0.003mm with tool shrunk in holder
- AT2 Taper Accuracy
- Tool is gripped 360° along the entire length of bore resulting in an evenly distributed clamping force
- Material: H13 Tool Steel
- The hot hardness (hot strength) of H13 resists thermal fatigue cracking which occurs as a result of cyclic heating and cooling cycles
- RFID chip hole





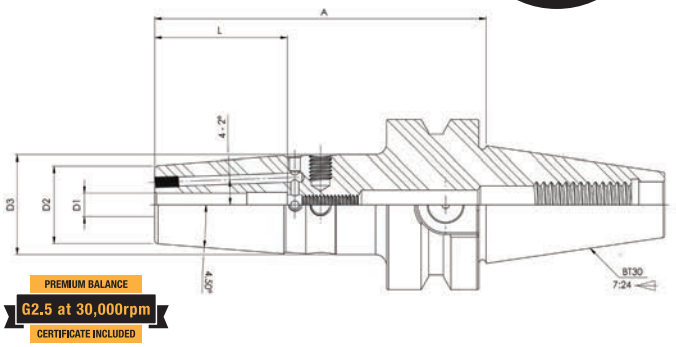
PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (D1)	Gage Length (A)	D2	D3	L	Code No.	Price $
Inch							
CAT50	1/4"	3.15"	0.83"	1.06"	1.42"	541932	**399.75**
CAT50	1/4"	6.30"	0.83"	1.06"	1.42"	541934	**663.30**
CAT50	5/16"	3.15"	0.83"	1.06"	1.42"	541936	**399.75**
CAT50	3/8"	3.15"	0.94"	1.26"	1.65"	541940	**521.80**
CAT50	3/8"	6.30"	0.94"	1.26"	1.65"	541942	**663.30**
CAT50	1/2"	3.15"	1.06"	1.34"	1.65"	541944	**521.80**
CAT50	1/2"	6.30"	0.94"	1.26"	1.65"	541946	**663.30**
CAT50	5/8"	3.15"	1.06"	1.34"	1.97"	541948	**521.80**
CAT50	5/8"	6.30"	1.06"	1.34"	1.97"	541950	**663.30**
CAT50	3/4"	3.15"	1.30"	1.65"	2.05"	541952	**521.80**
CAT50	3/4"	6.30"	1.30"	1.65"	2.05"	541954	**663.30**
CAT50	1"	3.94"	1.73"	2.09"	2.28"	541956	**521.80**
CAT50	1"	6.30"	1.73"	2.09"	2.28"	541958	**663.30**
CAT50	1-1/4"	3.94"	1.73"	2.09"	2.28"	541960	**521.80**
CAT50	1-1/4"	6.30"	1.73"	2.09"	2.28"	541962	**698.68**
Metric							
CAT50	6mm	80mm	21mm	27mm	36mm	541900	**566.02**
CAT50	6mm	160mm	21mm	27mm	36mm	541902	**698.68**
CAT50	8mm	80mm	21mm	27mm	36mm	541904	**566.02**
CAT50	8mm	160mm	21mm	27mm	36mm	541906	**698.68**
CAT50	10mm	80mm	24mm	32mm	42mm	541908	**566.02**
CAT50	10mm	160mm	24mm	32mm	42mm	541910	**698.68**
CAT50	12mm	80mm	24mm	32mm	47mm	541912	**566.02**
CAT50	12mm	160mm	24mm	32mm	47mm	541914	**698.68**
CAT50	16mm	80mm	27mm	34mm	50mm	541916	**566.02**
CAT50	16mm	160mm	27mm	34mm	50mm	541918	**698.68**
CAT50	20mm	80mm	33mm	42mm	52mm	541920	**585.47**
CAT50	25mm	100mm	44mm	53mm	58mm	541924	**566.02**
CAT50	32mm	100mm	44mm	53mm	58mm	541928	**619.08**

BT30 Shrink Fit Holders With Coolant Ports

- Holders are balanceable with a balancing machine
- Balanced G2.5 at 30,000rpm
- 4 Coolant ports in the nose
- For maximum gripping power with exceptional concentricity
- TIR of ≤0.0001" / 0.003mm with tool shrunk in holder
- AT2 Taper Accuracy
- Tool is gripped 360° along the entire length of bore resulting in an evenly distributed clamping force
- Material: H13 Tool Steel
- The hot hardness (hot strength) of H13 resists thermal fatigue cracking which occurs as a result of cyclic heating and cooling cycles
- RFID chip hole





PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia. (D1)	Gage Length (A)	D2	D3	L	Code No.	Price $
Inch							
BT30	1/8"	3.15"	0.39"		0.35"	542414	**415.67**
BT30	3/16"	3.15"	0.39"		0.47"	542416	**415.67**
BT30	1/4"	3.15"	0.83"	1.06"	1.42"	542418	**415.67**
BT30	3/8"	3.15"	0.94"	1.26"	1.65"	542422	**415.67**
BT30	1/2"	3.15"	0.94"	1.26"	1.65"	542424	**415.67**
Metric							
BT30	4mm	80mm	10mm		12mm	542402	**397.98**

Balancing Screws



Description	Overall Length	Code No.	Price $
M6 x 1	6mm	541800	**0.55**

Coolant Port Screws

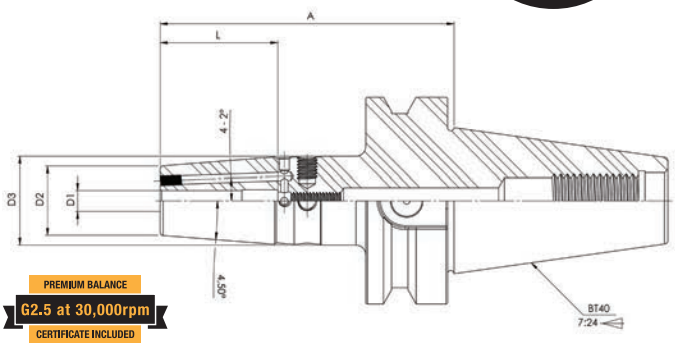


Description	Code No.	Price $
4pcs per Package	541801	**6.00**

BT40 Shrink Fit Holders With Coolant Ports

- Holders are balanceable with a balancing machine
- Balanced G2.5 at 30,000rpm
- 4 Coolant ports in the nose
- For maximum gripping power with exceptional concentricity
- TIR of ≤0.0001" / 0.003mm with tool shrunk in holder
- AT2 Taper Accuracy
- Tool is gripped 360° along the entire length of bore resulting in an evenly distributed clamping force
- Material: H13 Tool Steel
- The hot hardness (hot strength) of H13 resists thermal fatigue cracking which occurs as a result of cyclic heating and cooling cycles
- RFID chip hole





PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED

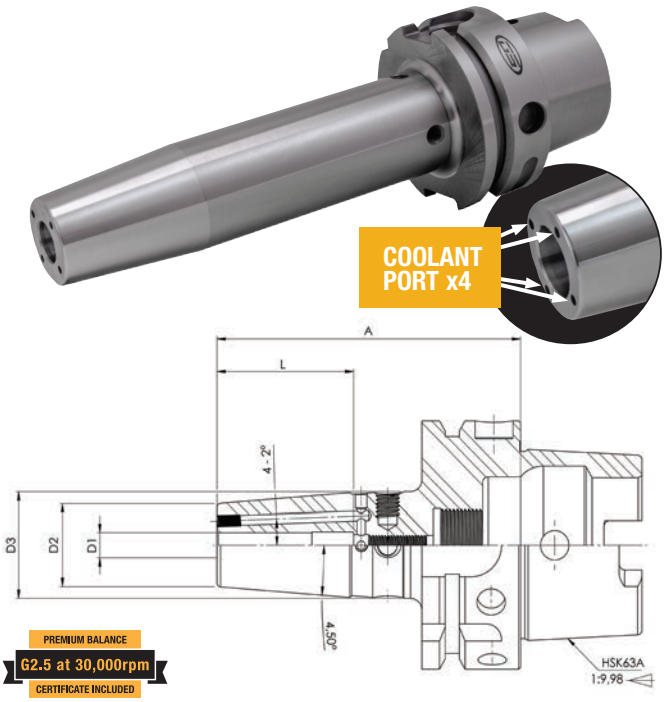
Taper	Hole Dia. (D1)	Gage Length (A)	D2	D3	L	Code No.	Price $
Inch							
BT40	3/16"	3.54"	0.39"		0.47"	542466	**442.20**
BT40	1/4"	3.54"	0.83"	1.06"	1.42"	542468	**442.20**
BT40	1/4"	6.30"	0.83"	1.06"	1.42"	542470	**504.11**
BT40	3/8"	3.54"	0.94"	1.26"	1.65"	542476	**442.20**
BT40	1/2"	3.54"	1.06"	1.34"	1.65"	542480	**442.20**
BT40	1/2"	6.30"	1.06"	1.34"	1.65"	542482	**504.11**
BT40	3/4"	3.54"	1.30"	1.65"	2.05"	542488	**442.20**
BT40	3/4"	6.30"	1.30"	1.65"	2.05"	542490	**504.11**
BT40	1"	3.94"	1.73"	2.09"	2.28"	542492	**442.20**
BT40	1-1/4"	3.94"	1.73"	2.09"	2.28"	542496	**468.73**
Metric							
BT40	6mm	90mm	21mm	27mm	36mm	542432	**397.98**
BT40	8mm	90mm	21mm	27mm	36mm	542436	**397.98**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

HSK63A Shrink Fit Holders With Coolant Ports

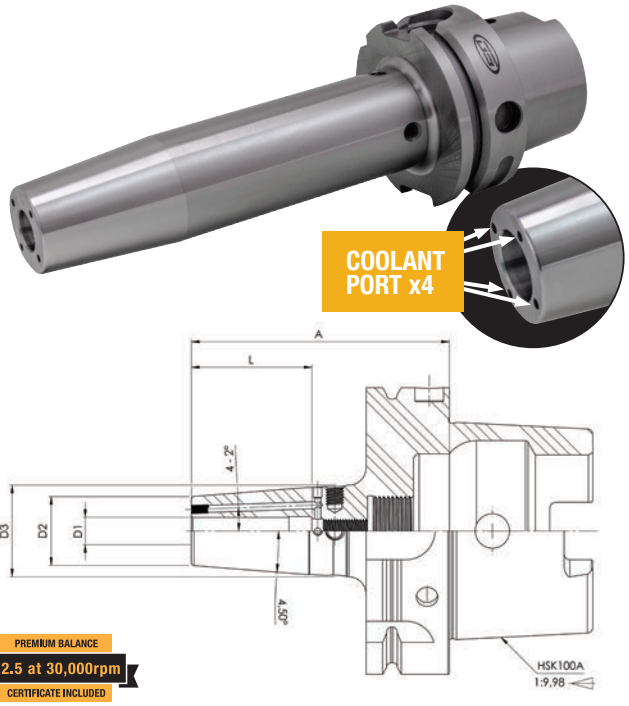
- Holders are balanceable with a balancing machine
- Balanced G2.5 at 30,000rpm
- 4 Coolant ports in the nose
- For maximum gripping power with exceptional concentricity
- TIR of ≤0.0001" / 0.003mm with tool shrunk in holder
- AT2 Taper Accuracy
- Tool is gripped 360° along the entire length of bore resulting in an evenly distributed clamping force
- Material: H13 Tool Steel
- The hot hardness (hot strength) of H13 resists thermal fatigue cracking which occurs as a result of cyclic heating and cooling cycles
- RFID chip hole



Taper	Hole Dia. (D1)	Gage Length (A)	D2	D3	L	Code No.	Price $
Inch							
HSK63A	1/8"	3.15"	0.59"	0.787"	0.35"	546338	**486.42**
HSK63A	3/16"	3.15"	0.59"	0.787"	0.47"	546340	**486.42**
HSK63A	1/4"	3.15"	0.826"	1.06"	1.42"	546342	**486.42**
HSK63A	1/4"	6.30"	0.83"	1.06"	1.42"	546344	**619.08**
HSK63A	5/16"	3.15"	0.826"	1.06"	1.42"	546346	**486.42**
HSK63A	3/8"	3.35"	0.94"	1.26"	1.65"	546350	**486.42**
HSK63A	3/8"	6.30"	0.94"	1.26"	1.65"	546352	**619.08**
HSK63A	1/2"	3.54"	1.06"	1.34"	1.65"	546354	**486.42**
HSK63A	1/2"	6.30"	1.06"	1.34"	1.65"	546356	**619.08**
HSK63A	5/8"	3.74"	1.06"	1.34"	1.97"	546358	**486.42**
HSK63A	5/8"	6.30"	1.06"	1.34"	1.97"	546360	**619.08**
HSK63A	3/4"	3.94"	1.30"	1.65"	2.05"	546362	**486.42**
HSK63A	3/4"	6.30"	1.30"	1.65"	2.05"	546364	**619.08**
HSK63A	1"	4.53"	1.73"	2.09"	2.28"	546366	**486.42**
HSK63A	1"	6.30"	1.73"	2.09"	2.28"	546368	**619.08**
HSK63A	1-1/4"	4.72"	1.73"	2.09"	2.28"	546370	**521.80**
HSK63A	1-1/4"	6.30"	1.73"	2.09"	2.28"	546372	**619.08**
Metric							
HSK63A	3mm	80mm	15mm	20mm		546300	**521.80**
HSK63A	4mm	80mm	15mm	20mm	12mm	546302	**521.80**
HSK63A	5mm	80mm	15mm	20mm	15mm	546304	**521.80**
HSK63A	6mm	80mm	21mm	27mm	36mm	546306	**521.80**
HSK63A	6mm	160mm	21mm	27mm	36mm	546308	**645.61**
HSK63A	8mm	80mm	21mm	27mm	36mm	546310	**521.80**
HSK63A	10mm	85mm	24mm	32mm	42mm	546314	**521.80**
HSK63A	12mm	90mm	24mm	32mm	47mm	546318	**521.80**
HSK63A	16mm	95mm	27mm	34mm	50mm	546322	**521.80**
HSK63A	20mm	100mm	33mm	42mm	52mm	546326	**521.80**
HSK63A	25mm	115mm	44mm	53mm	58mm	546330	**521.80**
HSK63A	32mm	120mm	44mm	53mm	58mm	546334	**521.80**

HSK100A Shrink Fit Holders With Coolant Ports

- Holders are balanceable with a balancing machine
- Balanced G2.5 at 30,000rpm
- 4 Coolant ports in the nose
- For maximum gripping power with exceptional concentricity
- TIR of ≤0.0001" / 0.003mm with tool shrunk in holder
- AT2 Taper Accuracy
- Tool is gripped 360° along the entire length of bore resulting in an evenly distributed clamping force
- Material: H13 Tool Steel
- The hot hardness (hot strength) of H13 resists thermal fatigue cracking which occurs as a result of cyclic heating and cooling cycles
- RFID chip hole



Taper	Hole Dia. (D1)	Gage Length (A)	D2	D3	L	Code No.	Price $
Inch							
HSK100A	1/4"	3.35"	0.826"	1.06"	1.42"	546432	**751.74**
HSK100A	5/16"	3.35"	0.826"	1.06"	1.42"	546436	**751.74**
HSK100A	3/8"	3.54"	0.94"	1.26"	1.65"	546440	**751.74**
HSK100A	3/8"	6.30"	0.94"	1.26"	1.65"	546442	**795.96**
HSK100A	1/2"	3.74"	1.06"	1.34"	1.65"	546444	**751.74**
HSK100A	1/2"	6.30"	1.06"	1.34"	1.65"	546446	**795.96**
HSK100A	5/8"	3.94"	1.06"	1.34"	1.97"	546448	**751.74**
HSK100A	5/8"	6.30"	1.06"	1.34"	1.97"	546450	**795.96**
HSK100A	3/4"	4.13"	1.30"	1.65"	2.05"	546452	**751.74**
HSK100A	3/4"	6.30"	1.30"	1.65"	2.05"	546454	**795.96**
HSK100A	1"	4.53"	1.73"	2.09"	2.28"	546456	**751.74**
HSK100A	1"	6.30"	1.73"	2.09"	2.28"	546458	**795.96**
HSK100A	1-1/4"	4.72"	1.73"	2.09"	2.28"	546460	**751.74**
HSK100A	1-1/4"	6.30"	1.73"	2.09"	2.28"	546462	**795.96**



Right Angle Heads & Spindle Speeders

RIGHT ANGLE HEADS

Right Angle Head (VRA-Type) G48

GS DRIVEN TOOLS

For DMG MORI, DOOSAN, HAAS & MAZAK Lathes G48

GS FIXED HEADS

GFX07 ER11 Fixed 90° Right Angle Heads G50
GFX07L ER11 Fixed 90° Right Angle Heads G51
GFX10 ER16 Fixed 90° Right Angle Heads G52
GFX10L ER16 Fixed 90° Right Angle Heads G53
GFX16 ER25 Fixed 90° Right Angle Heads G54
GFX16L ER25 Fixed 90° Right Angle Heads G55
GFX20 ER32 Fixed 90° Right Angle Heads G56
GFX20L ER32 Fixed 90° Right Angle Heads G57
GFX S40 Fixed 90° Right Angle Heads G58

GS PIVOTING HEADS

GPV13 ER20 Pivoting Angle Heads G59
GPV16 ER25 Pivoting Angle Heads G60
GPV20 ER32 Pivoting Angle Heads G61

Right Angle Head (VRA-Type)

1. Used on Vertical Milling Machine to make horizontal cutting work
2. Rigidity constructed suitable for heavy-duty cutting
3. The clamping bushing to suit milling machine

Suitable Milling Head Quill Diameter	Weight	Model No.	Code No.	Price $
85.725mm - 86mm	12 kgs	VRA-R8	326200	**2,203.54**
85.725mm - 86mm	13 kgs	VRA-NT 30	326202	**2,116.48**
105mm	20 kgs	VRA-NT 40	326204	**3,122.87**



DRIVEN TOOLS

MADE IN ITALY

2 Year Warranty
(against manufacturer defects)

Main Technical Features

- Main body designed to maximize rigidity and reduce vibration
- Specially treated corrosion resistant steel body
- Angular contact bearings + taper roller bearings on output spindle for better rigidity and longer life
- Gleason spiral bevel gears with completely ground involute form
- Internal coolant option
- Designed, manufactured and assembled in Italy
- 2 Year warranty against manufacturer defects

▼ Direction of rotation is opposite to the machine spindle

▼ Direction of rotation is the same as the machine spindle

Driven Tools For DMG MORI Lathes

Model	Orient	Rotation	Turret	Output	Int. Coolant	Nm	RPM	Gage Length	Code No.	Price $
99.MS.A59	Axial	▼	NL60	ER-32	-	60	10,000	Max 89.9	381504	**2,167.83**
99.MS.A60	Axial	▼	NL60	ER-32	• 80bar	60	10,000	Max 89.9	381505	**3,207.54**
99.MS.A72	Radial	▼	NL60	ER-32	-	60	10,000	90	381506	**4,645.41**
99.MS.A73	Radial	▼	NL60	ER-32	• 80bar	60	10,000	90	381507	**5,198.34**



Radial Axial

Driven Tools For DOOSAN Lathes

Model	Orient	Rotation	Turret	Output	Int. Coolant	Nm	RPM	Gage Length	Code No.	Price $
99.DS.A01	Axial	▼	BMT55	ER-25	-	40	8,000	57.2	381512	**1,880.34**
99.DS.A02	Axial	▼	BMT55	ER-25	• 80bar	40	8,000	57.2	381513	**2,156.81**
99.DS.A11	Radial	▼	BMT55	ER-25	-	40	8,000	70	381514	**3,539.34**
99.DS.A12	Radial	▼	BMT55	ER-25	• 80bar	40	8,000	70	381515	**4,180.89**
99.DS.A41	Axial	▼	BMT65	ER-32	-	70	6,000	72.5	381516	**2,212.14**
99.DS.A42	Axial	▼	BMT65	ER-32	• 70bar	70	6,000	72.5	381517	**2,543.94**
99.DS.A51	Radial	▼	BMT65	ER-32	-	70	6,000	72	381518	**3,716.27**
99.DS.A52	Radial	▼	BMT65	ER-32	• 70bar	70	6,000	72	381519	**4,402.02**



Radial Axial

Driven Tools For HAAS Lathes

Model	Orient	Rotation	Turret	Output	Int. Coolant	Nm	RPM	Gage Length	Code No.	Price $
99.HA.590082	Axial	▼	VDI40	ER-32	-	63	6,000	82.1	381500	**1,636.95**
99.HA.590082B	Axial	▼	VDI40	ER-32	• 25bar	63	6,000	82.1	381501	**2,046.24**
99.HA.590084	Radial	▼	VDI40	ER-32	-	63	6,000	Max. 75	381502	**3,074.82**
99.HA.590084B	Radial	▼	VDI40	ER-32	• 25bar	63	6,000	Max. 75	381503	**3,889.62**



Radial Axial

Driven Tools For MAZAK Lathes

Model	Orient	Rotation	Turret	Output	Int. Coolant	Nm	RPM	Gage Length	Code No.	Price $
99.MZ.A58	Offset-Axial	▼	QTN2-40	ER-32	-	80	6,000	50	381508	**2,875.74**
99.MZ.A59	Offset-Axial	▼	QTN2-40	ER-32	• 80bar	80	6,000	116	381509	**4,424.18**
99.MZ.A65	Radial	▼	QTN2-40	ER-32	-	80	6,000	130	381510	**3,072.93**
99.MZ.A66	Radial	▼	QTN2-40	ER-32	• 80bar	80	6,000	130	381511	**4,055.52**



Radial Offset Axial

Designed for Automatic Tool Change Machines

Design

The compact design, along with mentioned specifications allows for the highest performances, high speeds and long tool life



Case Hardened and ground shank and shaft

Positioning pin with automatic release

Modular anti-rotation group

Standard 10Bar coolant through pin

Graduated ring

Treated steel head body with 360° position andinternal air pressure, maximum rigidity and corrosion resistant. Minimum thermal expansion

Output

- ER Collet (Standard)
- Weldon
- Shell mill holder
- Special



Angular contact preloaded ball bearings of precision class ABE 7/9

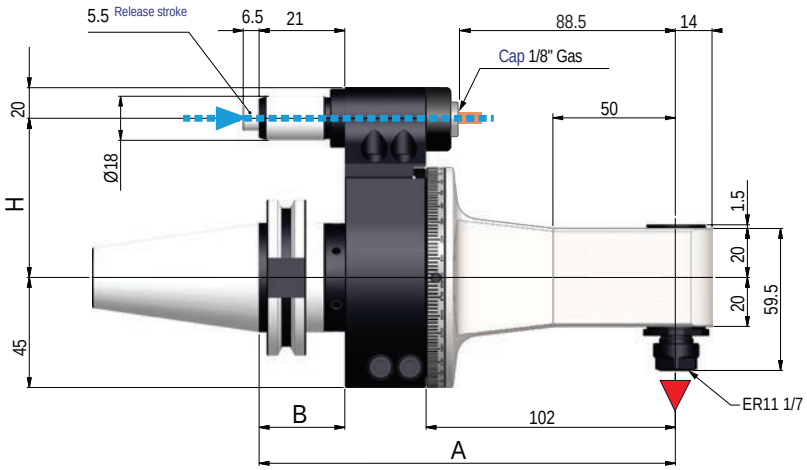
Gleason ground spiral bevel gears for maximum performance and minimum vibration



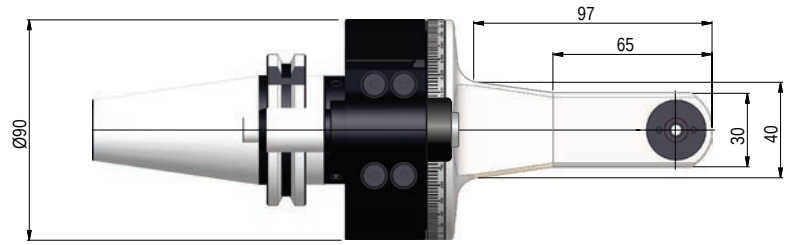
ANGLE HEADS
MADE IN ITALY

ATC Series

GFX07









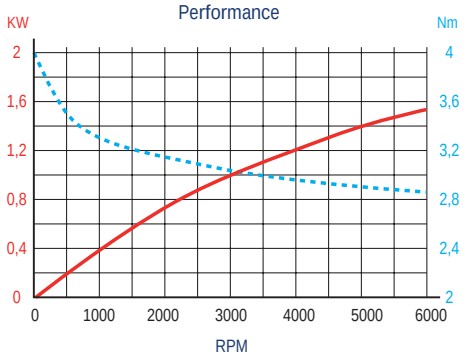
GFX07 ER11 Fixed 90° Right Angle Heads

▼ Direction of rotation is opposite to the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GFX07	ER11	170	35	65	7	M6	10,000	4	381002S	**6,621.16**
CAT50	GFX07	ER11	170	35	80	7	M6	10,000	4	381004S	**6,621.16**
BT40	GFX07	ER11	170	35	65	7	M6	10,000	4	381006S	**6,556.90**
BT50	GFX07	ER11	176	41	80	7	M6	10,000	4	381008S	**6,556.90**
HSK63	GFX07	ER11	177	42	65	7	M6	10,000	4	381010S	**6,916.84**
HSK100	GFX07	ER11	180	45	80	7	M6	10,000	4	381012S	**6,992.46**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX 7
Ratio		1:1
RPM Max		10,000
Max axial load	N	120
Torque	Nm	5
Weight	Kg.	4
Collet	mm	ER11 1mm-7mm



Standard Features & Equipment Included:

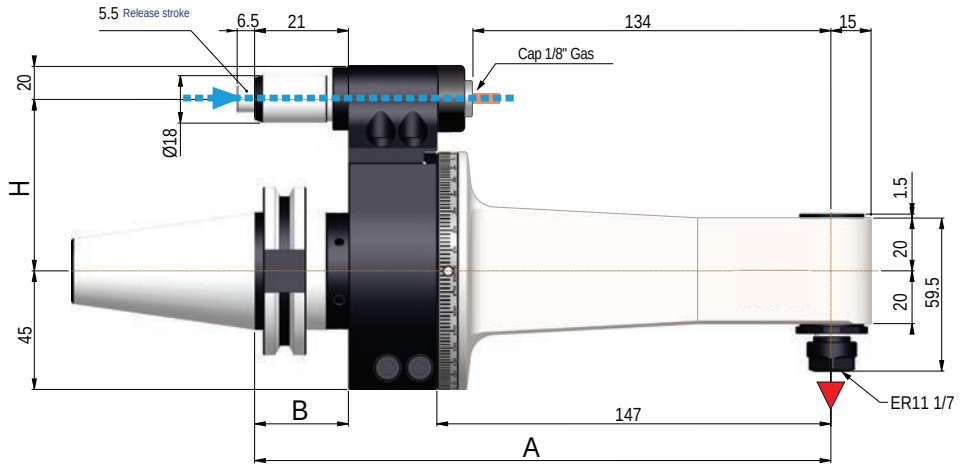
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report



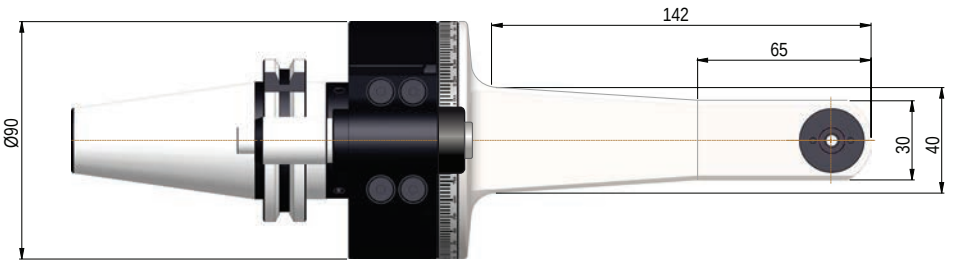
ANGLE HEADS
MADE IN ITALY

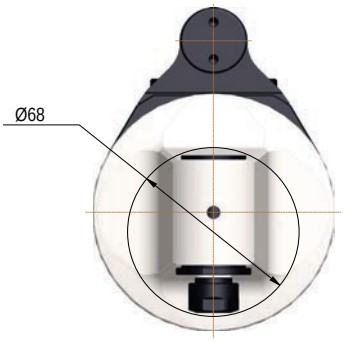
ATC Series

GFX07L









GFX07L ER11 Long Fixed 90° Right Angle Heads

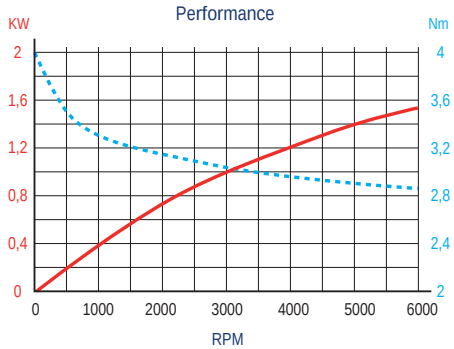
▼ Direction of rotation is opposite to the machine spindle

G3 TOOLING

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GFX07L	ER11	215	35	65	7	M6	10,000	4.3	381302S	**6,345.70**
CAT50	GFX07L	ER11	215	35	80	7	M6	10,000	4.3	381304S	**6,345.70**
BT40	GFX07L	ER11	215	35	65	7	M6	10,000	4.3	381306S	**6,345.70**
BT50	GFX07L	ER11	221	41	80	7	M6	10,000	4.3	381308S	**6,345.70**
HSK63	GFX07L	ER11	222	42	65	7	M6	10,000	4.3	381310S	**6,704.95**
HSK100	GFX07L	ER11	225	45	80	7	M6	10,000	4.3	381312S	**6,781.29**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX 7L
Ratio		1:1
RPM Max		10,000
Max axial load	N	120
Torque	Nm	5
Weight	Kg.	4.3
Collet	mm	ER11 1mm-7mm



Standard Features & Equipment Included:

- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report

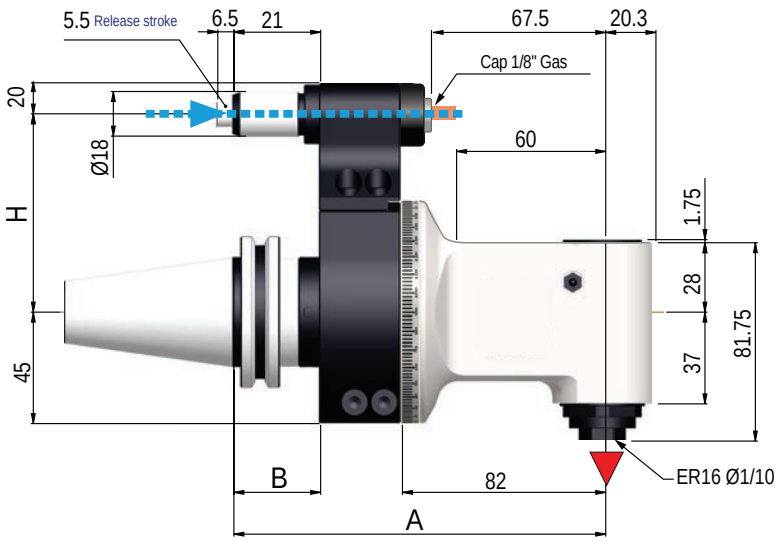


Tool Holding

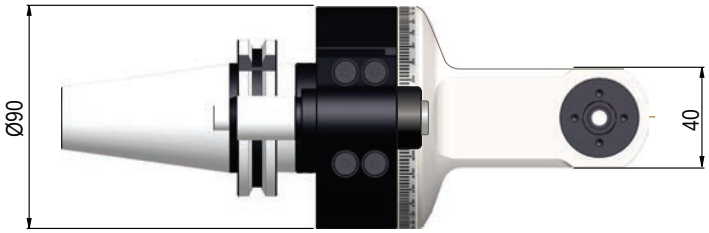
ANGLE HEADS
MADE IN ITALY

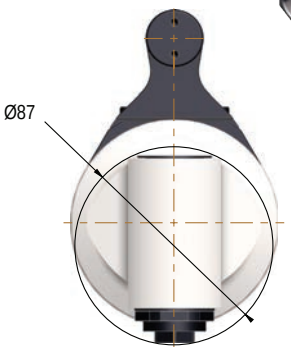
ATC Series

GFX10









GFX10 ER16 Fixed 90° Right Angle Heads

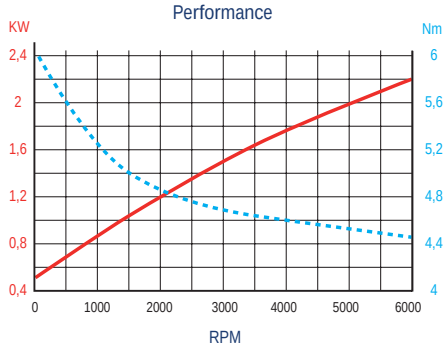
▼ Direction of rotation is opposite to the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GFX10	ER16	150	35	65	10	M8	10,000	4.3	381020S	**5,385.35**
CAT50	GFX10	ER16	150	35	80	10	M8	10,000	4.3	381022S	**5,385.35**
BT40	GFX10	ER16	150	35	65	10	M8	10,000	4.3	381024S	**5,385.35**
BT50	GFX10	ER16	156	41	80	10	M8	10,000	4.3	381026S	**5,385.35**
HSK63	GFX10	ER16	157	42	65	10	M8	10,000	4.3	381028S	**5,747.88**
HSK100	GFX10	ER16	160	45	80	10	M8	10,000	4.3	381030S	**5,824.86**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX10L
Ratio		1:1
RPM Max		10,000
Max axial load	N	250
Torque	Nm	10
Weight	Kg.	4.3
Collet	mm	ER16 1mm-10mm

Performance



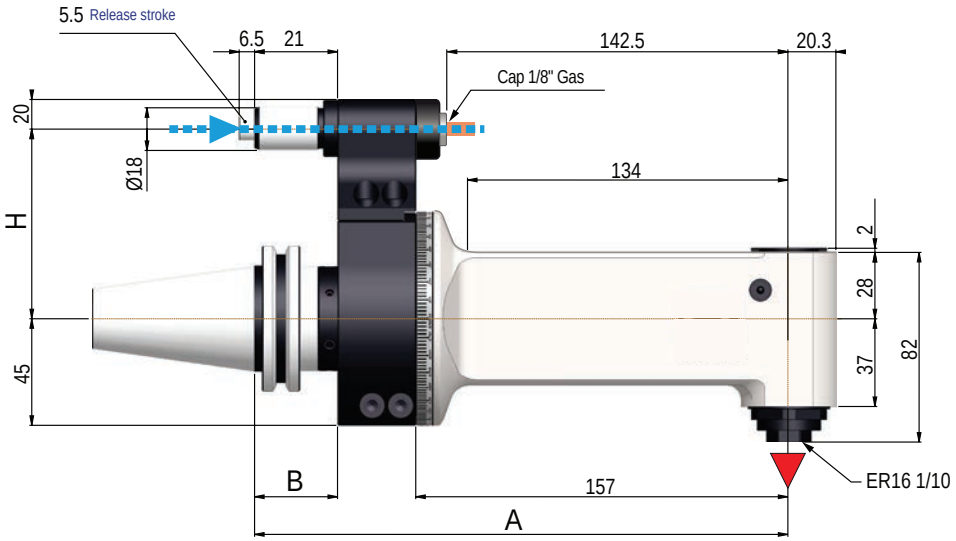
Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report



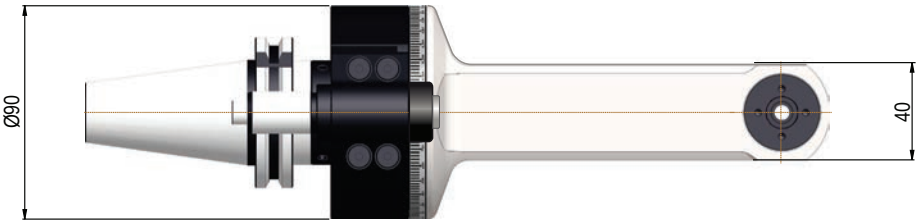
ANGLE HEADS
MADE IN ITALY

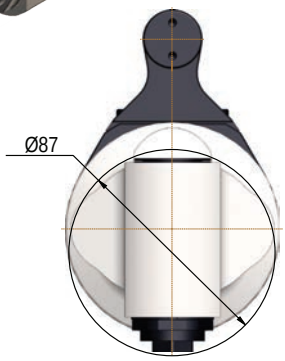
ATC Series

GFX10L









GFX10L ER 16 Long Fixed 90° Right Angle Heads

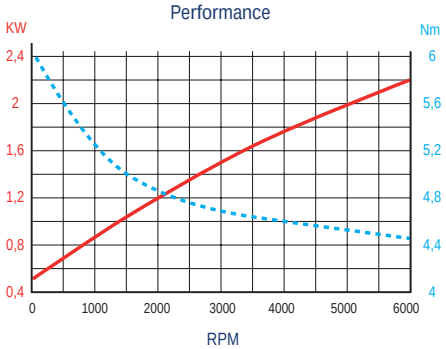
▼ Direction of rotation is opposite to the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GFX10L	ER16	225	35	65	10	M8	10,000	5.2	381320S	**6,634.55**
CAT50	GFX10L	ER16	225	35	80	10	M8	10,000	5.2	381322S	**6,634.55**
BT40	GFX10L	ER16	225	35	65	10	M8	10,000	5.2	381324S	**6,634.55**
BT50	GFX10L	ER16	231	41	80	10	M8	10,000	5.2	381326S	**6,634.55**
HSK63	GFX10L	ER16	232	42	65	10	M8	10,000	5.2	381328S	**6,993.80**
HSK100	GFX10L	ER16	235	45	80	10	M8	10,000	5.2	381330S	**7,067.30**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX10L
Ratio		1:1
RPM Max		10,000
Max axial load	N	250
Torque	Nm	10
Weight	Kg.	5.2
Collet	mm	ER16 1mm-10mm

Performance



Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report

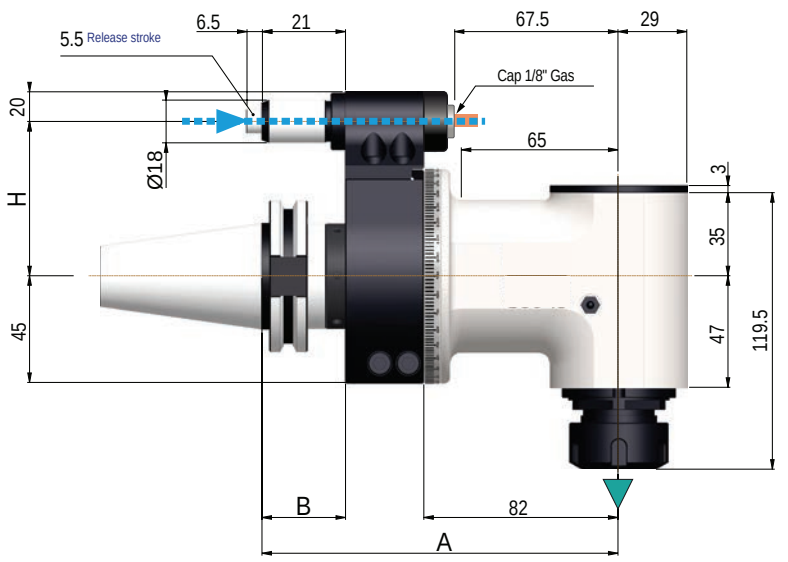


Tool Holding

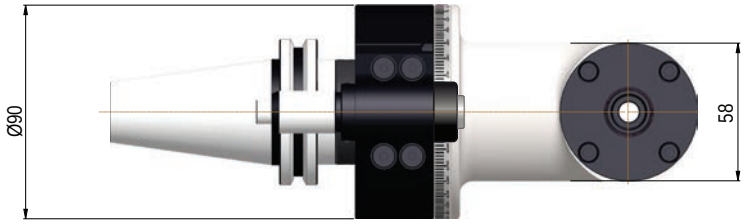
ANGLE HEADS
MADE IN ITALY

ATC Series

GFX16









GFX16 ER25 Fixed 90° Right Angle Heads

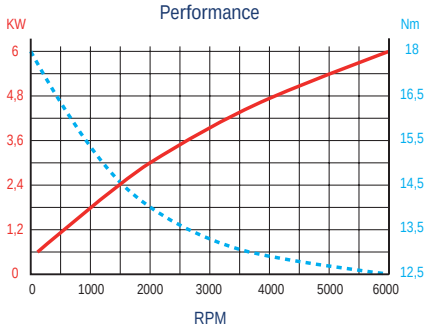
▼ Direction of rotation is the same as the machine spindle

Taper	Model	System Collet	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GFX16	ER25	150	35	65	16	M12	8,000	5.4	381100S	**6,628.60**
CAT50	GFX16	ER25	150	35	80	16	M12	8,000	5.4	381102S	**6,628.60**
BT40	GFX16	ER25	150	35	65	16	M12	8,000	5.4	381104S	**6,628.60**
BT50	GFX16	ER25	156	41	80	16	M12	8,000	5.4	381106S	**6,628.60**
HSK63	GFX16	ER25	157	42	65	16	M12	8,000	5.4	381108S	**6,997.76**
HSK100	GFX16	ER25	160	45	80	16	M12	8,000	5.4	381110S	**7,074.93**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX16
Ratio		1:1
RPM Max		8,000
Max axial load	N	510
Torque	Nm	24
Weight	Kg.	5.4
Collet	mm	ER25 2mm-16mm

Performance



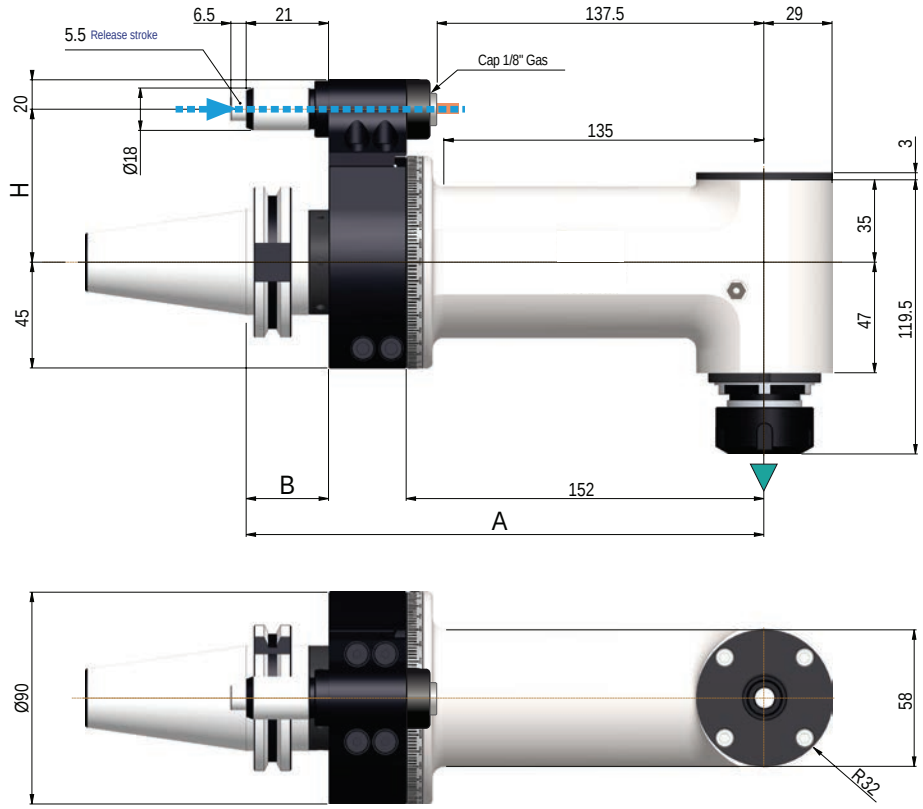
Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report



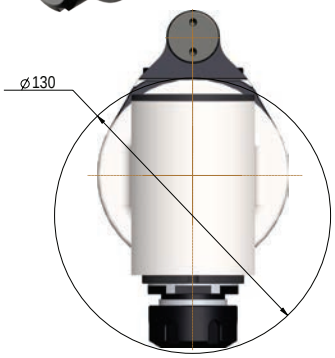
ANGLE HEADS
MADE IN ITALY

ATC Series

GFX16L







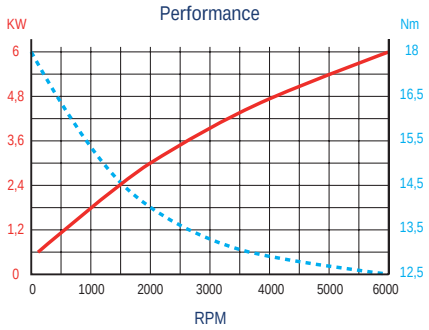
GFX16L ER25 Long Fixed 90° Right Angle Heads

▼ Direction of rotation is the same as the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GFX16L	ER25	220	35	65	16	M12	8,000	6.7	381400S	**7,975.14**
CAT50	GFX16L	ER25	220	35	80	16	M12	8,000	6.7	381402S	**7,975.14**
BT40	GFX16L	ER25	220	35	65	16	M12	8,000	6.7	381404S	**7,975.14**
BT50	GFX16L	ER25	226	41	80	16	M12	8,000	6.7	381406S	**7,975.14**
HSK63	GFX16L	ER25	227	42	65	16	M12	8,000	6.7	381408S	**8,333.25**
HSK100	GFX16L	ER25	230	45	80	16	M12	8,000	6.7	381410S	**8,409.58**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX16L
Ratio		1:1
RPM Max		8,000
Max axial load	N	510
Torque	Nm	24
Weight	Kg.	6.7
Collet	mm	ER25 2mm-16mm



Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report

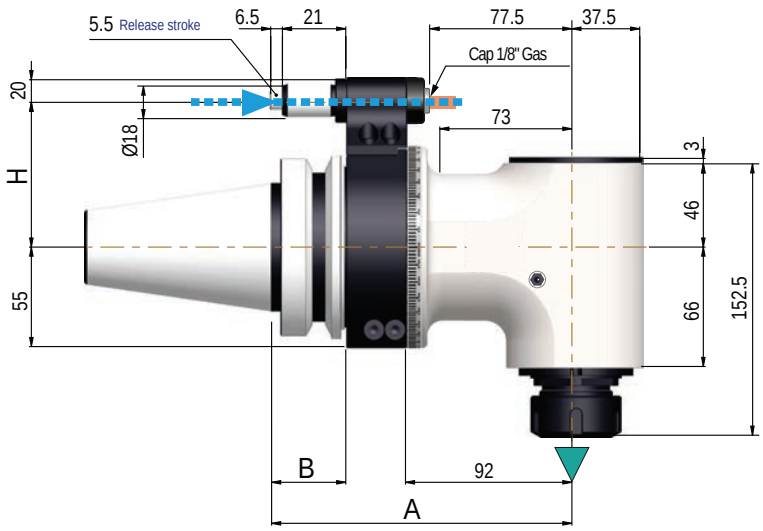


Tool Holding

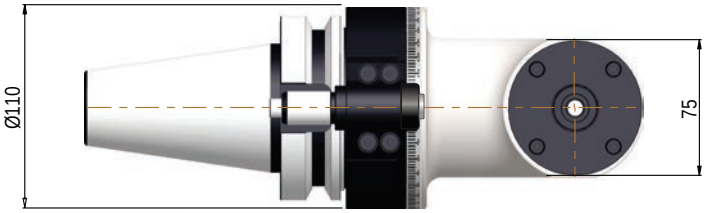
ANGLE HEADS
MADE IN ITALY

ATC Series

GFX20









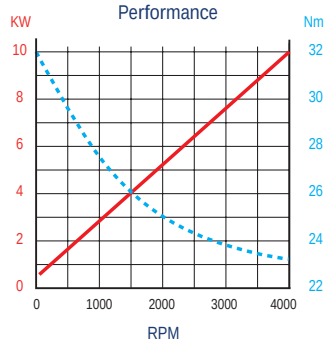
GFX20 ER32 Fixed 90° Right Angle Head

▼ Direction of rotation is the same as the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT50	GFX20	ER32	160	35	80	20	M16	4,000	11	381148S	**6,942.12**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX20
Ratio		1:1
RPM Max		4,000
Max axial load	N	1250
Torque	Nm	40
Weight	Kg.	11
Collet	mm	ER32 2.5mm-20mm



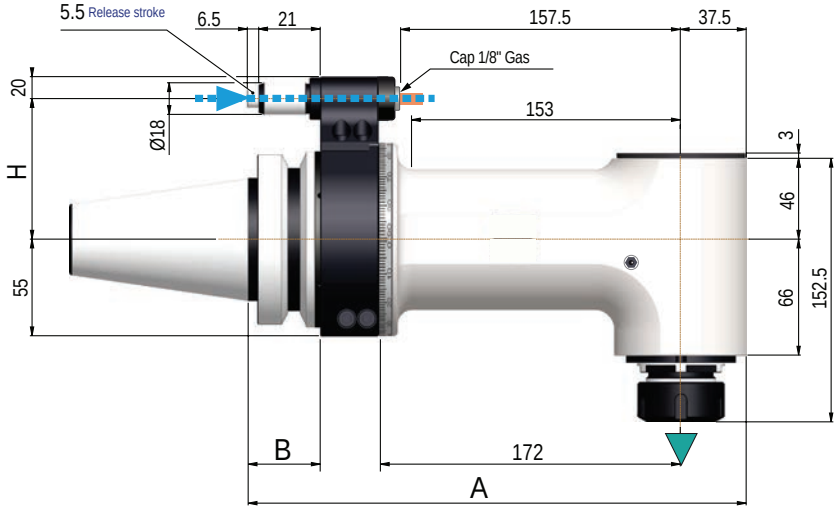
Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report



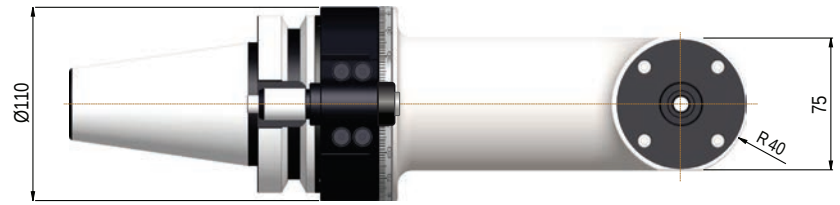
ANGLE HEADS
MADE IN ITALY

ATC Series

GFX20L









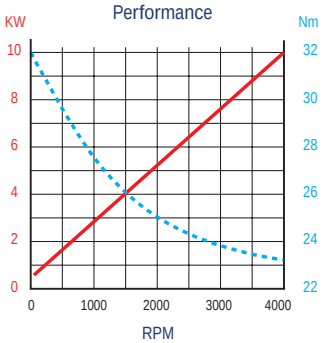
GFX20L ER32 Long Fixed 90° Right Angle Head

▼ Direction of rotation is the same as the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT50	GFX20L	ER32	240	35	80	20	M16	4,000	13.8	381448S	**8,551.07**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX20L
Ratio		1:1
RPM Max		4,000
Max axial load	N	1250
Torque	Nm	40
Weight	Kg.	13.8
Collet	mm	ER32 2.5mm-20mm



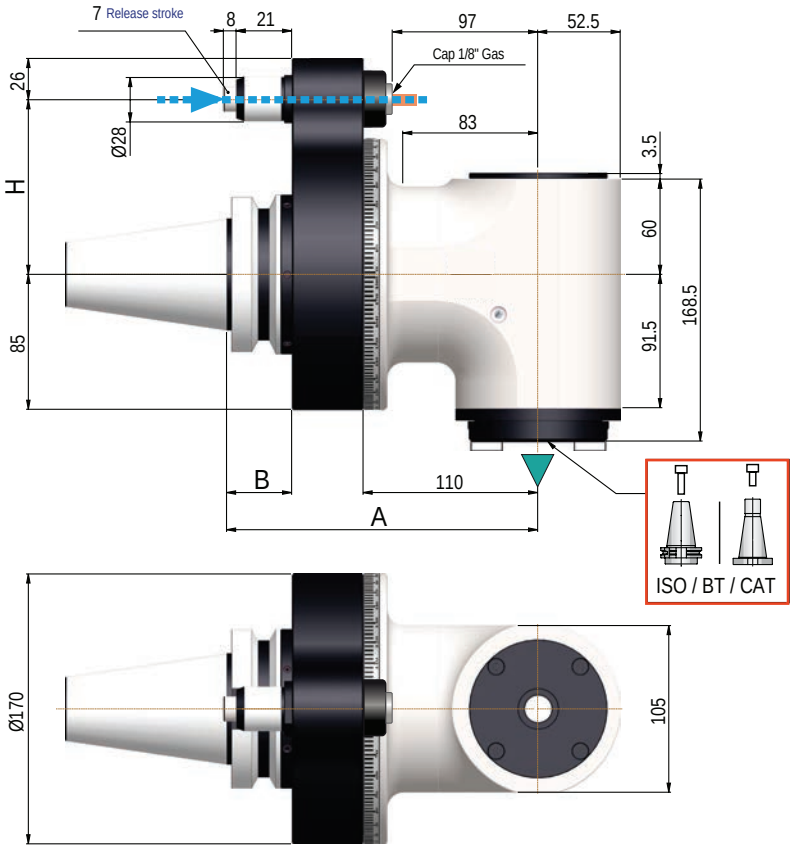
Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report



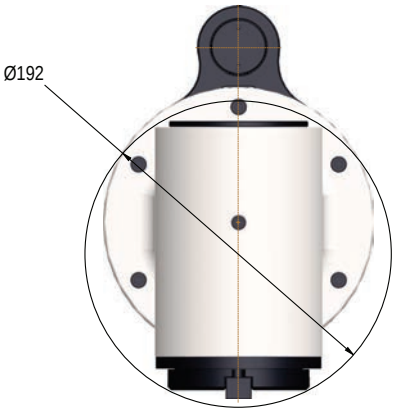
ANGLE HEADS
MADE IN ITALY

ATC Series

GFXS40







Note: Accepts CAT40, BT40, SK40 and NMTB 40 Taper Tooling

GFX S40 Fixed 90° Right Angle Heads

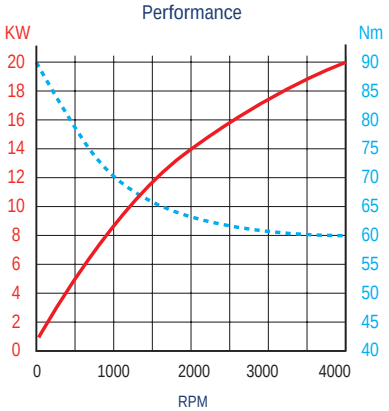
▼ Direction of rotation is the same as the machine spindle

Taper	Model	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT50	GFX S40	190	35	110	26	M20	4,000	22	381121S	**7,767.54**
BT50	GFX S40	196	41	110	26	M20	4,000	22	381123S	**10,097.81**
HSK100	GFX S40	200	45	110	26	M20	4,000	22	381125S	**10,722.80**

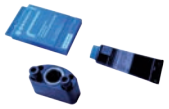
Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GFX S40
Ratio		1:1
RPM Max		4,000
Max axial load	N	1800
Torque	Nm	140
Weight	Kg.	22
Drill / Tap	mm	26mm/M20

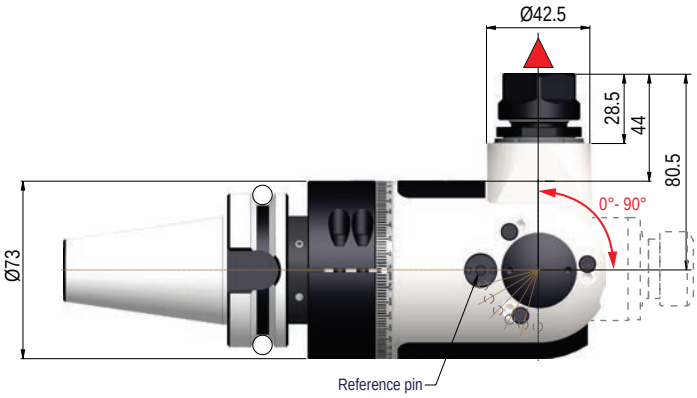
Performance



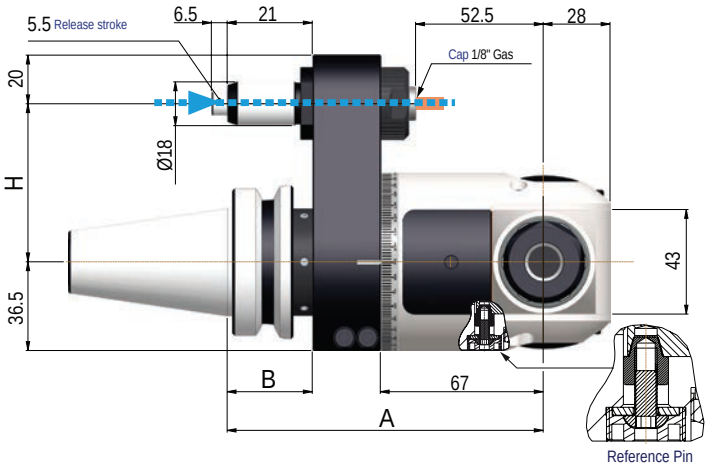
Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report

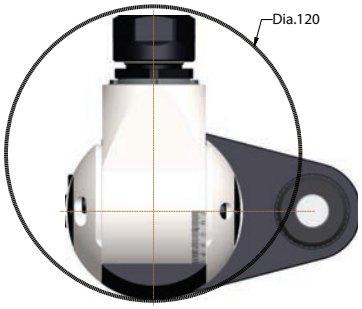


GPV13









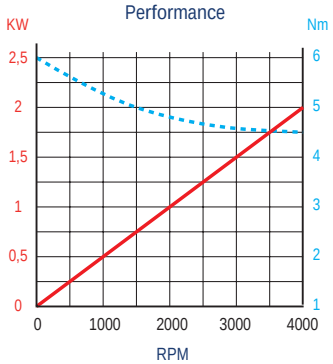
GPV13 ER 20 Pivoting Angle Heads

▼ Direction of rotation is opposite to the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GPV13	ER20	130	35	65	13	M10	4,000	4.2	381198S	**7,382.53**
CAT50	GPV13	ER20	130	35	80	13	M10	4,000	4.2	381200S	**7,382.53**
BT40	GPV13	ER20	130	35	65	13	M10	4,000	4.2	381202S	**7,382.53**
BT50	GPV13	ER20	136	41	80	13	M10	4,000	4.2	381204S	**7,382.53**
HSK63	GPV13	ER20	137	42	65	13	M10	4,000	4.2	381206S	**5,964.33**
HSK100	GPV13	ER20	140	45	80	13	M10	4,000	4.2	381208S	**7,828.86**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GPV13
Ratio		1:1
RPM Max		4,000
Max axial load	N	450
Torque	Nm	6
Weight	Kg.	4.2
Collet	mm	ER20 1mm-13mm



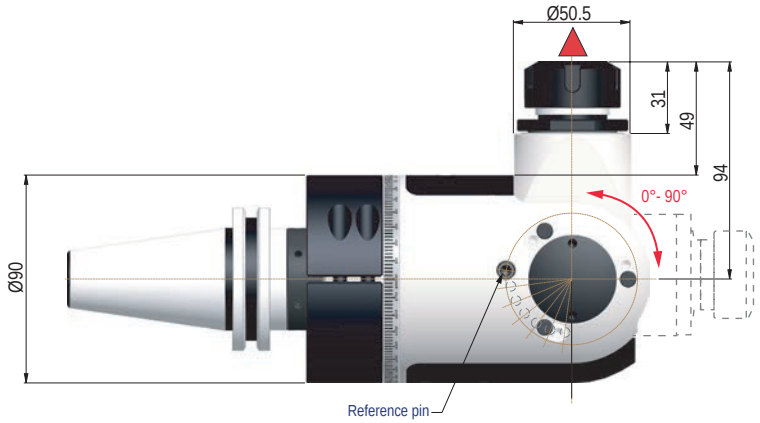
Standard Features & Equipment Included:
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report



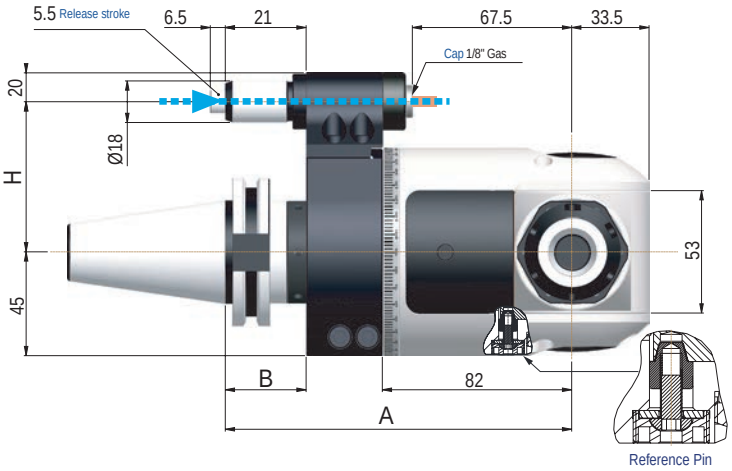
ANGLE HEADS
MADE IN ITALY

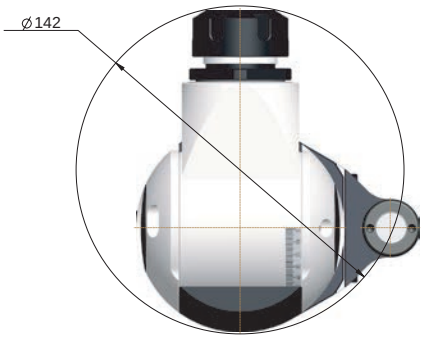
ATC Series

GPV16









GPV16 ER25 Pivoting Angle Heads

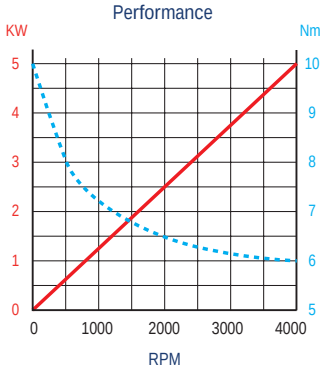
▼ Direction of rotation is opposite to the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT40	GPV16	ER25	150	35	65	16	M12	4,000	6.8	381270S	**7,767.49**
CAT50	GPV16	ER25	150	35	80	16	M12	4,000	6.8	381272S	**7,767.49**
BT40	GPV16	ER25	150	35	65	16	M12	4,000	6.8	381274S	**7,767.49**
BT50	GPV16	ER25	156	41	80	16	M12	4,000	6.8	381276S	**7,767.49**
HSK63	GPV16	ER25	157	42	65	16	M12	4,000	6.8	381278S	**8,136.65**
HSK100	GPV16	ER25	160	45	80	16	M12	4,000	6.8	381280S	**8,213.82**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GPV16
Ratio		1:1
RPM Max		4,000
Max axial load	N	480
Torque	Nm	18
Weight	Kg.	6.8
Collet	mm	ER25 2mm-16mm

Performance

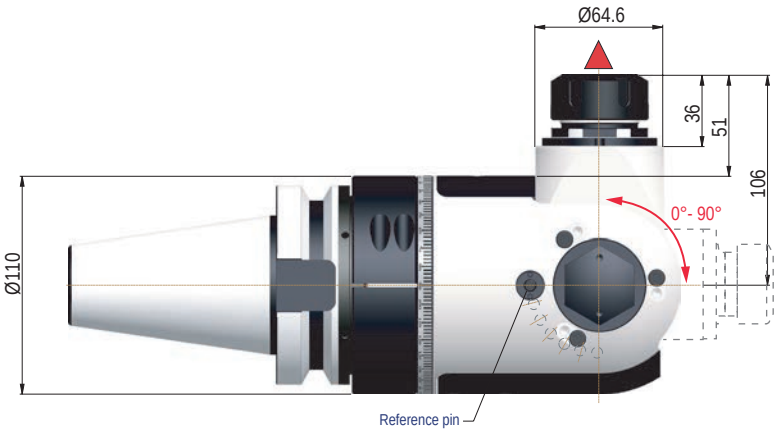


Standard Features & Equipment Included:

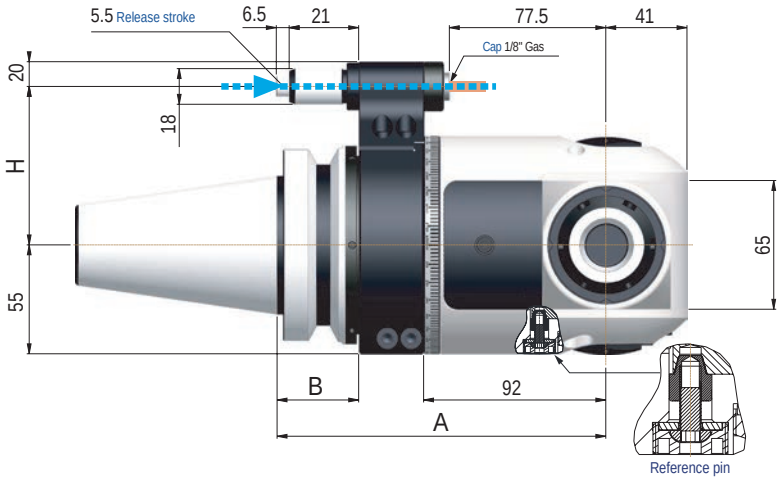
- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report

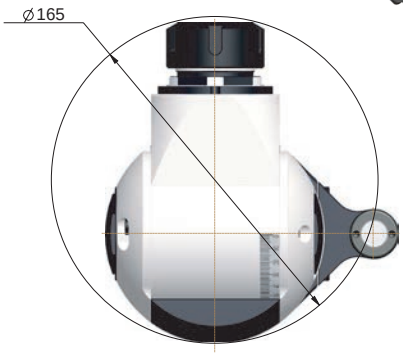


GPV20









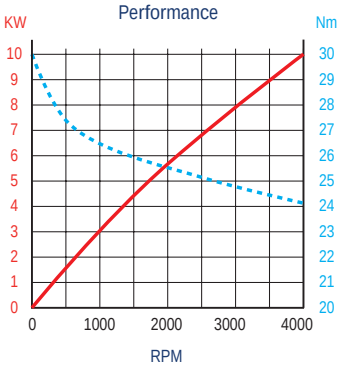
GPV20 ER32 Pivoting Angle Heads

▼ Direction of rotation is opposite to the machine spindle

Taper	Model	Collet System	A (mm)	B (mm)	H (mm)	End Mill & Drill Cap. (mm)	Tap Size Capacity	Max RPM	Weight (Kg.)	Code No.	Price $
CAT50	GPV20	ER32	160	35	80	20	M16	4,000	13	381150S	**8,162.26**
BT50	GPV20	ER32	166	41	80	20	M16	4,000	13	381154S	**8,162.26**
HSK100	GPV20	ER32	170	45	80	20	M16	4,000	13	381158S	**8,598.90**

Other tapers available, please inquire.
* For Haas machines please contact Customer Service

Technical Data		GPV20
Ratio		1:1
RPM Max		4,000
Max axial load	N	715
Torque	Nm	32
Weight	Kg.	13
Collet	mm	ER32 3mm-20mm



Standard Features & Equipment Included:

- Internal coolant from positioning pin
- Internal air pressure
- Retaining block
- Wrenches
- Grease tube
- Instruction book and Inspection report





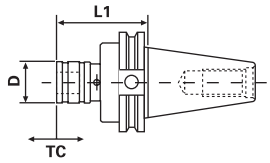
Tapping Chucks & Collets

CAT Taper Tension/Compression & Rigid Tap Holders G63
BT Taper Tension/Compression & Rigid Tap Holders G63
HSK Tension/Compression & Rigid Tap Holders G64
NMTB Taper Tension/Compression Tap Holders G64
Weldon Shank Tension/Compression & Rigid Tap Holders G64
Straight Shank Tension/Compression Tap Holders G64
Straight Shank T/C & Rigid Tapping Chuck G64
Morse Taper Tension/Compression Tap Holders G65
Torque Control Tap Collets & Sets G65
Positive Drive Tap Collets, Reducers & Sets G65
Synchrolize Tapping System G66-67
Air Tapping Units G68
Tapping Head G68

CAT Taper Tension/ Compression Tap Holders

- Quick-change - push back on the holder sleeve and the adapter with tool is removable
- Press on the end of the adapter nose and the tool is removable - all in a few seconds
- Smooth stroke - even under full torque load, the tension-compression stroke is full and free
- Interchangeability - our adapters and holders are interchangeable with Universal-Bilz quick change holders and adapters
- AT2 Taper Accuracy
- RFID Chip Hole





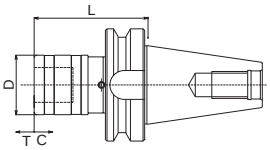
RETENTION KNOB PG G11 COLLETS PG G65

Taper	Tap Range Hand	Tap Range Pipe	System	L (in.)	D (in.)	T/C (in.)	Code No.	Price $
CT40	#0-9/16	1/8	#1	2.93	1.43	0.29/0.29	531543	**491.36**
CT40	#0-9/16	1/8	#1	4.00	1.43	0.29/0.29	531540	**491.36**
CT40	#0-9/16	1/8	#1	4.47	1.25	0.79/0.39	531542	**491.36**
CT40	5/16-7/8	1/4-1/2	#2	4.50	2.09	0.49/0.49	531544	**555.39**
CT40	5/16-7/8	1/4-1/2	#2	6.66	2.00	0.85/0.49	531546	**533.29**
CT40	13/16-1-3/8	3/4-1	#3	5.75	3.07	0.79/0.79	531549	**1,033.68**
CT40	13/16-1-3/8	3/4-1	#3	8.00	3.07	0.79/0.79	531548	**994.07**
CT40	13/16-1-3/8	3/4-1	#3	9.19	2.87	0.98/0.59	531550	**1,046.49**
CT50	#0-9/16	1/8	#1	4.00	1.43	0.29/0.29	531552	**654.71**
CT50	#0-9/16	1/8	#1	5.02	1.25	0.79/0.39	531554	**654.71**
CT50	5/16-7/8	1/4-1/2	#2	4.50	2.09	0.49/0.49	531556	**722.66**
CT50	5/16-7/8	1/4-1/2	#2	5.66	2.00	0.85/0.49	531558	**722.66**
CT50	13/16-1-3/8	3/4-1	#3	6.25	3.07	0.79/0.79	531560	**1,093.79**
CT50	13/16-1-3/8	3/4-1	#3	7.72	2.87	0.98/0.59	531562	**944.97**

BT Taper Tension/ Compression Tap Holders

- Quick-change - push back on the holder sleeve and the adapter with tool is removable
- Press on the end of the adapter nose and the tool is removable - all in a few seconds
- Smooth stroke - even under full torque load, the tension-compression stroke is full and free
- Interchangeability - our adapters and holders are interchangeable with Universal-Bilz quick change holders and adapters
- AT2 Taper Accuracy
- RFID Chip Hole





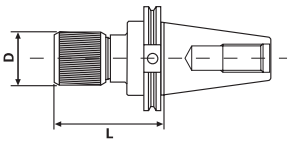
RETENTION KNOB PG G11 COLLETS PG G65

Taper	Tap Range Hand	Tap Range Pipe	System	L (in.)	D (in.)	T/C (in.)	Code No.	Price $
BT30	#0-9/16	1/8	#1	2.40	1.43	0.29/0.29	532261	**535.79**
BT30	#0-9/16	1/8	#1	4.25	1.43	0.29/0.29	532260	**535.79**
BT30	#0-9/16	1/8	#1	4.92	1.25	0.79/0.39	532262	**535.79**
BT40	#0-9/16	1/8	#1	2.62	1.43	0.29/0.29	532267	**480.90**
BT40	#0-9/16	1/8	#1	3.80	1.43	0.29/0.29	532264	**480.90**
BT40	#0-9/16	1/8	#1	4.33	1.25	0.79/0.39	532266	**480.90**
BT40	5/16-7/8	1/4-1/2	#2	4.50	2.09	0.49/0.49	532268	**555.39**
BT40	5/16-7/8	1/4-1/2	#2	6.34	2.00	0.85/0.49	532270	**586.62**
BT40	13/16-1-3/8	3/4-1	#3	7.50	3.07	0.79/0.79	532272	**1,082.03**
BT40	13/16-1-3/8	3/4-1	#3	9.00	2.87	0.98/0.59	532274	**1,151.18**
BT50	5/16-7/8	1/4-1/2	#2	6.34	2.00	0.85/0.49	532277	**818.06**

CAT Taper Rigid Tap Holders

- Quick-change - push back on the holder sleeve and the adapter with tool is removable
- Press on the end of the adapter nose and the tool is removable - all in a few seconds
- Interchangeability - our adapters and holders are interchangeable with Universal-Bilz quick change holders and adapters
- AT2 Taper Accuracy
- RFID Chip Hole





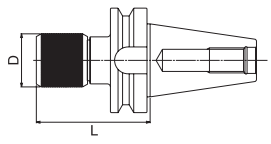
RETENTION KNOB PG G11 COLLETS PG G65

Taper	Tap Range Hand	Tap Range Pipe	System	L (in.)	D (in.)	Code No.	Price $
CT40	#0-9/16	1/8	#1	2.95	1.25	531564	**339.77**
CT40	5/16-7/8	1/4-1/2	#2	3.74	2.00	531566	**381.59**
CT40	13/16-1-3/8	3/4-1	#3	4.72	2.87	531568	**423.40**
CT50	#0-9/16	1/8	#1	3.02	1.25	531570	**465.22**
CT50	5/16-7/8	1/4-1/2	#2	3.91	2.00	531572	**499.20**
CT50	13/16-1-3/8	3/4-1	#3	5.11	2.87	531574	**591.98**

BT Taper Rigid Tap Holders

- Quick-change - push back on the holder sleeve and the adapter with tool is removable
- Press on the end of the adapter nose and the tool is removable - all in a few seconds
- Interchangeability - our adapters and holders are interchangeable with Universal-Bilz quick change holders and adapters
- AT2 Taper Accuracy
- RFID Chip Hole





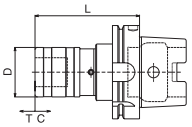
RETENTION KNOB PG G11 COLLETS PG G65

Taper	Tap Range Hand	Tap Range Pipe	System	L (in.)	D (in.)	Code No.	Price $
BT30	#0-9/16	1/8	#1	2.44	1.25	532276	**423.40**
BT40	#0-9/16	1/8	#1	2.95	1.25	532278	**381.59**
BT40	5/16-7/8	1/4-1/2	#2	3.74	2.00	532280	**372.44**
BT40	13/16-1-3/8	3/4-1	#3	4.72	2.87	532282	**623.34**
BT50	#0-9/16	1/8	#1	3.03	1.25	532281	**450.85**
BT50	5/16-7/8	1/4-1/2	#2	3.74	2.00	532283	**591.98**
BT50	13/16-1-3/8	3/4-1	#3	4.92	2.87	532284	**701.75**

HSK Tension/Compression Tap Holders

- Quick-change - push back on the holder sleeve and the adapter with tool is removable
- Press on the end of the adapter nose and the tool is removable - all in a few seconds
- Smooth stroke - even under full torque load, the tension-compression stroke is full and free
- Interchangeability - our adapters and holders are interchangeable with Universal-Bilz quick change holders and adapters
- AT2 Taper Accuracy
- RFID Chip Hole





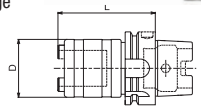


Taper	Tap Range Hand	Tap Range Pipe	System	L (in.)	D (in.)	T/C (in.)	Code No.	Price $
HSK63	#0-9/16	1/8	#1	5.30	1.43	0.29/0.29	536196	**861.18**
HSK63	5/16-7/8	1/4-1/2	#2	6.10	2.09	0.49/0.49	536198	**991.86**
HSK100	#0-9/16	1/8	#1	5.30	1.43	0.29/0.29	536202	**1,576.00**
HSK100	5/16-7/8	1/4-1/2	#2	6.30	2.09	0.49/0.49	536204	**1,697.32**

HSK Rigid Tap Holders

- Quick-change - push back on the holder sleeve and the adapter with tool is removable
- Press on the end of the adapter nose and the tool is removable - all in a few seconds.
- Interchangeability - our adapters and holders are interchangeable with Universal-Bilz quick change holders and adapters
- AT2 Taper Accuracy
- RFID Chip Hole



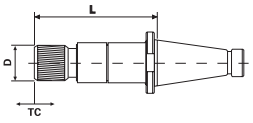




Taper	Tap Range Hand	Tap Range Pipe	System	L (in.)	D (in.)	Code No.	Price $
HSK63	#0-9/16	1/8	#1	3.34	1.26	536184	**713.51**
HSK63	5/16-7/8	1/4-1/2	#2	4.00	1.97	536186	**760.56**
HSK100	#0-9/16	1/8	#1	3.54	1.43	536190	**1,163.05**
HSK100	5/16-7/8	1/4-1/2	#2	3.74	2.09	536192	**1,389.13**

NMTB Taper Tension/ Compression Tap Holders





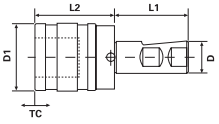


Taper	Tap Range Hand	Tap Range Pipe	System	L (in.)	D (in.)	T/C (in.)	Code No.	Price $
NMTB40	#0-9/16	1/8	#1	3.90	1.25	0.79/0.39	534500	**426.49**

Weldon Shank Tension/Compression Tap Holders

- Precision ground surfaces
- Compact length
- Provide additional mating flexibility
- Provides axial float
- Adjustable entry force



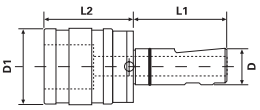




Tap Range Hand	Tap Range Pipe	System	Shank Dia. D	D1	L1	L2	T/C	Code No.	Price $
#0-9/16	1/8	#1	1	1.25	2.28	4.13	0.79/0.39	534520	**416.87**
#0-9/16	1/8	#1	1	1.43	2.28	1.53	0.79/0.39	534522	**416.87**
#0-9/16	1/8	#1	1-1/2	1.25	2.69	4.13	0.79/0.39	534532	**457.01**
5/16-7/8	1/4-1/2	#2	1-1/4	2.00	2.28	5.55	0.85/0.49	534530	**528.76**
5/16-7/8	1/4-1/2	#2	1-1/2	2.00	2.69	5.55	0.85/0.49	534534	**539.71**

Weldon Shank Rigid Tap Holders

- Precision ground surfaces
- Compact length
- Provides axial float
- Adjustable entry force
- Provide additional mating flexibility





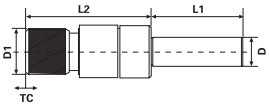


Tap Range Hand	Tap Range Pipe	System	Shank Dia. D	D1	L1	L2	Code No.	Price $
#0-9/16	1/8	#1	1	1.26	2.28	1.46	534540	**241.76**
5/16-7/8	1/4-1/2	#2	1	1.97	2.28	2.12	534542	**338.46**
13/16-1-3/8	3/4-1	#3	1-1/2	2.83	2.69	3.27	534544	**429.94**

Straight Shank Tension/Compression Tap Holders

- Straight shank tooling may be used to extend tooling reach for extended length operations
- This option is less costly than extended length integral shank tooling
- They may be used with any size machining centre or lathe
- When loaded into larger holders, their reduced O.D. permits tapping applications within large holes or whenever tight clearances are encountered





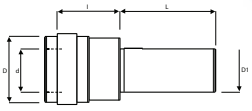


Tap Range Hand	Tap Range Pipe	System	Shank Dia. D	D1	L1	L2	Tension & Compression T	Tension & Compression C	Code No.	Price $
#0-9/16	1/8	#1	1	1.25	3.50	4.13	0.79	0.39	534510	**416.87**
5/16-7/8	1/4-1/2	#2	1	2.00	3.50	5.55	0.85	0.49	534512	**496.58**
#0-9/16	1/8	#1	1-1/4	1.25	4.00	4.13	0.79	0.39	534514	**407.29**

Straight Shank Tension/Compression Tapping Chuck

- Precision ground surfaces
- Provides axial float
- Adjustable entry force
- Plastic collar to protect chuck from coolant
- Compact length
- Roller cage construction





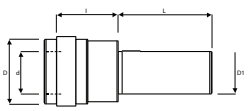


Desc	System	Shank D1	d	D	l	L	Tap Capacity	Tension & Compression T	Tension & Compression C	Code No.	Price $
1" shank	#1	1.00	0.748	1.50	1.76	1.95	#0 - 9/16	0.35	0.35	339100	**416.87**
1" shank	#2	1.00	1.220	2.17	2.52	2.00	5/16 - 7/8	0.59	0.59	339105	**496.58**
1-1/2" shank	#2	1.50	1.220	2.17	2.52	3.50	5/16 - 7/8	0.59	0.59	339110	**539.71**
1-1/2" shank	#3	1.50	1.890	3.09	3.85	3.50	13/16 - 1-3/8	0.94	0.94	339115	**773.63**

Straight Shank Rigid Tapping Chuck

- Precision ground surfaces
- Compact length
- No float for synchronous tapping
- Coolant through spindle capability

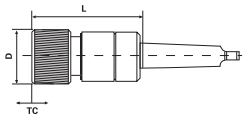






Desc	System	Shank D1	d	D	l	L	Tap Capacity	Code No.	Price $
1" shank	#1	1.00	0.748	1.30	1.60	1.95	#0 - 9/16	339120	**241.76**
1" shank	#2	1.00	1.220	2.00	2.50	2.00	5/16 - 7/8	339125	**338.46**
1-1/2" shank	#3	1.50	1.890	2.84	3.44	3.50	13/16 - 1-3/8	339130	**429.94**

Morse Taper Tension/ Compression Tap Holders





Morse Taper	Tap Range Hand	Tap Range Pipe	System	D (in.)	L (in.)	T/C (in.)	Code No.	Price $
3	#0-9/16	1/8	#1	1.25	4.750	0.79/0.39	534550	**347.47**
3	5/16-7/8	1/4-1/2	#2	2.00	5.870	0.85/0.49	534552	**355.02**
4	#0-9/16	1/8	#1	1.25	4.72	0.79/0.39	534554	**332.67**
4	5/16-7/8	1/4-1/2	#2	2.00	5.94	0.85/0.49	534556	**339.46**

Torque Control Tap Collets & Sets

Tap System #1
- Tap Collets are fully compatible with Bilz System #1. Size Range: #0 - 9/16" hand tap and 1/8" pipe tap

Tap System #2
- Tap Collets are fully compatible with Bilz System #2. Size Range: 5/16" - 7/8" hand tap and 1/4" - 1/2" pipe tap

Tap System #3
- Tap Collets are fully compatible with Bilz System #3. Size Range: 1/2" - 1-3/8" hand tap and 3/4" - 1" pipe tap



	Tap Size	Tap System	D	Tap Shank	Square	Code No.	Price $
	#0-#6	1	0.748	0.141	0.110	337260	**126.61**
	#8	1	0.748	0.168	0.131	337261	**126.61**
	#10	1	0.748	0.194	0.152	337262	**126.61**
	#12	1	0.748	0.220	0.165	337263	**126.61**
	1/4	1	0.748	0.255	0.191	337264	**126.61**
	5/16	1	0.748	0.318	0.238	337265	**126.61**
	3/8	1	0.748	0.381	0.286	337266	**126.61**
	7/16	1	0.748	0.323	0.110	337267	**126.61**
	1/2	1	0.748	0.367	0.110	337268	**126.61**
	9/16	1	0.748	0.429	0.332	337269	**126.61**
NPT	1/8P	1	0.748	0.313	0.234	337270	**126.61**
	5/16	2	1.220	0.318	0.238	337275	**162.62**
	3/8	2	1.220	0.381	0.286	337276	**162.62**
	7/16	2	1.220	0.323	0.242	337277	**162.62**
	1/2	2	1.220	0.367	0.275	337278	**162.62**
	9/16	2	1.220	0.429	0.322	337279	**162.62**
	5/8	2	1.220	0.480	0.360	337280	**162.62**
	11/16	2	1.220	0.542	0.406	337281	**162.62**
	3/4	2	1.220	0.590	0.442	337282	**162.62**
	13/16	2	1.220	0.652	0.489	337283	**162.62**
	7/8	2	1.220	0.697	0.523	337284	**162.62**
NPT	1/4P	2	1.220	0.562	0.421	337285	**162.62**
	3/8P	2	1.220	0.700	0.531	337286	**162.62**
	1/2P	2	1.220	0.687	0.515	337287	**162.62**
	1/2	3	1.891	0.367	0.275	337230	**372.87**
	9/16	3	1.891	0.429	0.322	337231	**372.87**
	5/8	3	1.891	0.480	0.360	337233	**372.87**
	11/16	3	1.891	0.542	0.406	337234	**372.87**
	3/4	3	1.891	0.590	0.442	337235	**372.87**
	13/16	3	1.891	0.652	0.489	337237	**372.87**
	7/8	3	1.891	0.697	0.523	337238	**372.87**
	15/16	3	1.891	0.760	0.570	337239	**372.87**
	1	3	1.891	0.800	0.600	337241	**372.87**
	1-1/16 - 1-1/8	3	1.891	1.021	0.766	337242	**372.87**
	1-3/16 - 1-1/4	3	1.891	0.381	0.286	337243	**372.87**
	1-5/16 - 1-3/8	3	1.891	1.108	0.831	337245	**372.87**
NPT	3/4P	3	1.891	0.906	0.679	337246	**372.87**
	1P	3	1.891	1.125	0.843	337247	**372.87**

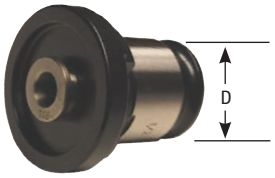
Sets	Type #1 - 11pc	#0-9/16, 1/8 NPT	337271	**1,392.71**
	Type #2 - 13pc	5/16-7/8, 1/4, 3/8, 1/2 NPT	337288	**2,114.06**

Positive Drive Tap Collets, Reducers & Sets

Tap System #1
- Tap Collets are fully compatible with Bilz System #1. Size Range: #0 - 9/16" hand tap and 1/8" pipe tap

Tap System #2
- Tap Collets are fully compatible with Bilz System #2. Size Range: 5/16" - 7/8" hand tap and 1/4" - 1/2" pipe tap

Tap System #3
- Tap Collets are fully compatible with Bilz System #3. Size Range: 3/8" - 1-3/8" hand tap and 1/2" - 1" pipe tap

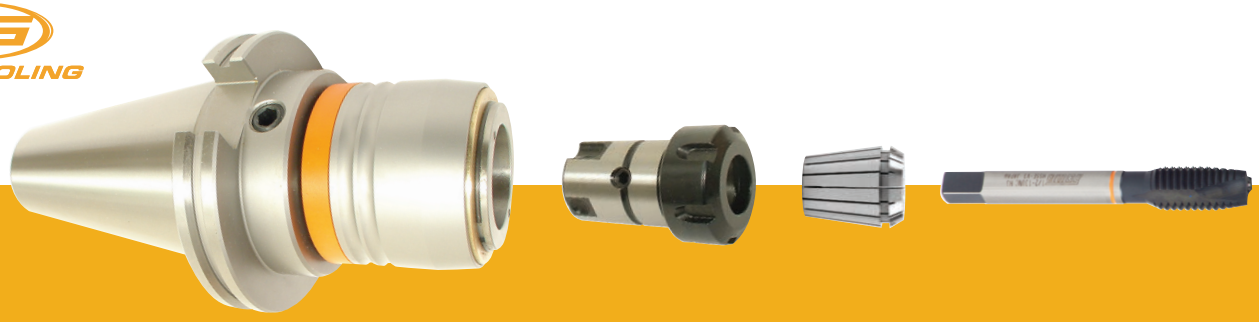


	Tap Size	Tap System	D	Tap Shank	Square	Code No.	Price $
	#0-#6	1	0.748	0.141	0.110	337052	**51.11**
	#8	1	0.748	0.168	0.131	337054	**51.11**
	#10	1	0.748	0.194	0.152	337056	**51.11**
	#12	1	0.748	0.220	0.165	337058	**51.11**
	1/4	1	0.748	0.255	0.191	337060	**51.11**
	5/16	1	0.748	0.318	0.238	337062	**51.11**
	3/8	1	0.748	0.381	0.286	337064	**51.11**
	7/16	1	0.748	0.323	0.242	337066	**51.11**
	1/2	1	0.748	0.367	0.275	337068	**51.11**
	9/16	1	0.748	0.429	0.322	337070	**51.11**
NPT	1/8P	1	0.748	0.438	0.328	337072	**51.11**
	5/16	2	1.220	0.318	0.238	337074	**65.05**
	3/8	2	1.220	0.381	0.286	337076	**65.05**
	7/16	2	1.220	0.323	0.242	337078	**65.05**
	1/2	2	1.220	0.367	0.275	337080	**65.05**
	9/16	2	1.220	0.429	0.322	337082	**65.05**
	5/8	2	1.220	0.480	0.360	337084	**65.05**
	11/16	2	1.220	0.542	0.406	337086	**65.05**
	3/4	2	1.220	0.590	0.442	337088	**65.05**
	13/16	2	1.220	0.652	0.489	337090	**65.05**
	7/8	2	1.220	0.697	0.523	337092	**65.05**
NPT	1/4P	2	1.220	0.562	0.421	337094	**65.05**
	3/8P	2	1.220	0.700	0.531	337096	**65.05**
	1/2P	2	1.220	0.687	0.515	337098	**65.05**
	3/8	3	1.891	0.381	0.286	337111	**174.24**
	1/2	3	1.891	0.367	0.275	337089	**174.24**
	9/16	3	1.891	0.429	0.322	337091	**174.24**
	5/8	3	1.891	0.480	0.360	337093	**174.24**
	11/16	3	1.891	0.542	0.406	337095	**174.24**
	3/4	3	1.891	0.590	0.442	337097	**174.24**
	13/16	3	1.891	0.652	0.489	337100	**174.24**
	7/8	3	1.891	0.697	0.523	337102	**174.24**
	15/16	3	1.891	0.760	0.570	337104	**174.24**
	1	3	1.891	0.800	0.600	337106	**174.24**
	1-1/8	3	1.891	0.896	0.672	337108	**174.24**
	1-1/4	3	1.891	1.021	0.766	337110	**174.24**
	3/8	3	1.891	0.381	0.286	337111	**174.24**
	1-3/8	3	1.891	1.108	0.831	337112	**174.24**
NPT	1/2P	3	1.891	0.687	0.515	337113	**174.24**
	3/4P	3	1.891	0.906	0.679	337114	**174.24**
	1P	3	1.891	1.125	0.843	337116	**174.24**

Reducers	Type #2 - #1		337118	**145.04**
	Type #3 - #2		337119	**290.02**
Sets	Type #1 - 11pc	#0-9/16, 1/8NPT	337073	**562.21**
	Type #2 - 13pc	5/16-7/8, 1/4, 3/8, 1/2 NPT	337099	**845.65**
	Type #3 - 9pc	13/16-1-3/8, 3/4, 1" NPT	337117	**1,568.16**
	Type #3 - 16pc	3/8-1-3/8, 3/8, 3/4, 1" NPT	337121	**2,787.84**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.



SYNCHROLIZE TAPPING SYSTEM FOR RIGID TAPPING

The Synchrolize system has 0.008" of compensation in compression and 0.039" of compensation in tension.

- The Synchrolize tapping chuck is the better solution, it gives you the possibility to work with axial compensation
- Tap capacity: M3-M12, M6-M20, M14-M33
- Triple life of tap in comparison to a traditional tapping system
- Quick change of the tap and of the adapter
- Suitable for rigid tapping with micro compensation
- Uses ER Tap Collets full and free
- Up to 9" of gauge length can be obtained when using the extension system
- No need for tap collets due to the opposing set screws in the tap adapters

CAT Taper Synchrolize Tap Chucks

- Slim nose design
- Up to 200% increase in tap life



Taper	Tap Range Hand	System	Nose Dia. (in.)	Gauge Length (in.)	Code No.	Price $
CAT40	#0 - 1/2	1	1.693	2.087	531610	**695.99**
CAT40	3/8" - 3/4	2	2.323	2.874	531614	**865.20**
CAT50	#0 - 1/2	1	1.690	2.402	531612	**744.34**
CAT50	3/8" - 3/4	2	2.323	2.874	531616	**1,077.77**

HSK Synchrolize Tap Chucks

- Slim nose design
- Up to 200% increase in tap life



Taper	Tap Range Hand	System	Nose Dia. (in.)	Gauge Length (in.)	Code No.	Price $
HSK50A	#0 - 1/2	1	1.693	2.756	536210	**695.99**
HSK50A	3/8" - 3/4	2	2.362	3.819	536218	**865.20**
HSK63A	#0 - 1/2	1	1.693	2.520	536212	**695.99**
HSK63A	3/8" - 3/4	2	2.362	3.819	536214	**865.20**
HSK100A	3/8" - 3/4	2	2.362	3.583	536216	**1,300.14**

BT Taper Synchrolize Tap Chucks

- Slim nose design
- Up to 200% increase in tap life



Taper	Tap Range Hand	System	Nose Dia. (in.)	Gauge Length (in.)	Code No.	Price $
BT40	#0 - 1/2	1	1.690	2.402	532310	**550.96**

Synchrolize Quick Change Tap Adapters — Extended

- Opposing set screws to secure tap, NO NEED for Tap Collets
- Designed for perfect hole alignment



System	Tap Range	Collet Style	L	Nose Dia.	Code No.	Price $
1	#0 - 1/2	ER16	55mm	28mm	338126	**835.44**
2	3/8" - 3/4	ER25	86mm	42mm	338128	**893.46**

• See page G24 for ER16 collets • See page G25 for ER25 collets

Synchrolize Quick Change Tap Adapters

- Opposing set screws to secure tap, NO NEED for Tap Collets
- Designed for perfect hole alignment



System	Tap Range	Collet Style	Length	Nose Dia.	Code No.	Price $
1	#0 - 1/2	ER16	24mm	28mm	338120	**313.93**
2	3/8" - 3/4	ER25	28mm	42mm	338122	**367.11**

• See page G24 for ER16 collets • See page G25 for ER25 collets



SYNCHROLIZE EXTENSION SYSTEM

Up to 9" of Gauge Length

Synchrolize Tap Adapter Bodies



System	Length Added	Code No.	Price $
1	5mm	338132	**410.62**
2	7mm	338134	**471.24**

Synchrolize Terminals



System	Tap Range	Collet Style	Length	Code No.	Price $
1	#0 - 1/2	ER16	50mm	338138	**424.98**
2	3/8" - 3/4	ER25	79mm	338140	**434.64**

Synchrolize Extensions



System	Length	Code No.	Price $
1	25mm	338144	**111.18**
1	50mm	338146	**130.53**
2	50mm	338148	**169.05**
2	100mm	338150	**193.22**

Synchrolize Assembly Supports



System	Code No.	Price $
1	338156	**202.90**
2	338158	**222.23**

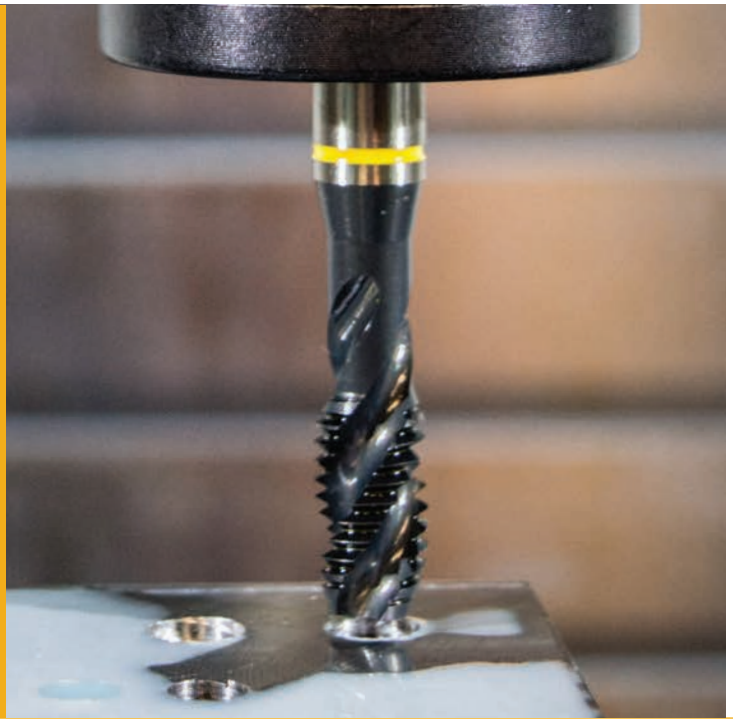


SOWA

Sowa High Performance Taps

For tough materials, stainless steels and aluminum.

See Chapter C



BIG Accu-Tapper Reversing Type

BIG DAISHOWA

Designed with Reversing Mechanism for Use on Non-reversing Spindles

- Equipped with safety clutch to prevent tap breakage in case of overload; provides smooth transition and rapid change from forward to reverse
- Axial float assures smooth tapping and guards against breakage and cross tapping
- Guaranteed depth control to ±0.1mm (±0.004")
- JACOBS RUBBER FLEX COLLETS are standard accessory.

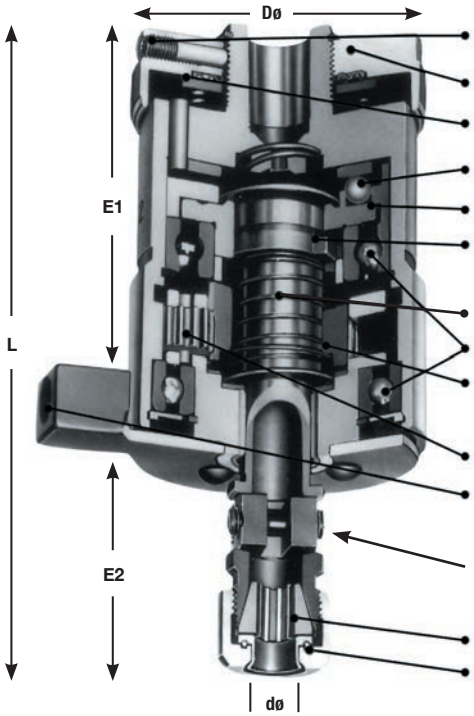


Mount JT No.	Tapping Cap. Steel	Standard Collet Code No.	Rec. Max. Speed	Gear Ratio	Clockwise Comp. (A)	Expansion (B)	Code No.	Price $
M207 J-6	#0-1/4" M2-M7	355940 (#0-10) 355942 (#10-1/4")	1,500rpm	1:1.6	0.197"	0.14"	355921	**1,282.74**
M412 J-6	#8-1/2" M4-M12 1/8 NPT	355944 (#8-1/4") 355946 (1/4"-1/2")	1,000rpm	1:1.75	0.197"	0.16"	355924	**1,482.25**
M820 M20	5/16"-3/4" M8-M20 1/8, 1/4 NPT	355948 (5/16"-5/8") 355950 (9/16"-3/4")	600rpm	1:1.7	0.236"	0.24"	355926	**2,182.03**

Clamp, Bolt & Nut

Model	Code No.	Price $
#412	355925	**131.50**
#820	355927	**146.50**

INTERNAL CONSTRUCTION



ACCU-TAPPER Specifications:

Model No.	Dø	dø	E1	E2	L
M207	2.17	0.91	3.46	1.65	5.12
M412	2.95	1.10	3.82	2.32	6.14
M820	3.58	1.57	4.72	3.31	8.03

Mini Arm Type Air Tapping Unit — VAT-712

STM

- Air tapping spindle
- Parallel arm
- Table mounting column
- Air combination
- 6 ANSI Tap Collets #10-1/2"
- Radial jib
- Air pressure: 6~8 kgs/cm^3
- Air Cylinders included
- Requires: 5HP compressor
- Without stand plate



* Base not included

Tap Range	Speed RPM	Work Range	Weight (kg)	Code No.	Price $
#10-1/2	400	Rmax 700mm	12	326700	**6,150.70**

Small Arm Type Air Tapping Unit — VAT-1412

STM

- Air tapping spindle
- Parallel arm
- Table mounting column
- Air combination
- 6 ANSI Tap Collets #10-1/2"
- Radial jib, increases arm reach by 500mm
- Air pressure: 6~8 kg/cm^3
- Air Cylinders included
- Requires: 5HP compressor
- Without stand plate



* Base not included

Tap Range	Speed RPM	Work Range	Weight (kg)	Code No.	Price $
#10 - 1/2	400	Rmax 1400mm Rmin 200mm	18	326705	**6,839.50**



Drill Chucks & Tap Adapters

CAT Taper Integral Keyless Drill Chucks G70
BT Taper Integral Keyless Drill Chucks G70
NMTB Taper Integral Keyless Drill Chucks. G70
M.T., R8 & Straight Shank Integral Keyless Drill Chucks G70-71
Replacement Drill Chucks & Wrenches G71
Ball/Plain Bearing & Keyless Drill Chucks G71
Tapping Heads & Flex Collets G74-75
Jacobs Drill, Tap & Die Grinder Chucks & Accessories G73-76
Rohm Drill Chucks & Accessories G77-78
CAT, BT, NMTB & R8 Jacobs Taper Adapters G79
CAT, BT, NMTB & R8 Morse Taper Adapters. G79
CT, BT, NMTB Taper Boring Head Holders G80
NMTB30 Drill Chuck Arbors G80
NMTB To NMTB Taper Open End Adapters G80
NMTB To R8 Taper Adapters G80
Morse Taper Sleeves. G80
Extension Length Sockets. G80
Solid Sockets G81
Lathe Mandrels. G81
Annular Cutter Holders G81
Type B & C CNC Toolholder Bushings G81
Taper Dimensions. G82-83

TOOLING

DRILL CHUCKS

HIGH PRECISION

PREMIUM TOLERANCE

TiN COATED JAWS FOR IMPROVED LIFE

GS Keyless Drill Chucks designed to achieve the highest accuracy and rigidity possible

GS Super Heavy Duty Ball Bearing Drill Chucks are made to the highest tolerances in the market



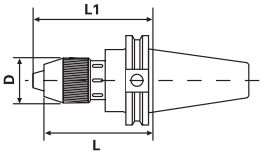
CAT Taper Integral Keyless Drill Chucks

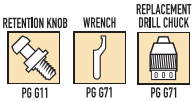
TOOLING

These chucks provide exceptionally high torque - up to three times the gripping strength of conventional drill chuck / taper holder combinations. The designeliminates any possibility of chuck / holder misalignment, and it assures separation safety.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability
- AT2 Taper Accuracy
- RFID Chip Hole







Taper	Cap.	L	L1	D	Code No.	Price $
CT40	1/4	2.559	2.795	1.3	531480	**578.70**
CT40	1/2	4.527	4.992	1.97	531482	**372.44**
CT40	5/8	4.724	5.236	2.24	531483	**684.75**
CT50	1/2	3.54	3.996	1.97	531484	**457.38**
CT50	5/8	3.7	4.134	2.24	531485	**751.27**

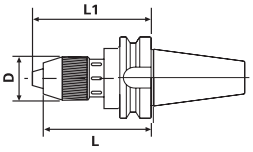
BT Taper Integral Keyless Drill Chucks

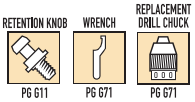
TOOLING

These chucks provide exceptionally high torque - up to three times the gripping strength of conventional drill chuck / taper holder combinations. The design eliminates any possibility of chuck / holder misalignment, and it assures separation safety.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability
- AT2 Taper Accuracy
- RFID Chip Hole







Taper	Cap.	L	L1	D	Code No.	Price $
BT30	1/4	3.15	3.38	1.3	532210	**494.10**
BT30	1/2	3.55	4.02	1.97	532212	**378.97**
BT40	1/4	2.95	3.19	1.3	532214	**508.26**
BT40	1/2	3.74	4.18	1.97	532216	**378.97**
BT50	5/8	5.12	5.59	2.24	532219	**546.06**

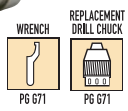
NMTB Taper Integral Keyless Drill Chucks

TOOLING

These chucks provide exceptionally high torque - up to three times the gripping strength of conventional drill chuck / taper holder combinations. The design eliminates any possibility of chuck / holder misalignment, and it assures separation safety.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability





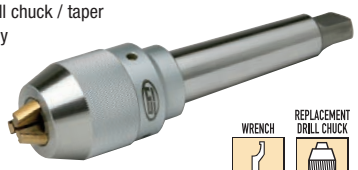
Taper	Cap.	Gauge Length (Open)	Gauge Length (Closed)	Chuck Dia.	Code No.	Price $
NMTB40	1/2	3.75	4.20	1.97	534406	**768.88**
NMTB50	1/2	3.35	3.74	1.97	534408	**501.12**

Morse Taper Integral Keyless Drill Chucks

TOOLING

These chucks provide exceptionally high torque - up to three times the gripping strength of conventional drill chuck / taper holder combinations. The design eliminates any possibility of chuck / holder misalignment, and it assures separation safety.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability

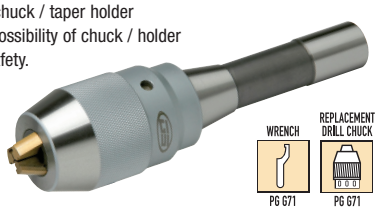


Shank	Gripping Dia. (mm)	Chuck Dia.	Gauge Length	Code No.	Price $
M.T. 4	0-13	51	100	337426	**265.91**
M.T. 4	3-16	57	120	337428	**382.84**

R8 Integral Keyless Drill Chucks

These chucks provide exceptionally high torque - up to three times the gripping strength of conventional drill chuck / taper holder combinations. The design eliminates any possibility of chuck / holder misalignment, and it assures separation safety.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability

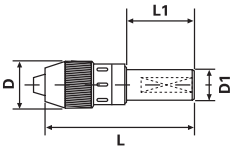


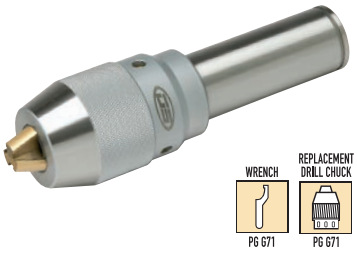
Shank	Gripping Dia. (mm)	Chuck Dia.	Gauge Length	Draw Bar	Code No.	Price $
R-8	0-13	51	100	7/16-20	337430	**374.88**
R-8	3-16	57	120	7/16-20	337432	**424.85**

Straight Shank Integral Keyless Drill Chucks

These chucks provide exceptionally high torque - up to three times the gripping strength of conventional drill chuck / taper holder combinations. The design eliminates any possibility of chuck / holder misalignment, and it assures separation safety.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability





Capacity	D1	L	L1	D	Code No.	Price $
1/4	3/4	5.87	2.56	1.34	534410	**268.30**
1/2	1-1/4	6.06	2.56	1.97	534414	**307.57**

Replacement Drill Chucks

These chucks provide exceptionally high torque - up to three times the gripping strength of conventional drill chuck / taper holder combinations. The design eliminates any possibility of chuck / holder misalignment, and it assures separation safety.



Description	Code No.	Price $
1/4" chuck	534422	**171.97**
1/2" chuck for BT40 / CAT50	534424	**205.17**
1/2" chuck for CAT40 / NMTB40	534425	**205.17**
5/8" chuck for CAT40/50, BT40	534427	**350.60**

Super Heavy Duty Ball Bearing Drill Chucks

GS Ball Bearing Chucks are specially designed for HEAVY DUTY drilling applications on production drilling machines, jig borers, milling machines, lathes and radials. The ideal choice for those jobs that require close tolerance drilling. The ball thrust bearing reduces friction in the chuck's closing mechanism, so the operator can apply more gripping power on the twist drill shank.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability



Chuck Model	Capacity (in.)	Mount	Code No.	Price $
13BXH	3/64-1/2	JT6	536500	**69.26**
16BXH	3/64-5/8	JT3	536502	**85.56**
19BXH	3/64-3/4	JT4	536504	**166.00**

Plain Bearing Drill Chucks

GS Plain Bearing Chucks are specially designed for stationary drilling, turning, milling, and woodworking machines.

- Sleeve design eliminates the possibility of tooth breakage
- Hardened jaws and body help to avoid wear and lengthen the life of the chuck
- Each chuck supplied with a key



Chuck Model	Capacity (in.)	Mount	Code No.	Price $
13GH	3/64-1/2	JT6	536516	**44.58**
16GH	3/64-5/8	JT3	536520	**59.68**

Replacement Chuck Wrenches



Description	Code No.	Price $
Fits 1/4" chucks	534418	**10.30**
Fits 1/2" chucks	534420	**13.07**
Fits 5/8" chucks	534431	**13.07**

Super Precision Keyless Drill Chucks

Keyless chucks are engineered to quickly loosen and tighten a tool on the chuck collar of the drill, either by manual operation or when torque is applied. Rotating the chuck collar in a counterclockwise direction will loosen the tool.

- High precision, premium tolerance
- The jaws feature a TiN coated surface treatment to assure durability



Chuck Model	Capacity (in.)	Mount	Code No.	Price $
6XH	1/64-1/4	JT1	536524	**302.55**
6XH	1/64-1/4	3/8 -24	536526	**238.12**
10XH	1/64-3/8	JT2	536528	**254.61**
10XH	1/64-3/8	JT33	536530	**243.72**
13XH	1/64-1/2	JT6	536534	**286.32**
13XH	1/64-1/2	JT33	536536	**273.85**
13XH	1/64-1/2	1/2 -20	536538	**122.13**
16XH	1/8-5/8	JT6	536540	**351.89**
16XH	1/8-5/8	JT33	536542	**322.57**

Drill Chuck Keys

- Nickel thumb grip
- The potential for fracturing under excessive load is limited due to soft steel handles



Chuck Model	Key No.	Code No.	Price $
13GH 1/2 JT33	P6	536548	**7.62**
13GH 1/2 JT6	P6	536548	**7.62**
16GH 5/8	P7	536550	**10.87**
19GH 3/4	P7	536550	**10.87**
13BXH	P6	536548	**7.62**
16BXH	P7	536550	**10.87**
19BXH	P7	536550	**10.87**

Drill Chuck Arbors



Taper	Jacobs Taper	Code No.	Price $
MT1	2	326900	**10.14**
MT2	1	326901	**10.56**
MT2	2	326902	**10.56**
MT2	3	326904	**10.56**
MT2	6	326906	**10.56**
MT2	33	326908	**10.56**
MT3	2	326910	**12.11**
MT3	3	326912	**12.42**
MT3	4	326914	**14.70**
MT3	6	326916	**12.52**
MT3	33	326918	**12.63**
MT4	3	326920	**16.25**
MT4	4	326922	**16.46**
MT4	6	326924	**16.25**
MT4	33	326926	**16.25**
MT5	3	326928	**31.88**
MT5	6	326930	**31.88**
R8	2	326932	**20.80**
R8	3	326934	**20.80**
R8	6	326936	**20.80**
1/2	1	326938	**8.60**
1/2	2	326940	**8.60**
1/2	6	326942	**8.60**
1/2	33	326944	**8.60**
5/8	3	326946	**9.10**
3/4	3	326948	**9.50**
3/4	6	326950	**10.90**

Jaw & Nut Assembly

Description	Code No.	Price $
U-3	610274	**200.84**
U-33	610282	**99.86**
U-34	610285	**116.96**
U-36	610286	**166.50**
U-8-1/2 N	610475	**119.48**
U-11 N	610477	**139.79**
U-14 N	610479	**313.70**
U-16 N	610481	**367.78**
U-18 N	610483	**494.00**
U-20 N	610485	**770.49**

Service Kits For Newer Models

- Includes jaws, nut, caged bearing, and thrust washer



Description	Code No.	Price $
30343 8-1/2 N	610460	**193.65**
30344 11N	610462	**228.46**
30345 14N	610464	**313.70**
30346 16N	610466	**367.78**
30347 18N	610468	**565.44**
30348 20N	610470	**770.62**

Jacobs Plain Bearing Geared Key Chucks

- Exceptionally high accuracy, gripping power and durability
- Wide range of capacities for use on threaded and taper-mounted spindles
- Jaws treated to ensure thread life and high gripping surface hardness



Chuck Model	Capacity (in.)	Key	Mount (in.)	Code No.	Price $
0	0–5/32	K0	JT0	610000	**176.65**
†0B, 5/16–24	0–5/32	K0	5/16–24	610001	**217.96**
1B, 3/8–24	0–1/4	K1	3/8–24	610002	**145.83**
1A	0–1/4	K1	JT1	610004	**143.67**
7BA, 3/8–24	0–1/4	K7	3/8–24	610008	**162.83**
41BA, 3/8–24	1/16–3/8	K30	3/8–24	610014	**66.72**
†41BA, 1/2–20	1/16–3/8	K30	1/2–20	610015	**227.31**
2A	0–3/8	K2	JT2	610016	**198.22**
2BA, 3/8–24	0–3/8	K2	3/8–24	610018	**193.77**
32BA, 1/2–20	0–3/8	K32	1/2–20	610020	**215.00**
33	5/64–1/2	K32	JT33	610022	**258.81**
33KD**	5/64–1/2	K32	JT33	610024	**245.35**
33BA, 3/8–24	5/64–1/2	K32	3/8–24	610025	**199.51**
33BA, 1/2–20	5/64–1/2	K32	1/2–20	610027	**191.21**
33BA, 5/8–16	5/64–1/2	K32	5/8–16	610028	**199.19**
34-02	0–1/2	K3	JT2	610029	**193.61**
34-33	0–1/2	K3	JT33	610030	**218.84**
34-33C*	0–1/2	K3C	JT33	610031	**211.33**
34-06	0–1/2	K3	JT6	610033	**257.17**
3A	1/8–5/8	K3	JT3	610039	**308.27**
†3KD**	1/8–5/8	K3	JT3	610040	**428.38**
†3PD***	1/8–5/8	K3	JT3	610041	**500.62**
3B, 5/8–16	1/8–5/8	K3	5/8–16	610042	**326.48**
36	3/16–3/4	K4	JT3	610043	**389.08**
†36B, 5/8–16	3/16–3/4	K4	5/8–16	610044	**486.47**
†36B, 3/4–16	3/16–3/4	K4	3/4–16	610045	**454.28**
36KD**	1/4–13/16	K4	JT3	610046	**389.58**

† Special manufactured items. Delivery information upon request.
With the exception of Models 0 and 0B Chucks which have a minimum capacity of No. 80 drill, all medium and heavy duty plain bearing chucks and ball bearing chucks having a nominal capacity of 0 will hold a No. 70 drill.
Key type chuck prices include the chuck and its key.
* Equipped with Threaded Locking Collar 1-1/16"-20 Thread
** Equipped with Positive Driving Slot
*** Equipped with Pin Type Positive Drive
BA Models are drilled and countersunk for Retaining Screw

Chuck Removal Wedge Sets

- For removing taper mount chucks from arbors or chucks



Description	Jacobs Taper	Code No.	Price $
13266	1	610224	**23.05**
13267	2	610225	**23.05**
13268	3	610226	**23.05**
13269	6	610227	**23.05**

Jacobs Ball Bearing Key Type Super Chucks

Extra accuracy, extra gripping power, for extra heavy duty work.
The ball bearing super chuck is especially designed for EXTRA HEAVY DUTY drilling applications on production drilling machines, jig borers, milling machines, lathes and radials. The ideal choice for those jobs that require close tolerance drilling. The ball thrust bearing reduces friction in the chuck's closing mechanism, so the operator can apply more gripping power on the twist drill shank.

Capacity					Weight		Length				Diameter			
							Closed		Open					
Chuck Model	Inch	mm	Taper Mount	Uses Key	lbs	Gr.	Inch	mm	Inch	mm	Inch	mm	Code No.	Price $
8-1/2N	0-1/4	0-6.4	JT2S & JT2	K30	0.6	255	2-13/32	61	1-7/8	48	1-9/16	40	610050	**264.85**
11N	0-3/8	0-10	JT2	K32	1.2	510	2-7/8	73	2-1/4	57	1-15/16	49	610051	**295.21**
14N	0-1/2	0-13	JT3	K3	2.4	1077	3-7/8	98	2-31/32	75	2-7/16	62	610052	**412.63**
16N	1/8 - 5/8	3-16	JT3	K4	2.9	1332	4-5/16	110	3-1/4	83	2-5/8	67	610053	**473.69**
18N	1/8 - 3/4	3-19	JT4	K4	4.2	1928	5-1/8	130	3-31/32	101	3-1/64	76	610054	**712.30**
20N	3/8-1	10-25	JT5	K5	7.0	3175	5-1/2	140	4-1/4	108	3-21/32	93	610055	**959.25**



Jacobs Arbors & Adapters

Always specify Jacobs arbors to serve the finest performance from Jacobs drill and tap chucks. They are precision ground to our master gauges and guarantee the finest possible accuracy and fit.

When Ordering Arbors
Any of the following is correct; Show style and size of the mounting shank and the model number of the Jacobs chuck to which the arbor will be fitted.
Example: A #2 Morse taper shank arbor for #34 Jacobs chuck.
Show the style and size of the mounting shank plus the actual Jacobs taper desired.
Example: A #2 Morse taper shank with a #3 Jacobs taper.
Simply use the part number price in the standard arbor charts shown below.
Example: One #610153 Jacobs chuck arbor



Bridgeport to Jacobs Taper



Morse Taper to Jacobs Taper



Straight Shank to Jacobs Taper

Taper Shank Arbors

Taper Shank	0	Price $	1	Price $	2	Price $	3	Price $	4	Price $	5	Price $	6	Price $	33	Price $
M.T. 1	-	-	610144	**50.55**	610145	**48.38**		-	-	-	-	-	610148	**65.05**	-	-
M.T. 2	-	-	610151	**46.11**	610152	**37.32**	610153	**36.62**	610154	**47.13**	-	-	610156	**50.11**	610157	**37.32**
M.T. 3	-	-	-	-	-	-	610160	**49.52**	610161	**57.97**	610162	**68.36**	610163	**52.15**	610164	**50.55**
M.T. 4	-	-	-	-	610165	**91.40**	610166	**77.83**	610167	**80.34**	610168	**112.29**	610169	**81.83**	-	-
M.T. 5	-	-	-	-	-	-	610172	**166.83**	610173	**165.01**	610174	**162.96**	-	-	-	-
R-8 (Bridgeport)	-	-	-	-	610184	**200.95**	610185	**200.95**	-	-	-	-	610187	**200.95**	610188	**200.95**

Straight Shank Arbors

Inches	0	Price $	1	Price $	2	Price $	3	Price $	4	Price $	5	Price $	6	Price $	33	Price $
1/2	610189	**38.00**	610190	**38.12**	610191	**38.12**	610192	**38.12**	-	-	-	-	610194	**49.41**	610195	**38.12**
5/8	-	-	-	-	610197	**46.90**	610198	**64.70**	-	-	-	-	610200	**50.44**	610201	**43.13**
3/4	-	-	-	-	610202	**64.70**	610203	**59.12**	-	-	-	-	610205	**69.50**	610206	**70.41**
1	-	-	-	-	-	-	610208	**70.41**	-	-	-	-	-	-	-	-

Threaded Shank Arbors

- Precision machined and ground to master gauges for maximum performance
- Ideal for use with custom tool and work holder designs and for specialized maching applications



Morse Taper	Thread	Code No.	Price $
MT2	3/8 - 24	610221	**135.22**
MT2	1/2 - 20	610222	**135.22**
MT2	5/8 - 16	610223	**135.68**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Keys For Plain Bearing & Ball Bearing Chucks

- Nickel thumb grip
- The potential for fracturing under excessive load is limited due to soft steel handles



Key No.	Code No.	Price $
Plain Bearing		
K0M	610118	**21.34**
K1	610119	**7.54**
K1M	610120	**33.78**
K2	610121	**10.70**
K3	610122	**12.66**
S-K3C	610123	**25.00**
Ball Bearing		
K7	610124	**9.06**
K30	610126	**10.37**
K32	610127	**10.92**
K4	610129	**18.56**
K5	610130	**41.65**
KG1	610131	**5.59**
KK	610132	**9.02**

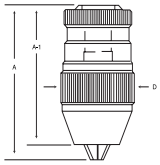
High Precision Industrial Keyless Chucks

Jacobs®

Precision design combines keyless operation with the ultimate in drill chuck accuracy.

- Precision tested and certified to 0.0016" TIR or better
- All components exposed to wear are completely hardened to maintain accuracy and extend chuck life
- Permits use on a wide range of high accuracy drill presses, jig borers, milling machines and production drilling equipment
- Self-tightening feature automatically increases gripping force proportional to increased torque to prevent tool shank slippage
- For general machining applications





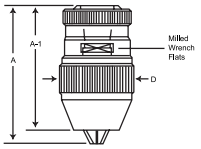
Chuck Model	Capacity Range Minimum (in.)	Minimum (mm)	Maximum (in.)	Maximum (mm)	Mount Jacobs	Dimensions Closed L (A) (in.)	Closed L (A) (mm)	Open L (A-1) (in.)	Open L (A-1) (mm)	Sleeve Dia. (D) (in.)	Sleeve Dia. (D) (mm)	Weight (oz.)	Code No.	Price $
JKP65-J1	0.000	0	0.255	6.5	JT1	2.76	70	2.44	62	1.28	32.5	11	610500	**411.61**
JKP80-J2S	0.000	0	0.315	8.0	J2S	2.91	74	2.64	67	1.46	37.0	14	610502	**411.61**
JKP100-J2	0.000	0	0.394	10.0	J2	3.50	89	3.19	81	1.61	41.0	22	610504	**439.91**
JKP100-J33	0.000	0	0.394	10.0	J33	3.50	89	3.19	81	1.61	41.0	22	610506	**439.91**
JKP130-J2	0.039	1	0.512	13.0	J2	3.90	99	3.46	88	1.81	46.0	32	610508	**470.26**
JKP130-J33	0.039	1	0.512	13.0	J33	3.90	99	3.46	88	1.81	46.0	32	610510	**470.26**
JKP130-J6	0.039	1	0.512	13.0	J6	3.90	99	3.46	88	1.81	46.0	32	610512	**470.26**
JKP160-J6	0.118	3	0.630	16.0	J6	4.21	107	3.74	95	2.17	55.0	42	610514	**543.75**

High Torque/High Precision Industrial Keyless Chucks

Jacobs®

- Furnished with milled wrench flats and spanner wrench to allow the application of supplementary gripping torque
- Light tightening increases gripping torque up to 3 times higher than hand tightening
- Resists tool loosening on high speed machines with right hand rotation and instant spindle stop





Chuck Model	Capacity Range Minimum (in.)	Minimum (mm)	Maximum (in.)	Maximum (mm)	Mount Jacobs	Dimensions Closed L (A) (in.)	Closed L (A) (mm)	Open L (A-1) (in.)	Open L (A-1) (mm)	Sleeve Dia. (D) (in.)	Sleeve Dia. (D) (mm)	Weight (oz.)	Code No.	Price $
JKT65-J1	0.000	0	0.255	6.5	JT1	2.76	70	2.44	62	1.28	32.5	11	610516	**455.20**
JKT80-J2S	0.000	0	0.315	8.0	J2S	2.91	74	2.64	67	1.46	37.0	14	610518	**638.70**
JKT130-J2	0.039	1	0.512	13.0	J2	3.90	99	3.46	88	1.81	46.0	32	610520	**546.16**
JKT130-J33	0.039	1	0.512	13.0	J33	3.90	99	3.46	88	1.81	46.0	32	610522	**546.16**
JKT130-J6	0.039	1	0.512	13.0	J6	3.90	99	3.46	88	1.81	46.0	32	610524	**546.16**
JKT160-J6	0.118	3	0.630	16.0	J6	4.21	107	3.74	95	2.17	55.0	42	610526	**652.73**

Jacobs Tap Chucks

Jacobs®

Complete range of flexible collet tap chucks for tapping machines and portable tappers. Simplify tap changing and provide unmatched accuracy.

- Designed for use with the versatile Jacobs® Rubber-Flex® collet which accepts and precisely centers both decimal and metric shank diameters
- Simple operation – one quarter turn of chuck screw allows nut to disengage back jaws
- Tap shank sighting hole presents full view of tap square during changeovers
- Each chuck, with one interchangeable Rubber-Flex® collet, handles a wide range of tap sizes to speed tap size changes
- Positive-drive chuck jaws always locate square of tap shank to ensure superior performance
- Available with choice of Jacobs®, round or square hole mounts

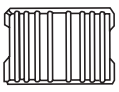


Model	Tap Capacity (in.)	Tap Capacity (mm)	Mount	O.A.L. at Max. Cap. (in/mm)	Max Dia. (in/mm)	Round Shank Cap. Min. (in/mm)	Round Shank Cap. Max. (in/mm)	Available Rubber-Flex® Collets	Weight (oz.)	Code No.	Price $
41-01	#0-1/4	1.00-6.35	JT1	2.00/51	0.84/21	0.09/2	0.25/6	J116, J117	2	610562	**435.12**
42-02	#10-5/16	4.83-7.94	JT2S	2.50/64	1.06/27	0.09/2	0.38/10	J420, J421, J422, J423	5	610566	**803.47**
42-24	#10-5/16	4.83-7.94	0.3675 Dia.	2.50/64	1.06/27	0.09/2	0.38/10	J420, J421, J422, J423	6	610568	**602.75**
42-J8	#0-1/4	1.00-6.36	0.375 Sq. Hole	2.50/64	1.06/27	0.09/2	0.38/10	J420, J421, J422, J423	6	610570	**604.92**
44-J9	#10-1/2	4.83-12.70	0.500 Sq. Hole	3.12/79	1.47/37	0.11/3	0.50/13	J440, J441, J443	12	610576	**833.95**

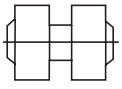
† Rubber-Flex Collets® are not included. Must be ordered separately

Replacement Parts For Tap Chucks

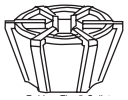
Jacobs®



Nut



Back Jaws



Rubber-Flex® Collet

Model	Nut Size	Price	Rubber-Flex® Collet	Back Jaws Code No.	Price $	Nut Wrench Code No.	Price $	Body Wrench Code No.	Price $
41-01	610578	**173.80**	J116, J117	610594	**325.79**	610610	**42.90**	610626	**38.00**
42-01	-	-	J420, J421, J422, J423	610596	**212.71**	610612	**43.83**	610628	**38.00**
42-02	-	-	J420, J421, J422, J423	610596	**212.71**	610612	**43.83**	610628	**38.00**
42-J8	-	-	J420, J421, J422, J423	610596	**212.71**	610612	**43.83**	610628	**38.00**
42-24	-	-	J420, J421, J422, J423	610596	**212.71**	610612	**43.83**	610628	**38.00**
44-J9	-	-	J440, J441, J443		-	610620	**42.34**		-

Jacobs Die Grinder Chucks

Compact tap chuck designed for use with Rubber-Flex® Collets holds mounted grinding burrs and rotary files on pneumatic and electric die grinders.

- Compact design facilitates use for a wide range of applications
- Integral seal protects collet components from abrasives and swarf
- Rubber-Flex® Collets furnished separately for tools with collet seating cones built into spindles



Chuck Model	Capacity Range Minimum (in.)	Minimum (mm)	Maximum (in.)	Maximum (mm)	Mount Jacobs	Dimensions Open L (A) (in.)	Open L (A) (mm)	Closed L (A-1) (in.)	Closed L (A-1) (mm)	Sleeve Dia. (D) (in.)	Sleeve Dia. (D) (mm)	Weight (oz.)	Code No.	Price $
100-61	0.09	2.3	0.25	6.4	3/8-24	1.77	45.0	1.88	47.8	0.75	19.1	1.50	610642	**179.16**

Nut For Die Grinder Chuck

Model No.	Code No.	Price $
N100	610644	**103.27**

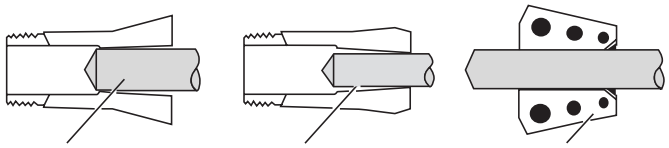
Rubber-Flex® Collets

Unique in design and operation, the Jacobs® Rubber-Flex® Collet can generate two to three times the gripping power of a conventional split-steel collet.



- Parallel jaw insert surfaces exert uniform, accurate gripping force up to three times greater than can be achieved with split-steel collets
- Each collet accepts and precisely centers a wide range of both decimal or metric diameters (within individual capacity ranges) to speed setups and increase machining productivity
- Durable one-piece construction
- Synthetic rubber retains flexibility and resists deterioration from heat, coolants and cutting compounds
- Steel jaw inserts precision ground (after molding process) to assure maximum gripping accuracy (parallelism)
- Hardened for greater wear resistance than split-steel collets
- Each collet bore is held concentric to the O.D. tapers, both front and back, to minimize TIR
- Automatically seals tool O.D. to permit coolant flow through tool reducing wear
- Seals collets and machine spindles to protect from abrasive particles and swarf

Rubber-Flex® Collets vs Conventional Collets



Oversized Bar

Conventional split-steel collets provide maximum gripping efficiency only at actual bored or nominal capacity.

Undersized Bar

They lose parallelism when chucking bars even a few thousandths over or under this capacity. This significantly reduces gripping strength and accuracy.

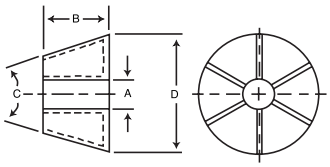
Rubber-Flex® Collet

Rubber-Flex® Collets exert uniform gripping pressure throughout the collet contact length (within individual collet capacity ranges) regardless of bar tolerance deviations

Tap Chuck Collets

- Each collet accepts and precisely centers a wide range of both decimal or metric diameters to speed setups and increase machining productivity
- Synthetic rubber retains flexibility and resists deterioration from heat, coolants, and cutting compounds
- Steel jaw inserts precision ground to ensure maximum gripping accuracy, and hardened for greater wear resistance than split steel collets
- Seals collets and machine spindles to protect from abrasive particles and swarf





Model	Capacity Range Min. (in.)	Min. (mm)	Max. (A) (in.)	Max. (A) (mm)	Contact Length (B) (in.)	Contact Length (B) (mm)	Cone Angle (C) (deg)	Outside Dia. (D) (in.)	Outside Dia. (D) (mm)	No. of Inserts	Weight (oz.)	Code No.	Price $
J116	0.094	2.4	0.177	4.5	0.468	11.9	26	0.590	15.1	6	0.10	610646	**97.35**
J117	0.177	4.5	0.256	6.5	0.468	11.9	26	0.590	15.1	8	0.10	610648	**97.35**
J420	0.176	4.5	0.320	8.1	0.500	12.7	40	0.941	23.9	6	0.20	610351	**83.08**
J421	0.139	3.5	0.257	6.5	0.500	12.7	40	0.941	23.9	6	0.20	610352	**83.08**
J422	0.253	6.4	0.383	9.7	0.500	12.7	40	0.941	23.9	6	0.30	610355	**83.08**
J423	0.090	2.3	0.090	4.6	0.500	12.7	40	0.860	21.8	4	0.30	610656	**81.70**
J440	0.280	7.1	0.280	12.7	0.630	16.0	45	1.296	32.9	6	0.30	610353	**95.06**
J441	0.176	4.5	0.176	9.7	0.630	16.0	45	1.296	32.9	6	0.30	610354	**93.46**

Die Grinder Collets

- Each collet accepts and precisely centers a wide range of both decimal or metric diameters to speed setups and increase machining productivity
- Synthetic rubber retains flexibility and resists deterioration from heat, coolants, and cutting compounds
- Steel jaw inserts precision ground to ensure maximum gripping accuracy, and hardened for greater wear resistance than split steel collets
- Seals collets and machine spindles to protect from abrasive particles and swarf

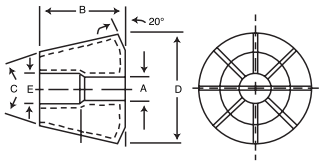


Model	Capacity Range Min. (in.)	Min. (mm)	Max. (A) (in.)	Max. (A) (mm)	Contact Length (B) (in.)	Contact Length (B) (mm)	Cone Angle (C) (deg)	Outside Dia. (D) (in.)	Outside Dia. (D) (mm)	No. of Inserts	Weight (oz.)	Code No.	Price $
J116	0.094	2.4	0.177	4.5	0.468	11.9	26	0.590	15.1	6	0.10	610646	**97.35**
J117	0.177	4.5	0.256	6.5	0.468	11.9	26	0.590	15.1	8	0.10	610648	**97.35**

Lathe Chuck Collets

- Each collet accepts and precisely centers a wide range of both decimal or metric diameters to speed setups and increase machining productivity
- Synthetic rubber retains flexibility and resists deterioration from heat, coolants, and cutting compounds
- Collets J910, J911 and J912 have a contact length of 0.90" (23mm)
- Steel jaw inserts precision ground to ensure maximum gripping accuracy, and hardened for greater wear resistance than split steel collets
- Seals collets and machine spindles to protect from abrasive particles and swarf
- All other lathe chuck collets have full length contact





Model	Capacity Range Min. (in.)	Min. (mm)	Max. (A) (in.)	Max. (A) (mm)	Contact Length (B) (in.)	Contact Length (B) (mm)	Cone Angle (C) (deg)	Outside Dia. (D) (in.)	Outside Dia. (D) (mm)	Clearance Dia. (E) (in.)	Clearance Dia. (E) (mm)	No. of Inserts	Weight (oz.)	Code No.	Price $
J910	0.060	1.5	0.125	3.2	1.74	44.5	26	2.25	57	0.60	15.2	4	0.53	610668	**1,540.20**
J911	0.125	3.2	0.250	6.4	1.74	44.5	26	2.25	57	0.60	15.2	6	0.53	610670	**763.08**
J912	0.250	6.4	0.375	9.5	1.74	44.5	26	2.25	57	0.60	15.2	6	0.47	610672	**752.82**
J913	0.375	9.5	0.500	12.7	1.74	44.5	26	2.25	57			8	0.47	610674	**771.98**
J914	0.500	12.7	0.625	15.9	1.74	44.5	26	2.25	57			10	0.47	610676	**746.08**
J915	0.625	15.9	0.750	19.1	1.74	44.5	26	2.25	57			10	0.47	610678	**750.30**
J916	0.750	19.1	0.875	22.2	1.74	44.5	26	2.25	57			12	0.47	610680	**761.03**
J917	0.875	22.2	1.000	27.9	1.74	44.5	26	2.25	57			16	0.55	610682	**781.23**
J918	1.000	25.4	1.125	28.6	1.74	44.5	26	2.25	57			20	0.52	610684	**802.67**
J919	1.125	28.6	1.250	31.8	1.74	44.5	26	2.25	57			24	0.43	610686	**830.52**
J920	1.250	31.8	1.375	34.9	1.74	44.5	26	2.25	57			24	0.40	610688	**806.21**
J921	1.375	34.9	1.500	38.1	1.74	44.5	26	2.25	57			24	0.27	610690	**985.37**

Hand-Tite® Keyless Drill Chucks

Increases operator productivity and convenience by speeding bit changeovers and eliminated downtime caused by loss of chuck keys.

- Keyless operation permits fast bit changes without lost key delays
- Superior gripping force provides high mechanical advantage to convert hand tightening torque into superior bit gripping force
- Ergonomic design increases hand tightening efficiency and user comfort
- Versatile models available to fit all 10mm (3/8") and 13mm (1/2") variable speed corded and cordless portable drills
- Precision operation by meeting or exceeding stringent DIN run-out and dimensional specifications
- Constructed of high performance materials to maximize durability and performance



Model	Features	Capacity Range Min. (in.)	Min. (mm)	Max. (A) (in.)	Max. (A) (mm)	Mount Thread	Dimensions Overall Length (in.)	Overall Length (mm)	Sleeve Dia. (in.)	Sleeve Dia. (mm)	Boss/Body Clearance (in.)	Boss/Body Clearance (mm)	Weight (oz.)	Code No.	Price $
10 mm Capacity (3/8")															
30354	Hard nose, dark finish	0.040	1.0	0.375	10	3/8-24	2.00	54.6	1.67	42.7	0.126	3.00	6.5	610700	**51.81**
13 mm Capacity (1/2")															
31038	Hard nose, black finish	0.062	2.0	0.500	13	1/2-20	2.90	73.7	1.68	42.7	0.082	2.08	12.0	610702	**79.77**
31037	Hard nose, black finish	0.062	2.0	0.500	13	3/8-24	2.90	73.7	1.68	42.7	0.082	2.08	12.0	610704	**106.35**

Adapt-A-Drive® Chuck

Converts any cordless screwdriver to a multi-purpose mini-drill for bit sizes up to 1/4".

- Easy conversion – integral hex mount locks the Adapt-A-Drive® chuck into the screwdriver bit socket
- Ideal for use in starting screw holes for use in hard-to-reach spaces



Model	Capacity Range Min. (in.)	Min. (mm)	Max. (in.)	Max. (mm)	Mount Thread	Key No.	Sleeve Finish	Sleeve Dia. (in.)	Sleeve Dia. (mm)	Weight (oz.)	Code No.	Price $
30248	0.028	0.7	0.250	6.5	0.250-Hex	KG1	Ground-Matte Band	1.13	28.6	3.5	610708	**38.34**

Jacobs Stainless Steel Chucks

- For special applications on either portable air operated or stationary machine tools
- Resist chemical corrosion and reduce potential for hazardous sparking



Chuck Model	Capacity Range Minimum (in.)	Minimum (mm)	Maximum (in.)	Maximum (mm)	Mount Jacobs	Key	Dimensions Closed L (in.)	Closed L (mm)	Open L (in.)	Open L (mm)	Sleeve Dia (in.)	Sleeve Dia (mm)	Weight (oz.)	Code No.	Price $
0M	0*	0	0.156	4	JT0	K0M	1.45	37	1.10	28	0.85	22	2.0	610710	**357.29**
0BM 5/16	0*	0	0.156	4	5/16-24	K0M	1.53	39	1.17	30	0.85	22	2.0	610712	**351.02**
1M	0*	0	0.250	6	JT1	K1M	1.92	49	1.54	39	1.12	28	5.0	610714	**325.91**
1BM 5/16	0*	0	0.250	6	5/16-24	K1M	1.95	50	1.57	40	1.12	28	5.0	610716	**356.27**
1BM 3/8	0*	0	0.250	6	3/8-24	K1M	1.95	50	1.57	40	1.12	28	5.0	610718	**347.71**

Jacobs Drain Chucks

- Specifically designed for use with flexible coil spring tools
- Allows coil spring to pass through chuck
- Chuck may be hand tightened to secure coil spring at desired length transmitting tool rotation to shaft
- Ideal for soil pipe and sewer cleaning tools



Chuck Model	Capacity Range Minimum (in.)	Minimum (mm)	Maximum (in.)	Maximum (mm)	Mount Thread	Dimensions Closed L (in.)	Closed L (mm)	Open L (in.)	Open L (mm)	Sleeve Dia. (in.)	Sleeve Dia. (mm)	Weight (oz.)	Code No.	Price $
DC4595	0.25	6.4	.500	13	13/16-20	2.49	63.2	2.49	63.2	1.70	43.2	4.5	610720	**189.66**

* Minimum capacity will hold #70 drill

Rohm Prima Key Type Drill Chucks

Impact resistant key-type drill chuck. Conical/ threaded mount in accordance with DIN ISO ping force due to proven transmission principle by means of drill chuck key.
Hardened keyholes and clamping prisms.



Rohm Id. No.	Cap. (in.)	Mount	Chuck Key	O.D. (mm)	Opened Length (mm)	Closed Length (mm)	Code No.	Price $
072806	1/64-5/32	B10	S1	24	39	47.5	390005	**75.82**
245586*	1/64-1/4	B10	S1	29.5	43	53	390020	**48.34**
072811*	1/64-1/4	3/8-24	S1	29.5	42.5	53	390025	**48.34**
245548	1/64-1/4	B12	S1	29.5	47.5	57.5	390030	**33.69**
245485*	1/64-5/16	B10	S1	29.5	43	53	390040	**33.69**
245550*	1/64-5/16	B12	S1	29.5	47.5	57.5	390045	**48.34**
245552*	1/64-5/16	3/8-24	S1	29.5	42.5	53	390050	**48.34**
245553*	1/64-5/16	1/2-20	S1	29.5	45	55.5	390060	**33.69**
072653*	1/32-3/8	B12	S2	34.5	50	60.5	390070	**53.96**
317255**	1/32-3/8	3/8-24	S2	34.5	49.5	61	390085	**42.07**
317256**	1/32-3/8	1/2-20	S2	34.5	49.5	61	390090	**44.96**
072687	1/32-3/8	B16	S2	42.8	63	77	390100	**53.96**
072693	1/32-3/8	JT2	S2	42.8	59	75.5	390105	**72.10**
072897*	1/16-1/2	B12	S2	42.8	58	72	390150	**63.11**
072800*	1/16-1/2	B16	S2	42.8	63	77	390155	**63.11**
064527*	1/16-1/2	3/8-24	S2	42.8	59	74	390125	**48.98**
317257**	1/16-1/2	1/2-20	S2	42.8	59	74	390140	**49.14**
072818*	1/32-1/2	JT6	S3	52	67.5	86	390165	**90.25**
072819*	1/32-1/2	JT33	S3	52	67.5	86	390170	**90.25**
072825	1/32-5/8	B18	S3	56.5	79	98	390195	**126.86**
072827	1/32-5/8	JT3	S3	56.5	79	98	390200	**145.17**
072828	1/32-5/8	JT6	S3	56.5	79	98	390205	**137.63**
072831	3/16-3/4	B22	S4	65	92.5	113.5	390225	**252.12**
072833	3/16-3/4	JT3	S4	65	82.5	103.5	390230	**290.66**
072834	3/16-1-1/32	B24	S4	80	120	147	390240	**509.06**

* Smaller, intermediate sizes primarily for hand-operated percussion drilling machines

** With through hole for right and left hand rotation

Rohm Ball Bearing Drill Chucks

- Bodies and jaws hardened and ground
- One piece gear/scroll ring eliminates loss of clamping torque
- Dependable and accurate performance
- Easy operation
- Extended life



Rohm Id. No.	Cap. (in.)	Mount	Chuck Key	O.D. (in.)	Opened Length (in.)	Closed Length (in.)	Code No.	Price $
215000	1/32-1/2	JT3	S10	2.24	3.11	3.86	390245	**298.83**
215001	1/32-5/8	JT3	S10	2.44	3.15	3.94	390250	**322.87**
215002	3/16-3/4	JT4	S13	2.80	3.82	4.65	390255	**532.10**

Rohm Chuck Keys

- Hand tools used to tighten and loosen screwed elements
- Manual tools are used for construction and repair work that requires simple execution with low energy use



Rohm Id. No.	Model No.	Jacobs Equiv.	Code No.	Price $
26411	S1	-	390300	**4.58**
205989	S2A	-	390315	**4.58**
309380	S2AT	-	390320	**6.41**
25835	S3	-	390325	**6.41**
309382	S3AT	-	390330	**8.22**
25839	S4	-	390335	**8.22**
228692	S7	K1	390340	**7.83**
228693	S8	K30	390345	**9.18**
228695	S10	K3	390355	**11.31**
68007	S13	K4	390360	**26.67**
500694	S14	KG	390365	**6.41**
500511	S17	K2	390370	**5.27**
228698	S18	K7	390380	**6.50**
212057	S19	KK	390385	**5.63**

Rohm Supra Keyless Drill Chucks

- Self-tightening for higher clamping torque
- High percussion design
- All metal construction for extended life
- Jaws and bodies are hardened and ground
- Rapid clamping and releasing without use of a wrench



Rohm Id. No.	Cap. (in.)	Mount	O.D. (mm)	Opened Length (mm)	Closed Length (mm)	Code No.	Price $
020089	0-1/4	JT1	35	62.5	68.6	390940	**141.16**
020147	0-1/4	3/8-24	35	62.5	68.6	390945	**137.95**
215059*	0-5/16	3/8-24	35	62.5	68.6	390950	**107.27**
871019	0-5/32	B10	26	45.5	50.8	391176	**137.95**
871031	0-5/16	B10	35	67	73.5	391177	**95.97**
871032	0-5/16	B12	35.8	67	73.4	391178	**137.62**
020093	0-5/16	JT1	35.8	70.5	76.9	390970	**103.60**
871034	0-5/16	3/8-24	35.8	67	73.4	391179	**95.97**
871038*	1/64-3/8	3/8-24	35.8	70.5	76.9	390985	**115.94**
871040	0-3/8	B12	40.2	79.5	86.1	390995	**65.48**
871041	0-3/8	B16	40.2	82.5	89.1	391000	**148.87**
871045	0-3/8	1/2-20	40.2	79.5	86.1	391015	**103.60**
871049*	1/32-1/2	3/8-24	42.5	81.5	89.8	391020	**126.86**
871050*	1/32-1/2	1/2-20	42.5	81.5	89.8	391025	**126.86**
871051	1/32-1/2	B16	46	93	101.5	391030	**159.62**
871052	1/32-1/2	JT2	46	91	99.5	391035	**170.22**
871054	1/32-1/2	JT6	46	94	102.5	391040	**170.22**
871053	1/32-1/2	JT33	46	94	102.5	391045	**170.22**
871055	1/32-1/2	1/2-20	46	93	101.5	391050	**142.85**
871062	1/8-5/8	1/2-20	46	87.5	97.5	391060	**137.95**
871063	1/8-5/8	5/8-16	46	87.5	97.5	391065	**148.87**
871064	1/8-5/8	B16	51	96.5	106.8	391070	**170.22**
871066	1/8-5/8	JT6	51	96.5	106.8	391075	**181.46**

* Lightweight version mainly for hand operated drilling machines

Spare Parts for Supra Keyless Drill Chucks

Cap. (in.)	Set of Jaws Code No.	Price $	Retaining Ring Code No.	Price $	Driver Code No.	Price $	Set of Balls Code No.	Price $
1/4	390780	**19.24**	-	**-**	-	**-**	-	**-**
5/16*	390780	**19.24**	-	**-**	390852	**8.43**	-	**-**
5/16	391100	**24.12**	-	**-**	-	**-**	-	**-**
3/8*	391100	**24.12**	-	**-**		**-**	-	**-**
3/8	-	**-**	390820	**2.60**	-	**-**	-	**-**
1/2*	391110	**27.06**	390820	**2.60**	391205	**12.33**	-	**-**
1/2	391115	**36.11**	391140	**3.26**	-	**-**	391235	**25.53**
5/8*	-	**-**	391140	**3.26**	391215	**16.86**	391235	**25.53**
5/8	391125	**35.04**	391145	**4.59**	-	**-**	391240	**5.05**

* Lightweight version mainly for hand operated drilling machines

Rohm Spiro Keyless Drill Chucks

Design:
Pointed shape of sleeve, high runout precision 0.05mm, wearing parts are hardened.

Usage:
Permanent self tightening action perfectly suitable for use with high speeds on drilling machines, machining centres and special drilling heads.



Rohm Id. No.	Cap. (in.)	Mount	O.D. (mm)	Opened Length (mm)	Closed Length (mm)	Code No.	Price $
019816	0-1/4	B10	35	62.5	68.6	390700	**140.11**
019832	0-1/4	B12	35	62.5	68.6	390705	**140.11**
019847	0-3/8	B12	43	82.5	90.1	390725	**157.23**
019864	0-3/8	B16	43	82.5	90.1	390730	**250.52**
019868	1/32-1/2	B16	50	94	102.5	390745	**269.79**
019884	1/8-5/8	B16	55	96.5	106.8	390765	**283.82**

Spare Parts for Spiro Keyless Drill Chucks

Cap. (in.)	Set of Jaws Code No.	Price $	Retaining Ring Code No.	Price $	Driver Code No.	Price $	Set of Balls Code No.	Price $
5/32	390775	**27.81**	390805	**1.99**	390870	**7.94**	390900	**5.51**
1/4	390780	**19.24**	390810	**2.13**	390875	**8.38**	390905	**4.11**
3/8	390790	**32.10**	390820	**2.60**	390885	**9.76**	390915	**4.11**
1/2	390795	**33.75**	-	**-**	390890	**16.71**	390920	**4.42**
5/8	390800	**35.04**	-	**-**	390895	**21.47**	390925	**5.03**

Rohm Ejectors



- Taper drift
- Utensils designed to facilitate the use of the different measurement, calibration or tracing systems

Rohm Id. No.	For Morse Taper	Length (mm)	Code No.	Price $
017076	1 & 2	140	391831	**6.20**
017077	3	190	391832	**9.75**
017078	4	225	391833	**15.06**
017079	5 & 6	265	391834	**25.69**

Rohm Hand Ejectors



- Taper drift for one-hand-operation
- Utensils designed to facilitate the use of the different measurement, calibration or tracing systems

Rohm Id. No.	For Morse Taper	Length (mm)	Code No.	Price $
317236	1-3	320	391836	**86.88**
317258	4-6	380	391837	**104.54**

Rohm Extra-RV 80 Portable Keyless Drill Chucks

Radial Locking
Keyless drill chucks in plastic or metal design with radial locking, for corded and cordless drills, for percussion drilling, with hexagon for assembling and disassembling on the machine spindle.

- No further locking when drilling and screwing, especially percussion drilling
- Very ergonomical, easy to handle, with metal nose piece
- With carbide inserts in the clamping jaws (size 13)
- For all drills with a maximum torque of 100Nm and up to 1500 W
- With through-hole for clockwise and anti-clockwise rotation (thread M5 and M6)
- The plastic parts carry the material description and can therefore be easily recycled
- If necessary, use maintenance spray



With Retaining Ring

Metal Design Without Retaining Ring

Rohm Id. No.	Cap. (mm)	Mount	Notes	O.D. (mm)	Opened Length (mm)	Closed Length (mm)	Code No.	Price $
893350	1-10	1/2-20	with through hole	42.70	55	60.90	390525	**41.33**
893351	1-10	3/8-24	with through hole	42.70	55	60.90	390515	**41.33**
893352	1.5-13	1/2-20	with through hole/ jaws with carbide inserts	42.70	64.50	72.40	390520	**70.34**

Plastic Design With Retaining Ring

Rohm Id. No.	Cap. (mm)	Mount	Notes	O.D. (mm)	Opened Length (mm)	Closed Length (mm)	Code No.	Price $
767639	1-10	1/2-20	with through hole	42.70	55	60.90	390465	**30.91**
664467	1-10	3/8-24	with through hole	42.70	55	60.90	390450	**37.52**
767692	1.5-13	1/2-20	with through hole/ jaws with carbide inserts	42.70	64.50	72.40	390490	**63.11**
767657	1.5-13	3/8-24	with through hole/ jaws with carbide inserts	42.70	64.50	72.40	390475	**63.11**

Plastic Design Without Retaining Ring

Rohm Id. No.	Cap. (mm)	Mount	Notes	O.D. (mm)	Opened Length (mm)	Closed Length (mm)	Code No.	Price $
767651	1-10	1/2"-20	with through hole	42.70	55	60.90	390425	**37.52**
767573	1-10	3/8"-24	with through hole	42.70	55	60.90	390455	**37.52**
767580	1.5-13	1/2"-20	with through hole/ jaws with carbide inserts	42.70	64.50	72.40	390495	**43.88**
767641	1.5-13	3/8"-24	with through hole/ jaws with carbide inserts	42.70	64.50	72.40	390480	**59.86**

Rohm Morse Taper Drill Chuck Arbors

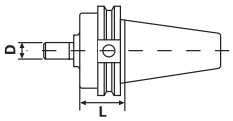
- Completely hardened and ground
- Ideal for use with custom tool and work holder designs



Rohm Id. No.	Morse Taper	Chuck Taper	Overall Length (in.)	Code No.	Price $
14970	1	JT1	3.41	391485	**13.30**
14971	1	JT2	3.62	391490	**13.30**
14972	1	JT3	3.98	391495	**13.30**
14974	1	JT6	3.74	391500	**13.30**
14976	2	JT1	3.98	391510	**16.86**
14977	2	JT2	4.19	391515	**16.86**
14978	2	JT3	4.55	391520	**16.86**
14981	2	JT6	4.31	391530	**16.86**
14980	2	JT33	4.31	391535	**16.86**
14983	3	JT2	4.96	391545	**22.16**
14984	3	JT3	5.31	391550	**22.16**
14988	3	JT6	5.08	391565	**22.16**
14987	3	JT33	5.08	391570	**22.16**
14991	4	JT3	6.34	391580	**30.99**
14995	4	JT6	6.10	391595	**30.99**

CAT Taper Jacobs Taper Adapter

- Shank traverse ground to obtain optimum accuracy
- Meets or exceeds ANSI specifications
- 0.0002" or better ensures the best possible cutting tool life

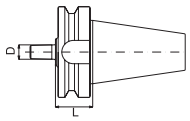




RETENTION KNOB
PG G11

Taper	JT Size	L	D	Code No.	Price $
CT40	JT#2	1.61	0.560	531490	**143.75**
CT40	JT#3	1.58	0.812	531492	**143.75**
CT40	JT#4	1.49	1.13	531494	**143.75**
CT40	JT#6	1.61	0.677	531496	**143.75**
CT40	JT#33	1.61	0.625	531498	**143.75**
CT50	JT#2	1.61	0.560	531500	**209.09**
CT50	JT#3	1.58	0.812	531502	**209.09**
CT50	JT#4	1.49	1.13	531504	**209.09**
CT50	JT#6	1.61	0.677	531506	**209.09**
CT50	JT#33	1.61	0.625	531508	**209.09**

BT Taper Jacobs Taper Adapter

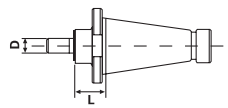




RETENTION KNOB
PG G11

Taper	JT Size	L	D	Code No.	Price $
BT30	JT#6	1.02	0.677	532224	**126.76**
BT40	JT#2	1.61	0.560	532230	**142.44**
BT40	JT#3	1.57	0.812	532232	**142.44**
BT40	JT#6	1.61	0.677	532234	**142.44**
BT40	JT#33	1.61	0.625	532236	**142.44**
BT50	JT#6	1.77	0.677	532237	**224.77**

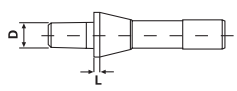
NMTB Taper Jacobs Taper Adapter





Taper	JT Size	L	D	Code No.	Price $
NMTB40	JT#2	0.65	0.560	534442	**145.34**
NMTB40	JT#3	0.61	0.812	534444	**145.34**
NMTB40	JT#6	0.65	0.677	534446	**145.34**
NMTB40	JT#33	0.65	0.625	534448	**145.34**
NMTB50	JT#3	1.30	0.812	534452	**202.90**
NMTB50	JT#4	1.22	01.13	534454	**202.90**

R8 Jacobs Taper Adapter

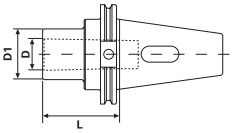




Taper	JT Size	L	D	Code No.	Price $
R8	JT#2	0.13	0.560	534462	**99.71**
R8	JT#3	0.13	0.812	534464	**99.71**
R8	JT#6	0.13	0.677	534466	**99.71**
R8	JT#33	0.13	0.625	534468	**99.71**

CAT Morse Taper Adapters

- Shank traverse ground to obtain optimum accuracy
- Meets or exceeds ANSI specifications
- 0.0002" or better ensures the best possible cutting tool life



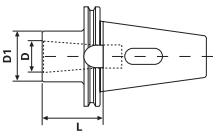


RETENTION KNOB
PG G11

Taper	Size	L	D	D1	Code No.	Price $
CT40	MT#1	1.75	0.475	1.00	531510	**163.35**
CT40	MT#2	2.36	0.700	1.25	531512	**163.35**
CT40	MT#3	3.00	0.938	1.57	531514	**176.42**
CT40	MT#4	3.54	1.23	1.97	531516	**185.57**
CT50	MT#2	1.75	0.700	1.25	531518	**240.45**
CT50	MT#3	1.75	0.938	1.57	531520	**240.45**
CT50	MT#4	3.00	1.23	1.97	531522	**245.68**
CT50	MT#5	4.13	1.75	2.75	531524	**283.58**

BT Morse Taper Adapters

- Shank traverse ground to obtain optimum accuracy
- Meets or exceeds ANSI specifications
- 0.0002" or better ensures the best possible cutting tool life

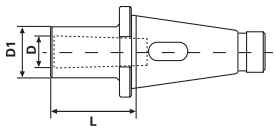




RETENTION KNOB
PG G11

Taper	Size	L	D	D1	Code No.	Price $
BT30	MT#1	1.75	0.475	1.00	532238	**154.20**
BT40	MT#1	1.75	0.475	1.00	532242	**182.95**
BT40	MT#2	2.36	0.700	1.25	532244	**182.95**
BT40	MT#3	3.00	0.938	1.57	532246	**177.72**
BT40	MT#4	3.54	1.23	1.97	532248	**182.95**
BT50	MT#2	1.75	0.700	1.25	532241	**269.20**
BT50	MT#3	1.75	0.928	1.57	532243	**269.20**
BT50	MT#4	3.00	1.231	1.89	532245	**304.48**
BT50	MT#5	4.00	1.748	2.48	532247	**309.71**

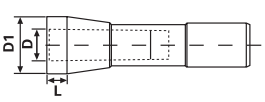
NMTB Morse Taper Adapters





Taper	Size	L	D	D1	Code No.	Price $
NMTB40	MT#2	1.75	0.70	1.25	534472	**155.61**
NMTB40	MT#3	2.25	0.94	1.57	534474	**155.61**
NMTB40	MT#4	3.00	1.23	1.97	534476	**155.61**
NMTB50	MT#2	1.88	0.70	1.25	534478	**229.02**
NMTB50	MT#3	2.38	0.94	1.57	534480	**235.83**
NMTB50	MT#4	3.25	1.23	1.97	534482	**242.62**
NMTB50	MT#5	4.63	1.75	2.75	534484	**265.43**

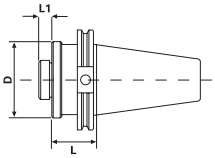
R8 Morse Taper Adapters





Taper	Size	L	D	D1	Code No.	Price $
R8	MT#1	0.44	0.48	1.00	534486	**102.73**
R8	MT#2	0.44	0.70	1.25	534488	**102.73**
R8	MT#3	2.56	0.94	1.57	534490	**112.85**

CT Taper Boring Head Holders

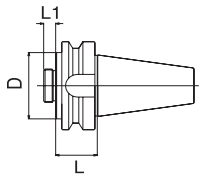




RETENTION KNOB
PG G11

Taper	Thread	L	L1	D	Code No.	Price $
CT40	7/8 - 20	1.75	0.44	1.75	531526	**129.31**
CT40	1-1/2 - 18	1.75	0.50	2.96	531528	**131.89**
CT50	1-1/2 - 18	1.75	0.50	2.96	531532	**185.52**

BT Taper Boring Head Holders

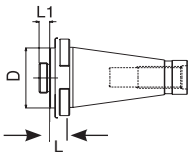




RETENTION KNOB
PG G11

Taper	Thread	L	L1	D	Code No.	Price $
BT30	1-1/2-18	1.75	0.50	2.96	532252	**130.69**

NMTB Taper Boring Head Holders





Taper	Thread	L	L1	D	Code No.	Price $
NMTB40	7/8-20	1.75	0.44	1.75	534492	**126.29**
NMTB50	7/8-20	1.75	0.44	1.75	534496	**185.52**
NMTB50	1-1/2-18	1.75	0.50	2.94	534498	**185.97**

NMTB30 Drill Chuck Arbors



Taper	Size	Draw Bar	Code No.	Price $
30	JT-3	1/2-13	420147	**200.31**
30	JT-33	1/2-13	420148	**210.50**
30	JT-6	1/2-13	420149	**210.50**

NMTB To NMTB Taper Open End Adapters



Outside Taper	Inside Taper	Code No.	Price $
40	30	420035	**481.17**
50	30	420040	**543.42**
50	40	420045	**543.42**

NMTB To R8 Taper Adapters



Outside Taper	Inside Taper	Draw Bar	Code No.	Price $
40	R-8	5/8-11	420060	**421.97**

Morse Taper Sleeves

Hardened and Ground Throughout
Used to convert spindles to smaller tapers and to extend the spindles of drill presses, radial drills, boring mills, turret lathes and similar machines.



