GenSwiss

Advancing Small Parts Manufacturing

Celebrating 15 Years

TOOLING FOR SWISS-TYPE CNC MACHINES

Version 10.17

Introduction...

Genevieve Swiss Industries, Inc. brings to market unique high precision tools and accessories to advance small parts manufacturing and to enhance Swiss-type machine processes. Our quality product line of cutting tools, machine tool holders and live spindles are imported from Switzerland, primarily from three world-class manufacturers, PCM Willen SA, UTILIS AG, and Louis Belet SATo provide quality tooling and innovative solutions that advance small parts manufacturing.

GenSwiss®
Advancing Small Parts Manufacturing

UTILIS® PCM®
Tooling for High Technology

LOUIS BELET® REGO-FIX®
Swiss Cutting tools

We have more than 20-years of experience in the industry, helping to improve distribution efficiencies and manufacturing productivity. We strive to deliver products to meet and exceed customer expectations, providing reliable service and application solutions for YOUR critical small parts manufacturing.

GenSwiss product lines include a full complement of static cutting tools and inserts, boring bars, rotary tooling such as micro drills, end mills, key cutters, reamers & broaches, in addition to tool holders, collet sleeves & collets and Swiss-type machine cutting oils.

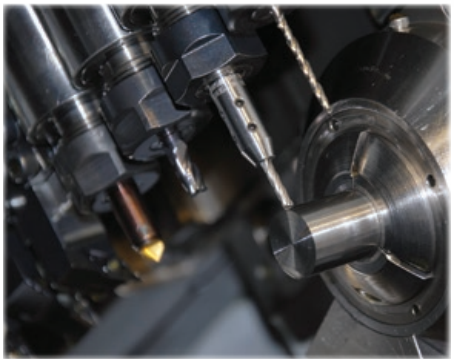
Here at GenSwiss we will help you equip your machines for today's new and more demanding manufacturing requirements. We believe our innovative industrial products and services will help YOU achieve greater productivity and profitability!

Products & Services:

- Rotary broaching tools from PCM®
- Thread Whirling Cutter Rings & Thread Form Inserts
- Swiss Made Slitting Saws and Arbors
- Specialized Swiss-Type Turning Tools from UTILIS®
- Swiss Silver Premium Cutting Oils
- Magnetic Finishing, Small Part Finishing & Micro-deburring systems
- Tool Holders for Citizen, Star, Tsugami, Tornos, Maier, Nexturn, Okuma, & other VDI Turret Style Machines
- Application and process assistance

Mission Statement:
To provide quality tooling and innovative solutions that advance small parts manufacturing.

Business Philosophy:
Sincerity in serving the needs of others and the rewards will come.



Instagram

YouTube

Live Tooling Repairs & Restoration

- **Live Swiss Machine Attachments Restored to Factory Specification**
- **PCM and All Major OEM Brands**
- **Save Money By Shipping to GenSwiss Instead of Overseas**

ROTARY BROACHING GUIDE

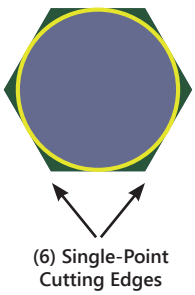
Rotary Broaching is a fast and easy method of producing polygonal drive features in turned parts. Genevieve Swiss offers Premium Rotary Broaching products from PCM, the European industry leader in rotary broaching tools.

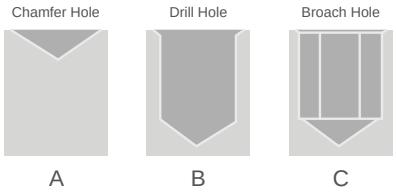
PCM be driven.

A Guide To Internal Rotary Broaching

During the rotary broach operation, the broach tool approaches the work piece at a small angle. The tool spins synchronously with the part, creating a wobble effect that causes the leading cutting edge to roate in and out of the cut like a cam. This method shapes internal and external polygonal profiles at a single-point. Compared to punch forming, which shapes the entire profile at once, rotary broaching requires 80% less force, offers increased tool life, and lowers machine maintenence cost over time.

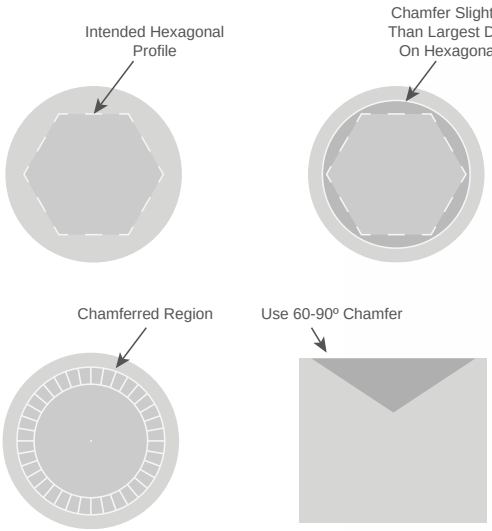
The advantages offered by rotary broaching result from proper preparation prior to the broaching operation. The most important part of this preparation includes drilling a hole which allows for broached material to accumulate, preventing damage to the broach tool and machine. Continue with the guide below for some important tips on rotary broaching.





Preparing To Broach A Hole

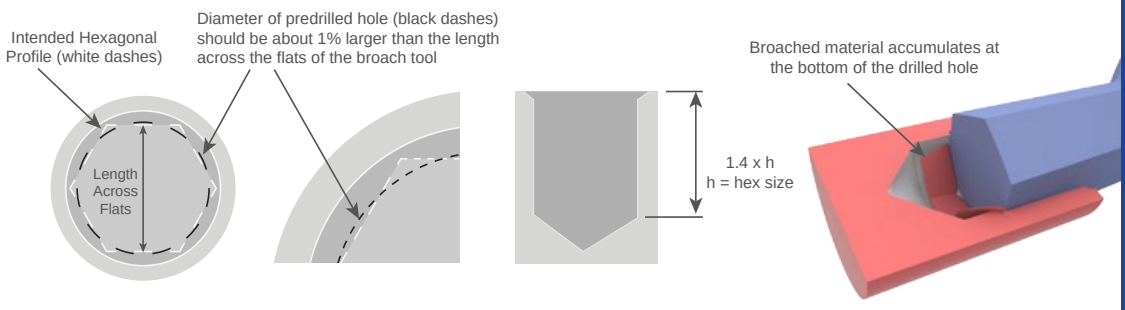
First, prepare the hole with a 60º - 90º chamfer slightly bigger than the largest dimension of the broach tool. A chamfer provides a guide for the broach tool.



GenSwiss Spot Drills
Pgs. 36-37

Drilling The Hole

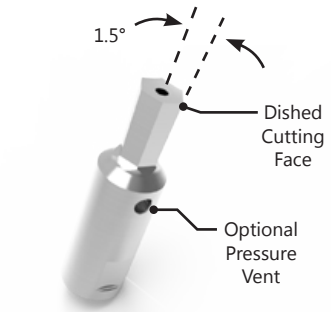
For internal broaching, the diameter of the hole should be 1 percent larger than the diameter across the flats of the broach's hex shape and drilled as deep as possible. A depth of 1.3 to 1.5 times the depth of the broached profile is recommended. Drilling to this depth is vital, leaving room for material accumulation during the broaching process. If material accumulates during the drilling process, re-drill the hole with a smaller drill.



If A Drill Radius Is Not Allowed

Many medical and aerospace applications do not allow for a drill radius along the broached walls of the part. When exact concentricity is required, chamfer, drill, and then pre-bore the hole. Using a micro bore allows for extra control and accuracy. The use of a drill might lead to inaccuracies due to deflection and other conditions.

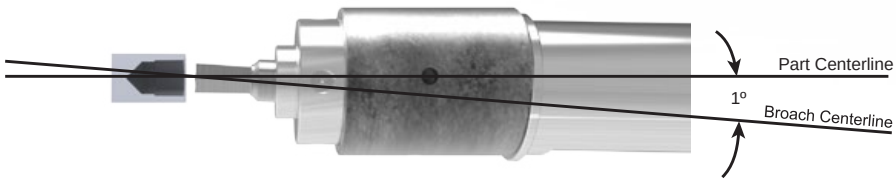
NOTE: Broaching into a tight hole will not allow air or coolant to escape, resulting in a build up of pressure. This can cause the part or tool to push back, damaging the tool or machine. Use a GenSwiss broach that has a pressure relief vent.



Micro Bores
Pgs. 11 - 28

Broaching The Hole

Rotary broach holders hold the broach tool at a 1° angle relative to the centerline of the work piece, allowing for high speed applications from 1,500 rpm up to 3,000 rpm. As the broach holder rotates, the broach tool is thrust into the pre-drilled hole.



The cutting edges of the broach can dig into the part face as the tool comes into contact with the rotating material. At higher speeds, this dig mark is more pronounced and tool life suffers. For best results, start the broach operation at a slow rotation, and then increase the speed when it is in full contact. Reversing the spindle rotation halfway into the part can reduce spiraling.

The feed rate mainly depends on the material characteristics. In mild steel, 0.0012 to 0.0024 inches per revolution is recommended. If the machine thrust force is sufficient, the feed can be doubled as machinability increases. In most cases the maximum feed rate should not exceed 0.03 times the profile diameter. A slower feed rate will produce an improved finish with finer lines along the sidwalls of the broached hole. By increasing the feed rate, the cutting cycle will be faster, but the broaching lines will be more pronounced, leaving a coarse finish.

Give GenSwiss A Call For More Information On Rotary Broaching

Rotary Broaching Holders - Swiss Type

2150 Series

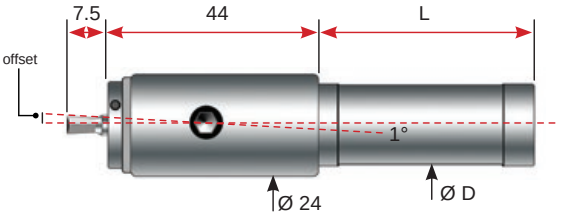
This Rotary Broach Holder is ideal for micro-broaching applications and is for use on the smallest of CNC Swiss machines or older cam-style screw machines. Recommended for broaching profiles smaller than 2mm in diameter.

Eccentric Spindle Design:
This unit is designed off-center. An X-axis offset must be programmed to align the center of the broach with the center of the work piece. This special design enables broaching under 2 mm.

- Max Thrust Force: 112lbs
- Uses 5mm Shank Broaches
- FOR MICRO-BROACHING .078" (2mm) & UNDER

SMALLEST ROTARY BROACH HOLDER AVAILABLE TO THE INDUSTRY

Part No	D	L
RBH-2150-190	.750"	1.5"
RBH-2150-070	7mm	30mm
RBH-2150-080	8mm	30mm
RBH-2150-100	10mm	38mm
RBH-2150-120	12mm	38mm
RBH-2150-160	16mm	38mm
RBH-2150-220	22mm	75mm

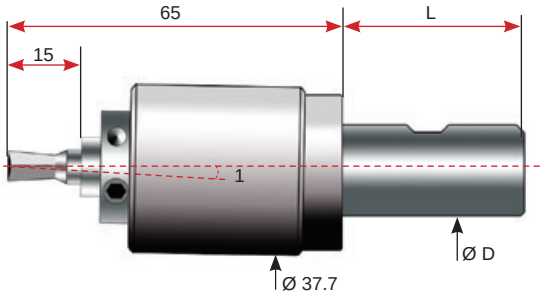


2100 Series

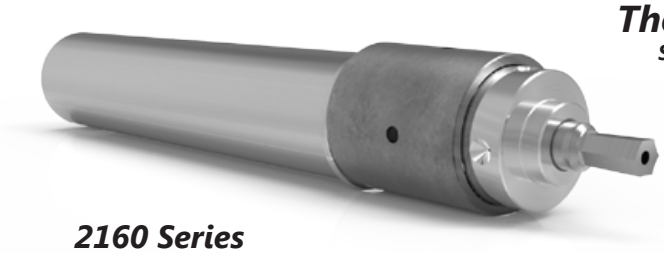
Swiss-Type Broach holder designed for easy setup and centering of the tool to the work piece on CNC Swiss machines and gang lathes. Eliminates the need to indicate the holder to center when used with qualified OAL 8mm shank broach tools. Recommended profile size range for this holder is .050" to .375"

- Max Thrust Force: 900lbs
- Uses 8mm Shank Broaches
- Recommended Profile Size .050" to 0.375"

Part No	D	L
RBH-2100-158	.625"	1.5"
RBH-2102	.750"	1.5"
RBH-2104	1.00"	1.5"
RBH-2100-16	16mm	38mm
RBH-2101	20mm	38mm
RBH-2103	25mm	38mm



Rotary Broaching Holders - Swiss Type



The Original

Swiss-Type Rotary Broach Holder

- Max Thrust Force: 2250lbs
- Uses 8mm Shank Broaches
- Recommended Profile Size .050" to .375"

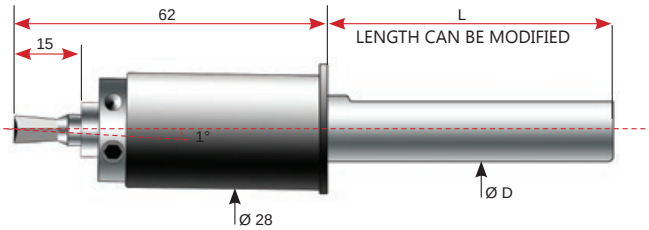
2160 Series

THE ORIGINAL & Best Choice for Swiss Machines and Precision Lathes. The 2160 Series Swiss-Type Rotary Broach holder is the premier choice for performing broaching applications in your Swiss-Type CNC machine or gang-style lathe. Eliminates the need to indicate for center location. Recommended profile size range for this holder is .050" to .375"

Key features

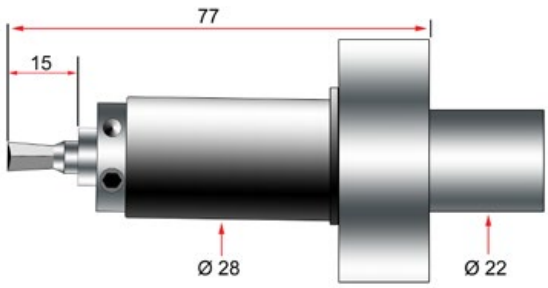
- No Center Indicating Required
- Ideal for Medical & Aerospace Fastener Applications
- Low Profile; Fits Machines With Minimal Interference
- Shank Length Is Customizable. No Need For Bushings
- Short Head Length Is Ideal For Sub-Spindle Applications
- Longer OAL Broach Tools Can Be Used By Adjusting X-Axis

Part No	D	L
RBH-2160-158-038	.625"	1.50"
RBH-2160-190-100	.750"	4.00"
RBH-2160-254-120	1.00"	4.75"
RBH-2160-120-038	12mm	38mm
RBH-2160-140-038	14mm	38mm
RBH-2160-160-038	16mm	38mm
RBH-2160-200-100	20mm	100mm
RBH-2160-220-100	22mm	100mm
RBH-2160-230-100	23mm	100mm
RBH-2160-250-120	25mm	120mm



2160 Series - Flange Mount For STAR Machines

Part No	D	L	Machine Type
RBH-2160-160-038-MBG-T16	22mm	25mm	SR10, SR20, SR32, ECAS20



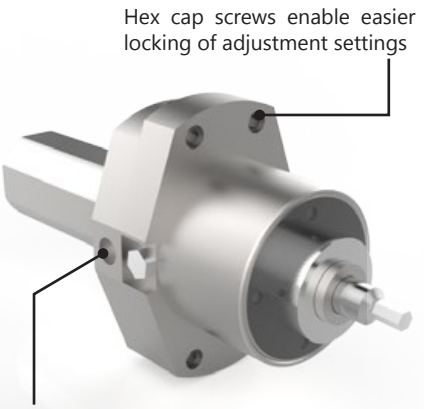
Rotary Broaching Holders - For Turning Centers

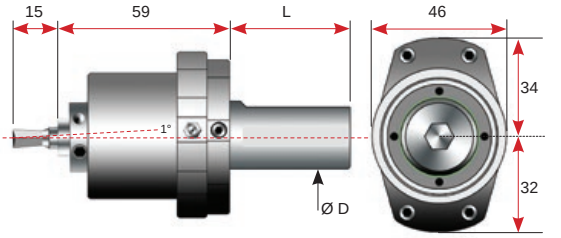
6180 / 6181 / 26000 Series

Adjustable Broaching holder designed for CNC Lathes & Turning centers. Can be adapted with a special die to produce external broach forms such as splines.

- Max Thrust Force: 2700lbs
- Uses 8mm Shank Broaches

Round Shank	Shank w/ flats	D	L
RBH-6180-158	RBH-6181-158	.625	1.575
RBH-6180-160	RBH-6181-160	16mm	40mm
RBH-6180-190	RBH-6181-190	3/4"	1.575
RBH-6180-200	RBH-6181-200	20mm	40mm
RBH-6180-250	RBH-6181-250	25mm	50mm
RBH-6180-254	RBH-6181-254	1"	1.970"
RBH-6180-300	RBH-6181-300	30mm	60mm
RBH-6180-317	RBH-6181-317	1.250"	2.365"
RBH-6180-320	RBH-6181-320	32mm	60mm



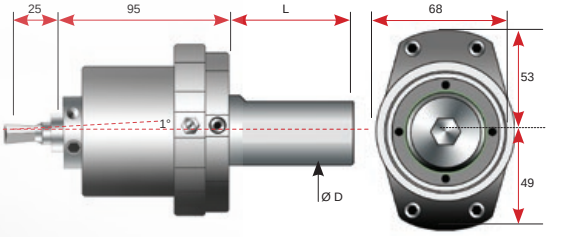


6190 / 6191 / 26300 Series

Adjustable broaching holder designed for the largest of turning centers and CNC lathes. This broaching holder features a robust bearing configuration to withstand the high forces required to attain some of the largest of broach profiles.

- Max Thrust Force: 9000lbs
- Uses 12mm Shank Broaches

Round Shank	Shank w/ flats	D	L
RBH-6190-200		20mm	55mm
RBH-6190-250	RBH-6191-250	25mm	55mm
RBH-6190-254	RBH-6191-254	1"	2.165"
RBH-6190-300	RBH-6191-300	30mm	55mm
RBH-6190-317	RBH-6191-317	1.250"	2.165"
RBH-6190-320	RBH-6191-320	32mm	55mm
	RBH-6191-350	35mm	55mm
	RBH-6191-381	1.5"	2.165"
	RBH-6191-508	2.00"	2.165"

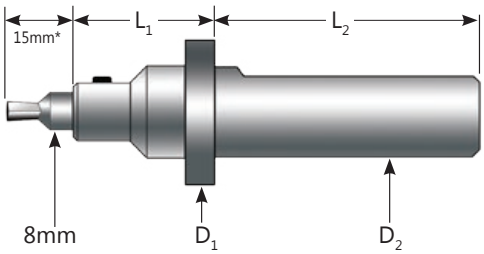


Static Punch Broach Holders

Static Punch Holders

When special ID forms are required on your Swiss-style machining jobs, look to our static punch broach holders for ease of use, repeatability and rigidity. Able to position a broach form tool at a known location for timing or positioning of the broached profile.

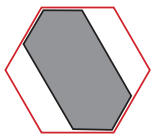
Part No.	D1	D2	L1	L2
SBH-158250-125-8M	1.00"	.625"	1.25"	2.5"
SBH-190250-125-8M	1.00"	.750"	1.25"	2.5"
SBH-200250-125-8M	1.00"	20mm	1.25"	2.5"
SBH-220250-125-8M	1.00"	22mm	1.25"	2.5"
SBH-254250-125-8M	1.10"	1.00"	1.25"	2.5"



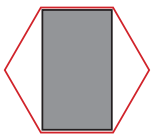
*Only applies when standard 2110 series broaches are used

Punch Broach Tools

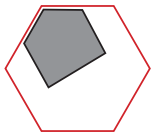
Possible Punch Shapes for Index Broaching:



Diamond Punch

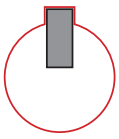


Rectangular Punch

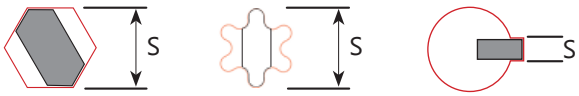


Single Point Punch

Partial Hexalobe

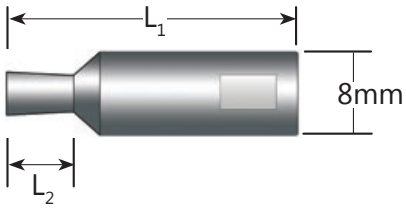


Keyway Shaper



Finished Shape	S	L1	L2
Square | Hex | 6-Lobe | Key			

Partial forms are quoted on request. Contact us about your application! Tools made from standard 8x28mm blanks can be rapidly delivered!



Rotary Broaching Tools

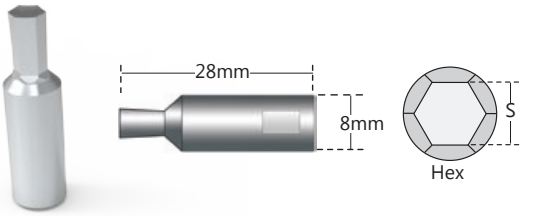
Our Rotary Broach Tools are held to high standards of quality to ensure increased positioning accuracy and straighter broach results in order to meet the rigorous requirements of the medical, aerospace & automotive fastener industries.

2000 Series Hexagon Broaches

For use with: 2100, 2160 & 6180 Series Rotary Broach Holders

Part No	Nom.	S	Tolerance
RBT-2000-0500	-----	0.050"	+.0010" /-.0"
RBT-2000-0625	1/16	0.0625"	+.0010" /-.0"
RBT-2000-0781	5/64	0.0781"	+.0010" /-.0"
RBT-2000-0938	3/32	0.0938"	+.0015" /-.0"
RBT-2000-1094	7/64	0.1094"	+.0017" /-.0"
RBT-2000-0125	1/8	0.125"	+.0020" /-.0"
RBT-2000-1406	9/64	0.1406"	+.0020" /-.0"
RBT-2000-1563	5/32	0.1563"	+.0024" /-.0"
RBT-2000-1719	11/64	0.1719"	+.0024" /-.0"
RBT-2000-1875	3/16	0.1875"	+.0025" /-.0"
RBT-2000-2188	7/32	0.2188"	+.0025" /-.0"
RBT-2000-2500	1/4	0.250"	+.0030" /-.0"
Recommended Depth of Cut = 1.5xS			

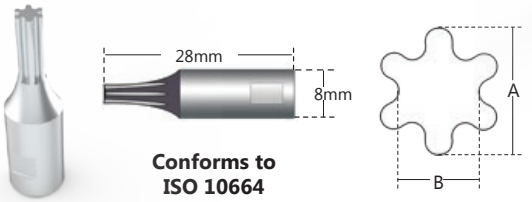
Part No	Nom.	S	Tolerance
RBT-2000-0510	1.3mm	0.051"	+.045mm /-.0
RBT-2000-0590	1.5mm	0.059"	+.045mm /-.0
RBT-2000-0790	2mm	0.079"	+.045mm /-.0
RBT-2000-0980	2.5mm	0.098"	+.045mm /-.0
RBT-2000-1180	3mm	0.118"	+.06mm /-.0
RBT-2000-1570	4mm	0.157"	+.06mm /-.0
RBT-2000-1970	5mm	0.197"	+.095mm /-.0
RBT-2000-2360	6mm	0.236"	+.095mm /-.0
Recommended Depth of Cut = 1.5xS			



2122 Series Hexalobular Broach Tools

For use with: 2100, 2160 & 6180 Series Rotary Broaching Holders

Part No	Socket No.	A	B
RBT-2122-T6	T6	.0688"	.0500"
RBT-2122-T8	T8	.0944"	.0688"
RBT-2122-T10	T10	.1102"	.0807"
RBT-2122-T15	T15	.1318"	.0944"
RBT-2122-T20	T20	.1555"	.1122"
RBT-2122-T25	T25	.1771"	.1279"
RBT-2122-T30	T30	.2204"	.1594"
RBT-2122-T40	T40	.2657"	.1909"
RBT-2122-T45	T45	.3122"	.2220"
Recommended Depth of Cut = 1.5xB			

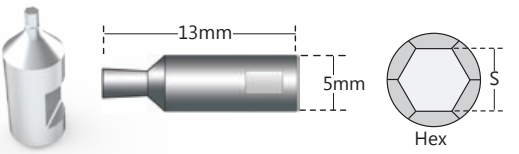


Conforms to ISO 10664

2151 Series Broach Tools

For use with: 2150 Series Micro-Broach Holder

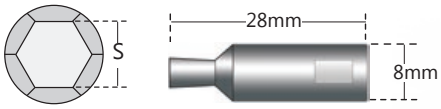
Part No	Hex Size	S
RBT-2151-100H	1mm	.040"
RBT-2151-150H	1.5mm	.060"
RBT-2151-200H	2mm	.078"
RBT-2151-250H	2.5mm	.098"
RBT-2151-300H	3mm	.121"
Custom Sizes and Tolerance Available		

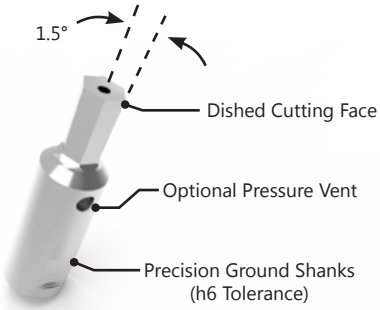


Rotary Broaching Tools

2110 Series Hexagon Broaches - HiCo8 Grade

For use with: 2100, 2160 & 6180 Series Rotary Broach Holders



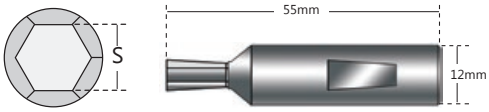


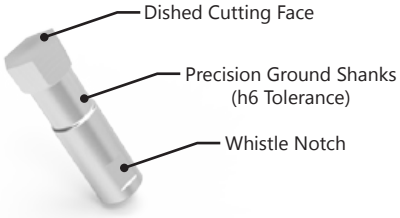
Part No	S min	S max	Thru Hole
RBT-2110-121H	.0474	.0480	
RBT-2110-127H	.0498	.0502	
RBT-2110-128H	.0503	.0507	
RBT-2110-1506H	.0591	.0595	
RBT-2110-1524H	.0598	.0602	
RBT-2110-1539H	.0602	.0606	
RBT-2110-160H	.0630	.0635	
RBT-2110-180H	.0689"	.0728	
RBT-2110-198H	.0793	.0797	
RBT-2110-203HT	.0795	.0799	•
RBT-2110-240HT	.0939	.0951	•
RBT-2110-242H	.0949	.0953	
RBT-2110-243H	.0952	.0962	
RBT-2110-245HT	.0962	.0966	•
RBT-2110-2505HT	.0983	.0990	•
RBT-2110-253HT	.0992	.0996	•
RBT-2110-254H	.0996	.1000	
RBT-2110-254HT	.0996	.1000	•
RBT-2110-2545HT	.1000	.1004	•
RBT-2110-2555HT	.1004	.1008	•
RBT-2110-257HT	.1010	.1014	•
RBT-2110-267HT	.1053	.1063	•
Recommended Depth of Cut = 1.5xS			

Part No	S min	S max	Thru Hole
RBT-2110-293H	.1130	.1177	
RBT-2110-3012HT	.1184	.1188	•
RBT-2110-302H	.1185	.1193	
RBT-2110-3037HT	.1194	.1198	•
RBT-2110-3043HT	.1196	.1200	•
RBT-2110-304HT	.1189	.1209	•
RBT-2110-308HT	.1211	.1216	•
RBT-2110-317H	.1280	.1285	
RBT-2110-321HT	.1262	.1266	•
RBT-2110-353HT	.1386	.1394	•
RBT-2110-355HT	.1394	.1398	•
RBT-2110-356H	.1400	.1405	
RBT-2110-357HT	.1404	.1409	•
RBT-2110-358H	.1402	.1409	
RBT-2110-362H	.1417	.1425	
RBT-2110-363H	.1425	.1429	
RBT-2110-380HT	.1528	.1534	•
RBT-2110-397HT	.1594	.1600	•
RBT-2110-400H	.1606	.1612	
RBT-2110-408HT	.1604	.1608	•
RBT-2110-476HT	.1906	.1911	•
RBT-2110-479HT	.1880	.1892	•
Recommended Depth of Cut = 1.5xS			

Part No	S min	S max	Thru Hole
RBT-2110-4820HT	.1892	.1898	•
RBT-2110-4826HT	.1895	.1900	•
RBT-2110-5048HT	.1985	.1990	•
RBT-2110-507H	.1996	.2000	
RBT-2110-507HT	.1996	.2000	•
RBT-2110-557H	.2191	.2195	
RBT-2110-5635H	.2217	.2220	
RBT-2110-605H	.2374	.2382	
RBT-2110-609H	.2396	.2400	
RBT-2110-626H	.2461	.2468	
RBT-2110-635H	.2539	.2545	
RBT-2110-639H	.2514	.2518	
RBT-2110-642H	.2525	.2530	
RBT-2110-717H	.2820	.2825	
RBT-2110-794H	.3124	.3128	
RBT-2110-802H	.3155	.3160	
RBT-2110-8496H	.3343	.3347	
RBT-2110-952H	.3788	.3794	
RBT-2110-976H	.3840	.3844	
Recommended Depth of Cut = 1.5xS			

6150 Series Hexagon Broaches - HiCo8 Grade



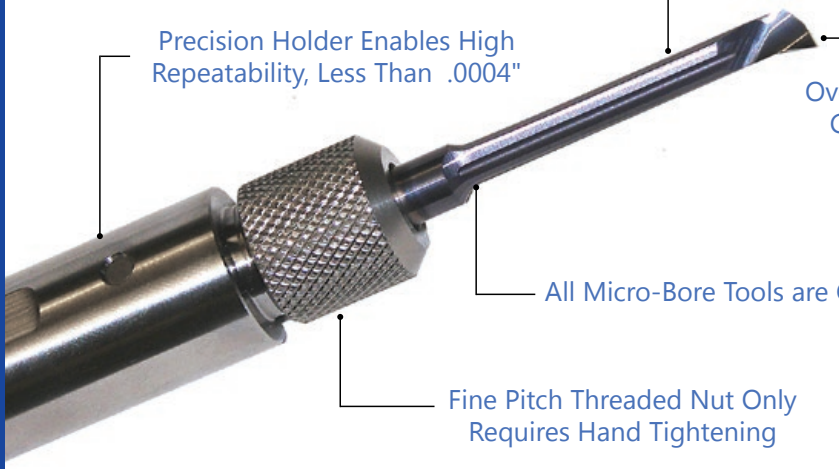


Part No	S min	S max
RBT-6150-03H	.1205	.1212
RBT-6150-04H	.1605	.1612
RBT-6150-05H	.1998	.2005
RBT-6150-06H	.2390	.2398
RBT-6150-07H	.2792	.2801
RBT-6150-08H	.3186	.3194
RBT-6150-09H	.3579	.3588
RBT-6150-10H	.3972	.3982
Recommended Depth of Cut = 1.5xS		

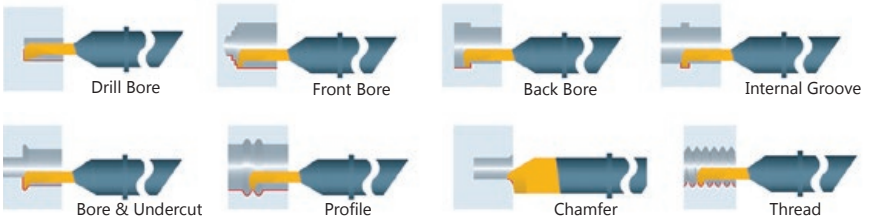
Part No	S min	S max
RBT-6150-11H	.4376	.4386
RBT-6150-12H	.4770	.4780
RBT-6150-13H	.5163	.5174
RBT-6150-14H	.5557	.5567
RBT-6150-16H	.6379	.6389
RBT-6150-17H	.6773	.6783
RBT-6150-18H	.7164	.7177
RBT-6150-19H	.7575	7588
Recommended Depth of Cut = 1.5xS		

Part No	S min	S max
RBT-6150-317H	.1280	.1287
RBT-6150-397H	.1592	.1599
RBT-6150-476H	.1905	.1912
RBT-6150-556H	.2217	.2224
RBT-6150-635H	.2536	.2545
RBT-6150-794H	.3161	.3170
RBT-6150-952H	.3786	.3795
RBT-6150-127H	.5045	.5055
RBT-6150-142H	.5705	.5715
RBT-6150-158H	.6330	.6340
Recommended Depth of Cut = 1.5xS		

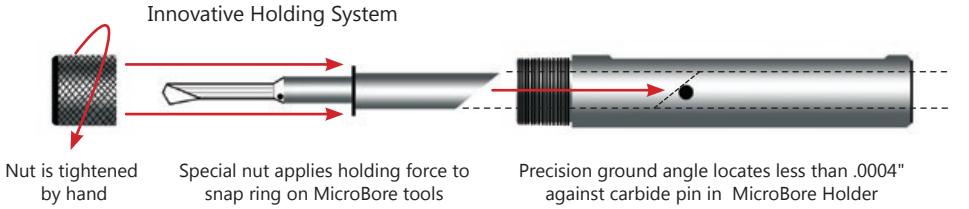
UTILIS
multidec®
swiss type tools
Micro-Bore



Complete MicroBoring System



The multidec® Micro-Bore System is a complete I.D. working system that can perform boring, grooving, profiling, chamfering, threading & more.

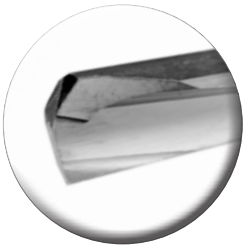


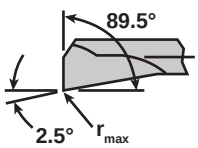
Mmltidec®-MicroBore - Drilling and Boring

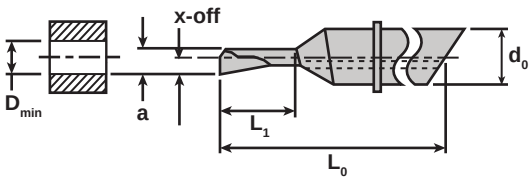
SDG - Drilling and Boring

Part No	Min Hole Ø - D_{min}		Max Depth - L_1		d_0	a	X-off	L_0	r_{max}	Holder
SDG 435 042 R	.42mm	0.017in	1.50mm	0.059in	4	0.38	0.21	35	.01	SDA 4...
SDG 435 052 R	.52mm	0.020in	2.00mm	0.079in	4	0.47	0.26	35	.02	SDA 4...
SDG 435 072 R	.72mm	0.028in	2.50mm	0.098in	4	0.65	0.36	35	.03	SDA 4...
SDG 435 092 R	.92mm	0.036in	3.00mm	0.118in	4	0.83	0.46	35	.02	SDA 4...
SDG 440 092 R	.92mm	0.036in	3.00mm	0.118in	4	0.83	0.46	40	.03	SDA 4...
SDG 448 092 R	.92mm	0.036in	5.00mm	0.197in	4	0.83	0.46	48	.03	SDA 4...
SDG 435 122 R	1.22mm	0.048in	4.00mm	0.157in	4	1.10	0.61	35	.03	SDA 4...
SDG 435 142 R	1.42mm	0.056in	4.50mm	0.177in	4	1.28	0.71	35	.02	SDA 4...
SDG 440 142 R	1.42mm	0.056in	4.50mm	0.177in	4	1.28	0.71	40	.04	SDA 4...
SDG 448 142 R	1.42mm	0.056in	7.50mm	0.295in	4	1.28	0.71	48	.04	SDA 4...
SDG 435 192 R	1.92mm	0.076in	6.00mm	0.236in	4	1.73	0.96	35	.03	SDA 4...
SDG 440 192 R	1.92mm	0.076in	6.00mm	0.236in	4	1.73	0.96	40	.04	SDA 4...
SDG 448 192 R	1.92mm	0.076in	10.00mm	0.394in	4	1.73	0.96	48	.04	SDA 4...
SDG 435 242 R	2.42mm	0.095in	7.50mm	0.295in	4	2.18	1.21	35	.03	SDA 4...
SDG 440 242 R	2.42mm	0.095in	7.50mm	0.295in	4	2.18	1.21	40	.05	SDA 4...
SDG 448 242 R	2.42mm	0.095in	12.50mm	0.492in	4	2.18	1.21	48	.05	SDA 4...
SDG 440 292 R	2.92mm	0.115in	9.00mm	0.354in	4	2.63	1.46	40	.05	SDA 4...
SDG 448 292 R	2.92mm	0.115in	15.00mm	0.591in	4	2.63	1.46	48	.05	SDA 4...
SDG 440 342 R	3.42mm	0.135in	10.50mm	0.413in	4	3.08	1.71	40	.06	SDA 4...
SDG 448 342 R	3.42mm	0.135in	17.50mm	0.689in	4	3.08	1.71	48	.06	SDA 4...
SDG 440 392 R	3.92mm	0.154in	12.00mm	0.472in	4	3.53	1.96	40	.06	SDA 4...
SDG 448 392 R	3.92mm	0.154in	20.00mm	0.787in	4	3.53	1.96	48	.06	SDA 4...
SDG 644 442 R	4.42mm	0.174in	9.00mm	0.354in	6	3.98	2.21	44	.07	SDA 6...
SDG 656 442 R	4.42mm	0.174in	18.00mm	0.709in	6	3.98	2.21	56	.07	SDA 6...
SDG 668 442 R	4.42mm	0.174in	27.00mm	1.063in	6	3.98	2.21	68	.07	SDA 6...
SDG 644 492 R	4.92mm	0.194in	10.00mm	0.394in	6	4.43	2.46	44	.07	SDA 6...
SDG 656 492 R	4.92mm	0.194in	20.00mm	0.787in	6	4.43	2.46	56	.07	SDA 6...
SDG 668 492 R	4.92mm	0.194in	30.00mm	1.181in	6	4.43	2.46	68	.07	SDA 6...
SDG 644 542 R	5.42mm	0.213in	11.00mm	0.433in	6	4.88	2.71	44	.08	SDA 6...
SDG 656 542 R	5.42mm	0.213in	22.00mm	0.866in	6	4.88	2.71	56	.08	SDA 6...
SDG 668 542 R	5.42mm	0.213in	33.00mm	1.299in	6	4.88	2.71	68	.08	SDA 6...
SDG 644 592 R	5.92mm	0.233in	12.00mm	0.472in	6	5.33	2.96	44	.08	SDA 6...
SDG 656 592 R	5.92mm	0.233in	24.00mm	0.945in	6	5.33	2.96	56	.08	SDA 6...
SDG 668 592 R	5.92mm	0.233in	36.00mm	1.417in	6	5.33	2.96	68	.08	SDA 6...
SDG 850 692 R	6.92mm	0.272in	14.00mm	0.551in	8	6.23	3.46	50	.09	SDA 8...
SDG 866 692 R	6.92mm	0.272in	28.00mm	1.102in	8	6.23	3.46	66	.09	SDA 8...
SDG 882 692 R	6.92mm	0.272in	42.00mm	1.654in	8	6.23	3.46	82	.09	SDA 8...
SDG 850 792 R	7.92mm	0.312in	16.00mm	0.630in	8	7.13	3.96	50	.10	SDA 8...
SDG 866 792 R	7.92mm	0.312in	32.00mm	1.260in	8	7.13	3.96	66	.10	SDA 8...
SDG 882 792 R	7.92mm	0.312in	48.00mm	1.890in	8	7.13	3.96	82	.10	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request





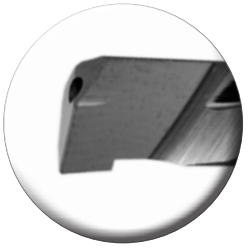


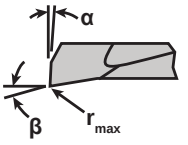
multidec®-MicroBore - Drilling and Boring

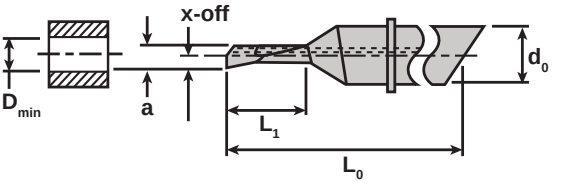
SXG - Drilling and Boring

Part No	Min Hole Ø - D_{min}		Max Depth - L_1		d_0	a	X-off	L_0	r_{max}	α	β	Holder
SXG 435 042 R	.42mm	0.017in	1.5mm	0.059in	4	0.38	0.21	35	.02	0.5°	2.5°	SDA 4...
SXG 435 052 R	.52mm	0.020in	2.0mm	0.079in	4	0.47	0.26	35	.02	2.5°	89.5°	SDA 4...
SXG 435 072 R	.72mm	0.028in	2.5mm	0.098in	4	0.65	0.36	35	.03	2.5°	89.5°	SDA 4...
SXG 435 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	35	.02	0.5°	2.5°	SDA 4...
SXG 435 122 R	1.22mm	0.048in	4.0mm	0.157in	4	1.10	0.61	35	0.03	2.5°	89.5°	SDA 4...
SXG 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	35	.02	0.5°	2.5°	SDA 4...
SXG 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	35	.02	0.5°	2.5°	SDA 4...
SXG 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	35	.02	0.5°	2.5°	SDA 4...
SXG 440 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	1.46	40	.02	0.5°	2.5°	SDA 4...
SXG 440 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	1.71	40	.02	0.5°	2.5°	SDA 4...
SXG 440 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	1.98	40	.02	0.5°	2.5°	SDA 4...
SXG 440 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	0.46	40	.02	0.5°	2.5°	SDA 4...
SXG 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	0.71	40	.02	0.5°	2.5°	SDA 4...
SXG 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	0.96	40	.02	0.5°	2.5°	SDA 4...
SXG 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.21	40	.02	0.5°	2.5°	SDA 4...
SXG 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	48	.02	0.5°	2.5°	SDA 4...
SXG 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	48	.02	0.5°	2.5°	SDA 4...
SXG 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	48	.02	0.5°	2.5°	SDA 4...
SXG 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	44	.02	0.5°	2.5°	SDA 6...
SXG 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	44	.02	0.5°	2.5°	SDA 6...
SXG 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	44	.02	0.5°	2.5°	SDA 6...
SXG 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	44	.02	0.5°	2.5°	SDA 6...
SXG 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	56	.02	0.5°	2.5°	SDA 6...
SXG 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	56	.02	0.5°	2.5°	SDA 6...
SXG 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	56	.02	0.5°	2.5°	SDA 6...
SXG 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	56	.02	0.5°	2.5°	SDA 6...
SXG 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	68	.02	0.5°	2.5°	SDA 6...
SXG 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	68	.02	0.5°	2.5°	SDA 6...
SXG 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	68	.02	0.5°	2.5°	SDA 6...
SXG 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	68	.02	0.5°	2.5°	SDA 6...
SXG 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	50	.02	0.5°	2.5°	SDA 8...
SXG 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	50	.02	0.5°	2.5°	SDA 8...
SXG 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	66	.02	0.5°	2.5°	SDA 8...
SXG 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	66	.02	0.5°	2.5°	SDA 8...
SXG 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	82	.02	0.5°	2.5°	SDA 8...
SXG 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	82	.02	0.5°	2.5°	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request





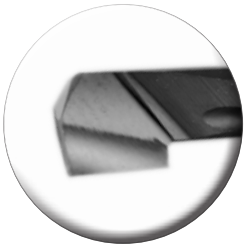


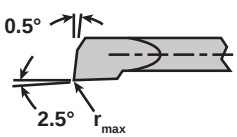
multidec®-MicroBore - Turning and Facing

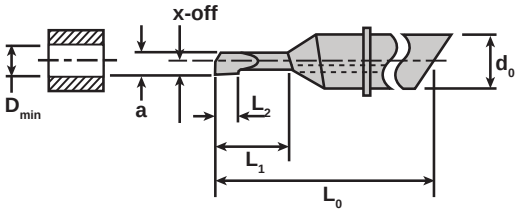
SDI - Turning and Facing

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	L_0	L_2	r_{max}	Holder
SDI 435 042 R	.42mm	0.017in	1.5mm	0.059in	4	0.38	0.21	35	0.5	.01	SDA 4...
SDI 435 052 R	.52mm	0.020in	2.0mm	0.079in	4	0.47	0.26	35	0.6	.02	SDA 4...
SDI 435 072 R	.72mm	0.028in	2.5mm	0.098in	4	0.65	0.36	35	0.8	.02	SDA 4...
SDI 435 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	35	1	.02	SDA 4...
SDI 440 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	40	1	.02	SDA 4...
SDI 448 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	48	1	.02	SDA 4...
SDI 435 122 R	1.22mm	0.048in	4.0mm	0.157in	4	1.10	0.61	35	1.3	.02	SDA 4...
SDI 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	35	1.5	.02	SDA 4...
SDI 440 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	40	1.5	.02	SDA 4...
SDI 448 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	48	1.5	.02	SDA 4...
SDI 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	35	2	.02	SDA 4...
SDI 440 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	40	2	.02	SDA 4...
SDI 448 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	48	2	.02	SDA 4...
SDI 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	35	2.5	.02	SDA 4...
SDI 440 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	40	2.5	.02	SDA 4...
SDI 448 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	48	2.5	.02	SDA 4...
SDI 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	40	3	.02	SDA 4...
SDI 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	48	3	.02	SDA 4...
SDI 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	40	3.5	.02	SDA 4...
SDI 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	48	3.5	.02	SDA 4...
SDI 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	40	4	.02	SDA 4...
SDI 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	48	4	.02	SDA 4...
SDI 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	44	4.5	.02	SDA 6...
SDI 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	56	4.5	.02	SDA 6...
SDI 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	68	4.5	.02	SDA 6...
SDI 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	44	5	.02	SDA 6...
SDI 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	56	5	.02	SDA 6...
SDI 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	68	5	.02	SDA 6...
SDI 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	44	5.5	.02	SDA 6...
SDI 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	56	5.5	.02	SDA 6...
SDI 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	68	5.5	.02	SDA 6...
SDI 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	44	6	.02	SDA 6...
SDI 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	56	6	.02	SDA 6...
SDI 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	68	6	.02	SDA 6...
SDI 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	50	7	.02	SDA 8...
SDI 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	66	7	.02	SDA 8...
SDI 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	82	7	.02	SDA 8...
SDI 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	50	8	.02	SDA 8...
SDI 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	66	8	.02	SDA 8...
SDI 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	82	8	.02	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request





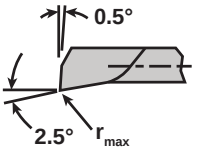


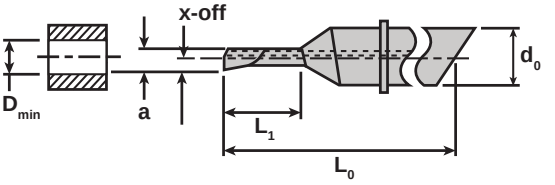
multidec®-MicroBore - Turning and Facing

SXI - Turning and Facing

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	L_0	r_{max}	Holder
SXI 435 042 R	.42mm	0.017in	1.5mm	0.059in	4	0.38	0.21	35	.02	SDA 4...
SXI 435 052 R	.52mm	0.020in	2.0mm	0.079in	4	0.47	0.26	35	.02	SDA 4...
SXI 435 072 R	.72mm	0.028in	2.5mm	0.098in	4	0.65	0.36	35	.02	SDA 4...
SXI 435 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	35	.02	SDA 4...
SXI 435 122 R	1.22mm	0.048in	4.0mm	0.157in	4	1.10	0.61	35	.02	SDA 4...
SXI 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	35	.02	SDA 4...
SXI 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	35	.02	SDA 4...
SXI 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	35	.02	SDA 4...
SXI 440 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	40	.02	SDA 4...
SXI 440 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	40	.02	SDA 4...
SXI 440 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	40	.02	SDA 4...
SXI 440 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	40	.02	SDA 4...
SXI 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	1.73	1.46	40	.02	SDA 4...
SXI 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	2.63	1.71	40	.02	SDA 4...
SXI 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	40	.02	SDA 4...
SXI 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	48	.02	SDA 4...
SXI 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	48	.02	SDA 4...
SXI 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	48	.02	SDA 4...
SXI 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	44	.02	SDA 6...
SXI 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	44	.02	SDA 6...
SXI 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	44	.02	SDA 6...
SXI 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	44	.02	SDA 6...
SXI 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	56	.02	SDA 6...
SXI 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	56	.02	SDA 6...
SXI 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	56	.02	SDA 6...
SXI 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	56	.02	SDA 6...
SXI 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	68	.02	SDA 6...
SXI 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	68	.02	SDA 6...
SXI 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	68	.02	SDA 6...
SXI 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	68	.02	SDA 6...
SXI 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	50	.02	SDA 8...
SXI 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	50	.02	SDA 8...
SXI 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	66	.02	SDA 8...
SXI 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	66	.02	SDA 8...
SXI 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	82	.02	SDA 8...
SXI 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	82	.02	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request



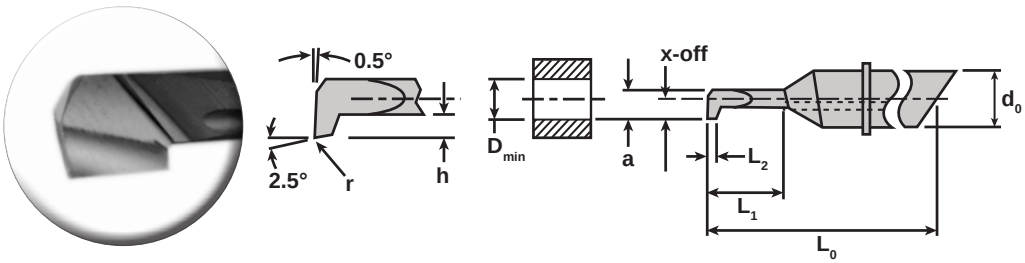


multidec®-MicroBore - Turning and Facing

SDF - Turning and Facing

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	L_0	L_2	r_{max}	Holder
SDF 435 042 R	0.42mm	0.017in	1.5mm	0.059in	4	0.38	0.21	0.21	35	0.5	0.06	SDA 4...
SDF 435 092 R	0.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	0.23	35	1.0	0.06	SDA 4...
SDF 440 092 R	0.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	0.23	40	1.0	0.06	SDA 4...
SDF 448 092 R	0.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	0.23	48	1.0	0.06	SDA 4...
SDF 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	0.36	35	1.5	0.06	SDA 4...
SDF 440 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	0.36	40	1.5	0.06	SDA 4...
SDF 448 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	0.36	48	1.5	0.06	SDA 4...
SDF 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	0.48	35	2.0	0.06	SDA 4...
SDF 440 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	0.48	40	2.0	0.06	SDA 4...
SDF 448 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	0.48	48	2.0	0.06	SDA 4...
SDF 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	0.61	35	2.5	0.06	SDA 4...
SDF 440 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	0.61	40	2.5	0.06	SDA 4...
SDF 448 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	0.61	48	2.5	0.06	SDA 4...
SDF 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	0.73	40	3.0	0.06	SDA 4...
SDF 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	0.73	48	3.0	0.06	SDA 4...
SDF 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	0.86	40	3.5	0.06	SDA 4...
SDF 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	0.86	48	3.5	0.06	SDA 4...
SDF 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	0.98	40	4.0	0.06	SDA 4...
SDF 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	0.98	48	4.0	0.06	SDA 4...
SDF 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	1.11	44	4.5	0.08	SDA 6...
SDF 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	1.11	56	4.5	0.08	SDA 6...
SDF 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	1.11	68	4.5	0.08	SDA 6...
SDF 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	1.23	44	5.0	0.08	SDA 6...
SDF 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	1.23	56	5.0	0.08	SDA 6...
SDF 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	1.23	68	5.0	0.08	SDA 6...
SDF 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	1.36	44	5.5	0.08	SDA 6...
SDF 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	1.36	56	5.5	0.08	SDA 6...
SDF 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	1.36	68	5.5	0.08	SDA 6...
SDF 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	1.48	44	6.0	0.08	SDA 6...
SDF 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	1.48	56	6.0	0.08	SDA 6...
SDF 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	1.48	68	6.0	0.08	SDA 6...
SDF 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	1.73	50	7.0	0.08	SDA 8...
SDF 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	1.73	66	7.0	0.08	SDA 8...
SDF 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	1.73	82	7.0	0.08	SDA 8...
SDF 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	3.96	3.96	1.98	50	8.0	0.08	SDA 8...
SDF 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	3.96	3.96	1.98	66	8.0	0.08	SDA 8...
SDF 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	3.96	3.96	1.98	82	8.0	0.08	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

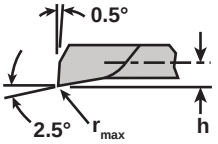


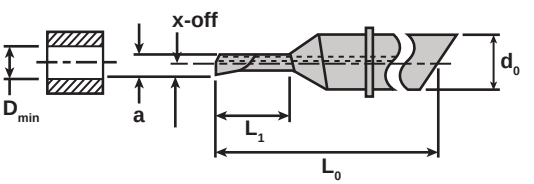
multidec®-MicroBore - Turning and Facing

SXF - Turning and Facing

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	L_0	L_2	r_{max}	Holder
SXF 435 042 R	0.42mm	0.017in	1.5mm	0.059in	4	0.38	0.21	0.05	35	0.5	0.06	SDA 4...
SXF 435 092 R	0.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	0.1	35	1.0	0.06	SDA 4...
SXF 440 092 R	0.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	0.1	40	1.0	0.06	SDA 4...
SXF 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	0.15	35	1.5	0.06	SDA 4...
SXF 440 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	0.15	40	1.5	0.06	SDA 4...
SXF 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	0.2	35	2.0	0.06	SDA 4...
SXF 440 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	0.2	40	2.0	0.06	SDA 4...
SXF 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	0.25	35	2.5	0.06	SDA 4...
SXF 440 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	0.25	40	2.5	0.06	SDA 4...
SXF 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	0.3	40	3.0	0.06	SDA 4...
SXF 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	0.3	48	3.0	0.06	SDA 4...
SXF 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	0.35	40	3.5	0.06	SDA 4...
SXF 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	0.35	48	3.5	0.06	SDA 4...
SXF 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	0.4	40	4.0	0.06	SDA 4...
SXF 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	0.4	48	4.0	0.06	SDA 4...
SXF 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	0.45	44	4.5	0.08	SDA 6...
SXF 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	0.45	56	4.5	0.08	SDA 6...
SXF 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	0.45	68	4.5	0.08	SDA 6...
SXF 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	0.5	44	5.0	0.08	SDA 6...
SXF 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	0.5	56	5.0	0.08	SDA 6...
SXF 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	0.5	68	5.0	0.08	SDA 6...
SXF 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	0.55	44	5.5	0.08	SDA 6...
SXF 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	0.55	56	5.5	0.08	SDA 6...
SXF 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	0.55	68	5.5	0.08	SDA 6...
SXF 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	0.6	44	6.0	0.08	SDA 6...
SXF 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	0.6	56	6.0	0.08	SDA 6...
SXF 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	0.6	68	6.0	0.08	SDA 6...
SXF 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	0.7	50	7.0	0.08	SDA 8...
SXF 866 692 R	6.92mm	0.272in	8.0mm	0.315in	8	6.23	3.46	0.7	66	7.0	0.08	SDA 8...
SXF 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	0.7	82	7.0	0.08	SDA 8...
SXF 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	3.96	3.96	0.8	50	8.0	0.08	SDA 8...
SXF 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	3.96	3.96	0.8	66	8.0	0.08	SDA 8...
SXF 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	3.96	3.96	0.8	82	8.0	0.08	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request



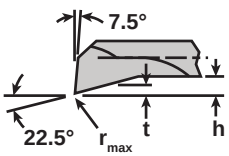


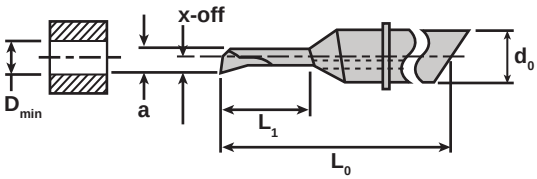
multidec®-MicroBore - Front Turning

SDH - Front Turning

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	t	L_0	r_{max}	Holder
SDH 435 042 R	.42mm	0.017in	1.5mm	0.059in	4	0.38	0.21	0.09	0.07	35	.05	SDA 4...
SDH 435 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	0.19	0.15	35	.05	SDA 4...
SDH 440 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	0.21	0.16	40	.05	SDA 4...
SDH 448 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	0.21	0.16	48	.05	SDA 4...
SDH 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	0.30	0.23	35	.05	SDA 4...
SDH 440 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	0.31	0.23	40	.05	SDA 4...
SDH 448 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	0.31	0.23	48	.05	SDA 4...
SDH 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	0.40	0.31	35	.05	SDA 4...
SDH 440 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	0.41	0.31	40	.05	SDA 4...
SDH 448 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	0.41	0.31	48	.05	SDA 4...
SDH 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	0.51	0.39	35	.05	SDA 4...
SDH 440 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	0.52	0.39	40	.05	SDA 4...
SDH 448 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	0.52	0.39	48	.05	SDA 4...
SDH 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	0.62	0.47	40	.05	SDA 4...
SDH 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	0.62	0.47	48	.05	SDA 4...
SDH 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	0.72	0.54	40	.05	SDA 4...
SDH 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	0.72	0.54	48	.05	SDA 4...
SDH 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	0.83	0.62	40	.05	SDA 4...
SDH 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	0.83	0.62	48	.05	SDA 4...
SDH 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	0.93	0.7	44	.05	SDA 6...
SDH 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	0.93	0.7	56	.05	SDA 6...
SDH 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	0.93	0.7	68	.05	SDA 6...
SDH 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	1.04	0.78	44	.05	SDA 6...
SDH 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	1.04	0.78	56	.05	SDA 6...
SDH 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	1.04	0.78	68	.05	SDA 6...
SDH 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	1.14	0.85	44	.05	SDA 6...
SDH 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	1.14	0.85	56	.05	SDA 6...
SDH 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	1.14	0.85	68	.05	SDA 6...
SDH 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	1.24	0.93	44	.05	SDA 6...
SDH 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	1.24	0.93	56	.05	SDA 6...
SDH 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	1.24	0.93	68	.05	SDA 6...
SDH 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	1.45	1.09	50	.05	SDA 8...
SDH 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	1.45	1.09	66	.05	SDA 8...
SDH 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	1.45	1.09	82	.05	SDA 8...
SDH 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	1.66	1.24	50	.05	SDA 8...
SDH 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	1.66	1.24	66	.05	SDA 8...
SDH 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	1.66	1.24	82	.05	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

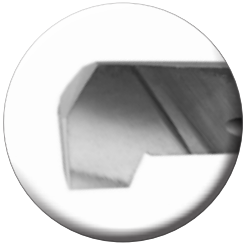


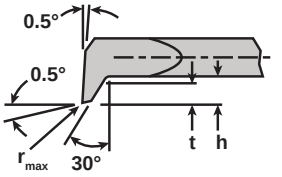


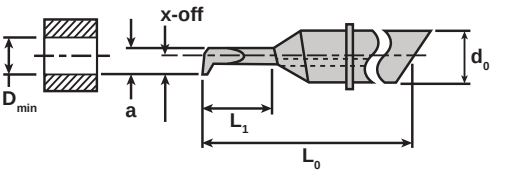
SDK - Front Turning

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	t	L_0	L_2	r_{max}	Holder
SDK 435 092 R	.92mm	0.036in	1.5mm	0.059in	4	0.83	0.46	.23	.15	35	0.50	.02	SDA 4...
SDK 440 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	.23	.10	40	0.50	.02	SDA 4...
SDK 448 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	.23	.10	48	0.50	.02	SDA 4...
SDK 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.36	.23	35	0.75	.02	SDA 4...
SDK 440 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.36	.20	40	0.75	.02	SDA 4...
SDK 448 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	.36	.20	48	0.75	.02	SDA 4...
SDK 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.48	.32	35	1.00	.03	SDA 4...
SDK 440 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.48	.30	40	1.00	.02	SDA 4...
SDK 448 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	.48	.30	48	1.00	.02	SDA 4...
SDK 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.61	.40	35	1.25	.03	SDA 4...
SDK 440 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.61	.40	40	1.25	.02	SDA 4...
SDK 448 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	.61	.40	48	1.25	.02	SDA 4...
SDK 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	.73	.50	40	1.50	.02	SDA 4...
SDK 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	.73	.50	48	1.50	.02	SDA 4...
SDK 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	.86	.60	40	1.75	.02	SDA 4...
SDK 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	.86	.60	48	1.75	.02	SDA 4...
SDK 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	.98	.70	40	2.00	.02	SDA 4...
SDK 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	.98	.70	48	2.00	.02	SDA 4...
SDK 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	1.11	.70	44	2.25	.02	SDA 6...
SDK 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	1.11	.70	56	2.25	.02	SDA 6...
SDK 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	1.11	.70	68	2.25	.02	SDA 6...
SDK 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	1.23	.80	44	2.50	.02	SDA 6...
SDK 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	1.23	.80	56	2.50	.02	SDA 6...
SDK 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	1.23	.80	68	2.50	.02	SDA 6...
SDK 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	1.36	.90	44	2.75	.02	SDA 6...
SDK 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	1.36	.90	56	2.75	.02	SDA 6...
SDK 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	1.36	.90	68	2.75	.02	SDA 6...
SDK 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	1.48	1.00	44	3.00	.02	SDA 6...
SDK 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	1.48	1.00	56	3.00	.02	SDA 6...
SDK 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	1.48	1.00	68	3.00	.02	SDA 6...
SDK 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	1.73	1.20	50	3.50	.02	SDA 8...
SDK 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	1.73	1.20	66	3.50	.02	SDA 8...
SDK 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	1.73	1.20	82	3.50	.02	SDA 8...
SDK 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	1.98	1.30	50	4.00	.02	SDA 8...
SDK 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	1.98	1.30	66	4.00	.02	SDA 8...
SDK 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	1.98	1.30	82	4.00	.02	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request



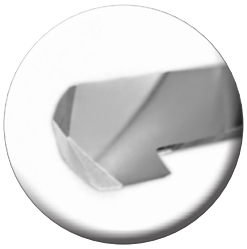


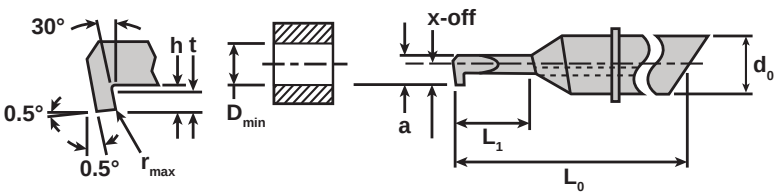


SDM - ID Back Turning

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	t	L_0	L_2	r_{max}	Holder
SDM 435 092 R	.92mm	0.036in	1.5mm	0.059in	4	0.83	0.46	.23	.15	35	0.50	.02	SDA 4...
SDM 440 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	.23	.10	40	0.50	.02	SDA 4...
SDM 448 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	.23	.10	48	0.50	.02	SDA 4...
SDM 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.36	.23	35	0.75	.02	SDA 4...
SDM 440 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.36	.20	40	0.75	.02	SDA 4...
SDM 448 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	.36	.20	48	0.75	.02	SDA 4...
SDM 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.48	.32	35	1.00	.03	SDA 4...
SDM 440 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.48	.30	40	1.00	.02	SDA 4...
SDM 448 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	.48	.30	48	1.00	.02	SDA 4...
SDM 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.61	.40	35	1.25	.03	SDA 4...
SDM 440 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.61	.40	40	1.25	.02	SDA 4...
SDM 448 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	.61	.40	48	1.25	.02	SDA 4...
SDM 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	.73	.50	40	1.50	.02	SDA 4...
SDM 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	.73	.50	48	1.50	.02	SDA 4...
SDM 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	.86	.60	40	1.75	.02	SDA 4...
SDM 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	.86	.60	48	1.75	.02	SDA 4...
SDM 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	.98	.70	40	2.00	.02	SDA 4...
SDM 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	.98	.70	48	2.00	.02	SDA 4...
SDM 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	1.11	.70	44	2.25	.02	SDA 6...
SDM 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	1.11	.70	56	2.25	.02	SDA 6...
SDM 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	1.11	.70	68	2.25	.02	SDA 6...
SDM 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	1.23	.80	44	2.50	.02	SDA 6...
SDM 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	1.23	.80	56	2.50	.02	SDA 6...
SDM 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	1.23	.80	68	2.50	.02	SDA 6...
SDM 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	1.36	.90	44	2.75	.02	SDA 6...
SDM 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	1.36	.90	56	2.75	.02	SDA 6...
SDM 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	1.36	.90	68	2.75	.02	SDA 6...
SDM 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	1.48	1.00	44	3.00	.02	SDA 6...
SDM 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	1.48	1.00	56	3.00	.02	SDA 6...
SDM 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	1.48	1.00	68	3.00	.02	SDA 6...
SDM 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	1.73	1.20	50	3.50	.02	SDA 8...
SDM 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	1.73	1.20	66	3.50	.02	SDA 8...
SDM 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	1.73	1.20	82	3.50	.02	SDA 8...
SDM 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	1.98	1.30	50	4.00	.02	SDA 8...
SDM 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	1.98	1.30	66	4.00	.02	SDA 8...
SDM 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	1.98	1.30	82	4.00	.02	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

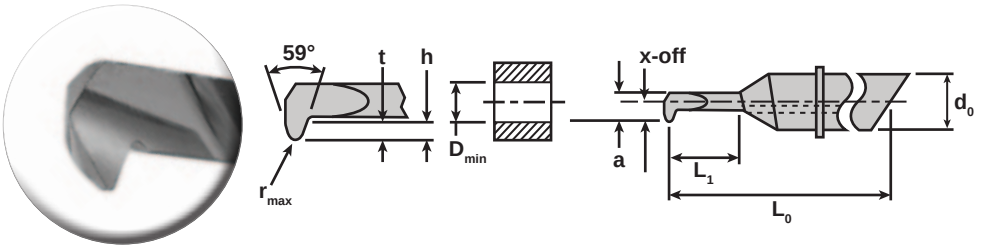




SDO - Profiling

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	t	L_0	r_{max}	Holder
SDO 435 092 R	.92mm	0.036in	1.5mm	0.059in	4	0.83	0.46	.31	.23	35	0.05	SDA 4...
SDO 440 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	.31	.20	40	0.05	SDA 4...
SDO 448 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	.31	.20	48	0.05	SDA 4...
SDO 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.47	.36	35	0.05	SDA 4...
SDO 440 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.47	.40	40	.075	SDA 4...
SDO 448 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	.47	.40	48	.075	SDA 4...
SDO 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.64	.48	35	0.05	SDA 4...
SDO 440 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.64	.50	40	0.10	SDA 4...
SDO 448 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	.64	.50	48	0.10	SDA 4...
SDO 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.81	.61	35	0.05	SDA 4...
SDO 440 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.81	.60	40	.125	SDA 4...
SDO 448 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	.81	.60	48	.125	SDA 4...
SDO 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	.97	.70	40	0.15	SDA 4...
SDO 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	.97	.70	48	0.15	SDA 4...
SDO 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	1.14	.90	40	.175	SDA 4...
SDO 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	1.14	.90	48	.175	SDA 4...
SDO 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	1.31	1.0	40	0.20	SDA 4...
SDO 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	1.31	1.0	48	0.20	SDA 4...
SDO 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	1.47	1.1	44	.225	SDA 6...
SDO 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	1.47	1.1	56	.225	SDA 6...
SDO 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	1.47	1.1	68	.225	SDA 6...
SDO 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	1.64	1.2	44	0.25	SDA 6...
SDO 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	1.64	1.2	56	0.25	SDA 6...
SDO 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	1.64	1.2	68	0.25	SDA 6...
SDO 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	1.80	1.4	44	.275	SDA 6...
SDO 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	1.80	1.4	56	.275	SDA 6...
SDO 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	1.80	1.4	68	.275	SDA 6...
SDO 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	1.97	1.5	44	0.30	SDA 6...
SDO 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	1.97	1.5	56	0.30	SDA 6...
SDO 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	1.97	1.5	68	0.30	SDA 6...
SDO 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	2.30	1.7	50	0.35	SDA 8...
SDO 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	2.30	1.7	66	0.35	SDA 8...
SDO 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	2.30	1.7	82	0.35	SDA 8...
SDO 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	2.64	2.0	50	0.40	SDA 8...
SDO 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	2.64	2.0	66	0.40	SDA 8...
SDO 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	2.64	2.0	82	0.40	SDA 8...