Sleeve No.	Morse Taper Hole	Morse Taper Outside	Overall Length	Code No.	Price $
12	1	2	3-5/8	420305	**9.40**
13	1	3	3-7/8	420310	**10.70**
23	2	3	4-3/8	420315	**10.20**
14	1	4	4-7/8	420320	**12.10**
24	2	4	5	420325	**11.50**
34	3	4	5-1/2	420330	**11.20**
15	1	5	6-1/8	420335	**25.10**
25	2	5	6-1/8	420340	**25.10**
35	3	5	6-1/8	420345	**23.60**
45	4	5	6-3/4	420350	**23.60**
36	3	6	8-5/8	420353	**41.60**
46	4	6	8-5/8	420355	**41.60**
56	5	6	8-5/8	420360	**41.60**

Extension Length Sockets



Sleeve No.	Morse Taper Hole	Morse Taper Shank	Overall Length	Soft, Hard. Tang Code No.	Price $
21	2	1	6-1/4	420405	**156.39**
12	1	2	6-1/4	420410	**149.47**
22	2	2	6-7/8	420415	**141.35**
32	3	2	7-3/4	420420	**163.43**
23	2	3	7-5/8	420435	**168.77**
33	3	3	8-1/2	420440	**172.41**
43	4	3	9-1/2	420445	**235.98**
53	5	3	10-1/2	420450	**389.34**
34	3	4	9-1/2	420465	**202.13**
44	4	4	10-1/2	420470	**268.98**
54	5	4	11-7/8	420475	**371.38**
35	3	5	10-1/2	420480	**254.54**
45	4	5	11-7/8	420485	**294.46**
55	5	5	13-1/4	420490	**428.03**
65	6	5	15-3/8	420495	**720.67**
46	4	6	14	420500	**493.68**
56	5	6	15-3/8	420505	**590.74**

Solid Sockets

Hardened and ground throughout.



Socket No.	Overall Length (in.)	Morse Taper Hole	Outside Dia. (in.)	Code No.	Price $
1	3-1/2	1	1	420805	**129.94**
2	3-1/2	1	1-1/4	420810	**138.55**
3	3-1/2	1	1-1/2	420815	**158.09**
4	4	2	1	420820	**178.72**
5	4	2	1-1/4	420825	**178.72**
6	4	2	1-1/2	420830	**178.72**
7	4	2	1-3/4	420835	**178.72**
8	4	2	2	420840	**208.32**
9	4-3/4	3	1-1/4	420845	**193.63**
10	4-3/4	3	1-1/2	420850	**193.63**
11	4-3/4	3	1-3/4	420855	**193.63**
12	4-3/4	3	2	420860	**220.57**
13	6	4	1-1/2	420865	**242.16**
14	6	4	1-3/4	420870	**242.16**
15	6	4	2	420875	**274.92**
16	7-3/8	5	2-1/4	420880	**336.00**
17	7-3/8	5	2-1/2	420885	**215.60**
18	10-1/8	6	3-1/4	420890	**728.32**
19	10-1/8	6	3-1/2	420895	**743.85**

Lathe Mandrels



Diameter (in.)	Overall Length (in.)	Code No.	Price $
1-5/8	9-1/2	425295	**94.05**

Annular Cutter Holders

Straight Shank
R8 Shank
Morse Taper Shank

- Holder shank allows different machines to drive cutter
- Select adapter lengths reduce the number of machine set ups



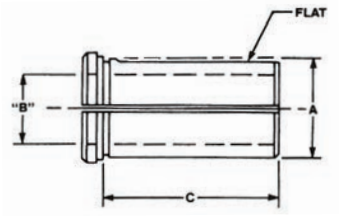
See page D6 for Annular Cutters

Model No.	Shank	Cutter Shank Size	Gauge Length	Code No.	Price $
Straight Shank - 3 Flats					
HEN-1	1/2	3/4	2-1/8	425435	**238.17**
HEN-2	3/4	3/4	2	425436	**238.17**
HEN-2-6	3/4	3/4	6	425437	**256.00**
HEN-2-12	3/4	3/4	12	425438	**292.88**
HEN-6-6	3/4	1-1/4	6	425440	**346.63**
HEN-6-12	3/4	1-1/4	12	425441	**305.14**
Straight Shank - 2 Flats					
HEN-9-6	3/4	3/4	6	425442	**298.70**
Morse Taper Shank					
HEN-3	MT2	3/4	2	425444	**274.92**
HEN-3-6	MT2	3/4	6	425445	**319.70**
HEN-3-12	MT2	3/4	12	425446	**341.78**
HEN-4	MT3	3/4	2	425447	**318.60**
HEN-4-6	MT3	3/4	6	425448	**362.03**
HEN-4-12	MT3	3/4	12	425449	**457.40**
HEN-8	MT3	1-1/4	2-3/4	425450	**363.13**
HEN-8-6	MT3	1-1/4	6	425451	**444.42**
R8 Shank					
HEN-5	R8	3/4	1-3/4	425453	**340.20**
HEN-7-6	R8	1-1/4	6	425457	**458.98**
HEN-7-12	R8	1-1/4	12	425458	**608.81**

Type B CNC Toolholder Bushings

- Split style
- Shorter length
- Clamp on flat
- Bushing collapses to hold tool
- Used for drills, boring bars, and other tools



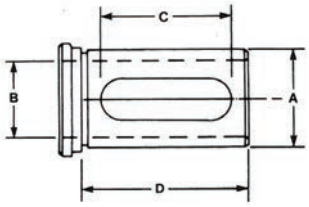


Bushing Type	Dia. (A)	Bore (B)	Length Under Head (C)	Code No.	Price $
B	1-1/2"	1/2"	2-1/2"	470510	**93.12**
B	1-1/2"	5/8"	2-1/2"	470511	**93.12**
B	1-1/2"	3/4"	2-1/2"	470512	**93.12**
B	1-1/2"	1"	2-1/2"	470513	**93.12**
B	1-1/2"	1-1/4"	2-1/2"	470514	**93.12**
B	2"	5/8"	3-1/2"	470515	**151.22**
B	2"	3/4"	3-1/2"	470516	**151.22**
B	2"	1"	3-1/2"	470517	**151.22**
B	2"	1-1/4"	3-1/2"	470518	**151.22**
B	2"	1-1/2"	3-1/2"	470519	**151.22**
B	2"	1-3/4"	3-1/2"	470520	**151.22**

Type C CNC Toolholder Bushings

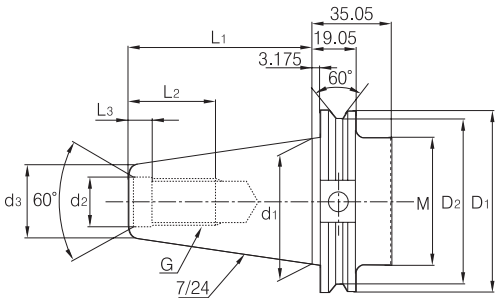
- Designed for use on all CNC Turning Machines
- Elongated slot
- For use with drills, boring bars, reamers, etc.
- Precision ground throughout





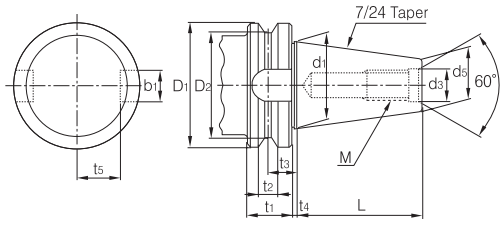
Bushing Type	Dia. (A)	Bore (B)	Length of Slot (C)	Length Under Head (D)	Code No.	Price $
C	1-1/2"	1/2"	3"	3-3/8"	470500	**101.27**
C	1-1/2"	5/8"	3"	3-3/8"	470501	**101.27**
C	1-1/2"	3/4"	3"	3-3/8"	470502	**101.27**
C	1-1/2"	1"	3"	3-3/8"	470503	**101.27**
C	1-1/2"	1-1/4"	3"	3-3/8"	470504	**101.27**
C	2"	3/4"	3-5/8"	4"	470505	**154.05**
C	2"	1"	3-5/8"	4"	470506	**154.05**
C	2"	1-1/4"	3-5/8"	4"	470507	**154.05**
C	2"	1-1/2"	3-5/8"	4"	470508	**154.05**
C	2"	1-3/4"	3-5/8"	4"	470509	**154.05**

CAT Taper Dimensions



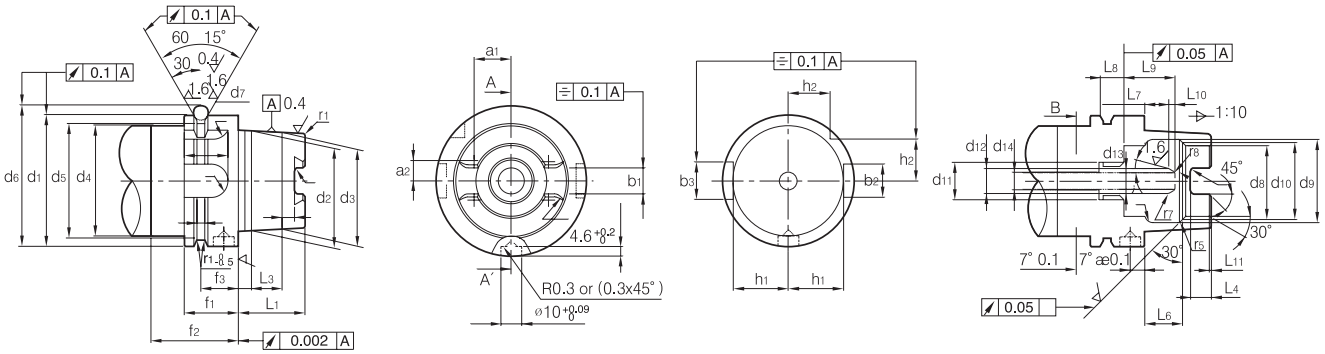
Shank No.	D1	D2	M	d1	d2	d3	L1	L2	L3	G
CAT40	63.5	56.36	44.45	44.45	16.28	21.84	68.25	28.45	4.78	5/8-11
CAT45	82.55	75.41	57.15	57.15	19.46	27.69	82.55	38.1	4.78	3/4-10
CAT50	98.43	91.29	69.85	69.85	26.19	35.05	101.6	44.45	6.35	1-8

BT Taper Dimensions



Shank No.	D1	D2	t1	t2	t3	t4	d1	d3	L	M	b1	t5	d5
BT35	53	43	22	10	14.6	2	38.1	13	56.5	M12x1.75	16.1	19.6	21.62
BT40	63	52	25	10	16.6	2	44.45	17	65.4	M16x2	16.1	22.6	25.3
BT45	85	73	30	12	21.2	3	57.15	21	82.8	M20x25	9.3	29.1	33.1
BT50	100	85	35	15	23.2	3	69.85	25	101.8	M24x3	25.7	35.4	40.1
BT60	155	135	45	20	28.2	3	107.95	31	161.8	M30x3.5	25.7	60.1	60.7

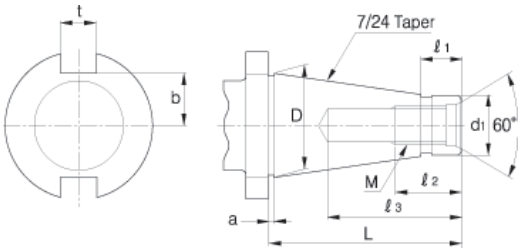
HSK Taper Dimensions



Shank No.	b1	b2	b3	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d12	d13	d14	a1	a2
HSK50	10.54	12	14	50	38	36.9	42	43	59.3	7	26	32	29	M16X1	10	6.8	6.8	13.997	7.648
HSK63	12.5	16	14	63	48	46.53	53	55	72.3	7	34	40	37	M18X1	12	8	8.4	17.862	9.25
HSK100	20	20	14	100	75	72,80	85	92	109.75	7	53	63	58	M24X1.5	16	12	12	27.329	15

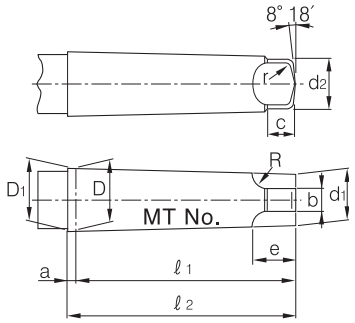
Shank No.	f1	f2	f3	f4	b1	b2	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	r1	r2	r3	r4	r5	r6	r7	r8
HSK50	26	42	18	3.75	2	15.5	25	5	11	7.5	4.5	14.13	10	10	23	3	1	19	1	1.5	2.38	6	0.5	1	2	6
HSK63	26	42	18	3.75	28.5	20	32	6.3	14.7	10	6	18.13	10	12	24.5	3	1	21	1.2	1.5	3	8	0.6	1.5	3	8
HSK100	29	45	20	3.75	44	31.5	50	10	24	15	10	28.56	12.5	16	28	3	1.5	24	2	2	3	12	1	1.5	3	10

NMTB Taper Dimensions



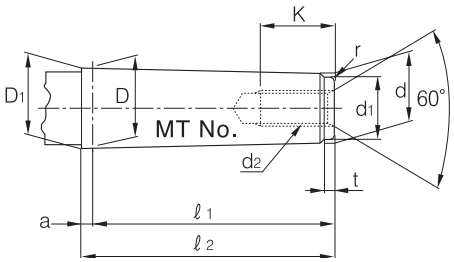
MT No.	D	d1	L	l1	M	l2	l3	a	t	b
30	1-1/4"-31.75	17.40 (-0.29/-0.36)	70	20	UNC-1/2"	24	50	1.6	15.9	6
40	1-3/4"-44.45	25.32 (-0.30/-0.387)	95	25	UNC-5/8"	30	60	1.6	15.9	22.5
50	2-3/4"-69.85	39.60 (-0.31/-0.41)	130	25	UNC-1"	45	90	3.2	25.4	35
60	4-1/4"-107.95	60.20 (-0.34/-0.46)	210	45	UNC1/4"	56	110	3.2	25.4	60

Morse Taper With Tang



MT No.	Taper	Taper Angle(a)	D	a	D1	d1	l1	l2	d2	b	c	e	R	r
0	1/19.212	1°29'27"	9.045	3	9.201	6.104	56.5	59.5	6	3.9	6.5	10.5	4	1
1	1/20.047	1°25'43"	12.065	3.5	12.24	8.972	62	65.5	8.7	5.2	8.5	13.5	5	1.2
2	1/20.020	1°25'50"	17.78	5	18.03	14.034	75	80	13.5	6.3	10	16	6	1.6
3	1/19.922	1°26;16"	23.825	5	24.076	19.107	94	99	18.5	7.9	13	20	7	2
4	1/19.254	1°29'15"	31.267	6.5	31.605	25.164	117.5	124	24.5	11.9	16	24	8	2.5
5	1/19.002	1°30'26"	44.399	6.5	4.741	36.531	149.5	156	35.7	15.9	19	29	10	3
6	1/19.180	1°29'36"	63.348	8	63.765	52.399	210	218	51	19	27	40	13	4
7	1/19.231	1°29'22"	83.058	10	83.578	68.186	286	296	66.8	28.6	35	54	19	5

Morse Taper Screw Type



MT No.	Taper	Taper Angle(a)	D	a	D1	d1	l1	l2	d1	d2	k	t	r
0	1/19.212	1°29'27"	9.045	3	9.201	6.442	50	53	6	-	-	4	0.2
1	1/20.047	1°25'43"	12.065	3.5	12.23	9.396	53.5	57	9	M6	16	5	0.2
2	1/20.020	1°25'50"	17.78	5	18.03	14.583	64	69	14	M10	24	5	0.2
3	1/19.922	1°26'16"	23.825	5	24.076	19.759	81	86	19	M12	28	7	0.6
4	1/19.254	1°29'15"	31.267	6.5	31.605	25.943	2.5	109	25	M16	32	9	1
5	1/19.002	1°30'26"	44.399	6.5	4.741	37.584	129.5	136	35.7	M20	40	9	2.5
6	1/19.180	1°29'36"	63.348	8	63.765	53.859	182	190	51	M24	50	12	4
7	1/19.231	1°29'22"	83.058	10	83.578	70.058	250	260	65	M33	80	18.5	5

Universal Boring And Facing Masterhead

Solve ALL Your Boring and Facing Problems

- Ideal for boring in a wide range of diameters
- Hardened and precision ground for long life and extreme accuracy
- Allows for multi-tool boring
- Suitable for precision boring of cylindrical holes and for machining of external cylindrical surfaces



	1-3/8"		2-1/8"		3-1/8"		4-7/8"		6-1/4"	
Model No.	**VHU 36**	**Price $**	**VHU 56**	**Price $**	**VHU 80**	**Price $**	**VHU 125**	**Price $**	**VHU 160**	**Price $**
Code No.	300007	**5,998.47**	300055	**7,624.16**	300105	**8,779.78**	300155	**9,693.97**	300205	**11,349.86**
QUICK RETURN MOVEMENT QUICK RETURN ADJUSTMENT THROUGH SLIDE SETTING SCREW										
Operating Accuracy	± 0.0002		± 0.0002		± 0.0002		± 0.0002		± 0.0002	
Boring and facing range from 0 up to	9		13		16		24		31	
Max. adjustability of slide	1.375		2.125		3.125		4.875		6.250	
Max. dia. of slide	2.750		4.250		6.250		9.750		11.500	
			0.002		0.002		0.002		0.002	
Various automatic slide –	0.0016		0.004		0.004		0.004		0.004	
feeds per revolution	0.0032		0.006		0.006		0.006		0.006	
	0.0048		0.008		0.008		0.008		0.008	
1 graduation of sensitive	0.0005		0.0005		0.0005		0.0005		0.0005	
adjustments ins. on dia.										
1 Revolution of sensitive adjustment	0.016		0.016		0.016		0.016		0.016	
Quick return per revolution	0.030		0.120		0.120		0.160		0.160	
Diameter of tool post holes in slide	5/8		1		1		1-1/4		1-1/4	
Height of Head without shank	3.125		4.350		4.350		5.000		5.000	
Width of Head	2.875		4.500		5.500		7.000		8.725	
Weight of head without shank	4 lb		12 lb		16 lb		26.6 lb		31 lb	
Accessories	300003	**1,451.04**	300053	**2,696.18**	300104	**2,696.18**	-	-		
Head only	300004	**5,844.53**	300054	**7,100.70**	300103	**7,523.03**	300154	**9,468.54**	300203	**10,544.47**
Case only	-	-	300052	**339.46**	300102	**904.37**	300204	**1,103.99**	300204	**1,103.99**
Shank M.T. 2	300010	**555.54**	-	-	-	-	-	-	-	-
Shank M.T. 3	300015	**585.39**	-	-	-	-	-	-	-	-
Shank M.T. 4	300020	**675.97**	300110	**748.91**	300110	**748.91**	-	-	-	-
Shank M.T. 5	-	-	300115	**911.12**	300115	**911.12**	300115	**911.12**	300115	**911.12**
Shank M.T. 6	-	-	-	-	300165	**1,275.57**	300165	**1,275.57**	300165	**1,275.57**
Shank ISA - 30	300025	**512.46**	-	-	-	-	-	-	-	-
Shank ISA - 40	300030	**555.54**	300070	**716.46**	300070	**716.46**	-	-	-	-
Shank ISA - 50	-	-	300075	**905.55**	300075	**905.55**	300075	**905.55**	300075	**905.55**
Shank R - 8	300035	**573.19**	300080	**588.83**	-	-	-	-	-	-
Shank Straight 3/4"	300039	**320.05**	-	-	-	-	-	-	-	-
Shank Straight 1"	300040	**417.85**	-	-	-	-	-	-	-	-
Shank Cat - 40	300033	**748.91**	300073	**862.81**	-	-	-	-	-	-
Shank Cat - 50	-	-	300076	**935.40**	300076	**935.40**	300076	**935.40**	300076	**935.40**
Shank BT - 40	300034	**908.63**	300074	**981.45**	-	-	-	-	-	-
Shank BT - 50	-	-	300077	**1,043.97**	300077	**1,043.97**	300077	**1,043.97**	300077	**1,043.97**
Tang M.T. 2	300245	**81.33**	-	-	-	-	-	-	-	-
Tang M.T. 3	300250	**106.92**	-	-	-	-	-	-	-	-
Tang M.T. 4	300255	**147.41**	300255	**147.41**	300255	**147.41**				
Tang M.T. 5	-	-	300260	**204.84**	300260	**204.84**	300260	**204.84**	300260	**204.84**
Tang M.T. 6	-	-	-	-	300265	**198.21**	300265	**198.21**	300265	**198.21**

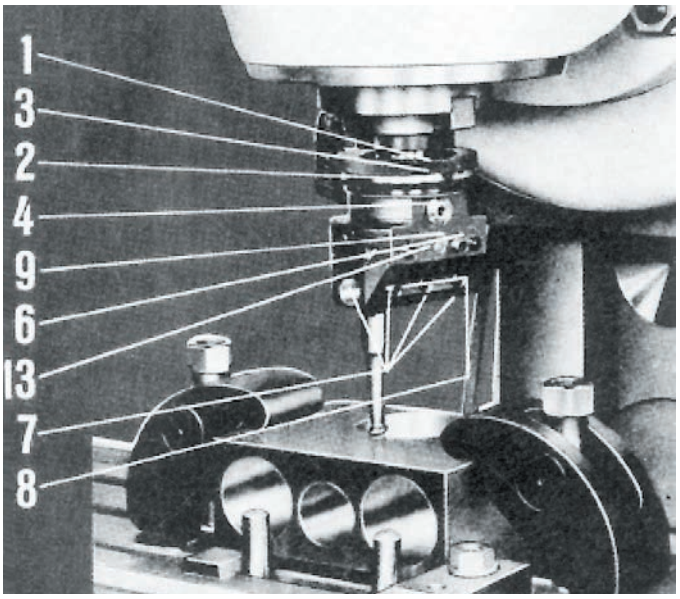
Standard Equipment Supplied With The Master Head In Case

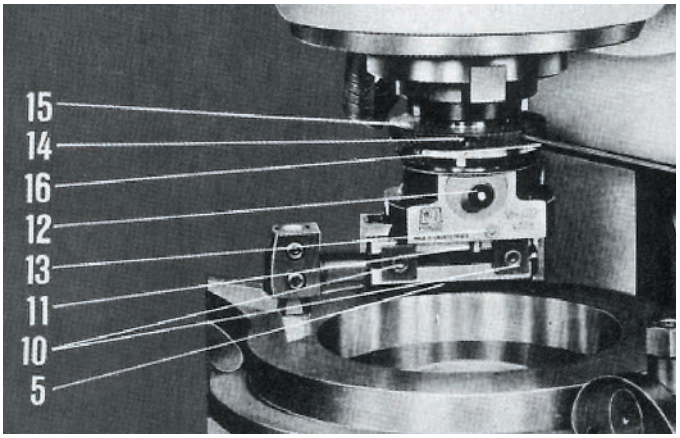
Boring bars	3/8 2pcs	1 x 4	1 x 4	1-1/4 x 6	1-1/4 x 6
Boring bars	5/8 2pcs	1 x 6	1 x 6	1-1/4 x 9-3/4	1-1/4 x 9-3/4
Boring bar holders		*1 x 5-1/2	*1 x 5-1/2	*1-1/4 x 6-5/16	*1-1/4 x 6-5/16
		*2pcs	*2pcs	*2pcs	*2pcs
Extension holder	5/8 x 3-7/8	1 x 6-7/8	1 x 6-5/8	1-1/4 x 11-13/16	1-1/4 x 11-13/16
Complete set of reinforcing rings	5/8	1	1	1-1/4	1-1/4
Carbide round tool bits	*5/8	*1	*1	*1-1/4	*1-1/4
	*4pcs	*4pcs	*4pcs	*4pcs	*4pcs
HSS square tool bits		*5/16 x 1-3/16	*5/16 x 1-3/16	*3/8 x 1-13/32	*3/8 x 1-13/32
		*4pcs	*4pcs	*4pcs	*4pcs
Reducing sleeve	5/8 x 3/8	1 x 3/4	1 x 3/4	1-1/4 x 3/4	1-1/4 x 3/4
Reducing sleeve		1 x 5/8	1 x 5/8	1-1/4 x 5/8	1-1/4 x 5/8

Principal Component Part of Head Vhu-36

1. Braking ring
2. Engaging ring
3. Control ring
4. Scale
5. Slide
6. Setting screw
7. Holes for tools
8. Clamping screws
9. Screw for locking slide in position
10. Stop dog
11. Stop dog pin
12. Knob for rapid traverse control (only in Vhu 1-1/4)
13. Lubricator
14. Screw for clutch adjustment
15. Clutch
16. Retaining rod

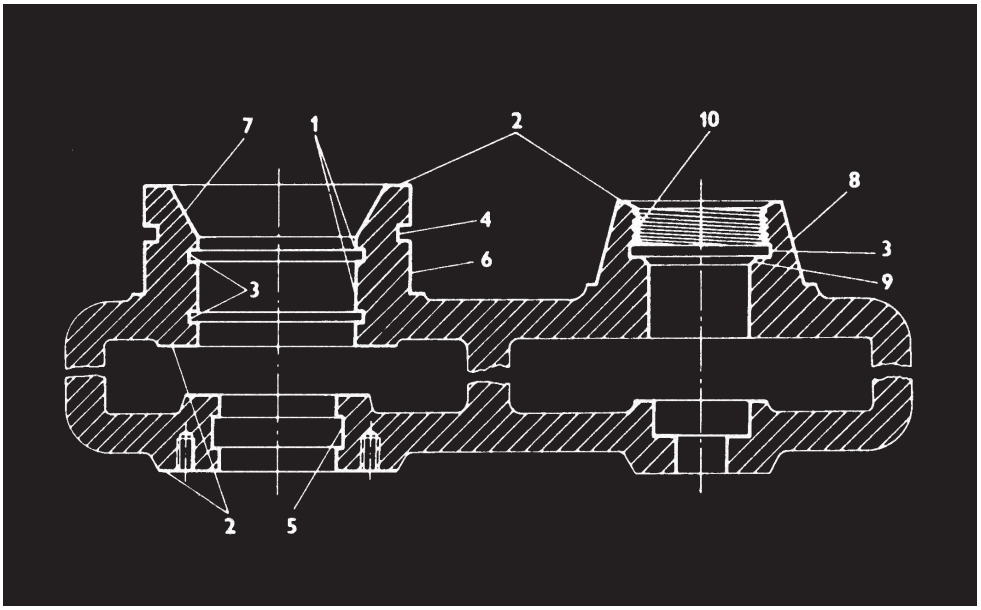




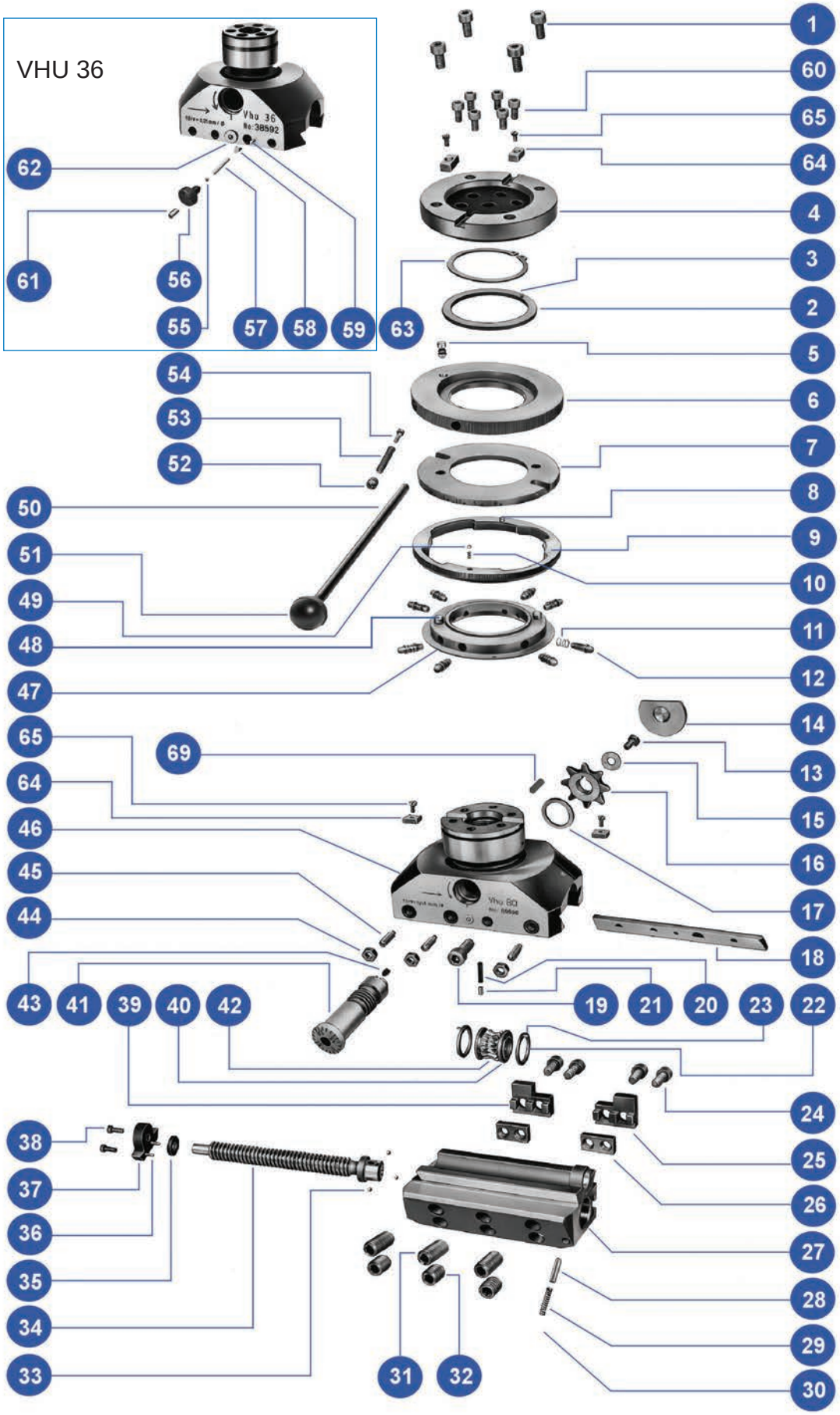


Basic machining operations shown for the Vhu type universal boring heads:

1. Boring of holes
2. Spotfacing of small end large-diameter end faces
3. Recessing inside holes
4. Recessing on surfaces of parts
5. Free recessing
6. External diameter machining
7. Boring of tapered holes
8. External machining of taper
9. Facing of rear end faces
10. Thread cutting



NAREX BORING HEAD PARTS BREAKDOWN FOR VHU 36, 56, 80, 125, 160



NAREX BORING HEAD PARTS BREAKDOWN FOR VHU 36, 56, 80, 125, 160 CONTINUED



Narex Boring And Facing Head Parts

New ID No.	Description	VHU-36 (1-3/8") pcs	VHU-36 (1-3/8") Code No.	VHU-36 (1-3/8") Price $	VHU-56 (2-1/8") VHU-80 (3-1/8") pcs	VHU-56 (2-1/8") VHU-80 (3-1/8") Code No.	VHU-56 (2-1/8") VHU-80 (3-1/8") Price $	VHU-125 (4-7/8") VHU-160 (6-1/4") pcs	VHU-125 (4-7/8") VHU-160 (6-1/4") Code No.	VHU-125 (4-7/8") VHU-160 (6-1/4") Price $
1	Cap Screw	4	300770	2.18	4	300588	3.54	4	300588	3.54
2	Ring	1	300702	98.27	1	300503	365.40	1	300603	195.28
3	Pin	1	300736	2.18	1	300551	2.18	1	300655	2.18
4	Flange (Hold-Ring)	1	300771	658.26	1	300480(vhu-56)	689.94	1	300691	1,217.68
					1	300591(vhu-80)	1,136.33		-	-
5	Clutch Pin (Safety pin)	1	300726	81.22	1	300505	106.16	1	300605	106.16
6	Hold Ring (Brake ring)	1	300703	471.10	1	300504	893.00	1	300604	811.90
7	Set Ring	1	300704	446.62	1	300506	593.05	1	300606	666.15
8	Pin	2	300736	2.18	2	300554	1.49	2	300658	1.49
9	Ring (Control Ring)	1	300705	316.66	1	300507	617.65	1	300607	722.67
10	Spring	2	300720	2.18	1	300540	2.86	1	300640	2.86
11	Spring	6	300707	2.18	8	300511	1.49	8	300611	1.49
12	Pin	6	300708	39.58	8	300509	97.58	8	300609	97.58
13	Cap Screw	1	300764	2.18	1	300546	24.71	1	300650	24.71
14	Cover (Lid)	1	300716	52.28	1	300518	39.58	1	300618	63.26
15	Washer	1	300765	19.79	1	300541	28.83	1	300646	28.83
16	Star Gear (Ratchet Wheel)	1	300715	138.66	1	300520	171.26	1	300620	179.27
17	Washer (Ring)	1	300718	498.55	1	300522	165.88	1	300622	165.88
18	Slideguide	1	300710	243.56	1	300413(vhu-56)	293.44	1	300613	405.89
					1	300513(vhu-80)	308.88		-	-
19	Screw		-	-	1	300577	6.75	1	300653	3.54
20	Spring		-	-	1	300536	2.86	1	300670	2.86
21	Brake		-	-	1	300521	28.83	1	300621	28.83
22	Washer (Ring)	2	300722	114.06	2	300525	138.66	2	300625	138.66
23	Pin	2	300769	1.49	2	300551	2.18	2	300655	2.18
24	Stop Screw	2	300739	2.18	4	300549	3.54	4	300644	3.54
25	Stop (Dog) - L.H. Stop	2	300728	146.43	1	300515	219.54	1	300615	219.54
26	Stop Nut (Insert)	2	300742	91.52	2	300514	66.01	2	300614	66.01
27	Slide	1	300713	4,551.51	1	300402(vhu-56)	5,215.96	1	300602	6,805.43
					1	300502(vhu-80)	5,540.28	1	300680	6,859.66
28	Pin (Bar)	1	300747	38.09	1	300524	38.09	1	300624	47.59
29	Spring	1	300746	1.49	1	300570	4.35	1	300670	2.86
30	Set Screw	1	300774	2.18	1	300508	2.86	1	300671	2.18
31	Set Screw	3	300735	10.98	3	300568	21.74	3	300674(vhu-125)	21.74
								5	300674(vhu-160)	21.74
32	Set Screw	3	300741	10.98	3	300567	21.74	3	300673(vhu-125)	21.74
								5	300673(vhu-160)	21.74
33	Ball	3	300775	1.49	3	300558	1.49	3	300661	1.49
34	Worm Rod (Screw)	1	300712	1,055.57	1	300423(vhu-56)	1,298.78	1	300623	1,785.67
					1	300523(vhu-80)	1,623.45	1	300692	2,029.23
35	Washer (Distance Ring) - Spacer	1	300727	98.27	1	300537	98.27	1	300637	98.27
36	Pin	2	300777	2.18	2	300553	2.18	2	300657	1.49
37	End Stop (Back Bearing)	1	300717	130.65	1	300538	114.06	1	300638	138.66
38	End Screw	2	300776	2.18	2	300543	2.18	2	300648	2.18
39	Stop (Dog) - R.H. Stop		-	-	1	300516	219.54	1	300616	219.54
40	Gear Ring	2	300721	114.06	2	300526	114.06	2	300626	114.06
41	Spindle (Worm)	1	300709	722.67	1	300512	974.23	1	300612	1,055.57
42	Worm Gear (Worm Wheel)	1	300723	926.41	1	300417	1,120.66	1	300617	974.80
43	Pin (Parallel Key)	1	300766	19.79	1	300519	19.79	1	300619	19.79
44	Head Nut	3	300749	2.18	3	300572	2.18	4	300647	2.18
45	Head Screw	3	300748	3.20	3	300545	3.54	4	300649	3.54
47	Ring (Control Ring)	1	300706	560.45	1	300510	893.00	1	300610	974.23
48	Pin	2	300738	1.25	2	300556	6.75	2	300659	6.75
49	Ball	2	300744	1.49	2	300558	1.49	2	300661	1.49
50	Stop Rod (Bar)	1	300734	38.09	1	300535	71.61	1	300635	95.41
51	Knob (Ball)		-	-	1	300559	5.15	1	300662	5.15
52	Screw	1	300763	2.18	1	300547	2.18	1	300651	2.18
53	Spring	1	300724	2.18	1	300529	2.18	1	300629	2.18
54	Pin Point	1	300725	66.01	1	300530	81.22	1	300630	81.22
55	Ball	1	300751	1.49		-	-		-	-
56	Cap Screw	1	300740	106.05		-	-		-	-
57	Pin	1	300732	28.83		-	-		-	-
58	Pin	1	300719	28.83		-	-		-	-
59	Pin	1	300779	1.49		-	-		-	-
60	Cap Screw	6	300770	2.18	6	300481(vhu-56)	3.54	6	300689	3.54
					6	300589(vhu-80)	2.18		-	-
61	Pin	1	300778	1.49		-	-		-	-
62	Plug	2	300780	11.67	2	300592	11.67	2	300694	11.67
63	Ring Clip (Circlip)	1	300750	5.49	1	300560	19.79	1	300663	25.40
64	Parallel key		-	-	4	300587	56.63	4	300687	56.63
65	Screw		-	-	4	300590	2.18	4	300690	2.18
66	Pin	1	300781	15.33	1	300593	27.57	1	300695	26.20
67	Set Screw	2	300741	10.98	2	300567	21.74	2	300673	21.74
68	Screw		-	-	2	300548	10.98	2	300652	10.98

New ID No.	Description	VHU-36 (1-3/8") pcs	VHU-36 (1-3/8") Code No.	VHU-36 (1-3/8") Price $	VHU-56 (2-1/8") VHU-80 (3-1/8") pcs	VHU-56 (2-1/8") VHU-80 (3-1/8") Code No.	VHU-56 (2-1/8") VHU-80 (3-1/8") Price $	VHU-125 (4-7/8") VHU-160 (6-1/4") pcs	VHU-125 (4-7/8") VHU-160 (6-1/4") Code No.	VHU-125 (4-7/8") VHU-160 (6-1/4") Price $
69	Pin	1	300782	**2.18**	1	300594	**2.18**	1	300696	**2.18**
101	Boring tool Ø5mmx3/8"x60mm	1	300754	**441.53**		-	**-**		-	**-**
102	Boring tool Ø13mmx5/8"x90mm	1	300752	**453.96**		-	**-**		-	**-**
103	Internal corner tool Ø5mmx3/8"x60	1	300755	**643.41**		-	**-**		-	**-**
104	Internal corner tool Ø13mmx5/8"x90	1	300753	**605.41**		-	**-**		-	**-**
105	Right hand tool S20	1	300759	**189.68**	1	300565	**265.34**	1	300668	**353.67**
106	Right hand tool H10	1	300758	**189.68**	1	300575	**265.34**	1	300677	**353.67**
107	Left hand tool S20	1	300757	**189.68**	1	300566	**265.34**	1	300666	**353.67**
108	Left hand tool H10	1	300756	**189.68**	1	300576	**265.34**	1	300676	**353.67**
109	Tool HSS		-	**-**	2	300564	**135.22**	2	300667	**160.08**
110	Tool S20		-	**-**	2	300563	**93.06**	2	300669	**257.17**
111	Extension (Boring bar)		-	**-**	1	300528	**453.96**	1	300628	**731.38**
112	Extension (Boring bar)		-	**-**	1	300527	**453.96**	1	300627	**781.70**
113	Toolholder (Holder with screw)		-	**-**	2	L=185 300534	**1,131.31**	2	300634	**1,308.48**
114	Toolholder (Holder with screw)	1	300731	**924.26**	1	L=220 300533	**1,243.99**	1	L=350 300633	**1,430.23**
115	Collar Set (Set of spacing tubes)	1	300730	**114.06**	1	300532	**183.27**	1	300632	**191.96**
116	Reducer (Reduction sleeve)	1	300733	**316.66**	1	300542	**365.40**	1	300641	**438.61**
117	Reducer (Reduction sleeve)		-	**-**	1	300544	**365.40**	1	300608	**446.50**
118	Allen (Hexagon) Wrench "NAREX"	1	300773	**116.92**		-	**-**		-	**-**
119	Allen (Hexagon) Wrench 4	1	300760	**89.91**	1	300561	**89.91**	1	300664	**89.91**
120	Hexagon wrench 6		-	**-**	1	300562	**109.93**	1	300665	**284.17**
121	Washer	1	300729	**70.02**	1	300531	**106.16**	1	300631	**106.16**
122	Hex Screw	1	300743	**2.18**	1	300550	**5.04**	1	300654	**5.04**

Boring Bar Sets for Boring & Facing Heads



Diameter	Pieces	Code No.	Price $
5/8	6	300835	**1,822.71**
1	6	300837	**2,127.25**
1-1/4	6	300839	**2,620.40**

Precision Boring Heads

- Ideal for mill or jig bore operation
- These heads readily adapt to many different machines due to interchangeable shanks

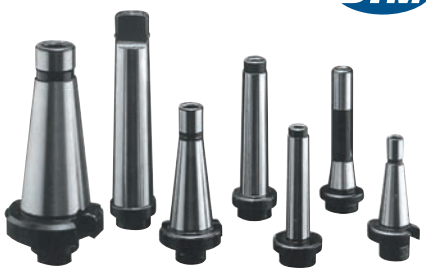


Head Dia.	Hole Size	Offset	Code No.	Price $
2	1/2	1/2	356001	**173.83**
3	3/4	3/4	356002	**250.57**
4	1	1	356003	**426.99**

Individual Bars

Model	Shank Dia.	Style	O.A.L.	Boring Head	Code No.	Price $
R5/8-0945	5/8	SCBCR	50mm	VHU-36	300840	**510.32**
R5/8-0946	5/8	SCBCR	50mm	VHU-36	300845	**510.32**
L5/8-0947	5/8	SCACL	50mm	VHU-36	300850	**510.32**
L5/8-0948	5/8	SCACL	50mm	VHU-36	300855	**510.32**
R5/8-0949	5/8	SCBCR	90mm	VHU-36	300860	**711.37**
R5/8-0950	5/8	SCACR	90mm	VHU-36	300865	**711.37**
R1-0951	1	SCBCR	80mm	VHU-56, VHU-80	300870	**640.68**
R1-0952	1	SCBCR	80mm	VHU-56, VHU-80	300875	**640.68**
L1-0953	1	SCACL	80mm	VHU-56, VHU-80	300880	**640.68**
L1-0954	1	SCACL	80mm	VHU-56, VHU-80	300885	**640.68**
R1-0955	1	SCBCR	150mm	VHU-56, VHU-80	300890	**711.25**
R1-0956	1	SCACR	150mm	VHU-56, VHU-80	300895	**711.25**
R1-1/4-0957	1-1/4	SCBCR	100mm	VHU-125, VHU-160	300900	**867.19**
R1-1/4-0958	1-1/4	SCBCR	100mm	VHU-125, VHU-160	300905	**867.19**
L1-1/4-0959	1-1/4	SCACL	100mm	VHU-125, VHU-160	300910	**867.19**
L1-1/4-0960	1-1/4	SCACL	100mm	VHU-125, VHU-160	300915	**867.19**
R1-1/4-0961	1-1/4	SCBCR	180mm	VHU-125, VHU-160	300920	**911.24**
R1-1/4-0962	1-1/4	SCACR	180mm	VHU-125, VHU-160	300925	**911.24**

Shanks for Boring Heads



See page G80 for GS Boring Head Holders

Size	Thread	Code No.	Price $
R8	1-1/2-18TPI	356010	**110.75**
ISA40	1-1/2-18TPI	356012	**135.38**
MT3	1-1/2-18TPI	356014	**110.75**
ISA30	1-1/2-18TPI	356016	**55.99**
3/4" S.S.	1-1/2-18TPI	356018	**86.22**
MT4	1-1/2-18TPI	356020	**123.06**
1" S.S.	1-1/2-18TPI	356025	**86.22**

Height Presetter

Fast Accurate Measurement of Vertical Height Magnetic Base for Horizontal Operation.
Reference point of work can be measured very quickly and accurately without damage to tool teeth.



Size	Description	Code No.	Price $
4"	Height Presetter	337950	**1,193.46**

Height Presetter — Optical Type

- Height 50mm
- With magnetic base
- The red lamp will light up when touched
- Accuracy 0.005 mm
- Combined vertical and horizontal in a unit
- Weight: 0.3 kg



Model No.	Code No.	Price $
HP-50ZM (Magnetic Base)	337970	**668.98**
HP-50Z (Standard Base)	337971	**597.83**

Electronic Tool Length Setter

- High accuracy
- Easy operation
- Be sure to remove all chips and oil from the sensor plate and the base of the HP-50E as well as from the workpiece and tool
- To move the tool approaching the sensor plate slowly
- When touching, the "LED" turns on immediately and "H" is just 50.00 mm (or 2")
- LED will not function if batteries are not set in correctly
- Designed to be used on ferrous and non-ferrous materials



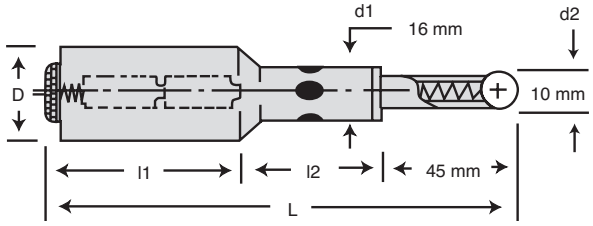
Model No.	H	Base Dia.	Sensor Plate Dia.	Code No.	Price $
With Magnetic Base					
HP-50EM	50 mm	40mm	12.7mm	337976	**869.97**
HP-100 EM	100 mm	40mm	12.7mm	337978	**1,353.07**

Touch Point Sensor

Model No. VPS-20

- Red pilot can be seen clearly
- High sensitivity location sensor
- Location of end surface, outside circle dia., inside circle dia. of the workpiece for processing can be detected with full effect
- Whole travel of red pilot is illuminating, detecting also can be done during turning while spindle stops





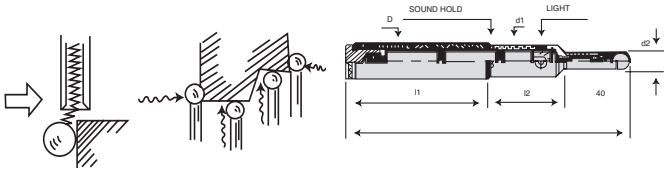
D	d1	d2	L	l1	l2	Type	Code No.	Price $
20	18	10	160	79	41	UM-5#(SP)	337955	**207.44**

Touch Point Sensor (With Beeper)

Model No. VPS-20B / VPS-3/4B

- Unit will sound at the same time when the red lamp lights up
- Accuracy: within 0.005 mm





D	d1	d2	L	l1	l2	Type	Code No.	Price $
20	16	10	157	77	35	UM-5#	337960	**276.42**
3/4	0.629	0.394	6.18	3.03	1.378	UM-5#	337962	**303.88**

Machinists' Mate

Self-Contained Visual Aid - 1/2" Shank
For Machine Set-Up

- Checks machine, tool and workpiece set-up
- Acts as edge finder on vertical milling machines
- Trams table quickly
- Parallels vise
- Checks "spindle run out' – simply, quickly, accurately
- Emits light to indicate precise contact of part at ±0.0001"



Shank Dia.	Code No.	Price $
1/2	145600	**45.70**

NC/CNC Trolley

Complete Tool Trolley with 4 Tool Trays and Inserts.

- Trays bolt in
- (w)1002mm x (D)650mm x (H)830mm
- Weight: 51kgs



Desc.	Taper Type	Inserts Per Tray	Replacement Plastic Inserts Code No.	Price $	Tool Cart Code No.	Price $
Trolley, 4 trays hold 28 inserts	40	7	326986	**8.40**	326985	**1,065.20**
Trolley, 4 trays hold 20 inserts	50	5	326996	**8.10**	326995	**1,065.20**

Standard Draw Bar — SDB-2J

- 7/16-20 thread
- 4140 heat treated Alloy Steel

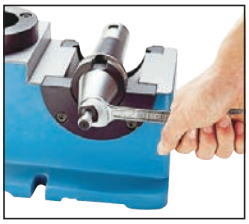
Machine Type	Bar Length (in.)	Hex Length (in.)	Code No.	Price $
2J Head Bridgeport Variable Speed	18	5.5	151700	**75.50**

Deluxe Tool Setting Stand

Quick and easy way to change cutters and pull studs.
Protects the taper of holder with protective insert.
Available in all tapers.

- Select between horizontal or vertical tool holding; quick and simple operation
- For CAT, BT & NMTB Tapers







Vertical	Horizontal	Code No.	Price $
40 Taper	40 Taper x 2 (only BT & NMTB)	335250	**895.24**
50 Taper	50 Taper x 2 (only BT & NMTB)	335260	**895.24**
50 Taper	50 Taper x 1 / 40 Taper x 1	335240	**895.24**
40 Taper	50 Taper x 1 / 40 Taper x 1	335230	**895.24**

Tool Holder Locking Device

- For CAT, BT & NMTB Tapers



Description	Code No.	Price $
30 Taper	335270	**361.07**
40 Taper	335275	**361.07**
50 Taper (Only CAT50 & NMTB50)	335280	**361.07**

Tool Holder Locking Fixture

- Weight: 4.5 kg



Description	Code No.	Price $
HSK63	335225	**1,205.47**

Simple Tool Setting Stand

Quick and easy way to change cutters and retention knobs.
Protects the taper of holder with protective insert.
Available in all tapers.

- This is an excellent helping tool for simple, rapid and safe tool holding
- For CAT, BT & NMTB Tapers







Model	Code No.	Price $
TL-30	335200	**481.59**
TL-35	335205	**481.59**
TL-40	335210	**481.59**
TL-50	335220	**481.59**

Spindle Taper Wipers

- For easily and quickly cleaning spindle holes
- Plastic body, the taper wiper is made of special cotton material therefore not damaging the spindle
- The BT & DIN tapers are the same





Model No.	Taper	Total Length	Code No.	Price $
VTW-30	#30	168mm	326210	**50.16**
VTW-40	#40	159mm	326215	**50.16**
VTW-50	#50	265mm	326220	**72.71**
VTW-50H	HSK50	159mm	326225	**217.31**
VTW-63H	HSK63	167mm	326230	**228.32**

Workholding, Clamping & Fixturing





Workholding, Clamping & Fixturing

VISES

GS Milling Machine Vises H2-3
GS Modular Vises & Accessories/Parts H3-4
GS Double Clamp Vises. H5-6
Multi-Tasking 5-Axis Modular Vise H7-8
Milling Vises H9
Power Machine Vises H11
Toolmaker Vises, EDM Vises H12
Bench Vises H12
Drill Press Vises H13

WORKHOLDING

C-Clamps, U/N Work Stoppers, Pullers H13-14
Vee Blocks H14-15
Angle Plates & Cross Tables H16
Sine Bars, Plates, Vises. H17-18
Arbor Presses H19

LATHE CHUCKS

Bison Lathe Chuck Index H23-26
Fine Adjustment Lathe Chucks & Adapters H29-35
Self Centering Scroll Chucks & Adapters. H36-66
Independent Lathe Chucks & Adapters H67-80
STM Lathe Chucks H81-84
Power Chucks H85-89
Lathe Chuck Jaws, T-Nuts H90-97
Rohm Lathe Chucks, Adapters, Jaws H98-108
Autoblok Power Chucks H109-112

LATHE ACCESSORIES

GS Live Centres H114-118
STM / Skoda Live Centres H119-123
Rohm Centres & Face Drivers H124-131
Toolposts & Holders H132-135

CLAMPING & FIXTURING

Clamping Kits H136-137
Clamps H137
STM / Te-Co Tooling Components H137-146
Mitee-Bite Workholding H147-156
Fixturing H157-159
Vacuum & Magnetic Chucks H160-161

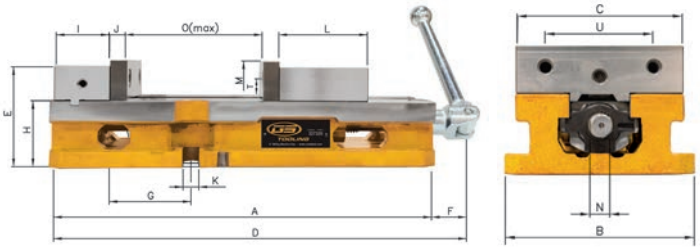
GS160G 6" Precision Milling Machine Vise

This vise has been redesigned with new industry leading workholding features.

- Jaw opening: 9.13" / 232mm
- Bed height: 2.875" ±0.0005"
- Weight: 68lbs / 31kg
- Narrower body style to allow more vises on a machine table
- The bearing pack has been relocated to help reduce oil/water/chip leakage into the vise body
- The thrust bearings have been replaced with ball bearings to make the pack stronger and more stable
- Spherical segment creates all-directional alignment and reduces jaw lift for improved performance
- Spindle does not protrude past the end of the body
- Brush seal design
- Perpendicularity (running face and jaw plate): 0.0004"
- Parallelism (running face to bottom of bed): 0.0006"
- Material: FCD-60 (80,000psi)
- Stationary jaw: 4 bolt stationary design reduces lift
- Pull-type design: Reduces stress on body during clamping
- Chip evacuation: Straight through the body on sides and ends. Locations strategically chosen to not reduce body strength
- Max. Clamping Force: 30378 ft/lbs

10 YEAR WARRANTY!



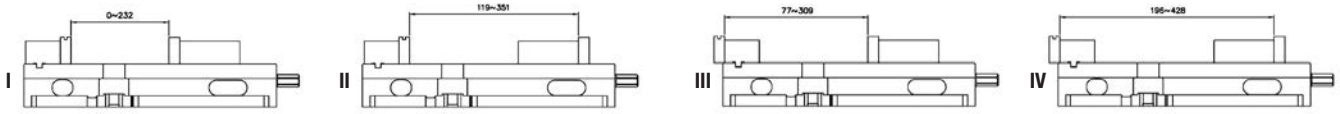


(Inch)

Model	Code No.	Price $
GS160G	327320	**811.13**
#2 Main Screw	327322	**116.67**
#4 Sliding Spindle Nut	327324	**128.81**
#5 Movable Jaw	327326	**147.58**
#6 Fixed Jaw	327328	**127.14**
#7 Jaw Plate (piece)	327330	**94.58**
Repair Kit - consists of #8 segment, #20 bearing, #21 o-ring, 2pc #10 brush, 2pc #19 c-clip	327332	**58.80**
Handle Assembly - consists of #11 socket, #12 bar, #13 pin	327334	**55.59**
#14 Slide Cover (Back)	327336	**7.75**
#14 Slide Cover (Front)	327338	**14.92**
#16 Bolt for Jaw Plate (piece)	327340	**3.87**
#17 Bolt (long) for Fixed Jaw	327342	**3.84**
#18 Bolt (short) for Fixed Jaw	327344	**3.87**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	T	U	Weight	Code No.	Price $
427	186	151	466	111.025	39	90.53	73.025	58.7	18.42	17.46	101.6	44.5	19	232	23.8	98.4	31kg	327320	**811.13**

Capacity



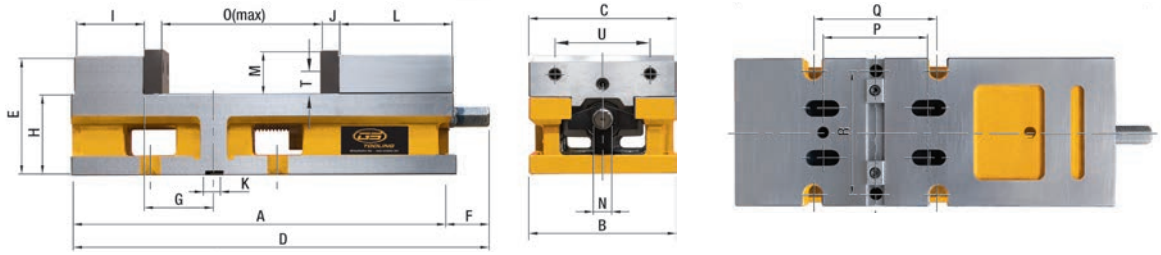
I	II	III	IV
0~9.13"	4.68~13.82"	3.03~12.16"	7.72~16.85"
0~232mm	119~351mm	77~309mm	196~428mm

GSV60 6" Versatile Vise

- 6" vise with 6-1/2" opening
- High accuracy vise for single station CNC centres specially designed to prevent workpiece lift
- 2 operating positions for Vertical Machine Centres: Upright & Lay Down
- 1 operating position for Horizontal Machine Centres: Horizontal
- Bed height: 81mm ±0.012mm (3.189" ±0.0005")
- Material: FCD-60
- Weight: 68lbs / 31kg

LIFETIME WARRANTY!



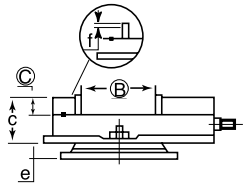


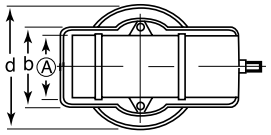
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	Weight	Code No.	Price $
385	152.45	151	431.8	118.7	46.8	69.84	81	69.9	18	18	114.3	44.5	19	163	107.95	127	127	23.8	98.4	31kg	382620	**1,150.88**

GS675 6" Precision Milling Machine Vise

- Vises are matched (Bed Height: 2.875")
- An integral key and large fasteners reduce deflection by 50%
- 4-jaw plate positions allow extra capacity with the jaw plates in the outside position
- The swivel base is graduated 360° in one degree increments
- Chip cover protects leadscrew from damage
- The quality movable jaw does not lift off the bed, and the deflection of the stationary jaw is minimized



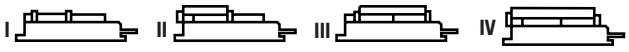




(Inch)

Model	Jaw Width A	Jaw Open B	C	O.A.L.	b	c	d	e	f	Plain Ship Wt	Code No.	Price $
GS675	6	7.5	1.77	17.2	9.13	4.6	12	1.65	0.39	80lbs	327275M	**698.78**
Jaw Plates											327330	**94.58**
Swivel Base Only											327280	**177.02**
Replacement Handle											327334	**55.59**
Main Screw, Collar & Collar Set Screw for GS675											327284	**119.88**
Chip Cover											327338	**14.92**
Vise Nut for GS675											327288	**163.53**
Jaw Plate Screws (4pcs)											327286	**19.59**
Ball Bearing Thrust Collar											327292	**22.31**

Capacity

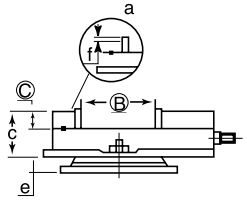


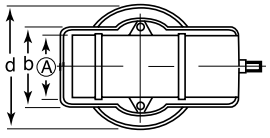
	I	II	III	IV
GS 675	0-7-1/2"	2-1/8" - 10-1/4"	5" - 13-1/8"	7" - 15-7/8"
	0-192mm	54-262mm	125-333mm	177-403mm
GS 810	0-10.43"	2.36" - 3.66"	6.25"- 16.61"	8.58" - 20.79"
	0-265mm	60-347mm	159-422mm	218-528mm

GS810 8" Precision Milling Machine Vise

- Vises are matched (Bed Height: 3.310")
- An integral key and large fasteners reduce deflection by 50%
- 4-jaw plate positions allow extra capacity with the jaw plates in the outside position
- The swivel base is graduated 360° in one degree increments
- Chip cover protects leadscrew from damage
- The other quality movable jaw does not lift off the bed, and the deflection of the stationary jaw is minimized







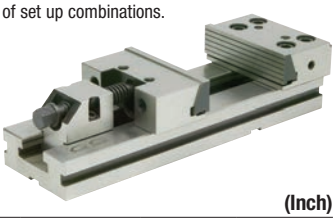
(Inch)

Model	Jaw Width A	Jaw Open B	C	O.A.L.	b	c	d	e	f	Plain Ship Wt	Code No.	Price $
GS810	8	10.0	2.25	21.8	11.62	5.55	15.0	1.85	0.43	158lbs	327300	**2,198.25**
Swivel Base Only											327310	**344.61**
Jaw Plates											327311	**227.22**
Replacement Handle											327305	**86.09**

GS Plain Base Modular Vises

Manufactured under rigid quality control. As a result of the high standard construction, GS Vises can be depended upon to maintain their accuracy under the most severe operating conditions. The modular design and the concept of interchangeability makes possible a wide variety of set up combinations.

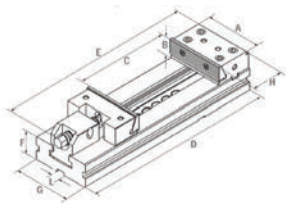
- High accuracy
- Unlimited clamping range
- High quality alloy steel
- High clamping pressure
- No jaw lift
- All vises are matched



(Inch)

Model	Jaw Width (A)	Opening (C)	Jaw Height (B)	Code No.	Price $
1	4	4	1.2	382005	**1,166.50**
2	5	6	1.6	382010	**1,284.60**
3	6	8	1.97	382015	**1,400.76**
3	6	12	1.97	382017	**1,635.39**
4	7	8	2.4	382020	**1,891.30**
4	7	12	2.4	382025	**2,008.21**
4	7	16	2.4	382030	**2,243.07**
4	7	20	2.4	382032	**2,708.68**
5	8	8	2.6	382035	**2,471.81**
5	8	12	2.6	382040	**2,928.34**
5	8	16	2.6	382045	**3,389.70**
5	8	20	2.6	382050	**4,084.30**
5	8	24	2.6	382052	**4,799.34**
6	12	8	3.2	382055	**3,876.07**
6	12	12	3.2	382060	**4,800.13**
6	12	16	3.2	382065	**5,734.07**
6	12	20	3.2	382070	**6,435.31**
6	12	24	3.2	382075	**7,135.07**
6	12	28	3.2	382080	**5,829.83**
6	12	32	3.2	382085	**8,544.77**

Modular Vise Specs



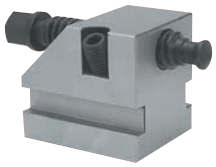
(Inch)

Vise Size	Code No.	D	E	F	G	H	I	Kgs
4 x 4	382005	10.63	12.5	1.378	2.95	3.07	0.628	6.8
5 x 6	382010	13.583	16.4	1.575	3.8	3.04	0.64	12.9
6 x 6	382015	16.535	20.86	1.968	4.92	3.574	0.64	25.5
6 x 12	382017	20.472	20.86	1.968	4.92	3.574	0.64	29
7 x 8	382020	17.913	24.80	2.283	5.8	3.876	0.64	37
7 x 12	382025	21.85	24.80	2.283	5.8	3.876	0.64	42
7 x 16	382030	25.787	24.80	2.283	5.8	3.876	0.64	47
7 x 20	382032	29.724	24.80	2.283	5.8	3.876	0.64	52
8 x 8	382035	19.488	28.74	2.756	6.8	4.536	0.64	64
8 x 12	382040	23.425	28.74	2.756	6.8	4.536	0.64	69
8 x 16	382045	27.362	28.74	2.756	6.8	4.536	0.64	74
8 x 20	382050	31.299	28.74	2.756	6.8	4.536	0.64	79
8 x 24	382052	35.236	28.74	2.756	6.8	4.536	0.64	84
12 x 8	382055	21.063	32.67	3.07	7.67	4.74	0.64	95
12 x 12	382060	25.000	32.67	3.07	7.67	4.74	0.64	105
12 x 16	382065	28.937	32.67	3.07	7.67	4.74	0.64	115
12 x 20	382070	32.874	32.67	3.07	7.67	4.74	0.64	125
12 x 24	382075	36.811	32.67	3.07	7.67	4.74	0.64	135
12 x 28	382080	40.748	32.67	3.07	7.67	4.74	0.64	145
12 x 32	382085	44.685	32.67	3.07	7.67	4.74	0.64	155

Parts For GS 8" Precision Milling Machine Vises

Description	Code No.	Price $
Main Screw, Collar & Collar Set Screw	327306	**272.96**
Ball Bearing Thrust Collar	327292	**22.31**
Needle Bearing Thrust Collar	327307	**61.49**
Chip Cover	327308	**9.84**
Vise Nut	327309	**389.82**
Jaw Plate Screws (4pcs)	327312	**14.84**

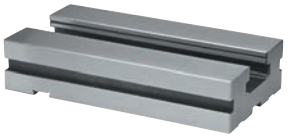
Parts & Accessories For GS Modular Vises



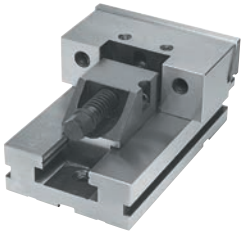
Mechanical Blocking Device



Swivel Base



Extension Base



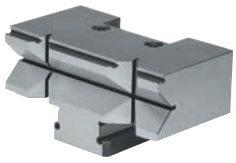
Moveable Jaw Section and Base



Fixed Jaw Section and Base

Part Description	#1 Code No.	Price $	#2 Code No.	Price $	#3 Code No.	Price $	#4 Code No.	Price $	#5 Code No.	Price $	#6 Code No.	Price $
Swivel Base	382380	**673.11**	382385	**770.77**	382390	**915.52**	382395	**1,005.33**	382400	**1,455.95**	382405	**1,814.71**
Extension Base	382260	**596.34**	382265	**643.73**	382270	**843.45**	382275	**843.25**	382280	**850.37**	382285	**1,351.67**
Mechanical Blocking Device	382470	**251.51**	382475	**315.96**	382480	**376.62**	382485	**434.61**	382490	**540.51**	382495	**809.57**
Moveable Jaw	382412	**230.47**	382417	**342.52**	382422	**410.08**	382427	**766.47**	382432	**1,042.74**	382437	**1,456.35**
Fixed Jaw	382410	**271.25**	382415	**342.52**	382420	**410.08**	382425	**766.47**	382430	**1,042.74**	382435	**1,456.35**
Main Screw	382850	**81.51**	382852	**108.09**	382854	**128.45**	382856	**128.45**	382859	**182.25**	382860	**187.51**
T-Wrench	382820	**20.98**	382822	**20.98**	382824	**22.70**	382826	**22.70**	382828	**28.78**	382830	**28.78**
Box Wrench	382874	**38.19**	382876	**43.75**	382878	**53.66**	382880	**53.66**	382882	**93.74**	382884	**93.74**
Box Wrench (Old Version)									382883	**97.20**	382883	**97.20**
Vise Holding Jaws (Pair)	382685	**207.02**	382690	**207.02**	382695	**93.72**	382700	**93.72**	382705	**144.99**	382710	**185.58**
Positioning Keys	382655	**55.43**	382660	**55.43**	382665	**55.43**	382670	**55.43**	382675	**55.43**	382680	**55.43**
Work Stop	382770	**69.14**	382775	**69.14**	382780	**76.83**	382785	**76.83**	382790	**75.38**	382795	**75.38**
Jaw Plate for Fixed Jaw	382862	**108.04**	382864	**118.44**	382866	**182.64**	382868	**175.52**	382870	**244.53**	382872	**328.36**
Jaw Plate for Moveable Jaw	382863	**108.04**	382865	**118.44**	382867	**182.64**	382869	**175.52**	382871	**244.53**	382873	**328.36**
Machineable Smooth Soft Jaw Plate			382885	**120.16**	382886	**139.58**	382887	**179.47**	382888	**244.51**		
Lock Screw for Blocking Device	382471 M6x1 x 25mm	**9.92**	382476 M12x1 x 25mm	**9.92**	382481 M14x2 x 35mm	**23.14**	382486 M12x1.75 x 40mm	**13.88**	382491 M20x2.5 x 60mm	**17.94**	382496 M20x2.5mm x 50mm	**18.36**
	382472 M8x1.25 x 25mm	**9.11**			382482 M12x1.75 x 30mm	**15.24**						
Chrome Locking Ball for Blocking Device	382473 9/16" dia.	**13.85**	382477 3/4" dia.	**14.59**	382483 7/8" dia.	**16.46**	382483 7/8" dia.	**16.46**	382492 1-1/8" dia.	**21.84**	382492 1-1/8" dia.	**21.84**
Pre-Assembled Groups												
Overall Length	5.5"		6.30"		9"		10"		12"		13.75"	
Leadscrew Overhang	2.08"		2.3"		2.8"		2.0"		3"		2.16"	
Moveable Jaw Section and Base Assembly	382290	**644.30**	382295	**801.43**	382300	**1,009.50**	382305	**1,182.63**	382310	**1,763.65**	382315	**3,617.59**

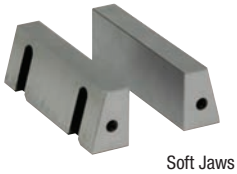
Prismatic Jaws



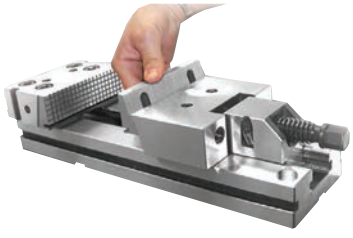
Model No.	Code No.	Price $
#3	382890	**458.66**
#4	382892	**611.67**
#5	382894	**763.68**

Modular Vise w/ Quick Interchangeable Pulldown Jaws

No tools needed for quick hand change of downward jaw plates



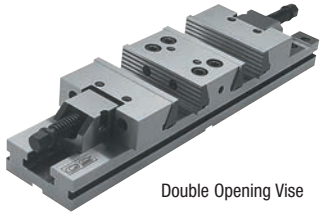
Soft Jaws



Description	Code No.	Price $
6 x 8 Modular Vise	382896	**1,843.35**
Pair Soft Jaws	382897	**164.41**

GS Modular Vises — Single & Double Opening

- High accuracy
- No length limitations
- Unlimited clamping range
- No jaw lift
- High quality alloy steel
- Low profile
- High clamping pressure
- All vises are matched
- Mechanical and pneumohydraulic blocking devices
- Extra long base

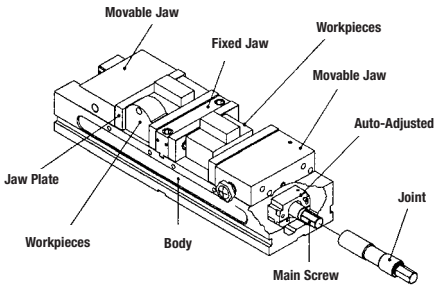


Double Opening Vise

Model	Opening	O.A.L.	Jaw Width	Weight (kg)	Code No.	Price $
Single Opening Modular Vise						
1	11.4	18	4	10	382101	**1,453.83**
2	12.6	20.5	5	17	382102	**1,902.73**
3	14.7	23	6	31	382103	**2,430.79**
3	18.11	27	6	34	382104	**2,776.72**
4	16	26	7	46	382105	**2,838.11**
4	20	30	7	51	382106	**3,122.00**
5	24	36	8	92	382110	**5,379.16**
Double Opening Modular Vise						
3	2 x 4.3	23	6	38	382153	**2,952.95**
3	2 x 6.3	27	6	41	382154	**3,221.89**
4	2 x 6.7	30	7	63	382156	**3,731.35**
5	2 x 10	40	8	107	382172	**6,722.93**
6	2 x 6.3	35	12	154	382175	**8,011.45**
6	2 x 16	55	12	194	382180	**11,374.00**

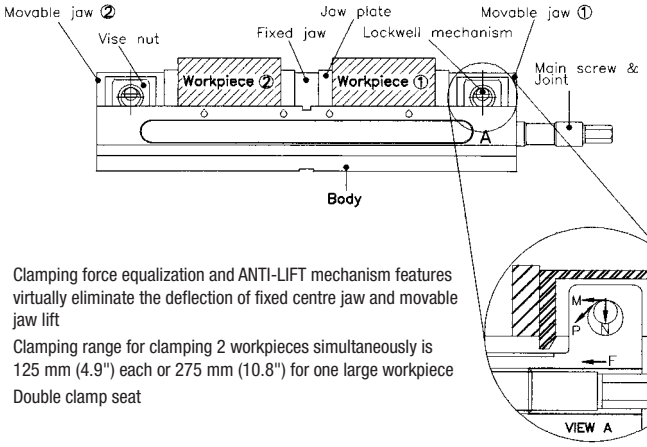
Double Clamp Vise

- Double clamp set - one handle can simultaneously operate two moveable jaws and clamps 2 workpieces of same or different size or one large workpiece
- This model can increase efficiency and productivity of CNC machines
- The movable jaw ANTI-LIFT mechanism provides alignment to workpiece without jaw lift
- There are 6 kinds of clamping ways to meet workpieces of different shapes and sizes
- The whole body is precisely ground and height tolerance is within ± 0.025mm (±0.001"), therefore several vises can be lined up for production
- The vise is made of FDC-80.000 psi (55kg/cm²) Ductile iron, and slide ways are hardened to 45HRC
- The rigid construction prevents base distortion
- Precision made to high accuracy standard



Model No.	Code No.	Price $
4" - TLD-40G/HV	382610	**1,986.75**
6" - TLD-60G/HV	382600	**2,615.63**

ANTI-LIFT MECHANISM



- Clamping force equalization and ANTI-LIFT mechanism features virtually eliminate the deflection of fixed centre jaw and movable jaw lift
- Clamping range for clamping 2 workpieces simultaneously is 125 mm (4.9") each or 275 mm (10.8") for one large workpiece
- Double clamp seat



GS Double Clamp Vise (TLD-40G/HV, TLD-60G/HV)

ANTI-LIFT Mechanism

M: Jaws forward movement force

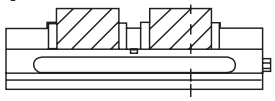
N: Gravity

P: Resultant 45° component force forces the workpiece down while clamping

F: Direction of jaw movement

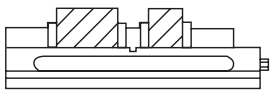
Clamping Examples For Different Applications:

1



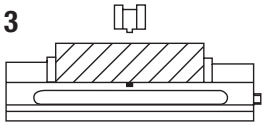
Clamping 2 pieces of same size workpieces.
Max. Capacity: 90mm (3.5")
125mm (4.9")

2



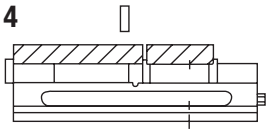
Clamping 2 pieces of different size of workpieces.
Max. Capacity: 90mm (3.5")
125mm (4.9")

3



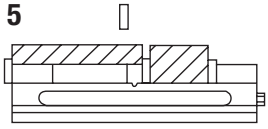
Large workpieces are able to be clamped after moving fixed jaw.
Max. Capacity: 237mm (9.3")
1315mm (12.4")

4



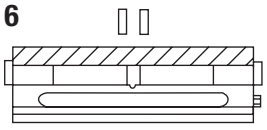
Stepped jaw plate for thin workpiece.
Max. Capacity: 215mm (8.4")
275mm (10.8")

5

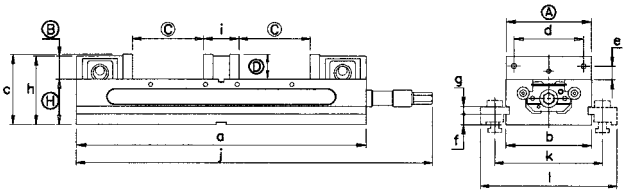


Clamping 2 different workpieces.
Max. Capacity: 215mm (8.4")
275mm (10.8")

6



Large thin workpiece is able to be clamped after removing jaw plate on fixed jaw.
Max. Capacity: 405mm (15.9")
520mm (20.5")

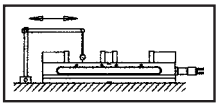


Dimensional Information For Double Clamp Vises:

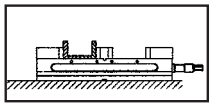
(mm/in.)

Model No.	A	B	C	D	a	b	c	d	e	f	g	h	H	i	j	k	l	Guide Block	Weight (kg/lb)
TLD-40G	103	33	90	38	405	104	101.5	63.5	17.5	13	31	96.5	63.5	55	430	143	195	18	20
(TLD-40HV)	4.05	1.29	3.54	1.49	15.9	4.09	3.99	2.5	0.68	0.51	1.22	3.79	2.5	2.16	16.9	5.62	7.67	0.709	44
TLD-60G	152	41.5	125	44.5	520	154	123.5	98.42	23.8	18	16	126.5	82.55	64	639	193	245	18	48
(TLD-60HV)	5.98	1.6	4.9	1.75	20.47	6	4.98	3.87	0.94	0.7	0.63	4.86	3.25	2.52	25.15	7.59	9.64	0.709	105.6

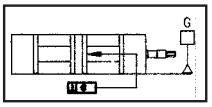
TLD-40G, TLD-60G; match vise, TLD-40HV, TLD-60H (horizontal and vertical 2 way) Inspection Specification:



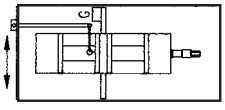
1
Parallelism: running face to bottom of bed.
Guaranteed: 0.01 mm (0.0004")



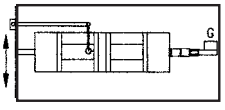
2
Squareness: between running face and jaw plate.
Guaranteed: 0.03 mm (0.0012")



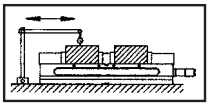
3
Squareness both sides to fixed jaw plate.
Guaranteed: 0.02 mm (0.0008")



4
Parallelism: keyways on bottom of bed to jaw plate.
Guaranteed: 0.02 mm (0.0008")



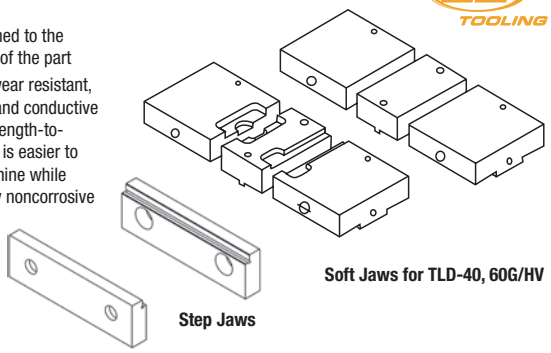
5
Squareness: keyways on bottom of bed to jaw plate.
Guaranteed: 0.02 mm (0.0008")



6
Parallelism: running face of the test block to bottom.
Guaranteed: 0.02 mm (0.0008")

Machinable Fixture Jaws

- Can be machined to the precise shape of the part
- Aluminum is wear resistant, nonmagnetic and conductive with a high strength-to-weight ratio. It is easier to form and machine while being naturally noncorrosive



Soft Jaws for TLD-40, 60G/HV

Step Jaws

Description	Code No.	Price $
4" aluminum soft jaws	382612	**618.92**
4" step jaws	382614	**278.86**
6" aluminum soft jaws (10mm key)	382602	**945.69**
6" aluminum soft jaws (14mm key)	382609	**945.69**
6" step jaws	382604	**320.03**

Steel Jaw Plate Set

Steel offers high tensile strength and corrosion resistance.



Description	Code No.	Price $
6" steel jaw plate set (4pcs) for TLD60	382617	**316.31**

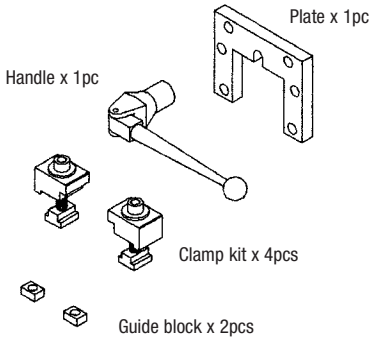
Steel Jaw Sets

Steel offers high tensile strength and corrosion resistance.

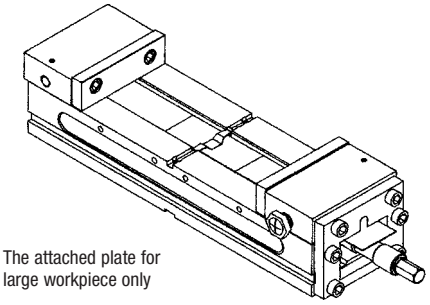


Description	Code No.	Price $
4" steel jaw set for TLD40	382615	**376.47**
6" steel jaw set for TLD60	382605	**477.14**

Standard Accessories

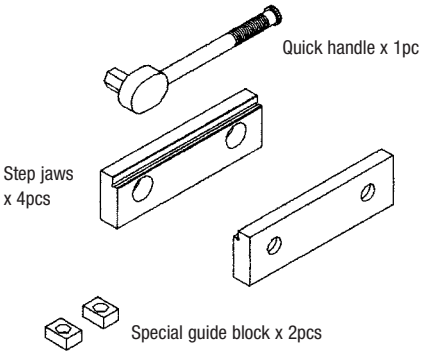


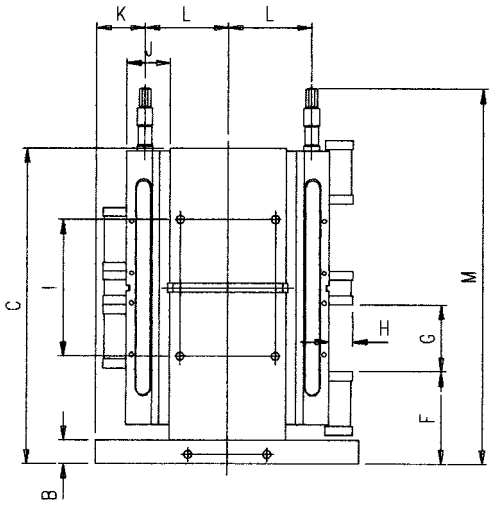
Usage of "Plate"

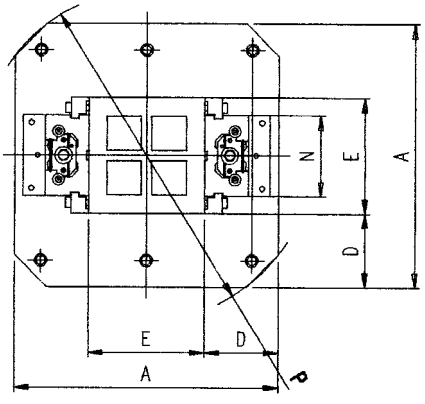


The attached plate for large workpiece only

Optional Accessories







Jig Block Dimensional Specifications

(mm/in.)

Model NO.	Use Vise	Pallet Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Weight (kg/lb)
GS-40-4C	TLD-40	400 x 400	400	40	500	110	180	168	90	38	203	63.5	75.5	124.5	543	104	506	118
GS-40-4C	TLD-40	400 x 400	15.74	1.57	19.68	4.33	7.08	6.61	3.54	1.49	7.99	2.5	2.907	4.90	21.3	4.09	19.92	259.6
GS-60-4C	TLD-60	500 x 500	500	45	600	140	220	175	125	44.5	260	82.5	92	158	714	154	628	233
GS-60-4C	TLD-60	500 x 500	19.68	1.77	23.62	5.51	8.66	6.88	4.92	1.75	10.23	3.25	3.62	6.25	28.11	6.02	24.72	512.6

GS Multi-Tasking Modular Vises for 5-Axis Machining Centers

The MULTI-TASKING range of vises has been specially designed for 5-axis machines. Working on 5 sides of the workpiece, it allows the best optimization of the machining cycle. Thanks to the compact design this kind of vise can be installed on all machining centres. The use of GRIP jaws is strongly recommended with multitasking vises.

- Self-centering or eccentric
- Eccentric jaw adjustment in steps of 2mm
- Highest accuracy in positioing and alignment (±0.02mm) due to ground rack teeth on both the base and the fixed jaws
- Minimum deflection
- Solid, rigid construction and maximum clamping ratio to the total length
- Positioning through ground holes or keyways
- All case hardened to 60HRC for durability

MADE IN ITALY

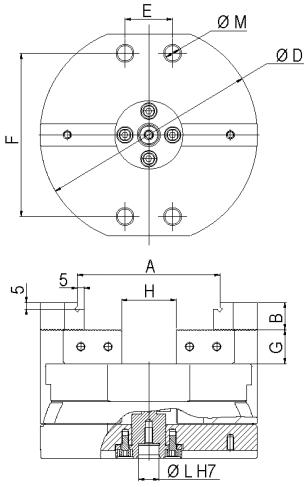


Type 1 & 2

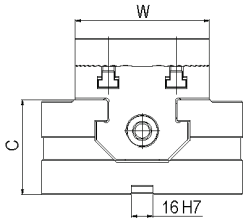


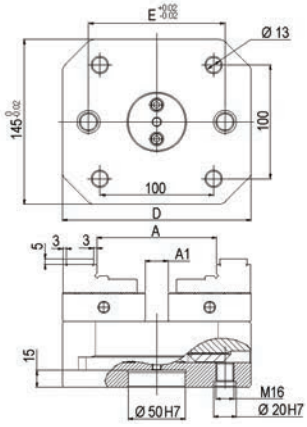
Type 3

Vise shown with riser

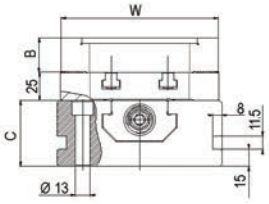


Type 1 & 2

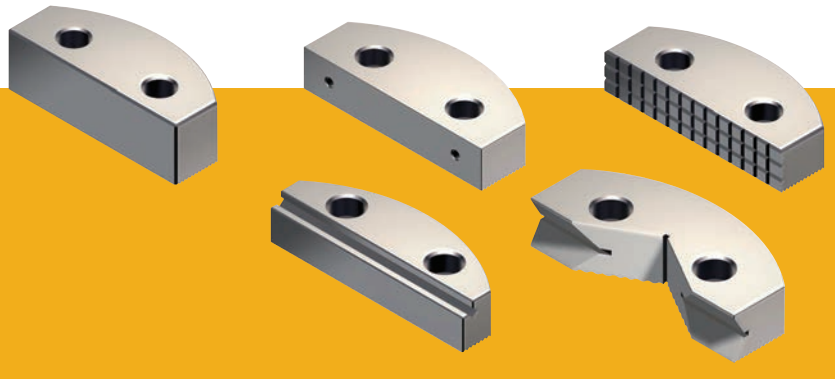




Type 3



	Type 1	Type 2	Type 3x166	Type 3x266
Code No.	**382520**	**382522**	**382524**	**382526**
Price $	**2,741.30**	**3,654.96**	**4,203.31**	**4,386.12**
A	74	104	108	208
A1	-	-	20	60
W	74	99	138	138
B	15	20	30	30
C	50	70	58	58
øD/D	120	160	166	266
E	5	35	120	200
F	92	120	-	-
G	20	25	-	-
H	20	40	-	-
øL H7	20	20	-	-
M	9	11	-	-
kg	4.9	11	13	20
kN	16	20	30	30



Also available:

Smooth, Soft, Serrated, Step, Prismatic, and Grip Jaws

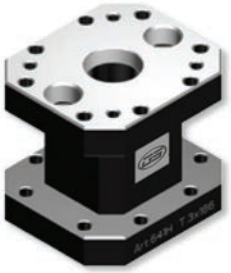
Call for more information

Steel Risers

Allow greater access to machine hard to reach areas of the workpiece

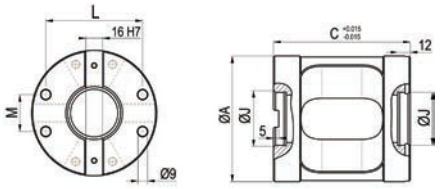


Type 1

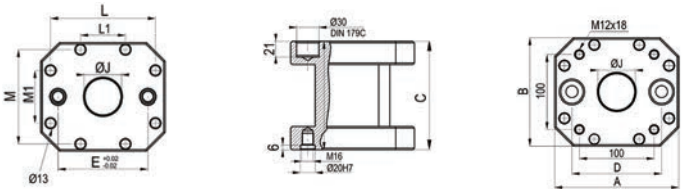


Type 3 x 166

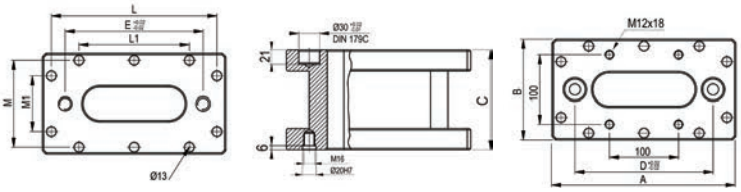
Type 1 & 2



Type 3 x 166



Type 3 x 266



Model	A	B	C	D	E	L	L1	M	M1	ØJ	kg	Code No	Price $
Type 1	119	-	130	-	-	92	-	35	-	50 H7	6	382521	**1,593.71**
Type 2	158	-	130	-	-	120	-	35	-	50 H7	10	382523	**2,293.96**
Type 3x166	166	145	145	120	120	140	60	126	70	50 H7	14	382525	**3,343.45**
Type 3x266	266	125	145	200	200	240	160	125	80	-	21.5	382527	**4,290.89**

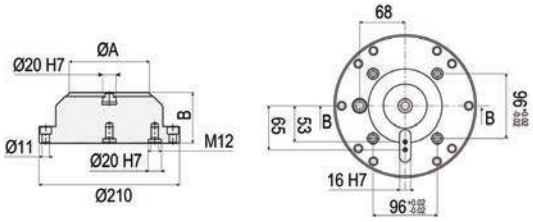
Aluminum Risers

Allow greater access to machine hard to reach areas of the workpiece



Type 1 & 2

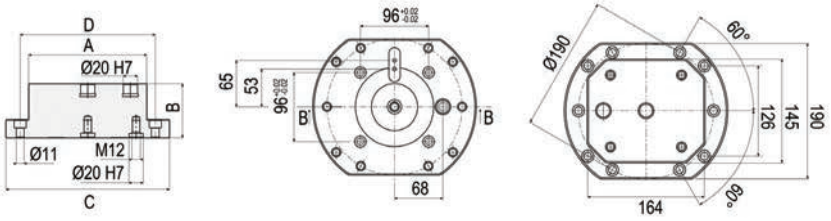
Type 1 & 2

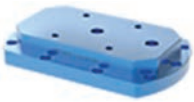




Type 3 x 166

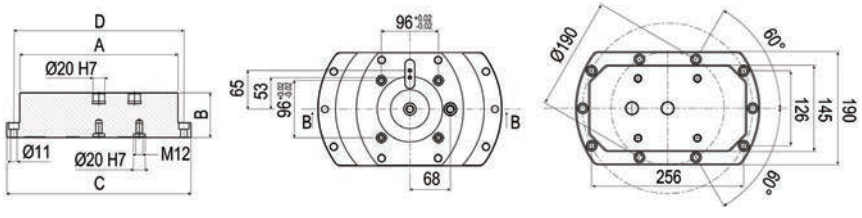
Type 3 x 166





Type 3 x 266

Type 3 x 266

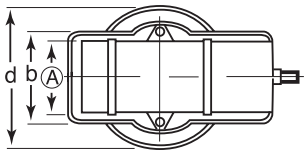


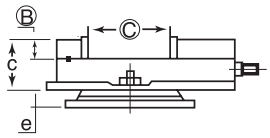
Model	A	B	C	D	kg	Code No	Price $
Type 1	Ø120	50	-	-	3	382531	**973.90**
Type 1	Ø120	75	-	-	4.5	382532	**1,027.49**
Type 1	Ø120	100	-	-	5.4	382533	**1,084.78**
Type 2	Ø160	50	-	-	3.5	382534	**973.90**
Type 2	Ø160	75	-	-	4.9	382535	**1,027.49**
Type 2	Ø160	100	-	-	6.4	382536	**1,084.78**

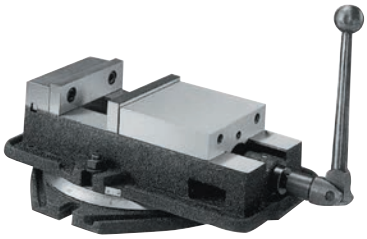
Model	A	B	C	D	kg	Code No	Price $
Type 3 x 166	166	50	230	190	3.8	382541	**1,129.13**
Type 3 x 166	166	75	230	190	5.3	382542	**1,203.05**
Type 3 x 166	166	100	230	190	6.8	382543	**1,280.66**
Type 3 x 266	266	50	310	286	5.8	382544	**1,737.12**
Type 3 x 266	266	75	310	286	8.3	382545	**1,835.06**
Type 3 x 266	266	100	310	286	10.7	382546	**1,938.55**

Milling Vises

- During machining operations, horizontal vises provide secure and accurate positioning of the workpiece
- An operator controls the opening and closing of the jaws on the workpiece for manual vises





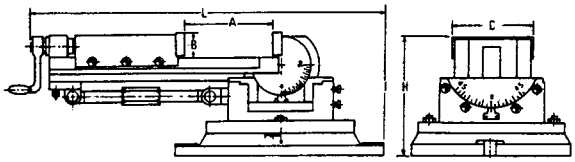


Model No.	A	B	C	Overall Length	b	c	d	e	With Swivel	Price $	Without Swivel	Price $	Swivel Only	Price $
CH-4	4	1-1/8	4	12-9/16	6-1/2	3-1/2	9-3/4	1-1/4	326405	**984.73**	326420	**932.28**	326423	**112.56**
CH-6	6	1-1/2	5-3/4	16-3/4	8-1/4	4-3/8	11-3/4	1-5/8	326410	**1,170.98**	326425	**1,059.35**	326427	**231.35**
CH-8	8	2	8	21-3/4	11-5/8	5-5/16	15	1-7/8	326415	**2,506.14**	326430	**2,386.92**	326433	**399.56**

3-Way Angle Milling Vises

The universal 3-way angle vise is a new design which makes the angle setting in all directions possible to meet the needs of elaborate work.

- Operation is smooth and easy
- Swivel base is scaled in 360°
- Each base can be fixed by four special bolts
- Precision angle setting is scaled in all directions
- Moveable part touches the bore in V-shape and is adjustable
- Upper angle setting base can incline from the horizontal position to the vertical position

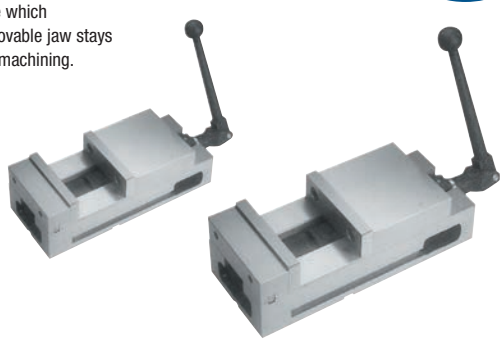


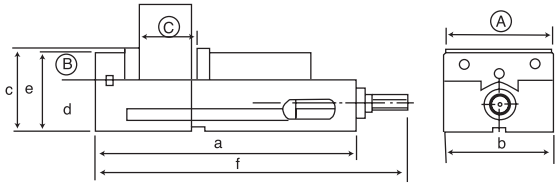


Model No.	Width C	Jaw A	B	H	L	Height at Vertical Position	Gross Weight (kg)	Measure CFT	Code No.	Price $
KAV-75	80	90	30	144	400	385	(C) 15	0.7	326100	**840.50**
KAV-100	106	105	38	172	460	470	(C) 32	1.2	326102	**1,022.10**
KAV-125	132	140	40	205	625	590	(W) 50	1.6	326104	**1,408.20**

Precision Milling Vises

This vise has a feature which guarantees that the movable jaw stays securely down during machining.





Model No.	A	B	C	a	b	c	d	e	f	Weight	Code No.	Price $
AMC-40	102	40	120	332	105	108	68	100	372	20 kg	327150	**790.85**
AMC-60	152	44	146	370	154	117	73	111	438	30 kg	327155	**1,005.73**

Tilting Hydraulic Machine Vises

- Angle setting ranges from 0° ~ 50° Tilting degrees graduated for easy reading
- Swivel base graduated to 360° and fixable in any position
- Accuracy within 0.02mm
- Tilting seat set by two locking screws

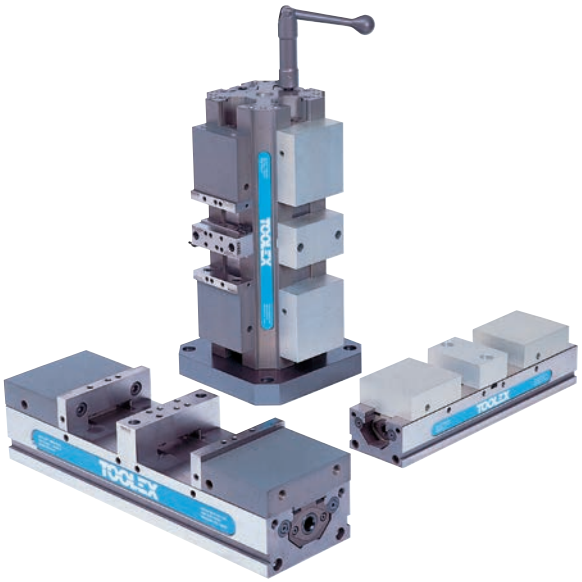


Model	Jaw Width	Jaw Height	Jaw Opening	Weight (kg)	Code No.	Price $
VHT-4	110mm	36mm	170mm	33.3	326105	**3,343.59**
VHT-6	154mm	54mm	300mm	88	326107	**4,044.97**

ReLock Double Station Workholding System

Unique Modular Design is Efficient and Accurate
Stay competitive in today's demanding manufacturing environment.

- Reduce set-up time with ReLock's modular design
- SnapLock feature allows to change or index jaws quickly
- Accurate and durable; precision manufactured from high grade materials
- Versatile array of jaws and accessories to vertical or horizontal machining applications



ReLock Workholding Systems

TOOLEX Vise Workholding Systems

Size (in.)	Base Height (in.)	Base Width (in.)	Base Length (in.)	Code No.	Price $
4	2.500	4.000	16.000	608400	**8,346.24**
6	3.250	6.000	20.500	608405	**10,857.84**
8	4.000	8.000	28.500	608410	**28,415.58**

Single Station Conversion Plates

TOOLEX Vise Workholding Systems

Size (in.)	Weight (lb)	Thickness	Code No.	Price $
4	33	0.750	608415	**187.14**
6	68	0.750	608420	**208.59**
8	110	1.00	608425	**334.75**

Double Station Workholding Vises

TOOLEX Vise Workholding Systems

Size (in.)	Weight (lb)	Clamp Pres. (lb)	Code No.	Price $
4	33	6000	608600	**1,911.30**
6	68	12000	608605	**2,257.68**

SnapLock Machinable Fixture Jaw Sets

TOOLEX Vise Workholding Systems

- Set of 3; 2 outside jaws, 1 centre jaw

Model No.	Size (in.)	Thickness (in.)	Code No.	Price $
SSJ - 4000	4	1.500	608445	**247.27**
SSJ - 6000	6	2.000	608450	**485.76**
SSJ - 8000	8	2.500	608455	**819.18**

SnapLock Carrier Jaws

TOOLEX Vise Workholding Systems

- Set of 2 outside jaws
- Aluminum, threaded

Model No.	Size (in.)	Thread	Code No.	Price $
SCJ - 4000	4	3/8-16	608460	**227.09**
SCJ - 6000	6	1/2-13	608465	**457.53**
SCJ - 8000	8	5/8-11	608470	**825.90**

Quick Change ToolMaker/ MoldMaker Packages

TOOLEX Vise Workholding Systems

Model No.	Size (in.)	Code No.	Price $
QTM–4000	4	608490	**2,449.50**
QTM–6000	6	608492	**2,943.54**
QTM–8000	8	608494	**3,644.58**

AccuSnap Master Jaws

TOOLEX Vise Workholding Systems

- Only available for ReLock Workholding System

Model No.	Size (in.)	Width (in.)	Code No.	Price $
AMJ - 4035	4	3.98	608475	**563.51**
AMJ - 6035	6	5.98	608480	**605.56**
AMJ - 8035	8	7.98	608485	**825.90**

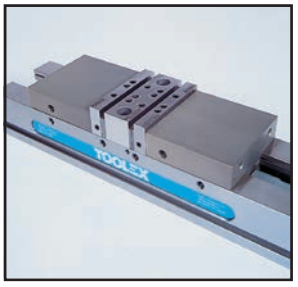
AccuSnap Parallel Sets

TOOLEX Vise Workholding Systems

Model No.	Spec.	Size (in.)	Parallels	Code No.	Price $
APS - 4000	Basic	4	5 Pairs	608500	**543.32**
APS - 4001	Adv.	4	8 Pairs	608505	**906.65**
APS - 6000	Basic	6	5 Pairs	608510	**645.92**
APS - 6001	Adv.	6	9 Pairs	608515	**1,116.42**
APS - 8000	Basic	8	6 Pairs	608520	**1,816.08**
APS - 8001	Adv.	8	10 Pairs	608525	**2,940.78**

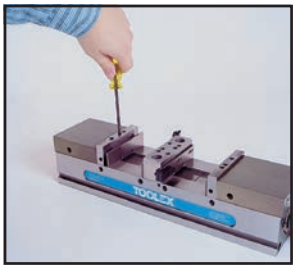
SnapLock Machinable Fixture Jaws

- Versatile to allow job customization
- Remove or index in a matter of seconds



AccuSnap Vise Jaw System

- Picture shows master jaw, parallels and modular workstop
- Highly accurate set-up and changeover



ReLock-8 Station

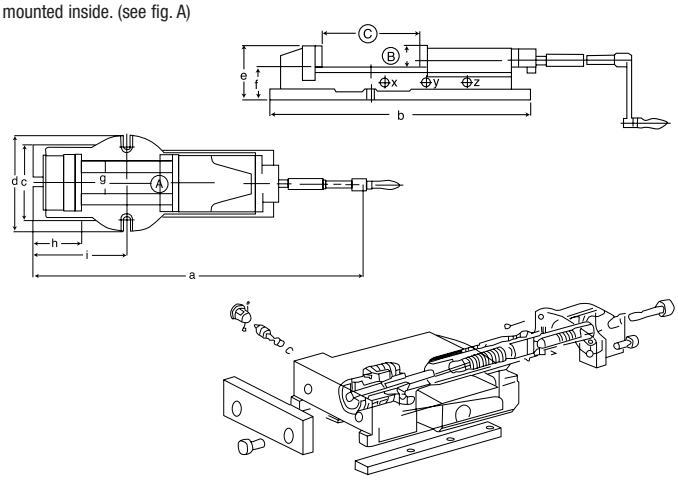
- Unibody design
- Ideal for horizontal machining centres and rotary indexers on vertical machining centres



Precision Hydra Power Machine Vises

Hydraulic Booster System

Hydraulic Booster provides a steady clamping force against shocks and vibrations during the operations, since it fastens the work piece resiliently with the aid of the disc-springs mounted inside. (see fig. A)





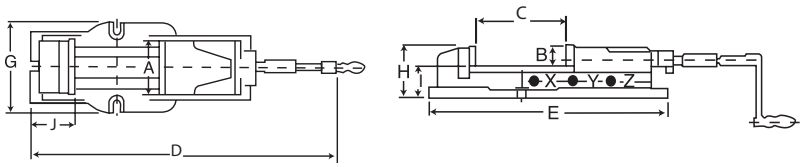
Seal Kits

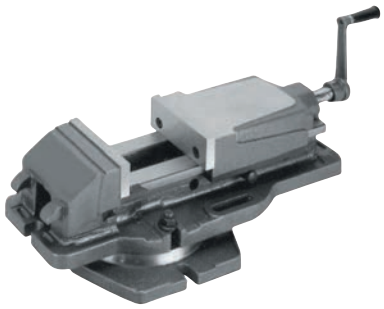
Vise Model	Code No.	Price $
HP-40	327201	**65.33**
HP-50	327211	**76.24**
HP-60	327221	**71.97**
HP-80	327231	**89.59**

Model No.	A	B	C	a	b	c	d	e	f	g	h	i	Clamp Force	Wt. (kg) Plain	Plain Base Code No.	Price $	Wt (kg) with Swivel Base	With Swivel Base Code No.	Price $
HP-40	100	36	170	525	430	130	160	94	60	78	100	155	2500kg	16	327200	**1,547.20**	22	327205	**1,667.58**
HP-50	125	46	220	670	540	165	185	118	72	97	117	185	3500kg	32	327210	**1,573.00**	42	327215	**1,839.42**
HP-60	150	51	300	800	620	200	240	133	82	116	125	247	4400kg	54	327220	**1,633.04**	70	327225	**1,899.57**
HP-80	200	62	300	900	700	240	280	162	100	160	165	266	6600kg	95	327230	**3,025.61**	125	327235	**3,403.71**

Hydraulic Machine Vises

- Ruggedly constructed for milling, drilling, shaping, grinding and many other machine shop applications
- Body is made of high quality ductile cast iron, resists deflection or bending



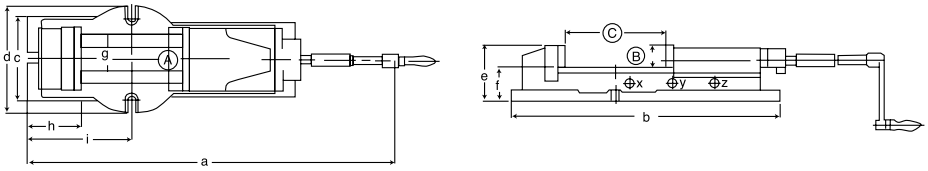


Model No.	A	B	C	D	E	G	H	I	J	Clamp Force	G.W. (kg)	Plain Base Code No.	Price $	Wt (kg) with Swivel Base	With Swivel Base Code No.	Price $
HP-40G	100	36	170	525	430	160	94	60	78	2500kg	22	329205	**1,374.00**	26	329200	**1,997.10**
HP-50G	127	46	220	670	540	185	118	72	97	4500kg	45	329215	**1,453.60**	52	329210	**1,757.70**
HP-60G	150	51	300	800	620	240	133	82	116	6000kg	64	329225	**1,564.90**	74	329220	**1,941.70**
HP-80G	200	65	300	800	710	280	158	100	161	8500kg	109	329235	**3,102.90**	125	329230	**3,823.20**

Mechanical Power Machine Vises

Mechanical Power Booster System

The Ball-Design mechanical booster provides steady clamping forces against shocks and vibrations.
It helps vises clamp workpieces resiliently, during operations, with an aid of the inside-mounted disc-spring.





Model No.	A	B	C	a	b	c	d	e	f	g	h	i	Clamp Force	Wt. (kg) Plain	Plain Base Code No.	Price $	Wt (kg) Swivel Base	Swivel Base Code No.	Price $
HP-60 II	150	51	300	800	620	200	240	133	82	116	125	247	4400	54	327240	**1,633.04**	16	327245	**206.38**

Suburban Precision Vises

Suburban

Angled channel provides extra jaw capacity. Jaw can be opened or closed without unbolting from work surface. Squareness and parallelism within 0.0002". Models V-411 & V-612 squareness and parallelism within 0.0003". V-237 has recessed pockets at both ends for clamping, vees machined in face of movable jaw and 12 stepped channel which eliminates side holes.



Model No.	Dimensions (in.)	Jaw Capacity (in.)	Code No.	Price $
V-225	2 x 5-1/2 x 2	3-1/8	251200	**775.00**
V-237	3 x 7-1/2 x 2-3/8	4	251206	**990.93**
V-411	4 x 11 x 3	7-1/2	251216	**1,724.51**
V-612	6 x 12 x 3-1/2	8-1/2	251224	**2,563.11**

Toolmaker Vises

STM

- Solid one piece body
- High quality alloy steel, surface hardened to 58-62 HRC
- Parallelism: 0.005mm / 100mm
- Perpendicularity: 0.005mm
- Angled centre channel provides extra jaw capacity

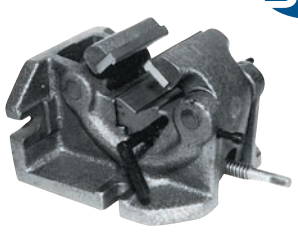


Model No.	Length (mm)	Width (mm)	Jaw Opening (mm)	Jaw Height (mm)	Code No.	Price $
QKG50	140	50	65	25	230815	**125.23**
QKG63	175	63	85	32	230820	**153.14**
QKG73	190	73	100	35	230825	**166.15**
QKG88	235	88	125	40	230830	**254.98**
QKG100	245	100	125	45	230835	**336.58**
QKG125	285	125	160	50	230836	**507.93**

Milling Machine Vises For Round Workpieces

STM

These vises are used for clamping round workpieces with diameters from 2" to 6.3" for use on a milling machine or drill press.



Jaw Width	Shaft Capacity	Weight (lb)	Code No.	Price $
6	2 to 6.3	165	401003	**2,790.74**

EDM Tool Maker Vises

STM

- Parallelism: ±0.002mm / 100mm
- Squareness: ±0.002mm / 100mm
- Stainless Steel
- VSTV-50W designed specifically for wire cutter use



VSTV-50W



VSTV-100W



VSTV-150W

Model	Max Opening	Thickness	Jaw Depth	Weight (kg)	Code No.	Price $
VSTV-50W	55mm	27mm	25mm	1.0	230840	**1,037.68**
VSTV-100W	100mm	24mm	50mm	4.9	230842	**2,691.79**
VSTV-150W	150mm	24mm	60mm	6.8	230844	**5,390.44**

Heavy Duty Bench Vises With Swivel

STM

Manufactured from high quality grey iron castings - a very strong material with excellent shock absorbing capacity and immense strength under compression. These rigid and robust vises, machined to close tolerances, are designed for smooth operation and reliability.

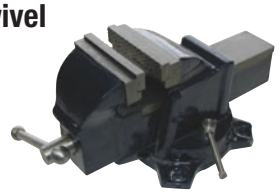


Jaw Width (in.)	Max. Jaw Opening (mm)	Throat Depth (mm)	Code No.	Price $
4	127	55	231400	**280.91**
5	152	70	231405	**407.45**
6	178	80	231410	**543.27**

Bench Vises With Swivel

STM

- Steel serrated jaws
- Heavy duty cast iron body



Jaw Width (in.)	Max. Jaw Opening (mm)	Throat Depth (mm)	Code No.	Price $
5	125	59	326790	**118.98**
6	130	80	326795	**232.65**

Multi-Purpose Bench & Pipe Vises

STM

- Ground anvil, two axis
- Jaws can be rotated 360°, stop every 45°
- Steel pipe jaws



Jaw Width (in.)	Max. Jaw Opening (mm)	Throat Depth (mm)	Code No.	Price $
4	100	55	326770	**229.18**
5	125	65	326775	**258.64**

Drill Press Vises

STM

- High tensile iron casting
- Cold rolled screw thread
- Plain jaws of special steel

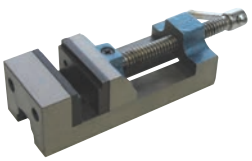


Jaw Width (in.)	Opening (in.)	Jaw Depth (in.)	Weight (lb)	Code No.	Price $
3	3	1-1/8	6	370206	**75.78**
4	4	1-3/8	10	370211	**98.71**
5	5	1-1/2	17-1/2	370216	**174.02**
6	6	1-1/2	23	370221	**202.41**

Drill Press Vise P250

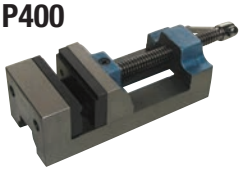
STM

- High tensile iron casting
- Jaw plates – one grooved and one plain
- Accurate machining and assembling
- Four sides and one end machined



Jaw Width (in.)	Jaw Depth (in.)	Opening (in.)	Length (in.)	Weight (lb)	Code No.	Price $
2-1/2	1-1/2	2-9/16	7-1/4	5-1/2	370226	**100.57**

Drill Press Vises P350 & P400



- Rugged 3 inch and 4 inch
- Precision cut ACME thread screw
- Hexagonal screw head for tight clamping

Jaw Width	Jaw Depth	Opening (in.)	Length	Weight (lb)	Code No.	Price $
3	1-3/4	3	9-1/4	9-3/4	370236	**116.80**
4	1-3/4	4	10-3/4	17	370241	**182.23**

Unigrip Drill Press Vises



- Manufactured from graded cast iron, these vises have a precision ground base and vise bed for smooth lateral movement of the movable jaw.
- Longitudinal and transversal prisms in the fixed jaw allow for firm gripping of round jobs of different sizes both horizontally and vertically. Special seat in jaws facilitates retaining of flat workpieces.
- Equipped with a convenient unigrip mechanism which increases the scope of application of this range of vises. Spindle moves inside the hollow hand grip allowing the vise to be used at a location away from the table edge.
- Available with 3 mounting options via 2 additional precisely ground surfaces: end face and side face. This allows for drilling along all axes with a single setting of the job and holding of long workpieces which are difficult to manage in regular vises.

Model No.	Jaw Width	Opening (in.)	Jaw Depth	Code No.	Price $
DPV/UG-75	3	2-3/4	13/16	370925	**163.09**
DPV/UG-100	4	3-1/2	13/16	370930	**190.09**
DPV/UG-125	5	4-15/32	1-3/8	370935	**289.79**
3 WAY Drill Press Vise					
DPV/UG/3/100	4	3-1/2	13/16	370940	**258.10**

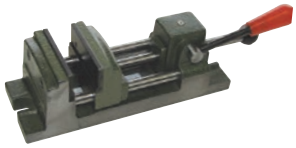
SG Iron Unigrip Drill Press Vise



- Manufactured from SG Iron, making them amongst the strongest vises in the market - virtually unbreakable
- Only drill vise that can also be used as a milling vise
- Equipped with long mounting slots for easy adjustment on the machine table
- Fixed jaw has horizontal and vertical V slots for holding round jobs
- Both jaws have a seat for retaining flat and low height workpieces
- Movable steel jaw is supported by a jaw seat imparting rigidity and further strength

Model No.	Jaw Width	Opening (in.)	Code No.	Price $
DPV/SG-80	3-3/16	3-9/64	370945	**190.45**

Piston Vises



- Easy and speedy
- Quick grip drill press vises

Model No.	Jaw Width	Jaw Depth	Opening (in.)	Code No.	Price $
V-75	3	1-1/4	3	326485	**520.40**
V-100	4	1-15/16	4-11/16	326490	**619.00**

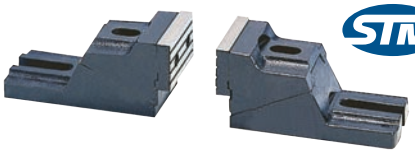
"G" Clamps



- SG iron with a tensile strength over 60,000 psi
- Powder coated finish
- Swiveling pad
- Handle designed to bend before the frame can be overstressed

Model	Clamp Capacity (in.)	Throat Depth (in.)	Load Capacity (lb)	Code No.	Price $
GCL/13D/100	4	2-11/32	1200	231442	**39.60**
GCL/13D/150	6	3	1400	231443	**50.41**
GCL/13D/200	8	3-1/8	1700	231444	**63.84**
GCL/13D/250	10	3-1/2	2200	231445	**89.12**

Free Style Vises



- Free style clamping
- Light duty

Model	Dimensions WxHxL	Clamping Capacity HxL	Weight (2pcs) (kg)	Code No.	Price $
FV-350	75x67x150mm	140x350mm	7.5	326450	**503.04**
FV-450	100x90x200mm	180x450mm	14	326455	**598.50**
FV-550	125x120x250mm	250x550mm	23	326460	**861.80**

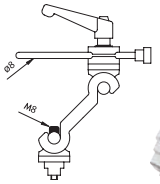
Heavy Duty Free Style Vises



- Free style clamping
- Heavy duty

Model	Height (mm)	Width (mm)	Length (mm)	Weight (2pcs) (kg)	Code No.	Price $
SV-62	59.5-80.5	64	139	5.8	326465	**696.09**
SV-85	86-110	86.5	192	11	326470	**1,109.88**
SV-125	84-117	127	218	21	326475	**1,544.73**

U/N Work Stopper — Non-toothed

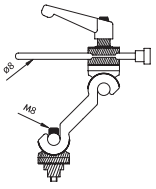




- Locking lever can be rotated a full 360°
- Arm made of anodized aluminum
- Steel hinge pins

Model	T-Slot Size	Stop Pin Length	Height	Arm Length	Code No.	Price $
VWS-123	16mm	160mm	200mm	132mm	326440	**498.65**

U/N Work Stopper — Toothed





- Locking lever can be rotated a full 360°
- Arm made of anodized aluminum
- Steel hinge pins
- Slip adjustment of the stop pin before it is locked into place

Model	T-Slot Size	Stop Pin Length	Height	Arm Length	Code No.	Price $
VWS-125	16mm	160mm	200mm	132mm	326445	**522.89**

"C" Clamps



- Drop forged steel construction for maximum clamping power
- High strength ACME screw with black oxide plating for corrosion resistance

Opening Cap.	Throat Depth	Spindle Dia.	Clamping Force (lb)	Dynamic EDP	Code No.	Price $
0-2	2-1/4	15/32	2700	D090001	861666	**18.17**
0-3	2-1/2	45/64	3000	D090002	866021	**29.10**
0-4	3-1/4	45/64	3700	D090003	861667	**34.93**
0-6	4-1/8	45/64	4500	D090004	865766	**59.81**
0-8	5	45/64	5200	D090005	865486	**84.35**
0-10	6	15/16	6000	D090006	866927	**145.46**
0-12	6-5/16	15/16	8000	D090007	866928	**184.28**

Pullers

- Spring-loaded jaws for quick and easy set-up for different applications
- Two or three jaw design for added flexibility
- Solid Chrome-Vanadium forged construction for increased durability
- Heavy duty forcing screw with live centre for strong even pulls



Pulling Cap.	Max. Reach (in.)	Max. Spread (in.)	Dynamic EDP	Code No.	Price $
2 tons	3-1/2	4	D093001	865873	**142.91**
5 tons	5-1/4	7	D093002	866076	**279.69**

9" Locking Chain Clamp

- Flexible heavy duty chain adjusts quickly around any shape providing a secure hold even in hard to reach areas



Weight. (lbs)	Overall Length (in.)	Dynamic EDP	Code No.	Price $
1.57	9	D055311	865877	**50.37**

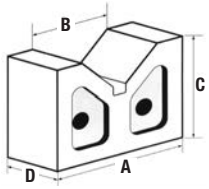
Suburban Cube

- Solid, one-piece hardened steel construction providing durable strength
- Ground on six sides with the ground surfaces flat, the cube is square and parallel within 0.0002"



Model No.	Dimensions	Code No.	Price $
C-36	3-1/2 x 6 x 3	251302	**746.90**

Vee Blocks — Cast Iron

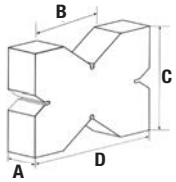


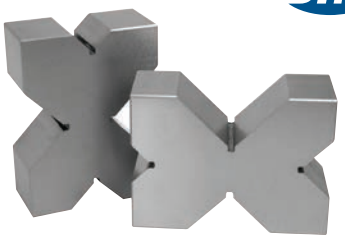


- Made from close grained cast iron, these blocks are precisely ground and machined square and parallel
- The vee's are 90° centered and true
- The blocks are manufactured and supplied in numbered pairs and come in handy for holding large jobs where clamping is not necessary
- Squareness and Parallelism of Vee grooves: within 0.0012" (30 microns)

Width (A) (in.)	Vee Width (B) (in.)	Height (C) (in.)	Thickness (D) (in.)	Model No.	Code No.	Price $
3	1-3/4	2-3/8	1-5/16	VB/C-3	231102	**86.72**
4	2-3/16	2-9/16	1-9/16	VB/C-4	231104	**112.53**
5	2-7/16	3-1/8	2	VB/C-5	231106	**153.42**
6	3-1/16	3-1/2	2-7/16	VB/C-6	231108	**245.30**
8	4-1/2	5-1/2	4	VB/C-8	231110	**594.83**
10	5	6-1/2	5	VB/C-10	231112	**1,054.93**
12	5-1/8	8	6	VB/C-12	231114	**1,545.64**

4 Way Vee Blocks — Cast Iron





- Made from close grained cast iron, these Vee Blocks are precisely ground and machined square and parallel
- Each Block incorporates four different sized vee's thereby supporting a wide range of sizes
- Manufactured and supplied in matched and numbered pairs, these are very useful for marking and checking of cylindrical parts
- The larger sizes incorporate a cavity on either side for convenience in handling during usage

Thickness (A) (mm)	Block Width (D) (mm)	Height (C) (mm)	Vee Cap. (B) (mm)	Model No.	Code No.	Price $
35	95	70	20 x 30 x 40 x 50	VB/QD/95-70-35	231116	**150.95**
30	100	100	20 x 30 x 40 x 50	VB/QD/100-100-30	231118	**163.06**
35	120	120	30 x 40 x 50 x 60	VB/QD/120-120-35	231120	**222.03**

Vee Blocks — Cast Iron

Supplied in matched and numbered pairs, these vee blocks are manufactured from high quality castings, properly seasoned against distortion, and are accurately machined square and parallel. The 90° vee is centered and true.



Vee Width (in.)	Vee Depth (in.)	Width (in.)	Height (in.)	Thickness (in.)	Weight (lb)	Code No.	Price $
1	1/2	2	1-1/4	1-7/8	0.9	370556	**61.51**
1-3/4	7/8	3	2-3/8	2-5/8	2.5	370561	**94.27**
2-1/8	1	4	2-5/8	3-1/4	5	370566	**126.54**
2-3/8	1-1/8	5	3-1/8	4	8	370571	**190.93**
3-1/8	1-9/16	6	3-1/2	5	15	370576	**236.68**
3-5/8	1-13/16	7	4-1/2	6	28	370581	**346.94**
4-1/2	2-1/4	8	5-1/2	8	44	370586	**470.52**
5	2-1/2	10	6-5/8	10	69	370591	**740.87**
5-1/8	2-1/2	12	8	12	132	370596	**1,439.13**

Magnetic V-Blocks

Used to hold cylindrical workpieces for grinding. Will hold both itself and the work on any flat ferrous surface, including a permanent magnet chuck (without energizing the chuck.) There are two vees:

- The smaller for workpieces up to 0.750" diameter and the larger for workpieces up to 2.500" diameter
- Sold Individually



Description	Code No.	Price $
Magnetic Vee Blocks	225710	**158.90**

Magnetic V-Blocks

All Vee's and faces can be energized or de-energized simultaneously by turning the rotary action gun metal control knob. Gun metal construction of the knob ensures no interference with the magnetic field.



Block Length (in.)	Block Width (in.)	Block Height (in.)	Type	Model No.	Code No.	Price $
4	3	3-3/4	Single	MVB/4S	231084	**482.06**
4	3	3-3/4	Pair	MVB/4P	231086	**963.97**
3-3/16	2-3/8	3-3/4	Single	MVB/5S	231088	**372.56**
3-3/16	2-3/8	3-3/4	Pair	MVB/5P	231090	**745.09**

Suburban Magnetic Toolmaker's Chucks

Suburban

- All models precision ground flat, square and parallel to an overall accuracy of 0.0005"
- Top, bottom and end magnetize simultaneously
- Model MTC-VB has "V" capacity of 2-3/4" diameter
- Model MTC-LFP has 3/16" x 1/16" fine pole construction for holding small or thin parts; and removable side and end rails



MTC-S MTC-L MTC-LFP MTC-VB

Model No.	Length (in.)	Width (in.)	Height (in.)	Weight (lb)	Code No.	Price $
MTC-S	5"	2"	2"	6	251868	**874.09**
MTC-L	5-1/2	2-3/4	2-1/2	11	251869	**1,042.70**
MTC-LFP	5-1/2	2-3/4	3"	12	251870	**1,134.39**
MTC-VB	5-1/2	2-3/4	3-5/8	13	251871	**1,134.39**
MTC-VB-M**	5-1/2	2-3/4	3-5/8	26	251872	**2,608.96**

** Matched pair of MTC-VB

V-Block & Clamp — Versatile

STM

The "Versatile" Vee block is made from finely selected tool steel fully hardened to 55-60 HRC. Comes complete with a reversible swing away style clamp that clamps against almost any shape of product. Each unit comes complete with the basic block, reversible clamp and 2 clamp screws.



Block Length (in.)	Block Width (in.)	Block Height (in.)	Type	Model No.	Code No.	Price $
2-1/2	2-1/2	2	Single	VB/SP/V-63S	231092	**156.23**

Tool Maker's V-Block & Clamp Sets — Precision

STM

This range of Vee blocks is made from finely selected tool steel fully hardened to 55-60 HRC. Manufactured and numbered in matched pairs, each pair has two 90° Vees of different capacities which are identical to the Vees of its matching block. The Vee's are ground central, parallel and square with the ends and sides.



Block Length (in.)	Block Width (in.)	Block Height (in.)	Type	Model No.	Code No.	Price $
1-19/32	1-1/4	1-1/4	Regular	VB/SP/T-30	231072	**107.93**
2	1-1/2	1-1/2	Regular	VB/SP/T-35	231074	**129.15**
2-3/4	1-3/4	1-5/8	Regular	VB/SP/T-70	231076	**183.08**
2-3/4	2-1/2	1-3/4	Non-Protruding	VB/SP/R/T-70	231078	**246.40**
4-7/8	3-1/2	2-3/4	Non-Protruding	VB/SP/R/T-125	231080	**657.35**

Precision V-Block Sets

STM

Our ultra precision V-block set offers a quick, accurate and positive means of holding work pieces for layout, machining, grinding or inspection. One reversible swing-away clamp is provided with each V-block. The versatile clamp, plus the unique offset hole pattern in the top of the V-block, offers a large variety of clamping to almost any work surface.



- All V-blocks are parallel, square and centered within 0.0002"

90° V-Block Dimensions			Dia. To Be Inspected or Scribed			
Length	Width	Height	Min.	Max.	Code No.	Price $
2-3/8	2-3/8	2	13/64	1-3/16	230135	**147.72**

Ultimate V-Block & Clamp Set

STM

Manufactured from selected steel, Vee Blocks are fully hardened and ground. Adjustable side screw with cap in the clamp supports the block and prevents tilting. Four 3/8"-16 tapped holes, two in the base and one on each side allow attachment to an angle iron which can then be attached to a lathe face plate or held by a magnetic chuck.

- Sold Individually



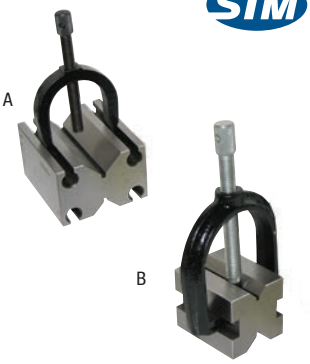
Block Length (in.)	Block Height 9in.)	Block Width (in.)	Model No.	Code No.	Price $
3-19/32	1-7/8	1-7/8	VB/S-48	231082	**161.63**

V-Blocks & Clamps

STM

All sides are ground square and parallel to each other. Models are designed so the clamps do not protrude over the sides; thus the tool can be used on its sides.

- Compares with other V-blocks costing twice as much
- Matched accuracy 0.0002". 90° vees are ground central, parallel and square with the ends precision ground
- Clamps included
- Matched and numbered in pairs
- Hardened and ground chrome steel
- Sold in precision matched pairs only



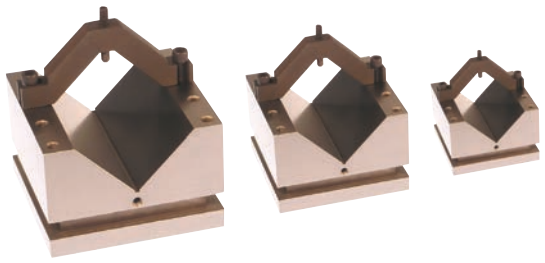
Cap.	Dimensions (W x H x L)	Type	Code No.	Price $
2-1/8	2-3/4 x 3-1/2 x 4-7/8	A	205120	**1,575.17**
1	1-3/8 x 1-5/8 x 1-3/4	B	205105	**242.89**

Suburban V-Blocks

Suburban

Each block comes with one clamp and blocks are available in matched pairs. All models are made of hardened steel. Sizes other than those priced are available by special order.

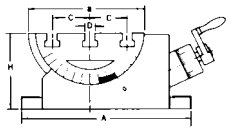
- M = Matched pairs



Model No.	Dimensions	Parallel, Square & Central	Capacity	Code No.	Price $
90° Vee Blocks					
VB-222	2-1/2 x 2-1/2 x 2	0.0002"	1-3/8	251232	**341.65**
VB-222-M	2-1/2 x 2-1/2 x 2	0.0002"	1-3/8	251234	**801.62**
VB-334	4 x 3 x 3	0.0002"	2-1/4	251236	**468.84**
VB-334-M	4 x 3 x 3	0.0002"	2-1/4	251238	**1,090.02**
VB-466	4 x 6 x 6	0.0003"	4-3/8	251244	**1,233.49**
VB-466-M	4 x 6 x 6	0.0003"	4-3/8	251246	**2,869.26**
VB-666	6 x 6 x 6	0.0005"	4-3/8	251256	**1,804.38**
VB-666-M	6 x 6 x 6	0.0005"	4-3/8	251258	**4,333.47**
60° Vee Blocks					
VB-602	2-1/2 x 2-1/2 x 2	0.0002"	1-3/8	251248	**596.04**
VB-602-M	2-1/2 x 2-1/2 x 2	0.0002"	1-3/8	251250	**1,628.38**
VB-604	4 x 3 x 3	0.0002"	2-1/4	251252	**863.74**
VB-604-M	4 x 3 x 3	0.0002"	2-1/4	251254	**2,200.75**

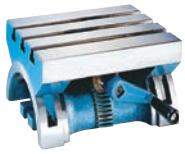
Adjustable Swivel Angle Plate

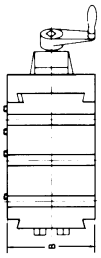
Special Features:
- The CL Adjustable Swivel Angle Plate is mainly used for precise angle finishing, suitable for wide purposes
- **CL-1 is Bolt Lock Style**



CL-1



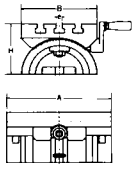


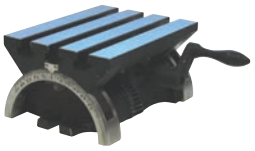


Model No.	A	a	B	C	D	H	T-Slots	Weight Capacity	Code No.	Price $
CL-1	252	180	125	55	14	115	3	20 kg	326126	**1,709.80**
CL-2	300	240	180	65	16	150	3	30 kg	326128	**1,534.69**

Angle Plate

BRA-180 BRA-250 BRA-380
- Low profile
- Micro reading 5 min
- Adjustable 45° each side
- Special design for angle setting on various machine tools



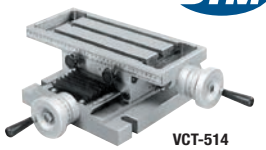


Model No.	Table B	Table A	H	T-Slot E	Weight (kg)	Code No.	Price $
BRA-180	130	180	91	10	7.5 kg	326120	**836.00**
BRA-250	178	250	133	12	22.5 kg	326122	**1,395.10**
BRA-380	260	380	185	16	69 kg	326124	**2,422.00**

Precision Cross Slide Table



VCT-830



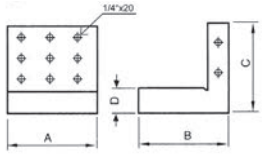
VCT-514

Model VCT-830, Model VCT-514
- A heavy, rugged slide in all kinds of positioning, milling, drilling, microscopic viewing and staging
- Adjustable bases for heavy loads, small jig boring, precision cut-off

Model No.	Table (mm)	Height (mm)	Travel (mm)	Base (mm)	Dial Grad. (mm)	Net Weight (kg)	Code No.	Price $
VCT-830	210 x 730	150	350 x 165	360 x 285	0.02	80	230955	**4,271.79**

Precision Steel Angle Plates

VRS Precision Steel Angle Plates
- Material: YK30 Alloy Steel
- Hardness: 58HRC
- Accuracy: 0.005/100mm





Model No.	A	B	C	D	Net Wt.	Code No.	Price $
VRS-33	75	75	100	25	2.2 kg	370400	**535.68**
VRS-44	100	100	100	25	3.7 kg	370402	**583.20**
VRS-46	100	100	150	25	4.5 kg	370404	**671.65**
VRS-85	200	120	200	40	14.3 kg	370406	**1,817.35**
VRS-1206	300	150	300	50	32.3 kg	370408	**2,690.39**

Suburban Precision Ground Angle Plates

- Solid one piece angle plates are made from hardened steel
- Square and parallel within 0.0002"
- Tapped holes





Model No.	Dimensions (in.)	Weight (lb)	Code No.	Price $
AP-334	3 x 3 x 4 x 1	6 lb	251260	**433.35**
AP-444-S1	4 x 4 x 4 x 1	10 lb	251264	**659.63**
AP-446-S2	4 x 4 x 6 x 1	14 lb	251276	**810.49**
AP-664-S1	6 x 6 x 4 x 1-1/4	20 lb	251278	**1,220.18**

Suburban Compound Angle Plate

Solid, single piece, hardened steel construction provides stable and reliable positioning for compound use. Comes with one clamp and all holes are tapped. Plate is square and parallel within 0.0002".



Model No.	Dimensions	Weight (lb)	Code No.	Price $
CAP-46	6 x 4 x 4 x 1	11	251280	**1,467.17**

Cross Table VCT-512

Applied in general machines such as compounding machine, drilling machine, etc., or large objects of special shape which cannot be clamped by common vises.

- Lateral moving travel on surface: 11"
- Longitude moving travel on surface: 6"



Model No.	Table (mm)	Height (mm)	Travel (mm)	Base (mm)	Dial Grad. (mm)	Net Weight (kg)	Code No.	Price $
VCT-512	300 x 140	115	200 x 125	225 x 200	0.03	16.6	230965	**1,393.77**

Sine Bar

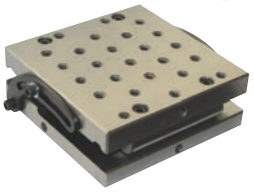
- Effectively cancels the angle being measured to check its accuracy
- Ground flat, square and parallel within 0.0002"
- Steel hardened to 52HRC



Model No.	Length (in.)	Width (in.)	Height (in.)	Centre Distance (in.)	Parallel	Hardness	Block Dia.	Material	Net Wt.	Code No.	Price $
YCT-S25	6-3/8	1	1-1/4	5"	0.00012	52HRC	3/4	SK2	1.0kg	230760	**166.40**
YCT-S50	6-3/8	2	1-1/4	5"	0.00012	52HRC	3/4	SK2	1.9kg	230765	**213.90**

Sine Plates

YCT-66/YCT-47 Sine Plates
Precision ground, hardened to 58HRC and normalized by a sub-zero treatment. Rolls are hardened and ground to an accuracy of 0.001mm. High precision of parallelism within 0.002mm and squareness within 0.005mm. Set-up and dressing time reduced to a bare minimum due to simplicity of set up. (Angle 0°, 60°)



Model No.	Width x Length (in./mm)	H (in./mm)	Code No.	Price $
YCT-47	4 x 7	2.37	230780	**766.80**
YCT-66	6 x 6	2.37	230785	**817.70**
YCT-47M Magnetic	100 x 175 mm	60 mm	230770	**1,788.50**
YCT-66M Magnetic	150 x 150 mm	60 mm	230775	**1,967.20**

Suburban
SineSet® System

The complete system of bolt-together tools

Suburban Sine Plates

All plates are made of hardened steel. Squareness and parallelism 0.0002" and 0.0003". Locking strap always remains below top surface (pat. pending). Adjustable side rails drop below surface without unbolting. A 0.200 minute stepped gauge block roll eliminates steps in base plate. Strong, large hinge pins. Tapped holes in top plate. Side rails and locking straps included.



Model No.	Dimensions	Centre Distance of Rolls	Code No.	Price $
SP-44-S0	4 x 4 x 2	3" ± 0.0002"	251942	**980.58**
SP-136 (not SineSet®)	6 x 3 x 2	5" ± 0.0002"	251126	**980.58**
SP-555 (not SineSet®)	6 x 5 x 2-1/4	5" ± 0.0002"	251132	**1,632.82**
SP-66-S1	6 x 6 x 2	5" ± 0.0002"	251136	**1,436.11**
SP-612-S2	6 x 12 x 2-5/8	5" ± 0.0002"	251134	**2,882.57**
SP-618-S2	6 x 18 x 3-3/8	5" ± 0.0002"	251944	**8,582.64**
SP-812-S2	8 x 12 x 2-5/8	5" ± 0.0002"	251140	**3,620.59**
SP-1212-S2	12 x 12 x 2-5/8	10" ± 0.0002"	251122	**6,507.60**
SP-126-S2	12 x 6 x 2-5/8	10" ± 0.0002"	251124	**2,855.95**

Suburban Magnetic Sine Plates

Ceramic permanent magnetic chucks can't lose their magnetism. Removable handle for on/off operation, end rails and side rails all included. Sine plate angles lock rigidly with locking straps. Squareness, parallelism and roll centre distances within 0.0002" and 0.0003". Unit features 0.200 minute angle steps.



Model No.	Dimensions	Centre Distance of Rolls	Code No.	Price $
MSP-66 (not SineSet®)	6 x 6 x 4-1/4	5" ± 0.0002"	251086	**3,110.34**
MSP-66-S1	6 x 6 x 4-5/8	5" ± 0.0002"	251936	**3,311.48**
MSP-126-S2	6 x 12 x 5-1/4	10" ± 0.0002"	251066	**5,086.28**
MSP-612-S2	6 x 12 x 5-1/4	5" ± 0.0002"	251082	**5,112.90**
MSP-618-S2	6 x 18 x 6	5" ± 0.0002"	251938	**11,206.38**
MSP-1212-S2	12 x 12 x 5-1/4	10" ± 0.0002"	251062	**10,821.84**
Magnetic Fine Pole Plates				
MSP-363-FP (not SineSet®)	3 x 6 x 4-1/4	5" ± 0.0002"	251072	**2,234.77**
MSP-66-FP (not Sine Set®)	6 x 6 x 4-1/4	5" ± 0.0002"	251088	**3,376.56**
MSP-126-FP-S2	6 x 12 x 5-1/4	10" ± 0.0002"	251068	**5,401.31**
MSP-612-FP-S2	6 x 12 x 5-1/4	5" ± 0.0002"	251084	**5,427.93**
MSP-1212-FP-S2	12 x 12 x 5-1/4	10" ± 0.0002"	251064	**11,293.64**

Sine Vises

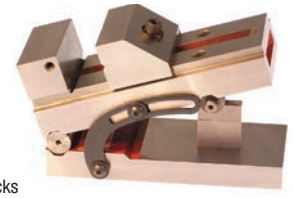
- Body is one solid piece of steel, hardened like the rest of the sine vise to 58-62 HRC
- Dual 0.200" minute steps for setting small angles with standard gauge blocks are built into the gauge block roll
- All 7" x 3-1/2" sine vises have small horizontal and vertical vees in the moveable jaw
- Provides a quick and accurate means of holding a workpiece at an angle for machining, drilling or grinding



Model No.	Size (in.)	Code No.	Price $
YCT-SV25	3-1/2 x 2-1/2	230705	**274.53**
YCT-SV30	3-1/2 x 2-7/8	230710	**320.15**
YCT-SV200	2-3/8 x 2	230715	**894.40**
YCT-SV250	2-7/8 x 2-1/2	230720	**843.20**
YCT-SC300	3-3/8 x 3	230725	**1,149.80**

Suburban Sine Vises

- Solid, one piece body
- Locking strap included
- Made from steel hardened to 58-62 HRC
- Square and parallel within 0.0002" and 0.0003"
- Angled centre channel provides extra jaw capacity
- Provides a quick and accurate means of holding a workpiece at an angle for grinding or inspection
- Dual 0.200 minutes steps built into the gauge roll allow setting small angles with standard gauge blocks
- Moveable jaw pulls into base at 45° to 60° to insure maximum holding power and hold-down force, eliminating tilting and lifting



Model No.	Size (in.)	Code No.	Price $
SV-337 (not SineSet®)	7-1/2 x 3 x 3-5/8	251160	**1,622.46**
SV-337-S1	7-1/2 x 3 x 3-5/8	251162	**1,693.46**
SV-411 (not SineSet®)	11 x 4 x 4-5/8	251166	**2,648.89**
SV-411-S2	11 x 4 x 4-5/8	251168	**2,745.02**
SV-612 (not SineSet®)	12 x 6 x 5-1/8	251170	**4,539.05**
SV-612-S2	12 x 6 x 5-1/8	251172	**4,685.47**

Suburban Compound Sine Plates

Compound sine plates include two end rails and two straps for locking angle settings. Made of hardened steel, each compound sine plate has 0.002" deep step for minute angles and tapped holes in top plate. Squareness and parallelism 0.0003".



Model No.	Dimensions	Centre Distance of Rolls	Code No.	Price $
SPC-66-S1	6 x 6 x 3	5" within 0.0002"	251150	**3,094.07**
SPC-612-S2	6 x 12 x 4-1/8	5" within 0.0002"	251148	**5,086.28**
SPC-618-S2	6 x 18 x 5-3/8	5" within 0.0002"	251940	**11,985.82**
SPC-1212-S2	12 x 12 x 4-1/8	10" within 0.0002"	251144	**10,539.35**

Suburban Compound Magnetic Sine Plates

Ceramic permanent magnetic chuck. Removable handle for position on/off control, side rails, end rails all included. Strap locks sine plate securely. 0.200 minute angle steps with 0.0002" and 0.0003" tolerance in squareness, parallelism and roll centre distances.

- Fine Pole: (marked FP) 1/8" poles and 1/8" separators produce shallow flux lines for holding small and thin parts

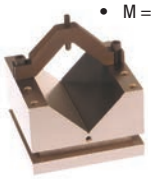


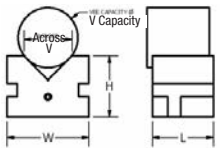
Model No.	Dimensions	Centre Distance of Rolls	Code No.	Price $
MSPC-66-S1	6 x 6 x 5-3/4	5" ± 0.0002"	251102	**4,966.48**
MSPC-612-S2	6 x 12 x 6-13/16	5" & 10" ± 0.0002"	251098	**7,316.61**
MSPC-1212-S2	12 x 12 x 6-13/16	10" ± 0.0002"	251094	**14,853.60**
MSPC-66-FP-S1	6 x 6 x 5-3/4	5" ± 0.0002"	251104	**5,201.64**
MSPC-612-FP-S2	6 x 12 x 6-13/16	5" & 10" ± 0.0002"	251100	**7,630.16**
MSPC-1212-FP-S2	12 x 12 x 6-13/16	10" ± 0.0002"	251096	**15,325.40**

Suburban SineSet® V-Blocks

Suburban

- Provides a quick, accurate and positive means of holding workpieces for layout, machining, grinding or inspection
- Solid one-piece steel construction, hardened to 58-60 HRC
- One reversible, swing-away clamp is provided with each v-block
- Side slots allow easy clamping to almost any work surface
- SineSet® models bolt directly to a SineSet® sine plate or compound sine plateof the same series. S1 models also bolt to the AP-664-S1 90° conversion plate
- Available in both 60° and 90° models and as single vee blocks or matched pairs
- M = Matched pairs



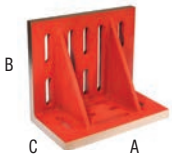


Model No.	L	W	H	Across Vee	Vee Cap.	Square Parallel & Central	Code No.	Price $
90° Vee Blocks								
VB-222-S0	2-1/2"	2-1/2"	2"	1-15/32"	1-5/8"	0.0002"	251946	**388.98**
VB-222-M-S0	2-1/2"	2-1/2"	2"	1-15/32"	1-5/8"	0.0002"	251948	**980.58**
VB-334-S1	3"	4"	3"	2-7/32"	2-7/8"	0.0002"	251950	**564.98**
VB-334-M-S1	3"	4"	3"	2-7/32"	2-7/8"	0.0002"	251952	**1,291.17**
VB-466-S2	6"	6"	4"	3-31/32"	4-3/8"	0.0003"	251954	**1,342.93**
VB-466-M-S2	6"	6"	4"	3-31/32"	4-3/8"	0.0003"	251956	**3,176.89**
60° Vee Blocks								
VB-602-M-S0	2-1/2"	2-1/2"	2"	1-15/32"	1-3/8"	0.0002"	251930	**1,785.15**
VB-604-S1	3"	4"	3"	1-31/32"	2-1/8"	0.0002"	251932	**980.58**
VB-604-M-S1	3"	4"	3"	1-31/32"	2-1/8"	0.0002"	251934	**2,310.20**

Giant Slotted Webbed Angle Plates

Suburban

- Made of high quality fine grained cast iron, stress relieved
- Machined finish - square and parallel within 0.002" per 6"
- Extra thickness and heavy ribbed construction
- Multiple slots for many bolting and clamping possibilities

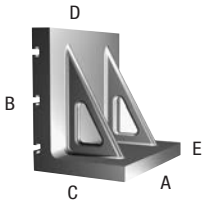


Model No.	A (in.)	B (in.)	C (in.)	Wall Thickness	Weight (lb)	Code No.	Price $
GAW-161209	16	12	9	1-1/8	112	251630	**1,220.18**
GAW-201612	20	16	12	1-1/8	200	251632	**1,757.05**
GAW-122418	12	24	18	1-1/2	300	251634	**4,441.44**
GAW-183024	18	30	24	1-3/4	700	251636	**8,631.44**

Giant T-Slotted Webbed Angle Plates

Suburban

- Provides an accurate vertical base for mounting vises, sub-plates, parts or fixtures
- Standard 5/8" T-slots on a 6" grid pattern are provided on both faces
- Made from one piece, class 40 cast iron that has been stress relieved
- Extra heavy 2-1/2" wall thickness provides stability during milling operations
- Faces and edges machined flat, square and parallel within 0.001" per 12"



Model No.	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	Weight (lb)	Code No.	Price $
TAP-121818	18	18	12	2-1/2	2	450	251638	**7,097.72**
TAP-122424	24	24	12	2-1/2	2	700	251640	**8,100.48**

Magnetic Angle Iron

Suburban

- A versatile tool for layout, inspection and squaring operations
- Combines the advantages of a universal right angle iron and a permanent magnetic chuck
- Magnetic face is energized by turning a recessed control knob
- Can be placed on any side for workholding
- Heavy support rib provides structural strength and acts as a carrying handle
- Body made from class 35-40 cast iron

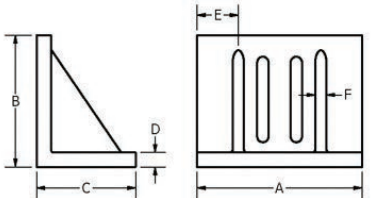


Model No.	Length	Width	Height	Flat, Square & Parallel	Weight (lbs)	Code No.	Price $
MAI-644	4-3/4	4-1/4	6-1/2	0.0003"	18	251370	**3,790.68**

Slotted Angle Plates — Webbed Style

Suburban

- Made from class 35-40 cast iron
- Multiple clamping slots for easy mounting of workpieces
- Ground finish (up to 20"), square and parallel within 0.0005" per 6"



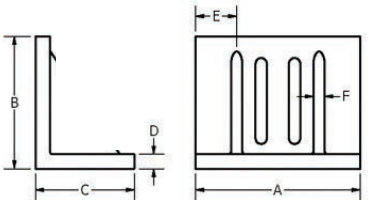


Model	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	No. Webs	Slots (in.)	Wt. (lb)	Code No.	Price $
SAW-030302-G	3-1/2	3	2-1/2	9/16	1-3/4	1/2	1	(4) 7/16	4	251601	**289.88**
SAW-040303-G	4-1/2	3-1/2	3	9/16	2-1/4	1/2	1	(4) 9/16	5	251603	**207.06**
SAW-060504-G	6	5	4-1/2	11/16	3	9/16	1	(4) 11/16	13	251605	**368.27**
SAW-070504-G	7	5-1/2	4-1/2	11/16	3-1/2	9/16	1	(4) 11/16	14	251607	**525.05**
SAW-080605-G	8	6	5	3/4	2	5/8	2	(4) 9/16	22	251609	**656.68**
SAW-090706-G	9	7	6	3/4	2-1/4	5/8	2	(4) 11/16	28	251611	**806.06**
SAW-100806-G	10	8	6	7/8	2-1/2	11/16	2	(4) 11/16	37	251613	**896.27**
SAW-120908-G	12	9	8	1	3	3/4	2	(11) 11/16	63	251615	**1,436.11**

Slotted Angle Plates — Open End Style

Suburban

- Made from class 35-40 cast iron
- Multiple clamping slots for easy mounting of workpieces
- Ground finish (up to 20"), square and parallel within 0.0005" per 6"





Model	A (in.)	B (in.)	C (in.)	D (in.)	Slots (in.)	Weight (lb)	Code No.	Price $
SAO-040303-G	4-1/2	3-1/2	3	5/8	(4) 9/16	4	251617	**269.18**
SAO-060504-G	6	5	4-1/2	13/16	(7) 9/16	12	251619	**369.75**
SAO-070504-G	7	5-1/2	4-1/2	13/16	(8) 9/16	14	251621	**433.35**
SAO-080605-G	8	6	5	15/16	(8) 9/16	20	251623	**505.82**
SAO-090706-G	9	7	6	15/16	(13) 11/16	24	251625	**627.10**
SAO-100806-G	10	8	6	1-1/16	(13) 11/16	33	251627	**971.70**
SAO-120908-G	12	9	8	1-3/16	(13) 11/16	62	251629	**1,581.05**

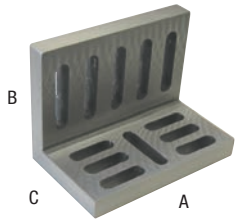
Slotted Angle Plates — Webbed & Open

QUALITY IMPORT

Made of high-tensile cast iron seasoned against distortion, skillfully machined square and parallel, these plates are supplied in two types, Type A and Type B, the former having side webs.

Type A-Webbed: Machined on outside surfaces and edges only.

Type B-Opened: Machined all over, except slots.