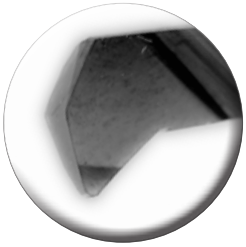
Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

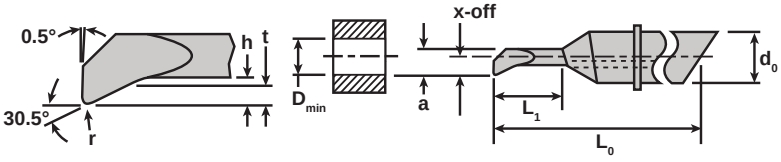


SDQ - Internal Profiling

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	t	L_0	r_{max}	Holder
SDQ 435 092 R	.92mm	0.036in	1.5mm	0.059in	4	0.83	0.46	.31	.23	35	0.05	SDA 4...
SDQ 440 092 R	.92mm	0.036in	3.0mm	0.118in	4	0.83	0.46	.31	.20	40	0.05	SDA 4...
SDQ 448 092 R	.92mm	0.036in	5.0mm	0.197in	4	0.83	0.46	.31	.20	48	0.05	SDA 4...
SDQ 435 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.47	.36	35	0.05	SDA 4...
SDQ 440 142 R	1.42mm	0.056in	4.5mm	0.177in	4	1.28	0.71	.47	.40	40	.075	SDA 4...
SDQ 448 142 R	1.42mm	0.056in	7.5mm	0.295in	4	1.28	0.71	.47	.40	48	.075	SDA 4...
SDQ 435 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.64	.48	35	0.05	SDA 4...
SDQ 440 192 R	1.92mm	0.076in	6.0mm	0.236in	4	1.73	0.96	.64	.50	40	0.10	SDA 4...
SDQ 448 192 R	1.92mm	0.076in	10.0mm	0.394in	4	1.73	0.96	.64	.50	48	0.10	SDA 4...
SDQ 435 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.81	.61	35	0.05	SDA 4...
SDQ 440 242 R	2.42mm	0.095in	7.5mm	0.295in	4	2.18	1.21	.81	.60	40	.125	SDA 4...
SDQ 448 242 R	2.42mm	0.095in	12.5mm	0.492in	4	2.18	1.21	.81	.60	48	.125	SDA 4...
SDQ 440 292 R	2.92mm	0.115in	9.0mm	0.354in	4	2.63	1.46	.97	.70	40	0.15	SDA 4...
SDQ 448 292 R	2.92mm	0.115in	15.0mm	0.591in	4	2.63	1.46	.97	.70	48	0.15	SDA 4...
SDQ 440 342 R	3.42mm	0.135in	10.5mm	0.413in	4	3.08	1.71	1.14	.90	40	.175	SDA 4...
SDQ 448 342 R	3.42mm	0.135in	17.5mm	0.689in	4	3.08	1.71	1.14	.90	48	.175	SDA 4...
SDQ 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	1.31	1.0	40	0.20	SDA 4...
SDQ 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	1.31	1.0	48	0.20	SDA 4...
SDQ 644 442 R	4.42mm	0.174in	9.0mm	0.354in	6	3.98	2.21	1.47	1.1	44	.225	SDA 6...
SDQ 656 442 R	4.42mm	0.174in	18.0mm	0.709in	6	3.98	2.21	1.47	1.1	56	.225	SDA 6...
SDQ 668 442 R	4.42mm	0.174in	27.0mm	1.063in	6	3.98	2.21	1.47	1.1	68	.225	SDA 6...
SDQ 644 492 R	4.92mm	0.194in	10.0mm	0.394in	6	4.43	2.46	1.64	1.2	44	0.25	SDA 6...
SDQ 656 492 R	4.92mm	0.194in	20.0mm	0.787in	6	4.43	2.46	1.64	1.2	56	0.25	SDA 6...
SDQ 668 492 R	4.92mm	0.194in	30.0mm	1.181in	6	4.43	2.46	1.64	1.2	68	0.25	SDA 6...
SDQ 644 542 R	5.42mm	0.213in	11.0mm	0.433in	6	4.88	2.71	1.80	1.4	44	.275	SDA 6...
SDQ 656 542 R	5.42mm	0.213in	22.0mm	0.866in	6	4.88	2.71	1.80	1.4	56	.275	SDA 6...
SDQ 668 542 R	5.42mm	0.213in	33.0mm	1.299in	6	4.88	2.71	1.80	1.4	68	.275	SDA 6...
SDQ 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	1.97	1.5	44	0.30	SDA 6...
SDQ 656 592 R	5.92mm	0.233in	24.0mm	0.945in	6	5.33	2.96	1.97	1.5	56	0.30	SDA 6...
SDQ 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	1.97	1.5	68	0.30	SDA 6...
SDQ 850 692 R	6.92mm	0.272in	14.0mm	0.551in	8	6.23	3.46	2.30	1.7	50	0.35	SDA 8...
SDQ 866 692 R	6.92mm	0.272in	28.0mm	1.102in	8	6.23	3.46	2.30	1.7	66	0.35	SDA 8...
SDQ 882 692 R	6.92mm	0.272in	42.0mm	1.654in	8	6.23	3.46	2.30	1.7	82	0.35	SDA 8...
SDQ 850 792 R	7.92mm	0.312in	16.0mm	0.630in	8	7.13	3.96	2.64	2.0	50	0.40	SDA 8...
SDQ 866 792 R	7.92mm	0.312in	32.0mm	1.260in	8	7.13	3.96	2.64	2.0	66	0.40	SDA 8...
SDQ 882 792 R	7.92mm	0.312in	48.0mm	1.890in	8	7.13	3.96	2.64	2.0	82	0.40	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

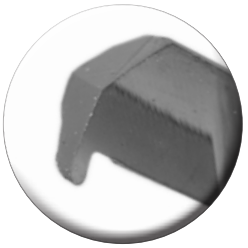


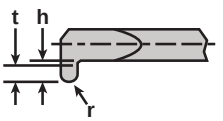


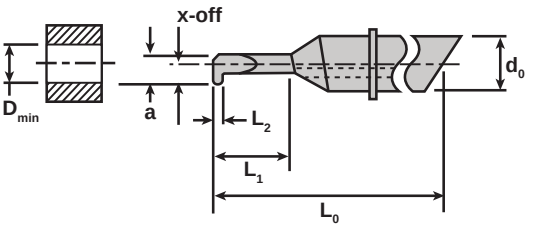
SDR - Full Radius Grooving

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	t	L_0	L_2	r_{max}	Holder
SDR 435 092 R	.92mm	0.036in	3.0mm	3.0mm	4	0.83	0.46	0.30	0.20	35	0.20	0.10	SDA 4...
SDR 435 142 R	1.42mm	0.056in	4.5mm	4.5mm	4	1.28	0.71	0.38	0.25	35	0.25	.125	SDA 4...
SDR 435 192 R	1.92mm	0.076in	6.0mm	6.0mm	4	1.73	0.96	0.45	0.30	35	0.30	0.15	SDA 4...
SDR 435 242 R	2.42mm	0.095in	7.5mm	7.5mm	4	2.18	1.21	0.53	0.35	35	0.35	.175	SDA 4...
SDR 440 092 R	.92mm	0.036in	5.0mm	5.0mm	4	0.83	0.46	0.30	0.20	40	0.20	0.10	SDA 4...
SDR 440 142 R	1.42mm	0.056in	7.5mm	7.5mm	4	1.28	0.71	0.38	0.25	40	0.25	.125	SDA 4...
SDR 440 192 R	1.92mm	0.076in	10.0mm	10.0mm	4	1.73	0.96	0.45	0.30	40	0.30	0.15	SDA 4...
SDR 440 242 R	2.42mm	0.095in	12.5mm	12.5mm	4	2.18	1.21	0.53	0.35	40	0.35	.175	SDA 4...
SDR 440 292 R	2.92mm	0.115in	9.0mm	9.0mm	4	1.73	1.46	0.60	0.40	40	0.40	0.20	SDA 4...
SDR 440 342 R	3.42mm	0.135in	10.5mm	10.5mm	4	2.63	1.71	0.68	0.45	40	0.45	.225	SDA 4...
SDR 440 392 R	3.92mm	0.154in	12.0mm	12.0mm	4	3.53	1.96	0.75	0.50	40	0.50	0.25	SDA 4...
SDR 448 292 R	2.92mm	0.115in	15.0mm	15.0mm	4	2.63	1.46	0.60	0.40	48	0.40	0.20	SDA 4...
SDR 448 342 R	3.42mm	0.135in	17.5mm	17.5mm	4	3.08	1.71	0.68	0.45	48	0.45	.225	SDA 4...
SDR 448 392 R	3.92mm	0.154in	20.0mm	20.0mm	4	3.53	1.96	0.75	0.50	48	0.50	0.25	SDA 4...
SDR 644 442 R	4.42mm	0.174in	9.0mm	9.0mm	6	3.98	2.21	0.83	0.55	44	0.55	.275	SDA 6...
SDR 644 492 R	4.92mm	0.194in	10.0mm	10.0mm	6	4.43	2.46	0.90	0.60	44	0.60	0.30	SDA 6...
SDR 644 542 R	5.42mm	0.213in	11.0mm	11.0mm	6	4.88	2.71	0.98	0.65	44	0.65	.325	SDA 6...
SDR 644 592 R	5.92mm	0.233in	12.0mm	12.0mm	6	5.33	2.96	1.05	0.70	44	0.70	0.35	SDA 6...
SDR 656 442 R	4.42mm	0.174in	18.0mm	18.0mm	6	3.98	2.21	0.83	0.55	56	0.55	.275	SDA 6...
SDR 656 492 R	4.92mm	0.194in	20.0mm	20.0mm	6	4.43	2.46	0.90	0.60	56	0.60	0.30	SDA 6...
SDR 656 542 R	5.42mm	0.213in	22.0mm	22.0mm	6	4.88	2.71	0.98	0.65	56	0.65	.325	SDA 6...
SDR 656 592 R	5.92mm	0.233in	24.0mm	24.0mm	6	5.33	2.96	1.05	0.70	56	0.70	0.35	SDA 6...
SDR 668 442 R	4.42mm	0.174in	27.0mm	27.0mm	6	3.98	2.21	0.83	0.55	68	0.55	.275	SDA 6...
SDR 668 492 R	4.92mm	0.194in	30.0mm	30.0mm	6	4.43	2.46	0.90	0.60	68	0.60	0.30	SDA 6...
SDR 668 542 R	5.42mm	0.213in	33.0mm	33.0mm	6	4.88	2.71	0.98	0.65	68	0.65	.325	SDA 6...
SDR 668 592 R	5.92mm	0.233in	36.0mm	36.0mm	6	5.33	2.96	1.05	0.70	68	0.70	0.35	SDA 6...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request



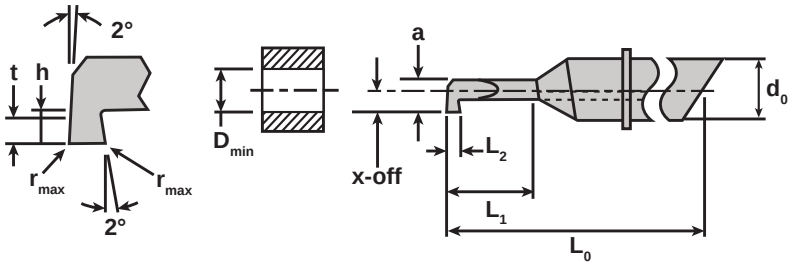




SDS - Micro Grooving

Part No	Min Hole Ø - D_{min}	max depth - L_1	d_0	a	X-off	h	t	L_0	L_2	r_{max}	Holder
SDS 435 092 R	.92mm 0.036in	1.5mm 0.059in	4	0.83	0.46	.31	.23	35	0.20	.02	SDA 4...
SDS 440 092 R	.92mm 0.036in	3.0mm 0.118in	4	0.83	0.46	.31	.20	40	0.20	.02	SDA 4...
SDS 448 092 R	.92mm 0.036in	5.0mm 0.197in	4	0.83	0.46	.31	.20	48	0.20	.02	SDA 4...
SDS 435 142 R	1.42mm 0.056in	4.5mm 0.177in	4	1.28	0.71	.47	.36	35	0.25	.02	SDA 4...
SDS 440 142 R	1.42mm 0.056in	4.5mm 0.177in	4	1.28	0.71	.47	.40	40	0.25	.02	SDA 4...
SDS 448 142 R	1.42mm 0.056in	7.5mm 0.295in	4	1.28	0.71	.47	.40	48	0.25	.02	SDA 4...
SDS 435 192 R	1.92mm 0.076in	6.0mm 0.236in	4	1.73	0.96	.64	.48	35	0.30	.02	SDA 4...
SDS 440 192 R	1.92mm 0.076in	6.0mm 0.236in	4	1.73	0.96	.64	.50	40	0.30	.02	SDA 4...
SDS 448 192 R	1.92mm 0.076in	10.0mm 0.394in	4	1.73	0.96	.64	.50	48	0.30	.02	SDA 4...
SDS 435 242 R	2.42mm 0.095in	7.5mm 0.295in	4	2.18	1.21	.81	.61	35	0.35	.02	SDA 4...
SDS 440 242 R	2.42mm 0.095in	7.5mm 0.295in	4	2.18	1.21	.81	.60	40	0.35	.02	SDA 4...
SDS 448 242 R	2.42mm 0.095in	12.5mm 0.492in	4	2.18	1.21	.81	.60	48	0.35	.02	SDA 4...
SDS 440 292 R	2.92mm 0.115in	9.0mm 0.354in	4	2.63	1.46	.97	.70	40	0.40	.02	SDA 4...
SDS 448 292 R	2.92mm 0.115in	15.0mm 0.591in	4	2.63	1.46	.97	.70	48	0.40	.02	SDA 4...
SDS 440 342 R	3.42mm 0.135in	10.5mm 0.413in	4	3.08	1.71	1.14	.90	40	0.45	.02	SDA 4...
SDS 448 342 R	3.42mm 0.135in	17.5mm 0.689in	4	3.08	1.71	1.14	.90	48	0.45	.02	SDA 4...
SDS 440 392 R	3.92mm 0.154in	12.0mm 0.472in	4	3.53	1.96	1.31	1.0	40	0.50	.02	SDA 4...
SDS 448 392 R	3.92mm 0.154in	20.0mm 0.787in	4	3.53	1.96	1.31	1.0	48	0.50	.02	SDA 4...
SDS 644 442 R	4.42mm 0.174in	9.0mm 0.354in	6	3.98	2.21	1.47	1.1	44	1.00	.02	SDA 6...
SDS 656 442 R	4.42mm 0.174in	18.0mm 0.709in	6	3.98	2.21	1.47	1.1	56	1.00	.02	SDA 6...
SDS 668 442 R	4.42mm 0.174in	27.0mm 1.063in	6	3.98	2.21	1.47	1.1	68	1.50	.02	SDA 6...
SDS 644 492 R	4.92mm 0.194in	10.0mm 0.394in	6	4.43	2.46	1.64	1.2	44	1.50	.02	SDA 6...
SDS 656 492 R	4.92mm 0.194in	20.0mm 0.787in	6	4.43	2.46	1.64	1.2	56	1.50	.02	SDA 6...
SDS 668 492 R	4.92mm 0.194in	30.0mm 1.181in	6	4.43	2.46	1.64	1.2	68	1.00	.02	SDA 6...
SDS 644 542 R	5.42mm 0.213in	11.0mm 0.433in	6	4.88	2.71	1.80	1.4	44	1.00	.02	SDA 6...
SDS 656 542 R	5.42mm 0.213in	22.0mm 0.866in	6	4.88	2.71	1.80	1.4	56	1.00	.02	SDA 6...
SDS 668 542 R	5.42mm 0.213in	33.0mm 1.299in	6	4.88	2.71	1.80	1.4	68	1.50	.02	SDA 6...
SDS 644 592 R	5.92mm 0.233in	12.0mm 0.472in	6	5.33	2.96	1.97	1.5	44	1.50	.02	SDA 6...
SDS 656 592 R	5.92mm 0.233in	24.0mm 0.945in	6	5.33	2.96	1.97	1.5	56	1.50	.02	SDA 6...
SDS 668 592 R	5.92mm 0.233in	36.0mm 1.417in	6	5.33	2.96	1.97	1.5	68	1.50	.02	SDA 6...
SDS 850 692 R	6.92mm 0.272in	14.0mm 0.551in	8	6.23	3.46	2.30	1.7	50	1.50	.02	SDA 8...
SDS 866 692 R	6.92mm 0.272in	28.0mm 1.102in	8	6.23	3.46	2.30	1.7	66	1.50	.02	SDA 8...
SDS 882 692 R	6.92mm 0.272in	42.0mm 1.654in	8	6.23	3.46	2.30	1.7	82	1.50	.02	SDA 8...
SDS 850 792 R	7.92mm 0.312in	16.0mm 0.630in	8	7.13	3.96	2.64	2.0	50	2.00	.02	SDA 8...
SDS 866 792 R	7.92mm 0.312in	32.0mm 1.260in	8	7.13	3.96	2.64	2.0	66	2.00	.02	SDA 8...
SDS 882 792 R	7.92mm 0.312in	48.0mm 1.890in	8	7.13	3.96	2.64	2.0	82	2.00	.02	SDA 8...

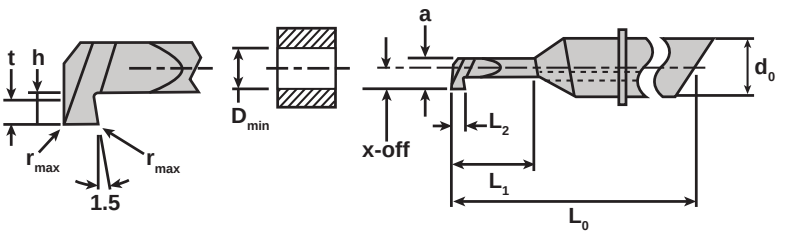
Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request



SDT - Groove and Turn

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	h	t	L_0	L_2	r_{max}	Holder
SDT 440 392 R	3.92mm	0.154in	12.0mm	0.472in	4	3.53	1.96	1.31	1.0	40	1.0	.02	SDA 4...
SDT 448 392 R	3.92mm	0.154in	20.0mm	0.787in	4	3.53	1.96	1.31	1.0	48	1.0	.02	SDA 4...
SDT 644 592 R	5.92mm	0.233in	12.0mm	0.472in	6	5.33	2.96	1.97	1.25	44	1.5	.02	SDA 6...
SDT 656 592 R	5.92mm	0.233in	24.0mm	0.944in	6	5.33	2.96	1.97	1.25	56	1.5	.02	SDA 6...
SDT 668 592 R	5.92mm	0.233in	36.0mm	1.417in	6	5.33	2.96	1.97	1.25	68	1.5	.02	SDA 6...
SDT 850 792 R	7.92mm	0.312in	16.0mm	0.629in	8	7.13	3.96	2.64	1.5	50	2.0	.02	SDA 8...
SDT 866 792 R	7.92mm	0.312in	32.0mm	1.259in	8	7.13	3.96	2.64	1.5	66	2.0	.02	SDA 8...
SDT 882 792 R	1.92mm	0.076in	6.0mm	0.236in	8	7.13	3.96	2.64	1.5	82	2.0	.02	SDA 8...

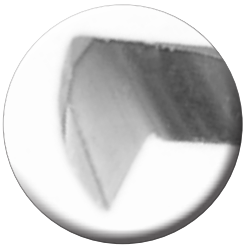
Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

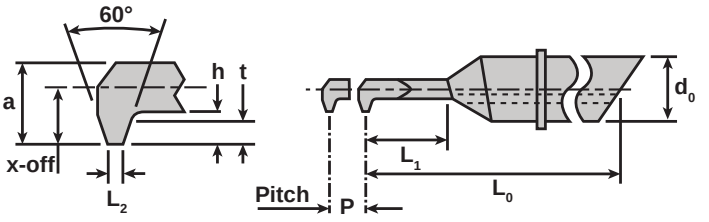


SDU - Threading Partial Profile

Part No	Thread	Pitch	max depth - L_1		d_0	a	X-off	h	t	L_0	L_2	Holder
SDU 435 160 R	M1.6-M2	0.35-0.4	3.0mm	0.118in	4	1.1	0.8	0.5	0.35	35	.02	SDA 4...
SDU 435 200 R	M1.6-M2	0.4-0.5	4.5mm	0.177in	4	1.3	1.0	0.6	0.45	35	.03	SDA 4...
SDU 435 300 R	M2-M3	0.5-0.7	6.0mm	0.236in	4	2.0	1.5	0.9	0.60	35	.04	SDA 4...
SDU 435 400 R	M2-M3	0.7-0.8	7.5mm	0.295in	4	2.7	2.0	1.2	0.80	35	.05	SDA 4...
SDU 440 160 R	M3-M4	0.35-0.4	4.8mm	0.189in	4	1.1	0.8	0.5	0.35	40	.02	SDA 4...
SDU 440 200 R	M3-M4	0.4-0.5	6.0mm	0.236in	4	1.3	1.0	0.6	0.45	40	.03	SDA 4...
SDU 440 300 R	M4-M5	0.5-0.7	9.0mm	0.354in	4	2.0	1.5	0.9	0.60	40	.04	SDA 4...
SDU 440 400 R	M4-M5	0.7-0.8	12mm	0.472in	4	2.7	2.0	1.2	0.80	40	.05	SDA 4...
SDU 656 500 R	M5-M6	0.8-1	15mm	0.591in	6	3.8	2.05	1.2	0.90	56	.06	SDA 6...
SDU 656 600 R	M6-M7	1	18mm	0.709in	6	4.6	2.45	1.2	0.90	56	.07	SDA 6...
SDU 656 700 R	M7-M8	1-1.25	21mm	0.827in	6	5.6	2.95	1.4	1.10	56	.08	SDA 6...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

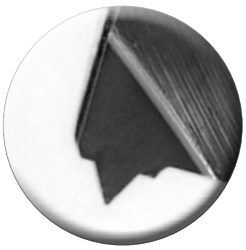


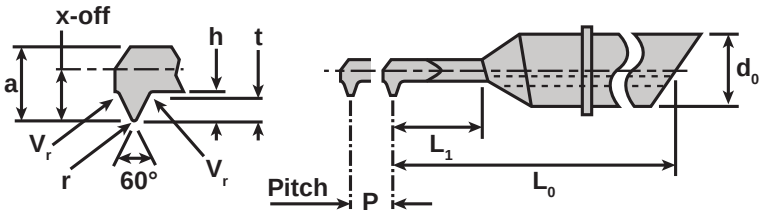


SDV - Threading Full Profile

Part No	Thread	Pitch	max depth - L_1		d_0	a	X-off	h	t	L_0	r_{max}	V_r	Holder
SDV 435 100 R	M1	0.25	3.00mm	0.118in	4	0.6	0.5	0.2	.162	35	.02	0.04	SDA 4...
SDV 435 120 R	M1.2	0.25	3.60mm	0.142in	4	0.76	0.6	0.2	.162	35	.02	0.04	SDA 4...
SDV 435 140 R	M1.4	0.3	4.20mm	0.165in	4	0.92	0.7	0.23	.194	35	.02	0.05	SDA 4...
SDV 435 160 R	M1.6	0.35	4.80mm	0.189in	4	1.08	0.8	0.26	.227	35	.03	0.05	SDA 4...
SDV 435 180 R	M1.8	0.35	5.40mm	0.213in	4	1.24	0.9	0.26	.227	35	.03	0.05	SDA 4...
SDV 435 200 R	M2	0.4	6.00mm	0.236in	4	1.4	1.0	0.3	.258	35	.03	0.05	SDA 4...
SDV 435 220 R	M2.2	0.45	6.60mm	0.260in	4	1.56	1.1	0.33	.287	35	.03	0.05	SDA 4...
SDV 435 250 R	M2.5	0.45	7.50mm	0.295in	4	1.8	1.25	0.33	.287	35	.03	0.05	SDA 4...
SDV 440 100 R	M1	0.25	5.00mm	0.197in	4	0.6	0.5	0.2	.162	40	.02	0.04	SDA 4...
SDV 440 120 R	M1.2	0.25	6.00mm	0.236in	4	0.76	0.6	0.2	.162	40	.02	0.04	SDA 4...
SDV 440 140 R	M1.4	0.3	7.00mm	0.276in	4	0.92	0.7	0.23	.194	56	.02	0.05	SDA 4...
SDV 440 160 R	M1.6	0.35	8.00mm	0.315in	4	1.08	0.8	0.26	.227	40	.03	0.05	SDA 4...
SDV 440 180 R	M1.8	0.35	9.00mm	0.354in	4	1.24	0.9	0.26	.227	40	.03	0.05	SDA 4...
SDV 440 200 R	M2	0.4	10.00mm	0.394in	4	1.4	1.0	0.3	.258	40	.03	0.05	SDA 4...
SDV 440 220 R	M2.2	0.45	11.00mm	0.433in	4	1.56	1.1	0.33	.287	40	.03	0.05	SDA 4...
SDV 440 250 R	M2.5	0.45	12.50mm	0.492in	4	1.8	1.25	0.33	.287	40	.03	0.05	SDA 4...
SDV 440 300 R	M3	0.5	9.00mm	0.354in	4	2.2	1.5	0.37	.316	40	.04	0.06	SDA 4...
SDV 440 350 R	M3.5	0.6	10.50mm	0.413in	4	2.6	1.75	0.43	.374	40	.04	0.06	SDA 4...
SDV 440 400 R	M4	0.7	12.00mm	0.472in	4	3.0	2.0	0.5	.432	40	.05	0.06	SDA 4...
SDV 448 300 R	M3	0.5	15.00mm	0.591in	4	2.2	1.5	0.57	.316	48	.04	0.06	SDA 4...
SDV 448 350 R	M3.5	0.6	17.50mm	0.689in	4	2.6	1.75	0.7	.374	48	.04	0.06	SDA 4...
SDV 448 400 R	M4	0.7	20.00mm	0.787in	4	3.0	2.0	0.86	.432	48	.05	0.06	SDA 4...
SDV 644 500 R	M5	0.8	10.00mm	0.394in	6	3.8	2.5	0.57	.5	44	.05	0.07	SDA 6...
SDV 644 600 R	M6/7	1	12.00mm	0.472in	6	4.6	3.0	0.7	.62	44	.05	0.08	SDA 6...
SDV 644 800 R	M8	1.25	12.00mm	0.472in	6	5.62	3.0	0.86	.78	44	.05	0.09	SDA 6...
SDV 656 500 R	M5	0.8	20.00mm	0.787in	6	3.8	2.5	0.57	.5	56	.05	0.07	SDA 6...
SDV 656 600 R	M6/7	1.0	24.00mm	0.945in	6	4.6	3.0	0.7	.62	56	.05	0.08	SDA 6...
SDV 656 800 R	M8	1.25	24.00mm	0.945in	6	5.62	3.0	0.86	.78	56	.05	0.09	SDA 6...
SDV 668 500 R	M5	0.8	30.00mm	1.181in	6	3.8	2.5	0.57	.5	68	.05	0.07	SDA 6...
SDV 668 600 R	M6/7	1.0	36.00mm	1.417in	6	4.6	3.0	0.7	.62	68	.05	0.08	SDA 6...
SDV 668 800 R	M8	1.25	36.00mm	1.417in	6	5.62	3.0	0.86	.78	68	.05	0.09	SDA 6...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

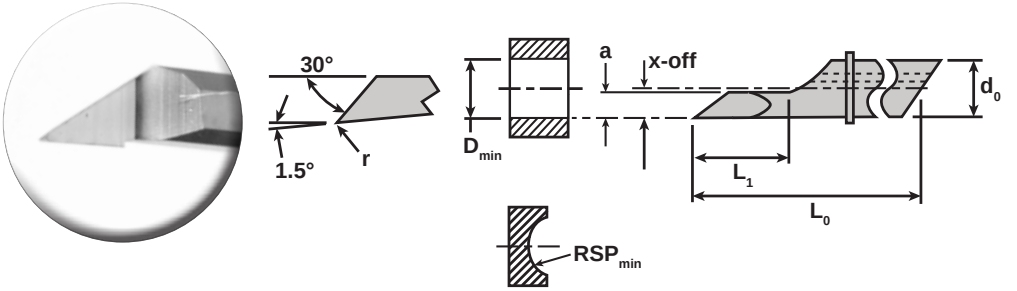




SXJ - Copy Turning (axial)

Part No	Min Hole Ø - D_{min}		max depth - L_1		d_0	a	X-off	RSP_{min}	L_0	r	Holder
SXJ 435 042	0.42mm	0.017in	1.5mm	0.059in	4	0.19	0.13	0.45	35	0.08	SDA 4...
SXJ 435 092	0.92mm	0.036in	3.0mm	0.118in	4	0.41	0.38	0.95	35	0.08	SDA 4...
SXJ 435 142	1.42mm	0.056in	4.5mm	0.177in	4	0.64	0.63	1.45	35	0.08	SDA 4...
SXJ 435 192	1.92mm	0.076in	6.0mm	0.236in	4	0.86	0.88	1.95	35	0.08	SDA 4...
SXJ 435 242	2.42mm	0.095in	7.5mm	0.295in	4	1.09	1.13	2.45	35	0.08	SDA 4...
SXJ 440 092	0.92mm	0.036in	5.0mm	0.197in	4	0.41	0.38	0.95	40	0.08	SDA 4...
SXJ 440 142	1.42mm	0.056in	7.5mm	0.295in	4	0.64	0.63	1.45	40	0.08	SDA 4...
SXJ 440 192	1.92mm	0.076in	10mm	0.394in	4	0.86	0.88	1.95	40	0.08	SDA 4...
SXJ 440 242	2.42mm	0.095in	12.5mm	0.492in	4	1.09	1.13	2.45	40	0.08	SDA 4...
SXJ 440 292	2.92mm	0.115in	9.0mm	0.354in	4	1.31	1.38	2.95	40	0.08	SDA 4...
SXJ 440 342	3.42mm	0.135in	10.5mm	0.413in	4	1.54	1.63	3.45	40	0.08	SDA 4...
SXJ 440 392	3.92mm	0.154in	12.0mm	0.472in	4	1.76	1.88	3.95	40	0.08	SDA 4...
SXJ 448 292	2.92mm	0.115in	15.0mm	0.591in	4	1.31	1.38	2.95	48	0.08	SDA 4...
SXJ 448 342	3.42mm	0.135in	17.5mm	0.689in	4	1.54	1.63	3.45	48	0.08	SDA 4...
SXJ 448 392	3.92mm	0.154in	20.0mm	0.787in	4	1.76	1.88	3.95	48	0.08	SDA 4...
SXJ 644 442	4.42mm	0.174in	9.0mm	0.354in	6	1.99	2.09	4.45	44	0.12	SDA 6...
SXJ 644 492	4.92mm	0.194in	10.0mm	0.394in	6	2.21	2.34	4.95	44	0.12	SDA 6...
SXJ 644 542	5.42mm	0.213in	11.0mm	0.433in	6	2.44	2.59	5.45	44	0.12	SDA 6...
SXJ 644 592	5.92mm	0.233in	12.0mm	0.472in	6	2.66	2.84	5.95	44	0.12	SDA 6...
SXJ 656 442	4.42mm	0.174in	18.0mm	0.709in	6	1.99	2.09	4.45	56	0.12	SDA 6...
SXJ 656 492	4.92mm	0.194in	20.0mm	0.787in	6	2.21	2.34	4.95	56	0.12	SDA 6...
SXJ 656 542	5.42mm	0.213in	22.0mm	0.866in	6	2.44	2.59	5.45	56	0.12	SDA 6...
SXJ 656 592	5.92mm	0.233in	24.0mm	0.945in	6	2.66	2.84	5.95	56	0.12	SDA 6...
SXJ 668 442	4.42mm	0.174in	27.0mm	1.063in	6	1.99	2.09	4.45	68	0.12	SDA 6...
SXJ 668 492	4.92mm	0.194in	30.0mm	1.181in	6	2.21	2.34	4.95	68	0.12	SDA 6...
SXJ 668 542	5.42mm	0.213in	33.0mm	1.299in	6	2.44	2.59	5.45	68	0.12	SDA 6...
SXJ 668 592	5.92mm	0.233in	36.0mm	1.417in	6	2.66	2.84	5.95	68	0.12	SDA 6...
SXJ 850 692	6.92mm	0.272in	14.0mm	0.551in	8	3.11	3.3	6.95	50	0.16	SDA 8...
SXJ 850 792	7.92mm	0.312in	16.0mm	0.630in	8	3.56	3.8	7.95	50	0.16	SDA 8...
SXJ 866 692	6.92mm	0.272in	28.0mm	1.102in	8	3.11	3.3	6.95	66	0.16	SDA 8...
SXJ 866 792	7.92mm	0.312in	32.0mm	1.260in	8	3.56	3.8	7.95	66	0.16	SDA 8...
SXJ 882 692	6.92mm	0.272in	42.0mm	1.654in	8	3.11	3.3	6.95	82	0.16	SDA 8...
SXJ 882 792	7.92mm	0.312in	48.0mm	1.890in	8	3.56	3.8	7.95	82	0.16	SDA 8...

Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request

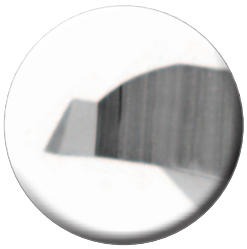


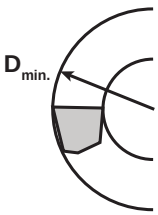
multidec®-MicroBore - Grooving (axial)

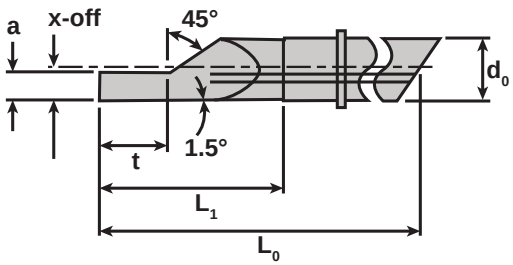
SXP - Grooving (axial)

Part No	Min Hole Ø - D_{min}		max depth - t		d_0	a	X-off	L_0	L_1	Holder
SXP 435 142	1.42mm	0.056in	0.2mm	0.009in	4	0.35	0.71	35	4.5	SDA 4...
SXP 435 192	1.92mm	0.076in	0.2mm	0.008in	4	0.35	0.96	35	6.0	SDA 4...
SXP 435 242	2.42mm	0.095in	0.2mm	0.008in	4	0.35	1.21	35	7.5	SDA 4...
SXP 440 142	1.42mm	0.056in	0.4mm	0.014in	4	0.35	0.71	40	7.5	SDA 4...
SXP 440 192	1.92mm	0.076in	0.4mm	0.016in	4	0.35	0.96	40	10.0	SDA 4...
SXP 440 242	2.42mm	0.095in	0.4mm	0.016in	4	0.35	1.21	40	12.5	SDA 4...
SXP 440 292	2.92mm	0.115in	0.5mm	0.019in	4	0.35	1.46	40	9.0	SDA 4...
SXP 440 342	3.42mm	0.135in	0.5mm	0.020in	4	0.35	1.71	40	10.5	SDA 4...
SXP 440 392	3.92mm	0.154in	0.5mm	0.020in	4	0.35	1.96	40	12.0	SDA 4...
SXP 448 292	2.92mm	0.115in	0.6mm	0.024in	4	0.35	1.46	48	15.0	SDA 4...
SXP 448 342	3.42mm	0.135in	0.6mm	0.024in	4	0.35	1.71	48	17.5	SDA 4...
SXP 448 392	3.92mm	0.154in	0.6mm	0.024in	4	0.35	1.96	48	20.0	SDA 4...
SXP 644 442	4.42mm	0.174in	0.7mm	0.028in	6	0.5	2.21	44	9.0	SDA 6...
SXP 644 492	4.92mm	0.194in	0.7mm	0.028in	6	0.5	2.46	44	10.0	SDA 6...
SXP 644 542	5.42mm	0.213in	0.9mm	0.035in	6	0.5	2.71	44	11.0	SDA 6...
SXP 644 592	5.92mm	0.233in	0.9mm	0.035in	6	0.5	2.96	44	12.0	SDA 6...
SXP 656 442	4.42mm	0.174in	1.0mm	0.039in	6	0.5	2.21	56	18.0	SDA 6...
SXP 656 492	4.92mm	0.194in	1.0mm	0.039in	6	0.5	2.46	56	20.0	SDA 6...
SXP 656 542	5.42mm	0.213in	1.1mm	0.043in	6	0.5	2.71	56	22.0	SDA 6...
SXP 656 592	5.92mm	0.233in	1.1mm	0.043in	6	0.5	2.96	56	24.0	SDA 6...
SXP 668 442	4.42mm	0.174in	1.1mm	0.043in	6	0.5	2.21	68	27.0	SDA 6...
SXP 668 492	4.92mm	0.194in	1.2mm	0.047in	6	0.5	2.46	68	30.0	SDA 6...
SXP 668 542	5.42mm	0.213in	1.2mm	0.047in	6	0.5	2.71	68	33.0	SDA 6...
SXP 668 592	5.92mm	0.233in	1.2mm	0.047in	6	0.5	2.96	68	36.0	SDA 6...
SXP 850 692	6.92mm	0.272in	1.4mm	0.055in	8	0.75	3.46	50	14.0	SDA 8...
SXP 850 792	7.92mm	0.312in	1.4mm	0.055in	8	0.75	3.96	50	16.0	SDA 8...
SXP 866 692	6.92mm	0.272in	1.4mm	0.055in	8	0.75	3.46	66	28.0	SDA 8...
SXP 866 792	7.92mm	0.312in	1.5mm	0.059in	8	0.75	3.96	66	32.0	SDA 8...
SXP 882 692	6.92mm	0.272in	1.5mm	0.059in	8	0.75	3.46	82	42.0	SDA 8...
SXP 882 792	7.92mm	0.312in	1.5mm	0.059in	8	0.75	3.96	82	48.0	SDA 8...

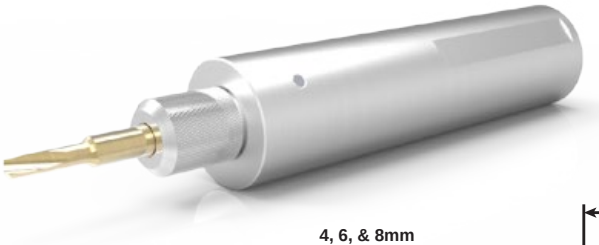
Standard Grade Offering: UHM20 HX - Coated Carbide for Most Applications. Other Coatings on Request



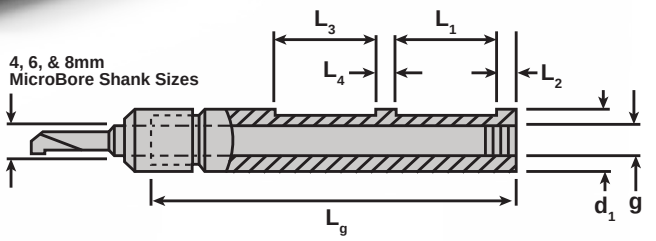




multidec®-MicroBore: SDA - Quick Change Holders



- All Holders Are Coolant Thru
- Extremely Rapid Tool Changes
- No Special Wrenches Required!
- Repeats Within .0004"



Imperial - 4mm Shank

Part No	d_1	g	L_g	L_1	L_2	L_3	L_4
SDA 4 060 12.7	1/2"	R 1/8"	60	27	5	-	-
SDA 4 060 19.05	3/4"	R 1/8"	60	27	5	-	-
SDA 4 060 25.4	1.0"	R 1/8"	60	27	5	-	-
SDA 4 120 12.7	1/2"	R 1/8"	120	27	5	27	5
SDA 4 120 19.05	3/4"	R 1/8"	120	27	5	27	5
SDA 4 120 25.4	1.00"	R 1/8"	120	27	5	27	5
For SD/SX...4 MicroBore Tools							

Imperial - 6mm Shank

Part No	d_1	g	L_g	L_1	L_2	L_3	L_4
SDA 6 065 12.7	1/2"	R 1/8"	65	27	5	-	-
SDA 6 065 19.05	3/4"	R 1/8"	65	27	5	-	-
SDA 6 065 25.4	1.0"	R 1/8"	65	27	5	-	-
SDA 6 120 12.7	1/2"	R 1/8"	120	27	5	27	5
SDA 6 120 19.05	3/4"	R 1/8"	120	27	5	27	5
SDA 6 120 25.4	1.00"	R 1/8"	120	27	5	27	5
For SD/SX...6 MicroBore Tools							

Metric - 4mm Shank

Part No	d_1	g	L_g	L_1	L_2	L_3	L_4
SDA 4 060 07	7	M5	60	-	-	-	-
SDA 4 060 08	8	M5	60	27	5	-	-
SDA 4 060 10	10	M5	60	27	5	-	-
SDA 4 060 12	12	R 1/8"	60	27	5	-	-
SDA 4 060 14	14	R 1/8"	60	27	5	-	-
SDA 4 060 16	16	R 1/8"	60	27	5	-	-
SDA 4 060 18	18	R 1/8"	60	27	5	-	-
SDA 4 060 20	20	R 1/8"	60	27	5	-	-
SDA 4 060 22	22	R 1/8"	60	27	5	-	-
SDA 4 060 25	25	R 1/8"	60	27	5	-	-
SDA 4 060 28	28	R 1/8"	60	27	5	-	-
SDA 4 100 08	8	R 1/8"	100	27	5	-	-
SDA 4 100 10	10	R 1/8"	120	27	5	-	-
SDA 4 120 12	12	R 1/8"	120	27	5	27	5
SDA 4 120 14	14	R 1/8"	120	27	5	27	5
SDA 4 120 16	16	R 1/8"	120	27	5	27	5
For SD/SX...4 MicroBore Tools							

Metric - 6mm Shank

Part No	d_1	g	L_g	L_1	L_2	L_3	L_4
SDA 6 065 12	12	R 1/8"	65	27	5	-	-
SDA 6 065 14	14	R 1/8"	65	27	5	-	-
SDA 6 065 16	16	R 1/8"	65	27	5	-	-
SDA 6 065 18	18	R 1/8"	65	27	5	-	-
SDA 6 065 20	20	R 1/8"	65	27	5	-	-
SDA 6 065 22	22	R 1/8"	65	27	5	-	-
SDA 6 065 25	25	R 1/8"	65	27	5	-	-
SDA 6 065 28	28	R 1/8"	65	27	5	-	-
SDA 6 100 12	12	R 1/8"	100	27	5	-	-
SDA 6 120 14	14	R 1/8"	120	27	5	27	5
SDA 6 120 16	16	R 1/8"	120	27	5	27	5
SDA 6 120 18	18	R 1/8"	120	27	5	27	5
SDA 6 120 20	20	R 1/8"	120	27	5	27	5
SDA 6 120 22	22	R 1/8"	120	27	5	27	5
SDA 6 120 25	25	R 1/8"	120	27	5	27	5
SDA 6 120 28	28	R 1/8"	120	27	5	27	5
For SD/SX...6 MicroBore Tools							

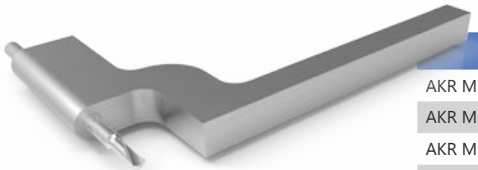
Imperial - 8mm Shank

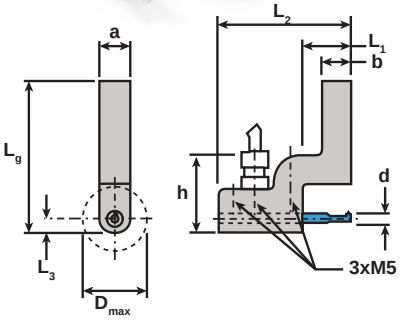
Part No	d_1	g	L_g	L_1	L_2	L_3	L_4
SDA 8 070 19.05	3/4"	R 1/8"	70	27	5	-	-
SDA 8 070 25.4	1.00"	R 1/8"	70	27	5	-	-
SDA 8 120 19.05	3/4"	R 1/8"	120	27	5	27	5
SDA 8 120 25.4	1.00"	R 1/8"	120	27	5	27	5
For SD/SX...8 MicroBore Tools							

Metric - 8mm Shank

Part No	d_1	g	L_g	L_1	L_2	L_3	L_4
SDA 8 070 14	14	R 1/8"	70	27	5	-	-
SDA 8 070 16	16	R 1/8"	70	27	5	-	-
SDA 8 070 20	20	R 1/8"	70	27	5	-	-
SDA 8 070 22	22	R 1/8"	70	27	5	-	-
SDA 8 070 25	25	R 1/8"	70	27	5	-	-
SDA 8 070 28	28	R 1/8"	70	27	5	-	-
SDA 8 100 14	14	R 1/8"	100	27	5	-	-
SDA 8 120 16	16	R 1/8"	120	27	5	27	5
SDA 8 120 18	18	R 1/8"	120	27	5	27	5
SDA 8 120 20	20	R 1/8"	120	27	5	27	5
SDA 8 120 22	22	R 1/8"	120	27	5	27	5
SDA 8 120 25	25	R 1/8"	120	27	5	27	5
SDA 8 120 28	28	R 1/8"	120	27	5	27	5
For SD/SX...8 MicroBore Tools							

multidec®-MicroBore: AKR / Parts & Accessories





Part No	a	b	D_{max}	h	d	L_g	L_1	L_2	L_3
AKR M 0808x100 D4-3540	8	8	26	30	4	104	20	55	4
AKR M 0808x100 D4-48	8	8	26	30	4	104	30	65	4
AKR M 1010x100 D4-3540	10	10	26	31	4	105	20	55	5
AKR M 1010x100 D4-48	10	10	26	31	4	105	30	65	5
AKR M 1212x100 D4-3540	12	12	26	32	4	106	20	55	6
AKR M 1212x100 D4-48	12	12	26	32	4	106	30	65	6
AKR M 1/2"x100 D4-3540	.500"	.500"	26	32.5	4	106.5	20	55	6.5
AKR M 1/2"x100 D4-48	.500"	.500"	26	32.5	4	106.5	30	65	6.5
AKR M 1616x100 D4-3540	16	16	26	34	4	133	20	55	8
AKR M 1616x100 D4-48	16	16	26	34	4	133	30	65	8

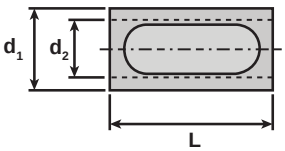
Also Available for SD...6 / SX...6 MicroBore Tools

Spare Clamping Nuts

Part No	Fits Holders	Description	Dia.
MSP SDA 4M	SDA 4...	4mm Holder Nut	M8x.5
MSP SDA 6M	SDA 6...	6mm Holder Nut	M12x.6
MSP SDA 8M	SDA 8...	8mm Holder Nut	M14x.75

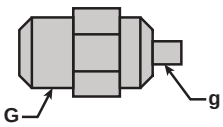
Reduction Sleeves

Part No	d_1	d_2	L
MRH 1600 1230	16.00	12	30
MRH 1905 1240	.750"	12	40
MRH 1905 1640	.750"	16	40
MRH 2200 1240	22.00	12	40
MRH 2540 1240	1.00"	12	40
MRH 1905 1640	.750"	16	40
MRH 2200 1640	22.00	16	40
MRH 2540 1640	1.00"	16	40
MRH 2500 2040	25.00	20	40
MRH 2540 2040	1.00"	20	40



Coolant Fittings

Part No	g	G
4005-000104	G1/8"	1/4"JIC
4005-000111	M5	1/4" JIC



Setup and Location Tool

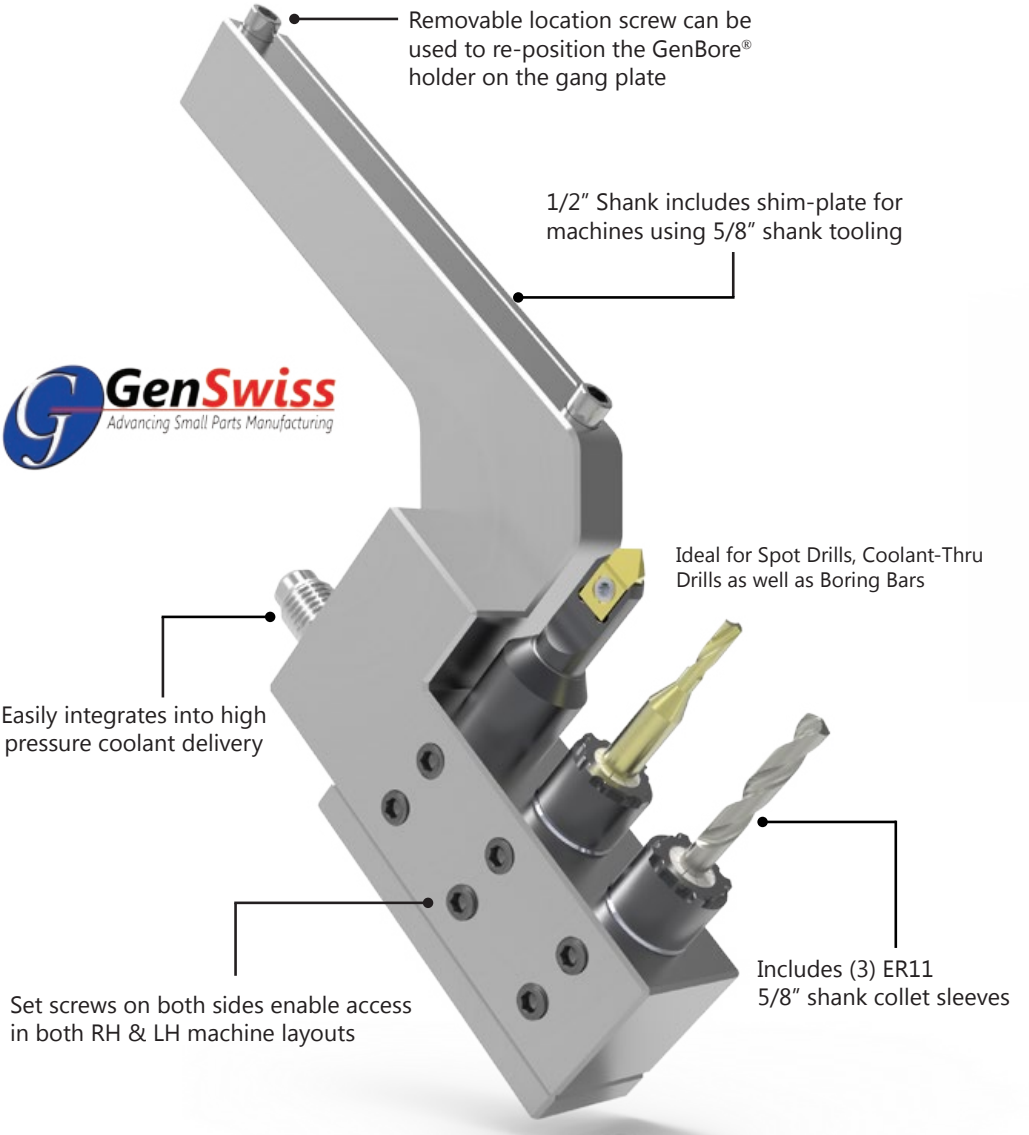
Part No	Holders	Description	Dia.
MSP SDA 4X	SDA 4...	Alignment Device	4mm
MSP SDA 6X	SDA 6...	Alignment Device	6mm
MSP SDA 8X	SDA 8...	Alignment Device	8mm

Retaining Rings

Part No	Holders	Description	Dia.
MSP SDA 4S	SDA 4...	Tool Retaining Ring	4mm
MSP SDA 6S	SDA 6...		6mm
MSP SDA 8S	SDA 8...		8mm

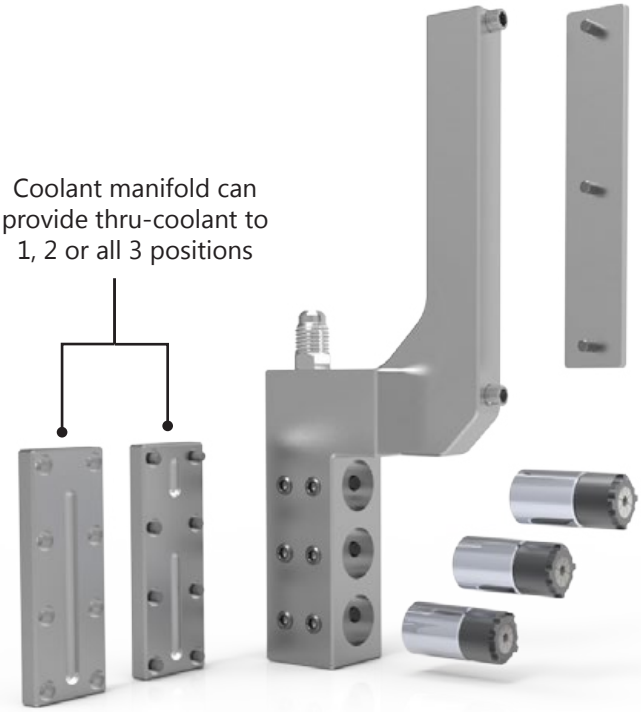
The GenBore®

Three Position Expansion ID Tool Holder for CNC Swiss Machines



ID Tooling Expansion Holders

Coolant manifold can provide thru-coolant to 1, 2 or all 3 positions

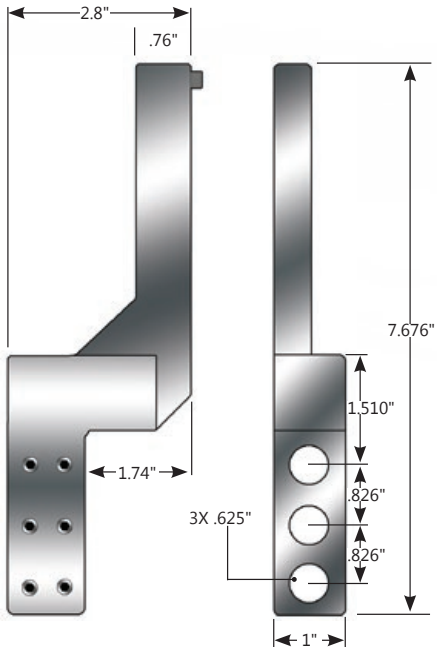


Converts a Standard Turning Position to a Triple ID Station

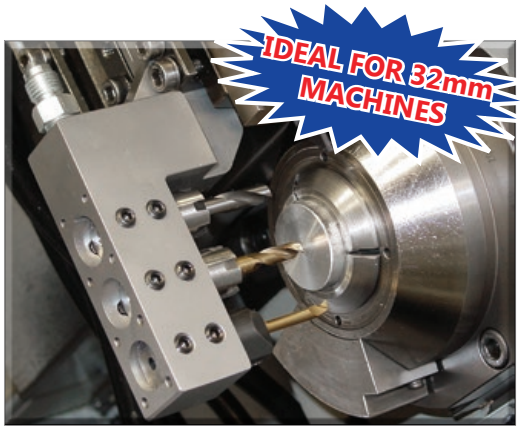
GenBore Tool Holder Kits Include:
GenBore Main Holder Body
Reversable Coolant Manifold
Shank Conversion Shim Plate
Set Screws, Coolant Fitting & Location Screws

Optional:
(3) .625" Shank ER11 Collet Sleeves
(3) ***EzR Swiss Clamp*** ER Nuts & Spanner Wrench. Positive Interlocking Design Reduces Slipping or Operator Injury!

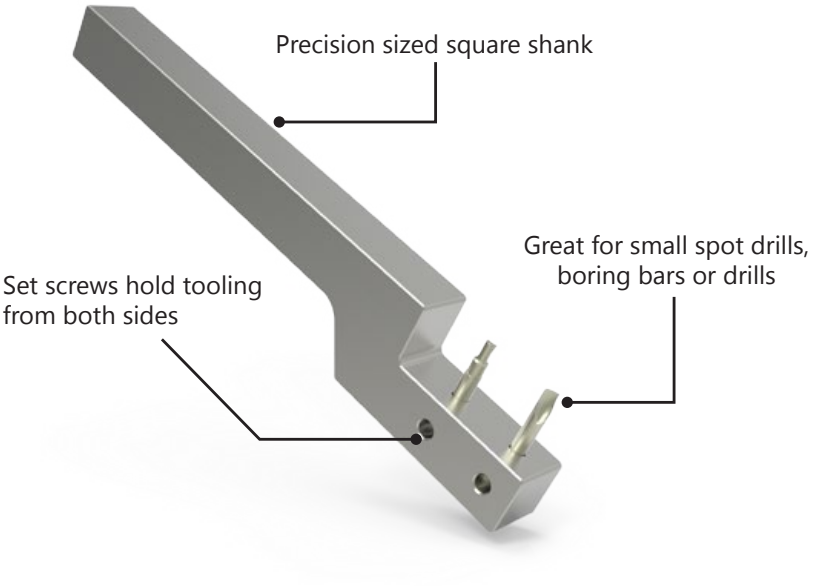
EZR Swiss Clamp System

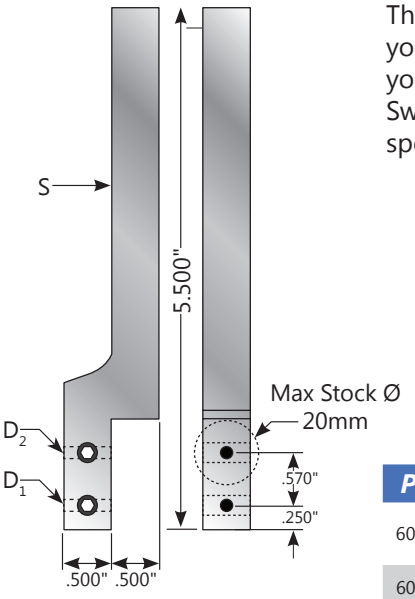


Part No	Description
GBH-000-500.625.1-CS	3 Position GenBore Holder with Collet Sleeves and EzR Swiss Clamp ER Collet Nuts & Spanner
GBH-000-500.625.1	3 Position GenBore Holder Only



The GenBore®-mini





The GenBore-mini is an excellent solution for when you need to incorporate additional small ID tools into your setup. Low profile and interference free in most Swiss machines, the GenBore-mini is ideal for small ID spotting, drilling, and boring.

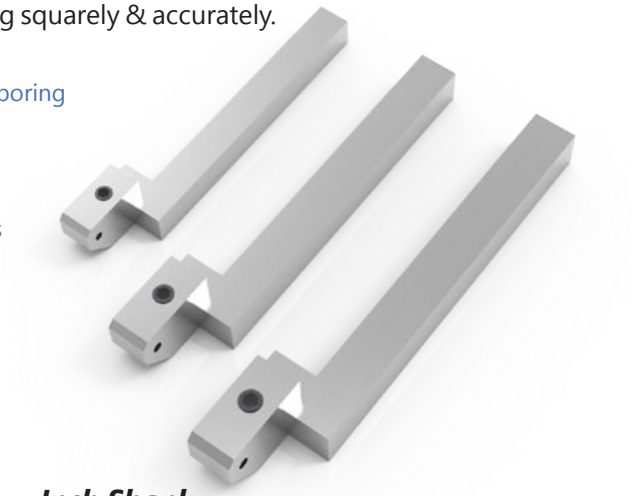
- Effective Solution for Increasing ID Tools Capacity
- Interference-Free Design For Smaller Machines
- Accurately Locates Small Shank ID Tooling
- Custom Options Available - Call for Details

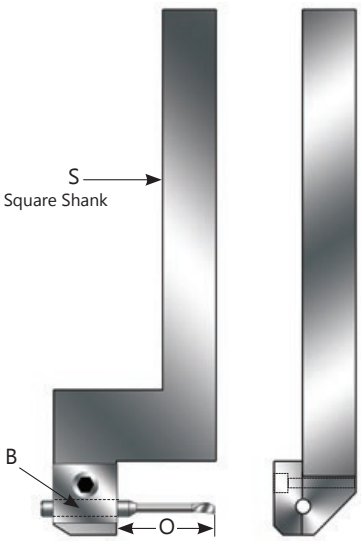
Part No	S	D_1	D_2	Description
6011-000200	.500"	---	---	GenBore-mini blank 1/2" shank
6011-000201	.500"	.125"	.125"	(2) .125" Tool Bores
6011-000202	.500"	.125"	.187"	(1) .125" Tool Bore (1) .1875" Tool bore

Increase Your ID Tool Capacity
Enhance Your Machine's Capahility

Dog Leg boring bar holders convert an unused O.D. turning position on the gang slide into an added ID position. The holder bore is made to the desired shank size of the intended boring bar, spot drill or ID grooving tool. Dog leg holders hold tooling squarely & accurately.

- Use for spotting, drilling or boring
- Interference-Free Design
- Accurately Locates Tools
- Custom Made to Your Specs





Inch Shank

Part No	S	B	O
TBH-500-125-500	.500"	.125"	.500"
TBH-500-156-1000	.500"	.156"	1.00"
TBH-500-187-500	.500"	.187"	.500"
TBH-500-187-750	.500"	.187"	.750"
TBH-500-250-500	.500"	.250"	.500"
TBH-500-250-625	.500"	.250"	.625"
TBH-500-250-750	.500"	.250"	.750"
TBH-500-250-1000	.500"	.250"	1.00"
TBH-500-250-1250	.500"	.250"	1.25"
TBH-500-312-1000	.500"	.312"	1.00"
TBH-500-375-500	.500"	.375"	.500"
TBH-500-375-750	.500"	.375"	.750"
TBH-500-375-1000	.500"	.375"	1.00"

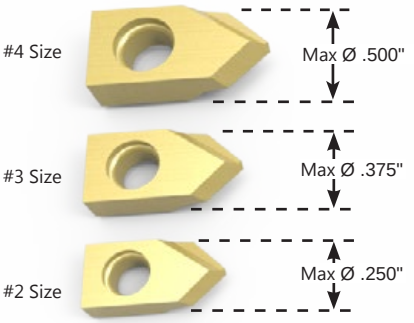
Metric Shank

Part No	S	B	O
TBH-12M-187-500	12mm	.187"	.500"
TBH-12M-250-500	12mm	.250"	.500"
TBH-16M-125-500	16mm	.125"	.500"
TBH-16M-250-1000	16mm	.250"	1.00"
TBH-16M-312-750	16mm	.312"	.750"
TBH-16M-375-1000	16mm	.375"	1.00"

Need a specific dimension not listed here?
We can supply custom made holders to your specs.
Delivery in 2-3 weeks

GenCut® Spot Drills

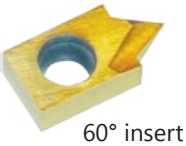
Highly repeatable, carbide ground inserts make old fashioned center drills obsolete for performing spotting operations. Precision ground carbide inserts repeat within +/- .0004", thus eliminating the need to adjust the axial location of the tool, unlike conventional spot tooling held by collets. The system also simplifies tool changing in that it only requires a screwdriver for insert removal. This eliminates the need for collet wrenches, reducing the chance of accidental tool breakage or personal injury.



Available Drill Point Angles
60°, 82°, 90°, 120° & 140°

Available Web Thickness
.005" / .015" / .036"

All 60° inserts feature a radial relief grind for spotting of small holes starting with an ID of .010". Note: 60° inserts do not conform to the standard insert Max Ø. and are intended for micro spotting only.



60° insert

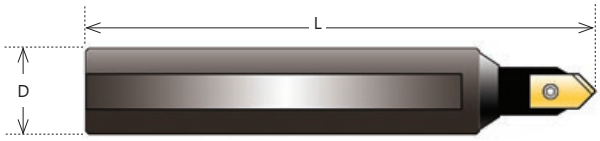
Reduces the Need for Collet Wrenches During Routine Tool Changes

Micro Grain Carbide Spot Inserts

Angle	#2 Size	#3 Size	#4 Size	Geometry Positive/Negative	Hand Right / Left	Web Thickness F-.005" / M-.015" / H-.036"	Grade
60°	SDI-2060-	SDI-3060-	-----	P	R / L	F	MG-Uncoated TIN TLN- TiAlN ATN- AlTiN
82°	SDI-2082-	SDI-3082-	SDI-4082-	P / N	R / L	F / M / H	
90°	SDI-2090-	SDI-3090-	SDI-4090-	P / N	R / L	F / M / H	
120°	SDI-2120-	SDI-3120-	SDI-4120-	P / N	R / L	F / M / H	
140°	SDI-2140-	SDI-3140-	SDI-4140-	P / N	R / L	M / H	

Example Ordering Nomenclature: SDI-3090-PRF-TiN Spot Drill Insert, #3 Size, 90 Degree Point Angle, Positive Geometry, Right Hand, (Fine).005" Web Thickness, TiN coated

Spot Drill Inserts & Holders



Spot Drill Holders

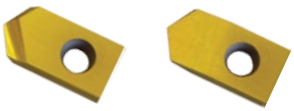
#2 Holders	L	D
SDH-2-250-2.0	2.0"	1/4"
SDH-2-375-2.5	2.5"	3/8"
SDH-2-500-2.5	2.5"	1/2"
SDH-2-625-3.0	3.0"	5/8"
SDH-2-750-5.0	5.0"	3/4"
SDH-2-866-5.0	5.0"	22mm
SDH-2-1000-5.0	5.0"	1"

#3 Holders	L	D
SDH-3-375-3.0	3.0"	3/8"
SDH-3-500-3.0	3.0"	1/2"
SDH-3-625-5.0	5.0"	5/8"
SDH-3-750-5.0	5.0"	3/4"
SDH-3-866-5.0	5.0"	22mm
SDH-3-1000-5.0	5.0"	1"
#3 Double Ended		
SDH-3D-625-3.0	3.0"	5/8"
SDH-3D-750-4.0	4.0"	3/4"

#4 Holders	L	D
SDH-4-375-3.5	3.5"	3/8"
SDH-4-500-3.5	3.5"	1/2"
SDH-4-625-5.0	5.0"	5/8"
SDH-4-750-5.0	5.0"	3/4"
SDH-4-866-5.0	5.0"	22mm
SDH-4-1000-5.0	5.0"	1"

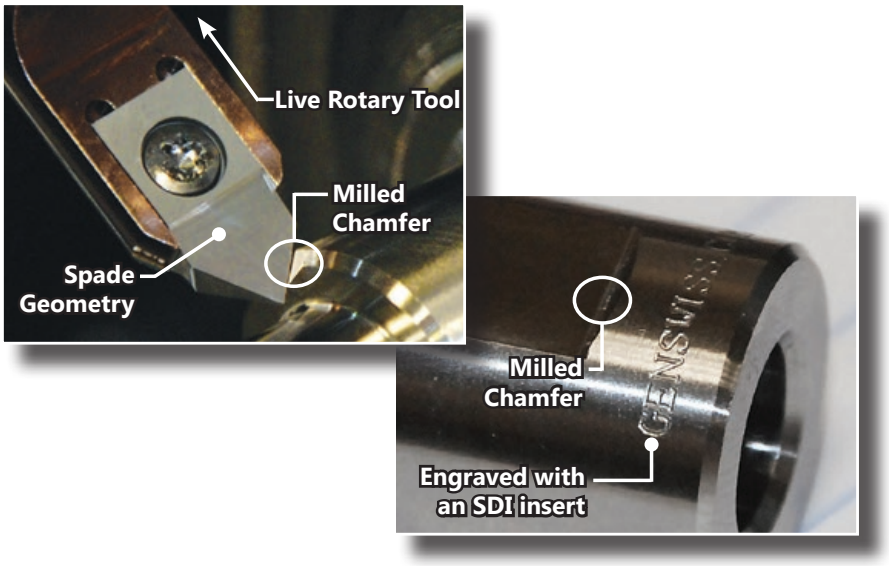
Versatile Tools that can:

Geometry Styles



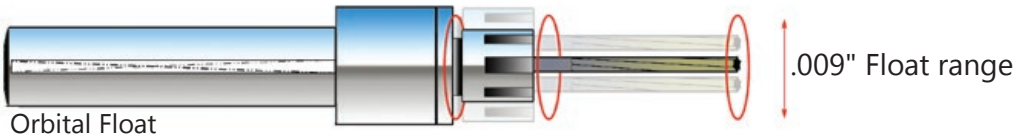
Positive Fluted

Negative Spade



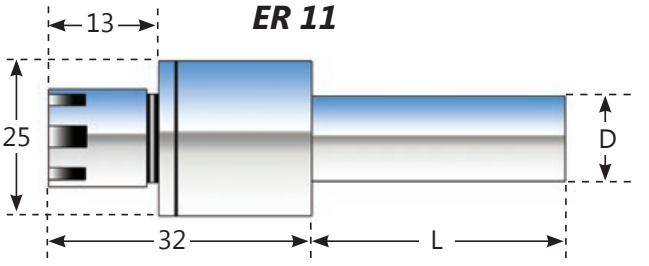
Precision Floating Micro Reamer Holders

- Simplifies Small Hole Reaming
- Prevents Breakage of Expensive Micro-Reamers
- Fits Into the Smallest Swiss Machines
- Compensates for Hole Misalignment



Orbital Float

Designed with "True Orbital Float" capability, the micro reamer holder aligns the reamer perfectly to the drilled hole enabling better size control, reduces "bell-mouthing", and increases tool life.

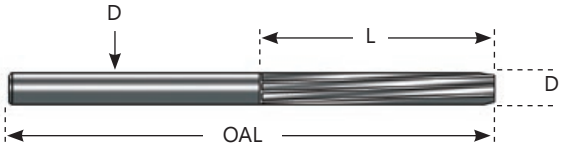


Part No.	Shank (D)	Length (L)
RFH-11-010-042	10mm	42mm
RFH-11-200-042	20mm	42mm
RFH-11-220-042	22mm	42mm
RFH-11-190-042	3/4"	42mm

Holds .5mm to 7mm diameter reamers

Micro Reamers

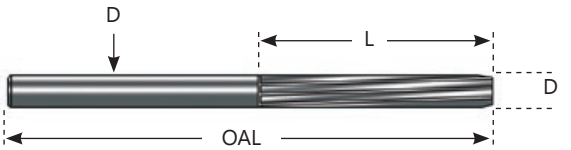
- Precision Manufactured from K15 Carbide
- Sizes ranging from .023" - .5138"
- Diameter tolerance of +.00012" / - 0.00"
- 10° left hand spiral right Hand Cut



Part No	D mm	D Inch	L	OAL
TR-8600-0060	0.60	.0236	.281	1 5/16
TR-8600-0061	0.61	.0240	.281	1 5/16
TR-8600-0062	0.62	.0244	.281	1 5/16
TR-8600-0063	0.63	.0248	.281	1 5/16
TR-8600-0064	0.64	.0252	.281	1 5/16
TR-8600-0065	0.65	.0256	.281	1 5/16
TR-8600-0066	0.66	.0260	.281	1 5/16
TR-8600-0067	0.67	.0264	.281	1 5/16
TR-8600-0068	0.68	.0268	.281	1 5/16
TR-8600-0069	0.69	.0272	.281	1 5/16
TR-8600-0070	0.70	.0276	.281	1 5/16
TR-8600-0071	0.71	.0280	.281	1 5/16
TR-8600-0072	0.72	.0283	.281	1 5/16
TR-8600-0073	0.73	.0287	.281	1 5/16
TR-8600-0074	0.74	.0291	.281	1 5/16
TR-8600-0075	0.75	.0295	.281	1 5/16
TR-8600-0076	0.76	.0299	.281	1 5/16
TR-8600-0077	0.77	.0303	.281	1 5/16
TR-8600-0078	0.78	.0307	.281	1 5/16
TR-8600-0079	0.79	.0311	.281	1 5/16
TR-8600-0080	0.80	.0315	.281	1 5/16
TR-8600-0081	0.81	.0319	.281	1 5/16
TR-8600-0082	0.82	.0323	.281	1 5/16
TR-8600-0083	0.83	.0327	.281	1 5/16
TR-8600-0084	0.84	.0331	.281	1 5/16
TR-8600-0085	0.85	.0335	.281	1 5/16
TR-8600-0086	0.86	.0339	.281	1 5/16
TR-8600-0087	0.87	.0343	.281	1 5/16
TR-8600-0088	0.88	.0346	.281	1 5/16
TR-8600-0089	0.89	.0350	.281	1 5/16
TR-8600-0090	0.90	.0354	.281	1 5/16
TR-8600-0091	0.91	.0358	.281	1 5/16
TR-8600-0092	0.92	.0362	.281	1 5/16
TR-8600-0093	0.93	.0366	.281	1 5/16
TR-8600-0094	0.94	.0370	.281	1 5/16
TR-8600-0095	0.95	.0374	.281	1 5/16
TR-8600-0096	0.96	.0378	.281	1 5/16
TR-8600-0097	0.97	.0382	.281	1 5/16
TR-8600-0098	0.98	.0386	.281	1 5/16
TR-8600-0099	0.99	.0390	.281	1 5/16
TR-8600-0100	1.00	.0394	.281	1 5/16
TR-8600-0101	1.01	.0398	.281	1 5/16
TR-8600-0102	1.02	.0402	.281	1 5/16
TR-8600-0103	1.03	.0406	.281	1 5/16
TR-8600-0104	1.04	.0409	.281	1 5/16
TR-8600-0105	1.05	.0413	.281	1 5/16
TR-8600-0106	1.06	.0417	.406	1 9/16
TR-8600-0107	1.07	.0421	.406	1 9/16

Part No	D mm	D Inch	L	OAL
TR-8600-0108	1.08	.0425	.406	1 9/16
TR-8600-0109	1.09	.0429	.406	1 9/16
TR-8600-0110	1.10	.0433	.406	1 9/16
TR-8600-0111	1.11	.0437	.406	1 9/16
TR-8600-0112	1.12	.0441	.406	1 9/16
TR-8600-0113	1.13	.0445	.406	1 9/16
TR-8600-0114	1.14	.0449	.406	1 9/16
TR-8600-0115	1.15	.0453	.406	1 9/16
TR-8600-0116	1.16	.0457	.406	1 9/16
TR-8600-0117	1.17	.0461	.406	1 9/16
TR-8600-0118	1.18	.0465	.406	1 9/16
TR-8600-0119	1.19	.0469	.406	1 9/16
TR-8600-0120	1.20	.0472	.406	1 9/16
TR-8600-0121	1.21	.0476	.406	1 9/16
TR-8600-0122	1.22	.0480	.406	1 9/16
TR-8600-0123	1.23	.0484	.406	1 9/16
TR-8600-0124	1.24	.0488	.406	1 9/16
TR-8600-0125	1.25	.0492	.406	1 9/16
TR-8600-0126	1.26	.0496	.406	1 9/16
TR-8600-0127	1.27	.0500	.406	1 9/16
TR-8600-0128	1.28	.0504	.406	1 9/16
TR-8600-0129	1.29	.0508	.406	1 9/16
TR-8600-0130	1.30	.0512	.406	1 9/16
TR-8600-0131	1.31	.0516	.406	1 9/16
TR-8600-0132	1.32	.0520	.406	1 9/16
TR-8600-0133	1.33	.0524	.406	1 9/16
TR-8600-0134	1.34	.0528	.406	1 9/16
TR-8600-0135	1.35	.0531	.406	1 9/16
TR-8600-0136	1.36	.0535	.406	1 9/16
TR-8600-0137	1.37	.0539	.406	1 9/16
TR-8600-0138	1.38	.0543	.406	1 9/16
TR-8600-0139	1.39	.0547	.406	1 9/16
TR-8600-0140	1.40	.0551	.406	1 9/16
TR-8600-0141	1.41	.0555	.406	1 9/16
TR-8600-0142	1.42	.0559	.406	1 9/16
TR-8600-0143	1.43	.0563	.406	1 9/16
TR-8600-0144	1.44	.0567	.406	1 9/16
TR-8600-0145	1.45	.0571	.406	1 9/16
TR-8600-0146	1.46	.0575	.406	1 9/16
TR-8600-0147	1.47	.0579	.406	1 9/16
TR-8600-0148	1.48	.0583	.406	1 9/16
TR-8600-0149	1.49	.0587	.406	1 9/16
TR-8600-0150	1.50	.0591	.406	1 9/16
TR-8600-0151	1.51	.0594	.406	1 9/16
TR-8600-0152	1.52	.0598	.406	1 9/16
TR-8600-0153	1.53	.0602	.406	1 9/16
TR-8600-0154	1.54	.0606	.406	1 9/16
TR-8600-0155	1.55	.0610	.406	1 9/16

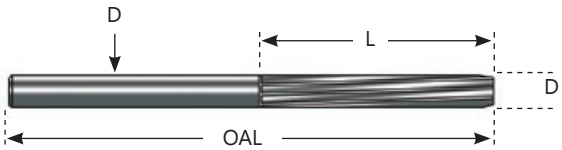
Micro Reamers



Part No	D mm	D Inch	L	OAL
TR-8600-0156	1.56	.0614	.437	2
TR-8600-0157	1.57	.0618	.437	2
TR-8600-0158	1.58	.0622	.437	2
TR-8600-0159	1.59	.0626	.437	2
TR-8600-0160	1.60	.0630	.437	2
TR-8600-0161	1.61	.0634	.437	2
TR-8600-0162	1.62	.0638	.437	2
TR-8600-0163	1.63	.0642	.437	2
TR-8600-0164	1.64	.0646	.437	2
TR-8600-0165	1.65	.0650	.437	2
TR-8600-0166	1.66	.0654	.437	2
TR-8600-0167	1.67	.0657	.437	2
TR-8600-0168	1.68	.0661	.437	2
TR-8600-0169	1.69	.0665	.437	2
TR-8600-0170	1.70	.0669	.437	2
TR-8600-0171	1.71	.0673	.437	2
TR-8600-0172	1.72	.0677	.437	2
TR-8600-0173	1.73	.0681	.437	2
TR-8600-0174	1.74	.0685	.437	2
TR-8600-0175	1.75	.0689	.437	2
TR-8600-0176	1.76	.0693	.437	2
TR-8600-0177	1.77	.0697	.437	2
TR-8600-0178	1.78	.0701	.437	2
TR-8600-0179	1.79	.0705	.437	2
TR-8600-0180	1.80	.0709	.437	2
TR-8600-0181	1.81	.0713	.437	2
TR-8600-0182	1.82	.0717	.437	2
TR-8600-0183	1.83	.0720	.437	2
TR-8600-0184	1.84	.0724	.437	2
TR-8600-0185	1.85	.0728	.437	2
TR-8600-0186	1.86	.0732	.437	2
TR-8600-0187	1.87	.0736	.437	2
TR-8600-0188	1.88	.0740	.437	2
TR-8600-0189	1.89	.0744	.437	2
TR-8600-0190	1.90	.0748	.437	2
TR-8600-0191	1.91	.0752	.437	2
TR-8600-0192	1.92	.0756	.437	2
TR-8600-0193	1.93	.0760	.437	2
TR-8600-0194	1.94	.0764	.437	2
TR-8600-0195	1.95	.0768	.437	2
TR-8600-0196	1.96	.0772	.437	2

Part No	D mm	D Inch	L	OAL
TR-8600-0197	1.97	.0776	.437	2
TR-8600-0198	1.98	.0780	.437	2
TR-8600-0199	1.99	.0783	.437	2
TR-8600-0200	2.00	.0787	.437	2
TR-8600-0201	2.01	.0791	.437	2
TR-8600-0202	2.02	.0795	.437	2
TR-8600-0203	2.03	.0799	.437	2
TR-8600-0204	2.04	.0803	.437	2
TR-8600-0205	2.05	.0807	.437	2
TR-8600-0206	2.06	.0811	.437	2
TR-8600-0207	2.07	.0815	.437	2
TR-8600-0208	2.08	.0819	.437	2
TR-8600-0209	2.09	.0823	.437	2
TR-8600-0210	2.10	.0827	.437	2
TR-8600-0211	2.11	.0831	.437	2
TR-8600-0212	2.12	.0835	.437	2
TR-8600-0213	2.13	.0839	.437	2
TR-8600-0214	2.14	.0843	.437	2
TR-8600-0215	2.15	.0846	.437	2
TR-8600-0216	2.16	.0850	.437	2
TR-8600-0217	2.17	.0854	.437	2
TR-8600-0218	2.18	.0858	.437	2
TR-8600-0219	2.19	.0862	.437	2
TR-8600-0220	2.20	.0866	.437	2
TR-8600-0221	2.21	.0870	.437	2
TR-8600-0222	2.22	.0874	.437	2
TR-8600-0223	2.23	.0878	.437	2
TR-8600-0224	2.24	.0882	.437	2
TR-8600-0225	2.25	.0886	.437	2
TR-8600-0226	2.26	.0890	.437	2
TR-8600-0227	2.27	.0894	.437	2
TR-8600-0228	2.28	.0898	.437	2
TR-8600-0229	2.29	.0902	.437	2
TR-8600-0230	2.30	.0906	.437	2
TR-8600-0231	2.31	.0909	.437	2
TR-8600-0232	2.32	.0913	.437	2
TR-8600-0233	2.33	.0917	.437	2
TR-8600-0234	2.34	.0921	.437	2
TR-8600-0235	2.35	.0925	.437	2
TR-8600-0236	2.36	.0929	.437	2