A	B	C	Webbed Code No.	Price $	Open Code No.	Price $
3	2-1/2	2	370306	**85.40**	-	-
3-1/2	3	2-1/2	370311	**96.01**	-	-
4-1/2	3-1/2	3	370316	**109.22**	370356	**135.73**
6	5	4-1/2	370321	**172.90**	370361	**199.59**
7	5-1/2	4-1/2	370326	**210.27**	370366	**255.31**
8	6	5	370331	**270.11**	370371	**297.62**
9	7	6	370336	**336.41**	370376	**410.55**
10	8	6	370341	**414.45**	370381	**465.08**
12	9	8	370346	**636.11**	370386	**706.45**

Universal Right Angle Irons

Suburban

- Made of high quality fine grained cast iron, stress relieved
- All faces and ends finished square and parallel
- Machined finish - Square and parallel within 0.002" per 6"
- Ground finish - Square within 0.0005" per 6", Parallel within 0.00025" per 6"

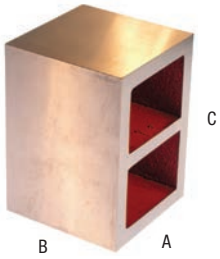


Model No.										
Machined	Ground	A (in.)	B (in.)	C (in.)	Wall Thickness	Weight (lb)	Machined Code No.	Price $	Ground Code No.	Price $
URA-030405	URA-030405-G	3-3/4	4	5	3/4	10	251642	**192.27**	251662	**505.82**
URA-040406	URA-040406-G	4	4	6	7/8	13	251644	**236.64**	251664	**566.46**
URA-040506	URA-040506-G	4-1/2	5	6	7/8	16	251646	**264.74**	251666	**604.91**
URA-040508	URA-040508-G	4	5	8	1"	21	251648	**357.92**	251668	**681.82**
URA-050710	URA-050710-G	5-1/2	7	10	1-1/8	37	251650	**517.65**	251670	**958.39**
URA-050810	URA-050810-G	5/1/2	8	10	1-1/8	40	251652	**548.71**	251672	**1,038.26**
URA-050812	URA-050812-G	5	8	12	1-1/4	44	251654	**562.02**	251674	**1,076.71**
URA-060608	URA-060608-G	6	6	8	7/8	32	251656	**507.30**	251676	**1,002.76**
URA-080916	URA-080916-G	8	9	16	1-3/8	94	251658	**1,002.76**	251678	**1,907.91**
URA-081012	URA-081012-G	8	10	12	1-1/4	75	251660	**880.01**	251680	**1,434.63**

Box Parallels

Suburban

- Made of high quality fine grained cast iron, stress relieved
- All faces and ends finished square and parallel
- Machined finish - Size ± 0.015", Square and parallel within 0.002" per 6"
- Ground finish - Size ± 0.002", Square and parallel within 0.0005" per 6"



Model No.											
Machined	Ground	A (in.)	B (in.)	C (in.)	Wall Thickness	Centre Web	Weight (lb)	Machined Code No.	Price $	Ground Code No.	Price $
BXP-040404	BXP-040404-G	4	4	4	5/8	No	12	251682	**399.33**	251700	**659.63**
BXP-040406	BXP-040406-G	4	4	6	3/4	No	16	251684	**451.10**	251702	**742.46**
BXP-040606	BXP-040606-G	4	6	6	3/4	No	20	251686	**675.90**	251704	**1,127.00**
BXP-050505	BXP-050505-G	5	5	5	3/4	No	17	251688	**507.30**	251706	**961.35**
BXP-051010	BXP-051010-G	5	10	10	3/4	No	73	251690	**1,375.47**	251708	**1,802.90**
BXP-060606	BXP-060606-G	6	6	6	3/4	Yes	25	251692	**702.53**	251710	**1,152.14**
BXP-060608	BXP-060608-G	6	6	8	3/4	Yes	35	251694	**828.24**	251712	**1,212.78**
BXP-061212	BXP-061212-G	6	12	12	3/4	Yes	105	251696	**1,739.30**	251714	**2,906.24**
BXP-080808	BXP-080808-G	8	8	8	5/8	Yes	71	251698	**1,396.18**	251716	**2,335.34**

STM

Arbor Presses

Capacity Ton	Shipping Weight (lb)	Throat Depth (in.)	Height of Press	Base Dimensions	Largest Arbor	Size	Length	Stroke	Code No.	Price $
1/2	22	2-7/8	10	4 x 9-1/2	1-1/8	3/4 x 3/4	7-1/2	4-1/2	326090	**149.29**
1	37	3-1/4	12	5 x 11	1-3/8	1 x 1	9-1/2	5-1/4	326092	**214.95**
2	86	5	17	6-3/4 x 17	1-3/4	1-1/4 x 1-1/4	14	8-1/2	326094	**489.77**
3	152	5-3/4	21-1/2	8 x 18	2-1/2	1-1/2 x 1-1/2	18	12-1/2	326096	**775.56**
5	308	8-3/4	35-3/4	10 x 26-3/4	3-1/4	2 x 2	26-3/4	18-1/8	326098	**2,484.14**

Ratchet Type Arbor Press

Capacity Ton	Shipping Weight (lb)	Throat Depth (in.)	Height of Press	Base Dimensions	Max. Height	Largest Arbor	Size	Length	Stroke	Code No.	Price $
3	152	5-3/4	21-1/2	8 x 18	12-1/2	2-1/2	1-1/2 x 1-1/2	18	12-1/2	326099	**901.92**



Lathe Chucks

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3 & 6-Jaw Fine Adjustment Scroll Chucks H30-32
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SELF CENTERING SCROLL CHUCKS
3 & 4-Jaw Self Centering Scroll Chucks H37-46
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6-Jaw Self Centering Scroll Chucks H47-50
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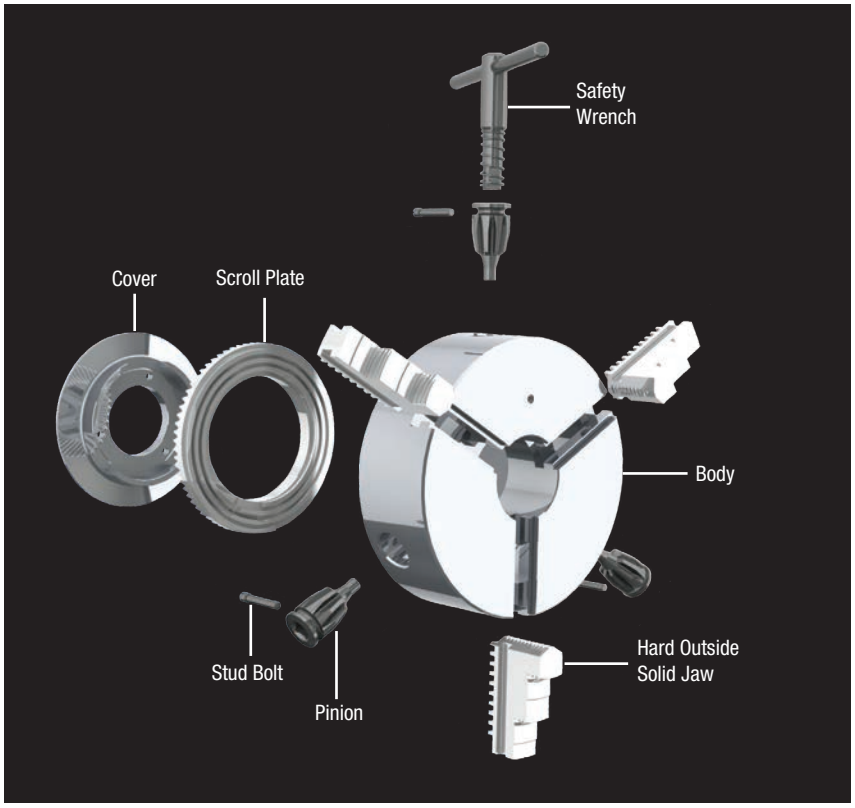
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BISON LATHE CHUCKS

Bison chucks are made from forged steel or cast iron; all of the working surfaces are hardened and ground ensuring that the finished product is a rugged chuck that meets high sliding, stability, and durability parameters.

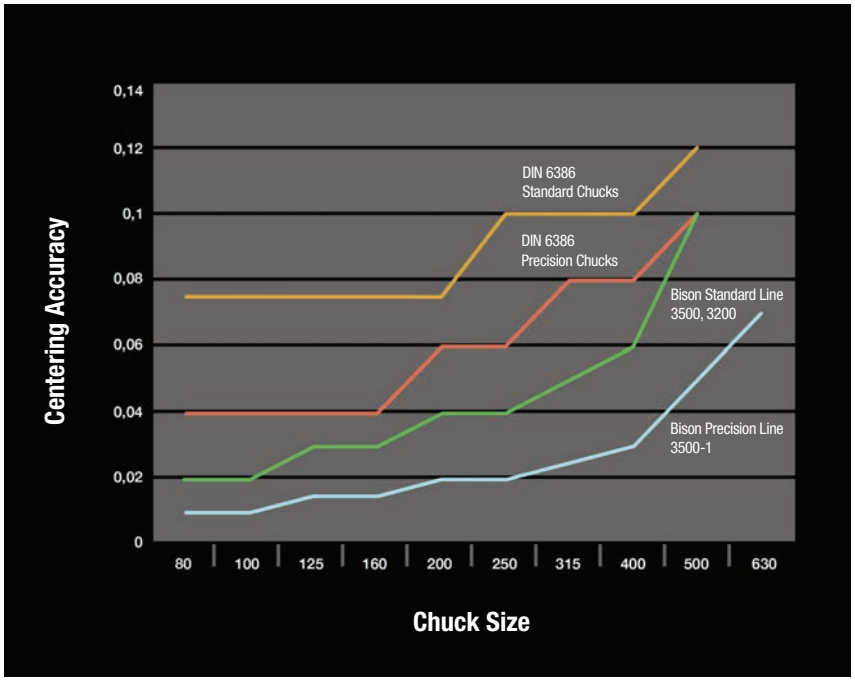
Each chuck is thoroughly inspected before the product leaves the factory. We check gripping force and run-out to ensure accuracy in order to meet Bison's quality standards that are even more stringent than DIN standards. Only then the chuck is given the Bison label of quality. This is our commitment to you that you have purchased the best workholding products on the market today.



We want to give you more. So when greater precision will be necessary you can choose Bison lathe chucks from our precision line.

Centering accuracy of Bison standard and precision lines are shown in the chart below in comparison to the requirements of DIN standards. Both our standard and precision line fall below the required DIN standards throughout the various sizes.

For high precision operations we recommend the precision line of Bison chucks. High quality products for demanding companies.





Precision Three-Jaw Self-Centering Scroll Chucks Forged Steel Body

Precision lathe chucks have a top accuracy at work and the guarantee to maintain this accuracy for an extended period of time. These chucks have modern and compact design. They are able to fulfill the highest demands of our customers. They can be used wherever precision and high precision machining is demanded.

BODY - drop-forged of highest grade steel and put through precise machining operations. All bearings surfaces are carefully hardened and precision ground

SCROLL PLATE - drop-forged of fine alloy steel, carefully hardened. Thread flanks ground on both sides

JAWS - teeth and guides are hardened and fully ground on both sides

PINIONS - hardened and ground

BUSHINGS - hardened and ground, pressed into the pinion seats

Jaws, pinions and bushings are made of fine alloy steel.
Precision grinding of scroll and jaws teeth will:

- eliminate possible deformation as a result of heat treatment
- reach uniform radial gripping force on all teeth of jaws
- increase guarantee period for high centering accuracy
- increase gripping force

Each chuck is provided with lubricator enabling current maintenance and extending chuck components life. Each scroll and assembled chuck are statically balanced within fine limits. Interstage and final inspection assure high quality of our chucks.

Precision Three and Six-Jaw Self-Centering F/A Scroll Chucks Forged Steel Body

A unique micro-adjustment feature enables concentricity to be adjusted to 0.0002 inch of full indicator movement. F/A chucks can be used at many machining operations for which ordinary scroll chucks are unsuitable and at all the operations for which ordinary chucks are normally used. Require original Bison F/A backplates.

Four-Jaw Independent Lathe Chucks

These chucks feature jaws that are individually adjustable, allow firm gripping of odd shaped work, and the four jaws allow a square component to be perfectly centered to the chuck while achieving maximum gripping force. The chuck bodies are made of semi-steel. The jaws are made of high quality carbon steel and hardened. Thrust bearings and operating screws are made of case hardened steel.

Universal Two, Three and Four-Jaw Self-Centering Scroll Chucks

These chucks have modern, precision and standardized construction. They may be used on all types of lathes and on different kinds of milling and drilling attachments.

BODY - is made of high quality cast iron. All bearing surfaces are precision machined

SCROLL PLATE - drop-forged of fine alloy steel, carefully hardened. Thread flanks ground on both sides

JAWS - the teeth and guides are hardened and fully ground on both sides

PINIONS - hardened and ground

These chucks are equipped with lubricator, enabling their current maintenance.
Versatile inspections assure high quality of our chucks.

F/A Fine Adjustment Precision Self-Centering Scroll Chucks

3-Jaw



6-Jaw



	Body	Jaw Type	Type	Page
3-Jaw Plain Back	Steel Body	2pc Hard Reversible Jaws	3565	H30
	Steel Body	Hard Solid Jaws	3564	H30
	Cast Iron Body	2pc Hard Reversible Jaws	3265	H31
	Cast Iron Body	Hard Solid Jaws	3264	H31
6-Jaw Plain Back	Steel Body	2pc Hard Reversible Jaws	3865	H32
	Steel Body	Hard Solid Jaws	3864	H32

Standard 3-Jaw Self-Centering Scroll Chucks

3-Jaw

















	Body	Jaw Type	Type	Page
Plain Back	Steel Body	2pc Hard Reversible Jaws	3505	H37
	Steel Body	Hard Solid Jaws	3504	H38
	Cast Iron Body	2pc Hard Reversible Jaws	3205	H39
	Cast Iron Body	Hard Solid Jaws	3204	H41
A Taper Mount	Steel Body	2pc Hard Reversible Jaws	3515	H37
	Steel Body	Hard Solid Jaws	3514	H38
	Cast Iron Body	2pc Hard Reversible Jaws	3215	H39
	Cast Iron Body	Hard Solid Jaws	3214	H41
Camlock Mount	Steel Body	2pc Hard Reversible Jaws	3545	H37
	Steel Body	Hard Solid Jaws	3544	H38
	Cast Iron Body	2pc Hard Reversible Jaws	3245	H39
	Cast Iron Body	Hard Solid Jaws	3244	H41
DIN Mount	Steel Body	2pc Hard Reversible Jaws	3535	H37
	Steel Body	Hard Solid Jaws	3534	H38
	Cast Iron Body	2pc Hard Reversible Jaws	3235	H39
	Cast Iron Body	Hard Solid Jaws	3234	H41
Front Mounting	Steel Body	2pc Hard Reversible Jaws	3575	H37
	Steel Body	Hard Solid Jaws	3574	H38
	Cast Iron Body	2pc Hard Reversible Jaws	3275	H40
	Cast Iron Body	Hard Solid Jaws	3274	H41
L Mounting	Cast Iron Body	2pc Hard Reversible Jaws	3255	H40
Threaded Mount	Cast Iron Body	2pc Hard Reversible Jaws	3285	H40

Standard 4-Jaw Self-Centering Scroll Chucks

4-Jaw













	Body	Jaw Type	Type	Page
Plain Back	Steel Body	2pc Hard Reversible Jaws	3705	H42
	Steel Body	Hard Solid Jaws	3704	H43
	Cast Iron Body	2pc Hard Reversible Jaws	3605	H44
	Cast Iron Body	Hard Solid Jaws	3604	H45
A Taper Mount	Steel Body	2pc Hard Reversible Jaws	3715	H42
	Steel Body	Hard Solid Jaws	3714	H43
	Cast Iron Body	2pc Hard Reversible Jaws	3615	H44
	Cast Iron Body	Hard Solid Jaws	3614	H45
Camlock Mount	Steel Body	2pc Hard Reversible Jaws	3745	H42
	Steel Body	Hard Solid Jaws	3744	H43
	Cast Iron Body	2pc Hard Reversible Jaws	3645	H44
	Cast Iron Body	Hard Solid Jaws	3644	H45
DIN Mount	Steel Body	2pc Hard Reversible Jaws	3735	H42
	Steel Body	Hard Solid Jaws	3734	H43
	Cast Iron Body	2pc Hard Reversible Jaws	3635	H44
	Cast Iron Body	Hard Solid Jaws	3634	H45
Front Mounting	Steel Body	2pc Hard Reversible Jaws	3775	H42
	Steel Body	Hard Solid Jaws	3774	H43
	Cast Iron Body	2pc Hard Reversible Jaws	3675	H44
	Cast Iron Body	Hard Solid Jaws	3674	H45

Standard Self-Centering Scroll Chucks

		Body	Jaw Type	Type	Page
2-Jaw 	2-Jaw Plain Back	Cast Iron Body	2pc Jaws	3105	H46
6-Jaw 	6-Jaw Plain Back	Steel Body Steel Body Cast Iron Body Cast Iron Body	2pc Hard Reversible Jaws Hard Solid Jaws 2pc Hard Reversible Jaws Hard Solid Jaws	3807 3806 3805 3804	H47 H47 H48 H48

Lathe Chucks For Sharpening Drills

		Body	Jaw Type	Type	Page
3-Jaw 	3-Jaw Plain Back	Cast Iron Body	Hard Solid Jaws	3266	H49
6-Jaw 	6-Jaw Plain Back	Cast Iron Body (Lever Controlled) Cast Iron Body	Hard Solid Jaws Hard Solid Jaws	3866 3867	H49 H50
5C Collet Chucks 	Plain Back Plain Back w/fine adjustment	Steel Body Steel Body	- -	3911 3960	H50 H50
Mini Workshop Chuck 	Threaded Mount	Steel Body	Hard Solid Jaws	3286	H46

Morse Taper 3-Jaw Self-Centering Scroll Chucks

		Body	Jaw Type	Chuck Type	Spindle Type	Page
3-Jaw 	3-Jaw MT2-MT5 Shank	Steel Body Steel Body	2pc Hard Jaws Hard Solid Jaws	3275 3274	9157 9157	H51 H51

High Precision Steel Body 3-Jaw Scroll Chucks

		Body	Jaw Type	Type	Page
3-Jaw 	Plain Back	Steel Body Steel Body	2pc Hard Reversible Jaws Hard Solid Jaws	3505-I 3504-I	H52 H53
	A Taper Mount	Steel Body Steel Body	2pc Hard Reversible Jaws Hard Solid Jaws	3515-I 3514-I	H52 H53
	Camlock Mount	Steel Body Steel Body	2pc Hard Reversible Jaws Hard Solid Jaws	3545-I 3544-I	H52 H53
	DIN Mount	Steel Body Steel Body	2pc Hard Reversible Jaws Hard Solid Jaws	3535-I 3534-I	H52 H53
	Front Mounting	Steel Body Steel Body	2pc Hard Reversible Jaws Hard Solid Jaws	3575-I 3574-I	H52 H53

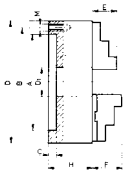
Combination Chucks

		Body	Jaw Type	Type	Page
3-Jaw 	3-Jaw	Steel Body	Hard Solid Jaws	4705	H54
	Plain Back	Cast Iron Body	Hard Solid Jaws	4505	H54
4-Jaw 	4-Jaw	Steel Body	Hard Solid Jaws	4805	H54
	Plain Back	Cast Iron Body	Hard Solid Jaws	4605	H54

3-Jaw Oil Country Self-Centering Scroll Chucks

		Body	Jaw Type	Type	Page
3-Jaw 	Plain Back	Steel Body	2pc Jaws	3597	H55
		Cast Iron Body	2pc Jaws	3295	H56
	Heavy Duty A 2 Taper Mount	Steel Body	2pc Jaws	3515 HD	H57

Adapter Plates, Jaws, Parts & Data For Self-Centering Scroll Chucks

	Page			Page
	**Adapter Plates**	J43-44		**Replacement Parts**	H61
	**Jaws**	J45		**Engineering Data**	H62-66

4-Jaw Oil Country Independent Chucks

		Body	Jaw Type	Type	Page
4-Jaw 	Plain Back	Steel Body	2pc Jaws	4307	H68
	A 2 Taper Mount	Steel Body	2pc Jaws	4317	H68
	Camlock Mount	Steel Body	2pc Jaws	4347	H68

4-Jaw Independent Lathe Chucks

4-Jaw



	Body	Jaw Type	Type	Page
Plain Back	Steel Body	2pc Hard Reversible Jaws	4307	H70
	Steel Body	Hard Solid Jaws	4306	H71
	Cast Iron Body	2pc Hard Reversible Jaws	4305	H72
	Cast Iron Body	Hard Solid Jaws	4304	H73
A Taper Mount	Steel Body	2pc Hard Reversible Jaws	4317	H70
	Cast Iron Body	2pc Hard Reversible Jaws	4315	H72
	Cast Iron Body	Hard Solid Jaws	4314	H73
Camlock Mount	Steel Body	2pc Hard Reversible Jaws	4347	H70
	Cast Iron Body	2pc Hard Reversible Jaws	4345	H72
	Cast Iron Body	Hard Solid Jaws	4344	H73
DIN Mount	Steel Body	2pc Hard Reversible Jaws	4337	H70
	Cast Iron Body	2pc Hard Reversible Jaws	4335	H72
	Cast Iron Body	Hard Solid Jaws	4334	H73
L Mount	Cast Iron Body	Hard Solid Jaws	4354	H73

Adapter Plates, Jaws, Parts & Data For 4-Jaw Independent Lathe Chucks



	Page			Page
Adapter Plates	J43-44		**Replacement Parts**	H74
Jaws	J59		**Engineering Data**	H75-79

4-Jaw Manual Gripping Independent Steel Body Chucks

4-Jaw



	Body	Jaw Type	Type	Page
A 2 Taper Mount	Steel Body	2pc Jaws	4317MSP	H80

Bison 2405-K Power Chucks With 1.5mm x 60° Serrations

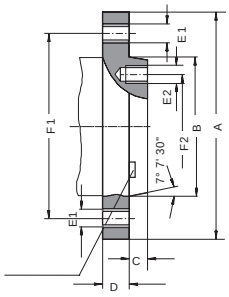
3-Jaw



	Body	Jaw Type	Type	Page
Plain Back	Steel Body	2pc Jaws	2405-K	H86

Machine Spindle Noses

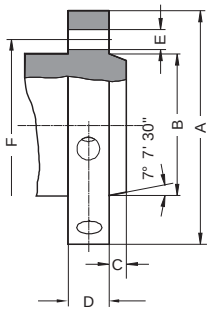




A Taper Mount

Spindle Nose Size	A	B max.	C -0.001	D	E1 (A-2 Outer)	F1	E2 (A-1 Inner)	F2
5	5.2520	3.2510	0.5625	0.8740	11 holes x 7/16-14 UNC	4.1260	8 holes x 7/16-14 UNC	2.4370
6	6.5000	4.1886	0.6250	1.0000	11 holes x 1/2-13 UNC	5.2520	8 holes x 1/2-13 UNC	3.2520
8	8.2480	5.5014	0.6875	1.1260	11 holes x 5/8-11 UNC	6.7480	8 holes x 5/8-11 UNC	4.3740
11	11.000	7.7502	0.7500	1.3740	11 holes x 3/4-10 UNC	9.2520	8 holes x 3/4-10 UNC	6.5000
15	15.000	11.2520	0.8125	1.6260	12 holes x 7/8-9 UNC	13.0000	11 holes x 7/8-9 UNC	9.7480
20	20.4724	16.2520	0.8750	1.8740	12 holes x 1-8 UNC	18.2520	11 holes x 1-8 UNC	14.5000

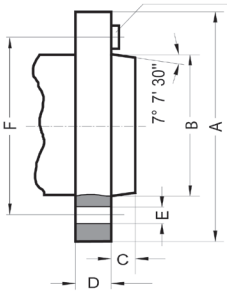




Camlock Mount

Spindle Nose Size	A	B max.	C	D	E	F
3	3.6220	2.1253	0.4331	1.2598	3 holes x 0.5945	2.7795
4	4.6063	2.5008	0.4331	1.3386	3 holes x 0.6575	3.2520
5	5.7480	3.2509	0.5118	1.4961	6 holes x 0.7795	4.1260
6	7.1260	4.1884	0.5512	1.7717	6 holes x 0.9055	5.2520
8	8.8583	5.5012	0.6299	1.9685	6 holes x 1.0315	6.7480
11	11.7323	7.7513	0.7087	2.3622	6 holes x 1.2205	9.2520
15	15.8661	11.2516	0.7480	2.7559	6 holes x 1.4055	13.0000
20	21.4961	16.2518	0.8268	3.2283	6 holes x 1.6575	18.2520

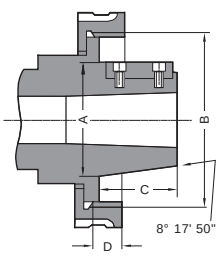




DIN Mount

Spindle Nose Size	A	B max.	C	D	E	F
3	4.0157	2.1253	0.4331	0.6299	3 holes x 0.8268	2.9528
4	4.4094	2.5008	0.4331	0.7874	3 holes x 0.8268	3.3465
5	5.3150	3.2509	0.5118	0.8661	4 holes x 0.8268	4.1260
6	6.6929	4.1884	0.5512	0.9843	4 holes x 0.9055	5.2520
8	8.6614	5.5012	0.6299	1.1024	4 holes x 1.1417	6.7480
11	11.4173	7.7513	0.7087	1.3780	6 holes x 1.4173	9.2520
15	15.7480	11.2516	0.7480	1.6535	6 holes x 1.6929	13.0000
20	21.2598	16.2518	0.8268	1.8898	6 holes x 1.6929	18.2520





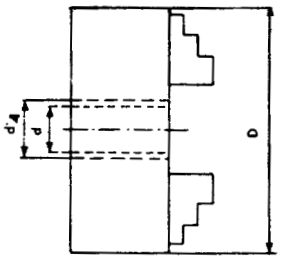
L Mount

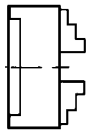
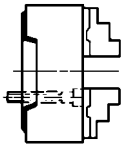
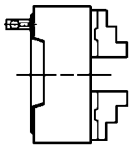
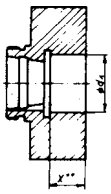
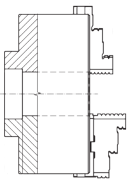
Spindle Nose Size	A + 0.0020	B	C	D	Driving Block
L00	2.7500	3 3/4-6 UNS	2.0000	0.5625	Δ 0.3750 x 1.5000
L0	3.2500	4 1/2-6 UNS	2.3750	0.6250	Δ 0.3750 x 1.7500
L1	4.1250	6-6 UNS	2.8750	0.7500	Δ 0.6250 x 2.3748
L2	5.2500	7 3/4-5 UNS	3.3750	1.0000	Δ 0.7500 x 2.8748
L3	6.5004	10 3/8-4 UNS	3.7175	1.1250	Δ 1.000 x 3.2500

Through Hole Permissible Englargements

For Chucks 3200, 3500

d* - through hole diameter made by manufacturer
d1 - permissible englargement of through hole



Mounting	Hole Dia.	Chuck Size		3-1/2"	4"	5"	6-1/4"	8"	10"	12-1/2"	15-3/4"	20"	25"	32-1/2"
3505 3204/5 	d*	plain back		0.6299	0.7874	1.2598	1.6535	2.1654	2.9922	4.0551	5.3543	7.4803	9.9213	12.5984
	d1			0.6299	0.7874	1.2598	1.7717	2.5591	3.3465	4.252	5.5118	7.874	10.6299	12.5984
3515 3214/5  Short Taper "A"	d*	Taper 1 in 4	5				1.6535	1.6535	2.9921					
			6					2.1635	2.1635	4.0551	4.0551			
			8						2.9921	3.1496	5.3543	5.3543		
			11								5.1181	7.5905	5.1181	
	d1		5				1.6535	1.6535	3.0708	4.252	4.252			
			6					2.2835	2.2835	3.1496	5.3543	5.3543		
			8						3.1496		5.1969	7.5905		
			11										5.1181	
3545 3244/5  Camlock "D"	d*	Taper 1 in 4	3		0.7847	1.2598	1.6535	2.0236						
			4			1.2598	1.6535	2.1654	2.9922					
			5				1.6535	2.1654	2.9922	4.0551	4.0551			
			6					2.1654	2.9922	4.0551	5.3543	5.3543		
			8								5.3543	7.5984	7.5984	
			11											
	d1		3		0.7847	1.2598	1.9685	2.0236						
			4			1.2598	1.9685	2.3622	2.9922					
			5				1.9685	2.6378	3.7402	4.0551	4.0551			
			6					2.6378	3.7402	4.5276	5.3543	5.3543		
			8								5.9055	7.5984	7.5984	
			11											
3254/5 	d*	L00				1.2598	1.6535	2.1654	2.2047					
		L0					1.6535	2.1654	2.5984	2.5984	2.5984			
		L1					1.6535	2.1654	2.9921	3.3464	3.3464			
		L2							2.9921	4.0551	4.2913			
		L3									5.3543			
	d1	L00				1.2598	1.7717	2.1654	2.2047					
		L0					1.7717	2.1654	2.5984	2.5984	2.5984			
		L1					1.7717	2.559	2.9921	3.3464	3.3464			
		L2							2.9921	4.0551	4.2913			
		L3									5.3543			
3284/5 	d*	1"-10			0.7874	0.88								
		1-1/2"-8			0.7874	1.2598	1.3647	1.3647						
		2-1/4"-8					1.6535	2.1147	2.1147					
		2-3/8"-6						2.1654		2.1946				
		2-3/8"-8								2.2397				
	d1	1"-10			0.7874	0.88								
		1-1/2"-8			0.7874	1.2598	1.3647	1.3647						
		2-1/4"-8					1.7717	2.1147	2.1147					
		2-3/8"-6						2.5591		2.1946				
		2-3/8"-8								2.2397				

Self-Centering Scroll Chucks

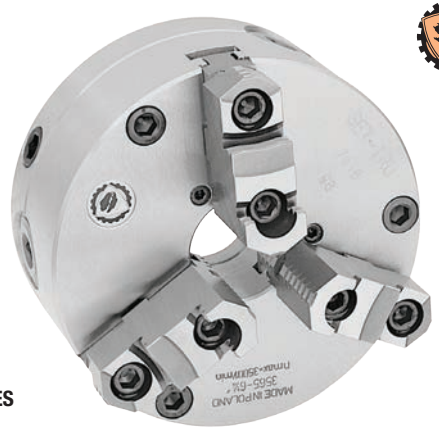
Precision Three and Six-Jaw Self-Centering F/A Scroll Chucks Forged Steel Body

A unique micro-adjustment feature enables concentricity to be adjusted to 0.0002" of full indicator movement.

F/A chucks can be used at many machining operations for which ordinary scroll chucks are unsuitable and at all the operations for which ordinary chucks are normally used. Require original F/A backplates.



3-Jaw F/A Precision Steel Body Scroll Chucks — 2pc Hard Rev. Jaws



Features:

- 3-Jaw, self-centering scroll chuck
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Repeatability: 0.0006"
- Superior accuracy: small screws on the outside enable the chuck to be adjusted to position with nearly zero runout (adjusting accuracy within 0.0002")
- The clamped workpiece is adjusted to the required concentricity by means of 4 (8 for sizes 16", 20" & 25") radially arranged adjusting screws

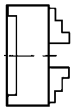
Application:

- This precision chuck, with increased gripping accuracy, is made for universal use, but particularly advantageous for grinding machines, indexing heads, and lathes
- Especially suitable for machining parts with top concentricity



F/A Chuck ADAPTER PLATES
Pages: H33-34

Mounting 3565 Plain Back



Chuck Size	4"	5"	6"	8"	10"	12"	16"	20"	25"
Hole Size	0.787	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
Weight lbs.	7.26	11	20	35	57	103	198	376	664
Code No.	435623	435624	435625	435630	435635	435640	435641	435642	435643
Price $	**1,359.07**	**1,871.63**	**1,912.28**	**2,092.33**	**2,374.02**	**3,524.00**	**7,151.10**	**13,634.28**	**20,320.74**

Spare Parts - See Pages: H35

Standard Accessories



1 set of hard top jaws



1 set of hard master jaws



1 wrench

Optional Accessories



Soft top jaws

Engineering Data See Pages: H62-66

3-Jaw F/A Precision Steel Body Scroll Chucks — Hard Solid Jaws



Features:

- 3-Jaw, self-centering scroll chuck
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Repeatability: 0.0006"
- Superior accuracy: small screws on the outside enable the chuck to be adjusted to position with nearly zero runout (adjusting accuracy within 0.0002")
- The clamped workpiece is adjusted to the required concentricity by means of 4 (8 for sizes 16", 20" & 25") radially arranged adjusting screws

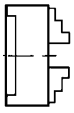
Application:

- This precision chuck, with increased gripping accuracy, is made for universal use, but particularly advantageous for grinding machines, indexing heads and lathes
- Especially suitable for machining parts with top concentricity



F/A Chuck ADAPTER PLATES
Pages: H33-34

Mounting 3564 Plain Back



Chuck Size	4"	5"	6"	8"	10"	12"	16"	20"	25"
Hole Size	0.787	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
Weight lbs.	7.26	11	20	35	57	103	198	376	664
Code No.	435423	435424	435425	435430	435435	435440	435441	435442	435443
Price $	**1,359.07**	**1,761.28**	**1,829.52**	**2,061.32**	**2,668.78**	**3,811.50**	**7,396.87**	**14,803.03**	**17,237.27**

Spare Parts - See Pages: H35

Standard Accessories



1 set of outside hard solid jaws



1 set of inside hard solid jaws



1 wrench

Optional Accessories



1 set of soft solid jaws

Engineering Data See Pages: H62-66

3-Jaw F/A Cast Iron Body Scroll Chucks — 2pc Hard Rev. Jaws

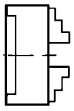
Features:
- 3-Jaw, self-centering scroll chuck
- Repeatability: 0.0006"
- Superior accuracy: small screws on the outside enable the chuck to be adjusted to position with nearly zero runout (adjusting accuracy within 0.0002")
- The clamped workpiece is adjusted to the required concentricity by means of 3 tangentially arranged adjusting spindles

Application:
- This precision chuck, with increased gripping accuracy, is made for universal use, but particularly advantageous for grinding machines, indexing heads, and lathes
- Especially suitable for machining parts with top concentricity



F/A Chuck ADAPTER PLATES
Pages: H33-34



Mounting 3265 Plain Back	Chuck Size	5"	6"	8"	10"	12"
	Hole Size	1.2598	1.6535	2.1653	2.9921	4.0551
	Weight lbs.	11	20	35	57	103
	Code No.	443084	443086	443088	443090	443092
	Price $	**1,833.88**	**2,200.44**	**2,567.36**	**3,667.40**	**5,134.65**

Spare Parts - See Pages: H35

Standard Accessories


1 set of hard top jaws


1 set of hard master jaws


1 wrench

Optional Accessories


Soft top jaws

Engineering Data See Pages: H62-66

3-Jaw F/A Cast Iron Body Scroll Chucks — Hard Solid Jaws

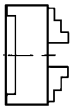
Features:
- 3-Jaw, self-centering scroll chuck
- Repeatability: 0.0006"
- Superior accuracy: small screws on the outside enable the chuck to be adjusted to position with nearly zero runout (adjusting accuracy within 0.0002")
- The clamped workpiece is adjusted to the required concentricity by means of 3 tangentially arranged adjusting spindles

Application:
- This precision chuck, with increased gripping accuracy, is made for universal use, but particularly advantageous for grinding machines, indexing heads, and lathes
- Especially suitable for machining parts with top concentricity



F/A Chuck ADAPTER PLATES
Pages: H33-34



Mounting 3264 Plain Back	Chuck Size	3"	4"	5"	6"	8"	10"	12"
	Hole Size	0.630	0.787	1.2598	1.6535	2.1653	2.9921	4.0551
	Weight lbs.	6.16	7.26	11	20	35	57	103
	Code No.	441080	441082	441084	441086	441088	441090	441092
	Price $	**1,283.37**	**1,466.96**	**1,558.61**	**1,833.88**	**2,200.44**	**3,025.86**	**4,309.23**

Spare Parts - See Pages: H35

Standard Accessories


1 set of outside hard solid jaws


1 set of inside hard solid jaws


1 wrench

Optional Accessories


1 set of soft solid jaws

Engineering Data See Pages: H62-66

6-Jaw F/A Precision Steel Body Scroll Chucks — 2pc Hard Rev. Jaws



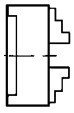
Features:
- 6-Jaw, self-centering scroll chuck
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Repeatability: 0.0006"
- Superior accuracy: small screws on the outside enable the chuck to be adjusted to position with nearly zero runout (adjusting accuracy within 0.0002")
- The clamped workpiece is adjusted to the required concentricity by means of 4 (8 for sizes 16", 20" & 25") radially arranged adjusting screws

Application:
- This precision chuck, with increased gripping accuracy, is made for universal use, but particularly advantageous for grinding machines, indexing heads, and lathes
- Especially suitable for machining parts with top concentricity
- Gripping force is equally distributed over 6 jaws, allowing the chuck to machine thin-walled workpieces and clamp without deformation



F/A Chuck ADAPTER PLATES
Pages: H33-34

Mounting 3865
Plain Back



Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"
Hole Size	1.378	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
Weight lbs.	14	23	39	72	123	218	396	718
Code No.	435599	435600	435605	435610	435615	435616	435617	435618
Price $	**2,710.88**	**3,176.98**	**3,476.09**	**4,346.97**	**4,705.93**	**9,799.55**	**17,757.96**	**26,562.89**

Spare Parts - See Pages: H35

Standard Accessories



1 set of hard top jaws



1 set of hard master jaws



1 wrench

Optional Accessories



Soft top jaws

Engineering Data See Pages: H62-66

6-Jaw F/A Precision Steel Body Scroll Chucks — Hard Solid Jaws



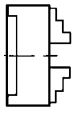
Features:
- 6-Jaw, self-centering scroll chuck
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Repeatability: 0.0006"
- Superior accuracy: small screws on the outside enable the chuck to be adjusted to position with nearly zero runout (adjusting accuracy within 0.0002")
- The clamped workpiece is adjusted to the required concentricity by means of 4 (8 for sizes 16", 20" & 25") radially arranged adjusting screws

Application:
- This precision chuck, with increased gripping accuracy, is made for universal use, but particularly advantageous for grinding machines, indexing heads, and lathes
- Especially suitable for machining parts with top concentricity
- Gripping force is equally distributed over 6 jaws, allowing the chuck to machine thin-walled workpieces and clamp without deformation



F/A Chuck ADAPTER PLATES
Pages: H33-34

Mounting 3864
Plain Back



Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"
Hole Size	1.378	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
Weight lbs.	14	23	39	72	123	218	396	718
Code No.	435550	-	435560	435565	435570	435576	435580	435585
Price $	**2,421.94**	**-**	**3,233.60**	**3,608.22**	**5,397.08**	**9,249.93**	**18,605.74**	**27,506.91**

Spare Parts - See Pages: H35

Standard Accessories



1 set of outside hard solid jaws



1 set of inside hard solid jaws



1 wrench

Optional Accessories



1 set of soft solid jaws

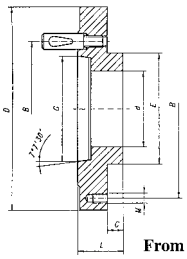
Engineering Data See Pages: H62-66

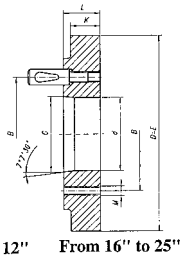
Camlock Mount Adapters For F/A Chucks

D - Type

FULLY MACHINED TYPE D
STEEL ADAPTERS FOR F/A CHUCKS

- Type D1 American Standard Camlock Spindles
- Type 8245


From 4" to 12"


From 16" to 25"



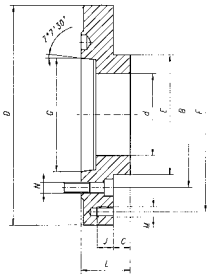
Chuck Dia.	Taper Size	Studs Qty	Dia.	D	B	G	d	E	F	M	C	L	K	Weight lbs.	Code No.	Price $
4"	D1-3	3	9/16	3.94	2.78	2.1250	0.787	1.771	3.268	M8 X 1.25	0.47	1.50		3.31	435690	**524.17**
	D1-4		5/8	4.25	3.25	2.5005						1.57		3.97	435691	**524.17**
5"	D1-3	3	9/16	4.92	2.78	2.1250	1.378	2.164	4.252	M8 X 1.25	0.55	1.57		5.95	435692	**574.99**
	D1-4	3	5/8	4.92	3.25	2.5005						1.54		5.73	435693	**574.99**
	D1-5	6	3/4	5.31	4.13	3.2503						1.73		6.92	435694	**574.99**
	D1-6	6	7/8	7.12	5.25	4.1878						1.89		13.06	435695	**574.99**
6-1/4"	D1-3	3	9/16	6.30	2.78	2.1250	1.654	3.385	5.512	M10 X 1.5	0.63	1.81		10.80	435700	**708.58**
	D1-4	3	5/8	6.30	3.25	2.5005						1.81		9.92	435705	**708.58**
	D1-5	6	3/4	6.30	4.13	3.2503						1.81		9.89	435710	**708.58**
	D1-6	6	7/8	6.69	5.25	4.1878						1.97		13.00	435712	**708.58**
8"	D1-3	3	9/16	7.87	2.78	2.1250	2.024	4.330	6.929	M10 X 1.5	0.67	1.30		10.36	435715	**749.23**
	D1-4	3	5/8		3.25	2.5005	2.165					1.30		10.36	435720	**749.23**
	D1-5	6	3/4		4.13	3.2503	2.165					1.85		15.87	435725	**808.76**
	D1-6	6	7/8		5.25	4.1878	2.165					2.01		17.64	435730	**808.76**
10"	D1-4	3	5/8	9.84	3.25	2.6005	2.382	5.708	8.819	M12 X 1.75	0.75	1.50		18.84	435732	**1,016.40**
	D1-5	6	3/4		4.13	3.2510	3.130					1.50		17.64	435735	**1,016.40**
	D1-6	6	7/8		5.25	4.1878	2.992					2.09		28.44	435740	**1,016.40**
	D1-8	6	1		6.75	5.50055	2.992					2.36		32.41	435745	**1,016.40**
12-1/2"	D1-6	6	7/8	12.40	5.25	4.1878	4.055	7.086	11.260	M16 X 2	0.75	1.50		28.44	435750	**1,271.95**
	D1-8		1		6.75	5.50055						2.24		47.84	435755	**1,271.95**
	D1-11		1-3/16		9.25	7.75055						2.52		52.91	435760	**1,271.95**
15-3/4"	D1-6	6	7/8	11.75	5.25	4.1878	4.055	11.75	6.718	5/8-11		1.38	0.87	29.0	435762	**1,385.21**
	D1-8		1		6.75	5.50055	5.358					1.50		27.2	435764	**1,385.21**
	D1-11		1-3/16		9.25	7.75055	5.358					1.89		26.8	435766	**1,385.21**
20"	D1-8	6	1	16.02	6.75	5.50055	5.358	16.02	9.252	3/4-10		1.50	1.50	74	435768	**3,258.29**
	D1-11		1-3/16		9.25	7.75055	7.590					1.73	1.73	78	435770	**3,258.29**
	D1-15		1-3/8		13.00	11.2505	7.480					2.05	2.05	83	435772	**3,747.61**
25"	D1-8	6	1	16.02	6.75	5.50055	5.358	16.02	13.071	3/4-10		1.50	1.50	74	435774	**3,571.92**
	D1-11		1-3/16		9.25	7.75055	7.590					1.73	1.73	78	435776	**3,571.92**
	D1-15		1-3/8		13.00	11.2505	9.920					2.05	2.05	83	435778	**2,654.98**

A Taper Mount Adapters For F/A Chucks Type 8215

A - Type

STEEL ADAPTERS FOR F/A CHUCKS

- Type 8215

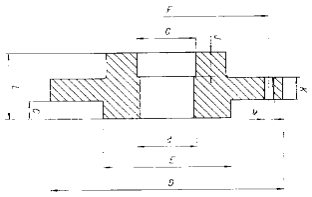




Chuck Dia.	Taper Size	D	G	d	B	E	F	M	J	C	L	N	# of Bolts	Weight lbs.	Code No.	Price $
5"	A4	4.92	2.5005	1.378	3.252	2.164	4.252	M8x1.25	0.87	0.55	1.42	7/16-14	4	4.8	435790	**226.51**
	A5	4.92	3.2505		4.126				0.87		1.42	7/16-14		4.2	435792	**226.51**
	A6	6.30	4.1880		5.252				0.53		1.89	1/2-13		9.1	435794	**226.51**
6-1/4"	A5	6.30	3.2505	1.654	4.126	3.385	5.512	M10x1.5	0.82	0.62	1.45	7/16-14	4	6.77	435800	**344.12**
8"	A5	7.87	3.2505	2.165	4.126	4.330	6.929	M10x1.5	0.62	0.66	1.29	3/8-16	4	9.3	435805	**463.19**
	A6		4.1880		5.252				1.10		1.77	1/2-13		13.5	435810	**463.19**
10"	A5	9.84	3.2505	2.992	4.126	5.708	8.819	M12x1.75	0.74	0.74	1.49	7/16-14	4	17.3	435815	**641.78**
	A8		5.5007		6.748				1.06		1.81	5/8-11		20.2	435825	**641.78**
12-1/2"	A6	12.40	4.1880	4.055	5.252	7.086	11.260	M16x2	0.74	0.74	1.49	1/2-13	4	27.3	435830	**1,135.46**
	A8		5.5007		6.748				1.06		1.81	5/8-11		35.7	435835	**1,135.46**
	A11		7.7507		9.252				1.42		2.19	3/4-10		41.20	435836	**1,135.46**
15-3/4"	A6	11.75	4.1880	4.055	5.252	11.75	6.748	5/8-11	1.38		1.38	1/2-13	6	31.4	435837	**1,200.80**
	A8		5.5007	5.346	6.748				1.14		1.46	5/8-11		28.8	435838	**1,200.80**
	A11		7.7507	5.354	9.252				1.06		1.89	3/4-10		35.8	435839	**1,200.80**
20"	A8	16.02	5.5007	5.346	6.748	16.02	9.252	3/4-10	1.42		1.42	5/8-11	6	69	435844	**1,807.74**
	A11		7.7507	7.590	9.252				1.18		1.42	3/4-10		61	435846	**1,807.74**
	A15		11.2505	7.480	13.000				1.18		2.05	7/8-9		76	435848	**1,807.74**
25"	A8	16.02	5.5007	5.346	6.748	16.02	13.000	3/4-10	1.42		1.42	5/8-11	6	69	435850	**3,131.96**
	A11	16.02	7.7507	7.590	9.252			3/4-10	1.42		1.42	3/4-10		61	435852	**3,131.96**
	A15	13.02	11.2505	9.921	13.000			3/4-10	2.05		2.05	7/8-9		76	435854	**3,131.96**
	A20	21.00	16.2518	9.921	18.252			1"-8	2.76		2.76	1-8		90	435856	**4,260.17**

Threaded Adapters For F/A Chucks

Threaded Type 8285

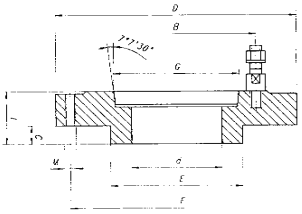




Chuck Dia.	D	Thread d	G	E	F	L	C	K	M	# of Bolts	Weight lbs.	Code No.	Price $
4"	3.94	1-10 UNS-2B	1.0150	1.771	3.268	1.54	0.47	0.51	M8 X 1.25	3	4.85	435860	**253.31**
		1-1/2 - 8 UN-2B	1.5150								5.29	435861	**349.93**
5"	4.92	1-1/2 - 8 UN-2B	1.5150	2.164	4.252	1.54	0.55	0.51	M8 X 1.25	3	6.61	435863	**233.77**
		2-3/16- 10 Hardinge	2.1889			2.44					7.05	435864	**383.33**
		2-1/4 - 8 UN-2B	2.260			1.54					6.8	435865	**300.56**
6-1/4"	6.30	1-1/2 - 8 UN-2B	1.5150	3.385	5.512	1.50	0.63	0.59	M10 X 1.5	3	7.05	435866	**286.04**
		2-3/16 - 10 Hardinge	2.1889			1.61					7.50	435867	**364.45**
		2-1/4-8 UN-2B	2.2600			1.75					7.94	435868	**277.33**
8"	7.87	1-1/2 - 8 UN 2B	1.5150	4.330	6.929	1.50	0.67	0.59	M10 X 1.5	3	9.92	435869	**450.43**
		2-1/4 - 8 UN-2B	2.2600			1.75					11.46	435870	**319.44**
		2-3/8 - 6 UN-2B	2.3850			2.00					13.89	435871	**376.07**

DIN Mount Adapters For F/A Chucks

C - Type/DIN 55027 Type 8235

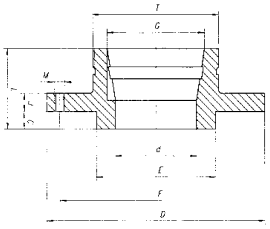




Chuck Dia.	Taper Size	D	G	d	E	F	B	C	L	M	# of Studs	Weight lbs.	Code No.	Price $
5"	C-5	4.92	3.251	1.38	2.164	4.252	4.126	0.55	1.46	M8 X 1.25	4	3.4	435874	**420.95**
6-1/4"	C-6	6.30	4.189	1.65	3.385	5.512	3.346	0.63	1.26	M10 X 1.5	4	6.0	435875	**399.79**
8"	C-6	7.87	4.188	2.17	4.330	6.929	5.252	0.67	1.57	M10 X 1.5	4	12.0	435876	**1,029.47**
10"	C-6	9.84	4.188	2.99	5.708	8.819	5.252	0.75	1.50	M12 X 1.75	4	28.0	435877	**1,093.36**
12-1/2"	C-8	12.4	5.501	4.06	7.086	11.26	6.748	0.75	1.69	M16 X 2	4	48.0	435878	**1,376.50**
15-3/4"	C-8	11.75	5.501	5.35	11.75	6.75	6.75	-	1.46	5/8-11	6	27	435879	**1,573.97**
	C-11		7.751	4.72			9.25	-				25	435880	**1,573.97**
20"	C-8	16.02	5.501	5.35	16.02	9.25	6.75	-	1.42	3/4-10	6	70	435881	**2,201.23**
	C-11		7.751	7.57			9.25	-	1.42			66	435882	**2,914.16**
	C15		11.251	7.48			13.0	-	2.05			86	435883	**2,316.25**
25"	C-8	16.02	5.501	5.35	16.02	13.0	6.75	-	1.42	3/4-10	6	70	435884	**3,743.18**
	C-11		7.751	7.57			9.25	-	1.42			66	435885	**3,743.18**
	C-15		11.251	9.92			13.0	-	2.05			75	435886	**3,855.64**

L Mount Adapters For F/A Chucks

L-Type 8255



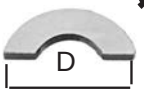


Chuck Dia.	D	Taper Size	Thread T-UNS3	G	d	E	F	M	J	C	L	Weight lbs.	Code No.	Price $
6-1/4"	6.30	L00	3-3/4 - 6	2.750	2.20	3.385	5.51	M10 X 1.5	0.79	0.63	2.56	9.0	435887	**596.77**
		L0	4-1/2 - 6	3.250	2.60							9.5	435888	**596.77**
8"	7.87	L00	3-3/4 - 6	2.750	2.20	4.330	6.93	M10 X 1.5	0.79	0.67	2.56	15.0	435889	**630.17**
		L0	4-1/2 - 6	3.250	2.60						2.56	15.4	435890	**630.17**
		L1	6 - 6	4.125	3.35						2.99	16.5	435891	**675.18**
10"	9.84	L00	3-3/4 - 6	2.750	2.20	5.708	8.82	M12 X 1.75	0.91	0.75	2.76	25.0	435892	**789.89**
		L0	4-1/2 - 6	3.250	2.60						2.76	26.1	435893	**726.00**
		L1	6 - 6	4.125	3.35						2.99	37.0	435894	**699.86**
12-1/2"	12.40	L0	4-1/2 - 6	3.250	2.60	7.086	11.26	M16 X 2	0.91	0.75	2.76	37.0	435895	**769.56**
		L1	6 - 6	4.125	3.35						2.99	37.0	435896	**769.56**
		L2	7-3/4 - 5	5.250	4.29						3.50	38.8	435897	**810.22**
15-3/4"	11.75	L1	6 - 6	4.125	3.35	11.75	6.75	5/8"-11	0.87	-	2.95	34.2	435898	**2,320.30**
		L2	7-3/4 - 5	5.250	4.29						3.46	45.4	435899	**2,320.30**
		L3	10-3/8 - 4	6.500	5.43						3.94	67.2	435901	**2,320.30**
20"	19.68	L2	7-3/4 - 5	5.250	4.29	16.02	9.25	3/4"-10	1.18	-	3.66	60.2	435902	**2,393.64**
		L3	10-3/8 - 4	6.500	5.43						4.14	81.33	435903	**2,393.64**

Spare Parts For 3 & 6-Jaw F/A Chucks







Chuck Dia.	Scroll 3 & 6-Jaw Code No.	Price $	D	H	Weight lbs.	Pinion 3 & 6-Jaw Code No.	Price $	D	L	Weight lbs.	Wrench 3 & 6-Jaw Code No.	Price $	Square Size	Pinion Sleeve 3 & 6-Jaw Code No.	Price $	ID	Half Ring 3 & 6-Jaw Code No.	Price $	D
4	467105	**261.36**	2.74	0.49	0.34	467305	**81.31**	0.98	1.40	0.12	460405	**87.12**	0.35	-	-		460458	**21.78**	
5	467829	**344.12**	3.70	0.63	0.84	467799	**84.22**	0.98	1.44	0.13	460405	**87.12**	0.35	460450	**32.96**	0.98	460459	**25.11**	1.52
6	467830	**408.01**	4.88	0.83	2.03	467800	**87.12**	1.1	1.57	0.18	460415	**92.93**	0.43	460451	**37.75**	1.1	460460	**24.68**	1.72
8	467835	**505.30**	6.24	0.94	3.62	467805	**103.09**	1.2	1.99	0.37	460415	**92.93**	0.43	460452	**37.75**	1.2	460461	**26.14**	1.85
10	467840	**689.70**	7.82	1.1	4.54	467810	**126.32**	1.4	2.36	0.44	460425	**113.26**	0.55	460453	**52.27**	1.4	460462	**26.14**	1.94
12	467845	**911.86**	10.1	1.2	10.2	467815	**149.56**	1.5	2.85	0.71	460425	**113.26**	0.55	460454	**62.44**	1.5	460463	**26.14**	2.17
16	467850	**1,999.40**	12.9	1.3	22.7	467820	**204.73**	1.7	3.66	1.3	460435	**168.43**	0.67	460455	**88.57**	1.7	460464	**30.49**	2.42
20	-	-				467821	**336.86**	2.0	4.45	2.1	460440	**245.39**	0.75	460456	**97.28**	2.0	460465	**34.85**	2.76
25	-	-				467822	**535.79**	2.0	5.24	2.5	460440	**245.39**	0.75	460457	**108.90**	2.0	460466	**39.24**	2.95

Hard Top Jaws

Sold in sets

3pc set



6pc set



Chuck Dia.	3-Jaw Code No.	Price $	6-Jaw Code No.	Price $
5	460705	**355.74**	460908	**881.36**
6	460710	**416.72**	460910	**1,010.59**
8	460715	**442.86**	460915	**1,113.68**
10	460720	**482.06**	460920	**1,125.30**
12	460725	**588.06**	460925	**1,382.30**
16	460730	**804.41**	460926	**1,754.02**
20	460735	**1,254.53**	460927	**2,471.30**
25	460740	**1,595.75**	460928	**2,875.52**

Hard Master Jaws

Sold in sets

3pc set



6pc set



Chuck Dia.	3-Jaw Code No.	Price $	6-Jaw Code No.	Price $
5	467355	**329.60**	467505	**866.84**
6	467360	**418.18**	467510	**872.65**
8	467365	**454.48**	467515	**1,139.82**
10	467370	**514.01**	467520	**1,232.75**
12	467375	**595.32**	467525	**1,276.31**
16	467380	**710.03**	460527	**1,925.35**
20	467385	**1,241.46**	460529	**2,747.18**
25	467390	**1,611.72**	460530	**4,003.16**

Soft Top Jaws

Sold Individually



Sold Individually



Chuck Dia.	3-Jaw Code No.	Price $	6-Jaw Code No.	Price $
5	465105	**58.08**	-	-
6	465110	**63.89**	467532	**94.38**
8	465115	**75.50**	467534	**107.45**
10	465120	**92.93**	467536	**129.23**
12	465125	**103.09**	467538	**143.75**
16	465130	**145.20**	467540	**238.13**
20	465135	**188.76**	-	-
25	465140	**259.91**	-	-

O.D. Hard Solid Jaws

Sold in sets



Chuck Dia.	3-Jaw Code No.	Price $	6-Jaw Code No.	Price $
4	467708	**223.61**	-	-
5	467710	**281.69**	467915	**894.03**
6	467715	**325.25**	467916	**711.48**
8	467720	**338.32**	467918	**885.72**
10	467725	**396.40**	467920	**962.68**
12	467730	**660.66**	467922	**1,231.30**
16	467735	**728.90**	467923	**1,483.94**
20	467740	**1,681.42**	-	-
25	467745	**2,156.22**	-	-

I.D. Hard Solid Jaws

Sold in sets



Chuck Dia.	3-Jaw Code No.	Price $	6-Jaw Code No.	Price $
4	467605	**233.77**	-	-
5	467610	**243.94**	467939	**560.35**
6	467615	**316.54**	467940	**811.67**
8	467620	**325.25**	467942	**917.66**
10	467625	**376.07**	467944	**940.90**
12	467630	**574.99**	467946	**1,260.34**
16	467635	**737.62**	467947	**1,961.65**
20	467640	**1,684.32**	-	-
25	467645	**2,156.22**	-	-

Soft Solid Jaws

Sold in sets



Chuck Dia.	Code No.	Price $
4	467750	**162.62**
5	467755	**168.43**
6	467760	**187.31**
8	467765	**210.54**
10	467770	**312.18**
12	467775	**415.27**
16	467780	**442.86**
20	467785	**1,062.86**
25	467790	**1,527.50**

Camlock Studs

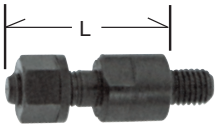
Sold Individually



Taper Size	Dia.	Camlock Studs Thread	No. of Studs	Code No.	Price $
D1-3	9/16"	M10 X 1	3	467230	**56.63**
D1-4	5/8"	M10 X 1	3	467232	**56.63**
D1-5	3/4"	M12 X 1	6	467234	**58.08**
D1-6	7/8"	M16 X 1.5	6	467236	**62.44**
D1-8	1"	M20 X 1.5	6	467238	**72.60**
D1-11	1-3/16"	M22 X 1.5	6	467240	**104.54**
D1-15	1-3/8"	M24 X 1.5	6	467241	**173.33**

DIN Studs

Sold Individually



Taper Size	Thread mm	L (mm)	No. of Studs	Code No.	Price $
C - 4	M10x1.5	39	3	467277	**65.34**
C - 5	M10x1.5	43	4	467279	**66.79**
C - 6	M12x1.75	50	4	467280	**69.70**
C - 8	M16x2	60	4	467282	**76.96**
C - 11	M20x2.5	75	6	467284	**88.57**

STANDARD SELF CENTERING SCROLL CHUCKS



Cast Iron Body Self-Centering Scroll Chucks

These chucks have modern, precision and standardized construction. They may be used on all types of lathes and on different kinds of milling and drilling attachments.

BODY - is made of high quality cast iron. All bearing surfaces are precision machined

SCROLL PLATE - drop-forged of fine alloy steel, carefully case hardened Thread flanks ground on both sides

JAWS - the teeth and guides are hardened and fully ground on both sides

PINIONS - hardened and ground

These chucks are equipped with lubricator, enabling their current maintenance. Versatile inspections assure high quality of our chucks.

Precision Steel Body Self-Centering Scroll Chucks

Precision lathe chucks have a top accuracy at work and the guarantee to maintain this accuracy for an extended period of time. These chucks have modern and compact design. They are able to fulfill the highest demands of our customers. They can be used wherever precision and high precision machining is demanded.

BODY - drop-forged of highest grade steel and put through precise machining operations. All bearings surfaces are carefully hardened and precision ground

SCROLL PLATE - drop-forged of fine alloy steel, carefully case hardened. Thread flanks ground on both sides

JAWS - teeth and guides are hardened and fully ground on both sides

PINIONS - hardened and ground

BUSHINGS - hardened and ground, pressed into the pinion seats

Jaws, pinions and bushings are made of fine alloy steel.
Precision grinding of scroll and jaws teeth will:
- eliminate possible deformation as a result of heat treatment
- reach uniform radial gripping force on all teeth of jaws
- increase guarantee period for high centering accuracy
- increase gripping force

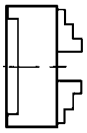
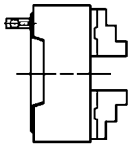
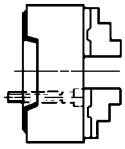
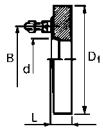
Each chuck is provided with lubricator enabling current maintenance and extending chuck components life. Each scroll and assembled chuck are statically balanced within fine limits. Interstage and final inspection assure high quality of our chucks.

3-Jaw Precision Steel Body Scroll Chucks — 2pc Hard Rev. Jaws



Features:
- 3-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes

Mounting		Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"
3505 Plain Back		**Hole Size**	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
		Weight lbs.	11	22	39	64	110	187	320	551
		Code No.	440750	440755	440760	440765	440770	440775	440776	440783
		Price $	**1,563.80**	**1,652.38**	**1,990.69**	**2,350.79**	**3,383.16**	**6,428.00**	**13,558.78**	**19,446.64**
3545 Camlock		**D1-3**	440955	440963						
		Price $	**1,741.95**	**1,865.82**						
		D1-4	440960	440965						
		Price $	**1,741.95**	**1,865.82**						
		D1-5		440970						
		Price $		**1,865.82**						
		D1-6			440980	440985	440992			
		Price $			**2,160.58**	**2,487.28**	**3,542.88**			
		D1-8				440990	440994	440996	440777	440785
		Price $				**2,487.28**	**3,542.88**	**7,036.39**	**15,845.68**	**20,877.57**
		D1-11					440995	440998	440778	440787
		Price $					**3,542.88**	**7,036.39**	**15,845.68**	**21,463.46**
3515 Short Taper		**A1-4**			440881					
		Price $			**2,282.77**					
		A1-5		440780	440782	440885				
		Price $		**2,578.75**	**3,287.33**	**3,555.95**				
		A1-6			440784	440786		440795		
		Price $			**3,287.33**	**3,555.95**		**8,034.56**		
		A2-6					440790			
		Price $					**4,325.51**			
		A1-8				440888	440892			
		Price $				**3,555.95**	**4,325.51**			
		A2-8						440794	440779	
		Price $						**8,993.69**	**16,112.84**	
		A2-11							440781	440789
		Price $							**16,112.84**	**19,599.10**
		A2-15								440791
		Price $								**19,599.10**
		A1-11						440896		
		Price $						**8,993.69**		
3535 DIN Taper		**DIN 6**			440850	440855	440865			
		Price $			**1,741.95**	**2,521.54**	**3,484.11**			
		DIN 8				440860	440870	440875		
		Price $				**2,521.54**	**3,484.11**	**6,601.61**		
		DIN 11						440880		
		Price $						**6,601.61**		
3575 Front Mount Plain Back		**Code No.**	440160	440165	440170	440175	440180	440185		
		Price $	**1,690.13**	**1,729.33**	**1,949.45**	**2,626.67**	**3,564.66**	**7,210.63**		

Spare Parts - See Pages: H60-61

Standard Accessories


1 set of hard top jaws


1 set of hard master jaws


1 wrench

Optional Accessories


Soft top jaws

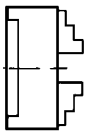
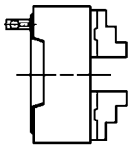
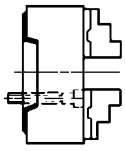
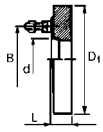
Engineering Data See Pages: H62-66

3-Jaw Precision Steel Body Scroll Chucks — Hard Solid Jaws



Features:
- 3-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes

Mounting	Chuck Size	3"	4"	5"	6"	8"	10"	12"	16"
3504 Plain Back 	**Hole Size**	0.630	0.787	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543
	Weight lbs.	3.30	6.16	11	22	39	64	110	187
	Code No.		440751	440752	440756	440761	440766	440771	
	Price $		**1,003.33**	**1,311.16**	**1,483.94**	**1,815.00**	**2,172.19**	**3,240.86**	
3544 Camlock 	**D1-3**			440956	440964				
	Price $			**1,421.43**	**1,650.27**				
	D1-4			440961	440966	440973			
	Price $			**1,421.43**	**1,650.27**	**2,017.15**			
	D1-5				440971	440976			
	Price $				**1,650.27**	**2,017.15**			
	D1-6					440981	440986	440988	
	Price $					**2,017.15**	**2,750.63**	**3,942.68**	
	D1-8						440987	440989	440997
	Price $						**2,750.63**	**3,942.68**	**7,060.18**
	D1-11							440991	440999
	Price $							**3,942.68**	**7,060.18**
3514 Short Taper 	**A1-4**					440657			
	Price $					**2,282.77**			
	A1-5				440656	440658	440660		
	Price $				**1,597.88**	**2,282.77**	**3,032.38**		
	A1-6					440659	440661	440664	440668
	Price $					**2,282.77**	**3,032.38**	**3,942.68**	**7,304.10**
	A1-8						440662	440666	440670
	Price $						**3,032.38**	**3,942.68**	**6,876.60**
	A1-11								440672
	Price $								**6,876.60**
3534 DIN Taper 	**DIN 3**			440851					
	Price $			**1,191.76**					
	DIN 4			440852	440853				
	Price $			**1,489.75**	**1,718.88**				
	DIN 5				440854	440856			
	Price $				**1,718.88**	**1,948.29**			
	DIN 6					440857	440858	440861	
	Price $					**1,948.29**	**2,635.94**	**3,025.86**	
	DIN 8						440859	440862	440864
	Price $						**2,635.94**	**3,025.86**	**7,334.88**
	DIN 11							440863	440866
	Price $							**3,375.47**	**7,335.96**
3574 Front Mount Plain Back 	**Code No.**	440050	440055	440060	440065	440070	440075	440080	440085
	Price $	**1,008.71**	**1,100.40**	**1,100.40**	**1,283.37**	**1,558.61**	**2,292.09**	**3,117.51**	**5,409.64**

Spare Parts - See Pages: H60-61

Standard Accessories


1 set of outside hard solid jaws


1 set of inside hard solid jaws


1 wrench

Optional Accessories


1 set of soft solid jaws

Engineering Data See Pages: H62-66

3-Jaw Cast Iron Body Scroll Chucks — 2pc Hard Rev. Jaws

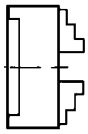
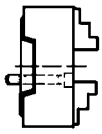
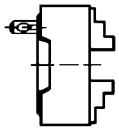
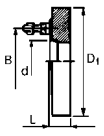


Features:

- 3-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:

- This chuck is designed for all types of workshop machining operations on conventional lathes and milling fixtures

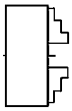
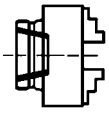
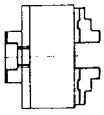
Mounting	Size of Chuck	5"	6"	8"	10"	12"	16"	20"	25"	32"	36"	40"
3205 Plain Back 	**Hole Size**	1.2598	1.6535	2.1654	2.9921	4.0551	5.3543	7.4803	9.92"	12.60	16.06	16.06
	Weight lbs	11	22	39	55	110	187	320	550	884	1,232	1,584
	Code No.	440705	440710	440715	440720	440725	435135	435140	435145	435480 (front mount)	435155 (front mount)	435160 (front mount)
	Price $	**1,022.21**	**1,089.00**	**1,327.13**	**1,784.51**	**2,490.18**	**4,782.89**	**7,843.70**	**12,131.46**	**23,227.64**	**36,484.89**	**44,354.79**
3215 A Taper 	**A1-5**		440805	440810								
	Price $		**1,524.60**	**2,687.65**								
	A2-5				440820							
	Price $				**2,848.82**							
	A1-6			440815	440825							
	Price $			**2,687.65**	**2,848.82**							
	A2-6					440835	435245					
	Price $					**3,783.91**	**7,836.44**					
	A1-8				440830	440840						
	Price $				**2,848.82**	**3,783.91**						
	A2-8						435252					
	Price $						**7,836.44**					
	A1-11						435255					
	Price $						**7,836.44**					
	A2-11							435256	435257			
	Price $							**12,636.76**	**18,237.12**			
	A2-20									435259		
	Price $									**27,210.48**		
3245 Camlock 	**D1-3**	440900	440905	440915								
	Price $	**2,100.15**	**1,335.84**	**1,706.10**								
	D1-4	440903	440910	440920								
	Price $	**2,144.60**	**1,335.84**	**1,706.10**								
	D1-5		440912	440925	440935							
	Price $		**1,466.96**	**1,706.10**	**2,313.04**							
	D1-6			440930	440940	440945	435360					
	Price $			**1,706.10**	**2,313.04**	**3,303.30**	**6,433.81**					
	D1-8				440941	440950	435365	435368				
	Price $				**2,313.04**	**3,303.30**	**5,934.32**	**11,306.72**				
	D1-11					440951	435367	435370	435372			
	Price $					**3,303.30**	**5,934.32**	**11,306.72**	**15,157.43**			
	D1-15								435373			
	Price $								**14,559.64**			
3235 DIN Taper 	**DIN 3**	440102		440114								
	Price $	**1,237.84**		**1,956.52**								
	DIN 4	440104	440108	440116								
	Price $	**1,237.84**	**1,375.31**	**1,650.27**								
	DIN 5		440110	440118								
	Price $		**1,375.31**	**1,650.27**								
	DIN 6		440112	440120	440122	440126	440132					
	Price $		**1,630.25**	**1,650.27**	**2,292.09**	**2,980.04**	**5,134.65**					
	DIN 8				440124	440128	440134	440138				
	Price $				**2,292.09**	**2,980.04**	**5,134.65**	**13,478.22**				
	DIN 11					440130	440136	440140	440142			
	Price $					**3,071.68**	**5,272.12**	**13,478.22**	**18,337.67**			
	DIN 15								440144			
	Price $								**18,887.82**			

3-Jaw Cast Iron Body Scroll Chucks — 2pc Hard Rev. Jaws — Cont'd



Features:
- 3-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and milling fixtures

	Size of Chuck	4"	5"	6"	8"	10"	12"	16"	20"	25"
	Hole Size	0.787	1.2598	1.6535	2.1654	2.9921	4.0551	5.3543	7.4803	9.92"
	Weight lbs	6.17	11	22	39	55	110	187	320	550
3275 Front Mount 	**Code No.**		440806	440808	440813	440811	440812	440809	440833	440834
	Price $		**1,147.08**	**1,212.42**	**1,385.21**	**1,877.44**	**2,792.20**	**6,507.86**	**11,507.18**	**17,816.00**
3255 L Mount 	**L00**			445105	445115					
	Price $			**1,675.61**	**1,765.63**					
	L0			445110	445120	445130	445145			
	Price $			**1,682.87**	**1,774.34**	**2,391.44**	**4,215.16**			
	L1					445135	445150	435460		
	Price $					**2,504.70**	**3,481.90**	**7,056.72**		
	L2					445140	445155	435465		
	Price $					**3,397.68**	**3,477.54**	**7,098.83**		
3285 Threaded Mount 	**Thread 1"-10**	440605*	440615							
	Price $	**996.07**	**1,790.32**							
	Thread 1-1/2"-8	440610	440620	440625	440635					
	Price $	**1,283.57**	**1,849.85**	**2,127.18**	**2,185.26**					
	Thread 2-1/4"-8			440630	440640	440645				
	Price $			**2,127.18**	**2,185.26**	**3,474.64**				
	Thread 2-3/8"-6				440642		440650			
	Price $				**2,185.26**		**2,867.98**			
	Thread 2-3/4"-8						440655			
	Price $						**2,867.98**			

* 2 sets of solid jaws

Spare Parts - See Pages: H60-61

Standard Accessories


1 set of hard top jaws


1 set of hard master jaws


1 wrench

Optional Accessories


Soft top jaws

Engineering Data See Pages: H62-66

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

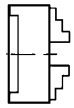
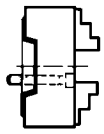
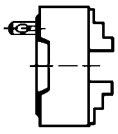
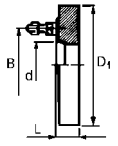
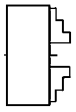
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3-Jaw Cast Iron Scroll Chucks — Hard Solid Jaws

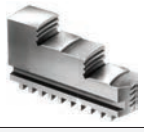
Features:
- 3-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and milling fixtures



Mounting	Size of Chuck	3"	4"	5"	6"	8"	10"	12"	16"	20"	25"
3204 Plain Back 	**Hole Size**	0.630	0.787	1.2598	1.6535	2.1654	2.9921	4.0551	5.3543	7.4803	9.92"
	Weight lbs	3.3	6.17	11	22	39	55	110	187	320	550
	Code No.	440504	440505	440510	440515	440520	440525	440530	440535	440540	440545
	Price $	**667.92**	**762.30**	**814.57**	**956.87**	**1,200.80**	**1,632.05**	**2,446.62**	**4,884.53**	**8,067.31**	**13,018.63**
3214 A Taper 	**A1-5**				440200	440205	440215				
	Price $				**1,358.83**	**1,630.25**	**2,282.77**				
	A1-6					440210	440220	440230	440240		
	Price $					**1,375.31**	**1,925.50**	**2,842.57**	**5,210.40**		
	A1-8						440225	440235	440245	440255	
	Price $						**2,282.77**	**3,369.70**	**4,905.28**	**13,634.08**	
	A1-11								440250	440260	440265
	Price $								**5,210.40**	**12,836.39**	**17,650.31**
	A1-15										440270
	Price $										**18,699.01**
3244 Camlock 	**D1-3**		440902	440904	440907	440916					
	Price $		**1,186.01**	**1,100.40**	**1,191.76**	**1,739.18**					
	D1-4			440906	440911	440921					
	Price $			**1,100.40**	**1,191.76**	**1,598.65**					
	D1-5				440913	440926	440936				
	Price $				**1,191.76**	**1,466.96**	**2,391.44**				
	D1-6					440931	440942	440943	440631		
	Price $					**1,598.65**	**2,017.15**	**3,114.54**	**5,843.48**		
	D1-8						440944	440953	435636	435369	
	Price $						**2,017.15**	**2,842.57**	**5,501.58**	**14,559.64**	
	D1-11							440962	435366	440371	440374
	Price $							**2,842.57**	**6,070.81**	**14,559.64**	**18,750.34**
	D1-15										440575
	Price $										**19,313.17**
3234 DIN Taper 	**DIN 3**		440000	440002	440006	440014					
	Price $		**1,055.62**	**1,008.71**	**1,146.15**	**1,630.25**					
	DIN 4			440004	440008	440016					
	Price $			**1,008.71**	**1,146.15**	**1,375.31**					
	DIN 5				440010	440018					
	Price $				**1,146.15**	**1,375.31**					
	DIN 6				440012	440020	440022	440026	440032		
	Price $				**1,358.83**	**1,375.31**	**1,925.50**	**2,842.57**	**4,905.28**		
	DIN 8						440024	440028	440034	440038	
	Price $						**1,925.50**	**2,842.57**	**4,905.28**	**12,836.39**	
	DIN 11							440030	440036	440040	440042
	Price $							**2,842.57**	**4,905.28**	**12,836.39**	**17,650.31**
	DIN 15										440044
	Price $										**18,179.86**
3274 Front Mount 	**Code No.**	440797	440800	440743	440745	440802	440804	440747	440793	440822	440807
	Price $	**890.08**	**990.26**	**1,096.26**	**1,136.92**	**1,234.20**	**1,704.65**	**2,649.90**	**3,850.74**	**10,452.35**	**16,183.06**

Spare Parts - See Pages: H60-61

Standard Accessories					Optional Accessories		
	1 set of outside hard solid jaws		1 set of inside hard solid jaws		1 wrench		1 set of soft solid jaws

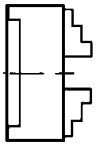
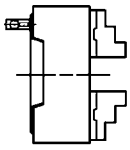
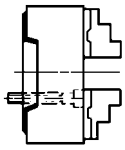
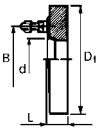
Engineering Data See Pages: H62-66

4-Jaw Precision Steel Body Scroll Chucks — 2pc Hard Rev. Jaws



Features:
- 4-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Suitable for machining square and round workpieces, granting greater flexibility to machining operations

Mounting	Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"
3705 Plain Back 	**Hole Size**	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
	Weight lbs.	11	22	39	64	110	187	320	551
	Code No.	440222	440224	440226	440228	440231	440232	440234	440236
	Price $	**1,357.21**	**2,430.65**	**2,870.60**	**3,359.93**	**4,369.07**	**8,829.61**	**18,693.05**	**24,289.06**
3745 Camlock 	**D1-3**	440700	440704						
	Price $	**2,286.62**	**2,739.10**						
	D1-4	440702	440706	440712					
	Price $	**1,925.50**	**2,367.57**	**2,913.62**					
	D1-5		440708	440714					
	Price $		**2,367.57**	**2,913.62**					
	D1-6			440716	440718	440724			
	Price $			**2,913.62**	**3,850.74**	**5,999.85**			
	D1-8				440722	440726	440728	440734	
	Price $				**3,850.74**	**5,060.32**	**9,306.17**	**18,016.86**	
	D1-11						440732	440736	
	Price $						**9,306.46**	**16,962.65**	
	D1-15								440741
	Price $								**26,112.95**
3715 A Taper 	**A1-5**		440264	440266	440271				
	Price $		**2,662.58**	**2,662.58**	**4,347.93**				
	A1-6				440272	440276	440281		
	Price $				**4,347.93**	**6,262.99**	**9,699.68**		
	A1-8				440274	440278	440282		
	Price $				**4,347.93**	**6,262.99**	**9,699.68**		
	A1-11						440284		440286
	Price $						**9,699.68**		**21,946.33**
3735 DIN Taper 	**DIN 3**	440400							
	Price $	**1,815.70**							
	DIN 4	440402	440404	440408					
	Price $	**1,815.70**	**2,086.05**	**2,584.61**					
	DIN 5		440406						
	Price $		**2,086.05**						
	DIN 6			440410	440412	440416			
	Price $			**2,584.61**	**3,575.75**	**4,951.90**			
	DIN 8				440414	440418	440420	440424	
	Price $				**3,575.75**	**4,951.90**	**8,313.61**	**17,237.56**	
	DIN 11						440422	440426	440428
	Price $						**8,313.61**	**16,228.88**	**23,243.16**
	DIN 15								440430
	Price $								**23,940.72**
3775 Front Mount Plain Back 	**Code No.**	441120	441122	441124	441126	441128	441130		
	Price $	**1,764.95**	**1,973.52**	**2,396.96**	**3,255.02**	**4,584.47**	**8,160.23**		

Spare Parts - See Pages: H60-61

Standard Accessories


1 set of hard top jaws


1 set of hard master jaws


1 wrench

Optional Accessories


Soft top jaws

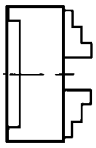
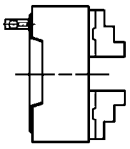
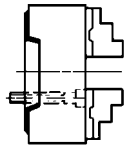
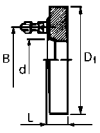
Engineering Data See Pages: H62-66

4-Jaw Precision Steel Body Scroll Chucks — Hard Solid Jaws



Features:
- 4-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Suitable for machining square and round workpieces, granting greater flexibility to machining operations

Mounting	Chuck Size	4"	5"	6"	8"	10"	12"	16"	20"	25"
	Hole Size	0.787	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
	Weight lbs.	6.16	11	22	39	64	110	187	320	551
3704 Plain Back 	Code No.	440201	440202	440204	440206	440208	440209	440212	440214	440216
	Price $	**1,467.59**	**1,146.15**	**1,315.77**	**1,657.96**	**2,108.79**	**3,163.33**	**5,455.71**	**14,762.14**	**20,584.48**
3744 Camlock 	D1-3		440600	440604						
	Price $		**1,903.53**	**2,282.77**						
	D1-4		440602	440606	440612					
	Price $		**1,604.72**	**1,973.52**	**2,443.57**					
	D1-5			440608	440614					
	Price $			**1,973.52**	**2,443.57**					
	D1-6				440616	440618	440624			
	Price $				**2,443.57**	**3,025.86**	**5,000.21**			
	D1-8					440622	440626	440628	440634	
	Price $					**3,025.86**	**4,217.62**	**8,435.22**	**16,361.10**	
	D1-11							440632	440636	440638
	Price $							**8,435.22**	**15,403.75**	**24,160.23**
	D1-15									440641
	Price $									**24,884.97**
3714 A Taper 	A1-5			440241	440242	440246				
	Price $			**2,218.84**	**2,663.37**	**3,641.60**				
	A1-6					440248	440252	440256		
	Price $					**3,641.60**	**5,218.88**	**8,083.12**		
	A1-8					440251	440254	440258		
	Price $					**3,641.60**	**5,218.88**	**8,083.12**		
	A1-11							440261		440262
	Price $							**8,082.91**		**19,951.14**
3734 DIN Taper 	DIN 3		440300							
	Price $		**1,513.08**							
	DIN 4		440302	440304	440308					
	Price $		**1,513.08**	**1,738.89**	**2,161.74**					
	DIN 5			440306						
	Price $			**1,738.89**						
	DIN 6				440310	440312	440316			
	Price $				**2,161.74**	**2,980.04**	**4,125.97**			
	DIN 8					440314	440318	440320	440324	
	Price $					**2,980.04**	**4,125.97**	**7,564.51**	**15,679.48**	
	DIN 11							440322	440326	440328
	Price $							**7,564.51**	**14,762.14**	**22,143.13**
	DIN 15									440330
	Price $									**22,807.46**
3774 Front Mount Plain Back 	Code No.		441020	441022	441024	441026	441028	441030		
	Price $		**1,464.47**	**1,645.08**	**2,020.99**	**2,750.63**	**3,897.10**	**7,335.09**		

Spare Parts - See Pages: H60-61

Standard Accessories


1 set of outside hard solid jaws


1 set of inside hard solid jaws


1 wrench

Optional Accessories


1 set of soft solid jaws

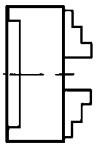
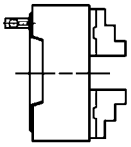
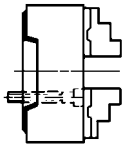
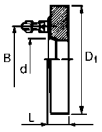
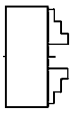
Spare Parts - See Pages: H62-66

4-Jaw Cast Iron Body Scroll Chucks — 2pc Hard Rev. Jaws



Features:
- 4-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Suitable for machining square and round workpieces, granting greater flexibility to machining operations

Mounting	Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"
	Hole Size	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
	Weight lbs.	11	22	39	64	110	187	320	551
3605 Plain Back 	Code No.	445882	445884	445886	445888	445890	445892	445894	445893
	Price $	**1,495.56**	**1,546.38**	**1,710.46**	**2,092.33**	**3,020.16**	**6,365.57**	**10,287.42**	**14,640.52**
3645 Camlock 	D1-3	441100	441104	441110					
	Price $	**1,704.87**	**1,847.85**	**2,282.77**					
	D1-4	441102	441106	441112					
	Price $	**1,542.74**	**1,691.69**	**2,089.90**					
	D1-5		441108	441114					
	Price $		**1,691.69**	**2,282.77**					
	D1-6			441116					
	Price $			**2,282.77**					
3615 A Taper 	A1-5				440152				
	Price $				**3,043.67**				
	A1-6			440147	440157	440167	440177		
	Price $			**1,990.25**	**3,043.67**	**4,293.90**	**6,379.08**		
	A1-8				440162	440172	440182	440192	
	Price $				**3,043.67**	**4,293.90**	**6,379.08**	**16,507.36**	
	A1-11						440187	440197	
	Price $						**6,379.08**	**16,507.36**	
3635 DIN Taper 	DIN 3	440432	440436	440444					
	Price $	**1,541.87**	**1,739.18**	**2,173.84**					
	DIN 4	440434	440438	440446					
	Price $	**1,541.87**	**1,592.13**	**2,173.84**					
	DIN 5		440440	440448					
	Price $		**1,592.13**	**2,173.84**					
	DIN 6		440442	440450	440452	440456	440460		
	Price $		**1,739.18**	**2,173.84**	**2,475.67**	**3,575.75**	**6,329.98**		
	DIN 8				440454	440458	440462	440466	
	Price $				**2,475.67**	**3,575.75**	**6,329.98**	**16,507.36**	
	DIN 11						440464	440468	
	Price $						**6,329.98**	**16,507.36**	
3675 Front Mount Plain Back 	Code No.	441132	441134	441136	441138	441140	441142		
	Price $	**1,823.71**	**2,230.27**	**2,291.26**	**2,568.59**	**3,637.26**	**6,534.00**		

Spare Parts - See Pages: H60-61

Standard Accessories


1 set of hard top jaws


1 set of hard master jaws


1 wrench

Optional Accessories


Soft top jaws

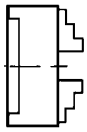
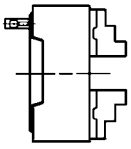
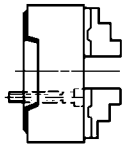
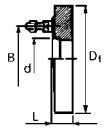
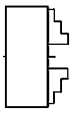
Engineering Data See Pages: H62-66

4-Jaw Cast Iron Body Scroll Chucks — Hard Solid Jaws



Features:
- 4-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Suitable for machining square and round workpieces, granting greater flexibility to machining operations

Mounting	Chuck Size	5"	6"	8"	10"	12"	16"	20"
3604 Plain Back 	**Hole Size**	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48
	Weight lbs.	11	22	39	64	110	187	320
	Code No.	445850	445855	445860	445865	445870	445875	445880
	Price $	**1,089.00**	**1,196.45**	**1,393.92**	**1,857.11**	**2,787.84**	**5,948.84**	**10,402.13**
3644 Camlock 	**D1-3**	441000	441004	441010				
	Price $	**1,445.87**	**1,630.54**	**1,847.85**				
	D1-4	441002	441006	441012				
	Price $	**1,293.57**	**1,393.13**	**1,691.69**				
	D1-5		441008	441014				
	Price $		**1,521.57**	**1,847.85**				
	D1-6			441016				
	Price $			**1,847.85**				
3614 A Taper 	**A1-5**				440052			
	Price $				**2,500.08**			
	A1-6			440047	440057	440067	440077	
	Price $			**1,845.07**	**2,500.08**	**3,587.31**	**5,794.59**	
	A1-8				440062	440072	440082	440092
	Price $				**2,500.08**	**3,587.31**	**5,794.59**	**14,997.63**
	A1-11						440087	440097
	Price $						**5,794.59**	**14,997.63**
3634 DIN Taper 	**DIN 3**	440332	440336	440344				
	Price $	**1,386.58**	**1,467.53**	**1,739.18**				
	DIN 4	440334	440338	440346				
	Price $	**1,386.58**	**1,343.49**	**1,739.18**				
	DIN 5		440340	440348				
	Price $		**1,343.49**	**1,738.10**				
	DIN 6		440342	440350	440352	440356	440360	
	Price $		**1,467.53**	**1,845.07**	**2,154.91**	**3,117.51**	**6,232.57**	
	DIN 8				440354	440358	440362	440366
	Price $				**2,154.91**	**3,117.51**	**6,232.57**	**15,582.07**
	DIN 11						440364	440368
	Price $						**6,232.57**	**15,582.07**
3674 Front Mount Plain Back 	**Code No.**	441032	441034	441036	441038	441040	441042	
	Price $	**1,155.51**	**1,246.37**	**1,393.13**	**1,696.37**	**2,613.19**	**4,653.05**	

Spare Parts - See Pages: H60-61

Standard Accessories



1 set of outside hard solid jaws



1 set of inside hard solid jaws



1 wrench

Optional Accessories



1 set of soft solid jaws

Engineering Data See Pages: H62-66

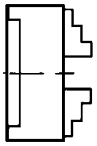
3-Jaw Steel Body Scroll Chucks With Threaded Mounting

Features:
- Special compact design
- Very small turning diameter
- Hard reversible jaws
- Maximum 4000rpm

Application:
- Especially designed for household and non-professional use
- Suitable for lathes with a threaded spindle
- Can be used with both metal and wood





Mounting	Chuck Size	2"	2.362"
3286 Threaded 	**Threaded Mount**	M12x1	M14x1
	Weight lbs.	1.10	1.50
	Code No.	468980	468985
	Price $	**826.19**	**943.80**

2-Jaw Cast Iron Body Scroll Chucks — 3105

Features:
- 2-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Chucks are equipped with soft, steel top jaws, which can be individually shaped by the user and clamp irregularly-shaped workpieces
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes



Chuck Size	6"	8"	10"	12"	16"
Hole	1.6535	2.1654	2.9921	4.0551	5.3453
Weight lbs.	20.3	34.5	56.7	93.9	172.8
Plain Back Code No.	435500	435505	435510	435515	435520
Price $	**937.99**	**1,147.08**	**1,530.41**	**2,471.30**	**8,447.74**

Spare Parts - See Pages: H60-61

Standard Accessories



1 set of top jaws



1 set of hard master jaws



1 wrench

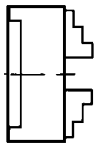
Engineering Data See Pages: H62-66

6-Jaw Precision Steel Body Scroll Chucks — 2pc Hard Rev. Jaws

Features:
- 6-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Gripping force is equally distributed over 6-Jaws, allowing the chuck to machine thin-walled workpieces and clamp without deformation



Mounting 3807 Plain Back		Chuck Size	8"	10"	12"	16"	20"	25"
		Hole Size	2.1653	2.9921	4.0551	5.3543	7.48	9.92
		Weight lbs.	39	64	110	187	320	551
		Code No.	441146	441148	441150	441152	441154	441156
		Price $	**3,092.57**	**3,755.20**	**5,036.42**	**8,614.94**	**18,337.67**	**30,767.65**

Spare Parts - See Pages: H60-61

Standard Accessories						Optional Accessories		
	1 set of hard top jaws		1 set of hard master jaws		1 wrench		Soft top jaws

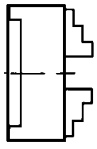
Engineering Data See Pages: H62-66

6-Jaw Precision Steel Body Scroll Chucks — Hard Solid Jaws

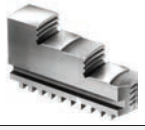
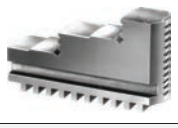
Features:
- 6-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Gripping force is equally distributed over 6-Jaws, allowing the chuck to machine thin-walled workpieces and clamp without deformation



Mounting 3806 Plain Back		Chuck Size	8"	10"	12"	16"	20"	25"
		Hole Size	2.1653	2.9921	4.0551	5.3543	7.48	9.92
		Weight lbs.	39	64	110	187	320	551
		Code No.	440046	440048	440051	440053	440054	440056
		Price $	**2,689.18**	**3,265.42**	**4,379.50**	**7,491.25**	**15,945.69**	**26,754.49**

Spare Parts - See Pages: H60-61

Standard Accessories						Optional Accessories		
	1 set of outside hard solid jaws		1 set of inside hard solid jaws		1 wrench		1 set of soft solid jaws

Engineering Data See Pages: H62-66

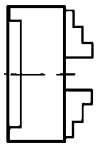
6-Jaw Cast Iron Body Scroll Chucks — 2pc Hard Rev. Jaws

Features:
- 6-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Gripping force is equally distributed over 6-Jaws, allowing the chuck to machine thin-walled workpieces and clamp without deformation



Mounting 3805 Plain Back



Chuck Size	8"	10"	12"	16"	20"	25"
Hole Size	2.1653	2.9921	4.0551	5.3543	7.48	9.92
Weight lbs.	39	64	110	187	320	551
Code No.	441160	441162	441164	441166	441168	441170
Price $	**2,208.97**	**2,682.31**	**3,597.46**	**6,626.89**	**14,105.75**	**23,667.44**

Spare Parts - See Pages: H60-61

Standard Accessories



1 set of hard top jaws



1 set of hard master jaws



1 wrench

Optional Accessories



Soft top jaws

Engineering Data See Pages: H62-66

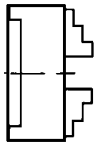
6-Jaw Cast Iron Body Scroll Chucks — Hard Solid Jaws

Features:
- 6-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and grinders
- Gripping force is equally distributed over 6-Jaws, allowing the chuck to machine thin-walled workpieces and clamp without deformation



Mounting 3804 Plain Back



Chuck Size	8"	10"	12"	16"	20"	25"
Hole Size	2.1653	2.9921	4.0551	5.3543	7.48	9.92
Weight lbs.	39	64	110	187	320	551
Code No.	441060	441062	441064	441066	441068	441070
Price $	**1,920.85**	**2,332.44**	**3,128.20**	**5,762.52**	**12,265.90**	**20,580.38**

Spare Parts - See Pages: H60-61

Standard Accessories



1 set of outside hard solid jaws



1 set of inside hard solid jaws



1 wrench

Optional Accessories



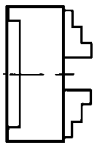
1 set of soft solid jaws

Engineering Data See Pages: H62-66

3-Jaw Scroll Chucks For Sharpening Drills

Application:
- Lever scroll chuck is specially designed for grinding twist drills and other cutting tools

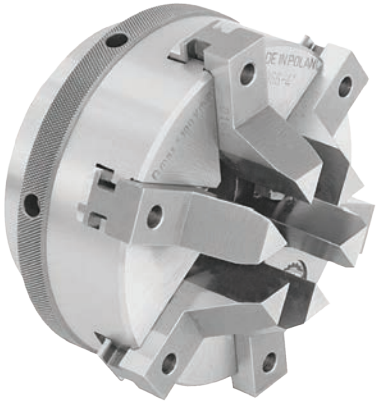


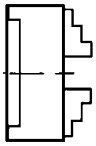
Mounting	Chuck Size	3"	4"	5"	6"	8"
3266 Plain Back 	**Hole Size**	0.945	1.26	1.50	2.05	2.52
	Weight lbs.	2.50	7	9	16	30
	Code No.	441200	441202	441204	441206	441208
	Price $	**1,498.46**	**1,562.35**	**1,749.66**	**3,117.51**	**3,759.06**

Spare Parts - See Pages: H60-61					
Standard Accessories		1 set of outside hard solid jaws		1 set of inside hard solid jaws	1 operating lever
Engineering Data See Pages: H62-66					

6-Jaw Scroll Chucks For Sharpening Drills

Application:
- Lever scroll chuck is specially designed for grinding twist drills and other cutting tools



Mounting	Chuck Size	3"	4"	5"	6"
3866 Plain Back 	**Hole Size**	0.945	1.26	1.50	2.05
	Weight lbs.	4.40	6.16	8.80	16
	Code No.	441210	441212	441214	441216
	Price $	**1,629.14**	**2,019.73**	**2,350.79**	**4,618.81**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

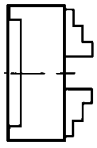
Images are representational only and may not reflect actual product.

6-Jaw Scroll Chucks For Sharpening Drills — Front Mounted

Features:
- Plain Back (Front Mounting)

Application:
- The wrench operated scroll chuck is specially designed for grinding twist drills and other cutting tools



Mounting				
3867 Front Mount 	**Chuck Size**	3.35"	4.33"	6.30"
	Hole Size	1.000	1.280	2.00
	Weight lbs.	4.18	7.70	9.90
	Code No.	441218	441220	441222
	Price $	**2,063.26**	**2,292.09**	**2,750.63**

5C Collet Chucks

Features:
- The simple wrench operated scroll provides uniform, distortion free clamping of workpieces and low collet exchange times

Application:
- The type 3911 collet chuck is designed for use with 5C collets and can be used for turning, facing, boring, grinding and milling operations
- The type 3960 collet chuck allows for fine adjustment to the required concentricity by means of 4 radially arranged adjusting screws

Options:
- Camlock and threaded mounts available on request



3911	**Chuck Size**	5"
	Capacity	1/16-1-1/8
	Weight lbs.	10
	Code No.	425405
	Price $	**997.52**
3960 Fine Adjustment	**Chuck Size**	5"
	Capacity	1/16-1-1/8
	Weight lbs.	12
	Code No.	440409
	Price $	**1,147.08**

Adapters For 5C Collet Chucks

Chuck Size (in.)	Spindle	Code No.	Price $
5	A6	425410	**816.02**
5	A8	425415	**786.37**

3-Jaw Live Morse Taper Scroll Chucks — 2pc Hard Rev. Jaws

Features:
- Able to work in horizontal and vertical positions
- Hardened and ground MT shank
- Sealed ball bearings, lubrication through oiler
- Rotating spindle can also be used with 4-Jaw Front Mount Chucks

Application:
- Designed for simultaneously supporting and gripping long objects (tubes, shafts etc.) during turning, milling and grinding operations
- Can replace typical center in machine tailstock





3275 Front Mount Plain Back 2pc Jaws 	**Chuck Size**	6"
	Morse Taper	5
	Max RPM	3000
	Weight lbs.	32
	Code No. (chuck only) **Price $**	440808 **1,212.42**
9157 Rotating Spindle	**Code No. (spindle only)** **Price $**	436018 **779.72**

Spare Parts - See Pages: H60-61

Standard Accessories						Optional Accessories		
	1 set of hard top jaws		1 set of hard master jaws		1 wrench		Soft top jaws

Engineering Data See Pages: H62-66

3-Jaw Live Morse Taper Scroll Chucks — Hard Solid Jaws

Features:
- Able to work in horizontal and vertical positions
- Hardened and ground MT shank
- Sealed ball bearings, lubrication through oiler
- Rotating spindle can also be used with 4-Jaw Front Mount Chucks (only 5" & 6")

Application:
- Designed for simultaneously supporting and gripping long objects (tubes, shafts etc.) during turning, milling and grinding operations
- Can replace typical center in machine tailstock





3274 Front Mount Plain Back Solid Jaws 	**Chuck Size**	3"	4"	5"	6"
	Morse Taper	2	3	4	5
	Max RPM	4000	3500	3200	3000
	Weight lbs.	8	12	18	32
	Code No. (chuck only) **Price $**	440797 **890.08**	440800 **990.26**	440743 **1,096.26**	440745 **1,136.92**
9157 Rotating Spindle	**Code No. (spindle only)** **Price $**	436012 **315.08**	436014 **1,493.76**	436016 **698.41**	436018 **779.72**

Spare Parts - See Pages: H60-61

Standard Accessories						Optional Accessories		
	1 set of outside hard solid jaws		1 set of inside hard solid jaws		1 wrench		1 set of soft solid jaws

Engineering Data See Pages: H62-66

High Precision 3-Jaw Steel Body Scroll Chucks — 2pc Hard Rev. Jaws

Twice the Centering Accuracy Over Regular Steel Body Chucks — See Page: H64

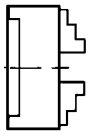
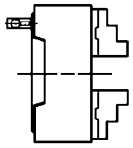
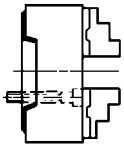
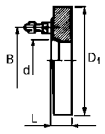


Features:

- 3-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:

- This chuck is designed for all types of workshop machining operations on conventional lathes

Mounting	Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"
3505-I Plain Back 	**Hole Size**	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
	Weight lbs.	11	22	39	64	110	187	320	550
	Code No.	441404	441406	441408	441410	441412	441414	441416	441418
	Price $	**1,409.58**	**1,718.88**	**2,062.97**	**2,888.39**	**4,126.19**	**6,876.86**	**13,558.78**	**22,512.17**
3545-I Camlock 	**D1-3**	441602	441606						
	Price $	**2,177.40**	**2,989.36**						
	D1-4	441604	441608	441612					
	Price $	**2,623.01**	**2,521.54**	**3,532.99**					
	D1-5		441610	441614					
	Price $		**2,521.54**	**2,980.04**					
	D1-6			441616	441618	441622			
	Price $			**2,980.04**	**4,126.19**	**3,415.47**			
	D1-8				441620	441624	441628	441632	441636
	Price $				**4,126.19**	**5,730.66**	**9,684.86**	**15,845.68**	**24,729.36**
	D1-11					441626	441630	441634	441638
	Price $					**5,730.66**	**9,684.86**	**15,845.68**	**21,463.46**
	D1-15								441640
	Price $								**24,729.36**
3515-I A Taper 	**A2-5**		441420	441422	441426				
	Price $		**2,292.09**	**2,406.78**	**4,011.50**				
	A2-6			441424	441428	441432			
	Price $			**2,406.78**	**4,011.50**	**5,559.17**			
	A2-8				441430	441434	441436	441440	
	Price $				**4,011.50**	**6,590.35**	**10,043.21**	**16,112.84**	
	A2-11						441438	441442	441444
	Price $						**10,043.21**	**16,112.84**	**19,599.10**
	A2-15								441446
	Price $								**19,599.10**
3535-I DIN Taper 	**DIN 3**	441450							
	Price $	**2,211.13**							
	DIN 4	441452	441454						
	Price $	**1,833.88**	**1,948.29**						
	DIN 5		441456	441458					
	Price $		**1,948.29**	**2,177.40**					
	DIN 6			441460	441462	441466			
	Price $			**2,177.40**	**3,151.82**	**4,355.06**			
	DIN 8				441464	441468	441472	441476	
	Price $				**3,151.82**	**4,355.06**	**8,251.88**	**19,375.18**	
	DIN 11					441470	441474	441478	441480
	Price $					**4,355.06**	**8,251.88**	**19,375.18**	**23,935.25**
	DIN 15								441482
	Price $								**24,653.61**
3575-I Front Mount Plain Back 	**Code No.**	441666	441668	441670	441672	441674	441676	441678	441680
	Price $	**1,375.31**	**1,666.92**	**2,017.15**	**2,750.63**	**3,438.53**	**5,959.50**	**14,395.29**	**21,271.89**

Spare Parts - See Pages: H60-61

Standard Accessories					Optional Accessories		
	1 set of hard top jaws		1 set of hard master jaws		1 wrench		Soft top jaws

Engineering Data See Pages: H62-66

High Precision 3-Jaw Steel Body Scroll Chucks — Hard Solid Jaws

Twice the Centering Accuracy Over Regular Steel Body Chucks — See Page: H64

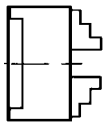
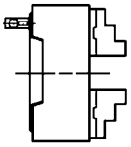
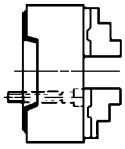
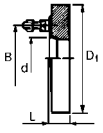


Features:

- 3-Jaw, self-centering scroll chuck with manual gripping
- Steel body extends machine life while providing higher rigidity and greater wear resistance
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Balanced scroll plate and chuck allows higher rotation speeds without excess vibration
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:

- This chuck is designed for all types of workshop machining operations on conventional lathes

Mounting	Chuck Size	3"	4"	5"	6"	8"	10"	12"	16"	20"	25"
3504-I Plain Back 	**Hole Size**	0.630	0.787	1.2598	1.6535	2.1653	2.9921	4.0551	5.3543	7.48	9.92
	Weight lbs.	3.30	6.16	11	22	39	64	110	187	320	550
	Code No.	441300	441302	441304	441306	441308	441310	441312	441314	441316	441318
	Price $	**1,054.29**	**1,203.53**	**1,261.20**	**1,432.94**	**1,718.88**	**2,406.78**	**3,553.01**	**6,303.64**	**15,816.42**	**21,615.70**
3544-I Camlock 	**D1-3**			441502	441506						
	Price $			**1,776.50**	**2,445.76**						
	D1-4			441504	441508	441512					
	Price $			**2,140.36**	**2,062.97**	**2,989.36**					
	D1-5				441510	441514					
	Price $				**2,062.97**	**2,521.54**					
	D1-6					441516	441518	441522			
	Price $					**2,521.54**	**3,438.53**	**5,842.33**			
	D1-8						441520	441524	441528	441532	441536
	Price $						**3,438.53**	**4,928.03**	**8,825.13**	**15,825.74**	**21,826.46**
	D1-11							441526	441530	441534	441538
	Price $							**4,928.03**	**8,825.13**	**14,899.61**	**21,826.46**
	D1-15										441540
	Price $										**22,481.47**
3514-I A Taper 	**A2-5**				441320	441322	441326				
	Price $				**1,997.67**	**2,406.78**	**3,369.42**				
	A2-6					441324	441328	441332			
	Price $					**2,406.78**	**3,369.42**	**4,928.03**			
	A2-8						441330	441334	441336	441340	
	Price $						**3,369.42**	**5,842.33**	**9,130.29**	**18,479.00**	
	A2-11								441338	441342	441344
	Price $								**9,130.29**	**18,479.00**	**20,666.51**
	A2-15										441346
	Price $										**21,938.41**
3534-I DIN Taper 	**DIN 3**			441350							
	Price $			**1,782.27**							
	DIN 4			441352	441354						
	Price $			**1,489.75**	**1,718.88**						
	DIN 5				441356	441358					
	Price $				**1,948.29**	**1,948.29**					
	DIN 6					441360	441362	441366			
	Price $					**1,948.29**	**2,635.94**	**3,782.13**			
	DIN 8						441364	441368	441372	441376	
	Price $						**2,635.94**	**3,782.13**	**7,334.88**	**14,441.11**	
	DIN 11							441370	441374	441378	441380
	Price $							**3,782.13**	**7,335.96**	**14,441.11**	**18,979.75**
	DIN 15										441382
	Price $										**19,549.16**
3574-I Front Mount Plain Back 	**Code No.**	441642	441644	441646	441648	441650	441652	441654	441656	441658	441660
	Price $	**1,008.71**	**1,100.40**	**1,100.40**	**1,283.37**	**1,558.61**	**2,292.09**	**3,117.51**	**5,409.64**	**14,395.29**	**19,346.39**

Spare Parts - See Pages: H60-61

Standard Accessories



1 set of outside hard solid jaws



1 set of inside hard solid jaws



1 wrench

Optional Accessories



1 set of soft solid jaws

Engineering Data See Pages: H62-66

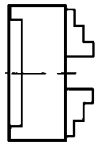
Combination 3 & 4-Jaw Lathe Chucks — Hard Solid Jaws

Features:
- Combines features of both self-centering scroll and independent chucks: user can adjust chuck once and the self-centering option assures repeatability throughout the rest of the batch
- 4-Jaw chuck (type 4605 and type 4805) is able to machine both square and round workpieces, granting greater flexibility
- Steel body (type 4705 and type 4805) extends machine life while providing higher rigidity and greater wear resistance, enabling the chuck to withstand higher machining forces

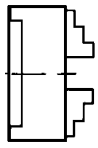
Application:
- Particularly suitable for lining up and gripping workpieces of irregular shape



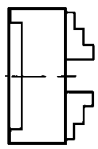
3-Jaw Steel Body Combination Chucks — Hard Solid Jaws

Mounting 4705 Plain Back	Chuck Size	8"	10"	12"	16"	20"	25"
	Hole Size	2.165	2.992	4.055	5.354	7.480	9.921
	Weight lbs.	40	68	120	194	330	540
	Code No.	440570	440572	440574	440576	440578	440580
	Price $	**3,341.17**	**4,349.59**	**5,425.52**	**8,287.58**	**15,517.86**	**22,975.67**

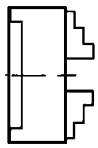
3-Jaw Cast Iron Body Combination Chucks — Hard Solid Jaws

Mounting 4505 Plain Back	Chuck Size	8"	10"	12"	16"	20"	25"
	Hole Size	2.165	2.992	4.055	5.354	7.480	9.921
	Weight lbs.	40	68	120	194	330	540
	Code No.	440470	440472	440474	440476	440478	440480
	Price $	**2,428.52**	**4,099.82**	**3,942.68**	**6,270.41**	**11,854.85**	**19,983.54**

4-Jaw Steel Body Combination Chucks — Hard Solid Jaws

Mounting 4805 Plain Back	Chuck Size	8"	10"	12"	16"	20"	25"
	Hole Size	2.165	2.992	4.055	5.354	7.480	9.921
	Weight lbs.	40	68	120	194	330	540
	Code No.	455930	455935	455940	455945	455950	455955
	Price $	**3,857.96**	**4,242.74**	**5,754.28**	**10,246.76**	**15,497.20**	**20,310.58**

4-Jaw Cast Iron Body Combination Chucks — Hard Solid Jaws

Mounting 4605 Plain Back	Chuck Size	8"	10"	12"	16"	20"	25"
	Hole Size	2.165	2.992	4.055	5.354	7.480	9.921
	Weight lbs.	40	68	120	194	330	540
	Code No.	455900	455905	455910	455915	455920	455925
	Price $	**2,901.10**	**3,349.76**	**4,852.58**	**8,177.66**	**14,488.06**	**22,477.33**

3-Jaw Steel Body Large Through Hole Scroll Chucks

Features:

- Steel body extends machine life while providing higher rigidity and greater wear resistance, enabling the chuck to withstand higher machining forces
- Chucks may work individually or in pairs, mounted on opposite sides of the lathe spindle, ensuring the same vertical position of the jaws in both chucks
- Large through hole compared to the outside diameter of the chuck body
- High gripping force and high machining accuracy
- Able to machine very long workpieces
- Heavy duty components

Application:

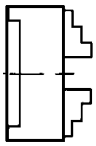
- This chuck is designed for gripping long pipes during medium duty machining for conventional and specialized machine-tools



4-Jaw Independent large through hole chucks also available. See page: H68



ADAPTER PLATES
Pages: H58-59

Mounting 3597 Plain Back	Chuck Size	12"	16"	20"	26"	32"
	Hole Size	5.709	8.661	12.598	15.984	18.110
	Weight lbs.	104	161	264	506	875
	Code No.	441248	441250	441252	441253	
	Price $	**4,667.66**	**8,604.55**	**18,739.60**	**26,834.08**	

Spare Parts - See Pages: H35

Standard Accessories



1 set of hard master jaws



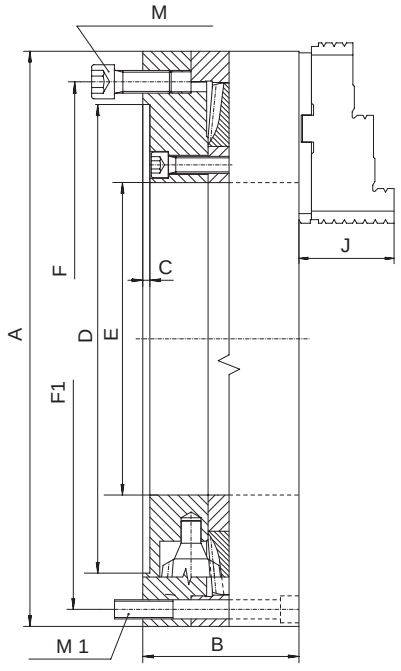
1 set of hard top jaws



1 wrench

Engineering Data See Pages: H62-66

Specifications



Chuck Size	12"	16"	20"	26"	32"
A	12.4016	15.9449	20.2756	25.9843	31.4961
B	3.8189	4.3307	4.7244	5.5118	5.9055
C	0.1969	0.1969	0.1969	0.2756	0.2756
D	10.2362	12.9921	16.5354	21.4567	27.9528
E	5.7087	8.6614	12.5984	15.9843	18.1102
F	11.2598	14.2520	18.0315	23.0709	29.9213
F1	11.2598	15.0000	18.9567	24.4094	29.9213
J	2.2402	2.6378	3.1102	3.4252	-
M	3xM16x30	6xM16x40	6xM16x40	6xM16x40	6xM20x50
M1	3xM16x100	6xM12x120	6xM16x130	6xM16x150	6xM20x160
Gripping Range	1.57-5.51	2.64-5.43	10.40-20.31	13.74-24.80	10.23-18.11
Max. Speed rpm	2500	1000	800	600	700
Approx. weight	103	160	264	506	875

3-Jaw Cast Iron Body Large Through Hole Scroll Chucks

Features:
- Cast Iron body
- Chucks may work individually or in pairs, mounted on opposite sides of the lathe spindle, ensuring the same vertical position of the jaws in both chucks
- Large through hole compared to the outside diameter of the chuck body
- Able to machine very long workpieces

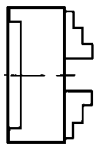
Application:
- Designed for gripping long pipes during machining for conventional and specialized machine-tools





ADAPTER PLATES
Pages: H58-59

4-Jaw Independent large through hole chucks also available. See page: H68

Mounting 3295 Plain Back 	**Chuck Size**	16"	20"	26"	32"
	Hole Size	8.661	12.598	15.984	16.141
	Weight lbs.	127	167	284	467
	Code No.	435530	435535	435540	435545
	Price $	**5,003.59**	**7,381.97**	**12,163.40**	**25,874.68**

Spare Parts - See Pages: H35

Standard Accessories


1 set of hard master jaws


1 wrench

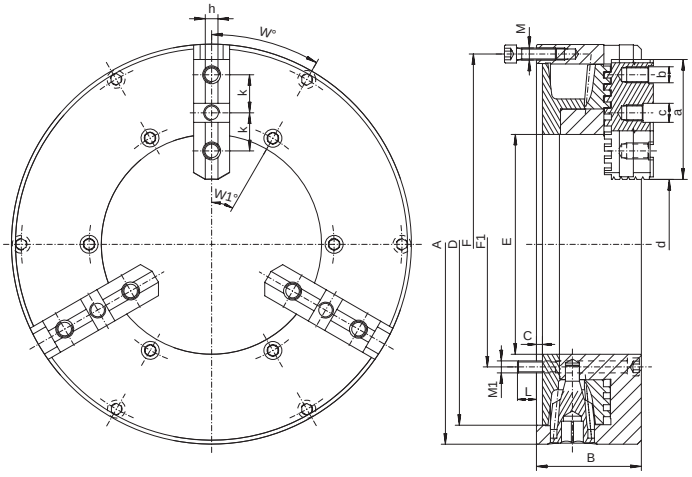
Optional Accessories


1 set of soft top jaws


1 set of hard top jaws

Engineering Data See Pages: H62-66

Specifications



Chuck Size	16"	20"	26"	32"
A	15.7480	20.000	25.9843	31.4961
B	4.1339	4.7244	5.3150	5.9449
C	0.2362	0.3150	0.5512	0.2756
D	14.2520	18.1890	22.8346	27.9528
E	8.6614	12.5984	15.9843	16.1417
F	15.0000	18.9567	24.4094	-
F1	-	-	-	18.1102
M	6xM12	6xM16	6xM16	-
M1	-	-	-	6xM24
W	30°	30°	30°	-
W1	-	-	-	30°
L	-	-	-	0.9843
a	4.7244	4.7244	5.000	8.8583
b	M16	M20	M20	M20
c	0.7496	0.7496	0.7496	0.7496
h	0.5000	0.5000	0.5000	0.5000
d min.	6.6142	9.8425	14.8031	10.2362
d max.	11.3386	14.9606	19.5669	22.2835
Max Speed rpm	500	350	250	200
Approx weight lbs	127	167	284	467

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

3-Jaw Steel Body Heavy Duty Large Through Hole Scroll Chucks



Features:

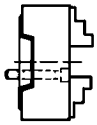
- Steel body extends machine life while providing higher rigidity and greater wear resistance, enabling the chuck to withstand higher machining forces
- Chucks may work individually or in pairs, mounted on opposite sides of the lathe spindle, ensuring the same vertical position of the jaws in both chucks
- Large through hole compared to the outside diameter of the chuck body
- High gripping force and high machining accuracy
- Able to machine very long workpieces

Application:

- This precision chuck, with increased gripping accuracy, is designed for gripping long pipes during heavy duty machining for conventional and specialized machine-tools

4-Jaw Independent large through hole chucks also available see page: H68

Mounting 3515 HD Short Taper



Chuck Size	15-1/4"	15-1/4"	15-3/4"	20"	25"	25"	31-1/2"	31-1/2"
Hole Size	4.00"	5.30"	5.00"	7.50"	10.75"	12.50"	10.75"	12.5"
Weight lbs.	225	217	212	344	612	552	1,104	1,076
A2-6 Price $	441230 **13,896.94**							
A2-8 Price $		441232 **13,896.94**						
A2-11 Price $			441234 **13,896.94**	441236 **17,787.00**				
A2-15 Price $					441238 **26,185.37**		441242 **40,484.66**	
A2-20 Price $						441240 **29,686.14**		441244 **40,484.66**

Spare Parts - See Pages: H35

Standard Accessories



1 set of hard master jaws



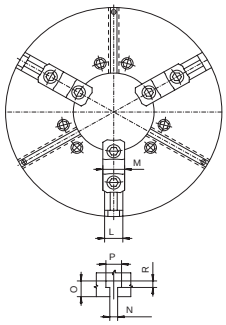
1 set of hard top jaws



1 wrench

Engineering Data See Pages: H62-66

Specifications



Chuck Size	15-1/4 A6	15-1/4 A8	15-3/4 A11	20" A11	25" A15	25" A20	31-1/2 A15	31-1/2 A20
A	15.7480	15.7480	15.7480	19.6850	24.8031	24.8031	31.4961	31.4961
B	4.3701	4.3701	4.3701	4.6850	5.6693	5.6693	5.9055	5.9055
C	3.4252	3.4252	3.4252	3.4252	3.6417	3.6417	3.6417	3.6417
D	4.4646	6.7480	6.5000	9.2520	13.0000	14.5000	13.0000	18.2480
E	4.0551	5.3543	5.1181	7.5591	10.8268	12.5984	10.8268	12.5984
F	4.1880	5.5007	7.7507	7.7507	11.2510	16.2510	11.2510	16.2510
H	5.3150	5.3150	5.3150	5.3150	5.3150	5.3150	5.3150	5.3150
H1	-	-	-	6.6535	8.2677	8.2677	8.8583	8.8583
I	6x1/2"-13x4-1/2"	6x5/8"-11x4-1/2"	6x3/4"-10x4"	6x3/4"-10x5"	6x7/8"-9x6"	6x1"-8x5"	6x7/8"-9x6"	6x1"-8x5"
L	1.9685	1.9685	1.9685	1.9685	2.7559	2.7559	2.7559	2.7559
M	2.1260	2.1260	2.1260	2.1260	2.9528	2.9528	2.9528	2.9528
N	0.5512x0.3937	0.5512x0.3937	0.5512x0.3937	0.5512x0.3937	0.661x0.3937	0.661x0.3937	0.661x0.3937	0.661x0.3937
O	0.8268	0.8268	0.8268	0.8268	1.2992	1.2992	1.2992	1.2992
P	0.9055	0.9055	0.9055	0.9055	1.4567	1.4567	1.4567	1.4567
R	0.3937	0.3937	0.3937	0.3937	0.6299	0.6299	0.6299	0.6299
Gripping Range	0.9843-15.7480	0.9843-15.7480	0.9843-15.7480	1.7717-19.6850	3.1496-24.8031	6.2992-24.8031	5.1181-31.4961	7.0866-31.4961
Gripping Force daN	6200	6200	6200	7700	8200	8200	9000	9000
Max. Speed	1400	1400	1400	1000	850	850	600	600
Approx Weight lbs	225	217	211	344	611	552	1,104	1,076

8210X Fully Machined A2 Mounts (Backplates)



8210X Fully Machined Adapters
For plain back, self-centering chucks - designed for direct mounting on A spindle noses.

Chuck Size	Spindle Nose	Code No.	Price $
4"	A2-3	442400	**277.80**
5"	A2-3	442402	**301.84**
6"	A2-3	442404	**384.81**
6"	A2-4	442406	**384.81**
6"	A2-5	442408	**384.81**
8"	A2-3	442410	**407.63**
8"	A2-4	442412	**407.63**
8"	A2-5	442414	**390.59**
8"	A2-6	442416	**408.10**
10"	A2-5	442418	**506.84**
10"	A2-6	442420	**506.84**
10"	A2-8	442422	**506.84**
12"	A2-6	442424	**750.61**
12"	A2-8	442426	**750.61**
12"	A2-11	442432	**750.61**
16"	A2-6	442434	**1,517.68**
16"	A2-8	442436	**1,385.21**
16"	A2-11	442438	**1,385.21**
20"	A2-8	442440	**2,178.59**
20"	A2-11	442442	**2,178.59**
20"	A2-15	442444	**2,944.66**
25"	A2-8	442446	**3,202.32**
25"	A2-11	442448	**3,202.32**
25"	A2-15	442450	**3,509.48**

8230X Fully Machined DIN Mounts (Backplates)



8230X Fully Machined Adapters
For plain back, self-centering chucks - designed for direct mounting on DIN spindle noses.

Chuck Size	Spindle Nose	Code No.	Price $
4"	DIN-3	442452	**236.39**
5"	DIN-3	442454	**259.61**
5"	DIN-4	442456	**259.61**
6"	DIN-3	442458	**325.71**
6"	DIN-4	442460	**325.71**
6"	DIN-5	442462	**325.71**
8"	DIN-3	442464	**379.95**
8"	DIN-5	442468	**379.95**
8"	DIN-6	442470	**379.95**
10"	DIN-5	442472	**489.27**
10"	DIN-6	442474	**499.14**
10"	DIN-8	442476	**489.27**
12"	DIN-6	442478	**786.98**
12"	DIN-11	442482	**613.22**
16"	DIN-6	442484	**1,143.02**
16"	DIN-8	442486	**1,143.02**
16"	DIN-11	442488	**1,143.02**
20"	DIN-8	442490	**2,061.86**
20"	DIN-11	442492	**2,061.86**
20"	DIN-15	442494	**2,061.86**
25"	DIN-8	442496	**2,851.93**
25"	DIN-11	442498	**2,851.93**
25"	DIN-15	442500	**2,851.93**

8240X Fully Machined Camlock Mounts (Backplates)



8240X Fully Machined Adapters
For plain back, self-centering chucks - designed for direct mounting on Camlock spindle noses.

Chuck Size	Spindle Nose	Code No.	Price $
5"	D1-3	455300	**429.79**
5"	D1-4	455302	**429.79**
5"	D1-5	455303	**637.43**
6"	D1-3	455305	**499.49**
6"	D1-4	455310	**499.49**
6"	D1-5	455315	**499.49**
6"	D1-6	455317	**570.64**
8"	D1-3	455320	**589.51**
8"	D1-4	455325	**548.86**
8"	D1-5	455330	**548.86**
8"	D1-6	455335	**548.86**
10"	D1-5	455340	**711.48**
10"	D1-6	455345	**711.48**
10"	D1-8	455350	**711.48**
12"	D1-6	455355	**937.99**
12"	D1-8	455360	**937.99**
12"	D1-11	455365	**937.99**
16"	D1-6	455370	**1,902.13**
16"	D1-8	455375	**1,902.13**
16"	D1-11	455380	**1,902.13**
20"	D1-8	455385	**3,975.58**
20"	D1-11	455390	**3,975.58**
20"	D1-15	455391	**2,205.80**
25"	D1-8	455393	**2,905.38**
25"	D1-15	455396	**4,910.66**

8250 Fully Machined L Mounts (Backplates)



8250 Fully Machined Adapters
For plain back, self-centering chucks - designed for direct mounting on L-type spindle noses.

Chuck Size	Spindle Nose	Code No.	Price $
6"	L00	455405	**467.54**
6"	L0	455410	**467.54**
8"	L00	455415	**499.49**
8"	L0	455420	**499.49**
8"	L1	455425	**615.65**
10"	L00	455430	**1,367.78**
10"	L0	455435	**712.93**
10"	L1	455440	**712.93**
10"	L2	455445	**1,012.04**
12"	L1	455455	**1,264.69**
12"	L2	455460	**1,264.69**
16"	L0	455465	**1,463.62**
16"	L1	455470	**1,463.62**
16"	L2	455475	**1,501.37**
16"	L3	455480	**1,592.84**
20"	L2	455485	**2,617.96**
20"	L3	455490	**2,617.96**

8212 Semi-Machined A Mounts (Backplates)



A-Mount Semi-Machined Adapters
For self-centering plain back chucks with spotted holes.

Chuck Size	Spindle Nose	Code No.	Price $
5"	A-6	455500	**250.76**
5"	A-8	455502	**447.56**
6"	A-5	455504	**222.16**
6"	A-6	455505	**222.16**
8"	A-5	455506	**299.11**
8"	A-6	455508	**299.11**
10"	A-6	455510	**439.96**
10"	A-8	455512	**439.96**
12"	A-6	455514	**782.63**
12"	A-8	455516	**782.63**
16"	A-8	455518	**1,568.16**
16"	A-11	455520	**1,568.16**
20"	A-11	455521	**2,741.38**
25"	A-11	455522	**2,587.46**
25"	A-15	455523	**2,828.50**
36"-49"	A-15	455524	**3,532.23**
36"-49"	A-20	455525	**3,636.92**

8232 Semi-Machined DIN Mounts (Backplates)



DIN-Mount Semi-Machined Adapters
For plain back, self-centering chucks – designed for direct mounting on DIN spindle noses.

Chuck Size	Spindle Nose	Code No.	Price $
8"	DIN 6	455600	**389.14**
10"	DIN 6	455605	**534.34**
10"	DIN 8	455610	**534.34**
12"	DIN 6	455615	**862.49**
12"	DIN 8	455620	**862.49**
12"	DIN 11	455623	**778.53**
16"	DIN 8	455625	**1,597.20**
16"	DIN 11	455630	**1,101.86**
20"	DIN 11	455635	**1,918.33**

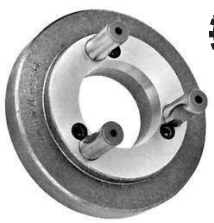
8206 Semi-Machined Threaded Mounts (Backplates)



8206 Threaded Adapters
Semi-machined for self-centering plain back chucks.

Chuck Size	Thread	Code No.	Price $
4"	1" - 10	455205	**206.18**
4"	1-1/2" - 8	455210	**206.18**
5"	1" - 10	455215	**210.54**
5"	1-1/2" - 8	455217	**153.91**
6"	1-1/2" - 8	455225	**196.02**
6"	2-1/4" - 8	455230	**184.40**
8"	1-1/2" - 8	455235	**275.88**
8"	2-1/4" - 8	455240	**387.68**
10"	2-1/4" - 8	455245	**859.58**
10"	2-3/8" - 6	455247	**1,016.40**
12"	2-3/8" - 6	455250	**1,125.30**
12"	2-3/4" - 8	455255	**337.54**

8242 Semi-Machined Camlock Mounts (Backplates)



Camlock Mount Semi-Machined Adapters
For plain back, self-centering chucks – designed for direct mounting on Camlock spindle noses.

Chuck Size	Spindle Nose	Code No.	Price $
4"	D1-3	442502	**318.86**
5"	D1-3	442504	**442.86**
5"	D1-4	442506	**442.86**
6"	D1-3	442508	**470.45**
6"	D1-4	442510	**470.45**
6"	D1-5	442512	**470.45**
8"	D1-4	442514	**518.36**
8"	D1-5	442516	**492.01**
8"	D1-6	442518	**518.36**
10"	D1-5	442520	**586.40**
10"	D1-6	442522	**601.13**
10"	D1-8	442524	**601.13**
12"	D1-6	442526	**898.79**
12"	D1-8	442528	**898.79**
16"	D1-8	442532	**1,319.87**
16"	D1-11	442534	**1,319.87**
20"	D1-8	442536	**3,335.24**
20"	D1-11	442538	**3,335.24**
25"	D1-11	442540	**4,286.30**
25"	D1-15	442542	**2,943.82**

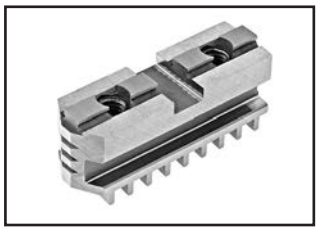
8205 Rough Casting Mounts (Backplates)



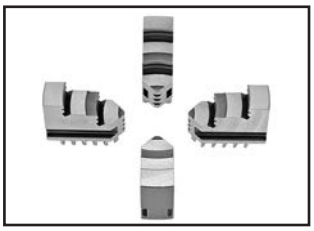
8205 Rough Casting Adapters
For self-centering/plain back chucks.

Chuck Size	Code No.	Price $
6"	455105	**168.43**
8"	455110	**246.84**
10"	455115	**457.38**
12"	455120	**733.26**
16"	455125	**1,139.82**
20"	455130	**2,237.44**
25"	455135	**4,403.15**

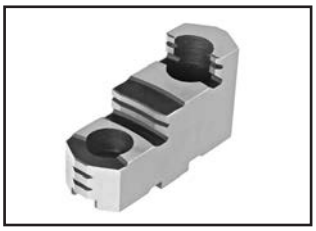
Replacement Jaws For Self-Centering Chucks



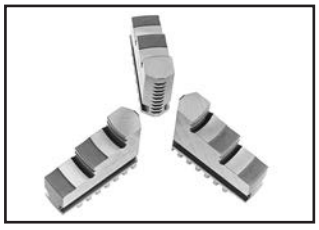
Hard Master Jaws



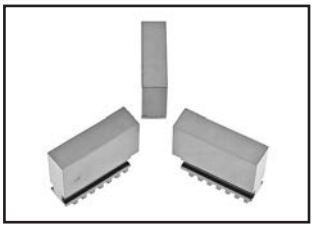
Hard Solid O.D.



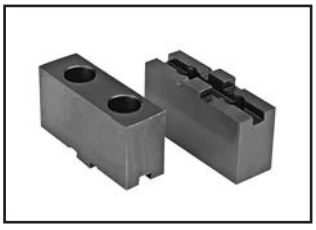
Hard Top Jaws



Hard Solid I.D.



Soft Solid Jaws



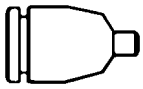
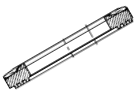
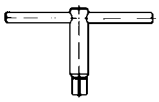
Soft Top Jaws

Parts	For Chuck Series	Qty. per set	3"	4"	5"	6"	8"	10"	12"	16"	20"	25"	32"
HARD SOLID O.D. JAWS	3200	3	467700	467705	467710	467715	467720	467725	467730	467735	467740	467745	
		Price $	**196.02**	**223.61**	**281.69**	**325.25**	**338.32**	**396.40**	**660.66**	**728.90**	**1,681.42**	**2,156.22**	
	3600 & 3700	4			467900	467902	467904	467906	467908	467910	467912	467914	
		Price $			**486.42**	**527.08**	**547.40**	**583.70**	**882.82**	**1,007.69**	**2,158.22**	**3,850.26**	
	3800	6			467915	467916	467918	467920	467922	467923			
Sold in Sets		**Price $**			**894.03**	**711.48**	**885.72**	**962.68**	**1,231.30**	**1,483.94**			
HARD SOLID I.D. JAWS	3200	3	467600	467605	467610	467615	467620	467625	467630	467635	467640	467645	467647
		Price $	**190.21**	**233.77**	**243.94**	**316.54**	**325.25**	**376.07**	**574.99**	**737.62**	**1,684.32**	**2,156.22**	**2,156.22**
	3600 & 3700	4			467924	467926	467928	467930	467932	467934	467936	467938	
		Price $			**363.00**	**408.01**	**434.15**	**538.69**	**765.20**	**990.26**	**2,244.79**	**3,926.21**	
	3800	6			467939	467940	467942	467944	467946	467947			
Sold in Sets		**Price $**			**560.35**	**811.67**	**917.66**	**940.90**	**1,260.34**	**1,961.65**			
SOFT SOLID JAWS	3200 & 3500	3	467749	467750	467755	467760	467765	467770	467775	467780	467785	467790	
		Price $	**148.10**	**162.62**	**168.43**	**187.31**	**210.54**	**312.18**	**415.27**	**442.86**	**1,062.86**	**1,527.50**	
	3600 & 3700	4			467948	467950	467952	467954	467956	467958	467960		
Sold in Sets		**Price $**			**251.20**	**280.24**	**323.80**	**482.06**	**705.67**	**730.36**	**1,997.95**		
HARD TOP JAWS	3200 & 3500	3			460705	460710	460715	460720	460725	460730	460735	460740	460745
		Price $			**355.74**	**416.72**	**442.86**	**482.06**	**588.06**	**804.41**	**1,254.53**	**1,595.75**	**1,595.75**
	3600 & 3700	4			460805	460810	460815	460820	460825	460830	460835	460840	
		Price $			**563.38**	**612.74**	**659.21**	**711.48**	**840.71**	**1,229.84**	**1,768.54**	**2,237.53**	
	3800	6			460908	460910	460915	460920	460925	460926	460927	460928	
Sold in Sets		**Price $**			**881.36**	**1,010.59**	**1,113.68**	**1,125.30**	**1,382.30**	**1,754.02**	**2,471.30**	**2,875.52**	
SOFT TOP JAW	3100	1				460930	460935						
		Price $				**104.54**	**107.45**						
	3200 & 3500	1			465105	465110	465115	465120	465125	465130	465135	465140	465145
Sold Per Piece		**Price $**			**58.08**	**63.89**	**75.50**	**92.93**	**103.09**	**145.20**	**188.76**	**259.91**	**415.27**
HARD MASTER JAWS	3100	2				465170	465175	465180	465185	465190			
		Price $				**226.51**	**255.55**	**413.82**	**596.77**	**679.54**			
	3200 & 3500	3			467355	467360	467365	467370	467375	467380	467385	467390	467395
		Price $			**329.60**	**418.18**	**454.48**	**514.01**	**595.32**	**710.03**	**1,241.46**	**1,611.72**	**1,961.65**
	3600 & 3700	4			467405	467410	467415	467420	467425	467430	467435	467440	
		Price $			**788.44**	**859.58**	**914.76**	**968.48**	**996.07**	**1,260.34**	**2,061.84**	**2,673.13**	
	3800	6			467505	467510	467515	467520	467525	460527	460529	460530	
Sold in Sets		**Price $**			**866.84**	**872.65**	**1,139.82**	**1,232.75**	**1,276.31**	**1,925.35**	**2,747.18**	**4,003.16**	

Spare Parts For Self-Centering Chucks





Parts	For Chuck Series	Qty. per set	3"	4"	5"	6"	8"	10"	12"	16"	20"	25"	32"
PINION 	3200 & 3600	1 **Price $**	467300 **69.70**	467305 **81.31**	467310 **84.22**	467315 **88.57**	467320 **98.74**	467325 **121.97**	467330 **142.30**	467335 **203.28**	467340 **339.77**	467345 **583.16**	467346 **776.82**
	3500 & 3700	1 **Price $**			467799 **84.22**	467800 **87.12**	467805 **103.09**	467810 **126.32**	467815 **149.56**	467820 **204.73**	467821 **336.86**	467822 **535.79**	
SCROLL PLATE 	3200 & 3600	1 **Price $**	467104 **219.25**	467105 **261.36**	467110 **284.59**	467115 **317.99**	467120 **349.93**	467125 **503.84**	467130 **860.93**	467135 **1,309.70**	467140 **3,751.97**	467145 **5,871.89**	467146 **7,702.86**
	3500 & 3865 & 3700	1 **Price $**			467829 **344.12**	467830 **408.01**	467835 **505.30**	467840 **689.70**	467845 **911.86**	467850 **1,999.40**			
WRENCH 	3200 & 3700	1 **Price $**	460400 **69.70**	460405 **87.12**	460405 **87.12**	460415 **92.93**	460415 **92.93**	460425 **113.26**	460425 **113.26**	460435 **168.43**	460440 **245.39**	460440 **245.39**	460445 **286.04**
	Square Sizes		0.2344"	0.3543"	0.3543"	0.4331"	0.4331"	0.5512"	0.5512"	0.6693"	0.7480"	0.7480"	0.7480"

Camlock Studs & Screws

Size	Diameter	Thread	No. of Studs	Code No.	Price $	Camlock Stud Locking Screw	Code No.	Price $
D1-3	9/16	M10 x 1	3	467230	**56.63**	3	467242	**28.94**
D1-4	5/8	M10 x 1	3	467232	**56.63**	3	467244	**28.94**
D1-5	3/4	M12 x 1	6	467234	**58.08**	6	467246	**28.94**
D1-6	7/8	M16 x 1.5	6	467236	**62.44**	6	467248	**28.94**
D1-8	1	M20 x 1.5	6	467238	**72.60**	6	467250	**28.94**
D1-11	1-3/16	M22 x 1.5	6	467240	**104.54**	6	467252	**28.94**



Jaw Mounting Screws

Chuck Size	Screw 1	Code No.	Price $	Screw 2	Code No.	Price $
5	5/16 - 18 x 3/4	467254	**11.88**	5/16 - 18 x 1	467266	**11.91**
6 & 8	3/8 - 16 x 3/4	467256	**12.02**	3/8 - 16 x 1-1/4	467268	**12.53**
10 & 12	1/2 - 13 x 1	467260	**13.43**	1/2 - 13 x 1-1/2	467272	**13.50**
16	5/8 - 11 x 1-1/4	467262	**22.28**	5/8 - 11 x 1-3/4	467274	**17.06**
20	3/4 - 10 x 1-1/2	467264	**41.22**	3/4 - 10 x 3	467276	**50.26**
25	3/4 -10 x 1-1/2	467264	**41.22**	3/4 - 10 x 3-1/4	467271	**52.77**
32	3/4 - 10 x 1-3/4	467273	**44.31**	3/4 - 10 x 3	467278	**50.26**



DIN Studs

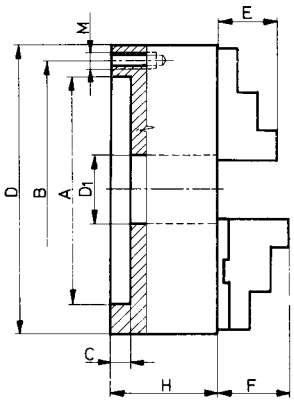
Size	Code No.	Price $
DIN 6	467280	**69.70**
DIN 8	467282	**76.96**
DIN 11	467284	**88.57**



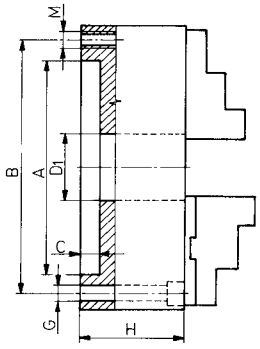
Specifications For Scroll Chucks

UNIVERSAL AND PRECISION CHUCKS – SERIES 3200, 3500 & 3600

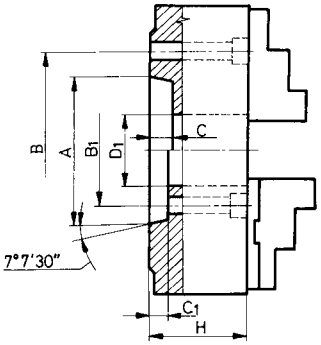
Plain Back



Front mounting



Taper A1 and A2



MAIN DIMENSIONS

Plain Back (two-piece or solid jaws)

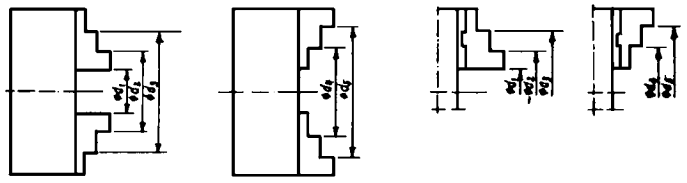
Size of Chuck	3"	4"	5"	6"	8"	10"	12"	16"	20"	25"
D	3-1/4	4	5	6-1/4	8	10	12-1/2	15-3/4	20	25
A	2.2047	2.7559	3.7402	4.9213	6.2992	7.8740	10.2362	12.9921	16.5354	21.4567
B	2.6378	3.2677	4.2520	5.5118	6.9291	8.8189	11.2598	14.2519	18.0314	23.0709
C	0.1181	0.1181	9.1575	0.1575	0.1575	0.1969	0.1969	0.1969	0.1969	0.2756
D1	0.6299	0.7874	1.2598	1.6535	2.1654	2.9921	4.0551	5.3543	7.4803	9.9212
E	0.5118	0.6693	0.7874	1.2598	1.1417	1.3386	1.6929	2.1654	2.3622	2.7559
F	—	—	1.5748	1.6929	1.7716	2.0866	2.2441	2.6378	3.1496	3.4252
H 3500	1.7322	1.9685	2.4221	2.7559	3.1496	3.5433	3.9370	4.3307	—	—
H 3200	1.7323	1.9685	2.2047	2.5591	2.9528	3.3465	3.7008	4.1339	4.7244	5.3150
H 3600	1.7323	1.9685	2.2047	2.5591	2.9528	3.3465	3.7008	4.1339	4.7244	5.3150
M	3xM6	3xM8	3xM8	6xM10	6xM10	6xM12	6xM16	6xM16	6xM16	6xM16

A-Type Mounting, ASA Standard B5.9

Chuck Size	6"	8"		10"			12"		16"			20"		25"	
D	6-1/2	8		10			12-1/2		15-3/4			20		25	
Taper Acc. to ASA	5	5	6	5	6	8	6	8	6	8	11	8	11	11	15
A	3.2505	3.2505	4.1880	3.2505	4.1880	5.5007	4.1880	5.5007	4.1880	5.5007	7.7507	5.5007	7.7507	7.7507	11.2509
B	—	—	—	4.1260	—	—	5.2520	—	5.2520	6.7480	—	6.7480	9.2520	—	—
B1	2-7/16	2-7/16	3 1/4	—	3-1/4	4-3/8	—	4-3/8	—	—	6-1/2	—	—	6-1/2	9-3/4
C	—	—	—	0.5629	—	—	0.6299	—	0.6299	0.7087	—	0.7087	0.7874	—	—
C1	9/16	9/16	5/8	—	5/8	11/16	—	11/16	—	—	3/4	—	—	3/4	13/16
D1	1.6535	1.6535	2.16535	2.9921	2.16535	2.9921	4.0551	3.1496	4.0551	5.3543	5.1181	5.3543	7.5905	5.1181	7.5905
H 3500	2.6881	3.0709		3.5309			3.7874		4.2520			—		—	
H 3200	3.2087	3.5827		4.0748			4.6338		5.0591			5.7480		6.4960	
H 3600	3.2087	3.5827		4.0748			4.6338		5.0591			5.7480		6.4960	

SELF-CENTERING SCROLL CHUCKS

Clamping Ranges (Inches)



Chuck Size		Jaws									
		D1		D2		D3 Max.		D4 Max.		D5 Max.	
mm	Inch	Solid	Reversible	Solid	Reversible	Solid	Reversible	Solid	Reversible	Solid	Reversible
80	3	0.08-1.06	—	0.87-1.81	—	1.77-2.72	—	0.98-1.97	—	1.89-2.80	—
100	4	0.12-1.30	—	0.98-2.20	—	2.20-3.43	—	1.26-2.44	—	2.44-3.66	—
125	5	0.12-1.97	0.12-1.97	1.34-2.91	1.34-2.99	2.83-4.53	2.95-4.65	1.50-3.27	2.05-3.78	3.15-4.92	3.74-4.92
160	6	0.12-2.52	0.12-2.52	1.65-3.94	1.65-3.82	3.70-6.06	3.46-5.75	1.97-4.21	2.44-4.76	3.86-6.30	4.53-6.30
200	8	0.16-3.54	0.16-3.54	2.05-5.31	1.97-5.12	4.72-7.95	4.13-7.48	2.36-5.71	2.83-6.14	5.12-7.87	5.24-7.87
250	10	0.20-4.65	0.20-4.65	2.44-6.85	2.28-6.30	5.70-10.43	4.92-9.25	3.03-7.40	3.38-7.75	6.30-9.84	6.30-9.84
315	12	0.20-5.16	0.20-5.16	3.07-7.87	2.56-7.16	6.77-11.77	5.70-10.43	3.54-8.46	4.06-8.90	7.48-12.40	7.48-12.40
400	16	0.39-7.09	0.39-7.09	3.38-9.92	2.83-8.98	8.27-14.96	5.50-12.95	4.05-10.71	5.00-11.57	9.05-15.75	9.05-15.75
500	20	0.79-9.25	0.79-9.25	4.72-13.19	4.72-16.14	18.74	7.87-19.10	14.76	4.33-15.75	19.69	7.48-19.69
630	25	1.18-13.19	1.18-13.19	6.30-18.31	5.51-23.23	24.80	8.27-26.20	19.17	4.72-22.44	24.80	7.88-24.80
800	32	3.54-12.00	3.46-15.59	11.50-26.77	7.87-25.75	18.03-31.50	10.79-28.74	10.79-21.02	7.09-25.12	17.32-27.56	10"-31"

Gripping Power of the Self-Centering Chucks (lbs)

Size of Chuck (in.)	3	4	5	6	8	10	12	16	20	25	32
Universal Chucks (Semi-steel body)	2200	3750	5300	6800	8200	10000	12000	14300	16000	17600	19800
Precision Chucks (Steel body)	2200	3750	5300	6800	8200	10000	12000	14300			

Recommended Max. Speeds for Self-Centering Chucks (rpm)

Size of Chuck (in.)	3	4	5	6	8	10	12	16	20	25	32
Universal Chucks (Semi-steel body)	4000	3500	3200	3000	2500	2000	1500	1000	700	500	350
Precision Chucks (Steel body)	6000	5200	4800	4500	4000	3500	2800	2000			

Value of Balancing – for Precision Self-Centering Chucks Only

Size of Chuck (in.)	3	4	5	6	8	10	12	16
Balancing (ounce-inch)	0.15	0.22	0.32	0.44	0.62	0.87	1.25	1.94

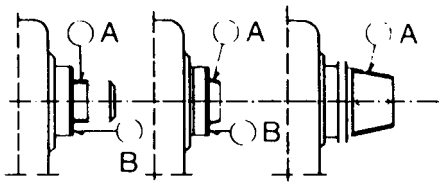
SELF-CENTERING SCROLL CHUCKS

Spindle Runout

To obtain the specified centering accuracy of a chuck mounted on a machine tool it is necessary:

- to reduce play in the spindle bearings to the allowable minimum;
- to ensure the machine spindle nose runout not to exceed the values specified
- to meet the basic requirements for correct mounting of chuck on the spindle nose, according to the chuck installation instruction

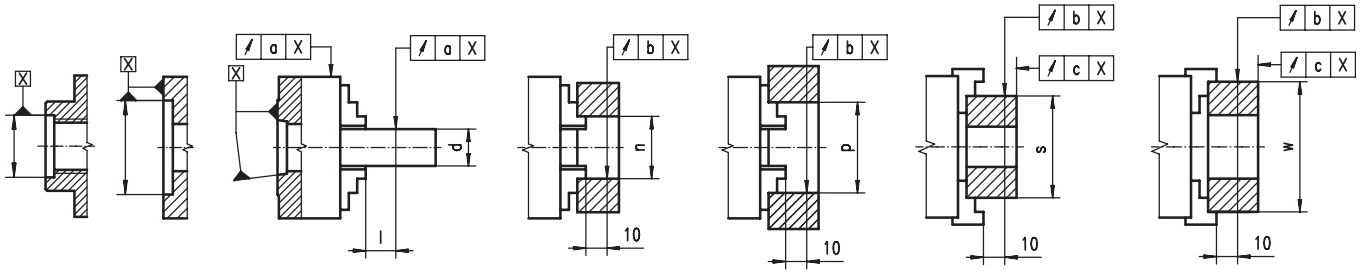
Runouts on Universal and Precision Chucks			
Size of Chuck	Radial Runout A	Radial Runout B	Axial Runout C
3	0.0008	0.0010	0.0006
4	0.0008	0.0010	0.0006
5	0.0012	0.0014	0.0008
6	0.0012	0.0014	0.0008
8	0.0016	0.0018	0.0010
10	0.0016	0.0018	0.0010
12	0.0020	0.0022	0.0012
16	0.0024	0.0025	0.0012
20	0.0040	0.0040	0.0020
25	0.0040	0.0040	0.0020
32	0.0059	0.0059	0.0024



Radial Runout A	Radial Runout B
0.0002	0.00012

Centering Accuracy For Self-Centering Scroll Chucks

Type: 3200, 3500, 3600, 3700, 3800



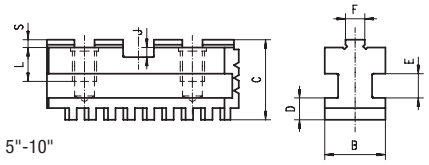
Chuck Size	3-1/2"	4"	5"	6"	8"	10"	12"	16"	20"	25"	32"	36"	40"
d (in)	0.3937	0.3937	0.7087	0.7087	1.1811	1.1811	2.0866	2.0866	2.9528	2.9528	6.2992	9.8425	9.8425
d (in)	-	0.5512	0.9843	1.1811	1.5748	2.0866	2.9528	3.9370	3.9370	4.9213	7.8740	12.4016	12.4016
d (in)	0.5512	0.7087	1.1811	1.5748	2.0866	2.9528	3.9370	4.9213	4.9213	6.2992	9.8425	15.7480	15.7480
l (in)	1.5748	1.5748	2.3622	2.3622	3.1496	3.1496	4.7244	4.7244	6.2992	6.2992	6.2992	6.2992	6.2992
n (in)	1.5748	1.5748	1.9685	1.9685	3.1496	3.1496	4.9213	4.9213	7.8740	7.8740	12.7953	19.6850	19.6850
p (in)	2.3622	2.9528	3.9370	5.3150	6.3780	7.8740	9.9213	11.1024	11.1024	12.7953	19.6850	24.8031	24.8031
s (in)	1.3780	1.9685	2.4409	3.4646	3.7795	5.9055	8.2677	9.8425	11.8110	15.7480	15.7480	19.6850	19.6850
w - Hard Solid Jaws (in)	2.4803	3.1496	3.9370	3.9370	6.2992	6.2992	9.8425	9.8425	15.7480	15.7480	19.6850	-	-
w - Hard 2pc Jaws (in)	-	-	4.7244	5.9055	7.2835	8.8583	11.8110	13.7795	15.7480	15.7480	19.6850	24.8031	24.8031

Chuck Type		Centering Accuracy (in)										
High Precision Series												
3500-I	a	0.0004	0.0006	0.0008	0.0010	0.0012	0.0020	0.0028				
3500-I	b	0.0005	0.0007	0.0009	0.0011	0.0013	0.0022	0.0030				
3500-I	c	0.0003	0.0004	0.0005	0.0006	0.0006	0.0012	0.0020				
Fine Adjustment & Steel Body Chucks												
3500	a	0.0008	0.0012	0.0016	0.0020	0.0024	0.0039	0.0039				
3700	b	0.0010	0.0014	0.0018	0.0022	0.0026	0.0039	0.0039				
3800	c	0.0006	0.0008	0.0010	0.0012	0.0012	0.0020	0.0020				
Cast Iron Body Chucks												
3200	a	0.0008	0.0012	0.0016	0.0020	0.0024	0.0039	0.0039	0.0059	0.0059	0.0059	
3600	b	0.0010	0.0014	0.0018	0.0022	0.0026	0.0039	0.0039	0.0059	0.0059	0.0059	
	c	0.0006	0.0008	0.0010	0.0012	0.0012	0.0020	0.0020	0.0024	0.0024	0.0024	

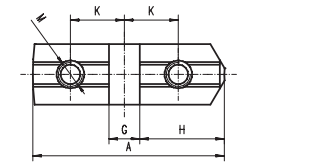
3284	a	0.0020	0.0031
3285	b	0.0030	0.0030
	c	0.0016	0.0028

Specifications For Scroll Chuck Jaws

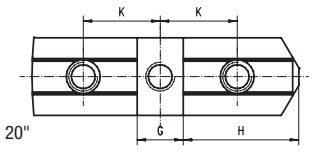
Dimensions for Hard Master Jaws



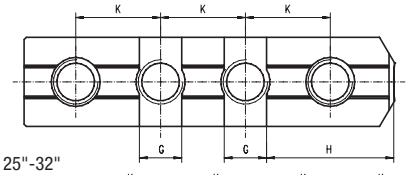
5"-10"



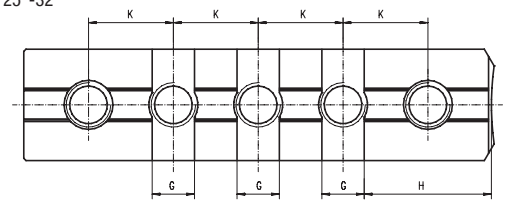
12"-16"



20"



25"-32"

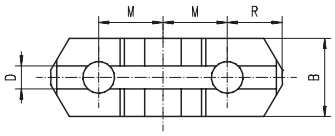


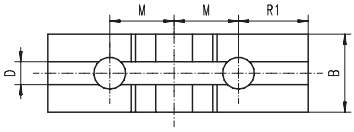
Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"	32"	36"	40"
A	2.1260	2.5591	3.1102	3.6220	4.3307	5.1181	6.5354	8.2677	8.8583	11.1417	12.9134
B	0.7874	0.7874	0.9843	1.1024	1.2598	1.4173	1.5748	1.9685	1.9685	2.7559	2.7559
C	1.1024	1.1417	1.2992	1.4173	1.5748	1.9291	2.1260	2.1457	2.1457	2.5197	2.5197
D	0.3150	0.3150	0.3543	0.4331	0.5000	0.5906	0.6299	0.6299	0.6299	0.8661	0.8661
E	0.3150	0.3150	0.3937	0.4724	0.4724	0.5512	0.5512	0.5512	0.5512	0.7874	0.7874
F - 0.03	0.3126	0.3126	0.3126	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
G + 0.01	0.4996	0.4996	0.4996	0.7496	0.7638	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496
H	0.8898	1.1260	1.3740	1.5630	1.8740	2.2480	2.2480	2.2480	2.2480	2.2480	2.2480
J	0.1575	0.1575	0.1575	0.1575	0.1575	0.2835	0.2835	0.2835	0.2835	0.2835	0.2835
K	0.6299	0.7500	0.8760	1.0630	1.2500	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000
L	0.5315	0.5512	0.5512	0.6299	0.6299	0.8661	1.2795	1.2795	1.2795	1.4173	1.4173
M	M8 / M6*	M10 / M8*	M10 / M8*	M12	M12	M16	M20	M20	M20	M22	M22
S	0.1260	0.1260	0.1260	0.1260	0.1260	0.1260	0.1260	0.1260	0.1260	0.1260	0.1260
Approx. weight (lbs)	0.220	0.396	0.660	1.06	1.69	2.42	4.80	7.35	7.48	14.63	16.94

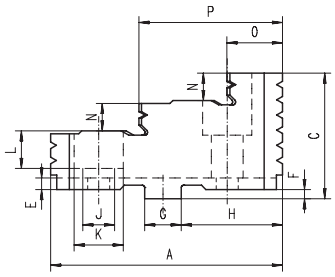
* for 3865

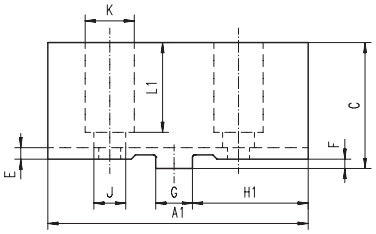
Specifications For Scroll Chuck Jaws

Dimensions for Hard Top Jaws & Soft Top Jaws





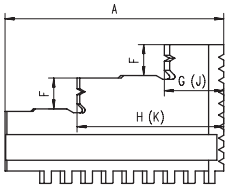


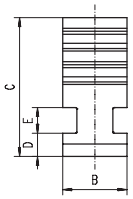


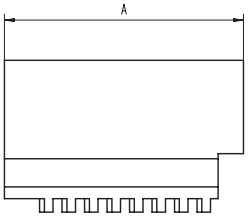
Chuck Size	5"	6"	8"	10"	12"	16"	20"	25"	32"	36"	40"
A	2.2047	2.6378	3.1496	3.7402	4.3307	5.000	5.000	5.000	5.000	6.8898	6.8898
A1	2.5197	3.0709	3.5433	4.1732	4.7244	5.5118	5.5118	6.2992	6.2992	7.4803	7.4803
B	0.8661	0.9843	1.0630	1.2795	1.4567	1.6535	1.6535	2.0472	2.0472	2.9528	2.9528
B 3100	-	1.5748	1.5748	1.8504	2.0472	2.0472	-	-	-	-	-
C	1.5157	1.6339	1.6339*/1.7126	2.0276	2.1654	2.5394	2.9331	3.2283	3.2283	3.8189	3.8189
D	0.3130	0.3130	0.3130	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004
E	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1772	0.1772
F	0.1260	0.1260	0.1260	0.1260	0.1260	0.2480	0.2480	0.2480	0.2480	0.2480	0.2480
G	0.4996	0.4996	0.4996	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496
H	0.8898	1.1260	1.3740	1.5630	1.8740	2.2480	2.2480	2.2480	2.2480	3.7480	3.7480
H1	0.9843	1.3386	1.5748	1.7717	2.0866	2.4803	2.4803	2.4803	2.4803	4.1339	4.1339
J	0.3543/0.2598**	0.4331/0.3543**	0.4331/0.3543**	0.5512	0.5512	0.7087	0.8661	0.8661	0.8661	0.9449	0.9449
K	0.5906/0.4331**	0.7087/0.5512**	0.7087/0.5512**	0.7874	0.7874	1.0236	1.2992	1.2992	1.2992	1.3780	1.3780
L	0.3937	0.4724	0.4724	0.5709	0.5709	0.7283	0.8268	0.8268	0.8268	0.9055	0.9055
L1	1.0236	1.1417	1.2205	1.4961	1.5748	1.7913	2.2047	2.5197	2.5197	3.0709	3.0709
M	0.6299	0.7500	0.8760	1.0630	1.2500	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000
N	0.3150	0.3346	0.3740	0.4724	0.5118	0.5315	0.6693	0.8268	0.8268	1.1024	1.1024
O	0.5709	0.7087	0.8465	0.9646	1.0433	1.0630	1.9685	2.0079	2.0079	1.8898	1.8898
P	1.3780	1.6339	2.0079	2.3228	2.3772	3.0118	3.4646	3.5039	3.5039	4.8819	4.8819
R	0.5118	0.6299	0.7480	0.8661	1.3937	1.1220	1.1220	1.1220	1.1220	2.6378	2.6378
R1	0.5906	0.8268	0.9449	1.0827	1.2087	1.3543	1.3543	1.3543	1.3543	3.0118	3.0118
Approx. Weight (lbs)											
Hard Jaws	0.3740	0.5720	0.7920	1.364	1.98	2.97	3.41	4.93	4.93	12.10	12.10
Soft Jaws	0.6600	1.012	1.430	2.530	3.52	4.84	5.28	9.24	9.24	-	-

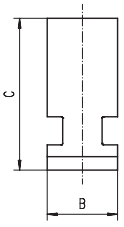
* for 3100 ** for 3865

Dimensions for Hard Solid & Soft Solid Jaws









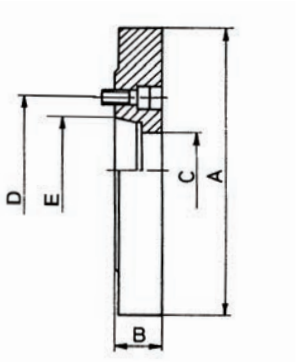
Chuck Size	3"	4"	5"	6"	8"	10"	12"	16"	20"	25"	32"
A	1.2598	1.6535	2.0079	2.7559	3.3465	4.1339	4.9213	5.7087	7.0866	8.8583	8.8583
B	0.4331	0.5906	0.7874	0.7874	0.9843	1.1024	1.2598	1.4173	1.5748	1.9685	1.9685
C	1.1024	1.2598	1.5748	2.0866	2.1260	2.4803	2.8740	3.6220	3.9370	4.3307	4.3307
D	0.2362	0.2362	0.3150	0.3150	0.3543	0.4331	0.5000	0.5906	0.6299	0.6299	0.6299
E	0.2362	0.2362	0.3150	0.3150	0.3937	0.4724	0.4724	0.5512	0.5512	0.5512	0.5512
F	0.2362	0.2756	0.3150	0.3937	0.4724	0.5512	0.7087	0.8661	1.0236	1.1024	1.1024
G	0.3740	0.4331	0.5118	0.7480	0.9055	1.1024	1.3583	1.4173	1.9685	2.5984	2.5984
H	0.8268	1.0630	1.3189	1.7717	2.2441	2.7362	3.2677	3.8976	4.7047	5.8661	5.8661
J	0.3740	0.4724	0.5118	0.8661	0.9055	1.1024	1.3583	1.4173	1.9685	2.5984	2.5984
K	0.8268	1.0827	1.3189	1.8701	2.2441	2.7362	3.2677	3.8976	4.7047	5.8661	5.8661
Approx. Weight (lbs)											
Hard Jaws	0.066	0.198	0.396	0.792	1.10	1.76	2.90	5.17	7.39	12.76	12.76
Soft Jaws	0.154	0.286	0.572	1.10	1.76	2.99	4.18	5.41	11.00	18.39	18.39

Specifications For Chuck Adapters

CAST IRON ADAPTERS (BACK PLATES)
For Plain Back Lathe Chucks

8212 A Mount

Chuck Size (in.)	Taper Size	A	B	C	D	E	Weight lbs.
5	A-6	5.00	1.02	2.13	5.25	4.19	6.5
5	A-8	5.00	1.81	3.15	6.75	5.50	3.3
6	A-5	6.40	1.00	3.13	4.125	3.25	6.5
8	A-5	7.99	1.50	2.17	4.125	3.25	19.0
8	A-6	7.99	1.30	2.17	5.25	4.19	15.5
10	A-6	9.96	1.97	3.17	5.25	4.19	38.0
10	A-8	9.96	1.81	3.17	6.75	5.50	33.0
12	A-6	12.52	1.30	4.06	5.25	4.19	45.0
12	A-8	12.52	2.17	4.06	6.75	5.50	61.7
16	A-8	15.94	1.70	5.36	6.75	5.50	85.0
16	A-11	15.94	2.95	5.36	9.25	7.75	140.9
20	A-11	19.88	1.77	7.59	9.25	7.75	133.0
25	A-11	25.00	1.77	7.59	9.25	7.75	223.0



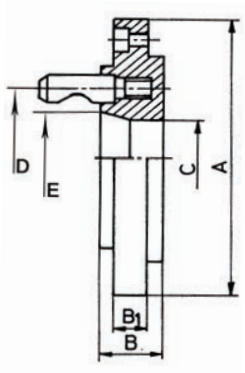
Semi-machined Adapters
For plain back chucks, with spotted holes for A1 and A2 spindle noses.