Micro Reamers



Part No	D mm	D Inch	L	OAL
TR-8600-0237	2.37	.0933	.593	2 1/4
TR-8600-0238	2.38	.0937	.593	2 1/4
TR-8600-0239	2.39	.0941	.593	2 1/4
TR-8600-0240	2.40	.0945	.593	2 1/4
TR-8600-0241	2.41	.0949	.593	2 1/4
TR-8600-0242	2.42	.0953	.593	2 1/4
TR-8600-0243	2.43	.0957	.593	2 1/4
TR-8600-0244	2.44	.0961	.593	2 1/4
TR-8600-0245	2.45	.0965	.593	2 1/4
TR-8600-0246	2.46	.0969	.593	2 1/4
TR-8600-0247	2.47	.0972	.593	2 1/4
TR-8600-0248	2.48	.0976	.593	2 1/4
TR-8600-0249	2.49	.0980	.593	2 1/4
TR-8600-0250	2.50	.0984	.593	2 1/4
TR-8600-0251	2.51	.0988	.593	2 1/4
TR-8600-0252	2.52	.0992	.593	2 1/4
TR-8600-0253	2.53	.0996	.593	2 1/4
TR-8600-0254	2.54	.1000	.593	2 1/4
TR-8600-0255	2.55	.1004	.593	2 1/4
TR-8600-0256	2.56	.1008	.593	2 1/4
TR-8600-0257	2.57	.1012	.593	2 1/4
TR-8600-0258	2.58	.1016	.593	2 1/4
TR-8600-0259	2.59	.1020	.593	2 1/4
TR-8600-0260	2.60	.1024	.593	2 1/4
TR-8600-0261	2.61	.1028	.593	2 1/4
TR-8600-0262	2.62	.1031	.593	2 1/4
TR-8600-0263	2.63	.1035	.593	2 1/4
TR-8600-0264	2.64	.1039	.593	2 1/4
TR-8600-0265	2.65	.1043	.593	2 1/4
TR-8600-0266	2.66	.1047	.593	2 1/4
TR-8600-0267	2.67	.1051	.593	2 1/4
TR-8600-0268	2.68	.1055	.593	2 1/4
TR-8600-0269	2.69	.1059	.593	2 1/4
TR-8600-0270	2.70	.1063	.593	2 1/4
TR-8600-0271	2.71	.1067	.593	2 1/4
TR-8600-0272	2.72	.1071	.593	2 1/4
TR-8600-0273	2.73	.1075	.593	2 1/4
TR-8600-0274	2.74	.1079	.593	2 1/4
TR-8600-0275	2.75	.1083	.593	2 1/4
TR-8600-0276	2.76	.1087	.593	2 1/4
TR-8600-0277	2.77	.1091	.593	2 1/4
TR-8600-0278	2.78	.1094	.593	2 1/4
TR-8600-0279	2.79	.1098	.593	2 1/4
TR-8600-0280	2.80	.1102	.593	2 1/4
TR-8600-0281	2.81	.1106	.593	2 1/4

Part No	D mm	D Inch	L	OAL
TR-8600-0282	2.82	.1110	.593	2 1/4
TR-8600-0283	2.83	.1114	.593	2 1/4
TR-8600-0284	2.84	.1118	.593	2 1/4
TR-8600-0285	2.85	.1122	.593	2 1/4
TR-8600-0286	2.86	.1126	.593	2 1/4
TR-8600-0287	2.87	.1130	.593	2 1/4
TR-8600-0288	2.88	.1134	.593	2 1/4
TR-8600-0289	2.89	.1138	.593	2 1/4
TR-8600-0290	2.90	.1142	.593	2 1/4
TR-8600-0291	2.91	.1146	.593	2 1/4
TR-8600-0292	2.92	.1150	.593	2 1/4
TR-8600-0293	2.93	.1154	.593	2 1/4
TR-8600-0294	2.94	.1157	.593	2 1/4
TR-8600-0295	2.95	.1161	.593	2 1/4
TR-8600-0296	2.96	.1165	.593	2 1/4
TR-8600-0297	2.97	.1169	.593	2 1/4
TR-8600-0298	2.98	.1173	.593	2 1/4
TR-8600-0299	2.99	.1177	.593	2 1/4
TR-8600-0300	3.00	.1181	.593	2 1/4
TR-8600-0301	3.01	.1185	.593	2 1/4
TR-8600-0302	3.02	.1189	.593	2 1/4
TR-8600-0303	3.03	.1193	.593	2 1/4
TR-8600-0304	3.04	.1197	.593	2 1/4
TR-8600-0305	3.05	.1201	.593	2 1/4
TR-8600-0306	3.06	.1205	.593	2 1/4
TR-8600-0307	3.07	.1209	.593	2 1/4
TR-8600-0308	3.08	.1213	.593	2 1/4
TR-8600-0309	3.09	.1217	.593	2 1/4
TR-8600-0310	3.10	.1220	.593	2 1/4
TR-8600-0311	3.11	.1224	.593	2 1/4
TR-8600-0312	3.12	.1228	.593	2 1/4
TR-8600-0313	3.13	.1232	.593	2 1/4
TR-8600-0314	3.14	.1236	.593	2 1/4
TR-8600-0315	3.15	.1240	.593	2 1/4
TR-8600-0316	3.16	.1244	.593	2 1/4
TR-8600-0317	3.17	.1248	.593	2 1/4
TR-8600-0318	3.18	.1252	.593	2 1/4
TR-8600-0319	3.19	.1256	.593	2 1/4
TR-8600-0320	3.20	.1260	.593	2 1/4
TR-8600-0321	3.21	.1264	.593	2 1/4
TR-8600-0322	3.22	.1268	.593	2 1/4
TR-8600-0323	3.23	.1272	.593	2 1/4
TR-8600-0324	3.24	.1276	.593	2 1/4
TR-8600-0325	3.25	.1280	.593	2 1/4

Additional Sizes Available - Call for Details

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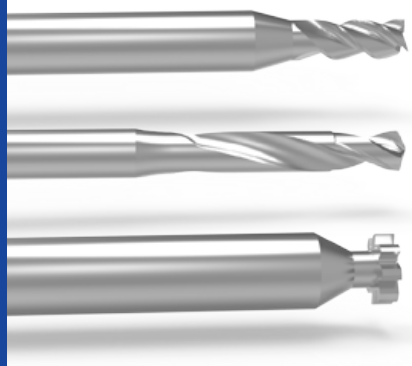

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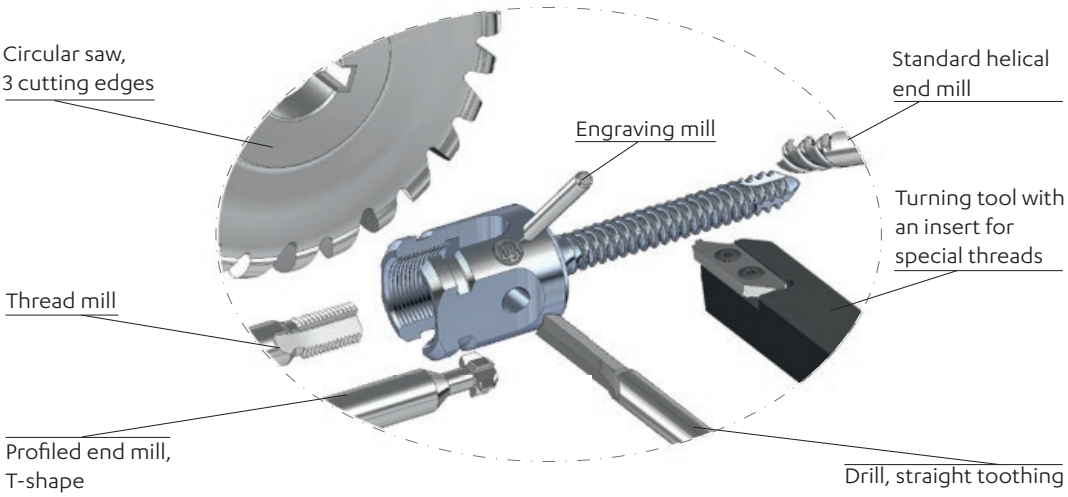
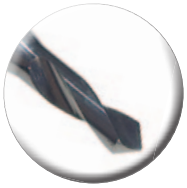
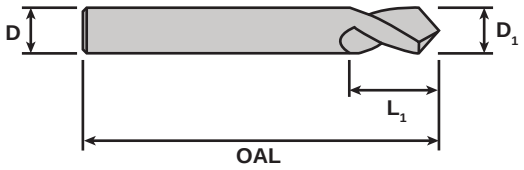


337 Series Center Drills - 60˚, 90˚ & 120˚





Tolerances:

D1 under 1mm: +/-.01mm
D1 over 1mm: +/-.02mm
D Shank: h5

Geometry:

Flutes: 2
Helix: 24˚
Drill Point: 60˚,90˚,120˚

Optional Coatings:

TRIO: Steel & Stainless
SOLO: Brass & Bronze
NEMO: Titanium & Aluminum

60˚ - 2 Flute

Part No	D_1	D	L_1	OAL
TD-337-3-0.50	0.50	2.00	2.00	38
TD-337-3-0.60	0.60	2.00	2.00	38
TD-337-3-0.70	0.70	2.00	2.00	38
TD-337-3-0.80	0.80	2.00	3.00	38
TD-337-3-0.90	0.90	2.00	3.00	38
TD-337-3-1.00	1.00	2.00	3.00	38
TD-337-3-1.10	1.10	2.00	3.00	38
TD-337-3-1.20	1.20	2.00	3.00	38
TD-337-3-1.30	1.30	2.00	3.00	38
TD-337-3-1.40	1.40	2.00	3.00	38
TD-337-3-1.50	1.50	2.00	5.00	38
TD-337-3-1.60	1.60	2.00	5.00	38
TD-337-3-1.70	1.70	2.00	5.00	38
TD-337-3-1.80	1.80	2.00	5.00	38
TD-337-3-1.90	1.90	2.00	5.00	38
TD-337-3-2.00	2.00	2.00	8.00	38
TD-337-3-2.50	2.50	2.50	8.00	38
TD-337-3-3.00	3.00	3.00	8.00	44
TD-337-3-4.00	4.00	4.00	12.0	50
TD-337-3-5.00	5.00	5.00	12.0	50
TD-337-3-6.00	6.00	6.00	15.0	61
TD-337-3-8.00	8.00	8.00	20.0	72
TD-337-3-10.0	10.0	10.0	20.0	72
TD-337-3-12.0	12.0	12.0	25.0	83
TD-337-3-16.0	16.0	16.0	25.0	83
TD-337-3-20.0	20.0	20.0	35.0	104

90˚ - 2 Flute

Part No	D_1	D	L_1	OAL
TD-337-0.40	0.40	2.00	2.00	38
TD-337-0.50	0.50	2.00	2.00	38
TD-337-0.55	0.55	2.00	2.00	38
TD-337-0.60	0.60	2.00	2.00	38
TD-337-0.65	0.65	2.00	2.00	38
TD-337-0.70	0.70	2.00	2.00	38
TD-337-0.75	0.75	2.00	2.00	38
TD-337-0.80	0.80	2.00	3.00	38
TD-337-0.85	0.85	2.00	3.00	38
TD-337-0.90	0.90	2.00	3.00	38
TD-337-0.95	0.95	2.00	3.00	38
TD-337-1.00	1.00	2.00	3.00	38
TD-337-1.05	1.05	2.00	3.00	38
TD-337-1.10	1.10	2.00	3.00	38
TD-337-1.15	1.15	2.00	3.00	38
TD-337-1.20	1.20	2.00	3.00	38
TD-337-1.25	1.25	2.00	3.00	38
TD-337-1.30	1.30	2.00	3.00	38
TD-337-1.35	1.35	2.00	3.00	38
TD-337-1.40	1.40	2.00	3.00	38
TD-337-1.45	1.45	2.00	3.00	38
TD-337-1.50	1.50	2.00	5.00	38
TD-337-1.60	1.60	2.00	5.00	38
TD-337-1.70	1.70	2.00	5.00	38
TD-337-1.80	1.80	2.00	5.00	38
TD-337-1.90	1.90	2.00	5.00	38
TD-337-2.00	2.00	2.00	8.00	38
TD-337-2.50	2.50	2.50	8.00	38
TD-337-3.00	3.00	3.00	8.00	44
TD-337-4.00	4.00	4.00	12.0	50
TD-337-5.00	5.00	5.00	12.0	50
TD-337-6.00	6.00	6.00	15.0	61
TD-337-8.00	8.00	8.00	20.0	72
TD-337-10.0	10.0	10.0	20.0	72
TD-337-12.0	12.0	12.0	25.0	83
TD-337-16.0	16.0	16.0	25.0	83
TD-337-20.0	20.0	20.0	35.0	104

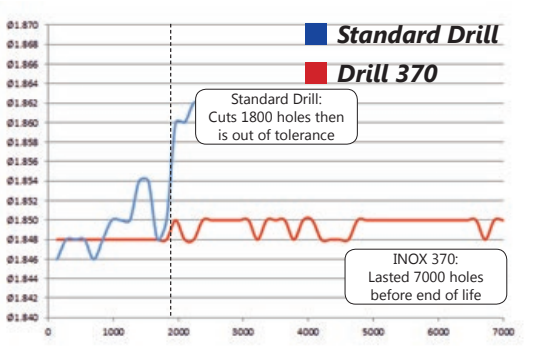
120˚ - 2 Flute

Part No	D_1	D	L_1	OAL
TD-337-2-0.50	0.50	2.00	2.00	38
TD-337-2-0.55	0.55	2.00	2.00	38
TD-337-2-0.60	0.60	2.00	2.00	38
TD-337-2-0.65	0.65	2.00	2.00	38
TD-337-2-0.70	0.70	2.00	2.00	38
TD-337-2-0.75	0.75	2.00	2.00	38
TD-337-2-0.80	0.80	2.00	3.00	38
TD-337-2-0.85	0.85	2.00	3.00	38
TD-337-2-0.90	0.90	2.00	3.00	38
TD-337-2-0.95	0.95	2.00	3.00	38
TD-337-2-1.00	1.00	2.00	3.00	38
TD-337-2-1.05	1.05	2.00	3.00	38
TD-337-2-1.10	1.10	2.00	3.00	38
TD-337-2-1.15	1.15	2.00	3.00	38
TD-337-2-1.20	1.20	2.00	3.00	38
TD-337-2-1.25	1.25	2.00	3.00	38
TD-337-2-1.30	1.30	2.00	3.00	38
TD-337-2-1.35	1.35	2.00	3.00	38
TD-337-2-1.40	1.40	2.00	3.00	38
TD-337-2-1.45	1.45	2.00	3.00	38
TD-337-2-1.50	1.50	2.00	5.00	38
TD-337-2-1.60	1.60	2.00	5.00	38
TD-337-2-1.70	1.70	2.00	5.00	38
TD-337-2-1.80	1.80	2.00	5.00	38
TD-337-2-1.90	1.90	2.00	5.00	38
TD-337-2-2.00	2.00	2.00	8.00	38
TD-337-2-2.50	2.50	2.50	8.00	38
TD-337-2-3.00	3.00	3.00	8.00	44
TD-337-2-4.00	4.00	4.00	12.0	50
TD-337-2-5.00	5.00	5.00	12.0	50
TD-337-2-6.00	6.00	6.00	15.0	61
TD-337-2-8.00	8.00	8.00	20.0	72
TD-337-2-10.0	10.0	10.0	20.0	72
TD-337-2-12.0	12.0	12.0	25.0	83
TD-337-2-16.0	16.0	16.0	25.0	83
TD-337-2-20.0	20.0	20.0	35.0	104

EXPERT Series Drills - INOX370 for Stainless Steels

Through rigorous testing, feedback from customers as well as years of advancement in grinding and geometry development, Louis Belet has introduced the EXPERT series of application specific drills and cutting tools. The INOX370 Series has been developed for advanced tool life, cutting reliability and chip control in stainless steels

Comparative Trial Test:
- Test: INOX370 vs Conventional Twist Drill
- Diameter: 1.85mm x 12mm Flute Length
- Material: 316L Stainless
- Hole: 8mm deep thru-hole



End of Life Criteria:
- Tool breakage
- Conical holes
- Excessive burrs
- Deviation of hole location
- Diameter tolerance +/-.01mm

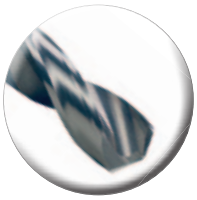
Cutting Parameters:
Vc = 30m / min or 98.4 SFM
f = .04mm per rev or .0015" IPR
RPM = 5164
Peck Cycle = .37mm

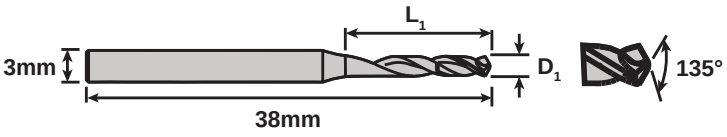
Test Results

INOX 370 Drill
- Cut 7000 Holes
- Fragmented Chips
- Cleaner, Tight Tolerance Holes

Standard Drill
- Cut 1800 Holes
- Long Stringy Chips
- Poor finish, burrs

EXPERT Series Drills - INOX370 for Stainless Steels





Tolerances:

D1: -0.002mm / -0.004mm
D Shank: h5

Geometry:

Flutes: 2
Helix: Variable
Drill Point: 135˚

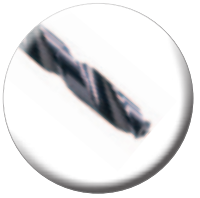
Optional Coatings:

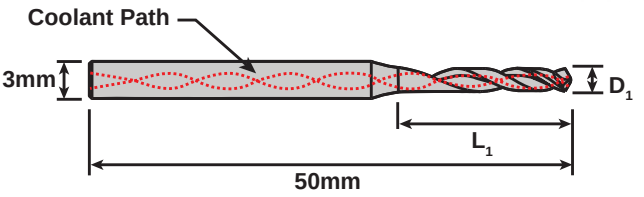
PROPRIETARY COATING OPTIMIZED for STAINLESS

370 Series: Drills For Stainless Steels - 2 Flute

Part No	D_1	L_1
TD-370-0.50	0.50mm	4mm
TD-370-0.51	0.51mm	4mm
TD-370-0.52	0.52mm	4mm
TD-370-0.53	0.53mm	4mm
TD-370-0.54	0.54mm	4mm
TD-370-0.55	0.55mm	4mm
TD-370-0.56	0.56mm	4mm
TD-370-0.57	0.57mm	4mm
TD-370-0.58	0.58mm	4mm
TD-370-0.59	0.59mm	4mm
TD-370-0.60	0.60mm	5mm
TD-370-0.61	0.61mm	5mm
TD-370-0.62	0.62mm	5mm
TD-370-0.63	0.63mm	5mm
TD-370-0.64	0.64mm	5mm
TD-370-0.65	0.65mm	5mm
TD-370-0.66	0.66mm	5mm
TD-370-0.67	0.67mm	5mm
TD-370-0.68	0.68mm	5mm
TD-370-0.69	0.69mm	5mm
TD-370-0.70	0.70mm	5mm
TD-370-0.71	0.71mm	5mm
TD-370-0.72	0.72mm	5mm
TD-370-0.73	0.73mm	5mm
TD-370-0.74	0.74mm	5mm
TD-370-0.75	0.75mm	5mm
TD-370-0.76	0.76mm	5mm
TD-370-0.77	0.77mm	5mm
TD-370-0.78	0.78mm	5mm
TD-370-0.79	0.79mm	5mm
TD-370-0.80	0.80mm	6mm
TD-370-0.81	0.80mm	6mm
TD-370-0.82	0.80mm	6mm
TD-370-0.83	0.80mm	6mm
TD-370-0.84	0.80mm	6mm
TD-370-0.85	0.80mm	6mm
TD-370-0.86	0.80mm	6mm
TD-370-0.87	0.80mm	6mm
TD-370-0.88	0.80mm	6mm
TD-370-0.89	0.80mm	6mm
TD-370-0.90	0.80mm	6mm
TD-370-0.91	0.80mm	8mm
TD-370-0.92	0.92mm	8mm
TD-370-0.93	0.93mm	8mm
TD-370-0.94	0.94mm	8mm
TD-370-0.95	0.95mm	8mm
TD-370-0.96	0.96mm	8mm
TD-370-0.97	0.97mm	8mm
TD-370-0.98	0.98mm	8mm
TD-370-0.99	0.99mm	8mm
TD-370-1.00	1.00mm	8mm
TD-370-1.01	1.01mm	8mm
TD-370-1.02	1.02mm	8mm
TD-370-1.03	1.03mm	8mm
TD-370-1.04	1.04mm	8mm
TD-370-1.05	1.05mm	8mm
TD-370-1.06	1.06mm	8mm
TD-370-1.07	1.07mm	8mm
TD-370-1.08	1.08mm	8mm
TD-370-1.09	1.09mm	8mm
TD-370-1.10	1.10mm	8mm
TD-370-1.11	1.11mm	8mm
TD-370-1.12	1.12mm	8mm
TD-370-1.13	1.13mm	8mm
TD-370-1.14	1.14mm	8mm
TD-370-1.15	1.15mm	8mm
TD-370-1.16	1.16mm	8mm
TD-370-1.17	1.17mm	8mm
TD-370-1.18	1.18mm	8mm
TD-370-1.19	1.19mm	8mm
TD-370-1.20	1.20mm	8mm
TD-370-1.21	1.21mm	8mm
TD-370-1.22	1.22mm	8mm
TD-370-1.23	1.23mm	8mm
TD-370-1.24	1.24mm	8mm
TD-370-1.25	1.25mm	8mm
TD-370-1.26	1.26mm	8mm
TD-370-1.27	1.27mm	8mm
TD-370-1.28	1.28mm	8mm
TD-370-1.29	1.29mm	8mm
TD-370-1.30	1.30mm	8mm
TD-370-1.31	1.31mm	8mm
TD-370-1.32	1.32mm	8mm
TD-370-1.33	1.33mm	8mm
TD-370-1.34	1.34mm	8mm
TD-370-1.35	1.35mm	8mm
TD-370-1.36	1.36mm	8mm
TD-370-1.37	1.37mm	8mm
TD-370-1.38	1.38mm	8mm
TD-370-1.39	1.39mm	8mm
TD-370-1.40	1.40mm	8mm
TD-370-1.41	1.41mm	8mm
TD-370-1.42	1.42mm	8mm
TD-370-1.43	1.43mm	8mm
TD-370-1.44	1.44mm	8mm
TD-370-1.45	1.45mm	8mm
TD-370-1.46	1.46mm	8mm
TD-370-1.47	1.47mm	8mm
TD-370-1.48	1.48mm	8mm
TD-370-1.49	1.49mm	8mm
TD-370-1.50	1.50mm	12mm
TD-370-1.55	1.55mm	12mm
TD-370-1.60	1.60mm	12mm
TD-370-1.65	1.65mm	12mm
TD-370-1.70	1.70mm	12mm
TD-370-1.75	1.75mm	12mm
TD-370-1.80	1.80mm	12mm
TD-370-1.85	1.85mm	12mm
TD-370-1.90	1.90mm	12mm
TD-370-1.95	1.95mm	12mm
TD-370-2.00	2.00mm	12mm
TD-370-2.05	2.05mm	12mm
TD-370-2.10	2.10mm	12mm
TD-370-2.15	2.15mm	12mm
TD-370-2.20	2.20mm	12mm
TD-370-2.25	2.25mm	12mm
TD-370-2.30	2.30mm	12mm
TD-370-2.35	2.35mm	12mm
TD-370-2.40	2.40mm	12mm
TD-370-2.45	2.45mm	12mm
TD-370-2.50	2.50mm	12mm
TD-370-2.60	2.60mm	12mm
TD-370-2.70	2.70mm	12mm
TD-370-2.80	2.80mm	12mm
TD-370-2.90	2.90mm	12mm
TD-370-3.00	3.00mm	12mm

EXPERT Series Drills - INOX374 for Stainless Steels
Coolant Thru





Tolerances:

D1: -0.002mm/-0.004mm
D Shank: h5

Geometry:

Flutes: 2
Helix: Variable
Drill Point: 135˚

Optional Coatings:

PROPRIETARY COATING OPTIMIZED for STAINLESS

374 Series: Drills For Stainless Steels - 2 Flute - Coolant Thru

Part No	D_1	L_1
TD-374-0.70	0.70mm	8mm
TD-374-0.71	0.71mm	8mm
TD-374-0.72	0.72mm	8mm
TD-374-0.73	0.73mm	8mm
TD-374-0.74	0.74mm	8mm
TD-374-0.75	0.75mm	8mm
TD-374-0.76	0.76mm	8mm
TD-374-0.77	0.77mm	8mm
TD-374-0.78	0.78mm	8mm
TD-374-0.79	0.79mm	8mm
TD-374-0.80	0.80mm	8mm
TD-374-0.81	0.80mm	8mm
TD-374-0.82	0.80mm	8mm
TD-374-0.83	0.80mm	8mm
TD-374-0.84	0.80mm	8mm
TD-374-0.85	0.80mm	8mm
TD-374-0.86	0.80mm	8mm
TD-374-0.87	0.80mm	8mm
TD-374-0.88	0.80mm	8mm
TD-374-0.89	0.80mm	8mm
TD-374-0.90	0.80mm	10mm
TD-374-0.91	0.80mm	10mm
TD-374-0.92	0.92mm	10mm
TD-374-0.93	0.93mm	10mm
TD-374-0.94	0.94mm	10mm

Part No	D_1	L_1
TD-374-0.95	0.95mm	10mm
TD-374-0.96	0.96mm	10mm
TD-374-0.97	0.97mm	10mm
TD-374-0.98	0.98mm	10mm
TD-374-0.99	0.99mm	10mm
TD-374-1.00	1.00mm	12mm
TD-374-1.01	1.01mm	12mm
TD-374-1.02	1.02mm	12mm
TD-374-1.03	1.03mm	12mm
TD-374-1.04	1.04mm	12mm
TD-374-1.05	1.05mm	12mm
TD-374-1.06	1.06mm	12mm
TD-374-1.07	1.07mm	12mm
TD-374-1.08	1.08mm	12mm
TD-374-1.09	1.09mm	12mm
TD-374-1.10	1.10mm	12mm
TD-374-1.11	1.11mm	12mm
TD-374-1.12	1.12mm	12mm
TD-374-1.13	1.13mm	12mm
TD-374-1.14	1.14mm	12mm
TD-374-1.15	1.15mm	12mm
TD-374-1.16	1.16mm	12mm
TD-374-1.17	1.17mm	12mm
TD-374-1.18	1.18mm	12mm
TD-374-1.19	1.19mm	12mm

Part No	D_1	L_1
TD-374-1.20	1.20mm	14mm
TD-374-1.21	1.21mm	14mm
TD-374-1.22	1.22mm	14mm
TD-374-1.23	1.23mm	14mm
TD-374-1.24	1.24mm	14mm
TD-374-1.25	1.25mm	14mm
TD-374-1.26	1.26mm	14mm
TD-374-1.27	1.27mm	14mm
TD-374-1.28	1.28mm	14mm
TD-374-1.29	1.29mm	14mm
TD-374-1.30	1.30mm	14mm
TD-374-1.31	1.31mm	14mm
TD-374-1.32	1.32mm	14mm
TD-374-1.33	1.33mm	14mm
TD-374-1.34	1.34mm	14mm
TD-374-1.35	1.35mm	14mm
TD-374-1.36	1.36mm	14mm
TD-374-1.37	1.37mm	14mm
TD-374-1.38	1.38mm	14mm
TD-374-1.39	1.39mm	14mm
TD-374-1.40	1.40mm	14mm
TD-374-1.41	1.41mm	14mm
TD-374-1.42	1.42mm	14mm
TD-374-1.43	1.43mm	14mm
TD-374-1.44	1.44mm	14mm

EXPERT Series Drills - INOX374 for Stainless Steels
Coolant Thru

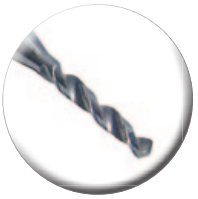
Part No	D_1	L_1
TD-374-1.45	1.45mm	14mm
TD-374-1.46	1.46mm	14mm
TD-374-1.47	1.47mm	14mm
TD-374-1.48	1.48mm	14mm
TD-374-1.49	1.49mm	14mm
TD-374-1.50	1.50mm	14mm
TD-374-1.51	1.51mm	14mm
TD-374-1.52	1.52mm	14mm
TD-374-1.53	1.53mm	14mm
TD-374-1.54	1.54mm	14mm
TD-374-1.55	1.55mm	14mm
TD-374-1.56	1.56mm	14mm
TD-374-1.57	1.57mm	14mm
TD-374-1.58	1.58mm	14mm
TD-374-1.59	1.59mm	14mm
TD-374-1.60	1.60mm	14mm
TD-374-1.61	1.61mm	14mm
TD-374-1.62	1.62mm	14mm
TD-374-1.63	1.63mm	14mm
TD-374-1.64	1.64mm	14mm
TD-374-1.65	1.65mm	14mm
TD-374-1.66	1.66mm	14mm
TD-374-1.67	1.67mm	14mm
TD-374-1.68	1.68mm	14mm
TD-374-1.69	1.69mm	14mm

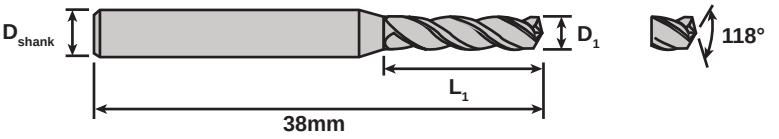
Part No	D_1	L_1
TD-374-1.70	1.70mm	18mm
TD-374-1.71	1.71mm	18mm
TD-374-1.72	1.72mm	18mm
TD-374-1.73	1.73mm	18mm
TD-374-1.74	1.74mm	18mm
TD-374-1.75	1.75mm	18mm
TD-374-1.76	1.76mm	18mm
TD-374-1.77	1.77mm	18mm
TD-374-1.78	1.78mm	18mm
TD-374-1.79	1.79mm	18mm
TD-374-1.80	1.80mm	18mm
TD-374-1.81	1.81mm	18mm
TD-374-1.82	1.82mm	18mm
TD-374-1.83	1.83mm	18mm
TD-374-1.84	1.84mm	18mm
TD-374-1.85	1.85mm	18mm
TD-374-1.86	1.86mm	18mm
TD-374-1.87	1.87mm	18mm
TD-374-1.88	1.88mm	18mm
TD-374-1.89	1.89mm	18mm
TD-374-1.90	1.90mm	18mm
TD-374-1.91	1.91mm	18mm
TD-374-1.92	1.92mm	18mm
TD-374-1.93	1.93mm	18mm
TD-374-1.94	1.94mm	18mm

Part No	D_1	L_1
TD-374-1.95	1.95mm	18mm
TD-374-1.96	1.96mm	18mm
TD-374-1.97	1.97mm	18mm
TD-374-1.98	1.98mm	18mm
TD-374-1.99	1.99mm	18mm
TD-374-2.00	2.00mm	18mm
TD-374-2.05	2.05mm	18mm
TD-374-2.10	2.10mm	20mm
TD-374-2.15	2.15mm	20mm
TD-374-2.20	2.20mm	20mm
TD-374-2.25	2.25mm	20mm
TD-374-2.30	2.30mm	20mm
TD-374-2.35	2.35mm	20mm
TD-374-2.40	2.40mm	20mm
TD-374-2.45	2.45mm	20mm
TD-374-2.50	2.50mm	20mm
TD-374-2.60	2.60mm	20mm
TD-374-2.70	2.70mm	20mm
TD-374-2.80	2.80mm	20mm
TD-374-2.90	2.90mm	20mm
TD-374-3.00	3.00mm	20mm
TD-374-3.50	3.50mm	20mm
TD-374-4.00	4.00mm	20mm

Super Precision Micro Drills

BEST SELLING MICRO-DRILL SERIES





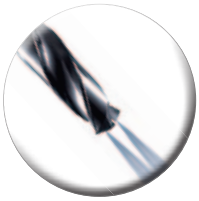
Tolerances:	
D1	-0.002mm / -0.004mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

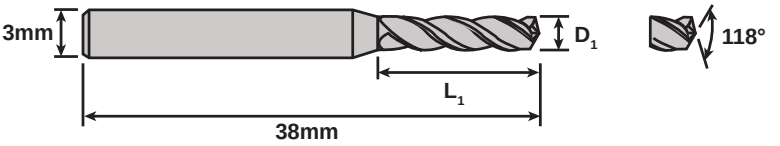
Geometry:	
Flutes:	2
Helix:	34˚
Drill Point:	118˚

Optional Coatings:	
TRIO:	Steel & Stainless
SOLO:	Brass & Bronze
NEMO:	Titanium & Aluminum

343 Series: Precision Micro Drills - 2 Flute

Part No	D1 - Cutting Diameter Range	Shank	L_1
TD-343-6-x.xx	0.80mm up to 2.00mm, increments of 0.01mm	2.0mm	6mm
TD-343-8-x.xx (specify cutting diameter)	0.80mm up to 2.00mm, increments of 0.01mm	2.0mm	8mm
	2.05mm up to 3.00mm, increments of 0.01mm	3.0mm	8mm
	3.10mm up to 4.00mm, increments of 0.10mm	4.0mm	8mm
	4.10mm up to 4.50mm, increments of 0.10mm	4.5mm	8mm
TD-343-8-5.00	5.0mm	5.0mm	8mm
TD-343-8-5.50	5.5mm	5.5mm	8mm
TD-343-8-6.00	6.0mm	8.0mm	8mm
TD-343-12-x.xx (specify cutting diameter)	0.80mm up to 2.00mm, increments of 0.01mm	2.0mm	12mm
	2.05mm up to 3.00mm, increments of 0.01mm	3.0mm	12mm
	3.10mm up to 4.00mm, increments of 0.10mm	4.0mm	12mm
	4.10mm up to 4.50mm, increments of 0.10mm	4.5mm	12mm
TD-343-12-5.00	5.0mm	5.0mm	12mm
TD-343-12-5.50	5.5mm	5.5mm	12mm
TD-343-12-6.00	6.0mm	8.0mm	12mm





Tolerances:	
D1	-0.002mm / -0.004mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

Geometry:	
Flutes:	2
Helix:	34˚
Drill Point:	118˚

Optional Coatings:	
TRIO:	Steel & Stainless
SOLO:	Brass & Bronze
NEMO:	Titanium & Aluminum

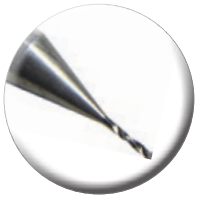
344 Series: Coolant-Thru Micro Drills - 2 Flute

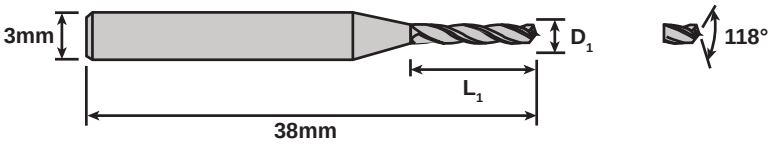
Part No	D_1	L_1
TD-344-0.70	0.70	5mm
TD-344-0.75	0.75	5mm
TD-344-0.80	0.80	6mm
TD-344-0.85	0.85	6mm
TD-344-0.90	0.90	6mm
TD-344-1.00	1.00	8mm
TD-344-1.05	1.05	8mm
TD-344-1.10	1.10	8mm
TD-344-1.20	1.20	8mm
TD-344-1.25	1.25	8mm

Part No	D_1	L_1
TD-344-1.30	1.30	8mm
TD-344-1.40	1.40	8mm
TD-344-1.50	1.50	12mm
TD-344-1.60	1.60	12mm
TD-344-1.70	1.70	12mm
TD-344-1.75	1.75	12mm
TD-344-1.80	1.80	12mm
TD-344-1.90	1.90	12mm
TD-344-2.00	2.00	12mm
TD-344-2.10	2.10	12mm

Part No	D_1	L_1
TD-344-2.20	2.20	12mm
TD-344-2.30	2.30	12mm
TD-344-2.40	2.40	12mm
TD-344-2.50	2.50	12mm
TD-344-2.60	2.60	12mm
TD-344-2.70	2.70	12mm
TD-344-2.80	2.80	12mm
TD-344-2.90	2.90	12mm
TD-344-3.00	3.00	12mm
WE CAN DO SPECIALS! CALL TODAY		

Super Precision Micro Drills





Tolerances:

D1	-0.002mm / -0.004mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

Geometry:

Flutes:	2
Helix:	34˚
Drill Point:	118˚

Optional Coatings:

TRIO:	Steel & Stainless
SOLO:	Brass & Bronze
NEMO:	Titanium & Aluminum

342 Series: Precision Micro Drills - 2 Flute

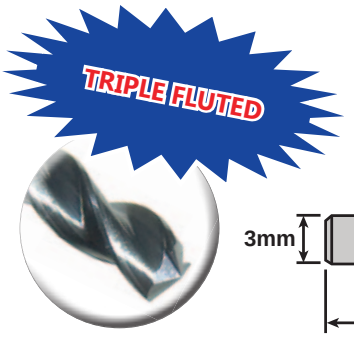
Part No	D_1	L_1
TD-342-0.05	0.05	0.30
TD-342-0.06	0.06	0.40
TD-342-0.07	0.07	0.40
TD-342-0.08	0.08	0.50
TD-342-0.09	0.09	0.50
TD-342-0.10	0.10	0.50
TD-342-0.11	0.11	0.50
TD-342-0.12	0.12	0.50
TD-342-0.13	0.13	0.50
TD-342-0.14	0.14	0.50
TD-342-0.15	0.15	0.80
TD-342-0.16	0.16	0.80
TD-342-0.17	0.17	0.80
TD-342-0.18	0.18	0.80
TD-342-0.19	0.19	0.80
TD-342-0.20	0.20	0.80
TD-342-0.21	0.21	1.00
TD-342-0.22	0.22	1.00
TD-342-0.23	0.23	1.00
TD-342-0.24	0.24	1.00
TD-342-0.25	0.25	1.00
TD-342-0.26	0.26	1.50
TD-342-0.27	0.27	1.50
TD-342-0.28	0.28	1.50
TD-342-0.29	0.29	1.50
TD-342-0.30	0.30	1.50
TD-342-0.31	0.31	2.00
TD-342-0.32	0.32	2.00
TD-342-0.33	0.33	2.00
TD-342-0.34	0.34	2.00
TD-342-0.35	0.35	2.00
TD-342-0.36	0.36	3.00
TD-342-0.37	0.37	3.00
TD-342-0.38	0.38	3.00
TD-342-0.39	0.39	3.00
TD-342-0.40	0.40	3.00
TD-342-0.41	0.41	3.00
TD-342-0.42	0.42	3.00
TD-342-0.43	0.43	3.00
TD-342-0.44	0.44	3.00
TD-342-0.45	0.45	3.00
TD-342-0.46	0.46	3.00
TD-342-0.47	0.47	4.00
TD-342-0.48	0.48	4.00
TD-342-0.49	0.49	4.00
TD-342-0.50	0.50	4.00
TD-342-0.51	0.51	4.00
TD-342-0.52	0.52	4.00
TD-342-0.53	0.53	4.00
TD-342-0.54	0.54	4.00
TD-342-0.55	0.55	4.00

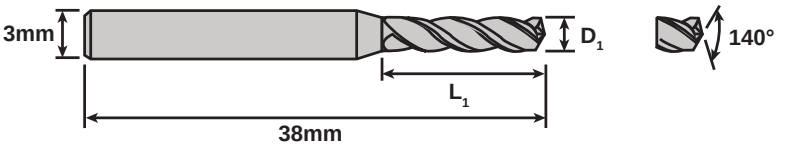
Part No	D_1	L_1
TD-342-0.56	0.56	4.00
TD-342-0.57	0.57	4.00
TD-342-0.58	0.58	4.00
TD-342-0.59	0.59	4.00
TD-342-0.60	0.60	4.00
TD-342-0.61	0.61	5.00
TD-342-0.62	0.62	5.00
TD-342-0.63	0.63	5.00
TD-342-0.64	0.64	5.00
TD-342-0.65	0.65	5.00
TD-342-0.66	0.66	5.00
TD-342-0.67	0.67	5.00
TD-342-0.68	0.68	5.00
TD-342-0.69	0.69	5.00
TD-342-0.70	0.70	5.00
TD-342-0.71	0.71	5.00
TD-342-0.72	0.72	5.00
TD-342-0.73	0.73	5.00
TD-342-0.74	0.74	5.00
TD-342-0.75	0.75	5.00
TD-342-0.76	0.76	5.00
TD-342-0.77	0.77	5.00
TD-342-0.78	0.78	5.00
TD-342-0.79	0.79	5.00
TD-342-0.80	0.80	5.00
TD-342-0.81	0.81	6.00
TD-342-0.82	0.82	6.00
TD-342-0.83	0.83	6.00
TD-342-0.84	0.84	6.00
TD-342-0.85	0.85	6.00
TD-342-0.86	0.86	6.00
TD-342-0.87	0.87	6.00
TD-342-0.88	0.88	6.00
TD-342-0.89	0.89	6.00
TD-342-0.90	0.90	6.00
TD-342-0.91	0.91	6.00
TD-342-0.92	0.92	6.00
TD-342-0.93	0.93	6.00
TD-342-0.94	0.94	6.00
TD-342-0.95	0.95	6.00
TD-342-0.96	0.96	6.00
TD-342-0.97	0.97	6.00
TD-342-0.98	0.98	6.00
TD-342-0.99	0.99	6.00
TD-342-1.00	1.00	6.00
TD-342-1.01	1.01	6.00
TD-342-1.02	1.02	6.00
TD-342-1.03	1.03	6.00
TD-342-1.04	1.04	6.00
TD-342-1.05	1.05	6.00
TD-342-1.06	1.06	6.00

Part No	D_1	L_1
TD-342-1.07	1.07	6.00
TD-342-1.08	1.08	6.00
TD-342-1.09	1.09	6.00
TD-342-1.10	1.10	6.00
TD-342-1.12	1.12	6.00
TD-342-1.13	1.13	6.00
TD-342-1.14	1.14	6.00
TD-342-1.15	1.15	6.00
TD-342-1.16	1.16	6.00
TD-342-1.17	1.17	6.00
TD-342-1.18	1.18	6.00
TD-342-1.19	1.19	6.00
TD-342-1.20	1.20	6.00
TD-342-1.21	1.21	8.00
TD-342-1.22	1.22	8.00
TD-342-1.23	1.23	8.00
TD-342-1.24	1.24	8.00
TD-342-1.25	1.25	8.00
TD-342-1.26	1.26	8.00
TD-342-1.27	1.27	8.00
TD-342-1.28	1.28	8.00
TD-342-1.29	1.29	8.00
TD-342-1.30	1.30	8.00
TD-342-1.31	1.31	8.00
TD-342-1.32	1.32	8.00
TD-342-1.33	1.33	8.00
TD-342-1.34	1.34	8.00
TD-342-1.35	1.35	8.00
TD-342-1.36	1.36	8.00
TD-342-1.37	1.37	8.00
TD-342-1.38	1.38	8.00
TD-342-1.39	1.39	8.00
TD-342-1.40	1.40	8.00
TD-342-1.41	1.41	8.00
TD-342-1.42	1.42	8.00
TD-342-1.43	1.43	8.00
TD-342-1.44	1.44	8.00
TD-342-1.45	1.45	8.00
TD-342-1.46	1.46	8.00
TD-342-1.47	1.47	8.00
TD-342-1.48	1.48	8.00
TD-342-1.49	1.49	8.00
TD-342-1.50	1.50	8.00
TD-342-1.51	1.51	8.00
TD-342-1.52	1.52	8.00
TD-342-1.53	1.53	8.00
TD-342-1.54	1.54	8.00
TD-342-1.55	1.55	8.00
TD-342-1.56	1.56	8.00
TD-342-1.57	1.57	8.00
TD-342-1.58	1.58	8.00

Part No	D_1	L_1
TD-342-1.59	1.59	8.00
TD-342-1.60	1.60	8.00
TD-342-1.61	1.61	8.00
TD-342-1.62	1.62	8.00
TD-342-1.63	1.63	8.00
TD-342-1.64	1.64	8.00
TD-342-1.65	1.65	8.00
TD-342-1.66	1.66	8.00
TD-342-1.67	1.67	8.00
TD-342-1.68	1.68	8.00
TD-342-1.69	1.69	8.00
TD-342-1.70	1.70	8.00
TD-342-1.71	1.71	12.00
TD-342-1.72	1.72	12.00
TD-342-1.73	1.73	12.00
TD-342-1.74	1.74	12.00
TD-342-1.75	1.75	12.00
TD-342-1.76	1.76	12.00
TD-342-1.77	1.77	12.00
TD-342-1.78	1.78	12.00
TD-342-1.79	1.79	12.00
TD-342-1.80	1.80	12.00
TD-342-1.81	1.81	12.00
TD-342-1.82	1.82	12.00
TD-342-1.83	1.83	12.00
TD-342-1.84	1.84	12.00
TD-342-1.85	1.85	12.00
TD-342-1.86	1.86	12.00
TD-342-1.87	1.87	12.00
TD-342-1.88	1.88	12.00
TD-342-1.89	1.89	12.00
TD-342-1.90	1.90	12.00
TD-342-1.91	1.91	12.00
TD-342-1.92	1.92	12.00
TD-342-1.93	1.93	12.00
TD-342-1.94	1.94	12.00
TD-342-1.95	1.95	12.00
TD-342-1.96	1.96	12.00
TD-342-1.97	1.97	12.00
TD-342-1.98	1.98	12.00
TD-342-1.99	1.99	12.00
TD-342-2.00	2.00	12.00
TD-342-2.05	2.05	12.00
TD-342-2.10	2.10	12.00
TD-342-2.15	2.15	12.00
TD-342-2.20	2.20	12.00
TD-342-2.25	2.25	12.00
TD-342-2.30	2.30	12.00
TD-342-2.35	2.35	12.00
TD-342-2.40	2.40	12.00
TD-342-2.45	2.45	12.00
TD-342-2.50	2.50	12.00

3-Flute Micro Drill





Tolerances:	
D1	-0.002mm / -0.004mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

Geometry:	
Flutes:	3
Helix:	34˚
Drill Point:	140˚

Optional Coatings:	
TRIO:	Steel & Stainless
SOLO:	Brass & Bronze
NEMO:	Titanium & Aluminum

353 Series

Part No	D_1	L_1
TD-353-0.15	0.15	2.00
TD-353-0.20	0.20	3.00
TD-353-0.25	0.25	3.50
TD-353-0.30	0.30	5.00
TD-353-0.35	0.35	5.00
TD-353-0.40	0.40	6.00
TD-353-0.45	0.45	6.00
TD-353-0.50	0.50	6.00
TD-353-0.55	0.55	7.00
TD-353-0.60	0.60	7.00
TD-353-0.65	0.65	7.00
TD-353-0.70	0.70	9.50
TD-353-0.75	0.75	9.50
TD-353-0.80	0.80	9.50
TD-353-0.85	0.85	9.50
TD-353-0.90	0.90	9.50
TD-353-0.95	0.95	9.50
TD-353-1.00	1.00	9.50
TD-353-1.05	1.05	10.50
TD-353-1.10	1.10	10.50
TD-353-1.15	1.15	10.50
TD-353-1.20	1.20	10.50
TD-353-1.25	1.25	10.50
TD-353-1.30	1.30	10.50
TD-353-1.35	1.35	10.50
TD-353-1.40	1.40	10.50
TD-353-1.45	1.45	10.50
TD-353-1.50	1.50	10.50
TD-353-1.60	1.60	10.50
TD-353-1.70	1.70	10.50
TD-353-1.80	1.80	10.50
TD-353-1.90	1.90	10.50
TD-353-2.00	2.00	10.50
TD-353-2.10	2.10	10.50
TD-353-2.20	2.20	10.50
TD-353-2.30	2.30	10.50
TD-353-2.40	2.40	10.50
TD-353-2.50	2.50	10.50
TD-353-2.60	2.60	10.50
TD-353-2.70	2.70	10.50
TD-353-2.80	2.80	10.50
TD-353-2.90	2.90	10.50
TD-353-3.00	3.00	10.50

353-0 - Stub Type

Part No	D_1	L_1
TD-353-0-0.15	0.15	1.5
TD-353-0-0.20	0.20	2
TD-353-0-0.25	0.25	2
TD-353-0-0.30	0.30	2
TD-353-0-0.31	0.31	2
TD-353-0-0.32	0.32	2
TD-353-0-0.33	0.33	2
TD-353-0-0.34	0.34	2
TD-353-0-0.35	0.35	2
TD-353-0-0.36	0.36	2
TD-353-0-0.37	0.37	2
TD-353-0-0.38	0.38	2
TD-353-0-0.39	0.39	2
TD-353-0-0.40	0.40	2
TD-353-0-0.41	0.41	2
TD-353-0-0.42	0.42	2
TD-353-0-0.43	0.43	2
TD-353-0-0.44	0.44	2
TD-353-0-0.45	0.45	2
TD-353-0-0.46	0.46	2
TD-353-0-0.47	0.47	2
TD-353-0-0.48	0.48	2
TD-353-0-0.49	0.49	2
TD-353-0-0.50	0.50	3
TD-353-0-0.51	0.51	3
TD-353-0-0.52	0.52	3
TD-353-0-0.53	0.53	3
TD-353-0-0.54	0.54	3
TD-353-0-0.55	0.55	3
TD-353-0-0.56	0.56	3
TD-353-0-0.57	0.57	3
TD-353-0-0.58	0.58	3
TD-353-0-0.59	0.59	3
TD-353-0-0.60	0.60	3
TD-353-0-0.61	0.61	3
TD-353-0-0.62	0.62	3
TD-353-0-0.63	0.63	3
TD-353-0-0.64	0.64	3
TD-353-0-0.65	0.65	3
TD-353-0-0.66	0.66	3
TD-353-0-0.67	0.67	3
TD-353-0-0.68	0.68	3

Part No	D_1	L_1
TD-353-0-0.69	0.69	3
TD-353-0-0.70	0.70	3
TD-353-0-0.71	0.71	3
TD-353-0-0.72	0.72	3
TD-353-0-0.73	0.73	3
TD-353-0-0.74	0.74	3
TD-353-0-0.75	0.75	3
TD-353-0-0.76	0.76	3
TD-353-0-0.77	0.77	3
TD-353-0-0.78	0.78	3
TD-353-0-0.79	0.79	3
TD-353-0-0.80	0.80	3
TD-353-0-0.81	0.81	3
TD-353-0-0.82	0.82	3
TD-353-0-0.83	0.83	3
TD-353-0-0.84	0.84	3
TD-353-0-0.85	0.85	3
TD-353-0-0.86	0.86	3
TD-353-0-0.87	0.87	3
TD-353-0-0.88	0.88	3
TD-353-0-0.89	0.89	3
TD-353-0-0.90	0.90	3
TD-353-0-0.91	0.91	3
TD-353-0-0.92	0.92	3
TD-353-0-0.93	0.93	3
TD-353-0-0.94	0.94	3
TD-353-0-0.95	0.95	3
TD-353-0-0.96	0.96	3
TD-353-0-0.97	0.97	3
TD-353-0-0.98	0.98	3
TD-353-0-0.99	0.99	3
TD-353-0-1.00	1.00	3.5
TD-353-0-1.01	1.01	3.5
TD-353-0-1.02	1.02	3.5
TD-353-0-1.03	1.03	3.5
TD-353-0-1.04	1.04	3.5
TD-353-0-1.05	1.05	3.5
TD-353-0-1.06	1.06	3.5
TD-353-0-1.07	1.07	3.5
TD-353-0-1.08	1.08	3.5
TD-353-0-1.09	1.09	3.5
TD-353-0-1.10	1.10	3.5

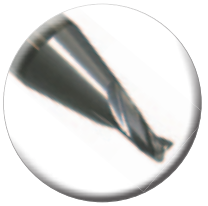
Part No	D_1	L_1
TD-353-0-1.11	1.11	3.5
TD-353-0-1.12	1.12	3.5
TD-353-0-1.13	1.13	3.5
TD-353-0-1.14	1.14	3.5
TD-353-0-1.15	1.15	3.5
TD-353-0-1.16	1.16	3.5
TD-353-0-1.17	1.17	3.5
TD-353-0-1.18	1.18	3.5
TD-353-0-1.19	1.19	3.5
TD-353-0-1.2	1.20	3.5
TD-353-0-1.21	1.21	3.5
TD-353-0-1.22	1.22	3.5
TD-353-0-1.23	1.23	3.5
TD-353-0-1.24	1.24	3.5
TD-353-0-1.25	1.25	3.5
TD-353-0-1.26	1.26	3.5
TD-353-0-1.27	1.27	3.5
TD-353-0-1.28	1.28	3.5
TD-353-0-1.29	1.29	3.5
TD-353-0-1.3	1.30	3.5
TD-353-0-1.31	1.31	3.5
TD-353-0-1.32	1.32	3.5
TD-353-0-1.33	1.33	3.5
TD-353-0-1.34	1.34	3.5
TD-353-0-1.35	1.35	3.5
TD-353-0-1.36	1.36	3.5
TD-353-0-1.37	1.37	3.5
TD-353-0-1.38	1.38	3.5
TD-353-0-1.39	1.39	3.5
TD-353-0-1.4	1.40	3.5
TD-353-0-1.41	1.41	3.5
TD-353-0-1.42	1.42	3.5
TD-353-0-1.43	1.43	3.5
TD-353-0-1.44	1.44	3.5
TD-353-0-1.45	1.45	3.5
TD-353-0-1.46	1.46	3.5
TD-353-0-1.47	1.47	3.5
TD-353-0-1.48	1.48	3.5
TD-353-0-1.49	1.49	3.5
TD-353-0-1.5	1.50	3.5

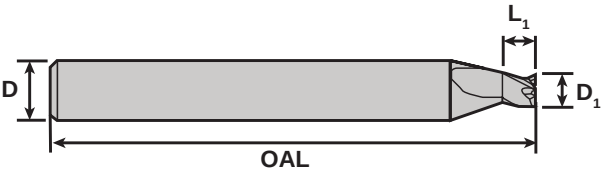
3-Flute Micro Drill

353-2 Series - Three Flute Drills - XL Length

Part No	D_1	L_1	OAL
TD-353-2-1.0	1.00	11.5	34
TD-353-2-1.1	1.10	13	36
TD-353-2-1.2	1.20	15	38
TD-353-2-1.3	1.30	15	38
TD-353-2-1.4	1.40	17	40
TD-353-2-1.5	1.50	17	40
TD-353-2-1.6	1.60	19	43
TD-353-2-1.7	1.70	19	43
TD-353-2-1.8	1.80	21	46
TD-353-2-1.9	1.90	21	46
TD-353-2-2.0	2.00	22	49
TD-353-2-2.1	2.10	22	49
TD-353-2-2.2	2.20	25	53
TD-353-2-2.3	2.30	25	53
TD-353-2-2.4	2.40	28	57
TD-353-2-2.5	2.50	28	57
TD-353-2-2.6	2.60	28	57
TD-353-2-2.7	2.70	31	61
TD-353-2-2.8	2.80	31	61
TD-353-2-2.9	2.90	31	61
TD-353-2-3.0	3.00	31	61
TD-353-2-3.1	3.10	34	65
TD-353-2-3.2	3.20	34	65
TD-353-2-3.3	3.30	34	65
TD-353-2-3.4	3.40	37	70
TD-353-2-3.5	3.50	37	70
TD-353-2-3.6	3.60	37	70
TD-353-2-3.7	3.70	37	70
TD-353-2-3.8	3.80	41	75
TD-353-2-3.9	3.90	41	75
TD-353-2-4.0	4.00	41	75
TD-353-2-4.1	4.10	41	75
TD-353-2-4.2	4.20	41	75
TD-353-2-4.3	4.30	45	80
TD-353-2-4.4	4.40	45	80
TD-353-2-4.5	4.50	45	80
TD-353-2-4.6	4.60	45	80
TD-353-2-4.7	4.70	45	80
TD-353-2-4.8	4.80	50	86
TD-353-2-4.9	4.90	50	86
TD-353-2-5.0	5.00	50	86
TD-353-2-5.1	5.10	50	86
TD-353-2-5.2	5.20	50	86
TD-353-2-5.3	5.30	50	86
TD-353-2-5.4	5.40	55	93
TD-353-2-5.5	5.50	55	93
TD-353-2-5.6	5.60	55	93
TD-353-2-5.7	5.70	55	93
TD-353-2-5.8	5.80	55	93
TD-353-2-5.9	5.90	55	93
TD-353-2-6.0	6.00	55	93
TD-353-2-6.1	6.10	60	101
TD-353-2-6.2	6.20	60	101
TD-353-2-6.3	6.30	60	101
TD-353-2-6.4	6.40	60	101
TD-353-2-6.5	6.50	60	101
TD-353-2-6.6	6.60	60	101
TD-353-2-6.7	6.70	60	101
TD-353-2-6.8	6.80	66	109
TD-353-2-6.9	6.90	66	109
TD-353-2-7.0	7.00	66	109
TD-353-2-7.1	7.10	66	109
TD-353-2-7.2	7.20	66	109
TD-353-2-7.3	7.30	66	109
TD-353-2-7.4	7.40	66	109
TD-353-2-7.5	7.50	66	109
TD-353-2-7.6	7.60	72	117
TD-353-2-7.7	7.70	72	117
TD-353-2-7.8	7.80	72	117
TD-353-2-7.9	7.90	72	117
TD-353-2-8.0	8.00	72	117
TD-353-2-8.1	8.10	72	117
TD-353-2-8.2	8.20	72	117
TD-353-2-8.3	8.30	72	117
TD-353-2-8.4	8.40	72	117
TD-353-2-8.5	8.50	72	117
TD-353-2-8.6	8.60	78	125
TD-353-2-8.7	8.70	78	125
TD-353-2-8.8	8.80	78	125
TD-353-2-8.9	8.90	78	125
TD-353-2-9.0	9.00	78	125
TD-353-2-9.1	9.10	78	125
TD-353-2-9.2	9.20	78	125
TD-353-2-9.3	9.30	78	125
TD-353-2-9.4	9.40	78	125
TD-353-2-9.5	9.50	78	125
TD-353-2-9.6	9.60	84	133
TD-353-2-9.7	9.70	84	133
TD-353-2-9.8	9.80	84	133
TD-353-2-9.9	9.90	84	133
TD-353-2-10	10.00	84	133
TD-353-2-10.2	10.20	84	133
TD-353-2-10.5	10.50	84	133
TD-353-2-11	11.00	91	142
TD-353-2-11.5	11.50	91	142
TD-353-2-12	12.00	98	151
TD-353-2-12.5	12.50	98	151
TD-353-2-13	13.00	98	151
TD-353-2-13.5	13.50	105	160
TD-353-2-14	14.00	105	160

3-Flute Micro End Mills





Tolerances:

D1 under 1mm: +/-.01mm
D1 over 1mm: +/-.02mm
OAL: -0.02mm / -0.00mm
D Shank: h5

Geometry:

Flutes: 3
Helix: 30˚
Rake: 8-10˚

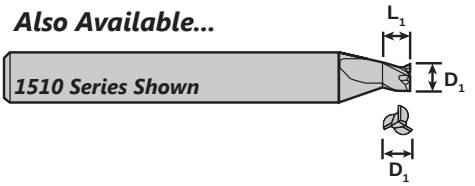
Optional Coatings:

TRIO: Steel & Stainless
SOLO: Brass & Bronze
RICO: Titanium & Aluminum

1510 Series: Precision Micro End Mills - 3 Flute

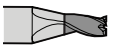
Part No	D_1	D	L_1	OAL
TE-1510-0.30	0.30	3	0.30	38
TE-1510-0.35	0.35	3	0.35	38
TE-1510-0.40	0.40	3	0.40	38
TE-1510-0.45	0.45	3	0.45	38
TE-1510-0.50	0.50	3	0.50	38
TE-1510-0.55	0.55	3	0.55	38
TE-1510-0.60	0.60	3	0.60	38
TE-1510-0.65	0.65	3	0.65	38
TE-1510-0.70	0.70	3	0.70	38
TE-1510-0.75	0.75	3	0.75	38
TE-1510-0.80	0.80	3	0.80	38
TE-1510-0.85	0.85	3	0.85	38
TE-1510-0.90	0.90	3	0.90	38
TE-1510-0.95	0.95	3	0.95	38
TE-1510-1.00	1.00	3	1.00	38
TE-1510-1.05	1.05	3	1.05	38
TE-1510-1.10	1.10	3	1.10	38
TE-1510-1.15	1.15	3	1.15	38
TE-1510-1.20	1.20	3	1.20	38
TE-1510-1.25	1.25	3	1.25	38
TE-1510-1.30	1.30	3	1.30	38
TE-1510-1.35	1.35	3	1.35	38
TE-1510-1.40	1.40	3	1.40	38
TE-1510-1.45	1.45	3	1.45	38
TE-1510-1.50	1.50	3	1.50	38
TE-1510-1.55	1.55	3	1.55	38
TE-1510-1.60	1.60	3	1.60	38
TE-1510-1.65	1.65	3	1.65	38
TE-1510-1.70	1.70	3	1.70	38
TE-1510-1.75	1.75	3	1.75	38
TE-1510-1.80	1.80	3	1.80	38
TE-1510-1.85	1.85	3	1.85	38
TE-1510-1.90	1.90	3	1.90	38
TE-1510-1.95	1.95	3	1.95	38
TE-1510-2.00	2.00	3	2.00	38
TE-1510-2.05	2.05	3	2.05	38
TE-1510-2.10	2.10	3	2.10	38
TE-1510-2.15	2.15	3	2.15	38
TE-1510-2.20	2.20	3	2.20	38
TE-1510-2.25	2.25	3	2.25	38
TE-1510-2.30	2.30	3	2.30	38
TE-1510-2.35	2.35	3	2.35	38
TE-1510-2.40	2.40	3	2.40	38
TE-1510-2.45	2.45	3	2.45	38
TE-1510-2.50	2.50	3	2.50	38
TE-1510-2.55	2.55	3	2.55	38
TE-1510-2.60	2.60	3	2.60	38
TE-1510-2.65	2.65	3	2.65	38
TE-1510-2.70	2.70	3	2.70	38
TE-1510-2.75	2.75	3	2.75	38
TE-1510-2.80	2.80	3	2.80	38
TE-1510-2.85	2.85	3	2.85	38
TE-1510-2.90	2.90	3	2.90	38
TE-1510-2.95	2.95	3	2.95	38
TE-1510-3.00	3.00	6	3.00	51
TE-1510-3.10	3.10	6	3.10	51
TE-1510-3.20	3.20	6	3.20	51
TE-1510-3.30	3.30	6	3.30	51
TE-1510-3.40	3.40	6	3.40	51
TE-1510-3.50	3.50	6	3.50	51
TE-1510-3.60	3.60	6	3.60	51
TE-1510-3.70	3.70	6	3.70	51
TE-1510-3.80	3.80	6	3.80	51
TE-1510-3.90	3.90	6	3.90	51
TE-1510-4.00	4.00	6	4.00	51
TE-1510-4.10	4.10	6	4.10	51
TE-1510-4.20	4.20	6	4.20	51
TE-1510-4.30	4.30	6	4.30	51
TE-1510-4.40	4.40	6	4.40	51
TE-1510-4.50	4.50	6	4.50	51
TE-1510-4.60	4.60	6	4.60	51
TE-1510-4.70	4.70	6	4.70	51
TE-1510-4.80	4.80	6	4.80	51
TE-1510-4.90	4.90	6	4.90	51
TE-1510-5.00	5.00	6	5.00	51
TE-1510-5.10	5.10	6	5.10	51
TE-1510-5.20	5.20	6	5.20	51
TE-1510-5.30	5.30	6	5.30	51
TE-1510-5.40	5.40	6	5.40	51
TE-1510-4.40	4.40	6	4.40	51
TE-1510-4.50	4.50	6	4.50	51
TE-1510-4.60	4.60	6	4.60	51
TE-1510-4.70	4.70	6	4.70	51
TE-1510-4.80	4.80	6	4.80	51
TE-1510-4.90	4.90	6	4.90	51
TE-1510-5.00	5.00	6	5.00	51
TE-1510-5.10	5.10	6	5.10	51
TE-1510-5.20	5.20	6	5.20	51
TE-1510-5.30	5.30	6	5.30	51
TE-1510-5.40	5.40	6	5.40	51
TE-1510-5.50	5.50	6	5.50	51
TE-1510-5.60	5.60	6	5.60	51
TE-1510-5.70	5.70	6	5.70	51
TE-1510-5.80	5.80	6	5.80	51
TE-1510-5.90	5.90	6	5.90	51
TE-1510-6.00	6.00	6	6.00	51
TE-1510-6.50	6.50	8	6.50	51
TE-1510-7.00	7.00	8	7.00	61
TE-1510-7.50	7.50	8	7.50	61
TE-1510-8.00	8.00	10	8.00	61
TE-1510-8.50	8.50	10	8.50	72
TE-1510-9.00	9.00	10	9.00	72

Also Available...



1510 Series Shown

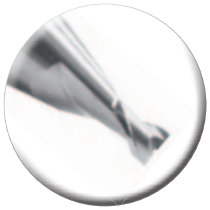
1520 Series: $L_1 = 2xD_1$
Two Times the Length

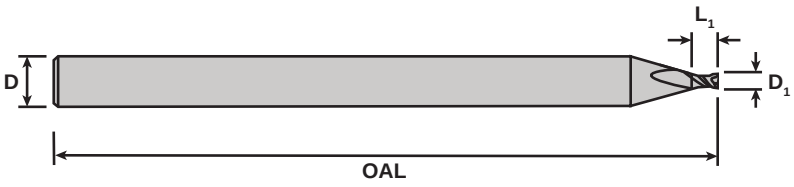


1530 Series: $L_1 = 3xD_1$
Three Times the Length

1540 Series: $L_1 = 4xD_1$
FourTimes the Length

2-Flute Micro End Mills





Tolerances:	
D1 under 1mm:	+/-.01mm
D1 over 1mm:	+/-.02mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

Geometry:	
Flutes:	2
Helix:	30˚
Rake:	8-10˚

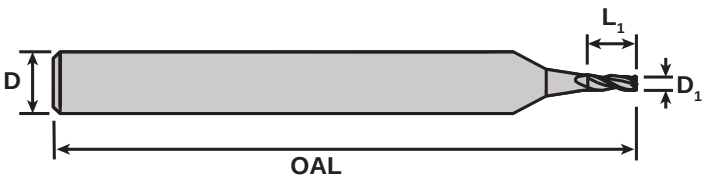
Optional Coatings:	
TRIO:	Steel & Stainless
SOLO:	Brass & Bronze
RICO:	Titanium & Aluminum

1210 Series: Precision Micro End Mills - 2 Flute

Part No	D_1	D	L_1	OAL
TE-1210-0.04	0.04	3	0.04	38
TE-1210-0.05	0.05	3	0.05	38
TE-1210-0.06	0.06	3	0.06	38
TE-1210-0.07	0.07	3	0.07	38
TE-1210-0.08	0.08	3	0.08	38
TE-1210-0.09	0.09	3	0.09	38
TE-1210-0.10	0.10	3	0.10	38
TE-1210-0.12	0.12	3	0.12	38
TE-1210-0.15	0.15	3	0.15	38
TE-1210-0.20	0.20	3	0.20	38
TE-1210-0.25	0.25	3	0.25	38
TE-1210-0.30	0.30	3	0.30	38
TE-1210-0.35	0.35	3	0.35	38
TE-1210-0.40	0.40	3	0.40	38
TE-1210-0.45	0.45	3	0.45	38
TE-1210-0.50	0.50	3	0.50	38
TE-1210-0.55	0.55	3	0.55	38
TE-1210-0.60	0.60	3	0.60	38

Part No	D_1	D	L_1	OAL
TE-1210-0.65	0.65	3	0.65	38
TE-1210-0.70	0.70	3	0.70	38
TE-1210-0.75	0.75	3	0.75	38
TE-1210-0.80	0.80	3	0.80	38
TE-1210-0.90	0.90	3	0.90	38
TE-1210-0.95	0.95	3	0.95	38
TE-1210-1.00	1.00	3	1.00	38
TE-1210-1.05	1.05	3	1.05	38
TE-1210-1.10	1.10	3	1.10	38
TE-1210-1.15	1.15	3	1.15	38
TE-1210-1.20	1.20	3	1.20	38
TE-1210-1.25	1.25	3	1.25	38
TE-1210-1.30	1.30	3	1.30	38
TE-1210-1.35	1.35	3	1.35	38
TE-1210-1.40	1.40	3	1.40	38
TE-1210-1.45	1.45	3	1.45	38
TE-1210-1.50	1.50	3	1.50	38
TE-1210-1.55	1.55	3	1.55	38

Part No	D_1	D	L_1	OAL
TE-1210-1.60	1.60	3	1.60	38
TE-1210-1.65	1.65	3	1.65	38
TE-1210-1.70	1.70	3	1.70	38
TE-1210-1.75	1.75	3	1.75	38
TE-1210-1.80	1.80	3	1.80	38
TE-1210-1.85	1.85	3	1.85	38
TE-1210-1.90	1.90	3	1.90	38
TE-1210-1.95	1.95	3	1.95	38
TE-1210-2.00	2.00	3	2.00	38
TE-1210-2.10	2.10	3	2.10	38
TE-1210-2.20	2.20	3	2.20	38
TE-1210-2.30	2.30	3	2.30	38
TE-1210-2.40	2.40	3	2.40	38
TE-1210-2.50	2.50	3	2.50	38
TE-1210-2.60	2.60	3	2.60	38
TE-1210-2.70	2.70	3	2.70	38
TE-1210-2.80	2.80	3	2.80	38
TE-1210-2.90	2.90	3	2.90	38



Tolerances:	
D1 under 1mm:	+/-.01mm
D1 over 1mm:	+/-.02mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

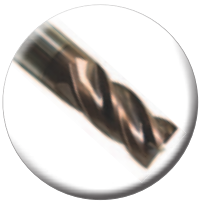
Geometry:	
Flutes:	3
Helix:	30˚
Rake:	8-10˚

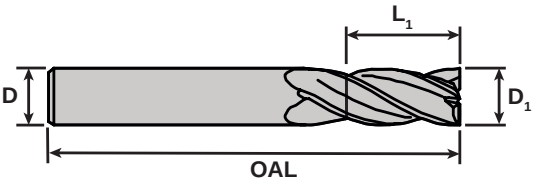
Optional Coatings:	
DLC:	Brass & Bronze

1820 Series: Advanced Performance and Finish for Brass

Part No	D_1	D	L_1	OAL
TE-1820-0.50	0.50	4	1.00	38
TE-1820-0.80	0.80	4	1.60	38
TE-1820-1.00	1.00	4	2.00	38
TE-1820-1.50	1.50	4	3.00	38
TE-1820-2.00	2.00	4	4.00	38
TE-1820-3.00	3.00	4	5.00	38

Variable Helix End Mills





Tolerances:	
D1 under 1mm:	+/-.01mm
D1 over 1mm:	+/-.02mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

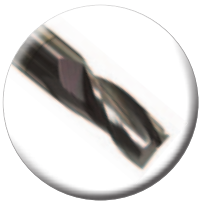
Geometry:	
Flutes:	4
Helix:	35-45˚
Rake:	8˚

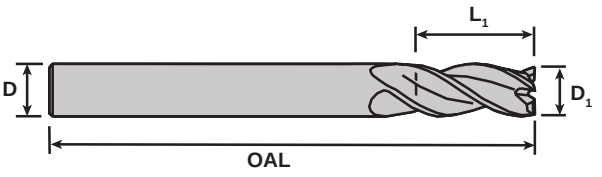
Optional Coatings:	
TRIO:	Steel & Stainless
SOLO:	Brass & Bronze
RICO:	Titanium & Aluminum

1620 Series: 4 Flute, Variable Helix and Pitch End Mills

Part No	D_1	L_1	D	OAL
TE-1620-1.00	1.00	2.0	6	51
TE-1620-1.50	1.50	3.0	6	51
TE-1620-2.00	2.00	4.0	6	51
TE-1620-2.50	2.50	5.0	6	51
TE-1620-3.00	3.00	6.0	6	51
TE-1620-3.50	3.50	7.0	6	51
TE-1620-4.00	4.00	8.0	6	51

Part No	D_1	L_1	D	OAL
TE-1620-1.00	5.00	10.0	6	51
TE-1620-1.10	6.00	12.0	6	51
TE-1620-1.20	8.00	16.0	8	61
TE-1620-10.0	10.0	20.0	10	72
TE-1620-12.0	12.0	24.0	12	83
TE-1620-14.0	14.0	28.0	14	83
TE-1620-16.0	16.0	32.0	16	92





Tolerances:	
D1 under 1mm:	+/-.01mm
D1 over 1mm:	+/-.02mm
OAL:	-0.02mm / -0.00mm
D Shank:	h5

Geometry:	
Flutes:	3
Helix:	35-45˚
Rake:	8˚

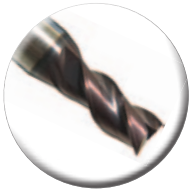
Optional Coatings:	
TRIO:	Steel & Stainless
SOLO:	Brass & Bronze
RICO:	Titanium & Aluminum

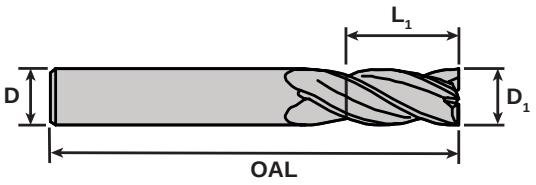
1621 Series: 3 Flute, Variable Helix and Pitch End Mills

Part No	D_1	L_1	D	OAL
TE-1621-1.00	1.00	2.0	6	51
TE-1621-1.50	1.50	3.0	6	51
TE-1621-2.00	2.00	4.0	6	51
TE-1621-2.50	2.50	5.0	6	51
TE-1621-3.00	3.00	6.0	6	51
TE-1621-3.50	3.50	7.0	6	51
TE-1621-4.00	4.00	8.0	6	51

Part No	D_1	L_1	D	OAL
TE-1621-1.00	5.00	10.0	6	51
TE-1621-1.10	6.00	12.0	6	51
TE-1621-1.20	8.00	16.0	8	61
TE-1621-10.0	10.0	20.0	10	72
TE-1621-12.0	12.0	24.0	12	83
TE-1621-14.0	14.0	28.0	14	83
TE-1621-16.0	16.0	32.0	16	92

Material Specific End Mills





Tolerances:

D1 under 1mm: +/-.01mm
D1 over 1mm: +/-.02mm
OAL: -0.02mm / -0.00mm
D Shank: h5

Geometry:

Flutes(Z): 2-3
Helix: 42˚
Rake: 14˚

Optional Coatings:

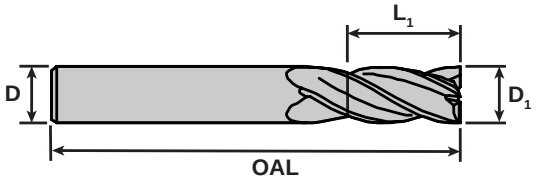
TRIO: Steel & Stainless

3000 Series: HSC End Mills for Stainless Steels - Sharp Corners

Part No	D_1	L_1	D	OAL	Z
TE-3000-0.30	0.30	0.6	6	57	2
TE-3000-0.40	0.40	0.8	6	57	2
TE-3000-0.50	0.50	1.0	6	57	2
TE-3000-0.60	0.60	1.2	6	57	2
TE-3000-0.70	0.70	1.4	6	57	2
TE-3000-0.80	0.80	1.6	6	57	2
TE-3000-0.90	0.90	1.8	6	57	2
TE-3000-1.00	1.00	2.0	6	57	2
TE-3000-1.10	1.10	2.2	6	57	2
TE-3000-1.20	1.20	2.4	6	57	2

Part No	D_1	L_1	D	OAL	Z
TE-3000-1.30	1.30	2.6	6	57	3
TE-3000-1.40	1.40	2.8	6	57	3
TE-3000-1.50	1.50	3.0	6	57	3
TE-3000-1.60	1.60	3.2	6	57	3
TE-3000-1.70	1.70	3.4	6	57	3
TE-3000-1.80	1.80	3.6	6	57	3
TE-3000-1.90	1.90	3.8	6	57	3
TE-3000-2.00	2.00	4.0	6	57	3
TE-3000-2.10	2.10	2.2	6	57	3
TE-3000-2.20	2.20	2.4	6	57	3

Part No	D_1	L_1	D	OAL	Z
TE-3000-2.30	2.30	4.6	6	57	3
TE-3000-2.40	2.40	4.8	6	57	3
TE-3000-2.50	2.50	5.0	6	57	3
TE-3000-3.00	3.00	6.0	6	57	3
TE-3000-3.50	3.50	7.0	6	57	3
TE-3000-4.00	4.00	8.0	6	57	3
TE-3000-5.00	5.00	10.0	6	57	3
TE-3000-6.00	6.00	12.0	8	63	3
TE-3000-8.00	8.00	16.0	10	72	3
TE-3000-10.0	10.0	20.0	10	72	3



Tolerances:

D1 under 1mm: +/-.01mm
D1 over 1mm: +/-.02mm
OAL: -0.02mm / -0.00mm
D Shank: h5

Geometry:

Flutes(Z): 3-4
Helix: 45˚
Rake: 14˚

Optional Coatings:

TRIO: Optimized
RICO: for Titanium

3100 Series: HSC End Mills for Titanium - Sharp Corners

Part No	D_1	L_1	D	OAL	Z
TE-3100-0.50	0.50	1.0	6	57	3
TE-3100-0.60	0.60	1.2	6	57	3
TE-3100-0.70	0.70	1.4	6	57	3
TE-3100-0.80	0.80	1.6	6	57	3
TE-3100-0.90	0.90	1.8	6	57	3
TE-3100-1.00	1.00	2.0	6	57	3
TE-3100-1.10	1.10	2.2	6	57	3
TE-3100-1.20	1.20	2.4	6	57	3
TE-3100-1.30	1.30	2.6	6	57	3
TE-3100-1.40	1.40	2.8	6	57	3

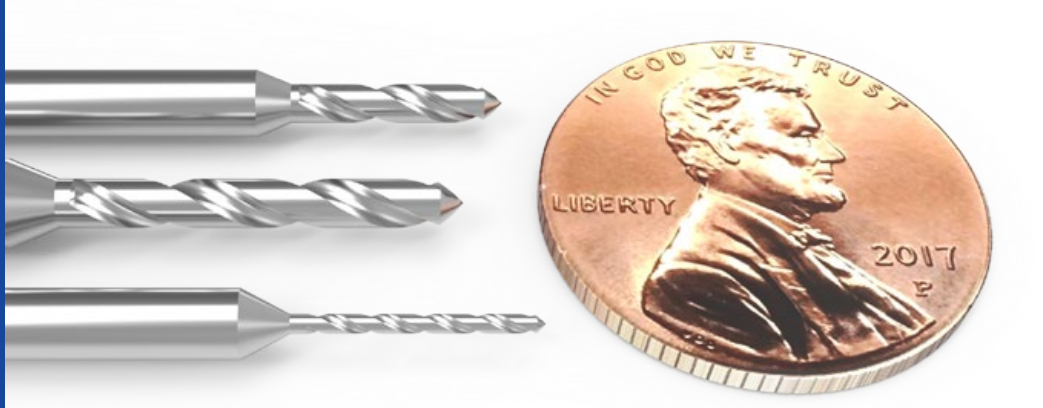
Part No	D_1	L_1	D	OAL	Z
TE-3100-1.50	1.50	3.0	6	57	3
TE-3100-1.60	1.60	3.2	6	57	3
TE-3100-1.70	1.70	3.4	6	57	3
TE-3100-1.80	1.80	3.6	6	57	3
TE-3100-1.90	1.90	3.8	6	57	3
TE-3100-2.00	2.00	4.0	6	57	3
TE-3100-2.10	2.10	2.2	6	57	3
TE-3100-2.20	2.20	2.4	6	57	3
TE-3100-2.30	2.30	4.6	6	57	3
TE-3100-2.40	2.40	4.8	6	57	3

Part No	D_1	L_1	D	OAL	Z
TE-3100-2.50	2.50	5.0	6	57	3
TE-3100-3.00	3.00	6.0	6	57	3
TE-3100-3.50	3.50	7.0	6	57	3
TE-3100-4.00	4.00	8.0	6	57	3
TE-3100-5.00	5.00	10.0	6	57	3
TE-3100-6.00	6.00	12.0	8	63	3
TE-3100-8.00	8.00	16.0	10	72	3
TE-3100-10.0	10.0	20.0	10	72	4
TE-3100-12.0	12.0	24.0	12	83	4

MICRO DRILLS

GenSwiss Micro-Drills are a cost effective solution for hard to find small diameter solid carbide micro drills & micro spotting tools. Swiss-style precision ensures maximum reliability, accuracy and finish results. When consistency of hole tolerance control is paramount, look to GenSwiss micro drills.