8207 A2 Mount

Chuck Size (in.)	Taper Size	A	B	C	Weight lbs.
36, 40, 49	A2-15	21.85	2.76	7.48	242.0
36, 40, 49	A2-20	21.85	3.15	7.48	249.0

8240

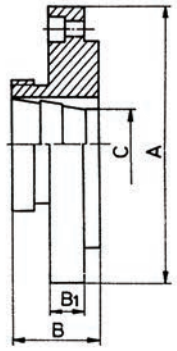
Chuck Size (in.)	Taper Size	A	B	B1	C	D	E	Weight lbs.
5	D-3	4.94	1.02	0.57	2.02	2.78	2.13	5.3
5	D-4	4.94	1.02	0.87	2.40	3.25	2.50	5.3
6	D-3	6.32	1.06	0.71	2.02	2.78	2.13	9.5
6	D-4	6.32	1.06	0.71	2.40	3.25	2.50	9.5
6	D-5	6.32	1.18	1.00	3.13	4.13	3.25	9.5
8	D-3	7.89	1.06	0.71	2.02	2.78	2.13	15.4
8	D-4	7.98	1.06	0.71	2.40	3.25	2.50	15.4
8	D-5	7.98	1.18	0.71	3.13	4.13	3.25	15.4
8	D-6	7.89	1.44	1.26	4.06	5.25	4.19	15.4
10	D-5	9.86	1.18	0.87	3.13	4.13	3.25	24.3
10	D-6	9.86	1.44	0.87	4.06	5.25	4.19	24.3
10	D-8	9.86	1.54	1.36	5.35	6.75	5.50	39.7
12	D-6	12.42	1.56	0.94	4.06	5.25	4.19	39.7
12	D-8	12.42	1.65	0.94	5.35	6.75	5.50	39.7
12	D-11	12.42	1.85	1.63	7.59	9.25	7.75	39.7
16	D-6	15.77	1.44	1.10	4.06	5.25	4.19	79.0
16	D-8	15.77	1.54	1.10	5.35	6.75	5.50	79.0
16	D-11	15.77	1.85	1.10	7.59	9.25	7.75	79.0
20	D-8	19.70	1.54	1.14	5.35	6.75	5.50	132.0
20	D-11	19.70	1.85	1.14	7.59	9.25	7.75	132.0
25	D-8	24.82	1.54	1.14	5.35	9.25	7.75	232.0
25	D-11	24.82	1.85	1.14	7.59	13.0	11.25	232.0



Fully-machined Adapters
For plain back, self-centering chucks – designed for direct mounting on camlock spindle noses.

8250

Chuck Size (in.)	Taper Size	Thread	A	B	B1	C	Weight lbs.
6	L00	3-3/4"-6	6.32	2.13	2.20	0.71	13.0
6	L0	4-1/2"-6	6.32	2.52	2.60	0.71	13.0
8	L00	3-3/4"-6	7.91	2.13	2.20	0.71	22.0
8	L0	4-1/2"-6	7.91	2.52	2.60	0.71	22.0
8	L1	6"-6	7.91	2.99	3.35	0.71	22.0
10	L00	3-3/4"-6	9.88	2.13	2.20	0.83	33.0
10	L0	4-1/2"-6	9.88	2.52	2.60	0.83	33.0
10	L1	6"-6	9.88	2.99	3.35	0.83	33.0
10	L2	7-3/4"-5	9.88	3.50	4.29	0.83	33.0
12	L0	4-1/2"-6	12.44	2.52	2.60	1.10	57.0
12	L1	6"-6	12.44	2.99	3.35	1.10	57.0
12	L2	7-3/4"-5	12.44	3.50	4.29	1.10	57.0
16	L0	4-1/2"-6	15.83	2.52	2.60	1.10	95.0
16	L1	6"-6	15.83	2.99	3.35	1.10	95.0
16	L2	7-3/4"-5	15.83	3.50	4.29	1.10	95.0
16	L3	10-3/8"-4	15.83	4.02	5.43	1.10	95.0
20	L2	7-3/4"-5	19.76	3.50	4.29	1.14	159.0
20	L3	10-3/8"-4	19.76	4.02	5.43	1.14	159.0

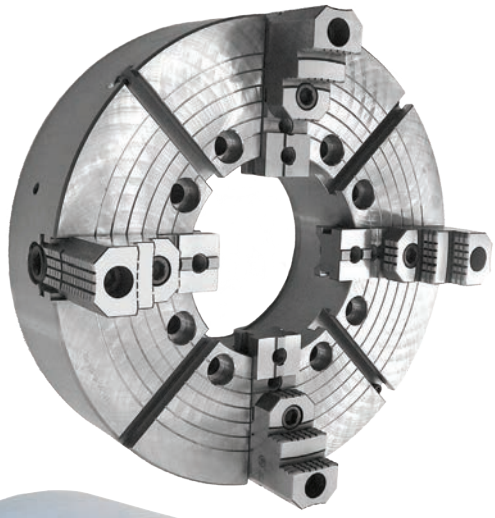


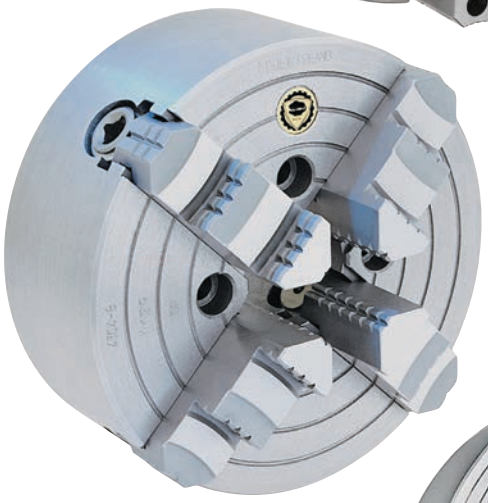
Fully-machined Adapters
For plain back, self-centering chucks – designed for direct mounting on L-type spindle noses.

Independent Lathe Chucks

Bison 4-Jaw Independent Lathe Chucks

Four-jaw standard duty independent lathe chucks with solid reversible jaws, spheroidal graphite iron body. These chucks feature jaws that are individually adjustable, allow firm gripping of odd shaped work, and the four jaws allow a square component to be perfectly centered to the chuck while achieving maximum gripping force. The jaws are made of high quality carbon steel and hardened. Thrust bearings and operating screws are made of case hardened steel.







Large chucks (diameter 10" to 32") are supplied with T-slots

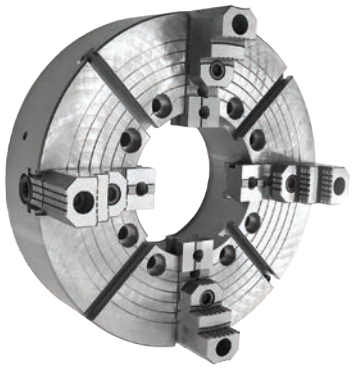
4-Jaw Independent Steel Body Oil Country Chucks

Features:

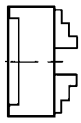
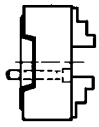
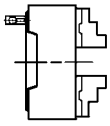
- Steel body extends machine life while providing higher rigidity and greater wear resistance, enabling the chuck to withstand higher machining forces
- Chucks may work individually or in pairs, mounted on opposite sides of the lathe spindle, ensuring the same vertical position of the jaws in both chucks
- Large through hole compared to the outside diameter of the chuck body
- High gripping force
- Able to machine very long workpieces
- High machining accuracy

Application:

- This precision chuck, with increased gripping accuracy, is designed for gripping long pipes during heavy duty machining for conventional and specialized machine-tools



3-Jaw self-centering scroll large through hole chucks also available see page's: H55-57

Mounting	Chuck Size	16"	16"	20"	20"	25"	25"	25"	28"	28"	31-1/2"	31-1/2"	31-1/2"	40"
	Hole	5.3"	6.5"	6.5"	8"	10.5"	10.5"	12.5"	10.5"	12.5"	10.5"	12.5"	14.5"	20.5"
	Wt. lbs.	320	302	449	414	682	649	660	913	870	1,287	1,243	1,199	1,683
4307 Plain Back 	Code No.													450495
	Price $													**35,926.84**
4317 Short Taper 	A2-8	450500												
	Price $	**11,627.62**												
	A2-11		450505	450510										
	Price $		**11,627.62**	**12,208.42**										
	A2-15				450515	450520			450530		450540			
	Price $				**12,208.42**	**14,573.72**			**19,832.87**		**26,111.32**			
	A2-20						450522	450525		450535		450545	450547	
	Price $						**14,573.72**	**14,573.72**		**19,832.87**		**26,111.32**	**26,111.32**	
	A2-28													450549
	Price $													**52,591.44**
4347 Camlock Mount 	D1-8	450550		450560 (5.3" Hole Dia.)										
	Price $	**10,052.20**		**16,082.35**										
	D1-11		450555	450565					450570 (7.5" Hole Dia.)					
	Price $		**10,052.20**	**11,832.35**					**21,087.40**					

Engineering Data See Page: H64

Hard Top Jaws For Oil Country Chucks

- Sold in sets



Chuck Size	Code No.	Price $
15-3/4", 20"	450572	**1,682.87**
25", 28", 32"	450574	**2,500.34**

Hard Master Jaws For Oil Country Chucks

- Sold in sets



Chuck Size	Code No.	Price $
15-3/4"	450576	**2,012.47**
20"	450578	**6,062.85**
25", 28", 32"	450580	**3,136.32**

Operating Screws



Chuck Size	Hole Dia.	Code No.	Price $
15-3/4"	5.3"	450594	**206.18**
15-3/4"	6.5"	450596	**206.18**
20"	5.3"	450598	**241.03**
20"	6.5"	450600	**241.03**
20"	8.0"	450602	**241.03**
25"	10.5"	450604	**317.99**
25"	12.5"	450606	**317.99**
28"	10.5"	450608	**339.77**
28"	12.5"	450610	**339.77**
32"	10.5"	450612	**408.01**
32"	12.5"	450614	**408.01**

Thrust Bearings



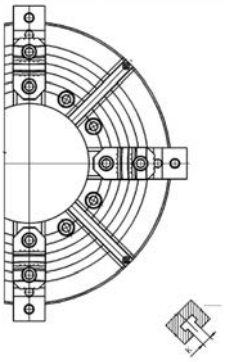
Chuck Size	Code No.	Price $
15-3/4"	450582	**201.83**
20"	450584	**193.12**
25", 28"	450586	**216.35**
32"	450588	**258.46**

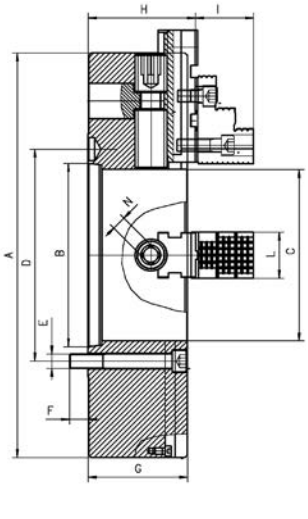
Wrenches

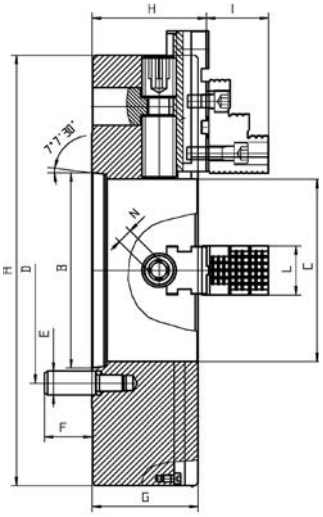


Chuck Size	Code No.	Price $
15-3/4", 20"	450590	**176.31**
25", 28", 32"	450592	**167.67**

Specifications For Oil Country Chucks







Chuck Dia. A	Type of Mounting	Hole Dia. C (In.)	B +0.001"	D	G	H	I	K	L	N	E	F	Max. RPM	Weight lbs.
Plain Back Type 4307														
40"	Plain Back	22.05	28.5433	25.4961	6.89	7.366	3.571	1.10	2.953	0.866	1-1/4-7	1.53	430	1690
A2 Direct Mount Type 4317														
15-3/4"	A2-8	5.3	5.50075	6.750	5.71	6.067	2.981	0.709	2.362	0.748	5/8-11	0.961	1200	320
15-3/4"	A2-11	6.5	7.75075	9.250	5.71	6.067	2.981	0.709	2.362	0.748	3/4-10	1.118	1200	302
20"	A2-11	6.5	7.75075	9.250	5.71	6.067	2.981	0.866	2.362	0.748	3/4-10	1.118	1000	450
20"	A2-15	8.0	16.251	18.250	5.71	6.067	2.981	0.866	2.362	0.748	7/8-9	1.276	1000	414
25"	A2-15	10.5	11.251	13.00	6.10	6.579	3.571	0.866	2.953	0.866	7/8-9	1.343	850	684
25"	A2-20	12.55	16.251	18.252	6.10	6.579	3.571	0.866	2.953	0.866	1-8	1.50	850	662
28"	A2-15	10.5	11.251	13.00	6.10	6.579	3.571	0.866	2.953	0.866	7/8-9	1.34	750	915
28"	A2-20	12.55	16.251	18.252	6.10	6.579	3.571	0.866	2.953	0.866	1-8	1.50	750	873
32"	A2-15	10.5	11.251	13.00	6.10	6.972	3.571	0.866	2.953	0.866	7/8-9	1.34	600	1290
32"	A2-20	12.55	16.251	18.252	6.10	6.972	3.571	0.866	2.953	0.866	1-8	1.50	600	1246
D1 Direct Mount Type 4347														
15-3/4"	D1-8	5.3	5.50075	6.75	5.71	6.067	2.981	0.709	2.362	0.748	1	2	1200	300
15-3/4"	D1-11	6.5	7.75075	9.25	5.71	6.067	2.981	0.709	2.362	0.748	1.25	2.4	1200	282
20"	D1-8	5.3	5.50075	6.75	5.71	6.067	2.981	0.866	2.362	0.748	1	2	1000	468
20"	D1-11	6.5	7.75075	9.252	5.71	6.067	2.981	0.866	2.362	0.748	1.25	2.4	1000	452
28"	D1-11	7.5	7.75075	9.252	6.10	6.579	3.57	0.866	2.953	0.866	1.25	2.4	750	993

4-Jaw Steel Body Independent Chucks — 2pc Hard Rev. Jaws

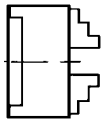
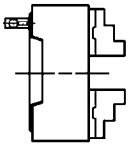
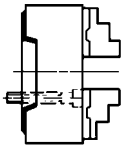
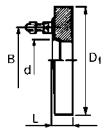


Features:

- 4-Jaw, independent chuck with manual gripping, and a high quality steel body
- Steel body extends machine life while providing higher rigidity and greater wear resistance, enabling the chuck to withstand higher machining forces
- 4-Jaws ensure the precise centering of square-shaped workpieces with maximum permitted gripping force
- Chucks with diameters 10" and above are equipped with additional T-slots, permitting the addition of extra jaws
- Mounted on the machine tool spindle from the back of the chuck, using the adapter plate

Application:

- This precision chuck, with increased gripping accuracy, is made for all types of very high precision workshop machining operations on conventional lathes
- Suitable for machining square and round workpieces

Mounting	Chuck Size	8"	10"	12"	16"	20"	25"	32"	36"	40"	49"
4307 Plain Back 	**Hole Size**	1.969	2.559	3.149	3.930	4.921	6.299	7.874	7.480	7.480	7.480
	Weight lbs.	30	55	86	135	231	359	702	770	902	2090
	Code No.	451005	451010	451015	451020	451025	451030	451035	451040	451045	451050
	Price $	**2,417.58**	**2,721.05**	**3,692.44**	**5,224.30**	**8,915.28**	**12,279.56**	**23,809.91**	**32,474.75**	**35,926.84**	**31,556.56**
4347 Camlock 	**D1-3**	451202	451204								
	Price $	**2,200.95**	**2,585.33**								
	D1-4	451200	451206								
	Price $	**2,200.95**	**2,627.51**								
	D1-5	451205	451208	451212							
	Price $	**2,200.95**	**2,627.51**	**4,282.41**							
	D1-6	451210		451225							
	Price $	**3,057.91**		**3,985.74**							
	D1-8		451220	451230	451240	451250	451265				
	Price $		**2,114.26**	**3,985.74**	**5,815.26**	**8,505.82**	**13,751.48**				
	D1-11				451245	451255	451270	451280		451226	
	Price $				**5,815.26**	**9,233.27**	**12,134.67**	**23,319.59**		**40,955.39**	
	D1-15					451260	451275	451285		451228	451326
	Price $					**2,026.62**	**13,751.48**	**23,319.59**		**40,955.39**	**52,189.50**
	D1-20							451218		451232	
	Price $							**23,319.59**		**40,955.39**	
4317 A Taper 	**A1-4**		451059								
	Price $		**2,411.20**								
	A1-5		451061	451063							
	Price $		**1,976.58**	**4,207.51**							
	A2-6	451100	451105	451115	451125						
	Price $	**2,200.95**	**3,577.73**	**5,393.18**	**5,702.80**						
	A2-8		451110	451120	451130	451140					
	Price $		**2,846.45**	**5,075.22**	**5,641.02**	**9,174.41**					
	A2-11				451135	451145	451155	451165			451080
	Price $				**5,641.02**	**10,560.40**	**13,751.48**	**29,392.15**			**52,189.50**
	A2-15					451150	451160	451170		451175	451082
	Price $					**10,560.40**	**13,026.21**	**26,111.32**		**39,075.07**	**52,189.50**
	A2-20							451070		451078	451084
	Price $							**23,319.59**		**38,879.60**	**52,189.50**
4337 DIN Taper 	**DIN 5**	442100	442104	442110							
	Price $	**2,314.09**	**2,411.20**	**4,206.21**							
	DIN 6	442102	442106	442112	442120						
	Price $	**2,200.95**	**2,411.20**	**4,206.21**	**5,912.38**						
	DIN 8		442108	442114	442122	442128	442134				
	Price $		**2,411.20**	**4,206.21**	**5,912.38**	**9,174.41**	**13,751.48**				
	DIN 11			442116	442124	442130	442136	442142		442150	442156
	Price $			**4,206.21**	**5,912.59**	**9,174.41**	**13,751.48**	**23,319.59**		**39,072.95**	**52,189.50**
	DIN 15					442132	442138	442144		442152	442158
	Price $					**9,174.41**	**13,751.48**	**23,319.59**		**39,072.95**	**52,189.50**
	DIN 20									442154	
	Price $									**39,072.95**	

Spare Parts - See Page: H74

Standard Accessories



1 set of hard top jaws



1 set of hard master jaws



1 wrench

Optional Accessories



Soft top jaws

Engineering Data See Pages: H75-79

4-Jaw Steel Body Independent Chucks — Hard Solid Jaws



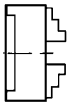
Features:

- 4-Jaw, independent chuck with manual gripping, and a high quality steel body
- Steel body extends machine life while providing higher rigidity and greater wear resistance, enabling the chuck to withstand higher machining forces
- 4-Jaws ensure the precise centering of square-shaped workpieces with maximum permitted gripping force
- Chucks with diameters 10" and above are equipped with additional T-slots, permitting the addition of extra jaws
- Mounted on the machine tool spindle from the back of the chuck, using the adapter plate

Application:

- This precision chuck, with increased gripping accuracy, is made for all types of very high precision workshop machining operations on conventional lathes
- Suitable for machining square and round workpieces

Mounting 4306 Plain Back



Chuck Size	3-1/2"	5"	6"	8"	10"	12"	16"	20"	25"	32"	36"	40"	49"
Hole Size	1.000	1.023	1.653	1.969	2.559	3.149	3.930	4.921	6.299	7.874	7.480	7.480	7.480
Weight lbs.	3	8	9	30	55	86	135	231	359	702	770	902	2090
Code No.	445800	445803	445804	451007	451012	451017	451022	451027	451032	451037	451042	451047	451052
Price $	**1,131.11**	**1,398.28**	**1,149.98**	**1,628.08**	**1,965.99**	**3,679.79**	**4,996.10**	**7,420.56**	**11,127.74**	**20,616.92**	**31,725.43**	**34,631.38**	**50,923.05**

Spare Parts - See Page: H74

Standard Accessories



1 set of solid jaws



1 wrench

Optional Accessories



1 set of soft solid jaws

Engineering Data See Pages: H75-79

SOWA



Indexable Boring Bars

Reduce machine time.
Save on tooling costs.

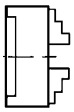
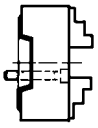
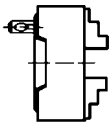
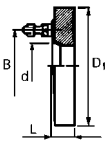
See Pages E62-73

4-Jaw Cast Iron Body Independent Chucks — 2pc Hard Rev. Jaws



Features:
- 4-Jaw, independent chuck with manual gripping, and a high quality cast iron body
- Chuck bodies in sizes up to 6" diameter, are made from steel
- 4-Jaws ensure the precise centering of square-shaped workpieces with maximum permitted gripping force
- Chucks with diameters 10" and above are equipped with additional T-slots, permitting the addition of extra jaws
- Mounted on the machine tool spindle from the back of the chuck, using the adapter plate

Application:
- This precision chuck, with increased gripping accuracy, is made for all types of very high precision workshop machining operations on conventional lathes
- Suitable for machining square and round workpieces

Mounting	Chuck Size	8"	10"	12"	16"	20"	25"	32"	40"
4305 Plain Back 	**Hole*** **	1.968	2.559	3.149	3.937	4.931	6.299	7.874	7.4809
	Weight lbs.	32	55	88	140	233	366	700	902
	Code No.	441264	441266	441268	441274	441276	441278		441284
	Price $	**1,413.43**	**1,504.58**	**2,182.05**	**2,868.09**	**7,601.64**	**5,913.46**		**28,894.80**
4315 A Taper 	**A2-4**	441800	441806						
	Price $	**1,663.48**	**1,868.15**						
	A2-5	441802	441808	441814					
	Price $	**1,663.48**	**1,868.15**	**2,596.95**					
	A2-6	441804	441810	441816	441820	441826			
	Price $	**1,663.48**	**1,868.15**	**2,596.95**	**3,383.42**	**4,709.34**			
	A2-8		441812	441818	441822	441828	441834		
	Price $		**1,868.15**	**2,596.95**	**3,383.42**	**4,709.34**	**6,051.44**		
	A2-11				441824	441830	441836	441842	
	Price $				**3,383.42**	**4,709.34**	**7,113.25**	**12,266.55**	
	A2-15					441832	441838	441844	
	Price $					**4,825.12**	**6,382.11**	**12,266.55**	
4345 Camlock 	**D1-3**	442604	442612						
	Price $	**1,698.02**	**1,870.35**						
	D1-4	442606	442614						
	Price $	**1,698.02**	**2,039.28**						
	D1-5	442608	442616	442622					
	Price $	**1,698.02**	**1,870.35**	**2,527.30**					
	D1-6	442610	442618	442624	442630				
	Price $	**1,698.02**	**1,870.35**	**2,527.30**	**3,335.90**				
	D1-8		442620	442626	442632	442636	442642 (5.00" hole dia.)		
	Price $		**1,870.35**	**2,831.01**	**4,939.56**	**5,004.06**	**6,280.88**		
	D1-11			442628		442638	442644 (6.30" hole dia.)		
	Price $			**2,527.30**		**5,004.06**	**9,781.82**		
	D1-15					442640	442646 (6.30" hole dia.)		
	Price $					**5,154.16**	**6,469.40**		
4335 DIN Taper 	**DIN 4**	442200							
	Price $	**1,663.48**							
	DIN 5	442202	442206	442212	442220				
	Price $	**1,663.48**	**1,868.15**	**2,596.95**	**3,383.42**				
	DIN 6	442204	442208	442214	442222	442228			
	Price $	**1,663.48**	**1,868.15**	**2,596.95**	**3,383.42**	**4,709.34**			
	DIN 8		442210	442216	442224	442230	442236 (5.00" hole dia.)		
	Price $		**1,868.15**	**2,596.95**	**3,383.42**	**4,709.34**	**6,051.44**		
	DIN 11			442218	442226	442232	442238 (6.30" hole dia.)		
	Price $			**2,596.95**	**3,383.42**	**4,709.34**	**6,051.44**		
	DIN 15					442234	442240 (6.30" hole dia.)		
	Price $					**5,317.77**	**6,382.11**		

Spare Parts - See Page: H74

Standard Accessories


1 set of hard top jaws


1 set of hard master jaws


1 wrench

Optional Accessories


Soft top jaws

Engineering Data See Pages: H75-79

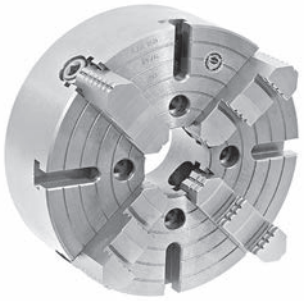
4-Jaw Cast Iron Body Independent Chucks — Hard Solid Jaws

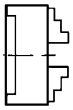
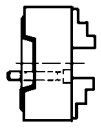
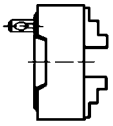
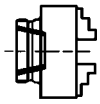
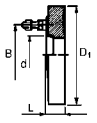
Features:

- 4-Jaw, independent chuck with manual gripping, and a high quality cast iron body
- Chuck bodies in sizes up to 6" diameter, are made from steel
- 4-Jaws ensure the precise centering of square-shaped workpieces with maximum permitted gripping force
- Chucks with diameters 10" and above are equipped with additional T-slots, permitting the addition of extra jaws
- Mounted on the machine tool spindle from the back of the chuck, using the adapter plate

Application:

- This precision chuck, with increased gripping accuracy, is made for all types of very high precision workshop machining operations on conventional lathes
- Suitable for machining square and round workpieces



Mounting	Chuck Size	6"	8"	10"	12"	16"	20"	25"	32"	32"	36"
4304 Plain Back 	**Hole**	1.653	1.968	2.559	3.149	3.937	4.931	6.299	7.874	10.500	7.4809
	Weight lbs.	9	32	55	88	140	233	366	700	672	800
	Code No.		445805	445810	445815	445820	445825	445830	445835	445840	445842
	Price $		**1,472.33**	**1,817.90**	**2,350.79**	**3,452.86**	**6,377.18**	**8,232.84**	**15,304.08**	**17,558.76**	**25,096.37**
4314 A Taper 	**A2-4**		445900	445912							
	Price $		**1,364.91**	**1,465.88**							
	A2-5		445905	445915	445930						
	Price $		**1,838.23**	**2,198.33**	**2,784.94**						
	A2-6		445910	445920	445935	445945	445957				
	Price $		**1,838.23**	**2,198.33**	**2,784.94**	**4,543.31**	**4,195.12**				
	A2-8			445925	445940	445950	445959	445971			
	Price $			**2,198.33**	**2,784.94**	**4,543.31**	**4,195.12**	**5,501.58**			
	A2-11					445955		445965	445970		
	Price $					**4,543.31**		**9,053.22**	**15,234.38**		
	A2-15						445961	445973	445975		
	Price $						**4,321.33**	**5,870.80**	**11,683.97**		
4344 Camlock 	**D1-3**	450095	450105	450119							
	Price $	**1,976.58**	**1,710.46**	**2,324.59**							
	D1-4	450100	450110	450120							
	Price $	**2,002.75**	**1,710.46**	**2,087.98**							
	D1-5		450115	450125	450132						
	Price $		**1,710.46**	**2,087.98**	**3,034.32**						
	D1-6		450117	450130	450135	450145					
	Price $		**2,039.04**	**2,087.98**	**2,581.66**	**3,654.68**					
	D1-8				450140	450150	450160	450169 (5.00" hole dia.)			
	Price $				**2,581.66**	**3,654.68**	**6,333.62**	**11,182.20**			
	D1-11				450142	450155	450165	450170	450185 (7.00" hole dia.)		
	Price $				**2,489.40**	**3,654.68**	**6,333.62**	**9,377.02**	**11,683.97**		
	D1-15						450167	450175	450190 (8.00" hole dia.)		
	Price $						**4,476.91**	**5,846.10**	**11,683.97**		
4354 Long Taper 	**L00**		450205	450215							
	Price $		**1,846.94**	**2,326.10**							
	L0		450210	450220	450230						
	Price $		**1,849.85**	**2,866.25**	**2,379.83**						
	L1			450225	450235	450245					
	Price $			**2,912.71**	**4,448.93**	**4,955.68**					
	L2				450240	450250	450255				
	Price $				**4,366.16**	**5,013.76**	**8,556.64**				
4334 DIN Taper 	**DIN 4**		450340								
	Price $		**1,385.36**								
	DIN 5		450345	450360	450370	450380					
	Price $		**2,500.05**	**2,486.26**	**3,094.55**	**4,492.03**					
	DIN 6		450350	450300	450305	450385	450400				
	Price $		**1,364.91**	**2,486.26**	**3,108.79**	**4,489.84**	**7,346.26**				
	DIN 8			450365	450310	450315	450320	450330			
	Price $			**2,486.26**	**3,108.79**	**3,630.52**	**7,464.65**	**8,367.60**			
	DIN 11				450375	450390	450325	450335			
	Price $				**3,108.79**	**4,489.84**	**7,464.65**	**9,226.01**			
	DIN 15							450405			
	Price $							**9,929.89**			

Spare Parts - See Page: H74

Standard Accessories



1 set of solid jaws



1 wrench

Optional Accessories



1 set of soft solid jaws

Hard Solid Rev. Jaws



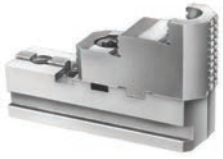
Chuck Size (in.)	4pc Set Code No.	Price $	Individual Code No.	Price $
8"	465705	**705.67**	465706	**197.47**
10"	465710	**760.85**	465711	**213.44**
12"	465715	**826.19**	465716	**230.87**
16"	465720	**1,238.56**	465721	**347.03**
20"	465725	**1,981.98**	465726	**554.66**
25"	465730	**2,623.76**	465731	**728.90**
32"	465735	**3,539.98**	465736	**956.87**

Hard Master Jaws



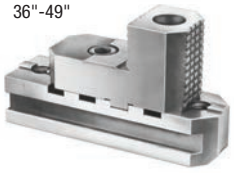
Chuck Size (in.)	4pc Set Code No.	Price $	Individual Code No.	Price $
8"	465880	**590.96**	465860	**165.53**
10"	465882	**646.14**	465862	**181.50**
12"	465884	**776.82**	465864	**216.35**
16"	465886	**1,373.59**	465866	**377.52**
20"	465888	**2,098.14**	465868	**576.44**
25"	465890	**2,405.96**	465870	**660.66**
32"	465892	**2,790.74**	465872	**766.66**
36"/40"/49"	465894	**3,223.44**	465874	**869.75**

Hard 2pc Rev. Jaws



Chuck Size (in.)	Per Set Code No.	Price $
8"	468616	**1,184.06**
10"	468618	**1,457.35**
12"	468619	**1,845.66**
16"	468620	**2,610.42**
20"	468622	**3,573.85**
25"	468624	**4,318.27**
32"	468625	**4,542.46**
36"	468626	**10,352.10**
40"/49"	468628	**10,352.10**

36"-49"



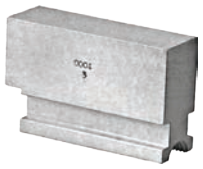
Thrust Bearings

Chuck Size (in.)	Code No.	Price $
5"	465585	**117.61**
6"	465585	**117.61**
8"	465605	**146.65**
10"	465610	**161.17**
12"	465615	**168.43**
16"	465620	**171.34**
20"	465625	**193.12**
25"	465630	**207.64**
32"	465635	**246.84**
36"	465640	**286.04**
40"	465640	**286.04**
49"	465640	**286.04**



Soft Solid Jaws

Chuck Size (in.)	4pc Set Code No.	Price $
8"	468600	**367.71**
10"	468602	**668.65**
12"	468604	**769.40**
16"	468606	**951.38**
20"	468608	**1,426.90**
25"	468610	**2,073.66**
32"	468612	**3,974.64**



Hard Top Jaws

8"-32"



36"-49"



Chuck Size (in.)	4pc Set Code No.	Price $	Individual Code No.	Price $
8"	465900	**646.14**	465840	**180.05**
10"	465902	**685.34**	465842	**685.34**
12"	465904	**937.99**	465844	**261.36**
16"	465906	**978.65**	465846	**272.98**
20"	465908	**1,320.04**	465848	**413.82**
25"	465908	**1,320.04**	-	**-**
32"	465911	**2,453.31**	465851	**728.90**
36"/40"/49"	465912	**2,623.76**	465852	**728.90**

Operating Screws

Chuck Size (in.)	Code No.	Price $
5"	465500	**116.16**
6"	465495	**119.06**
8"	465505	**119.06**
10"	465510	**124.87**
12"	465515	**136.49**
14"	465517	**423.83**
16"	465520	**162.62**
20"	465525	**217.80**
25"	465530	**291.85**
32"	465535	**374.62**
36"	465540	**423.83**
40"	465545	**537.24**
49"	465550	**617.10**



Wrenches

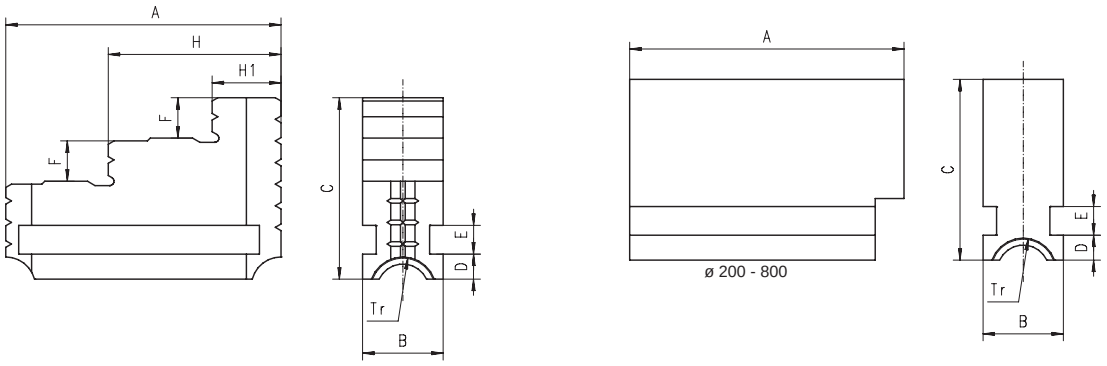




Chuck Size	Square	Code No.	Price $
5"		465800	**74.05**
6"		465800	**74.05**
8"	0.4331	465805	**76.96**
10"	0.4331	465805	**76.96**
12"	0.5512	465815	**82.76**
16"	0.5512	465815	**82.76**
20"	0.6693	465825	**136.49**
25"	0.6693	465825	**136.49**
32"	0.7480	465835	**184.40**
36"		465836	**313.25**
40"		465836	**313.25**
49"		465836	**313.25**

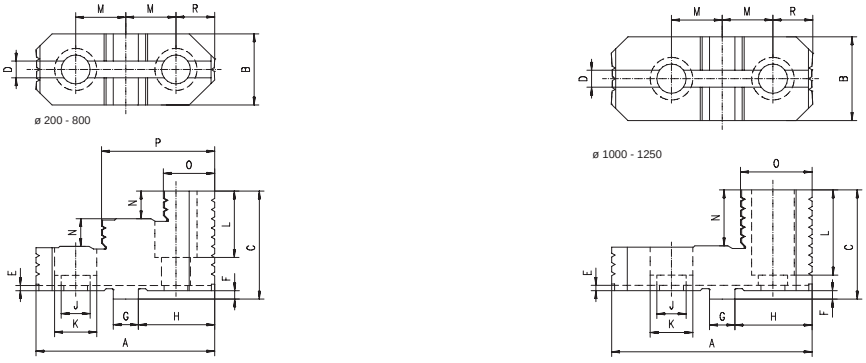
Specifications For Independent Chuck Jaws

Solid Reversible Jaws



Chuck Size	8"	10"	12"	16"	20"	25"	32"	36"	40"	49"
A	3.1102	3.7008	4.3307	5.0787	6.6142	8.1102	8.1102	9.6063	9.6063	9.6063
B	1.2598	1.2598	1.5748	1.5748	2.0472	2.0472	2.7559	2.7559	2.7559	2.7559
C	1.2598	1.4961	1.5354	1.7323	2.3228	2.3228	2.3228	2.3228	2.3228	2.3228
D	0.3425	0.3425	0.3819	0.3819	0.4606	0.4606	0.6181	0.6181	0.6181	0.6181
E	0.3937	0.3937	0.4724	0.4724	0.5906	0.5906	0.7874	0.7874	0.7874	0.7874
F-0.03	0.3126	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
G+0.01	0.4996	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496
H	1.3071	1.4764	1.7874	2.1614	2.1850	2.1850	2.1850	2.1850	2.1850	2.1850
J	0.1575	0.1575	0.1575	0.2835	0.2835	0.2835	0.2835	0.2835	0.2835	0.2835
K	0.8760	1.0630	1.2500	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000
L	0.5512	0.7874	0.6890	0.8661	1.3189	1.3189	1.3189	1.3189	1.3189	1.3189
M	M10	M12	M12	M16	M20	M20	M20	M20	M20	M20
M	3/8-16	1/2-13	1/2-13	5/8-11	3/4-10	3/4-10	3/4-10	3/4-10	3/4-10	3/4-10
Tr-left hand	Tr 28x5	Tr 28x5	Tr 32x6	Tr 32x6	Tr 36x6	Tr 40x6	Tr 44x8	Tr 44x6	Tr 44x6	Tr44x8
Weight lbs	1.32	1.98	2.42	2.64	3.3	5.28	5.28	11.88	11.88	11.88

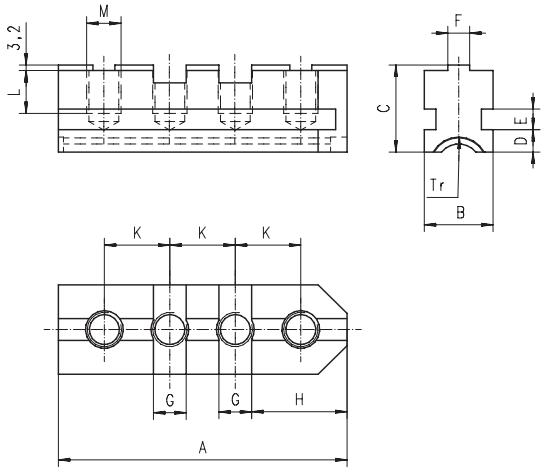
Hard Top Jaws



Chuck Size	8"	10"	12"	16"	20"	25"	32"	36"	40"	49"
A	3.2283	3.7992	4.4291	5.0787	5.3543	5.3543	5.3543	6.2992	6.2992	6.2992
B	1.3386	1.3386	1.6535	1.6535	2.1260	2.1260	2.8346	2.8346	2.8346	2.8346
C	1.7126	2.0276	2.1654	2.5394	2.9331	3.2283	3.4646	3.8189	3.8189	3.8189
D	0.3130	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004
E	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575	0.1575
F-0.03	0.1260	0.1260	0.1260	0.2480	0.2480	0.2480	0.2480	0.2480	0.2480	0.2480
G+0.01	0.4996	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496	0.7496
H	1.3858	1.5748	1.8858	2.2598	2.2835	2.2835	2.2835	2.2835	2.2835	2.2835
J	0.4331	0.5512	0.5512	0.7087	0.8661	0.8661	0.8661	0.8661	0.8661	0.8661
K	0.7087	0.7874	0.7874	1.0236	1.2992	1.2992	1.2992	1.2992	1.2992	1.2992
L	0.8465	1.0433	1.0827	1.2598	1.5551	1.6929	1.8110	2.7953	2.7953	2.7953
M	0.8760	1.0630	1.2500	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000
N	0.3740	0.4724	0.5118	0.5315	0.7087	0.8268	0.9449	1.9685	1.9685	1.9685
O	0.8661	0.9843	1.0630	1.0433	1.4764	1.4764	1.5748	2.3622	2.3622	2.3622
P	2.0866	2.4409	2.7756	3.1102	3.4252	3.4252	3.5039	-	-	-
R	0.7598	0.8858	1.0118	1.1339	1.1575	1.1575	1.1575	1.1575	1.1575	1.1575
Weight lbs	1.10	1.54	2.86	4.62	6.60	6.60	9.24	9.24	9.24	9.24

Specifications For Independent Chuck Jaws — Cont'd

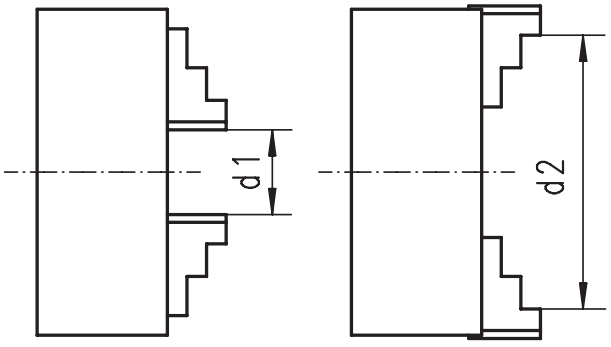
Master Base Jaws



Chuck Size	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"	25"	32"
A	1.3386	1.3386	2.0079	2.0079	3.1890	3.7992	4.3701	4.3701	5.0787	6.0039	6.9685	7.9528
B	0.5118	0.5118	0.6299	0.6299	1.2598	1.2598	1.5748	1.5748	1.5748	2.0472	2.0472	2.7559
C	1.1811	1.1811	1.3583	1.3583	2.4803	2.4803	3.0118	3.0118	3.0118	3.6811	3.6811	4.5079
D	0.1772	0.1772	0.2362	0.2362	0.3425	0.3425	0.3819	0.3819	0.3819	0.4606	0.4606	0.6181
E	0.1969	0.1969	0.1969	0.1969	0.3937	0.3937	0.4724	0.4724	0.4724	0.5906	0.5906	0.7874
F	0.2756	0.2756	0.3150	0.3150	0.5512	0.5512	0.7087	0.7087	0.7087	0.8661	0.9843	0.9843
H1	0.3150	0.3150	0.4921	0.4921	0.6890	0.9055	1.0630	1.0630	1.2795	1.3780	1.7717	1.7323
H	0.6890	0.6890	1.2402	1.2402	1.9094	2.3228	2.6378	2.6378	3.0906	3.6614	4.2913	4.8031
Tr-left hand	Tr 16x2	Tr 16x2	Tr 18x4	Tr 18x4	Tr 28x5	Tr 28x5	Tr 32x6	Tr 32x6	Tr 32x6	Tr 36x6	Tr 40x6	Tr 44x8
Weight lbs	0.220	0.220	0.264	0.264	1.590	2.860	3.300	3.330	3.960	7.480	8.800	17.160

Technical Data For Independent Chucks

Gripping Ranges for Independent Chucks



Chuck Size	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"	25"	32"	36"	40"	49"
d1 min.	0.118	0.118	0.315	0.315	0.393	0.393	0.590	0.590	0.787	1.771	1.968	1.968	4.724	6.692	6.692
d2 max.	3.346	3.937	4.921	6.299	7.874	9.842	12.401	13.779	15.748	19.685	24.803	31.496	36.023	39.370	49.212
Max. Swing Diameter	3.976	4.566	5.905	7.283	9.252	11.653	14.527	15.905	18.307	22.440	28.346	34.960	39.488	42.834	52.677

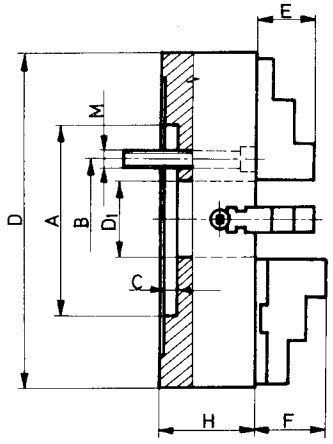
Maximum Permissible Rotation Speeds (rpm) for Independent Chucks

Chuck Size	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"	25"	32"	36"	40"	49"
Steel Body	4000	3800	3500	3200	2500	2000	1500	1500	1100	700	550	450	200	200	150
Cast Iron Body	-	-	-	-	1800	1500	1200	1200	800	500	400	300	150	150	100

Independent Chuck Mounting Dimensions

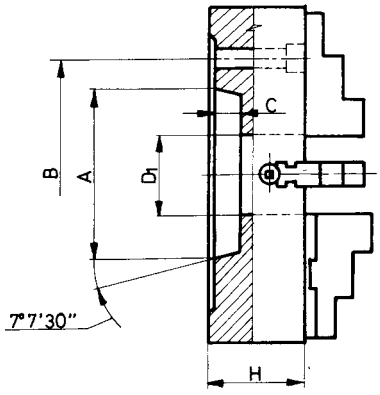
4-JAW INDEPENDENT SERIES 4300

Mounting Dimensions



Plain Back

Chuck Size	3"	5"	6"	8"	10"	12"	16"	20"	25"	32"	36"	40"	49"
D	3.35	5	6-1/4	8	10	12-1/2	15-3/4	20	25	31-1/2	36.02	39.37	49.21
A	2.4409	2.7500	3.2500	4.3307	5.9055	5.8898	7.8740	10.6299	10.6299	14.9606	14.5669	14.5669	21.6535
B	2.8346	2.1260	2.7500	3.2520	4.1260	5.2520	6.7480	9.2520	9.2520	13.0000	12.9921	12.9921	19.6850
C	0.1969	0.0984	0.0984	0.1969	0.2756	0.2756	0.3937	0.4724	0.4724	0.4724	0.7090	0.7090	0.7090
D1	0.9843	1.0236	1.6535	1.9685	2.5591	3.1496	3.9370	4.9213	6.2992	7.8740	7.4803	7.4803	7.4803
E	0.6693	0.7874	0.7864	0.7874	1.5866	1.5866	1.9606	1.9606	2.3543	2.7874	-	-	-
F	-	-	-	1.8268	2.3780	2.3976	2.8465	3.5551	3.8504	2.3629	4.0472	4.0472	4.0472
H	1.5748	1.6929	1.6929	3.1496	3.3465	3.7402	4.1339	4.7244	5.5118	6.2992	6.6929	6.6929	7.4803
M	1/4"-20	5/16"-18	3/8"-16	7/16"-14	1/2"-13	5/8"-11	5/8"-11	3/4"-10	3/4"-10	7/8"-9	1"xB	1"xB	1"xB

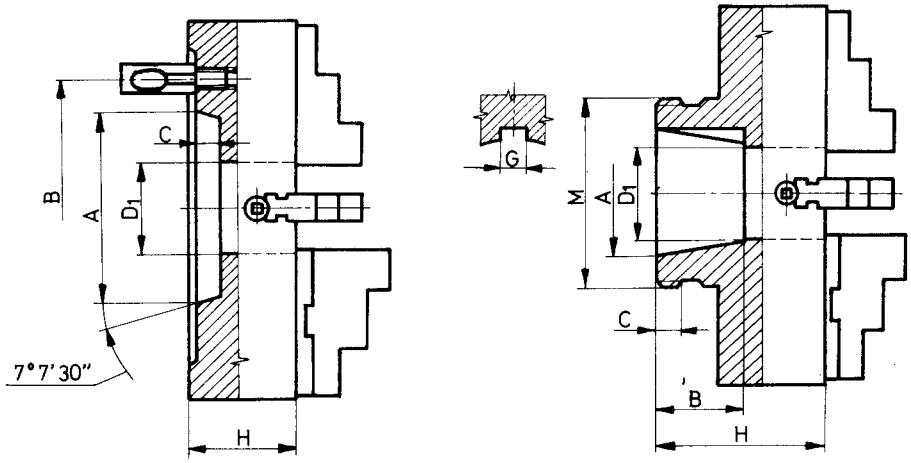


A-Type Mounting, ASA Standard B5.9

Chuck Size	8"		10"			12"		16"			20"		25"		32"	
D	8		10			12-1/2		15-3/4			20		25		31-1/2	
Taper Acc. to ASA	5	6	5	6	8	6	8	6	8	11	8	11	11	15	11	15
A	3.2503	4.1878	3.2503	4.1878	5.50055	4.1878	5.50055	4.1878	5.50055	7.75055	5.50055	7.75055	7.75055	11.2505	7.75055	11.2505
B(A1)	2-7/16	-	2-7/16	3-1/4	4-3/8	3-1/4	4-3/8	3-1/4	4-3/8	6-1/2	4-3/8	6-1/2	6-1/2	9-3/4	6-1/2	9-3/4
B(A2)	-	5-1/4	4-1/8	5-1/4	6-3/4	5-1/4	6-3/4	5-1/4	6-3/4	9-1/4	6-3/4	9-1/4	9-1/4	13	9-1/4	13
C	0.6299	0.6693	0.6299	0.6693	0.7480	0.6693	0.7480	0.6693	0.7480	0.8268	0.7480	0.8268	0.8628	0.8661	0.8268	0.8661
D1	1.969	2.559	3.150	3.937	4.921	6.299	7.087									
H	3.1496	3.3465	3.7402	4.1339	4.7244	5.5118	6.2992									

Independent Chuck Mounting Dimensions — Cont'd

4-JAW INDEPENDENT SERIES 4300
Mounting Dimensions



D-Type Mounting, ASA Standard B5.9

Chuck Size	8"			10"			12"		16"			20"		25"	
D	8			10			12-1/2		15-3/4			20		25	
Taper 1:4	3	4	5	4	5	6	6	8	6	8	11	8	11	8	11
A	2.1250	2.5005	3.2505	2.5005	3.2505	4.1880	4.1880	5.5007	4.1880	5.5007	7.7507	5.57007	7.7505	5.5007	7.7507
B	2.7795	3.2520	4.1260	3.2520	4.1260	5.2520	5.2520	6.7480	5.2520	6.7480	9.2520	6.7480	9.2520	6.7480	9.2520
C	0.5118	0.5118	0.5906	0.5118	0.5906	0.6299	0.6299	0.7087	0.6299	0.7087	0.7874	0.7087	0.7874	0.7087	0.7874
D1	1.9685			2.3622	2.5591		3.1496		3.9370			4.9213		4.9213	6.2992
H	3.1496			3.3465			3.7402		4.1339			4.7244		5.5118	

L-Type Mounting, ASA Standard B5.9

Chuck Size	8"		10"			12"				16"				20"			
D	8		10			12-1/2				15-3/4				20			
Taper	L00	L0	L00	L0	L1	L00	L0	L1	L2	L0	L1	L2	L3	L0	L1	L2	L3
A	2.7500	3.2500	2.750	3.2500	4.1250	2.7500	3.2500	4.1250	5.2500	3.2500	4.1250	5.2500	6.5000	3.2500	4.1250	5.2500	6.5000
B	2.1260	2.5000	2.1260	2.5000	2.9921	2.1260	2.5000	2.9921	3.5039	2.5000	2.9921	3.5039	4.0157	2.5000	2.9921	3.5039	4.0157
C	0.5512	0.5905	0.5512	0.5905	0.6299	0.5512	0.5905	0.6299	0.8661	0.5905	0.6299	0.8661	0.9449	0.5905	0.6299	0.8661	0.9449
D1	1.9885	2.5591	3.1496	3.9370	4.9213												
G	0.3839	0.3839	0.3839	0.3839	0.6358	0.3839	0.3839	0.6358	0.7598	0.3839	0.6358	0.7598	1.0098	0.3839	0.6358	0.7598	1.0098
H	4.0051	4.4488	4.0551	4.4488	4.9606	4.0551	4.7244	5.1969	5.7087	4.7244	5.1969	5.7087	6.2205	4.7244	5.5118	6.0630	6.5748
M	3-3/4"-6	4-1/2"-6	3-3/4"-6	4-1/2"-6	6"-6	3-3/4"-6	4-1/2"-6	6"-6	7-3/4"-5	4-1/2"-6	6"-6	7-3/4"-5	10-3/8"-4	4-1/2"-6	6"-6	7-3/4"-6	10-3/8"-4

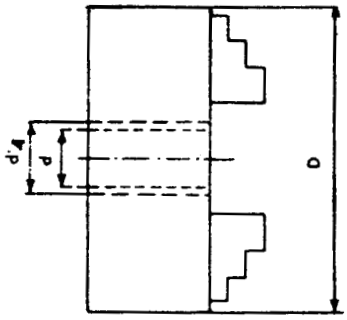
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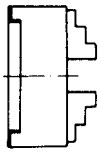
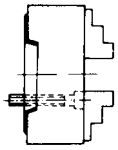
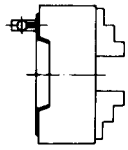
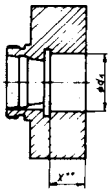
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Independent Chuck Through Hole Diameters

Independent Jaw Chucks Through Hole Diameters

*d – through hole diameter made by manufacturer
d1 – permissible enlargement of through hole
**Hole diameter d1 may be made only to depth X



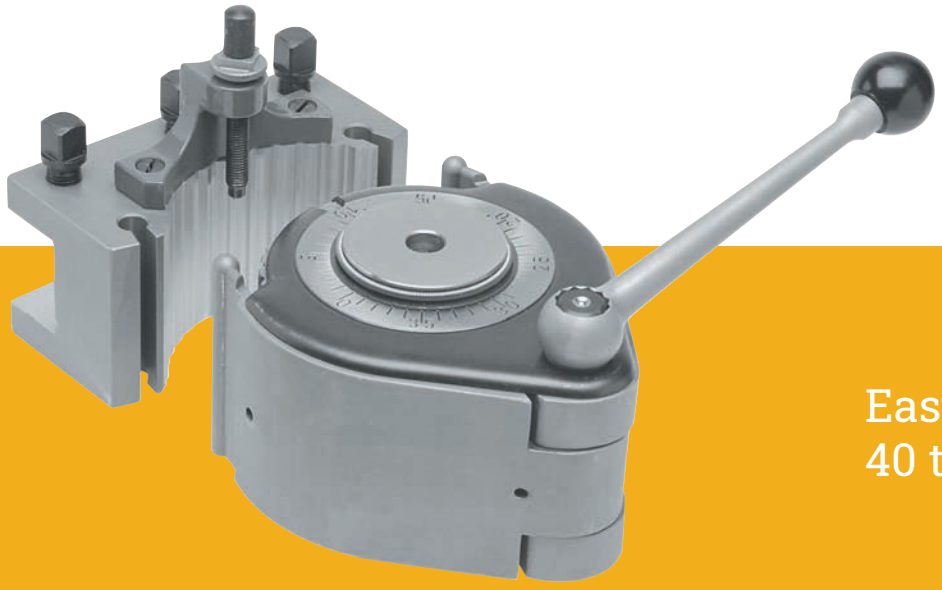
Mounting	Hole Dia.	Chuck Size	D	5"	6"	8"	10"	12"	16"	20"	25"	32"	48"
4304 	d*	plain back		1.0236	1.6535	1.9685	2.5591	3.1496	3.9370	4.9213	6.2992	7.8740	10.4725
	d1	plain back		1.3780	1.8504	1.9685	2.9528	3.7402	4.7244	6.1024	6.8898	7.8740	10.4725
4314 	d	Short Taper "A"	5			1.9685	2.5591	3.1496					
			6			1.9685	2.5591	3.1496	3.9370	3.9370			
			8						3.9370	4.9213	6.2992	7.0866	
			15							4.9213	6.2992	7.8740	
	d1		5			1.9685	2.9528	3.1496					
			6			1.9685	2.9528	3.7402	3.9370	3.9370			
			8				2.9528	3.7402	4.7244	3.9370	4.9213	4.9213	
			11						4.7244	6.1024	6.8898	7.0866	
			15							6.1024	6.8878	7.8740	
4344 	d	Camlock "D"	3			1.9685	1.9685						
			4			1.9685	2.3622						
			5			1.9685	2.5591	3.1496					
			6				2.5591	3.1496	3.9370	3.9370			
			8					3.1496	3.9370	4.9213	4.9213	4.9213	
			11						3.9370	4.9213	6.2992	7.0866	
			15							4.9213	6.2992	7.8740	
	d		3			1.9685	1.9685						
			4			1.9685	2.3622						
			5			1.9685	2.9528	3.1496					
			6				2.9528	3.7795	3.9370	3.9370			
			8					3.7795	4.7244	5.3150	5.3150	5.3150	
			11						4.7244	6.1024	6.8898	6.4903	
			15						6.1024	6.8898	6.8740		
4354 	d	Long Taper	L00			1.9685	2.5591	3.1496					
			L0			1.9685	2.5591	3.1496	3.9370	4.9213			
			L1				2.5591	3.1496	3.9370	4.9213			
			L2					3.1496	3.9370	4.9213	6.2992	6.8740	
			L3						3.9370	4.9213	6.2992	6.8740	
	d1		L00			1.9685	2.5591	3.1496					
			L0			1.9685	2.9528	3.3465	3.9370	4.9213			
			L1				2.9528	3.7795	4.1339	4.9213			
			L2					3.6220	4.7244	5.3150	6.2992	7.8740	
			L3						4.7244	6.1024	6.4961	7.8740	
			X**			-	1.9448	2.2047	2.2047	2.5590	2.7165	-	

Quick Change Tool Posts & Holders



Fast tool changing and simplicity to increase machine production.

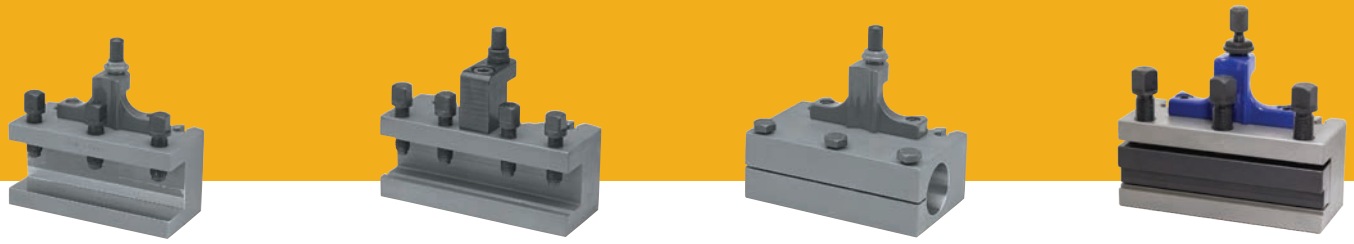
See Pages H132-135

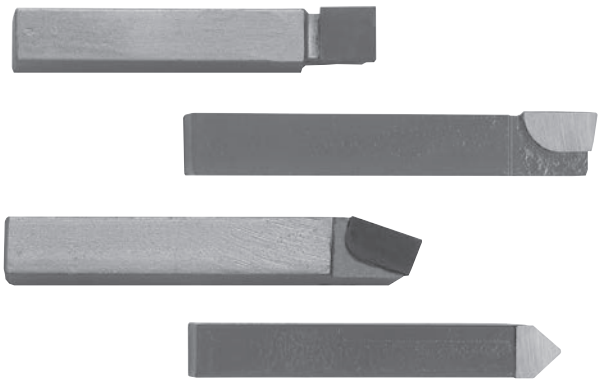


STM

Easy to operate with 40 tool-bit positions.

See Pages H132-135





Brazed Tool Bits

Used with quick change tool posts & holders.

See Pages D2-3

PRECISION LATHE CHUCKS



3-Jaw Cast Iron Scroll Chucks — Hard Solid Jaws

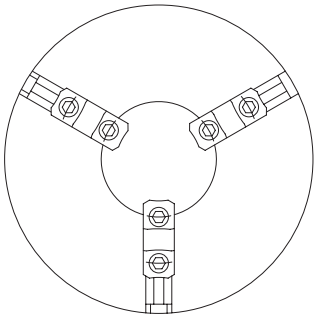
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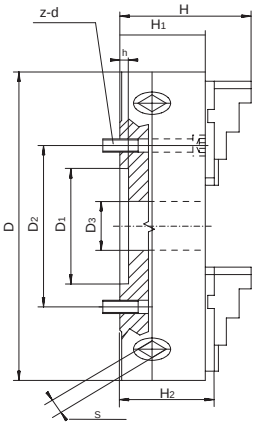
- 3-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:

- This chuck is designed for all types of workshop machining operations on conventional lathes and milling fixtures







Plain Back



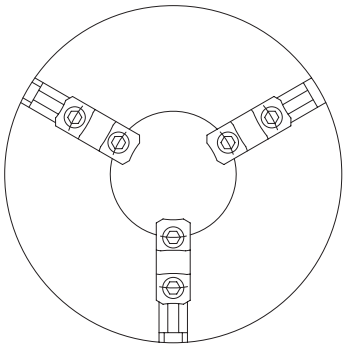
Chuck Size D (in.)	D1 (in.)	D2 (in.)	D3 (in.)	H (in.)	H1 (in.)	H2 (in.)	h (in.)	S (in.)	z-d	Max. Torque (ft/lbs)	Max Speed (r/min.)	Weight (lbs.)	Code No.	Price $
3	2.165	2.598	0.630	2.598	1.969	-	0.138	0.315	3-M6	29.50	4,000	4.18	4440504	**174.49**
4	2.835	3.307	0.866	2.933	2.165	-	0.138	0.315	3-M6	44.26	3,500	7.04	4440505	**188.52**
5	3.740	4.252	1.181	3.307	2.283	-	0.157	0.394	3-M8	73.76	3,000	11.00	4440510	**210.36**
6	5.118	5.591	1.575	3.740	2.559	-	0.197	0.394	3-M8	118.02	2,500	19.36	4440515	**300.49**
8	6.496	7.087	2.559	4.291	2.953	-	0.197	0.472	3-M10	184.40	2,000	34.10	4440520	**394.43**
10	8.110	8.898	3.150	4.724	3.150	-	0.197	0.472	3-M12	236.03	1,600	56.54	4440525	**542.38**
12	10.236	11.22	3.937	5.787	3.543	-	0.236	0.551	3-M16	295.04	1,200	103.40	4440530	**1,268.83**

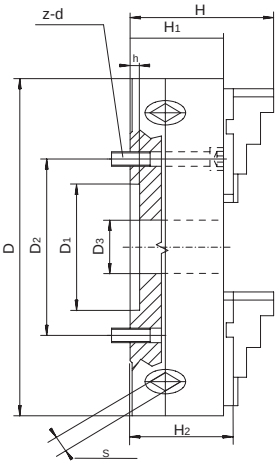
3-Jaw Plain Back Cast Iron Body Scroll Chucks — 2pc Hard Rev. Jaws

Features:
- 3-Jaw, self-centering scroll chuck with manual gripping and a high quality cast iron body
- Smart design, allowing inner parts to be replaced quickly
- Mounted on the machine-tool spindle from the back of the chuck, using the adapter plate

Application:
- This chuck is designed for all types of workshop machining operations on conventional lathes and milling fixtures







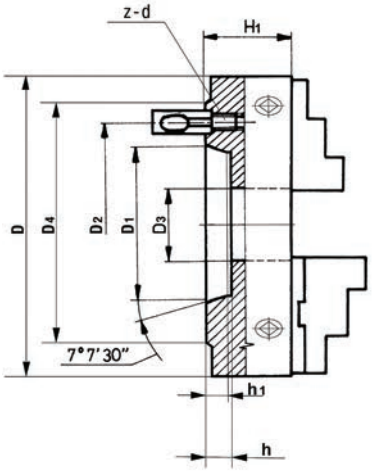


Plain Back

Chuck Size D (in.)	D1 (in.)	D2 (in.)	D3 (in.)	H (in.)	H1 (in.)	H2 (in.)	h (in.)	S (in.)	z-d	Max. Input Torque (ft/lbs)	Max Speed (r/min.)	Weight (lbs.)	Code No.	Price $
6	5.118	5.591	1.575	4.291	2.559	2.795	0.197	0.394	3-M8	118.02	2,500	18.26	4440710	**344.52**
8	6.496	7.087	2.559	4.803	2.953	3.150	0.197	0.472	3-M10	184.40	2,000	31.02	4440715	**452.16**
10	8.110	8.898	3.150	5.354	3.150	3.386	0.197	0.472	3-M12	236.03	1,600	50.60	4440720	**600.22**
12	10.236	11.220	3.937	6.024	3.543	3.740	0.236	0.551	3-M16	295.04	1,200	90.20	4440725	**1,084.66**
16	13.386	14.488	5.433	6.772	3.937	4.252	0.236	0.669	3-M16	368.80	1,000	156.20	4440730	**1,397.34**

3-Jaw Camlock Mount Cast Iron Body Scroll Chucks — 2pc Hard Rev. Jaws







Camlock Mount

Chuck Size D (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)	H1 (in.)	h (in.)	h1 (in.)	z-d	Max. Input Torque (ft/lbs)	Max Speed (r/min.)	Weight (lbs.)	Code No.	Price $
6 D1-4	2.501	3.252	1.575	4.606	2.756	0.512	0.394	3-M10x1	118.02	2500	22.00	4440910	**477.60**
8 D1-4	2.501	3.252	1.969	4.606	3.386	0.512	0.394	3-M10x1	184.40	2000	37.40	4440920	**679.14**
8 D1-6	4.188	5.252	1.969	7.126	3.386	0.630	0.512	6-M16x1.5	184.40	2000	37.40	4440930	**645.02**
10 D1-6	4.188	5.252	2.756	7.126	3.858	0.630	0.512	6-M16x1.5	236.03	1600	70.40	4440940	**791.23**
12 D1-8	5.501	6.748	4.134	8.858	4.075	0.709	0.551	6-M20x1.5	295.04	1200	112.20	4440950	**1,882.64**

4-Jaw Plain Back Cast Iron Body Independent Chucks — Hard Solid Jaws

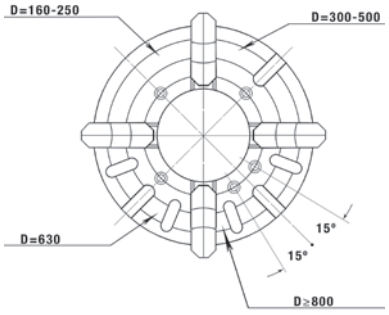
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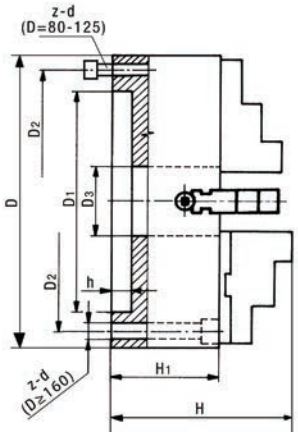
- 4-Jaw, independent chuck with manual gripping, and a high quality cast iron body
- Chuck bodies in sizes up to 6" diameter, are made from steel
- 4-Jaws ensure the precise centering of square-shaped workpieces with maximum permitted gripping force
- Chucks with diameters 10" and above are equipped with additional T-slots, permitting the addition of extra jaws
- Mounted on the machine tool spindle from the back of the chuck, using the adapter plate

Application:

- This precision chuck, with increased gripping accuracy, is made for all types of very high precision workshop machining operations on conventional lathes
- Suitable for machining square and round workpieces







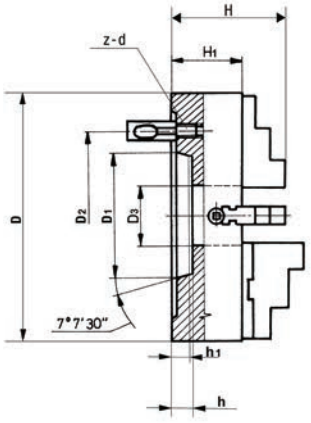
Plain Back

Chuck Size D (in.)	D1 (in.)	D2 (in.)	D3 (in.)	H (in.)	H1 (in.)	h (in.)	z-d	Max. Input Torque (ft/lbs)	Max Speed (r/min.)	Weight (lbs.)	Code No.	Price $
5	3.740	4.252	1.181	3.071	2.205	0.177	4-M8	36.88	3000	11.00	4445803	**210.36**
6	2.559	3.740	1.772	3.661	2.556	0.197	4-M10	51.63	2500	19.80	4445804	**267.44**
8	3.150	4.409	2.205	4.213	2.953	0.236	4-M10	73.76	2000	33.00	4445805	**303.32**
10	4.331	5.118	2.953	4.724	3.150	0.236	4-M12	110.64	1600	50.60	4445810	**668.82**

4-Jaw Camlock Mount Cast Iron Body Independent Chucks — Hard Solid Jaws





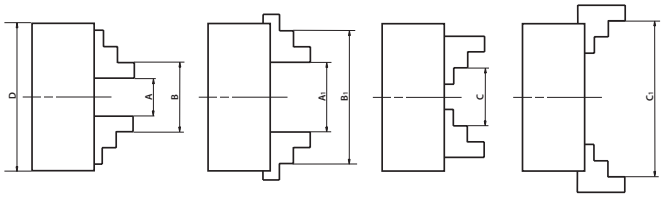


Camlock Mount

Chuck Size D (in.)	D1 (in.)	D2 (in.)	D3 (in.)	H (in.)	H1 (in.)	h (in.)	h1 (in.)	z-d	Max. Input Torque (ft/lbs)	Max Speed (r/min.)	Weight (lbs.)	Code No.	Price $
10 D1-6	4.188	5.252	2.953	4.724	3.150	0.630	0.512	6-M16x1.5	110.64	1600	50.60	4450130	**637.95**
12 D1-6	4.188	5.252	3.740	5.276	3.543	0.630	0.512	6-M16x1.5	132.77	1200	88.00	4450135	**835.05**
12 D1-8	5.501	6.748	3.740	5.276	3.543	0.709	0.551	6-M20x1.5	132.77	1200	88.00	4450140	**835.05**
16 D1-8	5.501	6.748	4.921	5.630	3.740	0.709	0.551	6-M20x1.5	206.53	1000	121.00	4450150	**1,130.22**
20 D1-11	7.751	9.252	6.299	6.339	4.173	0.787	0.630	6-M22x1.5	258.16	800	224.40	4450165	**1,879.92**

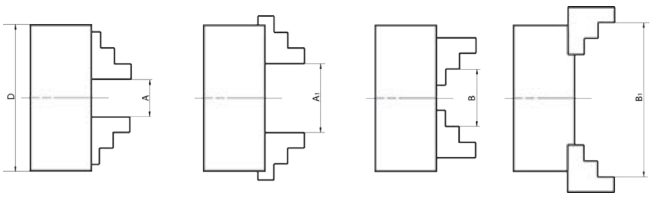
Clamping Ranges for 3 & 4-Jaw Chucks

Clamping Range — 3 Self Centering Scroll Chucks



Chuck Size (in.)	Internal Jaws Clamping Range A-A1 (in.)	Internal Jaw Jamming Range B-B1 (in.)	External Jaws Clamping Range C-C1 (in.)
3	0.079 - 0.866	0.984 - 2.756	0.866 - 2.480
4	0.079 - 1.181	1.181 - 3.543	1.181 - 3.150
5	0.098 - 1.575	1.496 - 4.921	1.496 - 4.331
6	0.118 - 2.165	1.969 - 6.299	2.165 - 5.709
8	0.157 - 3.346	2.559 - 7.874	2.559 - 7.874
10	0.236 - 4.331	3.150 - 9.843	3.543 - 9.843
12	0.394 - 5.512	3.740 - 12.402	3.937 - 12.402
16	0.591 - 8.268	4.724 - 15.748	4.724 - 15.748
20	0.984 - 11.024	5.906 - 19.685	5.906 - 19.685
25	1.969 - 13.780	6.693 - 24.803	6.693 - 24.803

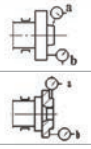
Clamping Range — 4-Jaw Independent Chucks



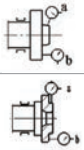
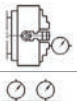
Chuck Size (in.)	Internal Jaws Clamping Range A-A1 (in.)	External Jaws Clamping Range B-B1 (in.)
3	0.197 - 1.378	1.378 - 3.150
4	0.236 - 1.772	1.575 - 3.937
5	0.276 - 2.244	1.890 - 4.921
6	0.315 - 3.150	1.969 - 6.299
8	0.394 - 3.937	2.480 - 7.874
10	0.591 - 5.118	3.150 - 9.843
12	0.787 - 6.693	3.937 - 12.402
16	0.984 - 9.843	4.646 - 15.748
20	1.378 - 11.811	4.921 - 19.685
25	1.969 - 15-748	6.299 - 24.803
32	2.756 - 21.260	7.874 - 31.496

Spindle Runout For Self-Centering Scroll Chucks & 4-Jaw Independent Lathe Chucks

3-Jaw Self Centering

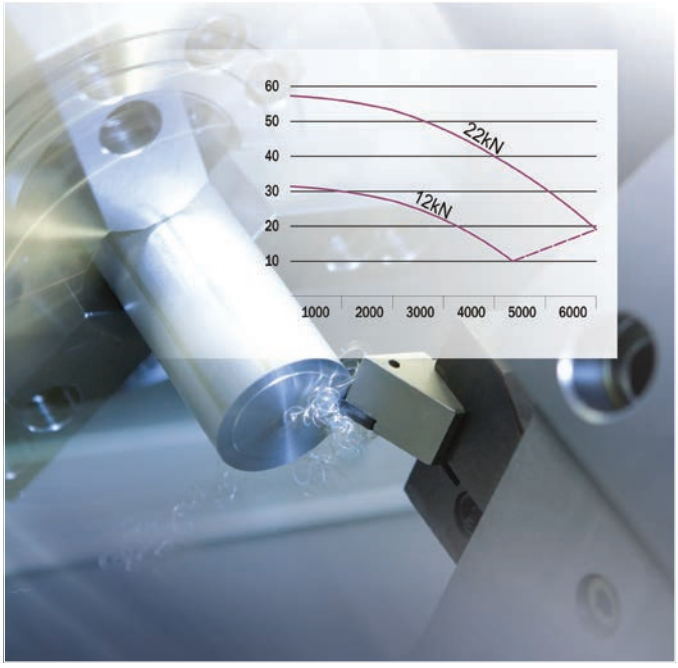
Diagram of Test	Test Item	Chuck Diameter								
		<6"				8"~10"		12"~16"		20
		3	4	5	6	8	10	12	16	20
	a. Radial run-out b. Axial run-out	a : 0.0002" b : 0.0002"								
	Radial run-out of chuck	0.0012"/				0.0016"/		0.0024"/		0.0031"/
		0.0012"/				0.0016"/		0.0024"/		0.0031"/
	Axial run-out of chuck	0.0025"/ L=2.00"				0.0031"/ L=2" (8"), L=3" (10")		0.0039"/ L=3"		0.005"/ L=4"
	Radial run-out of test bar	0.0024"/				0.0024"/		0.0031"/		0.0039"/
	Radial run-out of test ring	0.0013"/				0.0016"/		0.0019"/		0.0025"/
	Axial run-out of test ring	0.0024"/				0.0024"/		0.0031"/		0.0039"/
	Radial run-out of test ring	0.0013"/				0.0016"/		0.0019"/		0.0025"/

4-Jaw Independent

Diagram of Test	Test Item	Chuck Diameter									
		3"~5"		6"	8"~10"		12"	16"	20"~25"	
		3"	5"	6"	8"	10"	12"	16"	20"	25"
	a. Radial run-out b. Axial run-out	a : 0.0002" b : 0.0002"								
	Radial run-out of chuck	0.0013"/		0.0013"/	0.0024"/		0.0024"/	0.0024"/	0.0031"/	
	Axial run-out of chuck	0.0006"/		0.0006"/	0.0009"/		0.0009"/	0.0013"/	0.0013"/	
	Axial run-out of step of jaw	0.0009"/		0.0009"/	0.0013"/		0.0013"/	0.0016"/	0.0016"/	
	Linearity of front face of chuck	—		—	—		0.0013"/ (—)	0.0013"/ (—)	0.0016"/ (—)	

Power Chucks





Features

- Manufactured from high grade alloy steel which extends machine life while providing higher rigidity and greater wear resistance
- The unique design of wedge nut results in its very rigid structure and enables direct power transmission to the master jaws in direct area of jaw guideways – effectively counteracting the loss of gripping force and resulting in high power transmission efficiency
- Hardened and ground working surfaces ensure longer life with maintained accuracy and repeatability
- Large through hole works well with high rotational speeds
- Master jaws secured against throw-off
- Master jaws lubricated directly
- Unbalance G 6,3
- Flat back mounting, dimensions according to DIN 6353
- Special insert set available that allows for easy transformation into a non-through hole model

Application

- This first class chuck, with increased gripping accuracy, is made for very high precision machining on CNC lathes and turning centres
- Designed for high rotation speeds without compensating elements

Options

- Special insert set allows for non through hole execution
- Chucks with diameters 500mm, 630mm and 800mm are available on request

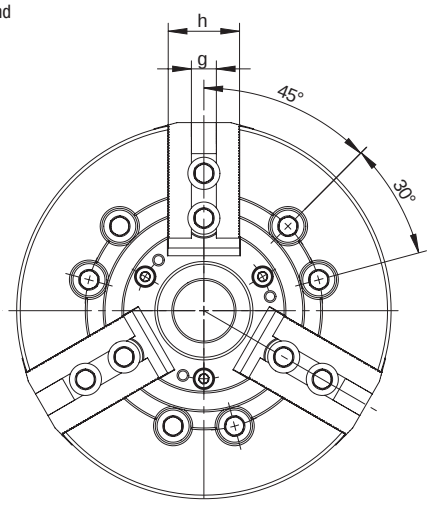
Standard Accessories

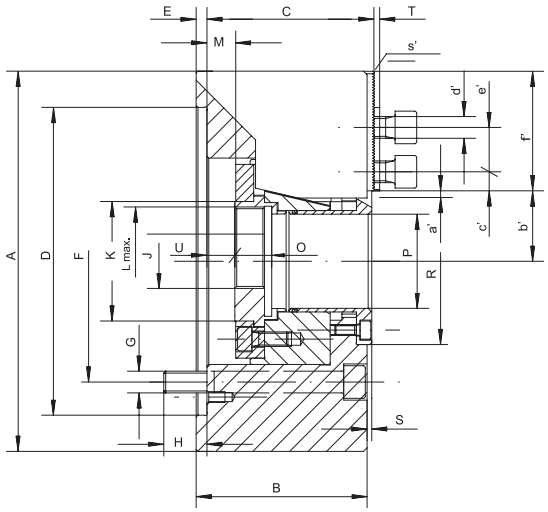
- Chuck and jaw mounting bolts
- Reversible top jaws hardened and ground
- T-nuts
- Key for chuck installation
- Eye bolt (for sizes greater than 8" - 200 mm)

Bison 2405-K Power Chucks With 1.5mm x 60° Serrations

Standard Accessories:

- Chuck and jaw mounting bolts
- Reversible top jaws hardened and ground
- T-nuts
- Blank draw bar nut
- Key for chuck installation
- Eye bolt

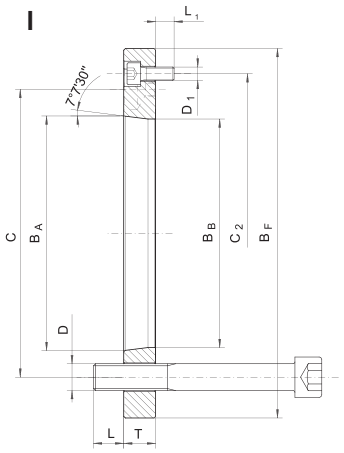




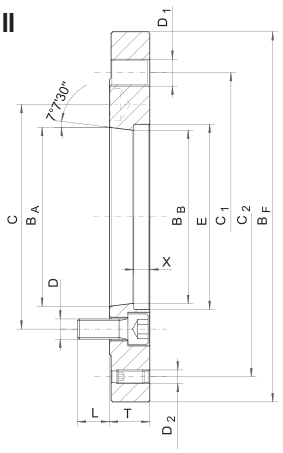
Size (mm)	160	200	250	315
Size (inch)	**6**	**8**	**10**	**12**
Code No.	468104	468116	468124	468129
Price $	**3,652.48**	**4,531.47**	**6,319.26**	**8,480.62**
A	169	210	254	315
B	81	95	106	108
C	79	93	104	106
D (H4)	140	170	220	220
E	6	6	6	6
F	104.8	133.4	171.4	171.4
G	6xM10	6xM12	6xM16	6xM16
H	13.5	18	28	-
J	M27x2	M36x2	M50x2	M56x2
K	60	94	140	-
L max.	M55x2	M60x2	M85x2	M100x2
M max. (Wedge stroke)	16	22.5	27	27
O	19	20.5	25	28
P (Through hole)	45	52	75	91
R	70	92	117	134
S	2.6	2.6	2.6	0.6
T	2.4	3.40	3.40	2.90
U min.	-5.0	-8.0	-18.5	-19.0
U max.	11.0	14.5	8.5	8.0
a (Jaw stroke)	3.5	5.0	6.0	6.0
b min.	30.2	35.5	47.9	56.9
b max.	33.7	40.5	53.9	62.9
c min.	9.0	10.5	11.7	13.2
c max.	25.5	33	41.7	60
d	M10	M12	M12	M16
e	20	25	30	30
f	51	64.5	73	94
g (H7)	12	14	16	21
h	38	40	45	52
s	1.5x60°	1.5x60°	1.5x60°	1.5x60°
Max. draw bar pull (daN)	2200	3400	4300	5600
Max. total gripping force (daN)	5700	8600	11100	14400
Max. speed (rpm)	6000	5000	4200	3300
Moment of inertia (kgm²)	0.057	0.15	0.31	0.73
Weight without top jaws (kg)	12	22	35	56.5

Adapters For 2405-K Power Chucks

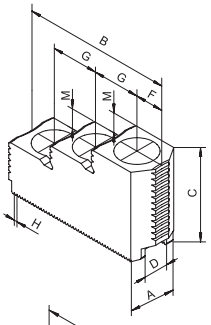
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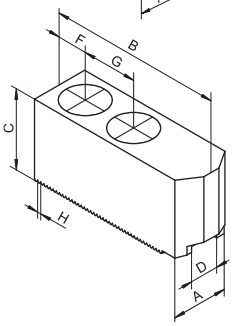


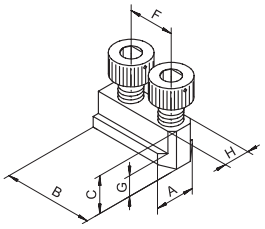
II



Type	160-A5	200-A6	250-A6	250-A8	315-A6	315-A8
Code No.	468952	468956	468958	468960	468962	468964
Price $	**633.07**	**707.12**	**902.53**	**732.86**	**902.53**	**902.53**
Spindle Nose	A5	A6	A6	A8	A6	A8
Drawing No.	I	I	II	I	II	I
BF	140	170	220	220	220	220
BA	82.563	106.375	106.375	139.719	106.375	139.719
BB	79.5	103	103	136.1	103	136.1
C	104.8	133.4	133.4	171.4	133.4	171.4
C1	-	-	171.4	-	171.4	-
C2	116	150	190	190	190	190
D	6xM10	6xM12	6xM12	6xM16	6xM12	6xM16
D1	3xM6	3xM6	6xM16	3xM8	6xM16	3xM8
D2	-	-	3xM8	-	3xM8	-
E	-	-	110	-	110	-
L	13.5	19.5	19	20	18	20
L1	8	7	-	12	-	12
T	15	17	25	18	30	18
X	-	-	10.5	-	15.5	-
Weight (kg)	1.5	2.3	5.2	4.2	6.2	4.2







2405-K Hard Top Jaws

Size	A	B	C	D H7	F	G	H	M	Screw	Weight kg	Code No.	Price $
160	32	64	43	12	12.5	20	1.5 x 60	10	M10	0.31	468205	**675.18**
200	35	79	49	14	14.5	25	1.5 x 60	12	M12	0.56	468210	**739.07**
250	40	102	54	16	19	30	1.5 x 60	14	M12	1.02	468215	**739.07**
315	45	102	58	21	21	30	1.5 x 60	14	M16	1.08	468220	**808.76**

2405-K Soft Top Jaws

Size	A	B	C	D H7	F	G	H	Screw	Weight kg	Code No.	Price $
160	26	66	28	12	12	20	1.5 x 60	M10	0.265	468305	**317.99**
200	35	95	38	14	24	25	1.5 x 60	M12	0.776	468310	**345.58**
250	40	110	42	16	30	30	1.5 x 60	M12	1.194	468315	**367.36**
315	50	111	50	21	21	30	1.5 x 60	M16	1.750	468320	**415.27**

Note: Other sizes available from stock - please call

2405-K T-Nuts

Size	A	B	C	F	G	H h6	Screw	Weight kg	Code No.	Price $
160	17.5	36	18.5	20	7.5	12	M10 x 20	0.039	468405	**39.41**
200	20.5	46.5	20.5	25	8.5	14	M12 x 25	0.091	468410	**47.26**
250	22.5	51	21.5	30	8.5	16	M12 x 30	0.121	468415	**57.13**
315	29	55.5	27	30	10.5	21	M16 x 30	0.209	468420	**59.11**

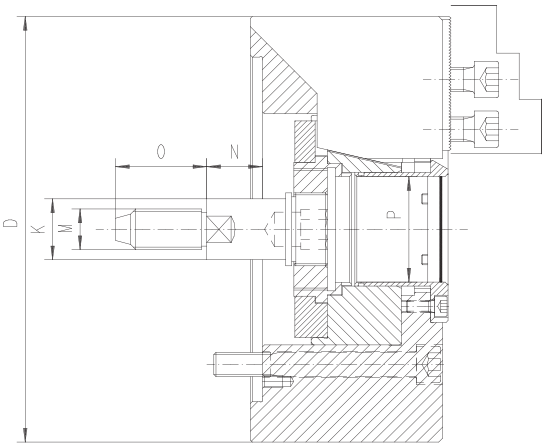
Special Insert Sets For 2405-K

Features:

- Special insert set for power chucks with through hole enable conversion to closed center option
- The set includes:

  1) Cover to be mounted on front surface of power chuck body instead of originally supplied hollowed cover

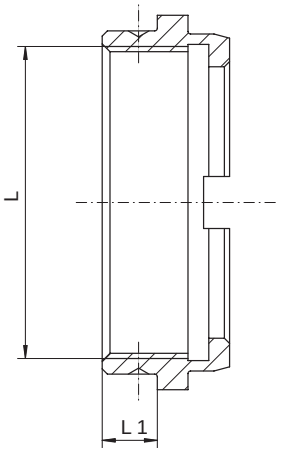
  2) Special screw for connecting threaded nut of power chuck body with the drawbar of actuating cylinder
- Sets are available in different sizes matching the chuck size



Size	160	200	250	315
Code No.	468902	468904	468906	468908
Price $	**625.09**	**682.15**	**739.24**	**796.33**
D	169	210	254	315
P	45	52	75	91
K	24	30	36	36
M	M16	M20	M24	M24
N	25.5	27.5	33	34
O	40	45	55	55

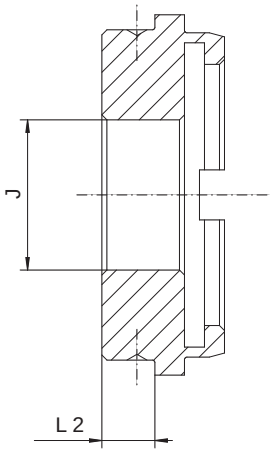
Drawbar Nuts — Threaded

Chuck Size	L	L1	Code No.	Price $
160	M42x1.5	8	468720	**154.32**
160	M55x1.5	8	468722	**154.32**
160	M42x2	8	468724	**154.32**
160	M50x1.5	8	468726	**154.32**
160	M55x2	8	468728	**962.86**
200	M50x1.5	11.6	468730	**169.51**
200	M55x1.5	11.6	468732	**169.51**
200	M60x1.5	11.6	468734	**169.51**
200	M50x2	11.6	468736	**169.51**
200	M55x2	11.6	468738	**169.51**
200	M60x2	11.6	468740	**727.29**
250	M60x1.5	23	468742	**200.32**
250	M85x1.5	23	468744	**200.32**
250	M60x2	23	468746	**200.32**
250	M80x2	23	468748	**749.68**
250	M85x2	23	468750	**763.00**
315	M100x1.5	19.5	468752	**277.36**
315	M100x2	19.5	468754	**277.36**

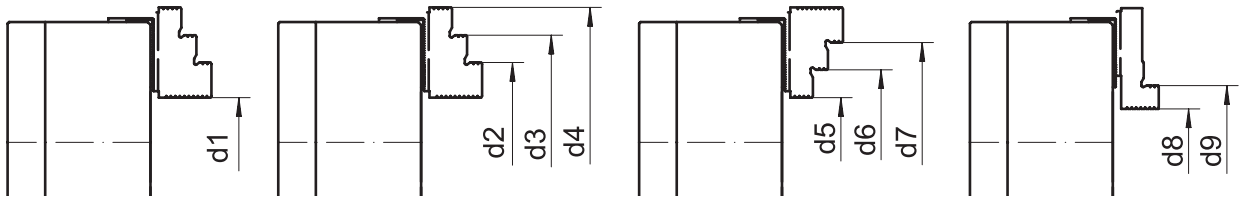


Drawbar Nuts — Blank

Chuck Size	J	L2	Code No.	Price $
160	M27x2	8	468702	**154.32**
160	Ø20	28	468703	**154.32**
200	M36x2	11.6	468704	**169.51**
200	Ø30	31.6	468705	**169.51**
250	M50x2	23	468706	**200.32**
250	Ø45	43	468707	**638.48**
315	M56x2	19.5	468708	**277.36**
315	Ø50	39.5	468709	**277.36**

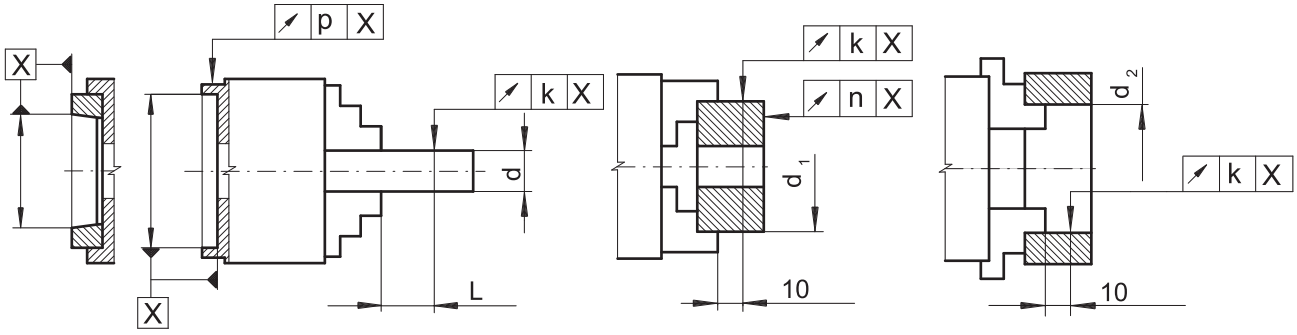


Gripping Range With Hard Top Jaws For 2405-K



Size	d1	d2	d3	d4	d5	d6	d7
160	15-88	65-136	104-176	145-218	17-90	59-133	99-172
200	16-111	80-172	128-222	178-272	16-111	64-161	116-211
250	16-134	98-213	160-276	225-341	16-134	80-198	144-262
315	47-177	125-254	185-315	255-385	47-177	117-247	177-307

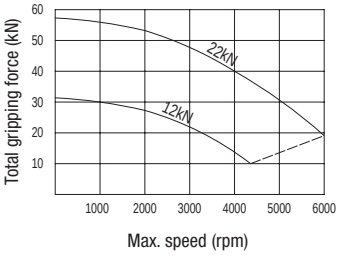
Centering Accuracy For 2405-K



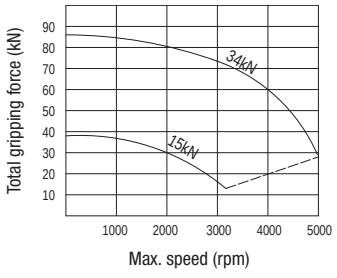
Size	160	200	250	315
d	20	32	32	50
d	32	50	50	80
d	50	80	80	125
L	40	40	60	80
d1	125	200	200	2501
d2	100	125	162	162
k	0.02	0.025	0.03	0.04
n	0.02	0.02	0.03	0.03
p	0.01	0.01	0.01	0.01

Gripping Force Properties During Chuck Rotation

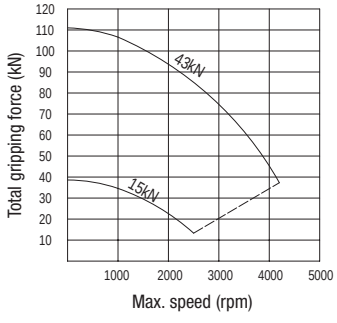
Chuck Size 6"



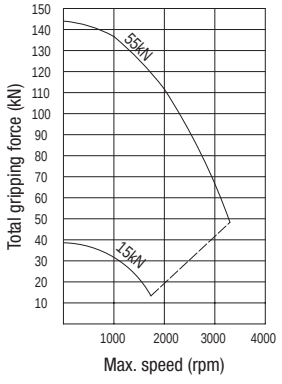
Chuck Size 8"



Chuck Size 10"



Chuck Size 12"

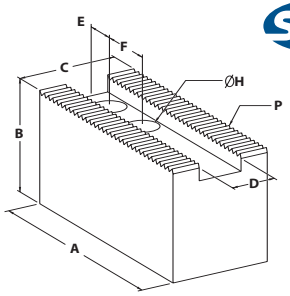


Metric Serrated Soft Top Jaws — Rectangular

STM Jaws
- Made in Italy
- For Autoblok, Howa, Kitagawa, Matsumoto, Shunk

USA Jaws
- For Kitagawa power chucks





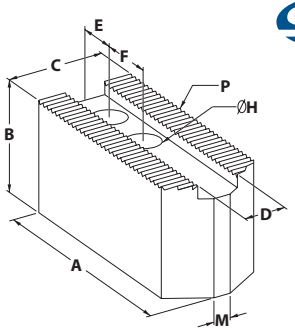
Chuck Dia.	Serration	A	B	C	D	E	F	H	Wt. (kg)	Model No.	USA Code No.	Individual Price $	STM Italy Code No.	Individual Price $	STM Italy Code No.	Set of 3 Price $
110	1.5x60°	50	25	20	8	8	15	7	0.15	HKM.11.01/S	-	-	491215	**43.24**	-	-
110	1.5x60°	55	25	25	10	13	14	9	0.196	HKM.11.05/S	-	-	491220	**44.68**	-	-
110	1.5x60°	55	50	25	10	13	14	9	0.412	HKM.11.06/S	-	-	491225	**65.53**	-	-
135	1.5x60°	55	30	25	10	10	18	9	0.239	HKM.13.01/S	-	-	491235	**45.01**	-	-
135	1.5x60°	55	40	25	10	10	18	9	0.316	HKM.13.02/S	-	-	491240	**63.86**	-	-
135	1.5x60°	55	25	25	10	14	19	9	0.192	HKM.13.05/S	-	-	491250	**45.24**	-	-
150(6")	1.5x60°	73	38	32	12	15	20	11		D6SSH38	656205	**42.53**	-	-	-	-
150(6")	1.5x60°	73	75	32	12	15	20	11		D6SEH38	656252	**79.20**	-	-	-	-
165(6")	1.5x60°	80	30	30	12	19	20	11	0.40	HKM.16.05/S	-	-	491265	**47.01**	491266	**147.01**
165(6")	1.5x60°	75	60	30	12	19	20	11	0.76	HKM.16.08/S	-	-	491280	**76.06**	491281	**234.71**
200(8")	1.5X60°	100	50	38	14	25	25	13		D8SSH1	656215	**65.38**	-	-	-	-
210(8")	3x60°	95	40	40	14	24	25	13	0.96	HKM.21.3.01/S	-	-	491395	**65.53**	-	-
210(8")	1.5x60°	95	40	35	14	24	25	13	0.80	HKM.21.00/S	-	-	491295	**57.22**	-	-
210(8")	1.5x60°	95	40	40	14	20	25	13	0.97	HKM.21.01/AL	-	-	491305	**179.84**	-	-
210(8")	1.5x60°	95	40	40	14	20	25	13	0.97	HKM.21.01/S	-	-	491315	**57.22**	491316	**167.86**
210(8")	1.5x60°	95	50	40	14	20	25	13	1.20	HKM.21.02/S	-	-	491325	**70.85**	-	-
210(8")	1.5x60°	95	60	40	14	20	25	13	1.44	HKM.21.03/S	-	-	491335	**79.83**	-	-
210(8")	1.5x60°	95	80	40	14	20	25	13	1.82	HKM.21.04/S	-	-	491345	**115.74**	-	-
210(8")	1.5x60°	95	100	40	14	20	25	13	2.43	HKM.21.05/S	-	-	491355	**135.16**	-	-
210-254(8")	1.5x60°	95	40	40	16	20	25	13	0.96	HKM.21.10/S	-	-	491375	**59.20**	-	-
210-254(8")	1.5x60°	95	50	40	16	20	25	13	1.19	HKM.21.11/S	-	-	491380	**76.06**	-	-
210-254(8")	1.5x60°	95	60	40	16	20	25	13	1.40	HKM.21.12/S	-	-	491385	**85.38**	-	-
254(10")	1.5x60°	118	50	38	16	25	30	13		D10SSH	656180	**66.82**	-	-	-	-
254-270(10")	1.5x60°	110	40	40	16	30	30	13	1.11	HKM.25.01/AL	-	-	491405	**241.70**	-	-
254-270(10")	1.5x60°	110	40	40	16	30	30	13	1.11	HKM.25.01/S	-	-	491420	**59.53**	491421	**185.93**
254-270(10")	1.5x60°	110	40	40	16	-	-	-	1.11	**HKM.25.01/SB	-	-	491425	**97.01**	-	-
254-270(10")	1.5x60°	120	40	40	16	30	30	13	1.36	HKM.25.01/SL120	-	-	491430	**64.53**	-	-
254-270(10")	1.5x60°	130	40	40	16	30	30	13	1.61	HKM.25.01/SL130	-	-	491435	**74.62**	-	-
254-270(10")	1.5X60°	160	40	40	16	30	30	13	2.36	HKM.25.01/SL160	-	-	491437	**361.87**	-	-
254-270(10")	1.5x60°	110	60	40	16	30	30	13	1.70	HKM.25.02/S	-	-	491495	**83.04**	-	-
254-270(10")	1.5x60°	110	60	40	16	-	-	-	1.70	**HKM.25.02/SB	-	-	491450	**88.47**	-	-
254-270(10")	1.5x60°	110	80	40	16	30	30	13	2.28	HKM.25.03/S	-	-	491465	**119.41**	-	-
254-270(10")	1.5x60°	110	80	40	16	-	-	-	2.28	**HKM.25.03/SB	-	-	491470	**121.40**	-	-
254-270(10")	1.5x60°	110	100	40	16	30	30	13	2.90	HKM.25.04/S	-	-	491480	**143.03**	491481	**434.71**
304(12")	1.5x60°	118	50	38	18	25	30	15		D11SSH2	656193	**93.98**	-	-	-	-
304(12")	1.5x60°	140	63	50	21	19	30	17		D212SSH	656197	**95.09**	-	-	-	-
304(12")	1.5x60°	140	100	50	21	19	30	17		D212SEH	656242	**177.64**	-	-	-	-
304-381(12")	1.5x60°	130	50	50	18	25	30	15	2.05	HKM.30.01/S	-	-	491445	**89.69**	491496	**276.73**
304-381(12")	1.5x60°	130	80	50	18	25	30	15	3.44	HKM.30.03/S	-	-	491515	**136.03**	-	-
304-381(12")	1.5x60°	130	100	50	18	25	30	15	4.30	HKM.30.04/S	-	-	491530	**151.34**	491531	**436.27**
304(12")	1.5x60°	130	50	50	21	22	30	17	2.04	HKM.30.10/S	-	-	491545	**77.38**	491546	**276.95**
304(12")	1.5x60°	130	80	50	21	22	30	17	3.33	HKM.30.12/S	-	-	491550	**135.16**	491551	**389.15**
304(12")	1.5x60°	130	100	50	21	22	30	17	4.20	HKM.30.13/S	-	-	491560	**178.06**	491561	**542.15**
304(12")	1.5x60°	130	50	50	21	22	35	17	2.04	HKM.30.15/S	-	-	491570	**89.69**	-	-
381(15")	1.5x60°	159	75	63	22	25	43	21		D15SSH1	656198	**186.76**	-	-	-	-
381(15")	1.5x60°	159	100	63	22	25	43	21		D15SEH1	656244	**256.70**	-	-	-	-
381(15")	1.5x60°	159	75	63	25.5	25	43	21		D215SSH	656199	**186.76**	-	-	-	-
381(15")	1.5x60°	155	60	60	22	37	43	21	3.65	HKM.38.00/S	-	-	491585	**178.06**	491586	**544.25**
381-454(15")	1.5x60°	165	70	70	22	37	43	21	5.40	HKM.38.01/S	-	-	491605	**218.85**	-	-
381(15")	1.5x60°	155	100	60	22	37	43	21	6.00	HKM.38.02/S	-	-	491610	**250.23**	491611	**726.42**
381(15")	1.5x60°	155	60	60	22	30	60	21	3.65	HKM.38.04/S	-	-	491615	**220.97**	-	-
381(15")	1.5x60°	156	70	70	22	30	60	21	5.10	HKM.38.05/S	-	-	491630	**218.85**	-	-
381-454(15")	3x60°	155	60	60	22	30	50	21	3.65	HKM.38.3.00/S	-	-	491670	**178.06**	491671	**492.37**
381-454(15")	3x60°	156	70	70	22	30	50	21	5.10	HKM.38.3.01/S	-	-	491685	**218.85**	-	-
381(15")	3x60°	140	60	60	26	30	42	21	3.20	HKM.38.3.05/S	-	-	491695	**148.34**	-	-
381(15")	1.5x60°	135	60	50	25.5	26	43	21	2.49	HKM.38.10/S	-	-	491650	**123.84**	491651	**366.09**
381(15")	1.5x60°	135	100	50	25.5	26	43	21	4.14	HKM.38.12/S	-	-	491660	**210.21**	491661	**605.91**
454-610(18")	3x60°	200	70	70	25	40	60	21	6.60	HKM.53.3.01/S	-	-	491705	**268.30**	-	-
381-610(18")	3x60°	156	70	70	26	34	50	21	5.05	HKM.61.3.01/S	-	-	491710	**240.59**	-	-

** Blank jaws

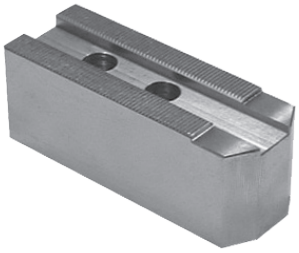
Metric Serrated Soft Top Jaws — Pointed

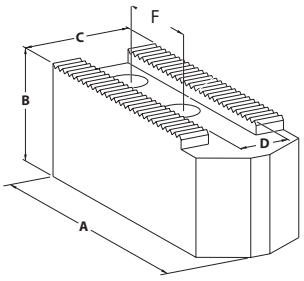
STM Jaws
- Made in Italy
- For Autoblok, Howa, Kitagawa, Matsumoto, Shunk





Quality Import Jaws
- For Kitagawa power chucks
  Models B, BT, B200, BT200, HOH, HOB, N, NL





Chuck Dia.	Serration	A	B	C	D	E	F	H	M	Wt. (kg)	Model No.	Quality Import Code No.	Individual Price $	STM Italy Code No.	Individual Price $	STM Italy Code No.	Set of 3 Price $
135	1.5x60°	55	30	25	10	10	18	9	5	0.239	HKM.13.01	-	-	491230	**44.68**	-	-
135	1.5x60°	55	25	25	10	14	19	9	4	0.192	HKM.13.05	-	-	491245	**45.24**	-	-
150(6")	1.5x60°	70	38	25	12		20	11				656010	**32.23**	-	-	656050**	**75.39**
165(6")	1.5x60°	80	30	30	12	19	20	11	7	0.40	HKM.16.05	-	-	491255	**47.01**	491256	**147.01**
165(6")	1.5x60°	75	60	30	12	19	20	11	7	0.76	HKM.16.08	-	-	491275	**76.06**	-	-
210(8")	1.5x60°	90	50	38	14		25	13				-	-	-	-	656055**	**102.53**
210(8")	1.5x60°	95	40	35	14	24	25	13	5	0.80	HKM.21.00	-	-	491290	**57.22**	-	-
210(8")	3x60°	95	40	40	14	24	25	13	12	0.96	HKM.21.3.01	-	-	491390	**65.53**	-	-
210(8")	1.5x60°	95	40	40	14	20	25	13	12	0.97	HKM.21.01	-	-	491300	**57.22**	491301	**177.28**
210(8")	1.5x60°	95	50	40	14	20	25	13	12	1.20	HKM.21.02	-	-	491320	**70.85**	-	-
210(8")	1.5x60°	95	60	40	14	20	25	13	12	1.44	HKM.21.03	-	-	491330	**79.83**	-	-
210(8")	1.5x60°	95	80	40	14	20	25	13	12	1.82	HKM.21.04	-	-	491340	**115.74**	-	-
210(8")	1.5x60°	95	100	40	14	20	25	13	12	2.43	HKM.21.05	-	-	491350	**135.16**	-	-
210-254(8")	1.5x60°	95	40	40	16	20	25	13	12	0.96	HKM.21.10	-	-	491365	**59.20**	-	-
254(10")	1.5x60°	110	42	40	16		30	13				656020	**24.96**	-	-	656060**	**118.65**
254-270(10")	1.5x60°	110	40	40	16	30	30	13	12	1.11	HKM.25.01	-	-	491400	**59.53**	491401	**185.93**
254-270(10")	1.5x60°	130	40	40	16	30	30	13	12	1.36	HKM.25.01 L130	-	-	491415	**74.62**	-	-
254-270(10")	1.5x60°	110	60	40	16	30	30	13	12	1.70	HKM.25.02	-	-	491440	**83.04**	-	-
254-270(10")	1.5x60°	110	80	40	16	30	30	13	12	2.28	HKM.25.03	-	-	491455	**119.41**	-	-
254-270(10")	1.5x60°	110	100	40	16	30	30	13	12	2.90	HKM.25.04	-	-	491475	**143.03**	491476	**429.09**
254(10")	1.5x60°	110	45	45	18	25	30	15	15	1.57	HKM.25.10	-	-	491485	**66.96**	-	-
304(12")	1.5x60°	120	50	38	18		30	15				656025	**81.44**	-	-	656065**	**186.25**
304-381(12")	1.5x60°	130	50	50	18	25	30	15	20	2.05	HKM.30.01	-	-	491490	**89.69**	491491	**276.73**
304-381(12")	1.5x60°	130	60	50	18	25	30	15	22	2.55	HKM.30.02	-	-	491500	**98.00**	-	-
304-381(12")	1.5x60°	130	80	50	18	25	30	15	22	3.44	HKM.30.03	-	-	491505	**136.03**	-	-
304-381(12")	1.5x60°	130	100	50	18	25	30	15	22	4.30	HKM.30.04	-	-	491520	**151.34**	491521	**462.44**
304(12")	1.5x60°	130	50	50	21	22	30	17	20	2.04	HKM.30.10	-	-	491535	**89.69**	491536	**276.84**
304(12")	1.5x60°	130	100	50	21	22	30	17	20	4.20	HKM.30.13	-	-	491555	**178.06**	491556	**542.15**
304(12")	1.5x60°	130	50	50	21	22	35	17	20	2.04	HKM.30.15	-	-	491565	**89.69**	-	-
381(15")	1.5x60°	165	62	62	22		43	21				-	-	-	-	656070**	**484.34**
381(15")	1.5x60°	155	60	60	22	37	43	21	-	3.65	HKM.38.00	-	-	491580	**178.06**	491581	**544.25**
381-454(15")	1.5x60°	165	70	70	22	37	43	21	-	5.40	HKM.38.01	-	-	491590	**218.85**	-	-
381(15")	1.5x60°	156	70	70	22	30	60	21	-	5.10	HKM.38.05	-	-	491620	**218.85**	-	-
381-454(15")	3x60°	155	60	60	22	30	50	21	-	3.65	HKM.38.3.00	-	-	491665	**178.06**	491666	**488.59**
381-454(15")	3x60°	156	70	70	22	30	50	21	-	5.10	HKM.38.3.01	-	-	491675	**218.85**	-	-
381(15")	1.5x60°	135	60	50	25.5	26	43	21	-	2.49	HKM.38.10	-	-	491640	**123.84**	491641	**356.44**
381-454(15")	1.5x60°	165	70	70	25.5	37	43	21	-	5.40	HKM.38.11	-	-	491655	**218.85**	491656	**666.87**
381(15")	1.5X60°	135	100	50	25.5	26	43	21	-	4.14	HKM.38.12	-	-	491672	**210.21**	-	-
454-610(18")	3x60°	200	70	70	25	40	60	21	-	6.60	HKM.53.3.01	-	-	491700	**268.30**	-	-

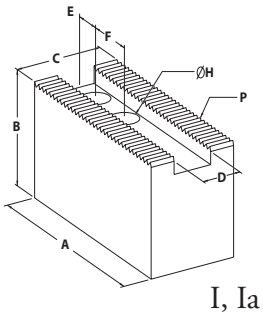
** Quality Import

Inch Serrated Soft Top Jaws — Rectangular

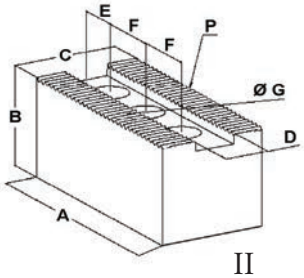
STM Jaws (Type I, Ia, III)
- Made in Italy
- Type I: For SMW, Berg, Gamet, Shunk, Rohm, Forkardt
- Type Ia: For self contained pneumatic power chucks
- Type III: For SMW Autoblok

USA Jaws (Type II)
- For Autoblok, Erickson, Forkardt, Gamet, Powerhold, Pratt Burnerd, Rohm and Howa (Ho12M-Self Contained Air)

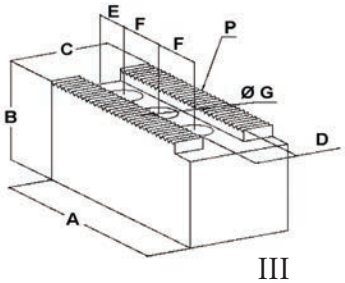




I, Ia



II

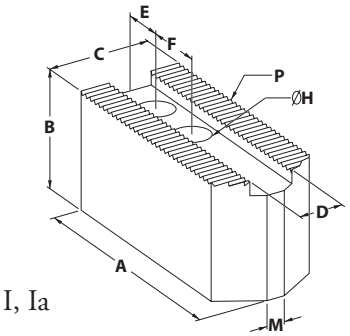


III

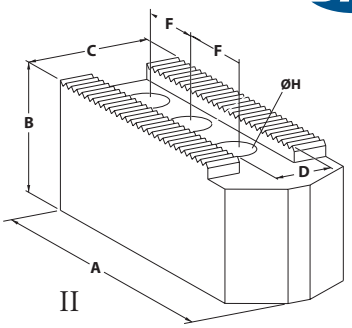
Chuck Dia.	Serration	Type	A	B	C	D	E	F	G	H	Wt. (kg)	Model No.	USA Code No.	Individual Price $	STM Code No.	Individual Price $
125	1/16x90°	I	68	40	30	11	-	18	-	M8	-	192200/S	-	-	491848	**64.75**
150	1/16X90°	II	75	38	29	11	11	18	-	5/16"	-	D6PSH	656300	**53.41**	-	-
160	1/16x90°	I	88	50	35	14	-	25	-	M10	-	192201/S	-	-	491850	**76.06**
160	1/16X90°	I	70	60	40	17	15	22	-	M12	1.05	242200/F	-	-	491130	**69.30**
200	1/16x90°	Ia	88	50	38	17	-	28	-	1/2"	-	HKM200	-	-	491800	**116.85**
200	1/16x90°	I	98	50	40	17	-	29	-	M12	-	192202/S	-	-	491852	**80.38**
200	1/16X90°	I	90	60	40	17	25	22	-	M12	1.40	242201/F	-	-	491131	**71.51**
200-250	1/16X90°	II	108	50	32	13	14	22	-	3/8"	-	D10PSH	656305	**78.48**	-	-
250	1/16x90°	I	108	70	50	21	-	30	-	M14	-	192203/S	-	-	491854	**95.57**
250	1/16X90°	I	120	80	50	21	30	28	-	M16	3.08	242202/F	-	-	491132	**100.90**
250HD	1/16X90°	II	115	50	44.5	20	16	30	-	1/2"	-	D11PSH	656310	**117.20**	-	-
250-315	1/16x90°	Ia	120	38	50	21	-	30	-	1/2"	-	HKM250-315	-	-	491802	**163.12**
300	1/16X90°	II	130	63	44.5	20	16	30	-	1/2"	-	D12PSH	656315	**131.12**	-	-
300	1/16X90°	I	140	90	60	25.5	30	35	-	M20	4.70	242203/F	-	-	491133	**178.72**
315	1/16x90°	I	120	70	50	21	-	30	-	M16	-	192204/S	-	-	491856	**132.82**
315	1/16X90°	I	140	70	50	21	-	30	-	M16	-	192204/S L140	-	-	491086	**160.98**
355-560	1/16X90°	II	165	63	44.5	21	19	40	-	5/8"	-	D15PSH	656320	**197.69**	-	-
400	3/32x90°	Ia	160	75	63	25	-	40	-	3/4"	-	HKM400	-	-	491804	**393.40**
400	3/32x90°	Ia	160	100	63	25	-	35	-	M18	-	HKM400S	-	-	491806	**339.27**
400	3/32x90°	I	160	80	60	25.5	-	40	-	M18	-	192205/S	-	-	491090	**210.54**
400-500	3/32x90°	Ia	172	63	63	25	-	38	-	M20	-	HKM400-500L6.75A	-	-	491820	**355.11**
400-500	3/32x90°	I	200	90	60	25.5	-	35	-	M20	-	242204/F L200	-	-	491862	**275.51**
400-500	3/32x90°	I	250	90	60	25.5	-	35	-	M20	-	242204/F L250	-	-	491864	**336.82**
400-500	3/32X90°	I	155	90	60	25.5	30	35	-	M20	6.40	242204/F	-	-	491135	**200.79**
500	3/32x90°	Ia	160	75	63	25	-	40	-	3/4"	-	HKM500	-	-	491808	**391.64**
500	3/32x90°	Ia	200	100	63	25	-	40	-	M18	-	HKM500S	-	-	491810	**464.30**
500	3/32x90°	III	170	60	60	28	27	38	38	M20	3.62	102210/A	-	-	491050	**217.74**
500	3/32x90°	III	170	60	60	25.5	27	38	38	M20	3.62	102210/A c25.5	-	-	491055	**217.74**
630	3/32x90°	Ia	210	88	88	30	-	63	-	1"	-	HKM630	-	-	491812	**546.17**
630	3/32x90°	Ia	241	88	75	30	-	65	-	M24	-	HKM630S	-	-	491814	**600.92**
630	3/32x90°	Ia	242	83	83	30	-	50	-	M24	-	HKM630AL9.50	-	-	491822	**600.92**
800	3/32x90°	Ia	210	88	88	30	-	63	-	1"	-	HKM800	-	-	491816	**546.17**
800	3/32x90°	Ia	300	88	75	30	-	65	-	M24	-	HKM800S	-	-	491818	**682.79**
800-1000	3/32x90°	Ia	318	83	83	30	-	50	-	M24	-	HKM800-1000AL12.5	-	-	491824	**710.11**

Inch Serrated Soft Top Jaws — Pointed

STM Jaws
- Made in Italy
- Type I: For SMW Autoblok
- Type Ia: SMW, Berg, Gamet, Shunk, Rohm, Forkardt
- Type II: For self contained pneumatic power chucks



I, Ia

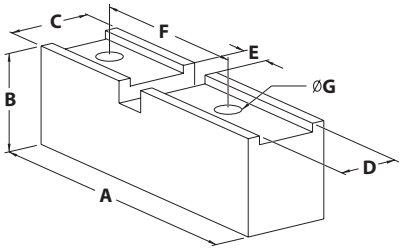


II

Chuck Dia.	Serration P	Type	A	B	C	D	E	F	H	M	Wt. (kg)	Model No.	Code No.	Individual Price $
125	1/16x90°	II	2.50"	1.50"	1.00"	0.433"	-	0.660"	5/16"	-	-	HKM125P	491826	**191.48**
125-130	1/16X90°	Ia	60mm	30mm	30mm	12mm	15mm	16mm	9mm	10mm	0.32	102201/A	491126	**38.81**
160	1/16x90°	II	3.25"	1.50"	1.50"	0.522"	-	0.875"	3/8"	-	-	HKM160P	491828	**191.48**
165	1/16x90°	I	75mm	35mm	35mm	14mm	16mm	16mm	11mm	8mm	0.54	102202/A	491000	**41.24**
170-180	1/16X90°	Ia	85mm	40mm	40mm	14mm	19mm	20mm	11mm	10mm	0.82	102203/A	491127	**46.45**
200	1/16x90°	II	4.25"	2.00"	1.50"	0.669"	-	0.875"	1/2"	-	-	HKM200P	491830	**220.46**
200-220	1/16x90°	I	95mm	40mm	40mm	17mm	20mm	23mm	13mm	12mm	0.96	102205/A	491005	**50.67**
200-220	1/16x90°	I	95mm	50mm	40mm	17mm	20mm	23mm	13mm	12mm	1.18	102205/A H50	491010	**67.74**
200-220	1/16x90°	I	95mm	60mm	40mm	17mm	20mm	23mm	13mm	12mm	1.42	102205/A H60	491015	**73.40**
250	1/16x90°	I	115mm	50mm	50mm	21mm	20mm	30mm	17mm	20mm	1.76	102207/A	491020	**69.07**
250	1/16x90°	I	115mm	60mm	50mm	21mm	20mm	30mm	17mm	20mm	2.10	102207/A H60	491030	**95.79**
250-350	1/16x90°	I	125mm	80mm	50mm	21mm	20mm	30mm	17mm	20mm	3.15	102207-8/A H80	491025	**126.95**
300-350	1/16x90°	I	130mm	50mm	50mm	21mm	22mm	30mm	17mm	20mm	2.10	102208/A	491040	**81.82**
300-350	1/16x90°	I	130mm	60mm	50mm	21mm	22mm	30mm	17mm	22mm	2.38	102208/A H60	491045	**109.64**

Soft Top Jaws For TOS Chucks





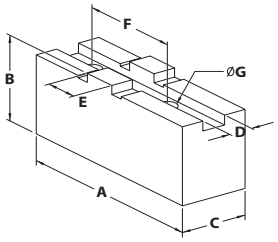
Model No.	Chuck Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight kg.	Code No.	Individual Price $
282200/T	100	50	20	20	14	12	20	5.5	0.117	491196	**50.01**
282201/T	125	65	25	25	16	12	28	5.5	0.26	491197	**51.89**
282202/T	160	80	35	25	18	12	38	7	0.42	491198	**54.78**
282204/T	200	100	40	30	22	14	48	11	0.74	491200	**62.52**
282206/T	250	125	40	30	25	14	55	11	0.96	491205	**68.52**
282207/T	315	155	60	40	32	20	60	13	2.25	491210	**105.21**
282208/T	400-630	165	70	40	32	20	70	13	3.00	491211	**143.36**

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Images are representational only and may not reflect actual product.

Soft Top Jaws — Metric Tongue & Groove

- **For SMW/Autoblok, Berg, Forkardt, Rohm, Schunk**

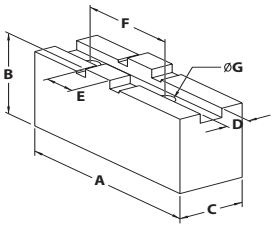




Model No.	Chuck Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight kg.	Code No.	Individual Price $
232200/F	160	85	40	20	8	18	32	9	0.38	491095	**53.45**
232201/F	200	105	50	25	10	20	40	9	0.62	491102	**58.87**
232202/F	250	125	50	30	12	20	40	13	1.12	491105	**75.28**
232203/F	315	145	60	35	12	26	54	13	1.93	491115	**103.66**
232204/F	400	180	80	50	18	30	60	17	4.56	491125	**186.70**

Soft Top Jaws — American Tongue & Groove

- **For Rohm Models ZG, ZS, ZGU, ZSU**

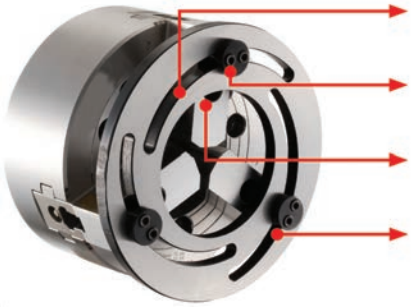




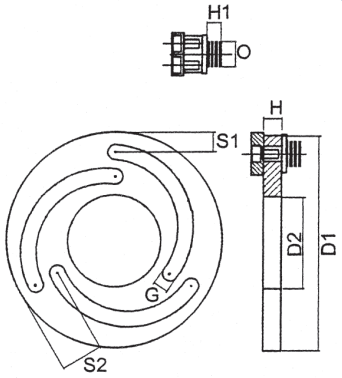
Model No.	Chuck Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight kg.	Code No.	Individual Price $
262200/R	100	53	30	25	7.96	9.49	24	7	0.24	491151	**51.89**
262201/R	125	62	40	25	7.96	12.67	32	9	0.36	491155	**55.43**
262202/R	160	74	45	30	7.96	12.67	38.1	9	0.61	491160	**64.20**
262203/R	200	87	45	30	7.96	12.67	44.45	9	0.76	491165	**68.30**
262204/R	250	103	50	35	12.72	19.02	53.95	13	1.1	491170	**74.50**
262205/R	315	120	60	40	12.72	19.02	63.50	13	1.87	491180	**93.13**
262205/R	315	140	60	40	12.72	19.02	63.50	13	2.2	491181	**156.55**
262206/R	350-400	140	70	50	12.72	19.02	76.20	17	3.0	491190	**178.72**
262207/R	450-800	160	80	50	12.72	19.02	76.20	21	3.5	491195	**234.93**

Soft Jaw Forming Ring

The forming ring is used for cutting soft jaws by clamping and extending the through hole to increase the accuracy of clamping the workpiece.



- The size can be adjusted against the helical slot.
- Pin can be rotated 180° to extend the clamping range.
- No need to drill new hole. The hole on the soft jaw can be used directly for pin.
- Hardened and ground steel for durability.

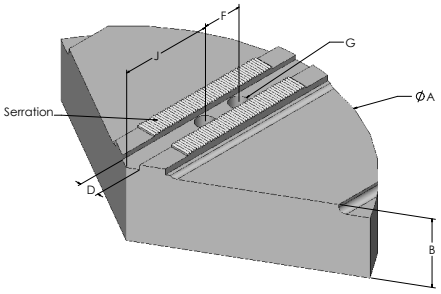


Model No.	For Chuck Dia.	H (mm)	D1 (mm)	D2 (mm)	S1 (mm)	S2 (mm)	G (mm)	H1 (mm)	O (mm)	Weight kg.	Code No.	Price $
VFR-05	5"	12	140	60	12	28	10	9	13.5	1	326250	**445.39**
VFR-06	6"	12	168	80	12	32	10	9	16.5	1.5	326255	**621.83**
VFR-08	8"	12	218	115	17	36	10	9	18.5	2.4	326260	**715.78**
VFR-10	10"	12	258	150	15	40	10	9	18.5	3.2	326265	**753.73**
VFR-12	12"	15	316	118	21	50	10	9	21.5	5	326270	**1,130.51**

Pie Jaws 1.5mm x 60° Serrations

- Made with 6061 billet aluminum



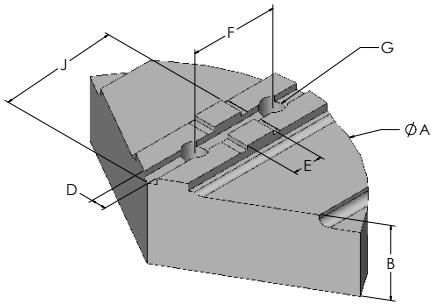


Chuck Dia.	Aluminum Model No.	A Diameter	B Height	D Slot	F Hole Spacing	G Bolt Size	J Dim	Weight lbs.	Set of 3 Code No.	Set of 3 Price $
6	KTT6P	6	2	0.472	0.787	10mm	1-21/32	5.7	658236	**158.40**
6	KTT6P1	6	4	0.472	0.787	10mm	1-21/32	10.8	658238	**264.00**
6	KTT8-6P	8	2	0.472	0.787	10mm	1-21/32	10.2	658240	**211.20**
8	KTT8P	8	2	0.551	0.984	12mm	2"	10.2	658242	**211.20**
8	KTT8P1	8	4	0.551	0.984	12mm	2"	19.8	658244	**343.20**
8	KTT10-8P	10	2	0.551	0.984	12mm	2"	16.2	658246	**343.20**
8	KTT12-8P	12	2	0.551	0.984	12mm	2"	23.4	658248	**448.80**
10	KTT10P	10	2	0.630	1.181	12mm	2-1/2	16.2	658250	**343.20**
10	KTT10P1	10	4	0.630	1.181	12mm	2-1/2	31.5	658252	**501.60**
10	KTT12-10P	12	2	0.630	1.181	12mm	2-1/2	23.4	658254	**448.80**
10	KTT15-10P	15	3	0.630	1.181	12mm	2-1/2	53.7	658256	**1,108.80**
12	KTT12P	12	2	0.709	1.181	14mm	3-1/2	23.4	658258	**448.80**
12	KTT12P1	12	4	0.709	1.181	14mm	3-1/2	45.3	658260	**712.80**
12	KTT15-12P	15	3	0.709	1.181	14mm	3-1/2	53.7	658262	**1,108.80**
12	KTTB212P	12	2	0.827	1.181	14mm	3-1/2	23.4	658264	**448.80**
12	KTTB212P1	12	4	0.827	1.181	14mm	3-1/2	45.3	658266	**712.80**
15	KTT15P	15	3	0.866	1.693	20mm	4-5/16	36.6	658268	**1,108.80**
15	KTT15P1	15	4	0.866	1.693	20mm	4-5/16	53.7	658270	**1,372.80**

Pie Jaws American Standard Tongue & Groove

- Made with 6061 billet aluminum

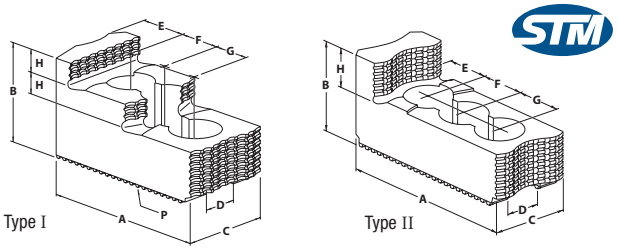




Chuck Dia.	Aluminum Model No.	A Dia.	B Height	D Slot	E Tongue	F Hole Spacing	G Bolt Size	J Dim.	Weight lbs.	Set of 3 Code No.	Set of 3 Price $
6	TG6MDP	6	2	0.313	0.500	1.500	3/8	2"	5.7	658272	**174.24**
6	TG6MDP1	6	4	0.313	0.500	1.500	3/8	2"	10.8	658274	**290.40**
6	TG8-6MDP	8	2	0.313	0.500	1.500	3/8	2"	10.2	658276	**237.60**
8	TG8MDP	8	2	0.313	0.500	1.750	3/8	2-3/4	10.2	658278	**237.60**
8	TG8MDP1	8	4	0.313	0.500	1.750	3/8	2-3/4	19.8	658280	**369.60**
8	TG10-8MDP	10	2	0.313	0.500	1.750	3/8	2-3/4	16.2	658282	**369.60**
10	TG10MDP	10	2	0.500	0.750	2.125	1/2	3-1/2	16.2	658284	**369.60**
10	TG10MDP1	10	4	0.500	0.750	2.125	1/2	3-1/2	31.5	658286	**528.00**
10	TG12-10MDP	12	2	0.500	0.750	2.125	1/2	3-1/2	23.4	658288	**475.20**
10	TG15-10MDP	15	3	0.500	0.750	2.125	1/2	3-1/2	45.3	658290	**1,135.20**
12	TG12MDP	12	2	0.500	0.750	2.500	1/2	4-1/4	23.4	658292	**475.20**
12	TG12MDP1	12	4	0.500	0.750	2.500	1/2	4-1/4	45.3	658294	**739.20**
12	TG15-12MDP	15	3	0.500	0.750	2.500	1/2	4-1/4	53.7	658296	**1,135.20**
15	TG15MDP	15	3	0.500	0.750	3.000	5/8	5-1/4	53.7	658298	**1,135.20**
15	TG15MDP1	15	4	0.500	0.750	3.000	5/8	5-1/4	70.8	658300	**1,399.20**
15	TG15HDP	15	3	0.500	0.750	3.000	3/4	5-1/4	53.7	658302	**1,135.20**
15	TGHDP1	15	4	0.500	0.750	3.000	3/4	5-1/4	70.8	658304	**1,399.20**

Hard Top Jaws — 90° Serrations

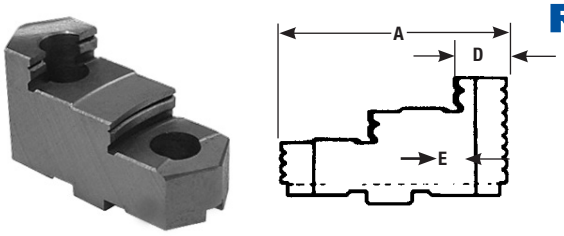
- **Hard Top Jaws Serrated 90° for Autoblok, Berg, Forkardt, Gamet, M.P.T, Rohm, SMW**



Model No.	Chuck Dia.	Serration	Drawing No.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	Weight kg.	Set of 3 Code No.	Price $
3101/MTR	125-160	1/16x90°	I	58	34	29	12	14	16	16	8.5	0.2	491712	**2,017.05**
3102/MTR	160	1/16x90°	I	65	39	34	14	18	16	16	10	0.3	491714	**2,325.93**
3103/MTR	200-220	1/16x90°	I	82	45	40	17	19	23	23	10.5	0.6	492000	**2,634.81**
3104/MTR	250-315	1/16x90°	I	105	56	45	21	28	30	30	13.5	0.98	492002	**3,257.11**
3105/MTR	315-350	1/16x90°	I	122	56	50	21	43	30	30	13.5	1.43	492005	**5,161.85**
3106/MTR	400	1/16x90°	I	120	74	55	21	31	34	34	22	1.9	492006	**5,700.01**
3107/MTR	400	1/16x90°	I	152	74	55	21	57	34	34	22	2.58	492007	**6,191.37**
3108/MTR	500	3/32x90°	II	147	73	55	28	46	38	38	32	2.23	492008	**7,127.23**
3109/MTR	610-800	3/32x90°	II	147	75	70	28	46	38	38	32	3.2	492009	**7,496.98**
3110/MTR	500-630	3/32x90°	II	147	73	55	25.5	46	38	38	32	2.25	492011	**7,496.98**
3111/MTR	610-800	3/32x90°	II	147	75	70	25.5	46	38	38	32	3.23	492012	**7,913.51**

Hard Top Jaws American Tongue And Groove

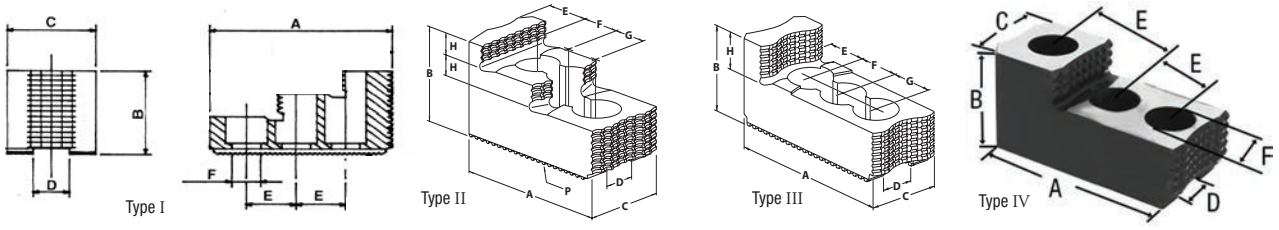
For most manual lathe chucks.



Chuck Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	STM Code No.	Price $	Rohm Code No.	Price $
125	56	12.68	32	13	9			399870	**439.09**
160	66.7	12.68	38.1	15.8	9			397020	**439.09**
200	79.5	12.68	44.45	19	9			397025	**456.76**
250	95.3	19.03	53.95	22.2	14			397030	**481.99**
250-315	90	20	40	-	-	492030	**1,928.13**		
315	109.5	19.03	63.5	25.4	14			397035	**724.25**

Hard Top Jaws — 60° Serrations

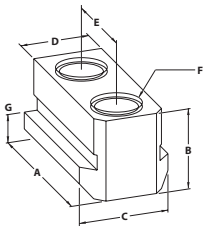
Hard Top Jaws Serrated 60° for Kitagawa, Howa, Matsumoto, Suga, Nikko And Other Brands



Chuck Dia.	Drawing No.	Serration	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Sold By	STM Code No.	Price $	Rohm Code No.	Price $
6"	IV	1.5x60°	66	36	34.7	12	20	11	Set			395505	**838.27**
6"	III	1.5x60°	67.5	36	31	12	14.5	20	Set	492010	**2,171.49**		
8"	I	1.5x60°	81	49	36	14	25	13	Set			395510	**838.27**
10"	I	1.5x60°	99.5	54	44.5	16	30	13	Set			395515	**966.74**
12"	IV	1.5x60°	97.5	50	55	18	30	15	Piece			395517	**502.45**
12"	III	1.5x60°	98	55	50	18	20	30	Set	492015	**4,080.88**		
12"	IV	1.5x60°	103	55.5	50	21	30	17	Set			395520	**1,130.54**
15"	IV	1.5x60°	149	62	80	22	43	21	Piece			395521	**851.05**
15"	IV	1.5x60°	149	62	86	25.5	43	21	Piece			395522	**843.40**
15"	II	1.5x60°	149	86	62	22	27	43	Set	492020	**6,710.80**		
15"	II	1.5x60°	149	86	62	25.5	27	43	Set	492025	**6,710.80**		

T-Nuts For Matsumoto Chucks

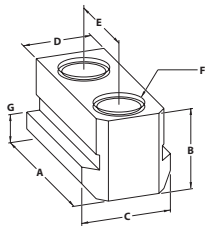




Model No.	Chuck Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight kg.	Code No.	Price $
2903/GT20	125-150	32	20	16.5	11	20	M8	7	0.04	494126	**69.63**
2905/GT22	150-200	45	22	20	14	25	M12	8.5	0.08	494124	**79.72**
2905/GT23	200-280	53	23	22	16	30	M12	8	0.12	494075	**77.02**
2907/GT33.5	300	55	33.5	25	18	30	M12	13.5	0.2	494110	**84.09**
2909/GT50	381-457	90	39.5	33	22	50	M20	19.5	0.52	494130	**314.40**

T-Nuts For Kitagawa Chucks

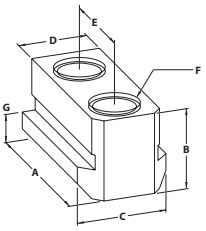




Model No.	Chuck Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight kg.	Code No.	Price $
2902/GT13.5	110	25	13.5	11.3	8	15	M6	4.5	0.015	494052	**69.63**
2903/GT18	100	28	18	15	10	14	M8	5.5	0.028	494053	**69.63**
2903/GT15-14	100-130	26	15	15	10	14	M8	5.5	0.021	494055	**67.27**
2903/GT18-19	125	32	18	15	10	19	M8	5.5	0.02	494056	**69.63**
2903/GT15.5	135	30	15	14	10	18	M8	5.2	0.025	494057	**69.63**
2904/GT22	160	40	22	18	12	20	M10	7	0.068	494073	**69.63**
2904/GT18.5	160	40	18.5	18	12	20	M10	7.5	0.071	494060	**67.27**
2905/GT24.5	200-210	45	24.5	20	14	25	M12	8.5	0.096	494080	**77.02**
2905/GT20.5	200-210	45	20	20	14	25	M12	8	0.08	494070	**77.02**
2906/GT24.5	250	53	24.5	22	16	30	M12	8.5	0.136	494095	**77.02**
2906/GT21.5	250	53	21.5	22	16	30	M12	8.5	0.124	494085	**77.02**
2907/GT33.5	300	55	33.5	25	18	30	M14	13.5	0.218	494110	**84.09**
2907/GT30	300	55	30	25	18	30	M14	9.5	0.180	494111	**87.04**
2909/GT28	300	58	28	30	21	30	M16	11.5	0.225	494115	**101.01**
2910/GT43	381-457	80	45.5	34	24	43	M20	16.5	0.511	494135	**308.82**
2911/GT50	457	90	45	37.5	25	50	M20	19	0.695	494140	**314.83**
2911/GT60	457	100	45	37.5	25	60	M20	19	0.800	494141	**325.40**
2912/GT	381	80	39.2	35	25.5	43	M20	19	0.548	494150	**314.40**
2912/GT60	457	100	54	37.5	25	60	M20	19	0.925	494145	**325.01**

T-Nuts For Howa Chucks





Model No.	Chuck Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight kg.	Code No.	Price $
2904/GT22	160	40	22	18	12	20	M10	7	0.068	494073	**69.63**
2905/GT23	200-210	45	23	20	14	25	M12	8.5	0.083	494075	**77.02**
2906/GT23	250	53	23	22	16	30	M12	8	0.12	494090	**77.02**
2906/GT26.5	250	45	26.5	22	16	25	M12	8.5	0.12	494100	**77.02**
2907/GT27.5	300	55	27.5	25	18	30	M14	9.5	0.161	494105	**84.09**
2907/GT33.5	300	55	33.5	25	18	30	M14	13.5	0.2	494110	**84.09**
2909/GT29	300	68	29	30	21	40	M16	10.5	0.264	494120	**101.01**
2909/GT29-35	300	61	29	30	21	35	M16	10.5	0.24	494125	**101.01**
2909/GT40	381-610	82	40	34	26	50	M20	23	0.52	494127	**325.40**

OTHER T-NUTS AVAILABLE ON REQUEST

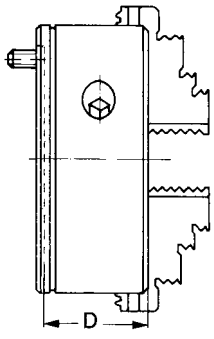


LATHE CHUCKS

Quick Change 3-Jaw Chucks

High Efficiency Hand Operated Chuck

- With reversible one-piece jaws, reversible top jaws, base jaws, thrust ring and key bars, self-centering, three jaw chucks, steel body



Cylindrical Centre Mount (Plain Back)



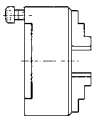
Size (mm)	Size (inch)	Through Hole (mm)	D (mm)	With reversible 1pc jaws (type 000)			With reversible top jaws (type 003)		
				Rohm Id No.	Code No.	Price $	Rohm Id No.	Code No.	Price $
125	5	32	46.5	437475	391181	**3,974.56**	-	-	-
160	6-1/4	42	63	437476	391182	**5,084.91**	437490	391188	**5,375.12**
200	8	52	81	437477	391183	**5,476.06**	437491	391189	**5,766.26**
250	10	62	92	437478	391184	**7,154.21**	437492	391191	**7,532.74**
315	12-1/2	87	111	437479	391185	**10,113.69**	437493	391192	**11,626.10**
400	15-3/4	102	118	437480	391186	**15,754.29**	437494	391193	**17,942.06**
500	20	162	118	437481	391187	**25,790.47**	437495	391194	**29,802.88**
630	25	252	143	-	-	-	437496	391196	**44,565.53**

3-Jaw Chucks — Solid Jaws — Series ZG & ZS

ZG-Cast Iron Body - ZS-Steel Body

Includes:

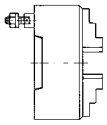
- 1 set of outward stepped jaws mounted on the chuck
- 1 set of inward jaws
- 1 operating key, mounting bolts





Cylindrical Centre Mount (Plain Back)

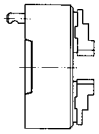
Size (mm)	Size (in.)	Through Hole (mm)	Cast Iron Body (Type 300)			Steel Body (Type 600)		
			Rohm Id No.	Code No.	Price $	Rohm Id No.	Code No.	Price $
80	3-1/4	19	-	-	-	102513	389028	**953.89**
100	4	20	101781	389006	**832.76**	101782	389030	**1,037.17**
125	5	32	101628	389010	**1,037.17**	101672	389032	**1,297.09**
160	6-1/4	42	100300	389014	**1,327.38**	100717	397055	**1,660.48**
200	8	55	100000	389016	**1,741.24**	100186	389036	**2,180.33**
250	10	76	100200	389018	**2,281.27**	100533	389038	**2,851.59**
315	12-1/2	103	101248	399848	**3,406.76**	101344	389040	**4,239.53**
400	15-3/4	136	-	-	-	102062	389044	**8,327.65**
500	20	190	-	-	-	102555	389046	**12,958.32**
630	25	240	-	-	-	102720	389048	**19,797.09**



DIN Mount

Type 615

Size (mm)	DIN Taper Mount	Through Hole (mm)	Rohm Id No.	Steel Body Code No.	Price $
125	4	32	101692	389118	**1,362.71**
160	4	42	100740	389128	**1,743.76**
160	5	42	100744	389130	**1,743.76**
200	5	55	100152	389136	**2,286.32**
200	6	55	100156	389138	**2,286.32**
250	6	76	100555	389144	**3,003.00**
250	8	76	100556	389146	**3,003.00**
315	6	103	101364	389150	**4,466.65**
315	8	103	101365	389152	**4,466.65**
315	11	103	101366	389154	**4,466.65**
400	8	136	102202	389164	**8,756.65**
400	11	136	102210	389166	**8,756.65**
500	11	190	102548	389170	**13,627.06**
500	15	190	102915	389172	**13,627.06**
630	11	192.7	102752	389174	**20,932.68**
630	15	240	102760	389176	**20,932.68**



Camlock Mount

Type 630

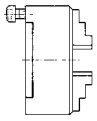
Size (mm)	Camlock Taper Mount	Through Hole (mm)	Rohm Id No.	Steel Body Code No.	Price $
125	4	32	108895	389258	**1,423.27**
160	4	42	108897	389263	**1,827.04**
160	5	42	109150	389264	**1,827.04**
200	5	55	109151	389267	**2,394.83**
200	6	55	109154	389268	**2,394.83**
250	6	76	109155	389271	**3,141.79**
250	8	76	109159	389272	**3,141.79**
315	6	103	109156	399832	**4,681.15**
315	8	103	109160	389274	**4,681.15**
315	11	103	109165	389275	**4,681.15**
400	8	136	109161	389280	**9,160.41**
400	11	136	109166	389281	**9,160.41**
500	15	190	109170	389284	**14,283.18**
630	11	192.7	109168	389285	**21,790.68**
630	15	240	109171	389286	**21,790.68**

3-Jaw Chucks — 2pc Jaws — Series ZGU & ZSU

ZSU-Steel Body

Includes:

- Set of master base and top reversible jaws

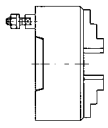




Cylindrical Centre Mount (Plain Back)

Type 603

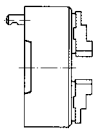
Size (mm)	Size (in.)	Through Hole (mm)	Rohm Id No.	Steel Body Code No.	Price $
100	4	20	101788	389302	**1,191.11**
125	5	32	101678	389303	**1,491.41**
160	6-1/4	42	100725	389305	**1,907.79**
200	8	55	100189	389306	**2,503.34**
250	10	76	100541	397049	**3,280.59**
315	12-1/2	103	101350	389307	**4,895.65**
400	15-3/4	136	102068	389309	**9,551.56**
500	20	190	102585	389310	**14,926.68**
630	25	240	102726	389311	**22,661.29**
700	27-1/2	310	147501	389312	**20,372.51**
800	31-1/2	380	104913	389313	**38,130.53**
1000	39-1/2	460	104925	389314	**60,413.29**
1250	49-1/2	550	104941	389315	**86,027.12**



DIN Mount

Type 618

Size (mm)	DIN Taper Mount	Through Hole (mm)	Rohm Id No.	Steel Body Code No.	Price $
125	4	32	101695	389358	**1,564.59**
160	4	42	100743	389363	**2,003.68**
160	5	42	100747	389364	**2,003.68**
200	5	55	100155	389367	**2,637.09**
200	6	55	100159	389368	**2,637.09**
250	6	76	100564	389371	**3,457.24**
250	8	76	100565	389372	**3,457.24**
315	6	103	101373	389374	**5,148.00**
315	8	103	101374	389375	**5,148.00**
315	11	103	101375	389376	**5,148.00**
400	8	136	102208	389381	**10,031.03**
400	11	136	102216	389382	**10,031.03**
500	11	190	102554	389384	**15,772.06**
500	15	190	102921	389385	**15,772.06**
630	11	192.7	102758	389386	**23,796.88**
630	15	240	102766	389387	**23,796.88**

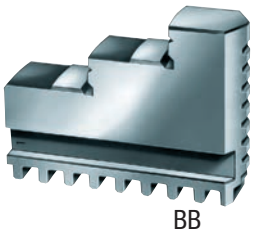


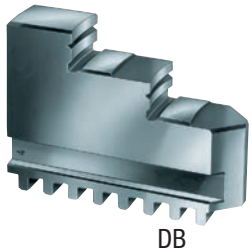
Camlock Mount

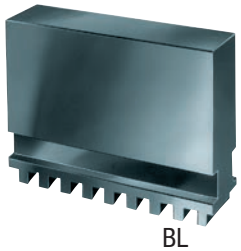
Type 633

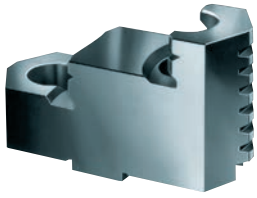
Size (mm)	Camlock Taper Mount	Through Hole (mm)	Rohm Id No.	Steel Body Code No.	Price $
125	4	32	105870	389486	**1,640.29**
160	3	42	106310	389487	**1,794.67**
160	4	42	105883	389488	**1,353.18**
160	5	42	105898	389489	**2,102.10**
200	5	55	106330	389492	**2,750.65**
200	6	55	106346	397060	**1,919.42**
250	6	76	106386	389495	**3,621.26**
250	8	76	106402	397065	**3,621.26**
315	6	103	106442	397102	**5,412.97**
315	8	103	106458	397088	**5,412.97**
315	11	103	106474	399828	**5,412.97**
400	8	136	106498	399962	**10,535.74**
400	11	136	106614	389501	**10,535.74**
500	11	190	103274	389503	**16,630.06**
500	15	190	103275	389504	**16,630.06**
630	11	192.7	106658	389505	**24,957.71**
630	15	240	103328	389506	**24,957.71**

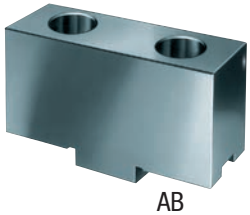
Replacement Jaws For ZG, ZS, ZGU, ZSU Series Chucks

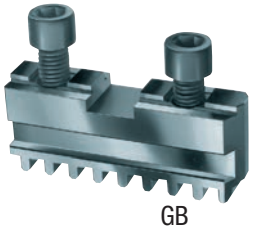

BB


DB


BL

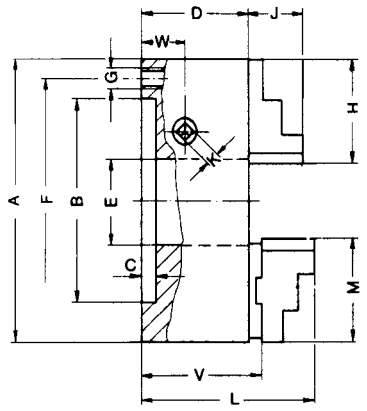

UB


AB


GB

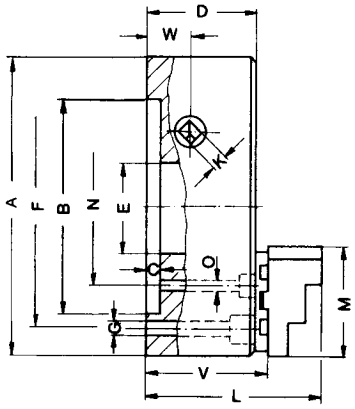
Chuck Size	Rohm Id No.	Code No.	Set of 3 Price $
BB Inside Jaw Outward Step Hardened Set of 3			
80/85	110155	389521	**315.44**
100/110	110156	397075	**315.44**
125	110157	397077	**315.44**
160	110159	389525	**350.77**
200	110160	389526	**411.34**
250	110161	389527	**481.99**
315	110162	399868	**724.25**
350/400	110163	399867	**1,206.25**
500/630	110164	389528	**1,028.74**
DB Outside Jaw Inward Step Hardened Set of 3			
80/85	110165	389529	**315.44**
100/110	110166	389530	**315.44**
125	110167	389531	**315.44**
160	110169	399866	**350.77**
200	110170	399865	**411.34**
250	110171	397033	**481.99**
315	110016	389533	**724.25**
350/400	110017	399863	**1,082.59**
500/630	110018	389534	**1,625.15**
BL Block Jaw No Steps Soft Set of 3			
80/85	107588	389536	**212.23**
100/110	107589	389537	**212.23**
125	107590	389538	**212.23**
160	107592	389540	**232.16**
200	107593	397076	**277.59**
250	107594	389541	**317.96**
315	107595	389542	**481.99**
350/400	107596	389543	**721.73**
500/630	107597	389544	**1,082.59**
UB Reversible Top Jaw Hardened Set of 3			
100/110	108045	399871	**439.09**
125	108046	399870	**439.09**
140/160	107936	397020	**439.09**
200	107937	397025	**456.76**
250	108049	397030	**481.99**
315	108050	397035	**724.25**
350/400	108051	397098	**1,082.59**
500/630	108052	397068	**1,625.15**
AB Top Block Jaw No Step Soft Set of 3			
100/110	107633	389548	**160.50**
125	107634	389549	**160.50**
140/160	108581	399842	**99.17**
200	108582	389550	**104.47**
250	107637	389551	**160.50**
315	107638	389552	**241.00**
350/400	107639	399862	**476.95**
500/630	107640	389553	**716.68**
GB Base Jaw with Mounting Bolts Set of 3			
100/110	107500	399877	**522.37**
125	107501	399876	**522.37**
160	107503	399875	**522.37**
200	107504	397040	**547.61**
250	107505	399873	**575.36**
315	107506	397045	**865.57**
350/400	107507	397046	**1,367.75**
500	107508	399872	**2,054.15**
630	107509	389555	**3,091.32**

Dimensions For ZG, ZS, ZGU, ZSU Series Chucks



Chuck Size A	74	80	85	100	110	125	140	160	200	250	315	350	400	500	630
B^{H6}	56	56	60	70	80	95	105	125	160	200	260	290	330	420	545
C	2.5	3	3	3	3	4	4	4	4	5	5	6	5	5	7
D	32.5	39.5	39.5	50	50	56	60	65	73.5	82	95	100	105	120	135
E	15	19	19	20	27	32	40	42	55	76	103	115	136	190	240
E_{max}	-	-	-	21	-	33	43	50	70	92	114	120	150	210	253
F	63	67	72	83	95	108	120	140	176	224	286	318	362	458	586
G	3 x M6	3 x M6	3 x M6	3 x M8	3 x M8	3 x M8	3 x M8	3 x M10	3 x M10	3 x M12	3 x M16	3 x M16	3 x M16	3 x M16	3 x M16
G^1	-	-	-	-	-	3 x 9	-	3 x 10.5	3 x 11	3 x 14	3 x 14	-	3 x 18	6 x 18	6 x 18
H	32	37	37	48	48	52	61	61	69	90	130	130	130	190	190
J	14	14	14	18	18	22.5	22.5	26	32.5	40	46	45	43	54.5	54.5
K	6	6	6	8	8	9	9	10	11	12	14	14	17	19	19
L	-	-	-	80.5	-	95.5	106	108	119.6	139.3	155	168.5	171.5	201.5	216.5
M	-	-	-	47	47	56	66.7	66.7	79.5	95	109.5	127	127	127	127
V	-	-	-	53.6	53.6	61	67.7	69.7	80.2	89.9	100.4	110.4	113.4	128.4	143.3
W	13	14.5	14.5	18	18	20	21	22.45	25.7	26.5	30	34	35	38	48
Weight kg	1	1.3	1.9	2.9	3.4	4.5	5.8	8.2	14.6	25.7	44.2	56	80	126	208

E_{max} - Enlarged bore max
G^1 - Mounting from front



Chuck Size A	700	800	1000	1250
B	610	710	910	910
C^2	$7^{+0.03}$	$7^{+0.03}$	$7^{+0.03}$	$7^{+0.03}$
D	147	147	157	157
E	310	380	460	550
E_{max}	330	420	580	580
F	660	760	950	950
G	6 x 22	6 x 22	6 x 26	6 x 26
K	19	19	24	24
L	240.6	240.6	269.6	269.6
M	210	210	210	210
N	360	460	610	610
O	6 x 18	6 x 18	6 x 18	6 x 18
V	158	158	166	166
W	48	48	53	53
Weight kg	280	350	590	850

C^2 - Adapter plate - $7^{-0.03}$
E_{max} - Enlarged bore max

Parts For 3-Jaw Chucks







Chuck Size	Scroll			Driving Pinion			Pinion Holder Screw		
	Rohm Id No.	Code No.	Price $	Rohm Id No.	Code No.	Price $	Rohm Id No.	Code No.	Price $
80	-	-	-	102184	389568	**54.51**	-	-	-
100	101754	399998	**343.20**	101755	389570	**83.28**	-	-	-
125	101721	399999	**396.19**	101722	389572	**111.79**	-	-	-
160	100303	389560	**484.52**	100304	389574	**140.56**	-	-	-
200	100003	399899	**570.32**	100005	389575	**169.33**	-	-	-
250	100203	399898	**714.16**	100204	389577	**197.84**	-	-	-
270	100203	389562	**714.16**	112267	389578	**226.61**	-	-	-
315	101552	389563	**1,001.84**	101553	389579	**226.61**	101554	389587	**11.48**
350	105228	389564	**1,718.52**	-	-	-	-	-	-
400	102497	399963	**2,291.36**	102498	397114	**285.16**	-	-	-
500	-	-	-	-	-	-	103300	389589	**17.21**
630	-	-	-	-	-	-	103300	389589	**17.21**

Wrenches For 3-Jaw Chucks



Chuck Size	Square (mm)	Length (mm)	Rohm Id No.	Code No.	Price $
74	6		006325	389590	**10.95**
80/85	6	62	107426	389591	**54.51**
100/110	8	75	107427	389592	**54.51**
125/140	9	80	107428	389593	**54.51**
160	10	90	107429	389594	**68.64**
200/230	11	100	107430	389595	**68.64**
250/270	12	100	107431	389596	**83.28**
315	14	110	107432	389597	**111.79**
350	14	140	107433	389598	**111.79**
400	17	140	107434	389599	**140.56**
500/630	19	150	107435	389600	**226.61**

DIN Backplates For 3-Jaw Chucks

- Finished on machine side, faced on chuck side



Type 619-25

Dia. (mm)	Taper	Diameter (in.)	Width (mm)	Rohm Id No.	Code No.	Price $
125	3	5	19	319650	389882	**436.57**
125	4	5	19	319651	389883	**436.57**
160	3	6-1/4	21	319652	389884	**436.57**
160	4	6-1/4	21	319653	389885	**436.57**
160	5	6-1/4	21	319654	389886	**436.57**
200	4	8	21	319655	389887	**542.56**
200	5	8	21	319656	389888	**542.56**
200	6	8	23	319657	389889	**542.56**
250	5	10	21	319659	389890	**676.31**
250	6	10	23	319660	389891	**676.31**
250	8	10	26	319661	389892	**676.31**
315	5	12-1/4	26	319662	389893	**852.95**
315	6	12-1/4	26	319663	389894	**852.95**
315	8	12-1/4	26	319664	389895	**852.95**
315	11	12-1/4	33	319665	389896	**852.95**
400	6	15-3/4	31	319666	389897	**1,443.46**
400	8	15-3/4	31	319667	389898	**1,443.46**
400	11	15-3/4	31	319668	389899	**1,443.46**
500	8	20	33	319669	389900	**1,443.46**
500	11	20	41	319671	389901	**2,256.04**
500	15	20	41	319672	389902	**2,256.04**

Camlock Backplates For 3-Jaw Chucks

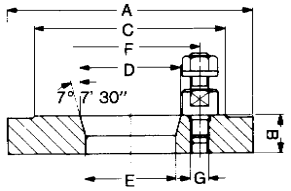
- Finished on machine side, faced on chuck side



Type 619-25

Dia. (mm)	Taper	Diameter (in.)	Width (mm)	Rohm Id No.	Code No.	Price $
125	3	5	27	319673	389903	**476.95**
125	4	5	28	319674	389904	**476.95**
160	4	6-1/4	22	176807	389905	**1,334.06**
160	5	6-1/4	22.5	176808	389906	**1,407.36**
200	3	8	25	102658	389907	**824.89**
200	5	8	22.5	176810	389908	**775.71**
200	6	8	21.5	176811	389909	**1,657.60**
250	5	10	21	176813	389910	**1,809.37**
250	6	10	26	176814	389911	**1,809.37**
250	8	10	26	176815	389912	**1,809.37**
315	6	12-1/4	31.5	176816	389913	**2,258.56**
315	8	12-1/4	31	176817	389914	**2,261.08**
315	11	12-1/4	31	176818	389915	**2,261.08**
400	6	15-3/4	32.5	176819	389916	**2,826.35**
400	8	15-3/4	32	176820	389917	**2,826.35**
400	11	15-3/4	32.5	176821	389918	**2,826.35**
500	8	20	36	176823	389919	**3,545.56**
500	11	20	36	176824	389920	**3,545.56**
500	15	20	36	176825	389921	**3,545.56**
630	11	25	39	176826	389922	**4,428.79**
630	15	25	39	176827	389923	**4,428.79**

DIN & Camlock Backplate Dimensions



Short Taper Size	3	4	5	6	8	11	15
C	98	117	146	181	225	298	403
D	53.985	63.525	82.575	106.390	139.735	196.885	285.8
E	51.2	60.6	79.4	103	135.7	192.5	281
F*	75(70.66)	85(82.55)	104.8	133.4	171.4	235	330.2
G DIN	M10	M10	M10	M12	M16	M20	M24
G Camlock	7/16-20	7/16-20	1/2-20	5/8-18	3/4-16	7/8-14	1-14
Set screws	3	3	4	4	4	6	6
No. DIN Studs	3	3	4	4	4	6	6
No. Camlock Studs	3	3	6	6	6	6	6

* F - DIN (Camlock)

Jaw Cutting Attachment



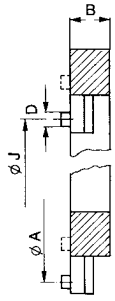


BAV Type 091
For 3-Jaw chucks, for turning unhardened jaws and grinding hardened jaws, with reversible and stepless adjustable setting jaws.

Size	Mainly with Chucks up to	Rohm Id No.	Code No.	Price $
0*	125	220206	389660	**2,281.27**
1	200	220207	389661	**2,574.00**
2	250	220208	389662	**2,851.59**
3	250	220209	389663	**3,141.79**
4	315	220210	389664	**3,432.00**
5	400	220211	389665	**4,580.21**

* light duty design

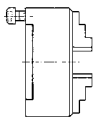
Jaw Cutting Attachment Dimensions



Size	Outer (mm)	Inner (mm)	Overhang Distance J	Overhang Distance A	B	D	Screw Head Thread
0	153	110	50-115	150-215	20	8.5	M5
1	176	110	35-125	170-260	31	13	M8
2	215	135	70-140	215-285	31	13	M8
3	244	162	100-175	240-315	31	13	M8
4	290	208	145-215	290-360	31	13	M8
5	342	260	160-270	330-440	31	16	M10

Combination 3-Jaw Chucks — Solid Jaw

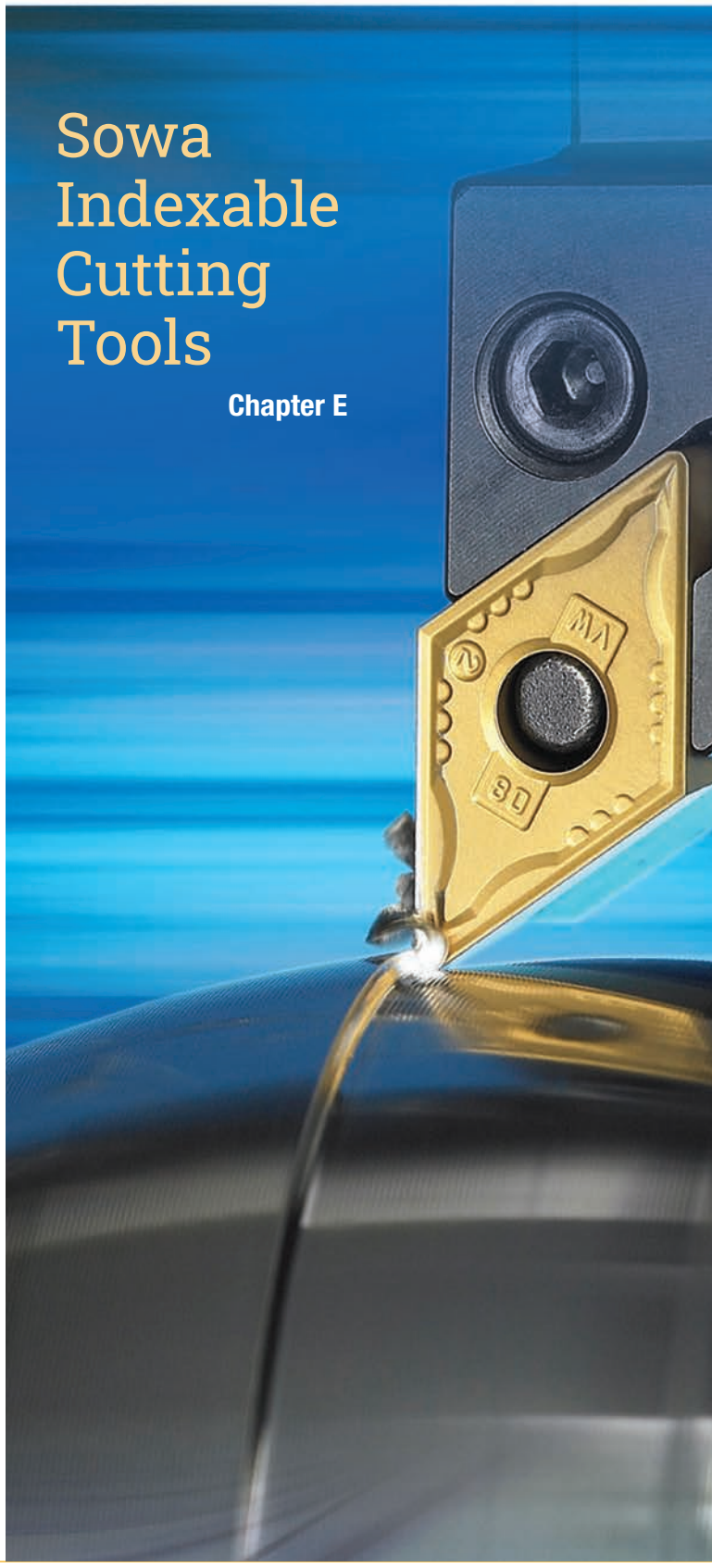
650-Steel Body
Lathe chucks with reversible jaws, with scroll, self-centering and individually adjustable. Particularly suitable for lining up and chucking workpieces of irregular shape.





Cylindrical Centre Mount (Plain Back)
Type 650

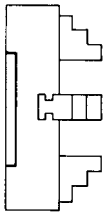
Size (mm)	Size (in.)	Through Hole (mm)	Rohm Id No.	Steel Body Code No.	Price $
160	6-1/4	42	111360	389675	**2,902.06**
200	8	55	111365	389676	**3,267.97**
250	10	76	111370	389677	**4,290.00**
315	12-1/2	103	111375	389678	**6,371.91**
400	15-3/4	136	111380	389679	**10,371.71**
500	20	190	111385	389680	**16,352.47**
630	25	240	111390	389681	**24,667.50**



4-Jaw Independent Chucks

Type 499 - 1pc Solid Reversible Jaws - Steel Body
Type 497 - 2pc Top Reversible Jaws - Steel Body

- Jaws individually adjustable through threaded adjustable spindle
- Plain back





Size (mm)	Size (in.)	Through Hole (mm)	Steel Body (Type 499)			Steel Body (Type 497)		
			Rohm Id No.	Code No.	Price $	Rohm Id No.	Code No.	Price $
260	10-1/4	70	139781	389924	**5,072.29**	137147	389932	**5,529.93**
310	12	75	139796	389925	**6,043.85**	139720	389933	**6,952.32**
400	16	95	139827	389926	**7,810.32**	135368	389934	**8,971.15**
450	18	95	139842	389927	**8,781.88**	136944	389935	**10,106.74**
500	20	95	139857	389928	**12,188.65**	135631	389936	**13,992.97**
630	25	135	139887	389929	**18,636.26**	139723	389937	**21,235.50**
710	28	135	140800	389930	**24,377.29**	141097	389938	**27,809.29**
800	31-1/2	190	140801	389931	**29,814.09**	141106	389939	**34,041.23**

Adjusting Spindle & Chuck Keys





Size (mm)	Square Size (mm)	Adjusting Spindle (1pc)			Chuck Key		
		Rohm Id No.	Code No.	Price $	Rohm Id No.	Code No.	Price $
260	10	-		-	160096	399844	**169.33**
310	10	-		-	160096	399844	**169.33**
350	10	-		-	160096	399844	**169.33**
400	13	-		-	082144	399974	**285.16**
450	13	-		-	160098	389760	**285.16**
500	13	-		-	160098	389760	**285.16**
560	16	-		-	160099	389761	**396.19**
600/630/710	16	-		-	160099	389761	**396.19**
800	18	247826	389753	**270.81**	160100	389762	**570.32**
900	18	150544	389754	**570.32**	160100	389762	**570.32**
1000	18	150545	389755	**714.16**	160100	389762	**570.32**
1100	18	150546	389756	**858.00**	160100	389762	**570.32**
1200	24	149776	389757	**1,001.84**	150548	389763	**858.00**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

EB Reversible Jaws

- Sold in sets



Chuck Size	Rohm Id No.	Code No.	Set Price $
150	022983	389710	**414.41**
200	022984	389711	**454.24**
260	022985	389712	**1,279.43**
310/350	022986	389713	**1,922.93**
400/450	022988	389714	**2,876.82**
500	022990	389715	**1,244.79**
560/600/630	022991	389716	**1,612.98**
710	026599	389717	**1,877.55**

UB Reversible Top Jaws

- Sold in sets



Chuck Size	Rohm Id No.	Code No.	Set Price $
200	107939	389719	**608.17**
260	108057	389720	**643.50**
310/350	108058	389721	**961.46**
400/450	108059	389722	**1,443.46**
500/560/600/630/710	108060	389723	**2,165.19**
800/900	105085	389724	**3,255.35**
1000/1100/1200	105101	389725	**4,883.03**

AB Top Block Jaw

- Sold in Sets



Chuck Size	Rohm Id No.	Code No.	Set Price $
200	108584	389726	**140.56**
260	107579	389727	**215.00**
310/350	107580	389728	**317.96**
400/450	107581	389729	**638.45**
500/560/600/630/710	107582	389730	**951.37**
800/900	105105	389731	**1,430.84**
1000/1100/1200	105109	389732	**2,142.48**

GB Base Jaw With Mounting Bolts

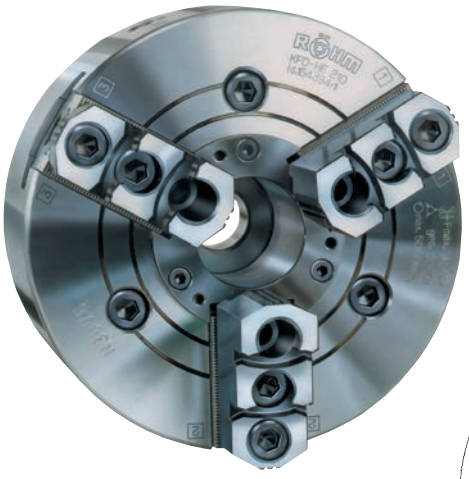
- Sold in sets

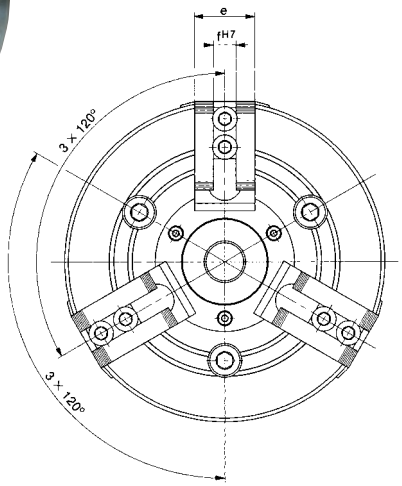


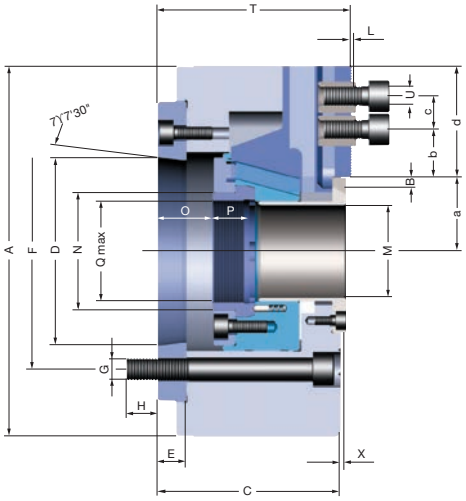
Chuck Size	Rohm Id No.	Code No.	Set Price $
200	304655	389733	**392.87**
260	304656	389734	**767.15**
310/350	304657	389735	**1,155.78**
400/450	304658	389736	**1,824.51**
500	304659	389737	**2,465.49**
560/600/630	304660	389738	**3,318.44**
710	304661	389739	**4,491.88**
800/900/1000/1100	304662	389740	**6,081.71**
1200	150543	389741	**2,097.17**

KFD 3-Jaw Power Chucks With 60° Serrations

Type 440-92 - For use on modern lathes. With large through hole, suitable for both bar work and chucking of flange type parts. With 60° serrations and pre-machined draw tube connector.

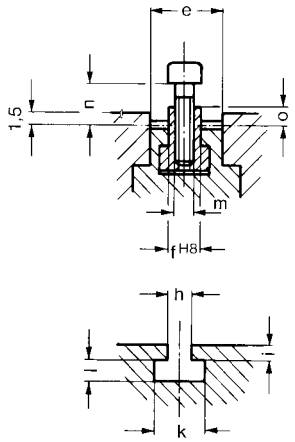






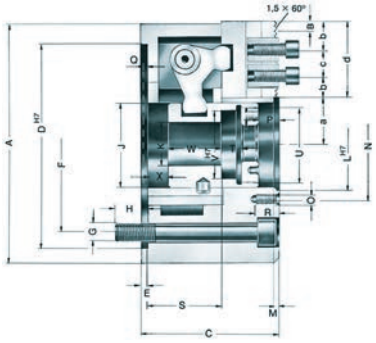
Size (inch)		5	6	8	10	12	12
Size (mm)		**130**	**170**	**210**	**254**	**315**	**315**
Rohm ID No.		154809	154393	154394	154395	154813	154832
Sowa Code No.		389800	389801	389802	389803	389804	389805
Price $		**4,187.63**	**4,274.87**	**4,870.30**	**6,061.16**	**9,956.53**	**9,956.53**
	A	130	170	210	254	315	315
Jaw travel	B	2.7	3.4	4.3	5.1	5.3	5.3
	C	67.5	90.6	103.2	112.8	121.8	127.4
Short Taper	D	4	5	6	8	8	11
	E	11.5	15	16	17.8	17.8	19.4
	F	82.6	104.8	133.4	171.4	171.4	235
	G	3 x M10	3 x M10	3 x M12	3 x M16	3 x M16	3 x M20
	H	13	15	18	23	24	29
Wedge stroke	K	10	14	16	19	23	23
	L	2.9	3.2	3.2	3.2	3.2	3.2
Large bore	M	33	43	52	75	91	121
	N	45	57	66	94	108	143
min./max	O	2.5/12.5	12/26	15.5/31.5	7.5/26.5	3/26	10/33
	P	20	19	20.5	28	32	26
	Q/Q max.	12/M40 X 1.5	20/M53 x 2	30/M60 x 2	45/M85 x 2	50/M100 x 2	60/M130 x 2
	T	72.5	96.6	109.2	118.8	127.8	133.4
	U	M8	M10	M12	M16	M16	M16
	V^{H7}-0.05	57	74	92	125	135	170
	X	3	3	3	3	3	3
min./max	a	23.8/26.5	34.8/38	37.7/42	50.9/56	56/61.3	72.2/77.5
min.	b	7	4.5	9	10	12	12
min./max	c	14	20	25	30	30	30
	d	38.5	47	63	71	96	80
	e	25	32	40	50	50	50
	f^{H7}-0.025	10	12	14	16	21	21
Max. swing of top jaws	mm	170	230	290	345	410	410
Max. draw bar pull	kN	16	25	40	60	60	60
Max. total clamping force approx.	kN	36	66	90	135	150	150
Max. admissible speed	min^{-1}	7000	6000	5000	4200	3300	3300
Moment of inertia J	kgm^2	0.011	0.038	0.09	0.22	0.8	0.8
Weight without top jaws approx.	kg	5.5	12	18	29	53	50

KFG 2 & 3-Jaw Lever Type Power Chucks With 60° Serrations



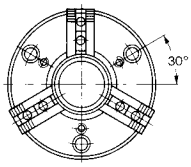
Type 522-05 2-Jaw
Type 532-05 3-Jaw
A highly versatile chuck with large through hole, suitable for both bar work and chucking the most varied parts. Toggle joint levers convert the axial operating force into radial jaw movements.

- **Long jaw movement**

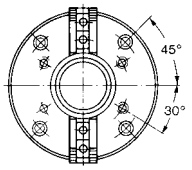




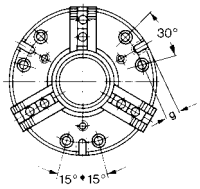
Size			160	215	280	350
2-Jaw Rohm ID No.			020686	020687	020688	020689
Sowa Code No.			389820	389821	389822	389823
Price $			**9,873.65**	**11,867.14**	**15,153.99**	**22,305.68**
3-Jaw Rohm ID No.			020666	020667	020668	020669
Sowa Code No.			389824	389825	389826	389827
Price $			**14,966.82**	**19,704.18**	**26,641.59**	**41,849.29**
		A	160	215	280	350
Jaw travel		B	16	20	25	25
		C	79	92	116.2	134.7
		D^{H7}	140	190	255	320
		E	4.2	4.2	5.7	5.7
		F	104.8	133.4	133.4	171.4
		G	3 x M10	6 x M12	6 x M12	6 x M16
2-Jaws		G	4 x M10	4 x M12	4 x M12	4 x M16
		H	20	25	25	35
		J	54	74	102	135
		K	26	45.5	66.5	90.5
		L^{H7}	66	80	105	140
		M	2.5	2.5	2.5	2.5
		N	76	90	120	156
		O	M6	M8	M8	M10
		P	14	16.5	18.7	13.1
		Q	3.2	3.7	3.2	4.1
		R	13	15	15	20
Draw head stroke	min./max.	S	19.8/39.8	25.3/50.3	28.8/63.8	32.9/77.9
		T	8	12	18	22
		U	M46 x 1.25	M65 x 1.25	M90 x 1.25	M112 x 1.5
		V^{H7}	43	62	87	109
		W	23	29	32	37
	min./max.	a	23/39	31.5/51.5	47.5/72.5	69.5/94.5
		b	8	10	13	14
	min./max.	c	16/41	20/46	26/54	28/65
		d	57	66	80	93
		e	28	35	45	50
		f^{H8}	11	14	20	21
		g	-	35	63	73.5
		h	-	16	16	22
		i	--	10	10	15
		k	--	24	24	35
		l	--	10	10	17
		m	M8	M10	M12	M16
		n	7.5	8.5	13	15
		o	1.5	1.5	2.5	3
Max. swing of jaws		mm	242	295	380	480
Max draw bar pull 2-jaws		kN	16	22.5	29	35
Max draw bar pull 3-jaws		kN	24	33.9	43	52
Max. total clamping force approx. 2-jaws		kN	14	20	28	44
Max. total clamping force approx. 3-jaws		kN	21	30	42	66
Max. admissible speed		$min.^{-1}$	3400	2700	1950	1800
Moment of inertia J 3-jaws		kgm^2	0.031	0.11	0.425	1.22
Weight without jaws approx. 3-Jaws		kg	9.3	17	41	75



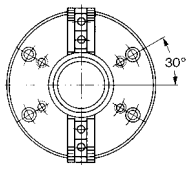
KFG 160



KFG 160+280+350



KFG 215 - 350



KFG 215

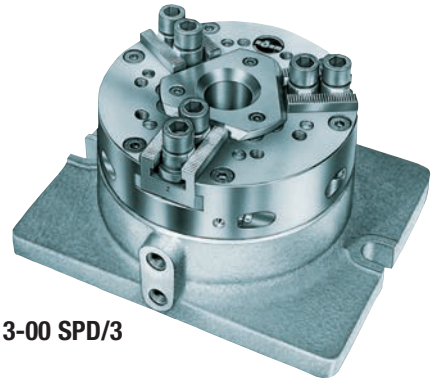
SP Stationary Power Chucks

SPD - Through Hole
SPO - Without Through Hole

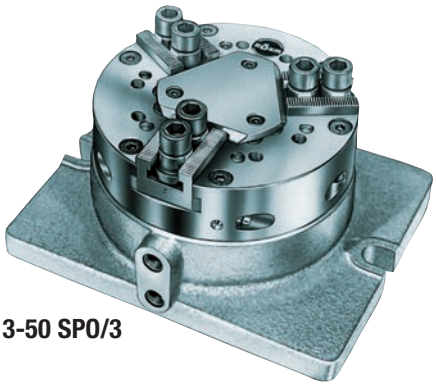
Rohm Power Chucking Fixtures, used as stationary chucks on drilling, milling and special purpose machines, offer many advantages.

Features:

- Quick and efficient chucking
- Concentric gripping of round as well as angular parts
- Universal through use of different jaws
- Ideal for series production
- Suitable for use in automated work cycles
- Gripping force adjustable by changing the pressure
- Oil or air operated



Type 513-00 SPD/3



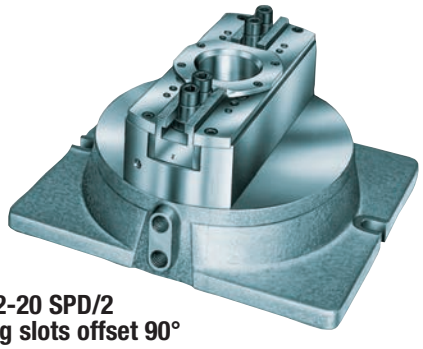
Type 513-50 SPO/3

3-Jaw Stationary Power Chuck With Through Hole

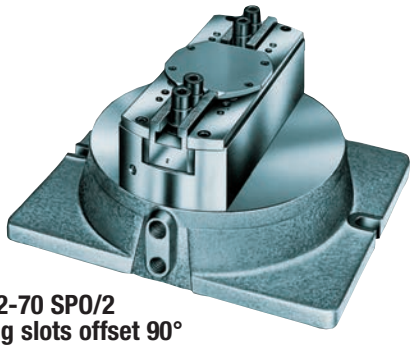
Chuck Size	Rohm Id No.	Code No.	Price $
160	020926	389828	**6,599.88**
215	020927	389829	**7,622.80**
300	020928	389830	**13,758.12**

3-Jaw Stationary Power Chuck Without Through Hole

Chuck Size	Rohm Id No.	Code No.	Price $
160	020929	389831	**6,599.88**
215	020930	389832	**7,622.80**
300	020931	389833	**13,758.12**



Type 512-20 SPD/2
Mounting slots offset 90°



Type 512-70 SPO/2
Mounting slots offset 90°

2-Jaw Stationary Power Chuck With Through Hole

Chuck Size	Rohm Id No.	Code No.	Price $
160	020935	389834	**5,893.22**
215	020936	389835	**6,959.75**
300	020937	389836	**12,349.16**

2-Jaw Stationary Power Chuck Without Through Hole

Chuck Size	Rohm Id No.	Code No.	Price $
160	020941	389837	**5,893.22**
215	020942	389838	**6,959.75**
300	020943	389839	**12,349.16**

Type 512-00 SPD/2
Mounting slots same direction as jaw guides

2-Jaw Stationary Power Chuck With Through Hole

Chuck Size	Rohm Id No.	Code No.	Price $
160	020932	389840	**5,893.22**
215	020933	389841	**6,959.75**
300	020934	389842	**12,349.16**

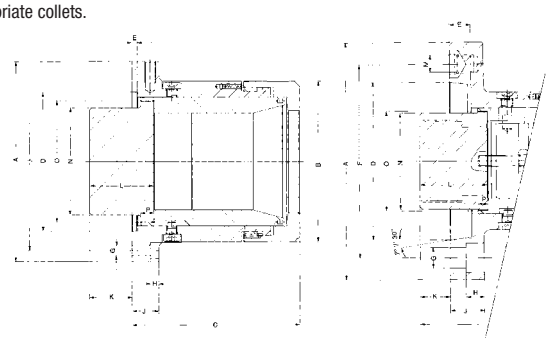
Type 512-50 SPO/2
Mounting slots same direction as jaw guides

2-Jaw Stationary Power Chuck Without Through Hole

Chuck Size	Rohm Id No.	Code No.	Price $
160	020938	389843	**5,893.22**
215	020939	389844	**6,959.75**
300	020940	389845	**12,349.16**

KZF Power Operated Collet Chucks

Type 508-31- Power operated collet chucks with bayonet catch are mainly used for chucking bar work on NC/CNC lathes. The bar stock can be fed in through the chuck. Profiles can also be chucked with the appropriate collets.





Size		40/5	40/6	60/6	60/8	80/8
Rohm ID No.		417252	417253	417256	417257	417259
Code No.		389850	389851	389852	389853	389854
Price $		**2,222.50**	**2,222.50**	**2,761.23**	**2,942.24**	**6,048.07**
Short Taper		5	6	6	8	8
	A	135	170	170	210	210
	B	100	100	122	122	150
	C	127	128	144	146	170
	D	82.563	106.375	106.375	139.719	139.719
	E	16	18	18	22	22
	F	104.8	133.4	133.4	171.4	171.4
	G	4 x 11.5	4 x 14	4 x 14	4 x 18	4 x 18
	H	18	12	12	16	16
	J	25	25	25	30	30
	K min.	35.5	34.5	34.5	32.5	28.35
	K max.	28	27	27	25	25.5
	L	60	60	60	60	60
	M	4 x M10	4 x M12	4 x M12	4 x M16	4 x M16
	N	62	62	85	85	100
	O	M66 x 1.5	M66 x 1.5	M88 x 1.5	M88 x 1.5	M114 x 1.5
	P	8.5	8.5	8.5	8.5	12.5
Total stroke	mm	7.5	7.5	7.5	7.5	3.5
Max. draw bar pull	kN	25	25	30	30	35
Max. admissible speed	$min.^{-1}$	8000	8000	5000	5000	4000
Moment of inertia J	kgm^2	0.029	0.029	0.049	0.092	0.119
Weight without collet	kg	7.5	7.5	10.2	14	18

Call for Collet Inquiries



Also available from RÖHM

Air operated self-contained chucks.

Contact us for more information and to order.

BH-M High Precision Power Chucks

BH-M: Master Jaws with Metric Serration (1.5mm x 60°)
- Suitable for Kitagawa top jaws
- Large through hole
- 3-Jaws

Standard Equipment:
- 3-Jaw chuck
- 1 Set T-nuts w/ bolts
- 1 Set soft top jaws
- Mounting bolts
- Grease gun

Technical Features:
- Gripping force transmission via wedge hook
- Case hardened body to assure greatest precision and long chuck life
- 2 and 3-Jaw version available in all diameters
- 4-Jaw available starting from 165mm diameters



SMW-AutoBlok Model No		BH-M 130	BH-M 165	BH-M 210	BH-M 250	BH-M 315
Code No.		485350	485355	485360	485365	485370
Price $		**3,702.20**	**4,255.10**	**5,027.10**	**5,583.70**	**10,431.10**
Size		**130mm**	**165mm**	**210mm**	**250mm**	**315mm**
Number of Jaws		**3**	**3**	**3**	**3**	**3**
Through hole	mm	32	43	52	66	95
Radial jaw stroke	mm	3.2	3.2	4	5	5
Wedge stroke	mm	15	15	19	26	24
Max. draw-pull	kN	15	17	25	34	40
Max. gripping force	kN	60	70	110	145	175
Max. speed	rpm	7000	6000	5000	4000	3200
Mass (w/out top jaws)	kg	5	9.5	19	30	46
Moment of inertia	kgm^2	0.012	0.036	0.12	0.27	0.62
Recommended Cylinders		**SIN-S 100 VSNC 101-39**	**SIN-S 85/100 VSNC 80-32**	**SIN-S 100/125 VSNC 140-52**	**SIN-S 125/150 VSNC 180-67**	**SIN-S 125/150 VSNC 240-95**

BB-D & BB-M High Precision Power Chucks

BB-D: Inch Serration (1/16" x 90°)
BB-M: Metric Serration (1.5mm x 60°)
- Suitable for Kitagawa top jaws, metric serration
- For open centre or partial open centre clamping
- For machines with very large spindle bore

Standard Equipment:
- 3-Jaw chuck
- 1 Set T-nuts w/ bolts
- 1 Set soft top jaws
- Mounting bolts
- Grease gun

Technical Features:
- Extra large through hole
- Gripping force transmission via wedge hook
- Case hardened body to assure greatest precision and long chuck life



The diagrams refer to 3-Jaw chucks. The maximum gripping force is the total, acting on the 3-Jaws, obtained by applying to the chuck the maximum allowed traction to the draw bar. The data refers to a chuck in good conditions, using SMW-AutoBlok K05 grease.

The dynamic gripping forces have been measured using the standard soft top jaws placed in the most external position, but not exceeding the outer diameter of the chuck. Using larger and heavier jaws and/or in a more external position, it is necessary to reduce the rotation speed.

SMW-AutoBlok Model No.		BB-D 140	BB-M 140	BB-D 175	BB-M 175	BB-D 210	BB-M 210	BB-D 250	BB-M 250	BB-D 315	BB-M 315
Code No.		485300	485302	485305	485307	485310	485312	485315	485317	485320	485322
Price $		**4,219.70**	**4,219.70**	**5,038.00**	**5,038.00**	**5,484.70**	**6,513.00**	**5,776.50**	**7,130.00**	**12,097.00**	**13,335.50**
Size		**140**		**175**		**210**		**250**		**315**	
Number of Jaws		**3**		**3**		**3**		**3**		**3**	
Through hole	mm	39		56		66		77		122	
Radial jaw stroke	mm	3.2		3.2		4		5		5	
Wedge stroke	mm	15		15		19		24		24	
Max. draw-pull	kN	22		25		38		50		50	
Max. gripping force	kN	58		70		108		145		145	
Max. speed	rpm	7000		6000		5000		4000		3200	
Mass (w/out top jaws)	kg	6		11.5		19.5		30		44	
Moment of inertia	kgm^2	0.016		0.06		0.12		0.27		0.62	
Recommended Cylinders		**SIN-S 100 VSNC 101-39**		**SIN-S 100 VSNC 140-52**		**SIN-S 100/125 VSNC 180-67**		**SIN-S 125/150 VSNC 200-76**		**SIN-S 125/150 VSNC 320-127**	

High Precision Pull-Down Chucks

TSF-C: Floating jaws to clamp rough components and easily deformed parts
TSR-C: Rigid jaws to clamp on pre-machined diameters with highest precision

From middle size to very big production batches of parts requiring close squareness and parallelism tolerances. Used in first and second operation to clamp easily deformed parts. Long life with minimal maintenance, reducing the machine down time.

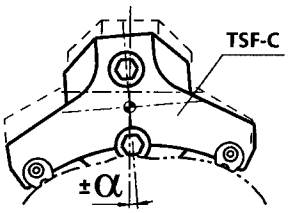


Features

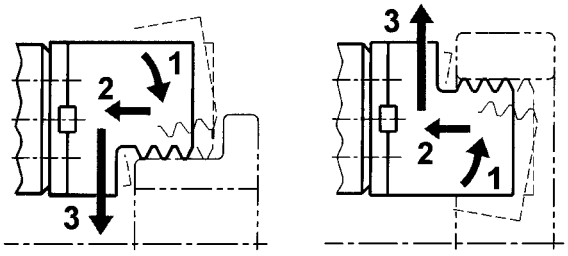
- Case hardened body and internal parts constantly grease-lubricated to assure greatest precision and long chuck life
- Swarf and coolant-proof, prevents contamination of the internal mechanism
- Unique clamping mechanism design
- Tongue and groove master jaws equipped with specially designed top jaws
- Minimum maintenance, very low wear, constant accuracy over a long period of time, constant clamping force
- Constant grease-lubrication of the clamping mechanism
- Compensation of centrifugal force
- Suitable for High-Low clamping

Standard Equipment:

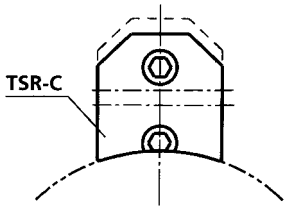
- 3-Jaw chuck
- 1 set fine adjustment keys
- Mounting bolts



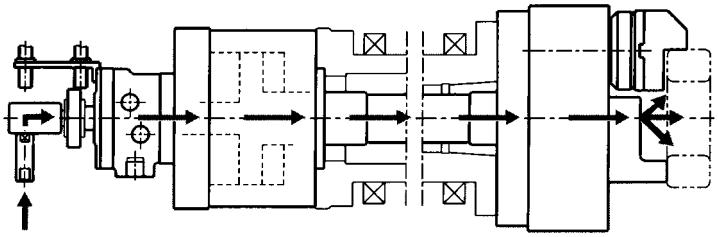
Floating jaws to clamp on rough dia. and easily deformed components on 6 points of contact. Used in both 1st and 2nd operation.



- Active pull down effect = the jaws slide on the part
- Clamping movement:
  1 centering - 2 pull-down - 3 gripping
- Internal and external clamping on the same chuck



Rigid jaws to clamp pre-machined diameter of not easily deformed parts, with highest centering repeatability.

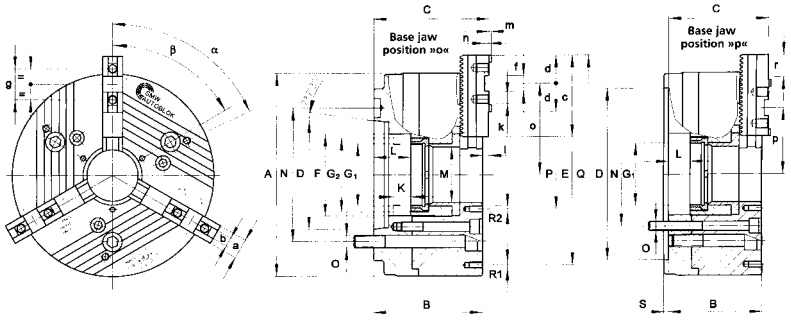


TSF-C and TSR-C chucks actuated by SIN-S cylinder with central bore for coolant or air to flush away chips or to automatically control the correct position of the workpiece on the axial supports (PEL system).

SMW-AutoBlok – Model No.		TSF-C170	TSR-C170	TSF-C210	TSR-C210	TSF-C250	TSR-C250	TSF-C315	TSR-C315	TSF-C400	TSR-C400
Angular jaw stroke	deg.		5.2°		5.2°		4.9°		4.9°	4.7°	
Radial jaw stroke (at distance h)	mm	5.3	6.3	7	7	6.7					
Pull down movement (standard)	mm	0.6	0.6	0.6	0.6	0.8					
Wedge Stroke	mm	21	25	25	25	30					
Max. draw-pull	kN	18	25	40	40	50					
Max. gripping force (at distance h)	kN	44	60	96	96	120					
Max. speed	rpm	5000	4500	3800	3000	2200					
Mass (plain black w/out top jaw)	kg	15	27	41	66	115					
Moment of inertia (m r^2)	kgm^2	0.06	0.16	0.34	0.83	2.3					
Recommended cylinders		SIN-S 85	SIN-S 100	SIN-S 125	SIN-S 125	SIN-S 150					
ORDERING INFORMATION											
Code No.		485005	485007	485010	485012	485015	485017	485020	485022	485025	485027
Price $		**14,087.40**	**14,087.40**	**15,283.80**	**15,283.80**	**17,468.80**	**17,468.80**	**21,332.20**	**21,332.20**	**29,864.20**	**29,864.20**

KNCS-N Quick Jaw Change

Jaw position: open position for O.D. clamping





Main Dimensions and Technical Data Quick Jaw Change

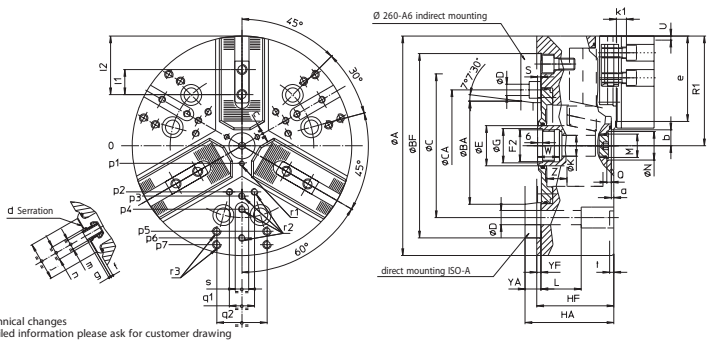
Subject to technical changes

Type KNCS-N		**325-104**				**400-128**				**500-155**			**630-165**
Code No.		485200	485205	485210	485215	485220	485225	485230	485235	485240	485245	485250	485255
Price $		**19,379.50**	**19,379.50**	**18,362.20**	**18,362.20**	**25,814.90**	**25,814.90**	**30,169.40**	**30,169.40**	**33,495.40**	**37,785.80**	**37,785.80**	**62,835.40**
Mounting	Dim.	Z220	Z300	A8	A11	Z300	Z380	A11	A15	Z380	A11	A15	Z380
	A	**324**				**400**				**500**			**630**
	B	130	130	149	151	140	140	161	163	174	195	197	174
	C	139.2	139.2	158.2	160.2	149.2	149.2	170.2	172.2	184	205	207	184
H6	D	220	300	139.73	196.88	300	380	196.88	285.77	380	196.88	285.77	380
	E	268				330				420			585
	F	144				180				207			217
Rotating ring nut/depth	G1	M115 x 2/22				M138 x 2/22				M165 x 2/25			M175 x 2/25
Piston thread/depth	G2	M132 x 2/25				M160 x 2/25				M185 x 2/28			M195 x 2/28
Piston stroke max.	K	25/28				32				42			42
	L	28	28	47	49	32	32	53	55	42	63	65	42
	M	104				128				155			165
Fixing bolt circle	N	171.4	235	171.4	235	235	330.2	235	330.2	330.2	235	330.2	330.2
Fixing bolt	O	M16	M20	M16	M20	M20	M24	M20	M24	M24	M20	M24	M24
	P	130				152				180			195
	Q	385				452				552			643
Thread/thread depth	R1	M10/16				M12/18				M16/25			M16/25
Thread/thread depth	R2	M10/16				M12/18				M12/18			M12/18
	S	6				8				8			8
	a	32				32				45			45
f7	b	12				12				18			18
	c	115				125				160			200
	d	36				43				50			50
H7	f	20				26				30			30
	g	40				54				60			60
Thread/thread depth	k	M12/17				M12/17				M16/34			M16/34
	l	9.3				9.3				10			10
	m	3				3				4			4
	n	6				7				9			9
max./min.	o	155.7/106.2				182.3/121.8				225/141			270.5/179.5
max./min.	p	111.7/62.2				143.3/82.2				164/80			170.5/79.5
Base jaw tooth pitch	—	5.5				5.5				7			7
Base jaw offset	r	49.5				60.5				70			91
Base jaw offset	teeth	9				11				12			13
	α°	60				60				60			60
	β°	60				60				60			60
Stroke/jaw at piston stroke K	mm	7.0			25								
Stroke/jaw at piston stroke K max.	mm	8.0			28	8.0			32	10.0		42	10.0 42
Max. actuating force 3-Jaw chuck	KN	95				115				120			120
Max. total grip force 3-Jaw chuck	KN	180				240				250			250
Max. speed 3-Jaw chuck	rpm	4000				3500				2200			1700
Mass without top jaws	kg	65	65	68	68	111	111	116	116	225	231	231	390
Moment of Inertia	kgm^2	1.2				2.5				6.5			18
Recommended closed centre cylinder	Type	SIN-S 150/200				SIN-S 200				SIN-S 200			SIN-S 200
Recommended open centre cylinder	Type	VNK 250-110				VNK 320-127				VSG 450-165			VSG 450-165

AP-D & AP-M High Precision Power Chucks

- AP-D - inch serration
- AP-M - metric serration
- Closed centre
- For mid to large batch production
- Fully sealed, ideal for dry machining of castings and forgings or if high pressure coolant is used
- Constant gripping force with permanent grease lubrication
- Central bore for coolant and/or air
- Chuck body and internal parts are case hardened
- Proofline® chucks = fully sealed - low maintenance

Standard Equipment
- 3-Jaw chuck
- 1 set T-nuts and bolts
- 1 set soft top jaws
- Mounting bolts





Subject to technical changes
For more detailed information please ask for customer drawing

Type		AP-D 170 AP-M 170	AP-D 215 AP-M 215	AP-D 260 AP-M 260	AP-D 315 AP-M 315	AP-D 400 AP-M 400
AP-D Code No.		485920	485924	485928	485932	485936
Price $		**7,191.90**	**7,561.20**	**9,009.80**	**12,466.30**	**18,742.50**
AP-M Code No.		485922	485926	485930	485934	485938
Price $		**7,627.50**	**7,895.20**	**9,547.20**	**13,211.70**	**19,691.30**
Mount's Available		Z140 A5	Z170 A6	Z220 A6 A8	Z220 A8	Z300 A11
Dimensions (mm)	**A**	**172**	**216**	**262**	**315**	**390**
	BF/BA (H6)	140 82.563	170 106.375	220 106.375 139.719	220 139.719	300 196.869
	C	104.8	133.4	171.4 171.4	171.4	235
	Ca			133.4		
	D	11.5	13.5	17 13.5 17	17	21
	E	32	42	48	48	75
	F2	M24 x 2	M32 x 1.5	M38 x 1.5	M38 x 1.5	M60 x 1.5
	G	25	33	39	39	61
	HF/HA	68 78	81 93	92 111 106	101 115	112 127
	K	18.5	20	25	25	48
	L	23	32	38	38	54
	M	M22 x 1.5	M22 x 1.5	M28 x 1.5	M28 x 1.5	M52 x 1.5
	N (H9)	24	24	34	34	60
	Q	5.5	5.5	5.5	5.5	9
Chuck open	R1	86.5	108	131	157.5	195
max./min.	S	21/4	26/4	28/4	34/4	37/4
Jaw stroke	U	3.6	4.6	5	6.3	7
	W	22	26	26	26	38
	YF/YA	5 15	5 17	5 24 19	5 19	6 21
max./min.	Z	17/0	22/0	24/0	30/0	33/0
	a	3	3	3	3	3
min.	b	8.5	12	14	16.5	31
min.	c	9	13	14	16	38
AP-D	d	1/16" x 90°	1/16" x 90°	1/16" x 90°	1/16" x 90°	3/32" x 90°
AP-M	d	1.5 x 60°	1.5 x 60°	1.5 x 60°	1.5 x 60°	1.5 x 60°
	e	67	82	102	123	144
	f	3	3	3	3	6
	g	2.5	2.5	2.5	3.5	3.5
	j	34	46	48	58	63
	k1	10	11	12	12	14
AP-D	l1	16.5	23	30	30	38
AP-M	l1	20	25	30	30	38
max./min.	l2	43/24	53/33	70/41	84/43	98/54
AP-D	m	M10	M12	M12	M16	M20
AP-M	m	M10	M12	M12	M16	M20
AP-D	n (h8)	14	17	17	21	25.5
AP-M	n (h8)	12	14	16	21	22
	p1	16	16	21	21	37.5
	p2	-	-	-	60	80
	p3	38	49	55	62.5	83
	p4	-	80	70	80	110
	p5	65	80	102	102	140
	p6	70	-	102	120	155
	p7	-	-	-	135	170
	q1	-	-	-	30	36
	q2	36	45	60	60	80
	r1	M5/7	M5/8	M6/10	M6/10	M6/12
	r2	M6/14	M8/17	M8/17	M8/17	M10/19
	r3	M8/17	M8/17	M10/19	M10/19	M12/22
	s	16	16	16	16	20

* Actuated Cylinders available, please call today



Lathe Accessories

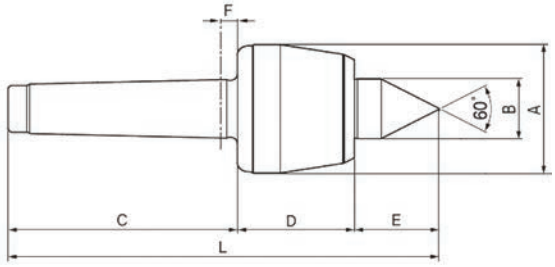
GS Live Centres H114-118
STM Live Centres H119
Skoda Live Centres H119-122
Skoda Live Centre Sets H123
STM Carbide Tipped Dead Lathe Centres H123
Rohm Live Centres H124-127
Rohm Live Centre Sets H126
Rohm Dead Centres H128
Rohm Face Drivers H129-131
Quick Change Tool Posts & Holders H132-135

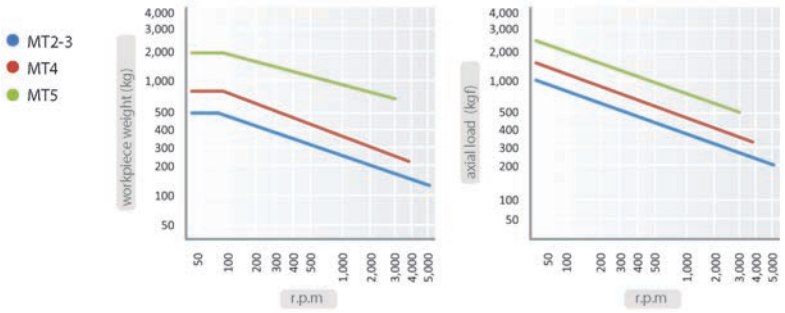
CNC High Speed Live Centres — Standard Point

Features

- Accuracy guaranteed to 0.003mm TIR (0.0001")
- Excellent for CNC and conventional machines
- Heat treated point to 60±2HRC
- High performance lip seal and deflected shaft design protects bearing space from ingress by dust and coolant
- 4-Bearing System: a double row angular contact bearing, a radial ball bearing, and a rear needle roller bearing combine to provide excellent rigidity and high precision point concentricity
- Heat treated drop-forged body (50±2HRC) for extra strength, rigidity, and long life
- Shaft borehole for easy dismounting







Dimensions

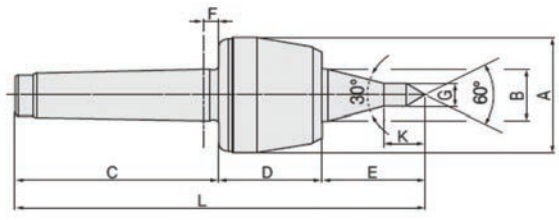
MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	L (mm)	Workpiece Weight	Max RPM	Weight	Max Runout	Code No.	Price $
2	50	25	68	43.5	29.5	6	141	500 kg	5,000	0.7 kg	0.003mm	311011	**369.18**
3	50	25	85	43.5	29.5	6	158	500 kg	5,000	0.8 kg	0.003mm	311012	**449.15**
4	69	32	108	55	40	8	203	800 kg	3,800	1.85 kg	0.003mm	311013	**513.79**
5	88	40	136	70	50.5	8	256.3	2,000 kg	3,000	4.2 kg	0.003mm	311014	**745.17**
6	105	50	189	81.5	57.5	10	328	3,500 kg	2,800	8.7 kg	0.005mm	311015	**1,488.65**

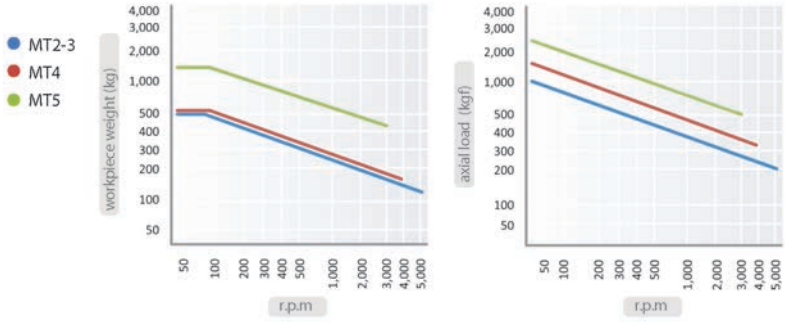
CNC High Speed Live Centres — Extended A Type Point

Features

- Accuracy guaranteed to 0.003mm TIR (0.0001")
- Excellent for CNC and conventional machines
- Specially shaped elongated centre point improves tool clearance and machining flexibility for cramped area work
- Heat treated point to 60±2HRC
- High performance lip seal and deflected shaft design protects bearing space from ingress by dust and coolant
- 4-Bearing System: a double row angular contact bearing, a radial ball bearing, and a rear needle roller bearing combine to provide excellent rigidity and high precision point concentricity
- Heat treated body for extra strength, rigidity, and long life







Dimensions

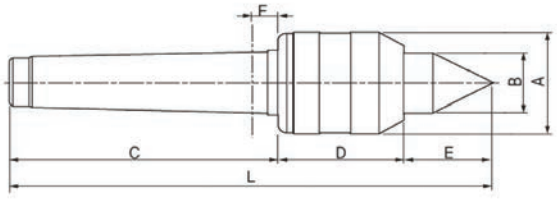
MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	K (mm)	L (mm)	Workpiece Weight	Max RPM	Weight	Max Runout	Code No.	Price $
2	50	25	68	43.5	50	6	10	19	161.5	500 kg	5,000	0.7 kg	0.003mm	311016	**444.04**
3	50	25	85	43.5	50	6	10	19	178.5	500 kg	5,000	0.8 kg	0.003mm	311017	**541.02**
4	69	32	108	55	63.5	8	12.5	23.5	226.5	550 kg	3,800	1.9 kg	0.003mm	311018	**620.98**
5	88	40	136	70	80	8	12.5	23.5	286	1,500 kg	3,000	4.4 kg	0.003mm	311019	**893.20**

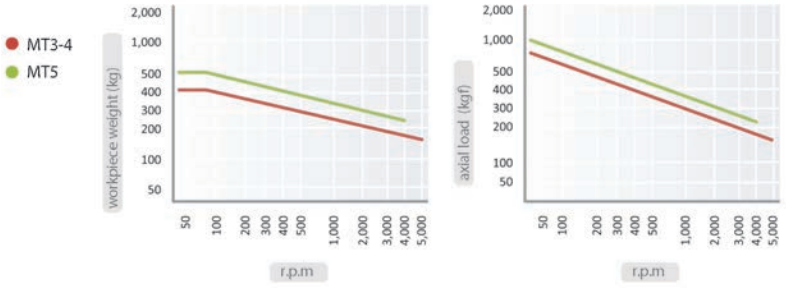
High Performance Live Centres

Features

- Accuracy guaranteed to 0.003mm TIR (0.0001")
- Excellent for light/medium duty work on conventional lathe machines
- Heat treated point to 60±2HRC
- Slim diameter improves tool clearance
- Triple Bearing System: 2 radial ball bearings and a thrust bearing provide good overall load ratings and improved performance
- Rear bearing is sealed, protecting the assembly from coolant and chips
- Live centre made of wear-resistant, drop-forged tool steel







Dimensions

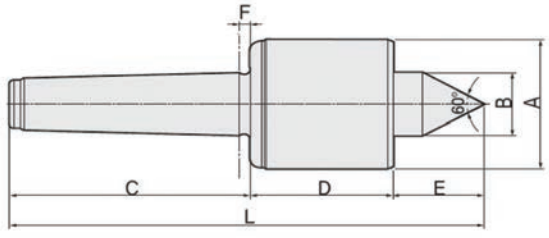
MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	L (mm)	Workpiece Weight	Max Axial Load	Max RPM	Weight	Max Runout	Code No.	Price $
3	44.5	25	85	44	32.5	5.3	161.5	400 kg	600 kg	5,000	1 kg	0.003mm	311024	**309.64**
4	44.5	25	108	44	32.5	5.3	184.5	400 kg	600 kg	5,000	1.2 kg	0.003mm	311025	**411.72**
5	63	28	136	58	35	6.3	229	500 kg	750 kg	4,000	2.8 kg	0.003mm	311031	**595.46**

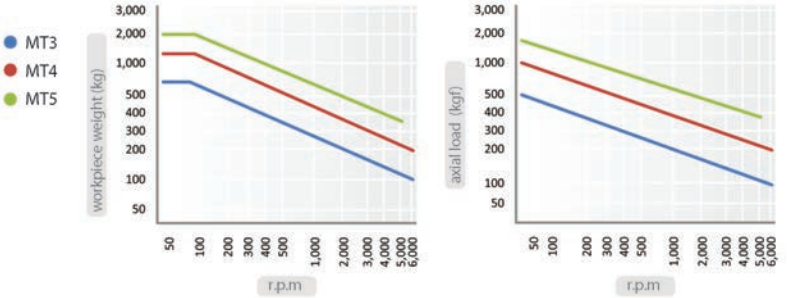
High Speed Live Centres

Features

- Accuracy guaranteed to 0.002mm TIR (0.0001")
- Excellent for grinders, CNC machines, and high speed light duty machining
- Heat treated point to 60±2HRC
- High RPM (up to 6,000)
- Five Bearing System: A double row angular contact bearing, two single row angular contact bearings, and a rear needle roller bearing combine to provide improved runout, greater stability, longer tool life, and superior performance
- Anti-friction seal for coolant deflection and high speed
- Heat treated body for extra strength, rigidity, and long life
- Shaft borehole for easy, efficient dismounting
- Drop forged body (50±2HRC) for long life







Dimensions

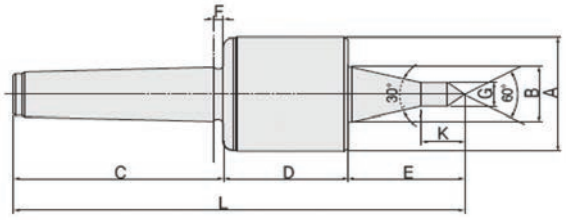
MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	L (mm)	Workpiece Weight	Max RPM	Weight	Max Runout	Code No.	Price $
3	50	20	85	58	23	4.5	166	750 kg	6,000	1.9 kg	0.002mm	311034	**928.82**
4	66	30	108	71	35	5.3	214	1,300 kg	6,000	2.4 kg	0.002mm	311026	**749.21**
5	80	35	136	76	38	6.3	250	2,000 kg	5,000	5.3 kg	0.002mm	311027	**964.65**

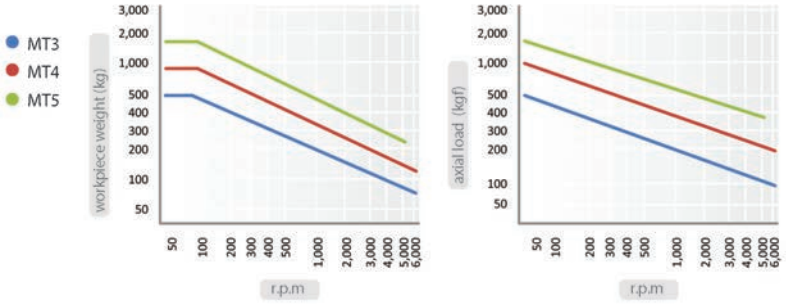
High Speed Live Centres — Extended A Type Point

Features

- Accuracy guaranteed to 0.002mm TIR (0.0001")
- Excellent for grinders, CNC machines, and high speed light duty machining
- Heat treated point to 60±2HRC
- High RPM (up to 6,000)
- Five Bearing System: A double row angular contact bearing, two single row angular contact bearings, and a rear needle roller bearing combine to provide improved runout, greater stability, longer tool life, and superior performance
- Anti-friction seal for coolant deflection and high speed
- Heat treated body for extra strength, rigidity, and long life
- Shaft borehole for easy, efficient dismounting
- Drop forged body (50±2HRC) for long life







Dimensions

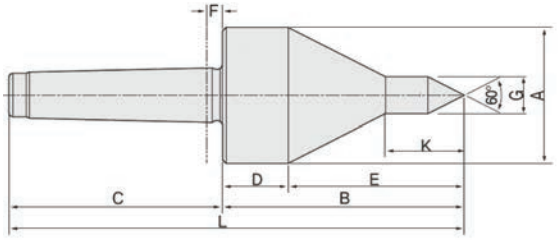
MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	K (mm)	L (mm)	Workpiece Weight	Max RPM	Weight	Max Runout	Code No.	Price $
3	50	20	85	58	37	4.5	10	15	180	500 kg	6,000	1.9 kg	0.002mm	311028	**718.44**
4	66	31	107	71	63.5	5.3	12.5	23	241.5	900 kg	6,000	2.4 kg	0.002mm	311029	**821.03**
5	80	35	136	78	70	6.3	12.5	23.5	284	1,700 kg	5,000	5.3 kg	0.002mm	311030	**903.16**

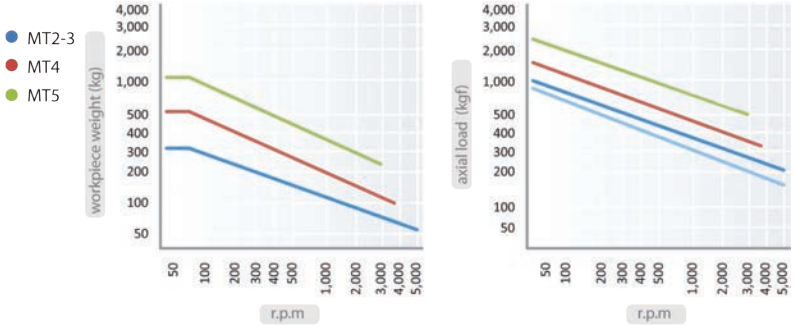
60° Bull Head Live Centres — Extended A Type Point

Features

- Accuracy guaranteed to 0.003mm TIR (0.0001")
- Heat treated point to 60±2HRC
- For pipe work, tube work, and parts with extra-large centre holes
- 4-Bearing System: double row angular contact bearing, thrust ball bearing, and a radial ball bearing combine to provide excellent rigidity and high precision point concentricity
- Used both as a centering taper for hollow bodies and as a centre for machining standard workpieces
- Elongated centre point is specially shaped for improved tool clearance







Dimensions

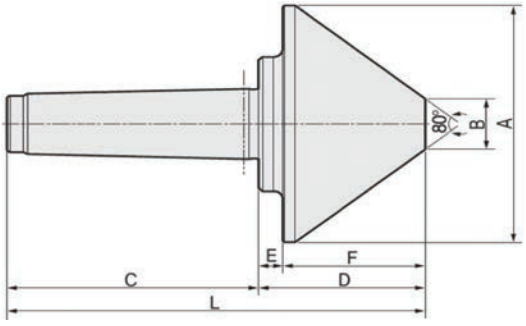
MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	K (mm)	L (mm)	Workpiece Weight	Max RPM	Weight	Max Runout	Code No.	Price $
3	56	86	85	28.9	57.1	6	12	19	171	320 kg	5,000	1.0 kg	0.003mm	311032	**605.66**
4	78	103.5	108	26.3	77.2	8	16	23.5	211.5	560 kg	3,800	2.3 kg	0.003mm	311023	**638.00**
5	96	140	136	41.6	98.4	8	19	30	276	1,200 kg	3,000	5.0 kg	0.003mm	311033	**956.15**

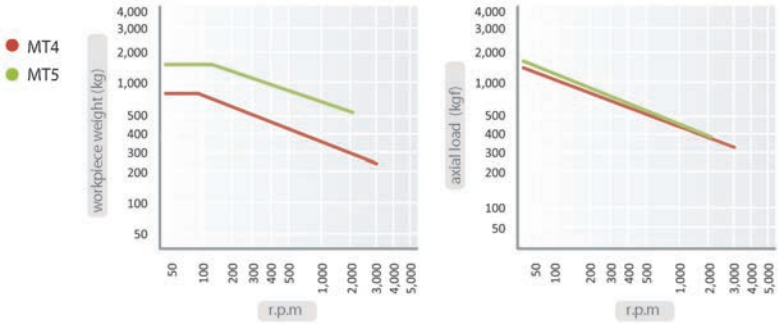
80° Bull Nose Live Centres — Standard Point

Features

- Accuracy guaranteed to 0.003mm TIR (0.0001")
- Excellent for heavy duty lathe applications
- Heat treated point to 60±2HRC
- For pipe work, tube work, and part with extra-large centre holes
- Triple Bearing System: a taper roller bearing, thrust bearing, and a high-precision radial ball bearing combine to provide excellent rigidity and superior performance
- The design prevents ingress of coolant and chips
- Shaft borehole for easy, efficient dismounting
- Drop forged shaft (50±2HRC)







Dimensions

MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	L (mm)	Workpiece Weight	Max RPM	Weight	Max Runout	Code No.	Price $
4	125	29	108	77	13	64	185	800 kg	3,000	3.9 kg	0.003mm	311036	**918.56**
5	150	32	136	90	13	77	226	1,600 kg	2,000	6.9 kg	0.003mm	311035	**1,051.98**

Indexable External Turning Toolholders

Requires fewer tool changes than solid tools in high level metalworking.



See Pages E44-E59

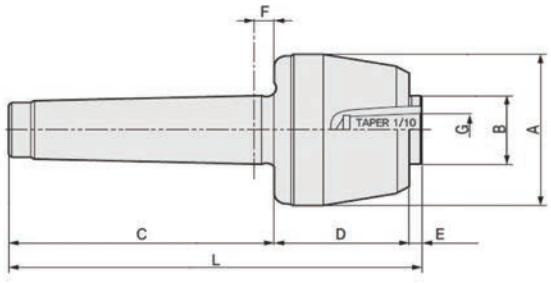
Interchangeable Points Live Centres

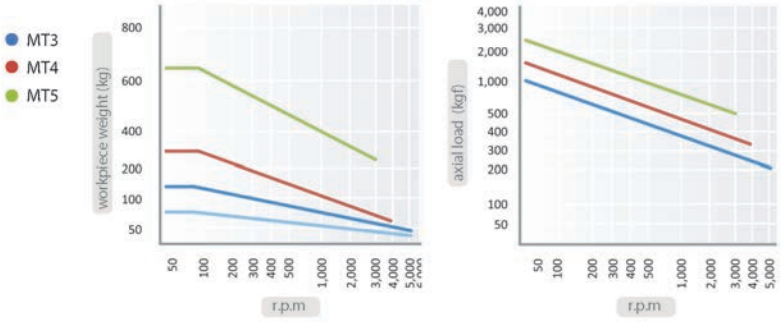
Features

Each holder comes with the 60° H insert. Other inserts available individually (see below)

- Accuracy for centre inner diameter guaranteed to 0.003mm
- Accuracy after point locking guaranteed to 0.005mm
- Excellent for individual production of various workpieces through different insert shafts
- Heat treated point to 60±2HRC
- 4 types of standard point are available
- 4-Bearing System: a double row angular contact bearing, a radial ball bearing, and a rear needle roller bearing combine to provide excellent rigidity and superior performance
- Because of the insert shafts the allowed workpiece weight is limited
- Mounting taper of point is 1/10
- Drop forged (50±2HRC) body
- Shaft borehole for easy, efficient dismounting







Dimensions

MT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	L (mm)	Workpiece Weight	Max RPM	Weight	Max Runout	Code No.	Price $
3	50	25	85	43.5	5	6	12	133.5	150 kg	5,000	0.8 kg	0.005mm	311020	**675.38**
4	69	32	108	55	5	8	15	168	250 kg	3,800	1.7 kg	0.005mm	311021	**776.00**
5	88	40	136	70	6	8	22	212	650 kg	3,000	3.9 kg	0.005mm	311022	**840.79**

Interchangeable Points

Features

Each holder comes with the 60° H insert and a point lever.
Other inserts available individually (see below)

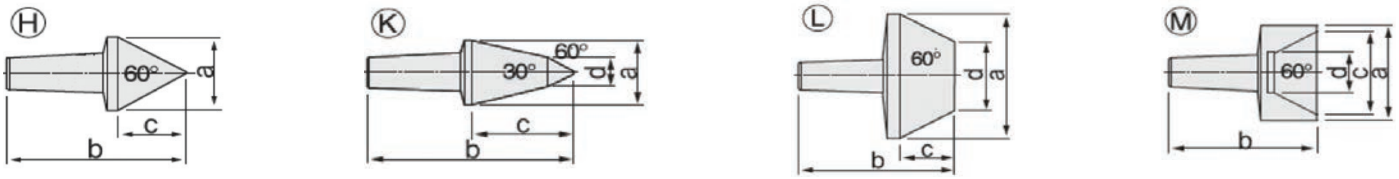
- Accuracy for centre inner diameter guaranteed to 0.003mm
- Accuracy after point locking guaranteed to 0.005mm
- Mounting taper of point is 1/10



Disassembling Tool



MT	Inserts	a (mm)	b (mm)	c (mm)	d (mm)	Code No.	Price $
3	H	24	51.5	20	-	311037	**57.17**
	K	18	54	25	8	311038	**57.17**
	L	45	51	17.5	25	311039	**66.87**
	M	22	60	18	6.5	311040	**143.93**
	Disassembling Tool					311068	**27.91**
4	H	28	61.5	23.5	-	311041	**76.38**
	K	26	73	36	12	311042	**91.88**
	L	55	61.5	21.5	30.2	311043	**107.36**
	M	40	55	35	16.5	311044	**192.25**
	Disassembling Tool					311069	**27.91**
5	H	38	78	32	-	311045	**95.61**
	K	32	90	46	13	311046	**115.01**
	L	70	74	20	40	311047	**134.40**
	M	52	65	45	25.4	311048	**241.59**
	Disassembling Tool					311070	**27.91**



Skoda Heavy Duty Silver Line Live Centres — CSN 243324/CSN 243324M

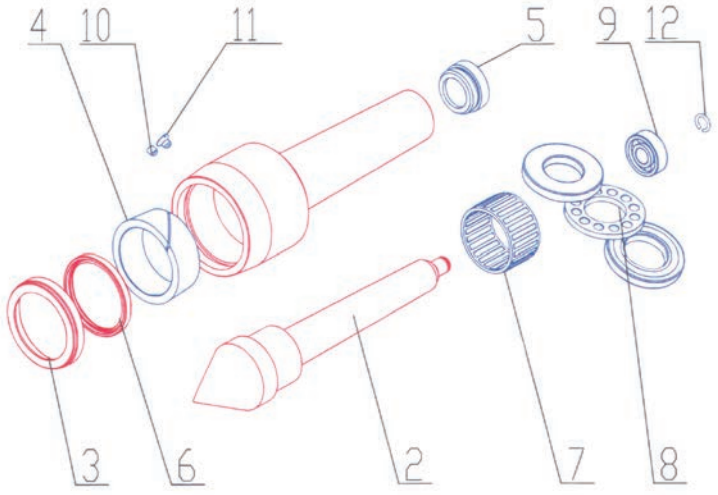
Features

- The rotating spindle is extended right through the tapered shank
- Two specially designed adjustable needle-roller bearings carry all radial loads
- A heavy duty ball thrust bearing takes all axial thrust
- Complete protection of bearings form the ingress of coolant, dirt or swarf is provided by the built-in oil-seal, which also prevents loss of lubricant



Morse Taper	Centre Point Angle	Body Dia. (in)	Body Dia. (in)	Body Length (in)	Maximum RPM	Maximum Weight of Work Piece	SKODA Code No.	Price $	STM Code No.	Price $
1	60°	5/8	1-3/8	4-3/8	6,000	200 lb	310105	**238.68**	-	**-**
2	60°	7/8	1-1/2	5	6,000	750 lb	310110	**298.60**	320110	**197.68**
3	60°	1-1/8	1-7/8	6-1/4	5,000	880 lb	310115	**355.74**	320115	**235.40**
4	60°	1-1/2	2-3/16	7-1/2	4,000	2860 lb	310120	**452.40**	320120	**299.42**
5	60°	1-3/4	2-3/4	9-1/2	3,500	4400 lb	310125	**652.64**	320125	**432.07**
6	60°	2-3/8	3-1/2	12-3/4	2,500	8800 lb	310130	**1,076.53**	-	**-**

PARTS FOR HEAVY DUTY LIVE CENTRES



Skoda Model #CSN243324M has new design for part #'s 2, 3 & 6 M Model

All remaining parts are used in both models

Parts For Heavy Duty Live Centres

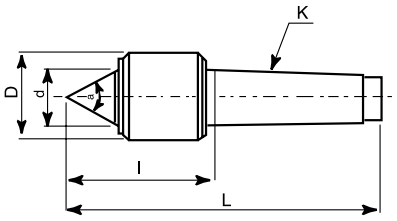
Morse Taper	2-Point		2-Point M Model		3-Ring		3-Ring M Model		4-Sleeve		5-End Plug		6-Seal		6-Seal M Model	
	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $
2	-	**-**	310205M	**177.56**	-	**-**	310210M	**23.50**	310215	**125.61**	310220	**18.07**	-	**-**	310225M	**32.03**
3	-	**-**	310305M	**183.35**	-	**-**	310310M	**39.96**	310315	**140.61**	310320	**22.62**	-	**-**	310325M	**39.53**
4	-	**-**	310405M	**240.38**	-	**-**	310410M	**49.07**	310415	**156.02**	310420	**21.55**	-	**-**	310425M	**37.16**
5	-	**-**	310505M	**358.99**	-	**-**	310510M	**55.83**	310515	**217.87**	310520	**24.97**	-	**-**	310525M	**41.57**
6	-	**-**	310605M	**664.92**	-	**-**	310610M	**161.75**	310615	**286.47**	310620	**56.12**	-	**-**	310625M	**61.56**

Morse Taper	7-Roller Bearing		8-Thrust Bearing		9-Ball Bearing		10-Set Screw		11-Slot Screw		12-Ring	
	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $	Code No.	Price $
2	310230	**83.30**	310235	**84.62**	310240	**47.01**	310245	**2.50**	310250	**2.80**	310255	**1.97**
3	310330	**126.49**	310335	**97.40**	310340	**56.12**	310345	**2.50**	310350	**2.80**	310355	**2.50**
4	310430	**136.69**	310435	**110.18**	310440	**58.18**	310445	**2.50**	310450	**2.31**	310455	**4.85**
5	310530	**172.48**	310535	**137.06**	310540	**68.16**	310545	**2.50**	310550	**2.31**	310555	**4.85**
6	310630	**299.55**	310635	**209.87**	310640	**81.10**	310645	**3.65**	310650	**3.65**	310655	**4.85**

Skoda Extra Heavy Duty Live Centres — CSN 243325

For clamping of heavy workpieces at lathes.

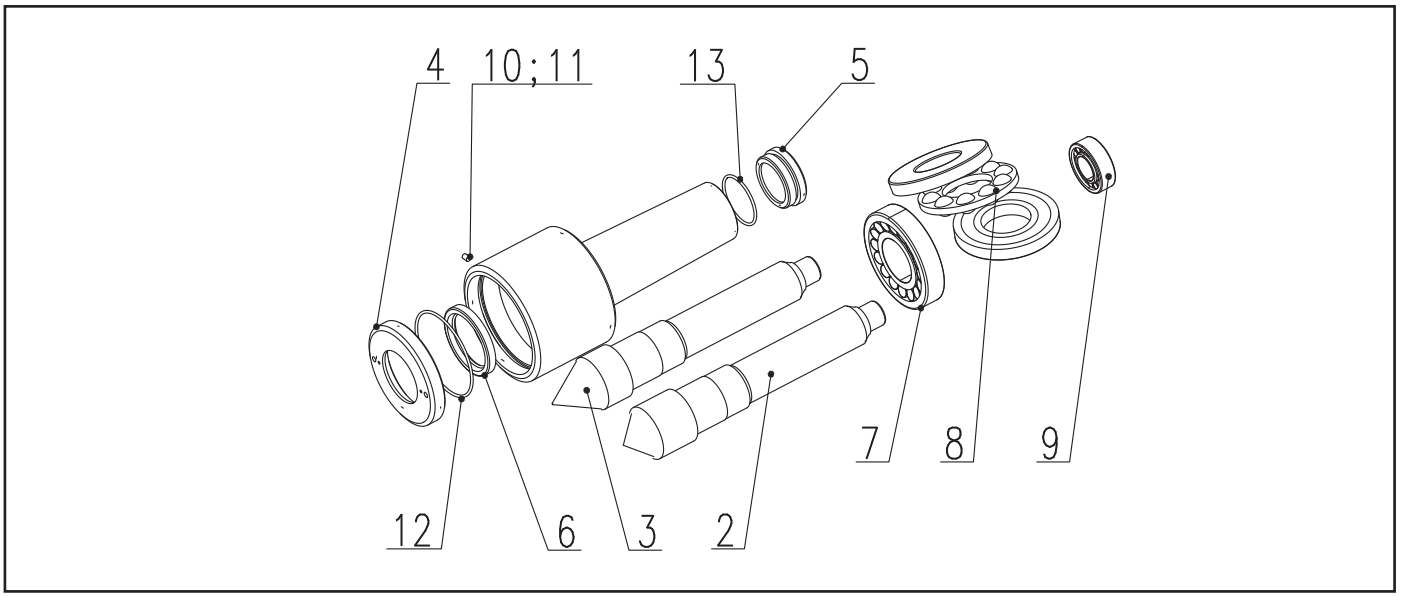
- The rigid structure and seating of the turning part is characterized by long service life
- The model EXTRA is commonly used for work at grinding machines
- Centres with the apex angle of 60° for reduction of deformations of the machine (tailstock, bed, headstock) from axial clamping forces
- The live centres are provided with shanks according to DIN 228 and ISO 296 (without clamping thread)





Morse Taper	D (in.)	d (in)	a	l (in.)	L (in.)	Maximum RPM	Load (lb)	Weight (lb)	Code No.	Price $
4	3.14	1.58	60°	4.10	7.85	3,200	3300	5	310920	**1,858.59**
5	3.54	1.65	60°	5.60	9.48	2,700	5500	9	310925	**2,292.85**
6	4.92	2.16	60°	6.42	13.38	1,900	11000	27	310930	**4,334.96**
7	5.70	2.56	60°	7.80	15.25	1,600	17600	45	310935	**7,538.08**

SPARE PARTS FOR EXTRA HEAVY DUTY LIVE CENTRES



Spare Parts For Extra Heavy Duty Live Centres

Parts No.	Description	Code No.	Price $
MT 4-02	90° Point	310802	**601.48**
4-03	60° Point	310803	**619.08**
4-04	Ring	310804	**245.62**
4-05	End Plug	310805	**8.63**
4-06	Sealing	310806	**12.51**
4-07	Roller Bearing	310807	**177.65**
4-08	Thrust Bearing	310808	**250.38**
4-09	Radial Bearing	310809	**283.91**
4-10	Lock Screw	310810	**2.21**
4-11	Packing Piece	310811	**81.02**
4-12	Packing Ring	310812	**3.21**
4-13	Packing Ring	310813	**2.55**
MT 5-02	90° Point	310816	**748.48**
5-03	60° Point	310817	**717.37**
5-04	Ring	310818	**327.64**
5-05	End Plug	310819	**22.36**
5-06	Sealing	310820	**17.60**
5-07	Roller Bearing	310821	**265.43**
5-08	Thrust Bearing	310822	**297.53**
5-09	Radial Bearing	310823	**298.53**
5-10	Lock Screw	310824	**2.21**
5-11	Packing Piece	310825	**174.34**
5-12	Packing Ring	310826	**3.99**
5-13	Packing Ring	310827	**2.55**

Spare Parts For Extra Heavy Duty Live Centres

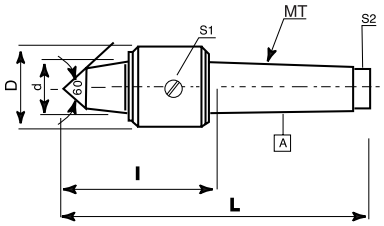
Parts No.	Description	Code No.	Price $
MT 6-02	90° Point	310830	**1,751.31**
6-03	60° Point	310831	**1,815.85**
6-04	Ring	310832	**204.00**
6-05	End Plug	310833	**171.24**
6-06	Sealing	310834	**22.36**
6-07	Roller Bearing	310835	**386.31**
6-08	Thrust Bearing	310836	**618.64**
6-09	Radial Bearing	310837	**462.90**
6-10	Lock Screw	310838	**3.54**
6-11	Packing Piece	310839	**356.09**
6-12	Packing Ring	310840	**8.31**
6-13	Packing Ring	310841	**2.21**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Skoda Precision CNC Silver Line Live Centres — CSN 243327-II

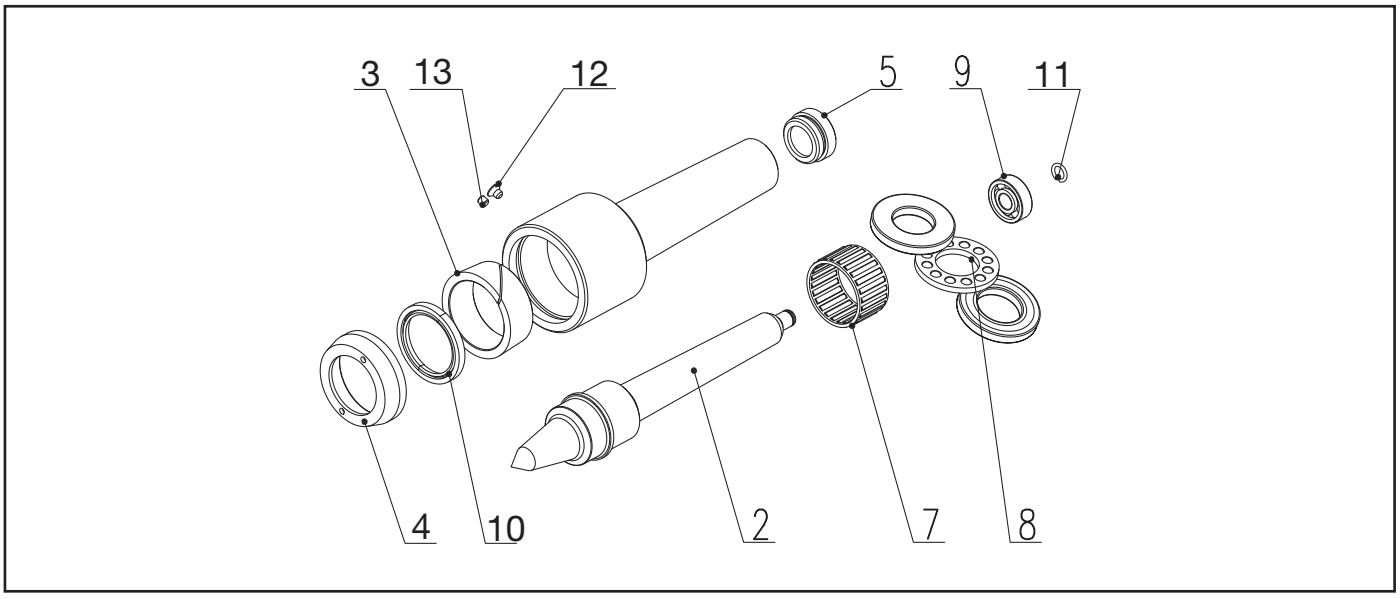
- The centres are intended for NC lathes. Their face parts are formed to allow easy access of the tool to the workpiece, which is an advantage with workpieces of complex shapes
- A special ring is used to set the radial clearance of the centre. It also prevents cutting lubricant from leaking into the centre bearing space, and so extends the centre's operational life
- Spindle-like point extends into shank where it is supported by a needle bearing, increasing rigidity, reducing point deflection and dampening vibration





Morse Taper	D (in.)	d (in)	L (in.)	l (in.)	Maximum RPM	Load (lb)	Code No.	Price $
2	1.5	0.695	5.25	2.65	6,000	594	310010	**566.86**
3	1.85	0.750	6.75	3.50	5,000	704	310015	**598.64**
4	2.20	1.125	8.15	3.95	4,000	2200	310020	**695.58**
5	3.10	1.375	10.50	4.85	3,500	3520	310025	**875.82**

SPARE PARTS FOR CNC LIVE CENTRES



Spare Parts For CNC Live Centres

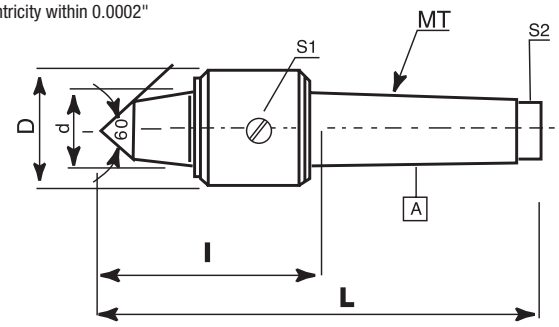
Parts No.	Description	Code No.	Price $
MT 2-02	Point	310855	**499.09**
2-03	Ring	310857	**124.44**
2-04	Set Ring	310856	**84.62**
2-05	End Plug	310858	**20.86**
2-07	Needle Bearing	310860	**83.30**
2-08	Thrust Bearing	310861	**97.40**
2-09	Radial Bearing	310862	**166.60**
2-10	Packing Piece	310859	**81.10**
2-11	Snap Ring	310865	**20.44**
2-12	Countersink Screw	310863	**2.65**
2-13	Lock Screw	310864	**2.35**
MT 3-02	Point	310869	**857.66**
3-03	Ring	310871	**130.02**
3-04	Set Ring	310870	**89.33**
3-05	End Plug	310872	**21.55**
3-07	Needle Bearing	310874	**126.49**
3-08	Thrust Bearing	310875	**112.38**
3-09	Radial Bearing	310876	**167.03**
3-10	Packing Piece	310873	**83.30**
3-11	Snap Ring	310879	**16.89**
3-12	Countersink Screw	310877	**3.68**
3-13	Lock Screw	310878	**2.77**

Spare Parts For CNC Live Centres

Parts No.	Description	Code No.	Price $
MT 4-02	Point	310882	**942.79**
4-03	Ring	310884	**155.44**
4-04	Set Ring	310883	**95.92**
4-05	End Plug	310885	**22.62**
4-07	Needle Bearing	310887	**143.53**
4-08	Thrust Bearing	310888	**126.49**
4-09	Radial Bearing	310889	**184.51**
4-10	Packing Piece	310886	**87.41**
4-11	Snap Ring	310892	**26.19**
4-12	Countersink Screw	310890	**3.72**
4-13	Lock Screw	310891	**2.77**
MT 5-02	Point	310895	**1,204.28**
5-03	Ring	310897	**145.66**
5-04	Set Ring	310896	**108.18**
5-05	End Plug	310898	**23.71**
5-07	Needle Bearing	310900	**175.11**
5-08	Thrust Bearing	310901	**151.91**
5-09	Radial Bearing	310902	**269.28**
5-10	Packing Piece	310899	**93.24**
5-11	Snap Ring	310905	**33.34**
5-12	Countersink Screw	310903	**3.68**
5-13	Lock Screw	310904	**2.77**

Skoda Extended Point Silver Line Live Centres — CSN 243328

- Designed to keep dust, chips and coolant from coming inside the bearings
- Hardened and ground to 61-65 Rockwell
- Concentricity within 0.0002"





Morse Taper	D (in.)	d (in)	L (in.)	l (in.)	Maximum RPM	Load (lb)	Weight (lb)	Point Angle	Code No.	Price $
2	1.417	0.866	5.059	2.560	6,000	594	0.79	60°	310160	**327.93**
3	1.850	1.181	6.575	3.386	5,000	704	1.85	60°	310165	**389.54**
4	2.165	1.378	8.169	4.094	4,000	2200	3.19	60°	310170	**489.96**
5	2.736	1.772	10.197	5.078	3,500	3960	7.04	60°	310175	**641.25**
6	3.504	2.362	13.425	6.319	2,500	7040	17.05	60°	310180	**1,185.76**

Extended Points

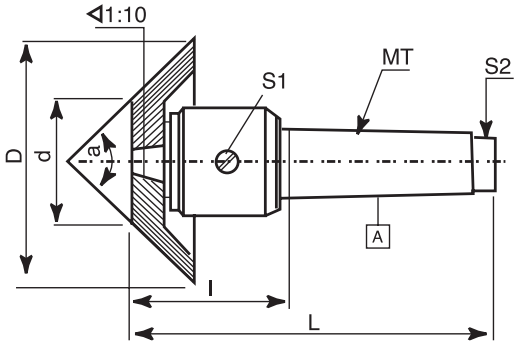
Morse Taper	Code No.	Price $
2	310200	**250.71**
3	310300	**277.53**
4	310400	**366.13**
5	310500	**498.74**
6	310600	**834.67**



Skoda Heavy Duty Bull Nose Silver Line Live Centres — CSN 243319

Designed to hold pipe and hollow work. Pipe head can be used as an all-round centre for light work. Two matched angular contact bearings preloaded at the factory. This achieves good thrust and radial capacities. Bearings are protected by a combination steel shield and neoprene seal.

- Accuracy: ±0.0001"





Morse Taper	a	D (in)	d (in.)	L (in.)	l (in.)	Maximum RPM	Load (lb)	Weight (lb)	Code No.	Price $
3	60°	3.150	1.378	6.380	3.189	5,000	880	4.62	310140	**1,177.94**
4	60°	4.527	1.732	7.637	3.622	4,000	2860	9.68	310145	**1,897.33**
5	60°	5.314	1.811	9.449	4.331	3,500	4400	17.60	310150	**2,685.32**
6	60°	6.693	2.520	12.125	4.961	2,500	8800	51.70	310155	**6,428.58**

Skoda Silver Line Live Centre Sets — CSN 243326

Features

- The rotating spindle is extended right through the tapered shank
- Two specially designed adjustable needle-roller bearings carry all radial loads
- A heavy duty ball thrust bearing takes all axial thrust
- Complete protection of bearings from the ingress of coolant, dirt or swarf is provided by the built-in oil-seal, which also prevents loss of lubricant

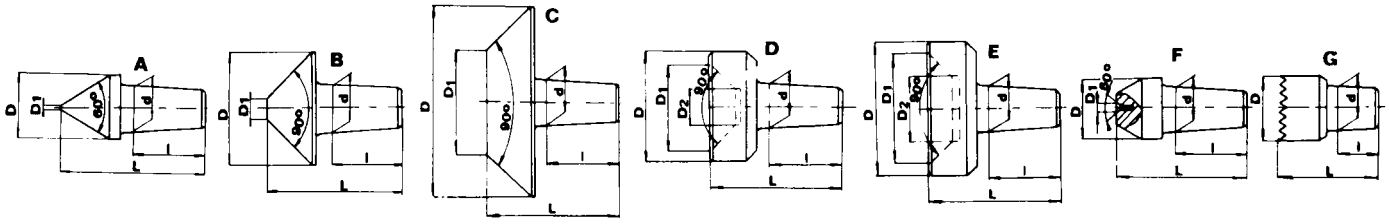




Morse Taper	All		A	B-G	A		B		C		D			E			F		G		
	d	l	L	L	D	D1	D	D1	D	D1	D	D1	D2	D	D1	D2	D	D1	D	Code No.	Price $
3	0.590	0.984	1.968	1.771	0.787	0.019	1.417	0.236	2.480	1.299	1.417	1.102	0.472	1.771	1.496	0.866	0.787	0.098	0.984	310705	**1,492.68**
4	0.784	1.181	2.362	2.086	0.984	0.019	1.771	0.393	2.755	1.378	1.771	1.456	0.669	2.480	2.086	1.181	0.984	0.196	1.259	310710	**1,832.70**
5	0.984	1.496	2.874	2.559	1.259	0.039	2.204	0.551	3.149	1.496	2.204	1.732	0.787	2.775	2.362	1.417	1.259	0.196	1.771	310715	**2,209.66**
6	1.181	1.811	3.543	3.149	1.417	0.039	2.755	0.708	3.937	1.968	2.755	2.283	0.950	3.937	3.464	2.126	1.417	0.315	2.204	310720	**3,187.36**

Morse Taper	Max Load (lb)
3	880
4	2860
5	4400
6	8800

Maximum weight of workpiece is independent of the individual point being used.



Parts For Skoda Live Centre Sets

Morse Taper	Part A Code No.	Price $	Part B Code No.	Price $	Part C Code No.	Price $	Part D Code No.	Price $	Part E Code No.	Price $	Part F Code No.	Price $	Part G Code No.	Price $
3	310724	**216.82**	310726	**313.20**	310728	**548.74**	310730	**328.63**	310732	**466.55**	310734	**340.59**	310736	**354.51**
4	310744	**241.61**	310746	**285.44**	310748	**549.20**	310750	**331.72**	310752	**505.82**	310754	**379.16**	310756	**384.95**
5	310764	**260.86**	310766	**368.83**	310768	**830.36**	310770	**381.03**	310772	**811.70**	310774	**439.35**	310776	**434.80**
6	310784	**422.19**	310786	**694.71**	310788	**1,101.28**	310790	**722.00**	310792	**1,048.78**	310794	**496.40**	310796	**582.82**

Additional Items For Skoda Live Centre Sets

Morse Taper	Live Centre Only Code No.	Price $	Internal Point Code No.	Price $	Wooden Case Code No.	Price $	Drift Key Code No.	Price $
3	310722	**592.16**	310723	**153.31**	310738	**326.59**	310740	**320.30**
4	310742	**677.32**	310743	**174.55**	310758	**374.08**	310760	**338.83**
5	310762	**982.31**	310763	**212.30**	310778	**425.36**	310780	**363.38**
6	310782	**1,840.25**	310783	**308.27**	310798	**480.48**	310800	**441.29**

STM Carbide Tipped Dead Lathe Centre

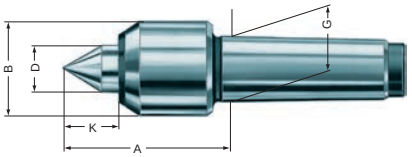
With Morse Taper. Included angle is 60°. They are precision made, hardened and ground to closest tolerances.



Morse Taper	Length	Code No.	Price $
1	3-3/16	420905	**103.61**
2	3-15/16	420910	**99.24**
3	4-15/16	420915	**155.91**
4	6-5/16	420920	**223.00**
5	7-7/8	420925	**299.19**
6	11	420930	**523.04**

Standard Live Centres 60° Type 600

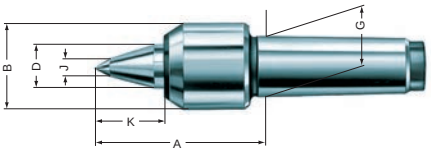
- With small casing diameter



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. RPM	A (mm)	B (mm)	D (mm)	G (mm)	K (mm)	Code No.	Price $
2	005336	200	0.005	7000	62	32	15	17.780	18	392410	**321.18**
3	005429	400	0.005	7000	62	34	15	23.825	18	392415	**334.02**
4	005469	800	0.005	6300	75.5	42	20	31.267	25	392425	**444.14**
5	005490	1600	0.01	4300	104	58	30	44.399	34	392430	**642.35**
6	005547	3500	0.02	3000	143	80	42	63.348	49	392435	**1,282.87**

Extended Live Centres 60° Type 600-20

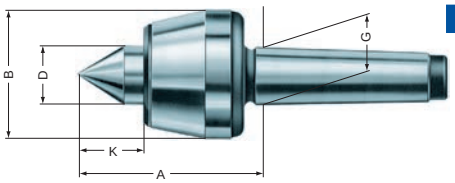
- With extended live centre



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. RPM	A (mm)	B (mm)	D (mm)	G (mm)	J (mm)	K (mm)	Code No.	Price $
2	362080	170	0.008	7000	73	32	15	17.780	10	29	392440	**385.41**
3	362081	340	0.008	7000	74	34	15	23.825	11	30	392445	**401.93**
4	362082	700	0.008	6300	88.5	42	20	31.237	13	38	392450	**534.07**
5	362083	1400	0.01	4300	119	58	30	44.399	14	49	392455	**768.99**
6	362084	3000	0.02	3000	164	80	42	63.348	18	70	392460	**1,543.48**

Hardened And Ground Live Centres 60° Type 604 H

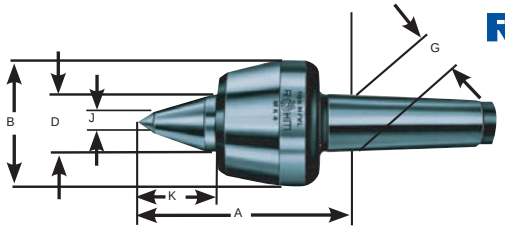
- Body hardened and ground



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. RPM	A (mm)	B (mm)	D (mm)	G (mm)	K (mm)	Code No.	Price $
1	043400	100	0.005	7000	60.5	36	15	12.065	17	392465	**398.26**
2	043115	200	0.005	7000	65	45	20	17.780	24	392470	**398.26**
3	042315	400	0.005	6300	70.05	50	22	23.825	27.5	392475	**414.78**
3	042776	500	0.005	5000	79.5	60	25	23.825	31	392485	**484.52**
4	042175	800	0.005	3800	102.5	70	32	31.267	41	392490	**554.26**
5	042843	2000	0.005	3000	129	90	40	44.399	50.5	392500	**803.86**
6	043532	3500	0.01	2600	152	105	50	63.348	57.5	392515	**1,605.88**
6	093439	4500	0.01	1500	196	140	60	63.348	67	392520	**3,110.82**
m80	093440	7500	0.015	1500	196	140	60	80.000	68	392525	**4,046.82**

Extended Live Centres 60° Type 604 HVL

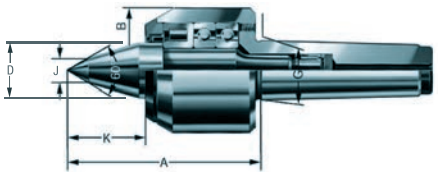
- With extended live centre



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. RPM	A (mm)	B (mm)	D (mm)	G (mm)	J (mm)	K (mm)	Code No.	Price $
1	058668	80	0.01	7000	70.5	36	15	12.065	9	27	392565	**479.01**
2	058669	140	0.005	7000	75	45	20	17.780	10	34	392570	**479.01**
3	058670	400	0.005	5000	95.5	60	25	23.825	12	47	392575	**583.62**
4	058671	500	0.005	3800	114.5	70	32	31.267	14	53	392580	**669.88**
5	058672	1200	0.005	3000	143.5	90	40	44.399	16	65	392585	**963.53**
6	058673	2500	0.01	2600	172.5	105	50	63.348	18	78	392590	**1,927.06**

High Load High Speed Live Centres 60° Type 640-20

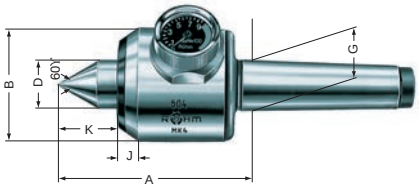
- For high load and high speeds



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. RPM	A (mm)	B (mm)	D (mm)	G (mm)	J (mm)	K (mm)	Code No.	Price $
4	303598	1000	0.005	7000	122	70	32	31.267	16	44	392900	**1,387.48**
5	303599	2000	0.005	6000	150	95	42	44.399	20	59	392930	**2,009.65**
6	301696	3000	0.005	4800	180	120	58	63.348	26	77	392935	**4,019.29**

Revolving Tailstock Centres 60° Type 652-AC

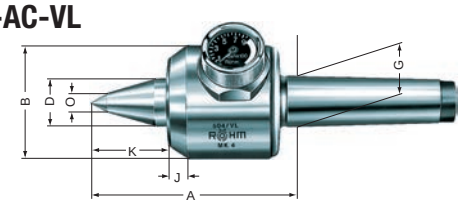
- With pressure display and length compensation, as counter centre for constant face drivers



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. Axial Load (kg)	Spring Way (mm)	A (mm)	B (mm)	D (mm)	G (mm)	J (mm)	K (mm)	Code No.	Price $
3	060798	400	0.01	550	1.6	105	64	25	23.825	12	31.5	392945	**1,350.78**
4	060874	800	0.01	900	2	123.5	72	32	31.267	15	39	392965	**1,629.74**
5	060906	1600	0.01	1500	1.8	160.5	95	40	44.399	16	49	392985	**2,128.94**
6	060915	3200	0.015	2000	2.7	202	120	52	63.348	23	59	393005	**3,734.82**

Revolving Tailstock Extended Point Centres 60° Type 652-AC-VL

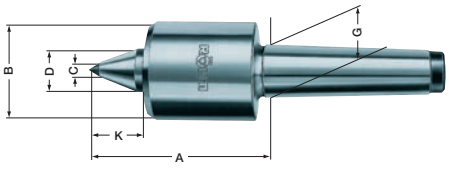
- Extended point with pressure display and length compensation, as counter centre for constant face drivers



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. Axial Load (kg)	Spring Way (mm)	A (mm)	B (mm)	D (mm)	G (mm)	J (mm)	K (mm)	O (mm)	Code No.	Price $
3	079920	260	0.01	550	1.6	120	64	25	23.825	12	46.5	11	393025	**1,620.56**
4	079921	550	0.01	900	2	137.5	72	32	31.267	15	53	14	393030	**1,963.76**
5	079922	1100	0.01	1500	1.8	177.5	95	40	44.399	16	66	15	393035	**2,569.41**
6	079923	2500	0.015	2000	2.7	223	120	52	63.348	23	80	24	393040	**4,487.29**

Revolving Tailstock Extended NC Centres 60° Type 664

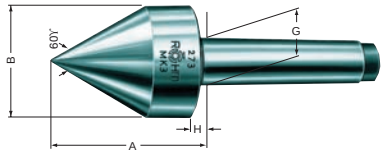
- Extended NC-centre with carbide insert, for high speed, powerful, for small and medium components



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	Max. RPM	A (mm)	B (mm)	C (mm)	D (mm)	G (mm)	K (mm)	Code No.	Price $
2	772389	100	0.01	12000	99	45	7	20	17.780	40	393048	**958.02**
3	772390	100	0.01	12000	99	45	7	20	23.825	40	393049	**996.56**
4	772391	250	0.01	9000	141	66	11	32	31.267	63	393051	**1,332.42**
5	772392	250	0.01	9000	141	66	11	32	44.399	63	393052	**1,927.06**

Revolving Centre Tapers 60° Type 627

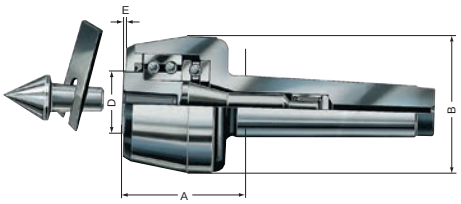
- Revolving centering taper, pointed. As centering taper for tubular workpieces and as a revolving tailstock centre to machine normal workpieces



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	Max. Concentricity Error (mm)	A (mm)	B (mm)	G (mm)	Code No.	Price $
2	010613	200	0.01	61	42	17.780	393335	**625.84**
3	010635	400	0.008	79	46	23.825	393340	**653.36**
4	010638	800	0.008	100	64	31.267	393345	**688.24**
5	010642	1600	0.008	115.5	78	44.399	393355	**1,031.44**

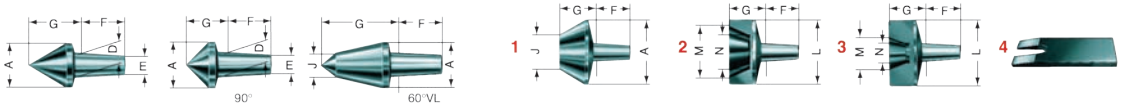
Live Centres Sets Type 614

• Revolving tailstock centres for interchangeable inserts





Morse Taper	Max Workpiece Weight (kg)	Max Concentricity Error (mm)	A (mm)	B (mm)	D (mm)	E (mm)	Centre Without Inserts Rohm Id No.	Code No.	Price $	Complete Set In Wooden Case Rohm Id No.	Code No.	Price $
2 -Size 102	40	0.01	45	45	20	4	061030	392610	**398.26**	061702	392640	**994.73**
3 -Size 104	130	0.01	48	50	22	4.5	061031	392615	**414.78**	061703	392645	**1,130.54**
3 -Size 106	150	0.01	55	60	25	5	061032	392620	**484.52**	061704	392650	**1,275.53**
4 -Size 108	250	0.01	67	70	32	5	061038	392625	**554.26**	061705	392655	**1,492.09**
5 -Size 110	650	0.01	85	90	40	6	061039	392630	**803.86**	061706	392660	**1,972.94**
6 -Size 114	900	0.015	101	105	50	6	061040	392635	**1,605.88**	-	-	**-**



Interchangeable Inserts 60°

Size	Rohm Id No.	A (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Code No.	Price $
102	070725	16	7	5.2	18	20	392665	**51.20**
104	070728	20	12	9.6	24	24	392670	**61.67**
106	070731	24	12	9.6	24	27.5	392675	**72.13**
108	070734	28	15	12	30	31.5	392680	**82.40**
110	070737	38	22	18.5	35	43	392685	**103.14**
114	070740	50	28	24	40	54	392690	**144.99**

Interchangeable Inserts 90°

Size	Rohm Id No.	A (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Code No.	Price $
102	070727	16	7	5.2	18	14.5	392725	**51.20**
104	070730	20	12	9.6	24	16.5	392730	**61.67**
106	070733	24	12	9.6	24	19	392735	**72.13**
108	070736	28	15	12	30	21.5	392740	**82.40**
110	070739	38	22	18.5	35	29	392745	**103.14**
114	070742	50	28	24	40	36	392750	**144.99**

Interchangeable Inserts 60° VL

Size	Rohm Id No.	A (mm)	D (mm)	E (mm)	F (mm)	G (mm)	J (mm)	Code No.	Price $
102	070719	14	7	5.2	18	25	6	392755	**61.67**
104	070720	18	12	9.6	24	30	8	392765	**80.39**
106	070720	18	12	9.6	24	30	8	392765	**80.39**
108	070721	26	15	12	30	43	12	392770	**99.11**
110	070722	32	22	18.5	35	55	13	392775	**124.07**
114	070723	42	28	24	40	70	18.5	392780	**174.17**

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Interchangeable Inserts #1

Size	Rohm Id No.	A (mm)	D (mm)	E (mm)	F (mm)	G (mm)	J (mm)	Code No.	Price $
102	070700	25	7	5.2	18	21	10	392785	**72.13**
104	070701	35	12	9.6	24	26	15	392790	**86.63**
106	070702	45	12	9.6	24	27	25	392795	**101.31**
108	070703	55	15	12	30	31.5	30	392800	**115.81**
110	070704	70	22	18.5	35	39	40	392805	**144.99**
114	070705	100	28	24	40	52	55	392810	**203.72**

Interchangeable Inserts #2

Size	Rohm Id No.	D (mm)	E (mm)	F (mm)	G (mm)	L (mm)	M (mm)	N (mm)	Code No.	Price $
102	070707	7	5.2	18	18	25	20	10	392815	**153.43**
104	070708	12	9.6	24	24	35	30	15	392825	**185.36**
106	070709	12	9.6	24	25	45	40	25	392835	**216.56**
108	070710	15	12	30	30	55	48	30	392845	**249.60**
110	070711	22	18.5	35	39	70	63	40	392855	**310.16**
114	070712	28	24	40	42	100	90	55	392865	**434.96**

Interchangeable Inserts #3

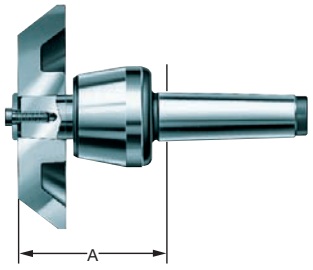
Size	Rohm Id No.	D (mm)	E (mm)	F (mm)	G (mm)	L (mm)	M (mm)	N (mm)	Code No.	Price $
102	228620	7	5.2	18	12	16	12	6	392820	**128.29**
104	228621	12	9.6	24	16	22	18	10	392830	**155.27**
106	228621	12	9.6	24	16	22	18	10	392830	**155.27**
108	228622	15	12	30	25	40	35	20	392850	**207.39**
110	308632	22	18.5	35	30	52	45	30	392860	**260.61**

Extractor #4

Size	Rohm Id No.	Code No.	Price $
102	061707	392870	**30.10**
104	061708	392875	**30.10**
106	061708	392875	**30.10**
108	061708	392875	**30.10**
110	061709	392880	**30.10**
114	061709	392880	**30.10**

Revolving Centering Tapers Type 608-00

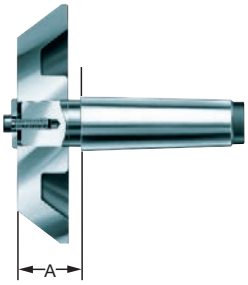
- Revolving tailstock centre
- See adjacent chart for insert attachments (AZ-75° & AZR-75°)



Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	A (mm)	Code No.	Price $
4	304562	800	103	393045	**833.22**
5	304563	1600	128	393050	**1,205.79**
6	304564	3000	159	393055	**2,404.24**

Fixed Shaft Centering Tapers Type 698-00

- Fixed shaft
- See adjacent for insert attachments (AZ-75° & AZR-75°)

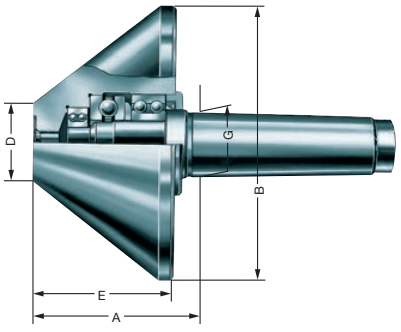


Morse Taper	Rohm Id No.	Max. Workpiece Weight (kg)	A (mm)	Code No.	Price $
4	304580*	2000	45	393060	**277.13**
5	304581*	4800	60	393070	**403.76**
6	304582*	12000	70	393080	**805.69**

* Including fixing screw and washer, without insert

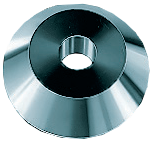
Revolving Tailstock Centres 60° Type 617

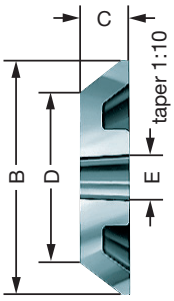
- Revolving tailstock centre



Morse Tape	Rohm Id No.	Max Workpiece Weight kg	Max Concentricity Error (mm)	A (mm)	B (mm)	D (mm)	E (mm)	Code No.	Price $
1	301615	100	0.008	64	50	20	52	393235	**366.54**
2	301616	200	0.008	65	50	20	52	393240	**568.94**
2	301556	300	0.008	77	80	30	64	393245	**625.84**
3	301557	400	0.008	77	80	30	64	393250	**653.36**
4	301558	400	0.008	78.5	80	30	64	393255	**688.24**
3	221605	600	0.008	96.5	120	30	83	393260	**818.54**
4	044023	800	0.008	98	120	30	83	393265	**860.75**
5	090483	800	0.008	99	120	30	83	393270	**1,031.44**

Insert Attachments Type AZ-75°



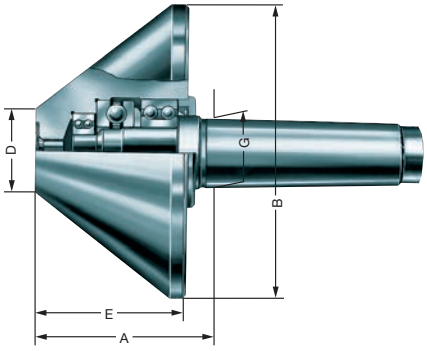


Size of Insert	For M.T.	Rohm Id No.	B (mm)	C (mm)	D (mm)	E (mm)	Code No.	Price $
1	4	*304565	60	68	5	32	393090	**313.84**
2	4	304566	100	45	45	32	393095	**469.84**
3	4	304567	150	45	95	32	393100	**702.92**
4	4	304568	200	45	145	32	393105	**1,057.13**
5	4	304569	250	45	195	32	393110	**1,589.36**
1	5	304570	100	43	45	40	393135	**563.44**
2	5	304571	150	43	95	40	393140	**846.07**
3	5	304572	200	43	145	40	393145	**1,268.19**
4	5	304573	250	43	195	40	393150	**1,908.71**
5	5	304574	300	43	245	40	393155	**2,853.88**
1	6	304575	150	54	95	50	393185	**1,014.92**
2	6	304576	200	54	145	50	393190	**1,523.29**
3	6	304577	250	54	195	50	393195	**2,284.94**
4	6	304578	300	54	245	50	393200	**3,422.82**
5	6	304579	350	54	295	50	393205	**5,138.82**

* Without fixing screw and washer

Revolving Tailstock Centres 75° Type 618

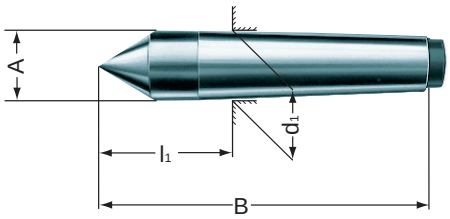
- Revolving tailstock centre



Morse Taper	Rohm Id No.	Max Workpiece Weight kg	Max Concentricity Error (mm)	A (mm)	B (mm)	D (mm)	E (mm)	Code No.	Price $
2	301559	300	0.008	80	80	20	67	393275	**625.84**
3	301560	400	0.008	80	80	20	67	393280	**653.36**
4	301561	400	0.008	81.5	80	20	67	393285	**688.24**
3	062211	600	0.008	85.5	120	30	72	393290	**818.54**
4	062224	800	0.008	87	120	30	72	393295	**860.75**
5	062232	800	0.008	88	120	30	72	393300	**1,031.44**
4	062299	1200	0.01	107	170	50	90	393305	**1,723.34**
5	063614	1600	0.01	106	170	50	90	393310	**2,064.71**
6	063633	1600	0.01	107.5	170	50	90	393315	**2,064.71**
5	063662	2000	0.01	146.5	250	75	130	393320	**4,120.24**
6	063656	2000	0.01	148	250	75	130	393325	**4,120.24**
6	063680	4000	0.015	184	350	120	168	393330	**8,268.00**

Dead Centres Type 665

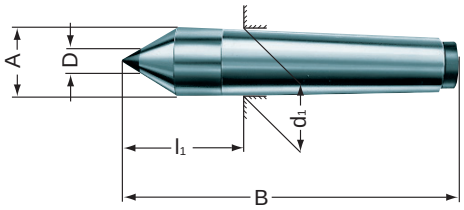
- Full point
- Completely hardened and ground
- Material: tool steel



Morse Taper	Rohm Id No.	A (mm)	B (mm)	d1 (mm)	l1 (mm)	Code No.	Price $
0	013706	9.2	70	9.045	20	394045	**61.67**
1	013707	12.2	80	12.065	26.5	394050	**61.67**
2	013709	18	100	17.780	36	394055	**61.67**
3	013711	24.1	125	23.825	44	394060	**82.40**
4	013712	31.6	160	31.267	57.5	394065	**113.60**
5	013715	44.7	200	44.399	70.5	394070	**207.39**
6	013718	63.8	270	63.348	88	394075	**519.39**

Dead Centres Type 667

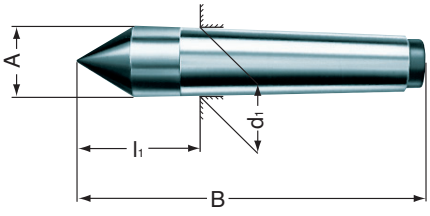
- Full point, carbide tipped
- Completely hardened and ground



Morse Taper	Rohm Id No.	A (mm)	B (mm)	D (mm)	d1 (mm)	L1 (mm)	Code No.	Price $
3	017172	24.1	125	11	23.825	44	394130	**207.39**
4	017173	31.6	160	14	31.267	57.5	394135	**288.14**
5	017174	44.7	200	18	44.399	70.5	394140	**519.39**

Dead Centres Type 677

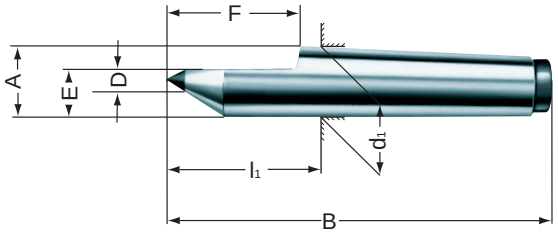
- Full point, carbide tipped
- Completely hardened and ground



Morse Taper	Rohm Id No.	A (mm)	B (mm)	d1 (mm)	l1 (mm)	Code No.	Price $
2	326786	18	100	17.780	36	394150	**310.16**
3	306402	24.1	125	23.825	44	394155	**414.78**
4	221398	31.6	160	31.267	57.5	394160	**581.79**
5	326816	44.7	200	44.399	70.5	394165	**1,040.61**

Dead Centres Type 670

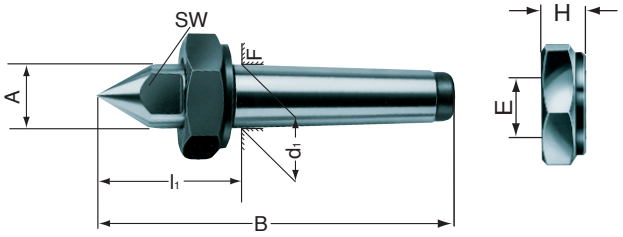
- Half point, carbide tipped
- Completely hardened and ground



M.T.	Rohm Id No.	A (mm)	B (mm)	D (mm)	E (mm)	F (mm)	d1 (mm)	l1 (mm)	Code No.	Price $
2	027439	18	100	7	11	30	17.780	36	394210	**231.25**
3	027440	24.1	125	11	15	38	23.825	44	394215	**310.16**
4	026571	31.6	160	14	21	50	31.267	57.5	394220	**434.96**
5	027441	44.7	200	18	29.4	63	44.399	70.5	394225	**783.67**

Dead Centres Type 671

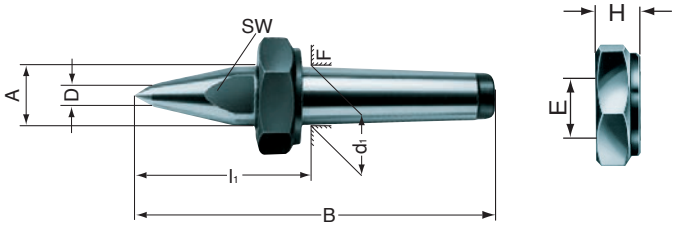
- Full point with draw-off nut
- Completely hardened and ground



M.T.	Rohm Id No.	A (mm)	B (mm)	SW (mm)	E (mm)	F (mm)	d1 (mm)	l1 (mm)	Code No.	Price $
3	005654	24.1	138	19	M27 x 1.5	41	23.825	57	394240	**127.19**
4	005357	31.6	175	27	M36 x 1.5	55	31.267	72.5	394245	**171.05**
5	005381	44.7	217	36	M48 x 1.5	75	44.399	87.5	394250	**323.01**
6	005426	63.8	290	55	M68 x 1.5	100	63.348	108	394255	**862.59**

Dead Centres Type 672

- Extended full point with draw-off nut
- Completely hardened and ground



M.T.	Rohm Id No.	A (mm)	B (mm)	SW (mm)	D (mm)	E (mm)	Nut Dia. (mm)	d1 (mm)	l1 (mm)	Code No.	Price $
3	249576	24.1	148	19	10	M27 x 1.5	41	23.825	67	394265	**135.81**
4	249577	31.6	186.5	27	14	M36 x 1.5	55	31.267	84	394270	**181.51**
5	249578	44.7	242	36	16	M48 x 1.5	75	44.399	112	394275	**341.36**
6	249579	63.8	330	55	20	M68 x 1.5	100	63.348	148	394280	**915.81**

CONSTANT FACE DRIVERS

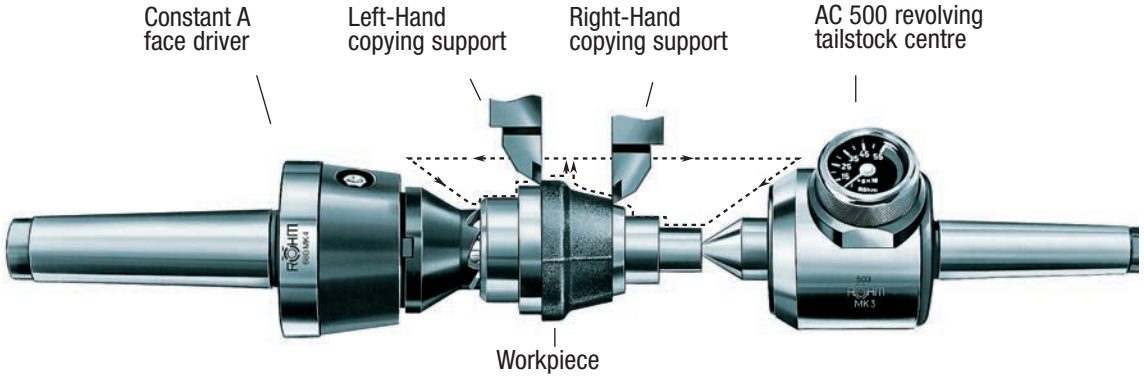




CONSTANT FACE DRIVERS

For rational turning of workpieces on their entire length without reclamping with high precision.

Developed according to the modular-design principle, therefore a universal exchange of driving discs and centres. Hydraulic respectively mechanic pressure compensation provides a uniform clamping force also on uneven faces of workpieces. The spring loaded centre provides a longitudinal workpiece stop on the front side.



CONSTANT FACE DRIVERS CoA

One set consists of a basic body, one driving disc and suitable centre

Basic Body CoA — Type 680-50

- Basic body with morse taper (all basic bodies without centre)



Morse Taper	Rohm Id No.	Code No.	Price $
3	088173	394390	**1,119.07**
4	088174	394395	**1,166.56**
5	088175	394400	**1,296.64**
6	088176	394405	**1,616.66**

Basic Body CoA — Type 681-85

- Basic body with short taper DIN 55026 mechanical compensation, with spring set



Short Taper	Rohm Id No.	Code No.	Price $
6	313906	394425	**3,871.32**
8	313907	394420	**4,573.32**

Basic Body CoA — Type 680-65

- Basic body for clamping in lathe chuck, with spring set



Shank	Rohm Id No.	Code No.	Price $
25mm	088074	394410	**1,759.13**

Basic Body CoA — Type 680-60

- Basic body flange type with cylindrical centre mount diameter 100mm with spring set



Flange Mount	Rohm Id No.	Code No.	Price $
ZD 100	088046	394415	**2,477.65**

Adapter Plates For CoA — Type 688-87

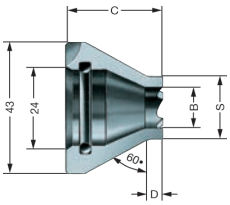
- Adapter plates without spring set (for CoA, type 680-60 and CoK)



Short Taper	Rohm Id No.	DIN 55026 Code No.	Price $	Rohm Id No.	DIN 55027 Code No.	Price $
6	088486	394430	**1,736.42**		-	-
8	088487	394435	**1,924.31**	088482	394450	**2,322.79**
11	088488	394440	**2,322.79**		-	-

Slip On Driving Discs Toothed

- Slip on driving discs and centres suitable for all basic bodies, clamping diameter 8-80mm



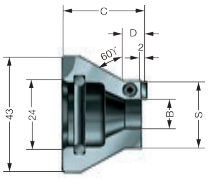


Right hand rotation

Clamping Diameter S (mm)	Approx Turning Range (mm)	B (mm)	C (mm)	D (mm)	Matching Centre	Type 680-10 Right Hand Rotation Rohm Id No.	Code No.	Price $	Type 680-20 Left Hand Rotation Rohm Id No.	Code No.	Price $	Type 680-30 Right and Left Hand Rohm Id No.	Code No.	Price $
8	9-16	4.5	38	4	4	088061	394535	**159.60**	088081	394610	**159.60**	088541	394710	**177.36**
10	11-20	4.5	38	4	4	088062	394540	**159.60**	088082	394615	**159.60**	088542	394715	**177.36**
12	13-24	7	36	4	6	088063	394545	**159.60**	088083	394620	**159.60**	088543	394720	**177.36**
16	17-32	11	33	4	10	088064	394550	**159.60**	088084	394625	**159.60**	088544	394725	**177.36**
20	21-40	13	30	4	12	088065	394555	**159.60**	088085	394630	**159.60**	-	-	-
25	26-50	17	30	8	16	088066	394560	**159.60**	088086	394635	**159.60**	-	-	-
32	33-64	22	30	10	16	088067	394565	**159.60**	088087	394640	**159.60**	-	-	-

Slip On Driving Discs Toothed

- Slip on driving discs and centres suitable for all basic bodies, clamping diameter 8-80mm
- With Interchangeable hard metal driving plates 6mm x 3.2mm

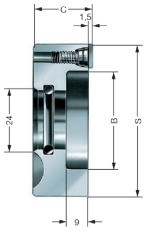




Clamping Diameter S (mm)	Approx Turning Range (mm)	B (mm)	C (mm)	D (mm)	Matching Centre	Type 680-11 Right Hand Rotation Rohm Id No.	Code No.	Price $	Type 680-21 Left Hand Rotation Rohm Id No.	Code No.	Price $	Type 680-31 Right and Left Hand Rohm Id No.	Code No.	Price $
20	21-40	7	30	5	6	089065	394570	**253.96**	089085	-	-	088545	394730	**266.35**
25	26-50	11	30	8	10	089066	394575	**253.96**	089086	394650	**253.96**	088546	394735	**266.35**
32	33-64	17.5	30	10	16	089067	394580	**253.96**	089087	394655	**253.96**	088547	394740	**266.35**

Slip On Driving Discs Toothed

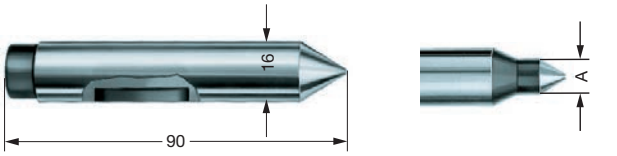
- Slip on driving discs and centres suitable for all basic bodies, clamping diameter 8-80mm
- With interchangeable hard metal driving plates 9.5mm x 3.2mm which can be used on 4 sides





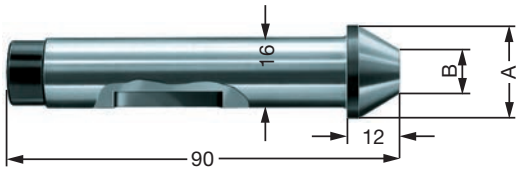
Clamping Diameter S (mm)	Approx Turning Range (mm)	B (mm)	C (mm)	D (mm)	Matching Centre	Type 680-12 Right Hand Rotation Rohm Id No.	Code No.	Price $	Type 680-22 Left Hand Rotation Rohm Id No.	Code No.	Price $	Type 680-32 Right and Left Hand Rohm Id No.	Code No.	Price $
40	41-80	20	24	10	16	088068	394585	**289.06**	088088	394660	**289.06**	088548	394685	**303.51**
50	51-100	28	24	-	16	088069	394590	**289.06**	088089	394665	**289.06**	088549	394695	**303.51**
63	64-126	41	24	-	16	088070	394595	**289.06**	088090	394675	**289.06**	088550	394700	**303.51**
80	81-160	58	24	-	16	088071	394600	**289.06**	088091	394680	**289.06**	088551	394705	**303.51**

Centre Points For CoA Face Driver — Type 680-40



Centre Dia. A (mm)	For Clamping Dia. (mm)	Rohm Id No.	Code No.	Price $
4	8-10	088351	394755	**78.46**
6	12	088352	394760	**78.46**
10	16	088353	394765	**78.46**
12	20	088354	394770	**78.46**
16	25-80	088355	394775	**78.46**

Centre Points With Head For CoA Face Driver —Type 680-45



B (mm)	A (mm)	Rohm Id No.	Code No.	Price $
10	21	086619	394790	**156.09**
16	27	086620	394795	**179.63**
23	34	688878	394815	**203.17**
29	40	086621	394800	**227.12**
45	56	086622	394810	**274.61**

Hard Metal Driving Plates For CoA

Carbide driving plates, right-hand or left-hand rotation



Size (mm)	Rohm Id No.	Code No.	Price $
6 x 3.2	088810	394825	**15.26**
9.5 x 3.2	088209	394830	**22.51**

Face Driving Kits CoA Type 680

- In wooden box, clamping range: 10-80mm
  turning range: 11-160mm

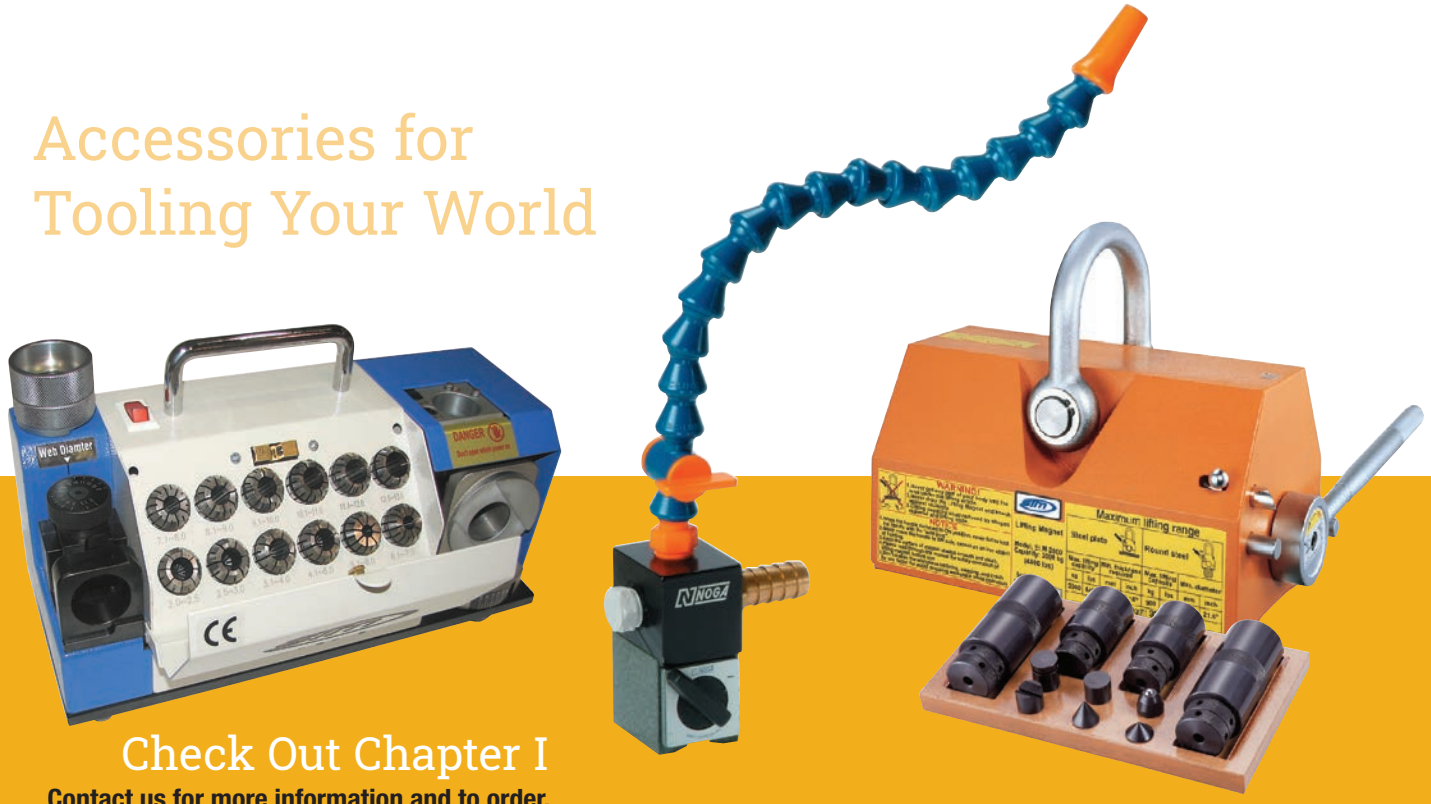
Contents

- 1 basic body
- 10 driving discs, clamping diameter: 10-12-16-20-25-32-40-50-63-80 mm
- 5 centres diameter: 4-6-10-12-16 mm
- 1 extractor
- Slide rule to calculate axial tailstock loading
- O-ring, 3 hard metal driving plates
- 3 locking bolts



Morse Taper	Rohm Id No.	Right Hand Code No.	Price $	Rohm Id No.	Left Hand Code No.	Price $
3	088218	394485	**4,046.82**	088223	394515	**4,046.82**
4	088219	394495	**4,098.44**	088224	394520	**4,098.44**
5	088220	394500	**4,212.00**	088225	394525	**4,212.00**
6	088221	394510	**4,532.03**	088226	394530	**4,532.03**

Accessories for Tooling Your World



Check Out Chapter I

Contact us for more information and to order.

40 Position Quick Change Tool Posts & Holders

Outstanding Features:
Toolpost and toolholder profile-ground. Easy to operate. Any number of different toolholders can be used. 40 tool-bit positions. Adjustment for height of the tool bit is controlled by a knurled head screw without using packing plates or shims. Loosening and locking of any toolholder is performed by simple eccentric clamping. Save time by changing the toolholder from the top without moving longitudinal ortraverse slides. Bore with longitudinal feed by using toolholder with inner taper. Eliminates complicated boring with the tailstock.

- Repeatability Accuracy: ≤0.01mm

Mounting on Lathe:
Profile-ground serrated toolpost to be mounted with support clamping bolt. The centering disk should be bored to the dimension of the clamping bolt (snug fit not necessary).

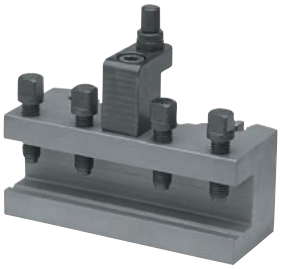
It is recommended that the toolpost with clamped toolholder and boring bar be aligned at a right angle to the face plate. The toolpost is locked on the support by means of two set pins. The marking point should then be set on "0" and the nut of the clamping bolt tightened.



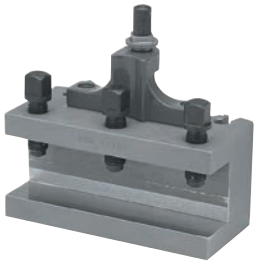
Toolpost



Toolholder 'S'



Toolholder 'B'



Toolholder 'D'

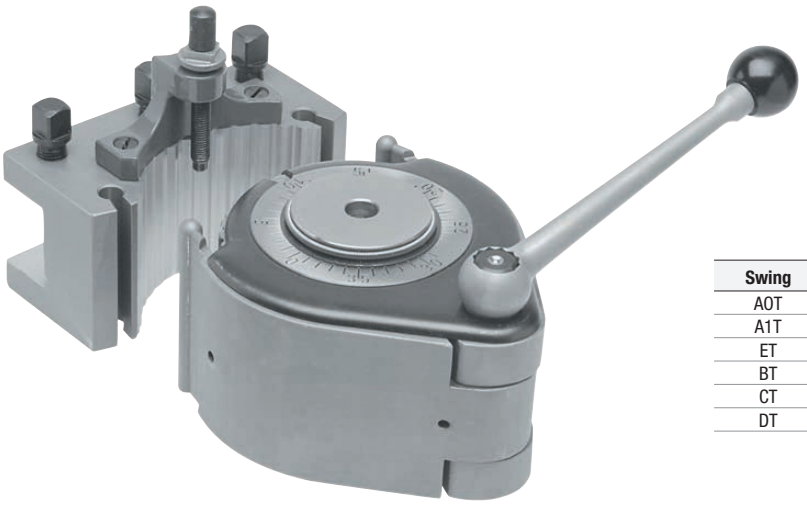
Technical Data
Min. dimension "S" required for height of tool "h":

	Size A0 "S" (in)	Size A1 "S" (in)	Size E5 "S" (in)		Size B2 "S" (in)		Size C 3 "S" (in)			Size D 4 "x"		
"h" (in)	D 12	D 20	D 20	D 25	D 25	D 32	D32	D 40	D 45	D 40	D 50	D 63
16/64	15/32											
5/16	9/16	43/64										
25/64	5/8	3/4	51/64	7/8	57/64							
15/32	23/32	53/64	7/8	59/64	31/32	1-1/32						
9/16		29/32	61/64	1	1-3/64	1-7/64	1-9/64					
5/8		63/64	1-1/32	1-5/64	1-1/8	1-3/16	1-7/32	1-17/64				
25/32		1-9/64	1-13/64	1-15/64	1-9/32	1-11/32	1-3/8	1-27/64	1-29/64			
63/64				1-7/64	1-31/64	1-35/64	1-17/32	1-3/64	1-41/64	1-49/64		
1-3/16					1-47/64	1-49/64	1-13/16	1-27/32	1-31/32	2-1/64		
1-17/64					1-13/16	1-7/8	1-57/64	1-59/64	2-3/64	2-3/32	2-1/8	
1-37/64								2-13/64	2-1/4	2-23/64	2-13/32	2-7/16
1-31/32											2-51/64	2-53/64
2-31/64												3-11/32

SIZE			A 0	A 1	E 5		B 2			C 3			D 4	
Size of Exchangeable Toolholder			D 12	D 20	D 20	D 25	D 25	D 32	D 32	D 40	D 45	D 40	D 50	D 63
Weight		lbs.	0.77	2.86	6.18	6.18	9.04	9.04	22.93	22.93	22.93	37.48	37.48	37.48
Max. driving power		HP	1.5	3	6	6	9	9	18	18	18	30	30	30
Max. width of slide		in.	3-5/32	4	5	5	6	6	7-1/8	7-1/8	7-1/8	7-7/8	7-7/8	7-7/8
Total height	"g"	in.	1-17/64	2-3/32	2-11/16	2-11/16	2-61/64	2-61/64	4-1/8	4-1/8	4-1/8	4-51/64	4-51/64	4-51/64
Total width	"b"	in.	2-3/4	4	5	5	5-29/32	5-29/32	7-9/16	7-61/64	7-61/64	9-3/64	9-15/64	9-17/32
Max. throat	"m"	in.	1-3/16	1-57/64	2-3/8	2-3/8	2-51/64	2-51/64	3-10/16	4	4	4-13/32	4-39/64	4-7/8
Standard bore	"t"	in.	31/64	25/32	25/32	25/32	1-1/4	1-1/4	1-37/64	1-37/64	1-37/64	1-37/64	1-37/64	1-37/64
Max. bore	"tmax."	in.	–	1-7/32	1-7/32	1-7/32	2	2	2-3/4	2-3/4	2-3/4	3-5/32	3-5/32	3-5/32
Max. depth of bore	"a"	in.	–	1-3/8	1-3/8	1-3/8	1-49/64	1-49/64	2-61/64	2-61/64	2-61/64	2-61/64	2-61/64	2-61/64
Max. height of tool	"h"	in.	15/32	25/32	25/32	63/64	63/64	1-17/64	1-17/64	1-37/64	1-49/64	1-37/64	1-31/32	2-31/64
Tool rest	"st"	in.	15/64	23/64	25/64	7/16	1/2	35/64	19/32	5/8	43/64	25/32	53/64	55/64
Vertical adjustability	"hv"	in.	5/16	7/16	43/64	19/32	25/32	7/16	1-37/64	1-3/8	1-3/16	1-3/8	1-3/16	25/32
Min. height of cutting edge	"s"		"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"	"h"+"st"
Max. height of cutting edge			"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"	"s"+"hv"

40 Position Quick Change Tool Posts & Holders

Sets Include:
- 1 piece toolpost
- 3 piece "D" holder
- 1 piece "B" holder

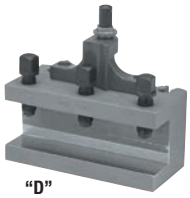


Swing	
A0T	Up to 9"
A1T	6" - 13"
ET	10" - 18"
BT	13" - 20"
CT	18" - 30"
DT	22" - 35"

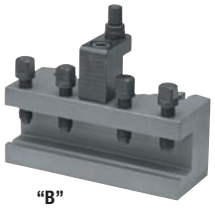
Tool Post Sets

Sets (5 piece)	Code No.	Price $
A1T	388405	**1,239.54**
E5T	388410	**1,825.45**
B2T	388415	**1,890.15**
C3T	388420	**3,352.38**
D4T	388425	**5,870.68**





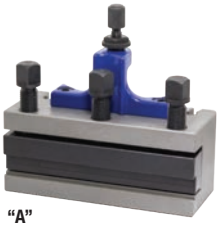
"D"



"B"



"S"



"A"

Quick Change Tool Posts & Holders

Toolpost			Toolholder "D" Flat				Toolholder "B" V-Groove				Toolholder "S" Boring Bar Holder				Toolholder "A" Part Off	
Toolholder Size	Code No.	Price $	*NH mm	L mm	Code No.	Price $	*NH mm	L mm	Code No.	Price $	*D mm	L mm	Code No.	Price $	Code No.	Price $
A0T	388005	**475.66**	12	50	388010	**143.94**	12	50	388015	**153.37**	15	50	388020	**218.26**		
A1T	388035 ‡	**597.21**	20	80	388040 ‡	**158.16**	18	80	388045 ‡	**167.85**	30	80	388050	**253.74**	388055	**359.54**
E5T	388100 ‡	**759.91**	20	100	388105	**212.54**	30	100	388115 ‡	**246.75**	30	100	388120	**312.69**	388130	**408.98**
			25	100	388110 ‡	**272.93**					40	100	388125	**328.27**		
			25	120	388185 ‡	**246.75**										
			25	140	388190	**293.73**										
B2T	388180 ‡	**868.23**	32	120	388195	**251.87**	32	130	388205 ‡	**281.67**	40	120	388210	**387.30**	388215	**459.74**
			32	140	388200	**322.66**										
			32	150	388270	**385.01**										
			32	170	388275	**437.99**										
C3T	388265 ‡	**1,628.05**	40	150	388280 ‡	**419.49**	32	160	388295	**449.32**	40	150	388305	**641.03**	388315	**543.26**
			40	170	388285	**476.35**	40	170	388300 ‡	**465.86**	50	150	388310	**673.13**		
			45	170	388290	**499.84**										
D4T	388375 ‡	**2,701.40**	40	180	388380 ‡	**712.49**	50	180	388395 ‡	**1,031.81**	63	180	388400	**1,091.72**		
			50	180	388385	**760.16**										
			63	180	388390	**828.93**										

* Notch Height | * Notch Height | * Diameter | ‡ Denotes items found in the sets listed above

Quick Change Tool Posts Parts







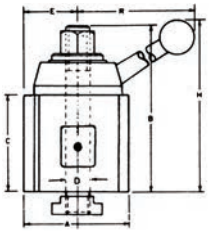




Toolholder Size	Square Head Screw		Cheese Head Screw		Adjusting Top		Height Adj. Nut		Height Adj. Screw	
A0T	388501	**5.23**	388502	**2.19**	388503	**9.76**	388504	**9.53**	388505	**5.30**
A1T	388506	**5.23**	388507	**2.19**	388508	**10.01**	388509	**9.53**	388510	**5.30**
B2T	388516	**9.55**	388517	**2.88**	388518	**15.92**	388519	**11.30**	388520	**7.43**
C3T	388521	**10.84**	388522	**5.78**	388523	**17.55**	388524	**12.67**	388525	**7.84**
D4T	388526	**15.15**	388527	**7.92**	388528	**24.58**	388529	**17.78**	388530	**11.76**
E5T	388511	**5.23**	388512	**2.88**	388513	**15.18**	388514	**9.53**	388515	**6.56**

Piston Type Tool Post

- All working parts hardened and ground
- Maximum rigidity for chatter-free performance
- No time wasted with shims
- Speed up your lathe operations 90%
- Completely sealed for maintenance-free operation



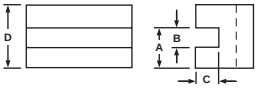


470 Series

A	B	C	D	E	H	R	Swing	Code No.	Price $
2 1/2	3 7/8	2 1/4	9/16	1 3/8	4 11/16	5 3/4	Up To 12"	470100	**222.63**
3	4 5/8	2 3/4	5/8	1 5/8	5 9/16	7 5/16	10-15"	470200	**268.43**
3 1/2	5 1/8	3	3/4	1 7/8	6 1/8	7 7/8	13-18"	470300	**386.07**
4	6 1/4	3 5/8	7/8	2 1/8	7	9	14-20"	470400	**735.50**

Turning & Facing Holder (#1)

Takes various sizes of bits. Turning and facing tools can be locked in together. Saves time and labor when changing operations.

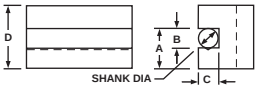




A	B	C	D	Tool Bit	Code No.	Price $
15/16	1/2	7/16	1 1/2	3/16 - 1/2	470101	**54.65**
1 1/8	5/8	1/2	1 3/4	1/4 - 5/8	470201	**59.30**
1 7/16	3/4	5/8	2 1/8	1/2 - 3/4	470301	**97.09**
1 11/16	1"	3/4	2 1/2	1/2 - 1"	470401	**121.82**

Boring, Turning & Facing Holder (#2)

"V" groove holds round shank boring bars and tools as well as square tool bits.

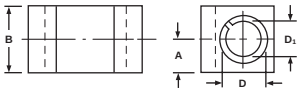




A	B	C	D	Tool Bit	Shank	Code No.	Price $
15/16	1/2	7/16	1 1/2	3/16 - 1/2	7/16	470102	**57.24**
1 1/8	5/8	1/2	1 3/4	1/4 - 5/8	1/2	470202	**64.97**
1 7/16	3/4	5/8	2 1/8	1/2 - 3/4	3/4	470302	**101.05**
1 11/16	1"	3/4	2 1/2	1/2 - 1"	13/16	470402	**127.52**

Heavy Duty Boring Bar Holder (#4)

Equipped with a split bushing to accommodate a boring bar of smaller diameter. It grips bar with extreme rigidity, cuts smoothly without chatter.



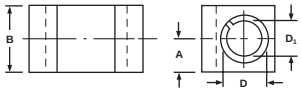


A	B	D	D1	Code No.	Price $
3/4	1 1/2	3/4	5/8	470104	**79.66**
1"	2	1"	3/4	470204	**95.47**
1"	2	1"	3/4	470304	**141.71**
1 3/8	2 3/4	1 1/4	1"	470404	**167.36**

Tool holders do not include tool bits, boring bars, drills or carbide inserts.

Heavy Duty Boring Bar Holder (#41)

Equipped with a split bushing to accommodate a boring bar of smaller diameter. It grips bar with extreme rigidity, cuts smoothly without chatter.

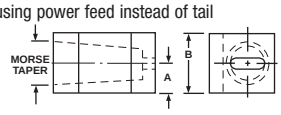




A	B	D	D1	Code No.	Price $
7/8	1 3/4	1"	3/4	470141	**80.94**
1"	2	1 1/4	1"	470241	**113.61**
1 1/8	2 1/4	1 1/4	1"	470341	**132.66**
1 3/8	2 3/4	1 1/2	1 1/4	470441	**166.23**

Morse Taper Holder For Drilling (#5)

Drills with carriage by using power feed instead of tail stock. Easily centered. For No. 2, 3 and 4 Morse Taper Drills.





A	B	Taper Hole Size	Code No.	Price $
3/4	1 1/2	#2 M.T.	470105	**96.78**
7/8	1 3/4	#2 M.T.	470205	**102.49**
1"	1 1/2	#3 M.T.	470305	**114.27**
1 1/4	2 1/2	#3 M.T.	470405	**141.08**

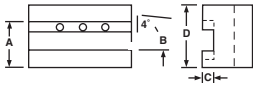
Morse Taper Holder For Drilling (#53)

- Refer to diagram above (#5)

A	B	Taper Hole Size	Code No.	Price $
3/4	1 1/2	#3 M.T.	470153	**120.74**
7/8	1 3/4	#3 M.T.	470253	**126.23**
1 1/16	2 1/8	#4 M.T.	470354	**134.83**
1 1/4	2 1/2	#4 M.T.	470454	**159.45**

Universal Parting Blade Holder (#7)

For bevel as well as T-cut blades. Enables you to cut-off close to chuck. Absence of vibration prevents breaking blades.

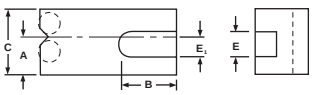




A	B	C	D	Blade Height	Code No.	Price $
13/16	1/2	3/16	1 1/2	1/2	470107	**84.36**
1"	11/16	3/16	1 3/4	11/16	470207	**90.87**
1 7/16	3/4	3/16	2	3/4	470307	**136.48**
1 7/16	7/8	1/4	2 1/2	7/8	470407	**157.93**

Knurling, Turning & Facing Holder (#10)

"V" groove holds round shank boring bars and tools as well as square tool bits. For turning and facing as well as knurling. Supplied with a set of high speed precision ground and lapped medium diamond knurls. Easily replaceable.





A	B	C	E	E1	Tool Bit	Code No.	Price $
7/8	2 1/2	1 9/16	1/2	3/8	3/16 - 1/2	470110	**90.04**
1"	2 5/8	1 3/4	5/8	1/2	1/4 - 5/8	470210	**110.33**
1 3/16	3 1/8	2	3/4	5/8	1/2 - 3/4	470310	**168.10**
1 7/16	3 3/4	2 1/2	1"	3/4	1/2 - 1	470410	**178.65**

Turret Type Quick Change Tool Post

Production of a lathe machine, even of high capacity, is conditioned to the speed and time required for changing tools. Fast tool changing and simplicity increase machine production. Our turrets are designed and constructed to achieve these essential requirements.

Our Turrets offer these advantages:

1 - No chatter or vibrations

2 - Save long set-up work for centering tool to centre of rotation axle

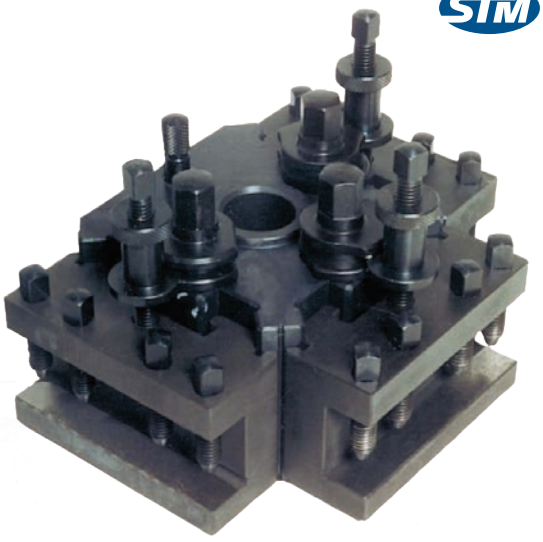
3 - No tool breakages, caused by poor or irregular setting of the tool on the shims

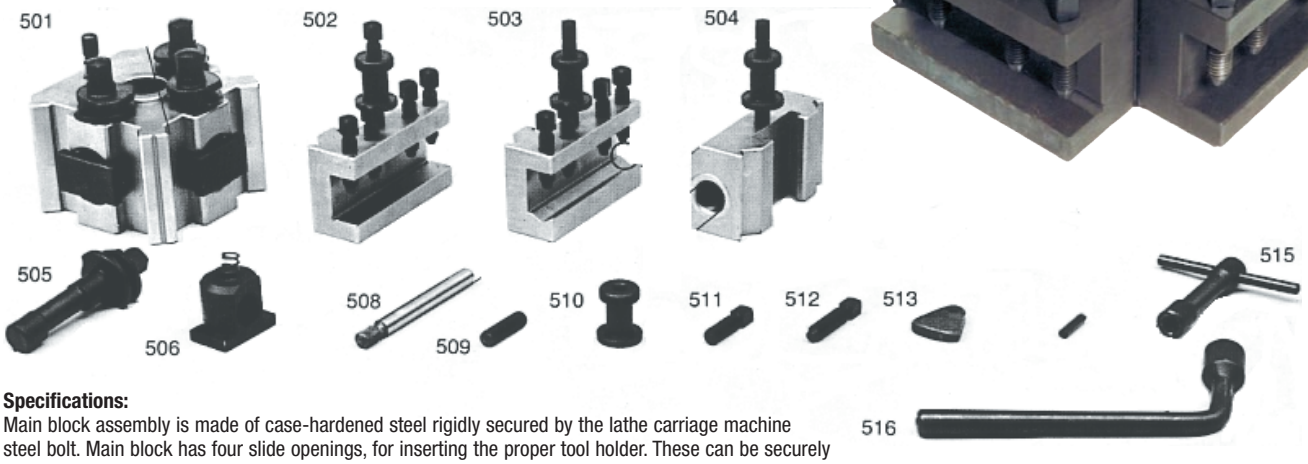
Price of Set Includes:

3 Tool-holders of flat section

1 Tool-holder with V-seat for round tools

2 Standard spanners





Specifications:

Main block assembly is made of case-hardened steel rigidly secured by the lathe carriage machine steel bolt. Main block has four slide openings, for inserting the proper tool holder. These can be securely fastened by a simple and safe eccentric device, which also adjusts individual tool holder height. Tool shank is held securely by four hardened screws.