- Sizes From .1mm (.004in) Up To 3mm (.1181in)
- Precision Ground & Finished
- Makes Use Of Readily Available ER Collets



Center / Pilot / Spotting - 120° Point

3610 Series - HiCo8 Cobalt
.2mm (.0079") thru 1.5mm (.1181") in .05mm increments.
1.5mm thru 3mm available in .1mm increments.

3630 Series - Solid Carbide
.2mm (.0079") thru 3mm (.1181") in .05mm increments.
1.5mm thru 3mm available in .1mm increments.

4-7 x D Depth - 120° Point

3620 Series - HiCo8 Cobalt 5 x D Depth
.1mm (.0039") thru 3mm (.1181") in .01mm increments

3640 Series - Solid Carbide - 4 to 5 x D Depth
.2mm (.0079") thru 3mm (.1181") in .01mm increments

3650 Series - Solid Carbide - 5 to 7 x D Depth
.1mm (.0039") thru 1.99mm (.0783") in .01mm increments

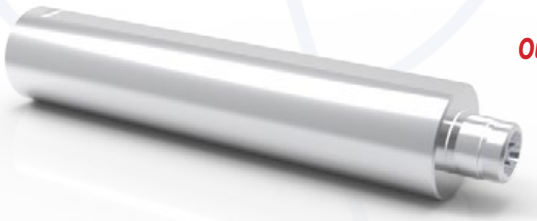
XP Performance - 140° Point

3660 Series - Solid Carbide - 6 to 7 x D
.5mm (.0197") thru 3mm (.1181") in .05mm increments

Micro Drills

- Superior Edge Quality & Flute Finishes
- Ideal for Swiss Machine Applications
- H4 & H6 Tolerances.
- Meticulously Process Controlled for Superior Consistency

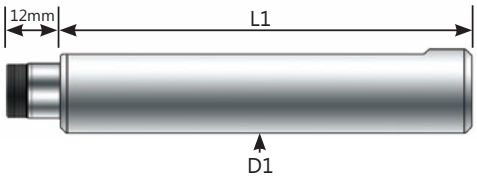
Suggested Holding Method: Advanced Precision Holders



Our MOST ACCURATE Holder for Micro-Drilling in CNC Swiss-Type Lathes!

Part No.	Collet Type	D1 Shank	L1 Length
CS-CHK-127-026	CHK	.500"	26mm
CS-CHK-190-076	CHK	.750"	76mm
CS-CHK-254-121	CHK	1.00"	121mm

Note: Clamping Nut NOT Included*



Accessories...Clamping Nuts...Wrenches

Size	Part no.
1.0mm	CC-CHK-1.0
1.5mm	CC-CHK-1.5
2.0mm	CC-CHK-2.0
2.5mm	CC-CHK-2.5
3.0mm	CC-CHK-3.0

Desc	Part No
CHK Nut	1017-000100

Desc	Part No
CHK Wrench	1035-000114

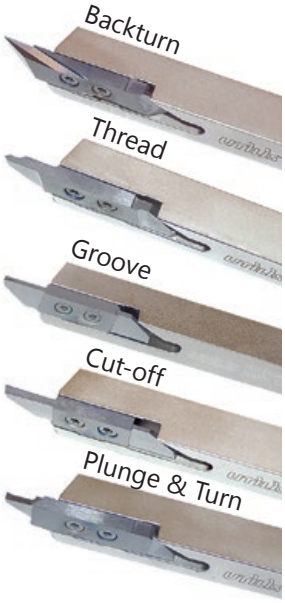
Note: (1) Clamping Nut and Wrench Required*

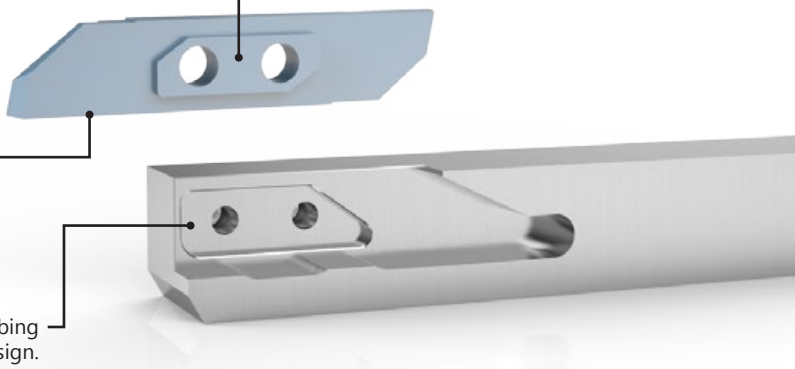
UTILIS
Tooling for High Technology

multidec®-Cut 3000 Series

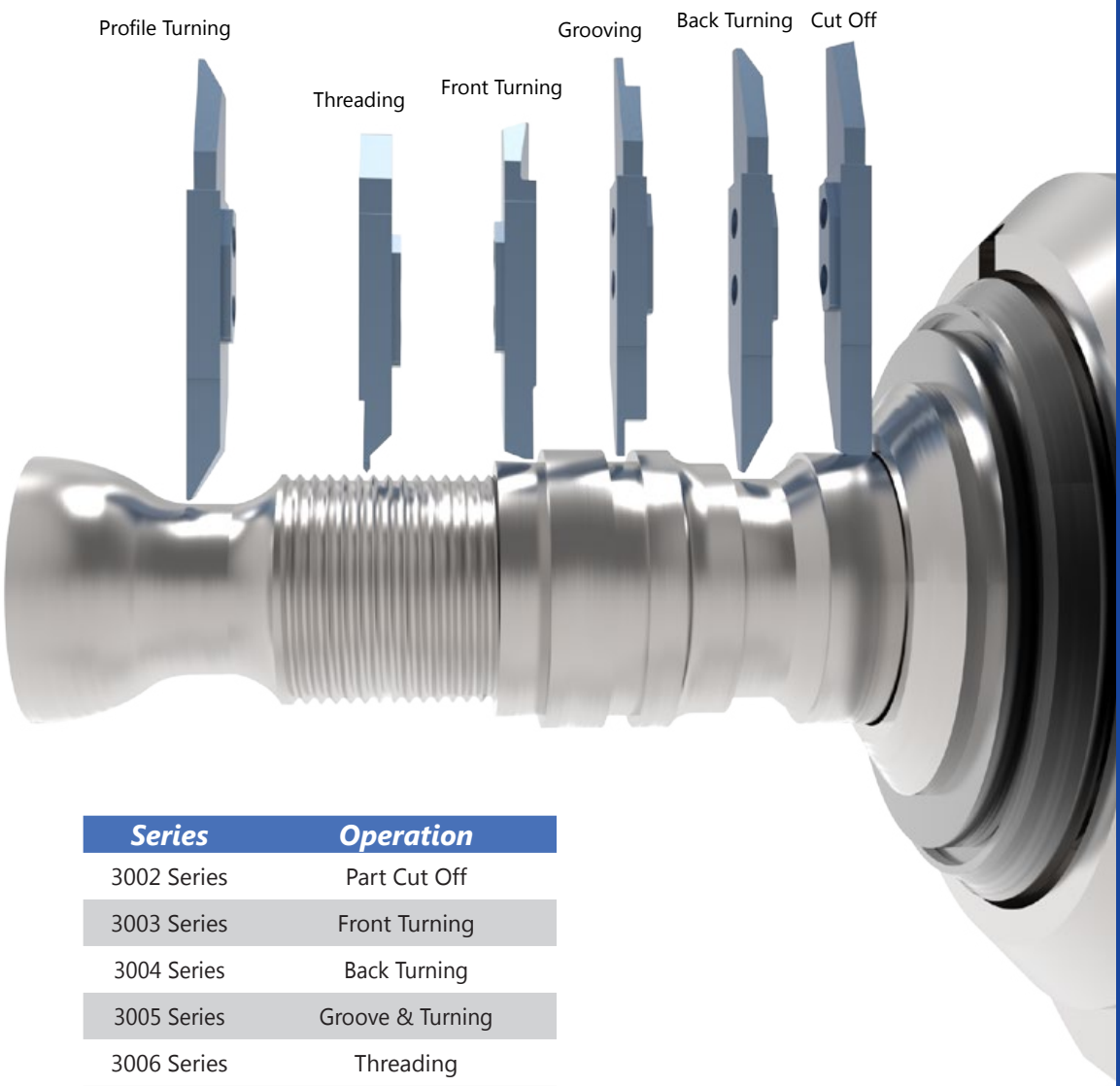
Swiss Made UTILIS World Class tools deliver proven production performance and extended tool life. All 3000 series inserts feature a wide variety of chip breaker geometries and will fit the same holder, reducing tooling costs. The unique insert holding design absorbs machining forces providing one of the most rigid Swiss-turning systems available to the industry today.

- For all turning application processes
- Repeatable within .0004"
- All insert styles fit the same holder
- Holder design absorbs cutting forces
- Ideal for tough applications





multidec®-CUT3000: Premium Swiss Turning Tools



Series	Operation
3002 Series	Part Cut Off
3003 Series	Front Turning
3004 Series	Back Turning
3005 Series	Groove & Turning
3006 Series	Threading
3007 Series	Full Radius Grooving

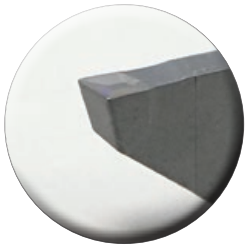
multidec-CUT3000: Legend

■ Preferred Application
□ Possible Application
- Application Not Recommended

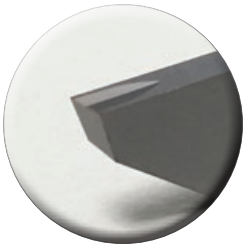
Series Operation	Designation	Description	Finish & Material Type		
			Roughing	Finishing	Micro Finishing
3002 Series **Cut Off**	...02	Without chipbreaker	□	■	■ Steel
			□	■	■ Stainless Steel
			□	■	■ Titanium & Ti-Alloys
			■	-	- Non Ferrous Metals
	...02 GS	With chipbreaker	■	□	-
			■	□	-
			■	□	-
			□	□	-
	...02 SC	With chipbreaker	■	■	■
			■	■	■
			■	■	■
			■	□	-
	...02 SPT	With chipbreaker for soft materials	-	-	-
			□	■	■
			□	■	■
			■	■	■
3003 Series **Front Turning**	...03	Without chipbreaker	■	■	■
			■	■	■
			□	■	■
			■	-	-
	...03 SP	With chipbreaker	□	■	■
			□	■	■
			□	■	■
			■	■	■
	...03 CP TOP	With chipbreaker & "TOP" Wiper	□	■	■
			□	■	■
			□	■	■
			■	■	■
3004 Series **Back Turning**	...04	Without chipbreaker	■	■	■
			■	■	□
			□	■	□
			■	-	-
	...04 CP	With chipbreaker	□	■	■
			□	■	■
			□	■	■
			■	■	■
	...04 SP	Copy turning with chipbreaker	□	■	■
			□	■	■
			□	■	■
			■	■	■
	...04 TOP	With "TOP" Wiper	□	■	■
			□	■	■
			□	■	■
			■	■	■
	...04 SP TOP	With chip breaker & "TOP" Wiper	□	■	■
			□	■	■
			□	■	■
			■	■	■
3005 Series **Groove & Turning**	...05	Without chipbreaker	■	■	■
			■	■	■
			□	■	□
			■	□	-
	...05 CP	With chipbreaker	□	■	■
			□	■	■
			□	■	■
			■	■	■
3006 Series **Threading**	...06	Partial Profile	-	-	■
			-	-	■
			-	-	■
			-	□	■
	...06 VP	Full Profile	-	-	■
			-	-	■
			-	-	■
			-	□	■
3007 Series **Full Radius Grooving**	...07	Radius Grooving	-	■	■
			-	■	■
			-	■	■
			-	■	■

multidec®-CUT3000: Premium Swiss Turning Tools

Type-GS Chipbreaker

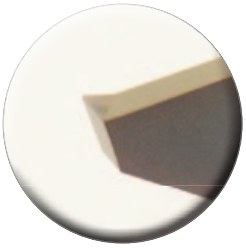


Type-SC Chipbreaker

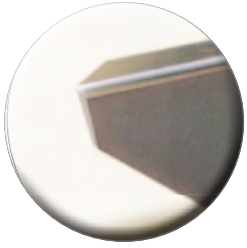


Type-SPT Chipbreaker

Type-CP Chipbreaker



Type-SP Chipbreaker



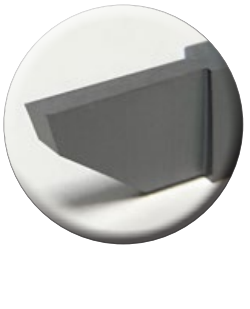
Properties & Application Range of Coatings

Carbide		Uncoated	Standard Coatings				Special Coatings (on request)						
UTILIS-Code			SX	MZ	HX	HPX	HX-A/ HX-A+	TX	HLX	BX	DX-T	DX-HC	DX/DX+
Coating		-	TiN	TiN/ TiAlN	TiAlN/ AlTiN	TiAlN/ AlTiN	AlCrN	AlCrN	TiAlN WC/C	TiCN	DLC	Ta-C	Diamond
Coating Process		-	PVD	CVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	CVD
Materials (Category)													
Steel Non-Alloyed	(I)	■	■	■	■	■	■	□	-	■	-	-	-
Steel Low-Alloyed	(II)	□	■	■	■	■	■	□	-	■	-	-	-
Steel High-Alloyed	(III)	□	□	■	■	■	■	□	-	□	-	-	-
Titanium	(IV)	□	-	-	■	□	■	■	■	-	-	-	-
Stainless Steel	(V)	□	□	■	■	■	■	□	■	■	-	-	-
Stainless Steel	(VI)	□	□	■	■	■	■	□	■	□	-	-	-
Aluminum	(VII)	■	□	-	■	-	□	-	■	-	■	■	■
Brass	(VIII)	■	□	-	■	□	□	-	■	-	■	■	-
Synthetics Reinforced/Composits	(IX)	-	-	-	□	-	-	-	-	-	□	■	■
Hard Materials	>60 HRC	-	-	-	-	-	□	■	-	-	-	-	-

CUT3002: Cut Off

Standard Cut Off Tools

Left Hand	Right Hand	a	c	α	r	Coatings			
3002-0.8-6 L	3002-0.8-6 R	.8	6	15°	0	■	■	■	■
3002-0.8-10 L	3002-0.8-10 R	.8	10	15°	0	■	■	■	■
3002-1.0-6 L	3002-1.0-6 R	1	6	15°	0	■	■	■	■
3002-1.0-13 L	3002-1.0-13 R	1	13	15°	0	■	■	■	■
3002-1.2-6 L	3002-1.2-6 R	1.2	6	15°	0	■	■	■	■
3002-1.5-8 L	3002-1.5-8 R	1.5	8	15°	0	■	■	■	■
3002-1.5-16 L	3002-1.5-16 R	1.5	16	15°	0	■	■	■	■
3002-1.8-8 L	3002-1.8-8 R	1.8	8	15°	0	■	■	■	■
3002-2.0-10 L	3002-2.0-10 R	2	10	15°	0	■	■	■	■
3002-2.0-16 L	3002-2.0-16 R	2	16	15°	0	■	■	■	■
3002-2.5-13 L	3002-2.5-13 R	2.5	13	15°	0	■	■	■	■
3002-2.5-16 L	3002-2.5-16 R	2.5	16	15°	0	■	■	■	■
3002-3.0-16 L	3002-3.0-16 R	3	16	15°	0	■	■	■	■

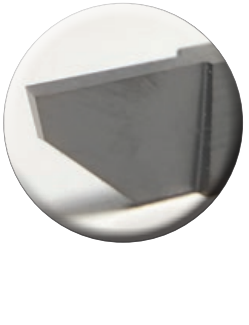


UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Inverted Angle Cut Off Tools

Left Hand	Right Hand	a	c	α	r	Coatings			
3002-0.8-6 LV	3002-0.8-6 RV	.8	6	15°	0	■	■	■	■
3002-0.8-10 LV	3002-0.8-10 RV	.8	10	15°	0	■	■	■	■
3002-1.0-6 LV	3002-1.0-6 RV	1	6	15°	0	■	■	■	■
3002-1.0-13 LV	3002-1.0-13 RV	1	13	15°	0	■	■	■	■
3002-1.2-6 LV	3002-1.2-6 RV	1.2	6	15°	0	■	■	■	■
3002-1.5-8 LV	3002-1.5-8 RV	1.5	8	15°	0	■	■	■	■
3002-1.5-16 LV	3002-1.5-16 RV	1.5	16	15°	0	■	■	■	■
3002-1.8-8 LV	3002-1.8-8 RV	1.8	8	15°	0	■	■	■	■
3002-2.0-10 LV	3002-2.0-10 RV	2	10	15°	0	■	■	■	■
3002-2.0-16 LV	3002-2.0-16 RV	2	16	15°	0	■	■	■	■
3002-2.5-13 LV	3002-2.5-13 RV	2.5	13	15°	0	■	■	■	■
3002-2.5-16 LV	3002-2.5-16 RV	2.5	16	15°	0	■	■	■	■
3002-3.0-16 LV	3002-3.0-16 RV	3	16	15°	0	■	■	■	■



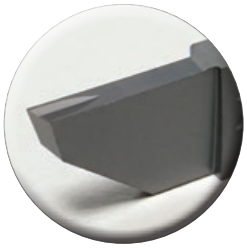
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

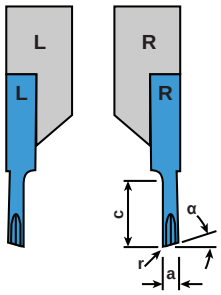
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3002: Cut Off

Cut Off with Type-SC Chipbreaker

Left Hand	Right Hand	a	c	α	r	Coatings			
3002-1.5-8 L SC	3002-1.5-8 R SC	1.5	8	15°	0	■	■	■	■
3002-1.5-16 L SC	3002-1.5-16 R SC	1.5	16	15°	0	■	■	■	■
3002-2.0-10 L SC	3002-2.0-10 R SC	2.0	10	15°	0	■	■	■	■
3002-2.0-16 L SC	3002-2.0-16 R SC	2.0	16	15°	0	■	■	■	■
3002-2.5-13 L SC	3002-2.5-13 R SC	2.5	13	15°	0	■	■	■	■
3002-2.5-16 L SC	3002-2.5-16 R SC	2.5	16	15°	0	■	■	■	■
3002-3.0-16 L SC	3002-3.0-16 R SC	3.0	16	15°	0	■	■	■	■



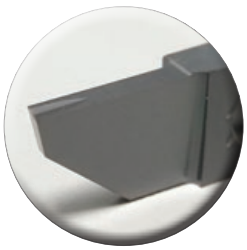


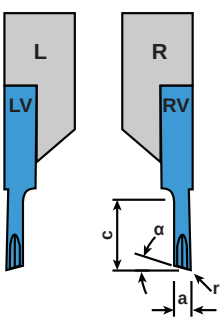
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Offset Cut Off with Type-SC Chipbreaker

Left Hand	Right Hand	a	c	α	r	Coatings			
3002-1.5-8 LV SC	3002-1.5-8 RV SC	1.5	8	15°	0	■	■	■	■
3002-1.5-16 LV SC	3002-1.5-16 RV SC	1.5	16	15°	0	■	■	■	■
3002-2.0-10 LV SC	3002-2.0-10 RV SC	2.0	10	15°	0	■	■	■	■
3002-2.0-16 LV SC	3002-2.0-16 RV SC	2.0	16	15°	0	■	■	■	■
3002-2.5-13 LV SC	3002-2.5-13 RV SC	2.5	13	15°	0	■	■	■	■
3002-2.5-16 LV SC	3002-2.5-16 RV SC	2.5	16	15°	0	■	■	■	■
3002-3.0-16 LV SC	3002-3.0-16 RV SC	3.0	16	15°	0	■	■	■	■





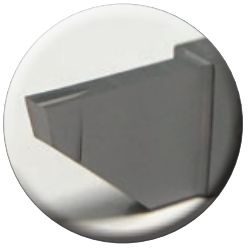
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

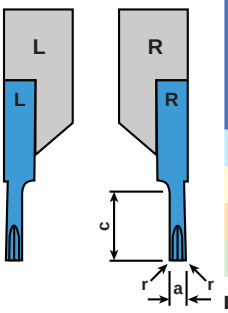
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3002: Cut Off

Neutral Cut Off w/ Type-SC Chipbreaker

Left Hand	Right Hand	a	c	r	Coatings			
					UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
3002-1.5-10 LN SC	3002-1.5-10 RN SC	1.5	8	.08	■	■	■	■
3002-1.5-16 LN SC	3002-1.5-16 RN SC	1.5	16	.08	■	■	■	■
3002-2.0-10 LN SC	3002-2.0-10 RN SC	2.0	10	.08	■	■	■	■
3002-2.0-16 LN SC	3002-2.0-16 RN SC	2.0	16	.08	■	■	■	■
3002-2.5-13 LN SC	3002-2.5-13 RN SC	2.5	13	.08	■	■	■	■
3002-2.5-16 LN SC	3002-2.5-16 RN SC	2.5	16	.08	■	■	■	■
3002-3.0-16 LN SC	3002-3.0-16 RN SC	3.0	16	.08	■	■	■	■



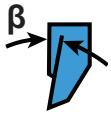


	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3002: Cut Off

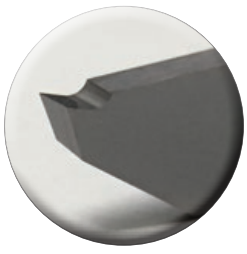
The multidec® CUT3002 cut off inserts with type-SPT chip breaker feature a positive rake intended for use in softer or stringy materials. The SPT chip breaker comes in three different angles described by the product number suffix below.

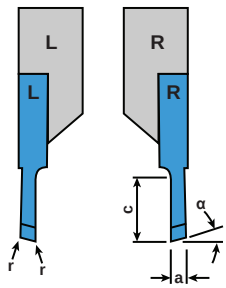


SPT: 20° rake
SPT06: 6° rake - Good for Stainless
SPT12: 12° rake

Cut Off with Type-SPT Chipbreaker

Left Hand	Right Hand	a	c	α	β	r	Coatings			
3002-0.8-10 L SPT	3002-0.8-10 R SPT	0.8	10	15°	20°	0			■	■
3002-1.0-13 L SPT	3002-1.0-13 R SPT	1.0	13	15°	20°	0			■	■
3002-1.5-8 L SPT	3002-1.5-8 R SPT	1.5	8	15°	20°	0			■	■
3002-1.5-8 L SPT06	3002-1.5-8 R SPT06	1.5	8	15°	6°	.05	■	■		
3002-1.5-8 L SPT12	3002-1.5-8 R SPT12	1.5	8	15°	12°	.05	■	■		
3002-1.5-16 L SPT	3002-1.5-16 R SPT	1.5	16	15°	20°	0			■	■
3002-2.0-10 L SPT	3002-2.0-10 R SPT	2.0	10	15°	20°	0			■	■
3002-2.0-10 L SPT06	3002-2.0-10 R SPT06	2.0	10	15°	6°	.05	■	■		
3002-2.0-10 L SPT12	3002-2.0-10 R SPT12	2.0	10	15°	12°	.05	■	■		
3002-2.0-16 L SPT	3002-2.0-16 R SPT	2.0	16	15°	20°	0			■	■
3002-2.0-16 L SPT06	3002-2.0-16 R SPT06	2.0	16	15°	6°	.05	■	■		
3002-2.0-16 L SPT12	3002-2.0-16 R SPT12	2.0	16	15°	12°	.05	■	■		
3002-2.5-13 L SPT	3002-2.5-13 R SPT	2.5	13	15°	20°	0			■	■
3002-2.5-13 L SPT06	3002-2.5-13 R SPT06	2.5	13	15°	6°	.05	■	■		
3002-2.5-13 L SPT12	3002-2.5-13 R SPT12	2.5	13	15°	12°	.05	■	■		
3002-2.5-16 L SPT	3002-2.5-16 R SPT	2.5	16	15°	20°	0			■	■
3002-2.5-16 L SPT06	3002-2.5-16 R SPT06	2.5	16	15°	6°	.05	■	■		
3002-2.5-16 L SPT12	3002-2.5-16 R SPT12	2.5	16	15°	12°	.05	■	■		
3002-3.0-16 L SPT	3002-3.0-16 R SPT	3.0	16	15°	20°	.05			■	■
3002-3.0-16 L SPT06	3002-3.0-16 R SPT06	3.0	16	15°	6°	.05	■	■		
3002-3.0-16 L SPT12	3002-3.0-16 R SPT12	3.0	16	15°	12°	.05	■	■		



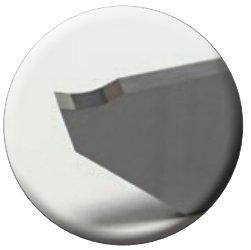


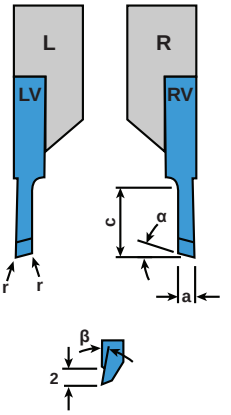
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Offset Cut Off with Type-SPT Chipbreaker

Left Hand	Right Hand	a	c	α	β	r	Coatings			
3002-0.8-10 LV SPT	3002-0.8-10 RV SPT	0.8	10	15°	20°	0			■	■
3002-1.0-13 LV SPT	3002-1.0-13 RV SPT	1.0	13	15°	20°	0			■	■
3002-1.5-8 LV SPT	3002-1.5-8 RV SPT	1.5	8	15°	20°	0			■	■
3002-1.5-8 LV SPT06	3002-1.5-8 RV SPT06	1.5	8	15°	6°	.05	■	■		
3002-1.5-8 LV SPT12	3002-1.5-8 RV SPT12	1.5	8	15°	12°	.05	■	■		
3002-1.5-16 LV SPT	3002-1.5-16 RV SPT	1.5	16	15°	20°	0			■	■
3002-2.0-10 LV SPT	3002-2.0-10 RV SPT	2.0	10	15°	20°	0			■	■
3002-2.0-10 LV SPT06	3002-2.0-10 RV SPT06	2.0	10	15°	6°	.05	■	■		
3002-2.0-10 LV SPT12	3002-2.0-10 RV SPT12	2.0	10	15°	12°	.05	■	■		
3002-2.0-16 LV SPT	3002-2.0-16 RV SPT	2.0	16	15°	20°	0			■	■
3002-2.0-16 LV SPT06	3002-2.0-16 RV SPT06	2.0	16	15°	6°	.05	■	■		
3002-2.0-16 LV SPT12	3002-2.0-16 RV SPT12	2.0	16	15°	12°	.05	■	■		
3002-2.5-13 LV SPT	3002-2.5-13 RV SPT	2.5	13	15°	20°	0			■	■
3002-2.5-13 LV SPT06	3002-2.5-13 RV SPT06	2.5	13	15°	6°	.05	■	■		
3002-2.5-13 LV SPT12	3002-2.5-13 RV SPT12	2.5	13	15°	12°	.05	■	■		
3002-2.5-16 LV SPT	3002-2.5-16 RV SPT	2.5	16	15°	20°	0			■	■
3002-2.5-16 LV SPT06	3002-2.5-16 RV SPT06	2.5	16	15°	6°	.05	■	■		
3002-2.5-16 LV SPT12	3002-2.5-16 RV SPT12	2.5	16	15°	12°	.05	■	■		
3002-3.0-16 LV SPT	3002-3.0-16 RV SPT	3.0	16	15°	20°	.05			■	■
3002-3.0-16 LV SPT06	3002-3.0-16 RV SPT06	3.0	16	15°	6°	.05	■	■		
3002-3.0-16 LV SPT12	3002-3.0-16 RV SPT12	3.0	16	15°	12°	.05	■	■		





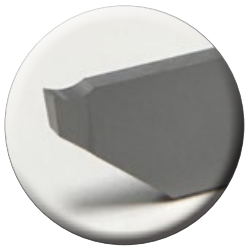
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

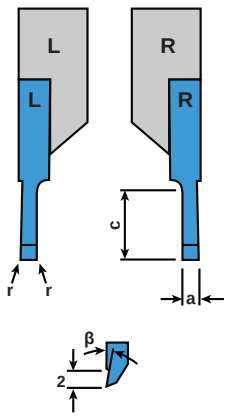
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3002: Cut Off

Neutral Cut Off with Type-SPT Chipbreaker

Left Hand	Right Hand	a	c	β	r	Coatings			
3002-1.0-10 LN SPT	3002-1.0-10 RN SPT	1.0	10	20°	.05			■	■
3002-1.5-10 LN SPT	3002-1.5-10 RN SPT	1.5	10	20°	.05			■	■
3002-1.5-10 LN SPT06	3002-1.5-10 RN SPT06	1.5	10	6°	.05	■	■		
3002-1.5-10 LN SPT12	3002-1.5-10 RN SPT12	1.5	10	12°	.05	■	■		
3002-1.5-16 LN SPT	3002-1.5-16 RN SPT	1.5	16	20°	.05			■	■
3002-2.0-10 LN SPT	3002-2.0-10 RN SPT	2.0	10	20°	.05			■	■
3002-2.0-10 LN SPT06	3002-2.0-10 RN SPT06	2.0	10	6°	.05	■	■		
3002-2.0-10 LN SPT12	3002-2.0-10 RN SPT12	2.0	10	12°	.05	■	■		
3002-2.0-16 LN SPT	3002-2.0-16 RN SPT	2.0	16	20°	.05			■	■
3002-2.0-16 LN SPT06	3002-2.0-16 RN SPT06	2.0	16	6°	.05	■	■		
3002-2.0-16 LN SPT12	3002-2.0-16 RN SPT12	2.0	16	12°	.05	■	■		
3002-2.5-13 LN SPT	3002-2.5-13 RN SPT	2.5	13	20°	.05			■	■
3002-2.5-13 LN SPT06	3002-2.5-13 RN SPT06	2.5	13	6°	.05	■	■		
3002-2.5-13 LN SPT12	3002-2.5-13 RN SPT12	2.5	13	12°	.05	■	■		
3002-2.5-16 LN SPT	3002-2.5-16 RN SPT	2.5	16	20°	.05			■	■
3002-2.5-16 LN SPT06	3002-2.5-16 RN SPT06	2.5	16	6°	.05	■	■		
3002-2.5-16 LN SPT12	3002-2.5-16 RN SPT12	2.5	16	12°	.05	■	■		
3002-3.0-16 LN SPT	3002-3.0-16 RN SPT	3.0	16	20°	.05			■	■
3002-3.0-16 LN SPT06	3002-3.0-16 RN SPT06	3.0	16	6°	.05	■	■		
3002-3.0-16 LN SPT12	3002-3.0-16 RN SPT12	3.0	16	12°	.05	■	■		





UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

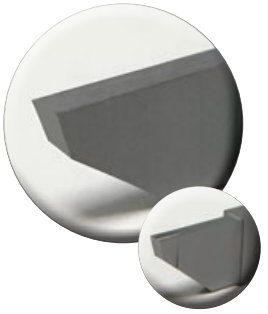
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3002: Cut Off

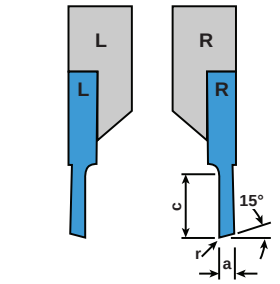
Turn & Cut Off w/ TOP (Wiper)

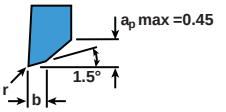
Left Hand	Right Hand	a	c	b	r	Coatings				Notes
3002-2.0-10 L TOP 015	3002-2.0-10 R TOP 015	2	10	.3	.15	■	■	■	■	Standard
3002-2.0-10 L SC TOP 015	3002-2.0-10 R SC TOP 015	2	10	.3	.15	■	■	■	■	Standard with SC Chipbreaker
3002-2.0-10 LV TOP 015	3002-2.0-10 RV TOP 015	2	10	.3	.15	■	■	■	■	Offset
3002-2.0-10 LV SC TOP 015	3002-2.0-10 RV SC TOP 015	2	10	.3	.15	■	■	■	■	Offset with SC Chipbreaker

Available with and without Type SC Chipbreaker in both standard and offset style.



Type-SC





Detailed Top

UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Slim & Deep - Standard Cut

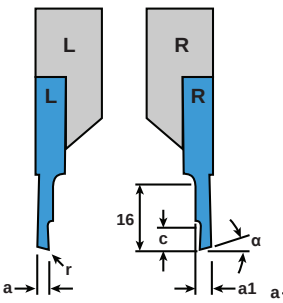
Left Hand	Right Hand	a	a_1	c	α	r	Coatings			
3002-0.5-2.5-16 L G20	3002-0.5-2.5-16 R G20	0.5	1.9	2.5	20°	0			■	■
3002-0.8-6-16 L	3002-0.8-6-16 R	0.8	2	6	15°	0	■	■	■	■
3002-1.0-6-16 L	3002-1.0-6-16 R	1	2.2	6	15°	0			■	■
3002-1.2-6-16-L	3002-1.2-6-16 R	1.2	2.4	6	15°	0	■	■	■	■

Slim & Deep - Offset

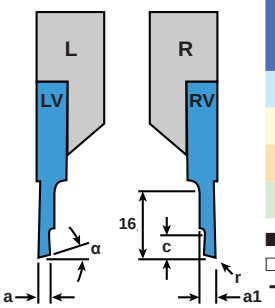
Left Hand	Right Hand	a	a_1	c	α	r				
3002-0.5-2.5-16 LV G20	3002-0.5-2.5-16 RV G20	0.5	1.9	2.5	20°	0			■	■
3002-0.8-6-16 LV	3002-0.8-6-16 RV	0.8	2	6	15°	0	■	■	■	■
3002-1.0-6-16 LV	3002-1.0-6-16 RV	1	2.2	6	15°	0			■	■
3002-1.2-6-16-LV	3002-1.2-6-16 RV	1.2	2.4	6	15°	0	■	■	■	■

Available in Type-SC and Type-SPT Geometry as well. Contact us or visit www.genswiss.com for additional details.

Type-SPT Type-SC



Standard Cut



Offset Cut

UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

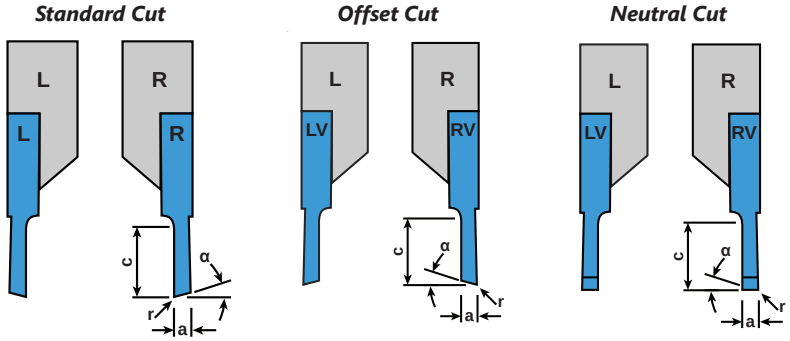
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3002: Cut Off

The multidec® CUT3002 cut off inserts on this page feature a honed tool nose and reinforced cutting edge which enable them to be used for minor turning and chamfering operations prior to parting off from the barstock.

Cut Off Type-GS Chipbreaker

NEW! The CUT3000 Type-GS is an evolution of Swiss-type cut off tooling. By using a new carbide forming technology, these inserts require less grinding to be produced while offering a decrease in overall cost of use. 'Type GS EN' grade offers surpreme performance in carbon steels while the Type GS FN grade offers excellent performance in Stainless and Titanium applications.



Type-GS - Standard Cut

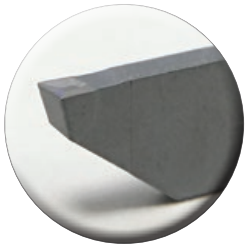
Left Hand	Right Hand	a	c	α	r	Edge	Applications	
3002-2.0-10 EL GS	3002-2.0-10 ER GS	2	10	15°	.2	Honed (E)	■	
3002-2.0-10 FL GS	3002-2.0-10 FR GS	2	10	15°	.2	Sharp (F)		■

Type-GS - Offset Cut

Left Hand	Right Hand	a	c	α	r	Edge		
3002-2.0-10 ELV GS	3002-2.0-10 ERV GS	2	10	15°	.2	Honed (E)	■	
3002-2.0-10 FLV GS	3002-2.0-10 FRV GS	2	10	15°	.2	Sharp (F)		■

Type-GS - Neutral Cut

Left Hand	Right Hand	a	c	r	Edge		
3002-2.0-10 L EN GS	3002-2.0-10 R EN GS	2	10	.2	Honed (E)	■	
3002-2.0-10 L FN GS	3002-2.0-10 R FN GS	2	10	.2	Sharp (F)		■



E Edge
Round Cutting Edge

F Edge
Sharp Cutting Edge

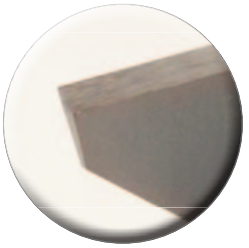
UMH 20 HPX (E Edge)	UMH 20 HPX (F Edge)	
■	□	Steel
□	■	Stainless Steel
-	■	Titanium & Ti-Alloys
■	□	Non Ferrous Metals

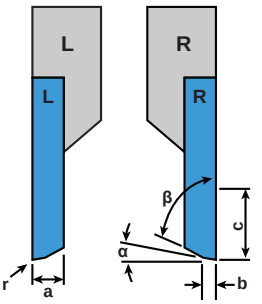
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3003: Front Turn

Front Turn - Standard

Left Hand	Right Hand	a	b	c	α	β	r	Coatings
3003-3.4-8 L	3003-3.4-8 R	3.4	1	8	3°	20°	0	■ ■ ■ ■



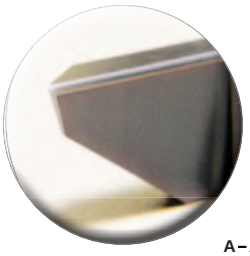


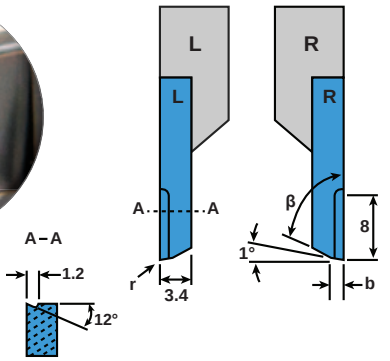
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Front Turn - Type SP Chipbreaker w/ TOP (Wiper)

Left Hand	Right Hand	b	β	r	Coatings
3003-3.4-8 L SP U TOP ZZ	3003-3.4-8 R SP U TOP ZZ	0.2	8°	0	■ ■ ■ ■
3003-3.4-8 L SP U TOP 45008	3003-3.4-8 R SP U TOP 45008	1.2	45°	.08	■ ■ ■ ■
3003-3.4-8 L SP U TOP 45015	3003-3.4-8 R SP U TOP 45015	1.2	45°	.15	■ ■ ■ ■





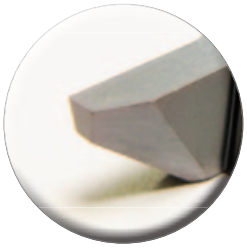
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

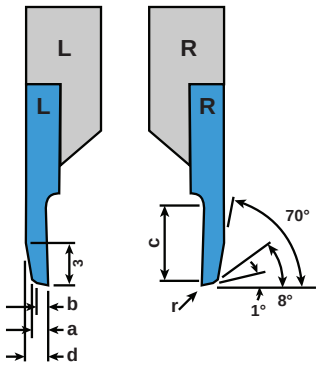
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3004: Back Turn

Back Turn - w/ TOP Wiper

Left Hand	Right Hand	a	b	c	d	r	Coatings
3004-0.8-6 L TOP ZZ	3004-0.8-6 R TOP ZZ	0.8	.5	6	2	0.00	■ ■ ■ ■
3004-1.0-6 L TOP ZZ	3004-1.0-6 R TOP ZZ	1.0	.5	6	2.2	0.00	■ ■ ■ ■
3004-1.2-8 L TOP ZZ	3004-1.2-8 R TOP ZZ	1.2	.5	8	2.4	0.00	■ ■ ■ ■
3004-1.5-8 L TOP ZZ	3004-1.5-8 R TOP ZZ	1.5	.5	8	2.7	0.00	■ ■ ■ ■
3004-1.8-8 L TOP ZZ	3004-1.8-8 R TOP ZZ	1.8	.5	8	3	0.00	■ ■ ■ ■



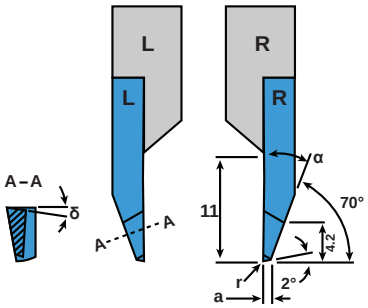


UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Back Turn - Type CP Chipbreaker

Left Hand	Right Hand	a	c	α	r	δ	Coatings
3004-0.8-4 L CP	3004-0.8-4 R CP	0.8	11	20°	0	8°	■ ■ ■ ■

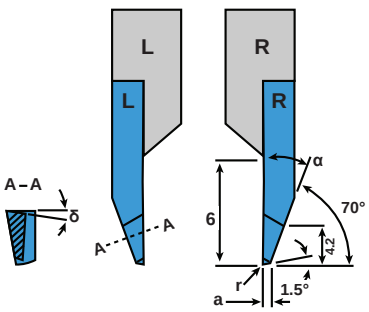


UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Back Turn - Type SP Chipbreaker w/ TOP Wiper

Left Hand	Right Hand	a	b	α	r	δ	Coatings
3004-2.4-6 L SP TOP 20ZZ	3004-2.4-6 R SP TOP 20ZZ	0.5	2.4	20°	0.00	15°	■ ■ ■ ■
3004-2.4-6 L SP TOP 20008	3004-2.4-6 R SP TOP 20008	0.5	2.4	20°	0.00	15°	■ ■ ■ ■
3004-2.4-6 L SP TOP 20015	3004-2.4-6 R SP TOP 20015	0.5	2.4	20°	0.00	15°	■ ■ ■ ■



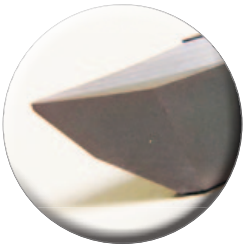
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

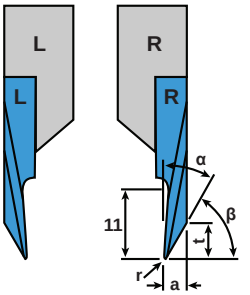
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3004: Back Turn

Back Turn - Type SP Chipbreaker

Left Hand	Right Hand	a	α	β	t	r	Coatings			
3004-3.2-6 L SP29008	3004-3.2-6 R SP29008	3.2	29°	61°	5	0.08	■	■	■	■
3004-3.2-6 L SP29015	3004-3.2-6 R SP29015	3.2	29°	61°	5	0.15	■	■	■	■
3004-3.2-6 L SP29035	3004-3.2-6 R SP29035	3.2	29°	61°	5	0.35	■	■	■	■
3004-3.2-6 L SP29075	3004-3.2-6 R SP29075	3.2	29°	61°	5	0.75	■	■	■	■
3004-3.2-5 L SP35015	3004-3.2-5 R SP35015	3.2	35°	55°	4	0.15	■	■	■	■
3004-3.2-5 L SP35035	3004-3.2-5 R SP35035	3.2	35°	55°	4	0.35	■	■	■	■



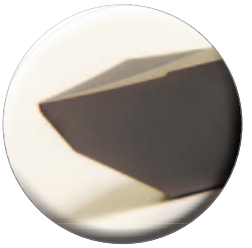


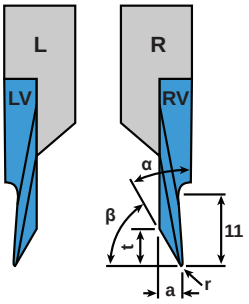
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Copy Turn / Profile Tool - Type SP Chipbreaker

Left Hand	Right Hand	a	α	β	t	r	Coatings			
3004-3.2-6 LV SP29008	3004-3.2-6 RV SP29008	3.2	29°	61°	5	0.08	■	■	■	■
3004-3.2-6 LV SP29015	3004-3.2-6 RV SP29015	3.2	29°	61°	5	0.15	■	■	■	■
3004-3.2-6 LV SP29035	3004-3.2-6 RV SP29035	3.2	29°	61°	5	0.35	■	■	■	■
3004-3.2-6 LV SP29075	3004-3.2-6 RV SP29075	3.2	29°	61°	5	0.75	■	■	■	■





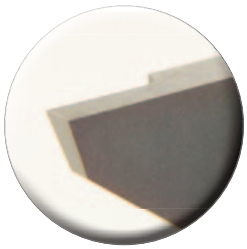
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

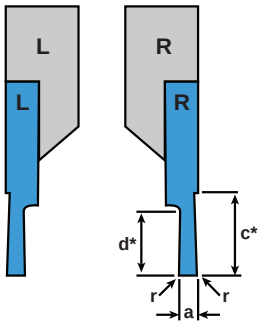
CUT3005: Groove & Turn

Groove & Turn

Left Hand	Right Hand	a	c	d	r	Coatings			
3005-1.0-8 L	3005-1.0-8 R	1	8	2.5	0.05	■	■	■	■
3005-1.5-8 L	3005-1.5-8 R	1.5	8	3	0.05	■	■	■	■
3005-2.0-8 L	3005-2.0-8 R	2.0	8	4	0.05	■	■	■	■
3005-2.5-8 L	3005-2.5-8 R	2.5	8	5	0.05	■	■	■	■
3005-3.0-8 L	3005-3.0-8 R	3.0	8	6	0.05	■	■	■	■



*c: maximal turning capacity
*d: maximal grooving capacity

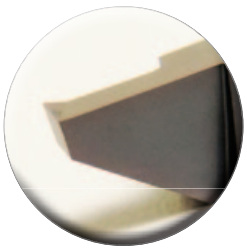


	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

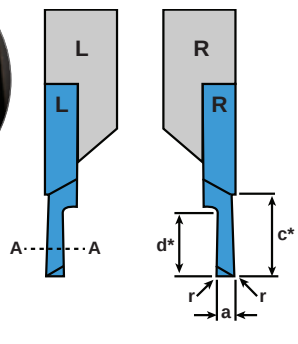
■ Preferred Application
□ Possible Application
- Application Not Recommended

Groove & Turn - Type CP Chipbreaker

Left Hand	Right Hand	a	c	d	r	Coatings			
3005-0.8-8 L CP	3005-0.8-8 R CP	0.8	8	2.5	0.00	■	■	■	■
3005-1.0-8 L CP	3005-1.0-8 R CP	1.0	8	3.5	0.00	■	■	■	■
3005-1.5-8 L CP	3005-1.5-8 R CP	1.5	8	4	0.00	■	■	■	■
3005-1.5-8 L CP R08	3005-1.5-8 R CP R08	1.5	8	4	0.08	■	■	■	■
3005-2.0-8 L CP	3005-2.0-8 R CP	2.0	8	5	0.00	■	■	■	■
3005-2.0-8 L CP R08	3005-2.0-8 R CP R08	2.0	8	5	0.08	■	■	■	■
3005-2.0-8 L CP R15	3005-2.0-8 R CP R15	2.0	8	5	0.15	■	■	■	■
3005-2.5-8 L CP	3005-2.5-8 R CP	2.5	8	6	0.00	■	■	■	■
3005-2.5-8 L CP R08	3005-2.5-8 R CP R08	2.5	8	6	0.08	■	■	■	■
3005-3.0-8 L CP	3005-3.0-8 R CP	3.0	8	6	0.00	■	■	■	■
3005-3.0-8 L CP R08	3005-3.0-8 R CP R08	3.0	8	6	0.08	■	■	■	■
3005-3.0-8 L CP R15	3005-3.0-8 R CP R15	3.0	8	6	0.15	■	■	■	■



*c: maximal turning capacity
*d: maximal grooving capacity



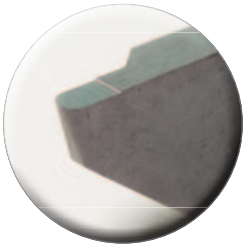
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

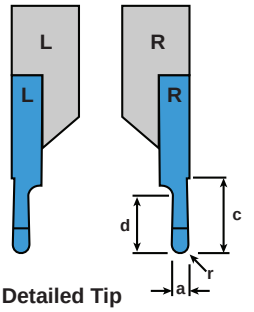
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3007: Full Radius Grooving

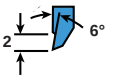
Full Radius Grooving

Left Hand	Right Hand	a	c	d	r	Coatings			
3007-R0.25-2-10 L	3007-R0.25-2-10 R	0.5	12	2	0.25	■	■	■	□
3007-R0.5-2.5-10 L	3007-R0.5-2.5-10 R	1	12	2.5	0.5	■	■	■	■
3007-R0.6-2.5-10 L	3007-R0.6-2.5-10 R	1.2	12	2.5	0.6	■	■	■	■
3007-R0.75-3-10 L	3007-R0.75-3-10 R	1.5	12	3	0.75	■	■	■	■
3007-R0.8-3-10 L	3007-R0.8-3-10 R	1.6	12	3	0.8	■	■	■	■
3007-R1.0-10 L	3007-R1.0-10 R	2	12	10	1.0	■	■	■	■
3007-R1.5-10 L	3007-R1.5-10 R	3	12	10	1.5	■	■	■	■
3007-R1.5-16 L	3007-R1.5-16 R	3	17	16	1.5	■	■	■	■





Detailed Tip



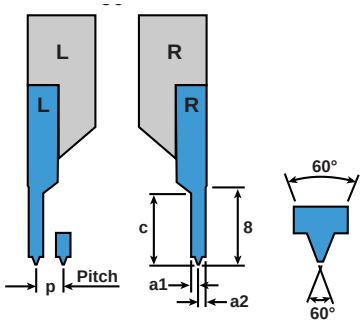
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3006: Threading

Threading - Full Profile (Metric)

Left Hand	Right Hand	ISO DIN13	NIHS 06-03	NIHS 06-02	p	a_1	a_2	c	Coatings			
3006-0.15-10-60 VP L	3006-0.15-10-60 VP R	-	-	S 0.6	.15	.08	.08	---			■	■
3006-0.175-10-60 VP L	3006-0.175-10-60 VP R	-	-	S 0.7	.175	.1	.1	---			■	■
3006-0.2-10-60 VP L	3006-0.2-10-60 VP R	-	-	S0.8	.2	.11	.11	---			■	■
3006-0.225-10-60 VP L	3006-0.225-10-60 VP R	-	-	S 0.9	.225	.13	.13	---			■	■
3006-0.25-10-60 VP L	3006-0.25-10-60 VP R	M 1/1.2	M 1/1.2	S 1/S1.2	.25	.14	.14	---	■	■	■	■
3006-0.3-10-60 VP L	3006-0.3-10-60 VP R	-	M 1.4	S 1.4	.3	.17	.17	---	■	■	■	■
3006-0.35-10-60 VP L	3006-0.35-10-60 VP R	M 1.6	M 1.6/1.8	-	.35	.19	.19	---	■	■	■	■
3006-0.4-10-60 VP L	3006-0.4-10-60 VP R	M 2	M 2	-	.4	.22	.22	---	■	■	■	■
3006-0.45-10-60 VP L	3006-0.45-10-60 VP R	M 2.5	M 2.2/2.5	-	.45	.25	.25	---	■	■	■	■
3006-0.5-10-60 VP L	3006-0.5-10-60 VP R	M 3	M 3	-	.5	.35	.35	1.4	■	■	■	■
3006-0.6-10-60 VP L	3006-0.6-10-60 VP R	-	M 3.5	-	.6	.4	.4	1.4	■	■	■	■
3006-0.7-10-60 VP L	3006-0.7-10-60 VP R	M 4	M 4	-	.7	.45	.45	1.8	■	■	■	■
3006-0.75-10-60 VP L	3006-0.75-10-60 VP R	-	M 4.5	-	.75	.45	.45	1.9	■	■	■	■
3006-0.8-10-60 VP L	3006-0.8-10-60 VP R	M 5	M 5	-	.8	.5	.5	2.0	■	■	■	■
3006-1.0-10-60 VP L	3006-1.0-10-60 VP R	M 6/7	-	-	1.0	.55	.55	2.4	■	■	■	■
3006-1.25-10-60 VP L	3006-1.25-10-60 VP R	M 8/9	-	-	1.25	.73	.73	2.9	■	■	■	■
3006-1.5-10-60 VP L	3006-1.5-10-60 VP R	M 10/11	-	-	1.5	.87	.87	3.4	■	■	■	■
3006-1.75-10-60 VP L	3006-1.75-10-60 VP R	M 12	-	-	1.75	.98	.98	3.9	■	■	■	■
3006-2.0-10-60 VP L	3006-2.0-10-60 VP R	M 14/16	-	-	2.0	1.1	1.1	4.0	■	■	■	■
3006-2.5-10-60 VP L	3006-2.5-10-60 VP R	M 18/20/22	-	-	2.5	1.4	1.4	5.0	■	■	■	■
3006-3.0-10-60 VP L	3006-3.0-10-60 VP R	M 24/27	-	-	3.0	1.65	1.65	5.0	■	■	■	■

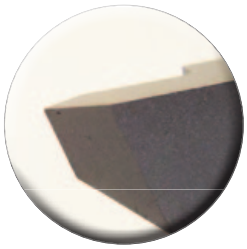


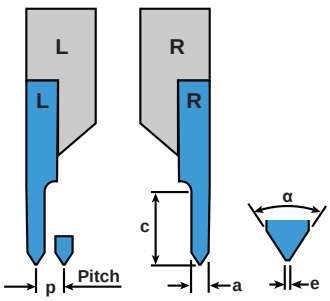
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Threading - Partial Profile

Left Hand	Right Hand	a	c	α	p	e	Coatings			
3006-2-6-60 L	3006-2-6-60 R	2	6	60	0.25-2.0	.035	■	■	■	■
3006-2-6-55 L	3006-2-6-55 R	2	6	55	0.25-2.0	.035	■	■	■	■
3006-3-10-60 L	3006-3-10-60 R	3	10	60	0.25-2.0	.035	■	■	■	■
3006-3-10-55 L	3006-3-10-55 R	3	10	55	0.25-2.0	.035	■	■	■	■



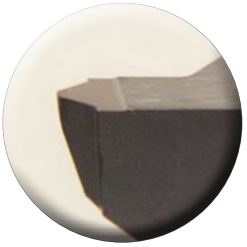


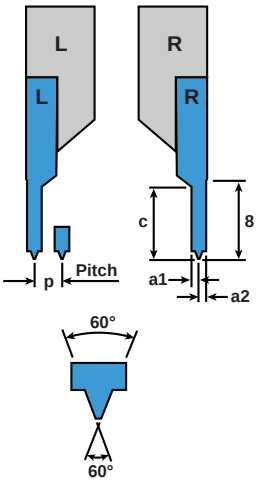
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

CUT3006: Threading

Threading - Full Profile (UNC) & (UNF)

TPI	Left Hand	Right Hand	p	a_1	a_2	c	Coatings	
13	3006-1/2-13 UNC 10-60 VPL	3006-1/2-13 UNC 10-60 VPR	1.954	1.2	1.2	4.2	■	■
14	3006-7/16-14 UNC 10-60 VPL	3006-7/16-14 UNC 10-60 VPR	1.814	1.1	1.1	3.9	■	■
16	3006-3/8-16 UNC 10-60 VPL	3006-3/8-16 UNC 10-60 VPR	1.588	0.9	0.9	3.6	■	■
18	3006-5/16-18 UNC 10-60 VPL	3006-5/16-18 UNC 10-60 VPR	1.411	0.8	0.8	3.4	■	■
20	3006-1/4-20 UNC 10-60 VPL	3006-1/4-20 UNC 10-60 VPR	1.27	.73	.73	2.9	■	■
20	3006-7/16-20 UNF 10-60 VPL	3006-7/16-20 UNF 10-60 VPR	1.27	.72	.72	2.9	■	■
20	3006-1/2-20 UNF 10-60 VPL	3006-1/2-20 UNF 10-60 VPR	1.27	.72	.72	2.9	■	■
24	3006-10-24 UNC 10-60 VPL	3006-10-24 UNC 10-60 VPR	1.058	0.6	0.6	2.4	■	■
24	3006-12-24 UNC 10-60 VPL	3006-12-24 UNC 10-60 VPR	1.058	0.6	0.6	2.4	■	■
24	3006-5/16-24 UNF 10-60 VPL	3006-5/16-24 UNF 10-60 VPR	1.058	0.6	0.6	2.4	■	■
24	3006-3/8-24 UNF 10-60 VPL	3006-3/8-24 UNF 10-60 VPR	1.058	0.6	0.6	2.4	■	■
28	3006-12-28 UNF 10-60 VPL	3006-12-28 UNF 10-60 VPR	0.907	0.6	0.6	2.2	■	■
28	3006-1/4-28 UNF 10-60 VPL	3006-1/4-28 UNF 10-60 VPR	0.907	0.6	0.6	2.2	■	■
32	3006-06-32 UNC 10-60 VPL	3006-06-32 UNC 10-60 VPR	0.794	0.5	0.5	2	■	■
32	3006-08-32 UNC 10-60 VPL	3006-08-32 UNC 10-60 VPR	0.794	0.5	0.5	2	■	■
32	3006-10-32 UNF 10-60 VPL	3006-10-32 UNF 10-60 VPR	0.794	0.5	0.5	2	■	■
36	3006-08-36 UNF 10-60 VPL	3006-08-36 UNF 10-60 VPR	0.705	.45	.45	1.8	■	■
40	3006-04-40 UNC 10-60 VPL	3006-04-40 UNC 10-60 VPR	0.635	0.4	0.4	1.8	■	■
40	3006-05-40 UNC 10-60 VPL	3006-05-40 UNC 10-60 VPR	0.635	0.4	0.4	1.8	■	■
40	3006-06-40 UNF 10-60 VPL	3006-06-40 UNF 10-60 VPR	0.635	0.4	0.4	1.8	■	■
44	3006-05-44 UNF 10-60 VPL	3006-05-44 UNF 10-60 VPR	0.577	0.4	0.4	1.4	■	■
48	3006-03-48 UNC 10-60 VPL	3006-03-48 UNC 10-60 VPR	0.529	.35	.35	1.4	■	■
48	3006-04-48 UNF 10-60 VPL	3006-04-48 UNF 10-60 VPR	0.529	.35	.35	1.4	■	■





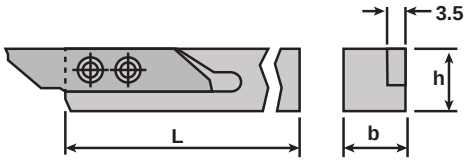
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT3000 Holders

multidec®-CUT 3000 Holders

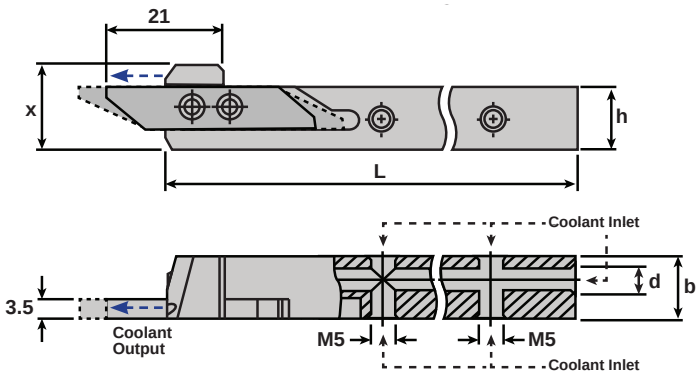
Left Hand	Right Hand	b	h	L
3000-08x80 L	3000-08x80 R	8	8	80
3000-08x100 L	3000-08x100 R	8	8	100
3000-10x80 L	3000-10x80 R	10	10	80
3000-10x100 L	3000-10x100 R	10	10	100
3000-12x100 L	3000-12x100 R	12	12	100
3000-16x125 L	3000-16x125R	16	16	125
3000-20x125 L	3000-20x125 R	20	20	125
3000-20x150 L	3000-20x150 R	20	20	150
3000-3/8"x80 L	3000-3/8"x80 R	.375"	.375"	80
3000-3/8"x100 L	3000-3/8"x100 R	.375"	.375"	100
3000-1/2"x100 L	3000-1/2"x100 R	.500"	.500"	100
3000-5/8"x125 L	3000-5/8"-125 R	.625"	.625"	125
3000-3/4"x125 L	3000-3/4"x125 R	.750"	.750"	125



multidec®-CUT 3000 Thru-Coolant Holders

Left Hand	Right Hand	h	b	L	x	(d)
3000-08x100 L IC	3000-08x100 R IC	8	12	100	12.2	M5
3000-10x100 L IC	3000-10x100 R IC	10	12	100	14	M5
3000-12x100 L IC	3000-12x100 R IC	12	12	100	16	M5
3000-16x125 L IC	3000-16x125 R IC	16	16	125	20	G 1/8"
3000-20x125 L IC	3000-20x125 R IC	20	20	125	24	G 1/8"
3000-25x125 L IC	3000-25x125 R IC	25	25	125	29	G 1/8"
3000-3/8"x100 L IC	3000-3/8"x100 R IC	.375"	.375"	100	13.5	M5
3000-1/2"x100 L IC	3000-1/2"x100 R IC	.500"	.500"	100	16.7	M5
3000-5/8"x125 L IC	3000-5/8"-125 R IC	.625"	.625"	125	19.9	G 1/8"
3000-3/4"x125 L IC	3000-3/4"x125 R IC	.750"	.750"	125	23	G 1/8"

Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions.



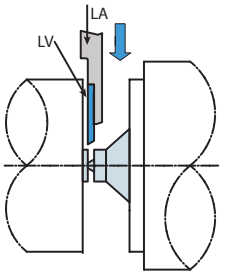
Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

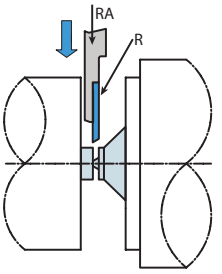
Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

CUT3000 Holders

multidec®-CUT 3000 Shifted Holders

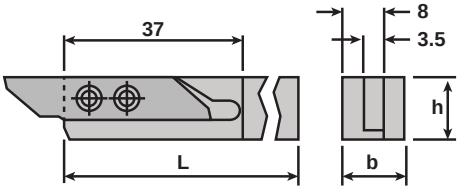
Shifted holders enable cutting off under difficult conditions by **enabling the cutting edge to cut close to the sub/ pickoff spindle** thus reducing the chance for deflection.





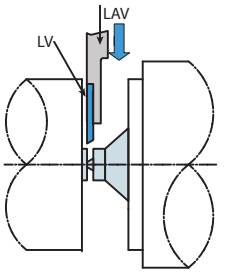
Left Hand	Right Hand	b	h	L
3000-10x80 LA	3000-10x80 RA	10	10	80
3000-10x100 LA	3000-10x100 RA	10	10	100
3000-12x100 LA	3000-12x100 RA	12	12	100
3000-16x125 LA	3000-16x125 RA	16	16	125
3000-3/8"x80 LA	3000-3/8"x80 RA	.375"	.375"	80
3000-3/8"x100 LA	3000-3/8"x100 RA	.375"	.375"	100
3000-1/2"x100 LA	3000-1/2"x100 RA	.500"	.500"	100
3000-5/8"x125 LA	3000-5/8"-125 RA	.625"	.625"	125

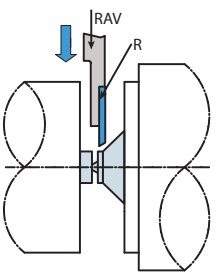
Coolant-Thru versions available in 16mm and 5/8inch shank sizes. Call GenSwiss for more info.



multidec®-CUT 3000 Offset Holders

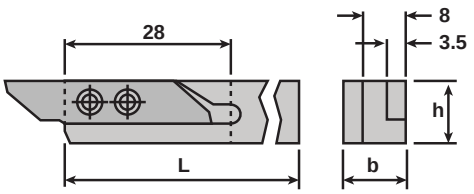
Offset holders include **clearances for extended nose guide bushings or for subspindle/pickoff clearance** thus providing an ideal cutoff situation in tough applications.





Left Hand	Right Hand	b	h	L
3000-3/8"x80 LAV	3000-3/8"x80 RAV	.375"	.375"	80
3000-3/8"x100 LAV	3000-3/8"x100 RAV	.375"	.375"	100
3000-10x80 LAV	3000-10x80 RAV	10	10	80
3000-10x100 LAV	3000-10x100 RAV	10	10	100
3000-12x100 LAV	3000-12x100 RAV	12	12	100
3000-1/2"x100 LAV	3000-1/2"x100 RAV	.500"	.500"	100
3000-5/8"-125 LAV	3000-5/8"x125 RAV	.625"	.625"	125
3000-16x125 LAV	3000-16x125 RAV	16	16	125

Coolant-Thru versions available in 16mm and 5/8inch shank sizes. Call GenSwiss for more info.

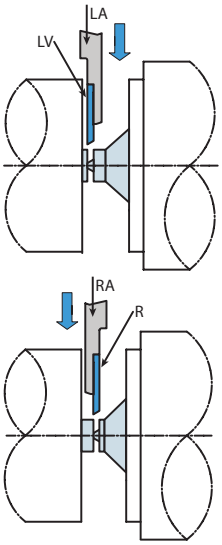


CUT3000 Holders

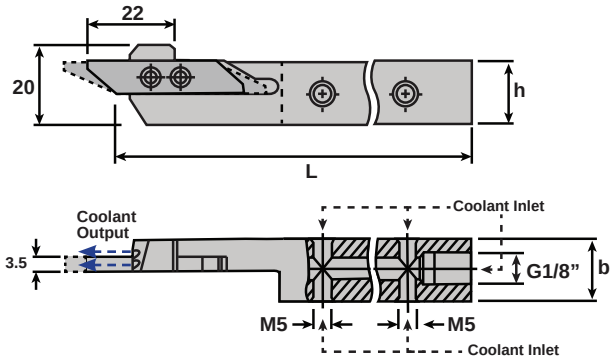
multidec®-CUT 3000 Shifted Coolant Thru Holders

Shifted holders enable cutting off under difficult conditions by **enabling the cutting edge to cut close to the sub/pickoff spindle** thus reducing the chance for deflection.

Left Hand	Right Hand	b	h	L
3000-16x125 LA IC	3000-16x125 RA IC	16	16	125
3000-5/8"x125 LA IC	3000-5/8"-125 RA IC	.625"	.625"	125



Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions.



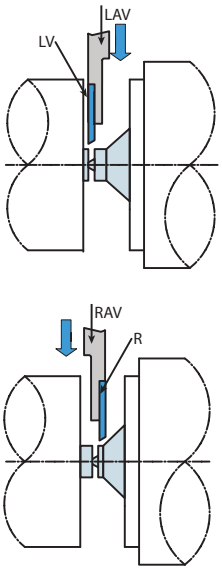
Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

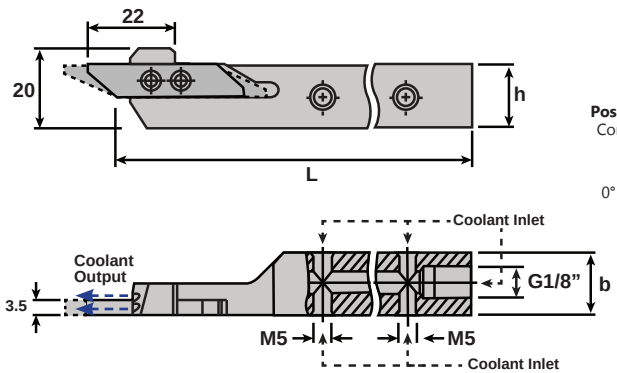
multidec®-CUT 3000 Offset Coolant Thru Holders

Offset holders include **clearances for extended nose guide bushings or for subspindle/pickoff clearance** thus providing an ideal cutoff situation in tough applications.

Left Hand	Right Hand	b	h	L
3000-16x125 LAV IC	3000-16x125 RAV IC	16	16	125
3000-5/8"-125 LAV IC	3000-5/8"x125 RAV IC	.625"	.625"	125



Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions.



Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

CUT3000 Holders

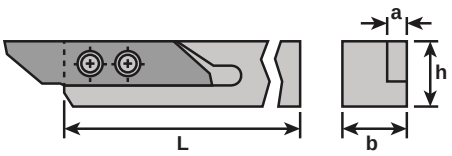
NEW!

Mount Inserts From The Opposite Side

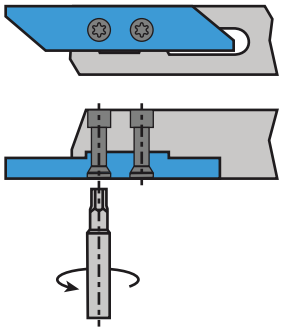
multidec®-CUT 3000...C Combi Holders

3000 Series Combi holders allow the insert fixing screws to be mounted from the opposite side of the holder using tapped bushings.

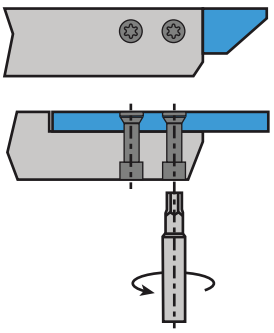
Left Hand	Right Hand	b	h	L	a
3000-08x100 LC	3000-08x100 RC	8	8	100	3.5
3000-10x100 LC	3000-10x100 RC	10	10	100	3.5
3000-12x100 LC	3000-12x100 RC	12	12	100	3.5
3000-16x125 LC	3000-16x125 RC	16	16	125	3.5
3000-20x125 LC	3000-20x125 RC	20	20	125	3.5



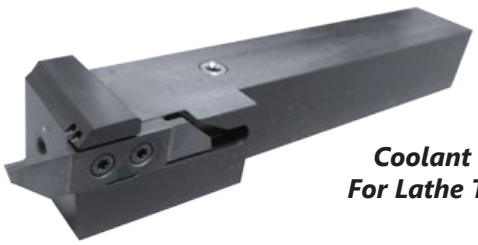
3000 Series Standard



3000 Series Combi



CUT3000 Holders



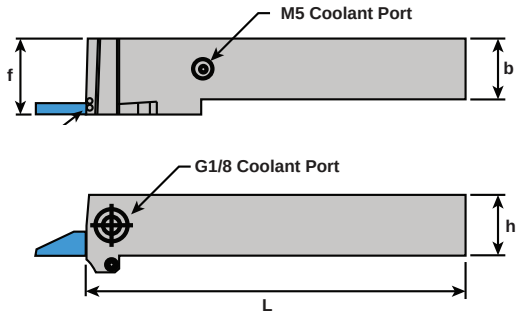
NEW!

Coolant Thru For Lathe Tooling

multidec®-CUT 3000...AK Coolant Thru

Left Hand	Right Hand	b	h	L	f
3000 AK-16-125 L IC	3000 AK-16-125 R IC	16	16	125	20
3000 AK-20-125 L IC	3000 AK-20-125 R IC	20	20	125	25
3000 AK-25-125 L IC	3000 AK-25-125 R IC	25	25	125	32
3000 AK-5/8"-125 L IC	3000 AK-5/8"-125 R IC	5/8"	5/8"	125	20
3000 AK-3/4"-125 L IC	3000 AK-3/4"-125 R IC	3/4"	3/4"	125	25
3000 AK-1"-125 L IC	3000 AK-1"-125 R IC	1"	1"	125	32

Features (3) connection ports for simple connection to your oil delivery system. (2) M5 side ports and (1) one G1/8 side port making connection possible on many machine tool positions.



Coolant Fittings

Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

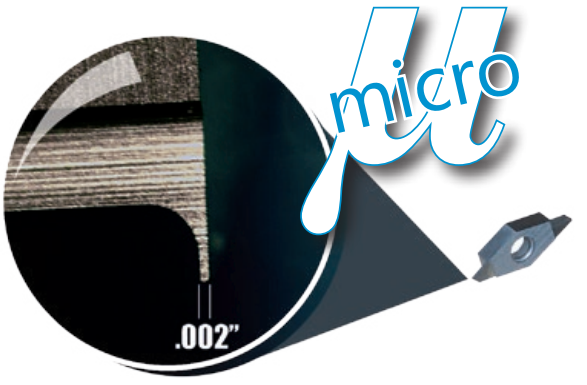
Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

multidec®-Cut 1600 Series

UTILIS multidec® 1600 Series Swiss Tools are designed for micro turning and grooving operations in Swiss-Type CNC machines. Perfectly designed for the smallest of swiss machines the 1600 series excels at work under .125" in diameter. Tough UHM30 grade carbide combined with a variety of coatings enhances tool life in tough materials typically machined in Swiss-type applications.

- Highly Repeatable Cutting Edge
- .05mm to 2.75mm (.0019" - .1082") Insert Widths
- Micro Grooving, Front Turning, Back Turning, Micro-Threading, & Cut Off Operations

Series	Operation
1602	Part Cut Off
1603	Front Turning
1604	Back Turning
1605	Groove & Turning
1606	Threading
1607	Full Radius Grooving
1610	Micro Grooving
1611	Axial Grooving



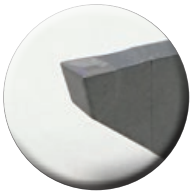
multidec-CUT1600: Legend

■ Preferred Application
□ Possible Application
- Application Not Recommended

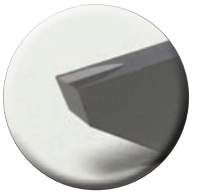
Series Operation	Designation	Description	Finish & Material Type			
			Roughing	Finishing	Micro Finishing	
1602 Series **Cut Off**	...02	Without chip breaker	□	■	■	Steel
			□	■	■	Stainless Steel
			□	■	■	Titanium & Ti-Alloys
			■	-	-	Non Ferrous Metals
	...02 SC	With chip breaker	■	■	■	
			■	■	■	
			■	■	■	
			■	□	-	
	...02 SPT	With chip breaker for soft materials	-	-	-	
			□	■	■	
			□	■	■	
			■	■	■	
	...02 TOP	With "TOP" Wiper	□	■	■	
			□	■	■	
			□	■	■	
			■	■	■	
	...02 SC TOP	With chip breaker & "TOP" Wiper	■	■	■	
			■	■	■	
			■	■	■	
			■	□	-	
1603 Series **Front Turning**	...03	Without chip breaker	■	■	■	
			■	■	■	
			□	■	■	
			■	-	-	
	...03 SP	With chip breaker	□	■	■	
			□	■	■	
			□	■	■	
			■	■	■	
	...03 CP TOP	With chip breaker & "TOP" Wiper	□	■	■	
			□	■	■	
			□	■	■	
			■	■	■	
1604 Series **Back Turning**	...04 SP	Copy turning with chip breaker	□	■	■	
			□	■	■	
			□	■	■	
			■	■	■	
	...04 TOP	With "TOP" Wiper	□	■	■	
			□	■	■	
			□	■	■	
			■	■	■	
	...04 SP TOP	With chip breaker & "TOP" Wiper	□	■	■	
			□	■	■	
			□	■	■	
			■	■	■	
1605 Series **Groove & Turning**	...05	Without chip breaker	■	■	■	
			■	■	■	
			□	■	□	
			■	□	-	
	...05 CP	With chip breaker	□	■	■	
			□	■	■	
			□	■	■	
			■	■	■	
1606 Series **Threading**	...06	Partial Profile	-	-	■	
			-	-	■	
			-	-	■	
			-	□	■	
	...06 VP	Full Profile	-	-	■	
			-	-	■	
			-	-	■	
			-	□	■	
1607 Series **Full Radius Grooving**	...07	Radius Grooving	-	■	■	
			-	■	■	
			-	■	■	
			-	■	■	
1610 Series 1611 Series	...10 ...11	Micro Grooving Axial Grooving	1610 & 1611 Series Finish & Material Type Same as 1607 Series			

multidec-CUT1600: Legend

Type-GS Chipbreaker

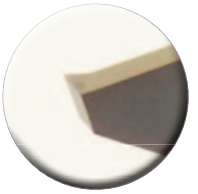


Type-SC Chipbreaker

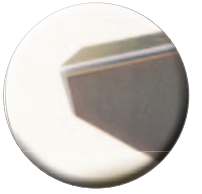


Type-SPT Chipbreaker

Type-CP Chipbreaker



Type-SP Chipbreaker



Properties & Application Range of Coatings

Carbide		Uncoated	Standard Coatings				Special Coatings (on request)						
UTILIS-Code			SX	MZ	HX	HPX	HX-A/ HX-A+	TX	HLX	BX	DX-T	DX-HC	DX/DX+
Coating		-	TiN	TiN/ TiAlN	TiAlN/ AlTiN	TiAlN/ AlTiN	AlCrN	AlCrN	TiAlN WC/C	TiCN	DLC	Ta-C	Diamond
Coating Process		-	PVD	CVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	CVD
Materials (Category)													
Steel Non-Alloyed	(I)	■	■	■	■	■	■	□	-	■	-	-	-
Steel Low-Alloyed	(II)	□	■	■	■	■	■	□	-	■	-	-	-
Steel High-Alloyed	(III)	□	□	■	■	■	■	□	-	□	-	-	-
Titanium	(IV)	□	-	-	■	□	■	■	■	-	-	-	-
Stainless Steel	(V)	□	□	■	■	■	■	□	■	■	-	-	-
Stainless Steel	(VI)	□	□	■	■	■	■	□	■	□	-	-	-
Aluminum	(VII)	■	□	-	■	-	□	-	■	-	■	■	■
Brass	(VIII)	■	□	-	■	□	□	-	■	-	■	■	-
Synthetics Reinforced/Composits	(IX)	-	-	-	□	-	-	-	-	-	□	■	■
Hard Materials	>60 HRC	-	-	-	-	-	□	■	-	-	-	-	-

Coatings vs Material Type

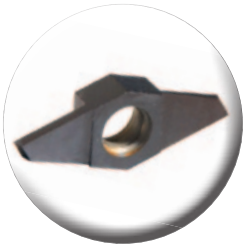
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	

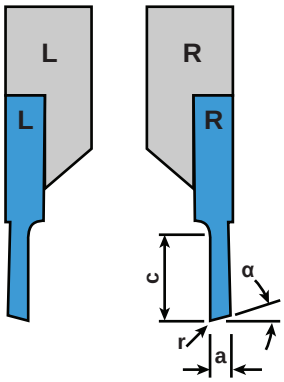
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1602: Standard Cutoff

Standard Cut Off -1602

Left Hand	Right Hand	a	c	α	r	Coatings			
1602-0.5-2.5-20 L G20	1602-0.5-2.5-20 R G20	.5	2.5	20°	0	■	■	■	■
1602-0.8-5 L	1602-0.8-5 R	.8	5	15°	0	■	■	■	■
1602-1.0-5 L	1602-1.0-5 R	1	5	15°	0	■	■	■	■
1602-1.2-5 L	1602-1.2-5 R	1.2	5	15°	0	■	■	■	■
1602-1.5-5 L	1602-1.5-5 R	1.5	5	15°	0	■	■	■	■



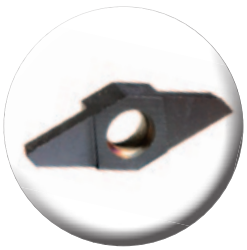


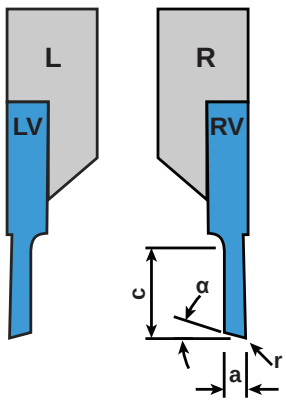
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Offset Cut Off -1602...V

Left Hand	Right Hand	a	c	α	r	Coatings			
1602-0.5-2.5-20 LV G20	1602-0.5-2.5-20 RV G20	.5	2.5	20°	0	■	■	■	■
1602-0.8-5 LV	1602-0.8-5 RV	.8	5	15°	0	■	■	■	■
1602-1.0-5 LV	1602-1.0-5 RV	1	5	15°	0	■	■	■	■
1602-1.2-5 LV	1602-1.2-5 RV	1.2	5	15°	0	■	■	■	■
1602-1.5-5 LV	1602-1.5-5 RV	1.5	5	15°	0	■	■	■	■





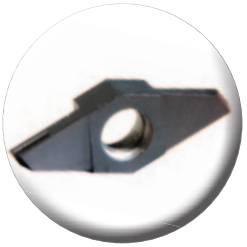
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

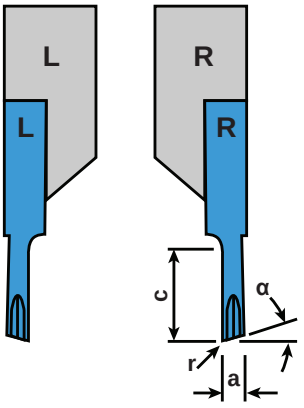
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT1602: Cut Off w/ Chipbreaker

Standard Cut Off -1602...SC

Left Hand	Right Hand	a	c	α	r	Coatings
1602-1.5-5 L SC	1602-1.5-5 R SC	1.5	5	15°	0	■ ■ ■ ■



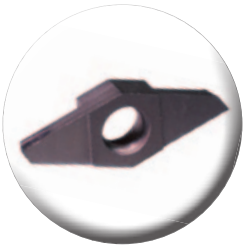


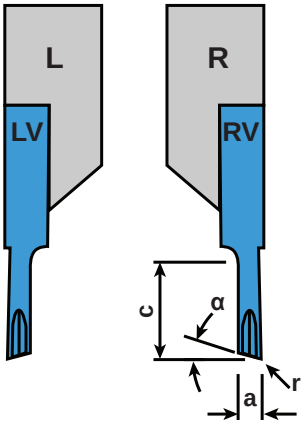
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Offset Cut Off -1602...V SC

Left Hand	Right Hand	a	c	α	r	Coatings
1602-1.5-5 LV SC	1602-1.5-5 RV SC	1.5	5	15°	0	■ ■ ■ ■



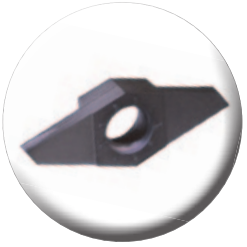


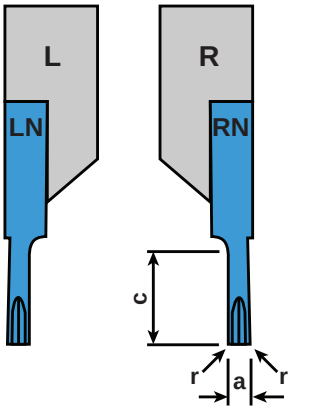
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Neutral Cut Off -1602...N SC

Left Hand	Right Hand	a	c	r	Coatings
1602-1.5-5 LN SC	1602-1.5-5 RN SC	1.5	5	0.05mm/.0019in	■ ■





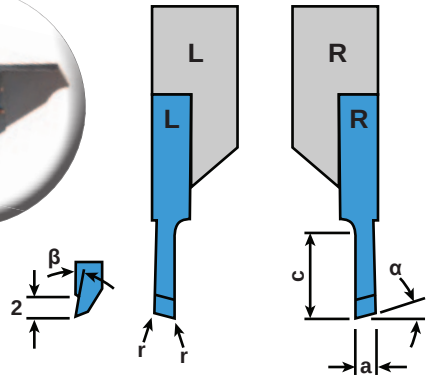
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT1602: Cut Off w/ Chipbreaker

Standard Cut Off -1602...SPT

Left Hand	Right Hand	a	c	α	β	r	Coatings			
1602-0.5-2.5-L SPT G20	1602-0.5-2.5-R SPT G20	0.5	2.5	20°	20°	0			■	■
1602-0.8-5 L SPT	1602-0.8-5 R SPT	0.8	5.0	15°	20°	0			■	■
1602-1.0-5 L SPT	1602-1.0-5 R SPT	1.0	5.0	15°	20°	0			■	■
1602-1.0-5 L SPT06	1602-1.0-5 R SPT06	1.0	5.0	15°	6°	.05	■	■		
1602-1.0-5 L SPT12	1602-1.0-5 R SPT12	1.0	5.0	15°	12°	.05	■	■		
1602-1.2-5 L SPT	1602-1.2-5 R SPT	1.2	5.0	15°	20°	0			■	■
1602-1.5-5 L SPT	1602-1.5-5 R SPT	1.5	5.0	15°	20°	0			■	■
1602-1.5-5 L SPT06	1602-1.5-5 R SPT06	1.5	5.0	15°	6°	.05	■	■		
1602-1.5-5 L SPT12	1602-1.5-5 R SPT12	1.5	5.0	15°	12°	.05	■	■		

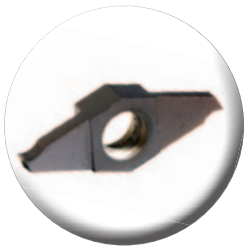


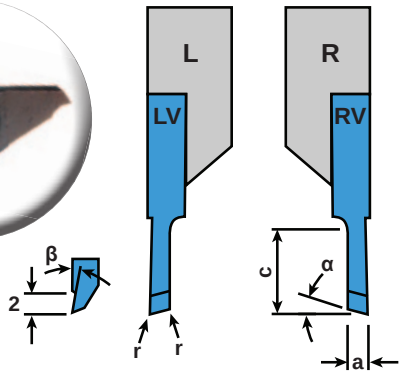
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Offset Cut Off -1602...V SPT

Left Hand	Right Hand	a	c	α	β	r	Coatings			
1602-0.5-2.5-LV SPT G20	1602-0.5-2.5-R SPT G20	0.5	2.5	20°	20°	0			■	■
1602-0.8-5 LV SPT	1602-0.8-5 R SPT	0.8	5.0	15°	20°	0			■	■
1602-1.0-5 LV SPT	1602-1.0-5 R SPT	1.0	5.0	15°	20°	0			■	■
1602-1.0-5 LV SPT06	1602-1.0-5 R SPT06	1.0	5.0	15°	6°	.05	■	■		
1602-1.0-5 LV SPT12	1602-1.0-5 R SPT12	1.0	5.0	15°	12°	.05	■	■		
1602-1.2-5 LV SPT	1602-1.2-5 R SPT	1.2	5.0	15°	20°	0			■	■
1602-1.5-5 LV SPT	1602-1.5-5 R SPT	1.5	5.0	15°	20°	0			■	■
1602-1.5-5 LV SPT06	1602-1.5-5 R SPT06	1.5	5.0	15°	6°	.05	■	■		
1602-1.5-5 LV SPT12	1602-1.5-5 R SPT12	1.5	5.0	15°	12°	.05	■	■		





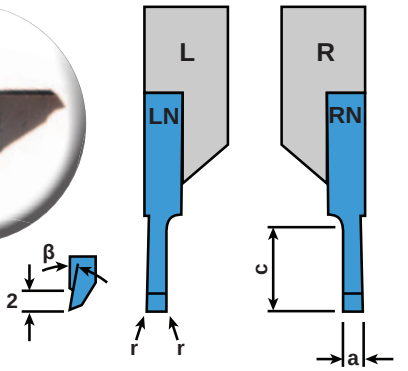
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT1602: Cut Off w/ Chipbreaker

Neutral Cut Off -1602...N SPT

Left Hand	Right Hand	a	c	β	r	Coatings			
1602-0.5-2.5-LN	1602-0.5-2.5-RN SPT	0.5	2.5	20°	.05			■	■
1602-0.8-5 LN SPT	1602-0.8-5 RN SPT	0.8	5.0	20°	.05			■	■
1602-1.0-5 LN SPT	1602-1.0-5 RN SPT	1.0	5.0	20°	.05			■	■
1602-1.0-5 LN SPT06	1602-1.0-5 RN SPT06	1.0	5.0	6°	.05	■	■		
1602-1.0-5 LN SPT12	1602-1.0-5 RN SPT12	1.0	5.0	12°	.05	■	■		
1602-1.2-5 LN SPT	1602-1.2-5 RN SPT	1.2	5.0	20°	.05			■	■
1602-1.5-5 LN SPT	1602-1.5-5 RN SPT	1.5	5.0	20°	.05			■	■
1602-1.5-5 LN SPT06	1602-1.5-5 RN SPT06	1.5	5.0	6°	.05	■	■		
1602-1.5-5 LN SPT12	1602-1.5-5 RN SPT12	1.5	5.0	12°	.05	■	■		

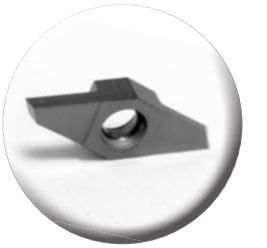


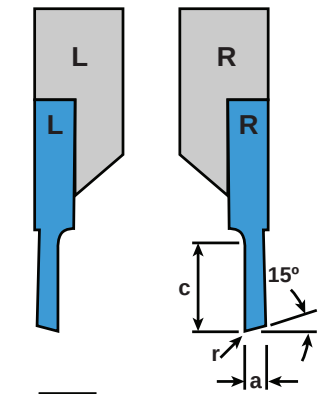
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

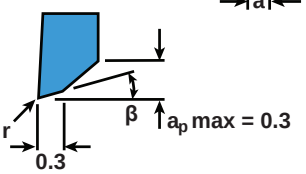
■ Preferred Application
□ Possible Application
- Application Not Recommended

Turning & Cut Off -1602...TOP

Left Hand	Right Hand	a	c	β	r	Coatings	
1602-1.5-5 L TOP 008	1602-1.5-5 R TOP 008	1.5	5	1.5°	0	■	■







Detailed Top

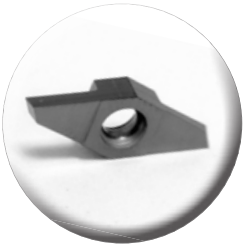
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

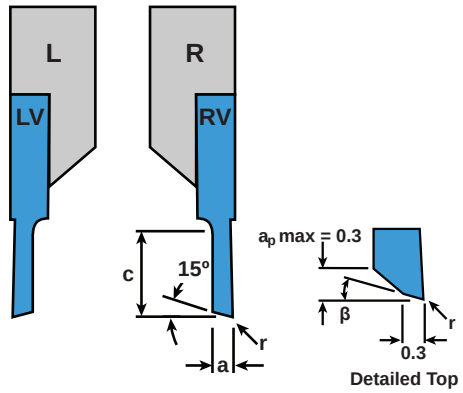
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT1602: Cut Off w/ Chipbreaker

Offset Turning & Cut Off -1602...V TOP

Left Hand	Right Hand	a	c	β	r	Coatings
1602-1.5-5 LV TOP 008	1602-1.5-5 RV TOP 008	1.5	5	1.5°	.08mm/.0031in	■ ■



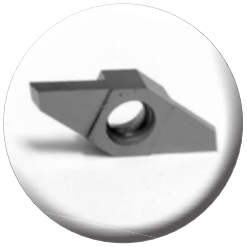


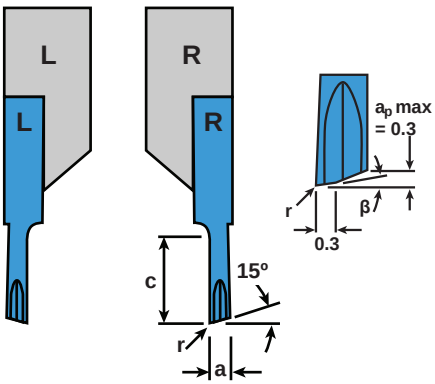
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Turning & Cut Off -1602...SC TOP

Left Hand	Right Hand	a	c	β	r	Coatings
1602-1.5-5 L SC TOP 008	1602-1.5-5 R SC TOP 008	1.5	5	1.5°	.08mm/.0031in	■ ■



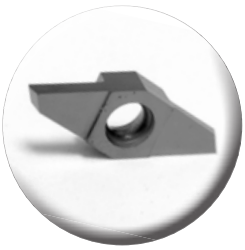


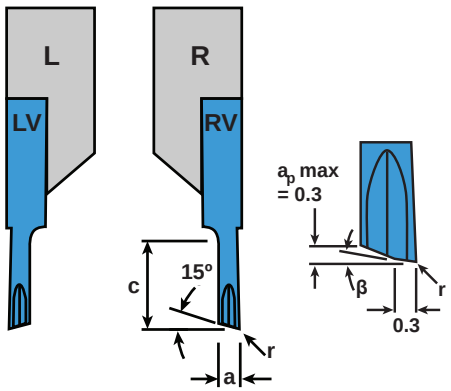
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Offset Turning & Cut Off -1602...V SC TOP

Left Hand	Right Hand	a	c	β	r	Coatings
1602-1.5-5 LV SC TOP 008	1602-1.5-5 RV SC TOP 008	1.5	5	1.5°	.08mm/.0031in	■ ■





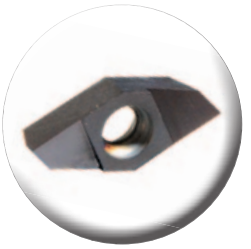
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

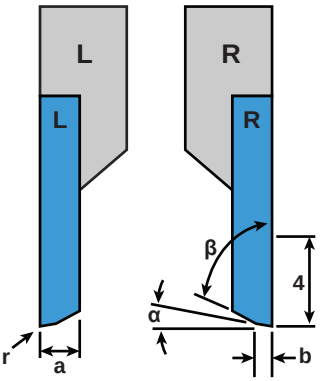
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1603: Front Turning

Front Turn - 1603

Left Hand	Right Hand	a	b	α	β	r	Coatings			
1603-3.0-4 L	1603-3.0-4 R	3	1	3°	82°	0	■	■	■	■
1603-3.0-5 L 55008	1603-3.0-5 R 55008	3	-	-	55°	.08	■	■	■	■
1603-3.0-5 L 55015	1603-3.0-5 R 55015	3	-	-	55°	.15	■	■	■	■
1603-3.0-5 L 35008	1603-3.0-5 R 35008	3	-	-	35°	.08	■	■	■	■
1603-3.0-5 L 35015	1603-3.0-5 R 35015	3	-	-	35°	.15	■	■	■	■



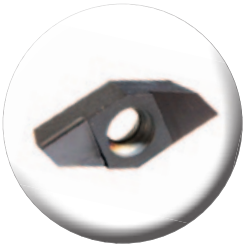


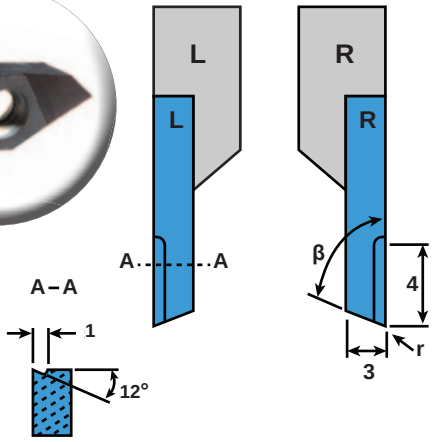
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Front Turn - 1603...SP U

Left Hand	Right Hand	a	β	r	Coatings			
1603-3.0-4 L SP U55003	1603-3.0-4 R SP U55003	3	55°	.03	■	■	■	■
1603-3.0-4 L SP U55008	1603-3.0-4 R SP U55008	3	55°	.08	■	■	■	■
1603-3.0-4 L SP U55015	1603-3.0-4 R SP U55015	3	55°	.15	■	■	■	■
1603-3.0-4 L SP U35003	1603-3.0-4 R SP U35003	3	35°	.03	■	■	■	■
1603-3.0-4 L SP U35008	1603-3.0-4 R SP U35008	3	35°	.08	■	■	■	■
1603-3.0-4 L SP U35015	1603-3.0-4 R SP U35015	3	35°	.15	■	■	■	■





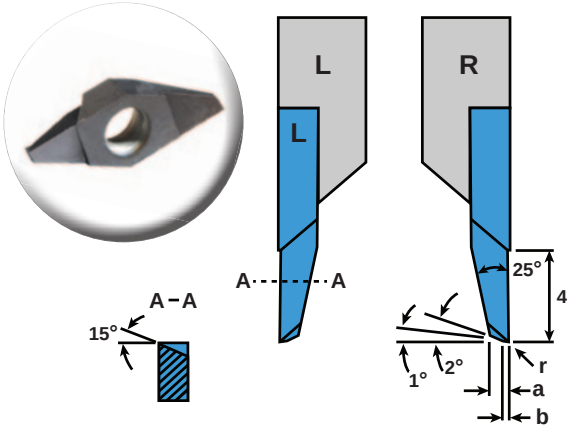
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1603: Front Turning

Front Turn - 1603...CP TOP

Left Hand	Right Hand	a	b	r	Coatings			
1603-3.0-3.5 L CP TOP ZZ	1603-3.0-3.5 R CP TOP ZZ	0.8	0.2	-			■	■
1603-3.0-3.5 L CP TOP 003	1603-3.0-3.5 R CP TOP 003	0.8	0.2	.03	■	■	■	■

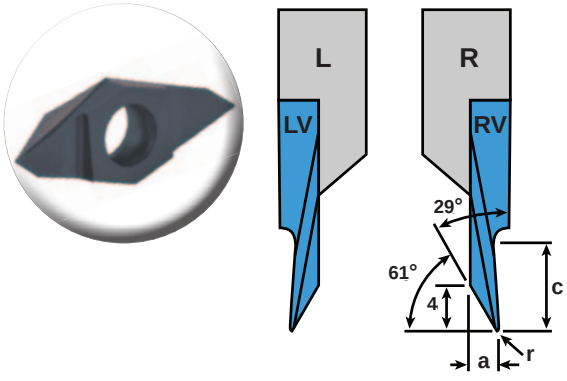


	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Front Copy Turn - 1604...V SP

Left Hand	Right Hand	a	c	r	Coatings			
1604-2.5-4-5 LV SP29005	1604-2.5-4-5 LV SP29005	2.5	5	.05	■	■	■	■
1604-2.5-4-5 LV SP29015	1604-2.5-4-5 LV SP29015	2.5	5	.15	■	■	■	■



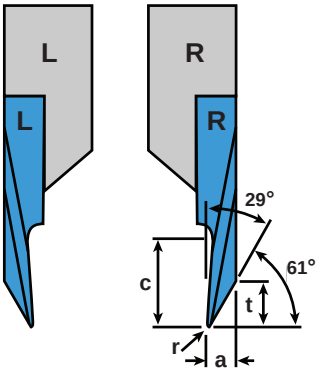
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1604: Back Turning

Back Copy Turn - 1604...SP

Left Hand	Right Hand	a	c	r	t	Coatings			
1604-1.25-2-3 L SP29005	1604-1.25-2-3 R SP29005	1.25	2.5	.05	2	■	■	■	■
1604-2.5-4-5 L SP29005	1604-2.5-4-5 R SP29005	2.5	5	.05	4	■	■	■	■
1604-2.5-4-5 L SP29015	1604-2.5-4-5 R SP29015	2.5	5	.15	4	■	■	■	■

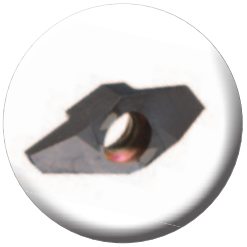


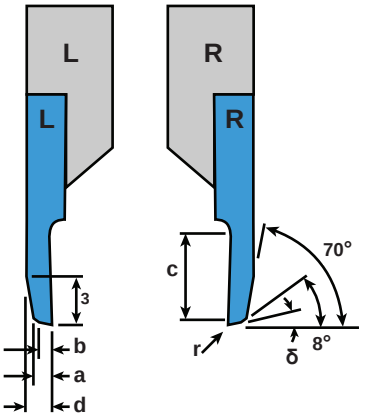
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Back Turn - 1604...TOP (Wiper)

Left Hand	Right Hand	a	b	c	d	r	δ	Coatings			
1604-0.15-2 L TOP ZZ	1604-0.15-2 R TOP ZZ	.15	.05	2	1	0	0	■	■	■	■
1604-0.2-2 L TOP 008	1604-0.2-2 R TOP 008	.25	.15	2	1	.08	0	■	■	■	■
1604-0.4-4 L TOP 008	1604-0.4-4 R TOP 008	0.4	.15	4	1.6	.08	0	■	■	■	■
1604-0.8-4 L TOP 008	1604-0.8-4 R TOP 008	0.8	.15	4	2	.08	0	■	■	■	■
1604-1.2-4 L TOP ZZ	1604-1.2-4 R TOP ZZ	1.2	.5	4	2.4	0	1°	■	■	■	■





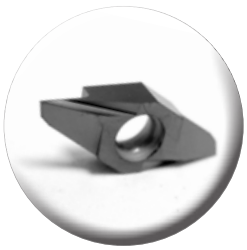
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

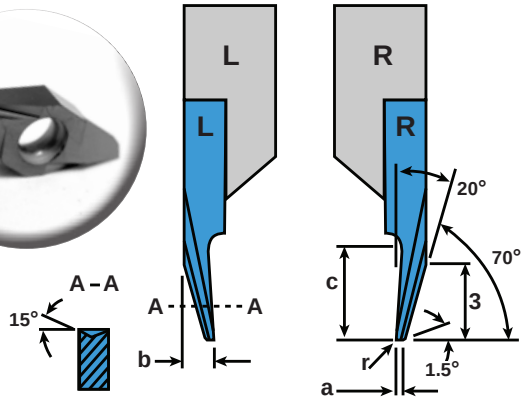
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1604: Back Turning

Back Turn - 1604...SP TOP (Wiper)

Left Hand	Right Hand	a	b	c	r	Coatings			
						UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
1604-1.5-3 L SP TOP 20ZZ	1604-1.5-3 R SP TOP 20ZZ	0.3	1.5	3	0	■	■	■	■
1604-1.5-3 L SP TOP 20005	1604-1.5-3 R SP TOP 20005	0.3	1.5	3	.05	■	■	■	■





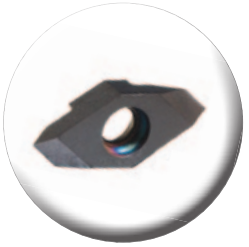
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

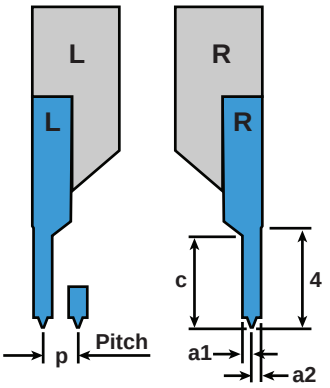
■ Preferred Application
□ Possible Application
- Application Not Recommended

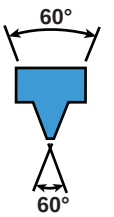
CUT 1606: Threading, Full, and Partial Profile

Micro Threading - Full Profile - 1606...VP

Left Hand	Right Hand	a_1	a_2	b	c	p	Thread	Coatings			
1606-0.06-60 VP L	1606-0.06-60 VP R	.04	.04	4	0	0.06	S 0.2			■	■
1606-0.08-60 VP L	1606-0.08-60 VP R	.04	.04	4	0	0.08	S 0.3			■	■
1606-0.09-60 VP L	1606-0.09-60 VP R	.05	.05	4	0	0.09	S 0.35			■	■
1606-0.1-60 VP L	1606-0.1-60 VP R	.06	.06	4	0	0.1	S 0.4			■	■
1606-0.125-60 VP L	1606-0.125-60 VP R	.07	.07	4	0	0.125	S 0.5			■	■
1606-.15-60 VP L	1606-.15-60 VP R	.08	.08	4	0	0.15	S 0.6			■	■
1606-0.175-60 VP L	1606-0.175-60 VP R	0.1	0.1	4	0	0.175	S 0.7	■	■	■	■
1606-0.2-60 VP L	1606-0.2-60 VP R	0.11	0.11	4	0	0.225	S 0.8	■	■	■	■
1606-0.225-60 VP L	1606-0.225-60 VP R	0.13	0.13	4	0	0.2	S 0.9	■	■	■	■
1606-0.25-60 VP L	1606-0.25-60 VP R	0.14	0.14	4	0	0.25	M1 /1.2	■	■	■	■
1606-0.3-60 VP L	1606-0.3-60 VP R	0.17	0.17	4	0	0.3	M1.4	■	■	■	■
1606-0.35-60 VP L	1606-0.35-60 VP R	0.19	0.19	4	0	0.35	M1.6/1.8	■	■	■	■
1606-0.4-60 VP L	1606-0.4-60 VP R	0.22	0.22	4	0	0.4	M2	■	■	■	■
1606-0.45-60 VP L	1606-0.45-60 VP R	0.25	0.25	4	0	0.45	M2.2/2.5	■	■	■	■
1606-0.5-60 VP L	1606-0.5-60 VP R	0.35	0.35	4	1.4	0.5	M3	■	■	■	■
1606-0.6-60 VP L	1606-0.6-60 VP R	0.4	0.4	4	1.4	0.6	M3.5			■	■
1606-0.7-60 VP L	1606-0.7-60 VP R	0.45	0.45	4	1.8	0.7	M4	■	■	■	■
1606-0.75-60 VP L	1606-0.75-60 VP R	0.41	0.41	4	1.9	0.75	M4.5			■	■
1606-0.8-60 VP L	1606-0.8-60 VP R	0.44	0.44	4	2.0	0.8	M5			■	■
1606-1.0-60 VP L	1606-1.0-60 VP R	0.55	0.55	4	2.4	1.0	M6/7			■	■
1606-1.25-60 VP L	1606-1.25-60 VP R	0.69	0.69	4	2.9	1.25	M8/9			■	■







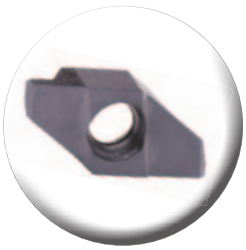
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

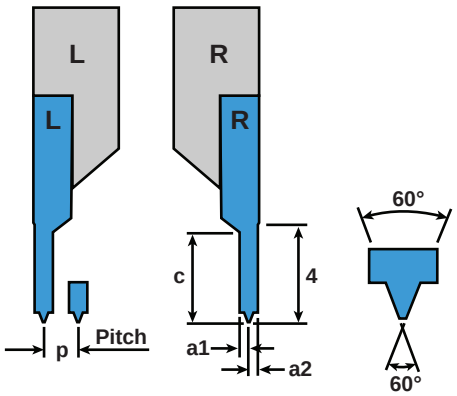
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1606: Full Profile UNC & UNF Threads

Full Profile Threading - 1606...UNC VP & UNF VP

TPI	Left Hand	Right Hand	p	a_1	a_2	c	Coatings	
32	1606-06-32 UNC 60 VPL	1606-06-32 UNC 60 VPR	.0312"	0.5	0.5	2	■	■
32	1606-08-32 UNC 60 VPL	1606-08-32 UNC 60 VPR	.0312"	0.5	0.5	2	■	■
32	1606-10-32 UNF 60 VPL	1606-10-32 UNF 60 VPR	.0312"	0.5	0.5	2	■	■
36	1606-08-36 UNF 60 VPL	1606-08-36-UNF 60 VPR	.0277"	0.45	0.45	1.8	■	■
40	1606-04-40 UNC 60 VPL	1606-04-40 UNC 60 VPR	.025"	0.4	0.4	1.8	■	■
40	1606-05-40 UNC 60 VPL	1606-05-40 UNC 60 VPR	.025"	0.4	0.4	1.8	■	■
40	1606-06-40 UNF 60 VPL	1606-06-40 UNF 60 VPR	.0250"	0.4	0.4	1.8	■	■
44	1606-05-44 UNF 60 VPL	1606-05-44 UNF 60 VPR	.0227"	0.4	0.4	1.4	■	■
48	1606-03-48 UNC 60 VPL	1606-03-48 UNC 60 VPR	.0208"	0.35	0.35	1.4	■	■
48	1606-04-48 UNF 60 VPL	1606-04-48 UNF 60 VPR	.0208"	0.35	0.35	1.4	■	■
56	1606-02-56 UNC 60 VPL	1606-02-56 UNC 60 VPR	.0178"	0.32	0.25	0	■	■
56	1606-03-56 UNF 60 VPL	1606-03-56 UNF 60 VPR	.0178"	0.32	0.25	0	■	■
64	1606-01-64 UNC 60 VPL	1606-01-64 UNC 60 VPR	.015"	0.3	0.22	0	■	■
64	1606-02-64 UNF 60 VPL	1606-02-64 UNF 60 VPR	.0156"	0.3	0.22	0	■	■
72	1606-01-72 UNF 60 VPL	1606-01-72 UNF 60 VPR	.0138"	0.25	0.19	0	■	■
80	1606-00-80 UNF 60 VPL	1606-00-80 UNF 60 VPR	.0125"	0.22	0.17	0	■	■



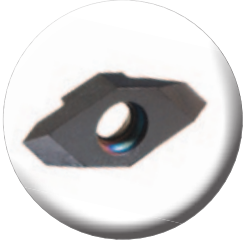


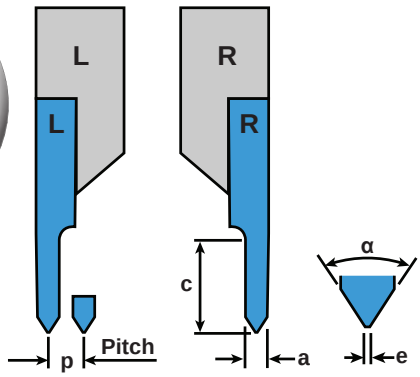
	UMH 30	UMH 30 HPX
Steel	□	□
Stainless Steel	□	■
Titanium & Ti-Alloys	□	■
Non Ferrous Metals	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Threading - Partial - 1606

Left Hand	Right Hand	p	a	c	α	r	Coatings			
1606-2-4-55 L	1606-2-4-55 L	.25-2	2	4	55°	.03mm / .001in			■	■
1606-2-4-60 L	1606-2-4-60 L	.25-2	2	4	60°	.03mm / .001in	■	■	■	■





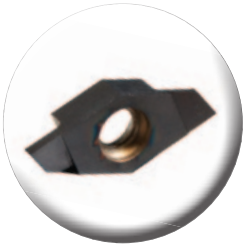
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

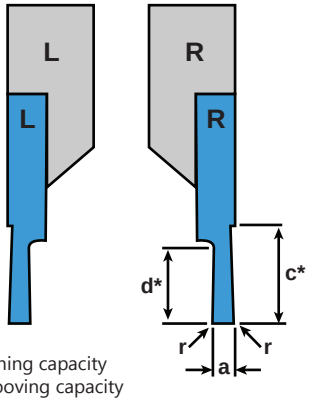
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1605: Groove & Turn

Groove and Turn - 1605

Left Hand	Right Hand	a	c	d	r	Coatings			
1605-0.5-1.5 L	1605-0.5-1.5 R	.5	1.5	1.5	.05mm/.0019in	■	■	■	■
1605-1.0-2.5 L	1605-1.0-2.5 R	1	2.5	2.5	.05mm/.0019in	■	■	■	■
1605-1.5-3 L	1605-1.5-3 R	1.5	3	3	.05mm/.0019in	■	■	■	■





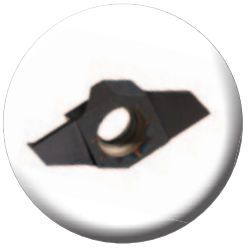
*c: maximal turning capacity
*d: maximal grooving capacity

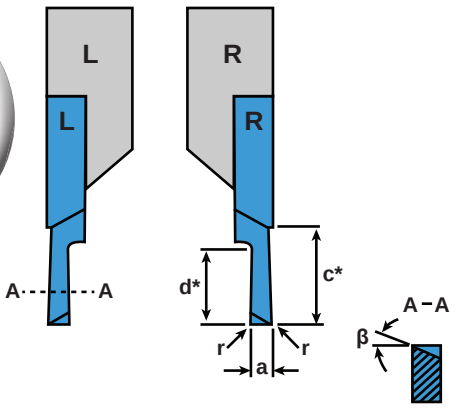
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

Groove and Turn - 1605...CP

Left Hand	Right Hand	a	c	d	r	Coatings			
1605-0.8-2.5 L CP	1605-0.8-2.5 R CP	.8	2.5	2.5	0	■	■	■	■
1605-1.0-3.5 L CP	1605-1.0-3.5 R CP	1	3.5	3.5	0	■	■	■	■
1605-1.0-3.5 L CP R05	1605-1.0-3.5 R CP R05	1	3.5	3.5	.05mm/.0019in	■	■	■	■
1605-1.5-3.5 L CP	1605-1.5-3.5 R CP	1.5	3.5	3.5	0	■	■	■	■
1605-1.5-3.5 L CP R08	1605-1.5-3.5 R CP R08	1.5	3.5	3.5	.08mm/.0031in	■	■	■	■
1605-2.0-3.5 L CP	1605-2.0-3.5 R CP	2	3.5	3.5	0	■	■	■	■
1605-2.0-3.5 L CP R08	1605-2.0-3.5 R CP R08	2	3.5	3.5	.08mm/.0031in	■	■	■	■





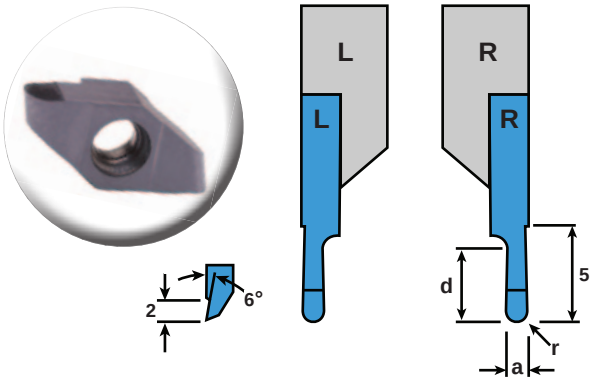
	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1607: Specialized Grooving

Full Radius Grooving - 1607

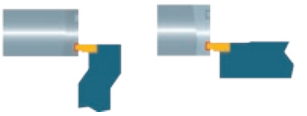
Left Hand	Right Hand	a	d	r	Coatings
1607-R0.25-2 L	1607-R0.25-2 R	0.5	2	0.25	■ ■ ■ ■
1607-R0.5-2.5 L	1607-R0.5-2.5 R	1	2.5	0.5	■ ■ ■ ■
1607-R0.6-2.5 L	1607-R0.6-2.5 R	1.2	2.5	0.6	■ ■ ■ ■
1607-R0.75-3 L	1607-R0.75-3 R	1.5	3	0.75	■ ■ ■ ■
1607-R0.8-3 L	1607-R0.8-3 R	1.6	3	0.8	■ ■ ■ ■
1607-R1.0-4 L	1607-R1.0-4 R	2	4	1.0	■ ■ ■ ■
1607-R1.5-4 L	1607-R1.5-4 R	3	4	1.5	■ ■ ■ ■



UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

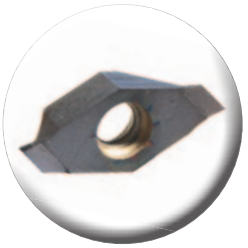
■ Preferred Application
□ Possible Application
- Application Not Recommended

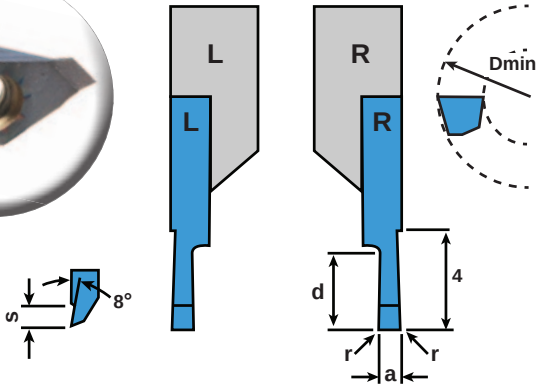
CUT 1607 & CUT 1611: Specialized Grooving



Axial Grooving - 1611

Left Hand	Right Hand	a	d	r	s	Dmin	$a_p$max	Coatings			
1611-0.5-1 L	1611-0.5-1 R	0.5	1	0.05	?	7	1.2	■	■	■	■
1611-0.8-1.5 L	1611-0.8-1.5 R	0.8	1.5	0.05	?	8	1.2	■	■	■	■
1611-1.0-2 L	1611-1.0-2 R	1.0	2	0.05	?	8	1.2	■	■	■	■
1611-1.5-2.5 L	1611-1.5-2.5 R	1.5	2.5	0.05	?	14	1.2	■	■	■	■
1611-2.0-3 L	1611-2.0-3 R	2.0	3	0.05	?	18	1.2	■	■	■	■
1611-2.5-3.5 L	1611-2.5-3.5 R	2.5	3.5	0.05	?	18	1.2	■	■	■	■



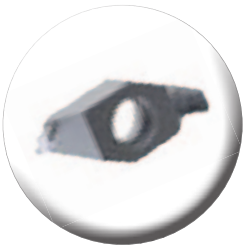


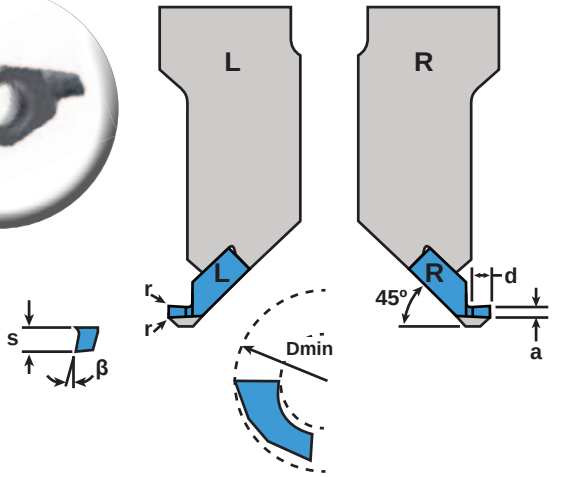
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

■ Preferred Application
□ Possible Application
- Application Not Recommended

Axial Grooving - 1611-45...

Left Hand	Right Hand	a	d	r	s	Dmin	Coatings	
1611-45-0.25-0.5 L	1611-45-0.25-0.5 R	0.25	0.5	0	0.5	0.8	■	■
1611-45-0.5-1.0 L	1611-45-0.5-1.0 R	0.5	1.0	0	1.0	1.6	■	■
1611-45-0.75-1.5 L	1611-45-0.75-1.5 R	0.75	1.5	0	1.5	2.4	■	■
1611-45-1.0-2.0 L	1611-45-1.0-2.0 R	1.0	2	0	2.0	3.2	■	■





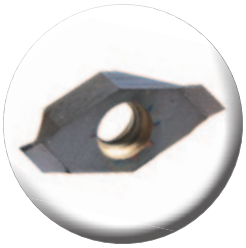
UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX	
□	■	□	□	Steel
□	■	□	■	Stainless Steel
□	□	□	■	Titanium & Ti-Alloys
-	-	■	□	Non Ferrous Metals

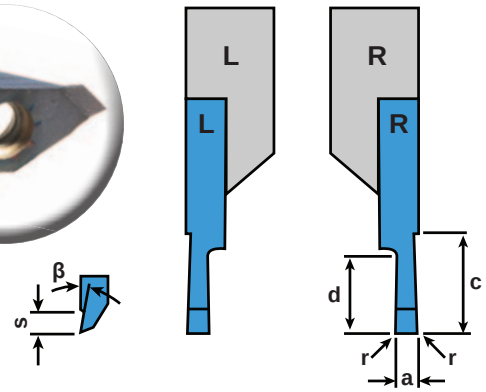
■ Preferred Application
□ Possible Application
- Application Not Recommended

CUT 1610: Precision Micro Grooving

Micro-Grooving

Left Hand	Right Hand	a	a tol	c	d	β	s	Coatings			
1610-0.05-0.1 L	1610-0.05-0.1 R	0.05	±.01	5	0.1	6°	1	■	■	■	■
1610-0.10-0.2 L	1610-0.10-0.2 R	0.10	±.01	5	0.2	6°	1	■	■	■	■
1610-0.15-0.3 L	1610-0.15-0.3 R	0.15	±.01	5	0.3	6°	1	■	■	■	■
1610-0.24-0.5 L	1610-0.24-0.5 R	0.24	+.04/-0	5	0.5	10°	3	■	■	■	■
1610-0.30-0.6 L	1610-0.30-0.6 R	0.30	±.02	5	0.6	6°	1	■	■	■	■
1610-0.34-0.6 L	1610-0.34-0.6 R	0.34	+.04/-0	5	0.6	10°	3	■	■	■	■
1610-0.40-0.8 L	1610-0.40-0.8 R	0.40	±.02	5	0.8	6°	1	■	■	■	■
1610-0.44-0.8 L	1610-0.44-0.8 R	0.44	+.04/-0	5	0.8	10°	3	■	■	■	■
1610-0.45-1.5 L	1610-0.45-1.5 R	0.45	±.02	5	1.5	6°	1	■	■	■	■
1610-0.50-1.0 L	1610-0.50-1.0 R	0.50	±.02	5	1.0	6°	1	■	■	■	■
1610-0.54-0.8 L	1610-0.54-0.8 R	0.54	+.05/-0	5	0.8	10°	3	■	■	■	■
1610-0.60-1.2 L	1610-0.60-1.2 R	0.60	±.02	5	1.2	6°	1	■	■	■	■
1610-0.64-1.0 L	1610-0.64-1.0 R	0.64	+.05/-0	5	1	10°	3	■	■	■	■
1610-0.64-1.2 L	1610-0.64-1.2 R	0.64	+.05/-0	5	1.2	10°	3	■	■	■	■
1610-0.65-0.7 L	1610-0.65-0.7 R	0.65	±.02	5	0.7	10°	3	■	■	■	■
1610-0.70-1.4 L	1610-0.70-1.4 R	0.70	±.02	5	1.4	6°	1	■	■	■	■
1610-0.74-1.8 L	1610-0.74-1.8 R	0.74	+.05/-0	5	1.8	10°	3	■	■	■	■
1610-0.85-0.9 L	1610-0.85-0.9 R	0.85	±.02	5	0.9	10°	3	■	■	■	■
1610-0.85-1.2 L	1610-0.85-1.2 R	0.85	±.02	5	1.2	10°	3	■	■	■	■
1610-0.94-2.3 L	1610-0.94-2.3 R	0.94	+.05/-0	5	2.3	10°	3	■	■	■	■
1610-0.95-1.0 L	1610-0.95-1.0 R	0.95	±.02	5	1.0	10°	3	■	■	■	■
1610-1.00-1.14 L	1610-1.00-1.14 R	1.00	±.02	5	1.14	10°	3	■	■	■	■
1610-1.05-2.3 L	1610-1.05-2.3 R	1.05	+.08/-0	5	2.3	10°	3	■	■	■	■
1610-1.15-2.8 L	1610-1.15-2.8 R	1.15	+.08/-0	5	2.8	10°	3	■	■	■	■
1610-1.2-1.34 L	1610-1.2-1.34 R	1.20	±.02	5	1.34	10°	3	■	■	■	■
1610-1.25-2.8 L	1610-1.25-2.8 R	1.25	+.08/-0	5	2.8	10°	3	■	■	■	■
1610-1.35-3.3 L	1610-1.35-3.3 R	1.35	+.08/-0	5	3.3	10°	3	■	■	■	■
1610-1.4-1.53 L	1610-1.4-1.53 R	1.40	±.02	5	1.53	10°	3	■	■	■	■
1610-1.5-3L	1610-1.5-3R	1.5	±.02	5	3	10°	3	■	■	■	■
1610-1.55-3.8 L	1610-1.55-3.8 R	1.55	+.08/-0	5	3.8	10°	3	■	■	■	■
1610-1.70-1.82 L	1610-1.70-1.82 R	1.70	±.02	5	1.82	10°	3	■	■	■	■
1610-1.95-2.0 L	1610-1.95-2.0 R	1.95	±.02	5	2	10°	3	■	■	■	■
1610-2.25-2.0 L	1610-2.25-2.0 R	2.25	±.02	5	2	10°	3	■	■	■	■
1610-2.75-2.0 L	1610-2.75-2.0 R	2.75	±.02	5	2	10°	3	■	■	■	■



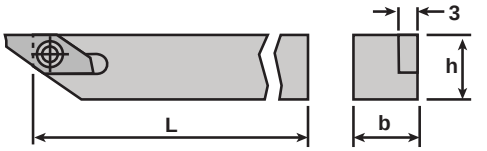


	UMH 20	UMH 20 HPX	UMH 30	UMH 30 HPX
Steel	□	■	□	□
Stainless Steel	□	■	□	■
Titanium & Ti-Alloys	□	□	□	■
Non Ferrous Metals	-	-	■	□

■ Preferred Application
□ Possible Application
- Application Not Recommended

multidec®-CUT 1600...Standard Holders

Left Hand	Right Hand	h	b	L
1600-07x100 L	1600-07x100 R	7	7	100
1600-08x80 L	1600-08x80 R	8	8	80
1600-08x100 L	1600-08x100 R	8	8	100
1600-10x80 L	1600-10x80 R	10	10	80
1600-10x100 L	1600-10x100 R	10	10	100
1600-12x100 L	1600-12x100 R	12	12	100
1600-16x125 L	1600-16x125 R	16	16	125
1600-20x125 L	1600-20x125 R	20	20	125
1600-25x125 L	1600-25x125 R	25	25	125
1600-3/8"x80 L	1600-3/8"x80 R	.375"	.375"	80
1600-3/8"x100 L	1600-3/8"x100 R	.375"	.375"	100
1600-1/2"x100 L	1600-1/2"x100 R	.500"	.500"	100
1600-5/8"x125 L	1600-5/8"x125 R	.625"	.625"	125
1600-3/4"x125 L	1600-3/4"x125 R	.75"	.75"	125



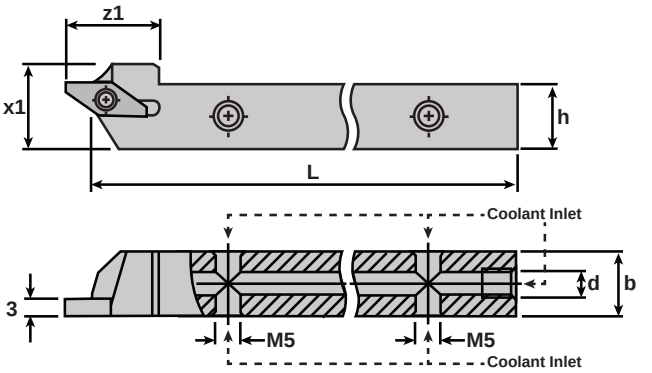
multidec®-CUT 1600...IC Coolant-Thru Holders

Left Hand	Right Hand	h	b	L	z^1	x^1	End Port (d)
1600-08x100 L IC	1600-08x100 R IC	8	10	100	15	11.5	4005-000111
1600-10x100 L IC	1600-10x100 R IC	10	10	100	15	13.5	4005-000111
1600-12x100 L IC	1600-12x100 R IC	12	12	100	17	15.5	4005-000111
	1600-16x65 R IC	12	12	65	17	15.5	4005-000104
	1600-16x70 R IC	16	16	70	17	19.5	4005-000104
1600-16x125 L IC	1600-16x125 R IC	16	16	125	17	19.5	4005-000104
1600-20x125 L IC	1600-20x125 R IC	20	20	125	20	23.5	4005-000104
1600-3/8"x100 L IC	1600-3/8"x100 R IC	.375"	.375"	100	15	13	4005-000111
1600-1/2"x100 L IC	1600-1/2"x100 R IC	.500"	.500"	100	17	16.2	4005-000111
1600-5/8"x125 L IC	1600-5/8"-125 R IC	.625"	.625"	125	17	19.4	4005-000104
1600-3/4"x125 L IC	1600-3/4"x125 R IC	.750"	.750"	125	20	22.6	4005-000104

Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions.

Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

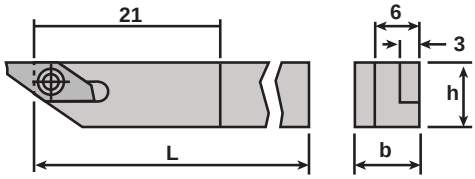
Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting



UTILIS multidec® - CUT1600 Series

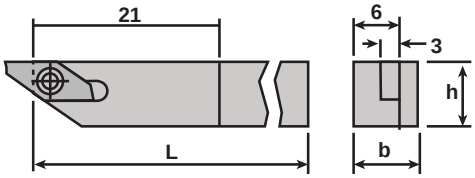
multidec®-CUT 1600...AV Off-Set Shank

Left Hand	Right Hand	h	b	L
1600-08x80 LAV	1600-08x80 RAV	8	8	80
1600-08x100 LAV	1600-08x100 RAV	8	8	100
1600-10x80 LAV	1600-10x80 RAV	10	10	80
1600-10x100 LAV	1600-10x100 RAV	10	10	100
1600-12x100 LAV	1600-12x100 RAV	12	12	100
1600-16x125 LAV	1600-16x125 RAV	16	16	125
1600-3/8"x80 LAV	1600-3/8"x100 RAV	.375"	.375"	80
1600-3/8"x100 LAV	1600-3/8"x100 RAV	.375"	.375"	100
1600-1/2"x100 LAV	1600-1/2"x100 RAV	.500"	.500"	100
1600-5/8"x125 LAV	1600-5/8x125 RAV	.625"	.625"	125



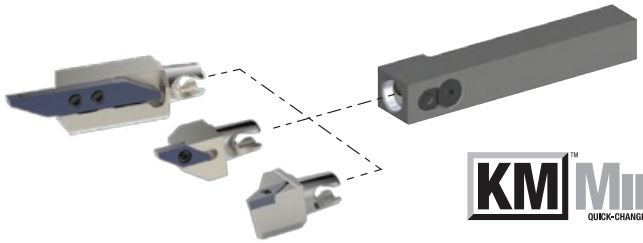
multidec®-CUT 1600...A Off-Set Shank & Insert

Left Hand	Right Hand	h	b	L
1600-08x80 LA	1600-08x80 RA	8	8	80
1600-08x100 LA	1600-08x100 RA	8	8	100
1600-10x80 LA	1600-10x80 RA	10	10	80
1600-10x100 LA	1600-10x100 RA	10	10	100
1600-12x100 LA	1600-12x100 RA	12	12	100
1600-16x125 LA	1600-16x125 RA	16	16	125
1600-3/8"x80 LA	1600-3/8"x100 RA	.375"	.375"	80
1600-3/8"x100 LA	1600-3/8"x100 RA	.375"	.375"	100
1600-1/2"x100 LA	1600-1/2"x100 RA	.500"	.500"	100
1600-5/8"x125 LA	1600-5/8"x125 RA	.625"	.625"	125



KM Quick Change Tooling System

Compatible with Utilis CUT 3000, 1600, & ISO/TOP Inserts



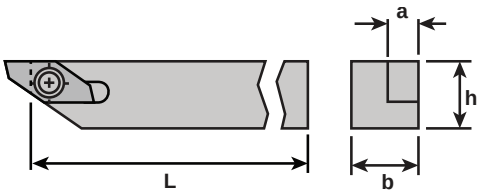
Decreased Setup Times
Increased Tool Capacity

KM™ Mini QUICK-CHANGE TOOLING

KM™ Micro QUICK-CHANGE TOOLING

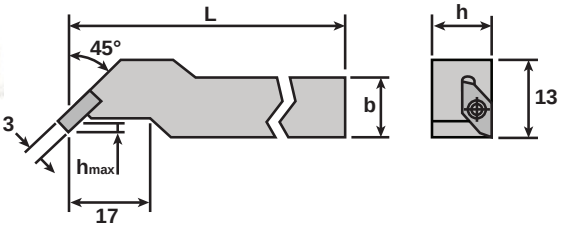
multidec®-CUT 1600...Holders For 4, 6, & 8mm Width Inserts

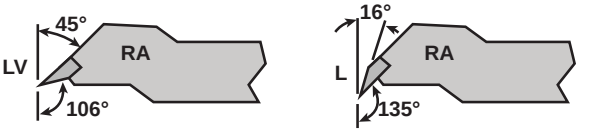
Insert Width	Left Hand	Right Hand	h	b	L
4mm	1600-08x80 4 L	1600-08x80 4 R	8	8	80
	1600-08x100 4 L	1600-08x100 4 R	8	8	100
	1600-10x80 4 L	1600-10x80 4 R	10	10	80
	1600-10x100 4 L	1600-10x100 4 R	10	10	100
	1600-12x100 4 L	1600-12x100 4 R	12	12	100
	1600-16x125 4 L	1600-16x125 4 R	16	16	125
	1600-20x125 4 L	1600-20x125 4 R	20	20	125
	1600-25x150 4 L	1600-25x150 4 R	25	25	150
6mm	1600-10x80 4 L	1600-10x80 4 R	10	10	80
	1600-10x100 6 L	1600-10x100 6 R	10	10	100
	1600-12x100 6 L	1600-12x100 6 R	12	12	100
	1600-16x125 6 L	1600-16x125 6 R	16	16	125
	1600-20x125 6 L	1600-20x125 6 R	20	20	125
	1600-25x150 6 L	1600-25x150 6 R	25	25	150
8mm	1600-12x100 8 L	1600-12x100 8 R	12	12	100
	1600-16x125 8 L	1600-16x125 8 R	16	16	125
	1600-20x125 8 L	1600-20x125 8 R	20	20	125
	1600-25x150 8 L	1600-25x150 8 R	25	25	150



multidec®-CUT 1600... 45° ST A

Left Hand	Right Hand	h	b	L	hmax
1600-08x100 45 ST LA	1600-08x100 45 ST LA	8	8	100	2
1600-10x80 45 ST LA	1600-10x80 45 ST LA	10	10	80	2
1600-10x100 45 ST LA	1600-10x100 45 ST LA	10	10	100	2
1600-12x100 45 ST LA	1600-12x100 45 ST LA	12	12	100	2
1600-16x125 45 ST LA	1600-16x125 45 ST LA	16	16	125	2
1600-3/8"x80 45 ST LA	1600-3/8"x80 45 ST LA	9.525	9.525	80	2
1600-3/8"x100 45 ST LA	1600-3/8"x100 45 ST LA	9.525	9.525	100	2
1600-1/2"x100 45 ST LA	1600-1/2"x100 45 ST LA	12.7	12.7	100	2
1600-5/8"x125 45 ST LA	1600-5/8"x125 45 ST LA	15.875	15.875	125	2



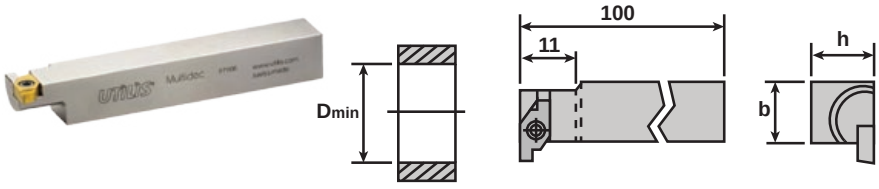


*Note: With these combinations of holder and insert, radially and axially undercuts, up to a limited depth, can be turned with standard inserts 1604...SP...

UTILIS multidec® - CUT1600 Series

multidec®-CUT 1600... 90°

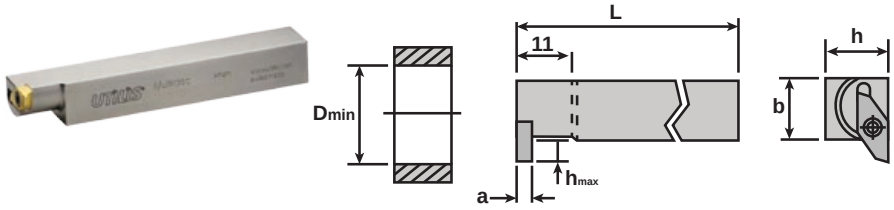
Left Hand	Right Hand	h	b	L	Dmin
1600-10x100 90 L	1600-10x100 90 R	10	10	100	17
1600-12x100 90 L	1600-12x100 90 R	12	12	100	17



*Note: These Holders Require Opposite Insert (ie: Right hand holder uses left hand insert!) These holders require 1699 series inserts - refer to the full Multidec® Catalog for details

multidec®-CUT 1600... 90° ST

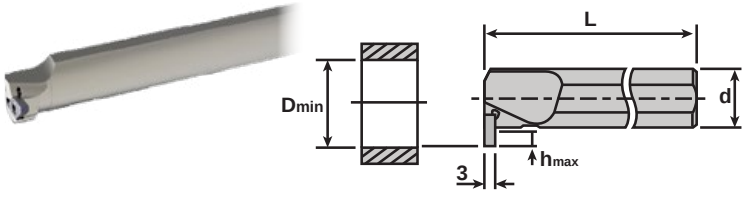
Left Hand	Right Hand	h	b	L	hmax	Dmin
1600-10x100 90 ST L	1600-10x100 90 ST R	10	10	100	4	21
1600-12x100 90 ST L	1600-12x100 90 ST R	12	12	100	4	21
1600-16x125 90 ST L	1600-16x125 90 ST R	16	16	125	4	21



*Note: These Holders Require Opposite Insert
(ie: Right hand holder uses left hand insert!)

1600... 90° RD

Left Hand	Right Hand	d	L	hmax	Dmin
1600-12x125 90 RD L	1600-12x125 90 RD R	12	125	4	17
1600-16x150 90 RD L	1600-16x150 90 RD R	16	150	4	21
1600-20x180 90 RD L	1600-20x180 90 RD R	20	180	4	25

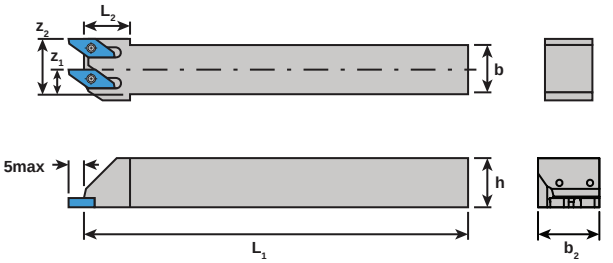


*Note: These Holders Require Opposite Insert
(ie: Right hand holder uses left hand insert!)

2 Different Operations on 1 Holder

multidec®-CUT 1600 Twin Insert Holders

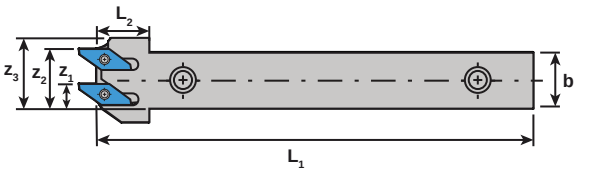
Left Hand	Right Hand	h	b	b_2	L_1	L_2	z_1	z_2	Inserts	Max Ø
1600L/1600L-0810x100 Twin	1600R/1600R-0810x100 Twin	9.9	8	16	100	15	4	12	1600 Series	11.5
1600L/1600L-10x100 Twin	1600R/1600R-10x100 Twin	10	10	16	100	15	5	13	1600 Series	11.5
1600L/1600L-12x100 Twin	1600R/1600R-12x100 Twin	12	12	16	100	15	6	14	1600 Series	11.5
1600L/1600L-16x125 Twin	1600R/1600R-16x125 Twin	16	16	20	125	15	8	18	1600 Series	19
1600L/1600L-20x125 Twin	1600R/1600R-20x125 Twin	20	20	24	125	15	8	22	1600 Series	34
1600L/1600L-3/8"x100 Twin	1600R/1600R-3/8"x100 Twin	3/8"	3/8"	16	100	15	5	13	1600 Series	11.5
1600L/1600L-1/2"x100 Twin	1600R/1600R-1/2"x100 Twin	1/2"	1/2"	16	100	15	6	14	1600 Series	11.5
1600L/1600L-5/8"x125 Twin	1600R/1600R-5/8"x125 Twin	5/8"	5/8"	20	125	15	8	18	1600 Series	19
1600L/1600L-3/4"x125 Twin	1600R/1600R-3/4"x125 Twin	3/4"	3/4"	24	125	15	7	21	1600 Series	34



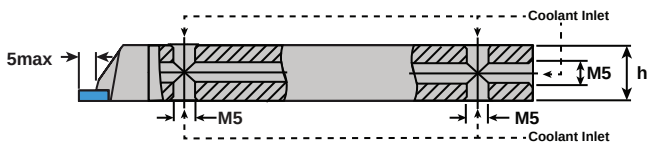
multidec®-CUT 1600 Twin Insert Coolant Thru Holders

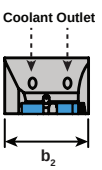
Left Hand	Right Hand	h	b	b_2	L_1	L_2	z_1	z_2	z_3	Inserts	Max Ø
1600L/1600L-0810x100 Twin IC	1600R/1600R-0810x100 Twin IC	12	8	20	100	15	3	11	14	1600 Series	11.5
1600L/1600L-1012x100 Twin IC	1600R/1600R-1012x100 Twin IC	12	10	20	100	15	4	12	15	1600 Series	11.5
1600L/1600L-12x100 Twin IC	1600R/1600R-12x100 Twin IC	12	12	20	100	15	5	13	16	1600 Series	11.5
1600L/1600L-16x125 Twin IC	1600R/1600R-16x125 Twin IC	16	16	24	125	15	7	17	20	1600 Series	19
1600L/1600L-20x125 Twin IC	1600R/1600R-20x125 Twin IC	20	20	28	125	15	7	21	24	1600 Series	34
1600L/1600L-3/8"12x100 Twin IC	1600R/1600R-3/8"12x100 Twin IC	12	3/8"	20	100	15	4	12	15	1600 Series	11.5
1600L/1600L-1/2"x100 Twin IC	1600R/1600R-1/2"x100 Twin IC	1/2"	1/2"	20	100	15	6	14	17	1600 Series	11.5
1600L/1600L-5/8"x125 Twin IC	1600R/1600R-5/8"x125 Twin IC	5/8"	5/8"	24	125	15	7	17	20	1600 Series	19
1600L/1600L-3/4"x125 Twin IC	1600R/1600R-3/4"x125 Twin IC	3/4"	3/4"	28	125	15	6	20	23	1600 Series	34

Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions



Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting



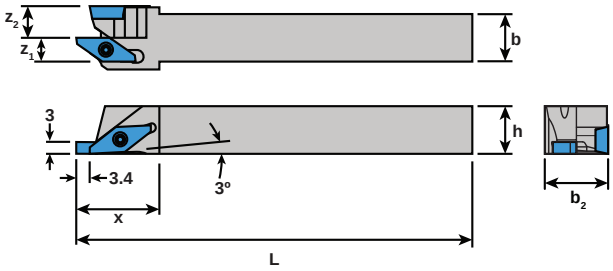


2 Different Series Inserts on 1 Holder

multidec®-CUT 1600/VP TOP Insert Combination Holders

Right Hand	h	b	L	Inserts
SVJPR/1600R-1010 H10 Twin	10	10	100	ISO/TOP VP Series, 1600 Series
SVJPR/1600R-1212 H10 Twin	12	12	100	ISO/TOP VP Series, 1600 Series

Note: Left hand versions available on request

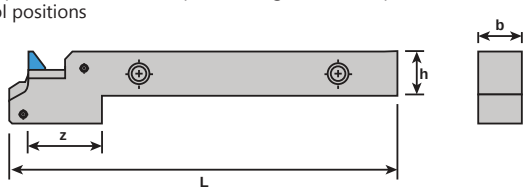


Superb Chip Control On Stringy Materials

multidec®-CUT 1600 Y-Axis Holders with Coolant Thru

Right Hand	h	b	L	z	Inserts
1600 YA-12x100-20 R IC	12	12	100	20	1600 Series
1600 YA-12x100-25 R IC	12	12	100	25	1600 Series
1600 YA-12x100-30 R IC	12	12	100	30	1600 Series
1600 YA-16x125-20 R IC	16	16	125	20	1600 Series
1600 YA-16x125-25 R IC	16	16	125	25	1600 Series
1600 YA-16x125-30 R IC	16	16	125	30	1600 Series
1600 YA-1/2"x100-20 R IC	1/2"	1/2"	100	20	1600 Series
1600 YA-1/2"x100-25 R IC	1/2"	1/2"	100	25	1600 Series
1600 YA-1/2"x100-30 R IC	1/2"	1/2"	100	30	1600 Series
1600 YA-5/8"x125-20 R IC	5/8"	5/8"	125	20	1600 Series
1600 YA-5/8"x125-25 R IC	5/8"	5/8"	125	25	1600 Series
1600 YA-5/8"x125-30 R IC	5/8"	5/8"	125	30	1600 Series

Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions



Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

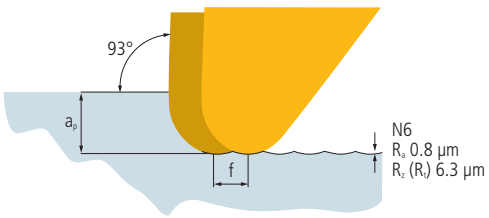
Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

UTILIS
multidec®
swiss type tools
TOP Series

- Wiper geometry enables faster feeds while maintaining good surface finish
- Holders especially designed for front turning and back turning in Swiss-Type Machines
- Versatile cutting geometry and chipbreaker enables turning in three directions
- Decreases cycle time by enabling up to 2X feed rate while maintaining surface quality

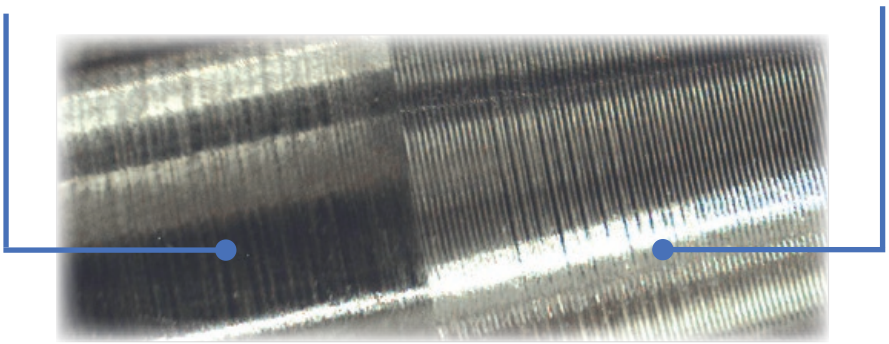
multidec®-TOP inserts feature a trailing wiper geometry which produces a stronger cutting edge. This allows for faster feeds while simultaneously increasing surface finish by burnishing the high-points of the turn pattern.

The multidec-TOP line features a sharp tool nose radius of 0mm .08mm and .15mm with chip control geometry and is ideal for precision small parts turning in tough materials.