Quick Change Tool Posts & Holders

Size	Dimensions For Lathes with Swing (in.)	Max Height of Turret Body (in.)	Max. Square and Rect. Tools (in.)	Diameter Round Tool (in.)	Taper Shank	Max Adjust. Tool Holder (in.)	Sets Code No.	Price $
M	7 - 10	2-3/4 x 2-3/4 x 1-3/4	5/8	1/2	1	1/2	385105	**1,070.50**
A	10 - 14	3-7/8 x 3-7/8 x 2-3/8	3/4	5/8	2	9/16	385110	**1,149.95**
B	14 - 18	4-5 x 5 x 3-3/8	1-1/8	13/16	3	15/16	385115	**1,478.42**
C	18 - 24	5-5/8 x 5-5/8 x 3-3/4	1-1/4	15/16	4	1	385120	**1,889.39**
D	over	6-7/8 x 6-7/8 x 4-3/4	1-1/2	1-1/4	4	1-1/2	385125	**4,773.68**

Fig.	Size Description	M Code No.	M Price $	A Code No.	A Price $	B Code No.	B Price $	C Code No.	C Price $	D Code No.	D Price $
STANDARD HOLDERS											
502	Flat tool holder	385205	**105.44**	385210	**117.28**	385215	**153.76**	385220	**198.61**	385225	**716.41**
503	V tool holder			385310	**125.46**	385315	**174.51**	385320	**208.98**		

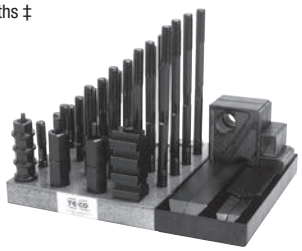
Fig.	Size Description	M Code No.	M Price $	A Code No.	A Price $	B Code No.	B Price $	C Code No.	C Price $	D Code No.	D Price $
501	Master blocks					386103	**1,006.84**	386104	**1,275.16**	386105	**2,585.77**
505	Eccentric clamp pivot	386111	**64.22**	386112	**77.75**	386113	**105.51**	386114	**111.73**		
506	Clamping block			386122	**62.34**	386123	**79.46**	386124	**91.76**		
508	Dowel pin							386144	**57.87**	386145	**100.81**
509	Tool holder height adjusting screw			386152	**2.97**	386153	**6.58**	386154	**6.58**	386155	**11.34**
510	Bobbin for height adjusting screw	386161	**18.85**	386162	**21.42**	386163	**25.79**	386164	**31.44**	386165	**54.56**
511	Set screw for tool holder height adjust.			386172	**3.56**	386173	**5.57**	386174	**5.57**	386175	**7.41**
512	Set screw/tool holder	386181	**4.18**	386182	**3.46**	386183	**6.12**	386184	**6.12**	386185	**9.14**
513	Drift for drill holder			386192	**31.44**	386193	**38.71**	386194	**38.71**	386195	**68.13**
515	T-key for set screws			386212	**45.47**	386213	**53.57**	386214	**66.77**	386215	**116.46**
516	Hex. wrench for tool			386222	**42.87**	386223	**45.47**	386224	**74.86**	386225	**130.36**

Te-Co & STM Super Clamp Kits

Super Clamp Kits with Steel Blocks

Each set contains:

- 24 studs with flats, 4 each 3, 4, 5, 6, 7, 8" lengths ‡
- 4 coupling nuts
- 4 flange nuts
- 4 T-slot nuts
- 6 serrated end clamps
- 6 step blocks
- 1 T-slot cleaner
- 1 holder
- Sets shipped in all wood holders



Inch Kits

Model No.	Table T-Slot Size	Stud Size	Te-Co Code No.	Price $	STM Code No.	Price $
With 1" Thick Steel Step Blocks						
S-375-SS	3/8	5/16-18	607000	**439.75**	-	-
S-437-SS	7/16	3/8-16	607002	**426.53**	333546	**307.99**
S-500-SS	1/2	3/8-16	607004	**426.53**	333548	**286.11**
S-560-SS	9/16	3/8-16	607006	**442.40**	333549	**307.99**
S-562-SS	9/16	1/2-13	607008	**474.47**	333551	**286.11**
S-625-SS	5/8	1/2-13	607010	**474.47**	333552	**172.03**
S-686-SS	11/16	1/2-13	607012	**479.43**	333553	**169.44**
S-687-SS	11/16	5/8-11	607014	**543.07**	333555	**349.62**
S-750-SS	3/4	5/8-11	607016	**550.51**	333554	**210.25**
S-8125-SS	13/16	5/8-11	607018	**572.01**	333557	**376.37**
With 1-1/2" Thick Steel Step Blocks						
H-562-SS	9/16	1/2-13	607020	**664.43**	-	-
H-625-SS	5/8	1/2-13	607022	**664.43**	-	-
H-686-SS	11/16	1/2-13	607024	**664.43**	-	-
H-687-SS	11/16	5/8-11	607026	**738.16**	-	-
H-750-SS	3/4	5/8-11	607028	**740.63**	-	-
H-8125-SS	13/16	5/8-11	607030	**782.94**	-	-
H-812-SS	13/16	3/4-10	607032	**940.91**	-	-
H-875-SS	7/8	3/4-10	607034	**948.93**	-	-
H134-SS	1	3/4-10	607036	**970.03**	-	-
20222	1-1/16	3/4-10	607037	**992.36**	-	-
With 2" Thick Steel Step Blocks						
H-100-SS	1	7/8-9	607038	**1,553.88**	-	-
H-1062-SS	1-1/16	1-8	607040	**1,624.26**	-	-

Metric Kits ‡ Metric studs do not have flats

Model No.	Table T-Slot Size	Stud Size	Te-Co Code No.	Price $
With 25 mm Thick Steel Step Blocks				
68101	10	M8 x 1.25	608700	**396.35**
68102	12	M10 x 1.5	608702	**440.16**
68103	14	M10 x 1.5	608704	**445.28**
68104	14	M12 x 1.75	608706	**492.48**
68105	16	M12 x 1.75	608708	**494.72**
68106	17	M12 x 1.75	608710	**499.93**
68107	18	M16 x 2.0	608712	**599.29**
68108	20	M16 x 2.0	608714	**601.76**
With 38 mm Thick Steel Step Blocks				
68110	14	M12 x 1.75	608716	**683.78**
68111	16	M12 x 1.75	608718	**686.49**
68112	17	M12 x 1.75	608720	**688.73**
68113	18	M16 x 2.0	608722	**775.85**
68114	20	M16 x 2.0	608724	**780.89**
68115	22	M20 x 2.5	608726	**997.13**

T-Slot Cleaner

- 1" wide cleaner allows for easy removal of chips
- Made of steel for durability



Model No.	Code No.	Price $
50101	607163	**2.06**

Te-Co & STM Machinist Clamping Kits — Inch

Each set contains:

- 24 Studs 4 each 3, 4, 5, 6, 7, 8" lengths
- 6 T-slot nuts
- 6 Flange nuts
- 4 Coupling nuts
- 6 Step blocks
- 6 Serrated end clamps
- 1 T-slot cleaner
- 1 Metal holder

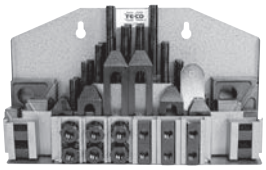


Table T-Slot Size	Stud Size	Te-Co Code No.	Price $	STM Code No.	Price $
With 1" Thick Steel Step Blocks					
7/16	3/8-16	607042	**459.60**	333530	**277.04**
1/2	3/8-16	607044	**449.67**	333532	**277.04**
9/16	3/8-16	607046	**459.60**	333534	**298.35**
9/16	1/2-13	607048	**472.83**	333536	**277.04**
5/8 *	1/2-13	607050	**310.50**	333550	**153.98**
5/8 **	1/2-13	607053	**467.61**	-	-
11/16	1/2-13	607052	**454.64**	333538	**277.04**
11/16	5/8-11	607054	**407.10**	333540	**340.77**
3/4	5/8-11	607056	**588.54**	333542	**340.77**
13/16	5/8-11	607058	**613.34**	333544	**340.77**

* Comes with 5/8" height t-nuts
** Comes with 3/4" height t-nuts

Te-Co Machinist Clamping Kits — Metric

Each set contains

- 24 Studs 4 each 80, 110, 125, 150, 175, and 200mm lengths
- 6 T-slot nuts
- 6 Flange nuts
- 4 Coupling nuts
- 6 Step blocks
- 6 Serrated end clamps
- 1 T-slot cleaner
- 1 Metal holder

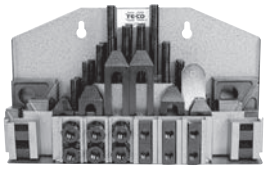
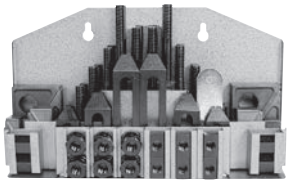


Table T-Slot Size (mm)	Stud Size	Weight (lb)	Code No.	Price $
With 25mm Thick Steel Step Blocks				
12	M10 x 1.5	18.5	608650	**479.92**
14	M10 x 1.5	18.5	608652	**487.44**
14	M12 x 1.75	24	608654	**539.68**
16	M12 x 1.75	24	608656	**542.42**
17	M12 x 1.75	24	608658	**549.60**
18	M16 x 2.0	29	608660	**667.08**
20	M16 x 2.0	29	608662	**696.24**

Te-Co Economy Machinist Clamping Kit

Means Great Savings!

TE-CO Tooling Components and Sowa Tool are offering an economy line of Machinist Clamp Kits at substantial savings. Of course, the same quality and high standards of the TE-CO Premium Kits are also found in these kits. The only difference between the two is that the economy line has no TE-CO logo, no flats on studs, no t-slot cleaner and stud threads are rolled, not cut. What you will find though, is a nice price tag.



Each set includes:

- 6 T-slot nuts
- 6 flange nuts
- 4 coupling nuts
- 1/2-13 thread on nuts and studs
- Meant to fit 5/8" table slot
- 6 step blocks
- 6 serrated end clamps
- 24 studs, 4 each of 3", 4", 5", 6", 7", 8"
- 1 Plastic holder

Description	Code No.	Price $
Economy Machinist Clamp Kit	608000	**234.60**

Te-Co Milling Machine Clamping Kits

- Bridgeport type milling machines use part no. 20506
- Versatility expanded when used with step block kits
- For material information see individual components

Each Set Contains:

- 4 soft clamps – 6" long
- 1 T-nut and stud kit with includes: 4 coupling nuts, 4 flange nuts, 4 T-slot nuts, 1 T-slot cleaner
- 24 studs with flats of 4 each of: 3", 4", 5", 6", 7" and 8" long
- 1 holder (wooden base and metal tray)

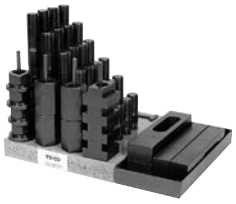


Table T-Slot Size	Stud Size	Te-Co Part No.	Code No.	Price $
3/8	5/16-18	20501	608730	**312.87**
7/16	3/8-16	20502	608731	**284.29**
1/2	3/8-16	20503	608732	**287.65**
9/16	3/8-16	20504	608733	**292.68**
9/16	1/2-13	20505	608734	**319.59**
5/8	1/2-13	20506	608735	**328.01**
11/16	1/2-13	20507	608736	**331.38**
11/16	5/8-11	20508	608737	**391.95**
3/4	5/8-11	20509	608738	**395.30**
13/16	5/8-11	20510	608739	**408.76**
13/16	3/4-10	20511	608740	**489.50**
7/8	3/4-10	20512	608741	**497.90**
1	3/4-10	20513	608742	**502.95**

Te-Co T-Nut And Stud Sets

Each set includes:

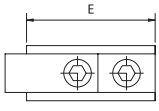
- 24 studs 4 each 3, 4, 5, 6, 7, 8" lengths
- 4 flange nuts
- 4 T-slot nuts
- 4 coupling nuts
- 1 T-slot cleaner
- 1 holder

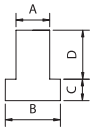


Model No.	Table T-Slot Size	Stud Size	Code No.	Price $
375-TS	3/8	5/16-18	607066	**142.36**
437-TS	7/16	3/8-16	607068	**145.12**
500-TS	1/2	3/8-16	607070	**150.68**
560-TS	9/16	3/8-16	607072	**153.83**
562-TS	9/16	1/2-13	607074	**164.58**
625-TS	5/8	1/2-13	607076	**170.03**
686-TS	11/16	1/2-13	607078	**173.02**
687-TS	11/16	5/8-11	607080	**199.23**
750-TS	3/4	5/8-11	607082	**221.97**
8125-TS	13/16	5/8-11	607084	**240.95**
812-TS	13/16	3/4-10	607086	**320.28**
875-TS	7/8	3/4-10	607088	**325.96**
134-TS	1	3/4-10	607090	**334.04**
1000-TS	1	7/8-9	607092	**536.88**
1062-TS	1-1/16	7/8-9	607094	**541.64**
1125-TS	1-1/8	7/8-9	607096	**563.51**
10621-TS	1-1/16	1-8	607098	**595.47**

T-Slot Clamp Sets

- 1 set consists of 4 vises
- For thin or small workpieces
- Good clamping force
- Quick setting
- Suitable for light duty cutting on milling, drilling, or EDM machines









Model	A	B	C	D	E	Code No.	Price $
CK-3712	11.5	18	7	16	42	333920	**244.35**
CK-3714	13.5	22	8	18	42	333922	**262.34**
CK-3716	15.5	25	10	20	45	333924	**290.04**
CK-3718	17.5	28	11	24	45	333926	**299.73**
CK-3720	19.5	32	12	26	53	333928	**415.05**

Parallel Clamps

- Designed for maximum strength and rigidity
- Ideal for various toolmaking and machine set-ups
- Made of alloy steel, black oxide finish
- Hardened and tempered jaws
- Screw heads drilled allowing use of pin for tightening
- All sizes equipped with spring clip and retaining groove



BLACK OXIDE

Capacity	Jaw Length	Model	Code No.	Price $
3-1/2"	5"	PC/5	231294	**51.21**
6"	8"	PC/8	231298	**129.11**

Pivot Clamp (Pair)

- Adjustable clamping height
- Brass plate under the clamp arm to protect the workpiece
- Spherical flange nut assures material will be tightly clamped
- Clamping arm is forged



Table T-Slot Size (in.)	Stud Size (in.)	Code No.	Price $
Inch			
5/8	1/2 - 13 x 5	326750	**137.89**
3/4	5/8 - 11 x 6	326755	**172.14**
Metric			
16mm	M12 x 5	326745	**241.50**
20mm	M16 x 6	326746	**263.65**
22mm	M20 x 7	326747	**349.56**
28mm	M24 x 8	326748	**541.10**

U-Clamps (Pair)

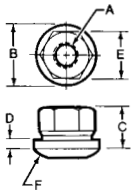
- Material: S45C
- Adjustable clamping height



Model	Dimensions (LxWxH)	Stud Size	Weight 2pcs (kg)	Code No.	Price $
VCA-404	105x45x35mm	M12x5"	1.5	326740	**204.82**
VCA-405	126x54x40mm	M16x6"	2.6	326741	**243.93**
VCA-406	155x58x55mm	M20x7"	4.2	326742	**313.33**
VCA-408	190x70x65mm	M24x8"	8.2	326743	**503.52**

Spherical Flange (Collar) Nuts

- Case hardened
- Black oxide finish



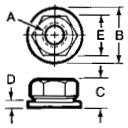


BLACK OXIDE

Model No.	Thread A	B	C	D	E	F	Code No.	Price $
SFN-14	1/4-20	5/8	5/16	3/32	1/2	3/4	607186	**4.71**
SFN-56	5/16-18	3/4	3/8	1/8	9/16	1-1/4	607188	**4.91**
SFN-38	3/8-16	7/8	1/2	1/8	11/16	1-1/4	607190	**5.04**
SFN-76	7/16-14	1	9/16	5/32	3/4	1-1/2	607192	**5.48**
SFN-12	1/2-13	1-1/8	11/16	3/16	7/8	1-1/2	607194	**5.73**
SFN-58	5/8-11	1-3/8	13/16	3/16	1-1/16	1-3/4	607196	**7.01**
SFN-34	3/4-10	1-5/8	1	1/4	1-1/4	2-1/4	607198	**9.94**
SFN-78	7/8-9	1-3/4	1-1/8	1/4	1-7/16	2-1/2	607200	**13.30**
SFN-10	1-8	2	1-1/4	1/4	1-5/8	2-3/4	607202	**15.51**
SFN-114	1-1/4-7	2-1/2	1-1/4	1/4	1-13/16	3	607206	**34.87**

Flange (Collar) Nuts

UNC
- Case hardened
- Black oxide finish



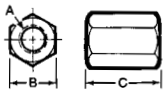


BLACK OXIDE

Model No.	Thread A	B	C	D	E	Te-Co Code No.	Price $	STM Code No.	Price $
Inch									
FN-14	1/4-20	5/8	5/16	3/32	1/2	607164	**3.37**	-	-
FN-56	5/16-18	3/4	3/8	1/8	9/16	607166	**3.77**	-	-
FN-38	3/8-16	7/8	1/2	1/8	11/16	607168	**4.03**	333652	**3.74**
FN-76	7/16-14	1	9/16	5/32	3/4	607170	**4.57**	-	-
FN-12	1/2-13	1-1/8	11/16	3/16	7/8	607172	**4.57**	333654	**4.99**
FN-58	5/8-11	1-3/8	13/16	3/16	1-1/16	607174	**5.73**	333656	**5.67**
FN-34	3/4-10	1-5/8	1	1/4	1-1/4	607176	**8.65**	333658	**8.39**
FN-78	7/8-9	1-3/4	1-1/8	1/4	1-7/16	607178	**11.77**	333660	**12.70**
FN-10	1-8	2	1-1/4	1/4	1-5/8	607180	**14.16**	333662	**14.85**
FN-114	1-1/4-7	2-1/2	1-1/4	1/4	1-13/16	607184	**28.95**	-	-
Metric									
61601	M6 x 1.0	16	8	2	10	608765	**4.79**	-	-
61602	M8 x 1.25	19	10	2.5	13	608766	**4.91**	-	-
61603	M10 x 1.5	22	13	3	17	608767	**6.10**	-	-
61604	M12 x 1.75	27	17	4	19	608768	**6.68**	-	-
61605	M16 x 2.0	33	21	5	24	608769	**7.60**	-	-
61606	M20 x 2.5	40	25	6	30	608770	**10.64**	-	-
61607	M24 x 3.0	49	32	7	36	608771	**17.65**	-	-

Coupling (Extension) Nuts

- Case hardened
- Black oxide finish



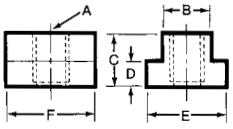


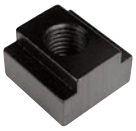
BLACK OXIDE

Model No.	Thread A (in/mm)	B (in/mm)	C (in/mm)	Te-Co Code No.	Price $	STM Code No.	Price $
Inch							
CN-14	1/4-20	1/2	5/8	607208	**4.28**	-	-
CN-56	5/16-18	9/16	7/8	607210	**4.65**	-	-
CN-38	3/8-16	11/16	1	607212	**5.13**	333672	**3.98**
CN-76	7/16-14	3/4	1-1/4	607214	**5.84**	-	-
CN-12	1/2-13	7/8	1-1/4	607216	**6.21**	333674	**3.98**
CN-58	5/8-11	1-1/16	1-5/8	607218	**9.04**	333676	**5.67**
CN-34	3/4-10	1-1/4	1-7/8	607220	**12.52**	333678	**8.39**
CN-78	7/8-9	1-7/16	2-1/4	607222	**18.85**	333680	**12.70**
CN-10	1-8	1-5/8	2-1/2	607224	**19.53**	333682	**16.10**
Metric							
61501	M6 x 1.00	13	16	608772	**7.36**	-	-
61502	M8 x 1.25	14	19	608773	**7.36**	-	-
61503	M10 x 1.5	16	24	608774	**7.84**	-	-
61504	M12 x 1.75	22	32	608775	**10.16**	-	-
61505	M16 x 2.0	27	40	608776	**13.10**	-	-
61506	M20 x 2.5	32	51	608777	**18.08**	-	-
61507	M24 x 3.0	38	64	608778	**24.83**	-	-

T-Slot Nuts — Inch

Last thread incomplete to prevent stud from turning through bottom of nut into machine table.
- Case hardened
- Black oxide finish
- Tapped through T-nuts available upon request





BLACK OXIDE

Model No.	Table Slot	Thread A	B	C	D	E	F	Te-Co Code No.	Price $	STM Code No.	Price $
Inch											
373	5/16	1/4-20	0.304	1/4	0.177	9/16	9/16	607100	**5.56**	-	-
374	3/8	1/4-20	0.367	3/8	0.224	9/16	9/16	607102	**5.73**	-	-
375	3/8	5/16-18	0.367	3/8	0.240	5/8	7/8	607104	**4.71**	333602	**3.98**
437	7/16	3/8-16	0.427	1/2	0.208	11/16	7/8	607106	**4.71**	333604	**3.98**
500	1/2	3/8-16	0.490	1/2	0.271	7/8	7/8	607108	**4.71**	333606	**3.98**
562	9/16	3/8-16	0.552	5/8	0.333	7/8	1-1/8	607110	**5.41**	333608	**4.31**
501	1/2	7/16-14	0.490	1/2	0.271	7/8	7/8	607112	**6.54**	-	-
502	1/2	7/16-14	0.490	3/8	0.208	3/4	7/8	607114	**6.33**	-	-
563	9/16	1/2-13	0.552	5/8	0.333	7/8	1-1/8	607116	**5.27**	333614	**4.31**
625	5/8	1/2-13	0.615	5/8	0.333	1	1-1/8	607118	**5.99**	333616	**4.31**
626	5/8	1/2-13	0.615	3/4	0.365	1-1/8	1-1/8	607120	**7.94**	-	-
687	11/16	1/2-13	0.677	3/4	0.427	1-1/8	1-1/4	607122	**6.43**	333618	**4.65**
750	3/4	1/2-13	0.740	3/4	0.458	1-1/4	1-1/4	607124	**8.79**	-	-
688	11/16	5/8-11	0.677	3/4	0.427	1-1/8	1-1/4	607128	**6.79**	333620	**5.67**
751	3/4	5/8-11	0.740	3/4	0.458	1-1/4	1-1/4	607130	**7.12**	333622	**5.67**
812	13/16	5/8-11	0.802	1	0.552	1-1/4	1-1/2	607132	**10.29**	333624	**8.84**
813	13/16	3/4-10	0.802	1	0.552	1-1/4	1-1/2	607134	**11.36**	333626	**8.84**
875	7/8	3/4-10	0.865	1	0.552	1-1/2	1-1/2	607136	**12.28**	333628	**8.84**
1000	1	3/4-10	0.990	1	0.615	1-5/8	1-3/4	607138	**13.95**	333630	**8.84**
1000-34	1	3/4-10	0.990	1-1/2	0.750	1-3/4	1-3/4	607140	**20.93**	-	-
1010	1-1/16	3/4-10	1.052	1-1/8	0.677	1-5/8	2	607142	**16.35**	333632	**13.62**
1001	1	7/8-9	0.990	1	0.615	1-5/8	1-3/4	607144	**14.82**	333634	**13.62**
1062	1-1/16	7/8-9	1.052	1-1/8	0.677	1-5/8	2	607146	**19.51**	-	-
1125	1-1/8	7/8-9	1.115	1-1/2	0.740	1-3/4	2	607148	**25.06**	-	-
1063	1-1/16	1-8	1.052	1-1/8	0.677	1-5/8	2	607150	**35.85**	333636	**16.67**
1126	1-1/8	1-8	1.115	1-1/2	0.740	1-3/4	2	607152	**35.85**	-	-
1250	1-1/4	1-8	1.237	1-1/4	0.865	2	2	607154	**36.25**	-	-
1310	1-5/16	7/8-9	1.302	1-1/4	0.927	2	2	607156	**36.71**	-	-
1311	1-5/16	1-8	1.302	1-1/4	0.927	2	2	607158	**32.22**	-	-
1375	1-3/8	1-1/4-7	1.362	1-3/4	1.115	2-1/2	2-1/2	607162	**68.70**	-	-

Model No.	Table Slot	Table Slot (in.)	Thread A (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Te-Co Code No.	Price $	
Metric										
61401	8	5/16	M6 x 1.0	10	6	14	19	608750	**6.90**	- -
61402	10	7/16	M6 x 1.0	11	6	16	22	608751	**7.94**	- -
61403	10	7/16	M8 x 1.25	11	6	16	22	608752	**7.94**	- -
61404	12	1/2	M10 x 1.5	13	7	19	22	608753	**7.94**	- -
61405	14	9/16	M10 x 1.5	16	9	22	29	608754	**9.36**	- -
61406	14	9/16	M12 x 1.75	16	9	22	29	608755	**9.36**	- -
61407	16	5/8	M12 x 1.75	16	9	25	29	608756	**9.36**	- -
61408	17	11/16	M12 x 1.75	19	11	29	32	608757	**11.21**	- -
61409	18	3/4	M16 x 2.0	19	11	29	32	608758	**11.21**	- -
61410	21	13/16	M16 x 2.0	25	14	32	38	608759	**12.28**	- -
61411	22	7/8	M20 x 2.5	25	14	35	38	608760	**13.61**	- -
61412	27	1-1/16	M24 x 3.0	29	18	41	51	608761	**19.95**	- -
61413	33	1-5/16	M24 x 3.0	32	24	51	51	608762	**24.83**	- -

Te-Co Tugger™ T-Slot Bolts

- Medium Carbon Steel
- Heat treat quoted on request
- Threads Class 2A UNC
- Black oxide finish



BLACK OXIDE

Length	3/8-16 Code No.	Price $	1/2-13 Code No.	Price $	5/8-11 Code No.	Price $	3/4-10 Code No.	Price $	7/8-9 Code No.	Price $	1-8 Code No.	Price $
1-1/2	607244	**13.73**	607314	**14.08**	-	**-**	-	**-**	-	**-**	-	**-**
2	607248	**14.21**	607318	**14.49**	607388	**14.97**	607456	**20.08**	-	**-**	-	**-**
2-1/2	607252	**14.56**	607322	**14.90**	607392	**15.58**	607458	**20.84**	-	**-**	-	**-**
3	607256	**14.90**	607326	**15.73**	607396	**16.48**	607460	**21.60**	607484	**34.43**	607508	**38.57**
3-1/2	607258	**15.39**	607328	**16.08**	607398	**17.18**	607462	**22.01**	-	**-**	-	**-**
4	607260	**15.73**	607330	**16.49**	607400	**17.73**	607464	**23.14**	607486	**36.92**	607510	**41.33**
4-1/2	607278	**16.23**	607332	**17.04**	607402	**18.20**	607466	**25.53**	-	**-**	-	**-**
5	607280	**16.49**	607334	**17.51**	607404	**18.98**	607468	**26.15**	607488	**39.05**	607512	**44.16**
5-1/2	607282	**17.25**	607336	**17.93**	607408	**19.60**	607470	**27.26**	-	**-**	-	**-**
6	607284	**17.60**	607338	**18.56**	607410	**20.34**	607472	**28.36**	607490	**42.57**	607514	**47.82**
7	607286	**17.93**	607340	**18.98**	607412	**21.32**	607474	**28.91**	607492	**47.96**	607516	**50.18**
8	-	**-**	607342	**19.67**	607414	**23.12**	607476	**30.02**	607494	**48.51**	607518	**52.98**
9	-	**-**	607344	**21.03**	607416	**24.77**	607478	**31.67**	607496	**53.75**	607520	**58.65**
10	-	**-**	607346	**24.15**	607418	**26.36**	607480	**33.60**	607498	**54.86**	607522	**64.67**
12	-	**-**	607348	**25.60**	607420	**29.19**	607482	**36.92**	607500	**56.24**	607524	**72.66**
14	-	**-**	-	**-**	-	**-**	-	**-**	607502	**57.81**	607526	**74.45**
16	-	**-**	-	**-**	-	**-**	-	**-**	607504	**60.38**	607528	**77.07**
18	-	**-**	-	**-**	-	**-**	-	**-**	607506	**62.03**	607530	**78.25**

Driver Studs — Inch

- Black oxide finish
- Medium carbon steel
- Most studs have wrench flats
- Special lengths and sizes will be quoted on request



BLACK OXIDE

Length	Te-Co 1/4-20 Code No.	Price $	Te-Co 5/16-18 Code No.	Price $	STM 5/16-18 Code No.	Price $	Te-Co 3/8-16 Code No.	Price $	STM 3/8-16 Code No.	Price $	Te-Co 7/16-14 Code No.	Price $	Te-Co 1/2-13 Code No.	Price $	STM 1/2-13 Code No.	Price $
1-1/2	607532	**2.94**	607560	**3.35**	-	**-**	607586	**2.94**	-	**-**	607614	**4.89**	607642	**2.97**	-	**-**
2	607534	**2.97**	607562	**3.37**	333702	**2.72**	607588	**2.93**	-	**-**	607616	**4.73**	607644	**3.11**	-	**-**
2-1/2	607536	**2.98**	607564	**3.39**	-	**-**	607590	**2.93**	-	**-**	607618	**4.98**	607646	**2.97**	-	**-**
3	607538	**2.99**	607566	**3.60**	-	**-**	607592	**2.93**	333718	**2.72**	607620	**5.15**	607648	**3.11**	333734	**2.61**
3-1/2	607540	**3.08**	607568	**3.63**	-	**-**	607594	**2.94**	-	**-**	607622	**5.26**	607650	**3.23**	-	**-**
4	607542	**3.15**	607570	**3.67**	333706	**2.50**	607596	**2.97**	333720	**3.28**	607624	**5.31**	607652	**3.34**	333736	**2.95**
4-1/2	607544	**3.17**	607572	**3.70**	-	**-**	607598	**2.98**	-	**-**	607626	**5.41**	607654	**3.34**	-	**-**
5	607546	**3.19**	607574	**3.77**	-	**-**	607600	**3.08**	333722	**3.74**	607628	**5.41**	607656	**3.48**	333738	**3.28**
5-1/2	607548	**3.20**	607575	**3.81**	-	**-**	607602	**3.17**	-	**-**	607630	**5.53**	607658	**3.48**	-	**-**
6	607550	**3.23**	607576	**3.91**	333710	**3.98**	607604	**3.19**	333724	**3.74**	607632	**5.69**	607660	**3.63**	333740	**3.74**
6-1/2	607552	**3.24**	607578	**4.04**	-	**-**	607606	**3.24**	-	**-**	607634	**5.80**	607662	**3.89**	-	**-**
7	607554	**3.26**	607580	**4.08**	333712	**3.98**	607608	**3.26**	333726	**3.98**	607636	**5.80**	607664	**4.03**	333742	**3.98**
7-1/2	607556	**3.28**	607582	**4.17**	-	**-**	607610	**3.28**	-	**-**	607638	**5.93**	607666	**4.15**	-	**-**
8	607558	**3.31**	607584	**4.20**	333714	**4.65**	607612	**3.34**	333728	**4.65**	607640	**6.02**	607668	**4.25**	333744	**4.31**
9	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	607670	**8.07**	-	**-**
10	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	607672	**9.14**	-	**-**
12	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	607674	**11.11**	-	**-**
14	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	607676	**12.28**	333748	**6.23**
16	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	607678	**15.69**	333749	**6.69**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

Images are representational only and may not reflect actual product.

Driver Studs — Inch — Cont'd

- Black oxide finish
- Medium carbon steel
- Most studs have wrench flats
- Special lengths and sizes will be quoted on request



BLACK OXIDE

Length	Te-Co 5/8-11 Code No.	Price $	STM 5/8-11 Code No.	Price $	Te-Co 3/4-10 Code No.	Price $	STM 3/4-10 Code No.	Price $	Te-Co 7/8-9 Code No.	Price $	STM 7/8-9 Code No.	Price $	Te-Co 1-8 Code No.	Price $	STM 1-8 Code No.	Price $
1-1/2	607688	4.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	607690	3.84	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-1/2	607692	3.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	607694	3.84	333757	3.74	607734	4.71	333780	4.31	607774	10.47	333804	5.33	607814	13.00	333827	9.87
3-1/2	607696	4.08	-	-	607736	5.12	-	-	607776	11.00	-	-	607816	13.44	-	-
4	607698	4.08	333759	4.31	607738	5.38	333782	4.99	607778	11.88	333806	6.23	607818	13.87	333829	11.46
4-1/2	607700	4.35	-	-	607740	5.89	-	-	607780	12.74	-	-	607820	14.74	-	-
5	607702	4.61	333761	4.99	607742	5.99	333784	5.67	607782	13.47	333808	7.03	607822	15.72	333831	13.26
5-1/2	607704	4.71	-	-	607744	6.38	-	-	607784	14.45	-	-	607824	16.39	-	-
6	607706	4.98	333763	5.33	607746	6.61	333786	6.23	607786	14.79	333810	7.93	607826	17.04	333833	16.10
6-1/2	607708	5.24	-	-	607748	7.01	-	-	607788	15.41	-	-	607828	17.71	-	-
7	607710	5.46	333765	5.67	607750	7.23	333788	6.69	607790	16.50	333812	9.41	607830	18.13	333835	19.62
7-1/2	607712	5.89	-	-	607752	7.65	-	-	607792	17.04	-	-	607832	19.25	-	-
8	607714	5.89	333767	5.90	607754	7.76	333790	7.71	607794	18.45	333814	10.67	607834	20.24	333837	23.03
9	607716	10.17	333768	6.69	607756	14.15	333791	8.84	607796	21.05	-	-	607836	25.39	-	-
10	607718	11.33	333769	7.36	607758	15.41	333792	9.98	607798	22.96	333816	11.46	607838	26.81	333839	26.88
12	607720	12.50	333770	7.93	607760	17.37	333793	11.57	607800	24.72	333817	13.26	607840	30.02	333840	30.28
14	607722	14.57	333771	9.75	607762	18.88	333794	14.39	607802	26.85	333818	16.44	607842	33.08	333841	33.90
16	607724	16.62	333772	11.00	607764	20.69	333795	16.10	607804	29.21	333819	19.50	607844	35.84	333842	35.37
18	607726	18.24	333773	11.57	607766	22.20	333796	16.44	607806	31.59	333820	22.68	607846	39.80	333843	41.96
20	607728	20.51	333774	13.26	607768	24.05	333798	17.92	607808	33.87	333821	26.08	607848	43.22	333844	48.19
22	607730	23.50	-	-	607770	26.76	-	-	607810	37.94	-	-	607850	50.23	-	-
24	607732	25.36	-	-	607772	29.01	-	-	607812	43.90	-	-	607852	54.41	-	-

Driver Studs — Metric

- Black oxide finish
- Medium carbon steel
- Special lengths and sizes will be quoted on request
- Metric studs do not have flats



BLACK OXIDE

Length (mm)	M6 x 1 Code No.	Price $	M8 x 1.25 Code No.	Price $	M10 x 1.5 Code No.	Price $	M12 x 1.75 Code No.	Price $	M16 x 2.0 Code No.	Price $	M20 x 2.5 Code No.	Price $	M24 x 3.0 Code No.	Price $
50	608848	5.15	608857	4.15	608866	4.03	608876	4.87	-	-	-	-	-	-
65	608849	5.48	608858	4.25	608867	4.15	608877	4.98	-	-	-	-	-	-
80	608850	6.22	608859	4.37	608868	4.15	608878	5.24	608886	6.11	608895	7.76	-	-
95	608851	6.49	608860	4.71	608869	4.25	608879	5.48	608887	6.49	608896	8.35	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-	608904	12.86
110	608852	6.49	608861	4.75	608870	4.25	608880	5.73	608888	6.72	608897	9.20	-	-
125	-	-	-	-	-	-	608881	5.87	608889	7.48	608898	10.20	608905	14.81
140	608853	7.23	608862	5.38	608872	4.75	608882	5.99	-	-	-	-	-	-
150	608854	7.34	608863	5.60	608873	4.87	608883	6.61	608890	7.76	608899	11.21	608906	16.44
175	608855	7.76	608864	5.87	608874	4.98	608884	7.22	608891	8.07	608900	11.87	608907	17.54
200	608856	7.98	608865	6.22	608875	5.15	608885	7.48	608892	8.74	608901	12.86	608908	18.51
250	-	-	-	-	-	-	-	-	608893	12.20	608902	17.31	-	-
300	-	-	-	-	-	-	-	-	608894	12.28	608903	17.76	608910	26.80

Driver Studs Various Lengths — Metric

- Black oxide finish
- Medium carbon steel



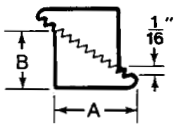
BLACK OXIDE

Model No.	Thread (mm)	Overall Length (mm)	Long Thread Length (mm)	Short Thread Length (mm)	Code No.	Price $
60251	M6 x 1.0	50	20	12	608810	**5.31**
60252	M6 x 1.0	65	20	12	608811	**5.67**
60253	M6 x 1.0	80	27	12	608812	**6.43**
60254	M6 x 1.0	95	27	12	608813	**6.67**
60255	M6 x 1.0	110	31	12	608814	**6.67**
60351	M8 x 1.25	50	20	12	608815	**4.29**
60352	M8 x 1.25	65	20	12	608816	**4.39**
60353	M8 x 1.25	80	27	12	608817	**4.57**
60354	M8 x 1.25	95	31	12	608818	**4.79**
60355	M8 x 1.25	110	31	12	608819	**4.93**
60356	M8 x 1.25	140	35	12	608820	**5.59**
60451	M10 x 1.5	50	20	16	608821	**4.17**
60452	M10 x 1.5	65	20	16	608822	**4.29**
60453	M10 x 1.5	80	27	16	608823	**4.29**
60454	M10 x 1.5	95	31	16	608824	**4.39**
60455	M10 x 1.5	110	35	16	608825	**4.39**
60456	M10 x 1.5	140	35	16	608826	**4.93**
60551	M12 x 1.75	50	20	16	608827	**5.05**
60552	M12 x 1.75	65	20	16	608828	**5.18**
60553	M12 x 1.75	80	27	16	608829	**5.45**
60554	M12 x 1.75	95	31	16	608830	**5.71**
60555	M12 x 1.75	110	39	16	608831	**5.98**
60556	M12 x 1.75	140	39	16	608832	**6.21**
60557	M12 x 1.75	175	39	16	608833	**7.49**
60558	M12 x 1.75	200	39	16	608834	**7.78**
60651	M16 x 2.0	80	21	18	608835	**6.36**
60652	M16 x 2.0	110	47	18	608836	**6.98**
60653	M16 x 2.0	150	47	18	608837	**8.29**
60654	M16 x 2.0	175	47	18	608838	**8.39**
60655	M16 x 2.0	200	47	18	608839	**9.03**
60656	M16 x 2.0	250	47	18	608840	**12.63**
60751	M20 x 2.5	80	27	20	608841	**8.02**
60752	M20 x 2.5	110	47	20	608842	**9.56**
60753	M20 x 2.5	150	55	20	608843	**11.67**
60754	M20 x 2.5	175	55	20	608844	**12.45**
60755	M20 x 2.5	200	55	20	608845	**13.37**
60851	M24 x 3.0	160	35	100	608846	**16.77**
60852	M24 x 3.0	300	35	100	608847	**27.02**

Steel Step Blocks

- Case hardened
- Black oxide finish
- Teeth match all serrated end clamps





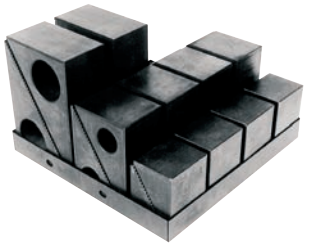
NOTE:
2 pieces = 1 block

BLACK OXIDE

Width (in.)	A (in.)	B (in.)	Height Adj. Range (in.)	Te-Co Code No.	Price $	STM Code No.	Price $
1	1-1/16	11/16	3/4-1-5/8	608005	**9.98**	333875	**13.04**
1	1-39/64	1-1/16	1-1/8-2-1/2	608010	**14.28**	333876	**18.48**
1	3-3/4	2-15/32	2-1/2-6	608015	**34.51**	333877	**44.57**
1-1/2	2-17/32	1-43/64	1-3/4-4	608020	**24.73**	333878	**26.88**
1-1/2	3-3/4	2-15/32	2-1/2-6	608025	**48.98**	333879	**53.64**
1-1/2	5-21/64	3-7/16	3-1/2-9	608030	**88.26**	333880	**112.60**
2	2-17/32	1-43/64	1-3/4-4	608035	**41.06**	-	-
2	3-3/4	2-15/32	2-1/2-6	608040	**62.36**	-	-
2	5-21/64	3-7/16	3-1/2-9	608045	**114.48**	-	-
2	7-3/8	4-3/4	4-7/8-10-1/2	608050	**347.13**	-	-

Te-Co Steel Step Block Clamp Kits

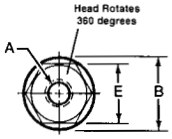
- Kit contains 10 blocks and one holder
- Versatility is expanded when a T-Nut and Stud Kit is used
- Two halves = one block
- Aluminum step blocks also available



Model No.	Contains 4 ea.	Contains 4 ea.	Contains 2 ea.	Kit Code No.	Price $
20801	608005	608010	608015	607898	**171.11**
20805	608020	608025	608030	607900	**513.71**
20807	608035	608040	608045	607902	**660.15**

Swivel Flange Nuts

- Black oxide finish
- Case hardened
- 12L14 material



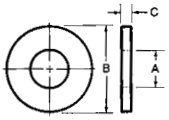


BLACK OXIDE

Thread A	B	Overall Height	Flange Height	E	Weight (lb/100)	Model No.	Code No.	Price $
1/4-20	5/8	3/8	1/8	1/2	2	42001	608290	**7.04**
5/16-18	3/4	7/16	9/64	9/16	3	42002	608291	**7.38**
3/8-16	7/8	17/32	5/32	11/16	4	42003	608292	**8.18**
1/2-13	1-1/8	23/32	7/32	7/8	11	42004	608293	**9.41**
5/8-11	1-3/8	29/32	1/4	1-1/16	18	42005	608294	**11.43**
3/4-10	1-5/8	1-1/64	9/32	1-1/4	28	42006	608295	**14.17**
7/8-9	1-3/4	1-1/8	7/16	1-7/16	41	42007	608296	**20.34**
1-8	2	1-16/64	15/32	1-5/8	57	42008	608297	**25.54**

Flat Washers

- Black oxide finish
- Case hardened
- C1010 material



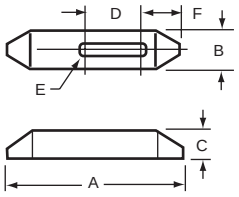


BLACK OXIDE

Stud Size	A	B	C	Te-Co Code No.	Price $	STM Code No.	Price $
3/16	13/64	1/2	3/32	608100	**0.30**	333900	**1.58**
1/4	9/32	5/8	1/8	608105	**0.33**	333902	**2.27**
5/16	11/32	3/4	1/8	608110	**0.35**	333904	**2.95**
3/8	13/32	7/8	1/8	608115	**0.36**	333906	**3.28**
7/16	15/32	1	1/8	608120	**0.62**	333908	**3.74**
1/2	17/32	1-1/8	1/8	608125	**0.62**	333910	**3.74**
5/8	21/32	1-3/8	1/8	608130	**0.76**	-	-
3/4	25/32	1-5/8	5/32	608135	**1.89**	-	-
7/8	29/32	1-3/4	5/32	608140	**2.62**	-	-
1	1-1/32	2	3/16	608145	**3.52**	-	-
1-1/8	1-5/32	2-1/4	7/32	608150	**7.51**	-	-
1-1/4	1-9/32	2-1/2	9/32	608155	**7.51**	-	-

Plain Clamps

- Case hardened
- Black oxide finish



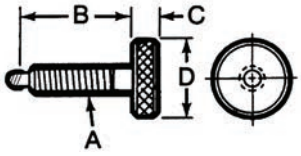


BLACK OXIDE

Model No.	A	B	C	D	Stud Size E	F	Weight (lb/100)	Te-Co Code No.	Price $	STM Code No.	Price $
Inch											
P-3825	2-1/2	1	1/2	13/16	5/16 and 3/8	27/32	24	607948	**17.86**	-	-
P-384	4	1	5/8	1-7/16	5/16 and 3/8	1-1/32	48	607950	**23.96**	-	-
P-386	6	1-1/8	3/4	2-3/16	5/16 and 3/8	1-5/32	105	607952	**31.05**	-	-
P-1225	2-1/2	1-1/8	1/2	11/16	1/2	29/32	24	607954	**20.81**	333862	**18.48**
P-124	4	1-1/4	3/4	1-5/16	1/2	1-5/32	67	607956	**27.89**	333864	**32.89**
P-126	6	1-1/4	7/8	2-1/16	1/2	1-9/32	37	607958	**34.40**	333866	**53.07**
P-5825	2-1/2	1-1/4	5/8	9/16	5/8	31/32	31	607960	**24.27**	333868	**19.73**
P-584	4	1-1/2	3/4	1-3/16	5/8	1-9/32	83	607962	**30.48**	333870	**41.16**
P-586	6	1-1/2	7/8	1-15/16	5/8	1-13/32	150	607964	**39.32**	333872	**53.64**
P-344	4	1-1/2	3/4	1-1/16	3/4	1-11/32	75	607966	**32.65**	-	-
P-346	6	1-1/2	1	1-15/16	3/4	1-15/32	164	607968	**49.10**	-	-
P-348	8	1-3/4	1-1/8	2-3/16	3/4	1-29/32	321	607970	**65.96**	-	-
P-16	6	2	1-1/4	1-11/16	7/8 and 1	1-27/32	274	607972	**79.60**	-	-
P-18	8	2	1-3/8	1-15/16	7/8 and 1	2-1/32	425	607974	**102.41**	-	-
P-110	10	2	1-1/2	2-15/16	7/8 and 1	2-1/32	618	607976	**129.21**	-	-
Metric	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**					
30401M	64	25	13	21	M6-M8-M10	21	24	608780	**17.84**	-	-
30402M	102	25	16	37	M6-M8-M10	26	48	608781	**23.97**	-	-
30403M	152	29	19	56	M6-M8-M10	29	105	608782	**31.04**	-	-
30404M	64	29	13	18	M12	23	24	608783	**20.81**	-	-
30405M	102	32	16	33	M12	29	67	608784	**27.89**	-	-
30406M	152	32	19	52	M12	29	37	608785	**34.40**	-	-
30407M	64	32	16	14	M16	25	31	608786	**24.27**	-	-
30408M	102	38	19	30	M16	31	83	608787	**30.48**	-	-
30409M	152	38	22	49	M16	34	150	608788	**39.32**	-	-
30410M	102	38	19	27	M20	33	75	608789	**32.65**	-	-
30411M	152	38	25	49	M20	37	164	608790	**49.10**	-	-
30412M	203	45	29	56	M20	48	321	608791	**65.96**	-	-
30413M	152	51	32	43	M24	44	274	608792	**79.60**	-	-
30414M	203	51	35	49	M24	52	425	608793	**102.41**	-	-
30415M	254	51	38	75	M24	52	618	608794	**129.21**	-	-

Knurled Head Swivel Screw Clamps

- 12L14 steel
- Black oxide finish
- Use when finger tightening provides adequate pressure





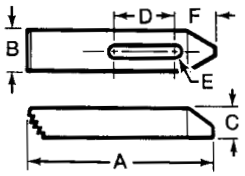
BLACK OXIDE

* see page H145 for pads

Thread A	B	C	D	Use w/ Small Pad	Use w/ Large Pad	Use w/ Ball Pad	Use w/ "V" Pad	Weight (lb/100)	Model No.	Code No.	Price $
1/4-20	1-15/32	5/16	1	31501	31601	31701	31801	8	31321	608250	**9.47**
1/4-20	1-31/32	5/16	1	31501	31601	31701	31801	12	31322	608251	**9.60**
5/16-18	1-5/16	3/8	1-1/8	31502	31602	31702	31802	9	31331	608252	**9.60**
5/16-18	1-31/32	3/8	1-1/8	31502	31602	31702	31802	13	31332	608253	**10.20**
5/16-18	2-15/32	3/8	1-1/8	31502	31602	30102	31802	14	31333	608254	**10.65**
3/8-16	1-7/16	7/16	1-1/4	31503	31603	31703	31803	18	31341	608255	**10.65**
3/8-16	1-15/16	7/16	1-1/4	31503	31603	31703	31803	19	31342	608256	**10.90**
3/8-16	2-7/16	7/16	1-1/4	31503	31603	31703	31803	20	31343	608257	**11.25**
3/8-16	2-15/16	7/16	1-1/4	34503	31603	31703	31803	21	31344	608258	**11.55**
1/2-13	2-15/16	7/16	1-1/4	31504	31604	31704	31804	26	31354	608259	**12.46**

Serrated Clamps

- Case hardened
- Black oxide finish
- Teeth match all step blocks





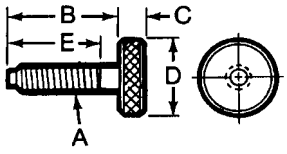
BLACK OXIDE

Model No.	A	B	C	D	Stud Size E	F	Weight (lb/100)	Te-Co Code No.	Price $	STM Code No.	Price $
Inch											
S-3825	2-1/2	1	1/2	13/16	5/16 or 3/8	27/32	23	607918	**18.98**	-	-
S-384	4	1	5/8	1-7/16	5/16 or 3/8	1-1/32	49	607920	**26.37**	-	-
S-386	6	1-1/8	3/4	2-3/16	5/16 or 3/8	1-5/32	106	607922	**33.01**	-	-
S-1225	2-1/2	1-1/8	1/2	11/16	1/2	29/32	27	607924	**22.12**	333850	**18.48**
S-124	4	1-1/4	3/4	1-5/16	1/2	1-5/32	72	607926	**31.05**	333852	**32.89**
S-126	6	1-1/4	7/8	2-1/16	1/2	1-5/32	134	607928	**37.98**	333854	**49.09**
S-5825	2-1/2	1-1/4	5/8	9/16	5/8	31/32	33	607930	**27.63**	333856	**19.73**
S-584	4	1-1/2	3/4	1-3/16	5/8	1-7/32	87	607932	**38.21**	333858	**37.99**
S-586	6	1-1/2	7/8	1-15/16	5/8	1-11/32	160	607934	**45.83**	333860	**53.64**
S-344	4	1-1/2	3/4	1-1/16	3/4	1-9/32	81	607936	**41.90**	-	-
S-346	6	1-1/2	1	1-15/16	3/4	1-15/32	170	607938	**58.48**	-	-
S-348	8	1-3/4	1-1/8	2-3/16	3/4	1-29/32	330	607940	**79.12**	-	-
S-16	6	2	1-1/4	1-11/16	7/8 or 1	1-23/32	275	607942	**88.26**	-	-
S-18	8	2	1-3/8	1-15/16	7/8 or 1	1-1/32	440	607944	**109.05**	-	-
S-110	10	2	1-1/2	2-15/16	7/8 or 1	2-1/32	601	607946	**128.99**	-	-
Metric	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**					
30501M	64	25	13	21	M6-M8-M10	21	23	608795	**18.98**	-	-
30502M	102	25	16	37	M6-M8-M10	26	29	608796	**26.37**	-	-
30503M	152	29	19	56	M6-M8-M10	29	106	608797	**33.01**	-	-
30504M	64	29	13	18	M12	23	27	608798	**22.12**	-	-
30505M	102	32	16	33	M12	29	72	608799	**31.05**	-	-
30506M	152	32	19	52	M12	29	134	608800	**37.98**	-	-
30507M	64	32	16	14	M16	25	33	608801	**27.63**	-	-
30508M	102	38	19	30	M16	31	87	608802	**38.21**	-	-
30509M	152	38	22	49	M16	34	160	608803	**45.83**	-	-
30510M	102	38	19	27	M20	33	81	608804	**41.90**	-	-
30511M	152	38	25	49	M20	37	170	608805	**58.53**	-	-
30512M	203	45	29	56	M20	48	330	608806	**79.12**	-	-
30513M	152	51	32	43	M24	44	275	608807	**88.29**	-	-
30514M	203	51	35	49	M24	52	440	608808	**109.09**	-	-
30515M	254	51	38	75	M24	52	601	608809	**128.99**	-	-

Dog Point Knurled Head Screws

- 12L14 steel
- Black oxide finish
- Case hardened
- Knurled head allows better grip
- Use for light clamping or holding
- Dog point prevents damage to end threads

* see page H145 for pads



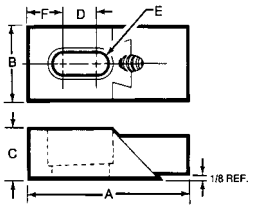


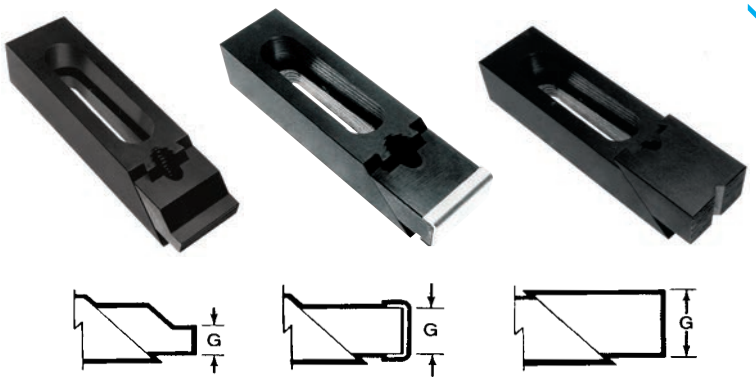
BLACK OXIDE

Thread A	B	C	D	E	Weight (lb/100)	Model No.	Code No.	Price $
10-24	1	1/4	3/4	3/4	3	43801	608260	**6.25**
10-24	1-1/2	1/4	3/4	1-1/4	3	43802	608261	**6.25**
10-24	2	1/4	3/4	1-3/4	3	43803	608262	**6.51**
10-32	1-1/2	1/4	3/4	1-3/8	3	43804	608263	**6.51**
1/4-20	2	5/16	1	1-3/4	5	43805	608264	**7.25**
1/4-20	2-1/2	5/16	1	2-1/4	9	43806	608265	**7.09**
1/4-20	1-1/2	5/16	1	1-1/4	9	43807	608266	**7.09**
5/16-18	1-1/2	3/8	1-1/8	1-1/4	6	43808	608267	**8.21**
5/16-18	2	3/8	1-1/8	1-3/4	11	43809	608268	**8.49**
5/16-18	2-1/2	3/8	1-1/8	2-1/4	13	43810	608269	**8.71**
3/8-16	2	7/16	1-1/4	1-3/4	13	43813	608270	**8.87**
3/8-16	2-1/2	7/16	1-1/4	2-1/4	24	43811	608271	**9.43**
3/8-16	3	7/16	1-1/4	2-3/4	27	43812	608272	**10.28**
1/2-13	3	7/16	1-1/4	2-3/4	28	43814	608273	**11.51**
1/2-13	3-1/2	7/16	1-1/4	3-1/4	30	43815	608274	**11.63**

Nuzzler® Edge Clamps

- Black oxide finish
- Noses have serrations for better gripping of non-finished or semi-finished workpieces
- Edge clamps feature a double action, adjustable nose which exerts clamping pressures both downward and inward through a 45° angle





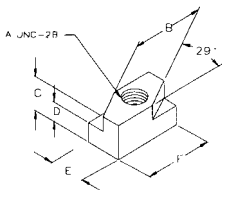
Low Grip (Style L) Standard Grip (Style S) High Grip (Style H)

BLACK OXIDE

A	B	C	D	E	F	Nose Style	G	Wrench Size	Weight (lb/100)	Model No.	Code No.	Price $
1-7/8	1	5/8	1/4	5/16	13/32	L	1/8	5/32	25	33817	608200	**86.19**
2-3/8	1	5/8	3/4	5/16	5/16	L	1/8	5/32	29	33819	608201	**89.45**
2-7/8	1	5/8	1-1/4	5/16	5/16	L	1/8	5/32	35	33821	608202	**95.03**
2-5/16	1-1/4	5/8	3/8	3/8	7/16	L	1/8	5/32	38	33801	608203	**88.26**
2-3/4	1-1/4	5/8	13/16	3/8	1/2	L	1/4	3/16	44	33890	608204	**95.03**
4-1/8	1-1/4	5/8	2	3/8	11/16	L	1/4	3/16	63	33803	608205	**97.98**
4-11/16	1-1/4	5/8	2-3/16	3/8	15/16	L	1/4	3/16	73	33892	608206	**100.70**
3-5/16	1-1/2	3/4	3/4	1/2	11/16	L	3/8	1/4	81	33805	608207	**100.35**
5-3/16	1-1/2	3/4	2-1/2	1/2	5/8	L	3/8	1/4	117	33807	608208	**105.57**
3-7/8	1-1/2	7/8	1-1/4	1/2	1/2	L	1/4	1/4	100	33823	608209	**95.03**
5-5/16	1-1/2	7/8	2	1/2	7/8	L	1/4	1/4	141	33825	608210	**102.87**
7-1/4	1-1/2	7/8	3	1/2	1-3/8	L	1/4	1/4	189	33827	608211	**110.91**
5-13/16	1-1/2	1-1/4	2-1/4	1/2	1-1/16	L	3/8	1/4	207	33809	608212	**165.24**
7-1/8	1-1/2	1-1/4	3-5/16	1/2	1-3/16	L	3/8	1/4	252	33812	608213	**170.29**
5-1/4	2	1-1/4	1-3/8	3/4	27/32	L	3/8	5/16	235	33829	608214	**265.90**
1-7/8	1	5/8	1/4	5/16	13/32	S	5/8	5/32	30	33818	608215	**89.45**
2-3/8	1	5/8	3/4	5/16	5/16	S	5/8	5/32	35	33820	608216	**97.98**
2-7/8	1	5/8	1-1/4	5/16	5/16	S	5/8	5/32	40	33822	608217	**100.70**
2-5/16	1-1/4	5/8	3/8	3/8	7/16	S	5/8	3/16	43	33802	608218	**95.03**
2-3/4	1-1/4	5/8	13/16	3/8	1/2	S	5/8	3/16	49	33891	608219	**100.70**
4-1/8	1-1/4	5/8	2	3/8	11/16	S	5/8	3/16	73	33804	608220	**103.83**
4-11/16	1-1/4	5/8	2-3/16	3/8	15/16	S	5/8	3/16	76	33893	608221	**106.20**
3-5/16	1-1/2	3/4	3/4	1/2	11/16	S	3/4	1/4	88	33806	608222	**107.67**
5-3/16	1-1/2	3/4	2-1/2	1/2	5/8	S	3/4	1/4	123	33808	608223	**110.91**
3-7/8	1-1/2	7/8	1-1/4	1/2	1/2	S	7/8	1/4	112	33824	608224	**102.87**
5-5/16	1-1/2	7/8	2	1/2	7/8	S	7/8	1/4	155	33826	608225	**108.30**
7-1/4	1-1/2	7/8	3	1/2	1-3/8	S	7/8	1/4	205	33828	608226	**118.29**
5-13/16	1-1/2	1-1/4	2-1/4	1/2	1-1/16	S	3/4	1/4	216	33810	608227	**178.56**
7-1/8	1-1/2	1-1/4	3-5/16	1/2	1-3/16	S	3/4	1/4	255	33813	608228	**183.51**
6-1/8	1-1/2	1-1/4	2-1/4	1/2	1-1/16	H	1	1/4	240	33811	608229	**191.78**
7-3/8	1-1/2	1-1/4	3-5/16	1/2	1-3/16	H	1	1/4	286	33814	608230	**197.96**
5-1/4	2	1-1/4	1-3/8	3/4	27/32	H	1-1/4	5/16	296	33815	608231	**255.98**
6-7/16	2-1/2	1-1/2	2	7/8	15/16	H	1-1/2	1/2	541	33816	608232	**391.58**

Quarter Turn T-Slot Nuts

- Black oxide finish
- The last thread is incomplete to prevent the stud from turning through the bottom of the nut





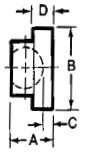
BLACK OXIDE

Thread A	Table Slot B (in.)	Table Slot (mm)	C	D	E	F	Model No.	Code No.	Price $
3/8-16	7/16	12	1/2	0.208	0.438	0.75	41450	608275	**5.85**
3/8-16	1/2	12	1/2	0.271	0.5	1	41451	608276	**5.85**
1/2-13	9/16	15	5/8	0.333	0.563	0.94	41452	608277	**6.54**
1/2-13	5/8	16	5/8	0.333	0.625	1.25	41453	608278	**7.25**
5/8-11	11/16	18	3/4	0.427	0.688	1.38	41454	608279	**8.03**
5/8-11	3/4	20	3/4	0.458	0.75	1.5	41455	608280	**8.51**

* English T-Slot Nut will fit this size metric machine T-Slot

Large Pads For Swivel Screw Clamps

- Used to secure clampling of soft metal or angular surface without damaging workpiece
- Black oxide finish
- Left hand internal threads



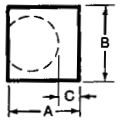


BLACK OXIDE

Fits Body Thread	A	B	C	D	Internal Thread (L.H.)	Weight (lbs/100)	Model No.	Code No.	Price $
1/4-20	5/16	3/8	1/8	1/8	8-36	1	31601	608285	**2.28**
5/16-18	23/64	1/2	5/32	5/32	12-28	1	31602	608286	**2.57**
3/8-16	7/16	9/16	3/16	3/16	1/4-28	1	31603	608287	**2.99**
1/2-13	27/64	3/4	1/8	3/16	5/16-24	2	31604	608288	**3.42**

Small Pads For Swivel Screw Clamps

- Used to secure clampling of soft metal or angular surface without damaging workpiece
- Black oxide finish
- Left hand internal threads



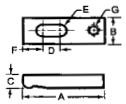


BLACK OXIDE

Fits Body Thread	A	B	C	Internal Thread (L.H.)	Weight (lb/100)	Model No.	Code No.	Price $
1/4-20	0.193	3/16	1/16	8-36	1	31501	608281	**2.33**
5/16-18	19/64	1/4	3/64	12/28	1	31502	608282	**2.57**
3/8-16	21/64	19/64	1/16	1/4-28	1	31503	608283	**2.69**
1/2-13	25/64	13/32	1/16	5/16-24	2	31504	608284	**2.80**

Tapped End Clamps

- Black oxide finish
- Case hardened



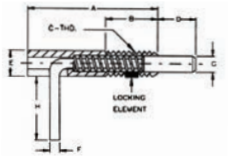


BLACK OXIDE

A	B	C	D	Stud Size E	F	G	Model No.	Code No.	Price $
2	5/8	3/8	1/2	1/4	7/16	1/4-20	30902	608300	**17.86**
2-1/2	5/8	3/8	1/2	1/4	9/16	1/4-20	30903	608301	**19.17**
2-3/4	1	1/2	7/16	5/16	13/16	5/16-18	30905	608302	**21.69**
3-1/4	1	1/2	13/16	5/16	7/8	5/16-18	30906	608303	**22.20**
4	1	1/2	7/8	5/16	15/16	5/16-18	30907	608304	**23.54**
3	1-1/4	5/8	3/4	3/8	9/16	3/8-16	30908	608305	**24.29**
4	1-1/4	5/8	1	3/8	3/4	3/8-16	30909	608306	**24.52**
5	1-1/4	5/8	1-1/2	3/8	3/4	3/8-16	30910	608307	**27.45**
4	1-1/4	5/8	1	1/2	3/4	1/2-13	30912	608308	**27.89**
4-1/2	1-1/4	5/8	1-1/2	1/2	13/16	1/2-13	30913	608309	**28.08**
5	1-1/4	5/8	1-1/2	1/2	1-1/4	1/2-13	30914	608310	**28.54**
6	1-1/4	5/8	1-1/2	1/2	2-1/4	1/2-13	30916	608311	**31.77**
4-1/2	1-1/2	3/4	1	5/8	7/8	5/8-11	30917	608312	**31.77**
5	1-1/2	3/4	1-1/2	5/8	15/16	5/8-11	30918	608313	**36.38**
5-1/2	1-1/2	3/4	1-1/2	5/8	1-7/16	5/8-11	30919	608314	**38.56**
6	1-1/2	3/4	1-1/2	5/8	2	5/8-11	30920	608315	**39.72**

Hand Retractable Spring Plungers Quick Release "L" Handle

- Plunger has a slight taper for easy alignment
- Built in drive wrench for rapid installation and alignment
- Plunger can be completely withdrawn into the body and locked into a retracted position
- Nylon locking element is standard on all sizes





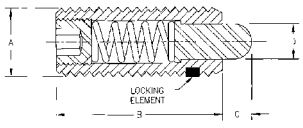
End Force Initial	End Force Final	A	B	Thread C	D	Hex E	Dia. F	+0.000 -0.001 G	H	Model No.	Code No.	Price $
0.50	2.50	1.25	0.50	1/4-20	0.38	1/4	0.101	0.155	0.50	54301	608320	**32.21**
0.75	3.75	2.00	1.00	3/8-16	0.56	3/8	0.134	0.234	0.74	54302	608321	**38.06**
1.00	5.00	2.11	1.11	1/2-13	0.75	1/2	0.108	0.313	1.00	54303	608322	**44.06**

Standard Spring Plungers Heavy End

- Carbon and Stainless Steel Bodies
- Heavy End Forces

Carbon and Stainless Steel Nose
- Stainless Steel Body Plungers:
  - 303 Stainless Steel Body and Nose
- Excellent Wear Resistance

- Steel Body Plungers:
  - 12L14 Steel Body
  - Black Oxide Finish
  - Case Hardened 12L14 Steel Nose, Black Oxide Finish





Thread A	B (in.)	C (in.)	Ball Dia. D (in.)	End Force Initial (lb)	End Force Final (lb)	Carbon Steel Code No.	Price $	Stainless Steel Code No.	Price $
6-32	17/32	0.062	0.046	1.50	4.50	609062	**11.47**	609075	**19.55**
6-32	3/8	0.062	0.046	1.00	1.60	609063	**11.47**	609076	**19.55**
8-32	5/8	0.093	0.070	2.70	7.30	609064	**11.47**	609077	**19.14**
10-32	3/4	0.125	0.093	2.90	11.10	609065	**11.04**	609078	**19.14**
1/4-20	1	0.187	0.119	3.00	13.00	609066	**11.04**	609079	**18.30**
1/4-28	1	0.187	0.119	3.00	13.00	609067	**11.04**	609080	**18.30**
1/4-20	3/4	0.125	0.119	2.00	9.00	609068	**11.04**	609081	**17.13**
5/16-18	1	0.187	0.135	3.00	15.00	609069	**11.04**	609082	**19.14**
3/8-16	1-1/8	0.187	0.186	5.50	14.50	609070	**11.04**	609083	**21.40**
1/2-13	1-1/4	0.250	0.248	6.60	17.40	609071	**11.47**	609084	**20.24**
5/8-11	1-1/2	0.312	0.310	10.50	25.50	609072	**14.84**	609085	**37.59**
3/4-10	1-3/4	0.312	0.374	6.70	37.30	609073	**21.40**	609086	**47.90**
1-8	2-13/32	0.500	0.499	16.00	68.00	609074	**30.28**	609087	**101.00**

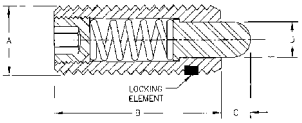
Standard Spring Plungers Light End

- Carbon and Stainless Steel Bodies
- Light End Forces

Carbon and Stainless Steel Nose

- Stainless Steel Body Plungers:
  - 303 Stainless Steel Body and Nose
- Excellent Wear Resistance

- Steel Body Plungers:
  - 12L14 Steel Body
  - Black Oxide Finish
  - Case Hardened 12L14 Steel Nose, Zinc Plated



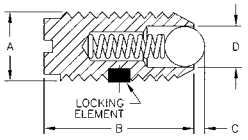


Thread A	B (in.)	C (in.)	Ball Dia. D (in.)	End Force Initial (lb)	End Force Final (lb)	Carbon Steel Code No.	Price $	Stainless Steel Code No.	Price $
6-32	17/32	0.062	0.046	0.50	1.50	609088	**11.47**	609100	**19.55**
8-32	5/8	0.093	0.070	0.70	2.30	609089	**11.47**	609101	**18.41**
10-32	3/4	0.125	0.093	1.30	2.70	609090	**11.04**	609102	**17.28**
1/4-20	3/4	0.125	0.119	0.25	2.00	609091	**9.96**	609103	**16.48**
1/4-20	1	0.187	0.119	1.00	4.00	609092	**11.04**	609104	**15.58**
1/4-28	1	0.187	0.119	1.00	4.00	609093	**11.04**	609105	**17.84**
5/16-18	1	0.187	0.135	1.50	4.50	609094	**11.04**	609106	**15.58**
3/8-16	1-1/8	0.187	0.186	2.80	7.20	609095	**11.04**	609107	**19.14**
1/2-13	1-1/4	0.250	0.248	2.70	9.30	609096	**11.04**	609108	**20.24**
5/8-11	1-1/2	0.312	0.310	3.50	10.50	609097	**14.84**	609109	**37.59**
3/4-10	1-3/4	0.312	0.374	4.00	16.00	609098	**20.26**	609110	**66.41**
1-8	2-13/32	0.500	0.499	4.00	31.00	609099	**30.28**	609111	**101.00**

Te-Co Ball Plungers

- Material:
  - Steel Body: 12L14 Steel
  - Stainless Steel Body: 303 Stainless Steel
  - Ball: 440 Stainless Steel or Nylon
- Smallest and lightest spring loaded device
- Side-load tolerant
- Controlled end forces
- Many sizes conform to TCMAI standards
- Screwdriver installation
- Bodies are color coded to indicate end forces:
  - Plain or Zinc = Light Force
  - Black = Standard Force
  - Gold = Heavy Force



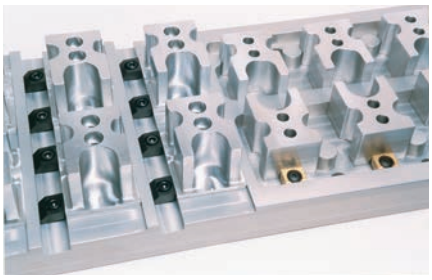


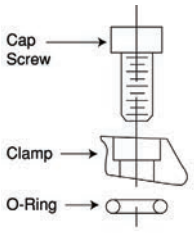
Thread A	B	C	Ball Dia. D	End Force Initial (lb)	End Force Final (lb)	Steel Body: Stainless Steel Ball Code No.	Steel Body: Price $	Steel Body: Nylon Ball Code No.	Steel Body: Price $	Stainless Steel Body: Stainless Steel Ball Code No.	Stainless Steel Body: Price $	Stainless Steel Body: Nylon Ball Code No.	Stainless Steel Body: Price $
Inch													
4-48	3/16	0.020	0.062	0.12	0.50	608915	**11.55**	608938	**11.83**	608961	**11.85**	608984	**12.13**
5-40	1/4	0.020	0.062	0.25	0.75	608916	**10.81**	608939	**11.10**	608962	**11.26**	608985	**11.55**
6-40	5/16	0.023	0.078	0.50	1.00	608917	**10.43**	608940	**10.64**	608963	**10.71**	608986	**10.93**
8-36	11/32	0.025	0.093	0.50	1.25	608918	**9.56**	608941	**9.81**	608964	**9.67**	608987	**9.92**
8-32	11/32	0.025	0.093	0.50	1.25	608919	**9.56**	608942	**9.81**	608965	**9.67**	608988	**9.92**
10-32	33/64	0.025	0.093	0.50	1.50	608920	**9.08**	608943	**9.30**	608966	**10.71**	608989	**10.93**
10-32	33/64	0.025	0.093	1.50	3.00	608921	**9.08**	608944	**9.30**	608967	**10.81**	608990	**11.10**
10-32	33/64	0.025	0.093	2.00	5.00	608922	**9.08**	608945	**9.30**	608968	**10.81**	608991	**11.10**
1/4-20	17/32	0.035	0.125	2.00	4.00	608923	**9.08**	608946	**9.30**	608969	**11.67**	608992	**11.99**
1/4-20	17/32	0.035	0.125	3.00	7.00	608924	**9.08**	608947	**9.30**	608970	**11.67**	608993	**11.99**
1/4-20	17/32	0.035	0.125	4.00	12.00	608925	**9.08**	608948	**9.30**	608971	**11.67**	608994	**11.99**
5/16-18	37/64	0.040	0.156	2.00	4.50	608926	**9.08**	608949	**9.30**	608972	**13.30**	608995	**13.69**
5/16-18	37/64	0.040	0.156	4.00	9.00	608927	**9.08**	608950	**9.30**	608973	**13.30**	608996	**13.69**
5/16-18	37/64	0.040	0.156	6.00	17.00	608928	**9.41**	608951	**9.62**	608974	**13.30**	608997	**13.69**
3/8-16	5/8	0.048	0.187	2.50	5.00	608929	**9.41**	608952	**9.62**	608975	**14.70**	608998	**15.06**
3/8-16	5/8	0.048	0.187	5.00	10.00	608930	**9.41**	608953	**9.62**	608976	**14.70**	608999	**15.06**
3/8-16	5/8	0.048	0.187	6.00	21.00	608931	**9.41**	608954	**9.62**	608977	**14.70**	609000	**15.06**
1/2-13	3/4	0.072	0.281	3.00	6.00	608932	**9.96**	608955	**10.21**	608978	**14.70**	609001	**15.06**
1/2-13	3/4	0.072	0.281	6.00	12.00	608933	**9.96**	608956	**10.21**	608979	**14.70**	609002	**15.06**
1/2-13	3/4	0.072	0.281	6.00	30.00	608934	**9.96**	608957	**10.21**	608980	**14.70**	609003	**15.06**
5/8-11	63/64	0.096	0.375	4.50	9.00	608935	**11.99**	608958	**12.27**	608981	**18.57**	609004	**20.00**
5/8-11	63/64	0.096	0.375	9.00	18.00	608936	**11.99**	608959	**12.27**	608982	**19.49**	609005	**20.00**
5/8-11	63/64	0.096	0.375	7.00	50.00	608937	**11.96**	608960	**12.27**	608983	**19.49**	609006	**20.00**
Metric	**(mm)**	**(mm)**	**(mm)**										
M4 x 0.7	9	0.8	2.5	0.90	2.25	609007	**11.03**	609023	**11.10**	609036	**15.75**	609049	**17.39**
M5 x 0.8	13	0.6	2.38	0.50	1.50	609008	**11.21**	-	**-**	-	**-**	-	**-**
M5 x 0.8	13	0.6	2.38	1.50	3.00	609009	**11.21**	-	**-**	-	**-**	-	**-**
M5 x 0.8	13	0.6	2.38	2.00	4.90	609010	**11.21**	-	**-**	-	**-**	-	**-**
M6 x 1.0	14	1	3.5	2.00	2.90	609011	**11.62**	609024	**11.67**	609037	**16.06**	609050	**17.69**
M6 x 1.0	14	1	3.5	.45	1.35	609012	**11.62**	609025	**11.67**	609038	**16.06**	609051	**17.69**
M6 x 1.0	14	1	3.5	6.25	8.95	609013	**11.62**	609026	**11.67**	609039	**16.06**	609052	**17.69**
M8 x 1.25	16	1.5	5	3.35	6.70	609014	**12.35**	609027	**12.39**	609040	**16.39**	609053	**18.09**
M8 x 1.25	16	1.5	5	1.11	2.25	609015	**12.35**	609028	**12.39**	609041	**16.39**	609054	**18.09**
M8 x 1.25	16	1.5	5	8.95	13.40	609016	**12.35**	609029	**12.39**	609042	**16.39**	609055	**18.09**
M10 x 1.5	19	2	6	4.45	7.80	609017	**13.11**	609030	**13.17**	609043	**20.88**	609056	**18.35**
M10 x 1.5	19	2	6	1.80	3.35	609018	**13.11**	609031	**13.17**	609044	**16.66**	609057	**18.35**
M10 x 1.5	19	2	6	13.40	20.00	609019	**13.11**	609032	**13.17**	609045	**17.10**	609058	**18.88**
M12 x 1.75	22	2.5	8	6.70	12.25	609020	**16.06**	609033	**16.13**	609046	**17.10**	609059	**18.88**
M12 x 1.75	22	2.5	8	2.25	4.50	609021	**16.19**	609034	**16.28**	609047	**17.10**	609060	**18.88**
M12 x 1.75	22	2.5	8	16.75	25.65	609022	**16.35**	609035	**12.59**	609048	**17.10**	609061	**18.88**

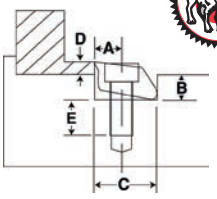
MITEE-BITE PRODUCTS LLC Workholding Specialists

Pitbull® Clamps

The Revolutionary Pitbull® Clamp remains the lowest, highest holding force clamp in the industry today. High vertical and horizontal clamping forces are generated, considering the size of the Pitbull® Clamps. It uses a standard cap screw and an oil resistant O-ring. The Pitbull® Clamp is available in 5 sizes and several styles, a tool steel knife edge for aggressive stock removal, a tool steel blunt edge for general purpose and a brass version to help prevent marring the workpiece.







Part No.	Description	A	B	Clamping Width C	D	E	Screw Size	Max Torque (ft/lbs)	Holding Force (lbs)	Total Throw	Clamps Per Pack	Code No.	Price $ Per Pack
Inch													
26000	Tool Steel, Knife Edge	0.150	0.140	0.375	0.075	0.260	4-40	1.30	650	0.0075	8	604079	**125.36**
26010	Tool Steel, Blunt Edge	0.150	0.140	0.375	0.075	0.260	4-40	1.30	650	0.0075	8	604080	**125.36**
26015	Brass, Blunt Edge	0.150	0.140	0.375	0.075	0.220	4-40	0.41	200	0.0075	8	604081	**125.36**
26020	Tool Steel, Knife Edge	0.200	0.187	0.500	0.100	0.390	8-32	3.70	1,500	0.0160	8	604082	**133.12**
26030	Tool Steel, Blunt Edge	0.200	0.187	0.500	0.100	0.390	8-32	3.70	1,500	0.0160	8	604083	**133.12**
26040	Brass, Blunt Edge	0.200	0.187	0.500	0.100	0.340	8-32	2.00	400	0.0160	8	604084	**133.12**
26050	Tool Steel, Knife Edge	0.300	0.280	0.750	0.150	0.570	1/4-20	14.50	3,600	0.0240	6	604085	**129.04**
26060	Tool Steel, Blunt Edge	0.300	0.280	0.750	0.150	0.570	1/4-20	14.50	3,600	0.0240	6	604086	**129.04**
26065	Brass, Blunt Edge	0.300	0.280	0.750	0.150	0.440	1/4-20	4.10	950	0.0240	6	604087	**129.04**
26070	Tool Steel, Knife Edge	0.400	0.450	1.000	0.250	0.710	3/8-16	30.00	6,000	0.0500	4	604088	**139.60**
26075	Tool Steel, Blunt Edge	0.400	0.450	1.000	0.250	0.710	3/8-16	30.00	6,000	0.0500	4	604089	**139.60**
26080	Tool Steel, Knife Edge	0.600	0.640	1.500	0.375	0.770	1/2-13	108.30	12,000	0.0750	2	604090	**122.08**
26085	Tool Steel, Blunt Edge	0.600	0.640	1.500	0.375	0.770	1/2-13	108.30	12,000	0.0750	2	604091	**122.08**

Metric also available, call for more information

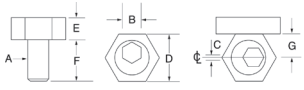
Original Fixture Clamps

The Cam Action MITEE-BITE Fixture Clamp is made up of two simple components: a hardened steel socket cap screw with an offset head and a hexagonal washer.

- Low profile makes computer programming easier
- Cam action provides fast, strong clamping
- Small size allows more parts per load
- Simple design keeps cost low

NOTE: Clockwise rotation is recommended.
Workpiece stop should be on the right of clamp.









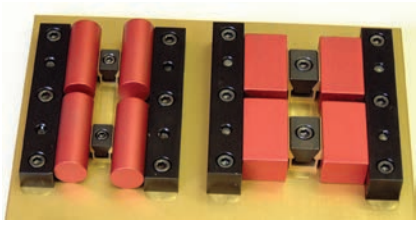
Part No.	A	B	C	D	E	F	*G	Torque (ft/lbs)	Holding Force	Clamps Per Pack	Code No.	Price $ Per Pack
Inch												
10202	8-32	5/64	0.030	0.312	0.110	0.350	0.150	1.5	205 lbs	10	604000	**85.20**
10207	10-32	3/32	0.040	0.500	0.160	0.340	0.250	2.5	350 lbs	10	604001	**89.68**
10204	1/4-20	1/8	0.040	0.625	0.190	0.470	0.308	6.2	800 lbs	10	604002	**89.68**
10205	5/16-24	3/16	0.040	0.812	0.190	0.460	0.400	8.3	800 lbs	12	604003	**112.32**
10201	5/16-18	3/16	0.040	0.812	0.190	0.460	0.400	8.3	800 lbs	12	604004	**112.32**
10206	3/8-16	3/16	0.050	0.812	0.250	0.710	0.400	20.8	2,000 lbs	10	604005	**103.36**
10208	1/2-13	5/16	0.100	1.000	0.375	0.900	0.500	65.0	4,000 lbs	8	604006	**112.32**
10210	5/8-11	3/8	0.100	1.187	0.500	1.125	0.590	100.0	6,000 lbs	4	604007	**85.20**
Metric								**(N.m.)**				
50204	M4	3mm	0.76mm	7.93mm	2.80mm	9.6mm	3.80mm	2.0 N.m.	910 N	10	604008	**85.20**
50206	M6	4mm	1.01mm	15.86mm	4.75mm	11.2mm	7.80mm	8.5 N.m.	3,558 N	10	604009	**89.68**
50208	M8	5mm	1.01mm	20.61mm	4.75mm	15.0mm	10.15mm	11.3 N.m.	3,558 N	12	604010	**112.32**
50210	M10	7mm	1.27mm	20.61mm	6.35mm	19.0mm	10.15mm	28.0 N.m.	8,895 N	10	604011	**103.36**
50212	M12	8mm	2.03mm	25.38mm	9.52mm	22.8mm	12.70mm	88.0 N.m.	17,790 N	8	604012	**112.32**
50216	M16	12mm	2.54mm	30.13mm	12.70mm	28.5mm	15.00mm	125.0 N.m.	26,680 N	4	604013	**85.20**
Stainless Steel Washer & Screw												
10214	8 - 32	5/64	0.030	0.312	0.110	0.350	0.150	1.5 (ft/lbs)	205 lbs	10	604476	**64.32**
10203	1/4-20	1/8	0.040	0.625	0.190	0.470	0.308	6.2 (ft/lbs)	800 lbs	4	604014	**96.56**
10213	5/16-18	3/16	0.040	0.812	0.250	0.460	0.400	8.3 (ft/lbs)	800 lbs	4	604015	**82.08**
50214	M4	3mm	0.76mm	7.93mm	2.80mm	9.6mm	3.80mm	2.0(N.m.)	910N	10	604477	**64.32**
50205	M6	4mm	1.01mm	15.86mm	4.75mm	11.2mm	7.80mm	8.5 (N.m.)	3,558 N	4	604016	**100.40**
50207	M8	5mm	1.01mm	20.60mm	6.35mm	15.0mm	10.15mm	11.30 (N.m.)	3,558 N	4	604017	**129.28**

***G** - Location to drill and tap from edge of workpiece

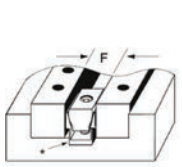
Uniforce Clamps

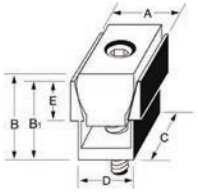
The Mitee-Bite Uniforce Clamp, a compact, economical workholding device enables you to fixture more parts on the machine table. This simple efficient wedge design provides equilateral clamping force on both sides of the aluminum channel to hold two parts with one clamping action.

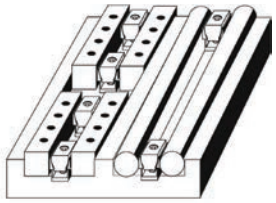
Visit www.miteebite.com for the "Mitee-Bite Challenge" and more product detail.









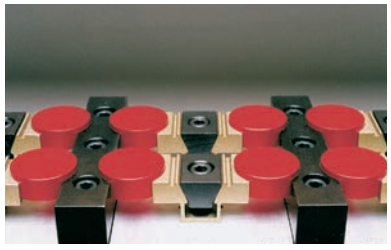


Part No.	Model	A	B	B1	C	*D	E	*F	Thread Size	Maximum Spread	Max Torque (ft/lbs)	Holding Force (lbs)	Clamps Per Pack	Key Size	Code No.	Price $ Per Pack
Inch																
60250	250	0.240	0.270	0.250	0.320	0.210	0.140	0.250	2-56	0.260	0.5	200	6	5/64	604037	**105.44**
60375	375	0.360	0.380	0.375	0.470	0.310	0.185	0.375	4-40	0.390	1.1	310	6	3/32	604038	**105.44**
60500	500	0.485	0.580	0.500	0.625	0.410	0.220	0.500	8-32	0.530	2.5	500	8	9/64	604039	**105.44**
60750	750	0.735	0.770	0.750	0.940	0.635	0.375	0.750	1/4-20	0.785	10.8	1,500	6	3/16	604040	**107.36**
61000	1000	0.980	1.020	1.000	1.250	0.820	0.500	1.000	5/16-18	1.050	10.4	2,000	4	1/4	604041	**105.44**
61500	1500	1.470	1.520	1.500	1.875	1.215	0.750	1.500	1/2-13	1.560	28.3	3,500	2	3/8	604042	**175.60**
62000	2000	1.960	2.030	2.000	2.500	1.625	1.000	2.000	5/8-11	2.080	55.0	6,000	2	1/2	604043	**266.24**

***D -** A milled slot wider than D dimension will insure the clamp remains in line with workpiece. Clamp sides should not come in contact with slot walls during expansion.
***F -** The distance needed between workpieces for clamp clearance. Drill and tap mounting hole on the center of F dimension.
Metric also available, call for more information.

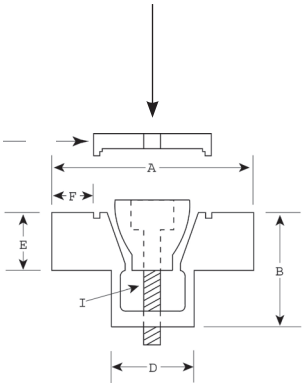
Machinable Uniforce Clamps



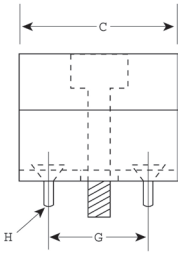


Now you can hold those round and unusual shape parts with ease. This compact method of workholding will allow more parts per load at a lower price than vise soft jaws. The compact Mitee-Bite Uniforce Clamp is available with extra material on the clamping jaws so it can be machined to conform to the shape of your workpiece. The specially designed steel wedge spreads the clamping force uniformly on both sides of the 7075-T6 aluminum channel. A unique locking plate is provided to make the clamp rigid while machining the jaws to your specifications, without vibration.

Locking plate is used only to machine jaws, remove to clamp workpiece



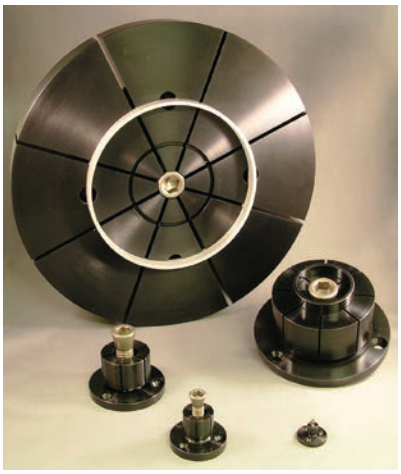
When clamp is used to hold flat stock, use locking plate to machine faces parallel



Model	Part No.	Description	*A	B	C	D	E	*F	G	*H	I	Max Torque (ft/lbs)	Holding Force (lbs)	Code No.	Price $
Inch															
500	60050	With Locking Plate	1.125	0.50	0.62	0.420	0.25	0.18	0.400	2-56	8-32	2.5	500	604058	**35.76**
750	60075	With Locking Plate	1.500	0.75	0.94	0.632	0.37	0.26	0.625	6-32	1/4-20	10.8	1,500	604060	**37.84**
1000	60100	With Locking Plate	2.000	1.00	1.25	0.820	0.50	0.39	0.812	6-32	5/16-18	10.4	2,000	604062	**52.24**
1500	60150	With Locking Plate	3.000	1.50	1.87	1.215	0.75	0.62	1.200	10-32	1/2-13	28.3	3,500	604064	**144.80**
2000	60200	With Locking Plate	4.000	2.00	2.50	1.625	1.00	0.80	1.625	1/4-20	5/8-11	55.0	6,000	604066	**237.28**

***A -** The distance needed between workpieces for clamp clearance, drill and tap mounting holes on the center of "A" dimension.
***F -** The amount of machinable stock on the jaws.
***H -** Mounting screws included.
Metric also available, call for more information.

ID Xpansion™ Clamp



The ID Xpansion™ Clamp is the ideal way to hold multiple parts on an inside diameter for machining on your VMC or HMC. These machinable clamps are produced in 12 sizes and can hold internal diameters from 0.160 to 9.85.

- Low profile
- Ideal for secondary operations on lathe parts
- Easily machined to size on lathe or mill
- Excellent for palletized setups
- Allows more parts per workcube or fixture plates
- Clamp body made of mild steel for machinability
- Tighten with hex key or hydraulic pull cylinders
- Longer screws are available for hydraulic applications (pull cylinders)



Model #00 - #6 ID Xpansion® Clamps

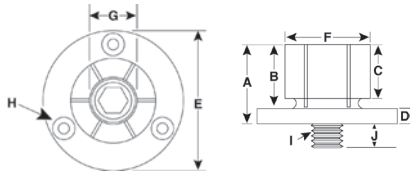
- Expand clamp approximately 0.002" to 0.003" (0.1mm) over relaxed diameter and machine to fit workpiece bore, either on lathe or mill.
- If machining the clamp on lathe use the nut provided on the back of the clamp to tighten the tapered screw. This nut is used only while machining the clamp.
- Machine a pocket in the fixture, for the close tolerance "E" dimension and drill and tap mounting holes per "H" column. Drill and tap a hole from the "I" column in the center of the pocket for the tapered screw.
- A recessed dowel pin may be installed into the flange for additional rigidity if required.
- Range of expansion 0.005" to 0.025" (0.2 to 0.5mm) depending upon size.



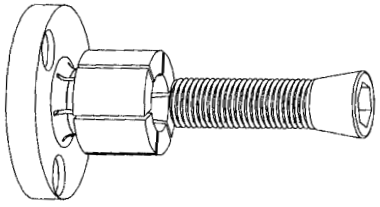
Model #7 - #10 ID Xpansion® Clamps

- Locking ring provided to ensure segments remain rigid while machining clamps to size.
- Insert ring and tighten drive screw, machine clamp to bore size. Remove ring to clamp workpiece.
- Aggressive material removal is not recommended when machining clamps to size.





Machining/Locking ring included on models #7-#10 to ensure the segments remain rigid while machining the clamp



Part No.	Model	A	B	C	D	E (+0.000/-0.002)	F	*G	*H	I	J	Max Torque (ft/lbs)	Holding Force (Lbs)	Code No.	Price $
Inch															
31000	#00	0.42	0.30	0.24	0.12	0.787	0.29	0.16	2-56 on 0.540 BHC	2-56	0.16	0.5	250	604123	**61.68**
31050	#0	0.86	0.63	0.59	0.23	1.170	0.49	0.28	6-32 on 0.82 BHC	8-32	0.30	3.6	950	604124	**61.68**
31100	#1	0.98	0.75	0.59	0.23	1.240	0.56	0.48	6-32 on 0.910 BHC	1/4-20	0.50	13.3	1,900	604125	**61.68**
31150	#2	0.98	0.75	0.59	0.23	1.476	0.79	0.53	6-32 on 1.140 BHC	5/16-18	0.56	27.6	2,500	604126	**65.68**
31200	#3	1.13	0.88	0.69	0.25	1.969	1.06	0.71	8-32 on 1.550 BHC	3/8-16	0.71	49.3	4,500	604127	**85.36**
31250	#4	1.25	1.00	0.81	0.25	2.205	1.39	0.90	8-32 on 1.790 BHC	1/2-13	0.71	120.0	5,900	604128	**105.28**
31300	#5	1.56	1.25	1.06	0.31	2.736	1.65	1.15	10-32 on 2.200 BHC	5/8-11	0.79	224.0	10,000	604129	**134.96**
31350	#6	1.56	1.25	1.06	0.31	2.972	2.03	1.15	10-32 on 2.515 BHC	5/8-11	0.79	224.0	10,000	604130	**148.08**
31400	#7	1.79	1.48	1.27	0.31	4.232	3.06	1.15	1/4-20 on 3.646 BHC	5/8-11	0.79	224.0	10,000	604131	**235.44**
31450	#8	1.79	1.48	1.27	0.31	5.232	4.06	1.15	1/4-20 on 4.648 BHC	5/8-11	0.79	224.0	10,000	604132	**288.88**
31500	#9	1.79	1.48	1.27	0.31	5.232	6.89	1.15	1/4-20 on 4.648 BHC	5/8-11	0.79	224.0	10,000	604438	**813.36**
31550	#10*	1.79	1.48	1.27	0.31	6.000	9.85	1.15	1/4-20 on 5.250 BHC	5/8-11	0.79	125.0	6,000	604440	**1,428.00**

***G -** Minimum diameter the "F" dimension can be machined or turned down
***H -** (3) Mounting screws included - (4) for model numbers #9 and #10
***Model #10** Made from 7075-T6 Aluminum
Metric also available, call for more information

OK-VISE® Clamps



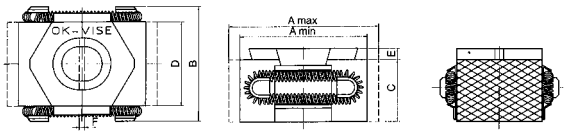
The OK-Vise Clamp
With clamping capabilities up to 33,000 lbs, the OK-Vise is one of the strongest workholding products available in the Machine Tool Industry today.

Three Dimensional Machining
Due to the low-profile design of the OK-Vise Clamps, it is possible to execute flexible three-directional machining of workpieces with one fastening. This feature creates improved accuracy. The single wedge clamp locks the workpiece to prevent any movement.



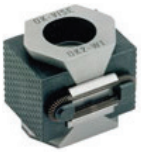


Single-Wedge OK-Vise Clamps
Strong lateral clamping with a single wedge design

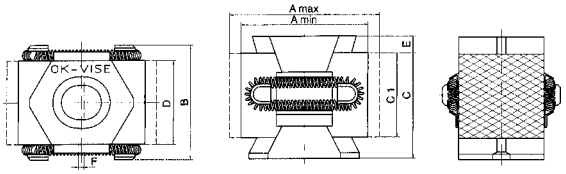


Part No.	Model	Min. (in.)	A Optimum	Max. (in.)	B	C	D	E	F	Mounting Screw (Included)	Max Torque (ft/lbs)	Pressing Force of Jaws (lbs)	Hardness of Jaws HRC	Code No.	Price $
*47100	AK2-VT-SO	0.79	0.90	0.98	0.86	0.43	0.59	0.16	0.060	10-32 x 3/4	7	2,000	48-52	604442	**94.76**
*47110	BK2-VT-S	1.06	1.14	1.22	1.14	0.59	0.83	0.10	0.060	5/16-18 x 3/4	30	5,500	48-52	604068	**190.84**
47105	BK2-VT-O	1.06	1.14	1.22	1.14	0.59	0.83	0.10	0.060	5/16-18 x 3/4	30	5,500	48-52	604468	**149.33**
*47103	BK2-VT-SO	1.06	1.14	1.22	1.14	0.59	0.83	0.10	0.060	5/16- 18 x 3/4	30	5,500	48-52	604469	**149.33**
47115	BK2-VT	1.06	1.14	1.22	1.14	0.59	0.83	0.10	0.060	5/16-18 x 3/4	30	5,500	48-52	604069	**190.84**
47113	BK2-VT-SS	1.06	1.14	1.22	1.14	0.59	0.83	0.10	0.060	5/16-18 x 3/4	30	5,500	48-52	604470	**190.84**
47130	DK2-VTI	1.65	1.77	1.93	1.61	0.87	1.18	0.16	0.080	1/2-13 x 1-1/4	110	14,500	48-52	604070	**282.93**
47160	FK2-VT	2.24	2.40	2.60	2.20	1.14	1.65	0.20	0.145	5/8-11 x 1-1/2	250	24,900	48-52	604071	**448.00**

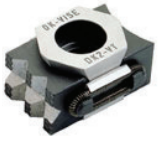
*47100, 47110 and 47103 have smooth jaws



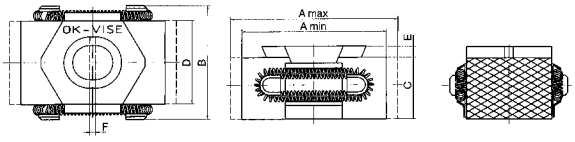
Double-Wedge OK-Vise Clamps
The double-wedge clamps generate a pull-down action pressing the workpiece down towards the fixture base



Part No.	Model	Min. (in.)	A Optimum	Max. (in.)	B	C	C1	D	E	F	Mounting Screw (Included)	Max Torque (ft/lbs)	Pressing Force of Jaws (lbs)	Hardness of Jaws HRC	Code No.	Price $
47150	DK2-WTI	1.65	1.77	1.93	1.61	1.42	1.18	1.18	0.20	0.080	1/2-13 x 1-1/2	110	20,000	48-52	604072	**399.47**
47180	FK2-WT	2.24	2.40	2.65	2.20	1.97	1.65	1.65	0.20	0.145	5/8-11 x 2-1/4	250	33,000	48-52	604073	**560.00**



Machinable Single-Wedge OK-Vise Clamps
Additional material is added to these machinable jaws

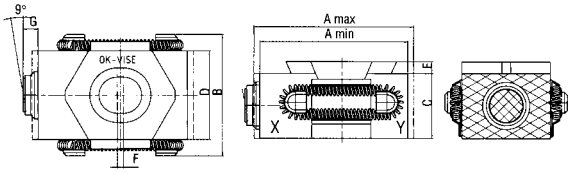


Part No.	Model	Min. (in.)	A Optimum	Max. (in.)	B	C	D	E	F	Mounting Screw (Included)	Max Torque (ft/lbs)	Pressing Force of Jaws (lbs)	Hardness of Jaws HRC	Code No.	Price $
*47120	BK2-VT-S+3	1.30	1.38	1.46	1.14	0.59	0.83	0.10	0.060	5/16-18 x 3/4	30	5,000	30-34	604074	**246.40**
47140	DK2-VTI+5	2.05	2.17	2.32	1.61	0.87	1.18	0.16	0.080	1/2-13 x 1-1/4	110	12,000	30-34	604075	**354.67**
47170	FK2-VT+5	2.64	2.80	2.99	2.20	1.14	1.65	0.20	0.145	5/8-11 x 1-1/2	250	22,000	30-34	604076	**485.33**

*47120 has smooth jaw

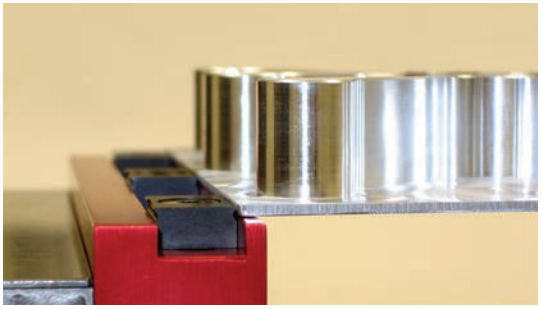


Special Model OK-Vise Clamps
OK-Vise low-profile clamp with a self adjusting steel ball used when clamping castings and workpieces with irregular shapes

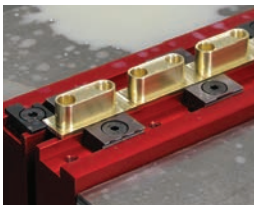


Part No.	Model	Min. (in.)	A Optimum	Max. (in.)	B	C	D	E	F	G	H	K	L	Mounting Screw (Included)	Max Torque (ft/lbs)	Pressing Force of Jaws (lbs)	Code No.	Price $
47112	BK2-VT-T	1.18	1.26	1.34	1.14	0.59	0.83	0.10	-	0.30	0.47	0.83	M5	5/16-18 x 3/4 SHCS	30	5,000	604471	**326.67**
47145	DK2-VTI-T	1.81	1.93	2.09	1.61	0.87	1.18	0.16	-	0.43	0.71	1.10	M5	1/2-13 x 1-1/4 SHCS	110	12,000	604472	**461.07**
47175	FK2-VT-T	2.40	2.56	2.76	2.20	1.14	1.65	0.19	-	0.57	1.02	1.57	M5	5/8-11 x 1-1/2 SHCS	250	22,000	604473	**593.60**
47185	BK2-VT-B	1.18	1.26	1.34	1.14	0.59	.83	0.10	0.060	0.12	-	-	-	5/16-18 x 3/4	30	5,500	604077	**337.78**
47190	DK2-VTI-B	1.85	1.97	2.12	1.61	.87	1.18	0.16	0.080	0.20	-	-	-	1/2-13 x 1-1/4	110	12,000	604078	**488.09**
47187	BK2-VT-E	1.54	1.61	1.69	1.14	0.59	0.83	0.10	-	-	-	-	-	5/16-18 x 3/4 SHCS	30	5,000	604474	**410.67**
47186	DK2-VTI-E	2.44	2.56	2.72	1.61	0.86	1.18	0.15	-	-	-	-	-	1/2-13 x 1-1/4 SHCS	110	12,000	604475	**526.40**

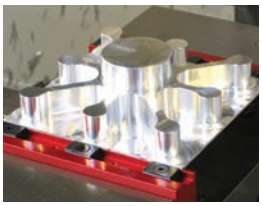
TalonGrip™ Vise Jaws



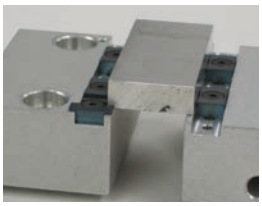
MITEE-BITE Products introduces a new and innovative product that will increase the functionality of your standard 4 and 6 inch (100mm and 150mm) vises. **TalonGrip™** is a simple bolt system that will allow you to perform aggressive machining operations while clamping on as little as 0.060 (1.5mm) of an inch. Ideal for small lot sizes, difficult applications or proto-type work when building a fixture would not be beneficial. TalonGrips are also available individually for fixturing with Pitbull and Dyna-Force clamps or for soft jaw applications.



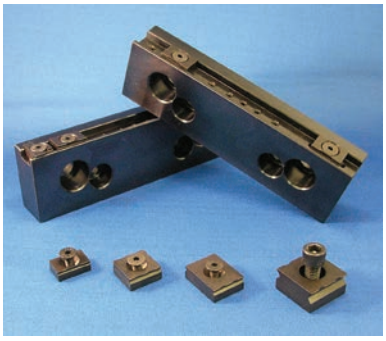
Multiple Parts

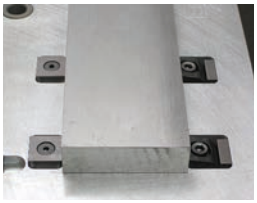


Aggressive stock removal

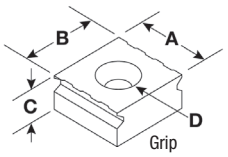


Soft Jaws



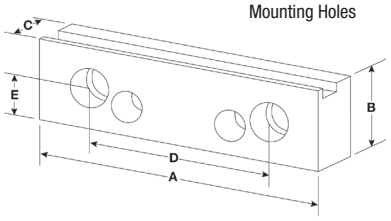


Fixture Application
with Pitbull Clamps



Grip
(Grips 52-54 HRC)

Vise Jaw with
Mounting Holes



Steel Vise Jaw Set (Set Includes 4 TalonGrips, 1 stop with M5 Screws)

Part No.	Vise	A Inch (Metric)	B Inch (Metric)	C Inch (Metric)	D Inch (Metric)	E Inch (Metric)	Code No.	Price $
With Mounting Holes								
32044	4" (100mm)	4.0" (100)	1.48" (37.59)	1.0" (25.4)	2.5" (63.5)	0.688" (17.47)	604410	**252.00**
32066	4"/6" (100mm/150mm)	6.0" (150)	1.73" (43.94)	1.0" (25.4)	2.5"/3.88" (63.5/98.55)	0.688"/0.94" (17.47/23.87)	604412	**285.60**
32068	6" (150mm)	8.0" (200)	1.73" (43.94)	1.0" (25.4)	3.88" (98.55)	0.94" (23.87)	604414	**319.20**
32088	6"/8" (150mm/200mm)	8.0" (200)	2.45" (62.23)	1.25" (31.75)	3.87"/4.75" (98.3/120.65)	0.94"/1.218" (23.87/30.94)	604466	**420.00**
Without Mounting Holes								
33044	4" (100mm)	4.0" (100)	1.48" (37.59)	1.0" (25.4)	-	-	604411	**252.00**
33066	4"/6" (100mm/150mm)	6.0" (150)	1.73" (43.94)	1.0" (25.4)	-	-	604413	**285.60**
33068	6" (150mm)	8.0" (200)	1.73" (43.94)	1.0" (25.4)	-	-	604415	**319.20**

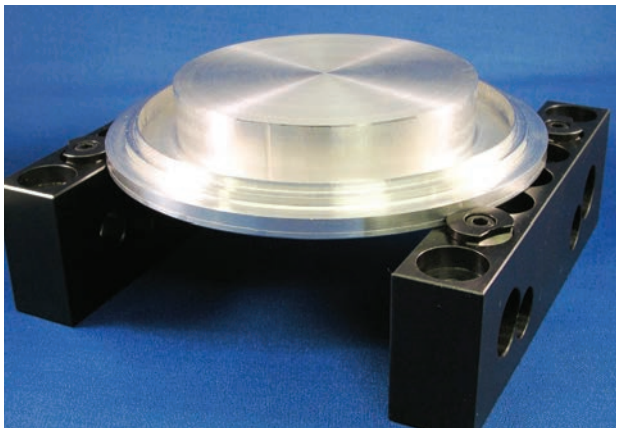
Vise Jaw Grips & Stops

Part No.	Description	A Inch (Metric)	B Inch (Metric)	C Inch (Metric)	D Inch (Metric)	Recommended Gripping Height	No. of Grips Per Pack	Code No.	Price $ Per Pack
Inch									
32050	Extra Grips	0.75"	0.500"	0.250"	10-32	0.060-0.075	2	604416	**41.20**
32020	Extra Stop	0.75"	0.500"	0.250"	10-32	-	1	604421	**25.20**
Metric									
33050	Extra Grips	19.05mm	12.7mm	6.35mm	M5	1.5mm-1.9mm	2	604418	**41.20**
33020	Extra Stop	19.05mm	12.7mm	6.35mm	M5	-	1	604423	**25.20**
33030	Extra Stop	19.05mm	19.05mm	7.92mm	M5	-	1	604467	**25.20**

Fixture Grips

Part No.	A Inch (Metric)	B Inch (Metric)	C Inch (Metric)	D Inch (Metric)	Recommended Gripping Height	No. of Grips Per Pack	Code No.	Price $ Per Pack
Inch								
32075	0.75"	0.750"	0.312"	10-32	0.060"-0.120"	2	604424	**46.24**
32100	0.75"	1.000"	0.312"	10-32	0.060"-0.120"	2	604428	**50.88**
32150	1.00"	1.000"	0.500"	5/16-18	0.060"-0.120"	1	604429	**43.68**
Metric								
33075	19.05mm	19.05mm	7.92mm	M5	1.5mm-3.0mm	2	604426	**46.24**
33100	19.05mm	25.4mm	7.92mm	M5	1.5mm-3.0mm	2	604430	**50.88**
33150	25.4mm	25.4mm	12.7mm	M5	1.5mm-3.0mm	1	604431	**43.68**

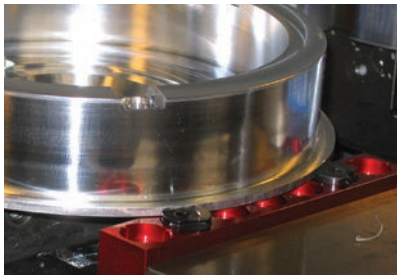
VersaGrip™ Vise Jaws



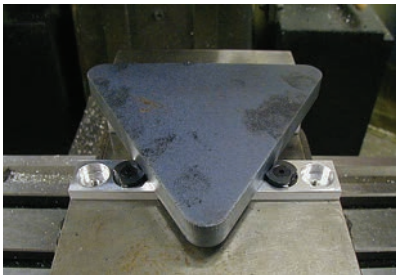
VersaGrip™, as the name implies, offers the versatility of clamping standard vise work as well as providing a solution for difficult applications that would normally require fixturing or machining soft-jaws. By simply replacing your current jaws with the VersaGrip™ system you can securely hold odd shaped parts while machining at speeds and feeds you never thought possible.

This system can accommodate a wide range of part sizes as well as holding multiple parts in a single cycle. The hardened (52-54 HRC) VersaGrip™ has penetrating teeth designed to bite into your workpiece preventing lateral and horizontal movement. These grips will hold flame cut parts, castings, even parts with a negative draft!





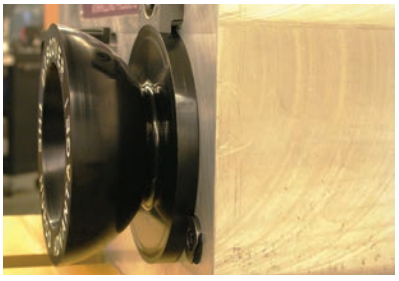
Large Dimensions



Odd Shaped Parts



Multiple Parts



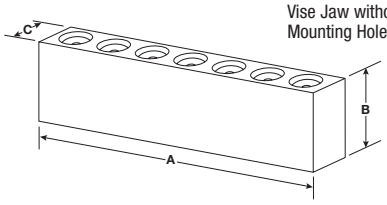
Tombstone Application

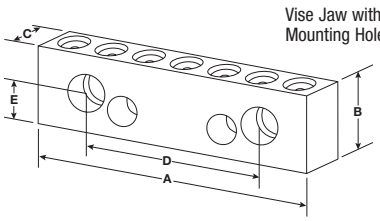


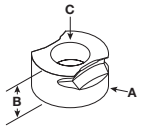
TalonGrip™ & VersaGrip™ 6" Combo Kit

Part No.	Contents of Kit	Code No.	Price $
33006	32066 TalonGrip Vise Jaw Set 32166 VersaGrip Vise Jaw Set	604464	**596.40**

NOTE: All Jaws designed to fit on a 4" or 6" Vise







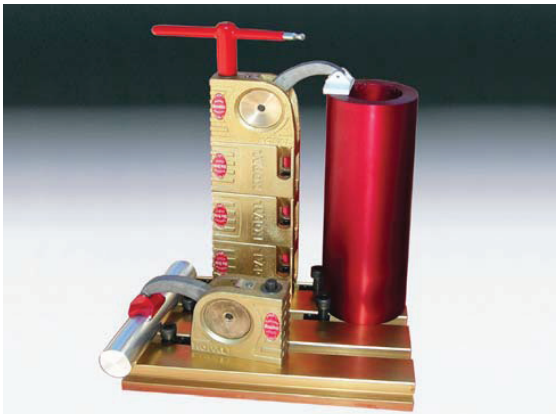
Steel Vise Jaw Set (Set Includes 4 VersaGrips)

Part No.	Vise	A Inch (Metric)	B Inch (Metric)	C Inch (Metric)	D Inch (Metric)	E Inch (Metric)	Code No.	Price $
With Mounting Holes								
32166	4"/6" (100mm/150mm)	6.0" (150)	1.88" (47.75)	1.0" (25.4)	2.5"/3.88" (63.5/98.55)	0.688"/0.94" (17.47/23.87)	604432	**310.80**
32168	6" (150mm)	8.0" (200)	1.88" (47.75)	1.0" (25.4)	3.88" (98.55)	0.94" (23.87)	604434	**336.00**
Without Mounting Holes								
33166	6" (150mm)	8" (200mm)	1.88" (47.75)	1.0" (25.4)	-	-	604433	**310.80**
33168	8" (200mm)	8" (200mm)	1.88" (47.75)	1.0" (25.4)	-	-	604435	**336.00**

VersaGrip™

Part No.	A Inch (Metric)	B Inch (Metric)	C Inch (Metric)	Recommended Gripping Height	No. of Grips Per Pack	Code No.	Price $
33175	0.750"	0.375"	10-32	0.060-0.140	2	604465	**58.80**
32175	19.05	9.52	M5	1.55mm-3.5mm	2	604436	**58.80**

Kopal® Clamps



Need a quick and easy way to clamp parts with top pressure? Check out this versatile line-up of clamps! From the strong but compact Piccolo to the heavy-duty Big Block.

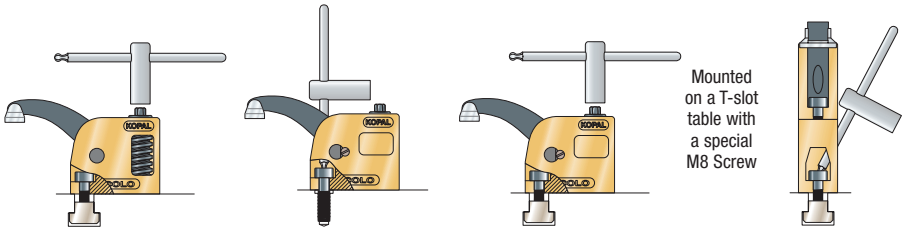
The worm and gear design ensures the clamps will not loosen with use yet the clamps are easy to set up and break down. This is ideal for short cycle times and odd shaped parts.

The modular design also allows adjusting clamping height by stacking the riser blocks, and the use of an extension arm increases reach!

PICCOLO

Up to 1460 lbs. (6500N) Holding Force

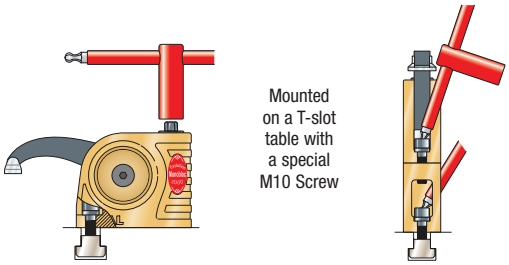
When the arm is released, the Piccolo remains in position in the slot.



MONO BLOC

Up to 3600 lbs. (16000N) Holding Force

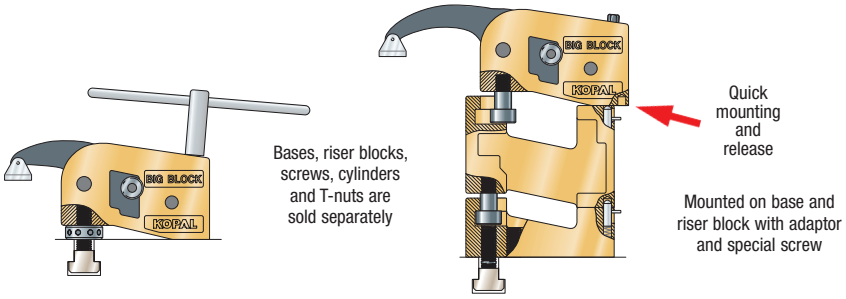
1. Slide the T-nut and the screw into the slot
2. Position and tighten the clamp onto the table using the clamping key provided
3. Clamp the workpiece using the same key
4. Proceed with machining



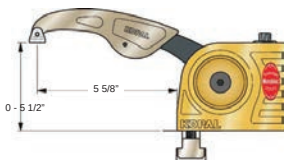
BIG BLOCK

Up to 9000 lbs. (40000N) Holding Force

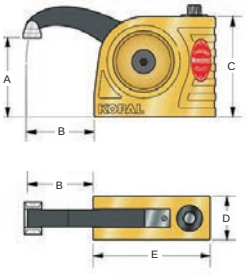
When the workpiece is released, the Big Block can either remain fixed in the slot, or slide in the slot.



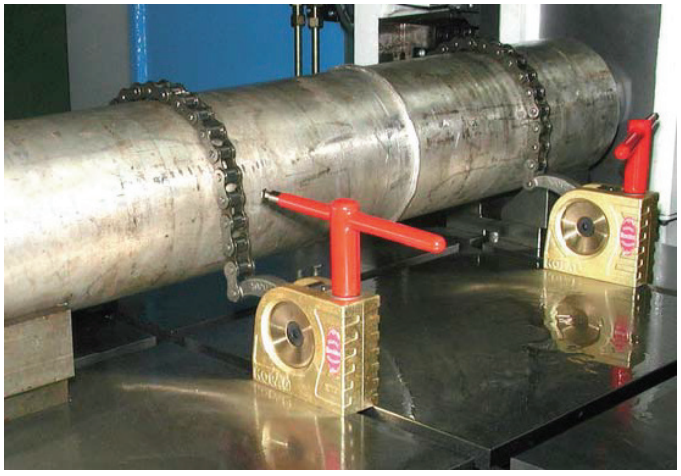
Part No.	Description	A	B	C	D	E	Code No.	Price $
25500	Piccolo	-0.60"-2.28"	2.125"	2.5"	1.250"	2.87"	604486	**687.38**
25705	Mono Bloc	0"-4"	2.375"	3.5"	1.563"	4.25"	604184	**799.64**
08035	Big Block	-70"-5.32"	5.700"	4.1"	2.350"	6.38"	604485	**1,859.82**



Mono-Bloc with extension arm increases range to 5 1/2"



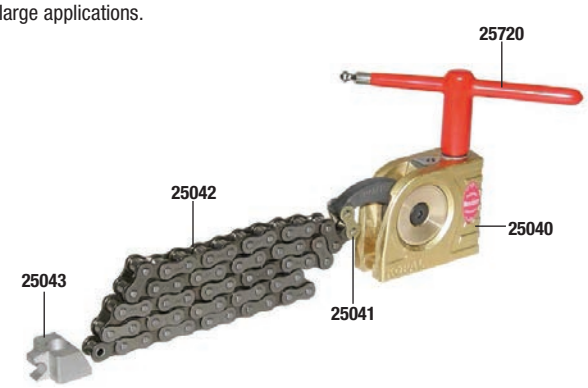
Mono-Bloc Chain Clamp



The Mono-Bloc Chain Clamp is a simple and rapid workholding solution for a wide array of applications.

The Chain Clamp offers fast and powerful clamping with forces up to 3600 lbs. (16000N).

Additional lengths of chain can be added for large applications.



Mono-Bloc

Part No.	Description	A	B	C	D	E	Code No.	Price $
25040	Mono-Bloc Chain	0"-4"	2.375"	3.5"	1.563"	4.25"	604478	**1,143.38**

Parts for the Mono-Bloc

Part No.	Description	Code No.	Price $
25041	Master Link	604479	**11.20**
25042	Extra Chain (1 meter)	604480	**113.24**
25043	Anchor	604481	**280.00**
25045	Protective Clips (5/pk)	604482	**46.67**
25720	Wrench	604187	**68.89**



To prevent marring or scratching on delicate pieces use the protective chain clips. (25045) Minimum radius 6".

Deluxe Mono-Bloc Start-up Kit

High-impact plastic storage/carrying case with room to store tools listed below and space to store additional T-nuts for other size mills.

Kit includes:

(2) Mono-Bloc Clamps with 2 5/8" arm
(2) Standard-Duty Riser Blocks
(1) Extension Arm
(1) Standard-duty T-Wrench
(2) M10x35mm screws
(2) M10x40mm screws
(2) T-nuts (choose from chart below)



Mono-Bloc Start-up Kit

Part No.	T-Slot Size	Code No.	Price $
25725	1/2"	604338	**2,138.04**
25727	9/16"	604197	**2,138.04**
25729	5/8	604198	**2,138.04**
25731	3/4"	604199	**2,138.04**

Individual Mono-Bloc Items

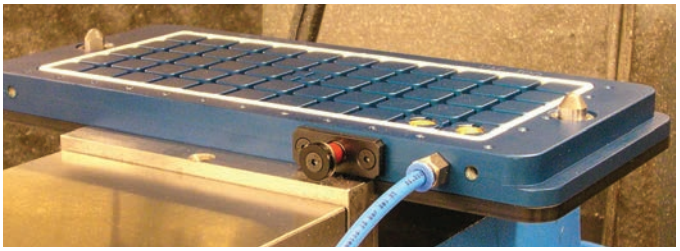
Part No.	Description	Code No.	Price $
25705	Mono-Bloc Clamp with 2 5/8" Arm (Includes T-wrench)	604184	**799.64**
25710	Standard-Duty Riser Block	604185	**229.87**
25515	Replacement Swivel Shoe	604186	**28.00**
25720	T-Wrench for Mono-Bloc	604187	**68.89**
25540	Extension Arm	604188	**199.91**
25310	Worm Gear	604483	**207.91**

Special Screws And T-Nuts For Mono-Bloc

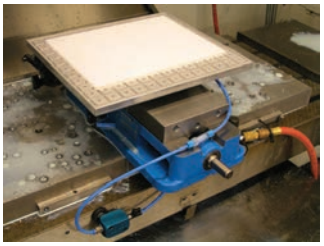
Part No.	Part Description	Code No.	Price $
25730	M10 x 35mm Screw for 9/16" T-Nut	604189	**26.40**
25733	M10 x 40mm Screw for 5/8" & 3/4" T-Nut	604190	**27.47**
25736	M10 x 45mm Screw for 13/16" & 7/8" T-Nut	604191	**33.42**
25747	1/2" x M10 T-Nut (12mm)	604484	**21.68**
25748	9/16" x M10 T-Nut (14mm)	604192	**42.93**
25751	5/8" x M10 T-Nut (16mm)	604193	**45.07**
25754	3/4" x M10 T-Nut (18mm)	604194	**52.71**
25757	13/16" x M10 T-Nut (20mm)	604195	**36.62**
25760	7/8" x M10 T-Nut (22mm)	604196	**38.49**

Vacmagic® VM100

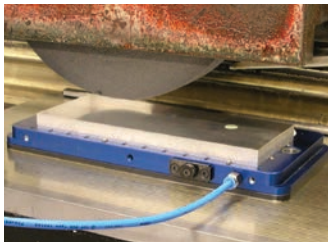
MITEE-BITE PRODUCTS LLC



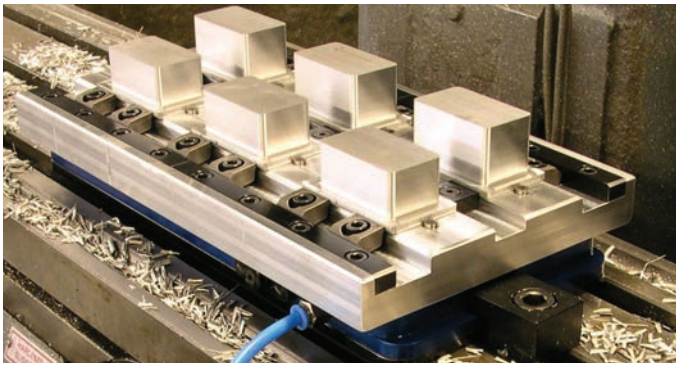
VM100 Base Unit (45375) in Vise



VM100 Base Unit (45375) with VM300 Vacuum Pallet (45150)



VM100 Base Unit (45375) on a Magnetic Chuck

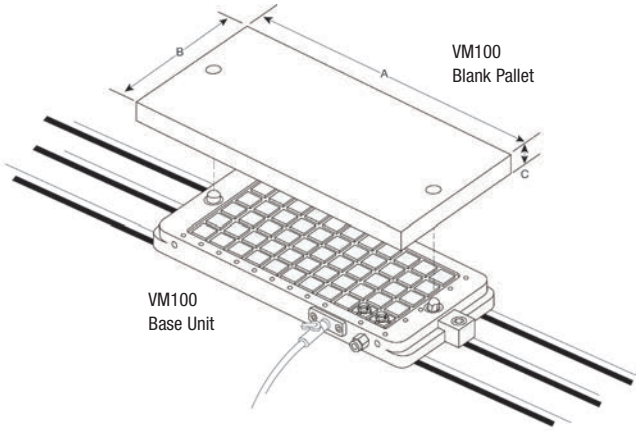


VM100 Base Unit (45375) with a Production Pallet (VM100 Blank Pallet - 45325)

The Simplest and Most Versatile Vacuum System on the Market

The **VM100** was primarily designed for grinding non-ferrous material on a magnetic chuck. During the early stages of R & D it was discovered the VM100 could be much more. Clamp the VM100 in vise to reduce set-up time, use as a pallet changer or mount to a grid plate or T-slot table. The VM100 uses the same patented method as the VM300 to produce a vacuum strong enough for industrial applications but still operates on shop air! No need for vacuum pumps and coolant traps. We include everything necessary to get your VM100 running within minutes of opening the box.

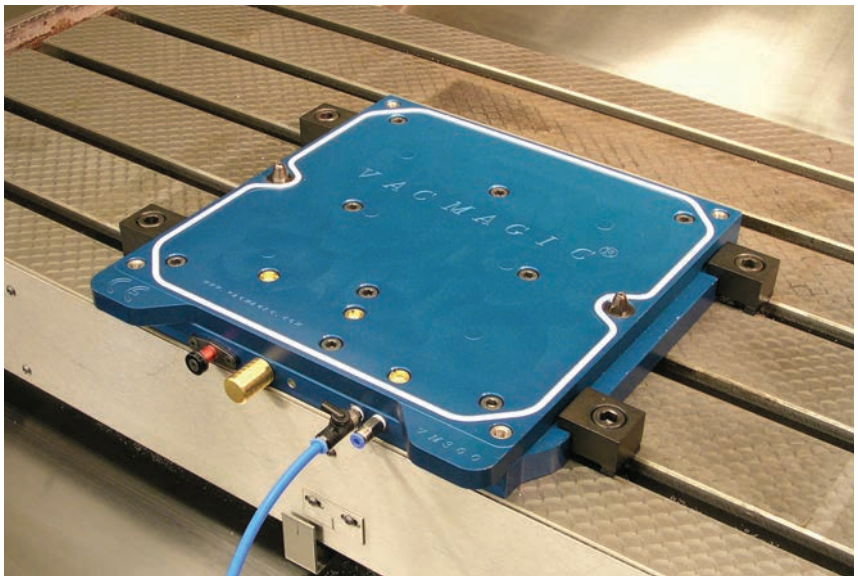
- Operates on 70-100 psi shop air, eliminating vacuum pumps and coolant traps
- Will accept the standard VM300 vacuum pallet, increasing your vacuum platform to over 14" x 12" (360mm x 315mm)
- Make your own vacuum fixtures - we can help with the design and produce the fixture for your custom application
- Remove 12mm pins when grinding/machining thin material, use set screws to locate and aid in holding force



Part No.	Description	A - Length Inch (Metric)	B -Width Inch (Metric)	C -Height Inch (Metric)	Code No.	Price $
VM100						
45300	**Complete System:** Base Unit, 2 blank pallets, VM100 vacuum pallet				604444	**2,856.00**
45325	Blank Pallet	12.5" (318mm)	5.875" (150mm)	1.0" (25mm)	604446	**168.00**
45375	Base Unit with Mounting Clamps	12.375" (315mm)	5.5" (140mm)	1.0" (25mm)	604450	**2,620.80**
45150	VM300 Vacuum Pallet (optional, not included in VM100 system)	14.2" (360mm)	12.4" (315mm)	0.63" (16mm)	604402	**571.20**
VM300						
45101	**Complete System:** Base Unit, 2 Blank Pallets, 1 Vacuum Pallet, Vacuum Gasket				604336	**5,863.20**
45130	Blank Pallet: 19mm thick	14.2" (360mm)	12.4" (315mm)	0.75" (19mm)	604404	**462.00**
45135	1" Thick Blank Pallet	14.93" (379mm)	14.93" (379mm)	1.0" (25mm)	604459	**504.00**
45150	VM300 Vacuum Pallet	14.2" (360mm)	12.4" (315mm)	0.63" (16mm)	604402	**571.20**
45160	VM300 Large Vacuum Pallet	33.625" (859mm)	14.5" (368mm)	0.625" (16mm)	604452	**1,638.00**
45175	Base Unit (Receiver) Includes: safety switch, required hoses	12.75" (323mm)	13.0" (330mm)	1.375" (35mm)	604400	**4,368.00**
Gasket Material (for VM300 & VM100)		**Diameter**				
45110	Black Vacuum Gasket - per 5 ft. length	0.170			604337	**12.00**
45111	Black Vacuum Gasket - by the foot	0.170			604454	**2.56**
45115	Black Vacuum Gasket - by the foot	0.070			604460	**2.56**
45118	Black Vacuum Gasket - per 5 ft. length	0.125			604456	**12.00**
45119	Black Vacuum Gasket - by the foot	0.188			604461	**2.56**
45114	White Vacuum Gasket - by the foot	0.170			604458	**2.56**
45116	White Vacuum Gasket - by the foot	0.070			604462	**2.56**
45117	White Vacuum Gasket - by the foot	0.125			604463	**2.56**

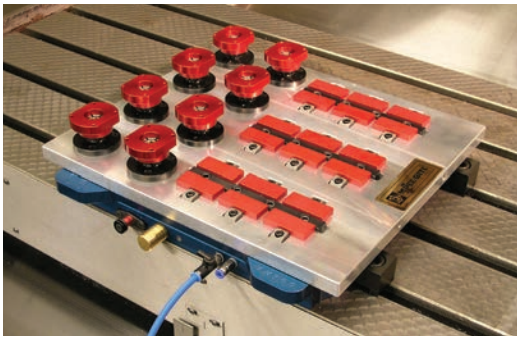
Black Gasket - Excellent for long cycles and aggressive coolants
White Gasket - Excellent for small parts, water based coolant or running dry

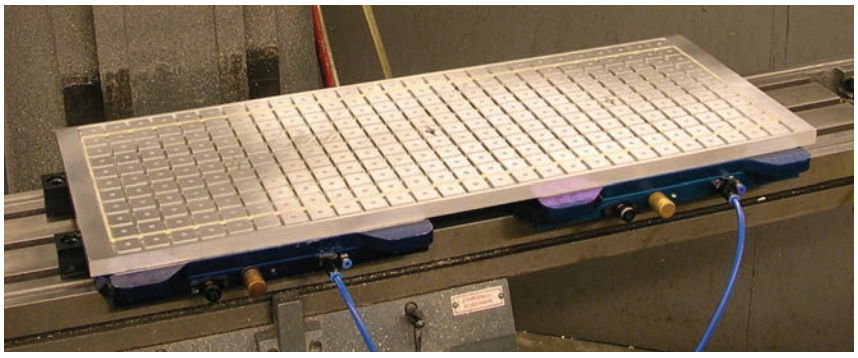
Vacmagic® VM300



The All-in-One Pallet Changer and Vacuum System
In a relatively short amount of time the VM300 has established itself as the vacuum system to which all others are measured. Capabilities include traditional vacuum applications using our standard vacuum pallet and custom vacuum applications (ie. machining blank pallet to suit specific part geometry) and the ability to perform as a rock solid pallet changer.

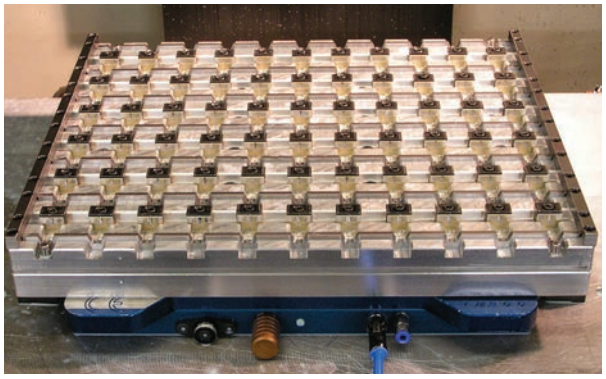
- Simple design keeps cost low
- Quick-change - swap pallets in 30 seconds or less
- Productivity maximized - load pallets while machining
- Easy to install and set-up
- Precise repeatability
- Reliable and easy to use - virtually maintenance free
- Flexible pallet design - limited only by your imagination!
- No pumps - uses standard shop air





Two VM300 Base Units (45175) and large Vacuum Pallet (45160)

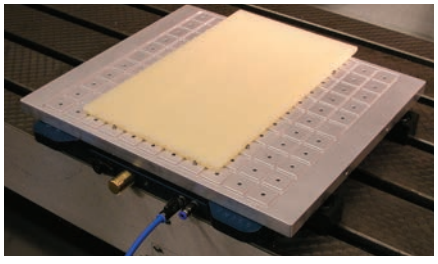
METALWORKING PRODUCTION AWARDS 06
IN ASSOCIATION WITH MACH & SUBCON
WINNER



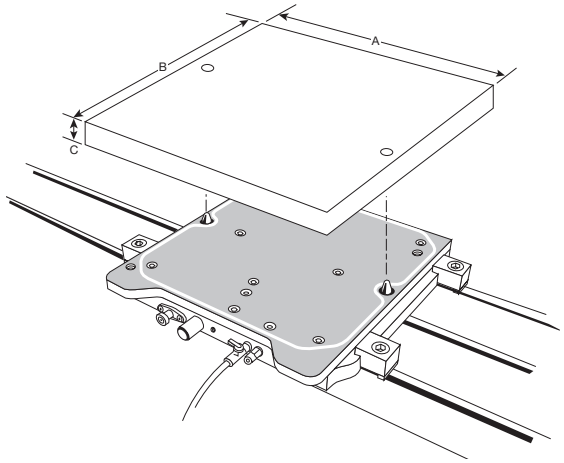
VM300 Base Unit (45175)
with a Production Pallet (VM300 Blank Pallet - 45130)

Tech Data

Air Supply Requirements	- 70 psi (5 bar)
	- 2 CFM (55 LPM)
Low Pressure Safety Switch	- included
Vacuum Indicator	- included
Hardened Locator Pins	- included

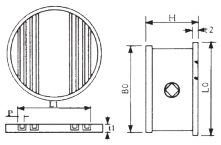


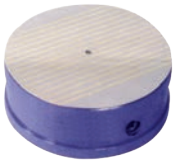
Workpiece placed over gasket
and pushed down to create vacuum.
Now ready for machining.
(VM300 Vacuum Pallet - 45150)



Magnetic Plate

- 7mm poles, 2mm separators
- Magnetic field intensity: > 650 gauss
- Suitable for light cutting and grinding on lathe, grinder, EDM, and rotary tables





Model	Diameter (B0)	Height (H)	Plate Diameter (L0)	L1	Code No.	Price $
VGD-08	200mm	78mm	200mm	137mm	230626	**2,637.61**

Magnetic Adjustable Link

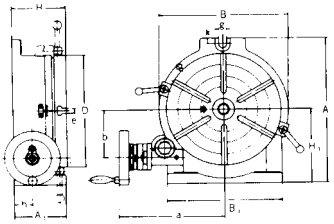
- Overall length 4-1/8"
- Overall width 2-1/8"
- For holding and welding
- Magnetic blocks can be set at any angle by adjustment and locking of the wing nut. When used in multiples, a number of sheets can be held in complicated arrangement
- Compact size for holding work in confined spaces

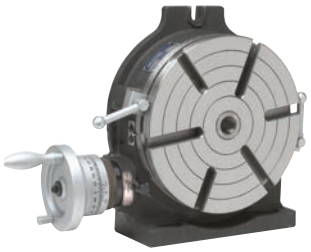


Model	Block Dimensions (mm)	Code No.	Price $
VCP-5	2" x 1" x 1"	230638	**102.60**

Horizontal & Vertical Rotary And Dividing Tables (HV)

- This HV Type Rotary Table is so designed as to permit machining operations at a higher dimension than that of RT Type Rotary tables
- The base can be used in a vertical position to enable to carry out centre work





Model	A1	Table OD D	Height H	H1	Base Dim. A	B	T-Slot Width	Bolt Slots	Centre Sleeve	Weight (kg/lb)	Worm Gear	Table Code No.	Price $	Tailstock Code No.	Price $	Indexing Plates Code No.	Price $
HV-4	70	110	80	85	145	115	11	12	MT-2	7.5	90:1	326498	**1,084.35**	326552	**461.18**	326549	**356.22**
(mm)	2.76	4.33	3.15	3.35	5.71	4.53	0.43	0.47		16.50							
HV-6	78	150	80	100	200	160	11	15	MT-2	12	90:1	326500	**1,084.35**	326552	**461.18**	326549	**356.22**
(mm)	3.07	5.91	3.11	3.94	7.87	6.30	0.43	0.59		26.4							
HV-8	100	200	105	135	265	220	14	17	MT-3	30.0	90:1	326505	**1,678.03**	326553	**461.18**	326550	**484.26**
(mm)	3.94	7.87	4.13	5.31	10.43	8.66	0.55	0.67		66.1							
HV-10	110	250	115	165	325	280	14	17	MT-3	45.0	90:1	326510	**2,085.55**	326554	**467.99**	326551	**484.26**
(mm)	4.33	9.84	4.53	6.50	12.80	11.02	0.55	0.67		99.0							
HV-12	130	300	135	195	388	330	16	18	MT-4	85	90:1	326515	**2,596.91**	326554	**467.99**	326551	**484.26**
(mm)	5.12	11.81	5.32	7.68	15.27	12.99	0.63	0.71		187.0							
HV-14	130	350	140	230	450	380	16	18	MT-4	100	90:1	326520	**3,321.67**	326555	**634.98**	326551	**484.26**
(mm)	5.12	13.78	5.51	9.06	17.72	14.95	0.63	0.71		220.0							
HV-16	150	406	155	255	500	430	16	18	MT-4	135	90:1	326525	**4,903.07**	326555	**634.98**	326551	**484.26**
(mm)	5.90	15.98	6.10	10.03	19.69	16.93	0.63	0.71		297							

Tailstocks for Rotary Tables

Cast iron offers good vibration, resistance, good wear resistance and machinability. It is heavier and more economical than steel.



Model No.	Adjustable Highest (mm)	Adjustable Lowest (mm)	For Models	Net Weight (kg)	Code No.	Price $
TS-1	108	80	HV-4, HV-6, BS-0	3.9	326552	**461.18**
TS-2	145	115	HV-8, CC-6, SX-6, BS-1, BS-2	5.5	326553	**461.18**
TS-3	200	130	HV-10, HV-12, CC-8, SX-8, BS-2	8.1	326554	**467.99**
TS-4	260	190	HV-14, HV-16	11.9	326555	**634.98**

Universal Tilting Rotary Table

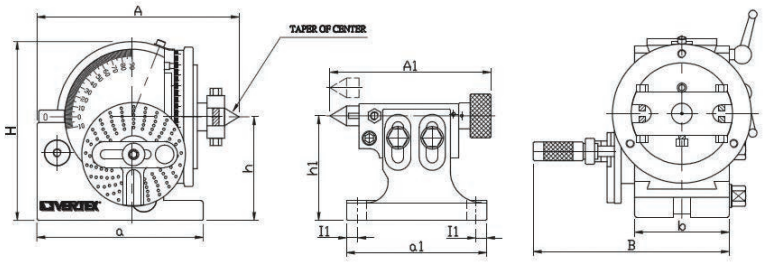
Model VU-100, VU-150, VU-300

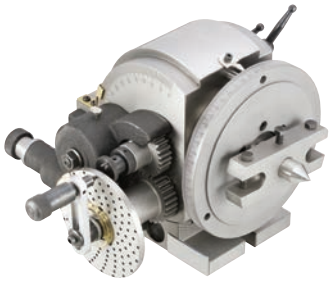
- Tilting range 90° from horizontal to vertical position
- 1 rotation of handle equals 3 degrees, 5 minutes tilting reading
- 10 Second vernier scale
- Table Dial 1 minute graduations
- Fast degrees: Dividing notch pin and 24 holes in 15° around, insures rapid accurate spacing
- Minimum set-up time
- Rugged construction



	VU-100		VU-150		VU-300	
	Code No.	Price $	Code No.	Price $	Code No.	Price $
	326560	**2,061.11**	326562	**2,359.45**	326175	**9,763.55**
Specifications						
Size	4" 100mm		6" 150mm		12 300mm	
Table Height	117mm		140mm		185mm	
Table O/A Height (Vertical)	177mm		216mm		370mm	
Centre Hole					MT 5	
Centre Height (Vertical)	80mm		90mm		208mm	
Direct Indexing	24-div.		24-div.		24-div.	
Gear Ratio	90:1		90:1		90:1	
Weight (approx)	13.5 kg		21 kg		125 kg	

Universal Dividing Head





This Universal Index Centre has been designed to carry out all types of gear-cutting, precision dividing and spiral work (except Type BS-0, and BS-1) with greater precision and efficiency than has been possible before. The centre face can be tilted from a horizontal position of 90° down to – 10° from vertical, and inclinations can be read off a scale graduated in degrees. The centre is built to highest engineering standards and is factory-inspected and tested to assure complete satisfaction. The ratio of worm to gear is 1:40.

Applicable Chuck: 6", 7" or 8"

Model	Height H	Machine Body Length A	Width B	Centre h	Base Length a	Base Width b	Bolt Slots g	Centre Taper	Weight Screw	Ship Weight (kg/lb)	cu.ft.	Code No.	Price $	Flange Only Code No.	Price $
BS-2	236 9.29	365 14.37	272 10.71	132.7 5.22	213 8.39	134 5.28	16 0.63	MT4	M55 x P3	65 143	3.4	326054	**4,200.34**	326055	**648.34**

Semi-Universal Index Centre BS-0 & BS-1

Standards of Accuracy (Tolerances):

Testing Objective	Tolerances Unit (max. in. permit)
1. True running of centre:	0.0006
2. True running of inside taper of dividing spindle:	
• Measured at spindle nose	0.0004
• Measured at arbor 8" long	0.0012
3. Axial movement of dividing spindle	0.0004
4. Dividing accuracy of worm drive, maximum cumulative spacing error	1'30"

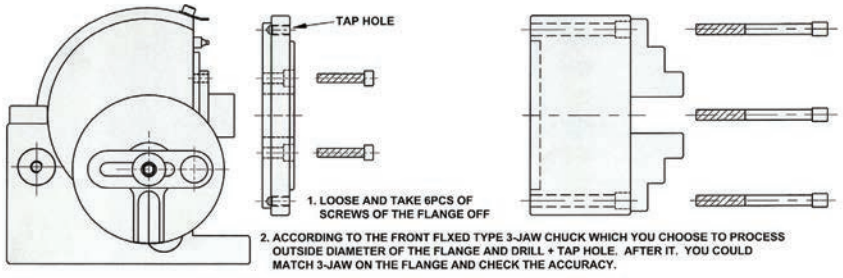
Note:
BS 0 applicable chuck: 4" or 5"
BS 1 applicable chuck: 5" or 6"

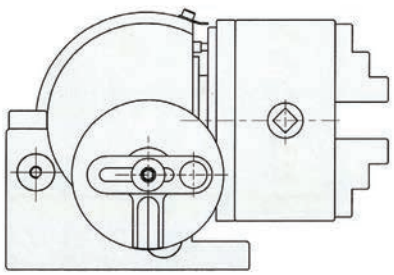


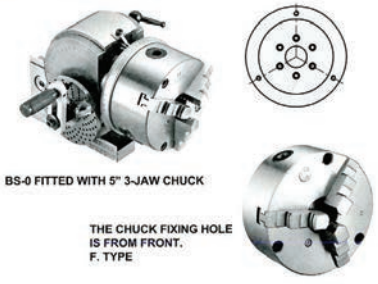


Model	Height H	Machine Body Length A	Width B	Centre h	Base Length a	Base Width b	Bolt Slots g	Centre Taper	Weight Screw	Ship Weight (kg/lb)	cu.ft.	Code No.	Price $	Flange Only Code No.	Price $
BS-0	173 6.81	177 6.97	188 7.40	100 3.94	160 6.30	91 3.58	16 0.63	MT2	M30 x P3	20 44	0.8	326050	**1,878.48**	326051	**441.72**
BS-1	220 8.66	245 9.65	230 9.06	128 5.04	205 8.07	114 4.49	16 0.63	MT3	M40 xP3	33 72.6	1.3	326052	**2,437.75**	326053	**547.22**

How To Install A 3-Jaw Chuck







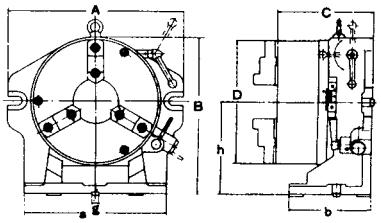
Simple Index

The Simple Index is a heavy-duty base on which is mounted a hardened and ground precision turntable. It can be used in either a horizontal and vertical position. Using one of the masking plates provided, the index can carry out many dividing functions. Indexing of 2, 3, 4, 6, 8, 12 and 24 divisions can be rapidly and simply carried out. The specially-made 3-jaw scroll chuck also simplifies the indexing of long workpieces.

Optional Equipment: Master indexing plate with 20 or 30 notches can be supplied to special order. When used with the suitable masking plates dividing into 2, 4, 5, 10, and 2, 3, 5, 6, 10, 15 are possible.

Special Accessories

- 3-jaw scroll chuck dia. 8" 1 piece
- Adjustable tailstock
- Face plate 10" (maximum)
- Masking plates 2, 3, 4, 6, 8, 12 one piece of each





Standards of Accuracy (Tolerances):

Testing Objective	Tolerances Unit (max. in. permit)
1. Parallelism of table surface to base 0.00 (0.0004)	per 12"
2. True running of axial movement of table surface	0.0008
3. True running of centre boss	0.0006
4. Squareness of base to angle face 0.0008	per 12"
5. True running of chuck centre	0.0016
6. Dividing accuracy individual spacing error	± 35"

Options

Description	Code No.	Price $
Optional Tailstock for CC-6	326553	**461.18**
Optional Tailstock for CC-8	326554	**467.99**
Optional Dividing Plates	326152	**484.26**

No. of Dividing	Outer Dia.	Chuck Inner Jaw	Outer Jaw	Inner Hold	A	B	C	D	a	b	h	g	Weight kg/lb	Shipping Meas. cu.ft.	Code No.	Price $
2,3,4,6,	165	3-62	60-120	34	260	218	138	166	220	130	130	16	35		CC-6	
8,12,24	6.5	0.12-2.44	2.36-4.72	1.34	10.24	8.58	5.43	6.54	8.66	5.12	5.12	0.63	77.1	0.64	326136	**2,467.64**
2,3,4,6,	210	3-100	10-220	63	312	257.25	169.3	210	258	48	149.2	16	54		CC-8	
8,12,24	8.27	0.12-3.94	0.39-8.66	2.48	12.28	10.13	6.67	8.27	10.16	5.83	5.87	0.63	119.0	1.8	326138	**3,180.07**

Super Dex

This index combines the advantages of the Simple Index with those of a worm-geared index. When mounted on a milling, boring or other machine tool it can carry out single-purpose indexing and indirect indexing using the worm-drive mechanism. Disengaging the worm drive the 24-notch master plate permits 2, 3, 4, 6, 8, 12 and 24 dividing. When the chuck is removed the unit can be used as a horizontal and vertical type rotary table. The operating handle to rotary table worm gear reduction ratio is 1:90. The operating handle collar is graduated in minutes, and readings down to ten seconds can be set on the vernier.



Ordering Specs. and Dimensions

(Dividing Plates not included)

Model No.	Chuck Outer Diameter	Code No.	Price $
SX-6	6"	326140	**3,132.80**
SX-8	8"	326142	**4,122.59**

Options

Description	Code No.	Price $
Optional Tailstock for SX-6	326553	**461.18**
Optional Tailstock for SX-8	326554	**467.99**
Optional Dividing Plates	326152	**484.26**



Number of holes	Plate A	26, 30, 34, 38, 41, 44, 47, 51, 57, 28, 32, 37, 39, 43, 46, 49, 53, 59
	Plate B	61, 67, 71, 77, 81, 87, 91, 97, 63, 69, 73, 79, 83, 89, 92, 99

Tailstocks for Indexes

Cast iron offers good vibration, resistance, good wear resistance and machinability. It is heavier and more economical than steel.



Model No.	Adjustable Highest (mm)	Adjustable Lowest (mm)	For Models	Net Weight (kg)	Code No.	Price $
TS-1	108	80	HV-4, HV-6, BS-0	3.9	326552	**461.18**
TS-2	145	115	HV-8, CC-6, SX-6, BS-1, BS-2	5.5	326553	**461.18**
TS-3	200	130	HV-10, HV-12, CC-8, SX-8, BS-2	8.1	326554	**467.99**
TS-4	260	190	HV-14, HV-16	11.9	326555	**634.98**

Rapidex

Complete with chuck

- Simple and rapid operation
- Dividual number 24 notch (15° each)
- Table scale 1°, for angular indexing
- Table bore 30mm
- Horizontal / Vertical and 2 direction
- Suitable for milling and drilling machine using

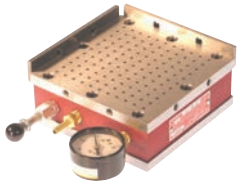


Model No.	Chuck Outer Diameter	Code No.	Price $
VSI-4	4"	326564	**1,452.68**
VSI-5	5"	326566	**1,595.00**

Vacuum Chucks

Suburban

- Vacuum gauge and relief valve included
- All chucks have back and end rail for positive location of workpieces
- Provide an excellent means to hold non-magnetic workpieces for machining or grinding
- Designed to be bolted directly with little or no indicating to a SineSet® sine plate or compound sine plate of the same size and series



Chuck Model No.	Size	Recommended Pump Size	Weight (lb)	Code No.	Price $
VC-66-S1	6 x 6 x 2-1/4	1/4 HP or larger	15	251420	**1,274.90**
VC-612-S2	6 x 12 x 2-1/4	1/2 HP or larger	28	251422	**1,742.26**
VC-618-S2	6 x 18 x 2-1/4	1/2 HP or larger	41	251424	**2,313.16**

Vacuum Pumps

Suburban

- Oilless, motor-mount, rotary vane design for maximum performance with minimum upkeep
- Has internal mufflers and filters. The filters were specifically designed to be easily removed and replaced
- Built-in thermal overload protection
- Includes a support base, the proper fittings and six feet of reinforced hose



Pump Model No.	Description	Weight (lb)	Code No.	Price $
VCP-14-MM*	1/4 HP, hose and fittings	31	251426	**2,329.43**
VCP-34-MM*	3/4 HP, hose and fittings	56	251430	**2,566.07**

Electromagnetic Chucks & Controls

Suburban

- Top plate has 1/8" steel poles and 1/16" Stainless Steel separators
- Chucks are completely sealed against dirt and liquids
- Can be used on EDM machines
- Longitudinal (lengthwise) or transverse (crosswise) pole models available
- 2 clamps, back rail and side rail included
- Chuck controls must be used.



Model No.	Size	Watts	Weight (lb)	Code No.	Price $
Transverse Poles					
EMCB-612-T	6 x 12 x 3-3/4	72	75	251450	**3,627.99**
EMCB-618-T	6 x 18 x 3-3/4	130	117	251452	**5,096.63**
EMCB-815-T	8 x 15 x 3-3/4	125	132	251454	**4,831.89**
EMCB-818-T	8 x 18 x 3-3/4	150	160	251456	**6,890.66**
EMCB-824-T	8 x 24 x 4	220	210	251458	**8,168.52**
EMCB-1015-T	10 x 15 x 3-3/4	160	165	251460	**6,948.34**
EMCB-1024-T	10 x 24 x 3-3/4	240	255	251462	**10,311.59**
EMCB-1036-T	10 x 36 x 4	350	370	251464	**13,893.73**
EMCB-1216-T	12 x 16 x 4	200	200	251466	**8,267.61**
EMCB-1218-T	12 x 18 x 4	225	225	251468	**9,073.67**
EMCB-1224-T	12 x 24 x 4	280	310	251470	**11,398.65**
EMCB-1230-T	12 x 30 x 4	390	371	251472	**13,796.11**
EMCB-1236-T	12 x 36 x 4	430	442	251474	**17,200.77**
Longitudinal Poles					
EMCB-612-L	6 x 12 x 3-3/4	72	75	251476	**2,051.37**
EMCB-618-L	6 x 18 x 3-3/4	130	117	251478	**3,136.96**
EMCB-815-L	8 x 15 x 3-3/4	125	132	251480	**3,607.28**
EMCB-818-L	8 x 18 x 3-3/4	150	160	251482	**4,073.17**
EMCB-824-L	8 x 24 x 4	220	210	251484	**5,198.69**
EMCB-1015-L	10 x 15 x 3-3/4	160	165	251486	**4,114.58**
EMCB-1024-L	10 x 24 x 3-3/4	240	255	251488	**8,013.22**
EMCB-1036-L	10 x 36 x 4	350	370	251490	**11,650.08**
EMCB-1216-L	12 x 16 x 4	200	200	251492	**6,460.27**
EMCB-1218-L	12 x 18 x 4	225	225	251494	**6,599.30**
EMCB-1224-L	12 x 24 x 4	280	310	251496	**9,453.77**
EMCB-1230-L	12 x 30 x 4	390	371	251498	**11,213.78**
EMCB-1236-L	12 x 36 x 4	430	442	251500	**12,950.12**

- Specifically matched to the input requirements of Suburban's electromagnetic chucks
- 115 volts AC input
- 0-110 volts DC output
- Controls with automatic release cycle free the operator from manual demagnetizing
- Automatic release models also have touchpad controls for easy operation



Model No.	Features	Code No.	Price $
CC-150-MV	0-150W variable power control c/w manual release	251513	**1,288.21**
CC-150-AV	Same as CC-150-MV plus automatic release control	251515	**2,713.97**
CC-300-AV	0-300W variable power control with automatic release control	251517	**3,738.91**
CC-500-AV	0-500W variable power control with automatic release control	251519	**3,982.95**

Magnetic Surface Grinder Chucks

Suburban

For use on surface grinders, chucks have laminated one piece top plates. Two tie down clamps, two rails and removable on/off handle included. Ceramic magnet cannot lose magnetism.



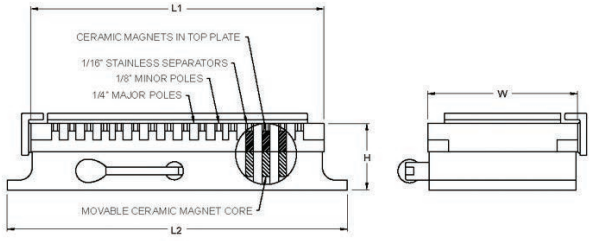
Model No.	Width (in.)	Length (in.)	Code No.	Price $
Standard (1/4" Poles & 1/8" Separators)				
MCB-47	4	7	251022	**1,184.68**
MCB-510	5	10	251026	**1,575.14**
MCB-612	6	12	251030	**2,107.58**
MCB-614	6	14	251034	**2,361.96**
MCB-618	6	18	251038	**2,798.27**
MCB-812	8	12	251039	**2,644.45**
MCB-815	8	15	251046	**3,194.64**
MCB-818	8	18	251050	**3,864.63**
MCB-824	8	24	251054	**5,160.23**
MCB-1015	10	15	251055	**5,006.42**
MCB-1018	10	18	251057	**6,009.18**
MCB-1024	10	24	251059	**8,445.09**
MCB-1212	12	12	251061	**4,061.33**
MCB-1218	12	18	251063	**7,676.01**
MCB-1224	12	24	251065	**9,501.10**
Fine Pole (1/8" Poles & 1/8" Separators)				
MC-36-FP	3	6	251020	**1,045.65**
MCB-47-FP	4	7	251024	**1,266.02**
MCB-510-FP	5	10	251028	**1,819.17**
MCB-612-FP	6	12	251032	**2,412.25**
MCB-614-FP	6	14	251036	**2,662.20**
MCB-618-FP	6	18	251040	**3,213.87**
MCB-812-FP	8	12	251041	**3,021.60**
MCB-815-FP	8	15	251048	**3,627.99**
MCB-818-FP	8	18	251052	**4,292.06**
MCB-824-FP	8	24	251056	**5,805.08**
MCB-1015-FP	10	15	251067	**5,469.34**
MCB-1018-FP	10	18	251069	**6,436.61**
MCB-1024-FP	10	24	251071	**8,881.40**
MCB-1212-FP	12	12	251073	**4,527.22**
MCB-1218-FP	12	18	251075	**8,153.73**
MCB-1224-FP	12	24	251077	**10,515.69**

Magnum Force™ Surface Grinding Chucks

Suburban

- Made with ceramic magnets for superior holding power
- Stationary magnets in the top plate and a movable magnet core provide an average holding power of 90-100 pounds per square inch. This is twice the power of a standard chuck
- Chucks are lubricated and sealed against dirt and liquids
- A rigid work surface is provided by laminated and brazed top plate
- These chucks provide maximum holding power of both small and large parts, due to combination fine / standard pole spacing
- Low height for more work clearance
- Two hold-down clamps, one side rail and one end rail are included





Model No.	L1	L2	W	H	Code No.	Price $
DBM-44	4"	4-3/4"	4"	2-3/8"	251322	**2,199.27**
DBM-48	8"	9-1/8"	4"	2-3/8"	251324	**2,323.51**
DBM-510	10"	11-1/8"	5"	2-3/4"	251326	**2,688.82**
DBM-512	12"	13-1/8"	5"	2-3/4"	251328	**3,094.07**
DBM-66	6"	7-1/8"	6-1/2"	2-3/4"	251330	**2,585.29**
DBM-610	10"	11-1/8"	6"	2-3/4"	251332	**2,765.73**
DBM-612	12"	13-1/8"	6"	2-3/4"	251334	**3,036.39**
DBM-614	14"	15-1/2"	6"	2-3/4"	251336	**3,571.79**
DBM-618	18"	20"	6"	2-3/4"	251338	**3,996.26**
DBM-815	15"	15-3/4"	8"	2-3/4"	251340	**4,842.25**
DBM-818	18"	18-3/4"	8"	2-3/4"	251342	**5,834.66**
DBM-820	20"	20-3/4"	8"	2-3/4"	251344	**6,624.44**
DBM-824	24"	24-3/4"	8"	2-3/4"	251346	**6,809.32**
DBM-1015	15"	15-3/4"	10"	2-3/4"	251348	**6,719.10**
DBM-1018	18"	18-3/4"	10"	2-3/4"	251350	**7,949.63**
DBM-1020	20"	20-3/4"	10"	2-3/4"	251352	**9,402.00**
DBM-1218	18"	18-3/4"	12"	3-1/2"	251356	**9,956.63**
DBM-1224	24"	24-3/4"	12"	3-1/2"	251358	**13,339.10**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

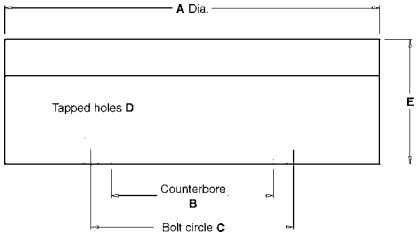
Images are representational only and may not reflect actual product.

Round Permanent Magnetic Chucks

Suburban

- Permanent ceramic magnets for superior holding power, never lose their strength
- Back surface of the aluminum chuck body has tapped holes and turned counterbore for convenient mounting on machines
- All models are watertight except 5-1/4" dia. which uses the swing-type on-off method
- Standard pole models have 1/4" poles and 1/8" separators, fine pole models have 1/8" poles and 1/8" separators





Model No.	A	B	C	D	E	Weight (lb)	Code No.	Price $
Standard								
RMC-5	5-1/4	3 x 1/8	4"	(4)1/4-20	2-13/16	15	251876	**1,203.91**
RMC-6	6-1/4	3 x 1/8	4"	(4)1/4-20	2-15/16	17	251877	**1,856.15**
RMC-9	9-1/4	4 x 3/16	5"	(4)3/8-16	2-15/16	36	251878	**3,278.94**
RMC-12	12-1/4	4 x 3/16	5"	(4)3/8-16	2-15/16	60	251879	**4,743.15**
RMC-15	15-1/4	6 x 1/4	7-3/8	(6)5/16-18	3-3/4	120	251880	**9,251.15**
RMC-16	16"	8 x 3/16	9"	(6)3/8-16	2-15/16	96	251881	**9,490.74**
RMC-20	20"	11 x 1/4	12-13/32	(6)3/8-16	4-1/8	205	251882	**15,539.85**
Fine Pole								
RMC-6-FP	6-1/4	3 x 1/8	4"	(4)1/4-20x1/2	2-15/16	18	251883	**2,327.95**
RMC-8-FP	7-3/4	4 x 3/16	4"	(4)3/8-16x1/2	2-15/16	26	251884	**3,021.60**
RMC-10-FP	10"	4 x 3/16	5"	(4)3/8-16x1/2	2-15/16	43	251885	**4,061.33**
RMC-12-FP	12-1/4	4 x 3/16	5"	(4)3/8-16x1/2	2-15/16	62	251886	**5,686.76**

Magnetic Toolmakers' Chucks

Suburban

- All models precision ground flat, square and parallel to an overall accuracy of 0.0005"
- Top, bottom and end magnetize simultaneously
- Model MTC-VB has "V" capacity of 2-3/4" diameter
- Model MTC-LFP has 3/16" x 1/16" fine pole construction for holding small or thin parts; and removable side and end rails


MTC-S


MTC-L


MTC-LFP


MTC-VB

Model No.	Length	Width	Height	Weight (lb)	Code No.	Price $
MTC-S	5"	2"	2"	6	251868	**874.09**
MTC-L	5-1/2	2-3/4	2-1/2	11	251869	**1,042.70**
MTC-LFP	5-1/2	2-3/4	3"	12	251870	**1,134.39**
MTC-VB	5-1/2	2-3/4	3-5/8	13	251871	**1,134.39**
MTC-VB-M**	5-1/2	2-3/4	3-5/8	26	251872	**2,608.96**

** Matched pair of MTC-VB

Accessories





Accessories

Index Fixtures . . . . . I 2
5C Spin Index . . . . . I 2
5C Collet Index . . . . . I 2
5C Collets . . . . . I 2
Radius And Angle Dressers . . . . . I 3
Screw Jack Sets . . . . . I 3
Permanent Magnetic Lifters . . . . . I 4
Punch Formers . . . . . I 4
Suburban Master-Grind™ & Accessories . . . . . I 4
Drill Sharpeners . . . . . I 5
Halogen Lamps . . . . . I 6
Eye Shield . . . . . I 6
Deluxe Shock Absorbers . . . . . I 6
Chip Collectors, Chip Hooks . . . . . I 7
Coolants, Fluids & Tapping Compounds . . . . . I 7
Adjustable Coolant Hose System . . . . . I 8-I 13
Noga Minicool . . . . . I 13

Collet Master™ Index Fixture

Suburban

- 48 index positions, +/- 45 arc seconds every 7-1/2 degrees
- Uses all standard 5C collets
- Two sealed, pre-loaded ball bearings in spindle
- Hardened and Ground base held square and parallel to spindle within 0.0002"
- Maximum spindle runout is 0.0001"
- Drawbar and fitted wooden case included
- Optional faceplate and V-block available for eccentric forms



Model No.	Centre Height	Overall Length	Indexing Accuracy	Weight (lb)	Code No.	Price $
CM-5C	3-5/8"	6-1/2"	+/-45 Sec.	9 lb	251550	**2,308.72**

Optional Faceplate & V-Block

For Collet Master Index Fixture

Suburban

- Optional faceplate and V-block available for eccentric forms



Model No.	Faceplate Diameter	V-Block Capacity	Weight	Code No.	Price $
CM-5C-FVB	6-1/2"	1-3/8"	15 lbs	251552	**1,090.02**

Mini-Master™ Index Fixture

Suburban

- 72 position index plate allows an index every 5 degrees +/-15 arc seconds.
- Spindle rides in sealed, preloaded ball bearings
- Light weight for easy handling
- Uses standard ER-25 spring collets
- Spindle runout 0.0002" T.I.R.
- 3" height is ideal for small machine set-ups
- Hardened steel base is ground square and parallel with spindle axis within 0.0002"
- Fitted wooden case included



Model No.	Centre Height	Collet Capacity	Through Hole	Weight (lb)	Code No.	Price $
MM-25R	1-7/8"	All ER-25	5/8"	4 lbs	251566	**1,727.47**

Spin-Master™ Index Fixture

Suburban

- Uses standard 5C collets
- 2-5/16" spindle travel for flute grinding
- Runout on hardened and ground spindle is 0.0005" T.I.R
- 3-7/8" x 4-5/32" base ground parallel to spindle
- Sides of base ground parallel to spindle axis
- Index plate with 36 holes for direct indexing in 10° steps and is graduated in 5° increments. 10 vernier holes provide 1° indexing



Model No.	Centre Height	Collet Capacity	Through Hole	Weight (lb)	Code No.	Price $
SM-5C	2-3/4"	All 5C	1-1/4"	15 lbs	251564	**1,549.99**

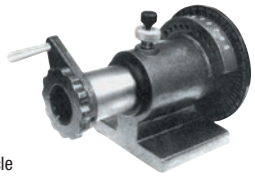
5C Spin Index

STM

Accepts 5C Collets to 1-1/8" Capacity

A multi-purpose accessory

- Vernier setting to 1 degree
- 2-1/16" spindle travel for flute grinding
- Index plate has precise (10°) 36 hole circle



Model No.	Code No.	Price $
C1-310	326110	**145.01**
Specifications	**Max. Variation Inches**	
True running of dividing spindle flange surface	0.0004"	
True running of cylindrical centre bore per 1"	0.0012"	
Parallelism of spindle centre line to base	0.0008"	

Horizontal/Vertical 5C Collet Index

STM

The Spindle has a taper seat in the body frame. Rapid opening and closing of the collet on a production basis is done with the lever collet closer having a leverage ratio of 100 to 1. A ratchet device on the front of the spindle permits rapid rotation of the spindle nose. The index plate has a screw in each of the 24 index holes so that holes not required for a particular job can be masked. Threaded spindle 2-1/4" - 8TPI.



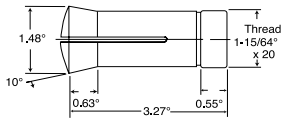
Model No.	Code No.	Price $
C1-108	326108	**814.65**
Specifications	**Max. Variation Inches**	
True running of axis for dividing spindle	0.0004"	
True running of cylindrical centre bore per 1"	0.0012"	
Parallelism of spindle centre line to base	0.0008"	
Squareness of base angle face	0.0008"	
Parallelism of centre slot to dividing spindle	0.0008"	
Lateral offset of centre slot to dividing spindle	0.0008"	

5C Collets

GS STM

- Made of tool steel, hardened and ground to maintain original accuracy



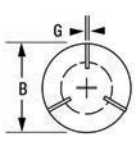


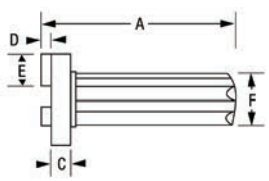
Size (in.)	GS Code No.	Price $	STM Code No.	Price $
1/8	325317	**30.01**	325315	**15.04**
3/16	325322	**30.01**	325320	**15.04**
1/4	325327	**30.01**	325325	**15.04**
5/16	325332	**30.01**	325330	**15.04**
3/8	325337	**30.01**	325335	**15.04**
7/16	325342	**30.01**	325340	**15.04**
1/2	325347	**30.01**	325345	**15.04**
9/16	325354	**30.01**	325350	**15.04**
5/8	325357	**30.01**	325355	**15.04**
11/16	325362	**30.01**	325360	**15.04**
3/4	325367	**30.01**	325365	**15.04**
13/16	325372	**30.01**	325370	**15.04**
7/8	325377	**30.01**	325375	**15.04**
15/16	325382	**30.01**	325380	**15.04**
1	325387	**30.01**	325385	**15.04**
5C Collet Set 1/8-1"			325310	**225.60**

5C Collet Wrench

MITEE-BITE PRODUCTS LLC

- Simplifies insertion and removal of collets in the spindle nose on CNC lathes
- Steel head and fins for greater strength and durability





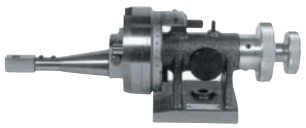


Model No.	A	B	C	D	E	F	G	Code No.	Price $
1005C	4.25	1.25	0.50	0.25	0.28	1.13	0.052	604327	**44.64**

Low Profile Radius & Angle Dresser

QUALITY IMPORT

An extremely accurate and versatile unit which may be used on all OD, ID and surface grinding operations. Knob "A" controls radius dressing and Knob "B" controls angle dressing. At no time are the hands near the point of contact. All moving parts are lapped and the unit has adjustable gibs for take of future wear.

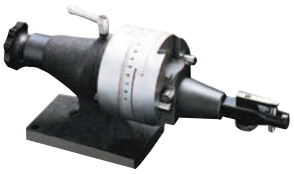


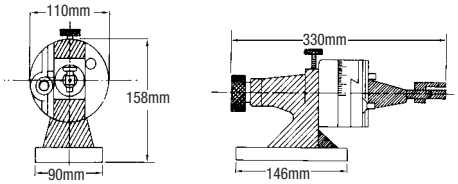
Model No.	Code No.	Price $
C1-330	326106	**946.68**
Specifications		
Max. Dia. of Wheel	10"	
Convex Radii	0 - 1-5/8"	
Concave Radii	0 - 4"	
Tangent Travel	1.20"	
Either side of Centre		
Centre line of tool	3.4"	
Overall length	16.61"	
Weight	27 lbs.	

V-TDB Radius & Angle Dresser

STM

- Positive setting of the diamond to absolute centre with the special gauge included with the dresser
- One push-pull type knob for radius and angle control and for safer and faster operations
- 4 x 90° graduation in full 360° circle. 6 minute vernier reading
- Net weight: 10.5 kg
- Chrome plated



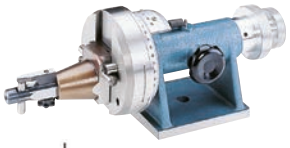


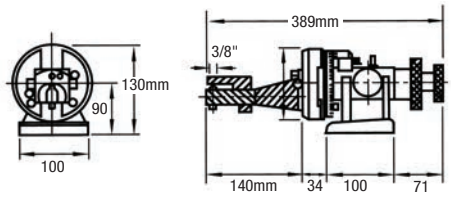
Model No.	Code No.	Price $
V-TDB	326570	**2,264.90**
Specifications		
Convex dressing range	0.8R-40R	
Concave dressing range	0-40R	
Max. wheel dressing diameter	250mm	
Max. wheel extending diameter	375mm	

V-TDG Radius & Angle Dresser

STM

- 6 minute vernier reading
- Dual purpose knob for drum and angle movement
- Stop for concave and convex radii
- Comes with setting gauge for diamond tool





Model No.	Code No.	Price $
V-TDG	326572	**2,511.93**
Specifications		
Max. wheel diameter, standard	11"	
Concave radius with standard diamonds	0-2 1/4"	
Concave radius with rat-tail diamonds	0-2 1/4"	
Convex radius	0-4"	
Tangent travel in either direction	1.950"	
Centre line	3.4"	

Yuasa Radius & Angle Dressers

YUASA

- Extremely accurate and versatile
- Useable on all OD / ID surface grinding operations
- Independent or simultaneous radii and angular operation
- Adjustable gibs
- All moving parts are lapped
- Gauge block setting for precise radii
- Knob A controls radii and Knob B controls angular movements



Model No.	Code No.	Price $
550-000	325600	**3,553.60**
550-001N	325605	**5,023.50**
**553-308	325607	**1,300.30**

Specifications	Model 550000	Model 550001N
Weight lbs/(kg)	16 (7.2)	23 (10.4)
Maximum diameter of wheel	8"	12"
Convex radii	0-1 3/16"	0-1 5/8" (6"**)
Concave radii	1/32"-1 3/16"	1/32"-1 5/8"**(6"**)
Tangent travel either side of centre	1.20"	2"
Centre line of tool	3"	3.4"
Overall length	13.66"	16.61"

Specifications	Maximum Variation
Face plate to dresser arm squareness (per 2")	0.0005 (0.012)
Face plate to base squareness	0.0006 (0.015)
Centre runout of dovetail groove to wheel centre	0.0006 (0.015)

** Optional extension adapter for 1-5/8" to 6" concave radii and convex radii

Screw Jack Sets

STM

Features:

- Material: S45C
- Max Capacity: 700kg
- Suitable for irregular workpieces
- Rapid setting and fixed



Sets

Model No.	Set Includes	Code No.	Price $
VSJ-A	VSJ-70 70-85mm Adj. Capacity Screw Jack - 2pcs VSJ-150 100-150mm Adj. Capacity Screw Jack - 2pcs Pads included: 1A, 2A, 3A, 4A, 5A, 6A - 1 each	333400	**444.43**
VSJ-B	VSJ-150 100-150mm Adj. Capacity Screw Jack - 2pcs VSJ-250 140-230mm Adj. Capacity Screw Jack - 2pcs Pads included: 1A, 2A, 3A, 4A, 5A, 6A - 1 each	333410	**735.76**



Pads

Model No.	Code No.	Price $
1A	333415	**67.81**
2A	333420	**56.72**
3A	333425	**49.04**
4A	333430	**64.25**
5A	333435	**49.04**
6A	333440	**44.10**

Lift Master™ — Permanent Magnetic Lifts

- Allows one person to do the material loading and handling that once required two or more
- Uses max-C-mag ceramic magnets to ensure powerful holding force, with no chance for demagnetization
- Quick-release handle disengages the lift with a simple cam action
- Grips and holds any ferrous material instantly
- Designed for efficient, trouble free, low maintenance service

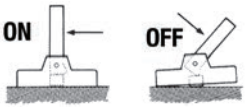


Model No.	Length	Width	Height	Max Lift Cap. (lb)	Weight (lb)	Code No.	Price $
LM-800	6-5/8	3-3/8	2-1/2	800*	20	251873	**1,310.39**
LM-1600	8-1/2	4-7/8	2-1/2	1600*	30	251874	**1,814.73**
LM-3000	11-1/4	6-3/8	2-1/2	3000*	45	251875	**2,410.77**

* Capacity based on clean, flat rigid CRS. Derate for other conditions.

Magnetic Lifter

- Work is held and released very smoothly
- Most suitable to move materials or semi-finished products such as black steel plate, flat iron and other materials





VML-140



VML-150

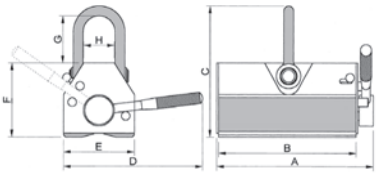
Model	Capacity (kgf)	Length (mm)	Width (mm)	Height (mm)	Code No.	Price $
VML-140	140	120	50	55	230602	**156.03**
VML-150	150	140	100	140	230604	**400.08**

Permanent Magnetic Lifters

Features:

- Faster and safer than using straps and slings
- Beveled surface for lift round objects
- Magnets are maintenance free and never wear out
- Magnets have built-in safety factor of 3.5 times the rated load. Do not lift more than the maximum rated load



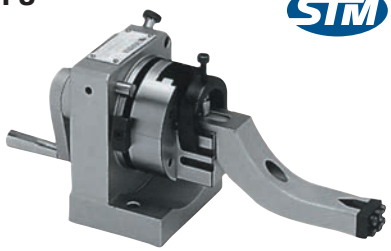


Model No.	Capacity (lbs)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H (in.)	Weight (lbs)	Code No.	Price $
VML-100	220	4.2	3.3	4.7	4.9	2.4	2.8	1.6	1.2	5.5	230600	**1,130.51**
VML-300	660	7.1	6.1	6.1	7.3	3.6	3.7	2.0	1.6	18.9	230605	**2,674.41**
VML-600	1320	10	8.8	8.3	10.2	4.5	4.7	3.0	2.0	46	230610	**4,294.16**
VML-1000	2200	11	9.6	11.3	14.6	6.5	6.7	3.8	3.4	101	230615	**7,156.64**
VML-2000	4400	16.6	15	13.7	20.2	8.5	8.5	4.1	4.8	259	230620	**14,049.79**

Punch Former — YCT-PS

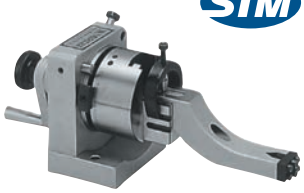
Features:

- YCT-PS can pass through from itself to the centre of grip, in case of facing a longer punch ejector pin, it can go deep into the grip position
- To assemble an arm with the main body, any combination of radii of the grinding wheel may be dressed accurately by easy operation
- The longer punch can also be ground



Style	Code No.	Price $
Through hole	230735	**3,307.90**

Punch Former — YCT-PB



Punch former is the great dressing instrument. Precision forming of grinding wheels can be done by assembling an arm with the main body. Any combination of tangents or radii form of the grinding wheel may be dressed accurately by easy operation. Maximum grinding wheel diameter of 200mm can be dressed accurately and safely. The height from the base to roller's centre is 80mm. Movement of each side can reach 12.5mm while aiming at the centre of V-block. The main body is one-piece steel construction.

Features:

- Punch former is the fixture to grind the point of standard punches and E.D.M. electrodes for precise and fast operation
- By using this attachment, it can be ground either concave or convex radius shape
- Besides the round, radius and multi-angle punches, any special forms can be ground precisely
- Capacity from 4mm to 30mm

Style	Code No.	Price $
Off set	230730	**4,152.20**

Suburban Master-Grind™

5C Collet and V-Block Combination

- Built-in sine bar for setting angles between hard index locations
- 2 heavy duty 4" diameter tapered roller bearings in spindle
- Spindle runout 0.00005"
- Square and parallel within 0.0002"
- Extra large 1-5/8" V-block capacity
- Horizontal or vertical V-block mounting
- 72 position index plate for hard index every 5° +/- 15 arc seconds
- Fitted wooden case included





Model No.	V-Block Capacity	Collet Capacity	Through Hole	Centre Height	Base Height	Base Length	Base Width	Weight	Code No.	Price $
MG-5CV-S1	1-5/8	all 5c	1-1/4	3	6	4	5	22	251400	**5,065.58**

Suburban Master-Grind™ Accessories

Motor Drive Kit:

- 1/15 HP, reversible, variable speed, 60 to 300 rpm
- Can be mounted on either side of the index fixture
- Includes mounting bracket, motor pulley, drive belt and screws





Baseplate and Tailstock

- Tailstock has 1/2" diameter spring loaded centre with lock screw
- 1/2" 5C collet and steel 60° headstock centre included
- Base plate and edge guide are hardened and ground





Model No.	Description	Weight	Code No.	Price $
MG5-BTS	Baseplate/tailstock	22	251405	**1,628.38**
MG5-MD	Motor drive kit	5	251410	**1,584.01**

DM213 Fast Drill Sharpener
13mm Capacity



Electrical Safety Authority

Patented Features

- Double-bearing grinding unit (reduces wear)
- Drill tightening design with bearing device
- Adjustable trimming angle

Standard Accessories

- ER20 Collets, ranged from 2.0mm-13mm (12pcs)
- CBN wheel #200x1pc (for High Speed drill)
- 4mm and 5mm Hexagon (Hex.) wrench x 1pc each

Drill Diameter:	Ø2mm - Ø13mm
Point Angle:	85° ~ 140°
Power Supply:	AC110/AC220 50/60HZ
Motor:	90W
RPM:	6000rpm
Weight:	10 kg

Model DM213

Code No.	Price $
326130	**1,653.50**

Replacement Wheels for Model DM213

Description	Code No.	Price $
CBN Wheel for HSS	326141	**139.36**
Diamond Wheel for Carbide	326143	**139.36**
CBN Wheel for Drills under 4mm	326145	**139.36**

ER20 Collets for Model DM213

Size (mm)	ER20 Code No.	Price $	Size (mm)	ER20 Code No.	Price $
2.0-2.5*	326151	**41.90**	7-8	337479	**34.56**
2.5-3*	326153	**41.90**	8-9	337480	**34.56**
3-4*	326155	**40.91**	9-10	337481	**34.56**
4-5*	326157	**41.90**	10-11	337482	**34.56**
5-6	337477	**34.56**	11-12	337483	**34.56**
6-7	337478	**34.56**	12-13	337484	**34.56**

* 2.5-5mm sizes are specially designed pull-back collets, standard ER20 collets cannot be substituted. 6-13mm sizes are standard ER20.

DM1226 Fast Drill Sharpener
30mm Capacity



Electrical Safety Authority

Patented Features

- Double-bearing grinding unit (reduces wear)
- Drill tightening design with bearing device
- Adjustable trimming angle

Standard Accessories

- ER40 Collets, ranged from 12mm-26mm (15pcs)
  Optional Collets 8~11mm, 27~30mm
- CBN wheel #200x1pcs (for High Speed drill)
- 4mm and 6mm Hexagon (Hex.) wrench x 1pc each

Drill Diameter:	Ø8mm - Ø30mm
Point Angle:	85° ~ 140°
Power Supply:	AC110 / AC220 50/60HZ
Motor:	450W
RPM:	4000rpm
Weight:	25 kg

Model DM1226

Code No.	Price $
326134	**3,785.40**

Replacement Wheels for Model DM1226

Description	Code No.	Price $
CBN Wheel for HSS	326154	**348.23**
Diamond Wheel for Carbide	326156	**348.23**

ER40 Collets for Model DM1226

Size (mm)	ER40 Code No.	Price $	Size (mm)	ER40 Code No.	Price $
7-8*	326165	**47.23**	19-20	337522	**40.66**
8-9*	326166	**47.23**	20-21	337523	**40.66**
9-10*	326167	**47.23**	21-22	337524	**40.66**
10-11*	326168	**47.23**	22-23	337525	**40.66**
11-12	337511	**40.66**	23-24	337526	**40.66**
12-13	337513	**40.66**	24-25	337527	**40.66**
13-14	337514	**40.66**	25-26	337528	**40.66**
14-15	337515	**40.66**	26-27*	326158	**47.23**
15-16	337517	**40.66**	27-28*	326159	**47.23**
16-17	337518	**40.66**	28-29*	326160	**47.23**
17-18	337519	**40.66**	29-30*	326161	**47.23**
18-19	337521	**40.66**			

* Optional 8-11mm & 27-30mm sizes are specially designed for the DM1226, standard ER40 collets cannot be substituted. 12-26mm sizes are standard ER40.

Dust-Proof Halogen Lamps c/w Magnetic Base

Features:

- Dust Proof with Magnetic Base
- 110 voltage

600FT Series - Segment Adjustable Arm
700FT Series - Flexible Arm



VHL-600FT



VHL-700FT

Model No.	Arm Length (mm)	Base Width (mm)	Weight (kgs.)	Code No.	Price $
VHL-600FT	380	88	1.7	326365	**217.58**
VHL-700FT	400	88	1.7	326370	**217.58**

Replacement Parts For VHL-600/700-FT Lamps





Description	Code No.	Price $
12V/20W Halogen Bulb	326371	**62.62**
Replacement Glass	326372	**7.15**

Magnetic Base With Working Beam

- 110 voltage



Model	Base Size LxWxH (mm)	Holding Power (kg)	Arm OD x L (mm)	Weight (kg)	Code No.	Price $
VML-A-110	62x50x55.5	75	20x200	1.5	326884	**142.77**

Eye Shield

- The clamping height is adjustable
- Brass plate under the clamp arm to protect the working material from damage



Model	Shield Size (mm)	Weight (kg)	Code No.	Price $
VH-56	300x180x2	1.0	230660	**107.31**

Water-Proof Halogen Lamps

Features:

- Water-proof lighting head with reinforced glass resists large temperature fluctuations of cutting oil
- 110 voltage



400 Series

VHL-400L



500 Series

VHL-500S



500 Series

VHL-500L

Model No.	Arm Length (mm)	Base Width (mm)	Weight (kgs.)	Code No.	Price $
VHL-400L	400 x 400	79	3.8	326335	**356.20**
VHL-400M	220 x 220	79	3.5	326340	**356.20**
VHL-400S	-	60	2.8	326345	**237.59**
VHL-500L	400 x 400	79	4	326350	**356.20**
VHL-500M	220 x 220	79	3.8	326355	**356.20**
VHL-500S	-	79	2.7	326360	**277.89**

Replacement Parts For VHL-400/500 Lamps





Description	Code No.	Price $
12V/50W Halogen Bulb	326361	**40.48**
Replacement Glass	326362	**10.52**

Magnetic Base With Magnifying Glass

- 2X magnification
- M8x1.25 threaded mount

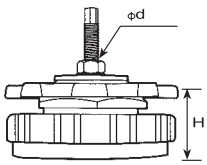


Model	Base Size LxWxH (mm)	Holding Power (kg)	Arm OD x L (mm)	Weight (kg)	Code No.	Price $
VML-M	60x50x55	80	15x325	1.7	326880	**172.30**

Deluxe Shock Absorbers

Suitable for machine tools, CNC lathe, molding, printing, grinding, drilling, and milling machines.

- Prevents shock and reduces noise







Model	Height (H)(mm)	Bolt Size (Ød)(mm)	Load (kg)	Adjustment Height	Code No.	Price $
SB-4	60	12x50L	500	25mm	231450	**199.10**
SB-6	95	16x110L	1000	40mm	231452	**298.67**
SB-8	100	20x120L	2500	40mm	231454	**350.81**
SB-10	125	24x180L	4000	40mm	231456	**676.48**

Chip Collector with Flexible Arm

Flexible Magnetic Pick-Up Tool
- 21" in length
- 12 lb capacity

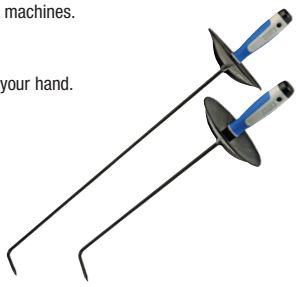


Model No.	Code No.	Price $
VCC-20	230640	**61.40**

Chip Hooks — SP2500 & SP2550

For removing chips and clean the chip trays on your machines.
Black finished steel hooks.
The Chip Hooks include a plastic protective guard.
NogaGrip Handle designed for maximum comfort in your hand.





Model	Length	Code No.	Price $
SP2500	400mm	165488	**41.40**
SP2550	600mm	165490	**46.84**

Magnetic Chip Collector

- Wide variety of applications
- Most suitable for collecting iron pieces scattered on the floor or mixed in a medium
- Magnetic force is turned ON/OFF by operating the hand lever
- Powerful magnet with a wide attractive surface
- Material of outer cover: Aluminum



Model	Dimensions	Magnetic Force	Weight (kg)	Code No.	Price $
VCP-15	Ø112mmx178mm	0.9kg	1.9	230650	**558.68**

Mini Handy Magnetic Chip Collector

- Permanent magnet
- Pull handle for easy release
- Made of impact-proof plastic
- Easy to pick up hand tools, small iron or steel parts in the office, house or factory
- Material of outer cover: Plastic



Model	Dimensions	Magnetic Force	Weight (kg)	Code No.	Price $
VCC-16	Ø110mmx190mm	4.9kg	0.7	230655	**103.46**

Chip Collector with LED Light & Flexible Arm

Flexible Magnetic Pick-Up Tool
- LED light
- 21" in length
- 0.7 lb capacity
- 2pcs 1.5V batteries



Model No.	Code No.	Price $
VCC-21	230645	**63.43**

All products below are F.O.B. Sowa Tool Kitchener.

Oak Green-LPH

Oak Green LPH Floor Cleaner is a water based floor cleaner developed for use in automatic floor scrubbers, mop buckets and spray bottles. It offers enhanced detergency to remove oils, greases, soot and shop dirt from floors, steps and walkways.



Description	Code No.	Price $
Oak Green-LPH 19L Pail	659715	**108.60**

Cimclean 30

Recommended for cleaning individual machine tanks and central system reservoirs, metalworking fluid lines, machines and parts.



Description	Code No.	Price $
Cimclean 30 20L Pink	659720	**186.33**

Cimtap II Tapping Fluid

General purpose tapping fluid for both ferrous and non-ferrous metals.



Description	Code No.	Price $
16oz Bottle Cimtap II Pink	659730	**12.93**
4L Jug Cimtap II Pink	659735	**52.73**
20L Cimtap II Pink	659620	**1,480.58**

Cimtap H.D. Tapping Fluid

Cimtap H.D. is the most heavy duty tapping oil recommended for both ferrous and non-ferrous metals.



Description	Code No.	Price $
Cimtap H.D. 16oz	659750	**28.58**

Cimtap Paste Tapping Compound

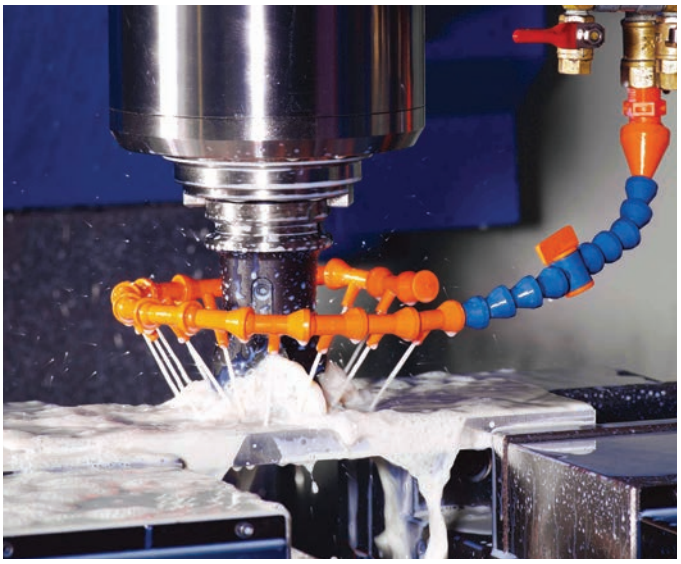
Cimtap Paste is a general purpose tapping paste recommended for both ferrous and non-ferrous metals.



Description	Code No.	Price $
Cimtap Paste - 1 Pint	659740	**11.92**
Cimtap Paste (Case of 24)	659745	**239.40**

Adjustable Coolant Hose System





Length and angle can be freely adjusted, suitable for most fluids (liquids and gases), hose orifice can be changed as needed.
Can be used for air or for water/oil supply to metal processing machinery.

- Made of Dupont 100P material; this highly rigid yet resilient acetal (POM) is strongly resistant to oils and chemicals
- Adjustable Coolant Hose is highly pliable; it holds its shape well and will not spring back
- Bending hose will not reduce inner diameter; hose will not pinch or fatigue
- Adjustable Coolant Hose will not damage cutting blades if there is accidental contact
- Adjustable Coolant Hose does not conduct electricity and is suitable for use on electrical discharge (EDM) machines
- Four kinds of inner diameter are available: 1/4", 3/8", 1/2", 3/4"
- Adjustable Coolant Hose is designed for the transport of low-pressure fluids

Installation of Adjustable Coolant Hoses
It's simple and easy to install Adjustable Coolant Hoses using the special pliers. The pliers can also be used to take apart the hose.





Total Control Units

The Total Flow Control Unit can be installed on all types of mechanical equipment to control water flow. It is easy to install and makes the machine more aesthetically attractive. Ensure convenient flow control.

Standard Control Unit

Description	Code No.	Price $
#1 Control Unit • Total Flow Control Unit - 1 set • 1/4" Adjustable Coolant Hoses & Valves Unit - 1 set • 3/8" Adjustable Coolant Hoses & Valves Unit - 3 sets	665002	**230.20**

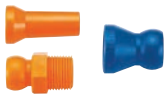


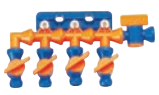
High Pressure Control Unit

Description	Code No.	Price $
#2 Control Unit • Total Flow Control Unit - 1 set • 1/4" Adjustable Coolant Hoses & Valves Unit - 1 set • High Pressure Adjustable Nozzles - 3 sets	665004	**378.40**



1/4" Coolant Hose System

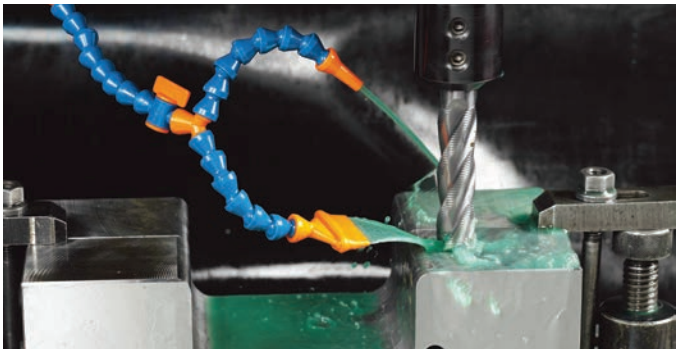
	Description	Code No.	Price $
	**1/4" Hose Kit** Includes: 10pcs of 1/4" segments - 2 sets 1/16", 1/8", 1/4" Nozzles 1/4" & 1/8" Male NPT Connectors	665008	**25.60**
	**1/4" Extended Element Kit** with Element Kit Includes: 4 each of: 1/4" Extended Elements, 1/4" Element Clamps	665010	**34.10**
	**1/4" Segment Pack** 2 x 5-1/2" pcs **1/4" x 50 ft coil** **1/4" x 82 ft coil**	665012 665014 665016	**13.80** **709.90** **1,187.20**
	**1/4 Circle Flow Nozzles** Nozzle Kit Assembled with 15 Side Flow Nozzles 1/4", 1pc End Cap - 1/4"	665018	**56.20**
	**1/4" Extended Element, Pack of 4** **1/4" Extended Element, Pack of 20**	665020 665022	**19.80** **97.60**
	**1/4" Element Clamp, Pack of 4** **1/4" Element Clamp, Pack of 20**	665024 665026	**14.70** **71.90**
	**1/4" - 90° Nozzle Kit** 1 ea. 1/16", 1/8", 1/4" & Spray Bar Nozzle	665028	**15.90**
	**1/16" Round Nozzle, Pack of 4** **1/16" Round Nozzle, Pack of 50**	665030 665032	**8.50** **102.60**
	**1/8" Round Nozzle, Pack of 4** **1/8" Round Nozzle, Pack of 50**	665034 665036	**8.50** **102.60**
	**1/4" Round Nozzle, Pack of 4** **1/4" Round Nozzle, Pack of 50**	665038 665040	**8.50** **102.60**
	**1/16" - 90° Round Nozzle, Pack of 4** **1/16" - 90° Round Nozzle, Pack of 20**	665042 665044	**12.50** **60.70**
	**1/8" - 90° Round Nozzle, Pack of 4** **1/8" - 90° Round Nozzle, Pack of 20**	665046 665048	**12.50** **60.70**
	**1/4" - 90° Round Nozzle, Pack of 4** **1/4" - 90° Round Nozzle, Pack of 20**	665050 665052	**12.50** **60.70**
	**1/4" - 90° Spray Bar Nozzle, Pack of 2** **1/4" - 90° Spray Bar Nozzle, Pack of 20**	665054 665056	**13.50** **130.60**
	**3/8" Flat Nozzle, Pack of 2** **3/8" Flat Nozzle, Pack of 20**	665058 665060	**10.90** **105.10**
	**1" Flare Nozzle, Pack of 2** **1" Flare Nozzle, Pack of 20**	665062 665064	**6.50** **61.80**
	**1/8" NPT Connector, Pack of 4** **1/8" NPT Connector, Pack of 50**	665070 665072	**8.50** **102.60**
	**1/4" NPT Connector, Pack of 4** **1/4" NPT Connector, Pack of 50**	665078 665080	**8.50** **102.60**
	**1/4" Y Fitting Pack, of 2** **1/4" Y Fitting Pack, of 20**	665086 665088	**13.50** **130.60**
	**1/4" Double Socket, Pack of 4** **1/4" Double Socket, Pack of 20**	665090 665092	**9.80** **47.30**

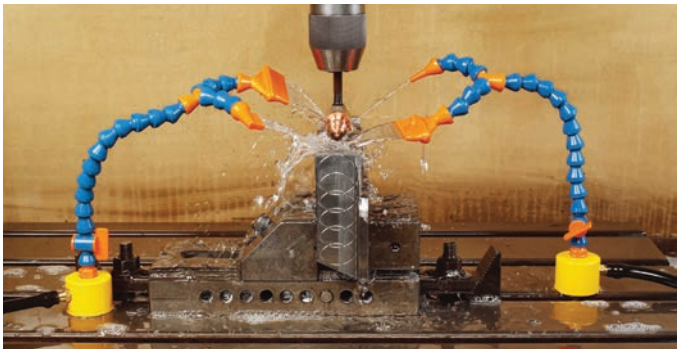
	Description	Code No.	Price $
	**1/4" Socket to 1/8" NPTF, Pack of 4** **1/4" Socket to 1/8" NPTF, Pack of 20**	665094 665096	**13.70** **49.30**
	**1/4" Female NPTF Connector, Pack of 4** **1/4" Female NPTF Connector, Pack of 50**	665102 665104	**16.70** **204.80**
	**5/8" Female UNF Connector, Pack of 4** **5/8" Female UNF Connector, Pack of 50**	665106 665108	**16.70** **82.20**
	**7/16" Female UNF Connector, Pack of 4** **7/16" Female UNF Connector, Pack of 50**	665110 665112	**16.70** **82.20**
	**1/4" Elbow Fitting, Pack of 2** **1/4" Elbow Fitting, Pack of 20**	665114 665116	**12.60** **123.00**
	**1/4" T Fitting, Pack 2** **1/4" T Fitting, Pack 20**	665118 665120	**14.70** **66.80**
	**1/4" Side Flow Nozzle, Pack of 4** **1/4" Side Flow Nozzle, Pack of 20**	665122 665124	**14.70** **71.90**
	**1/4" End Cap, Pack of 4** **1/4" End Cap, Pack of 20**	665126 665128	**9.00** **44.00**
	**1/4" Swivel Nozzle 40, Pack of 2** **1/4" Swivel Nozzle 40, Pack of 20**	665130 665132	**19.30** **189.40**
	**1/4" Swivel Nozzle 60, Pack of 2** **1/4" Swivel Nozzle 60, Pack of 20**	665134 665136	**19.30** **189.40**
	**1/4" NPT Male Hose Nipple Valve, Pk. of 2** **1/4" NPT Male Hose Nipple Valve, Pk. of 10**	665138 665140	**20.90** **102.60**
	**1/4" Connection Valve, Pack of 2** **1/4" Connection Valve, Pack of 10**	665142 665144	**20.90** **102.60**
	**1/4" Male NPT Valve, Pack of 2** **1/4" Male NPT Valve, Pack of 10**	665150 665152	**20.90** **102.60**
	**1/4" Female NPT Valve, Pack of 2** **1/4" Female NPT Valve, Pack of 10**	665158 665160	**20.90** **102.60**
	**1/4" Connection Check Valve, Pack of 2** **1/4" Connection Check Valve, Pack of 10**	665162 665164	**20.90** **102.60**
	**1/4" Modular Manifold System** Includes: 1/4" Elbow Fitting - 1pc 1/4" Manifold Bracket - 1pc 1/4" T Fitting - 3pcs 1/4" Mounting Screws - 3pcs	665166	**33.10**
	**1/4" Main Flow Control Manifold System** Includes: 1/4" Modular Manifold - 1 set 1/4" Connection Valve - 5pcs	665168	**87.60**
	**1/4" Manifold Bracket, Pack of 2**	665170	**10.00**
	**1/4" Hose Assembly Pliers**	665172	**65.10**

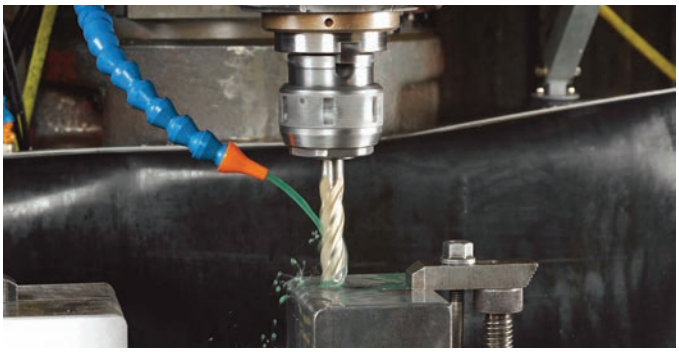
3/8" Coolant Hose System

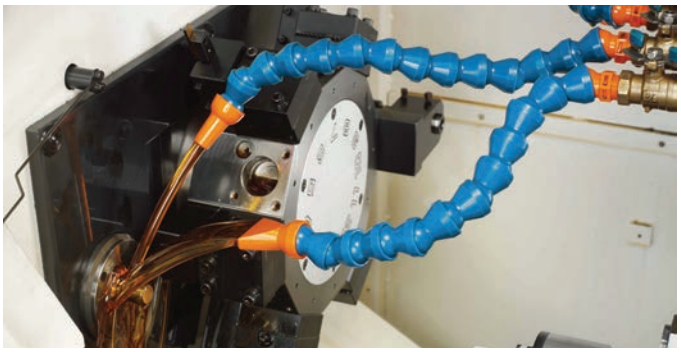
	Description	Code No.	Price $
	**3/8" Hose Kit** Includes: 8pcs of 3/8" segments - 2 sets 3/8" Nozzle 3/8" Male NPT Connector	665176	**20.40**
	**3/8" Hose Kit** Includes: 8pcs of 3/8" segments - 2 sets 1/4", 3/8", 1/2" Nozzles 3/8" & 1/2" Male NPT Connectors	665180	**29.00**
	**3/8" Segment Pack** 2 x 5-1/2" pcs **3/8" x 25 ft coil** **3/8" x 50 ft coil**	665182 665184 665186	**15.10** **413.10** **811.20**
	**1/4" Round Nozzle, Pack of 4** **1/4" Round Nozzle, Pack of 50**	665188 665190	**10.60** **128.20**
	**3/8" Round Nozzle, Pack of 4** **3/8" Round Nozzle, Pack of 50**	665192 665194	**10.60** **128.20**
	**1/2" Round Nozzle, Pack of 4** **1/2" Round Nozzle, Pack of 50**	665196 665198	**10.60** **128.20**

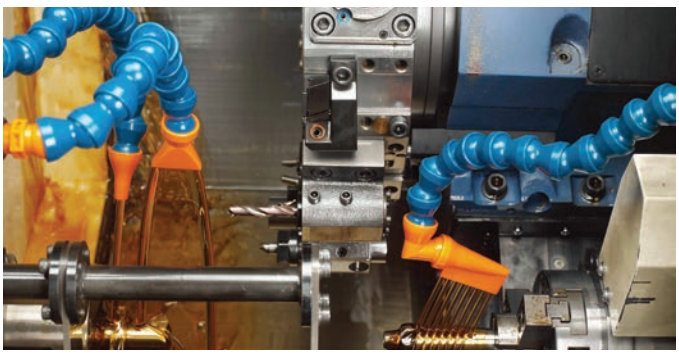
	Description	Code No.	Price $
	**3/8" NPT Connector, Pack of 4** **3/8" NPT Connector, Pack of 50**	665208 665210	**10.60** **128.20**
	**1/2" NPT Connector, Pack of 4** **1/2" NPT Connector, Pack of 50**	665216 665218	**10.60** **128.20**
	**1-1/4" Flare Nozzle, Pack of 2** **1-1/4" Flare Nozzle, Pack of 20**	665220 665222	**7.80** **74.40**
	**3/8" Male NPT Valve, Pack of 2** **3/8" Male NPT Valve, Pack of 10**	665228 665230	**26.00** **128.20**
	**3/8" Female NPT Valve, Pack of 2** **3/8" Female NPT Valve, Pack of 10**	665236 665238	**26.00** **128.20**
	**3/8" Hose Assembly Pliers**	665240	**65.10**

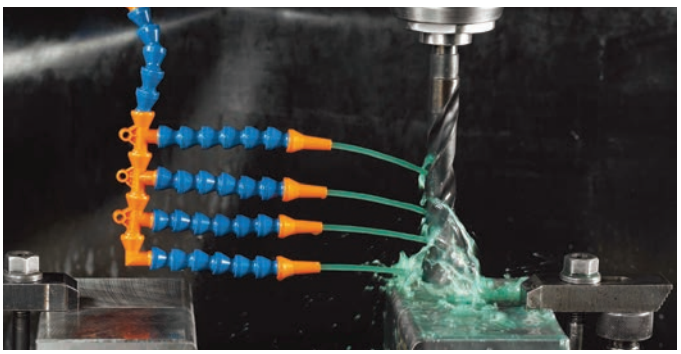




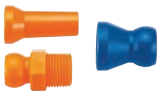








1/2" Coolant Hose System

	Description	Code No.	Price $
	**1/2" Hose Kit** Includes: 6pcs of 1/2" segments - 2 sets 1/4", 3/8", 1/2" Nozzles 3/8" & 1/2" Male NPT Connectors	665244	**32.90**
	**1/2" Extended Element Kit** with Element Kit Includes: 4 each of: 1/2" Extended Elements, 1/2" Element Clamps	665246	**42.80**
	**1/2" Segment Pack** 2 x 5-1/2" pcs **1/2" x 50 ft coil** **1/2" x 82 ft coil**	665248 665250 665252	**16.60** **945.90** **1,426.90**
	**1/2 Circle Flow Nozzles** Nozzle Kit Assembled with 15 Side Flow Nozzles 1/2", 1pc End Cap - 1/2"	665254	**71.90**
	**1/2" Extended Element, Pack of 4** **1/2" Extended Element, Pack of 20**	665256 665258	**24.30** **120.40**
	**1/2" Element Clamp, Pack of 4** **1/2" Element Clamp, Pack of 20**	665260 665262	**18.70** **92.30**
	**1/4" - 90° Nozzle Kit** 1 ea. 1/4", 3/8", 1/2" & Spray Bar Nozzle	665264	**18.60**
	**1/4" Round Nozzle, Pack of 4** **1/4" Round Nozzle, Pack of 50**	665266 665268	**12.60** **153.80**
	**3/8" Round Nozzle, Pack of 4** **3/8" Round Nozzle, Pack of 50**	665270 665272	**12.60** **153.80**
	**1/2" Round Nozzle, Pack of 4** **1/2" Round Nozzle, Pack of 50**	665274 665276	**12.60** **153.80**
	**1/4" - 90° Round Nozzle, Pack of 4** **1/4" - 90° Round Nozzle, Pack of 20**	665278 665280	**13.70** **66.80**
	**3/8" - 90° Round Nozzle, Pack of 4** **3/8" - 90° Round Nozzle, Pack of 20**	665282 665284	**13.70** **66.80**
	**1/2" - 90° Round Nozzle, Pack of 4** **1/2" - 90° Round Nozzle, Pack of 20**	665286 665288	**13.70** **66.80**
	**1/2" - 90° Spray Bar Nozzle, Pack of 2** **1/2" - 90° Spray Bar Nozzle, Pack of 20**	665290 665292	**15.00** **146.00**
	**1-1/4" Flare Nozzle, Pack of 2** **1-1/4" Flare Nozzle, Pack of 20**	665294 665296	**9.00** **87.40**
	**1-3/4" Flare Nozzle, Pack of 2** **1-3/4" Flare Nozzle, Pack of 20**	665298 665300	**9.50** **92.30**
	**2-1/2" Flare Nozzle, Pack of 2** **2-1/2" Flare Nozzle, Pack of 20**	665302 665304	**10.60** **102.60**
	**3/8" NPT Connector, Pack of 4** **3/8" NPT Connector, Pack of 50**	665310 665312	**12.60** **153.80**
	**1/2" NPT Connector, Pack of 4** **1/2" NPT Connector, Pack of 50**	665318 665320	**12.60** **153.80**
	**1/2" Y Fitting Pack, of 2** **1/2" Y Fitting Pack, of 20**	665322 665324	**15.00** **146.00**

	Description	Code No.	Price $
	**1/2" to 1/4" Y Reducer, Pack of 2** **1/2" to 1/4" Y Reducer, Pack of 20**	665326 665328	**15.00** **146.00**
	**1/2" to 1/4" Adapter, Pack of 2** **1/2" to 1/4" Adapter, Pack of 20**	665330 665332	**11.20** **107.80**
	**1/2" Double Socket, Pack of 4** **1/2" Double Socket, Pack of 20**	665334 665336	**11.20** **54.10**
	**1/2" Elbow Fitting, Pack of 2** **1/2" Elbow Fitting, Pack of 20**	665338 665340	**14.10** **138.30**
	**1/2" T Fitting, Pack 2** **1/2" T Fitting, Pack 20**	665342 665344	**16.50** **161.40**
	**1/2" Side Flow Nozzle, Pack of 4** **1/2" Side Flow Nozzle, Pack of 20**	665346 665348	**18.70** **92.30**
	**1/2" End Cap, Pack of 4** **1/2" End Cap, Pack of 20**	665350 665352	**10.00** **48.90**
	**1/2" Connection Valve, Pack of 2** **1/2" Connection Valve, Pack of 10**	665354 665356	**33.70** **166.40**
	**1/2" Male NPT Valve, Pack of 2** **1/2" Male NPT Valve, Pack of 10**	665362 665364	**33.70** **166.40**
	**1/2" Female NPT Valve, Pack of 2** **1/2" Female NPT Valve, Pack of 10**	665370 665372	**33.70** **166.40**
	**1/2" Connection Check Valve, Pack of 2** **1/2" Connection Check Valve, Pack of 10**	665374 665376	**27.80** **137.00**
	**3/8" SAE Flare Nut Adapter, Pack of 4** **3/8" SAE Flare Nut Adapter, Pack of 20**	665378 665380	**14.10** **69.30**
	**1/2" Modular Manifold System** Includes: 1/2" Elbow Fitting - 1pc 1/2" Manifold Bracket - 1pc 1/2" T Fitting - 3pcs 1/2" Mounting Screws - 3pcs	665382	**37.00**
	**1/2" Main Flow Control Manifold System** Includes: 1/2" Modular Manifold - 1 set 1/2" Connection Valve - 5pcs	665384	**119.90**
	**1/2" Manifold Bracket, Pack of 2**	665386	**11.40**
	**1/2" Hose Assembly Pliers**	665388	**65.10**

3/4" Coolant Hose System

	Description	Code No.	Price $
	**3/4" Hose Kit** Includes: 6pcs of 3/4" segments - 2 sets 5/8"& 3/4" Nozzles 3/4" Male NPT Connectors	665392	**43.40**
	**3/4" Segment Pack** 2 x 5-1/2" pcs **3/4" x 50 ft coil** **3/4" x 82 ft coil**	665394 665396 665398	**29.50** **1,590.60** **2,520.40**
	**5/8" Round Nozzle, Pack of 4** **5/8" Round Nozzle, Pack of 50**	665400 665402	**17.70** **217.60**
	**3/4" Round Nozzle, Pack of 4** **3/4" Round Nozzle, Pack of 50**	665404 665406	**17.70** **217.60**
	**3/4" NPT Connector, Pack of 4** **3/4" NPT Connector, Pack of 50**	665412 665414	**17.70** **217.60**

	Description	Code No.	Price $
	**3" Flare Nozzle, Pack of 2** **3" Flare Nozzle, Pack of 20**	665416 665418	**12.60** **123.00**
	**3/4" Y Fitting, Pack of 2** **3/4" Y Fitting, Pack of 20**	665420 665422	**32.70** **322.20**
	**3/4" to 1/2" Adapter, Pack of 2** **3/4" to 1/2" Adapter, Pack of 20**	665424 665426	**12.60** **123.00**
	**3/4" to 1/2" Y Reducer, Pack of 2** **3/4" to 1/2" Y Reducer, Pack of 20**	665428 665430	**44.10** **437.20**
	**3/4" Double Socket, Pack of 4** **3/4" Double Socket, Pack of 20**	665432 665434	**13.70** **66.80**
	**3/4" Hose Assembly Pliers**	665436	**65.10**

Magnetic Base & Shield Systems

3 Valve Magnetic Set (With On-Off)

Description	Code No.	Price $
• Magnetic Base (W 2" x L 2-1/2" x H 2") • 20 pcs of 1/4" Segment - 3pcs • 1" Flare Nozzle - 3pcs • 1/4" NPT Connector - 3pcs • 1/4" Copper Valve - 3pcs	665438	**316.10**



2 Valve Magnetic Set (With On-Off)

Description	Code No.	Price $
• Magnetic Base (W 2" x L 2-1/2" x H 2") • 20 pcs of 1/4" Segment - 2pcs • 1" Flare Nozzle - 2pcs • 1/4" NPT Connector - 2pcs • 1/4" Copper Valve - 2pcs	665440	**297.00**



Single Hose Magnetic Set

Description	Code No.	Price $
• Magnetic Base - 1pc • 10 pcs of 1/4" Segment - 1pc • 1" Flare Nozzle - 1pc • 1/4" NPT Connector - 1pc	665442	**40.70**



Single Hose Magnetic Set (Shut Off Valve)

Description	Code No.	Price $
• Magnetic Base - 1pc • 10 pcs of 1/4" Segment - 1pc • 1" Flare Nozzle - 1pc • 1/4" Male NPT Valve - 1pc	665446	**54.40**



Long Single Hose Magnetic Set

Description	Code No.	Price $
• Magnetic Base - 1pc • 20 pcs of 1/4" Segment - 1pc • 1" Flare Nozzle - 1pc • 1/4" NPT Connector - 1pc	665444	**46.40**



Long Single Hose Magnetic Set (Shut Off Valve)

Description	Code No.	Price $
• Magnetic Base - 1pc • 20 pcs of 1/4" Segment - 1pc • 1" Flare Nozzle - 1pc • 1/4" Male NPT Valve - 1pc	665448	**61.00**



Magnetic Shield Kits

Description	Dimensions	Code No.	Price $
• Magnetic Base - 1pc	6" x 8"	665450	**86.80**
• 12 pcs of 3/4" Segment - 1pc	7-1/2" x 10"	665452	**90.80**
• 3/4" Shield Mounting Elbow - 1pc	8-1/2" x 12"	665454	**97.70**
• Nut - 2pcs			
• Acrylic Board - 1pc			



Adjustable Coolant Hoses & Valves



1/4" Male 13" Length Hose Kit

Description	Code No.	Price $
• 1/4" Male NPT Valve - 1pc • 20 pcs of 1/4" Segment - 1pc • 1/4" Round Nozzle - 1pc	665456	**26.80**



1/4" Female 13" Length Hose Kit

Description	Code No.	Price $
• 1/4" Female NPT Valve - 1pc • 20 pcs of 1/4" Segment - 1pc • 1/4" Round Nozzle - 1pc	665458	**26.80**



3/8" Male 14" Length Hose Kit

Description	Code No.	Price $
• 3/8" Male NPT Valve - 1pc • 16 pcs of 3/8" Segment - 1pc • 3/8" Round Nozzle - 1pc	665460	**32.70**



3/8" Female 14" Length Hose Kit

Description	Code No.	Price $
• 3/8" Female NPT Valve - 1pc • 16 pcs of 3/8" Segment - 1pc • 3/8" Round Nozzle - 1pc	665462	**32.70**



1/2" Male 13" Length Hose Kit

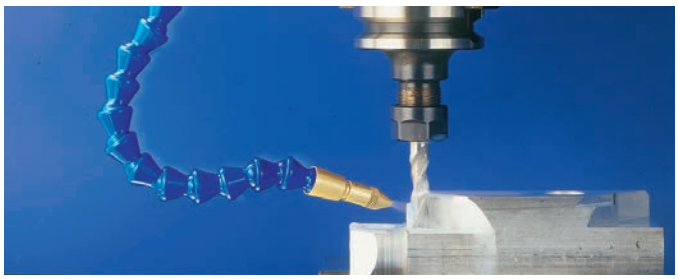
Description	Code No.	Price $
• 1/2" Male NPT Valve - 1pc • 12 pcs of 1/2" Segment - 1pc • 1/2" Round Nozzle - 1pc	665464	**40.10**



1/2" Female 13" Length Hose Kit

Description	Code No.	Price $
• 1/2" Female NPT Valve - 1pc • 12 pcs of 1/2" Segment - 1pc • 1/2" Round Nozzle - 1pc	665466	**40.10**

COOLING SYSTEM



NOGA MINICOOL is using the VENTURI principle to spray an air + liquid mixture.
It consists of the following basic elements: A control valve, spray unit, air line, syphon line and a powerful on/off Popeye magnet, which has a "V" form base, making it possible to mount on non-flat surfaces.
The MINICOOL enables the user to easily control both the air flow rate and liquid rate. Stainless steel armoured syphon hose and air hose are made in standard lengths: 1m, 2m, 3m (special lengths available upon request). The spray unit comes in three standard lengths: 264, 334, 479 mm (special lengths available upon request).

NogaCool — MC1601

NOGACOOL consists of a manifold & Loc-Line® flexible hose with a nozzle on top and a valve at the bottom, Assembled on the powerful ON/OFF POPEYE magnet. The plug attached can be replaced by a second Loc-Line® hose. NOGACOOL is supplied with a set of three nozzles: 1/16", 1/8",1/4".

Working conditions are as follows: Pressure: 2-3.4 Bar (30-50 psi), Flow rate: 940 l/hour (250 gal/hour) Max. Working Temp. 170°C.



Model	Code No.	Price $
MC1601	165462	**101.40**

Noga Minicool — MC1700

NOGA Minicool is using the VENTURI principle to spray an air + liquid mixture. The Minicool enables the user to easily control both the air flow rate and liquid rate.

- Strong magnetic base
- Separate on/off air and fluid control
- Stainless steel armoured syphon hose and air hose
- Simple, inexpensive, rugged
- Nozzle connected via Loc-Line® flexible hose
- Single spray unit

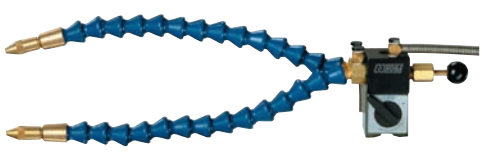


Model	Code No.	Price $
MC1700	165461	**266.04**

Noga Minicool — MC3000

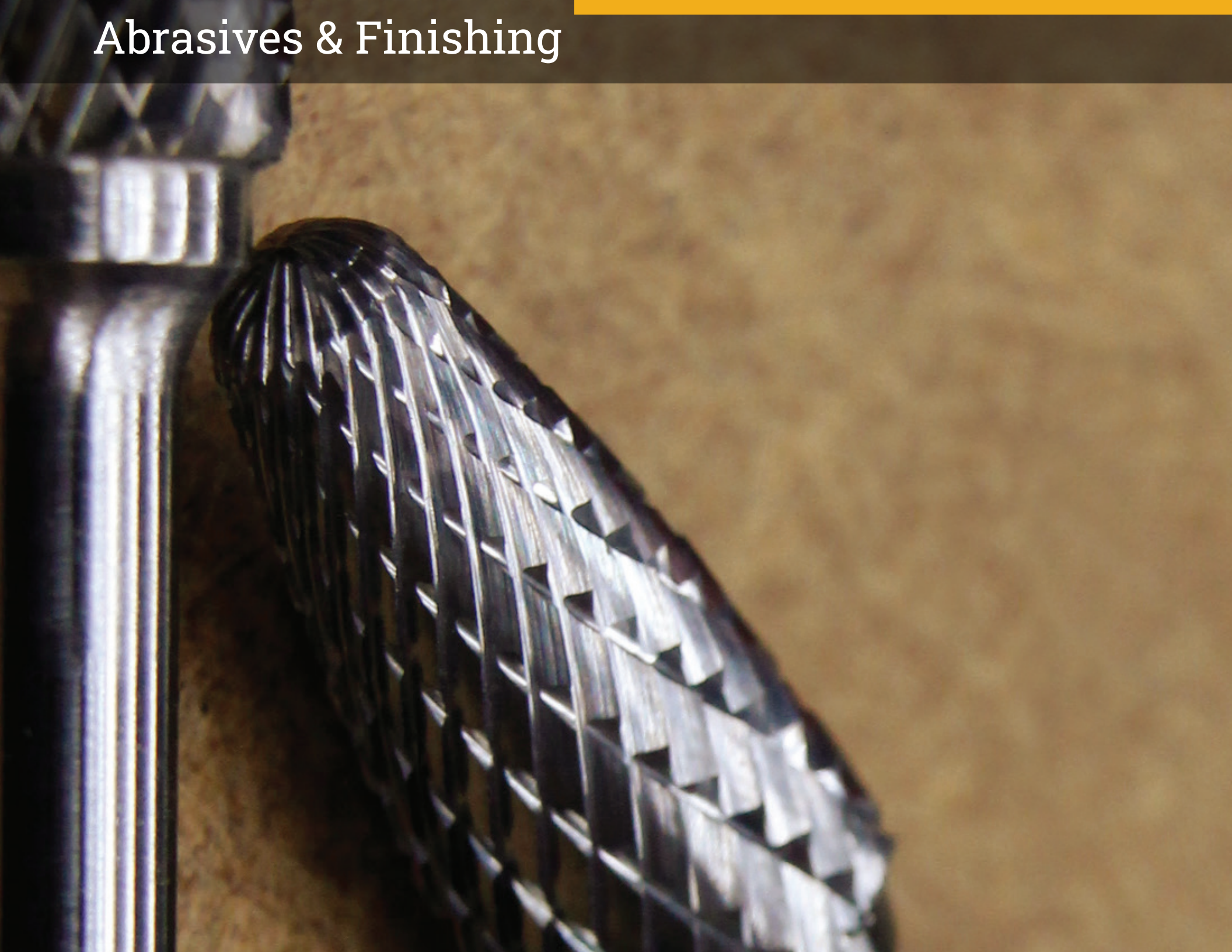
NOGA Minicool is using the VENTURI principle to spray an air + liquid mixture.
The Minicool enables the user to easily control both the air flow rate and liquid rate.

- Strong magnetic base
- Separate on/off air and fluid control
- Stainless steel armoured syphon hose and air hose
- Simple, inexpensive, rugged
- Nozzle connected via Loc-Line® flexible hose
- Two spray units



Model	Code No.	Price $
MC3000	165463	**326.13**

Abrasives & Finishing





Abrasives & Finishing

GRINDING WHEELS

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DISCS

Flap Discs, Mop Discs J8-9
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Air Blow Gun J15

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Carbide Burrs & Sets J16-18
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Sets & Kits J24
Blades J25-28

How to Order

When ordering Kinik standard grinding wheels, specify your selection in this order:

Wheel Shape and Face

Dimensions
(1) Diameter (D)
(2) Thickness (T)
(3) Hole size (H)

Wheel Specifications
(1) Abrasive
(2) Grit Size
(3) Grade
(4) Bond
(5) Quantity

GENERAL INFORMATION ON GRINDING WHEELS

Note:
Wheels are available in both metric and imperial dimensions.

Standard Wheel Markings

For clarity as well as to avoid mistakes in wheel selection, a standard designation of wheel specifications was developed and was inscribed by ISO in 1995. Standards such as CNS of the R.O.C., JIS of Japan, ANSI of U.S.A. and DIN of Germany all employ this uniform standard.

Wheel marking includes the following information:

WA	46	K	8	V	7N
Abrasive	Grit	Grade	Structure	Bond Type	KINIK Symbol

Abrasives

Symbols	Characteristics
A	Regular aluminum oxide, hard and tough. Suitable for mild steel, case-iron etc in rough grinding
10A	The prime regular aluminum oxide, hard and tough. It is suited for cylindrical grinding of unhardened steels.
WA, 38A	White aluminum oxide, hard and brittle. Suitable for all kinds of steel grinding.
32A	Strong sharp monocrystaline aluminum oxide. Suitable for all kinds of tool precision grounding.
FA, 57A	Semi-friable, with a grinding action intermediate A and WA. Suitable for cylindrical grinding of steel parts.
PA	Pink aluminum oxide is suitable for tool grinding and surface grinding.
RA	Ruby aluminum oxide, hard and less brittle than PA. Suitable for high alloy steel etc. in precision grinding.
PSA	Special pink abrasive similar to 32A. Suitable for all kinds of hard steels in precision grinding.
AZ	A modified high zirconia aluminum oxide. Used in foundries snagging cast iron and steels for heavy duty work.
C	Black silicone carbide. Used for grinding gray iron, non-ferrous metals, and non-metallic materials such as glass, rubber, stones etc.
CSKG	Blue Ceramic. Fast stock removal excellent cutting. 5X more life than aluminum oxide wheels.
GC	Green silicone carbide is well suited for special alloy grinding such as tungsten carbide, cold rolled steels, sapphire, glass and granite.

Bond Type

Symbols	Characteristics
V (Vitrified)	Most common bond for precision grinding porosity and strength. Wheels made with this bond give high stock removal and their rigidity helps attain high precision. Not affected by water, acid oils or ordinary temperature.
B (Resinoid)	Used for wheels in fabrication shops, foundries, billet shops, sharpening and gumming saws, and in many precision applications. These wheels excel in rapid stock removal as well as in applications requiring better finishes. This bond is also restricted to reinforced resinoid products, cut-off wheels or specialty formulated products.
R (Rubber)	Used for most centreless feed wheels, precision ball race grinding wheels and for snagging with portable grinders. Used where finish is important and for cut-off wheels where burr and burn must be kept to a minimum.
Mg (Magnesium Oxychloride)	A notable bond used for cutlery or particularly thin workpieces, marble surface grinding and superfinishing.

Grades: Grades indicate the relative strength of the bond which holds the abrasive grains in place

Very Soft	Soft	Medium	Hard	Very Hard
D, E, F, G	H, I, J, K	L, M, N, O	P, Q, R, S	T, U, V, W, X, Y, Z

Grit (CNS and JIS STANDARD)

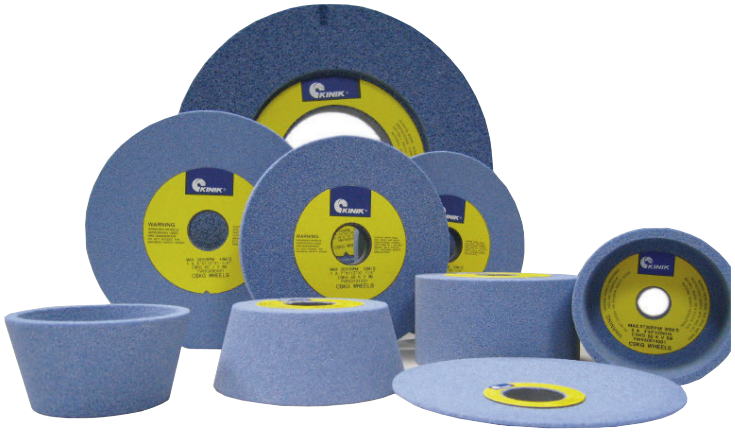
Coarse			Medium			Fine				Very Fine				Ultra Fine			
10	12	14	30	36	46	70	80	90	100	240	280	320	400	1000	1200	1500	2000
16	20	24	54	60		120	150	180	220	500	600	700	800	2500	3000	4000	

Structures:

Symbol No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Abrasive Ratio %	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34

KINIK CERAMIC GRINDING WHEELS

- HIGH PERFORMANCE CERAMIC ALUMINUM OXIDE
- UP TO 5X LONGER LIFE THAN WHITE ALUMINUM OXIDE WHEELS
- SUPERIOR STOCK REMOVAL RATES, LONG WHEEL LIFE REDUCING GRINDING COSTS
- MAXIMUM RESULTS FOR:
  - TOOL SHARPENING
    HSS & TOOL STEEL <68HRC
  - SURFACE GRINDING
    HSS & TOOL STEEL <68HRC, 300 & 400 SERIES STAINLESS STEEL, CAST IRON: DUCTILE & GRAY, NON-FERROUS ALLOYS



Kinik Ceramic Surface Grinding Wheels

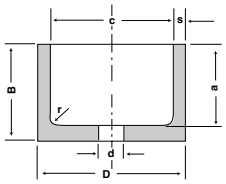
Peripheral Surface Grinding
Surface grinding with straight or recessed wheels on machines with a rotating or reciprocating table results in a larger contact area than in cylindrical grinding. Therefore it is necessary to use softer grade wheels, particularly when large diameter and/or wide wheels are used. When grinding a large number of components, the grinding is not continuous. In this case the components tend to dress the wheel, so a harder grade wheel should be used.



Dimensions	Structure CSKG 46H	Price $	Structure CSKG 46K	Price $	Structure CSKG 60K	Price $	Structure CSKG 80K	Price $	Structure CSKG 100K	Price $
6x1/4x11/4			635040	**30.45**	635041	**27.61**	635042	**30.45**		
6x1/2x11/4			635044	**33.21**	635046	**33.21**	635052	**33.21**		
6x5/8x11/4			635112	**89.85**						
7x1/4x11/4			635047	**38.16**	635048	**41.08**	635049	**41.08**		
7x1/2x11/4			635055	**44.65**	635050	**44.65**	635053	**44.65**	635056	**44.65**
8x1/4x11/4			635057	**48.10**	635061	**48.10**	635062	**48.10**		
8x1/2x11/4			635064	**60.00**	635065	**57.11**	635066	**57.11**		
8x3/4x11/4			635067	**73.88**	635068	**73.92**	635091	**73.92**		
8x3/4x2			635093	**73.92**	635094	**73.92**	635096	**73.92**		
8x1x11/4			635069	**85.94**	635071	**85.94**				
8x1x2			635097	**85.94**	635098	**85.94**				
10x3/4x3			635101	**108.28**	635102	**108.28**	635103	**108.28**		
10x1x3			635072	**123.35**	635073	**123.35**	635104	**122.35**		
12x3/4x3					635074	**165.36**				
12x1x3			635076	**177.38**	635077	**180.23**	635078	**152.97**		
12x1x5			635079	**177.46**	635081	**156.94**				
12x11/2x5			635082	**225.38**	635105	**225.38**				
14x1x5			635083	**225.38**	635084	**225.38**	635109	**225.38**		
14x11/2x5			635086	**285.45**	635087	**291.30**				
14x2x5			635110	**375.57**	635111	**375.57**				
RECESSED 2A BOTH SIDES										
12x2x3 2A 6x3/8			635106	**300.65**	635107	**300.65**				
12x2x5 2A 71/4x1/2			635108	**288.52**						
14x2x5 2A 8x3/8			635088	**390.66**	635089	**390.66**				
14x2x5 2A 8x3/8 H	635070	**397.78**								

Kinik Ceramic Straight Cup Wheels

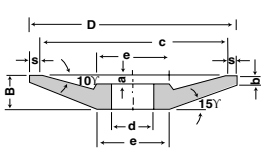
Shape D Straight Cup

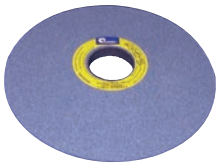




D	B	d	a	c	r	s	CSKG60J Code No.	Price $
4	2	20mm	1-9/16	3-1/2	3/16	1/4	635075	**60.27**

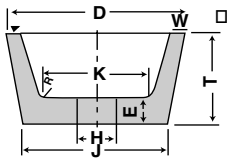
Kinik Ceramic Shape B Saucer Type Grinding Wheels

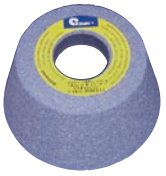




D	B	d	a	b	c	e	s	CSKG60K Code No.	Price $
6	5/8	1-1/4	1/4	1/8	5-3/8	2	5/16	635095	**83.06**

Kinik Ceramic Shape E Flaring Cup Grinding Wheels





D	T	H	W	E	J	K	CSKG60K Code No.	Price $
4	2	1-1/4	6 mm	1/2	3	2-1/2	635085	**60.27**
5	2	1-1/4	8 mm	1/2	4	3	635090	**83.11**

Kinik Aluminum Oxide Surface Grinding Wheels

Peripheral Surface Grinding
Surface grinding with straight or recessed wheels on machines with a rotating or reciprocating table results in a larger contact area than in cylindrical grinding. Therefore it is necessary to use softer grade wheels, particularly when large diameter and/or wide wheels are used.

When grinding a large number of components, the grinding is not continuous. In this case the components tend to dress the wheel, so a harder grade wheel should be used.



WA
White Aluminum Oxide



PA
Pink Aluminum Oxide

Dimensions	Structure WA46J	Price $	WA60J	Price $	WA80J	Price $	PA46J	Price $	PA60J	Price $
6x1/4x1-1/4	635280	**28.88**	635282	**28.88**	635284	**28.88**				
6x1/2x1-1/4	635288	**33.25**	635290	**33.25**	635292	**33.25**				
7x1/4x1-1/4	635296	**40.19**	635298	**40.19**	635300	**40.19**				
7x1/2x1-1/4	635306	**40.76**	635308	**43.21**	635310	**43.21**	635812	**46.01**		
8x1/4x1-1/4	635314	**48.81**	635316	**48.81**	635318	**48.81**				
8x1/2x1-1/4	635324	**51.18**	635326	**51.18**	635328	**51.20**	635820	**57.12**	635822	**57.12**
8x3/4x1-1/4	635334	**66.25**	635336	**62.91**	635338	**66.22**	635824	**72.31**		
8x1x1-1/4	635344	**75.45**	635346	**75.45**	635348	**75.45**				
8x3/4x2	635352	**66.22**	635354	**66.22**	635356	**66.22**				
8x1x2	635360	**75.45**	635362	**75.45**			635836	**81.16**	635838	**81.16**
10x1/2x3	635364	**94.42**	635366	**94.42**						
10x3/4x3	635368	**102.19**	635370	**102.19**	635372	**103.13**				
10x1x3	635376	**108.28**	635378	**108.28**	635379	**108.28**	635848	**120.23**		
12x3/4x3	635380	**151.94**	635382	**148.86**	635384	**148.86**			635854	**162.72**
12x1x3	635386	**175.23**	635388	**175.23**						
12x1x5	635390	**175.23**	635392	**175.23**						
12x1-1/2x5	635394	**206.03**	635396	**206.04**						
14x1x5	635402	**206.04**	635404	**206.04**	635406	**206.04**				
14x1-1/2x5	635408	**264.81**	635410	**266.09**						
14x2x5	635411	**348.66**	635414	**348.66**						
RECESSED 2A BOTH SIDES										
12x2x3 2A 6x3/8	635398	**266.09**	635399	**257.57**			635872	**291.56**		
12x2x5 2A 7-1/4x1/2	635400	**266.09**	635401	**257.57**						
14x2x5 2A 8x3/8	635412	**366.47**	635418	**348.98**			635880	**391.95**		

Kinik General Purpose Grinding Wheels

Used on bench, pedestal, wagon and swing frame grinders
- Diameter: 125 ~ 760 mm
- Diameter: 5" ~ 30"





	A: Dark Regular Aluminum Oxide								GC: Green Silicone Carbide					
Dimensions	**A30P**	**Price $**	**A54N**	**Price $**	**A80N**	**Price $**	**GC60KV**	**Price $**	**GC80JV**	**Price $**	**GC100J**	**Price $**	**GC120JV**	**Price $**
6x3/4x1	635202*	**24.96**	635204	**24.96**	635206	**24.96**	635450	**38.15**	635452	**38.15**	635454	**38.15**		
6x1x1	635208	**26.57**	635210	**26.57**	635212	**26.57**	635458	**42.27**	635460	**42.27**	635462	**42.27**		
7x3/4x1							635474	**56.19**	635476	**55.00**				
7x1x1	635220	**40.88**	635222	**40.86**			635480	**66.36**	635482	**66.36**				
7x1/2x1-1/4							635466	**45.82**	635468	**45.82**			635472	**45.82**
8x3/4x1	635226	**39.73**	635228	**40.19**					635490	**64.61**			635492	**63.64**
8x1x1	635232	**45.77**	635234	**46.01**			635494	**77.81**	635496	**77.81**	635498	**77.81**	635500	**77.71**
10x1x1	635238	**70.97**	635240	**70.97**			635502	**131.03**						
10x1-1/2x1-1/4	635250	**102.19**	635252	**102.19**					635510	**189.37**				
10x2x1-1/4	635256	**120.27**	635258	**120.27**					635516	**248.35**				
12x1-1/2x1-1/4	635262*	**138.24**	635264	**138.24**			635518	**290.22**						
12x2x1-1/4	635268	**188.18**	635270	**188.18**										
14x2x1-1/4	635274*	**249.48**												

* A36P

Kinik 32A Open Bond White Aluminum Oxide Grinding Wheels



	Specifications			
Dimensions	**32A46J**	**Price $**	**32A60J**	**Price $**
7x1/2x1-1/4	635420	**49.75**	635422	**49.75**
8x1/2x1-1/4	635424	**61.75**		
8x3/4x1-1/4	635428	**78.13**	635430	**78.13**
8x1x1-1/4	635432	**94.42**	635434	**90.16**
10x1x3	635436	**138.30**	635438	**138.30**
12x1x3	635440	**206.04**	635442	**202.01**
14x1x5	635443	**279.57**	635444	**270.59**
14x1-1/2x5	635445	**354.48**	635446	**354.48**
RECESSED 2A BOTH SIDES				
12x2x3 2A 6x3/8	635447	**286.28**	635448	**286.28**
12x2x5 2A 7-1/4x1/2	635449	**286.28**	635439	**291.48**
14x2x5 2A 8x3/8	635441	**478.50**	635437	**444.57**

Nested Wheel Bushings

- Used to reduce the size of grinding wheel bores
- Can reduce 1-1/4" down to 1/2"
- 4 bushings with 10 possible combinations



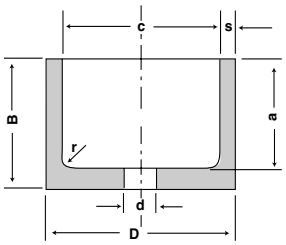
	O.D.	I.D.	Code No.	Price $
Contains:	1-1/4" 1" 3/4" 5/8"	1" 3/4" 5/8" 1/2"	635999	**2.60**

Prices in this catalogue are subject to change without notice. If there is a discrepancy between a product price listed in this catalogue and that listed on www.sowatool.com, the price on our website will take precedence.

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Kinik Aluminum Oxide Straight Cup Grinding Wheels

Shape D Straight Cup

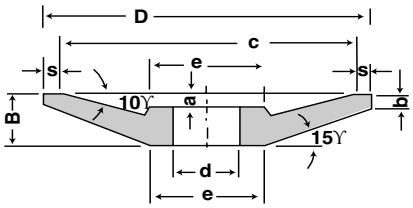






WA White Aluminum Oxide														
D	B	d	a	c	r	s	WA46J	Price $	WA60J	Price $	WA80J	Price $	WA100J	Price $
4	2	1-1/4	1-9/16	3-1/2	3/16	1/4	635530	**48.81**	635532	**48.10**	635534	**48.10**		
4	2	20mm	1-9/16	3-1/2	3/16	1/4	635538	**48.10**	635540	**48.10**	635542	**48.10**	635544	**48.10**
5	2-1/2	1-1/4	2	4-5/16	1/4	5/16	635546	**68.74**	635548	**69.22**	635550	**68.74**		
6	3-1/8	1-1/4	2-1/2	5-1/8	1/4	3/8	635554	**123.36**	635556	**123.36**	635558	**123.36**		
PA Pink Aluminum Oxide							**PA46J**		**PA60J**		**PA80J**		**PA100J**	
4	2	1-1/4	1-9/16	3-1/2	3/16	1/4	635900	**52.20**	635902	**52.20**	635904	**52.20**	635906	**52.20**
4	2	20mm	1-9/16	3-1/2	3/16	1/4	635908	**52.20**	635910	**49.83**	635912	**49.83**		
5	2-1/2	1-1/4	2	4-5/16	1/4	5/16	635916	**72.22**						
6	3-1/8	1-1/4	2-1/2	5-1/8	1/4	3/8			635926	**131.83**				

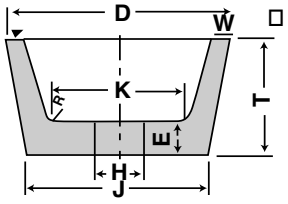
Kinik Aluminum Oxide Shape B Saucer Type Grinding Wheels





WA WHITE ALUMINUM OXIDE											
D	B	d	a	b	c	e	s	WA46J	Price $	WA60J	Price $
6	5/8	1-1/4	1/4	1/8	5-3/8	2	5/16	635970	**69.31**	635972	**69.31**
7	11/16	1-1/4	5/16	1/8	6-1/4	2-3/8	5/16	635978	**71.05**	635980	**83.09**

Kinik Aluminum Oxide Shape E Flaring Cup Grinding Wheels







WA White Aluminum Oxide														
D	T	H	W	E	J	K	WA46J	Price $	WA60J	Price $	WA80J	Price $	WA100J	Price $
4	2	1-1/4	6 mm	1/2	3	2-1/2	635562	**57.43**	635564	**54.25**	635566	**57.43**	635568	**57.43**
5	2	1-1/4	8 mm	1/2	4	3	635570	**72.22**	635572	**72.22**	635574	**72.22**		
6	2	1-1/4	10 mm	1/2	4-1/2	4	635578	**81.19**	635580	**81.19**				
PA Pink Aluminum Oxide							**PA46J**		**PA60J**					
4	2	1-1/4	6 mm	1/2	3	2-1/2	635940	**57.11**						
5	2	1-1/4	8 mm	1/2	4	3	635948	**78.21**	635950	**78.21**				

Shop Rolls



Size	Grit	Code No.	Price $
1 x 50	40	520002	**72.60**
1 x 50	50	520004	**69.70**
1 x 50	60	520006	**47.70**
1 x 50	80	520008	**39.50**
1 x 50	100	520010	**38.40**
1 x 50	120	520012	**38.40**
1 x 50	180	520014	**38.40**
1 x 50	220	520016	**38.40**
1 x 50	320	520018	**54.80**
1-1/2 x 50	40	520020	**101.30**
1-1/2 x 50	50	520022	**97.50**
1-1/2 x 50	60	520024	**87.70**
1-1/2 x 50	80	520026	**55.60**
1-1/2 x 50	100	520028	**53.10**
1-1/2 x 50	120	520030	**53.10**
1-1/2 x 50	180	520040	**76.40**
1-1/2 x 50	220	520042	**53.10**
1-1/2 x 50	320	520044	**76.40**
2 x 50	40	520046	**130.60**
2 x 50	50	520048	**125.60**
2 x 50	60	520050	**113.80**
2 x 50	80	520052	**71.20**
2 x 50	100	520054	**67.40**
2 x 50	120	520056	**67.40**
2 x 50	180	520058	**98.30**
2 x 50	220	520060	**67.40**
2 x 50	320	520062	**98.30**

Abrasive Cloths, Antistatic CS 311 Y ACT

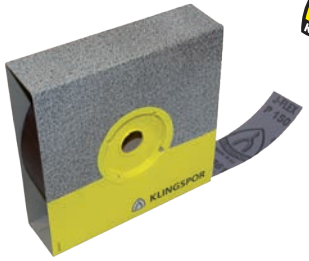
- Bonding agent: Resin
- Aluminium Oxide
- Coating: Open
- Backing: "Y" - Polyester
- Applications: Drum Sander, Wood



Width x Length	Grit	Code No.	Price $
3" x 50m	80	920016	**230.08**
3" x 50m	100	920017	**219.06**

Abrasive Cloths, Brown KL 361 JF

- Bonding agent: Resin
- Aluminium Oxide
- Coating: Close
- Backing: "JF" - cotton cloth, light, highly flexible
- Applications: Stainless Steel, Steel, Metal, Wood



Width x Length	Grit	Code No.	Price $
1" x 50m	80	920030	**55.04**
1" x 50m	320	920037	**52.96**
2" x 50m	120	920058	**100.80**
2" x 50m	400	920065	**101.76**

Abrasive Cloths, Brown KL 385 JF

- Bonding agent: Resin
- Aluminium Oxide
- Coating: Close
- Backing: "JF" - cotton cloth, light, highly flexible
- Applications: Metal, Non-Ferrous Metals, Wood



Width x Length	Grit	Code No.	Price $
1" x 50m	60	920067	**43.68**
1" x 50m	80	920068	**40.96**
2" x 50m	60	920089	**82.72**
2" x 50m	240	920096	**74.56**
2" x 50m	320	920097	**74.56**

Abrasive Fiber Discs CS 565

- Bonding agent: Resin
- Alumina Zirconia
- Coating: Close
- Applications: Metal, Stainless Steel
- Hole Pattern: 30 = Star shaped hole



Diameter Hole	Grit	Code No.	Price $
5" x 7/8"	36	921103	**1.84**
5" x 7/8"	50	921104	**1.60**
5" x 7/8"	60	921105	**1.46**
5" x 7/8"	80	921106	**1.41**

Abrasive Fiber Discs CS 561

- Bonding agent: Resin
- Aluminum Oxide
- Coating: Close
- Applications: Metal
- Hole Pattern: 30 = Star shaped hole



Diameter Hole	Grit	Code No.	Price $
5" x 7/8"	36	921080	**1.39**
5" x 7/8"	40	921081	**1.23**
5" x 7/8"	60	921083	**1.07**
5" x 7/8"	120	921086	**1.04**
7" x 7/8"	24	921089	**2.72**
7" x 7/8"	80	921093	**1.89**

Abrasive Fiber Discs, Multibond CS 570

- Bonding agent: Resin
- Alumina Zirconia
- Coating: Close
- Applications: Stainless Steel
- Hole Pattern: 30 = Star shaped hole



Diameter Hole	Grit	Code No.	Price $
5" x 7/8"	36	921120	**1.98**
5" x 7/8"	50	921121	**1.68**
5" x 7/8"	60	921122	**1.54**
5" x 7/8"	80	921123	**1.49**
5" x 7/8"	120	921125	**1.49**

Back-Up Pad ST 358 C

Back-up pads for fibre abrasive discs and paper abrasive discs.



Dimensions	Density	Max. Operating Speed	Maximum RPM	Code No.	Price $
5" x 5/8"-11	Med.	80 m/s	12,000	921145	**19.94**

Pressure Sensitive Adhesive Discs

- No holes
- Fast, convenient mounting
- Used for grinding, dry sanding and finishing



Size	Grit	Code No.	Price $
6	120	520362	2.20
9	180	520402	4.80
12	60	520428	8.90
12	80	520430	8.70

9 X 11 Paper & Cloth Sheets

For surface preparation or finishing on wet or dry surfaces.





	Grit	Code No.	Price $
Emery Cloth			
	J050	520604	2.70
	J120	520608	2.30
SIC Latex Wet/Dry Paper			
	A600	520568	1.20
	B1200	520570	1.30

Abrasive Paper, Waterproof PS 11 A

- Bonding Agent: Resin
- SiC
- Coating: Close
- Backing: "A" - 95 g/m^2
- Applications: Paint / Varnish / Filler



Width x Length	Grit	Code No.	Price $
9" x 11"	240	920417	1.25
9" x 11"	320	920419	1.25
9" x 11"	400	920421	1.25
9" x 11"	1000	920425	1.33

Abrasive Cloths, Brown KL 361 JF

- Bonding Agent: Resin
- Aluminium Oxide
- Coating: Close
- Backing: "JF"- Cotton Cloth, Light, Highly Flexible
- Applications: Steel, Metal, Wood



Width x Length	Grit	Code No.	Price $
9" x 11"	120	920488	2.88
9" x 11"	600	920497	2.91

Abrasive Cloths, Brown KL 385 JF

- Bonding Agent: Resin
- Aluminium Oxide
- Coating: Close
- Backing: "JF"- Cotton Cloth, Light, Highly Flexible
- Applications: Metal, Wood



Width x Length	Grit	Code No.	Price $
9" x 11"	80	920502	2.22
9" x 11"	150	920505	2.13
9" x 11"	180	920506	2.13
9" x 11"	240	920508	2.16

Non-Woven Web Hand Pads NPA 400

- Bonding Agent: Resin
- Applications Al Oxide: Stainless Steel, Metal/Wood
- Application SiC: Paint/Varnish, Plastic, Metal/Wood



Width Length	Grade	Colour	Grain	Code No.	Price $
6" x 9"	General Purpose	Green	Aluminium Oxide	920519	1.54
6" x 9"	Very Fine	Maroon	Aluminium Oxide	920520	1.62
6" x 9"	Ultra Fine	Gray	Silicon Carbide	920521	1.98
6" x 9"	Coarse	Brown	Aluminium Oxide	920522	3.72
6" x 9"	Medium	Green HD	Aluminium Oxide	920523	1.59

Aluminum Oxide Resin Cloth Belts

- Grind and finish surfaces
- Applications: Wood and Metal



Size	Grit	Code No.	Price $
4 x 36	36	520298	7.60

Abrasive Cloths LS 309 XH

- Bonding Agent: Resin
- Aluminium Oxide
- Coating: Close
- Backing: "X" - Cotton Cloth, Heavy
- Applications: Metal, Non-Ferrous Metals, Wood



Width x Length	Grit	Code No.	Price $
3" x 24	80	920133	2.80
3" x 24	120	920135	2.74

Abrasive Cloths CS 310 X

- Bonding Agent: Resin
- Aluminium Oxide
- Coating: Close
- Backing: "X"- Cotton Cloth, Heavy
- Applications: Metal

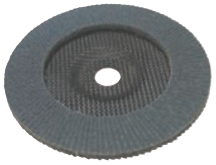


Width x Length	Grit	Code No.	Price $
2" x 48	220	920186	4.90
6" x 48	40	920216	15.65
6" X 48	220	920223	12.82

Flap Discs — Type 27

- Excellent for curved surfaces
- No backing pad required
- Offers full advantage of the flexible grinding wheel and sanding disc paper





Dimensions (in.)	Grit	Code No.	Price $
4-1/2 x 7/8	60	635656	13.65
4-1/2 x 7/8	80	635657	13.65
5 x 7/8	60	635658	16.34
5 x 7/8	80	635659	16.34
7 x 7/8	60	635661	27.63
7 x 7/8	80	635663	27.63

Abrasive Mop Discs SMT 624

- Design: Convex 12°
- Quality Class: Supra
- Alumina Zirconia
- Backing plate: Glass Fibre
- Application: Stainless Steel, Steel



Diameter Bore	Grit	Max. Operating Speed	Max. RPM	Code No.	Price $
4-1/2" x 7/8"	80	80 m/s	13,300	921161	**9.78**
4-1/2" x 7/8"	120	80 m/s	13,300	921162	**9.78**
5" x 7/8"	60	80 m/s	12,200	921166	**11.54**

Cut-Off Wheels For Steel

TAILIN





Dimensions	Specification	RPM	Code No.	Price $
12 x1/8 x1	A30RBF2G	5000	635694	**15.08**
12 x1/8 x1	A30RBF1G	4500	635696	**12.59**
12 x1/8 x1	A30RBF2G	6300	635697	**15.08**
12 x1/8 x20mm	A30RBF2.5G	6300	635700	**12.73**
14 x1/8 x1	A30RBF2G	4300	635702	**18.34**
14 x1/8 x1	A30RBF1G	3900	635704	**15.08**
14 x7/64 x1	A30RBF2G	5400	635705	**20.19**
16 x1/8 x1	A24SBF2G	3800	635708	**26.04**

Cut-Off Wheels INOX A 46 TZ Special

- Bond: Hard
- Quality Class: Special
- Application: Stainless Steel



Diameter x Width Bore	Form	Max. Operating Speed	Max. RPM	Code No.	Price $
4-1/2" x 1/4" x 7/8"		80 m/s	13,300	921305	**3.92**
4-1/2" x 1/4" x 7/8"		80 m/s	13,300	921306	**3.92**
5" x 1/4" x 7/8"		80 m/s	12,200	921307	**4.68**
5" x 1/4" x 7/8"		80 m/s	12,200	921308	**4.68**
7" x 1/4" x 7/8"		80 m/s	8,500	921311	**7.43**
7" x 1/4" x 7/8"		80 m/s	8,500	921312	**7.43**

Grinding Disc & Cut-Off Wheel TS 30 AP Special

- Bond: Hard
- Quality Class: Special
- Application: Steel, Stainless Steel



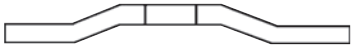
Diameter x Width Bore	Form	Max. Operating Speed	Max. RPM	Code No.	Price $
5" x 1/4" x 7/8"		80 m/s	12,200	921275	**5.32**

Reinforced Depressed Centre Discs For Steel

TAILIN

A. (Type 27)
- Approved by CNS standard No. 2551
- German DSA standard No. 2335





Dimensions	Specification	RPM	Code No.	Price $
4 x1/8 x5/8	A24R2G	15300	635600	**2.85**
4 x1/8 x5/8	A24S2G	15300	635602	**2.85**
4 x1/4 x5/8	A24R2G	15300	635604	**3.22**
4 x1/4 x5/8	A24S2G	15300	635606	**3.22**
4-1/2 x1/8 x7/8	A24R2G	13300	635608	**4.19**
4-1/2 x1/8 x7/8	A24S2G	13300	635610	**4.19**
4-1/2 x1/4 x7/8	A24R2G	13300	635616	**4.36**
4-1/2 x1/4 x7/8	A24S2G	13300	635612	**4.49**
5 x1/8 x7/8	A24R2G	12200	635618	**4.73**
5 x1/4 x7/8	A24R2G	12200	635620	**5.58**
5 x1/4 x7/8	A24S2G	12200	635621	**5.58**
7 x1/8 x7/8	A24R2G	8500	635622	**6.56**
7 x1/8 x7/8	A24S2G	8500	635624	**6.56**
7 x1/4 x7/8	A24R2.5G	8500	635628	**7.48**
7 x1/4 x7/8	A24S2.5G	8500	635629	**7.48**
9 x1/8 x7/8	A24R2G	6500	635634	**9.18**
9 x1/4 x7/8	A24R2.5G	6500	635640	**12.59**
9 x1/4 x7/8	A24S2.5G	6500	635642	**12.59**

Grinding Discs A 24 R Supra

- Bond: Medium
- Quality Class: Supra
- Application: Steel



Diameter x Width Bore	Form	Max. Operating Speed	Max. RPM	Code No.	Price $
4-1/2" x 1/4" x 7/8"		80 m/s	13,300	921247	**4.90**
5" x 1/4" x 7/8"		80 m/s	12,200	921248	**5.64**
7" x 1/4" x 7/8"		80 m/s	8,500	921250	**8.80**

Grinding Discs A 46 N Supra



- Bond: Soft
- Quality Class: Supra
- Application: Aluminum

Diameter x Width Bore	Form	Max. Operating Speed	Max. RPM	Code No.	Price $
4-1/2" x 1/4" x 7/8"		80 m/s	13,300	921255	5.47
5" x 1/4" x 7/8"		80 m/s	12,200	921256	6.29
7" x 1/4" x 7/8"		80 m/s	8,500	921257	9.87

Grinding Discs A 30 M Special



- Bond: Medium
- Quality Class: Special
- Application: Steel, Stainless Steel

Diameter x Width Bore	Form	Max. Operating Speed	Max. RPM	Code No.	Price $
4-1/2" x 1/4" x 7/8"		80 m/s	13,300	921271	5.47
5" x 1/4" x 7/8"		80 m/s	12,200	921272	6.29
7" x 1/4" x 7/8"		80 m/s	8,500	921274	9.87

Grinding Discs A 24 N Supra



- Bond: Soft
- Quality Class: Supra
- Application: Stainless Steel

Diameter x Width Bore	Form	Max. Operating Speed	Max. RPM	Code No.	Price $
4-1/2" x 1/4" x 7/8"		80 m/s	13,300	921252	5.07
5" x 1/4" x 7/8"		80 m/s	12,200	921253	5.82
7" x 1/4" x 7/8"		80 m/s	8,500	921254	8.94

Grinding Discs A 24 TX Special



- Bond: Hard
- Quality Class: Special
- Application: Castings

Diameter x Width Bore	Form	Max. Operating Speed	Max. RPM	Code No.	Price $
5" x 1/4" x 7/8"		80 m/s	12,200	921266	7.18
7" x 1/4" x 7/8"		80 m/s	8,500	921268	11.26

Hand Block SFK 655



- Bond Agent: Plastic
- SiC
- Application: Paint/Varnish, Glass/Stone, Wood, Plastic, Leather, Metal

Width x Length Height	Grit	Code No.	Price $
3" x 2" x 3/4"	240	921345	9.04

Small Abrasive Mops KM 613



- Bonding Agent: Resin
- Aluminum Oxide
- Applications: Metal

Diameter Height x Shaft	Grit	Maximum RPM	Code No.	Price $
5/8" x 5/8 "x 1/8"	80	37,000	920944	7.98
5/8" x 5/8" x 1/8"	120	37,000	920945	8.05
3/4" x 3/4" x 1/4"	80	35,000	920949	8.61
1" x 1" x 1/4"	60	30,000	920961	6.20
1" x 1" x 1/4"	80	30,000	920962	6.20
1" x 1" x 1/4"	120	30,000	920964	6.22
1" x 1" x 1/4"	180	30,000	920965	6.22
1" x 1" x 1/4"	240	30,000	920966	6.27
1" x 1" x 1/4"	320	30,000	920967	6.27
1-1/2" x 1" x 1/4"	60	25,000	920978	6.75
1-1/2" x 1-1/2" x 1/4	80	25,000	920985	7.76
2" x 1" x 1/4"	40	25,000	921002	7.79
2" x 1" x 1/4"	60	25,000	921003	7.79
2" x 1" x 1/4"	80	25,000	921004	7.79
2" x 1" x 1/4"	120	25,000	921006	7.83
2" x 1" x 1/4"	240	25,000	921008	8.24
2" x 2" x 1/4"	40	25,000	921014	10.13
2" x 2" x 1/4"	60	25,000	921015	10.13
2" x 2" x 1/4"	80	25,000	921016	10.13
2" x 2" x 1/4"	120	25,000	921017	11.23
3" x 1" x 1/4"	40	9,500	921035	11.82
3" x 1" x 1/4"	60	9,500	921036	11.82
3" x 1" x 1/4"	80	9,500	921037	11.82
3" x 1" x 1/4"	120	9,500	921038	11.90

Abrasive Mops NCS 600



- Bonding Agent: Resin
- Aluminum Oxide
- Applications: Metal, Stainless Steel

Diameter Height x Shaft	Grit	Grade	Maximum RPM	Code No.	Price $
1-1/2" x 1" x 1/4"	100	Medium	17,000	921047	10.56
2" x 1" x 1/4"	150	Medium	13,700	921050	13.19

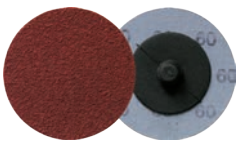
Small Finishing Mops NFS 600



- Bonding Agent: Resin
- Aluminum Oxide
- Applications: Metal, Stainless Steel

Diameter Height x Shaft	Grade	Maximum RPM	Code No.	Price $
1-1/2" x 1" x 1/4	Fine	17,100	921054	10.46
1-1/2" x 1" x 1/4	Very Fine	17,100	921055	10.46

Quick Change Discs QRC 412

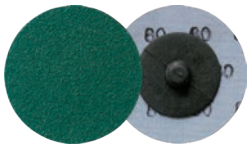


- Bonding Agent: Resin
- Aluminum Oxide
- Coating: Close
- Applications: Metal, Non-Ferrous Metals

Diameter	Grit	Code No.	Price $
2"	36	920860	1.26
2"	50	920861	1.20
2"	60	920862	1.18
2"	80	920863	1.14
2"	120	920865	1.14
3"	36	920866	1.90
3"	50	920868	1.71

Quick Change Disc, Multibond QRC 409

- Bonding Agent: Resin
- Alumina Zirconia
- Coating: Close
- Applications: Metal, Stainless Steel



Diameter	Grit	Code No.	Price $
2"	80	920879	1.38

Back-Up Pads QRC 555

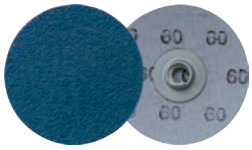
- Shorter set-up times
- More effective abrasive performance
- Wide range of applications
- Uniform sanding results



Shank Size	Density	Maximum RPM	Code No.	Price $
2" x 1/4"	Medium	30,000	920886	20.21
3" x 1/4"	Medium	30,000	920887	25.53

Quick Change Discs QMC 411

- Bonding Agent: Resin
- Alumina Zirconia
- Coating: Close
- Applications: Metal, Stainless Steel



Diameter	Grit	Code No.	Price $
2"	36	920903	1.36
2"	80	920905	1.23
3"	36	920906	2.03
3"	80	920908	1.84

Back-Up Pads QMC 555

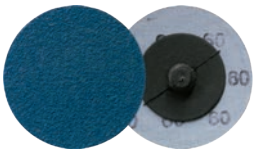
- For use on non-ferrous metal, stainless steel, high-alloy steel
- More effective abrasive performance
- Wide range of applications



Shank Size	Density	Maximum RPM	Code No.	Price $
2" x 1/4"	Medium	30,000	920925	14.60
3" x 1/4"	Medium	30,000	920926	17.27

Quick Change Discs QRC 411

- Bonding Agent: Resin
- Aluminum Oxide
- Coating: Close
- Applications: Metal, Non-Ferrous Metals



Diameter	Grit	Code No.	Price $
2"	36	920870	1.36
2"	60	920871	1.28
2"	80	920872	1.23
3"	36	920873	2.03
3"	60	920874	1.90
3"	80	920875	1.84

Quick Change Discs QRC 800

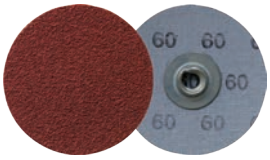
- Bonding Agent: Resin
- Aluminum Oxide
- Coating: Close
- Applications: Metal, Stainless Steel



Diameter	Grade	Code No.	Price $
2"	Coarse	920880	2.48
2"	Medium	920881	2.37
2"	Very Fine	920882	2.18
3"	Coarse	920883	3.71
3"	Medium	920884	3.54
3"	Very Fine	920885	3.26

Quick Change Discs QMC 412

- Bonding Agent: Resin
- Aluminum Oxide
- Coating: Close
- Applications: Metal, Non-Ferrous Metals



Diameter	Grit	Code No.	Price $
2"	36	920892	1.26
2"	60	920894	1.18
2"	120	920897	1.14
3"	50	920899	1.81
3"	80	920901	1.71
3"	120	920902	1.70

Quick Change Discs QMC 800

- Bonding Agent: Resin
- Aluminum Oxide
- Coating: Close
- Applications: Metal, Stainless Steel



Diameter	Grade	Code No.	Price $
2"	Coarse	920918	2.48
2"	Medium	920919	2.37
2"	Very Fine	920920	2.18
3"	Coarse	920921	3.71
3"	Medium	920922	3.54
3"	Very Fine	920923	3.26

STANDARD DUTY PRECISION AIR TOOLS

1/4" Mini Die Grinder — TP-1006

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Front
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	4-3/4	0.68	174012	**72.24**

1/4" Mini Die Grinder — TP-1008

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	6-5/16	0.79	174010	**71.99**

1/4" Medium Die Grinder — TP-1001

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 14 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	22,000	1/4"(6mm)	90	6-7/8	1.36	174008	**72.91**

1" Extended Die Grinder — TP-1010

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	7-1/2	1.25	174018	**174.29**

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STANDARD DUTY PRECISION AIR TOOLS

3" Extended Die Grinder — TP-1011

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	9-1/4	1.45	174020	**202.03**

5" Extended Die Grinder — TP-1012

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	11-1/4	1.45	174022	**229.11**

1/4" Mini Angle Die Grinder — TP-1007

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Front
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	20,000	1/4"(6mm)	90	4-7/8	0.99	174016	**145.26**

1/4" Right Angle Die Grinder — TP-1014

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	20,000	1/4"(6mm)	90	6-5/16	1.10	174014	**145.33**

HEAVY DUTY PRECISION AIR TOOLS

1/4" H.D. Die Grinder — TP-1101

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: TP1101 - Rear
- Exhaust System: TP1101F - Front
- Aluminum Alloy Housing



Model	Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
TP-1101	0.3	25,000	1/4"(6mm)	90	6-5/16	0.81	174024	**123.97**

1" Extended H.D. Die Grinder — TP-1102

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	7-1/2	1.07	174028	**217.59**

3" Extended H.D. Die Grinder — TP-1103

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	9-1/4	1.21	174030	**244.97**

5" Extended H.D. Die Grinder — TP-1104

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	25,000	1/4"(6mm)	90	11-1/4	1.45	174032	**272.41**

1/4" Right Angle H.D. Die Grinder — TP-1106 / TP-1106F

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: TP1106 - Rear
- Exhaust System: TP1106F - Front
- Aluminum Alloy Housing



Model	Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
TP-1106	0.3	20,000	1/4"(6mm)	90	6-5/16	1.07	174034	**203.97**

PROFESSIONAL DUTY PRECISION AIR TOOLS

1/4" Die Grinder — TP-1101H

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	28,000	1/4"(6mm)	90	6-5/16	0.81	174038	**146.23**

1" Extended Die Grinder — TP-1102H

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	28,000	1/4"(6mm)	90	7-1/2	1.07	174040	**242.40**

3" Extended Die Grinder — TP-1103H

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	28,000	1/4"(6mm)	90	9-1/4	1.21	174042	**269.73**

5" Extended Die Grinder — TP-1104H

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	28,000	1/4"(6mm)	90	11-1/4	1.45	174044	**302.67**

1/4" Right Angle Die Grinder — TP-1106H

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	15,000	1/4"(6mm)	90	6-5/16	1.07	174046	**231.26**

1/4" Die Grinder — TP-1109H

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Front
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.3	20,000	1/4"6mm)	90	7-1/2	1.32	174048	**199.54**

1/4" Die Grinder — TP-6001

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 15 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.6	20,000	1/4"(6mm)	90	6-11/16	1.43	174050	**195.42**

1/4" Die Grinder — TP-9001

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.9	18,000	1/4"(6mm)	90	7-5/16	1.56	174052	**234.23**

Angle Die Grinder — TP-6059

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 15 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.6	10,000	1/4"(6mm)	90	7-1/2	2.20	174054	**345.68**

105° Die Grinder — TP-9059

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



Horse Power	RPM	Collet Size	Air Pressure (psi)	Overall Length (in.)	Net Weight (lb)	Code No.	Price $
0.9	9,000	1/4"(6mm)	90	9-1/4	2.28	174056	**350.14**

1/4" Die Grinder Kit (with Throttle Lever)

Contains:
- 1pc TP-1008 Grinder
- 1pc 1/8" (3 mm) collet
- 1pc 1/4" (6 mm) collet
- 2pcs spanners
- 5pcs 1/4" (6 mm) shank grinding
- 5pcs 1/8" (3 mm) shank grinding



Description	Code No.	Price $
1/4" straight die grinder kit	174004	**106.11**

1/4" 90° Die Grinder Kit (with Throttle Lever)

Contains:
- 1pc TP-1014 Grinder
- 1pc 1/8" (3 mm) collet
- 1pc 1/4" (6 mm) collet
- 2pcs spanners
- 5pcs 1/4" (6 mm) shank grinding
- 5pcs 1/8" (3 mm) shank grinding



Description	Code No.	Price $
1/4" 90° die grinder kit	174006	**178.52**

Air Micro Die Grinder

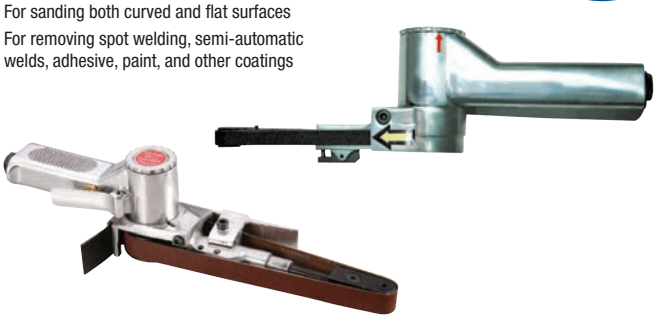
Contains:
- 1pc TP-501-1 Grinder
- 1pc 3 mm collet
- 10pcs 1/8" (3 mm) grinding stones
- 2pcs spanners
- 1pc blow case



Description	Code No.	Price $
1/8" die grinder kit	174002	**253.18**

Air Belt Sanders

- For sanding both curved and flat surfaces
- For removing spot welding, semi-automatic welds, adhesive, paint, and other coatings



Model	Belt Size (mm)	Speed (RPM)	Length (mm)	Weight (kg)	Code No.	Price $
VAG-310	10x330	16,000	290	0.80	174160	**580.05**
VAG-320	20x520	16,000	360	1.10	174162	**828.72**

10 Piece Needle File Set



- Used for deburring, shaping and finishing
- Used for fine detailing or finishing

Description	Code No.	Price $
10 Piece Needle File Set	200761	**10.00**

10 Piece Diamond File Set



- Used for precision filing and shaping
- Electroplated with a diamond abrasive
- Highly durable when used on harder materials
- Excellent for material removal

Description	Code No.	Price $
10 Piece Diamond File Set	200763	**15.90**

Safety Air Blow Gun



- 4-1/2" stainless steel nozzle
- Conforms to OSHA STD 1-13.1 for safety
- Operating pressure: 50-235 psi
- Vent in tip prevents pressure from exceeding 30 psi if tip becomes blocked
- Impact and weather resistant nylon body
- Operating temperature: -10° to 70° C

Model	Noise Level (100psi)	Blowing Force (100psi)	Air Consumption (100psi)	Code No.	Price $
ABG/3/1-4F/N	80db	0.76lb	15.18cfm	231474	**69.71**

Air Blow Gun



- 4" nozzle length
- Recommened air pressure: 75-120 psi
- Max 150 psi
- Air inlet: 1/4"

Model No.	Code No.	Price $
BG2504	174068	**16.90**

Air Blow Gun



- 13" bent steel nozzle
- Recommened air pressure: 75-120 psi
- Max 150 psi
- Air inlet: 1/4"

Model No.	Code No.	Price $
BG25013	174070	**23.30**

GS TOOLING



A strong base for all your metalworking needs – Now in GS yellow!

Compare our GS Vises with the competitors, the biggest difference you'll find is the price.

See Pages H2-8



Cylindrical — Square End — End Not Cut



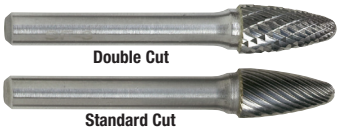
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SA-41	1/16	1/4	1/8	1-1/2	170002	**9.81**	170001	**10.73**
SA-42	3/32	7/16	1/8	1-1/2	170004	**11.40**	170003	**10.73**
SA-43	1/8	9/16	1/8	1-1/2	170006	**9.81**	170005	**9.34**
SA-12	1/8	1/2	1/4	2	170008	**21.69**	170007	**20.60**
SA-14	3/16	5/8	1/4	2	170010	**16.79**	170009	**20.60**
SA-1	1/4	5/8	1/4	2	170014	**18.55**	170013	**17.25**
SA-51	1/4	1/2	1/8	2-1/4	170016	**19.49**	170015	**18.62**
SA-2	5/16	3/4	1/4	2-1/2	170020	**26.75**	170019	**25.44**
SA-3	3/8	3/4	1/4	2-1/2	170022	**24.82**	170021	**27.60**
SA-4	7/16	1	1/4	2-3/4	170024	**43.44**	170023	**41.21**
SA-5	1/2	1	1/4	2-3/4	170026	**39.12**	170025	**37.22**
SA-6	5/8	1	1/4	2-3/4	170028	**44.79**	170027	**54.38**
SA-16	3/4	3/4	1/4	2-1/2	170030	**58.62**	170029	**65.28**
SA-7	3/4	1	1/4	2-3/4	170032	**66.78**	170031	**81.95**
SA-9	1	1	1/4	2-3/4	170034	**124.27**	170033	**118.35**

Cylindrical — Radius End



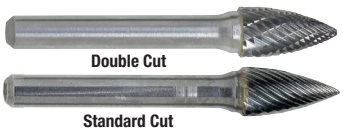
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SC-41	3/32	7/16	1/8	1-1/2	170050	**9.81**	170049	**10.73**
SC-42	1/8	9/16	1/8	1-1/2	170052	**9.81**	170051	**9.34**
SC-12	1/8	1/2	1/4	2	170054	**20.09**	170053	**23.69**
SC-14	3/16	5/8	1/4	2	170056	**25.85**	170055	**23.69**
SC-1	1/4	5/8	1/4	2	170060	**20.81**	170059	**23.24**
SC-51	1/4	1/2	1/8	2-15/16	170062	**16.79**	170061	**14.54**
SC-2	5/16	3/4	1/4	2-1/2	170064	**28.48**	170063	**30.27**
SC-3	3/8	3/4	1/4	2-1/2	170066	**27.54**	170065	**30.67**
SC-4	7/16	1	1/4	2-3/4	170068	**40.07**	170067	**44.69**
SC-5	1/2	1	1/4	2-3/4	170070	**43.25**	170069	**48.20**
SC-6	5/8	1	1/4	2-3/4	170072	**55.08**	170071	**61.37**
SC-7	3/4	1	1/4	2-3/4	170074	**92.05**	170073	**87.68**

Tree — Radius End



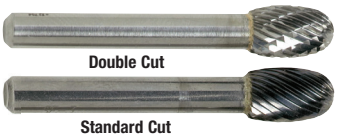
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SF-42	1/8	1/2	1/8	1-1/2	170100	**9.81**	170099	**8.39**
SF-41	1/8	1/4	1/8	1-1/2	170102	**11.11**	-	**-**
SF-12	1/8	1/2	1/4	2	170104	**26.31**	170103	**24.95**
SF-1	1/4	5/8	1/4	2	170108	**22.46**	170107	**24.95**
SF-51	1/4	1/2	1/8	2	170110	**16.79**	170109	**18.62**
SF-3	3/8	3/4	1/4	2-1/2	170112	**28.36**	170111	**24.59**
SF-4	7/16	1	1/4	2-3/4	170114	**43.18**	170113	**41.21**
SF-5	1/2	1	1/4	2-3/4	170116	**40.07**	170115	**44.69**
SF-6	5/8	1	1/4	2-3/4	170118	**67.31**	170117	**63.99**
SF-7	3/4	1	1/4	2-3/4	170120	**75.88**	170119	**84.60**
SF-14	3/4	1-1/4	1/4	3	170122	**92.49**	170121	**88.08**
SF-15	3/4	1-1/2	1/4	3-1/4	170124	**128.89**	170123	**122.71**

Tree — Pointed End



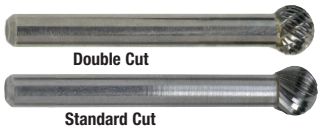
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SG-41	1/8	1/4	1/8	1-1/2	170130	**11.11**	170129	**10.73**
SG-53	3/16	1/2	1/8	1-1/2	170132	**93.67**	170131	**27.73**
SG-44	1/8	1/2	1/8	1-1/2	170134	**11.11**	170133	**10.73**
SG-1	1/4	5/8	1/4	2	170138	**22.46**	170137	**24.95**
SG-51	1/4	1/2	1/8	2	170140	**19.49**	170139	**18.62**
SG-2	5/16	3/4	1/4	2-1/2	170142	**35.52**	170141	**33.75**
SG-3	3/8	3/4	1/4	2-1/2	170144	**28.36**	170143	**31.53**
SG-13	1/2	3/4	1/4	2-1/2	170146	**36.16**	170145	**44.27**
SG-5	1/2	1	1/4	2-3/4	170148	**40.07**	170147	**44.69**
SG-6	5/8	1	1/4	2-3/4	170150	**67.31**	170149	**63.99**
SG-7	3/4	1	1/4	2-3/4	170152	**88.77**	170151	**84.60**
SG-15DC	3/4	1-1/2	1/4	3-1/4	170154	**127.09**	-	**-**

Oval Shape



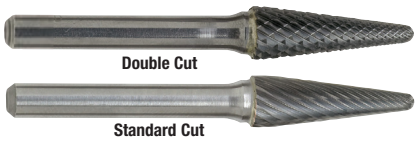
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SE-41	1/8	7/32	1/8	1-1/2	170160	**9.81**	170159	**10.73**
SE-1	1/4	3/8	1/4	2	170164	**24.82**	170163	**27.60**
SE-51	1/4	3/8	1/8	1-3/4	170166	**19.49**	170165	**14.54**
SE-3	3/8	5/8	1/4	2-3/8	170168	**30.62**	170167	**33.98**
SE-5	1/2	7/8	1/4	2-5/8	170170	**43.25**	170169	**48.20**
SE-6	5/8	1	1/4	2-3/4	170172	**60.99**	170171	**68.38**
SE-7	3/4	1	1/4	2-3/4	170174	**92.05**	170173	**87.68**

Ball Shape



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SD-41	3/32	–	1/8	1-1/2	170200	**9.81**	170199	**10.73**
SD-42	1/8	–	1/8	1-1/2	170202	**9.81**	170201	**9.34**
SD-12	1/8	–	1/4	2	170204	**23.64**	170203	**23.24**
SD-14	3/16	–	1/4	2	170206	**23.64**	170205	**23.24**
SD-53	3/16	–	1/8	2	170208	**18.09**	170207	**30.58**
SD-1	1/4	–	1/4	2	170210	**20.09**	170209	**22.35**
SD-51	1/4	–	1/8	2	170212	**16.79**	170211	**16.19**
SD-2	5/16	–	1/4	2-1/16	170214	**25.44**	170213	**24.12**
SD-3	3/8	–	1/4	2-1/8	170216	**22.34**	170215	**22.93**
SD-5	1/2	–	1/4	2-1/4	170218	**31.68**	170217	**35.08**
SD-6	5/8	–	1/4	2-3/8	170220	**39.48**	170219	**43.85**
SD-7	3/4	–	1/4	2-1/2	170222	**48.82**	170221	**59.62**
SD-9	1	–	1/4	2-3/4	170224	**103.01**	170223	**98.19**

Taper 14° Included Taper with Radius End



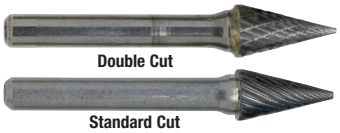
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SL-41	1/8	3/8	1/8	1-1/2	170230	**11.11**	170229	**13.95**
SL-42	1/8	1/2	1/8	1-1/2	170232	**9.81**	170231	**9.34**
SL-1	1/4	5/8	1/4	2	170236	**26.49**	170235	**25.22**
SL-2	5/16	7/8	1/4	2-5/8	170238	**28.71**	170237	**32.01**
SL-3	3/8	1-1/16	1/4	2-13/16	170240	**34.15**	170239	**29.67**
SL-4	1/2	1-1/8	1/4	2-7/8	170242	**39.59**	170241	**48.67**
SL-6	5/8	1-5/16	1/4	3-1/16	170244	**89.62**	170243	**85.48**
SL-7	3/4	1-1/2	1/4	3-1/4	170246	**128.89**	170245	**122.71**

Flame



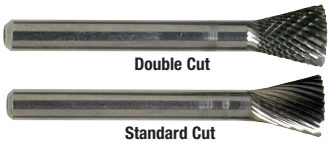
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SH-41	1/8	1/4	1/8	1-1/2	170250	**9.81**	170247	**8.39**
SH-1	1/4	5/8	1/4	2	170251	**27.89**	-	**-**
SH-2	5/16	3/4	1/4	2-3/4	170254	**27.77**	170255	**30.67**
SH-5	1/2	1-1/4	1/4	3-1/4	170256	**56.73**	170257	**63.14**
SH-6	5/8	1-7/16	1/4	3-7/16	170258	**73.99**	170259	**90.71**
SH-7	3/4	1-5/8	1/4	3-5/8	170260	**138.05**	170261	**205.65**

Cone



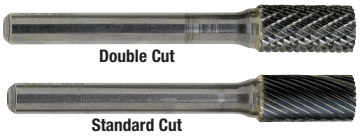
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Included Angle	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SM-41	1/8	11/32	1/8	1-1/2	12°	170270	**8.86**	170269	**10.73**
SM-42	1/8	7/16	1/8	1-1/2	14°	170272	**9.81**	170271	**8.39**
SM-43	1/8	5/8	1/8	1-1/2	7°	170274	**9.81**	170273	**9.34**
SM-1	1/4	1/2	1/4	2	22°	170278	**21.99**	170277	**24.54**
SM-2	1/4	3/4	1/4	2	14°	170280	**27.60**	170279	**26.31**
SM-3	1/4	1	1/4	2	10°	170282	**25.18**	170281	**28.04**
SM-51	1/4	1/2	1/8	2-1/8	22°	170284	**19.49**	170283	**16.19**
SM-4	3/8	5/8	1/4	2-3/8	28°	170286	**22.34**	170285	**37.71**
SM-5	1/2	7/8	1/4	2-5/8	28°	170288	**43.25**	170287	**48.20**
SM-6	5/8	1	1/4	2-3/4	31°	170290	**78.66**	170289	**74.94**

Inverted Cone — End Not Cut



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Included Angle	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SN-41	3/32	1/8	1/8	1-1/2	10°	170300	**11.40**	170299	**10.73**
SN-42	1/8	3/16	1/8	1-1/2	10°	170302	**8.86**	170301	**10.73**
SN-1	1/4	5/16	1/4	2	10°	170306	**23.69**	170305	**22.58**
SN-51	1/4	1/4	1/8	1-3/4	10°	170308	**19.49**	170307	**18.62**
SN-4	1/2	1/2	1/4	2-1/4	16°	170310	**46.89**	170309	**44.69**
SN-6	5/8	3/4	1/4	2-1/2	18°	170312	**67.31**	170311	**63.99**
SN-7	3/4	5/8	1/4	2-3/4	30°	170314	**79.11**	170313	**75.36**

Cylindrical — End Cut



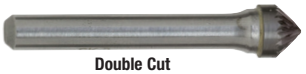
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SB-41	1/16	1/4	1/8	1-1/2	170038	**11.40**	170078	**10.73**
SB-42	3/32	7/16	1/8	1-1/2	170040	**11.40**	170080	**10.73**
SB-43	1/8	9/16	1/8	1-1/2	170042	**11.40**	170082	**10.73**
SB-12	1/8	5/8	1/4	2	170035	**21.52**	170075	**21.07**
SB-14	3/16	5/8	1/4	2	170036	**24.76**	170076	**23.69**
SB-1	1/4	5/8	1/4	2	170037	**19.85**	170077	**21.88**
SB-2	5/16	3/4	1/4	2-1/2	170043	**29.58**	170083	**28.04**
SB-3	3/8	3/4	1/4	2-1/2	170039	**27.19**	170079	**30.27**
SB-4	7/16	1	1/4	2-3/4	170044	**46.89**	170084	**44.69**
SB-5	1/2	1	1/4	2-3/4	170041	**48.82**	170081	**48.20**
SB-6	5/8	1	1/4	2-3/4	170045	**54.02**	170085	**60.03**
SB-16	3/4	3/4	1/4	2-1/2	170047	**75.62**	170087	**71.85**
SB-7	3/4	1	1/4	2-3/4	170046	**92.05**	170086	**87.68**
SB-9	1	1	1/4	2-3/4	170048	**138.05**	170088	**131.48**

60° Taper



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $
SJ-42	1/8	3/32	1/8	1-1/2	170176	**11.40**
SJ-1	1/4	3/16	1/4	2	170177	**24.12**
SJ-2	5/16	5/16	1/4	2-1/16	170178	**26.31**
SJ-3	3/8	5/16	1/4	2-1/16	170179	**29.36**
SJ-5	1/2	7/16	1/4	2-3/16	170180	**35.10**
SJ-6	5/8	9/16	1/4	2-5/16	170181	**47.76**
SJ-7	3/4	11/16	1/4	2-7/16	170182	**64.21**
SJ-9	1	15/16	1/4	2-9/16	170184	**101.24**

90° Taper



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $
SK-42	1/8	1/16	1/8	1-1/2	170185	**11.40**
SK-1	1/4	1/8	1/4	2	170186	**24.12**
SK-2	5/16	3/16	1/4	1-15/16	170187	**26.31**
SK-3	3/8	3/16	1/4	1-15/16	170188	**29.36**
SK-5	1/2	1/4	1/4	2	170189	**36.38**
SK-6	5/8	5/16	1/4	2-1/16	170190	**41.01**
SK-7	3/4	3/8	1/4	2-1/8	170191	**61.92**
SK-9	1	1/2	1/4	2-1/4	170193	**101.24**

Alumacut Burrs — Cylindrical



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Alumacut Burrs Code No.	Price $
SA-1FM	1/4	5/8	1/4	2	170320	**21.39**
SA-3FM	3/8	3/4	1/4	2-1/2	170321	**32.03**
SA-5FM	1/2	1	1/4	2-3/4	170322	**56.38**
SA-6FM	5/8	1	1/4	2-3/4	170323	**73.43**
SA-7FM	3/4	1	1/4	2-3/4	170324	**110.66**

Alumacut Burrs — Radius End



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Alumacut Burrs Code No.	Price $
SC-1FM	1/4	5/8	1/4	2	170325	**31.77**
SC-3FM	3/8	3/4	1/4	2-1/2	170326	**35.45**
SC-5FM	1/2	1	1/4	2-3/4	170327	**55.56**
SC-6FM	5/8	1	1/4	2-3/4	170328	**82.82**
SC-7FM	3/4	1	1/4	2-3/4	170329	**118.35**

Alumacut Burrs — Ball



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Alumacut Burrs Code No.	Price $
SD-1FM	1/4	7/32	1/4	2	170330	**26.71**
SD-3FM	3/8	5/16	1/4	2-1/8	170331	**31.68**
SD-5FM	1/2	7/16	1/4	2-1/4	170332	**47.33**
SD-6FM	5/8	9/16	1/4	2-3/8	170333	**59.16**
SD-7FM	3/4	11/16	1/4	2-1/2	170334	**80.45**

Alumacut Burrs - Egg



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Alumacut Burrs Code No.	Price $
SE-1FM	1/4	3/8	1/4	2	170335	**37.26**
SE-3FM	3/8	5/8	1/4	2-3/8	170336	**45.80**
SE-5FM	1/2	7/8	1/4	2-5/8	170337	**65.11**
SE-6FM	5/8	1	1/4	2-3/4	170338	**92.28**
SE-7FM	3/4	1	1/4	2-3/4	170339	**118.35**

Alumacut Burrs - 14° Included Angle



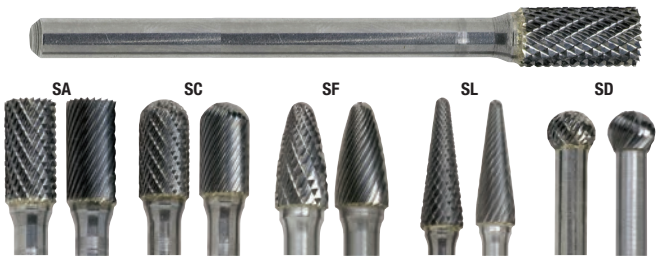
E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Alumacut Burrs Code No.	Price $
SL-3FM	3/8	1-1/16	1/4	2-13/16	170345	**49.75**
SL-4FM	1/2	1-1/8	1/4	2-7/8	170346	**63.36**
SL-6FM	5/8	1-5/16	1/4	3-1/16	170347	**115.51**
SL-7FM	3/4	1-1/2	1/4	3-1/4	170348	**165.70**

Alumacut Burrs - Tree Radius



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Alumacut Burrs Code No.	Price $
SF-1FM	1/4	5/8	1/4	2	170340	**26.00**
SF-3FM	3/8	3/4	1/4	2-1/2	170341	**36.40**
SF-5FM	1/2	1	1/4	2-3/4	170342	**58.27**
SF-6FM	5/8	1	1/4	2-3/4	170343	**135.06**
SF-7FM	3/4	1-1/4	1/4	3	170344	**114.19**

6" O.A.L. Carbide Burrs



E.D.P.	Cutter Dia. (in.)	Length of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Double Cut Code No.	Price $	Standard Cut Code No.	Price $
SA-3L6	3/8	3/4	1/4	6	170370	**46.46**	170372	**45.17**
SA-5L6	1/2	1	1/4	6	170371	**63.71**	170373	**60.96**
SC-3L6	3/8	3/4	1/4	6	170374	**49.99**	170376	**48.20**
SC-5L6	1/2	1	1/4	6	170375	**74.58**	170377	**65.74**
SF-3L6	3/8	3/4	1/4	6	170378	**46.57**	170380	**49.08**
SF-5L6	1/2	1	1/4	6	170379	**72.33**	170381	**62.23**
SL-3L6	3/8	1-1/16	1/4	6	170382	**62.52**	170384	**55.65**
SL-4L6	1/2	1-1/8	1/4	6	170383	**66.19**	-	**-**
SD-3L6	3/8	-	1/4	6	170386	**35.45**	170388	**44.27**
SD-5L6	1/2	-	1/4	6	170387	**47.87**	170389	**82.30**

Solid Carbide Burr Sets



Burrs Included	Single Cut Code No.	Single Cut Price $	Double Cut Code No.	Double Cut Price $	Alumacut Code No.	Alumacut Price $
SA-43, SA-42, SC-42, SC-41, SD-42, SE-41, SF-41, SG-41, SH-41, SJ-41, SL-42, SN-42	172950	**211.47**	172951	**220.25**		
SA-41, SC-42, SF-42, SG-44, SE-41, SD-42, SL-42, SH-41, SM-42, SN-42 (Plastic case)			172980*	**98.45**		
SA-51, SB-51, SC-51, SD-51, SE-51, SF-51, SG-51, SM-51, SN-51	172952	**254.21**	172953	**262.85**		
SA-1, SC-1, SF-1, SG-3, SE-3, SD-1, SL-1, SH-1, SM-1, SN-1 (Plastic case)			172982*	**238.15**		
SA-1, SA-3, SC-1, SC-3, SD-1 SD-3, SF-1, SF-3	172956	**284.30**	172957	**295.87**	172958	**362.30**
SB-1, SB-3, SC-1, SC-3, SD-1 SD-3, SF-1, SF-3	172959	**375.32**	172960	**404.04**	172961	**507.52**
SA-3, SA-5, SC-3, SC-5, SD-3 SD-5, SF-3, SF-5	172962	**508.21**	172963	**529.90**	172964	**707.81**
SB-3, SB-5, SC-3, SC-5, SD-3 SD-5, SF-3, SF-5	172965	**489.56**	172966	**269.25**	172967	**631.35**
SA-5, SC-3, SC-5, SD-5, SF-3 SF-5, SG-3, SL-4	172968	**545.54**	172969	**412.56**	172970	**665.18**
SB-5, SC-3, SC-5, SD-5, SF-3 SF-5, SG-3, SL-4	172971	**521.19**	172972	**575.49**	172973	**674.14**
SC-3L6, SD-3L6, SF-3L6, SF-5L6	172974	**293.29**	172975	**232.97**	172976	**272.85**

* Quality Import

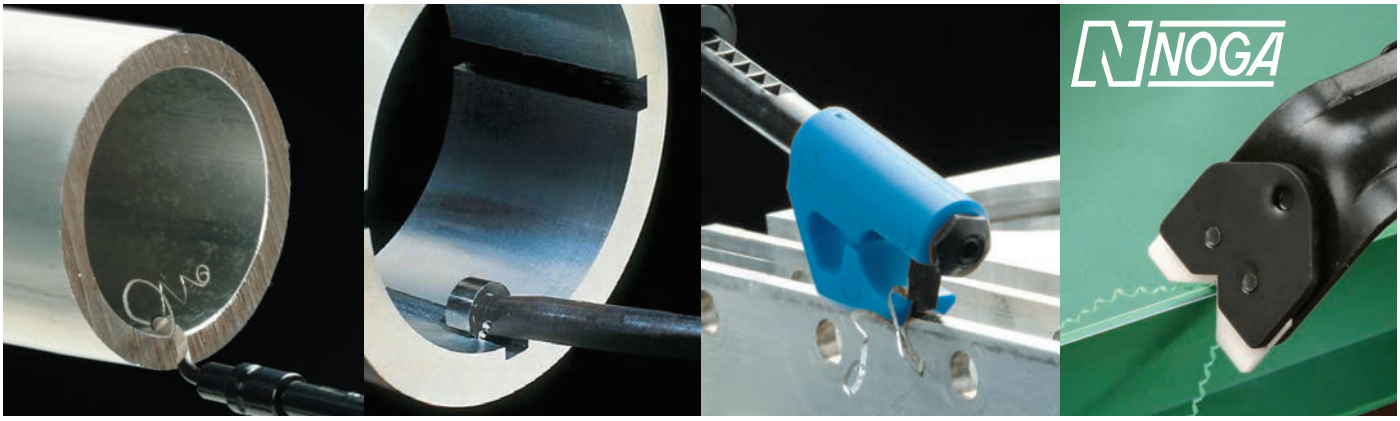
8pc Solid Carbide Double Cut Burr Sets

- Solid carbide
- Double cut
- Comes in fitted case



Contents	Shank Diameter	Code No.	Price $
SA-51, SB-51, SC-51, SD-1, SD-52, SF-53, SG-51, SL-51	1/8"	172984	**178.24**
SA-3, SA-5, SC-1, SC-3, SD-3, SD-5, SF-3, SF-5	1/4"	172986	**327.86**

DEBURRING SYSTEMS



Promo N Noga Set — NG8000

- For Steel, Aluminum and Plastic
- Noga Grip 2 handle & 10pcs N1 (B10) blades



Model	Code No.	Price $
NG8000	165474	**24.89**

N Cobalt Set — NG8100

- For Plastic and Hard Materials
- 1 Noga Grip 2 handle & 20pcs N10 (B10) Cobalt blades



Model	Code No.	Price $
NG8100	165466	**52.92**

Promo S Noga Set — NG8150

- For Steel, Aluminum and Plastic
- Noga Grip 1 handle & 10pcs S10 (E100) blades



Model	Code No.	Price $
NG8150	165464	**27.06**

S Golden Noga Set — NG8152 TiN Coated

- For Abrasive Materials
- Noga Grip 1 handle & 10pcs S10 TiN Coated blades



Model	Code No.	Price $
NG8152	165460	**42.71**

N Economy Set — NG8050

- For Steel, Aluminum and Plastic
- Noga Grip handle & 20pcs N1 (B10) blades



Model	Code No.	Price $
NG8050	165478	**37.71**

N Golden Noga Set — NG8002 TiN Coated

- For Steel, Aluminum and Plastic
- Noga Grip Handle 10 N1 TiN Coated blades



Model	Code No.	Price $
NG8002	165465	**35.10**

B10 Noga Set — SG6000

- For Steel, Aluminum, and Plastic
- Noga Grip 2 Handle & 20pcs B10 blades



Model No.	Code No.	Price $
SG6000	165300	37.71

Deburring Tool — SG1000

Contains:
- Ergonomic soft grip SG handle
- S100 and N10 blades



Model	Code No.	Price $
SG1000	165380	23.58

Noga Burr 3 — NB3000

- Multi-functional tool deburrs round parts, small holes and straight edges
- Blades are easily changed and stored in handle

Contains:
- Handle and 3 "S" blades (165024, 165026, 165030)



Model	Code No.	Price $
NB3000	165370	21.41

Liza Burr — LB1000

- Double sided blade holder
- Accepts all "N" and "S" blades
- Standard tool includes unihandle
- To lock holder in position turn black ring clockwise



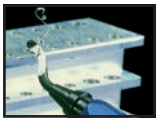


Model	Code No.	Price $
LB1000	165010	24.13

Rapid Burr — RB1000

- Economical version of the Noga Burr
- Utilizes replaceable blades only without spare blade storage





Model	Code No.	Price $
RB1000	165006	15.65
RB1005 (RB1000+S20 Blade)	165130	19.02

Edge Off — EO2000

Contains:
- Plastic handle and S10 blade, holds all types of "S" blades. (blades can be replaced)



Model	Code No.	Price $
EO2000	165375	5.76

Noga Burr 1 — NB1100

- Blue plastic handle and S10 blade



Model	Code No.	Price $
NB1100	165390	13.69

Noga Burr 5 — NB5000

- Multi-functional tool deburrs round parts, small holes and straight edges
- Blades are easily changed and stored in handle
- Set includes blades 1pc ea.: 165024, 165026, 165030, 165032, 165034





Model	Code No.	Price $
NB5000	165004	25.65

Super Burr — SB1000

- Similar to the Liza-Burr but with heavy duty blades for heavy duty jobs

Contains:
- Uni-handle, SN-holder, S100, S20, S30 blades





Model	Code No.	Price $
SB1000	165001	31.19

Teddy Burr — TB1000

- Slim-grip design allows deburring in hard to reach locations
- Holds all "N" (2.6mm) blades
- Easy to replace blades with handy pocket clip

Contains:
- N1 blade and 8mm hexagonal painted handle





Model	Code No.	Price $
TB1000	165031	13.37

Edge-Off Disposable Deburring Tool — EO1000

- Handy tool fits in shirt pocket
- Equipped with a non-removable 165024 blade
- Pocket clip included





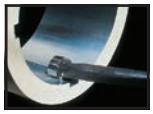
Model	Code No.	Price $
EO1000	165008	9.02

H.D. Keyway Burr — KW1300

- Most useful for wide, deep or shallow keyways
- Range: 3-15mm

Contains:
- Uni-handle, K-holder, N90K blade



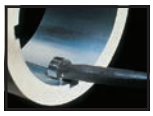


Model	Code No.	Price $
KW1300	165003	27.06

H.D. Keyway Burr — KW1000

- Effectively solves the problem of deburring keyways, internal and external
- Blade can be reversed to extend life





Model	Code No.	Price $
KW1000	165018	25.98

Double Burr (Sheet Metal) — DB1000

- Dual purpose tool for machinists and sheet metal workers
- Deburr both sides of sheet metal simultaneously
- Blades adjustable up to 3/8" thickness
- Can be used with one blade in centre for deburring edges of blocks
- Blades can be rotated to extend life
- Standard tool includes: handle, two 165042 blades





Model	Code No.	Price $
DB1000	165016	38.69

Noga "V" Cut — NC1000

- Simple and safe for use with hand guard, which is available on request
- Most economical tool for sheet metal range 1-8mm

Contains:
- Uni-handle, LD-holder, and L3 blade





Model	Code No.	Price $
NC1000	165011	30.10

Countersink — CS1000

- 20mm diameter countersink
- Uses 140mm hex. blade holder which can be locked into any position
- Useful for chamfering deep holes
- Standard tool includes Unihandle and hex. blade holder





Model	Code No.	Price $
CS1000	165012	54.44

Reversible Countersinks — RC2000 & RC2200

- RC2000 Range: 5-9mm
- RC2200 Range: 10-22mm
- Similar to RC1000 only larger
- Patented

Contains:
- Handle and R2 (RC2000) or R3 blade (RC2200)





Model	Code No.	Price $
RC2000	165029	49.44
RC2200	165182	58.79

Reversible Mini Countersink — RC1000

- Unique 2 pair of cutting edges
- For chamfering, hold tool between fingers and thumb and rotate back and forth
- Fine tool for deburring both back side and front side of holes
- Blade has two working positions
- Range: 3-5.5mm
- To insert/withdraw blade into/from hole, push knob and release slowly

Contains:
- Handle and small R1 blade





Model	Code No.	Price $
RC1000	165027	49.44

H.D. Rotodrive — RD7000

- Has cranked blade holder with M7 thread
- Accepts C12, C20 and C30
- 56mm displacement allows for heavy duty burrs to be removed
- Continuous rotation of countersink enables very fast chamfering

Contains:
- Uni-handle, H.D. rotodrive holder, and C20 countersink





Model	Code No.	Price $
RD7000	165002	58.36

Fixed Rotodrive — RD1040

- The quickest way to chamfer by hand
- Single flute countersink provides a smoother cut
- Patented

Contains:
- NB-handle and 10.4 rotodrive countersink





Model	Code No.	Price $
RD1040	165022	46.07

Scraper — SC1000

- Heavy duty scraper
- Triangular double ended blade
- Blade can be locked into the handle at desired length



Contains:
- Unihandle, 3/4" scraper blade



Model	Code No.	Price $
SC1000	165014	37.17

Mini-Scraper — MS1000

- Ideal for tool and die makers
- Hollow ground



Contains:
- Uni-handle, D-holder, triangular mini-scraper D50
- D50 scraper is held in the D-holder by means of wedge action



Model	Code No.	Price $
MS1000	165005	32.06

Internal Scraper — IS1000

- For the deburring of cross-holes
- D66 scraper is held in the D-holder by means of wedge action



Contains:
- Uni-handle, D-holder, internal scraper D66



Model	Code No.	Price $
IS1000	165007	29.78

Adjustable Scraper — SC8000

- Protected by plastic cap
- 5mm medium size scraper
- Knurled locking collar to control blade extension



Contains:
- 12mm anodized handle, T80 double ended triangular scraper



Model	Code No.	Price $
SC8000	165033	33.47

Adjustable Mini Scraper — SC7500

- Protected by plastic cap
- 3.2 x 75mm triangular scraper
- Ideal for tool and mold making



Contains:
- 12mm anodized handle, D75 triangular scraper



Model	Code No.	Price $
SC7500	165035	31.19

Noga Mini Cut — NG3220

- Used for deburring small ridges in difficult to reach places
- Range of 0-2.5mm makes this tool very unique



Contains:
- Uni-handle, LD-holder, L4 blade



Model	Code No.	Price $
NG3220	165479	29.01

Leader — LD1000

- Safe and easy to use
- Ensures 45° chamfers
- Chamfers straight or curved edges



Contains:
- Uni-handle, L-holder, L1 blade



Model	Code No.	Price $
LD1000	165013	30.65

Noga "O" Ring Burr — KW2000

- Range: 0-3mm (groove width)
- Removes burrs from internal "O" ring grooves
- Patented



Contains:
- NB-handle, OR blade



Model	Code No.	Price $
KW2000	165019	28.80

Thread Cleaner — TC1000

- For repair and cleaning damaged internal threads
- 9mm minimum diameter
- Works well on all threads and pitches
- Patented



Contains:
- NB-handle, TC blade



Model	Code No.	Price $
TC1000	165017	24.01

Deburring Accessories

Item	Description	Range	Code No.	Price $
D50	Mini-scraper; most suitable for miniature components	HSS 3mm	165100	13.15
D66	Internal scraper; most useful on cross holes	HSS 3.2mm	165105	10.65
N70K	Special square blade for small keyways (For shallow Keyways, one corner is truncated)	1.2-8mm 3/64"-5/16"	165120	11.30
N90K	Heavy duty blade for wide keyways (similar to N70K)	3-15mm 1/8"-19/32"	165125	18.69

MultiBurr — RG1000

Four of Noga's most popular multi-purpose blades in one innovative tool set.

- S10 blade (steel, aluminum, plastic)
- D50 scraper (ideal for tool and die makers)
- N2 blade (brass, cast iron)
- Rotodrive 90° countersink (1-10.4mm)



Model	Code No.	Price $
RG1000	165371	**127.91**

Universal Handy Chuck Holder — PV1000

A 3-jaw chuck helps with the quick and secure clamping of a wide variety of tools, blades and blade holders such as scrapers, countersinks, files etc.

Hardness 58HRC
Range: 0.5-8.0mm



Model	Code No.	Price $
PV1000	165484	**95.96**

YT Handle — YT1000

The perfect grip on Noga Adjustable Scrapers, Needle Files, Pins & Drills

- Quick Change
- Fits every hand
- Flexible collet

Range: 2.2-4.5mm



Model	Code No.	Price $
YT1000	165486	**11.09**

Chip Hooks — SP2500 & SP2550

For removing chips and clean the chip trays on your machines.
Black finished steel hooks.
The Chip Hooks include a plastic protective guard.
NogaGrip Handle designed for maximum comfort in your hand.





Model	Length	Code No.	Price $
SP2500	400mm	165488	**41.40**
SP2550	600mm	165490	**46.84**

Soft Cut Ceramic Tool — NC5100

- Ideal for deburring soft abrasive plastics, (blade can be replaced)

Includes:

- Noga NC5100 holder & CR6100 blade





Model	Code No.	Price $
NC5100 holder	165492	**50.21**
CR6000 65° blade	165494	**27.71**
CR6100 75° blade	165496	**27.71**

Cera-Cut — CR1100

- Ideal for deburring plastics and other soft materials
- Extremely long life

Includes:

- Ceramic blade mounted in a modified Soft Grip handle, (this blade cannot be replaced)



Model	Code No.	Price $
CR1100	165385	**58.79**

Ceramic Tool — CR2000

- Ideal for all plastic materials and soft metals
- Ideal for cleaning surface and parting line flash

Includes:

- Cera-Cut handle and straight Cera-Cut blade, (blades can be replaced)



Model	Code No.	Price $
CR2000	165415	**57.60**

Ceramic Double Burr — DB5000

- Removes burr from both sides of workpiece simultaneously
- Ergonomically designed handle with guard to protect you while you work

Includes:

- V-shaped blade mounted in a DB handle, (blades can be replaced)



Model	Code No.	Price $
DB5000	165410	**79.99**

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Images are representational only and may not reflect actual product.

The Set — SP7700

The most popular deburring tools you need to carry for any deburring application. Packed in one handy box.

Contains:
- Countersink NG3100, Mini Scraper NG3700, Noga V Cut NG3200, Adjustable Scraper SC8000, Keyway-Burr NG3300, Internal Scraper NG3710, Super Burr NG3003



Model	Code No.	Price $
SP7700	165482	234.41

Noga Box — NX1000

Collected to meet the total requirements of the Tool and Die makers.

Contains:
- Keyway burr; half round riffler file; round riffler file; flat riffler file; double-burr; D-key; uni-handle plus SN holder; C holder plus C20; C12; D holder plus D50; D holder plus D66; T120 scraper; L holder plus L1; N1 blade; S10 blade; S101 B blade; S20 blade



Model	Code No.	Price $
NX1000	165160	310.81

NB Set — NB1900

For Steel, Aluminum and Plastic

Contains:
- NB Handle
- 10pcs S10 blades



Model	Code No.	Price $
NB1900	165060	27.06

Deburring Kit — SP1007

Contains:
- RB Handle (12mm Hex. Aluminum Handle)
- OR ("O" Ring Grooves Blade)
- RD 16.5 (RotoDrive Countersink)
- RDE18 (External Rotodrive Countersink)
- TC (Thread Cleaner Blade)
- S100 Blade (for Steel)
- S150 Blade (for Plastic)



Model	Code No.	Price $
SP1007	165190	99.88

Micro Deburring Set — FT3000

- Ideal for Tool and Die makers
- For extra fine jobs

Contains:
- Micro Deburring Tool (FT1000)
- Micro Scraper (FT1100)
- Micro RotoDrive Countersink (FT1200)



Model	Code No.	Price $
FT3000	165135	59.99

Magic Set — RB4000

The handle can hold both types of blades (rotating & fixed).

Contains:
- Rapid Burr (RB1000) and modified D50 Mini Scraper
- Blade



Model	Code No.	Price $
RB4000	165480	28.48

Unikit Special — UK2000

The Standard UNIKIT with the addition of the internal scraper and the 12mm countersink C12

Contains:
- D holder plus D66; T120 scraper; uni-handle; SN holder; C holder plus C20; C12; N2 blade; N1 blade; S101 blade; S30 blade; S20 blade; S10 blade



Model	Code No.	Price $
UK2000	165150	171.81

Unikit Extra — UK3000

Contains:
- D holder plus D50,D66; T120 scraper; uni-handle; SN holder;
- C holder plus C20; C12; N1 blade; N2 blade; S101 blade; S30 blade; S20 blade; S10 blade
- L holder; L1;L2



Model	Code No.	Price $
UK3000	165168	226.04

Rotodrive Combi Set — RD2001

Combination of RotoDrive and Universal deburring set.

Contains:
- NB handle, 3.2 mm RotoDrive Countersink, 10.4 mm RotoDrive countersink, S10, S20,S30 blade, demo plate



Model	Code No.	Price $
RD2001	165165	92.16

Plastic Edge-Off Set — EO2100

Contains:
- EO handle + S10 blade, green sleeve (for aluminum)
- EO handle + S20 blade, red sleeve for (brass & cast iron)
- EO handle + S100 blade, blue sleeve (for steel)
- EO handle + S150 blade, yellow sleeve (for plastic)



Model	Code No.	Price $
EO2100	165440	23.58

Noga Unikit — UK1000

Recommended for machinists and tool makers.

Contains:
- 1 Liza-burr; 1 C20 countersink, 1 countersink holder; 1 scraper blade; 1 S10 blade; 1 S20 blade; 1 S30 blade; 1 S101 blade



Model	Code No.	Price $
UK1000	165020	124.54

Blade Selection — General

HSS NOGA

- Ready-to-use blades included
- All blades are made of HSS

S10



165024
For steel and aluminum

S20



165026
For brass and cast iron; for both right and left hand

S30



165028
For external and internal burrs simultaneously in sheet metal and tubing

S35



165030
Works best on straight edges for most materials

S101



165032
Works best on fine edges for all materials

S202



165034
For brass and cast iron fine edges

B10



165320
For steel, plastic and aluminum

N1



165036
For steel, plastic and aluminum

N2



165038
For brass and cast iron

N3



165040
Simultaneously removes external and internal burrs

N80



165042
For use in double burr
(M42 available for stainless)

N80K



165044
For use in keyway burr
(M42 available for stainless)

C12



165046
12mm dia., countersink
M7 internal thread

C20



165048
20mm Dia., countersink
M7 internal thread

C30



165050
30mm Dia., countersink
M7 internal thread

T120



165052
Double headed scraper ground on 3 sides from solid

SN



165054
Double headed blade holder. Accepts all “S” and “N” series blades

C



165056
Holds C12, C20, C30 countersink blades

Type	Length (in.)	Fits Tool No.	Standard Pack	Code No.	Per Blade Price $
S10	1-7/8	165004/165010	10	165024	**2.60**
S20	1-7/8	165004/165010	10	165026	**2.82**
S30	1-7/8	165004/165010	10	165028	**2.82**
S35	1-7/8	165004/165010	10	165030	**2.93**
S101	1-5/8	165004/165010	10	165032	**3.05**
S202	1-5/8	165004/165010	10	165034	**2.93**
B10	7/8	165010/165310	10	165320	**1.95**
N1	7/8	165010	10	165036	**1.95**
N2	7/8	165010	10	165038	**1.95**
N3	7/8	165010	10	165040	**4.02**
N80	7/16	165016	10	165042	**8.37**
N80K	7/16	165018	10	165044	**8.37**
C12	1-1/8	165012	1	165046	**29.35**
C20	1-3/16	165012	1	165048	**39.55**
C30	1-7/16	165012	1	165050	**54.88**
T120	4-3/4	165014	1	165052	**25.43**
SN	5-3/4	165010	1	165054	**12.82**
C-Holder	5-1/2	165012	1	165056	**9.12**

Blade Selection — Swivel Blades

NOGA

- Ready-to-use blades included

N1LH



165037
For left handed user

N1 TiN



165039
TiN coated N1 for long life

N1 C



165041
Solid carbide N1 for hardened steel and special plastics

N2 C



165043
Solid carbide N2 for ceramic and glass

N6



165045
For cross holes in difficult to reach places

S10 LH



165047
For left handed users

S10 TiN



165049
TiN coated S10 for long life

S10 C



165051
Solid carbide tipped S10 for hardened steel and special plastics

S100



165053
Cobalt combination blade best for plastics and hard materials

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S101 LH



165055
S101 for left handed users

S101 TiN



165057
TiN coated S101 for long life

S150



165059
Heavy duty shank, for holes as small as 1.5mm dia.

S20 C



165061
Solid carbide tipped S20 for hardened materials

S60



165062
Heavy duty for cross holes in difficult to reach places

TC



165063
Patented for internal thread cleaning and deburring from 9mm

Type	Standard Pack	Code No.	Per Blade Price $
N1 Left Hand	10	165037	**2.82**
N1 TiN	10	165039	**4.02**
N1 C	1	165041	**10.87**
N2 C	1	165043	**12.39**
N6	1	165045	**5.97**
S10 Left Hand	10	165047	**3.48**
S10 TiN	10	165049	**4.35**
S10 C	10	165051	**12.17**
S100 Cobalt	10	165053	**3.37**
S101 Left Hand	10	165055	**3.48**
S101 TiN	10	165057	**4.35**
S150	10	165059	**2.93**
S20 C	10	165061	**12.17**
S60	1	165062	**5.97**
TC	1	165063	**11.30**

Blade Selection — Diamond Coated Blades, Countersinks, And Reversible Blades

NOGA

- Ready-to-use blades included

N1D



165074
Diamond coated N1 for ceramic and glass

S10D



165075
Diamond coated S10 for ceramic and glass

RDE 25D



165080
External diamond coated RotoDrive for reinforced plastic, fiberglass and epoxy

D55



165082
Solid carbide D50, fits adjustable scraper handle

D75

165083
Similar to D50 but 75mm long, fits adjustable scraper handle

D77



165084
Similar to D66 but 75mm long, fits adjustable scraper handle

T80



165085
Double medium scraper blade for adjustable scraper

165086
Same as N80 but heat-treated to 68HRC, use for stainless steel

N80M42



165087
Same as N80K but heat-treated to 68HRC

N80KM42



Reversible Blades

165088
For cross holes 3-5.5mm

R1



165089
For cross holes 5-9mm

R2



Type	Standard Pack	Code No.	Per Blade Price $
N1D	1	165074	**20.76**
S10D	10	165075	**21.30**
D55	1	165082	**28.48**
D75	1	165083	**14.13**
D77	1	165084	**13.15**
T80	1	165085	**14.24**
N80 M42	10	165086	**11.09**
N80K M42	10	165087	**11.09**
R1	1	165088	**22.39**
R2	1	165089	**23.58**

Blade Selection — Swivel Blades

HSS

NOGA

- Ready-to-use blades included
- All blades are made of HSS

OR



165064
Patented HSS for
"O" ring grooves up to 3mm

RD 3.2



165065
Patented, 3.2mm cranked countersink

RD 6.3



165066
Patented, 6.3mm cranked countersink

RD 8.3



165067
Patented, 8.3mm
cranked countersink

RD 10.4



165068
Patented, 10.4mm
cranked countersink

RD 16.5



165069
Patented, 16.5mm
cranked countersink

RDE 18



165073
Patented, 4-18mm
cranked external countersink

Type	Standard Pack	Code No.	Per Blade Price $
OR	1	165064	**14.89**
RD 3.2	1	165065	**12.50**
RD 6.3	1	165066	**28.36**
RD 8.3	1	165067	**29.01**
RD 10.4	1	165068	**32.60**
RD 16.5	1	165069	**35.21**
RDE 18	1	165073	**27.38**

Blade Selection — L-Blades & Handles & Holders

NOGA

L3



165090
Used with Leader
for steel and aluminum

L4



165091
Used for sheet metal
1-8mm wide

L5



165092
Used for ridges
0-2.5mm wide

L6



165093
Used for cleaning corners

L7



165094
Double ended slot cleaner

Uni Handle



165095
Holds round, hexagonal and triangular holders

D Holder



165096
Holds D50 and D66 blades

K Holder



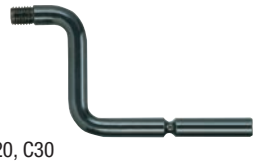
165097
Holds N80K and N90 K on one side and N70K
on the other

LD Holder



165099
Holds L3, L4, L5, L6, L7 blades

H.D. Cranked Holder



165101
Heavy duty
cranked holder for C12, C20, C30

L Holder



165098
Holds L1 blade

Type	Code No.	Per Blade Price $
L3	165090	**6.09**
L4	165091	**4.57**
L5	165092	**7.28**
L6	165093	**5.10**
L7	165094	**10.65**
UNI Handle	165095	**12.39**
D Holder	165096	**10.22**
K Holder	165097	**9.79**
L Holder	165098	**20.11**
LD Holder	165099	**12.50**
H.D. Cranked Holder	165101	**14.02**



Hand Tools

Punches K2-4
Stamps K4
Chisels K4
Hammers K4
Hacksaw K5
Utility Knives K5
Pin Chucks & Pin Vises K5
Pot Magnets K5
Grease Guns & Oil Cans K6
Barrel Pumps & Wrenches K6
Ball End, Hex End, Torx® Wrenches K7-12
ClickSet™ Torque Limiting Device K13
Screwdrivers & Bits K14-17
1/4" Drive Sockets & Attachments K16
3/8" Drive Sockets & Attachments K17-19
1/2" Drive Sockets & Attachments K20-24
3/4" Drive Sockets & Attachments K25
Combination Wrenches & Sets K26-27
Adjustable & Pipe Wrenches K27
Torque Wrench K27
Torque Multipliers K27
Pliers & Wire Strippers K27-28

Centre Punches



- Made of tool steel
- Black oxide finish for rust prevention
- Knurled body for better grip
- Hardened both ends, 45 to 52 HRC
- Points precision ground
- 4" length, 1/16" diameter, punch 3" long
- Set supplied in fitted case with clear size markings

BLACK OXIDE

Model No.	Style	Description	Code No.	Price $
6200-005	5pc set	1/16, 5/64, 3/32, 9/64, 5/32	606286	**30.54**
6200-1/16	Individual	1/16	606288	**5.59**
6200-5/64	Individual	5/64	606290	**5.59**
6200-3/32	Individual	3/32	606292	**5.59**
6200-9/64	Individual	9/64	606294	**5.59**
6200-5/32	Individual	5/32	606296	**5.59**

Heavy Duty Centre Punch Set

Single piece construction with hexagonal shank, these are one of the strongest and most durable of centre punches. The punches have ground working ends, with the body in premium powder coated finish.