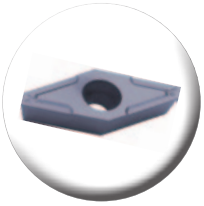


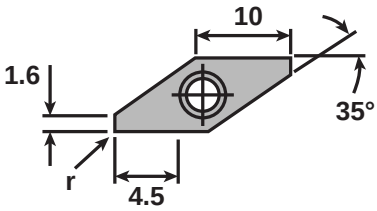
Turned With A multidec®-TOP Wiper Insert

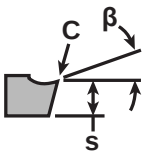
Turned With A Standard VCGT Insert



UTILIS multidec®- TOP Series Cutting Tools







β: 12°
C: <0.002
s: ±0.025 (VPET)
±0.13 (VPGT)
±0.1 (VPXT)

Coatings vs Material Type

Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	

VPGT Wiper Inserts (S: ±0.025)

Left Hand	Right Hand	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
VPGT 1003008 EL TOP	---	Honed	.08mm/.0031in	SV...				■	■	■
VPGT 1003ZZ FL TOP	VPGT 1003ZZ FR TOP	Sharp	0	SV...	■	■	■	■	■	■
---	VPGT 1003005 FR TOP	Sharp	.05mm/.0019in	SV...	■	■	■	■	■	■
VPGT 1003008 FL TOP	VPGT 1003008 FR TOP	Sharp	.08mm/.0031in	SV...	■	■	■	■	■	■
VPGT 1003015 FL TOP	VPGT 1003015 FR TOP	Sharp	.15mm/.0059in	SV...	■	■	■	■	■	■

* Polished Rake
* Sharp Cutting Edge

VPET Wiper Inserts (S: ±0.13)

Left Hand	Right Hand	Edge	Nose Radius	Holder	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
VPGT 1003ZZ FL TOP	VPET 1003ZZ FR TOP	Sharp	0	SV...	■	■	■	■
---	VPET 1003005 FR TOP	Sharp	.05mm/.0019in	SV...		■	■	
VPET 1003008 FL TOP	VPET 1003008 FR TOP	Sharp	.08mm/.0031in	SV...	■	■	■	■
VPET 1003015 FL TOP	VPET 1003015 FR TOP	Sharp	.15mm/.0059in	SV...	■	■	■	■

* Polished Rake
* Sharp Cutting Edge

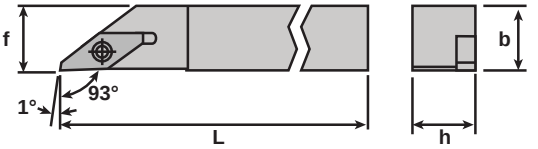
VPXT Wiper Inserts (S: ±0.1)

Left Hand	Right Hand	Edge	Nose Radius	Holder	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
VPXT 1003015 EL TOP	VPXT 1003015 ER TOP	Honed	.15mm/.0059in	SV...	■			
VPXT 1003035 EL TOP	VPXT 1003035 ER TOP	Honed	.35mm/.0137in	SV...	■			

* Round Cutting Edge

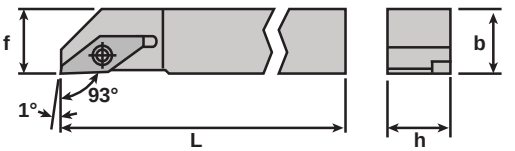
Standard TOP Holders - 93°

Left Hand	Right Hand	h	b	L	f
SVJPL 0807 H10	SVJPR 0807 H10	7	8	100	8
SVJPL 0808 F10	SVJPR 0808 F10	8	8	80	8
SVJPL 0808 H10	SVJPR 0808 H10	8	8	100	8
SVJPL 1010 F10	SVJPR 1010 F10	10	10	80	10
SVJPL 1010 H10	SVJPR 1010 H10	10	10	100	10
SVJPL 1212 H10	SVJPR 1212 H10	12	12	100	12
SVJPL 1616 K10	SVJPR 1616 K10	16	16	125	16
SVJPL 2020 K10	SVJPR 2020 K10	20	20	125	20
SVJPL 3/8" F10	SVJPR 3/8" F10	9.525	9.525	80	9.525
SVJPL 3/8" H10	SVJPR 3/8" H10	9.525	9.525	100	9.525
SVJPL 1/2" H10	SVJPR 1/2" H10	12.7	12.7	100	12.7
SVJPL 5/8" K10	SVJPL 5/8" K10	15.875	15.875	125	15.875
SVJPL 3/4" K10	SVJPL 3/4" K10	19.05	19.05	125	19.05



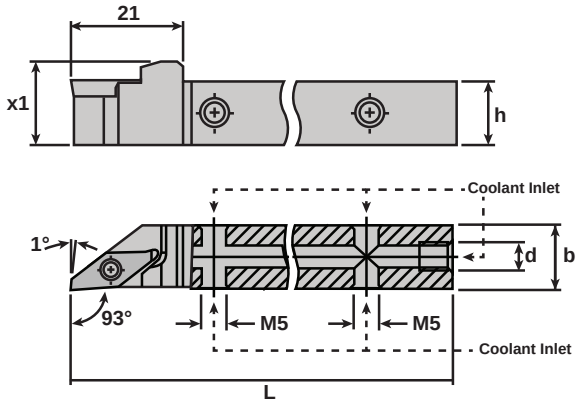
Reinforced Type V TOP Holders - 93°

Left Hand	Right Hand	h	b	L	f
SVJPL 0810 F10 V	SVJPR 0810 F10 V	8	10	80	10
SVJPL 0810 H10 V	SVJPR 0810 H10 V	8	10	100	10
SVJPL 1010 F10 V	SVJPR 1010 F10 V	10	10	80	10
SVJPL 1010 H10 V	SVJPR 1010 H10 V	10	10	100	10
SVJPL 1212 H10 V	SVJPR 1212 H10 V	12	12	100	12
SVJPL 1616 K10 V	SVJPR 1616 K10 V	16	16	125	16
SVJPL 2020 K10 V	SVJPR 2020 K10 V	20	20	125	20
SVJPL 3/8" F10 V	SVJPR 3/8" F10 V	9.525	9.525	80	9.525
SVJPL 3/8" H10 V	SVJPR 3/8" H10 V	9.525	9.525	100	9.525
SVJPL 1/2" H10 V	SVJPR 1/2" H10 V	12.7	12.7	100	12.7
SVJPL 5/8" K10 V	SVJPR 5/8" K10 V	15.875	15.875	125	15.875
SVJPL 3/4" K10 V	SVJPR 3/4" K10 V	19.05	19.05	125	19.05



Internal Coolant - 93°

Left Hand	Right Hand	h	b	L	x_1	End Port (d)
SVJPL 0810 H10 V IC	SVJPR 0810 H10 V IC	8	10	100	11.5	4005-000111
SVJPL 1010 H10 V IC	SVJPR 1010 H10 V IC	10	10	100	13.5	4005-000111
SVJPL 1212 H10 V IC	SVJPR 1212 H10 V IC	12	12	100	15.5	4005-000111
SVJPL 1616 K10 V IC	SVJPR 1616 K10 V IC	16	16	125	19.5	4005-000104
SVJPL 2020 K10 V IC	SVJPR 2020 K10 V IC	20	20	125	23.5	4005-000104
SVJPL 2025 K10 V IC	SVJPR 2025 K10 V IC	25	25	125	28.5	4005-000104
SVJPL 3/8" H10 V IC	SVJPR 3/8" H10 V IC	9.525	9.525	100	13	4005-000111
SVJPL 1/2" H10 V IC	SVJPR 1/2" H10 V IC	12.7	12.7	100	16.2	4005-000111
SVJPL 5/8" K10 V IC	SVJPR 5/8" K10 V IC	15.875	15.875	125	19.4	4005-000104
SVJPL 3/4" K10 V IC	SVJPR 3/4" K10 V IC	19.05	19.05	125	22.6	4005-000104



Included With All Coolant-Thru Shanks

Connects to side ports on ALL Shank sizes

4005-000111

0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

Sold Separately. Fits Position (d) On Tool Holders

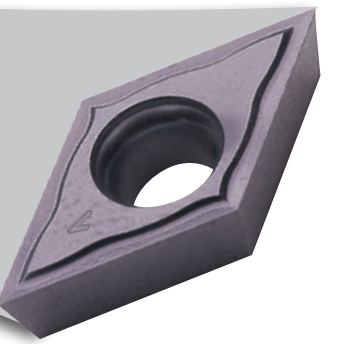
Connects to end port on 5/8" and larger shanks

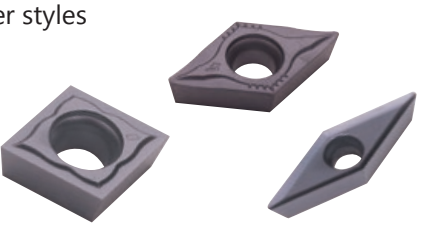
4005-000104

0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

UTILIS
multidec®
swiss type tools
ISO Series

- Highly focused ISO style insert range collected specifically for Swiss Applications
- Holders especially designed for Swiss Type Machines
- Large choice of carbide grades cover a wide range of materials
- Vast assortment of chipbreaker styles and geometries





Works Great On Stringy Materials

UTILIS multidec®- ISO Cutting Insert Nomenclature

Insert Form Angle	
V	35°
D	55°
C	80°

Clearance Angle	
C	7°
N	0°
P	11°

Tolerances	s +/-	d +/-
E	.0009"	.0009"
G	.005"	.0009"
M	.005"	.002"-.005"*
X	.004"	.0015"

Insert Face Type	
W	
T	
U	

DCGT 0702015 FN -A3 UHM 30 HX

Chip Breaker Type

Carbide Grade

Coating

DCGT 0702015 FN -A3 UHM30 HX

Edge Condition	
F	SHARP
E	HONED

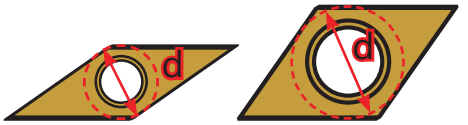
Hand	
L	Left
N	Neutral
R	Right

Edge Length / Inscribed Circle		l	d
80°	06	.251"	.250"
	09	.381"	.375"
	12	.507"	.500"
55°	07	.305"	.250"
	11	.456"	.375"
35°	11	.437"	.250"
	16	.653"	.375"

Insert Thickness	
02	.093"
03	.125"
T3	.156"
04	.187"

Nose Radius	
00 ZZ	Zero
003	.0011"
006	.0023"
008	.0031"
01	.0039"
015	.0059"
02	.0078"
035	.0137"
04	.0157"
075	.0295"
08	.0314"

UTILIS multidec®- ISO Series Cutting Tools

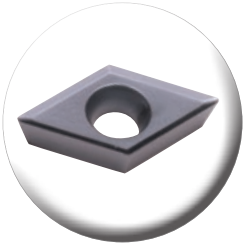


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

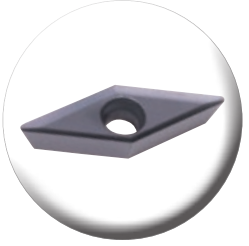
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCGT A3 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
DCGT 0702006 FN -A3	Sharp	.06mm/.0023in	SD...07	■	■	■			
DCGT 0702015 FN -A3	Sharp	.15mm/.0059in	SD...07	■	■	■			
DCGT 0702035 FN -A3	Sharp	.35mm/.0137in	SD...07	■	■	■			
DCGT 11T3008 FN -A3	Sharp	.08mm/.0031in	SD...11	■	■	■			
DCGT 11T3035 FN -A3	Sharp	.15mm/.0059in	SD...11	■	■	■			
DCGT 11T3075 FN -A3	Sharp	.35mm/.0137in	SD...11	■	■	■			

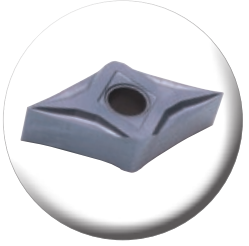
* Polished Rake
* Sharp Cutting Edge



VCGT A3 Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
VCGT 1103008 FN -A3	Sharp	.08mm/.0031in	SD...11	■	■	■			
VCGT 1103015 FN -A3	Sharp	.15mm/.0059in	SD...11	■	■	■			
VCGT 1103035 FN -A3	Sharp	.35mm/.0137in	SD...11	■	■	■			

* Polished Rake
* Sharp Cutting Edge



DNGU A4 Inserts - 55°

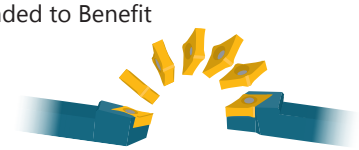
Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
DNGU 1104008 FN A4	Sharp	.08mm/.0031in	SD...11				■	■	■
DNGU 1104015 FN A4	Sharp	.15mm/.0059in	SD...11				■	■	■

* Polished Rake
* Sharp Cutting Edge

UTILIS multidec®- ISO Series Cutting Tools

The DNGU series of carbide inserts are ideal for applications where chip control becomes an issue. The high positive geometry insert with negative tool holder creates an ideal situation for rolling chips in a controlled manner.

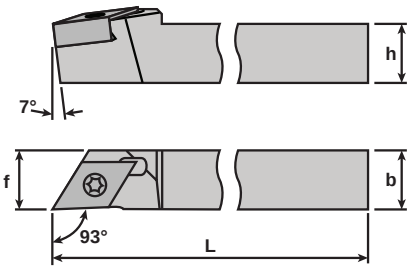
- Features 4 Cutting Edges per Insert
- Ideal for Stainless Steels and Materials That Produce Stringy Chips
- Sharp Tool Nose Radius Intended to Benefit Swiss-Style Applications



SDJN - A4 Holders

Left Hand	Right Hand	b	h	L	f
SDJNL 3/8" F11	SDJNR 3/8" F11	9.525	9.525	80	9.525
SDJNL 3/8" H11	SDJNR 3/8" H11	9.525	9.525	100	9.525
SDJNL 1/2" H11	SDJNR 1/2" H11	12.7	12.7	100	12.7
SDJNL 5/8" K11	SDJNR 5/8" K11	15.875	15.875	125	15.875
SDJNL 3/4" K11	SDJNR 3/4" K11	19.05	19.05	125	19.05

Metric Shanks also availble - 10mm, 12mm, 16mm, 20mm & 25mm

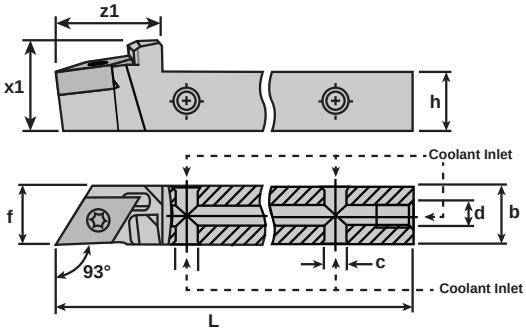


SDJN - A4 Coolant-Thru Holders

Left Hand	Right Hand	b	h	L	x_1	z_1	c	d
SDJNL 3/8" H11 IC	SDJNR 3/8" H11 IC	12	9.525	100	16	22	M5	M5
SDJNL 1/2" H11 IC	SDJNR 1/2" H11 IC	12.7	12.7	100	19.2	22	M5	M5
SDJNL 5/8" K11 IC	SDJNR 5/8" K11 IC	15.875	15.875	125	22.4	22	M5	G1/8"
SDJNL 3/4" K11 IC	SDJNR 3/4" K11 IC	19.05	19.05	125	25.5	22	M5	G1/8"

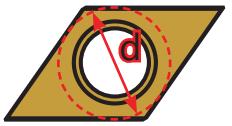
Metric Shanks also availble - 8mm, 10mm, 12mm, 16mm, 20mm & 25mm

Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions



Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

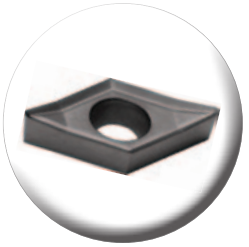
Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting



DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

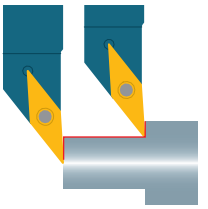
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCGT PA3 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
DCGT 070204 FN -PA3	Sharp	0.4mm/.0157in	SD...07	■	■				
DCGT 11T304 FN -PA3	Sharp	0.4mm/.0157in	SD...11	■	■				
DCGT 11T308 FN -PA3	Sharp	0.8mm/.0314in	SD...11	■	■				

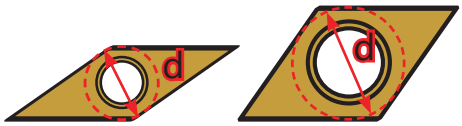
* Polished Rake
* Sharp Cutting Edge



Dont Forget the Coolant-Thru Holders!

UTILIS®
Tooling for High Technology

UTILIS multidec®- ISO Series Cutting Tools

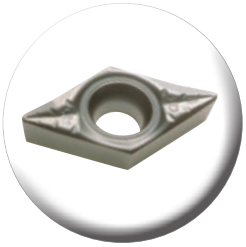


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCGT PA5 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
DCGT 070202 FN -PA5	Sharp	.2mm/.0078in	SD...07	■	■				
DCGT 070204 FN -PA5	Sharp	.4mm/.0157in	SD...07	■	■				
DCGT 11T302 FN -PA5	Sharp	.2mm/.0078in	SD...11	■	■				
DCGT 11T304 FN -PA5	Sharp	.4mm/.0157in	SD...11	■	■				
DCGT 11T308 FN -PA5	Sharp	.8mm/.0314in	SD...11	■	■				

* Polished Rake
* Sharp Cutting Edge

VCGT PA5 Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
VCGT 110302 FN -PA5	Sharp	.2mm/.0078in	SV...11	■	■				
VCGT 110304 FN -PA5	Sharp	.4mm/.0157in	SV...11	■	■				
VCGT 160404 FN -PA5	Sharp	.4mm/.0157in	SV...16	■	■				
VCGT 160408 FN -PA5	Sharp	.8mm/.0314in	SV...16	■	■				

* Polished Rake
* Sharp Cutting Edge

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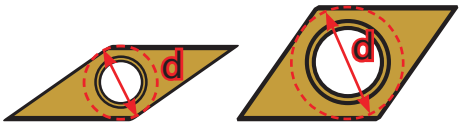
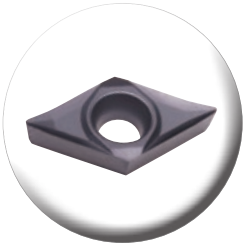


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

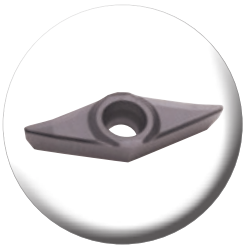
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCGT PA7 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
DCGT 0702005 FN -PA7	Sharp	.05mm/.0019in	SD...07	■	■				
DCGT 070201 FN -PA7	Sharp	.1mm/.0039in	SD...07	■	■				
DCGT 070202 FN -PA7	Sharp	.2mm/.0078in	SD...07	■	■				
DCGT 070204 FN -PA7	Sharp	.4mm/.0157in	SD...07	■	■				
DCGT 11T3005 FN -PA7	Sharp	.05mm/.0019in	SD...11	■	■				
DCGT 11T301 FN -PA7	Sharp	.1mm/.0039in	SD...11	■	■				
DCGT 11T302 FN -PA7	Sharp	.2mm/.0078in	SD...11	■	■				
DCGT 11T304 FN -PA7	Sharp	.4mm/.0157in	SD...11	■	■				
DCGT 11T308 FN -PA7	Sharp	.8mm/.0314in	SD...11	■	■				

* Sharp Cutting Edge



VCGT PA7 Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
VCGT 1103005 FN -PA7	Sharp	.05mm/.0019in	SV...11	■	■				
VCGT 110301 FN -PA7	Sharp	.1mm/.0039in	SV...11	■	■				
VCGT 110302 FN -PA7	Sharp	.2mm/.0078in	SV...11	■	■				
VCGT 110304 FN -PA7	Sharp	.4mm/.0157in	SV...11	■	■				
VCGT 110308 FN -PA7	Sharp	.8mm/.0314in	SV...11	■	■				
VCGT 160402 FN -PA7	Sharp	.2mm/.0078in	SV...16	■	■				
VCGT 160404 FN -PA7	Sharp	.4mm/.0157in	SV...16	■	■				
VCGT 160408 FN -PA7	Sharp	.8mm/.0314in	SV...16	■	■				

* Sharp Cutting Edge

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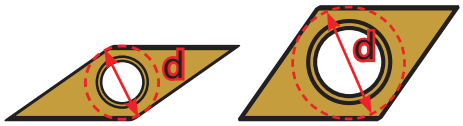
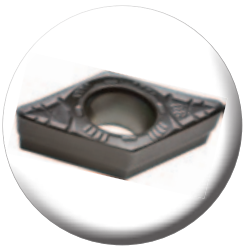


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

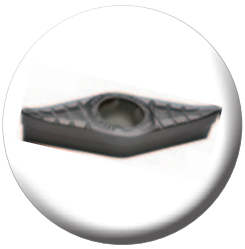
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCGT PA9 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
DCXT 070204 EN -PA9	Honed	.4mm/.0157in	SD...11	■	■				
DCXT 11T304 EN -PA9	Honed	.4mm/.0157in	SD...11	■	■				
DCXT 11T308 EN -PA9	Honed	.8mm/.0314in	SD...16	■	■				

* Round Cutting Edge



VCGT PA9 Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UMH 10	UMH 10 HX	UMH 20 HPX	UMH 30	UMH 30 HX	UMH 30 SX
VCGT 160404 FN -PA9	Sharp	.4mm/.0157in	SV...16	■	■				
VCGT 160408 FN -PA9	Sharp	.8mm/.0314in	SV...16	■	■				

* Round Cutting Edge

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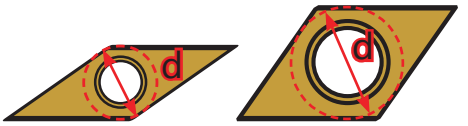
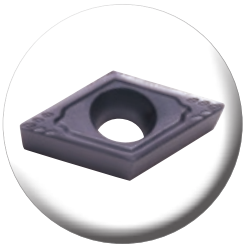


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

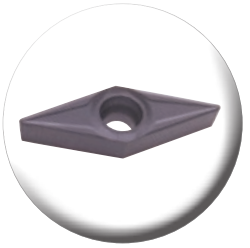
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCMT PF Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UMH 10 MZ	UMH 20 MZ	UMH 30 MZ
DCMT 070204 EN -PF	Honed	.4mm/.0157in	SD...07	■	■	■
DCMT 11T304 EN -PF	Honed	.4mm/.0157in	SD...11	■	■	■
DCMT 11T308 EN -PF	Honed	.8mm/.0314in	SD...11	■	■	■

* Round Cutting Edge

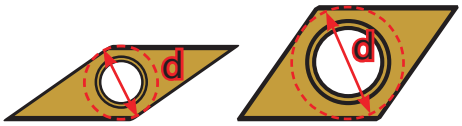


VCGT PF Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UMH 10 MZ	UMH 20 MZ	UMH 30 MZ	UCM 10	UCM 10 HX	UCM 10 MZ
VCGT 110302 EN -PF	Honed	.2mm/.0078in	SV...11	■	■	■	■	■	■
VCGT 110304 EN -PF	Honed	.4mm/.0157in	SV...11	■	■	■	■	■	■
VCGT 110308 EN -PF	Honed	.8mm/.0314in	SV...11	■	■	■			
VCGT 160404 EN -PF	Honed	.4mm/.0157in	SV...16				■	■	■
VCGT 160408 EN -PF	Honed	.8mm/.0314in	SV...16				■	■	■

* Round Cutting Edge

UTILIS multidec®- ISO Series Cutting Tools

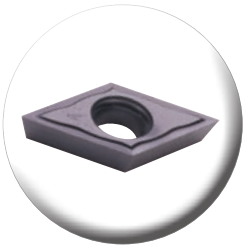


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

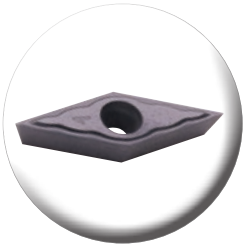
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCGT PF23 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UHM 30 HX
DCGT 0702003 EN -PF23	Honed	.03mm/.0012in	SD...07	■
DCGT 0702005 FN -PF23	Sharp	.05mm/.0019in	SD...07	■
DCGT 070201 FN -PF23	Sharp	.1mm/.0039in	SD...07	■
DCGT 070202 FN -PF23	Sharp	.2mm/.0078in	SD...07	■
DCGT 11T3005 FN -PF23	Sharp	.05mm/.0019in	SD...11	■
DCGT 11T301 FN -PF23	Sharp	.1mm/.0039in	SD...11	■
DCGT 11T302 FN -PF23	Sharp	.2mm/.0078in	SD...11	■

* Polished Rake
* Sharp Cutting Edge

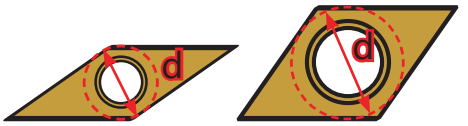


VCGT PF23 Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UHM 30 HX
VCGT 1103005 FN -PF23	Sharp	.05mm/.0019in	SV...11	■
VCGT 110301 FN -PF23	Sharp	.1mm/.0039in	SV...11	■
VCGT 110302 FN -PF23	Sharp	.2mm/.0078in	SV...11	■
VCGT 160401 FN -PF23	Sharp	.1mm/.0039in	SV...16	■
VCGT 160402 FN -PF23	Sharp	.2mm/.0078in	SV...16	■

* Polished Rake
* Sharp Cutting Edge

UTILIS multidec®- ISO Series Cutting Tools

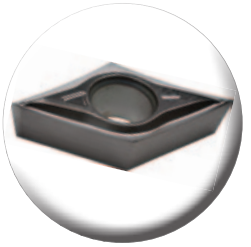


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

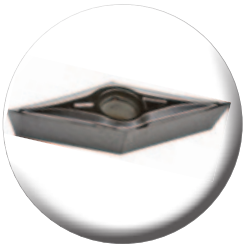
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCGT PF33 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UHM 30 HX
DCGT 0702005 FN -PF33	Sharp	.05mm/.0019in	SD...07	■
DCGT 070201 FN -PF33	Sharp	.1mm/.0039in	SD...07	■
DCGT 070202 FN -PF33	Sharp	.2mm/.0078in	SD...07	■
DCGT 070204 FN -PF33	Sharp	.4mm/.0157in	SD...07	■
DCGT 11T3005 FN -PF33	Sharp	.05mm/.0019in	SD...11	■
DCGT 11T301 FN -PF33	Sharp	.1mm/.0039in	SD...11	■
DCGT 11T302 FN -PF33	Sharp	.2mm/.0078in	SD...11	■
DCGT 11T304 FN -PF33	Sharp	.4mm/.0157in	SD...11	■

* Polished Rake
* Sharp Cutting Edge

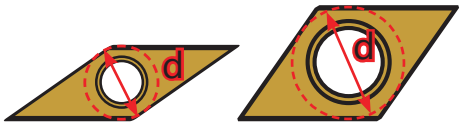


VCGT PF33 Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UHM 30 HX
VCGT 1103005 FN -PF33	Sharp	.05mm/.0019in	SV...11	■
VCGT 110301 FN -PF33	Sharp	.1mm/.0039in	SV...11	■
VCGT 110302 FN -PF33	Sharp	.2mm/.0078in	SV...11	■
VCGT 110304 FN -PF33	Sharp	.4mm/.0157in	SV...11	■
VCGT 160401 FN -PF33	Sharp	.1mm/.0039in	SV...16	■
VCGT 160402 FN -PF33	Sharp	.2mm/.0078in	SV...16	■
VCGT 160404 FN -PF33	Sharp	.4mm/.0157in	SV...16	■

* Polished Rake
* Sharp Cutting Edge

UTILIS multidec®- ISO Series Cutting Tools

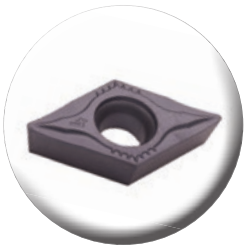


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

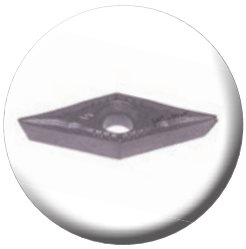
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCMT PF43 Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UHM 20 MZ	UHM 30 MZ
DCMT 070202 EN -PF43	Honed	.2mm/.0078in	SD...07	■	■
DCMT 070204 EN -PF43	Honed	.4mm/.0157in	SD...07		■
DCMT 11T302 EN -PF43	Honed	.2mm/.0078in	SD...11		■
DCMT 11T304 EN -PF43	Honed	.4mm/.0157in	SD...11	■	■
DCMT 11T308 EN -PF43	Honed	.8mm/.0314in	SD...11		■

* Round Cutting Edge

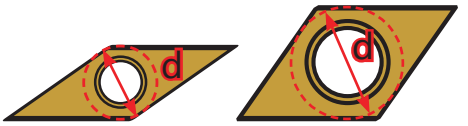


VCMT PF43 Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UHM 30 MZ
VCMT 110302 EN -PF43	Honed	.2mm/.0078in	SV...11	■
VCMT 110304 EN -PF43	Honed	.4mm/.0157in	SV...11	■
VCMT 160404 EN -PF43	Honed	.4mm/.0157in	SV...16	■

* Round Cutting Edge

UTILIS multidec®- ISO Series Cutting Tools

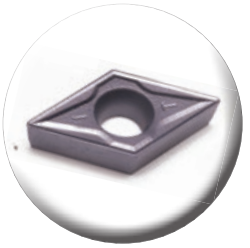


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

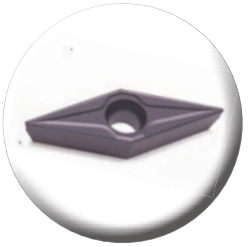
Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



DCMT PM Inserts - 55°

Cat No.	Edge	Nose Radius	Holder	UHM 10 MZ	UHM 20 MZ	UHM 30 MZ
DCMT 070204 EN -PM	Honed	.4mm/.0157in	SD...07	■	■	■
DCMT 070208 EN -PM	Honed	.8mm/.0314in	SD...07			■
DCMT 11T304 EN -PM	Honed	.4mm/.0157in	SD...11	■	■	■
DCMT 11T308 EN -PM	Honed	.8mm/.0314in	SD...11	■	■	■

* Round Cutting Edge

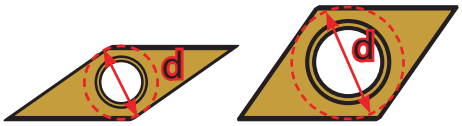


VCMT PM Inserts - 35°

Cat No.	Edge	Nose Radius	Holder	UHM 10 MZ	UHM 20 MZ	UHM 30 MZ
VCMT 160404 EN -PM	Honed	.4mm/.0157in	SV...16	■	■	■
VCMT 160408 EN -PM	Honed	.8mm/.0314in	SV...16	■	■	■

* Round Cutting Edge

UTILIS multidec®- ISO Series Cutting Tools

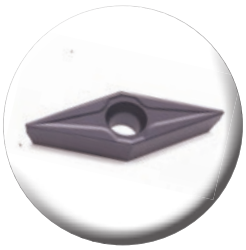


VC...11 inserts: d =.250"
VC...16 inserts: d =.375"

DC...07 inserts: d =.250"
DC...11 inserts: d =.375"

Coatings vs Material Type

Carbide									Cermet		Diamond			Materials
-	-	■	■	■	□	□	■	□	■	■	-	-	-	Steel
-	■	-	■	□	□	■	■	■	□	■	-	-	-	Stainless Steel
□	■	-	□	-	□	■	-	-	-	-	-	-	-	Titanium & Ti-Alloys
■	□	-	-	-	□	□	-	□	-	-	■	■	■	Non Ferrous Metals
UHM 10	UHM 10 HX	UHM 10 MZ	UHM 20 HPX	UHM 20 MZ	UHM 30	UHM 30 HX	UHM 30 MZ	UHM 30 SX	UCM 10	UCM 10 HX	UCVD 08	UPCD 15	UPCD 20	



VCGT TOP5 Wiper Inserts - 35°

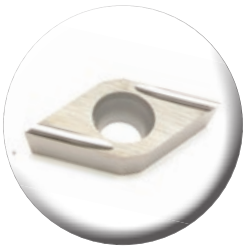
Left Hand	Right Hand	Edge	Nose Radius	Holder	UHM 10	UHM 10 HX
VCGT 110304 FL -TOPS	VCGT 110304 FR -TOPS	Sharp	.4mm/.0157in	SV...11	■	■

* Polished Rake
* Sharp Cutting Edge

DCGT TOP5 Wiper Inserts - 55°

Left Hand	Right Hand	Neutral	Edge	Nose Radius	Holder	UHM 10	UHM 10 HX
DCGT 11T304 FL -TOPS	DCGT 11T304 FR -TOPS	DCGT 11T304 FN -TOPS	Sharp	.4mm/.0157in	SD...11	■	■
DCGT 11T308 FL -TOPS	DCGT 11T308 FR -TOPS	DCGT 11T308 FN -TOPS	Sharp	.8mm/.0314in	SD...11	■	■

* Polished Rake
* Sharp Cutting Edge



DCET -U Inserts - 55°

Right Hand	Edge	Nose Radius	Holder	UHM 10	UHM 10 HX	UCM 10	UCM 10 HX
DCET 0702003 FR -U	Sharp	.03mm/.0012in	SD...07	■	■		
DCET 070201 FR -U	Sharp	.1mm/.0039in	SD...07	■	■		
DCET 070202 FR -U	Sharp	.2mm/.0078in	SD...07				
DCET 11T301 FR -U	Sharp	.1mm/.0039in	SD...11				
DCET 11T302 FR -U	Sharp	.2mm/.0078in	SD...11				
DCET 11T304 FR -U	Sharp	.4mm/.0157in	SD...11				

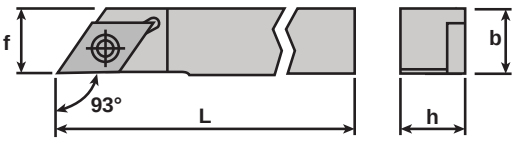
* Ground Rake
* Sharp Cutting Edge

SDAC...(90°) ISO DC - Insert Holders

Left Hand	Right Hand	b	h	L	f	Insert
SDACL 0808 K07 U	SDACL 0808 K07 U	8	8	125	8	DC...0702
SDACL 1010 M07 U	SDACL 1010 M07 U	10	10	150	10	DC...0702
SDACL 1212 M07 U	SDACL 1212 M07 U	12	12	150	12	DC...0702
SDACL 1212 M11 U	SDACL 1212 M11 U	12	12	150	12	DC...11T3
SDACL 1616 K11 U	SDACL 1616 K11 U	16	16	125	16	DC...11T3

SDJC...(93°) ISO DC - Insert Holders

Left Hand	Right Hand	b	h	L	f	Insert
SDJCL 0808 F07 U	SDJCR 0808 F07 U	8	8	80	8	DC...0702
SDJCL 0808 H07 U	SDJCR 0808 H07 U	8	8	100	8	DC...0702
SDJCL 1010 F07 U	SDJCR 1010 F07 U	10	10	80	10	DC...0702
SDJCL 1010 H07 U	SDJCR 1010 H07 U	10	10	100	10	DC...0702
SDJCL 1212 H07 U	SDJCR 1212 H07 U	12	12	100	12	DC...0702
SDJCL 1212 H11 U	SDJCR 1212 H11 U	12	12	100	12	DC...11T3
SDJCL 1616 K07 U	SDJCR 1616 K07 U	16	16	125	16	DC...0702
SDJCL 1616 K11 U	SDJCL 1616 K11 U	16	16	125	16	DC...11T3
SDJCL 2020 K11 U	SDJCR 2020 K11 U	20	20	125	20	DC...11T3
SDJCL 3/8" F07 U	SDJCR 3/8" F07 U	9.525	9.525	80	9.525	DC...0702
SDJCL 3/8" H07 U	SDJCR 3/8" H07 U	9.525	9.525	100	9.525	DC...0702
SDJCL 3/8" F11 U	SDJCR 3/8" F11 U	9.525	9.525	80	9.525	DC...11T3
SDJCL 3/8" H11 U	SDJCR 3/8" H11 U	9.525	9.525	100	9.525	DC...11T3
SDJCL 1/2" H07 U	SDJCR 1/2" H07 U	12.7	12.7	100	12.7	DC...0702
SDJCL 1/2" H11 U	SDJCR 1/2" H11 U	12.7	12.7	100	12.7	DC...11T3
SDJCL 5/8" K11 U	SDJCR 5/8" K11 U	15.875	15.875	125	15.875	DC...11T3
SDJCL 3/4" K11 U	SDJCR 3/4" K11 U	19.05	19.05	125	19.05	DC...11T3

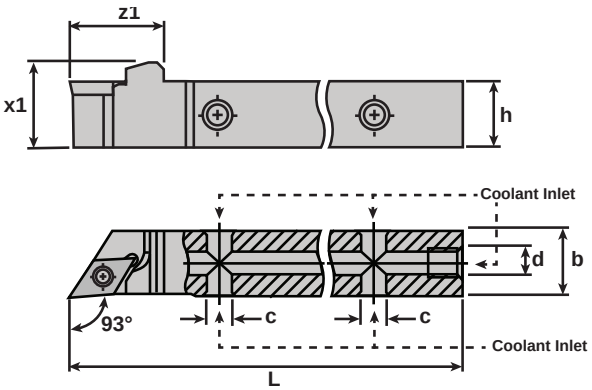


UTILIS multidec®- ISO Series Cutting Tools

SDJC...U IC (93°) ISO DC - Coolant Thru Insert Holders

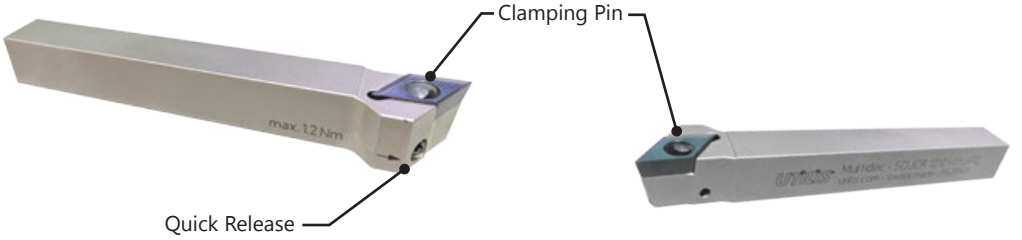
Left Hand	Right Hand	b	h	L	x_1	z_1	c	d	Insert
SDJCL 0808 H07 U IC	SDJCR 0808 H07 U IC	8	8	100	11.5	17	M5	M5	DC...0702
SDJCL 1010 H07 U IC	SDJCR 1010 H07 U IC	10	10	100	13.5	17	M5	M5	DC...0702
SDJCL 1010 H11 U IC	SDJCR 1010 H11 U IC	10	10	100	13.5	22	M5	M5	DC...11T3
SDJCL 1212 H07 U IC	SDJCR 1212 H07 U IC	12	12	100	15.5	17	M5	M5	DC...0702
SDJCL 1212 H11 U IC	SDJCR 1212 H11 U IC	12	12	100	15.5	22	M5	M5	DC...11T3
SDJCL 1616 K07 U IC	SDJCR 1616 K07 U IC	16	16	125	15.5	17	M5	G1/8"	DC...0702
SDJCL 1616 K11 U IC	SDJCR 1616 K11 U IC	16	16	125	19.5	22	M5	G1/8"	DC...11T3
SDJCL 2020 K11 U IC	SDJCR 2020 K11 U IC	20	20	125	23.5	22	M5	G1/8"	DC...11T3
SDJCL 1212 D07 U IC	SDJCR 1212 D07 U IC	12	12	60	15.5	17	M5	G1/8"	DC...0702
SDJCL 1012 H11 U IC	SDJCR 1012 H11 U IC	10	12	100	13.5	22	M5	M5	DC...11T3
SDJCL 2525 K11 U IC	SDJCR 2525 K11 U IC	25	25	125	23.5	22	M5	G1/8"	DC...11T3
	SDJCR 1616 D11 U IC	16	16	60	19.5	23	G1/8"	G1/8"	DC...11T3
SDJCL 3/8" H07 U IC	SDJCR 3/8" H07 U IC	9.525	9.525	100	13	17	M5	M5	DC...0702
SDJCL 3/8" H11 U IC	SDJCR 3/8" H11 U IC	9.525	9.525	100	13	22	M5	M5	DC...11T3
SDJCL 1/2" H07 U IC	SDJCR 1/2" H07 U IC	12.7	12.7	100	16.2	17	M5	M5	DC...0702
SDJCL 1/2" H11 U IC	SDJCR 1/2" H11 U IC	12.7	12.7	100	16.2	22	M5	M5	DC...11T3
SDJCL 5/8" K07 U IC	SDJCR 5/8" K07 U IC	15.875	15.875	125	19.5	17	M5	G1/8"	DC...0702
SDJCL 5/8" K11 U IC	SDJCR 5/8" K11 U IC	15.875	15.875	125	19.5	22	M5	G1/8"	DC...11T3
SDJCL 3/4" K11 U IC	SDJCR 3/4" K11 U IC	19.05	19.05	125	22.6	22	M5	G1/8"	DC...11T3

Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions



Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

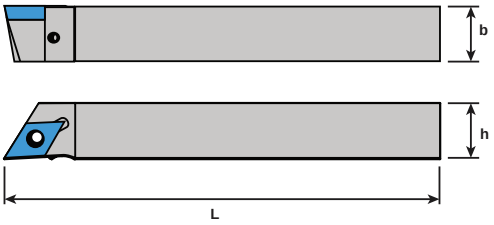
Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting



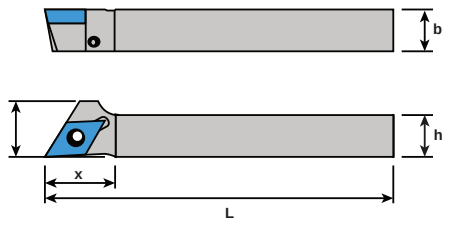
SDJC...U FC Screwless Quick Change ISO Holders

Left Hand	Right Hand	b	h	L	f	x	Insert
SDJCL 1212 H11 U FC	SDJCR 1212 H11 U FC	12	12	100	16	21	DC...
SDJCL 1616 K11 U FC	SDJCR 1616 K11 U FC	16	16	125	-	-	DC...
SDJCL 1/2 H11 U FC	SDJCR 1/2 H11 U FC	1/2"	1/2"	100	16	21	DC...
SDJCL 5/8 K11 U FC	SDJCR 5/8 K11 U FC	5/8"	5/8"	125	-	-	DC...

SDJC...H11 U FC

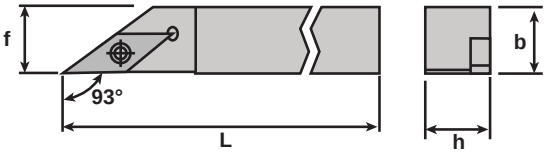


SDJC...K11 U FC



SVJC...(93°) ISO VC - Insert Holders

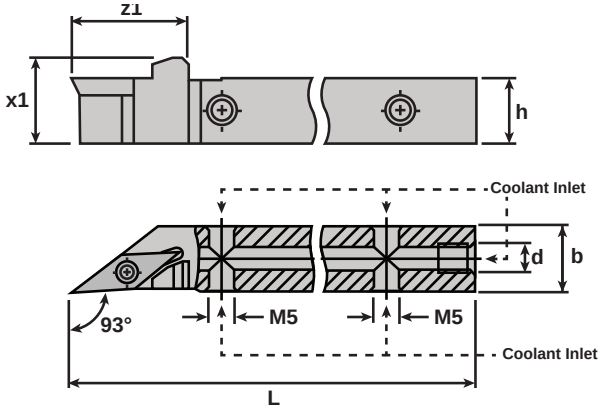
Left Hand	Right Hand	b	h	L	f	Insert
SVJCL 0808 F11 U	SVJCR 0808 F11 U	8	8	80	8	VC...1103
SVJCL 0808 H11 U	SVJCR 0808 H11 U	8	8	100	8	VC...1103
SVJCL 1010 F11 U	SVJCR 1010 F11 U	10	10	80	10	VC...1103
SVJCL 1010 H11 U	SVJCR 1010 H11 U	10	10	100	10	VC...1103
SVJCL 1212 H11 U	SVJCR 1212 H11 U	12	12	100	12	VC...1103
SVJCL 1616 K11 U	SVJCR 1616 K11 U	16	16	125	16	VC...1103
SVJCL 1616 K16 U	SVJCR 1616 K16 U	16	16	125	16	VC...1604
SVJCL 2020 K11 U	SVJCR 2020 K11 U	20	20	125	20	VC...1103
SVJCL 2020 K16 U	SVJCR 2020 K16 U	20	20	125	20	VC...1604
SVJCL 3/8" F11 U	SVJCR 3/8" F11 U	9.525	9.525	80	9.525	VC...1103
SVJCL 3/8" H11 U	SVJCR 3/8" H11 U	9.525	9.525	100	9.525	VC...1103
SVJCL 1/2" H11 U	SVJCR 1/2" H11 U	12.7	12.7	100	12.7	VC...1103
SVJCL 3/4" K11 U	SVJCR 3/4" K11 U	19.05	19.05	125	19.05	VC...1103
SVJCL 3/4" K16 U	SVJCR 3/4" K16 U	19.05	19.05	125	19.05	VC...1604



SVJC...(93°) ISO VC - Coolant-Thru Insert Holders

Left Hand	Right Hand	b	h	L	x_1	z_1	c	d	Insert
SVJCL 0810 H11 U IC	SVJCR 0810 H11 U IC	8	10	100	11.5	21	M5	M5	VC...1103
SVJCL 1010 H11 U IC	SVJCR 1010 H11 U IC	10	10	100	13.5	21	M5	M5	VC...1103
SVJCL 1212 H11 U IC	SVJCR 1212 H11 U IC	12	12	100	15.5	21	M5	M5	VC...1103
SVJCL 1616 K11 U IC	SVJCR 1616 K11 U IC	16	16	125	19.5	21	M5	G1/8"	VC...1103
SVJCL 1616 K16 U IC	SVJCR 1616 K16 U IC	16	16	125	19.5	27	M5	G1/8"	VC...1604
SVJCL 2020 K11 U IC	SVJCR 2020 K11 U IC	20	20	125	23.5	21	M5	G1/8"	VC...1103
SVJCL 2020 K16 U IC	SVJCR 2020 K16 U IC	20	20	125	23.5	27	M5	G1/8"	VC...1604
SVJCL 3/8" H11 U IC	SVJCR 3/8" H11 U IC	9.525	9.525	100	13	21	M5	M5	VC...1103
SVJCL 1/2" H11 U IC	SVJCR 1/2" H11 U IC	12.7	12.7	100	16.2	21	M5	M5	VC...1103
SVJCL 5/8" K11 U IC	SVJCR 5/8" K11 U IC	15.875	15.875	125	19.5	21	M5	G1/8"	VC...1103
SVJCL 5/8" K16 U IC	SVJCR 5/8" K16 U IC	15.875	15.875	125	19.5	27	M5	G1/8"	VC...1604
SVJCL 3/4" K11 U IC	SVJCR 3/4" K11 U IC	19.05	19.05	125	22.6	21	M5	G1/8"	VC...1103
SVJCL 3/4" K16 U IC	SVJCR 3/4" K16 U IC	19.05	19.05	125	22.6	27	M5	G1/8"	VC...1604

Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions

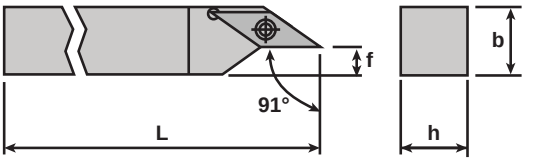


Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

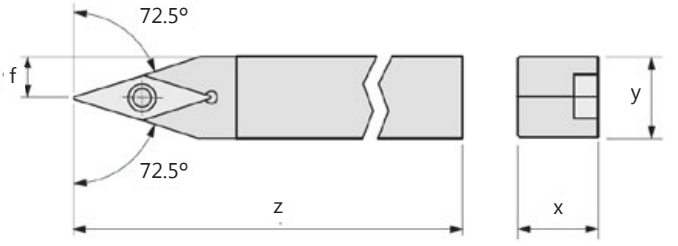
SVXC...(91°) ISO VC - Insert Holders

Left Hand	Right Hand	b	h	L	f	Insert
SVXCL 1010 F11 U	SVXCR 1010 F11 U	10	10	80	3	VC...1103
SVXCL 1010 H11 U	SVXCR 1010 H11 U	10	10	100	3	VC...1103
SVXCL 1212 H11 U	SVXCR 1212 H11 U	12	12	100	5	VC...1103
SVXCL 1616 K11 U	SVXCR 1616 K11 U	16	16	125	9	VC...1103
SVXCL 2020 K16 U	SVXCR 2020 K16 U	20	20	125	9	VC...1604
SVXCL 3/8" F11 U	SVXCR 3/8" F11 U	9.525	9.525	80	2	VC...1103
SVXCL 3/8" H11 U	SVXCR 3/8" H11 U	9.525	9.525	100	2	VC...1103
SVXCL 1/2" H11 U	SVXCR 1/2" H11 U	12.7	12.7	100	5	VC...1103
SVXCL 5/8" K11 U	SVXCR 5/8" K11 U	15.875	15.875	125	8	VC...1103
SVXCL 3/4" K16 U	SVXCR 3/4" K16 U	19.05	19.05	125	8	VC...1604



SVVCN...(72.5°) ISO VC - Insert Holders

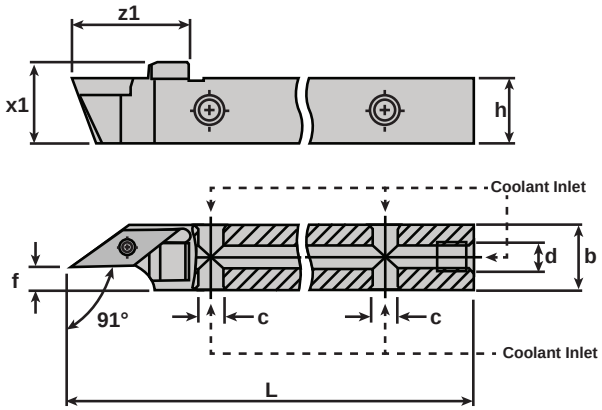
Neutral	b	h	L	f	Insert
SVVCN 0808 F11 U	8	8	80	4	VC...1103
SVVCN 0808 H11 U	8	8	100	4	VC...1103
SVVCN 1010 F11 U	10	10	80	5	VC...1103
SVVCN 1010 H11 U	10	10	100	5	VC...1103
SVVCN 1212 F11 U	12	12	80	6	VC...1103
SVVCN 1212 H11 U	12	12	100	6	VC...1103
SVVCN 1616 H11 U	16	16	100	8	VC...1103
SVVCN 2020 K11 U	20	20	125	10	VC...1103
SVVCN 2020 K16 U	20	20	125	10	VC...1604
SVVCN 2525 M11 U	25	25	150	12.5	VC...1103
SVVCN 2525 M16 U	25	25	150	12.5	VC...1604



SVXC...(91°) ISO VC - Coolant-Thru Insert Holders

Left Hand	Right Hand	b	h	L	x_1	z_1	c	d	Insert
SVXCL 1010 F11 U IC	SVXCR 1010 F11 U IC	10	10	80	12.7	21	M5	M5	VC...1103
SVXCL 1010 H11 U IC	SVXCR 1010 H11 U IC	10	10	100	12.7	21	M5	M5	VC...1103
SVXCL 1212 H11 U IC	SVXCR 1212 H11 U IC	12	12	100	14.7	21	M5	M5	VC...1103
SVXCL 1616 K11 U IC	SVXCR 1616 K11 U IC	16	16	125	18.7	21	M5	G1/8"	VC...1103
SVXCL 2020 K16 U IC	SVXCR 2020 K16 U IC	20	20	125	22	27	M5	G1/8"	VC...1604
SVXCL 3/8" F11 U IC	SVXCR 3/8" F11 U IC	9.525	9.525	80	12.2	21	M5	M5	VC...1103
SVXCL 3/8" H11 U IC	SVXCR 3/8" H11 U IC	9.525	9.525	100	12.2	21	M5	M5	VC...1103
SVXCL 1/2" H11 U IC	SVXCR 1/2" H11 U IC	12.7	12.7	100	15.4	21	M5	M5	VC...1103
SVXCL 5/8" K11 U IC	SVXCR 5/8" K11 U IC	15.875	15.875	125	18.6	21	M5	G1/8"	VC...1103
SVXCL 3/4" K16 U IC	SVXCR 3/4" K16 U IC	19.05	19.05	125	22	27	M5	G1/8"	VC...1604

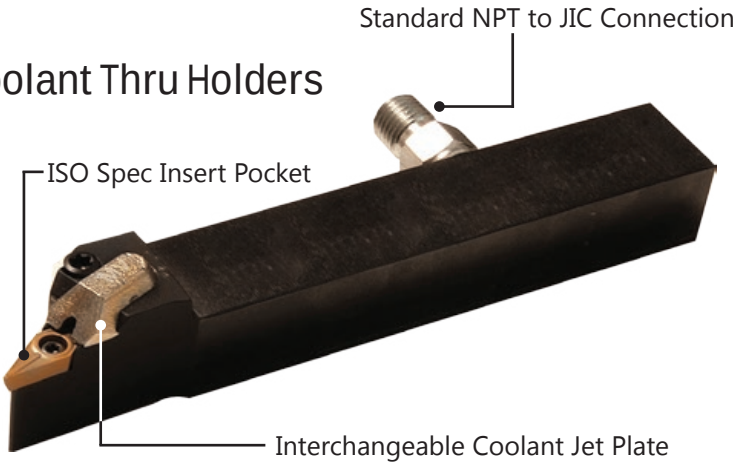
Features (5) connection ports for simple connection to your oil delivery system. (4) Side ports and (1) one end port making connection possible on most machine tool positions



Included With All Coolant-Thru Shanks
Connects to side ports on ALL Shank sizes
4005-000111
0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting

Sold Separately. Fits Position (d) On Tool Holders
Connects to end port on 5/8" and larger shanks
4005-000104
0° Male Union - 1/8BSPT to 1/4 JIC Flare Fitting

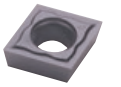
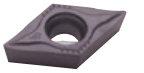
GT Series Coolant Thru Holders

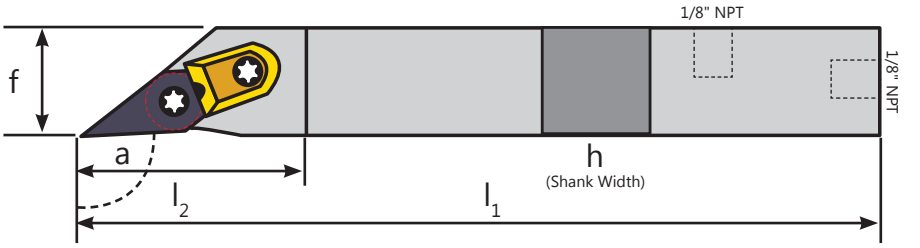


Shanks fit standard gang plates. No retrofitting or aftermarket proprietary tool mounting plate required.

ISO Turning - GT Series Coolant Thru

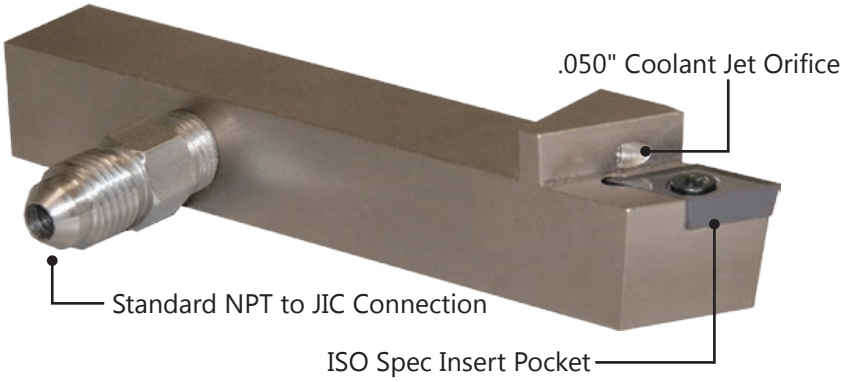
Designed for 80°, 55° & 35° UTILIS & other ISO style Swiss-Type cutting tools

Product No.	*h*	*a*	*f*	*L_1*	*L_2*	*NPT*	*Insert*	
SVJPR 1/2" H10 GT	.500"	93°	.625"	4.5"	.950"	1/8"	VP...10 / IC .250"	
SVJPR 5/8" H10 GT	.625"	93°	.750"	5.0"	1.0"	1/8"		
SCLCR 1/2" H09 GT	.500"	95°	.625"	4.5"	.889"	1/8"	CC...09 / IC .375"	
SCLCR 5/8" H09 GT	.625"	95°	.750"	5.0"	1.0"	1/8"		
SDJCR 1/2" H11 GT	.500"	93°	.625"	4.5"	.950"	1/8"	DC...11 / IC .375"	
SDJCR 5/8" H11 GT	.625"	93°	.750"	5.0"	1.0"	1/8"		



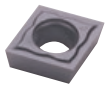
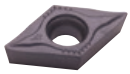
DP Series Coolant Thru Holders

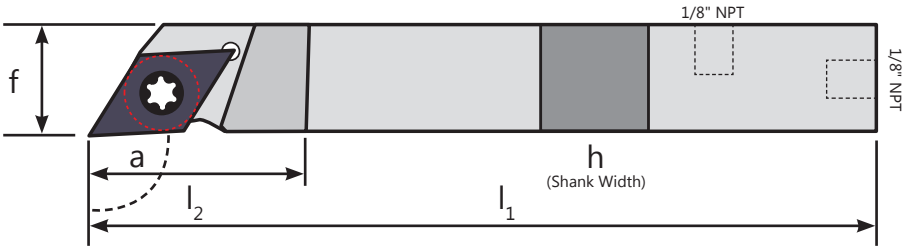
Double Coolant Jets



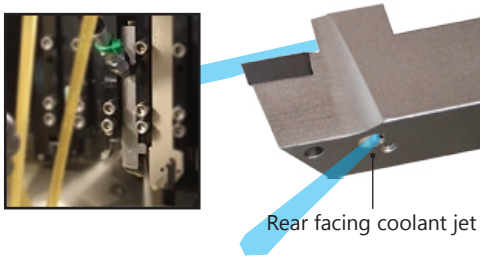
ISO Turning - DP Series Coolant Thru - Double Coolant Jet Holders

Designed for 80°, 55° UTILIS & other ISO style Swiss-Type cutting tools

Product No.	h	a	f	L_1	L_2	NPT	Insert	
SCLCR 1/2" H09 DP	.500"	95°	.500"	4.5"	1.0"	1/8"	CC...09 / IC .375"	
SCLCR 5/8" H09 DP	.625"	95°	.625"	5.0"	1.0"	1/8"		
SDJCR 1/2" H11 DP	.500"	93°	.500"	4.25	1.0"	1/8"	DC...11 / IC .375"	
SDJCR 5/8" H11 DP	.625"	93°	..625"	4.25	1.0"	1/8"		



Unique Double Jet Design!
This holder not only delivers high pressure cutting oil to the tip of the insert but also to the adjacent station thereby effectively keeping chips out of the cutting zone!



ISO Series - Spare Parts

Spare Screws

Part No.	Fits Holders...	Description	Dimension
MSP 25060 T08	SC...06 / SD...07 / SV...11	Torx T8 Screw	M2x6 T08
MSP 35110 T15	SC...09 / SD...11 / SV...16	Torx T15 Screw	M3.5x11 T15
MSP 40110 TP15	SDJN...11	TorxPLUS 15 Screw	M4x11 TP15
MSP 45120 T15	SC...12	Torx T15 Screw	M4.5x12 T15

TORX Screw Drivers

Part No.	Fits Holders...	Description	Dimension
WTF-T08-S	SC...06 / SD...07 / SV...11	T8 Torx Driver	T8
WTF-T15-S	SC...09 / SC...12 SD...11 / SV...16	T15 Torx Driver	T15
MSP TXP15	SDJN...11	TorxPLUS Driver	TP15

Precision Calibrated Torque-Drivers

Part No.	Fits Holders...	Description	Dimension
WTD-T08-D	SC...06 / SD...07 / SV...11	(1.3nm) .95 ft lb. Torque Driver	T8
WTD-T15-D	SC...09 / SC...12 SD...11 / SV...16	(3nm) 2.2 ft lb. Torque Driver	T15

Fittings for Coolant-Thru Holders

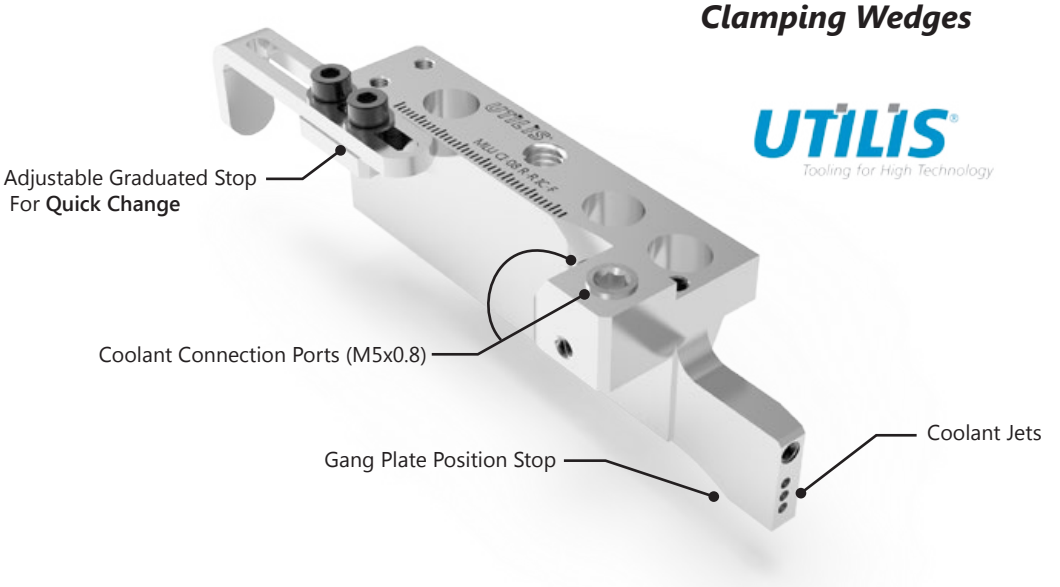
Part No.	Fits Holders...	Description
4005-000111	All M5 Coolant Ports	M5 Male to 1/4" JIC Male
4005-000104	All G1/8" Coolant Ports	G1/8 to 1/4" JIC Male
4005-000109	All GT & DP Series Holders	1/8" NPT to 1/4" JIC Male

Notes

multidec®-Lube

Clamping Wedges

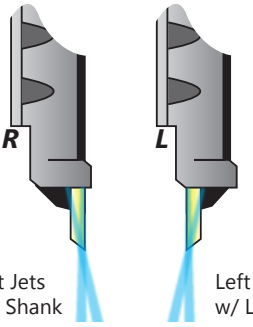
UTILIS®
Tooling for High Technology



Introducing a revolutionary new method of delivering high pressure coolant directly to your cutting tools. Our NEW multidec®-LUBE Integrated Coolant Wedge Clamps from UTILIS are specifically engineered to work with standard square shank stick tooling thereby effectively making your entire tooling inventory "coolant-thru" capable. Convert your whole gang plate or just one tool station, the choice is yours.

- Works with any High-Quality Square Shank Tooling
- NEVER Waste Time Bending and Aiming Coolant Lines Again!
- Elimininates Stringy Chips from Collecting on Your Cutting Tools
- Replace Your Standard Tool Clamping Wedge, Plumb in to your Oil Delivery System and Hit Cycle Start!

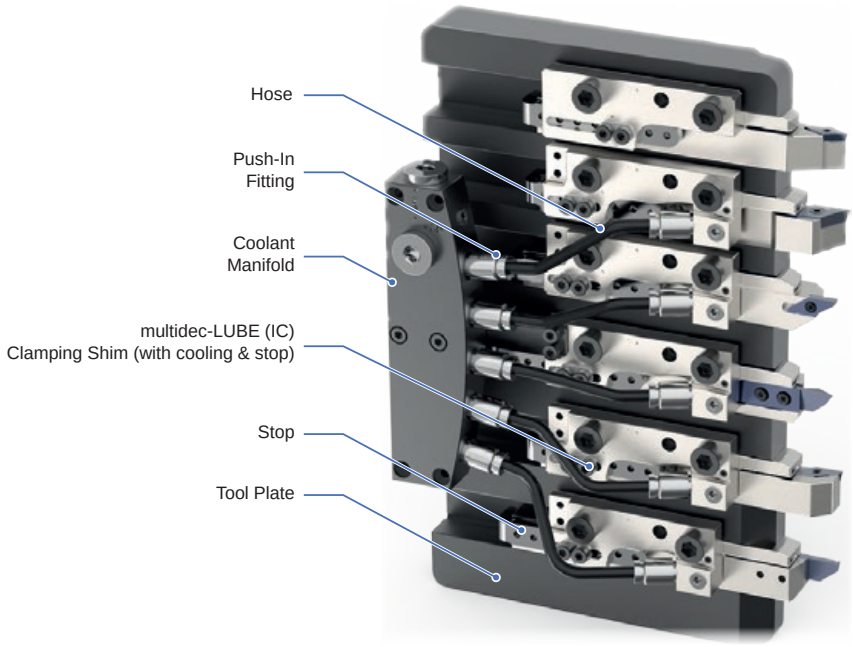
Coolant Spray Patterns



Right Hand Coolant Jets
w/ Right Hand Tool Shank

Left Hand Coolant Jets
w/ Left Hand Tool Shank

multidec®- Lube Clamping Wedges



Available Accessories

A	Coolant Distributor
B	Straight Union
C	Swivel-Type Union
D	Tube w/ Connector
E	Tube w/ Threaded Connector
F	Tube w/ 45° Connector
G	Quick Change Coupling (m/f)
H	Reduction Union
I	Extension
J	Screw Plug
K	Conversion Fittings
L	Steel Braided High Pressure Lines
M	Stops (Incremental & Variable)

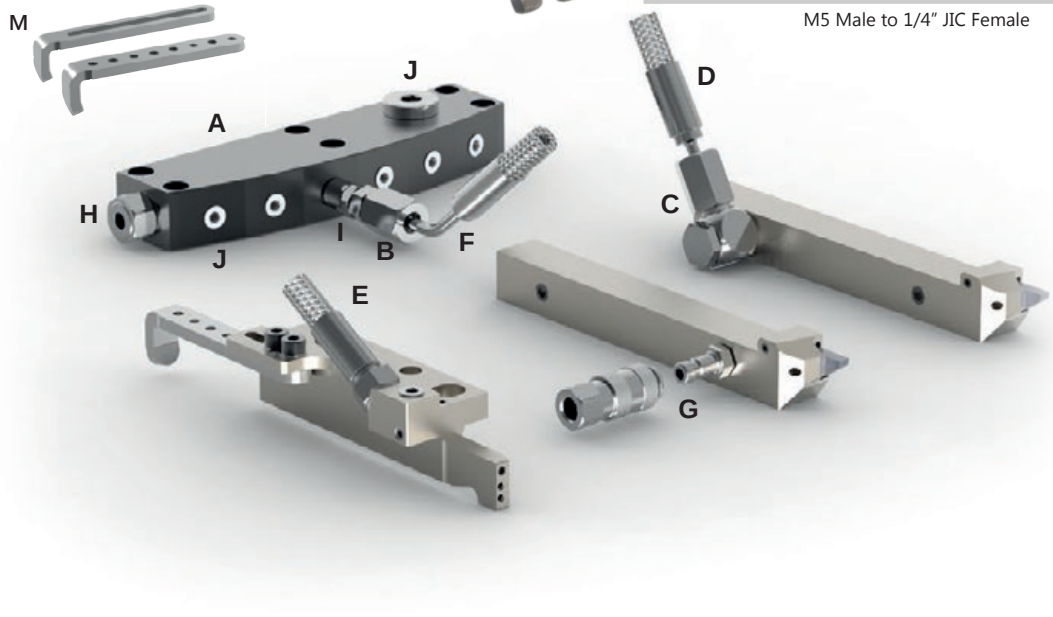
Conversion Fittings:

Prod No.	*Description*
4005-000111	0° Male Union - M5-0.8 to 1/4 JIC Flare Fitting. Connects to side ports on **all** shank sizes. Included With All Coolant-Thru Shanks

Steel Braided High Pressure Lines:

Prod No.	*Description*
CQS-CB6	6" Stainless Coolant Line
CQS-CB8	8" Stainless Coolant Line
CQS-CB12	12" Stainless Coolant Line
CQS-CB16	16" Stainless Coolant Line

M5 Male to 1/4" JIC Female



multidec® - Lube Coolant-Thru Clamping Wedges

Citizen - Coolant Thru Clamps

Machine Model	Holder	Tool Plate	Pos.	Left Hand	Right Hand
R07	8x8mm	QFT4308	T11-T12	MLU CI-12 R-L IC-F	MLU CI-12 R-R IC-F
L12	8x8mm	GTF7020	T1-T6	MLU CI-10 R-L IC-F	MLU CI-10 R-R IC-F
L12	3/8in (9.525mm)	GTF7010L	T1-T6	MLU CI-07 R-L IC-F	MLU CI-07 R-R IC-F
C16, K12, K16, M16	10x10mm	GTF6010, BTF1010, GTF5110, (5J003 M)	T1-T6	MLU CI-02 R-L IC-F	MLU CI-02 R-R IC-F
K12, L12	10x10mm	GTF7010	T1-T6	MLU CI-09 R-L IC-F	MLU CI-09 R-R IC-F
L16	10x10mm	GTF3110	T1-T4	MLU CI-14 R-L IC-F	MLU CI-14 R-R IC-F
A20, K12, K16, L20, M16	12x12mm	BTF1012, GTF3812	T1-T6	MLU CI-01 R-L IC-F	MLU CI-01 R-R IC-F
A20, L20	12x12mm	GTF3612, BTF2212, BTF2412	T2-T5	MLU CI-01 R-L IC-F	MLU CI-01 R-R IC-F
A20, M20	12x12mm	BTF2413, GTF2513	T1-T6	MLU CI-05 R-L IC-F	MLU CI-05 R-R IC-F
A20, L20	1/2in (12.7mm)	BTF2213, BTF2413, GTF3113	T2-T6	MLU CI-03 R-L IC-F	MLU CI-03 R-R IC-F
M32	16x16mm, 5/8in	GTF5216, GTF5816	T1-T5	MLU CI-08 R-L IC-F	MLU CI-08 R-R IC-F
L25, L32	16x16mm, 5/8in	GTF4016, GTF4516	T11-T15	MLU CI-08 R-L IC-F	MLU CI-08 R-R IC-F
L20	16x16mm, 5/8in	BTF2413, GTF3612	T1 (Cut Off)	MLU CI-08 R-L IC-F	MLU CI-08 R-R IC-F

Star - Coolant Thru Clamps

Machine Model	Holder	Tool Plate	Pos.	Left Hand	Right Hand
SR-10J	8x8mm	691-01	T1-T6	MLU ST-01 R-L IC-F	MLU ST-01 R-R IC-F
SR-16R, SR-20R, RII	12x12mm	541-01	T1-T6	MLU ST-07 R-L IC-F	MLU ST-07 R-R IC-F
SR-20J, RIII, RIV, SB-16	12x12mm	0E0-62, 680-62, 0W0-62, 481-02	T2-T6	MLU ST-07 R-L IC-F	MLU ST-07 R-R IC-F
SR-20J, RIII, SB-16	12x12mm	0E0-62, 680-62, 481-02	T1 (Cut Off)	MLU ST-08 R-L IC-F	MLU ST-08 R-R IC-F
SR-20RIV	12x12mm	0W0-62	T1 (Cut Off)	MLU ST-09 R-L IC-F	MLU ST-09 R-R IC-F
SV-12, 20	12x12mm	421-01	T3-T5	MLU ST-10 R-L IC-F	MLU ST-10 R-R IC-F
SV-12, 20	12x12mm	421-01	T1 (Cut Off), T2	MLU ST-11 R-L IC-F	MLU ST-11 R-R IC-F
SV-12, 20	1/2in (12.7mm)	421-91	T3-T5	MLU ST-05 R-L IC-F	MLU ST-05 R-R IC-F
SV-12, 20	1/2in (12.7mm)	421-91	T1 (Cut Off), T2	MLU ST-04 R-L IC-F	MLU ST-04 R-R IC-F
SR-32J	16x16mm, 5/8in	670-62	T2-T6	MLU ST-03 R-L IC-F	MLU ST-03 R-R IC-F
SR-32J	16x16mm, 5/8in	670-62	T1 (Cut Off)	MLU ST-02 R-L IC-F	MLU ST-02 R-R IC-F
SV-32	16x16mm	421-04	T2-T4	MLU ST-13 R-L IC-F	MLU ST-13 R-R IC-F
SV-32	16x16mm	421-04	T1 (Cut Off)	MLU ST-12 R-L IC-F	MLU ST-12 R-R IC-F

Don't See Your Machine Model?

Contact GenSwiss

We Will 3d Print Clamps Customized To Your Machine!

multidec®- Lube Coolant-Thru Clamping Wedges

Tsugami - Coolant Thru Clamps

Machine Model	Holder	Tool Plate	Pos.	Left Hand	Right Hand
BH, BO, BS, S	12x12mm		T1-T8, T18-T24	MLU TS-02 R-L IC-F	MLU TS-02 R-R IC-F
H207, SS207, SS207-5AX	12x12mm		T1-T8, T18-T21	MLU TS-01 R-L IC-F	MLU TS-01 R-R IC-F
BH20	12x12mm		T1 (Cut Off)	MLU TS-04 R-L IC-F	MLU TS-04 R-R IC-F
HS237	16x16mm		T1-T5	MLU TS-06 R-L IC-F	MLU TS-06 R-R IC-F

Tornos - Coolant Thru Clamps

Machine Model	Holder	Tool Plate	Pos.	Left Hand	Right Hand
GT13, DT13	12x12mm	390224, 390223	T1-T5	MLU TO-06 R-L IC-F	MLU TO-06 R-R IC-F
GT13, DT13	12x12mm	390224	T1 (Cut Off)	MLU TO-07 R-L IC-F	MLU TO-07 R-R IC-F
CT20/5	12x12mm	2000118	T1-T6	MLU TO-05 R-L IC-F	MLU TO-05 R-R IC-F
SWISS GT26	16x16mm	386209	T1-T5		MLU TO-04 R-R IC-F
SWISS GT26	16x16mm	386210	T2-T4		MLU TO-03 R-R IC-F
SWISS GT26	16x16mm	386210	T1, T2 (Cut Off)		MLU TO-02 R-R IC-F

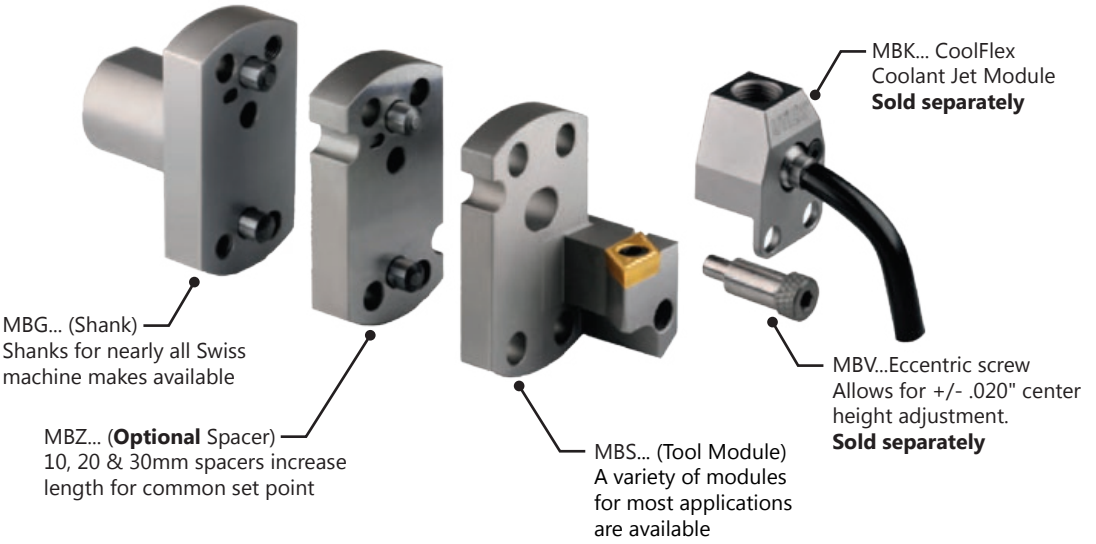
Hanwha - Coolant Thru Clamps

Machine Model	Holder	Tool Plate	Pos.	Left Hand	Right Hand
XD12 J, SL16 S	12x12mm		T1-T6	MLU HA-01 R-L IC-F	MLU HA-01 R-R IC-F
XD20 H, XD20 J, SL200	12x12mm		T1-T6		MLU HA-02 R-R IC-F

BACKTOOLS UTILIS®

multidec®-BACKTOOL holders enable turning operations to be performed from an ID tool position and are ideal for performing turning operations on the sub-spindle of your machine. Each holder is center height adjustable and is modular to allow usage of a variety of 35, 55 & 80 degree ISO turning inserts; as well as Multidec®-TOP inserts & ALL multidec®-CUT inserts.