Description	Code No.	Price $
5pc set 5/64-3/8	606640	**56.71**

8pc Centre Punch Set

One piece construction with round striking head. The knurling is clean and well cut to provide a positive finger grip. This range of punches has a black oxide finish.



BLACK OXIDE

Description	Code No.	Price $
8pc 1/16 - 7/32	606635	**70.43**

Centre Punches

- Made of premium steel and precision heat treated for maximum durability
- Corrosion resistant black phosphate finish body
- Meets ANSI standards



Pin Dia.	Body Dia.	Length	Dynamic EDP	Code No.	Price $
5/64"	1/4"	3-1/2"	D058018	866410	**8.12**
1/8"	5/16"	4-1/2"	D058019	866411	**9.12**
5/32"	5/16"	5-1/2"	D058020	866412	**9.12**
1/4"	3/8"	6"	D058021	866413	**11.34**

Combination Punch Set

- Made of tool steel with black oxide finish for rust prevention
- Knurled body for better grip
- Hardened both ends, 45 to 52 HRC
- 4" length
- Supplied in fitted case
- Set contains: 5/32" drive pin punch, 5/32" centre punch and scriber



BLACK OXIDE

Model No.	Description	Code No.	Price $
6304-003	3pc set	606298	**20.19**

Drive Pin Punches & Set



- Made of tool steel
- Punch section centreless ground
- Handles black oxide for rust prevention
- Knurled body for better grip
- Hardened both ends, 45 to 52 HRC
- 4" length
- Set supplied in fitted pouch with clear size markings

BLACK OXIDE

Model No.	Description	Code No.	Price $
6300-008	8pc Drive Pin Punch Set	606250	**45.87**
6300-1/16	1/16" Drive Pin Punch	606252	**5.54**
6300-3/32	3/32" Drive Pin Punch	606254	**5.54**
6300-1/8	1/8" Drive Pin Punch	606256	**5.54**
6300-5/32	5/32" Drive Pin Punch	606258	**5.54**
6300-3/16	3/16" Drive Pin Punch	606260	**5.54**
6300-7/32	7/32" Drive Pin Punch	606262	**5.54**
6300-1/4	1/4" Drive Pin Punch	606264	**5.54**
6300-5/16	5/16" Drive Pin Punch	606266	**6.63**

Extra Long Drive Pin Punches & Set



- Made of tool steel
- Punch section centreless ground
- Handles black oxide for rust prevention
- Knurled body for better grip
- Hardened both ends, 45 to 52 HRC
- 8" length, drive pin section 3-1/2" long
- Set supplied in fitted pouch with clear size markings

BLACK OXIDE

Model No.	Description	Code No.	Price $
6301-058	5pc X-Long Drive Pin Punch Set	606238	**54.43**
6301-1/8	1/8" X-Long Drive Pin Punch	606240	**8.78**
6301-3/16	3/16" X-Long Drive Pin Punch	606242	**9.57**
6301-1/4	1/4" X-Long Drive Pin Punch	606244	**10.21**
6301-5/16	5/16" X-Long Drive Pin Punch	606246	**10.74**
6301-3/8	3/8" X-Long Drive Pin Punch	606248	**11.03**

5pc X-Long Pin Punch Set — Vinyl Pouch

Single piece construction with hexagonal shank. Single piece construction imparts additional durability to the punch. The pin end is ground with the body in premium powder coated finish.



Description	Code No.	Price $
1/8, 3/16, 1/4, 5/16, 3/8	606650	**77.22**

Heavy Duty Pin Punch Set

Single piece construction with hexagonal shank, these are one of the strongest and most durable of pin punches. The pin end is ground with the body in a premium powder coated finish.



Description	Code No.	Price $
7pc set 1/16-1/4	606645	**76.56**

Brass Drive Pin Punches & Set

- Made of brass
- Punch section centreless ground
- Hexagonal body style
- Used in spark-free environments
- 4" length
- Set supplied in fitted pouch with clear size markings



Model No.	Description	Code No.	Price $
6300-008B	8pc Brass Drive Pin Punch Set	606268	**49.41**
6300-1/16B	1/16" Brass Drive Pin Punch	606270	**7.71**
6300-3/32B	3/32" Brass Drive Pin Punch	606272	**7.71**
6300-1/88	1/8" Brass Drive Pin Punch	606274	**7.71**
6300-5/32B	5/32" Brass Drive Pin Punch	606276	**7.71**
6300-3/16B	3/16" Brass Drive Pin Punch	606278	**7.71**
6300-7/32B	7/32" Brass Drive Pin Punch	606280	**7.71**
6300-1/4B	1/4" Brass Drive Pin Punch	606282	**7.71**
6300-5/16B	5/16" Brass Drive Pin Punch	606284	**7.71**

8pc Pin Punch Set — Wooden Case

These round shank pin punches have clean and well cut knurling which provides positive, non-slip grip. This range of punches has a black oxide finish.



BLACK OXIDE

Description	Code No.	Price $
1/16, 3/32, 1/8, 5/32, 3/16, 1/4, 5/16, 3/8	606630	**76.78**

Pin Punches

- Special heat treatment process delivers a hardened working tip with a softer striking end
- Corrosion resistant black phosphate finish body
- Made of premium steel and precision heat treated for maximum durability
- Meets ANSI standards



Pin Dia.	Body Dia.	Length	Dynamic EDP	Code No.	Price $
1/16"	1/4"	4"	D058001	866393	**7.45**
3/32"	1/4"	4-1/4"	D058002	866394	**8.26**
1/8"	5/16"	4-3/4"	D058003	866395	**9.12**
5/32"	5/16"	5"	D058004	866396	**9.12**
3/16"	5/16"	5-1/4"	D058005	866397	**9.12**
1/4"	3/8"	5-3/4"	D058006	866398	**9.99**
5/16"	7/16"	6"	D058007	866399	**13.71**

Drift Punches

- Special heat treatment process delivers a hardened working tip with a softer striking end
- Corrosion resistant black phosphate finish body
- Made of premium steel and precision heat treated for maximum durability
- Meets ANSI standards



Pin Dia.	Body Dia.	Length	Dynamic EDP	Code No.	Price $
1/8"	5/16"	8"	D058008	866400	**12.29**
5/32"	3/8"	9"	D058009	866401	**13.64**
3/16"	5/16"	10"	D058010	866402	**17.42**
1/4"	3/8"	10"	D058011	866403	**24.61**

Solid Punches

- Special heat treatment process delivers a hardened working tip with a softer striking end
- Corrosion resistant black phosphate finish body
- Made of premium steel and precision heat treated for maximum durability
- Meets ANSI standards



Pin Dia.	Body Dia.	Length	Dynamic EDP	Code No.	Price $
1/16"	3/8"	5"	D058012	866404	**10.80**
1/8"	5/16"	5"	D058013	866405	**11.79**
5/32"	3/8"	5"	D058014	866406	**11.72**
3/16"	3/8"	5"	D058015	866407	**12.29**
1/4"	1/2"	5"	D058016	866408	**13.33**
5/16"	1/2"	6"	D058017	866409	**14.87**

S565WB Pin Punch Set

- 4" long
- Hardened and tempered
- Well proportioned knurled grip
- Each punch has the size stamped on the head
- Set of 8 in round box



Diameters	Starrett No.	Code No.	Price $
1/16", 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 5/16"	S565WB	629395	**86.43**

Automatic Centre Punches

- Automatic, spring operated action
- Adjustable for very light to heavy strokes
- Replaceable point ground and hardened
- Used for marking, punching, stalking and riveting



Model No.	Description	Code No.	Price $
P170	Standard duty	606300	**20.90**
P171	Heavy duty	606302	**51.57**
P171-P	Replacement point	606304	**9.74**

Automatic Centre Punch

- Automatic, spring operated action
- Used for marking, punching, stalking, and riveting
- 120mm length



Model	Code No.	Price $
VACP-1	326290	**37.45**

Automatic Centre Punch

- Corrosion resistant brass body with non-slip knurled grips
- Spring loaded designed delivers a high-impact strike when tip pressed against any work surface
- Can be used on applications involving wood, metal or plastic



Length	Dynamic EDP	Code No.	Price $
4.90"	D058030	865978	**15.15**

Letter & Number Stamp Sets

High quality steel punches are through induction hardened, which gives durability and extended life even after repeated use. The hardness at the stamping end is maintained at 58-62 HRC, the striking end is tempered to 38-43 HRC.



Stamp Size	27pc A - Z plus "&" stamp		9pc #0-9	
	Code No.	Price $	Code No.	Price $
1/8	606615	**58.04**	606600	**19.45**
3/16	606620	**82.76**	606605	**27.63**
1/4	606625	**104.10**	606610	**34.71**

Cold Chisels

- Meets ANSI standards
- Special heat treatment process delivers a hardened working edge with a softer striking end
- Corrosion resistant black phosphate finish body
- Made of premium steel and precision heat treated for maximum durability



Width of Cut	Body	Length	Dynamic EDP	Code No.	Price $
1/4"	1/4"	5"	D058101	866415	**8.12**
5/16"	1/4"	5"	D058102	866416	**9.91**
3/8"	5/16"	5-1/2"	D058103	866417	**13.38**
1/2"	7/16"	6"	D058104	866418	**13.33**
5/8"	1/2"	6-1/2"	D058105	866419	**14.27**
3/4"	5/8"	7"	D058106	866420	**24.05**
7/8"	5/8"	8"	D058107	866421	**29.51**
1"	3/4"	8-1/2"	D058108	866422	**30.94**
1"	3/4"	10"	D058109	866423	**45.63**
1"	3/4"	12"	D058110	866424	**50.22**

14pc Punch & Chisel Set

Contents:

- 5 Octagonal Cold Chisels, 3/8, 1/2, 5/8, 3/4, 7/8
- 2 H D Centre Punches 5/32, 1/4
- 3 H D Pin Punches 1/16,1/8, 3/16
- 2 H D Drift Punches 1/8, 5/32
- 2 H D Starting Punches 5/16, 1/8



Model No.	Code No.	Price $
KIT/14	606655	**160.75**

Transfer Punch Set

28 Punches

- Heat treated tempered steel
- Consists of one each of punch sizes 3/32 through 1/2 x 64th plus 17/32



Description	Code No.	Price $
3/32 through 1/2 x 64th plus 17/32	200750	**30.90**

Polyurethane Hammers

- Steel structure containing steel shot
- Main body made from polyurethane resin, the handle from soft quality TPR



Model	Head Diameter (mm)	Head Width (mm)	Overall Length (mm)	Weight (kg)	Code No.	Price $
VHM-38	38	100	287	0.49	231460	**47.24**
VHM-46	46	100	306	0.69	231462	**52.89**
VHM-50	50	110	340	0.93	231464	**65.98**
VHM-56	56	120	353	1.16	231466	**75.57**

Indesctructible Handle Hammers

Made with spring steel bars that run all the way through the handle. Bars are locked with the hammer head using steel locking plates ensuring that the head never gets dislodged

- Ergonomic rubber grip handle
- Hammer head is forged from special steel and is induction case hardened to 52-56 HRC for extended life



Style	Head Weight	Handle Length	Model	Code No.	Price $
Club	4 lb	12"	CHID/4/12	231468	**157.15**
Sledge	8 lb	30"	SHID/8/30	231470	**315.54**
Ball Pein	32 oz	14"	BPID/32/14	231472	**137.18**

Dead Blow Hammers

- Features weather resistant fibreglass handle with non-slip rubber handle
- Meets ANSI standards



Head Weight	Head Dia.	Head Length	Overall Length	Dynamic EDP	Code No.	Price $
1 lb	1.50"	3.95"	11.40"	D041065	865726	**43.88**
2 lb	2.00"	4.33"	13.40"	D041067	865813	**57.31**
3 lb	2.36"	5.11"	14.56"	D041069	865727	**59.97**

Claw Hammers

- Meets ANSI standard
- Curved claw generates leverage for pulling stubborn nails



Head Weight	Head Dia.	Head Length	Overall Length	Handle	Dynamic EDP	Code No.	Price $
16 oz	1.09"	5.07"	12.83"	Hickory	D041010	866372	**28.83**
16 oz	1.09"	5.07"	12.95"	Fiberglass	D041011	861664	**28.83**

Ball Pein Hammers — Hickory Handle

- Meets ANSI standard
- A metal wedge safely secures head to hickory handle, permitting replacement of damage handles
- Face and pein are fully polished, other head surfaces are painted in corrosion resistant black finish



Head Weight	Head Dia.	Head Length	Overall Length	Dynamic EDP	Code No.	Price $
8 oz	0.92"	3.22"	11.70"	D041025	866373	**25.26**
16 oz	1.19"	3.94"	13.65"	D041027	866032	**28.83**
24 oz	1.38"	4.64"	15.44"	D041028	866375	**36.03**
32 oz	1.50"	4.91"	15.60"	D041029	866376	**39.67**

12" Hacksaw

A rugged heavy-duty industrial quality hacksaw designed for the professional.

- Strong aluminum die cast handle
- Guarded grip design
- Comes complete with a 12" chrome steel hacksaw blade



Model	Overall Length	Bow Depth	Code No.	Price $
HF/12/BC	17-5/16"	4"	231370	**32.91**

Screw-Lock Utility Knife

- Heavy duty utility knife
- Handle stores extra blades
- Easy to remove and install blades
- Comfort grip handle
- Includes 3 blades



Description	Gray EDP	Code No.	Price $
Screw-Lock Utility Knife	206	865638	**13.36**
Replacement Blades (pkg. 5)	206-KBL	865692	**9.78**

Pin Chuck Sets

- Designed for holding small drills in drilling machine
- Set includes three interchangeable collets and knurled chuck with 1/4" shank
- Range: 0-1/32, 1/32-1/16, 1/16-3/32
- Overall length 2-1/2"



Model No.	Description	Code No.	Price $
6000-003	4pc Pin Chuck Set	606226	**30.77**

Pin Vises & Set

- Made of alloy steel, black oxide finish
- Collets grip firmly when chuck is tightened
- Knurled finger grip
- Range of set 0 - 0.188"
- Supplied in plastic pouch
- Ideal for holding small tools, rods, wires, taps, etc.



Model No.	Description	Code No.	Price $
6000-004	4pc Pin Vise Set	606228	**55.43**
6000-004A	0.000-0.040 Pin Vise	606230	**15.33**
6000-004B	0.032-0.059 Pin Vise	606232	**15.35**
6000-004C	0.052-0.122 Pin Vise	606234	**15.31**
6000-004D	0.118-0.188 Pin Vise	606236	**15.27**

Pot Magnets

Unique combination of a strong magnet with nickel chrome plated insulating ring gives these magnets the superior holding power of larger ones.

- 1/4"-20 threaded



Model	Diameter (in.)	Height (in.)	Magnetic Pull (kg)	Code No.	Price $
PMG/11-16	11/16	5/8	2.7	231420	**10.70**
PMG/13-16	13/16	3/4	4.5	231422	**13.45**
PMG/1-1-16	1-1/16	1	6.0	231424	**21.37**
PMG/1-3-8	1-3/8	1-3/16	13	231426	**30.90**

ASIMETO



For when you need accuracy, not a hammer.

High-precision measuring instruments, competitively priced!

See Chapter F

Mini Pistol Grease Gun

One hand pistol grip grease gun with convenient pull type operating mechanism
- Capacity: 3oz cartridge
- 3,500 psi
- Zinc plated finish
- Complete with 4" steel extension



Model	Code No.	Price $
G-16/ZN/N	231382	**45.76**

Pistol Grease Gun

One hand operated grease gun designed for use in confined spaces.
- Capacity: 14oz cartridge
- 5,000 psi
- Heavy duty aluminum die cast head
- 12" flexible hose



Model	Code No.	Price $
G5F/N	231384	**70.80**

Heavy Duty Lever Grease Gun

Top of the line grease gun designed for heavy industrial applications.
- Capacity: 14oz cartridge
- 10,000 psi
- Variable stroke feature
- High tolerance aluminum die cast head
- Complete with 6" steel extension



Model	Code No.	Price $
G1R/HD/N	231380	**70.80**

80pc SAE Grease Fitting Assortment

Contents:
- 1/8"-27 PTF - 25pcs straight, 10pcs 45°, 10pcs 90°
- 1/4"-28 SAE-LT - 15pcs straight, 10pcs 45°, 10pcs 90°



Model	Code No.	Price $
GFT/KIT/SAE-80	231386	**101.71**

Lever Action Barrel Pump

Premium powder coated steel pump body with ribbed section aluminum die cast pump head for maximum strength.
- Built-in 1-1/2" and 2" bung for use on drums
- Plated steel lever handle with rubber grip
- Complete with curved metal spout and telescopic suction tube for use on 15-55 gallon barrels



Model	Code No.	Price $
LBP/04	231388	**99.83**

Hand Rotary Barrel Pump

- Dual Directional Operation allows the pump to both empty, as well as refill containers
- Extremely heavy duty and rugged
- Pump body is sturdy cast iron with precisely machined cast iron vanes for better draw and smoother delivery
- Fits 15-55 gallon barrels
- Complete with suction tube, 2" cast iron bung nut, and discharge spout



Model	Code No.	Price $
GNB-25/3R/SPL	231390	**199.42**

Aluminum Drum Wrench

An easy and convenient tool to open all types of drums. Ends of the wrench are designed to fit perfectly onto most 2" and 3/4" drum plugs.
- Hardened and tempered cast aluminum for increased strength
- Compact design for easy storage



Model	Code No.	Price $
DRW/AL-01	231398	**41.70**

Lever Type Oil Cans

This series of oil cans have a modern and contemporary design with a dome shaped body. Most popularly used oil can style all over the world. Manufactured with a steel pump, powder coated red body, and a flexible wire braided extension.



Model	Capacity	Spout Length	Code No.	Price $
MP21F	200 ml	6"	231392	**16.71**
MP22F	300 ml	6"	231394	**17.57**
MP23F	500 ml	7"	231396	**19.22**

Ball End L-Wrench Sets — Long

- Insert into a screw at 25°
- Ball end saves time by quickly funnelling tool into screw
- ProGuard™ finish delivers superior corrosion protection
- Works in hard to reach places



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
Inch					
BLX12	12	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16"	10936	619005	**26.80**
BLX13	13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	10937	619007	**34.22**
BLX15	15	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 7/16, 1/2" (in vinyl roll up pouch)	10935	619584	**68.97**
Metric					
BLX6M	6	1.5, 2, 2.5, 3, 4, 5mm	10946	619020	**12.67**
BLX9M	9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm	10999	619015	**27.95**
BLX15M	15	1.27, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10mm	10995	619016	**46.70**
MBLX13	13	1.27, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12, 14, 17mm (in metal box)	10989	619585	**128.96**

Ball End L-Wrench Sets — Long & Extra Long



865013



865312

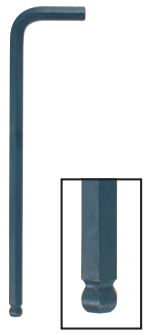


865346

Pcs	Contents	Bondhus EDP	Code No.	Price $
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8	68913	865346	**33.32**
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8	68913XL	865257	**37.01**
9	1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm	68909	865312	**28.40**
9	1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm	68909XL	865258	**34.55**
22	All pieces contained in 68913 & 68909	68722	865013	**61.72**

Ball End L-Wrenches — Long

- Insert into a screw at 25°
- Ball end saves time by quickly funnelling tool into screw
- ProGuard™ finish delivers superior corrosion protection
- Works in hard to reach places



Size	Length	Arm Length	Bondhus EDP	Code No.	Price $
Inch					
0.050	2.8	0.53	10902	619255	**1.97**
1/16	3.0	0.56	10903	619260	**1.97**
5/64	3.2	0.61	10904	619265	**1.97**
3/32	3.4	0.65	10905	619270	**2.05**
7/64	3.6	0.70	10906	619275	**2.30**
1/8	3.8	0.75	10907	619280	**2.39**
9/64	4.0	0.80	10908	619285	**2.39**
5/32	4.2	0.84	10909	619290	**2.56**
3/16	4.5	0.94	10910	619295	**2.88**
7/32	4.9	1.03	10911	619300	**3.45**
1/4	5.6	1.13	10912	619305	**4.00**
5/16	6.0	1.25	10913	619310	**6.36**
3/8	6.8	1.38	10914	619315	**8.92**
7/16	7.5	1.50	10915	619320	**18.48**
1/2	8.3	1.63	10916	619325	**23.59**
9/16	9.0	1.75	10917	619330	**28.89**
5/8	9.8	1.88	10918	619335	**32.25**
3/4	11.3	2.13	10919	619340	**53.37**
7/8	12.8	2.37	10920	619586	**117.92**
1	14.2	2.62	10921	619587	**157.17**
Metric					
1.27	72	13	10949	619588	**1.97**
1.5	77	14	10950	619350	**1.97**
2.0	82	16	10952	619355	**1.97**
2.5	88	17	10954	619360	**2.05**
3.0	98	19	10956	619365	**2.34**
4.0	110	22	10960	619375	**2.56**
5.0	119	27	10964	619385	**3.18**
6.0	139	31	10968	619395	**4.22**
8.0	152	35	10972	619405	**6.78**
10.0	171	39	10976	619415	**9.92**
12.0	220	44	10980	619425	**21.92**
14.0	260	55	10984	619430	**27.41**
17.0	280	61	10986	619589	**43.43**
19.0	295	69	10988	619590	**51.54**
22.0	330	78	10991	619591	**123.98**
24.0	370	88	10993	619592	**157.10**

Corrosion resistant finish. Environmentally safe, provides better tool grip, resists solvents and is 5 times more corrosion resistant than competitor finishes.

Up to 20% stronger, with more torque and twice the wear resistance of standard grades of steel.

Hex End L-Wrench Sets — Long — Inch



- Chamfered tool tips eliminate burrs and help tools seat in screw head
- Sharp corners transfer more torque to the screw and reduce stripping
- Precision machined for ease of use and superior fit
- ProGuard™ finish delivers superior corrosion protection

Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
HLX7	7	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16"	12145	619030	**7.81**
HLX12	12	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16"	12136	619025	**15.63**
HLX13	13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	12137	619892	**19.66**

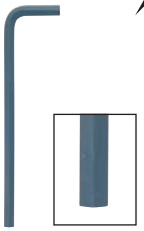
Hex End L-Wrench Sets — Long — Metric



- Chamfered tool tips eliminate burrs and help tools seat in screw head
- Sharp corners transfer more torque to the screw and reduce stripping
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Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
HLX6M	6	1.5, 2, 2.5, 3, 4, 5mm	12146	619035	**9.06**
HLX9M	9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm	12199	619040	**18.63**
HLX15M	15	1.27, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10mm	12195	619597	**31.37**
MHLX10M	10	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12mm (in metal box)	12396	619598	**52.75**
PHLX15M	15	0.89, 1.27, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12, 14, 17, 19mm (in vinyl pouch)	12349	619599	**96.51**

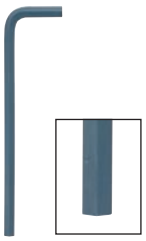
Hex End L-Wrenches — Long — Inch



- Chamfered tool tips eliminate burrs and help tools seat in screw head
- Sharp corners transfer more torque to the screw and reduce stripping
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- ProGuard™ finish delivers superior corrosion protection

Size (in.)	Length (in.)	Arm Length (in.)	Bondhus EDP	Code No.	Price $
0.028	2.6	0.22	12100	619045	**0.99**
0.035	2.7	0.34	12101	619050	**0.99**
0.050	2.8	0.53	12102	619055	**0.60**
1/16	3.0	0.56	12103	619060	**0.63**
5/64	3.2	0.61	12104	619065	**0.63**
3/32	3.4	0.65	12105	619070	**0.63**
7/64	3.6	0.70	12106	619075	**0.82**
1/8	3.8	0.75	12107	619080	**0.85**
9/64	4.0	0.80	12108	619085	**0.85**
5/32	4.2	0.84	12109	619090	**0.93**
3/16	4.5	0.94	12110	619095	**0.99**
7/32	4.9	1.03	12111	619100	**1.48**
1/4	5.3	1.13	12112	619105	**2.05**
5/16	6.0	1.25	12113	619110	**3.12**
3/8	6.8	1.38	12114	619115	**4.47**
7/16	7.5	1.50	12115	619120	**9.46**
1/2	8.3	1.63	12116	619125	**10.70**
9/16	9.0	1.75	12117	619130	**13.99**
5/8	9.8	1.88	12118	619135	**22.06**
3/4	11.3	2.13	12119	619140	**32.01**
7/8	12.7	2.37	12120	619593	**51.21**
1	14.1	2.62	12121	619594	**70.33**
1-1/4	17.0	3.00	12125	619595	**267.48**
1-1/2	20.3	3.50	12129	619596	**427.16**

Hex End L-Wrenches — Long — Metric



- Chamfered tool tips eliminate burrs and help tools seat in screw head
- Sharp corners transfer more torque to the screw and reduce stripping
- Precision machined for ease of use and superior fit
- ProGuard™ finish delivers superior corrosion protection

Size (mm)	Length (mm)	Arm Length (mm)	Bondhus EDP	Code No.	Price $
0.71	66	6	12147	619145	**0.99**
0.89	68	9	12148	619150	**0.99**
1.27	72	13	12149	619155	**0.60**
1.5	77	14	12150	619160	**0.63**
2.0	82	16	12152	619165	**0.63**
2.5	88	17	12154	619170	**0.81**
3.0	98	19	12156	619175	**0.81**
3.5	100	21	12158	619180	**0.93**
4.0	110	22	12160	619185	**0.93**
4.5	114	25	12162	619190	**1.40**
5.0	119	27	12164	619195	**1.40**
5.5	124	29	12166	619200	**2.02**
6	139	31	12168	619205	**2.02**
7	140	33	12170	619210	**3.29**
8	152	35	12172	619215	**3.29**
9	159	37	12174	619220	**5.21**
10	171	39	12176	619225	**5.21**
11	200	42	12178	619230	**11.19**
12	220	44	12180	619235	**11.19**
13	240	48	12182	619600	**11.58**
14	260	55	12184	619240	**14.87**
17	280	61	12186	619245	**21.23**
19	295	69	12188	619601	**29.45**
22	325	78	12191	619602	**48.39**
24	364	88	12193	619603	**72.17**
32	432	122	12196	619604	**275.21**
36	516	137	12198	619605	**448.58**

ProGuard DRY SURFACE TECHNOLOGY DST

Corrosion resistant finish. Environmentally safe, provides better tool grip, resists solvents and is 5 times more corrosion resistant than competitor finishes.

ProTanium HIGH TORQUE STEEL

Up to 20% stronger, with more torque and twice the wear resistance of standard grades of steel.

Hex End L-Wrench Sets — Short — Inch

- Chamfered tool tips eliminate burrs and help tools seat in screw head
- Sharp corners transfer more torque to the screw and reduce stripping
- Precision machined for ease of use and superior fit
- ProGuard™ finish delivers superior corrosion protection



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
HLX7S	7	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16"	12245	619606	**6.94**
HLX12S	12	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16"	12236	619607	**11.24**
HLX13S	13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	12237	619608	**13.52**
MHLX15S	15	0.028, 0.035, 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" (in metal box)	12344	619609	**56.71**
MHLX18S	18	0.028, 0.035, 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 1/2, 9/16, 5/8" (in metal box)	12339	619610	**68.17**
PHLX7S	7	5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4"	12345	619611	**7.15**

Hex End L-Wrench Sets — Short — Metric

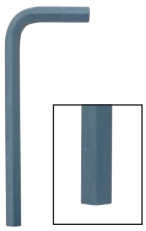
- Chamfered tool tips eliminate burrs and help tools seat in screw head
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Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
HLX6MS	6	1.5, 2, 2.5, 3, 4, 5mm	12246	619638	**8.25**
HLX9MS	9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm	12299	619639	**12.77**
MHLX12MS	12	0.71, 0.89, 1.27, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm (in metal box)	12393	619640	**47.05**
PHLX11MS	11	2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10, 12mm (in vinyl pouch)	12391	619641	**33.27**
PHLX14MS	14	2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 17, 19mm (in vinyl pouch)	12397	619642	**55.24**

Hex End L-Wrenches — Short — Inch

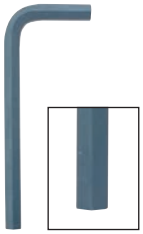
- Chamfered tool tips eliminate burrs and help tools seat in screw head
- Sharp corners transfer more torque to the screw and reduce stripping
- Precision machined for ease of use and superior fit
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Size	Length (in.)	Arm Length (in.)	Bondhus EDP	Code No.	Price $
0.028	1.2	0.22	12200	619612	**0.71**
0.035	1.2	0.34	12201	619613	**0.71**
0.050	1.6	0.53	12202	619614	**0.52**
1/16	1.8	0.56	12203	619615	**0.52**
5/64	1.9	0.61	12204	619616	**0.55**
3/32	2.0	0.65	12205	619617	**0.55**
7/64	2.1	0.70	12206	619618	**0.60**
1/8	2.3	0.75	12207	619619	**0.60**
9/64	2.4	0.80	12208	619620	**0.63**
5/32	2.5	0.84	12209	619621	**0.63**
3/16	2.8	0.94	12210	619622	**0.82**
7/32	3.0	1.03	12211	619623	**1.04**
1/4	3.3	1.13	12212	619624	**1.26**
5/16	3.8	1.25	12213	619625	**1.95**
3/8	4.3	1.38	12214	619626	**2.80**
7/16	4.8	1.50	12215	619627	**6.63**
1/2	5.3	1.63	12216	619628	**7.84**
9/16	5.8	1.75	12217	619629	**10.83**
5/8	6.3	1.88	12218	619630	**13.97**
3/4	7.3	2.13	12219	619631	**22.21**
7/8	8.2	2.37	12220	619632	**35.38**
1	9.2	2.62	12221	619633	**51.90**
1-1/4	11.0	3.00	12225	619634	**134.57**
1-1/2	13.0	3.50	12229	619635	**168.14**
1-3/4	13.3	4.00	12231	619636	**321.35**
2	15.0	4.50	12233	619637	**431.43**

Hex End L-Wrenches — Short — Metric

- Chamfered tool tips eliminate burrs and help tools seat in screw head
- Sharp corners transfer more torque to the screw and reduce stripping
- Precision machined for ease of use and superior fit
- ProGuard™ finish delivers superior corrosion protection



Size (mm)	Length (mm)	Arm Length (mm)	Bondhus EDP	Code No.	Price $
0.71	31	6	12247	619643	**0.71**
0.89	31	9	12248	619644	**0.71**
1.27	42	13	12249	619645	**0.52**
1.5	44	14	12250	619646	**0.52**
2.0	49	16	12252	619647	**0.55**
2.5	54	17	12254	619648	**0.55**
3.0	61	19	12256	619649	**0.60**
3.5	65	21	12258	619650	**0.63**
4.0	68	22	12260	619651	**0.63**
4.5	73	25	12262	619652	**0.82**
5.0	78	27	12264	619653	**0.82**
6.0	88	31	512268	619654	**1.26**
7.0	93	33	12270	619655	**2.02**
8.0	98	35	12272	619656	**2.02**
9.0	102	37	12274	619657	**3.29**
10.0	109	39	12276	619658	**3.23**
11.0	115	42	12278	619659	**8.37**
12.0	122	44	12280	619660	**8.37**
13.0	129	48	12282	619661	**9.73**
14.0	136	55	12284	619662	**11.46**
17.0	156	61	12286	619663	**12.50**
19.0	175	69	12288	619664	**21.23**
22.0	190	78	12291	619665	**48.09**
24.0	213	88	12293	619666	**57.22**
27.0	238	98	12295	619667	**119.93**
32.0	300	122	12296	619668	**143.90**
36.0	338	137	12298	619669	**180.41**

Hex End L-Wrench Sets — Long & Extra Long


865118

865117


865045

Pcs	Contents	Gray EDP	Code No.	Price $
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8	68713	865117	**19.17**
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8	68713XL	865016	**32.90**
9	1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm	68709	865118	**18.32**
9	1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm	68709XL	865017	**31.22**
22	All pieces contained in 68713 & 68709	68723	865045	**37.46**

TORX® L-Wrench Sets

- Fits all TORX® and Star screws
- Broad contact surface provides deep lobe engagement
- Straight, vertical sidewalls increase tool engagement and virtually eliminates camout
- ProGuard™ finish delivers superior corrosion protection



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
TLX8S	8	T6, T7, T8, T9, T10, T15, T20, T25	31832	619670	**30.14**
TLX8	8	T9, T10, T15, T20, T25, T27, T30, T40	31834	619671	**25.94**

TORX® L-Wrenches — Long

- Fits all TORX® and Star screws
- Broad contact surface provides deep lobe engagement
- Straight, vertical sidewalls increase tool engagement and virtually eliminates camout
- ProGuard™ finish delivers superior corrosion protection



Size	Length (in.)	Arm Length (in.)	Bondhus EDP	Code No.	Price $
T6	2.1	0.65	31806	619672	**6.02**
T7	2.4	0.65	31807	619673	**5.39**
T8	2.6	0.65	31808	619674	**5.39**
T9	2.9	0.65	31809	619675	**5.39**
T10	3.2	0.73	31810	619676	**2.98**
T15	3.3	0.78	31815	619677	**3.13**
T20	3.6	0.78	31820	619678	**3.23**
T25	3.8	0.88	31825	619679	**3.42**
T27	4.2	0.95	31827	619680	**3.40**
T30	4.6	1.03	31830	619681	**3.95**
T40	4.9	1.11	31840	619682	**4.25**
T45	5.4	1.2	31845	619683	**5.79**
T50	6.2	1.25	31850	619684	**7.27**
T55	6.7	1.36	31855	619685	**10.90**
T60	7.2	1.75	31860	619686	**14.33**

Tamper Resistant TORX® L-Wrench Sets

- Fits all TORX® and Star screws
- Broad contact surface provides deep lobe engagement
- Straight, vertical sidewalls increase tool engagement and virtually eliminates camout
- ProGuard™ finish delivers superior corrosion protection



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
TR-TL8S	8	TR6, TR7, TR8, TR9, TR10, TR15, TR20, TR25	32432	619689	**39.31**
TR-TL8	8	T9, T10, T15, T20, T25, T27, T30, T40	32434	619690	**44.60**

Hex End GorillaGrip® Fold Ups

- Chamfered tool tips eliminate burrs and help tools seat in screws
- World's strongest handle
- Speed-Wrench feature
- Tools open from both the top and bottom
- Molded-in 90° stop
- Patented spacers between tools



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
Inch					
HF9S	9	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16"	12591	619702	**10.83**
HF9	9	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	12589	619505	**13.29**
HF5	5	3/16, 7/32, 1/4, 5/16, 3/8"	12585	619703	**18.82**
Metric					
HF7MS	7	1.5, 2, 2.5, 3, 4, 5, 6mm	12592	619704	**10.66**
HF7M	7	2, 2.5, 3, 4, 5, 6, 8mm	12587	619515	**14.75**
HF6M	6	3, 4, 5, 6, 8, 10mm	12595	619705	**20.63**

GorillaGrip® Fold Up Multi Packs

- Assembled from our most popular Fold Up sets
- Multiple Fold Up sets per package
- Tip selections include Hex End and TORX® Tip
- ProGuard™ finish delivers superior corrosion protection



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
HF16	16	12589 (5/64-1/4") + 12587 (2-8mm)	12522	619687	**26.77**
HF24	24	12589 (5/64-1/4") + 12587 (2-8mm) + 12634 (T9-T40)	12533	619688	**48.89**

TORX® GorillaGrip® Fold Ups

- Fits all TORX® and Star screws
- World's strongest handle
- Speed-Wrench feature
- Tools open from both the top and bottom
- Molded-in 90° stop
- Patented spacers between tools
- ProGuard™ finish delivers superior corrosion protection



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
TF8S	8	T6, T7, T8, T9, T10, T15, T20, T25	12632	619520	**26.60**
TF8	8	T9, T10, T15, T20, T25, T27, T30, T40	12634	619521	**26.23**

Ball End T-Handle Sets

- Solid steel handles
- Welded handle/blade connection
- Ergonomic handle design
- Flywheel effect saves time
- Smooth, non-porous handle coating
- Handle coating extends along blade
- ProGuard™ finish delivers superior corrosion protection
- Graduated blade



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
Inch					
BTX60	6	5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	13146	619706	**76.95**
BTX10/S*	10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" (with stand)	13190	619785	**111.78**
BTX10*	10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	13138	619043	**104.93**
Metric					
BTX50M	5	4, 5, 6, 8, 10mm	13148	619707	**66.11**
BTX80M/S*	8	2, 2.5, 3, 4, 5, 6, 8, 10mm (with stand)	13189	619790	**92.98**
BTX80M*	8	2, 2.5, 3, 4, 5, 6, 8, 10mm	13187	619783	**86.06**

* The 3/32, 7/64, 1/8, 9/64 & 2mm, 2.5mm, 3mm blades are straight hex blades to prevent breakage

Hex End T-Handle Sets

- Solid steel handles
- Welded handle/blade connection
- Ergonomic handle design
- Flywheel effect saves time
- Smooth, non-porous handle coating
- Handle coating extends along blade
- ProGuard™ finish delivers superior corrosion protection

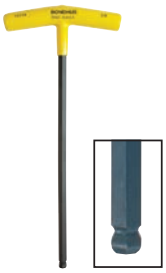


Model	Pcs	Contents	Length	Bondhus EDP	Code No.	Price $
Inch						
HTX80-6	8	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	6"	15232	619806	**59.16**
HTX80-9	8	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	9"	15332	619807	**85.43**
HTX10/S-6*	10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	6"	15290	619808	**95.56**
HTX10-6	10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	6"	15238	619809	**88.77**
HTX10/S-9*	10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	9"	15390	619810	**132.44**
HTX10-9	10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	9"	15338	619811	**125.43**
Metric						
HTX60M-6	6	2, 2.5, 3, 4, 5, 6mm	6"	15248	619812	**44.09**
HTX60M-9	6	2, 2.5, 3, 4, 5, 6mm	9"	15348	619813	**67.40**
HTX80M/S-6*	8	2, 2.5, 3, 4, 5, 6, 8, 10mm	6"	15289	619814	**83.35**
HTX80M-6	8	2, 2.5, 3, 4, 5, 6, 8, 10mm	6"	15287	619815	**78.49**
HTX80M/S-9*	8	2, 2.5, 3, 4, 5, 6, 8, 10mm	9"	15389	619816	**114.57**
HTX80M-9	8	2, 2.5, 3, 4, 5, 6, 8, 10mm	9"	15387	619817	**107.53**

* Comes with stand

Ball End T-Handles

- Solid steel handles
- Welded handle/blade connection
- Ergonomic handle design
- Flywheel effect saves time
- Smooth, non-porous handle coating
- Handle coating extends along blade
- ProGuard™ finish delivers superior corrosion protection
- Graduated blades



Size	Length (in./mm)	Arm Length (in./mm)	Bondhus EDP	Code No.	Price $
Inch					
3/32	6.1	3.0	13205	619708	**8.10**
7/64	6.8	3.0	13206	619709	**8.64**
1/8	7.6	3.0	13207	619710	**9.16**
9/64	8.3	3.0	13208	619791	**9.65**
5/32	9.1	3.0	13109	619792	**10.29**
3/16	9.8	4.0	13110	619793	**10.26**
7/32	10.3	4.0	13111	619794	**12.12**
1/4	10.8	4.0	13112	619795	**12.45**
5/16	11.4	5.0	13113	619796	**19.03**
3/8	11.8	5.0	13114	619797	**20.99**
Metric					
2.0	150	76	13252	619798	**9.16**
2.5	172	76	13254	619799	**9.16**
3.0	196	76	13256	619800	**9.65**
4.0	220	76	13160	619801	**10.77**
5.0	246	102	13164	619802	**12.38**
6	266	102	13168	619803	**13.48**
8	285	127	13172	619804	**19.29**
10	307	127	13176	619805	**21.21**

Hex End T-Handles - 6" & 9" — Inch

- Solid steel handles
- Welded handle/blade connection
- Ergonomic handle design
- Flywheel effect saves time
- Smooth, non-porous handle coating
- Handle coating extends along blade
- ProGuard™ finish delivers superior corrosion protection



Size	Length (in.)	Handle Length (in.)	Bondhus EDP	Code No.	Price $
3/32	6.0	3.0	15205	619818	**6.43**
7/64	6.0	3.0	15206	619819	**6.50**
1/8	6.0	3.0	15207	619820	**7.32**
9/64	6.0	3.0	15208	619821	**7.81**
5/32	6.0	3.0	15209	619822	**8.15**
3/16	6.0	4.0	15210	619823	**9.04**
7/32	6.0	4.0	15211	619824	**9.27**
1/4	6.0	4.0	15212	619825	**10.49**
5/16	6.0	5.0	15213	619826	**17.02**
3/8	6.0	5.0	15214	619827	**19.01**
1/2	6.0	5.0	15216	619828	**31.49**
3/32	9.0	3.0	15305	619829	**9.77**
7/64	9.0	3.0	15306	619830	**10.40**
1/8	9.0	3.0	15307	619831	**11.04**
9/64	9.0	3.0	15308	619832	**11.32**
5/32	9.0	3.0	15309	619833	**11.69**
3/16	9.0	4.0	15310	619834	**11.92**
7/32	9.0	4.0	15311	619835	**14.03**
1/4	9.0	4.0	15312	619836	**14.33**
5/16	9.0	5.0	15313	619837	**21.02**
3/8	9.0	5.0	15314	619838	**23.22**
1/2	9.0	5.0	15316	619839	**38.17**

Hex End T-Handles - 6" & 9" — Metric

- Solid steel handles
- Welded handle/blade connection
- Ergonomic handle design
- Flywheel effect saves time
- Smooth, non-porous handle coating
- Handle coating extends along blade
- ProGuard™ finish delivers superior corrosion protection



Size	Length (in.)	Handle Length (in.)	Bondhus EDP	Code No.	Price $
2.0	6.0	3.0	15252	619526	**6.50**
2.5	6.0	3.0	15254	619527	**6.50**
3.0	6.0	3.0	15256	619528	**7.19**
4.0	6.0	3.0	15260	619529	**8.12**
5.0	6.0	4.0	15264	619530	**8.87**
6	6.0	4.0	15268	619531	**11.34**
8	6.0	5.0	15272	619532	**17.94**
10	6.0	5.0	15276	619533	**19.98**
2.0	9.0	3.0	15352	619534	**11.04**
2.5	9.0	3.0	15354	619535	**11.04**
3.0	9.0	3.0	15356	619536	**11.67**
4.0	9.0	3.0	15360	619537	**11.87**
5.0	9.0	4.0	15364	619538	**13.68**
6	9.0	4.0	15368	619539	**14.86**
8	9.0	5.0	15372	619540	**21.19**
10	9.0	5.0	15376	619541	**23.32**

8pc SAE Loop Handle Hex Key Set

- Precisely-sized, chamfered edges provide a better fit and grip reducing the likelihood of stripping fastener heads
- Meets ANSI standards
- PVC dipped handle
- Corrosion resistant black phosphate finish



Pcs	Contents	Blade Length	Dynamic EDP	Code No.	Price $
8	5/64, 3/32, 1/8, 5/32, 3/16 1/4, 5/16, 3/8	9"	D043420	866569	**47.73**

8pc Metric Loop Handle Hex Key Set

- Precisely-sized, chamfered edges provide a better fit and grip reducing the likelihood of stripping fastener heads
- Meets ANSI standards
- PVC dipped handle
- Corrosion resistant black phosphate finish



Pcs	Contents (mm)	Blade Length	Dynamic EDP	Code No.	Price $
8	2, 2.5, 3, 4, 5, 6, 8, 10	9"	D043320	866633	**47.73**

TORX® T-Handle Sets

- Fits all TORX® and Star screws
- Solid steel handles
- Welded handle/blade connection
- Ergonomic handle design
- Flywheel effect saves time
- Smooth, non-porous handle coating
- ProGuard™ finish delivers superior corrosion protection



Model	Pcs	Contents	Length	Bondhus EDP	Code No.	Price $
TTHX8	8	T9, T10, T15, T20, T25, T27, T30, T40	Graduated	33034	619542	**86.46**

TORX® T-Handles

- Fits all TORX® and Star screws
- Solid steel handles
- Welded handle/blade connection
- Ergonomic handle design
- Flywheel effect saves time
- Smooth, non-porous handle coating
- ProGuard™ finish delivers superior corrosion protection



Size	Length (mm)	Handle Length (mm)	Bondhus EDP	Code No.	Price $
T9	6.1	3.0	33009	619543	**9.07**
T10	6.4	3.0	33010	619544	**9.49**
T15	6.6	3.0	33015	619545	**10.19**
T20	6.9	3.0	33020	619546	**10.59**
T25	7.1	3.0	33025	619547	**11.06**
T27	7.4	4.0	33027	619548	**11.67**
T30	7.6	4.0	33030	619549	**12.30**
T40	7.9	4.0	33040	619550	**13.74**
T45	8.1	5.0	33045	619551	**15.38**
T50	8.4	5.0	33050	619552	**17.94**
T55	8.6	5.0	33055	619553	**23.30**

ProGuard DST — DRY SURFACE TECHNOLOGY

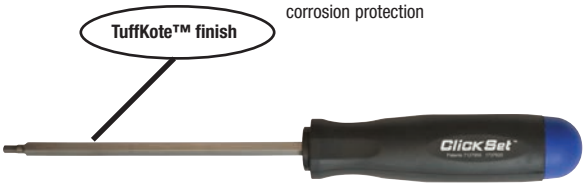
Corrosion resistant finish. Environmentally safe, provides better tool grip, resists solvents and is 5 times more corrosion resistant than competitor finishes.

ProTanium® HIGH TORQUE STEEL

Up to 20% stronger, with more torque and twice the wear resistance of standard grades of steel.

BONDHUS® ClickSet™ TLD (Torque Limiting Device)

- Wide range of factory preset torque limiting handles – no adjustment needed
- When the preset torque level is reached, the mechanism slips and makes an audible "click"
- Protects from overtorquing
- Reduces fastener wear and stripping
- Reduces potential damage to carbide inserts
- Universal TORX® for TORX PLUS® and older style TORX® fasteners
- +/- 10% repeatability

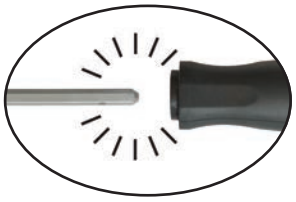


Handles

Torque	Bondhus EDP	Code No.	Price $
4.4 in-lb/0.5 Nm	50404	619554	**47.67**
5.3 in-lb/0.6 Nm	50405	619555	**47.67**
8.0 in-lb/0.9 Nm	50408	619556	**47.67**
9.7 in-lb/1.1 Nm	50409	619557	**47.67**
10.6 in-lb/1.2 Nm	50410	619558	**47.67**
12.4 in-lb/1.4 Nm	50412	619559	**44.47**
17.7 in-lb/2.0 Nm	50417	619560	**44.47**
22.1 in-lb/2.5 Nm	50422	619561	**44.47**
26.6 in-lb/3.0 Nm	50426	619562	**44.47**
31.0 in-lb/3.5 Nm	50431	619563	**44.47**





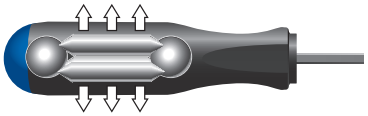


Replaceable blades snap into handle, simplifying blade replacement

Blades

	Size	Bondhus EDP	Code No.	Price $
Inch Hex				
	0.050"	50102	619564	**16.50**
	1/16"	50103	619565	**16.50**
	5/64"	50104	619566	**16.50**
	3/32"	50105	619567	**16.50**
	7/64"	50106	619568	**16.50**
	1/8"	50107	619569	**16.50**
Metric Hex				
	1.5mm	50150	619570	**16.50**
	2.0mm	50152	619571	**16.50**
	2.5mm	50154	619572	**16.50**
	3.0mm	50156	619573	**16.50**
TORX®				
	T/IP5	50205	619574	**16.50**
	T/IP6	50206	619575	**16.50**
	T/IP7	50207	619576	**16.50**
	T/IP8	50208	619577	**16.50**
	T/IP9	50209	619578	**16.50**
	T/IP10	50210	619579	**16.50**
	T/IP15	50215	619580	**16.50**





ClickSet™ Torque Limiting Devices distribute the torque load along the handle, redistributing force over a larger surface for greater accuracy and longer tool life.

Sets

Handle Torque	Blade Tip	Bondhus EDP	Code No.	Price $
4.4 in-lb/0.5 Nm	T/IP5	50004	619581	**59.94**
5.3 in-lb/0.6 Nm	T/IP6	50005	619582	**59.94**
8.0 in-lb/0.9 Nm	T/IP7	50008	619450	**59.94**
10.6 in-lb/1.2 Nm	T/IP8	50010	619451	**59.94**
12.4 in-lb/1.4 Nm	T/IP9	50012	619583	**60.10**
22.1 in-lb/2.5 Nm	T/IP10	50017	619456	**59.94**
31.0 in-lb/3.5 Nm	T/IP15	50026	619452	**59.94**





The Bondhus ComfortGrip handle features a durable thermoplastic core wrapped in cushioned rubber for increased comfort and torque

ClickSet™ Blades made with:

ProTanium® HIGH TORQUE STEEL

Up to 20% stronger, with more torque and twice the wear resistance of standard grades of steel.

Ball End Screwdriver Sets

- Ball End inserts into screw at a 25° angle
- Ergonomic handle design
- Non-slip grip
- Two component handle with tough inner core and cushioned rubber exterior
- Anti-roll design
- ProGuard™ finish delivers superior corrosion protection



Model	Pcs	Contents	Bondhus EDP	Code No.	Price $
Inch					
BSX8S	8	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32"	10632	619868	**41.13**
BSX13	13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	10637	619013	**99.01**
Metric					
BSX6M	6	1.5, 2, 2.5, 3, 4, 5mm	10686	619869	**36.78**
BSX9M	9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm	10699	619019	**80.94**

Ball End Screwdrivers

- Ball End inserts into screw at a 25° angle
- Ergonomic handle design
- Non-slip grip
- Two component handle with tough innercore and cushioned rubber exterior
- Anti-roll design
- ProGuard™ finish delivers superior corrosion protection



Size	Length (in.)	Handle Length (in.)	Bondhus EDP	Code No.	Price $
Inch					
0.050	2.4	4.1	10602	619870	**4.47**
1/16	2.5	4.7	10603	619721	**4.82**
5/64	2.6	4.8	10604	619871	**5.29**
3/32	2.8	5.2	10605	619872	**5.53**
7/64	2.9	5.3	10606	619873	**5.56**
1/8	3.1	6.6	10607	619874	**5.68**
9/64	3.3	6.8	10608	619875	**6.07**
5/32	3.6	7.9	10609	619876	**6.61**
3/16	3.7	8.0	10610	619877	**8.72**
7/32	4.2	9.0	10611	619878	**9.38**
1/4	5.0	9.8	10612	619879	**11.88**
5/16	5.6	10.4	10613	619880	**14.12**
3/8	6.5	11.3	10614	619881	**16.62**
Metric					
1.5	2.6	4.7	10650	619882	**4.99**
2.0	2.8	5.0	10652	619883	**5.60**
2.5	2.7	5.1	10654	619884	**5.60**
3.0	3.3	6.7	10656	619885	**5.68**
3.5	3.5	6.9	10658	619886	**7.73**
4.0	3.7	8.1	10660	619887	**7.70**
5.0	4.3	8.6	10664	619888	**9.04**
6	5.4	10.2	10668	619889	**10.36**
8	6.4	11.2	10672	619890	**15.74**
10	7.3	12.1	10676	619891	**18.24**

36pc Screwdriver & Bit Set

Set contents:
- 4 Phillips®: #0, 1, 2, 3
- 1 Phillips® Stubby: #2
- 1 Offset Phillips®: #1, #2
- 5 Slotted: 5/32, 3/16, 1/4, 5/16, 3/8
- 1 Slotted Stubby: 1/4
- 1 Offset Slotted: 3/16, 1/4
- 4 Square Recess: #0, 1, 2, 3
- 2 Square Recess Stubby: #1, 2
- 1 Offset Square Recess: #1, 2
- Circuit Tester (110V only)
- Magnetic Bit Holder
- Torx Bits: T10, T15, T20, T25, T27, T30, T40
- Hex Bits: 2, 2.5, 3, 4, 5, 6, 8mm
- Blow mold case



Description	Dynamic EDP	Code No.	Price $
36pc Screwdriver & Bit Set	D062505	865764	**132.38**

9pc Screwdriver Set — Comfort Handle

Set contents:
- 5 Slotted: 1/8, 5/32, 1/4, 5/16, 3/8
- 2 Phillips®: #1, #2
- 2 Square Recess: #1, #2
- Plastic tray



Description	Dynamic EDP	Code No.	Price $
9pc Screwdriver Set	D062500	865729	**82.14**

13pc Ratcheting Screwdriver Set

Set contents:
- Ratcheting Screwdriver Handle
- Phillips® bits: #0, 1, 2, 3
- Square bits: #0, 1, 2, 3
- Slotted bits: 3.5, 4.5, 5.5, 6.5mm



Description	Dynamic EDP	Code No.	Price $
13pc Ratcheting Screwdriver Set	D062508	866634	**31.27**

21pc Screwdriver Set — Removable Bits

Set contents:
- Comfort Grip handle (1/4" hex)

3" Screwdriver Bits
- Torx®: T10, T15, T20, T25, T30
- Square Recess: #0, 1, 2, 3
- Slotted: 1/8, 5/32, 3/16
- Phillips®: #0, 1, 2, 3

2" Screwdriver Bits
- Phillips®: #1, #2 (2), #3





Description	Dynamic EDP	Code No.	Price $
21pc Screwdriver & Bit Set	D062506	866103	**48.63**

Phillips® Screwdrivers — Acetate Handle

- Meets ANSI standards
- High visibility, oil and solvent resistant acetate handle
- Precision-machined tip for an exact fit
- Corrosion resistant black phosphate finish shank



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
#1	3.00	6.50	0.20	D062106	866635	**7.90**
#2	4.00	7.75	0.24	D062107	866636	**10.69**
#3	6.00	10.00	0.31	D062108	866637	**16.48**

Phillips® Stubby Screwdrivers — Acetate Handle

- Meets ANSI standards
- High visibility, oil and solvent resistant acetate handle
- Precision-machined tip for an exact fit
- Corrosion resistant black phosphate finish shank



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
#1	1.50	3.50	0.24	D062109	866638	**6.19**
#2	1.50	3.50	0.24	D062110	866639	**6.32**

Phillips® Stubby Screwdrivers — Comfort Handle

- Meets ANSI standards
- High visibility, cushion-grip handle for maximum user comfort
- Precision-machined tip for an exact fit



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
#1	1.50	3.80	0.20	D062104	866428	**7.79**
#2	1.50	3.80	0.24	D062105	866429	**7.86**

Square Recess Screwdrivers — Comfort Handle

- Meets ANSI standards
- High visibility, cushion-grip handle for maximum user comfort
- Precision-machined tip for an exact fit



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
#0	2.95	7.40	0.24	D062201	866430	**7.55**
#1	3.94	8.39	0.24	D062202	866431	**7.86**
#2	3.94	8.39	0.24	D062203	866432	**9.39**
#3	4.92	9.37	0.24	D062204	866433	**15.72**

Square Recess Stubby Screwdrivers — Comfort Handle

- Meets ANSI standards
- High visibility, cushion-grip handle for maximum user comfort
- Precision-machined tip for an exact fit



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
#1	1.50	3.80	0.24	D062205	866434	**7.55**
#2	1.50	3.80	0.24	D062206	866435	**7.86**

Slotted Screwdrivers — Comfort Handle

- Meets ANSI standards
- High visibility, cushion-grip handle for maximum user comfort
- Precision-machined tip for an exact fit



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
1/8"	2.95	6.02	0.12	D062001	866617	**7.86**
5/32"	2.95	6.02	0.12	D062002	866618	**9.06**
3/16"	3.94	7.87	0.16	D062003	866619	**10.74**
1/4"	4.92	9.37	0.24	D062004	866620	**13.04**
5/16"	5.91	10.67	0.31	D062005	866621	**17.25**
3/8"	7.87	12.64	0.39	D062006	866640	**19.81**

Slotted Stubby Screwdrivers — Comfort Handle

- Meets ANSI standards
- High visibility, cushion-grip handle for maximum user comfort
- Precision-machined tip for an exact fit



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
1/4"	1.50	3.80	0.24	D062007	866641	**7.86**

SAE Nut Drivers — Acetate Handle

- Meets ANSI standards
- High visibility, oil and solvent resistant acetate handle
- Precision-machined tip for an exact fit
- Handles are colour-coded by size making finding the correct size quicker and easier



Tip Size	Blade Length (in.)	Overall Length (in.)	Shank Size (in.)	Dynamic EDP	Code No.	Price $
Inch						
3/16"	3"	6.75	0.24	D062401	866436	**12.53**
1/4"	3"	6.75	0.24	D062402	866437	**12.53**
5/16"	3"	6.75	0.31	D062403	866438	**12.53**
11/32"	3"	6.75	0.31	D062404	866439	**12.53**
3/8"	3"	6.75	0.31	D062405	866440	**13.09**
7/16"	3"	6.75	0.43	D062406	866441	**13.22**
1/2"	3"	6.75	0.43	D062407	866442	**14.37**
Metric						
5mm	3"	6.75	0.24	D062408	866443	**11.81**
6mm	3"	6.75	0.24	D062409	866444	**11.81**
7mm	3"	6.75	0.31	D062410	866445	**11.41**
8mm	3"	6.75	0.31	D062411	866446	**11.41**
9mm	3"	6.75	0.31	D062412	866447	**11.81**
10mm	3"	6.75	0.43	D062413	866448	**11.81**
11mm	3"	6.75	0.43	D062414	866449	**11.81**

Slotted Insulated Screwdrivers

- Meets ANSI standards
- Precision-machined tip for an exact fit
- Ergonomic handle reduces fatigue and improves user comfort



1000V

Tip Size	Blade Length	Overall Length	Shank Size	Dynamic EDP	Code No.	Price $
1/8"	3.93	7.50	1.00	D062701	866450	**12.77**
5/32"	3.93	8.00	1.18	D062702	866451	**12.77**
7/32"	4.98	9.00	1.18	D062703	866452	**17.02**
1/4"	5.93	10.50	1.37	D062704	866453	**19.85**

Phillips® Insulated Screwdrivers

- Meets ANSI standards
- Precision-machined tip for an exact fit
- Ergonomic handle reduces fatigue and improves user comfort



1000V

Tip Size	Blade Length	Overall Length	Shank Size	Dynamic EDP	Code No.	Price $
#1	3.20	7.25	1.17	D062705	866454	**16.29**
#2	4.00	8.50	1.39	D062706	866455	**22.35**

6pc Insulated Screwdriver Set

- Meets ANSI standards
- Precision-machined tips for an exact fit



1000V

Description	Dynamic EDP	Code No.	Price $
6pc Insulated Screwdriver Set	D062720	866456	**99.32**
Contents			
2 Phillips®: #1, #2			
4 Slotted: 1/8, 5/32, 7/32, 1/4			
Plastic Tray			

Sockets & Attachments 1/4" Drive

Quick Release Ratchet — Chrome Handle

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Teardrop head design allows for great access in confined spaces



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
5"	45	D001301	866642	**43.12**

Stubby Ratchet

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Stubby design allows greater access in confined spaces



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
3.5"	48	D001307	866644	**42.57**

Quick Release Ratchet — Chrome Handle

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Teardrop head design allows for great access in confined spaces



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
7.6"	45	D005301	866130	**56.01**

Quick Release Ratchet — Comfort Handle — Long

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- 270° swivel head design allows greater access in confined spaces



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
9"	72	D005306	866087	**70.94**

Chrome Extensions

- Chrome finish for maximum resistance against corrosion
- Provides the added reach needed to access fasteners in tight spaces
- Knurled surface for easy mounting and removal from sockets and ratchets



Length	Dynamic EDP	Code No.	Price $
3.00"	D005003	866124	**9.97**
6.00"	D005006	866125	**14.42**
10.00"	D005010	866126	**20.82**

Universal Joint

- Chrome finish for maximum resistance against corrosion
- Ball and spring socket retention mechanism
- 360° articulation for access to fasteners in confined spaces



Length	Dynamic EDP	Code No.	Price $
1.81"	D005601	866133	**23.76**

Stubby Ratchet

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Stubby design allows greater access in confined spaces



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
4.75"	48	D005307	866131	**48.27**

Flex Head Ratchet

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Release button ensures sockets and attachments securely lock on and quickly-release off



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
11.75"	48	D005308	866003	**68.13**

Sliding T-Handle

- Ball and spring socket retention mechanism
- Chrome finish for maximum resistance against corrosion
- Ideal for loosening stuck and stubborn nuts and bolts
- Sliding handle allows for the application of extra torque in confined space applications



Length	Dynamic EDP	Code No.	Price $
6.46"	D005500	866132	**22.36**

Adapters

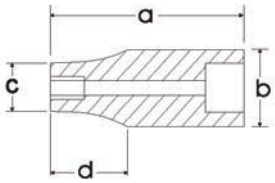
- Versatile tool that expands the capabilities of any existing socket and attachment collection
- Chrome finish for maximum resistance against corrosion
- Ball and spring retention system provides a safe and secure hold



Length	Female	Male	Dynamic EDP	Code No.	Price $
1.38"	3/8"	1/4"	D005701	866134	**6.51**
1.81"	3/8"	1/2"	D005702	866135	**7.72**

SAE Standard Chrome Sockets

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Large laser etched markings improve size identification
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments

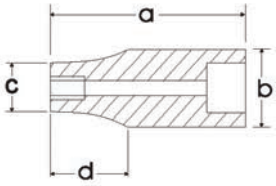




Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
1/4"	1.10"	0.66"	0.39"	0.47"	D008308	866174	**6.51**	D009408	866645	**6.51**
5/16"	1.10"	0.66"	0.47"	0.47"	D008310	866175	**6.51**	D009410	866646	**6.51**
3/8"	1.10"	0.66"	0.54"	0.47"	D008312	866176	**6.51**	D009412	866647	**6.51**
7/16"	1.10"	0.66"	0.63"	0.47"	D008314	866177	**6.51**	D009414	866648	**6.51**
1/2"	1.10"	0.70"	0.70"	-	D008316	866178	**6.64**	D009416	866649	**6.64**
9/16"	1.10"	0.78"	0.78"	-	D008318	866179	**6.77**	D009418	866650	**6.77**
5/8"	1.10"	0.86"	0.86"	-	D008320	866180	**6.92**	D009420	866651	**6.92**
11/16"	1.18"	0.94"	0.94"	-	D008322	866181	**7.02**	D009422	866652	**7.02**
3/4"	1.18"	1.02"	1.02"	-	D008324	866182	**7.15**	D009424	866653	**7.15**
13/16"	1.18"	1.09"	1.09"	-	D008326	866183	**7.29**	D009426	866654	**7.25**
7/8"	1.18"	1.17"	1.17"	-	D008328	866184	**7.42**	D009428	866655	**7.37**
15/16"	1.18"	1.25"	1.25"	-	D008330	866185	**7.94**	D009430	866656	**7.50**
1"	1.18"	1.33"	1.33"	-	D008332	866186	**8.59**	D009432	866657	**7.63**

Metric Standard Chrome Sockets

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Large laser etched markings improve size identification
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments



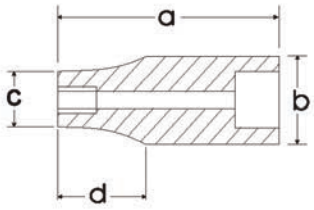


Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
6mm	1.10"	0.66"	0.39"	0.47"	D008006	866137	**6.51**	D009106	866658	**6.06**
7mm	1.10"	0.66"	0.43"	0.47"	D008007	866138	**6.51**	D009107	866659	**6.30**
8mm	1.10"	0.66"	0.47"	0.47"	D008008	866139	**6.51**	D009108	866660	**6.51**
9mm	1.10"	0.66"	0.52"	0.47"	D008009	866140	**6.51**	D009109	866661	**6.51**
10mm	1.10"	0.66"	0.58"	0.47"	D008010	866141	**6.51**	D009110	866662	**6.51**
11mm	1.10"	0.66"	0.62"	0.47"	D008011	866142	**6.51**	D009111	866663	**6.51**
12mm	1.10"	0.66"	0.66"	-	D008012	866143	**6.64**	D009112	866664	**6.64**
13mm	1.10"	0.70"	0.70"	-	D008013	866144	**6.64**	D009113	866665	**6.64**
14mm	1.10"	0.78"	0.78"	-	D008014	866145	**6.77**	D009114	866666	**6.77**
15mm	1.10"	0.86"	0.86"	-	D008015	866146	**6.92**	D009115	866667	**6.92**
16mm	1.10"	0.86"	0.86"	-	D008016	866147	**7.02**	D009116	866668	**7.02**
17mm	1.18"	0.94"	0.94"	-	D008017	866148	**7.02**	D009117	866669	**7.02**
18mm	1.18"	1.02"	1.02"	-	D008018	866149	**7.15**	D009118	866670	**7.15**
19mm	1.18"	1.02"	1.02"	-	D008019	866150	**7.15**	D009119	866671	**7.15**
20mm	1.18"	1.09"	1.09"	-	D008020	866151	**7.86**	D009120	866672	**7.29**
21mm	1.18"	1.09"	1.09"	-	D008021	866152	**7.86**	D009121	866673	**7.41**
22mm	1.18"	1.17"	1.17"	-	D008022	866153	**8.30**	D009122	866674	**7.51**
23mm	1.18"	1.25"	1.25"	-	D008023	866154	**8.55**	D009123	866675	**7.64**
24mm	1.18"	1.25"	1.25"	-	D008024	866155	**8.95**	-	-	**-**

SAE Deep Chrome Sockets

Dynamic

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Large laser etched markings improve size identification
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments



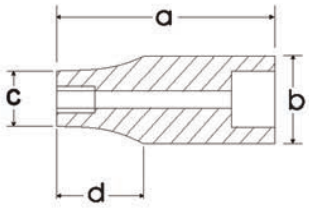


Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
1/4"	2.48"	0.66"	0.39"	1.5"	D008508	866187	**9.48**	D009608	866676	**9.70**
5/16"	2.48"	0.66"	0.47"	1.5"	D008510	866188	**9.55**	D009610	866677	**9.70**
3/8"	2.48"	0.66"	0.54"	1.5"	D008512	866189	**9.89**	D009612	866678	**9.89**
7/16"	2.48"	0.66"	0.63"	1.5"	D008514	866190	**9.89**	D009614	866679	**9.89**
1/2"	2.48"	0.74"	0.74"	-	D008516	866191	**9.97**	D009616	866680	**9.97**
9/16"	2.48"	0.78"	0.78"	-	D008518	866192	**9.97**	D009618	866681	**9.97**
5/8"	2.48"	0.86"	0.86"	-	D008520	866193	**10.35**	D009620	866682	**10.35**
11/16"	2.48"	0.94"	0.94"	-	D008522	866194	**10.98**	D009622	866683	**10.35**
3/4"	2.48"	1.02"	1.02"	-	D008524	866195	**11.63**	D009624	866684	**10.98**
13/16"	2.48"	1.09"	1.09"	-	D008526	866196	**12.02**	D009626	866685	**12.11**
7/8"	2.48"	1.17"	1.17"	-	D008528	866197	**12.70**	D009628	866686	**12.39**
15/16"	2.48"	1.25"	1.25"	-	D008530	866198	**12.97**	D009630	866687	**12.79**
1"	2.48"	1.33"	1.33"	-	D008532	866199	**13.62**	D009632	866688	**13.76**

Metric Deep Chrome Sockets

Dynamic

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Large laser etched markings improve size identification
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments





Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
6mm	2.48"	0.66"	0.39"	1.5"	D008206	866156	**9.83**	D009706	866689	**9.85**
7mm	2.48"	0.66"	0.43"	1.5"	D008207	866157	**9.83**	D009707	866690	**9.85**
8mm	2.48"	0.66"	0.47"	1.5"	D008208	866158	**9.89**	D009708	866691	**9.89**
9mm	2.48"	0.66"	0.52"	1.5"	D008209	866159	**9.89**	D009709	866692	**9.89**
10mm	2.48"	0.66"	0.58"	1.5"	D008210	866160	**9.89**	D009710	866693	**9.89**
11mm	2.48"	0.66"	0.62"	1.5"	D008211	866161	**9.97**	D009711	866694	**9.97**
12mm	2.48"	0.70"	0.70"	-	D008212	866162	**9.97**	D009712	866695	**9.97**
13mm	2.48"	0.74"	0.74"	-	D008213	866163	**9.97**	D009713	866696	**9.97**
14mm	2.48"	0.78"	0.78"	-	D008214	866164	**9.97**	D009714	866697	**9.97**
15mm	2.48"	0.86"	0.86"	-	D008215	866165	**10.09**	D009715	866698	**10.09**
16mm	2.48"	0.86"	0.86"	-	D008216	866166	**10.21**	D009716	866699	**10.21**
17mm	2.48"	0.94"	0.94"	-	D008217	866167	**10.74**	D009717	866700	**10.74**
18mm	2.48"	1.02"	1.02"	-	D008218	866168	**11.43**	D009718	866701	**11.43**
19mm	2.48"	1.02"	1.02"	-	D008219	866169	**11.63**	D009719	866702	**11.63**
20mm	2.48"	1.09"	1.09"	-	D008220	866170	**12.77**	-	-	**-**
21mm	2.48"	1.09"	1.09"	-	D008221	866171	**13.99**	-	-	**-**
22mm	2.48"	1.17"	1.17"	-	D008222	866172	**14.19**	-	-	**-**
23mm	2.48"	1.25"	1.25"	-	D008223	866173	**14.81**	-	-	**-**

Standard Impact Sockets

Dynamic

- Meets ANSI standards
- Corrosion resistant black phosphate finish
- Large laser etched markings improve size identification



Size	Overall Length (in)	Drive End (in)	Hex End (in)	Taper Length (in)	Dynamic EDP	Code No.	Price $
Inch							
5/16"	1.12	0.74	0.49	0.47	D007310	866703	**4.54**
3/8"	1.12	0.74	0.54	0.47	D007312	866704	**4.54**
7/16"	1.18	0.74	0.58	0.47	D007314	866705	**5.20**
1/2"	1.18	0.74	0.67	0.47	D007316	866706	**5.20**
9/16"	1.18	0.78	0.78	-	D007318	866707	**5.36**
5/8"	1.18	0.94	0.94	-	D007320	866708	**5.81**
11/16"	1.24	0.94	0.94	-	D007322	866709	**5.97**
3/4"	1.24	1.02	1.02	-	D007324	866710	**6.24**
Metric							
8mm	1.12	0.74	0.49	0.47	D007008	866711	**4.82**
9mm	1.12	0.74	0.55	0.47	D007009	866712	**4.82**
10mm	1.12	0.74	0.59	0.47	D007010	866713	**4.87**
11mm	1.12	0.74	0.67	0.47	D007011	866714	**4.87**
12mm	1.12	0.74	0.74	-	D007012	866715	**4.87**
13mm	1.12	0.74	0.74	-	D007013	866716	**4.87**
14mm	1.12	0.78	0.78	-	D007014	866717	**5.36**
15mm	1.12	0.86	0.86	-	D007015	866718	**5.36**
16mm	1.12	0.94	0.94	-	D007016	866719	**5.87**
17mm	1.12	0.94	0.94	-	D007017	866720	**5.97**
18mm	1.12	1.00	1.00	-	D007018	866721	**6.12**
19mm	1.12	1.02	1.02	-	D007019	866722	**6.53**

Deep Impact Sockets

Dynamic

- Meets ANSI standards
- Corrosion resistant black phosphate finish
- Large laser etched markings improve size identification



Size	Overall Length (in)	Drive End (in)	Hex End (in)	Taper Length (in)	Dynamic EDP	Code No.	Price $
Inch							
5/16"	2.48	0.74	0.49	0.51	D007510	866723	**7.56**
3/8"	2.48	0.74	0.54	0.51	D007512	866724	**7.89**
7/16"	2.48	0.74	0.58	0.51	D007514	866725	**8.16**
1/2"	2.48	0.74	0.67	0.51	D007516	866726	**8.32**
9/16"	2.48	0.78	0.78	-	D007518	866727	**8.54**
5/8"	2.48	0.94	0.94	-	D007520	866728	**8.65**
11/16"	2.48	0.94	0.94	-	D007522	866729	**9.15**
3/4"	2.48	1.02	1.02	-	D007524	861636	**11.01**
Metric							
8mm	2.48	0.74	0.49	0.51	D007208	866731	**7.66**
9mm	2.48	0.74	0.55	0.51	D007209	866732	**7.89**
10mm	2.48	0.74	0.59	0.51	D007210	866733	**7.89**
11mm	2.48	0.74	0.67	0.51	D007211	866734	**8.10**
12mm	2.48	0.74	0.74	-	D007212	866735	**8.21**
13mm	2.48	0.74	0.74	-	D007213	866736	**8.21**
14mm	2.48	0.78	0.78	-	D007214	866737	**8.54**
15mm	2.48	0.86	0.86	-	D007215	866738	**8.65**
16mm	2.48	0.94	0.94	-	D007216	866739	**8.65**
17mm	2.48	0.94	0.94	-	D007217	866740	**9.25**
18mm	2.48	1.00	1.00	-	D007218	866741	**9.57**
19mm	2.48	1.02	1.02	-	D007219	866742	**10.57**

Find storage for all your tools, big and small.

See Chapter L





Quick Release Ratchet — Chrome Handle

- Teardrop head design allows for great access in confined spaces
- Chrome finish for maximum resistance against corrosion
- Meets ANSI standards



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
9.33"	45	D012301	866205	**68.98**

Flex Head Ratchet

- Release button ensures sockets and attachments securely lock on and quickly-release off
- 180° folding head allows greater access in confined spaces
- Chrome finish for maximum resistance against corrosion



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
17.75"	48	D012308	866207	**88.00**

Flex Handle

- Chrome finish for maximum resistance against corrosion
- Long length handle provides the extra leverage and torque needed to turn stubborn fasteners
- Flex handle bends 100° in either direction



Length	Dynamic EDP	Code No.	Price $
14.96"	D012800	865846	**52.23**

Sliding T-Handle

- Sliding handle allows for the application of extra torque in confined space applications
- Ball and spring socket retention mechanism
- Chrome finish for maximum resistance against corrosion



Length	Dynamic EDP	Code No.	Price $
9.75"	D012500	866208	**22.93**

Chrome Extensions

- Chrome finish for maximum resistance against corrosion
- Notches ensure a safe and secure lock to any ratchet
- Knurled surface for easy mounting and removal from sockets and ratchets



Length	Dynamic EDP	Code No.	Price $
5.00"	D012005	866200	**15.08**
10.00"	D012010	866201	**21.72**

Universal Joint

- 360° articulation for access to fasteners in confined spaces
- Chrome finish for maximum resistance against corrosion
- Ball and spring socket retention mechanism



Length	Dynamic EDP	Code No.	Price $
2.76"	D012600	866209	**25.29**

Chrome Extension With Quick Release

- Provides the added reach needed to access fasteners in tight spaces
- Chrome finish for maximum resistance against corrosion
- Notches ensure a safe and secure lock to any ratchet, while a spring-loaded ball locks onto any 1/2 drive socket
- Knurled surface for easy mounting and removal from sockets and ratchets



Length	Dynamic EDP	Code No.	Price $
3.00"	D012023	866202	**21.31**
5.00"	D012025	866203	**23.42**
10.00"	D012030	866204	**28.86**

Adapters

- Versatile tool that expands the capabilities of any existing socket and attachment collection
- Chrome finish for maximum resistance against corrosion
- Ball and spring retention system provides a safe and secure hold

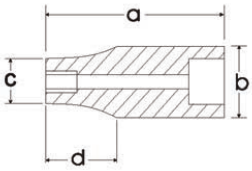


Length	Female	Male	Dynamic EDP	Code No.	Price $
1.42"	1/2"	3/8"	D012701	866210	**8.17**

SAE Standard Chrome Sockets

Dynamic

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- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments



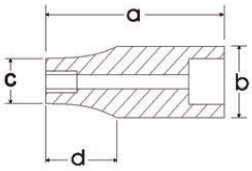


Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
3/8"	1.50"	0.86"	0.57"	0.67"	D016312	866338	**9.02**	D015412	866743	**8.08**
7/16"	1.50"	0.86"	0.67"	0.67"	D016314	866339	**9.02**	D015414	866744	**7.99**
1/2"	1.50"	0.86"	0.73"	0.67"	D016316	866340	**9.32**	D015416	866745	**7.99**
9/16"	1.50"	0.86"	0.81"	0.67"	D016318	866341	**9.32**	D015418	866746	**7.99**
5/8"	1.50"	0.86"	0.86"	-	D016320	866342	**9.39**	D015420	866747	**8.77**
11/16"	1.50"	0.94"	0.94"	-	D016322	866343	**9.39**	D015422	866748	**9.48**
3/4"	1.50"	1.02"	1.02"	-	D016324	866344	**9.97**	D015424	866749	**10.10**
13/16"	1.50"	1.09"	1.09"	-	D016326	866345	**10.98**	D015426	866750	**10.46**
7/8"	1.50"	1.17"	1.17"	-	D016328	866346	**11.29**	D015428	866751	**11.32**
15/16"	1.57"	1.25"	1.25"	-	D016330	866347	**11.56**	D015430	866752	**11.93**
1"	1.65"	1.33"	1.33"	-	D016332	866348	**11.76**	D015432	866753	**12.56**
1-1/16"	1.65"	1.41"	1.41"	-	D016334	866349	**13.18**	D015434	866754	**13.71**
1-1/8"	1.69"	1.49"	1.49"	-	D016336	866350	**13.27**	D015436	866755	**15.10**
1-3/16"	1.73"	1.57"	1.57"	-	D016338	866351	**14.70**	D015438	866756	**16.33**
1-1/4"	1.73"	1.65"	1.65"	-	D016340	866352	**14.70**	D015440	866757	**16.86**
1-5/16"	1.73"	1.72"	1.72"	-	D016342	866353	**15.06**	D015442	866758	**17.15**

Metric Standard Chrome Sockets

Dynamic

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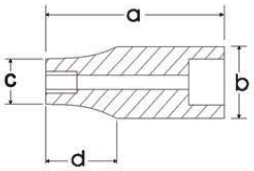
Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
10mm	1.50"	0.86"	0.59"	0.67"	D016010	866292	**8.36**	D015110	866759	**8.08**
11mm	1.50"	0.86"	0.64"	0.67"	D016011	866293	**8.36**	D015111	866760	**7.99**
12mm	1.50"	0.86"	0.69"	0.67"	D016012	866294	**8.36**	D015112	866761	**7.99**
13mm	1.50"	0.86"	0.74"	0.67"	D016013	866295	**8.68**	D015113	866762	**7.99**
14mm	1.50"	0.86"	0.80"	0.67"	D016014	866296	**8.68**	D015114	866763	**7.99**
15mm	1.50"	0.86"	0.83"	0.67"	D016015	866297	**8.68**	D015115	866764	**8.69**
16mm	1.50"	0.86"	0.86"	-	D016016	866298	**8.68**	D015116	866765	**8.77**
17mm	1.50"	0.94"	0.94"	-	D016017	866299	**8.68**	D015117	866766	**9.48**
18mm	1.50"	1.02"	1.02"	-	D016018	866300	**9.26**	D015118	866767	**10.10**
19mm	1.50"	1.02"	1.02"	-	D016019	866301	**9.26**	D015119	866768	**10.10**
20mm	1.50"	1.09"	1.09"	-	D016020	866302	**9.89**	D015120	866769	**10.61**
21mm	1.50"	1.09"	1.09"	-	D016021	866303	**10.79**	D015121	866770	**10.46**
22mm	1.50"	1.17"	1.17"	-	D016022	866304	**11.23**	D015122	866771	**11.32**
23mm	1.57"	1.25"	1.25"	-	D016023	866305	**12.26**	D015123	866772	**11.93**
24mm	1.57"	1.25"	1.25"	-	D016024	866306	**12.26**	D015124	866773	**11.93**
25mm	1.57"	1.33"	1.33"	-	D016025	866307	**12.53**	D015125	866774	**13.19**
26mm	1.65"	1.33"	1.33"	-	D016026	866308	**13.04**	D015126	866775	**12.56**
27mm	1.65"	1.41"	1.41"	-	D016027	866309	**15.01**	D015127	866776	**13.71**
28mm	1.69"	1.49"	1.49"	-	D016028	866310	**15.19**	D015128	866777	**15.10**
29mm	1.69"	1.49"	1.49"	-	D016029	866311	**15.72**			
30mm	1.73"	1.57"	1.57"	-	D016030	866312	**16.47**	D015130	866779	**16.33**
31mm	1.73"	1.57"	1.57"	-	D016031	866313	**16.61**			
32mm	1.73"	1.65"	1.65"	-	D016032	866314	**16.74**	D015132	866781	**16.86**

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SAE Deep Chrome Sockets

- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
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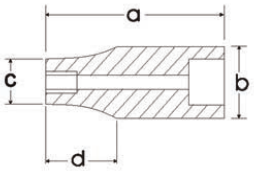




Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
3/8"	3.03"	0.86"	0.52"	1.81"	D016512	866354	**11.83**	D015612	866782	**12.99**
7/16"	3.03"	0.86"	0.57"	1.81"	D016514	866355	**14.49**	D015614	866783	**12.99**
1/2"	3.03"	0.86"	0.67"	1.81"	D016516	866356	**14.49**	D015616	866784	**12.91**
9/16"	3.03"	0.86"	0.73"	1.81"	D016518	866357	**14.49**	D015618	866785	**12.66**
5/8"	3.03"	0.86"	0.81"	1.81"	D016520	866358	**14.49**	D015620	866786	**12.91**
11/16"	3.03"	0.86"	0.86"	-	D016522	866359	**15.01**	D015622	866787	**13.78**
3/4"	3.03"	0.94"	0.94"	-	D016524	866360	**15.96**	D015624	866788	**14.93**
13/16"	3.03"	1.02"	1.02"	-	D016526	866361	**17.04**	D015626	866789	**14.93**
7/8"	3.03"	1.09"	1.09"	-	D016528	866362	**18.37**	D015628	866790	**16.33**
15/16"	3.03"	1.17"	1.17"	-	D016530	866363	**20.39**	D015630	866791	**17.30**
1"	3.03"	1.25"	1.25"	-	D016532	866364	**23.82**	D015632	866792	**20.91**
1-1/16"	3.03"	1.33"	1.33"	-	D016534	866365	**24.26**	D015634	866793	**20.99**
1-1/8"	3.03"	1.41"	1.41"	-	D016536	866366	**24.97**	D015636	866794	**25.13**
1-3/16"	3.03"	1.49"	1.49"	-	D016538	866367	**25.72**	D015638	866795	**25.83**
1-1/4"	3.03"	1.65"	1.65"	-	D016540	866368	**27.72**	D015640	866796	**26.80**
1-5/16"	3.03"	1.72"	1.72"	-	D016542	866369	**28.51**	D015642	866797	**27.05**

Metric Deep Chrome Sockets

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Size	Overall Length (a)	Drive End (b)	Hex End (c)	Taper Length (d)	Dynamic EDP	6-point Code No.	Price $	Dynamic EDP	12-point Code No.	Price $
10mm	3.03"	0.86"	0.59"	1.81"	D016210	866315	**14.49**	D015710	866798	**12.99**
11mm	3.03"	0.86"	0.64"	1.81"	D016211	866316	**14.50**	D015711	866799	**12.99**
12mm	3.03"	0.86"	0.69"	1.81"	D016212	866317	**14.49**	D015712	866800	**12.91**
13mm	3.03"	0.86"	0.74"	1.81"	D016213	866318	**14.49**	D015713	866801	**12.91**
14mm	3.03"	0.86"	0.80"	1.81"	D016214	866319	**14.49**	D015714	866802	**12.66**
15mm	3.03"	0.86"	0.83"	1.81"	D016215	866320	**14.49**	D015715	866803	**12.91**
16mm	3.03"	0.86"	0.86"	-	D016216	866321	**14.49**	D015716	866804	**12.91**
17mm	3.03"	0.94"	0.94"	-	D016217	866322	**14.57**	D015717	866805	**13.78**
18mm	3.03"	1.02"	1.02"	-	D016218	866323	**15.45**	D015718	866806	**14.93**
19mm	3.03"	1.02"	1.02"	-	D016219	866324	**15.52**	D015719	866807	**14.93**
20mm	3.03"	1.09"	1.09"	-	D016220	866325	**16.54**	D015720	866808	**15.45**
21mm	3.03"	1.09"	1.09"	-	D016221	866326	**17.70**	D015721	866809	**14.93**
22mm	3.03"	1.17"	1.17"	-	D016222	866327	**19.60**	D015722	866810	**16.33**
23mm	3.03"	1.25"	1.25"	-	D016223	866328	**20.77**	D015723	866811	**17.30**
24mm	3.03"	1.25"	1.25"	-	D016224	866329	**20.77**	D015724	866812	**17.30**
25mm	3.03"	1.33"	1.33"	-	D016225	866330	**25.16**	D015725	866813	**21.77**
26mm	3.03"	1.33"	1.33"	-	D016226	866331	**25.55**	D015726	866814	**20.91**
27mm	3.03"	1.41"	1.41"	-	D016227	866332	**26.19**	D015727	866815	**20.99**
28mm	3.03"	1.49"	1.49"	-	D016228	866333	**28.53**	-	-	-
29mm	3.03"	1.49"	1.49"	-	D016229	866334	**28.53**	-	-	-
30mm	3.03"	1.57"	1.57"	-	D016230	866335	**29.34**	-	-	-
31mm	3.03"	1.57"	1.57"	-	D016231	866336	**30.43**	-	-	-
32mm	3.03"	1.65"	1.65"	-	D016232	866337	**30.43**	-	-	-

SAE Standard Impact Sockets

Dynamic

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Size	Overall Length (in.)	Drive End (in.)	Hex End (in.)	Taper Length (in.)	Dynamic EDP	Code No.	Price $
3/8"	1.50	0.86	0.67	0.35	D014312	866256	**7.66**
7/16"	1.50	0.86	0.71	0.35	D014314	866257	**7.66**
1/2"	1.50	0.86	0.79	0.35	D014316	866258	**7.89**
9/16"	1.50	0.94	0.87	0.35	D014318	866259	**7.89**
5/8"	1.50	0.94	0.94	-	D014320	866260	**7.94**
11/16"	1.50	1.02	1.02	-	D014322	866261	**8.81**
3/4"	1.57	1.09	1.09	-	D014324	866262	**8.81**
13/16"	1.57	1.17	1.17	-	D014326	866263	**9.69**
7/8"	1.65	1.25	1.25	-	D014328	866264	**10.83**
15/16"	1.73	1.33	1.33	-	D014330	866265	**12.15**
1"	1.73	1.41	1.41	-	D014332	866266	**12.54**
1-1/16"	1.81	1.49	1.49	-	D014334	866267	**17.63**
1-1/8"	1.81	1.50	1.57	0.55	D014336	866268	**18.33**
1-3/16"	1.81	1.50	1.65	0.55	D014338	866269	**18.60**
1-1/4"	1.81	1.50	1.72	0.55	D014340	866270	**19.65**
1-5/16"	1.81	1.50	1.76	0.63	D014342	866271	**19.81**
1-3/8"	1.97	1.50	1.88	0.63	D014344	866272	**20.02**
1-7/16"	1.97	1.50	1.96	0.63	D014346	865818	**20.26**
1-1/2"	1.97	1.50	2.04	0.63	D014348	866816	**20.79**

SAE Deep Impact Sockets

Dynamic

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Size	Overall Length (in.)	Drive End (in.)	Hex End (in.)	Taper Length (in.)	Dynamic EDP	Code No.	Price $
3/8"	3.07	0.86	0.67	0.63	D014512	866275	**12.25**
7/16"	3.07	0.86	0.71	0.63	D014514	866276	**12.54**
1/2"	3.07	0.94	0.79	0.63	D014516	866277	**12.92**
9/16"	3.07	0.94	0.88	0.63	D014518	866278	**13.36**
5/8"	3.07	0.94	0.94	-	D014520	866279	**13.69**
11/16"	3.07	1.02	1.02	-	D014522	866280	**14.24**
3/4"	3.07	1.09	1.09	-	D014524	866281	**15.06**
13/16"	3.07	1.17	1.17	-	D014526	866282	**15.60**
7/8"	3.07	1.25	1.25	-	D014528	866283	**16.15**
15/16"	3.07	1.33	1.33	-	D014530	866284	**17.79**
1"	3.07	1.41	1.41	-	D014532	866285	**19.22**
1-1/16"	3.07	1.49	1.49	-	D014534	866286	**25.67**
1-1/8"	3.07	1.50	1.57	0.55	D014536	866287	**27.88**
1-3/16"	3.07	1.50	1.65	0.55	D014538	866288	**28.56**
1-1/4"	3.07	1.50	1.72	0.55	D014540	866289	**29.44**
1-5/16"	3.07	1.50	1.76	0.63	D014542	866290	**29.89**
1-3/8"	3.07	1.50	1.88	0.63	D014544	866291	**30.10**

Metric Standard Impact Sockets

Dynamic

- Meets ANSI standards
- Corrosion resistant black phosphate finish
- Large laser etched markings improve size identification



Size	Overall Length (in.)	Drive End (in.)	Hex End (in.)	Taper Length (in.)	Dynamic EDP	Code No.	Price $
8mm	1.50	0.86	0.55	0.35	D014008	866817	**7.11**
9mm	1.50	0.86	0.59	0.35	D014009	866818	**7.34**
10mm	1.50	0.86	0.67	0.35	D014010	866819	**7.66**
11mm	1.50	0.86	0.71	0.35	D014011	866820	**7.66**
12mm	1.50	0.86	0.75	0.35	D014012	866821	**7.89**
13mm	1.50	0.86	0.79	0.35	D014013	866822	**7.89**
14mm	1.50	0.94	0.87	0.35	D014014	866823	**7.89**
15mm	1.50	0.94	0.94	-	D014015	866824	**8.49**
16mm	1.50	0.94	0.94	-	D014016	866825	**8.49**
17mm	1.50	1.02	1.02	-	D014017	866826	**8.49**
18mm	1.50	1.02	1.02	-	D014018	866827	**8.75**
19mm	1.57	1.09	1.09	-	D014019	866828	**8.75**
20mm	1.57	1.17	1.17	-	D014020	866829	**10.03**
21mm	1.57	1.17	1.17	-	D014021	866830	**10.57**
22mm	1.65	1.25	1.25	-	D014022	866831	**10.57**
23mm	1.65	1.25	1.25	-	D014023	866832	**11.88**
24mm	1.73	1.33	1.33	-	D014024	866833	**12.04**
25mm	1.73	1.37	1.37	-	D014025	866834	**12.35**
26mm	1.73	1.41	1.41	-	D014026	866835	**12.92**
27mm	1.81	1.49	1.49	-	D014027	866836	**13.85**
28mm	1.81	1.50	1.57	0.55	D014028	866837	**15.87**
29mm	1.81	1.50	1.57	0.55	D014029	866838	**17.24**
30mm	1.81	1.50	1.65	0.55	D014030	866839	**17.24**
31mm	1.81	1.50	1.65	0.55	D014031	866840	**18.60**
32mm	1.81	1.50	1.72	0.55	D014032	866841	**19.65**
36mm	1.97	1.50	1.96	0.63	D014036	866845	**19.92**

Metric Deep Impact Sockets

Dynamic

- Meets ANSI standards
- Corrosion resistant black phosphate finish
- Large laser etched markings improve size identification



Size	Overall Length (in.)	Drive End (in.)	Hex End (in.)	Taper Length (in.)	Dynamic EDP	Code No.	Price $
8mm	3.07	0.86	0.55	0.63	D014208	866846	**12.04**
9mm	3.07	0.86	0.59	0.63	D014209	866847	**12.04**
10mm	3.07	0.86	0.67	0.63	D014210	866848	**12.48**
11mm	3.07	0.86	0.71	0.63	D014211	866849	**12.48**
12mm	3.07	0.86	0.75	0.63	D014212	866850	**12.92**
13mm	3.07	0.94	0.79	0.63	D014213	866851	**12.92**
14mm	3.07	0.94	0.87	0.63	D014214	866852	**13.36**
15mm	3.07	0.94	0.94	-	D014215	866853	**13.69**
16mm	3.07	0.94	0.94	-	D014216	866854	**13.90**
17mm	3.07	1.02	1.02	-	D014217	866855	**14.19**
18mm	3.07	1.02	1.02	-	D014218	866856	**14.29**
19mm	3.07	1.09	1.09	-	D014219	866857	**14.38**
20mm	3.07	1.17	1.17	-	D014220	866858	**15.33**
21mm	3.07	1.17	1.17	-	D014221	866859	**16.58**
22mm	3.07	1.25	1.25	-	D014222	866860	**16.82**
23mm	3.07	1.25	1.25	-	D014223	866861	**16.96**
24mm	3.07	1.33	1.33	-	D014224	866862	**17.24**
27mm	3.07	1.49	1.49	-	D014227	866863	**17.51**
30mm	3.07	1.50	1.65	0.55	D014230	866864	**17.84**
36mm	3.07	1.50	1.96	0.63	D014236	866865	**18.06**

SAE Hex Head Sockets — Standard Length

- Meets ANSI standards
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments
- Laser etched markings improve size identification



Size	Overall Length (in.)	Bit Length (in.)	Drive End Width (in.)	Dynamic EDP	Code No.	Price $
1/4"	2.44	0.94	0.86	D013058	866219	**15.79**
5/16"	2.44	0.94	0.86	D013060	866220	**15.79**
3/8"	2.44	0.94	0.86	D013062	866221	**15.79**
7/16"	2.44	0.94	0.94	D013064	866222	**15.79**
1/2"	2.44	0.94	0.94	D013066	866223	**15.79**
9/16"	2.44	0.94	0.94	D013068	866224	**15.79**
5/8"	2.44	0.94	1.02	D013070	866225	**15.79**
3/4"	2.44	0.94	1.02	D013074	866226	**15.79**

SAE Hex Head Sockets — Long Length

- Meets ANSI standards
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments
- Laser etched markings improve size identification



Size	Overall Length (in.)	Bit Length (in.)	Drive End Width (in.)	Dynamic EDP	Code No.	Price $
1/4"	3.94	2.44	0.86	D013458	866241	**18.90**
5/16"	3.94	2.44	0.86	D013460	866242	**18.90**
3/8"	3.94	2.44	0.86	D013462	866243	**18.90**
7/16"	3.94	2.44	0.94	D013464	866244	**18.90**
1/2"	3.94	2.44	0.94	D013466	866245	**18.90**
9/16"	3.94	2.44	0.94	D013468	866246	**18.90**
5/8"	3.94	2.44	1.02	D013470	866247	**18.90**
3/4"	3.94	2.44	1.02	D013474	866248	**18.90**

Torx® Head Sockets — Standard Length

- Meets ANSI standards
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments
- Laser etched markings improve size identification



Size	Overall Length (in.)	Bit Length (in.)	Drive End Width (in.)	Dynamic EDP	Code No.	Price $
T20	2.44	0.94	0.86	D013320	866227	**16.40**
T25	2.44	0.94	0.86	D013325	866228	**16.40**
T27	2.44	0.94	0.86	D013327	866229	**16.40**
T30	2.44	0.94	0.86	D013330	866230	**16.40**
T40	2.44	0.94	0.86	D013340	866231	**16.40**
T45	2.44	0.94	0.86	D013345	866232	**16.40**
T50	2.44	0.94	0.86	D013350	866233	**16.40**

Metric Hex Head Sockets — Standard Length

- Meets ANSI standards
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments
- Laser etched markings improve size identification



Size	Overall Length (in.)	Bit Length (in.)	Drive End Width (in.)	Dynamic EDP	Code No.	Price $
6mm	2.44	0.94	0.86	D013006	866212	**15.79**
8mm	2.44	0.94	0.86	D013008	866213	**15.79**
10mm	2.44	0.94	0.86	D013010	866214	**15.79**
12mm	2.44	0.94	0.94	D013012	866215	**15.79**
14mm	2.44	0.94	0.94	D013014	866216	**15.79**
17mm	2.44	0.94	1.02	D013017	866217	**15.79**
19mm	2.44	0.94	1.02	D013019	866218	**15.79**

Metric Hex Head Sockets — Long Length

- Meets ANSI standards
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments
- Laser etched markings improve size identification



Size	Overall Length (in.)	Bit Length (in.)	Drive End Width (in.)	Dynamic EDP	Code No.	Price $
6mm	3.94	2.44	0.86	D013406	866234	**18.90**
8mm	3.94	2.44	0.86	D013408	866235	**18.90**
10mm	3.94	2.44	0.86	D013410	866236	**18.90**
12mm	3.94	2.44	0.94	D013412	866237	**18.90**
14mm	3.94	2.44	0.94	D013414	866238	**18.90**
17mm	3.94	2.44	1.02	D013417	866239	**18.90**
19mm	3.94	2.44	1.02	D013419	866240	**18.90**

Torx® Head Sockets — Long Length

- Meets ANSI standards
- Knurled ring provides superior grip for quicker and easier removal of socket from ratchets and attachments
- Laser etched markings improve size identification



Size	Overall Length (in.)	Bit Length (in.)	Drive End Width (in.)	Dynamic EDP	Code No.	Price $
T20	3.94	2.44	0.86	D013720	866249	**19.53**
T25	3.94	2.44	0.86	D013725	866250	**19.53**
T27	3.94	2.44	0.86	D013727	866251	**19.53**
T30	3.94	2.44	0.86	D013730	866252	**19.53**
T40	3.94	2.44	0.86	D013740	866253	**19.53**
T45	3.94	2.44	0.86	D013745	866254	**19.53**
T50	3.94	2.44	0.86	D013750	866255	**19.53**

21pc 12 Point Standard SAE Set

Set contents:
- 16 Regular SAE Sockets: 7/8, 15/16, 1", 1-1/16, 1-1/8, 1-3/16, 1-1/14, 1-5/16, 1-3/8, 1-7/16, 1-5/8, 1-3/4, 1-13/16, 1-7/8, 2"
- 3 Extensions: 4", 8", 16"
- Flex handle
- 24 tooth ratchet
- Blow mold case





Description	Dynamic EDP	Code No.	Price $
21pc 12 Point Standard SAE Set	D023000	866866	**644.56**

20pc 12 Point Standard Metric Set

Set contents:
- 15 Regular Metric Sockets: 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 35, 36mm
- 3 Extensions: 4", 8", 16"
- Flex handle
- 24 tooth ratchet
- Blow mold case





Description	Dynamic EDP	Code No.	Price $
20pc 12 Point Standard SAE Set	D023001	866867	**612.47**

Ratchet — Chrome Handle

- Chrome finish for maximum resistance against corrosion
- Knurled handle area provides user a non-slip and secure hole



Length	No. of Teeth	Dynamic EDP	Code No.	Price $
19.69"	24	D019301	866868	**200.53**

14pc SAE Combination Wrench Set

Set contents:
- 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1", 1-1/16", 1-1/8", 1-1/4"
- Canvas roll





Description	Dynamic EDP	Code No.	Price $
14pc SAE Combination Wrench Set	D074201	865897	**286.15**

19pc Metric Combination Wrench Set

Set contents:
- 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24mm
- Canvas roll





Description	Dynamic EDP	Code No.	Price $
19pc Metric Combination Wrench Set	D074203	865898	**259.64**

12pc SAE Combination Wrench Set — Contractor Series

Set contents:
- 1/4, 5/16, 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16"
- Satin Finish
- Canvas roll





Contractor Series - A superior alternative to raised panel wrenches



Description	Dynamic EDP	Code No.	Price $
12pc SAE Contractor Combination Wrench Set	D074222	866869	**104.91**

16pc SAE Combination Wrench Set — Contractor Series

Set contents:
- 1/4, 5/16, 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1", 1-1/16, 1-1/8, 1-1/4
- Satin Finish
- Canvas roll





Contractor Series - A superior alternative to raised panel wrenches



Description	Dynamic EDP	Code No.	Price $
16pc SAE Contractor Combination Wrench Set	D074221	865827	**190.30**

19pc Metric Contractor Combination Wrench Set

Set contents:

- 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24mm
- Satin Finish
- Canvas roll



Contractor Series - A superior alternative to raised panel wrenches



Description	Dynamic EDP	Code No.	Price $
19pc Metric Contractor Combination Wrench Set	D074223	865983	**191.72**

Combination Wrenches

- Mirror chrome finish
- Meets ANSI standards



Size	O.A.L. (in)	Head Width (in)	Head Thickness (in)	Box Width (in)	Box Thickness (in)	Dynamic EDP	Code No.	Price $
Inch								
1/4"	5.04	0.54	0.17	0.41	0.18	D074008	866870	**8.17**
5/16"	5.83	0.74	0.19	0.5	0.22	D074010	866871	**9.46**
3/8"	6.06	0.81	0.23	0.61	0.32	D074012	866872	**10.37**
7/16"	6.57	0.91	0.27	0.7	0.33	D074014	866026	**11.66**
1/2"	7.01	1.04	0.28	0.8	0.35	D074016	866025	**13.26**
9/16"	7.48	1.14	0.3	0.87	0.38	D074018	866022	**14.86**
5/8"	8.07	1.28	0.33	0.96	0.42	D074020	866873	**16.59**
11/16"	8.86	1.43	0.35	1.05	0.43	D074022	866874	**18.54**
3/4"	9.76	1.52	0.36	1.11	0.44	D074024	866024	**21.86**
13/16"	10.63	1.67	0.39	1.2	0.49	D074026	866875	**24.19**
7/8"	11.5	1.83	0.41	1.31	0.51	D074028	866876	**27.75**
15/16"	12.36	1.91	0.43	1.39	0.55	D074030	866877	**31.18**
1"	13.23	1.98	0.45	1.44	0.57	D074032	866582	**34.32**
1-1/16"	14.13	2.11	0.48	1.51	0.61	D074034	866878	**40.76**
1-1/8"	15.35	2.25	0.51	1.7	0.62	D074036	866023	**49.86**
1-1/4"	16.73	2.44	0.51	1.78	0.65	D074040	866583	**55.09**
Metric								
6mm	5.04	0.54	0.17	0.41	0.18	D074106	866879	**7.49**
7mm	5.43	0.60	0.18	0.46	0.20	D074107	866880	**7.73**
8mm	5.83	0.74	0.19	0.50	0.22	D074108	866881	**8.54**
9mm	6.06	0.81	0.23	0.61	0.32	D074109	866882	**9.46**
10mm	6.38	0.85	0.24	0.57	0.33	D074110	866033	**9.78**
11mm	6.57	0.91	0.27	0.70	0.33	D074111	866883	**10.51**
12mm	6.85	1.01	0.27	0.72	0.31	D074112	866884	**10.98**
13mm	7.01	1.04	0.28	0.80	0.35	D074113	866885	**11.50**
14mm	7.48	1.14	0.30	0.87	0.38	D074114	866886	**12.84**
15mm	8.07	1.28	0.33	0.96	0.42	D074115	866887	**14.79**
16mm	8.07	1.28	0.33	0.96	0.42	D074116	866888	**16.65**
17mm	8.86	1.43	0.35	1.05	0.43	D074117	866584	**18.44**
18mm	9.76	1.52	0.36	1.11	0.44	D074118	866889	**21.05**
19mm	9.76	1.52	0.36	1.11	0.44	D074119	866585	**22.73**
20mm	10.63	1.67	0.39	1.20	0.49	D074120	866890	**24.19**
21mm	10.63	1.67	0.39	1.20	0.49	D074121	866891	**25.92**
22mm	11.50	1.83	0.41	1.31	0.51	D074122	866892	**26.90**
23mm	12.36	1.91	0.43	1.39	0.55	D074123	866893	**30.46**
24mm	12.36	1.91	0.43	1.39	0.55	D074124	866894	**30.65**
25mm	13.23	1.98	0.45	1.44	0.57	D074125	866586	**31.31**
26mm	13.23	1.98	0.45	1.44	0.57	D074126	866895	**32.07**
27mm	14.13	2.11	0.48	1.51	0.61	D074127	866896	**36.83**
28mm	15.35	2.25	0.51	1.70	0.62	D074128	866897	**41.99**
29mm	15.35	2.25	0.51	1.70	0.62	D074129	866898	**43.12**
30mm	15.35	2.25	0.51	1.70	0.62	D074130	866587	**44.82**
32mm	16.73	2.44	0.51	1.78	0.65	D074132	866900	**51.71**

Combination Wrenches — Contractor Series

- Satin finish
- Meets ANSI standards



Contractor Series - A superior alternative to raised panel wrenches

Size	O.A.L. (in)	Head Width (in)	Head Thickness (in)	Box Width (in)	Box Thickness (in)	Dynamic EDP	Code No.	Price $
Inch								
1/4"	5.08	0.60	0.17	0.42	0.23	D074308	866464	**6.65**
5/16"	5.59	0.73	0.19	0.51	0.26	D074310	866465	**6.65**
3/8"	6.34	0.82	0.20	0.61	0.29	D074312	866466	**7.22**
7/16"	6.61	0.91	0.23	0.68	0.31	D074314	866467	**7.68**
1/2"	7.09	1.04	0.25	0.76	0.34	D074316	866468	**8.52**
9/16"	7.60	1.06	0.25	0.79	0.34	D074318	866469	**9.80**
5/8"	8.15	1.29	0.31	0.91	0.36	D074320	866470	**11.42**
11/16"	8.94	1.35	0.31	0.96	0.41	D074322	866471	**12.77**
3/4"	9.84	1.54	0.37	1.09	0.45	D074324	866472	**15.16**
13/16"	10.67	1.71	0.39	1.21	0.50	D074326	866473	**16.71**
7/8"	11.61	1.80	0.40	1.29	0.53	D074328	866474	**21.30**
15/16"	12.48	1.95	0.41	1.36	0.56	D074330	866475	**25.28**
1"	13.35	2.03	0.45	1.44	0.59	D074332	866476	**29.35**
1-1/16"	14.25	2.18	0.48	1.52	0.62	D074334	866477	**33.80**
1-1/8"	15.51	2.30	0.50	1.67	0.65	D074336	866478	**37.79**
1-1/4"	16.89	2.56	0.53	1.80	0.71	D074340	866479	**44.88**
1-5/16"	18.54	2.80	0.61	1.95	0.75	D074342	866480	**48.58**
1-3/8"	18.54	2.80	0.61	1.95	0.75	D074344	866481	**54.16**
1-7/16"	20.08	2.99	0.65	2.17	0.83	D074346	866482	**60.93**
1-1/2"	20.08	2.99	0.65	2.17	0.83	D074348	866483	**61.94**
1-5/8"	21.65	3.27	0.69	2.36	0.75	D074350	866901	**95.01**
1-11/16"	21.65	3.27	0.69	2.36	0.75	D074352	866902	**96.91**
1-3/4"	24.13	3.39	0.81	2.40	0.75	D074354	866903	**98.32**
1-13/16"	24.13	3.39	0.81	2.40	0.75	D074356	866904	**105.84**
1-7/8"	25.63	3.78	0.94	2.87	0.75	D074358	866905	**123.75**
2"	25.63	3.78	0.94	2.87	0.75	D074360	866906	**138.13**
2-1/8"	28.50	4.45	1.22	3.23	0.92	D074362	866907	**273.97**
2-1/4"	28.50	4.45	1.22	3.23	0.92	D074364	866908	**304.68**
2-3/8"	29.25	4.69	1.28	3.68	1.00	D074366	866909	**327.94**
2-1/2"	29.25	4.69	1.28	3.68	1.00	D074368	866910	**338.68**
Metric								
6mm	5.08	0.60	0.17	0.42	0.23	D074406	866484	**5.61**
7mm	5.31	0.64	0.18	0.46	0.24	D074407	866485	**5.67**
8mm	5.59	0.73	0.19	0.51	0.26	D074408	866486	**6.53**
9mm	6.10	0.76	0.19	0.54	0.26	D074409	866487	**7.30**
10mm	6.34	0.82	0.20	0.61	0.29	D074410	866488	**7.57**
11mm	6.61	0.91	0.23	0.68	0.31	D074411	866489	**8.00**
12mm	6.85	0.94	0.23	0.70	0.32	D074412	866490	**8.37**
13mm	7.09	1.04	0.25	0.76	0.34	D074413	866491	**9.24**
14mm	7.60	1.06	0.25	0.79	0.34	D074414	866492	**9.80**
15mm	7.87	1.21	0.28	0.89	0.35	D074415	866493	**10.63**
16mm	8.15	1.29	0.31	0.91	0.36	D074416	866494	**12.59**
17mm	8.94	1.35	0.31	0.96	0.41	D074417	866495	**13.47**
18mm	9.41	1.48	0.34	1.05	0.44	D074418	866496	**15.05**
19mm	9.84	1.54	0.37	1.09	0.45	D074419	866497	**15.86**
20mm	10.20	1.60	0.37	1.13	0.47	D074420	866498	**16.59**
21mm	10.67	1.71	0.39	1.21	0.50	D074421	866499	**18.13**
22mm	11.61	1.80	0.40	1.29	0.53	D074422	866500	**21.10**
23mm	12.48	1.95	0.41	1.36	0.56	D074423	866501	**22.82**
24mm	12.48	1.95	0.41	1.36	0.56	D074424	866502	**25.10**
25mm	13.35	2.03	0.45	1.44	0.59	D074425	866503	**28.94**
26mm	13.35	2.03	0.45	1.44	0.59	D074426	866504	**28.95**
27mm	14.25	2.18	0.48	1.52	0.62	D074427	866505	**34.82**
28mm	15.51	2.30	0.50	1.67	0.65	D074428	866506	**38.68**
29mm	15.51	2.30	0.50	1.67	0.65	D074429	866507	**38.68**
30mm	15.51	2.30	0.50	1.67	0.65	D074430	866508	**38.68**
32mm	16.89	2.56	0.53	1.80	0.71	D074432	866509	**44.56**

Adjustable Wrenches

- Drop forged
- Meets ANSI standards
- Chrome finish for maximum resistance against corrosion
- Size graduation markings allow for faster adjustment to the correct fastener size



Size	Maximum Jaw Opening	Dynamic EDP	Code No.	Price $
4"	0.6"	D072004	866457	**16.37**
6"	0.8"	D072006	866458	**17.44**
8"	1.0"	D072008	866031	**23.09**
10"	1.2"	D072010	865899	**29.90**
12"	1.4"	D072012	866111	**41.33**
15"	1.7"	D072015	866058	**65.77**
18"	2.1"	D072018	866463	**113.28**

Aluminum Pipe Wrenches

- Meets ANSI standards
- Forged and hardened steel hook and heel jaws
- Aluminum construction is up to 30% lighter than traditional cast steel models



Size	Maximum Jaw Opening	Dynamic EDP	Code No.	Price $
14"	2"	D080014	866034	**84.58**
18"	2.5"	D080018	866911	**88.90**
24"	3"	D080024	866912	**140.81**
36"	5"	D080036	866027	**278.14**
48"	6"	D080048	866913	**444.59**

Torque Wrenches

- Each torque wrench is factory calibrated within tolerance limits of ±4% clockwise
- Factory certificate of calibration included
- Quick release mechanism makes socket removal easy
- Lock ring prevents accidental change of torque setting
- Blow molded plastic case for convenient storage
- Durable aluminum handle features an easy to grip diamond knurl surface
- Dual scale SAE/Metric
- Increments: 1lb / 1.4Nm
- Fixed head style
- 32 teeth



Square Drive	Capacity ft.lb	Capacity Nm	Length	Dynamic EDP	Code No.	Price $
3/8"	20-100	33.9-128.8	17"	D086001	866914	**241.17**
1/2"	30-250	48-332	24"	D086002	866915	**333.72**

Torque Multiplier — 1/2"F - 3/4"M

- Maximum Input Torque: 220ft.lb. / 300Nm
- Maximum Output Torque: 1100ft.lb. / 1500Nm
- Accuracy: ±5%
- Includes blow mold case
- No Anti-Backlash



Input Drive	Output Drive	Torque Ratio	Length	Dynamic EDP	Code No.	Price $
1/2"F	3/4"M	5:1	6.37"	D086101	866916	**1,192.90**

Torque Multiplier — 1/2"F - 1"M

- Maximum Input Torque: 126ft.lb / 173Nm
- Maximum Output Torque: 3300ft.lb. / 4500Nm
- Accuracy: ±5%
- Includes blow mold case
- With Anti-Backlash



Input Drive	Output Drive	Torque Ratio	Length	Dynamic EDP	Code No.	Price $
1/2"F	1"M	26:1	9.25"	D086102	866917	**3,477.70**

5pc Plier Set — Comfort Handle

Set contents:

- 8" Linesman Pliers
- 7" Diagonal Cutting Pliers
- 8" Long Nose Pliers
- 8" Bent Nose Pliers
- 8" Slip Joint Pliers
- Plastic Tray



Description	Dynamic EDP	Code No.	Price $
5pc Plier Set	D055201	865961	**50.38**

Diagonal Cutting Pliers — Comfort Handle

- Meets ANSI standards
- Satin chrome finish with cushion-grip handle
- Drop forged and specially heat treated for maximum durability



Overall Length	Jaw Length	Jaw Thickness	Dynamic EDP	Code No.	Price $
6"	1.00"	0.43"	D055038	866918	**16.11**
7"	1.00"	0.43"	D055000	865886	**22.86**

Long Nose Pliers — Comfort Handle

- Meets ANSI standards
- Satin chrome finish with cushion-grip handle
- Drop forged and specially heat treated for maximum durability



Overall Length	Jaw Length	Jaw Thickness	Dynamic EDP	Code No.	Price $
6"	1.93"	0.35"	D055001	865979	**16.11**
8"	2.99"	0.37"	D055002	866381	**19.60**
11"	3.23"	0.39"	D055003	866921	**25.97**

Bent Nose Pliers — Comfort Handle

- Meets ANSI standards
- Satin chrome finish with cushion-grip handle
- Drop forged and specially heat treated for maximum durability



Overall Length	Jaw Length	Jaw Thickness	Dynamic EDP	Code No.	Price $
6"	1.73"	0.35"	D055004	866547	**17.71**
8"	2.85"	0.37"	D055005	866382	**21.63**
11"	2.80"	0.39"	D055006	866922	**25.14**

Linesman Pliers — Comfort Handle

Dynamic

- Meets ANSI standards
- Satin chrome finish with cushion-grip handle
- Drop forged and specially heat treated for maximum durability



Overall Length	Jaw Length	Jaw Thickness	Dynamic EDP	Code No.	Price $
7"	1.50"	0.39"	D055013	866923	**19.36**
8"	1.61"	0.43"	D055014	866386	**25.06**

Slip Joint Pliers — Comfort Handle

Dynamic

- Meets ANSI standards
- Satin chrome finish with cushion-grip handle
- Drop forged and specially heat treated for maximum durability



Overall Length	Jaw Length	Jaw Thickness	Dynamic EDP	Code No.	Price $
6"	1.59"	0.39"	D055007	866925	**15.98**
8"	2.05"	0.41"	D055008	866383	**20.39**
10"	2.24"	0.46"	D055009	866926	**25.06**

Groove Joint Pliers — Comfort Handle

Dynamic

- Meets ANSI standards
- Satin chrome finish with cushion-grip handle
- Drop forged and specially heat treated for maximum durability



Overall Length	Jaw Length	Jaw Thickness	Dynamic EDP	Code No.	Price $
7-1/2"	1.69"	0.39"	D055010	865890	**19.60**
9-1/2"	2.03"	0.44"	D055011	865891	**25.06**
12"	2.50"	0.47"	D055012	865885	**30.53**

Wire Stripper/Cutter — Comfort Handle

Dynamic

- Meets ANSI standards
- Strips 8-20 AWG solid wire and 10-22 AWG stranded wire
- Serrated jaws to pull, bend, and loop wire

Warning: Handles are not insulated and not designed to protect the user against electrical shock



Overall Length	Jaw Length	Jaw Thickness	Dynamic EDP	Code No.	Price $
6"	0.79"	0.43"	D095001	866516	**27.53**

Locking Pliers — Curved Jaws

Dynamic

- The narrow, large opening curved jaws provide firm grip on all round shapes
- Nickel plated finish for corrosion resistance



Overall Length	Jaw Opening	Dynamic EDP	Code No.	Price $
7"	1.50"	D055304	866579	**20.16**
10"	1.88"	D055305	866388	**21.48**

Locking Pliers — Curved Jaws With Wire Cutter

Dynamic

- The functionality of regular curved jaws with the added convenience of a wire cutter
- Nickel plated finish for corrosion resistance



Overall Length	Jaw Opening	Dynamic EDP	Code No.	Price $
7"	1.50"	D055302	866105	**21.53**
10"	1.88"	D055303	866387	**23.04**

3pc Aviation Tin Snips Set

STM

- Chrome Vanadium Blade with polish
- Self opening action
- Left Cut, Straight Cut, Right Cut



Size	Code No.	Price $
245mm	505003	**43.00**

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Cabinets & Chests

Machinists' & Mechanics' Chests L2
Chest Bases L2
Top Chests L3-4
Heavy Duty Workstation L4
Chest Riser L5
Roller Cabinets L5-9
Utility Carts L9
Tool Boxes L10
Parts Cabinets L10
End Mill Dispenser Cabinets L10
Drill Dispenser Cabinets L10

Machinists' Chest – Model 520



7 Drawer – Drawers and top compartment felt lined. Front panel covers drawers, stores in base. Has top carry handle.
- 6 drawer dividers

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
20-1/8	8-1/2	13-5/8	28	Brown	609601	**988.23**

Machinists' Chest – Model 526



8 Drawer – Felt lined drawers and tool compartment. Self storing drop front panel and rugged side handles.
- 6 drawer dividers

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-3/4	8-1/2	13-5/8	36	Brown	609602	**1,288.23**

Machinists' Chest – Model 52611



11 Drawer – Drawers and top compartment felt lined. Front panel covers drawers.
- 3 drawer dividers
- Side handles

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-3/4	8-1/2	18	47	Brown	609615	**1,464.71**

Machinists' Chest – Model 3611



11 Drawer – Drawers and top compartment wool felt lined. Unlined handbook drawer locks separately. Felt covered bottom glides protect drop front panel from scratches.
- Chrome side handles
- 6 adjustable drawer dividers
- Wrinkle finish

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-1/8	12	18-7/8	69	Brown	609830	**2,145.89**

Machinists' Chest – Model 620



3 Drawer – Drawers and top compartment wool felt lined. Front panel conceals, locks drawers.
- Top carry handle
- Includes 4 adjustable drawer dividers

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
20-1/8	8-1/2	13-5/8	25	Brown	609603	**829.41**

Mechanics' Chest – Model 263



3 Drawer
- Fits on 27" and 29" wide roller cabinets
- Lift-out tote tray with socket set divider included
- Friction drawer slides

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-1/8	12-1/8	14-3/4	44	Red	609112	**1,182.36**

Mechanics' Chest – Model 266



6 Drawer
- Fits on 27" and 29" wide roller cabinets
- Lift-out tote tray with socket set divider included
- Friction drawer slides

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-1/8	12-1/8	14-3/4	52	Red	609113	**1,411.77**

Mechanics' Chest – Model 360



10 Drawer
- Fits on 27" and 29" wide roller cabinets
- Lift-out tote tray with socket set divider included
- Friction drawer slides

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-1/8	12-1/8	18-7/8	68	Brown	609635	**1,852.94**

Chest Bases – Models MC-22 & MC-28



609604

2 Drawer Chest Base MC-22 – Fits under model 520 and 620 machinists' chests.
- Also fits any 27" or 29" roller cabinet
- Has wool felt lined top drawer and side handles



609605

2 Drawer Chest Base MC-28 – Fits under model 526 and 52611 machinists' chests.
- Also fits any 27" or 29" roller cabinet
- Has wool felt lined top drawer and side handles

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
21-5/8	9-5/8	7-13/16	20	Brown	609604	**582.36**
28-1/8	9-5/8	7-13/16	23	Brown	609605	**635.30**

Chest Base – Model 5150



2 Drawer
- Fits under models 526, 52611, and 3611 machinists' chests

Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-3/4	12-1/2	9-1/2	28	Brown	609114	**705.89**

Pro+ Series Toolbox Features

- 100lbs bearing slides on all drawers
- Completely redesigned locking system with tubular key and steel double hook engagement mechanism
- Smooth and quiet rolling premium 5" x 2" casters with precision sealed bearings and 360° top brake
- New see-through design allows quicker visual and physical access to tools in the top lid cavity (42" model top chests only)
- Heavy-duty 18 gauge steel frame for superior durability
- Drawer liners included on all models
- Scratch and corrosion resistant powder coat paint finish
- Pre-installed casters on all 42" wide roller cabinets making it faster to go from unboxing to working
- Redesigned side handle that makes moving rolling cabinets easier and more comfortable

26" PRO+ Top Chest – 6 Drawer

PRO+ Series

6 Drawer

- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	16	16.3	72	93106	866613	**689.24**

26" PRO+ Top Chest – 9 Drawer

PRO+ Series

9 Drawer

- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	19	21	106	93109	866612	**879.66**

26" PRO+ Top Chest – 12 Drawer

PRO+ Series

12 Drawer

- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	19	21	120	93120	861746	**1,039.08**

42" PRO+ Top Chest – 9 Drawer

PRO+ Series

9 Drawer

- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
42	19	23.5	168	93119	861747	**1,535.39**

26" PRO+ Intermediate Chest – 3 Drawer

PRO+ Series

3 Drawer

- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	19	13.6	55	93503	861748	**510.96**

Grab a tool trolley for all your holders!

See Page G90



Marquis Series Toolbox Features

- Safety latch system prevents drawers from accidentally opening
- Heavy duty roller bearing slides allow heavily loaded drawers to open and close with ease
- Industrial black wrinkle finish offers superior scratch and fade resistance
- Drawer liners included
- Heavy gauge steel construction for greater load ratings and storage capacities
- Premium quality casters with greater load ratings allow easier movement on all surfaces
- Oval handles on roller cabinets allow comfortable gripping and maneuvering
- Heavy duty lifting handles with 90° stop for easy lifting of top chests
- Gas shocks assist in opening and closing lids on top chests (41-1/2" and 53-3/8" models only)

26" Top Chest – 6 Drawer

GRAY TOOLS

Marquis Series
6 Drawer
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	16	19	86	99806SB	865031	**924.77**

41-1/2" Top Chest – 8 Drawer

GRAY TOOLS

Marquis Series
8 Drawer
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
41-1/2	18-1/2	20-1/2	155	99108SB	865041	**2,082.82**

26" Top Chest – 8 Drawer

GRAY TOOLS

Marquis Series
8 Drawer
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	16	19-1/4	94	99808SB	865208	**1,091.67**

53-3/8" Top Chest – 8 Drawer

GRAY TOOLS

Marquis Series
8 Drawer
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
53-3/8	24	19-3/4	264	99508SB	861745	**3,469.18**

41-1/2" Top Chest – 7 Drawer

GRAY TOOLS

Marquis Series
7 Drawer
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
41-1/2	18-1/2	23-3/4	182	99107SB	865488	**2,351.21**

33-1/2" Top Chest – 5 Drawer

GRAY TOOLS

Marquis Series
5 Drawer
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
33-1/2	19-1/8	19-1/4	127	99105SB	865043	**1,638.68**

28" Top Chest – 9 Drawers

Dynamic

9 Drawer
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
28	18	20	103	D069208	866626	**886.04**

Kennedy Heavy Duty Workstations

KENNEDY

- Unassembled
- Adjustable feet
- Tough durable grey wrinkle finish
- 5 drawer models have two shelves on the left hand side

54" Model
- Dimensions: 54"W x 20"D x 34-1/2"H
- Drawers: 16-9/16"W x 16-1/2"D x 3-3/16"H



Description	Weight (lb)	Code No.	Price $
54" work station with steel top 5 drawer	159	609840	**1,137.57**
54" work station with steel top 10 drawer	216	609842	**2,260.70**

Chest Riser – Model 2600

KENNEDY

Add storage and work surface to your roller cabinet. Use with 263, 266 and 360 chests, or 2602, 2603 and 2604 chest bases.



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
26-5/8	12-1/2	11-3/4	9	Brown	609645	**271.77**

Roller Cabinet – Model 175C

KENNEDY

5 Drawer
- Black wrinkle finish



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
27	18	35	113	Black	609115	**987.53**

Roller Cabinet – Model 21040

KENNEDY

5 Drawer – Top drawer activates locking mechanism.
- Includes side handle, four 3" swivel casters, cylinder lock, 2 keys
- Ball bearing slides



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
21"	13-5/8	32-13/16	70	Brown	609664	**1,905.89**

Roller Cabinet – Model 273

KENNEDY

3 Drawer – Swing down panel conceals, locks bottom compartment
- Includes side handle, four 5" casters, cylinder lock, 2 keys



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
27	18	35	99	Brown	609665	**1,296.52**

Roller Cabinets – Models 275(X) & 295(X)

KENNEDY

5 Drawer – Swing down panel conceals, locks bottom compartment.
- Includes side handle, four 5" casters, cylinder lock, 2 keys
- Brown wrinkle finish
- Models 275 and 295 have Friction Drawer Slides
- Models 275X and 295X have Ball Bearing Drawer Slides



Model	Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Code No.	Price $
275	27	18	35	110	609670	**1,560.07**
275X	27	18	35	115	609116	**1,764.71**
295	29	20	35	128	609685	**1,609.50**
295X	29	20	35	133	609117	**1,817.64**

Roller Cabinets – Models 277(X) & 297(X)

KENNEDY

7 Drawer – Swing down panel conceals, locks bottom compartment.
- Includes side handle, four 5" casters, cylinder lock, 2 keys
- Brown wrinkle finish
- Models 277 and 297 have Friction Drawer Slides
- Models 277X and 297X have Ball Bearing Drawer Slides



Model	Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Code No.	Price $
277	27	18	35	127	609675	**1,814.63**
277X	27	18	35	134	609118	**1,976.48**
297	29	20	35	146	609690	**1,893.53**
297X	29	20	35	153	609119	**2,029.41**

Roller Cabinet – Model 310X

KENNEDY

10 Drawer
- 5" x 2" Roller Bearing Casters hold up to 350lbs each
- High security tubular locking system
- Ball bearing drawer slides
- Tubular push handle included



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
39-3/8	18	34	180	Brown	609120	**3,105.89**

Roller Cabinet – Model 315X

KENNEDY

15 Drawer
- 5" x 2" Roller Bearing Casters hold up to 350lbs each
- High security tubular locking system
- Ball bearing drawer slides
- Tubular push handle included



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
39-3/8	18	39	230	Red	609121	**4,164.71**

Roller Cabinet – Model 376X

KENNEDY

6 Drawer – Just the cabinet to fill the needs of those who want workbench height and plenty of tool storage space.
- Four 5" casters, side handle
- Swing down panel conceals storage compartment
- Ball bearing slides



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
27	18	39	131	Red	609695	**1,790.36**

Roller Cabinet – Model 378XB

8 Drawer – Top drawer activates locking mechanism.

- Includes side handle, four 5" swivel casters, cylinder lock, 2 keys
- Ball bearing slides



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
27	18	39	146	Brown	609699	**2,181.18**

Roller Cabinet – Model 4804

4 Drawer – Pad-lockable doors protect 4 drawer cabinet and interior shelves.



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
48	26	35-7/8	345	Brown	609702	**4,400.03**

Roller Cabinet – Model 6012E

12 Drawer – With ball bearing slides on all drawers.



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
60-7/8	32	35-7/8	510	Brown	609703	**7,131.08**

Roller Cabinet – Model 6012S

12 Drawer – With ball bearing slides on all drawers.



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
60-7/8	32	35-7/8	500	Brown	609701	**7,679.70**

Roller Cabinet – Model 2907MP

7 Drawer

- Heavy duty, non-slip drawer liners and full width aluminum drawer pulls
- Large 6" x 2" roller bearing heavy duty casters
- Ball bearing drawer slides
- Coated MDF work surface



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
29	20	40-1/8	198	Red	609122	**2,806.91**

Roller Cabinet – Model 4400MP

10 Drawer

- Heavy duty, non-slip drawer liners and full width aluminum drawer pulls
- Large 6" x 2" roller bearing heavy duty casters
- 10" centre wheel axle adds strength and stability
- Ball bearing drawer slides
- Coated MDF work surface



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
43-3/4	20	37-3/4	316	Red	609124	**5,537.96**

Side Cabinet – Model 205X

5 Drawer

- Ball-bearing slides
- Fits models 295(X), 297(X), 4410, and 4400MP
- Hangs on either side of your roller cabinet
- Metal thickness: Body -18 ga., Drawers - 20 ga.



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Colour	Code No.	Price $
13-5/8	20	29	102	Brown	609126	**1,676.48**

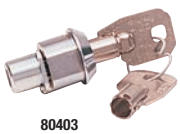
Tubular Key High Security Lock Sets



80401



80402



80403

Lock & Key Set No.	Description	Code No.	Price $
80401	Machinists' and Mechanics' Chests. Replaces Standard Lock No. 80840	609854	**64.23**
80402	Chest Base Models MC22 and MC28. Replaces Standard Lock No. 80843	609856	**64.23**
80403	Chest Base Models 2602, 2603, 2604, 2902, Drill, Tap and End Mill Dispensers 5101, 5103, 5302 and 27", 29" and 34" Roller Cabinets. Replaces Standard Lock No. 80844	609858	**64.23**

5 Drawer Roller Cabinet

- Ball bearing slides with Quick Disconnect
- Heavy duty 4" x 1" casters
- Double wall construction
- Electro-powder coating to resist scratches and solvents
- 10mm top mat



Model	Dimensions (mm)	Weight (kg)	Code No.	Price $
VTC-23	570W x 345D x 650H	34	326530	**1,709.19**

26" PRO+ Roller Cabinet – 4 Drawers

PRO+ Series

4 Drawer

- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	19	36	116	93204	861749	**1,029.51**

26" PRO+ Roller Cabinet – 5 Drawers

PRO+ Series

5 Drawer

- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	19	36	120	93250	866615	**1,122.93**

26" PRO+ Roller Cabinet – 7 Drawers

PRO+ Series

7 Drawer

- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	19	42	155	93270	861750	**1,272.61**

26" PRO+ Roller Cabinet – 11 Drawers

PRO+ Series

11 Drawer

- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26	19	42	165	93211	866614	**1,802.33**

42" PRO+ Roller Cabinet – 12 Drawers

PRO+ Series

12 Drawer

- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
42	19	43.5	247	93212	861647	**2,146.07**

42" PRO+ Roller Cabinet – 15 Drawers

PRO+ Series

15 Drawer

- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
42	19	43.5	262	93215	861677	**2,245.99**

14" PRO+ Right Side Rider – 8 Drawers

PRO+ Series

8 Drawer

- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
14	19	36.5	100	93508	861751	**1,009.21**

19" PRO+ Right Side Rider – 8 Drawers

PRO+ Series

8 Drawer

- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
19	19	36.5	117	93408	861672	**1,073.85**

19" PRO+ Left Side Rider – 8 Drawers

PRO+ Series
8 Drawer
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
19	19	36.5	117	93418	861678	1,073.85

26-1/2" Roller Cabinet – 11 Drawers

PRO Series
11 Drawer
- 2 swivel / 2 fixed casters
- Includes lock and key



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26-1/2	18	42-1/2	155	97211	865003	843.76

26-1/2" Roller Cabinet – 7 Drawers

Marquis Series
7 Drawer
- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26-1/2	18	39-1/8	145	99507SB	865033	1,467.03

26-1/2" Roller Cabinet – 9 Drawers

Marquis Series
9 Drawer
- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
26-1/2	18	39-1/8	150	99509SB	865402	1,580.44

34" Roller Cabinet – 6 Drawers

Marquis Series
6 Drawer
- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
34	19-1/2	39-1/8	220	99206SB	865248	2,199.81

34" Roller Cabinet – 8 Drawers

Marquis Series
8 Drawer
- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
34	19-1/2	39-1/8	235	99208SB	865075	2,646.09

42" Roller Cabinet – 10 Drawers

Marquis Series
10 Drawer
- 2 swivel / 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
42	19	40	295	99210SB	865321	3,788.85

53-3/8" Roller Cabinet – 9 Drawers

Marquis Series
9 Drawer
- 2 swivel/brake, 2 swivel, 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
53-3/8	24	39-1/2	435	99209SB	861752	5,275.74

53-3/8" Roller Cabinet – 13 Drawers

Marquis Series
13 Drawer
- 2 swivel/brake, 2 swivel, 2 fixed casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
53-3/8	24	39-1/2	455	99113SB	861753	6,634.17

40-11/16" Roller Cabinet – 12 Drawers

GRAY TOOLS

XL Series
11 Drawer
- 2 swivel / 2 fixed casters
- Includes lock and key, and drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Gray EDP	Code No.	Price $
40-11/16	18	42-1/2	245	92212	865799	**2,116.89**

28" Roller Cabinet – 10 Drawers

Dynamic

10 Drawer
- 2 swivel / 2 fixed 5" x 2" casters
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
28	18	43.25	163	D069206	866623	**1,414.86**

36" Roller Cabinet – 8 Drawers

Dynamic

8 Drawer
- 2 swivel / 2 fixed 5" x 2" casters
- Includes lock and key, drawer liner kit and top mat
- Sides open to allow for extra storage



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
36	18	39.33	195	D069207	866627	**1,283.01**

16" Side Rider – 6 Drawers

Dynamic

6 Drawer
- Can be installed on the right or left
- Includes lock and key, drawer liner kit and top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
16	18	33.75	77	D069205	866090	**579.87**

52" Industrial Cart – 12 Drawers

Dynamic

12 Drawer
- 4 swivel / 2 fixed 5" x 2" casters
- Includes lock and key, drawer liner kit and PVC top mat



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
52.5	31.64	40.25	378	D069209	866628	**3,376.97**

2 Tray Utility Cart

Dynamic

- 2 swivel / 2 fixed 4" x 1" casters
- Optional middle tray available



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
30	16	36	36	D069101	866629	**388.03**
Optional Middle Tray						
30	16	3		D069103	866630	**103.08**

3 Drawer Utility Cart

Dynamic

- 2 swivel / 2 fixed 4" x 1" casters
- Includes lock and key, drawer liner kit and work top



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
27	18.5	36	50	D069102	865940	**784.45**

Professional Tool Boxes – Models K20/K24

KENNEDY

- Includes lift-out tray with socket set divider
- Brown wrinkle finish



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Model	Code No.	Price $
20-1/8	8-5/8	9-3/4	13	K20	609608	**384.71**
24-1/8	8-5/8	9-3/4	14.5	K24	609614	**441.18**

Cantilever Tool Boxes – Models 1018/1022

KENNEDY

- Create compartments in trays with movable/ removable partitions and divider sets
- One tray has socket set divider
- Brown wrinkle finish



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Model	Code No.	Price $
18-1/8	10-1/6	12-5/8	18.3	1018	609760	**257.68**

3 Drawer Hand Box with Ball Bearing Slides

Dynamic

- Includes drawer liner kit



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
20"	10"	12"	28	D069001	865919	**345.02**

19" Hip Roof Tool Box

- Powder coated paint finish
- Includes tote tray



Width (in.)	Depth (in.)	Height (in.)	Weight (lb)	Dynamic EDP	Code No.	Price $
19"	7"	7.5"	9	D069002	866631	**77.51**

Tool Boxes

- ABS plastic
- VTB-102 has two levered trays
- VTB-901 has one removable tray



VTB-102

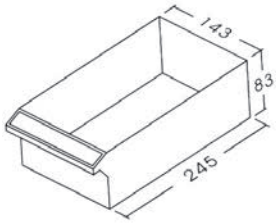


VTB-901

Model	Dimensions (mm)	Code No.	Price $
VTB-102	420W x 235D x 180H	326546	**114.31**
VTB-901	378W x 182D x 144H	326547	**44.34**

Parts Cabinets

- Steel plate cover with Zinc
- Drawer material: GPS

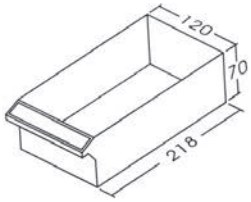




VA6-212H



VA6-330H





VA7-324P



VA7-448P

Model No.	Width (mm)	Depth (mm)	Height (mm)	No. of Drawers	Weight (kgs.)	Code No.	Price $
VA6-212H	362	265	571	12	10.8	326534	**527.64**
VA6-330H	533	264	937	30	25.3	326536	**960.40**
VA7-324P	440	222	642	24	15.5	326538	**602.78**
VA7-448P	586	222	937	48	27.5	326540	**922.94**
VA1-525	586	222	350	25	10.0	326542	**625.29**
VA1-575	586	222	937	75	32.3	326544	**1,289.67**

End Mill Dispenser Cabinets

- Three drawer
- All steel



Description	Model No.	Code No.	Price $
Two flute single and double end for 1/16 to 1	CZD10	113905	**976.32**
Four flute single and double end for 1/16 to 1	CZD11	113906	**976.32**
Two and four flute single and double end for 1/8 to 1 x 8ths	CZD12	113907	**246.36**

Drill Dispenser Cabinets

- 14.625" x 7.375" x 7.75"
- 10.25lbs
- Stackable for larger inventories
- One piece drawer slide for long useful life



Description	Case No.	Code No.	Price $
Steel Cabinet holds 1/16-1/2 x 64ths Jobber Drills	13000	113826	**140.24**
Steel Cabinet holds #1-60 Jobber Drills	13025	113827	**177.32**


TOOLING
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WORLD.



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Y

YUASA TOOLING I 7

TOOLING YOUR WORLD.

Tooling Package Quote Request Forms



Build your own tooling package and save!

Find these forms on www.SowaTool.com or fax back:

519-748-9304 TF: 1-866-511-7692

CAT40 Tooling Package Quote Request Form

CAT40 End Mill Holders

- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel
- AT2 Taper Accuracy
- RFID chip hole



PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia.	Gauge Length	Code No.	Quantity
CT40	1/8	1.35*	531069	
CT40	1/8	2.50	531070	
CT40	1/8	4.00	531071	
CT40	3/16	1.38*	531072	
CT40	3/16	2.50	531073	
CT40	3/16	4.00	531074	
CT40	1/4	1.38*	531000	
CT40	1/4	2.50	531002	
CT40	1/4	4.00	531004	
CT40	1/4	9.00	531005	
CT40	5/16	1.38*	531006	
CT40	5/16	2.50	531008	
CT40	5/16	4.00	531010	
CT40	5/16	9.00	531011	
CT40	3/8	1.38*	531012	
CT40	3/8	2.50	531014	
CT40	3/8	4.00	531016	
CT40	3/8	5.00	531018	
CT40	3/8	9.00	531031	
CT40	7/16	2.50	531020	
CT40	7/16	4.00	531022	
CT40	7/16	9.00	531033	
CT40	1/2	1.75*	531024	
CT40	1/2	2.50	531026	
CT40	1/2	4.00	531028	
CT40	1/2	5.00	531030	
CT40	1/2	9.00	531035	
CT40	5/8	1.75*	531032	
CT40	5/8	3.00	531034	
CT40	5/8	4.00	531036	
CT40	5/8	5.50	531038	
CT40	5/8	9.00	531037	
CT40	3/4	1.75*	531040	
CT40	3/4	3.00	531042	
CT40	3/4	4.00	531044	
CT40	3/4	5.50	531046	
CT40	3/4	9.00	531039	
CT40	7/8	1.75*	531048	
CT40	7/8	3.50	531050	
CT40	7/8	6.00	531052	
CT40	7/8	9.00	531041	
CT40	1	2.00*	531054	
CT40	1	4.00	531056	
CT40	1	6.00	531058	
CT40	1	9.00	531043	
CT40	1-1/4	2.00*	531060‡	
CT40	1-1/4	4.00	531062	
CT40	1-1/4	6.00	531064	
CT40	1-1/2	4.50	531066	
CT40	1-1/2	6.00	531068	

* Stubby Length ‡ Not DIN Coolant

CAT40 Shell Mill Holders

- DIN coolant option - standard
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole



Taper	Hole Dia.	Gauge Length	Code No.	Quantity
CT40	1/2	1.75	531190	
CT40	3/4	1.75	531192	
CT40	3/4	4.00	531194	
CT40	3/4	6.00	531195	
CT40	1	1.75	531196	
CT40	1	4.00	531198	
CT40	1	6.00	531199	
CT40	1-1/4	2.00	531200	
CT40	1-1/4	4.00	531202	
CT40	1-1/4	6.00	531203	
CT40	1-1/2	2.00	531204	
CT40	1-1/2	4.00	531206	

CAT40 ER Collet Chucks

- DIN coolant option - standard
- All ground body
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0003" at 4xDia.
- RFID Chip Hole
- Wrench not included
- AT2 Taper Accuracy



PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Collet Series	Collet Range	Gauge Length	Code No.	Quantity
CT40	ER11**	0.019-0.275	2.50	531400	
CT40	ER11**	0.019-0.275	4.00	531402	
CT40	ER11**	0.019-0.275	6.00	531404	
CT40	ER16**	0.019-0.406	2.50	531406	
CT40	ER16**	0.019-0.406	3.50	531408	
CT40	ER16**	0.019-0.406	4.00	531405	
CT40	ER16**	0.019-0.406	6.00	531410	
CT40	ER16**	0.019-0.406	9.00	531411	
CT40	ER20**	0.039-0.511	2.50	531412	
CT40	ER20**	0.039-0.511	4.00	531414	
CT40	ER20**	0.039-0.511	6.00	531416	
CT40	ER20**	0.039-0.511	9.00	531417	
CT40	ER25	0.039-0.629	2.50	531418	
CT40	ER25	0.039-0.629	4.00	531420	
CT40	ER25	0.039-0.629	6.00	531422	
CT40	**ER32**	**0.078-0.787**	**0.750**	**531401***	
CT40	ER32	0.078-0.787	2.50	531421	
CT40	ER32	0.078-0.787	3.13	531424	
CT40	ER32	0.078-0.787	4.00	531423	
CT40	ER32	0.078-0.787	5.00	531426	
CT40	ER32	0.078-0.787	6.00	531425	
CT40	ER32	0.078-0.787	9.00	531419	
CT40	ER40	0.118-1.023	2.50	531427	
CT40	ER40	0.118-1.023	3.13	531428	
CT40	ER40	0.118-1.023	4.00	531429	
CT40	ER40	0.118-1.023	5.00	531430	
CT40	ER40	0.118-1.023	6.00	531431	

* ER Shorty collet chuck, Not DIN coolant ** Hex Nut

Company:

Contact:

Phone:

Fax:

Email:

Notes:

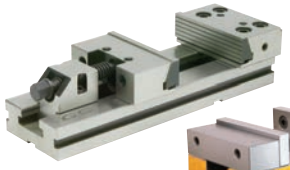
ER Collet Sets



* Case may not be as shown

Collet	Description	Range	Code No.	Quantity
ER11	Inch Size 7pc	1/16-1/4 x 32nds	337401	
ER11	Metric 13pc	1-7mm	337379	
ER16	Inch Size 11pc	1/16-3/8 x 32nds	337403	
ER16	Metric 10pc	1-10mm	337380	
ER20	Inch Size 15pc	1/16-1/2 x 32nds	337404	
ER20	Metric 12pc	2-13mm	337382	
ER25	Inch Size 17pc	1/8-5/8 x 32nds	337405	
ER25	Metric 15pc	2-16mm	337383	
ER32	Inch Size 21pc	1/8-3/4 x 32nds	337407	
ER32	Metric 18pc	2-20mm	337384	
ER40	Inch Size 29pc	1/8-1" x 32nds	337409	
ER40	Metric 23pc	3.5-26mm	337386	

Modular & Milling Machine Vises



Modular Vise



Milling Machine Vise

Model	Jaw Width	Jaw Opening	Code No.	Quantity
GS675	6	7.5	327275M	
GS160G	6	9.13	327320	
GS810	8	10.0	327300	
#3 Modular	6	12	382017	

NC/CNC Trolley

Complete Tool Trolley with 4 Tool Trays and Inserts.

- Trays bolt in
- (W)1002mm x (D)650mm x (H)830mm
- Weight: 51kgs



Desc.	Taper Type	Inserts Per Tray	Code No.	Quantity
Trolley	40	4 x 7	326985	
Trolley	50	4 x 5	326995	

CAT50 Tooling Package Quote Request Form

CAT50 End Mill Holders

- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole



PREMIUM BALANCE
G6.3 at 25,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia.	Gauge Length	Code No.	Quantity
CT50	1/4	1.38*	531082	
CT50	1/4	2.50	531084	
CT50	1/4	4.00	531086	
CT50	1/4	6.00	531088	
CT50	1/4	8.00	531090	
CT50	5/16	2.50	531092	
CT50	5/16	4.00	531094	
CT50	5/16	6.00	531096	
CT50	3/8	1.38*	531098	
CT50	3/8	2.50	531100	
CT50	3/8	4.00	531102	
CT50	3/8	6.00	531104	
CT50	3/8	8.00	531106	
CT50	3/8	14.00	531107	
CT50	7/16	2.50	531108	
CT50	7/16	4.00	531110	
CT50	7/16	6.00	531112	
CT50	7/16	14.00	531113	
CT50	1/2	1.75*	531116	
CT50	1/2	2.63	531118	
CT50	1/2	4.00	531120	
CT50	1/2	6.00	531122	
CT50	1/2	8.00	531124	
CT50	1/2	14.00	531125	
CT50	9/16	6.00	531133	
CT50	5/8	1.75*	531126	
CT50	5/8	3.00	531128	
CT50	5/8	4.00	531130	
CT50	5/8	6.00	531132	
CT50	5/8	8.00	531134	
CT50	5/8	14.00	531131	
CT50	3/4	1.75*	531136	
CT50	3/4	3.00	531138	
CT50	3/4	4.00	531140	
CT50	3/4	6.00	531142	
CT50	3/4	8.00	531144	
CT50	3/4	14.00	531145	
CT50	7/8	1.75*	531146	
CT50	7/8	3.75	531148	
CT50	1	2.00*	531152	
CT50	1	4.00	531154	
CT50	1	6.00	531156	
CT50	1	8.00	531158	
CT50	1-1/4	2.00*	531160	
CT50	1-1/4	4.00	531162	
CT50	1-1/4	6.00	531164	
CT50	1-1/4	8.00	531166	
CT50	1-1/2	2.25*	531168	
CT50	1-1/2	4.50	531170	
CT50	1-1/2	7.00	531172	
CT50	1-1/2	9.00	531174	
CT50	2	3.63*	531176	
CT50	2	5.37	531178	
CT50	2	8.00	531180	
CT50	2	10.00	531182	
CT50	2-1/2	6.00	531184	

* Stubby Length

CAT50 Shell Mill Holders

- DIN coolant option - Standard
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole



Taper	Dia.	Gauge Lengh	Code No.	Quantity
CT50	3/4	1.75	531208	
CT50	3/4	4.00	531210	
CT50	3/4	6.00	531212	
CT50	3/4	8.00	531214	
CT50	1	1.75	531216	
CT50	1	4.00	531218	
CT50	1	6.00	531220	
CT50	1	8.00	531222	
CT50	1-1/4	1.75	531224	
CT50	1-1/4	4.00	531226	
CT50	1-1/4	6.00	531228	
CT50	1-1/4	8.00	531230	
CT50	1-1/2	2.00	531232	
CT50	1-1/2	4.00	531234	
CT50	1-1/2	6.00	531236	
CT50	1-1/2	8.00	531238	
CT50	2	2.00	531240	
CT50	2	4.00	531242	
CT50	2	6.00	531244	

CAT50 ER Collet Chucks

- DIN coolant option - standard
- All ground body
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- TIR, 0.0003" at 4xDia.
- RFID Chip Hole
- Wrench not included
- AT2 Taper Accuracy



PREMIUM BALANCE
G2.5 at 25,000rpm
CERTIFICATE INCLUDED

Taper	Collet Series	Collet Range	Gauge Length	Code No.	Quantity
CT50	ER16**	0.019-0.406	4.12	531432	
CT50	ER16**	0.019-0.406	6.00	531434	
CT50	ER16**	0.019-0.406	8.00	531436	
CT50	ER16**	0.019-0.406	12.00	531437	
CT50	ER20**	0.039-0.511	2.50	531438	
CT50	ER20**	0.039-0.511	4.00	531440	
CT50	ER20**	0.039-0.511	6.00	531442	
CT50	ER20**	0.039-0.511	8.00	531444	
CT50	ER20**	0.039-0.511	12.00	531445	
CT50	ER25	0.039-0.629	2.50	531446	
CT50	ER25	0.039-0.629	4.00	531448	
CT50	ER25	0.039-0.629	6.00	531450	
CT50	ER25	0.039-0.629	8.00	531452	
CT50	**ER32**	**0.078-0.787**	**0.750**	**531403***	
CT50	ER32	0.078-0.787	4.00	531454	
CT50	ER32	0.078-0.787	6.00	531456	
CT50	ER32	0.078-0.787	8.00	531458	
CT50	ER32	0.078-0.787	12.00	531459	
CT50	ER40	0.118-1.023	4.00	531460	
CT50	ER40	0.118-1.023	6.00	531462	
CT50	ER40	0.118-1.023	8.00	531464	

* ER Shorty collet chuck, Not DIN coolant ** Hex Nut

Company:

Contact:

Phone:

Fax:

Email:

Notes:

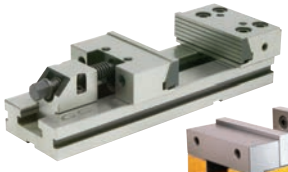
ER Collet Sets



* Case may not be as shown

Collet	Description	Range	Code No.	Quantity
ER11	Inch Size 7pc	1/16-1/4 x 32nds	337401	
ER11	Metric 13pc	1-7mm	337379	
ER16	Inch Size 11pc	1/16-3/8 x 32nds	337403	
ER16	Metric 10pc	1-10mm	337380	
ER20	Inch Size 15pc	1/16-1/2 x 32nds	337404	
ER20	Metric 12pc	2-13mm	337382	
ER25	Inch Size 17pc	1/8-5/8 x 32nds	337405	
ER25	Metric 15pc	2-16mm	337383	
ER32	Inch Size 21pc	1/8-3/4 x 32nds	337407	
ER32	Metric 18pc	2-20mm	337384	
ER40	Inch Size 29pc	1/8-1" x 32nds	337409	
ER40	Metric 23pc	3.5-26mm	337386	

Modular & Milling Machine Vises



Modular Vise



Milling Machine Vise

Model	Jaw Width	Jaw Opening	Code No.	Quantity
GS675	6	7.5	327275M	
GS160G	6	9.13	327320	
GS810	8	10.0	327300	
#3 Modular	6	12	382017	

NC/CNC Trolley

Complete Tool Trolley with 4 Tool Trays and Inserts.

- Trays bolt in
- (W)1002mm x (D)650mm x (H)830mm
- Weight: 51kgs



Desc.	Taper Type	Inserts Per Tray	Code No.	Quantity
Trolley	40	4 x 7	326985	
Trolley	50	4 x 5	326995	

BT40 Tooling Package Quote Request Form

BT40 End Mill Holders

- DIN coolant option - standard
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole



PREMIUM BALANCE
G6.3 at 30,000rpm
CERTIFICATE INCLUDED

Taper	Hole Dia.	Gauge Length	Code No.	Quantity
BT40	1/8	1.38*	531019	
BT40	1/8	2.50	531021	
BT40	1/8	4.00	531023	
BT40	3/16	1.38*	531025	
BT40	3/16	2.50	531027	
BT40	3/16	4.00	531029	
BT40	1/4	1.38*	532018	
BT40	1/4	2.50	532020	
BT40	1/4	4.00	532022	
BT40	5/16	1.38*	532024	
BT40	5/16	2.50	532026	
BT40	5/16	4.00	532028	
BT40	3/8	1.38*	532030	
BT40	3/8	2.50	532032	
BT40	3/8	4.00	532034	
BT40	7/16	2.50	532036	
BT40	1/2	1.75*	532038	
BT40	1/2	2.50	532040	
BT40	1/2	4.00	532042	
BT40	5/8	1.75*	532044	
BT40	5/8	2.50	532046	
BT40	5/8	4.00	532048	
BT40	3/4	1.75*	532050	
BT40	3/4	2.50	532052	
BT40	3/4	4.00	532054	
BT40	7/8	3.38	532056	
BT40	7/8	6.00	532058	
BT40	1	2.00*	532060	
BT40	1	3.56	532062	
BT40	1	6.00	532064	
BT40	1-1/4	2.00*	532066‡	
BT40	1-1/4	3.56	532068	
BT40	1-1/4	6.00	532070	
BT40	1-1/2	4.50	532072	
BT40	1-1/2	6.00	532074	

* Stubby Length ‡ Not DIN Coolant

Build your own tooling package and save!

BT Shell Mill Holders

- DIN coolant option - standard
- All ground body, nose, pilot, flange
- TIR, 0.0001" / 0.003mm OD to ID
- AT2 Taper Accuracy
- Certified Steel
- RFID chip hole



Taper	Dia.	Gauge Length	Code No.	Quantity
BT40	1/2	1.75	532086	
BT40	3/4	1.75	532088	
BT40	3/4	4.00	532111	
BT40	3/4	6.00	532114	
BT40	1	1.75	532090	
BT40	1	4.00	532115	
BT40	1	6.00	532117	
BT40	1-1/4	2.00	532092	
BT40	1-1/4	4.00	532119	
BT40	1-1/4	6.00	532121	
BT40	1-1/2	2.00	532094	

BT Taper ER Collet Chucks

- DIN coolant option - standard
- All ground body
- Factory balanced to save spindle life, tool life and increased productivity
- Threaded through holes for a back-up screw (tool stop) or coolant through when removed
- Wrench not included
- AT2 Taper Accuracy
- RFID Chip Hole



PREMIUM BALANCE
G2.5 at 30,000rpm
CERTIFICATE INCLUDED
BT40

Taper	Collet Series	Collet Range	Gauge Length	Code No.	Quantity
BT40	ER11**	0.019-0.275	4.00	532176	
BT40	ER11**	0.019-0.275	6.00	532178	
BT40	ER16**	0.019-0.406	3.50	532180	
BT40	ER16**	0.019-0.406	5.00	532182	
BT40	ER20**	0.039-0.511	2.50	532184	
BT40	ER20**	0.039-0.511	4.00	532186	
BT40	ER20**	0.039-0.511	6.00	532188	
BT40	ER25	0.039-0.629	2.25	532190	
BT40	ER25	0.039-0.629	4.00	532192	
BT40	ER25	0.039-0.629	6.00	532194	
BT40	**ER32**	**0.078-0.787**	**1.06**	**‡532191***	
BT40	ER32	0.078-0.787	3.13	532196	
BT40	ER32	0.078-0.787	5.00	532198	
BT40	ER40	0.118-1.023	3.13	532200	
BT40	ER40	0.118-1.023	5.00	532202	

* Not DIN Coolant
** Hex Nut
‡ ER Shorty Collet Chuck

Company:

Contact:

Phone:

Fax:

Email:

Notes:

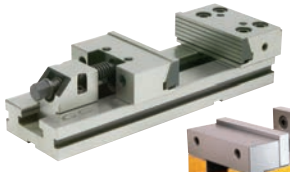
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