- Center Height Adjustable to Ensure Precision Setup
- Modular system uses multidec® ISO, TOP & CUT Series Inserts
- Perform turning operations on the subspindle
- Rigid design ensures good finish results as well as extended tool life



AVAILABLE MODULE TYPES

Available Backtooling for Turn-Mill Machines & Machine-Based Tool Systems...

- Interchangable Inserts
- Equipped With Internal Cooling

Tool System For Turn-Mill Machines

multidec Multitask

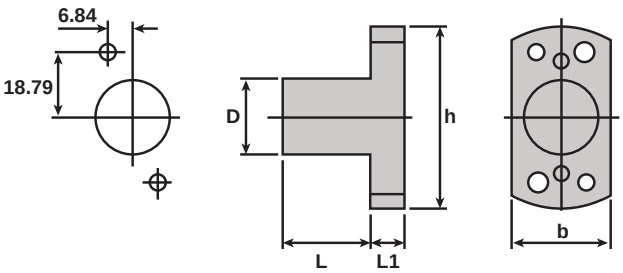
Machine-Based Tool Systems

multidec Escomatic
For ESCOMATIC machines

multidec Tornos Deco
For Tornos Deco Machines

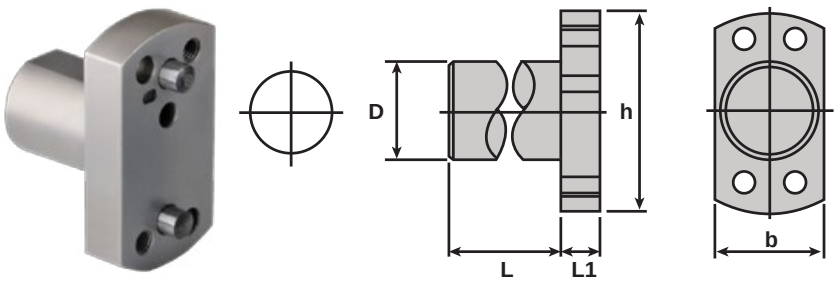
MBG 01...B02 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 01 2200 025 B02	22	25	28	52	10	Star SR10/SR20R ECAS 12/20, SR32J	MBZ ST 02...	MBS...02
MBG 01 2200 025 B02	23	19	28	49	16	Hanwha XD 12H	MBZ ST 02...	MBS...02



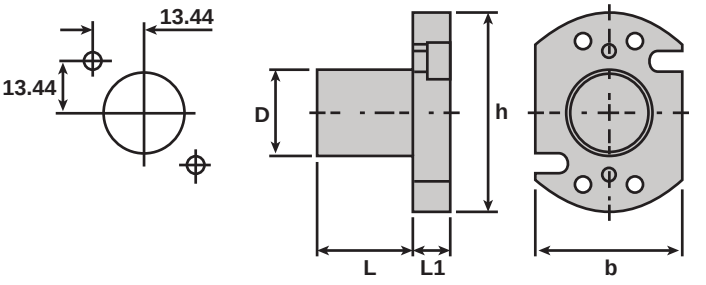
MBG 02...B02 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 02 1587 040 B02	5/8" (15.875)	40	28	52	10	Citizen R07, Tsugami BS20B	MBZ ST 02...	MBS...02
MBG 02 1600 019 B02	16	19	28	52	10	Manurhim KMX 4/13	MBZ ST 02...	MBS...02
MBG 02 1600 020 B02	16	20	28	52	10	STAR RNC 16B	MBZ ST 02...	MBS...02
MBG 02 1905 060 B02	3/4" (19.05)	60	28	52	10	CITIZEN C16, L20, M16	MBZ ST 02...	MBS...02
MBG 02 2000 030 B02	20	30	28	52	10	Tsugami S205	MBZ ST 02...	MBS...02
MBG 02 2000 040 B02	20	40	28	52	10	Gildemeister Sprint20, Hanwha SL 12H, Tsugami B012, B020, S205	MBZ ST 02...	MBS...02
MBG 02 2000 060 B02	20	60	28	52	10	Tsugami BS12, BS20	MBZ ST 02...	MBS...02
MBG 02 2000 070 B02	20	70	28	52	10	Tornos Gamma 20	MBZ ST 02...	MBS...02
MBG 02 2000 100 B02	20	100	28	52	10	Manhurin Swing 7-13, Tornos Deco (7/10, 13, 20), Citizen K16	MBZ ST 02...	MBS...02
MBG 02 2200 015 B02	22	15	28	52	10	Star SR10J	MBZ ST 02...	MBS...02
MBG 02 2200 070 B02	22	70	28	52	10	Star SA16, SB16, Tornos Delta 20, Gamma 20	MBZ ST 02...	MBS...02
MBG 02 2500 035 B02	25	35	28	52	10	Tsugami Piastra	MBZ ST 02...	MBS...02
MBG 02 2500 050 B02	25	50	28	52	10	Manhurin Swing 10-20, 10-16, 10-32	MBZ ST 02...	MBS...02
MBG 02 2500 060 B02	25	60	28	52	10	Citizen L20, Hanwha STL32/35H, STL33/35J	MBZ ST 02...	MBS...02
MBG 02 2500 100 B02	25	100	28	52	10	Manhurin KMX5/20, 5/26, 5/32, Swing 7-20, 7-26, Tornos Deco (7/10, 13, 20)	MBZ ST 02...	MBS...02
MBG 02 2540 070 B02	1" (25.4)	70	28	52	10	Citizen C32, L32, M32	MBZ ST 02...	MBS...02
MBG 02 2800 006 B02	28	6	28	52	10	Hanwha SL26/35HPD	MBZ ST 02...	MBS...02
MBG 02 2800 040 B02	28	40	28	52	10	Traub TNL12	MBZ ST 02...	MBS...02
MBG 02 2800 078 B02	28	78	28	52	10	Traub TNL/C 12, TNL/C 12K	MBZ ST 02...	MBS...02
MBG 02 3200 070 B02	32	70	32	52	10	Tornos Delta 38-5a	MBZ ST 02...	MBS...02
MBG 02 3300 040 B02	33	40	33	52	10	Hanwha XD20/32 H, -J	MBZ ST 02...	MBS...02
MBG 02 3400 044 B02	34	44	34	52	10	Hanwha SL20/26/35HPII	MBZ ST 02...	MBS...02



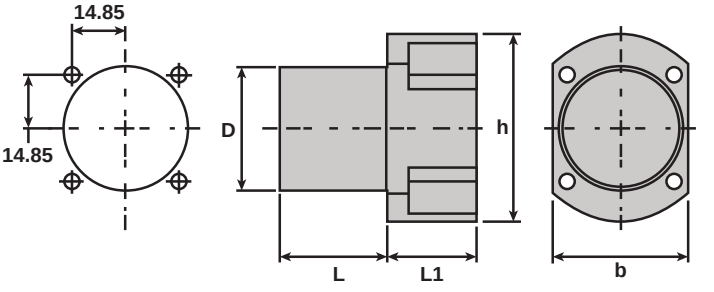
MBG 03...B02 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 03 2200 025 B02	22	25	38	52	10	Star SR32, SR32J	MBZ ST 02...	MBS...02
MBG 03 3100 015 B02	31	15	38	52	10	Citizen A32-VII	MBZ ST 02...	MBS...02



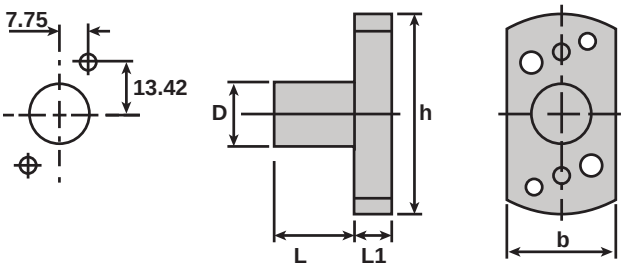
MBG 04...B02 Coolant Thru Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 04 3400 018 B02 IC	34	18	38	52	25	Maier MLK DY36	MBZ ST 02...IC	MBS...02
MBG 04 3400 030 B02 IC	34	30	38	52	25	Maier ML12C, ML16C, ML16D, ML20/26/32	MBZ ST 02...IC	MBS...02



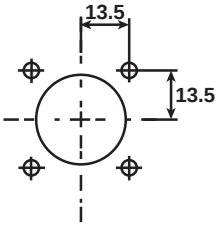
MBG 07...B02 Basic Tool Holder

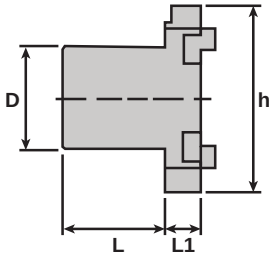
Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 07 1600 021 B02	16	21	28	25	10	Star SR16, SR20	MBZ ST 02...	MBS...02

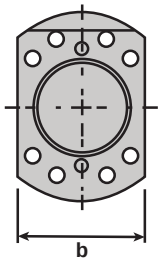


MBG 08...B02 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 08 2800 028 B02	28	28	35	25	10	Tornos CT20	MBZ ST 02...	MBS...02

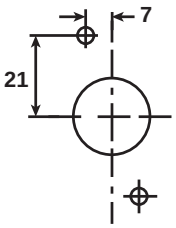


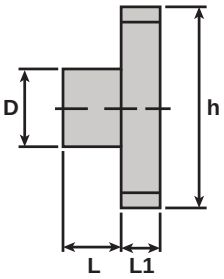


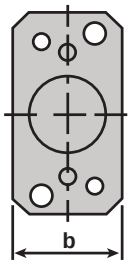


MBG 10...B02 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 10 2000 015 B02	20	15	28	25	10	Various	MBZ ST 02...	MBS...02

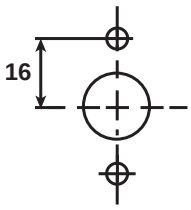


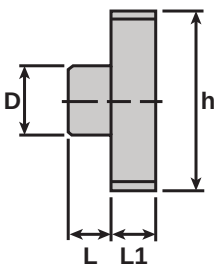


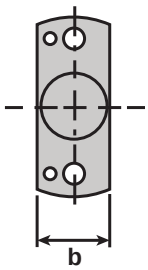


MBG 05...B05 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 05 1500 010 B05	15	10	17	51	10	Hanwha XD12H	MBZ ST 05...	MBS...05
MBG 05 1600 010 B05	16	10	17	51	10	Star SR10J	MBZ ST 05...	MBS...05

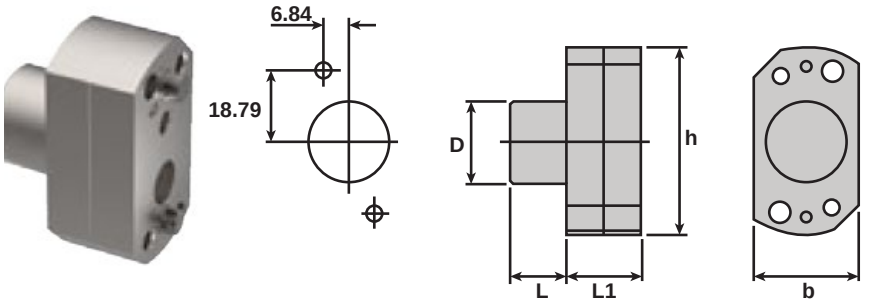






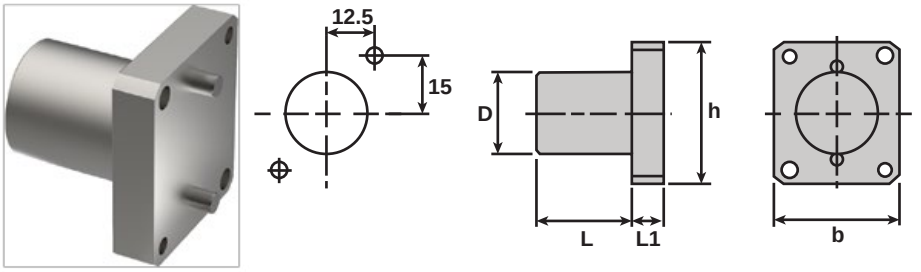
MBG 06...B06 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 06 2200 015 B06	22	15	28	50	00	Star SR10J	MBZ ST 02...	MBS...02



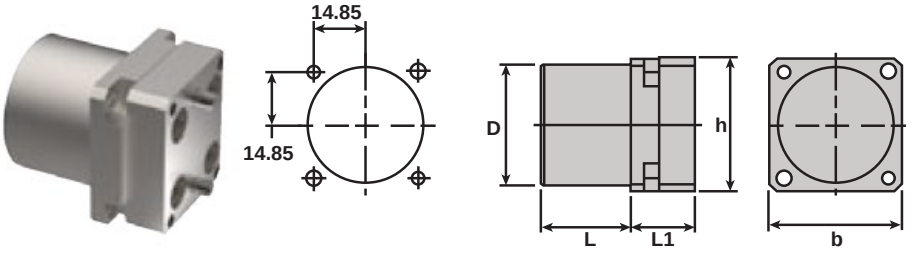
MBG 90...B90 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 90 2200 015 B90	22	15	32.5	37	8	Various	MBZ ST 90	MBS...90
MBG 90 2200 025 B90	22	25	32.5	37	8	Star SW-20, SR-20W	MBZ ST 90	MBS...90
MBG 90 2500 015 B90	25	15	32.5	37	8	Tsugami BO 326 E11	MBZ ST 90	MBS...90
MBG 90 2500 050 B90	25	50	32.5	37	8	Hanwha XDI 20	MBZ ST 90	MBS...90



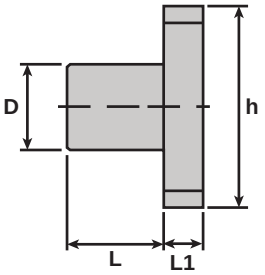
MBG 91...B90 Basic Tool Holder

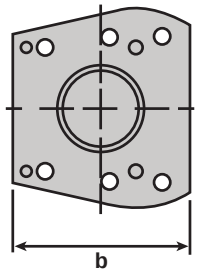
Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 91 3400 025 B90	34	25	37.5	37.5	18	Star SV-38R	MBZ ST 90...	MBS...90

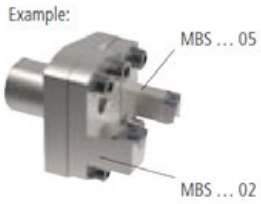


MBG 02...B02 05 Basic Tool Holder

Part No.	D	L	b	h	L_1	Machine Type	Spacer	Insert Holder
MBG 02 1905 040 B02 05	3/4" (19.05)	40	46	52	10	Various	MBZ ST 02/05...	MBS...02/05
MBG 02 2200 025 B02 05	22	25	46	52	10	Star SR20R SR32J	MBZ ST 02/05...	MBS...02/05

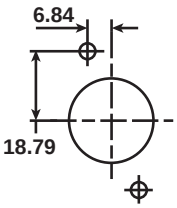


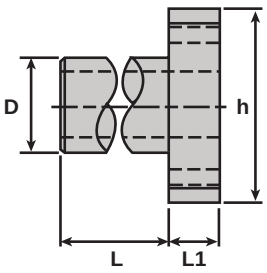


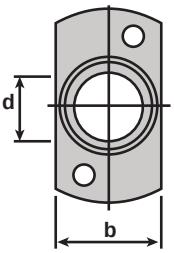


MBG T... Basic Tool Holder

Part No.	D	L	d	b	h	L_1	Machine Type
MBG-T 02 16 2200 025	22	25	16	28	52	15	Star SA 16, SB 16, SR10J

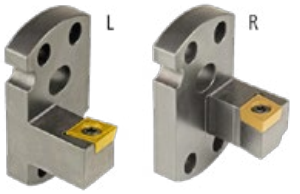


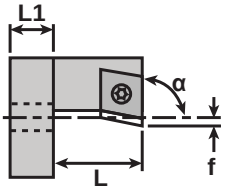


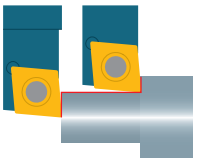


MBS...CC 80° ISO-Insert Modules

Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 090-CC L 06 I02	MBS 090-CC R 06 I02	90°		20	8	MBG...B02	MBZ ST 02...	CC.. 0602...
MBS 093-CC L 06 I02	MBS 093-CC R 06 I02	93°		20	8	MBG...B02	MBZ ST 02...	CC.. 0602...
MBS 090-CC L 09 I02	MBS 090-CC R 09 I02	90°		20	8	MBG...B02	MBZ ST 02...	CC.. 09T3...
	MBS 090-CC R 09 I02 IC	90°		20	8	MBG...B02 IC	MBZ ST 02...IC	CC.. 09T3...
MBS 093-CC L 09 I02	MBS 093-CC R 09 I02	93°		20	8	MBG...B02	MBZ ST 02...	CC.. 09T3...
MBS 093-CC L 09 I02-30	MBS 093-CC R 09 I02-30	93°		30	8	MBG...B02	MBZ ST 02...	CC.. 09T3...
MBS 093-CC L 06 I05	MBS 093-CC R 06 I05	93°		20	8	MBG...B02	MBZ ST 02...	CC.. 0602...
	MBS 090-CC R 06 I90	90°	-5	20	7	MBG...B02	MBZ ST 02...	CC.. 0602...
	MBS 090-CC R 09 I90	90°		20	7	MBG...B02	MBZ ST 02...	CC.. 09T3...

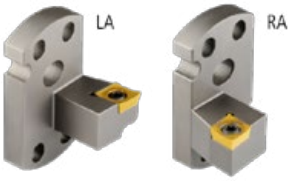


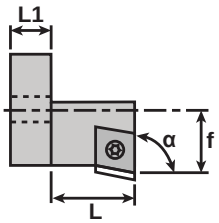


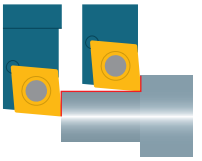


MBS...CC A 80° ISO-Insert Modules

Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 090-CC LA 06 I02	MBS 090-CC RA 06 I02	90°	18	20	8	MBG...B02	MBZ ST 02...	CC.. 0602...
MBS 095-CC LA 09 I02	MBS 095-CC RA 09 I02	95°	18	20	8	MBG...B02	MBZ ST 02...	CC.. 09T3...
MBS 095-CC LA 09 I05	MBS 095-CC RA 09 I05	95°	12.5	20	8	MBG...B05	MBZ ST 05...	CC.. 09T3...

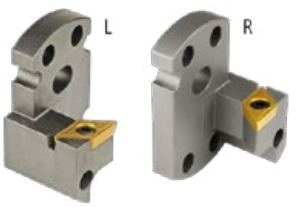


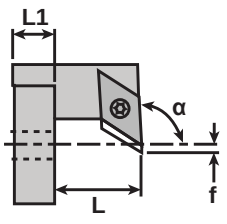


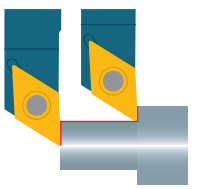


MBS...DC 55° ISO-Insert Modules

Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 093-DC L 07 I02	MBS 093-DC R 07 I02	93°		20	8	MBG...B02	MBZ ST 02...	DC.. 0702...
MBS 093-DC L 11 I02	MBS 093-DC R 11 I02	93°		20	8	MBG...B02	MBZ ST 02...	DC.. 11T3...
	MBS 093-DC R 11 I02 IC	93°		20	8	MBG...B02 IC	MBZ ST 02...IC	DC.. 11T3...
MBS 093-DC L 11 I02 30	MBS 093-DC R 11 I02 30	93°		30	8	MBG...B02	MBZ ST 02...	DC.. 11T3...
MBS 093-DC L 11 I02 40	MBS 093-DC R 11 I02 40	93°		40	8	MBG...B02	MBZ ST 02...	DC.. 11T3...
MBS 093-DC L 07 I05	MBS 093-DC R 07 I05	93°		20	8	MBG...B05	MBZ ST 05...	DC.. 0702...
MBS 093-DC L 07 I90	MBS 093-DC R 07 I90	93°	-2.25	20	7	MBG...B90	MBZ ST 90...	DC.. 0702...
MBS 093-DC L 11 I90	MBS 093-DC R 11 I90	93°		20	7	MBG...B90	MBZ ST 90...	DC.. 11T3...
MBS 093-DC L 11 I90 30	MBS 093-DC R 11 I90 30	93°		20	7	MBG...B90	MBZ ST 90...	DC.. 0702...

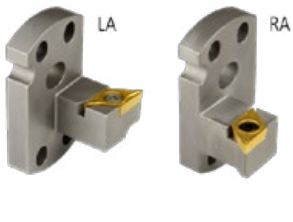


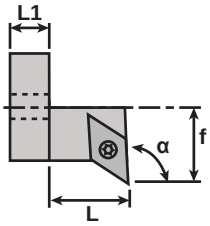


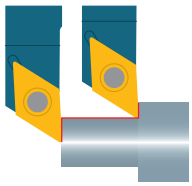


MBS...DC A 55° ISO-Insert Modules

Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 093-DC LA 11 I02	MBS 093-DC RA 11 I02	93°	18	20	8	MBG...B02	MBZ ST 02...	DC.. 11T3...
MBS 093-DC LA 07 I05	MBS 093-DC RA 07 I05	93°	8.5	20	8	MBG...B05	MBZ ST 05...	DC.. 0702...
MBS 093-DC LA 07 I90	MBS 093-DC RA 07 I90	93°	17	20	7	MBG...B90	MBZ ST 90...	DC.. 0702...

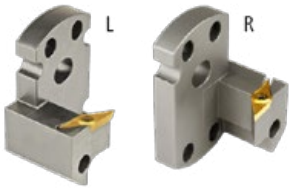


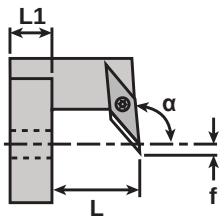


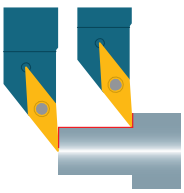


MBS...VC 35° ISO-Insert Modules

Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 0725-VC L 11 I02	MBS 0725-VC R 11 I02	72.5°		20	8	MBG...B02	MBZ ST 02...	VC.. 1103...
MBS 095-VC L 11 I02	MBS 095-VC R 11 I02	95°		20	8	MBG...B02	MBZ ST 02...	VC.. 1103...
MBS 110-VC L 11 I02	MBS 110-VC R 11 I02	110°		20	8	MBG...B02	MBZ ST 02...	VC.. 1103...
MBS 140-VC L 11 I02	MBS 140-VC R 11 I02	140°		23	8	MBG...B02	MBZ ST 02...IC	VC.. 1103...
	MBS 1625-VC N 11 I02	162.5°		25	8	MBG...B02	MBZ ST 02...	VC.. 1103...
MBS 093-VC L 11 I90	MBS 093-VC R 11 I90	93°	2.25	20	8	MBG...B90	MBZ ST 90...	VC.. 1103...
MBS 095-VC L 11 I90	MBS 095-VC R 11 I90	95°	2.25	20	7	MBG...B90	MBZ ST 90...	VC.. 1103...
MBS 095-VC L 11 I90 IC	MBS 095-VC R 11 I90 IC	95°	2.25	20	7	MBG...B90 IC	MBZ ST 90...IC	VC.. 1103...
	MBS 1625-VC N 11 I90	162.5°		25	7	MBG...B90	MBZ ST 90...	VC.. 1103...

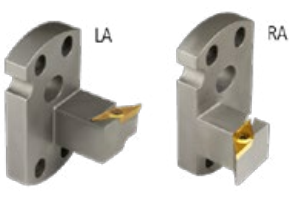


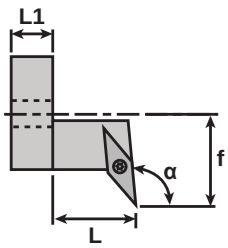


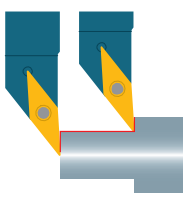


MBS...VC A 35° ISO-Insert Modules

Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 093-VC LA 11 I02	MBS 093-VC RA 11 I02	93°	18	20	8	MBG...B02	MBZ ST 02...	VC.. 1103...
MBS 1175-VC LA 11 I02	MBS 1175-VC RA 11 I02	117.5°	18	20	8	MBG...B02	MBZ ST 02...	VC.. 1103...







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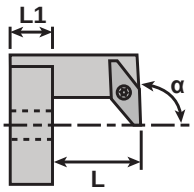
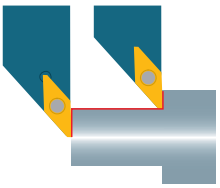
MBS...VP 35° TOP-Insert Modules

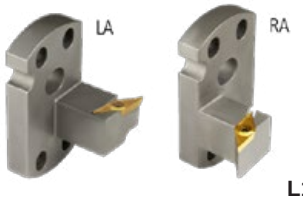
Left Hand	Right Hand	α	L	L_1	Tool Holder	Spacer	Insert
MBS 093-VP L 10 I02	MBS 093-VP R 10 I02	93°	20	8	MBG...B02	MBZ ST 02...	VP.. 1003...
MBS 093-VP L 10 I90	MBS 093-VP R 10 I90	93°	20	7	MBG...B90	MBZ ST 90...	VP.. 1003...

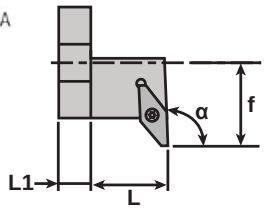


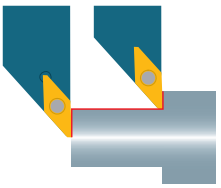


MBS...VP A 35° TOP-Insert Modules

Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 093-VP LA 10 I02	MBS 093-VP RA 10 I02	93°	28	20	8	MBG...B02	MBZ ST 02...	VP.. 1003...

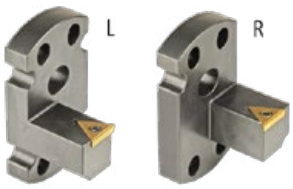


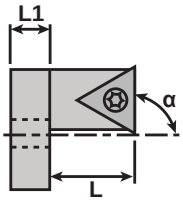


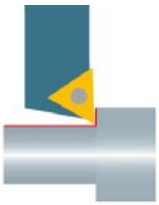


MBS...TC -Insert Modules

Left Hand	Right Hand	α	L	L_1	Tool Holder	Spacer	Insert
MBS 090-TC L 11 I02	MBS 090-TC R 11 I02	90°	20	8	MBG...B02	MBZ ST 02...	TC.. 1102...

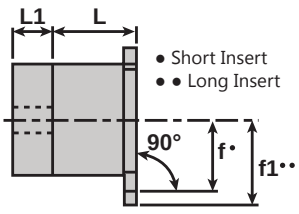






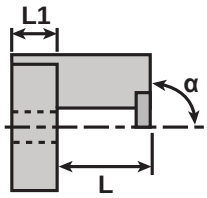
MBS...CUT N - 3000 Series Insert Modules

Left Hand	Right Hand	f	f_1	L	L_1	Tool Holder	Spacer	Insert
MBS 090-CUT N 30 I02	MBS 090-CUT R 16 I02	27	33	20	8	MBG...B02	MBZ ST 02...	30
MBS 090-CUT N 30 I90	MBS 090-CUT R 16 I90	29	35	20	7	MBG...B90	MBZ ST 90...	30



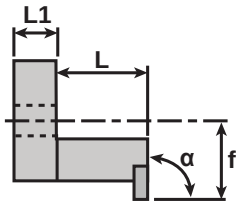
MBS...CUT 90 - 1600 Series Insert Modules

Left Hand	Right Hand	α	L	L_1	Tool Holder	Spacer	Insert
MBS 090-CUT L 16 I02	MBS 090-CUT R 16 I02	90°	23	8	MBG...B02	MBZ ST 02...	16
MBS 090-CUT L 16 I05	MBS 090-CUT R 16 I05	90°	23	8	MBG...B05	MBZ ST 05...	16
MBS 090-CUT L 16 I90	MBS 090-CUT R 16 I90	90°	23	7	MBG...B90	MBZ ST 90...	16



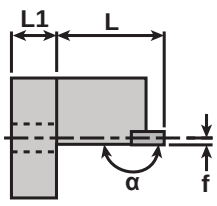
MBS...CUT A - 1600 Series Insert Modules

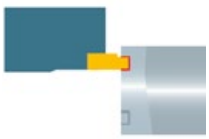
Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 090-CUT LA 16 I02	MBS 090-CUT RA 16 I02	90°	18.6	23	8	MBG...B02	MBZ ST 02...	16
MBS 090-CUT LA 16 I05	MBS 090-CUT RA 16 I05	90°	13	23	8	MBG...B05	MBZ ST 05...	16
MBS 090-CUT LA 16 I90	MBS 090-CUT RA 16 I90	90°	20.75	23	7	MBG...B90	MBZ ST 90...	16



MBS...CUT 180 - 1600 Insert Modules

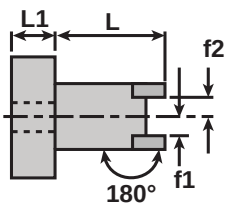
Left Hand	Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
	MBS 180-CUT 16 I02	180°		20	8	MBG...B02	MBZ ST 02...	16
	MBS 180-CUT 16 I05	180°		20	8	MBG...B05	MBZ ST 05...	16
	MBS 180-CUT 16 I90	180°	-6.25	20	7	MBG...B90	MBZ ST 90...	16





MBS...TWIN CUT 180 - 1600 Insert Modules

Neutral	f_1	f_2	L	L_1	Tool Holder	Spacer	Insert
MBS 180-CUT 16 I02 twin N	-4.5	4.5	20	8	MBG...B02	MBZ ST 02...	16
MBS 180-CUT 16 I02 twin R	3	11	20	8	MBG...B02	MBZ ST 02...	16



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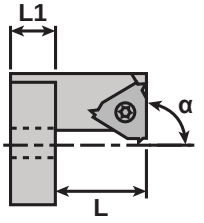
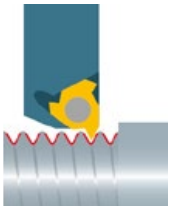
MBS...16 ER -Thread Insert Modules

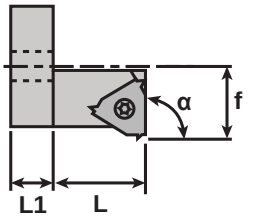
Right Hand	α	L	L_1	Tool Holder	Spacer	Insert
MBS 090-16 ER R I02	90°	20	8	MBG...B02	MBZ ST 02...	16ER
MBS 090-16 ER R I02-30	90°	30	8	MBG...B02	MBZ ST 02...	16ER

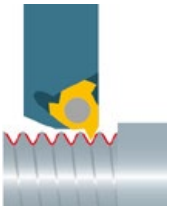




MBS...16 ER A -Thread Insert Modules

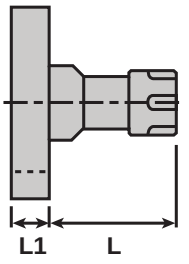
Right Hand	α	f	L	L_1	Tool Holder	Spacer	Insert
MBS 090-16 ER RA I02	90°	17.66	20	8	MBG...B02	MBZ ST 02...	16ER
MBS 090-16 ER RA I02-40	90°	17.66	40	8	MBG...B02	MBZ ST 02...	16ER





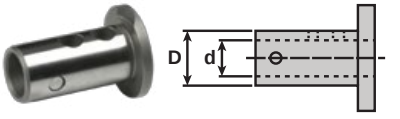
MBS...E - Collet Holders

Part No.	L	L_1	Shank	Spacer	ER Collet
MBS E20 35 C02	35	8	MBG...B02	MBZ ST 02...	ER20
MBS E16 35 C02	35	8	MBG...B02	MBZ ST 02...	ER16
MBS E11 25 C02	25	8	MBG...B02	MBZ ST 02...	ER11
MBS E08 25 C02	25	8	MBG...B02	MBZ ST 02...	ER08
MBS E11 25 C05	25	8	MBG...B05	MBZ ST 05...	ER11
MBS E08 25 C05	25	8	MBG...B05	MBZ ST 05...	ER08



MBR...Reduction Sleeve

Part No.	D	d
MBR D10-02	10	2
MBR D10-03	10	3
MBR D10-04	10	4
MBR D10-05	10	5
MBR D10-06	10	6
MBR D10-07	10	7
MBR D10-07	10	8

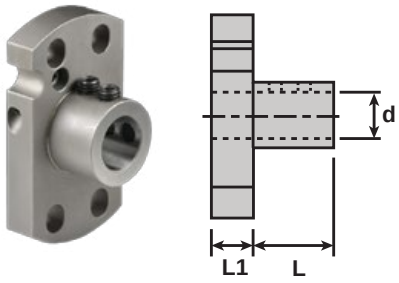


MBS... - OD Turning Tool Holders

Part No.	L	Tool Holder	Spacer	Type
MBS 090 1212 T02	35	MBG...B02	MBZ ST 02...	12x12
MBS 090 1212 T90	35	MBG...B90	MBZ ST 90...	12x12

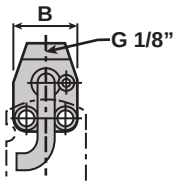
MBS...IT - ID Turning Tool Holders

Part No.	d	L	L_1	Tool Holder	Spacer
MBS 10 IT02	10	13	8	MBG...B02	MBZ ST 02...
MBS 10 IT05	10	13	8	MBG...B05	MBZ ST 05...
MBS 10 IT90	10	14	7	MBG...B90	MBZ ST 90...



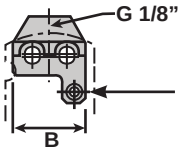
MBK... - CoolFlex Coolant Jet

Part No.	B	Tool Holder	Spacer	Insert Module	Coolant Fittings
MBK Cool Flex	22.3	MBG...B02	MBZ ST 02...	MBS...02	0°: P/N 4005-000104 45°: P/N 4005-000105 90°: P/N 4005-000106



MBK... - CoolFix

Left Hand	Right Hand	B	Tool Holder	Spacer	Insert Module	Coolant Fittings
MBK Cool Fix L	MBK Cool Fix R	28	MBG...B02	MBZ ST 02...	MBS...02	0°: P/N 4005-000104 45°: P/N 4005-000105 90°: P/N 4005-000106



Fixed Coolant Jet
Pair with appropriate L or R tool holder

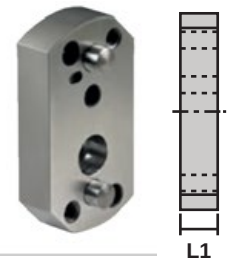
MBZ... - Spacer Module

Part No.	L_1	Tool Holder	Insert Module
MBZ ST 02-10	10	MBG...B02	MBS...02
MBZ ST 02-20	20	MBG...B02	MBS...02
MBZ ST 02-20 IC	20	MBG...B02	MBS...02 IC
MBZ ST 02-25	25	MBG...B02	MBS...02
MBZ ST 02-30	30	MBG...B02	MBS...02
MBZ ST 02-30 IC	30	MBG...B02	MBS...02 IC
MBZ ST 05-10	10	MBG...B05	MBS...05
MBZ ST 05-20	20	MBG...B05	MBS...05
MBZ ST 90-10	10	MBG...B90	MBS...90
MBZ ST 90-20	20	MBG...B90	MBS...90
MBZ ST 90-20 IC	20	MBG...B90	MBS...90 IC
MBZ ST 90-30	30	MBG...B90	MBS...90

MBA... - Adjuster Sheet

Part No.	L_1	Tool Holder	Insert Module
MBA 02-05	10	MBG...B02	MBS...05
MBA 06-02 *	20	MBG...B06	MBS...02
MBA 91-90 **	20	MBG...B91	MBS...90

* Included with basic holders MBG...B06
** Included with basic holders MBG...B91



multidec® - Backtools - Replacement & Spare Parts

Torx Screws

Part No.	Fits Holders...	Description	Dimension
MSP 25060 T08	CC06, DC07, TC11, VC11, VP10, 1600	Torx T8 Screw	M2x6 T08
MSP 25070 T08	1600...4	Torx T8 Screw	M2.5x7 T08
MSP 25090 T08	1600...6, 1600...8	Torx T8 Screw	M2.5x9 T08
MSP 30073 T08	3000-08..., 3000...A	Torx T8 Screw	M3x7.3 T08
MSP 30090 T08	3000	Torx T8 Screw	M3x9 T08
MSP 35110T15	CC09, DC11	Torx T15 Screw	M3.5x11 T15
MSP UNC 540070T10	16ER	Torx T10 Screw	M3x12 T10

L-Bracket

Part No.	Dimension	Description
MSP A0808 T02	8x8	L-Piece for MBS 090 1212 T02
MSP A1010 T02	10x10	L-Piece for MBS 090 1212 T02

Clamping Screw

Part No.	Dimension	Description
MSP 60100 IB3	M6x10 DIN913	Clamping Screw For MBS 090 1212 T02

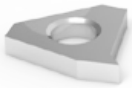
Shim Screw

Part No.	Inserts
MSP UNC 540070T10	16ER

Eccentric Height Adjustment Bolt

Part No.	Description
MBV E04	Eccentric Adjustment Bolt

Anvil



Part No.	Inserts
YE3	16ER

Mini Height Adjustment Bolt

Part No.	Description
MBV E05	Mini Adjustment Bolt

Flat-Head Socket Cap Screw

Part No.	Dimension
MSP M306	M3x6 DIN7991
MSP M308	M3x8 DIN7991

Socket Head Screw

Part No.	Dimension
MSP M412	M4x12 DIN912
MSP M420	M4x20 DIN912
MSP M435	M4x35 DIN912
MSP M440	M4x40 DIN912
MSP M445	M4x45 DIN912
MSP M450	M4x50 DIN912
MSP M516	M5x16 DIN912
MSP M525	M5x25 DIN912
MSP M535	M5x35 DIN912
MSP M545	M5x45 DIN912

Elastic Washer

Part No.	Dimension
MSP US-4	M4/4.3/10/0.6
MSP US-5	M5/5.3/9.2/0.45

Cylindrical Pin

Part No.	Dimension	Description
MSP ZS612	$Ø6_{h6}$x12 DIN6325	
MSP ZS625	$Ø6_{h6}$x25 DIN6325	For Spacer MBZ ST 02-10
MSP ZS635	$Ø6_{h6}$x35 DIN6325	For Spacer MBZ ST 02-20
MSP ZS645	$Ø6_{h6}$x45 DIN6325	For Spacer MBZ ST 02-30

Coolant Fittings - MBK Coolflex Adaptor

Part No.	Description
4005-000104	Staight 0° 1/4" JIC to 1/8 BSPT
4005-000105	Staight 45° 1/4" JIC to 1/8 BSPT
4005-000106	Staight 90° 1/4" JIC to 1/8 BSPT

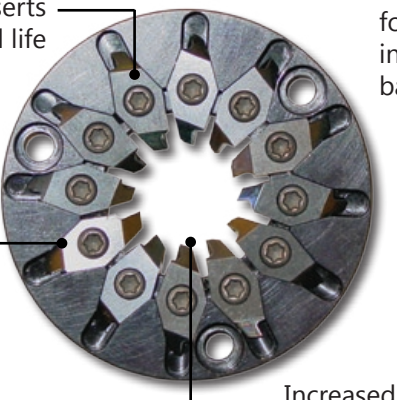
High Performance Thread Whirling

UTILIS®
Tooling for High Technology

Thread Whirling is a fast & accurate method of producing long threaded parts on a Swiss-Type Machine. By employing more cutting teeth, the GenSwiss/UTILIS Whirling system greatly enhances productivity by allowing increased speeds and feeds while maintaining rigid finish qualities required by the medical implant industry.

Double edge indexable inserts provide excellent tool life

Inserts repeat within .0004"



Custom precision thread forms can be generated in a single pass from barstock diameter.

Available in several pocket configurations up to 12 inserts

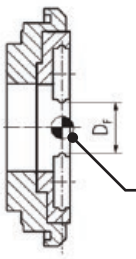
Increased surface finish and improved thread quality can be achieved by minimizing cut interruption and vibration

TYPE A
xModular-System
- Whirling Ring Reduces Setup Time
- ±0.005mm Guaranteed Concentricity
- Interchangable 2-Part System

TYPE B
Mono-System
- Compact Single Component Sytem
- ±0.005mm Guaranteed Concentricity

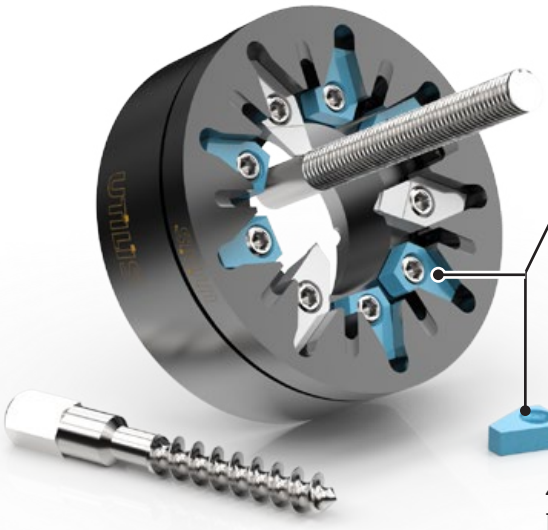
TYPE C
QuickChange-System
- Similar To Type-A But Ring Is Rotated To Insert or Remove
- ±0.005mm Guaranteed Concentricity

High Pressure Coolant required for adequate chip evacuation in 12 insert configuration



Optional Whirling Rings with advanced or recessed center position are available.
Visit genswiss.com or call us for details

High Performance Thread Whirling System



Dummy inserts protect the unused insert slots, keeping them particle free and maintaining accuracy when occupied by a threading insert.

Whirling Inserts
Pg. 159 - 160

4,6, and 8mm
Insert Widths

Single-piece or modular
cutter bodies/rings available

Application Examples

Additional Thread Whirling Rings Available. Visit www.genswiss.com for more information

LOUIS BELET
Swiss Cutting tools

See Pg. 41

Micro End Mills Key Cutters
Micro Drills Gear Hobs
Saw Blades Custom Tool Engineering

Type-A Thread Whirling Rings

Cutter Rings for PCM Thread Whirling Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
PCM All PCM Live Tools Are Available From GenSwiss	TOR-DE10-W15	TORNOS	MWT06 164 4242 115 07	6	7
			MWT06 164 4242 115 09	6	9
	TOR-DE20-W15-II	TORNOS	MWT06 164 4057 105 09	6	9
			MWT12 164 4057 105 09	12	9
			MWT12 164 4057 105 12	12	12
			MWT15 164 4057 105 09	15	9
			MWT15 164 4057 105 12	15	12
	TOR-DE13-W15 TOR-DE20-W15 TOR-GW-TDM-D13 CIT-LSW-101	TORNOS TORNOS TORNOS CITIZEN	MWT06 164 4055 103 09	6	9
			MWT12 164 4055 103 09	12	9
			MWT12 164 4055 103 12	12	12
			MWT15 164 4055 103 09	15	9
			MWT15 164 4055 103 12	15	12
	CIT-KSW-01-000 CIT-LSW-101-L20-000 CIT-LSW-215-000 CIT-MSW-101-000 CIT-SPW-1220	CITIZEN	MWT12 164 4046 130 03	12	3
			MWT12 164 4046 130 09	12	9
			MWT12 164 4046 130 12	12	12
			MWT15 164 4046 130 09	15	9
	CIT-GSW-251-PR- 1-A	CITIZEN	MWT06 164 4040 111 09	6	9
	CIT-LSW-424-000	CITIZEN	MWT12 164 3546 169 03	12	3
			MWT12 164 3546 219 03	12	3
			MWT12 164 3546 169 09	12	9
			MWT12 164 3546 219 09	12	9
			MWT12 164 3546 169 12	12	12
			MWT12 164 3546 219 12	12	12
			MWT15 164 3546 169 09	15	9
			MWT15 164 3546 219 09	15	9
	CIT-BSW-215 NEX-NESA-32-000	CITIZEN NEXT TURN	MWT06 164 4046 172 09	6	9
			MWT12 164 4046 172 09	12	9
			MWT12 164 4046 172 12	12	12
			MWT15 164 4046 172 09	15	9
			MWT15 164 4046 172 12	15	12

Type-A Thread Whirling Rings

Cutter Rings for OEM Machine Tool Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
STAR	10159-00	STAR	MWT06 164 3346 165 09	6	9
			MWT12 164 3346 165 09	12	9
			MWT12 164 3346 165 12	12	12
			MWT15 164 3346 165 09	15	09
			MWT15 164 3346 165 12	15	12
	421-73 431-72 541-78 581-71 591-72-00 661-72-00 7.074.191 7.074.260	STAR	MWT06 164 4040 111 09	6	9
	7.073.586 7.073.590 7.073.671 7.073.765	STAR	MWT12 164 4044 135 09	12	9
			MWT12 164 4044 135 12	12	12
			MWT15 164 4044 135 12	15	12
TSUGAMI	3268-Y271 3263-Y480 3234-Y342 UZ 3234-Y342 GUZ	TSUGAMI	MWT06 164 5265 166 09	6	9
			MWT12 164 5265 166 09	12	9
			MWT12 164 5265 166 12	12	12
			MWT15 164 5265 166 09	15	9
			MWT15 164 5265 166 12	15	12
	3281-Y451 3268-Y452 3268-Y453 3268-Y454 3268-Y455	TSUGAMI	MWT06 164 5252 160 09	6	9
			MWT12 164 5252 160 09	12	9
			MWT12 164 5252 160 12	12	12
			MWT15 164 5252 160 09	15	9
			MWT15 164 5252 160 12	15	12
TORNOS	260448	TORNOS	MWT12 164 44M50 120 12	12	12
	199223 306101 306432 307087 398541 418302 472088 992381 1013013 3281-Y691 462-2365 462-2370	TORNOS	MWT06 164 4057 105 09	6	9
			MWT12 164 4057 105 09	12	9
			MWT12 164 4057 105 12	12	12
			MWT15 164 4057 105 09	15	9
			MWT15 164 4057 105 12	15	12
	306279 306281 417627	TORNOS	MWT06 164 5067 120 09	6	9
			MWT12 164 5067 120 09	12	9
			MWT12 164 5067 120 12	12	12
			MWT15 164 5067 120 09	15	9
			MWT15 164 5067 120 12	15	12
	462-2360	TORNOS	MWT06 164 5265 166 09	6	9
			MWT12 164 5265 166 09	12	9
			MWT12 164 5265 166 12	12	12
			MWT15 164 5265 166 09	15	9
			MWT15 164 5265 166 12	15	12

Additional thread whirling rings available. Visit www.genswiss.com for more information.

Type-A Thread Whirling Rings

Cutter Rings for After Market Machine Tool Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
MADAULA	CZ.035.C16	CITIZEN	MWT12 164 3546 169 03	12	3
			MWT12 164 3546 219 03	12	3
			MWT12 164 3546 169 09	12	9
			MWT12 164 3546 219 09	12	9
			MWT12 164 3546 169 12	12	12
			MWT12 164 3546 219 12	12	12
			MWT15 164 3546 169 09	15	9
			MWT15 164 3546 219 09	15	9
	ST.035.34 P.035.00049 1110.00037	STAR	MWT06 164 4040 111 09	6	9
	P.035.00064 1110.00054	STAR	MWT06 164 4050135 09	6	9
			MWT012 164 4050135 09	12	9
			MWT012 164 4050135 12	12	12
			MWT015 164 4050135 09	15	9
			MWT015 164 4050135 12	15	12
	P.035.00022	STAR	MWT06 164 5067 120 09	6	9
			MWT12 164 5067 120 09	12	9
			MWT12 164 5067 120 12	12	12
			MWT15 164 5067 120 09	15	9
			MWT15 164 5067 120 12	15	12
	999.00444 CZ.035.L16/L20 CZ.035.L25/L35 DE.035.13/15 P.035.00002 P.035.00004 P.035.00010 P.035.00014 P.035.00023 P.035.00062 P.035.00067 TS.035.S205-15	CITIZEN CITIZEN TORNOS TSUGAMI	MWT06 164 4055 103 09	6	9
			MWT12 164 4055 103 09	12	9
			MWT12 164 4055 103 12	12	12
			MWT15 164 4055 103 09	15	9
			MWT15 164 4055 103 12	15	12
	DE.035.S20 HW.035.STL HW.035.XD2 P.035.00010 P.035.00014	TORNOS HANWHA	MWT12 164 4548 145 09	12	9
			MWT12 164 4548 145 12	12	12
			MWT15 164 4548 145 09	15	9
			MWT15 164 4548 145 12	15	12
	CZ.035.M12/M16 CZ.035.M20/M32T P.035.00063 1110.00055	CITIZEN CITIZEN	MWT12 164 4046 130 03	12	3
			MWT12 164 4046 130 09	12	9
			MWT12 164 4046 130 12	12	12
			MWT15 164 4046 130 12	15	12

Additional thread whirling rings available. Visit www.genswiss.com for more information.

Type-A Thread Whirling Rings

Cutter Rings for After Market Machine Tool Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
JARVIS	LTR0128 LTR0132 LTR0139 LTR0168 LTR0183 CHS-1B6	CITIZEN CITIZEN CITIZEN CITIZEN CITIZEN	MWT06 164 4053 121 09	6	9
			MWT12 164 4053 121 09	12	9
			MWT12 164 4053 121 12	12	12
			MWT15 164 4053 121 09	15	09
			MWT15 164 4053 121 12	15	12
	LTR0131 LTR0169 LTR0170 CHS-2B6	CITIZEN CITIZEN CITIZEN	MWT06 164 3746 121 09	6	9
			MWT12 164 3746 121 09	12	9
			MWT12 164 3746 121 12	12	12
			MWT15 164 3746 121 09	15	09
			MWT15 164 3746 121 12	15	12
WTO	419900001-44 419900002-44 419900005-44_67969 TN762002		MWT12 164 4044 135 09	12	9
			MWT12 164 4044 135 12	12	12
			MWT15 164 4044 135 12	15	12
	419900001-44 TN762002		MWT06 164 4046 240 09	6	9
			MWT06 164 4046 300 09	6	9
			MWT12 164 4046 240 09	12	9
			MWT12 164 4046 300 09	12	9
			MWT12 164 4046 240 12	12	12
			MWT12 164 4046 300 12	12	12
			MWT15 164 4046 240 09	15	15
			MWT15 164 4046 300 09	15	15
			MWT15 164 4046 240 12	15	15
			MWT15 164 4046 300 12	15	15

Additional thread whirling rings available. Visit www.genswiss.com for more information.

Type-B Thread Whirling Rings

Cutter Rings for PCM Thread Whirling Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
PCM *All PCM Live Tools Are Available From GenSwiss*	STA-E20-WI-000	STAR	MWT06 164 2035 165 07	6	7
	CIT-GSW-101-000	CITIZEN	MWT06 164 2035 225 07	6	7
	CIT-LSW-515-000	CITIZEN	MWT06 164 2035 165 09	6	9
	CIT-LSW-515-PR	CITIZEN	MWT06 164 2035 225 09	6	9

Cutter Rings for OEM Machine Tool Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
Citizen	BTW-1000 BTW-2000 BTW-5000 BTW-6000	CITIZEN	MWT12 164 3347 145 09	12	9
			MWT12 168 3347 145 09	12	9
			MWT12 164 3347 145 12	12	12
	BTW-3000 BTW-3100 BTW-4000	CITIZEN	MWT12 164 2546 070 09	12	9
			MWT12 164 2546 070 12	12	12
STAR	7.073.590	STAR	MWT12 164 4044 100 09	12	9
			MWT12 164 4044 100 12	12	12
TORNOS	307232 386251 398856 417165 417174	TORNOS	MWT06 164 3151 200 07	6	7
			MWT06 164 3151 200 09	6	9
	418212 570952	TORNOS	MWT12 164 M1441 440 09	12	9
DMG	2123031 2647002 2723028 2858071	DMG	MWT12 164 4249 120 09	12	9

Cutter Rings for After Market Machine Tool Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
Madaula	CZ.035.K12/K16	CITIZEN	MWT06 164 2035 165 07	6	7
			MWT06 164 2035 165 09	6	9
WTO	419900000-00/-25/-32/-35/-39 /-40/-46/-50/-55/ 419900001-00/-32/-35 419900002-30/-32/-34/-55 419900003-30/-32/-50 419900004-30/-32 419900005-30/44 419900006-30 419900007-30/-44 419900008-44 419900009-30		MWT12 164 4244 105 09	12	9
			MWT12 164 4244 105 12	12	12
	419900000-45, 419900001-46 419900002-35, 419900003-34, 419900003-35, 419900005-32, 419900006-32, 419900007-32, 419900010-30, 419900010-44, 419900011-30, 419900011-44, 419900012-30, 419900013-30, TN762006		MWT06 164 WF55 093 07	6	7
			MWT06 164 WF55 093 09	6	9
			MWT12 164 WF55 093 09	12	9
			MWT12 164 WF55 093 12	12	12
			MWT15 164 WF55 093 09	15	9
			MWT15 164 WF55 093 12	15	12
			MWT25 164 WF55 093 09	25	9
			MWT25 164 WF55 093 12	25	12

Type-C Thread Whirling Rings

Cutter Rings for PCM Thread Whirling Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
PCM *All PCM Live Tools Are Available From GenSwiss*	LSW-215-000	CITIZEN	MWT12 164 4046 130 12 QC	12	12
	LSW-424-000	CITIZEN	MWT12 164 3546 169 03 QC	12	3

Cutter Rings for OEM Machine Tool Attachments

Live Tool Manufacturer	Spindle Model	Machine Make	Whirling Rings	D_F	# of Insert Pockets
TORNOS	306101	TORNOS	MWT06 164 4057 105 07 QC	6	7
			MWT06 164 4057 105 09 QC	6	9
			MWT12 164 4057 105 09 QC	12	9
			MWT12 164 4057 105 12 QC	12	12
			MWT15 164 4057 105 09 QC	15	9
			MWT15 164 4057 105 12 QC	15	12

Special Thread Whirling Holders For Non Swiss Machines

Whirling Tool For ER Style Live Spindles

Part No.	D_F	D_A	D_K	z^*	L_T	L_1
MWT06 164 0400 07	6	M8	35	7	44	32.5

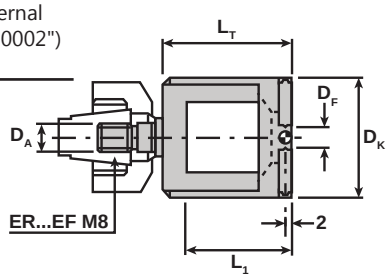
z*: Number of Teeth

Threaded Solid ER Style Collets

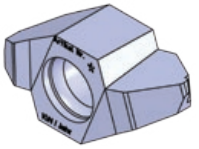
Threaded ER Collets	ER	Thread
ER16 EF M8	16	M8
ER20 EF M8	20	M8
ER25 EF M8	25	M8

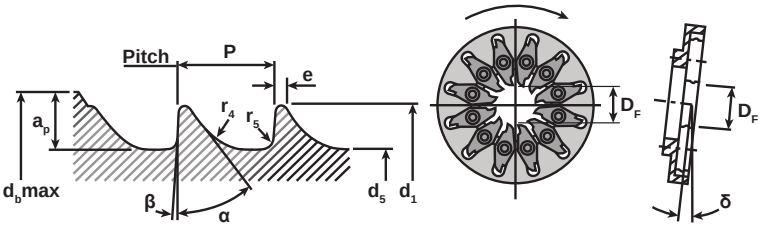
Solid ER Taper features an M8 internal thread. Concentricity < .005mm (.0002")

B-Axis Thread Whirling



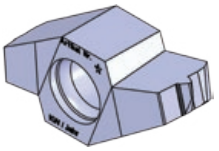
Whirling Inserts

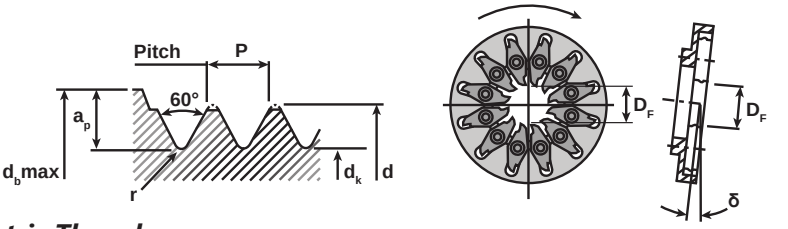




ISO Spec. Buttress Thread Form (MWI... HA/HB... VP)

Prod. No.	ISO 5835	D_F	d_1	d_5	tol	P	δ	e	r_4	r_5	a	β	a_p	d_bMax Stock Ø
MWI06 164 HA1.5VP...	HA1.5	6	1.5	1.1	0/-0.1	0.5	7.3°	0.1	0.3	0.1	35°	3°	3	7
MWI06 164 HA2.0 VP...	HA2.0	6	2	1.3	0/-0.1	0.6	6.9°	0.1	0.4	0.2	35°	3°	3	7
MWI06 164 HA2.7 VP...	HA2.7	6	2.7	1.9	0/-0.1	1	8.1°	0.1	0.6	0.2	35°	3°	3	7.5
MWI12164 HA1.5 VP...	HA1.5	12	1.5	1.1	0/-0.1	0.5	7.3°	0.1	0.3	0.1	35°	3°	4	9
MWI12 164 HA2.0 VP...	HA2.0	12	2	1.3	0/-0.1	0.6	6.9°	0.1	0.4	0.1	35°	3°	4	9
MWI12 164 HA2.7 VP...	HA2.7	12	2.7	1.9	0/-0.15	1	8.1°	0.1	0.6	0.2	35°	3°	4	9.5
MWI12 164 HA3.5 VP...	HA3.5	12	3.5	2.4	0/-0.15	1.25	7.9°	0.1	0.8	0.2	35°	3°	4	10
MWI12 164 HA4.0 VP...	HA4.0	12	4	2.9	0/-0.15	1.5	8.1°	0.1	0.8	0.2	35°	3°	4	10.5
MWI12 164 HA4.5 VP...	HA4.5	12	4.5	3	0/-0.15	1.75	8.6°	0.1	1	0.3	35°	3°	4	11
MWI12 164 HA5.0 VP...	HA5.0	12	5.0	3.5	0/-0.15	1.75	7.6°	0.2	1	0.3	35°	3°	4	11
MWI12 164 HB4.0 VP...	HB4.0	12	4.0	1.9	0/-0.15	1.75	11°	0.1	0.8	0.3	25°	5°	4	9.5
MWI12 164 HA6.5 VP...	HB6.5	12	6.5	3	0/-0.15	2.75	10.6°	0.2	1.2	0.8	25°	5°	4	11

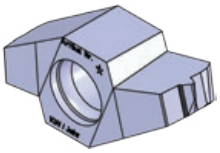


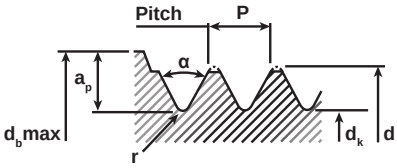


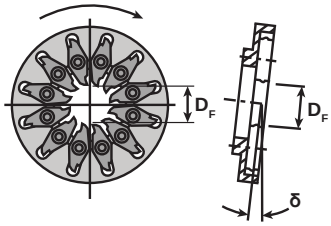
ISO / DIN Spec Metric Threads

Prod. No.	ISO DIN13	D_F	d	d_k	P	δ	r	a_p	d_bMax Stock Ø
MWI06 164 M1.4VP...	M1.4	6	1.4	1.012	0.3	4.53°	.033	3	6.5
MWI06 164 M1.6 VP...	M1.6	6	1.6	1.151	0.35	4.63°	.041	3	7
MWI06 164 M2x0.25 VP...	M2x0.25	6	2	1.693	0.25	2.5°	.036	3	7.5
MWI06 164 M2 VP...	M2	6	2	1.509	0.4	4.17°	.048	3	7
MWI06 164 M3x0.35 VP...	M3x0.35	6	3	2.571	0.35	2.3°	.051	3	8.5
MWI06 164 M3 VP...	M3	6	3	2.387	0.5	3.39°	.062	3	8
MWI12 164 M1.6 VP...	M1.6	12	1.6	1.151	0.35	4.63°	.041	3	7
MWI12 164 M2x0.25 VP...	M2x0.25	12	2	1.693	0.25	2.5°	.036	3	7.5
MWI12 164 M2 VP...	M2	12	2	1.509	0.4	4.17°	.048	3	7
MWI12 164 M2 VP...	M2	12	2	1.509	0.4	4.17°	.048	3	7
MWI12 164 M3x0.35 VP...	M3x0.35	12	3	2.571	0.35	2.3°	.051	3	8.5
MWI12 164 M3 VP...	M3	12	3	2.387	0.5	3.39°	.062	4	10
MWI12 164 M3.5 VP...	M3.5	12	3.5	2.744	0.6	3.5°	.077	4	8.5
MWI12 164 M4x0.35 VP...	M4x0.35	12	4	3.387	0.35	2.5°	.072	4	11
MWI12 164 M4 VP...	M4	12	4	3.141	0.7	3.58°	.091	4	11
MWI12 164 M5x0.5 VP...	M5x0.5	12	5	4.387	0.5	1.9°	.072	4	12
MWI12 164 M5 VP...	M5	12	5	4.019	0.8	3.24°	.105	4	11.5
MWI12 164 M6x0.75 VP...	M6x.075	12	6	5.08	0.75	2.5°	.108	4	13
MWI12 164 M6 VP...	M6	12	6	4.773	1	3.39°	.134	4	12.5
MWI12 164 M7 VP...	M7	12	7	5.753	1	2.86°	.134	4	13.5
MWI12 164 M8x0.75 VP...	M8x0.75	12	8	7.08	0.75	1.8°	.108	4	15
MWI12 164 M8 VP...	M8	12	8	6.466	1.3	3.15°	.170	4	14
MWI12 164 M8x1.0 VP...	M8x1	12	8	6.773	1	2.5°	.144	4	14.5
MWI12 164 M10x0.75 VP...	M10x0.75	12	10	9.08	0.75	1.4°	.108	4	17
MWI12 164 M10x1.0 VP...	M10x1.0	12	10	8.773	1	1.9°	.144	4	16.5
MWI12 164 M10x1.25 VP...	M10x1.25	12	10	8.466	1.25	2.5°	.180	4	16
MWI12 164 M10 VP...	M10	12	10	8.16	1.5	3.01°	.207	4	16

ISO Spec / UNC UNF - Thread Forms



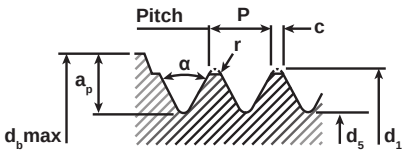




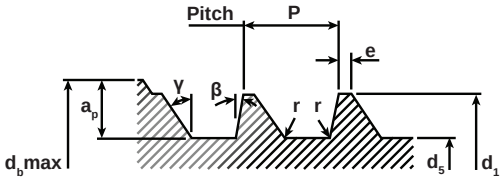
UNC & UNF Threads

TPI (P)	Prod. No.	D_F	d	d_k	δ	r	a	a_p	d_bMax Stock Ø
16 TPI	MWI12 164 3/8-16UNC VP...	12	.375"	.298"	3.39°	.0086"	60°	4	17
18 TPI	MWI12 164 5/16-18UNC VP...	12	.313"	.244"	3.63°	.0076"	60°	4	15.5
20 TPI	MWI12 164 1/4-20UNC VP...	12	.250"	.188"	4.16°	.0068"	60°	4	14
24 TPI	MWI12 164 10-24UNC VP...	12	.190"	.138"	4.62°	.0056"	60°	4	12.5
24 TPI	MWI12 164 12-24UNC VP...	12	.216"	.164"	3.99°	.0056"	60°	4	13
24 TPI	MWI12 164 5/16-24UNF VP...	12	.312"	.261"	2.65°	.0056"	60°	4	15.5
24 TPI	MWI12 164 3/8-24UNF VP...	12	.375"	.323"	2.18°	.0056"	60°	4	17.5
28 TPI	MWI12 164 1/4-28UNF VP...	12	.250"	.205"	2.86°	.0047"	60°	4	14
28 TPI	MWI12 164 12-28UNF VP...	12	.216"	.171"	3.36°	.0047"	60°	4	11
32 TPI	MWI12 164 06-32UNC VP...	12	.138"	.099"	4.8°	.0041"	60°	4	11
32 TPI	MWI12 164 08-32UNC VP...	12	.164"	.125"	3.94°	.0041"	60°	4	12
32 TPI	MWI12 164 10-32UNF VP...	12	.190"	.151"	3.34°	.0041"	60°	4	10.5
36 TPI	MWI12 164 08-36UNF VP...	12	.164"	.129"	3.45°	.0036"	60°	4	12
40 TPI	MWI12 164 04-40UNC VP...	12	.112"	.081"	4.73°	.0032"	60°	4	10.5
40 TPI	MWI12 164 05-40UNC VP...	12	.125"	.094"	4.17°	.0032"	60°	4	11
40 TPI	MWI12 164 06-40UNF VP...	12	.138"	.106"	3.72°	.0032"	60°	4	11
44 TPI	MWI12 164 05-44UNF VP...	12	.125"	.096"	3.74°	.0028"	60°	4	11
48 TPI	MWI12 164 03-48UNC VP...	12	.099"	.073"	4.42°	.0026"	60°	4	10
48 TPI	MWI12 164 04-48UNF VP...	12	.112"	.085"	3.84°	.0025"	60°	4	10.5
56 TPI	MWI12 164 02-56UNC VP...	12	.086"	.063"	4.35°	.0022"	60°	4	10
56 TPI	MWI12 164 03-56UNF VP...	12	.099"	.076"	3.71°	.0021"	60°	4	10
64 TPI	MWI12 164 01-64UNC VP...	12	.073"	.053"	4.51°	.0019"	60°	4	9.5
64 TPI	MWI12 164 02-64UNF VP...	12	.086"	.066"	4.90°	.0018"	60°	4	9.5
72 TPI	MWI12 164 01-72UNF VP...	12	.072"	.055"	3.95°	.0016"	60°	4	9.5
80 TPI	MWI12 164 00-80UNF VP...	12	.060"	.044"	4.38°	.0014"	60°	4	9

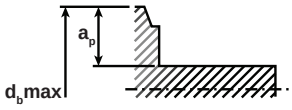
Also Available...



HC Profiles ISO 9268

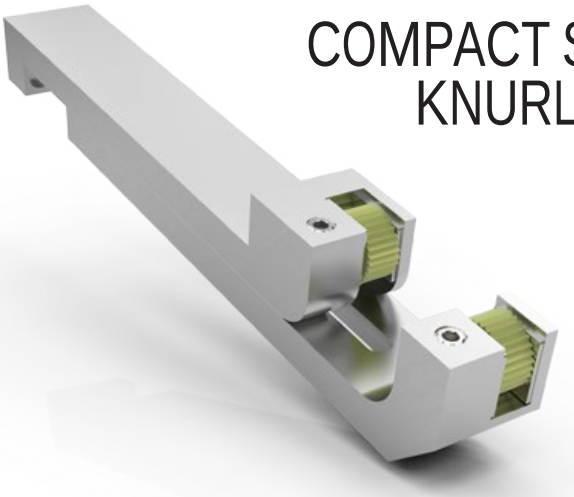


HD Profiles ISO 9268



Cylindrical Whirling

Contact GenSwiss For More Info!



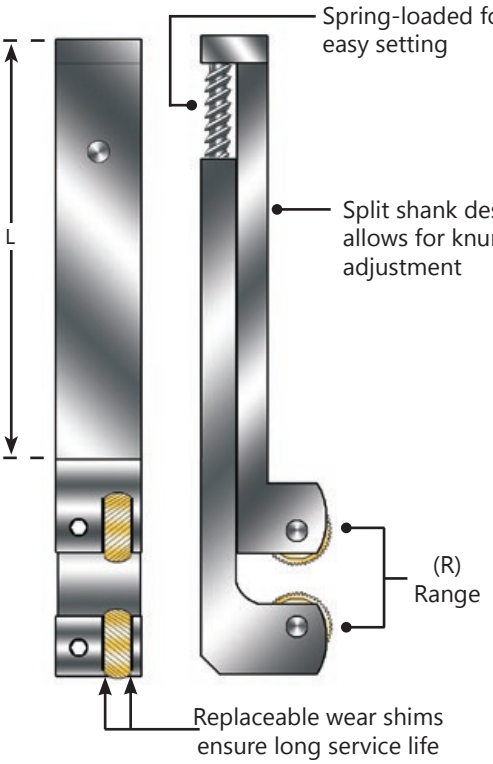
COMPACT STRADDLE KNURL HOLDERS

for small parts

- Create Perfect Knurls
- Eliminates Workpiece Deflection
- Low Interference

Specifically designed for Swiss-type machines; our low profile straddle knurl holders keep interference to a minimum within the tooling envelope of most machines while ensuring adjacent tool positions are available to maximize tooling capacity.

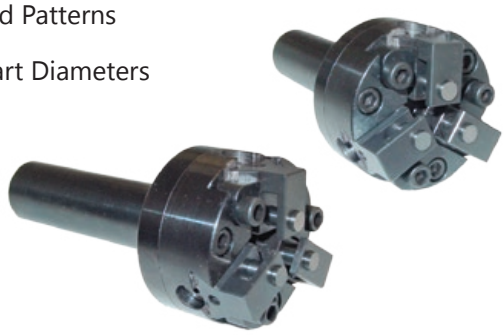
Prod. No.	Shank	L	R	Wheel Dimensions
KHS-2BPR-375.1	.375in	2.7in	.0-.394in	5/16in x 1/8in x 5/32in
KHS-2EPR-500.3	.500in	3.24in	0-.750in	1/2in x 3/16in x 3/16in
KHS-2EPR-625.3	.625in	3.24in	0-.750in	1/2in x 3/16in x 3/16in




*Intended for gang slide use.

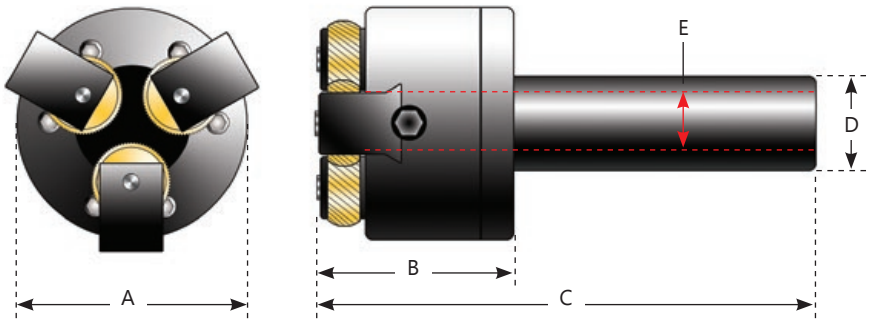
AXIAL FEED KNURL HOLDERS

- Ideal for Long Knurled Parts
- Produce Straight or Diamond Patterns
- Adjustable for a Range of Part Diameters



Compact design makes it ideal for use on screw machines and CNC lathes when axial feed knurling from the turret. Parts are self supported and they can extend through the shank for long jobs. We recommend using CONVEX Knurl Dies with this style Knurl Holder. Can also be adapted for burnishing and internal knurling

Prod. No.	Knurl Series	Knurl Range	A	B	C	D	E
KHE-3DBP-625	BP	.060 - .475	1.75	1.25	3.855	.625	.390
KHE-3DBP-750			1.75	1.25	3.855	.750	.475
KHE-3DEP-625	EP	.090 - .475	1.75	1.25	3.855	.625	.390
KHE-3DEP-750			1.75	1.25	3.855	.750	.475
KHE-3DGK-625	GK	.140 - .940	3.00	1.60	4.90	.625	.390
KHE-3DGK-750			3.00	1.60	4.90	.750	.475
KHE-3DGK-1000			3.00	1.60	4.90	1.00	.718



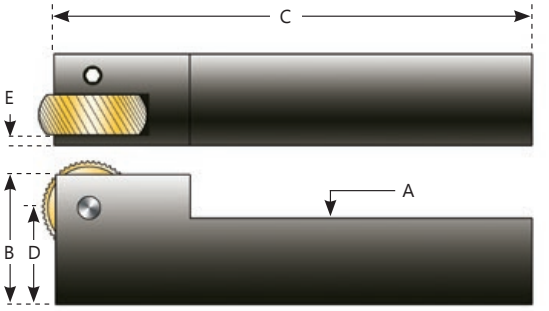
BUMP-STYLE KNURL HOLDERS

Conventional "bump" knurling is a cost effective way to produce knurled features on the outer diameter of parts.

- Carbide Axles
- Ground Shanks
- Left Handed Available
- Cost Effective

Single Die Bump Knurling Holders

Prod. No.	*Knurl Series*	*A*	*B*	*C*	*D*	*E*
KHB-1BPR-312	BP	.312	.500	4.0	.312	.050
KHB-1BPR-375		.375	.562	4.0	.375	.050
KHB-1EPR-500	EP	.500	.750	3.5	.500	.090
KHB-1GKR-625	GK	.625	.937	4.0	.625	.090



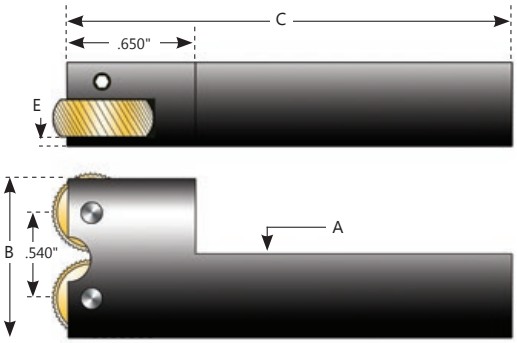
DOUBLE-DIE BUMP-STYLE KNURL HOLDERS

Cost effective solution for producing diamond pattern knurls on Swiss-Type Machines.

- Carbide Axles
- Ground Shanks
- Axial Feed Capability
- Cost Effective

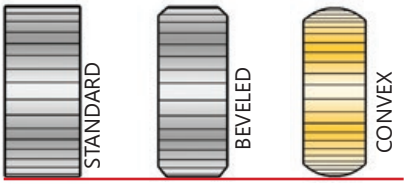
Compact Double-Die Bump Style Knurl Holders

Prod. No.	Knurl Series	A	B	C	D	E
KHB-2EPR-500	EP	.500	1.0	4.0	.312	.075
KHB-2EPR-625		.625	1.0	4.0	.375	.075



KNURLING WHEELS

Genevieve Swiss offers a full line of precision knurling tools for Swiss-Type applications. Optional wheel geometries are available to suit your specific needs. More options are available in addition to what is listed below. Call for details or to discuss applications.

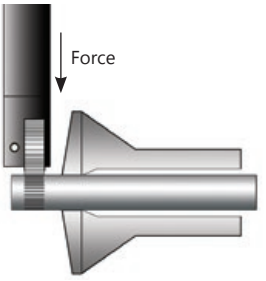


Standard Knurl Dies For Bump Knurling

Knurl Series	Wheel Dimensions	Straight Tooth	30° Right Hand	30° Left Hand	30° Male	30° Female	Available Pitch Teeth per Inch (TPI)
	OD x ID x Width						
BP	5/16 x 1/8 x 5/32	KDS-BPS0-	KDR-BPR0-	KDL-BPL0-	KDD-BPM0-	KDD-BPF0-	20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100
EP	1/2 x 3/16 x 3/16	KDS-EPS0-	KDR-EPR0-	KDL-EPL0-	KDD-EPM0-	KDD-EPF0-	16, 20, 25, 30, 32, 35, 40, 50, 80
GK	5/8 x 1/4 x 1/4	KDS-GKS0-	KDR-GKR0-	KDL-GKL0-	KDD-GKM0-	KDD-GKF0-	12, 16, 20, 25, 30, 32, 35, 40, 50, 80
KN	3/4 x 1/4 x 1/4	KDS-KNS0-	KDR-KNR0-	KDL-KNL0-	KDD-KNM0-	KDD-KNF0-	16, 20, 25, 30, 32, 35, 40, 50, 80
KP	3/4 x 3/8 x 1/4	KDS-KPS0-	KDS-KPR0-	KDS-KPL0-	KDD-KNM0	KDD-KNF0	8, 10, 12, 14, 16, 20, 21, 25, 30, 33, 35, 40, 50, 60, 70, 80, 100

All Wheels Also Available in DIAMETRAL PITCH Configurations: 64DP, 96DP, 128DP, 160DP

- Precision Lapped Tooth Forms Provide Superior Knurled Surfaces
- HSS Vacuum Hardened to Approximately 63 Rockwell C
- Sides and Bore are Finish Ground to Maintain Close Tolerances
- Available Coated on Request

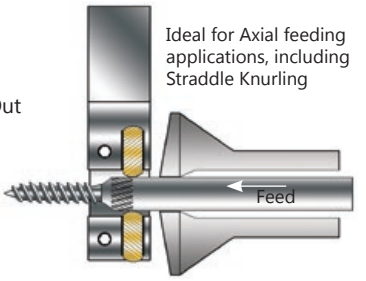


CONVEX Series Knurl Dies For Axial Feeding

Knurl Series	Wheel Dimensions	Straight Tooth	30° Right Hand	30° Left Hand	Available Pitch Teeth per Inch (TPI)
	OD x ID x Width				
EPV	1/2 x 3/16 x 3/16	KDS-EPSV-	KDR-EPRV-	KDL-EPLV-	16, 20, 25, 30, 32, 35, 40, 50, 80
GKV	5/8 x 1/4 x 1/4	KDS-GKSV-	KDR-GKRV-	KDL-GKLV-	12, 16, 20, 25, 30, 32, 35, 40, 50, 80
KNV	3/4 x 1/4 x 1/4	KDS-KNSV-	KDR-KNRV-	KDL-KNLV-	16, 20, 25, 30, 32, 35, 40, 50, 80
KPV	3/4 x 3/8 x 1/4	KDS-KPSV-	KDR-KPRV-	KDL-KPLV-	8, 10, 12, 14, 16, 20, 21, 25, 30, 32, 33, 35, 40, 50, 60, 80

All Wheels Also Available in DIAMETRAL PITCH Configurations: 64DP, 96DP, 128DP, 160DP

- Hi-Cobalt HSS treated with ferritic nitrocarburizing is standard on all CONVEX Knurls.
- Full-Form Convex Relief Spreads Out Forces Providing Smoother Finish
- The ULTIMATE Knurling Die for Swiss-Type Straddle Knurling

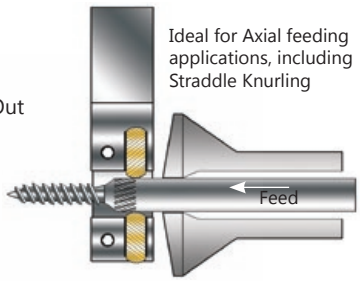


Knurling Wheels

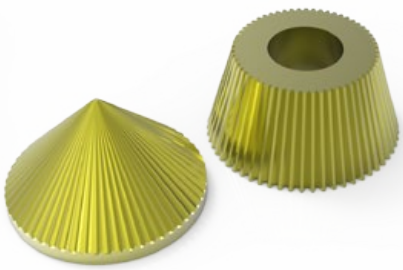
MRV CONVEX Series Knurl Dies For Axial Feeding - Metric

Knurl Series	Wheel Dimensions	Straight Tooth	30° Right Hand	30° Left Hand	45° Right Hand	45° Left Hand	Available Pitch Metric (mm)
	OD x ID x Width						
MRV	20 x 6 x 6mm	KDS-MRSV-	KDR-MRRV-	KDL-MRLV-	KDR-MRCV-	KDL-MRDV	0.4, 0.5, 0.6, 0.7, 0.8, 1.0, 1.2, 1.5, 1.6, 2.0
Other Coatings Are Available							

- Hi-Cobalt HSS treated with ferritic nitrocarburizing is standard on all CONVEX Knurls.
- Full-Form Convex Relief Spreads Out Forces Providing Smoother Finish
- The ULTIMATE Knurling Die for Swiss-Type Straddle Knurling



Burnishing Rolls Also Available...



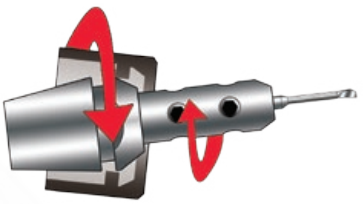
Contact Us About Face & Conical Knurling...

Ti-Loc® Mill Extensions

Patented

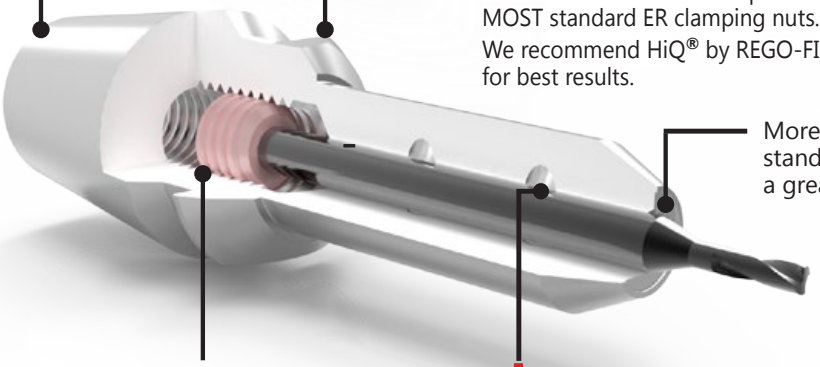
The BEST Method For Running Micro End Mills In Your CNC Swiss

- ***Enables Micro Tools to Clear the Guide Bushing***
- ***Maintains Exceptional TIR at Extended Length***
- ***Solves Deflection and Chatter Issues***



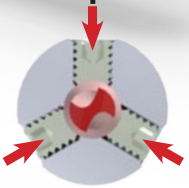
Precision ground ER taper now in ER8, ER11, ER16, ER20 & ER25 sizes.

Ti-Loc® tools twist and snap into MOST standard ER clamping nuts. We recommend HiQ® by REGO-FIX for best results.



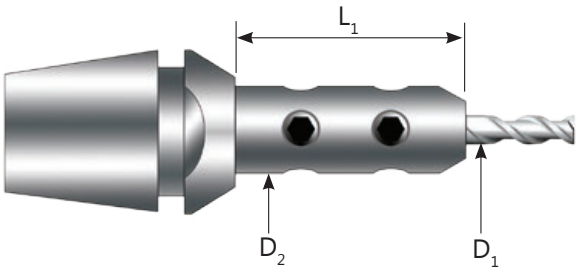
More accurate than standard collets over a greater set length.

Internal stop can be adjusted from both ends of the holder using a standard hex key.



Set screws hold small shank tooling securely in a triangular arrangement for excellent accuracy.

ER Taper Integrated Swiss-Type Tooling



ER8

Part No.	L_1	D_1	D_2
CTE-08-1.00-064100	10	1	6.4
CTE-08-1.50-064100		1.5	6.4
CTE-08-1.59-064100		.062"	6.4
CTE-08-2.00-064100		2	6.4
CTE-08-3.00-070100		3	7
CTE-08-3.18-070100		.125"	7
CTE-08-1.00-064150	15	1	6.4
CTE-08-1.50-064150		1.5	6.4
CTE-08-1.59-064150		.062"	6.4
CTE-08-2.00-064150		2	6.4
CTE-08-3.00-070150		3	7
CTE-08-3.18-070150		.125"	7

NOTE: ER8 Holders Include a special M10x.75 clamping nut.

ER11

Part No.	L_1	D_1	D_2
CTE-11-1.00-064100	10	1	6.4
CTE-11-1.50-064100		1.5	6.4
CTE-11-1.59-064100		.062"	6.4
CTE-11-2.00-064100		2	6.4
CTE-11-3.00-080100		3	8
CTE-11-3.18-080100		.125"	8
CTE-11-3.00-080150	15	3	8
CTE-11-3.18-080150		.125"	8
CTE-11-4.00-080150		4	8
CTE-11-3.00-080200	20	3	8
CTE-11-3.18-080200		.125"	8
CTE-11-4.00-080200		4	8

ER16

Part No.	L_1	D_1	D_2
CTE-16-1.00-064160	16	1	6.4
CTE-16-1.50-064160		1.5	6.4
CTE-16-1.59-064160		.062"	6.4
CTE-16-2.00-064160		2	6.4
CTE-16-3.00-095160		3	9.5
CTE-16-3.18-095160		.125"	9.5
CTE-16-4.00-095160		4	9.5
CTE-16-4.76-095160		.187"	9.5
CTE-16-5.00-095160		5	9.5
CTE-16-3.00-095250	25	3	9.5
CTE-16-3.18-095250		.125"	9.5
CTE-16-4.00-095250		4	9.5
CTE-16-4.76-095250		.187"	9.5
CTE-16-5.00-095250		5	9.5

ER20

Part No.	L_1	D_1	D_2
CTE-20-3.00-095140	14	3	9.5
CTE-20-4.76-114140		.187"	11.4
CTE-20-5.00-114140		5	11.4
CTE-20-6.00-125140		6	12.5
CTE-20-6.35-125140		.250"	12.5
CTE-20-3.18-095160	16	.125"	9.5
CTE-20-4.00-095160		4	9.5
CTE-20-4.76-114160		.187"	11.4
CTE-20-3.00-095250	25	3	9.5
CTE-20-3.18-095250		.125"	9.5
CTE-20-4.00-095250		4	9.5
CTE-20-4.76-114250		.187"	11.4
CTE-20-5.00-114250		5	11.4
CTE-20-6.00-125250		6	12.5
CTE-20-6.35-125250		.250"	12.5

ER25

Part No.	L_1	D_1	D_2
CTE-25-3.00-100250	25	3	10
CTE-25-3.18-100250		.125"	10
CTE-25-4.00-100250		4	10
CTE-25-4.76-125250		.187"	12.5
CTE-25-5.00-125250		5	12.5
CTE-25-6.00-125250		6	12.5
CTE-25-6.35-125250		.250"	12.5
CTE-25-7.00-160250		7	16
CTE-25-7.94-160250		.312"	16
CTE-25-8.00-160250		8	16

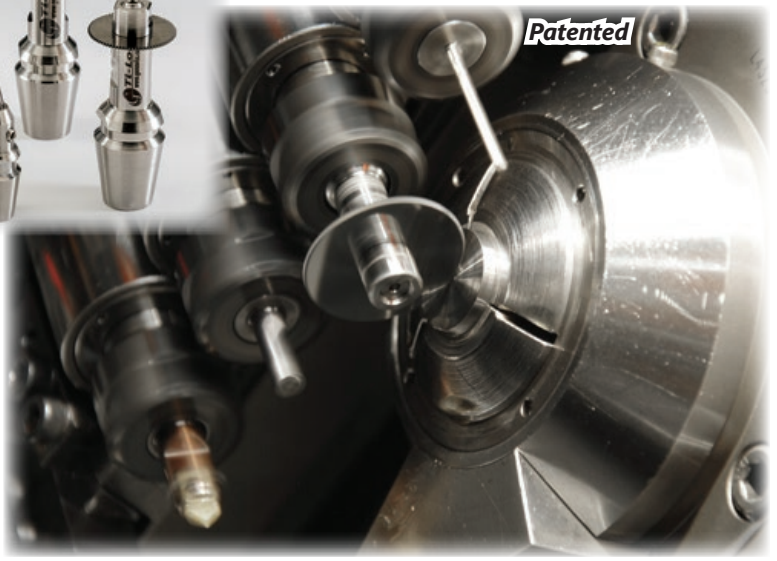
Replacement Stop Screws

Part No.	M	Fits
8999-000021	M6	ER11
8999-000206	M8	ER16 & 20
8999-000210	M10	ER25

Replacement Set Screws

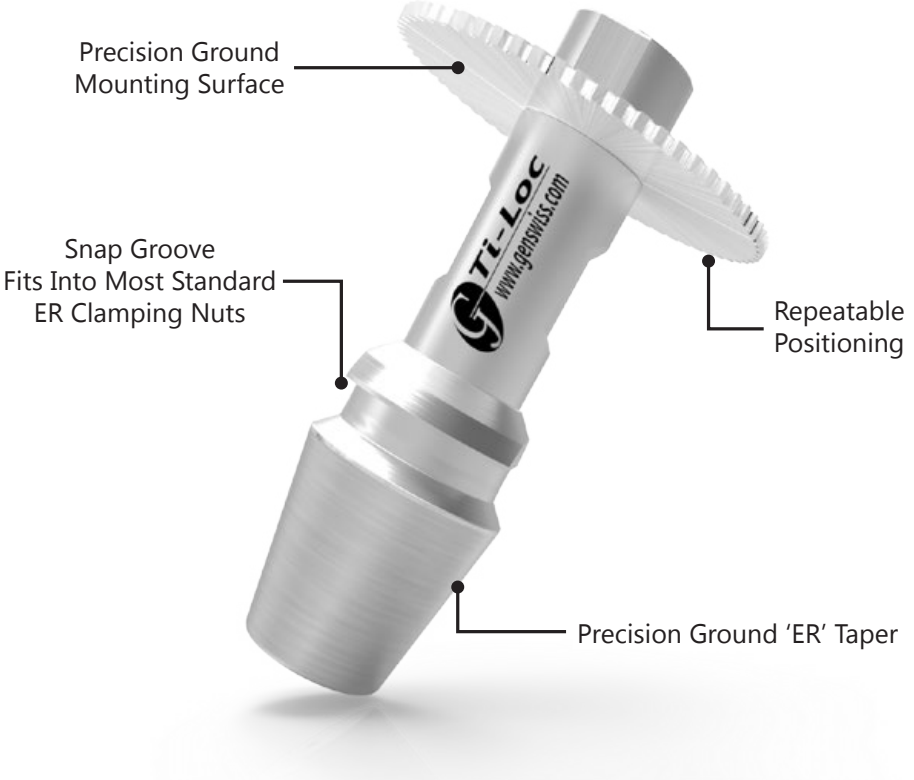
Part No.	M
8999-000011	M3
8999-000007	M4
8999-000214	M5

Ti-Loc® Saw Arbors

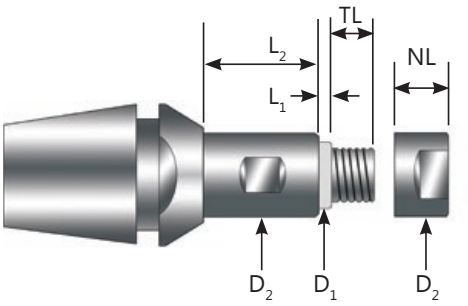


Taper-Integrated Small Tooling provides unparalleled ease of use for Advanced Productivity!

A BETTER Solution for Slitting Saw Holding.



ER Taper Integrated Swiss-Type Tooling



TIR Held to .0002" or Better
Repeatable Positioning of Saw Edge
Ground ER Taper and Saw Journal
Integrated ER Taper For Maximum Rigidity

ER11 Saw Arbors

Part No.	D_1	D_2	L_1	L_2	NL	TL
SAT-11-3.00-064100	3	6.4	1.27	10	5	5
SAT-11-3.00-064140	3	6.4	1.27	14	5	5
SAT-11-3.00-064190	3	6.4	1.27	19	5	5
SAT-11-3.00-064250	3	6.4	1.27	25	5	5
SAT-11-3.18-064100	.125"	6.4	1.27	10	5	5
SAT-11-3.18-064140	.125"	6.4	1.27	14	5	5
SAT-11-3.18-064190	.125"	6.4	1.27	19	5	5
SAT-11-3.18-064250	.125"	6.4	1.27	25	5	5
SAT-11-4.76-080100	.187"	8	1.27	10	5	6.35
SAT-11-4.76-080140	.187"	8	1.27	14	5	6.35
SAT-11-4.76-080190	.187"	8	1.27	19	5	6.35
SAT-11-4.76-080250	.187"	8	1.27	25	5	6.35
SAT-11-5.00-080100	5	8	1.27	10	5	6.35
SAT-11-5.00-080140	5	8	1.27	14	5	6.35
SAT-11-5.00-080190	5	8	1.27	19	5	6.35
SAT-11-5.00-080250	5	8	1.27	25	5	6.35
SAT-11-6.00-080100	6	8	1.27	10	6.35	8
SAT-11-6.00-080140	6	8	1.27	14	6.35	8
SAT-11-6.00-080190	6	8	1.27	19	6.35	8

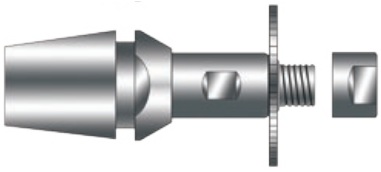
ER20 Saw Arbors

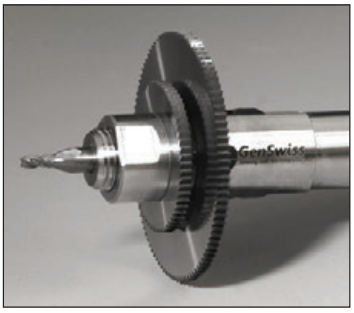
Part No.	D_1	D_2	L_1	L_2	NL	TL
SAT-20-3.00-064180	3	6.35	1.27	18	6.35	6.5
SAT-20-3.00-064300	3	6.35	1.27	30	6.35	6.5
SAT-20-3.18-064180	.125"	6.35	1.27	18	6.35	6.5
SAT-20-3.18-064300	.125"	6.35	1.27	30	6.35	6.5
SAT-20-4.76-095180	.187"	9.53	1.27	18	6.35	7.75
SAT-20-4.76-095300	.187"	9.53	1.27	30	6.35	7.75
SAT-20-5.00-095180	5	9.53	1.27	18	6.35	7.75
SAT-20-5.00-095300	5	9.53	1.27	30	6.35	7.75
SAT-20-6.00-095180	6	9.53	1.27	18	6.35	8.5
SAT-20-6.00-095300	6	9.53	1.27	30	6.35	8.5
SAT-20-6.35-095180	.250"	9.53	1.27	18	6.35	7.75
SAT-20-6.35-095300	.250"	9.53	1.27	30	6.35	7.75
SAT-20-7.94-100180	.312"	9.53	1.27	18	6.35	7.75
SAT-20-7.94-100300	.312"	9.53	1.27	30	6.35	7.75
SAT-20-8.00-100180	8	10	1.27	18	6.35	7.75
SAT-20-8.00-100300	8	10	1.27	30	6.35	7.75
SAT-20-9.52-125180	.375"	12.5	1.27	18	7	9
SAT-20-9.52-125300	.375"	12.5	1.27	30	7	9
SAT-20-10.0-125180	10	12.5	1.27	18	7	9
SAT-20-10.0-125300	10	12.5	1.27	30	7	9

ER16 Saw Arbors

Part No.	D_1	D_2	L_1	L_2	NL	TL
SAT-16-3.00-064180	3	6.35	1.27	18	6.35	6.5
SAT-16-3.00-064240	3	6.35	1.27	24	6.35	6.5
SAT-16-3.18-064180	.125"	6.35	1.27	18	6.35	6.5
SAT-16-3.18-064240	.125"	6.35	1.27	24	6.35	6.5
SAT-16-4.76-095180	.187"	9.53	1.27	18	6.35	6.5
SAT-16-4.76-095240	.187"	9.53	1.27	24	6.35	6.5
SAT-16-5.00-095180	5	9.5	1.27	18	6.35	6.5
SAT-16-5.00-095240	5	9.5	1.27	24	6.35	6.5
SAT-16-6.00-095180	6	9.53	1.27	18	6.35	6.5
SAT-16-6.00-095240	6	9.53	1.27	24	6.35	6.5
SAT-16-6.35-095180	.250"	9.53	1.27	18	6.35	6.5
SAT-16-6.35-095240	.250"	9.53	1.27	24	6.35	6.5
SAT-16-7.94-100180	.312"	10	1.27	18	6.35	6.5
SAT-16-7.94-100240	.312"	10	1.27	24	6.35	6.5
SAT-16-8.00-100180	8	10	1.27	18	6.35	6.5
SAT-16-8.00-100240	8	10	1.27	24	6.35	6.5

All Ti-Loc Saw Arbors Include
(2) Saw Clamping Nuts





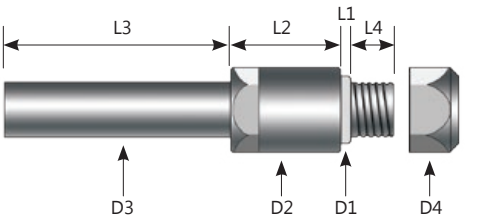
Need something Unique?
WE CAN MAKE CUSTOMS!
Call To Discuss your Needs!

Signature Series
Saw Arbors

Basic Metric Saw Arbors - 5030 Series

Economical and ready for use, these pre-hardened standard saw arbors provide the average application with a cost effective solution to hold small saws with TIR less than .0005". Made in the USA

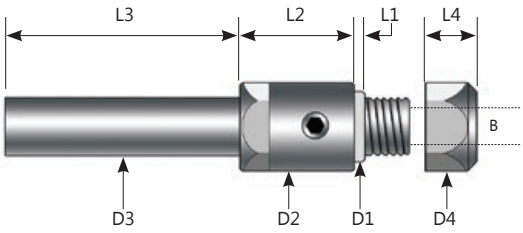
Part No.	D1 x L1	D2 x L2	D3 x L3	D4 x L4
SAS-N1970-1970	5 x 3mm	7 x 16mm	5 x 35mm	7mm x 8.3mm
SAS-N0507-0738	5 x 3mm	N/A	7 x 35mm	7mm x 8.3mm

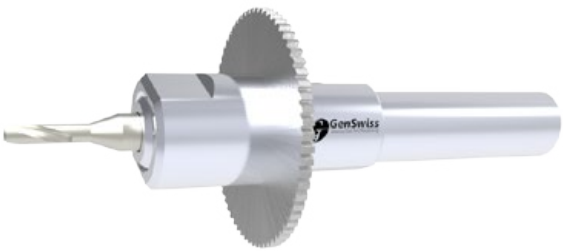


Ultra Precision Combination Saw Arbors - 5015 Series

GenSwiss Ultra Precision combination arbors are made from pre hardened material and exemplify what it means to be called "Swiss Precision". The addition of the combined mill or center drill provides additional tool capacity and setup flexibility . TIR measured at less than .0002". Made in the USA

Part No.	D1 x L1	D2 x L2	D3 x L3	D4 x L4	Tool Bore (B)
SAC-N250-250118	.250" x .125"	.375" x .625"	.250" x 1.375"	.375" x .375"	
SAC-N312-312118	.312" x .125"	.375" x .625"	.312" x 1.375"	.375" x .375"	
SAC-N315-315118	8 x 3mm	9.5 x 16mm	8 x 35mm	9.5 x 9.5mm	3mm
SAC-N375-375118	.3748" x .115"	.500" x .625"	.375" x 1.375	.500" x .374"	
SAC-N394-394118	10 x 3mm	12.7 x 16mm	10 x 35mm	12.7 x 9.5mm	
SAC-N250-250125	.250" x .125"	.375" x .625"	.250" x 1.375"	.375" x .375"	
SAC-N312-312125	.312" x .125"	.375" x .625"	.312" x 1.375"	.375" x .375"	
SAC-N315-315125	8 x 3mm	9.5 x 16mm	8 x 35mm	9.5 x 9.5mm	.1250"
SAC-N375-375125	.3748" x .125"	.500" x .625"	.375" x 1.375	.500" x .374"	
SAC-N394-394125	10 x 3mm	12.7 x 16mm	10 x 35mm	12.7 x 9.5mm	
SAC-N312-312187	.312" x .125"	.375" x .625"	.312" x 1.375"	.375" x .375"	
SAC-N315-315187	8 x 3mm	9.5 x 16mm	8 x 35mm	9.5 x 9.5mm	.1875"
SAC-N375-375187	.3748" x .125"	.500" x .625"	.375" x 1.375	.500" x .374"	
SAC-N394-394187	10 x 3mm	12.7 x 16mm	10 x 35mm	12.7 x 9.5mm	

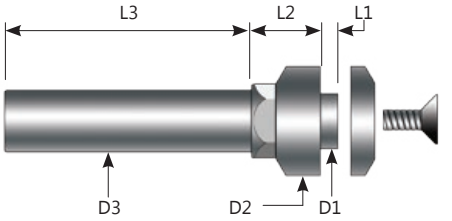




Flange Mount Metric Saw Arbors - 5020

These metric flanged saw arbors provide maximum saw balance and stability with the flange mount design. The unique design applies pressure to the outward edge of the flange ensuring the greatest gripping power at the outer most edge to prevent slipping. Uses countersunk screw and flange washer to apply holding force. Measured TIR is less than .0004".

Part No.	D1 x L1	D2 x L2	D3 x L3
SAF-050010-503809-M4F	5.0 x 1.0 mm	9.0 x 12.0 mm	5.00 x 38 mm
SAF-050010-703812-M4F	5.0 x 1.0 mm	12.0 x 12.0 mm	7.00 x 38 mm
SAF-080016-703818-M5F	8.0 x 1.6 mm	18.0 x 13.0 mm	7.00 x 38 mm
SAF-080016-104514-M5F	8.0 x 1.6 mm	14.0 x 14.0 mm	10.0 x 45 mm
SAF-080040-1045140M5F	8.0 x 4.0 mm	14.0 x 14.0 mm	10.0 x 45 mm
SAF-130025-134522-M6F	13.0 x 2.5 mm	22.0 x 16.0 mm	13.0 x 45 mm
SAF-160025-134525-M6F	16.0 x 2.5 mm	25.0 x 16.0 mm	13.0 x 45 mm
SAF-160025-134520-M6F	10.0 x 2.5 mm	20.0 x 16.0 mm	13.0 x 45 mm
SAF-050011-042508-C08	5.0 x 1.1 mm	8.00 x 1.90 mm	4.0 x 25.4 mm
SAF-095011-042511-C11	9.5 x 1.1 mm	11.4 x 19.1 mm	4.0 x 25.4 mm
SAF-100025-071918-C15	10.0 x 2.5 mm	19.0 x 14.0 mm	7.00 x 19 mm
SAF-100025-071918-C18	10.0 x 2.5 mm	19.0 x 14.0 mm	7.00 x 19 mm
SAF-130025-071919-C19	13.0 x 2.5 mm	19.0 x 14.0 mm	7.00 x 19 mm
SAF-047013-473895-M3F	4.76 x 1.3 mm	9.5 x 11.96 mm	4.76 x 38 mm
SAF-063013-633811-M4F	6.35 x 1.3 mm	11.4 x 11.96 mm	6.35 x 38 mm
SAF-079016-793816-M5F	7.94 x 1.65 mm	15.9 x 13.6 mm	7.94 x 38 mm
SAF-095025-953816-M6F	9.53 x 2.49 mm	15.9 x 13.8 mm	9.53 x 38 mm

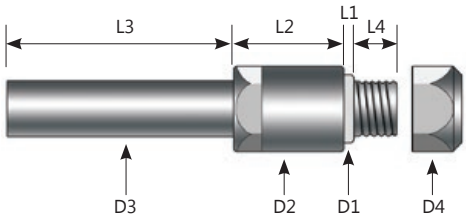


High Precision Saw Arbors

Precision Saw Arbors - 5025 Series

Our most popular style of slitting saw arbor is now available in guaranteed TIR grades of SAS (under .0005" TIR) and SAP (under .0002" TIR). Our SAS arbors are adequate for many applications and are an extremely cost effective method of clamping and holding a carbide slitting saw in your Swiss lathe tool setup. When ULTRA Precision is required, the SAP grade is suggested as they are held to stringent quality standards required by discerning Swiss-type machinists. Made in the USA

Standard Precision TIR<.0005"	ULTRA Precision TIR<.0002"	D1 x L1	D2 x L2	D3 x L3	D4 x L4
SAS-N1250-1250	SAP-N1250-1250	.1248 x .025	.197 x .500	.125 x 1.0	.197 x .185
SAS-N1875-1875	SAP-N1875-1875	.1874 x .045	.315 x .500	.187 x 1.40	.316 x .305
SAS-N2500-2500	SAP-N2500-2500	.2498 x .045	.394 x .500	.250 x 1.40	.394 x .305
SAS-N3125-3125	SAP-N3125-3125	.3124 x .045	.451 x .500	.312 x 1.40	.451 x .305
SAS-N3750-3750	SAP-N3750-3750	.3749 x .045	.500 x .500	.375 x 1.40	.500 x .305
SAS-N5000-5000	SAP-N5000-5000	.4999 x .052	.625 x .500	.500 x 1.40	.625 x .305
Metric Shanks TIR<.0005"	**Metric Shanks TIR<.0002"**	**D1 x L1**	**D2 x L2**	**D3 x L3**	**D4 x L4**
SAS-N0500-0500	SAP-N0500-0500	5 x 1mm	8 x 11.5mm	5 x 38mm	8.0 x 6.35mm
SAS-N0800-0800	SAP-N0800-0800	8 x 1.2mm	11.5 x 11.3mm	8 x 35mm	11.5 x 8.0mm
SAS-N1000-1000	SAP-N1000-1000	10 x 1.2mm	13.5 x 16.6mm	10 x 30mm	13.5 x 8.0mm



Custom Slitting Saw Arbors

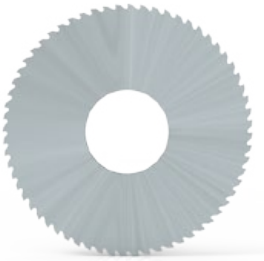
GenSwiss has the capability to assist with the engineering and manufacture of special gang slotting arbors that also feature the option of holding an end mill, spot drill or other small round shank rotary tool.

Some features we can provide:

- Spacers for gang slotting with multiple blades
- Custom hub widths (L1 dim.) for oversize blade thicknesses
- Optional shank sizes for special applications.

SOLID CARBIDE SAW BLADES

Genevieve Swiss Industries carries a full line of Solid Carbide Slitting Saws directly imported from Switzerland. Available from stock in either fine and extra-fine tooth configurations with tooth counts ranging from 40-120 teeth per saw.



Our Solid Carbide Saws Feature:

- ***Precision Ground Accuracy***
- ***Superior Surface Finish***
- ***High Tooth Count for Cutting Hard Metals***
- ***Hollow Ground Side Clearance***
- ***Full Radius, V-Cutter, & Staggered Versions Available***
- ***Made by High Quality Manufacturers,***

LOUIS BELET Swiss Cutting tools GLOOR

Saw Blade Nomenclature Example:

25mm OD 1.00mm wide

SSM-2508-100048G

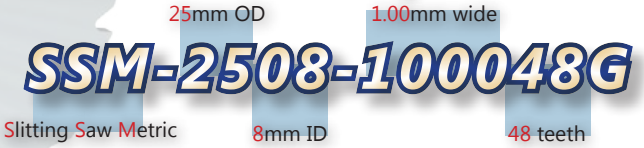
Slitting Saw Metric 8mm ID 48 teeth

Metric Carbide Saws Fine Tooth Configuration							
OD / ID	15mm 5mm	20mm 5mm	25mm 5mm	25mm 8mm	30mm 5mm	30mm 8mm	40mm 10mm
Width							
0,10 (.0039")	64-80	80-100	80-120	80-120	100-160	100-160	100-160
0,15 (.0059")	64-80	80-100	80-120	80-120	100-160	100-160	100-160
0,20 (.0078")	64-80	80-100	80-120	80-120	100-160	100-160	100-160
0,25 (.0098")	64-80	80-100	80-120	80-120	100-160	100-160	100-160
0,30 (.0118")	64-80	80-100	80-120	80-120	100-120	100-120	100-160
0,35 (.0137")	64-80	80-100	80-120	80-120	100-120	100-120	100-160
0,40 (.0157")	80	80-100	80-120	80-120	100-120	100-120	100-160
0,50 (.0196")	80	80-100	80-120	80-120	100-120	100-120	100-160
0,55 (.0216")	80	80-100	80-120	80-120	100-120	100-120	100-160
0,60 (.0236")	80	80-100	80-120	80-120	100-120	100-120	100-160
0,70 (.0275")	80	80-100	80-120	80-120	100-120	100-120	100-160
0,80 (.0314")	80	80-100	80-100	80-100	100-120	100-120	100-160
0,85 (.0334")	80	80-100	80-100	80-100	100-120	100-120	100-160
0,90 (.0354")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,00 (.0393")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,05 (.0413")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,125 (.0442")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,15 (.0452")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,20 (.0472")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,25 (.0492")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,30 (.0511")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,40 (.0551")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,50 (.0590")	80	80-100	80-100	80-100	100-120	100-120	100-160
1,60 (.0629")	80	80	80-100	80-100	100-120	100-120	100-160
1,70 (.0669")	80	80	80-100	80-100	100-120	100-120	100-160
2,00 (.0787")	80	80	80-100	80-100	100-120	100-120	100-160
2,20 (.0866")	80	80	80-100	80-100	100-120	100-120	100-160
2,50 (.0984")	80	80	80-100	80-100	100-120	100-120	100-160
3,00 (.1181")	80	80	80-100	80-100	100-120	100-120	100-160
	NUMBER OF TEETH Typical Width Tolerance: +/- .0002in (.005mm)						

Premium Swiss-Made Solid Carbide Saw Blades

Inch Sized Carbide Saws Coarse Tooth Configuration						
OD ID	1/4in 1/8in	1/2in 1/8in, 3/16in	5/8in 1/4in	3/4in 1/4in or 5/16in	1.00in 1/4in or 3/8in	1-1/4in 5/16in or 3/8in
Width	12	14	16	18	20	22
				Range = .010" - .065"		
	NUMBER OF TEETH					

Saw Blade Nomenclature Example:



Metric Carbide Saws Standard Tooth Configuration							
OD ID	15mm 5mm	20mm 5mm	25mm 5mm	25mm 8mm	30mm 5mm	30mm 8mm	40mm 10mm
Width							
0,10 (.0039")	16-48	20-64	20-80	20-80	30-100	30-100	40-100
0,15 (.0059")	16-48	20-64	20-80	20-80	30-100	30-100	40-100
0,20 (.0078")	16-48	20-64	20-80	20-80	30-100	30-100	40-100
0,25 (.0098")	16-48	20-64	20-80	20-80	30-100	30-100	40-100
0,30 (.0118")	16-48	20-64	20-80	20-80	30-100	30-100	40-100
0,35 (.0137")	16-48	20-64	20-80	20-80	30-100	30-100	40-100
0,40 (.0157")	16-48	20-64	20-64	20-64	30-100	30-100	40-80
0,50 (.0196")	16-48	20-60	20-64	20-64	30-100	30-100	40-80
0,55 (.0216")	16-48	20-60	20-64	20-64	30-100	30-100	40-80
0,60 (.0236")	16-48	20-60	20-64	20-64	30-100	30-100	40-80
0,70 (.0275")	16-48	20-60	20-48	20-48	30-100	30-100	40-80
0,80 (.0314")	16-40	20-48	20-48	20-48	30-100	30-100	40-80
0,85 (.0334")	16-40	20-48	20-48	20-48	30-100	30-100	32-70
0,90 (.0354")	16-40	20-48	20-48	20-48	30-100	30-100	32-70
1,00 (.0393")	16-40	20-48	20-48	20-48	30-100	30-100	32-70
1,05 (.0413")	16-40	20-48	20-48	20-48	30-100	30-100	32-70
1,125 (.0442")	16-40	20-48	20-48	20-48	30-100	30-100	32-70
1,15 (.0452")	16-40	20-48	20-48	20-48	30-100	30-100	32-64
1,20 (.0472")	16-40	20-48	20-40	20-40	30-100	30-100	32-64
1,25 (.0492")	16-32	20-40	20-48	20-48	30-100	30-100	32-64
1,30 (.0511")	16-32	20-32	20-48	20-48	30-100	30-100	32-64
1,40 (.0551")	16-32	20-32	20-48	20-48	30-100	30-100	32-64
1,50 (.0590")	16-32	20-32	20-40	20-40	30-100	30-100	32-64
1,60 (.0629")	16-32	20-32	20-40	20-40	30-100	30-100	32-64
1,70 (.0669")	16-32	20-32	20-40	20-40	30-100	30-100	24-48
2,00 (.0787")	16-32	20-32	20-40	20-40	30-100	30-100	24-48
2,20 (.0866")	16-32	20-32	20-40	20-40	30-100	30-100	24-48
2,50 (.0984")	16-32	20-32	20-40	20-40	30-100	30-100	24-48
3,00 (.1181")	16-32	20-32	20-40	20-40	24-100	24-100	24-48
	NUMBER OF TEETH Typical Width Tolerance: +/- .0002in (.005mm)						

ADVANCED PRECISION MICRO TOOL HOLDERS

- ***TIR <.0002"***
- ***Perfect Concentricity For Micro Drills***

Look to ***GenSwiss Micro Drill Holders*** for a new standard in holding micro drills in CNC Swiss Machines and Precision Lathes.

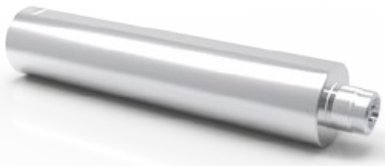
Take the ***NEXT STEP*** in precision micro drilling performance to meet today's ever changing demands for high performance, tight tolerance, micro parts production.

LOUIS BELET
Swiss Cutting tools

See Pg. 41
Micro Drills

Genevieve Swiss is committed to bringing the industry's finest cutting tools to the North American metalworking market. Louis Belet of Switzerland is a leading manufacturer of super precision micro tooling, drills and end mills as well as a large variety of specialty cutters.

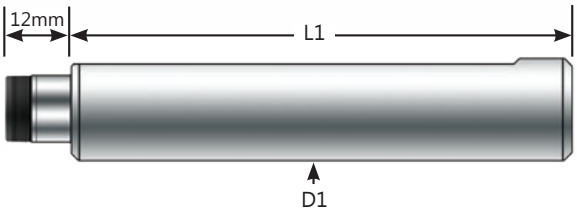
Ideal for Micro Drilling in Swiss Machines



Advanced Precision Collet Sleeves

Part No.	Collet	D1	L1
CS-CHK-127-026	CHK	.500"	26mm
CS-CHK-190-076	CHK	.750"	76mm
CS-CHK-254-121	CHK	1.00"	121mm

Note: Clamping Nut NOT Included*



Precision CHK Collets 0.5mm - 5.8mm ID

Size	P/N	Size	P/N	Size	P/N	Size	P/N
0.5mm	CC-CHK-0.5	1.9mm	CC-CHK-1.9	1/8"	CC-CHK-3.175	4.5mm	CC-CHK-4.5
0.6mm	CC-CHK-0.6	2.0mm	CC-CHK-2.0	3.2mm	CC-CHK-3.2	4.6mm	CC-CHK-4.6
0.7mm	CC-CHK-0.7	2.1mm	CC-CHK-2.1	3.3mm	CC-CHK-3.3	4.7mm	CC-CHK-4.7
0.8mm	CC-CHK-0.8	2.2mm	CC-CHK-2.2	3.4mm	CC-CHK-3.4	3/16"	CC-CHK-4.76
0.9mm	CC-CHK-0.9	2.3mm	CC-CHK-2.3	3.5mm	CC-CHK-3.5	4.8mm	CC-CHK-4.8
1.0mm	CC-CHK-1.0	2.35mm	CC-CHK-2.35	3.6mm	CC-CHK-3.6	4.9mm	CC-CHK-4.9
1.1mm	CC-CHK-1.1	2.4mm	CC-CHK-2.4	3.7mm	CC-CHK-3.7	5.0mm	CC-CHK-5.0
1.2mm	CC-CHK-1.2	2.5mm	CC-CHK-2.5	3.8mm	CC-CHK-3.8	5.1mm	CC-CHK-5.1
1.3mm	CC-CHK-1.3	2.6mm	CC-CHK-2.6	3.9mm	CC-CHK-3.9	5.2mm	CC-CHK-5.2
1.4mm	CC-CHK-1.4	2.7mm	CC-CHK-2.7	4.0mm	CC-CHK-4.0	5.3mm	CC-CHK-5.3
1.5mm	CC-CHK-1.5	2.8mm	CC-CHK-2.8	4.1mm	CC-CHK-4.1	5.4mm	CC-CHK-5.4
1.6mm	CC-CHK-1.6	2.9mm	CC-CHK-2.9	4.2mm	CC-CHK-4.2	5.5mm	CC-CHK-5.5
1.7mm	CC-CHK-1.7	3.0mm	CC-CHK-3.0	4.3mm	CC-CHK-4.3	5.6mm	CC-CHK-5.6
1.8mm	CC-CHK-1.8	3.1mm	CC-CHK-3.1	4.4mm	CC-CHK-4.4	5.7mm	CC-CHK-5.7
						5.8mm	CC-CHK-5.8

Accessory Components

Desc	Part No
CHK Nut	1017-000100

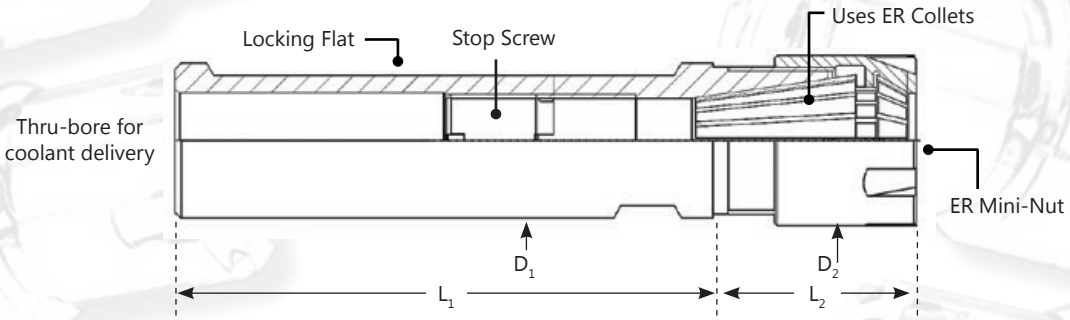
Desc	Part No
CHK Wrench	1035-000114

Note: (1) Clamping Nut and Wrench Required*

SWISS PRECISION COLLET SLEEVES

ER Style Collets are the tool holding system of choice for use in Swiss-Type machine applications. Swiss Precision collet sleeves provide rigid & accurate holding of ID tooling. These collet sleeves feature ground shanks and tapers. Mini nuts are used to reduce interference and to make setup and tool changing easier than collet sleeves with hexagonal clamping nuts.

- ***Locking flat prevents damage to sleeve shank and provides orientation for use with boring bars***
- ***Precision ground & case hardened for accuracy and precision***
- ***Internal stop screw prevents tool pushback***
- ***Can be used for coolant-thru applications***



Precision ER Collet Sleeves - Inch Shanks

Part No.	Collet	D1	D2	L1	L2	With Flat
CS-11G-158-030	ER11	.625"	16mm	20.5mm	12mm	x
CS-11P-158-050		.625"	16mm	50mm	12mm	x
CS-11P-158-100		.625"	16mm	100mm	12mm	x
CS-11P-190-070		.750"	16mm	70mm	12mm	x
CS-16P-158-075	ER16	.625"	22mm	75mm	18mm	x
CS-16P-190-035		.750"	22mm	35mm	18mm	?
CS-16P-190-050		.750"	22mm	50mm	18mm	x
CS-16P-190-070		.750"	22mm	70mm	18mm	x
CS-16P-190-100		.750"	22mm	100mm	18mm	x
CS-16i-190-120*		.750"	22mm	120mm	18mm	x
CS-16P-254-045G		1.00"	22mm	21.6mm	18mm	x
CS-16i-254-065*		1.00"	22mm	65mm	18mm	x
CS-16i-254-075*		1.00"	22mm	75mm	18mm	x
CS-16P-254-080		1.00"	22mm	80mm	18mm	x
CS-16P-254-100		1.00"	22mm	100mm	18mm	x
CS-16P-254-130		1.00"	22mm	130mm	18mm	x
CS-20i-254-100*	ER20	1.00"	28mm	100mm	28mm	x
CS-20i-254-140*		1.00"	28mm	140mm	28mm	x

*No stop screw

Metric & Inch Sized Shanks

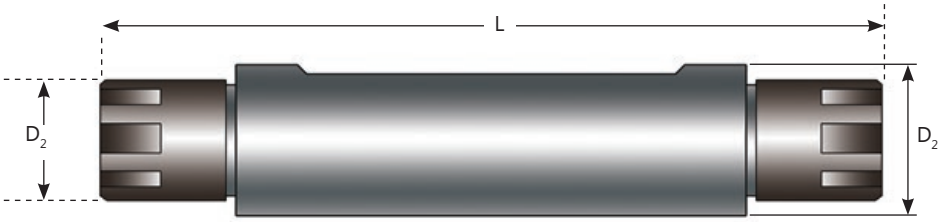
Precision ER Collet Sleeves - Metric Shanks

Part No.	Collet	D1	D2	L1	L2	With Flat
CS-11P-200-070	ER11	20mm	16mm	70mm	12mm	x
CS-16P-200-035		20mm	22mm	35mm	18mm	x
CS-16P-200-050		20mm	22mm	50mm	18mm	
CS-16P-200-070		20mm	22mm	70mm	18mm	x
CS-16P-200-100		20mm	22mm	100mm	18mm	x
CS-16R-220-070	ER16	22mm	22mm	70mm	18mm	x
CS-16R-220-100		22mm	22mm	100mm	18mm	x
CS-16P-250-060*		25mm	28mm	60mm	18mm	x
CS-16P-250-100*		25mm	28mm	100mm	18mm	x
CS-16P-250-160*		25mm	28mm	160mm	18mm	x
CS-20i-220-080	ER20	22mm	28mm	100mm	28mm	x
CS-25R-220-070	ER25	22mm	35mm	70mm	47mm	x

Includes Hex-Style Nut

DOUBLE ENDED COLLET SLEEVES

- ***Adds additional ID tool positions***
- ***Enables simultaneous main and subspindle operations***
- ***Precision ground and case hardened ensuring high accuracy***



Inch Shanks

Part No.	Collet	D_1	D_2	L
CS-11G-158-075D		.625"	16mm	75mm
CS-11T-190-065D		.750"	16mm	65mm
CS-11T-190-085D	ER11	.750"	16mm	85mm
CS-11T-190-100D		.750"	16mm	100mm
CS-11T-190-125D		.750"	16mm	125mm
CS-16i-190-110D		.750"	22mm	110mm
CS-16P-254-085D	ER16	1.00"	22mm	85mm
CS-16P-254-120D		1.00"	22mm	120mm

Metric Shanks

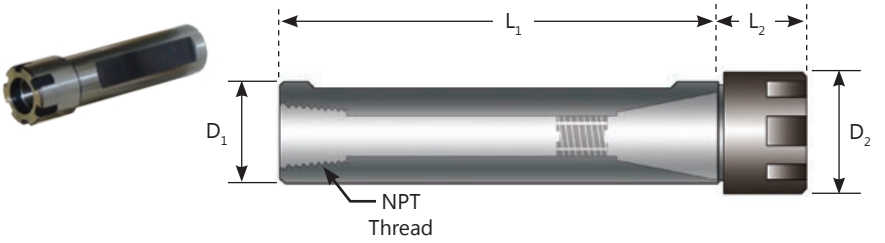
Part No.	Collet	D_1	D_2	L
CS-11i-160-090D	ER11	16mm	16mm	90mm
CS-11i-200-070D		20mm	16mm	70mm
CS-16i-220-110D	ER16	22mm	22mm	110mm
CS-16i-220-130D		22mm	22mm	130mm
CS-20R-320-110D	ER20	32mm	28mm	110mm
CS-20R-320-130D		32mm	28mm	130mm

COOLANT FED COLLET SLEEVES

Specifically designed for use with High-Pressure coolant delivery systems, these collet sleeves feature NPTs built in for easy integration into your coolant system. A cost effective way to add coolant-thru capability to your drilling or boring applications.

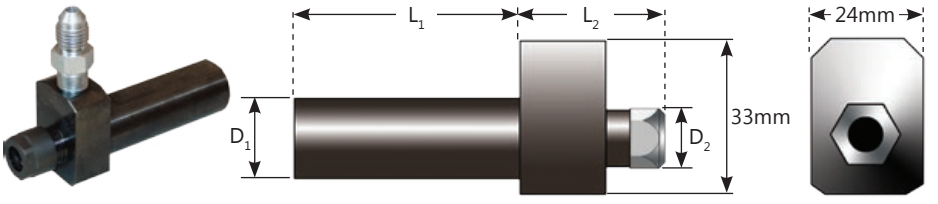
These can be used with sealed coolant style ER collets or with standard ER collets. When using standard collets, it is recommended that a coolant sealing disc and coolant nut be used to facilitate the coolant flow through the tool.

Part No.	Collet	D_1	D_2	L_1	L_2	NPT
CS-11G-190-045C	ER11	.750"	16mm	36mm	14mm	1/8"
CS-11G-190-072C		.750"	16mm	63mm	14mm	1/8"
CS-16B-190-040C	ER16	.750"	22mm	40mm	18mm	1/4"
CS-16B-190-060C		.750"	22mm	60mm	18mm	1/4"
CS-16B-190-085C		.750"	22mm	85mm	18mm	1/4"
CS-20B-254-050C	ER20	1.00"	28mm	50mm	19mm	3/8"
CS-20B-254-085C		1.00"	28mm	85mm	19mm	3/8"



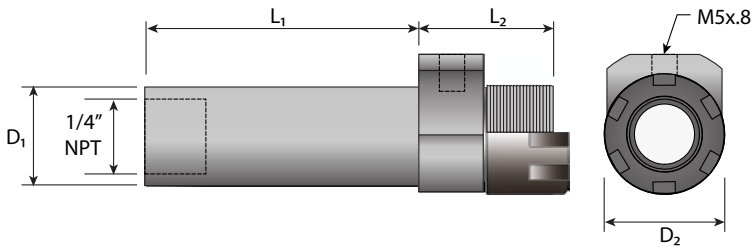
Part No.	Collet	D_1	D_2	L_1	L_2	Coolant Fitting
CS-11M-200-075*	ER11	20mm	16mm	75mm	13mm	#4JIC M10x1
CS-11M-200-055		20mm	16mm	55mm	30mm	#4JIC 1/8" NPT
CS-16M-200-055	ER16	20mm	22mm	55mm	31mm	#4JIC 1/8" NPT
CS-16M-220-055		22mm	22mm	55mm	31mm	#4JIC 1/8" NPT

*Coolant fitting located on back end of shank, also excludes 33x24mm 'head'



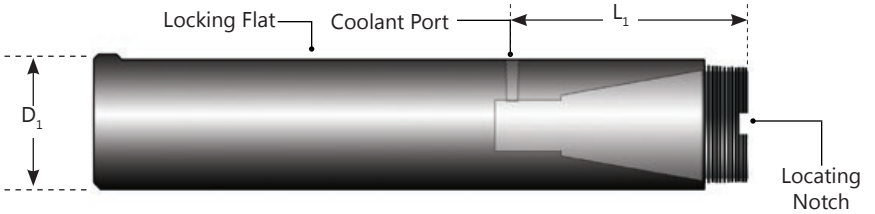
Coolant Fed Collet Sleeves

Part No.	Collet	D_1	D_2	L_1	L_2	Coolant Fittings	
CS-16G-190-050	ER16	.750″	22mm	50	27mm	M5x.8	1/4″ NPT
CS-16G-190-060	ER16	.750″	22mm	60	27mm	M5x.8	1/4″ NPT
CS-16G-190-070	ER16	.750″	22mm	70	27mm	M5x.8	1/4″ NPT
CS-16G-200-050	ER16	20mm	22mm	50	27mm	M5x.8	1/4″ NPT
CS-16G-200-070	ER16	20mm	22mm	70	27mm	M5x.8	1/4″ NPT
CS-16G-220-050	ER16	22mm	22mm	50	27mm	M5x.8	1/4″ NPT
CS-16G-220-070	ER16	22mm	22mm	70	27mm	M5x.8	1/4″ NPT
CS-16G-250-050	ER16	25mm	22mm	50	27mm	M5x.8	1/4″ NPT
CS-16G-250-070	ER16	25mm	22mm	70	27mm	M5x.8	1/4″ NPT
CS-16G-254-050	ER16	1″	22mm	50	27mm	M5x.8	1/4″ NPT



QUICK CHANGE TOOL HOLDING SOLUTIONS

These collet sleeves are cost effective solutions to tool holding and are available in a variety of both Inch and Metric sized shank diameters. Also featuring a solid shank for rigidity and a side coolant port for connection to a high-pressure coolant delivery system. Every unit has a notched collet taper for easy tool orientation when combined with Quick-Change boring bar adaptors.



Shank ONLY

Shank w/ nut

Shank Only - Inch

Part No.	Collet	D_1	L_1	OAL
CQS-SS-160500	ER16	.500"	1.1"	4.5"
CQS-SS-160625	ER16	.625"	1.1"	4.5"
CQS-SS-160750	ER16	.750"	1.1"	4.5"
CQS-SS-161000	ER16	1.00"	1.1"	4.5"
CQS-SS-200750	ER20	.750"	1.2"	4.5"
CQS-SS-201000	ER20	1.00"	1.2"	4.5"
CQS-SS-201250	ER20	1.25"	1.2"	4.5"

Shank w/ Nut - Inch

Part No.	Collet	D_1	L_1	OAL
CQS-S16-0500-CSE	ER16	.500"	1.1"	4.5"
CQS-S16-0625-CSE	ER16	.625"	1.1"	4.5"
CQS-S16-0750-CSE	ER16	.750"	1.1"	4.5"
CQS-S16-1000-CSE	ER16	1.00"	1.1"	4.5"
CQS-S20-0750-CSE	ER20	.750"	1.2"	4.5"
CQS-S20-1000-CSE	ER20	1.00"	1.2"	4.5"
CQS-S20-1250-CSE	ER20	1.25"	1.2"	4.5"

Shank Only - Metric

Part No.	Collet	D_1	L_1	OAL
CQS-SS-160500	ER16	.500"	1.1"	4.5"
CQS-SS-160625	ER16	.625"	1.1"	4.5"
CQS-SS-160750	ER16	.750"	1.1"	4.5"
CQS-SS-161000	ER16	1.00"	1.1"	4.5"
CQS-SS-200750	ER20	.750"	1.2"	4.5"
CQS-SS-201000	ER20	1.00"	1.2"	4.5"
CQS-SS-201250	ER20	1.25"	1.2"	4.5"

Shank w/ Nut - Metric

Part No.	Collet	D_1	L_1	OAL
CQS-S16-0787-CSE	ER16	20mm	28mm	71mm
CQS-S16-0866-CSE	ER16	22mm	28mm	118mm
CQS-S16-0984-CSE	ER16	25mm	28mm	95mm
CQS-S20-0866-CSE	ER20	22mm	30mm	114mm
CQS-S20-1260-CSE	ER20	32mm	30mm	118mm
ER25, 32 & 40 sizes are available as well, Call for details				

Double Ended Shanks w/ Clamping Nuts

Inch

Part No.	Collet	D_1	OAL
CQS-S16-0750-CDE	ER16	.750"	4.5"
CQS-S16-1000-CDE	ER16	1.00"	4.5"
CQS-S20-1000-CDE	ER20	1.00"	4.5"

Metric

Part No.	Collet	D_1	OAL
CQS-S16-0866-CDE	ER16	22mm	114mm
CQS-S16-0984-CDE	ER16	25mm	95mm
CQS-S20-1260-CDE	ER20	32mm	118mm

Braided Steel High-Pressure Coolant Lines

For use with all Quick-Change Collet sleeves and Tool Holders

37° flared 1/4" tube w/ JIC fitting (female)
M5x.8 straight fitting (male)

Part No.	Description
CQS-CB6	6" Stainless Coolant Line
CQS-CB8	8" Stainless Coolant Line
CQS-CB12	12" Stainless Coolant Line
CQS-CB16	16" Stainless Coolant Line

Spare ER Collet Nuts

For use with all Quick-Change Collet sleeves and Tool Holders

Part No.	ER Size	Nut Thread
CQS-NT160001	ER16	M19 x 1.0
CQS-NT200001	ER20	M24 x 1.0
CQS-NT250001	ER25	M32 x 1.5

Quick Change Collets

Presetable collets for use with ANY ER-Style collet holder. Enables quick changeover of ID tools in ANY machine using ER collets for tool holding.

Quick Change Bore Adaptors

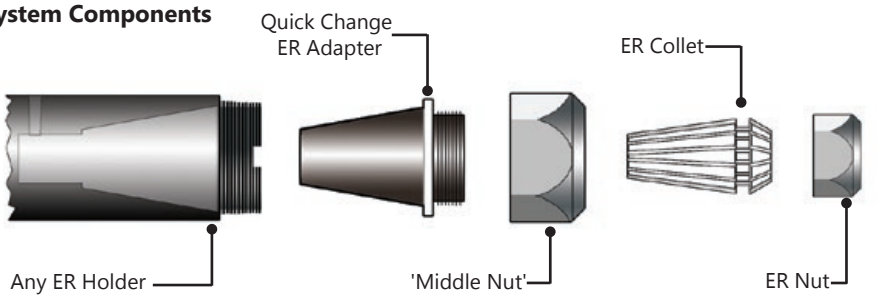
These adapters are designed for use with the notched Quick-Change collet holders. They provide easy locating of axial and radial position for boring tools.

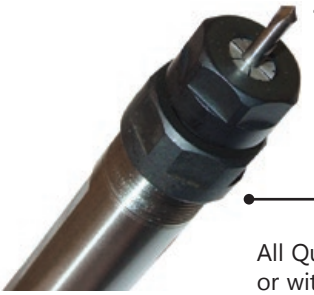
QUICK CHANGE COLLET ADAPTERS

Quick Change collet adapters make it easier to control quality in your shop. These adapters make it simple to have preset tooling available, eliminating the need to touch off the tool after a routine change. This also enables less experienced machine operators to be more productive.

- ***Simplifies Setup***
- ***Decreases Downtime***

System Components





- Preset spare tooling
- Decreases downtime
- Can be used as an extension

All Quick Change assemblies can be ordered with or without an ER collet. Specify collet size at time of order if needed.

Assembly With Collet

Part No.	*Adapter*	*Collet*	*Middle Nut Thread*
CQS-AS11-0801-xxx	ER11 to ER8	ER8	M13 x .75
CQS-AS11-0802-xxx	ER11 to ER8	ER8	M14 x .75
CQS-AS16-1101-xxx	ER16 to ER11	ER11	M19 x 1
CQS-AS16-1102-xxx	ER16 to ER11	ER11	M22 x 1.5
CQS-AS20-1601-xxx	ER20 to ER16	ER16	M24 x 1
CQS-AS20-1601-xxx	ER20 to ER16	ER16	M25 x 1.5

Assembly Only

Part No.	*Adapter*	*Collet*	*Middle Nut Thread*
CQS-AS11-0803	ER11 to ER8	ER8	M13 x .75
CQS-AS11-0804	ER11 to ER8	ER8	M14 x .75
CQS-AS16-1103	ER16 to ER11	ER11	M19 x 1
CQS-AS16-1104	ER16 to ER11	ER11	M22 x 1.5
CQS-AS20-1603	ER20 to ER16	ER16	M24 x 1
CQS-AS20-1604	ER20 to ER16	ER16	M25 x 1.5

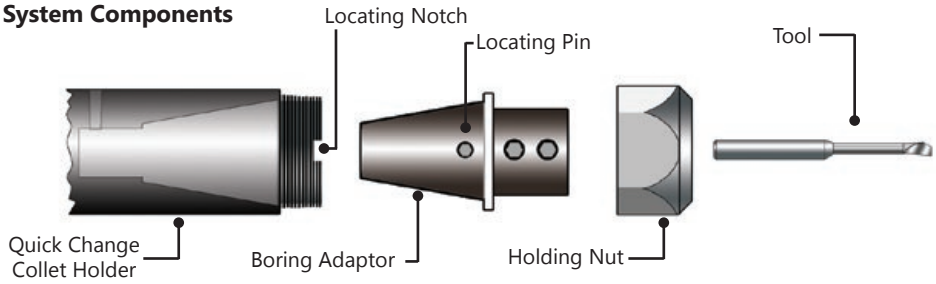
*replace xxx with desired collet size in nominal inch or mm sizes

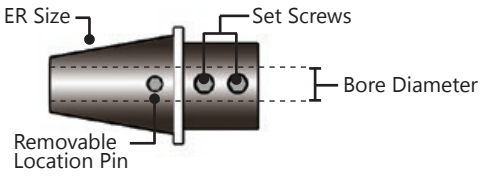
QUICK CHANGE BORING ADAPTERS

Quick Change Boring adaptors make it fast and simple to locate center position for boring bars when combined with notched ER holders. A simple locating pin rests within the notched holder ensuring accurate centering. These solid bushings utilize the ER collet system to securely hold a boring bar in a rigid fashion. Axial length can be easily set using any form of presetting device.

Easily Locates Boring Bar Axial & Radial Position

System Components





ER16

Part No.	ER Size	Bore	Nut Thread
CQS-SH16-12501	ER16	.125in	M19 x 1
CQS-SH16-18701		.1875in	M19 x 1
CQS-SH16-25001		.250in	M19 x 1
CQS-SH16-31201		.3125in	M19 x 1
CQS-SH16-37501		.375in	M19 x 1

ER20

Part No.	ER Size	Bore	Nut Thread
CQS-SH20-125	ER20	.125in	M24 x 1
CQS-SH20-1875		.1875in	M24 x 1
CQS-SH20-250		.250in	M24 x 1
CQS-SH20-3125		.3125in	M24 x 1
CQS-SH20-375		.375in	M24 x 1

Additional Size Options Available, please call.

Other Uses:

Endmilling

Solid ER holders can be used as a rigid holding device for carbide endmills, reducing chatter and helping increase surface finishes. Can also be used as an extension to get closer to the work piece.

Punch Broaching

When orientation of an internal polygon profile is crucial, a solid ER holder can be used to securely hold a punch broach tool to accurately align the tool to center and ensure perfect alignment of the profile orientation.

REGO-FIX® ER Collets

REGO-FIX®

Standard ER Collets

- T.I.R ≤ .0004" Standard
  T.I.R ≤ .0002" Ultra-Precision
- The Best ER Collet on the Market
- Add 'UP' to Part No. for *ULTRA-PRECISION*

Metric

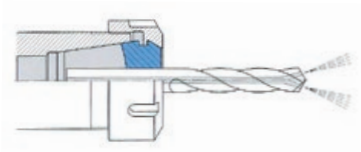
Size	ER08	ER11	ER16	ER20	Range
1/16"	CC-ER08i-1/16	CC-ER11i-1/16	CC-ER16i-1/16		.0425" - .0625"
3/32"		CC-ER11i-3/32	CC-ER16i-3/32		.0738" - .0938"
1/8"	CC-ER08i-1/8	CC-ER11i-1/8	CC-ER16i-1/8	CC-ER20i-1/8	.1050" - .1250"
5/32"		CC-ER11i-5/32	CC-ER16i-5/32		.1363" - .1563"
3/16"	CC-ER08i-3/16	CC-ER11i-3/16	CC-ER16i-3/16	CC-ER20i-3/16	.1675" - .1875"
7/32"		CC-ER11i-7/32	CC-ER16i-7/32		.1988" - .2188"
1/4"		CC-ER11i-1/4	CC-ER16i-1/4	CC-ER20i-1/4	.2300" - .2500"
9/32"			CC-ER16i-9/32		.2413" - .2813"
5/16"			CC-ER16i-5/16	CC-ER20i-5/16	.2725" - .3125"
11/32"			CC-ER16i-11/32		.3038" - .3438"
3/8"			CC-ER16i-3/8	CC-ER20i-3/8	.3350" - .3750"
13/32"			CC-ER16i-13/32		.3663" - .4063"
7/16"				CC-ER20i-7/16	.3975" - .4375"
1/2"				CC-ER20i-1/2	.4600" - .5000"

Inch

Size	ER08	ER11	ER16	ER20	Range
1mm	CC-ER08-01.0	CC-ER11-01.0	CC-ER16-01.0	CC-ER20-01.0	0.50 - 1.00
1.5mm	CC-ER08-01.5	CC-ER11-01.5	CC-ER16-01.5	CC-ER20-01.5	1.00 - 1.50
2mm	CC-ER08-02.0	CC-ER11-02.0	CC-ER16-02.0	CC-ER20-02.0	1.50 - 2.00
2.5mm	CC-ER08-02.5	CC-ER11-02.5	CC-ER16-02.5	CC-ER20-02.5	2.00 - 2.50
3mm	CC-ER08-03.0	CC-ER11-03.0	CC-ER16-03.0	CC-ER20-03.0	2.50 - 3.00
3.5mm	CC-ER08-03.5	CC-ER11-03.5	CC-ER16-03.5	CC-ER20-03.5	3.00 - 3.50
4mm	CC-ER08-04.0	CC-ER11-04.0	CC-ER16-04.0	CC-ER20-04.0	3.50 - 4.00
4.5mm	CC-ER08-04.5	CC-ER11-04.5	CC-ER16-04.5	CC-ER20-04.5	4.00 - 4.50
5mm	CC-ER08-05.0	CC-ER11-05.0	CC-ER16-05.0	CC-ER20-05.0	4.50 - 5.00
5.5mm		CC-ER11-05.5	CC-ER16-05.5	CC-ER20-05.5	5.00 - 5.50
6mm		CC-ER11-06.0	CC-ER16-06.0	CC-ER20-06.0	5.50 - 6.00
6.5mm		CC-ER11-06.5	CC-ER16-06.5	CC-ER20-06.5	6.00 - 6.50
7mm		CC-ER11-07.0	CC-ER16-07.0	CC-ER20-07.0	6.50 - 7.00
7.5mm			CC-ER16-07.5	CC-ER20-07.5	7.00 - 7.50
8mm			CC-ER16-08.0	CC-ER20-08.0	7.50 - 8.00
8.5mm			CC-ER16-08.5	CC-ER20-08.5	8.00 - 8.50
9mm			CC-ER16-09.0	CC-ER20-09.0	8.50 - 9.00
9.5mm			CC-ER16-09.5	CC-ER20-09.5	9.00 - 9.50
10mm			CC-ER16-10.0	CC-ER20-10.0	9.50 - 10.00
10.5mm				CC-ER20-10.5	10.00 - 10.50
11mm				CC-ER20-11.0	10.50 - 11.00
11.5mm				CC-ER20-11.5	11.00 - 11.50
12mm				CC-ER20-12.0	11.50 - 12.00
12.5mm				CC-ER20-12.5	12.00 -12.50
13mm				CC-ER20-13.0	12.50 - 13.00

Coolant-Thru ER Collets

- For High Pressure Coolant Applications
- No Rubber Seals to Blow Out
- Rated to 2000 psi of pressure
- Ultra-Precision T.I.R. ≤ .0002"



Metric

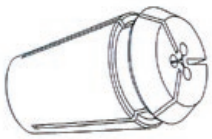
Size	ER11	ER16	ER20	Range
3mm	CK-ER11-03.0	CK-ER16-03.0	CK-ER20-03.0	2.75 - 3.00
4mm	CK-ER11-04.0	CK-ER16-04.0	CK-ER20-04.0	3.75 - 4.00
5mm	CK-ER11-05.0	CK-ER16-05.0	CK-ER20-05.0	4.50 - 5.00
6mm	CK-ER11-06.0	CK-ER16-06.0	CK-ER20-06.0	5.50 - 6.00
7mm	CK-ER11-07.0	CK-ER16-07.0	CK-ER20-07.0	6.50 - 7.00
8mm		CK-ER16-08.0	CK-ER20-08.0	7.50 - 8.00
9mm		CK-ER16-09.0	CK-ER20-09.0	8.50 - 9.00
10mm		CK-ER16-10.0	CK-ER20-10.0	9.50 - 10.00
11mm			CK-ER20-11.0	10.50 - 11.00
12mm			CK-ER20-12.0	11.50 - 12.00
13mm			CK-ER20-13.0	12.50 - 13.00

Inch

Size	ER11	ER16	ER20	Range
1/8"	CK-ER11i-1/8	CK-ER16i-1/8	CK-ER20i-1/8	.1154" - .1250"
3/16"	CK-ER11i-3/16	CK-ER16i-3/16	CK-ER20i-3/16	.1776" - .1875"
1/4"	CK-ER11i-1/4	CK-ER16i-1/4	CK-ER20i-1/4	.2300" - .2500"
5/16"	CK-ER11i-5/16	CK-ER16i-5/16	CK-ER20i-5/16	.2929" - .3125"
3/8"		CK-ER16i-3/8	CK-ER20i-3/8	.3556" - .3750"
7/16"			CK-ER20i-7/16	.4177" - .4375"
1/2"			CK-ER20i-1/2	.4803" - .5000"

Micro-Bore ER Collets

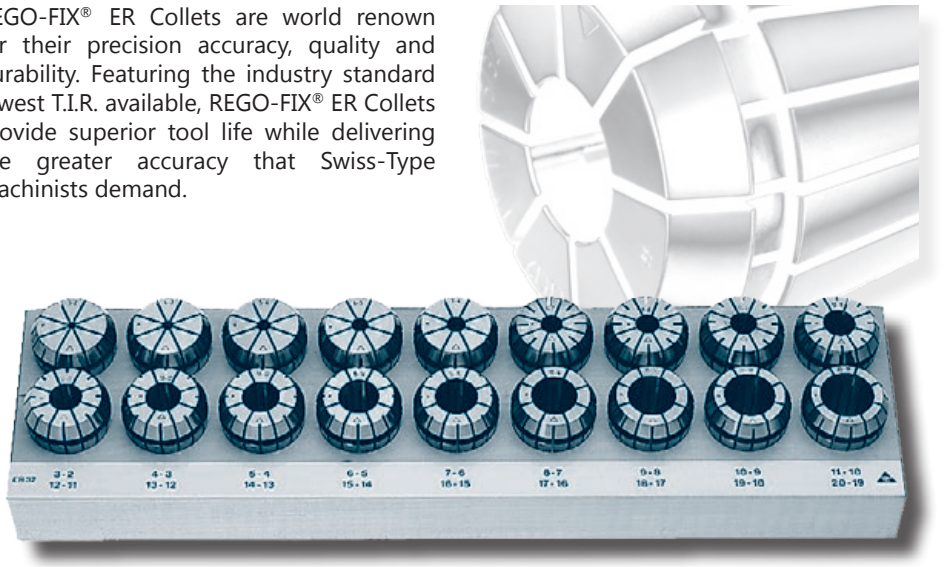
- Special Design Enables Holding of Micro-Tools
- Clamps Nominal Diameters with h7 Tolerances



Size	ER08	ER11	ER16	Clamping Diameter h7	
0.2mm	CM-ER08-0.20	CM-ER11-0.20	CM-ER16-0.20	0.2mm	.0079"
0.3mm	CM-ER08-0.30	CM-ER11-0.30	CM-ER16-0.30	0.3mm	.0118"
0.4mm	CM-ER08-0.40	CM-ER11-0.40	CM-ER16-0.40	0.4mm	.0157"
0.5mm	CM-ER08-0.50	CM-ER11-0.50	CM-ER16-0.50	0.5mm	.0197"
0.6mm	CM-ER08-0.60	CM-ER11-0.60	CM-ER16-0.60	0.6mm	.0236"
0.7mm	CM-ER08-0.70	CM-ER11-0.70	CM-ER16-0.70	0.7mm	.0276"
0.8mm	CM-ER08-0.80	CM-ER11-0.80	CM-ER16-0.80	0.8mm	.0315"
0.9mm	CM-ER08-0.90	CM-ER11-0.90	CM-ER16-0.90	0.9mm	.0354"

REGO-FIX®

REGO-FIX® ER Collets are world renown for their precision accuracy, quality and durability. Featuring the industry standard lowest T.I.R. available, REGO-FIX® ER Collets provide superior tool life while delivering the greater accuracy that Swiss-Type machinists demand.



STANDARD PRECISION Collet Sets - T.I.R. < .0004"

Metric

Part No.	Size	Pieces	Size Range
CC-08R-S09-MSP	ER8	9	.5-5mm
CC-11R-S13-MSP	ER11	13	.5-7mm
CC-16R-S10-MSP	ER16	10	.5-10mm
CC-20R-S12-MSP	ER20	12	1-13mm

Inch

Part No.	Size	Pieces	Size Range
CC-08R-S3-ISP	ER08	3	1/16 - 3/16"
CC-11R-S7-ISP	ER11	7	1/16-1/4"
CC-16R-S12-ISP	ER16	12	1/16-13/32"
CC-20R-S7-ISP	ER20	7	1/8-1/2"

ULTRA PRECISION Collet Sets - T.I.R. < .0002"

Metric

Part No.	Size	Pieces	Size Range
CC-08R-S09-MUP	ER8	9	.5-5mm
CC-11R-S13-MUP	ER11	13	.5-7mm
CC-16R-S10-MUP	ER16	10	.5-10mm
CC-20R-S12-MUP	ER20	12	1-13mm

Inch

Part No.	Size	Pieces	Size Range
CC-08R-S3-IUP	ER08	3	1/16 - 3/16"
CC-11R-S3-IUP	ER11	3	1/8-1/4"
CC-16R-S12-IUP	ER16	12	1/16-13/32"
CC-20R-S7-IUP	ER20	7	1/8-1/2"

THRU-COOLANT Collet Sets - T.I.R. < .0002"

Metric

Part No.	Size	Pieces	Size Range
CK-16R-S08-MSP	ER16	8	3-10mm
CK-20R-S11-MSP	ER20	11	3-13mm

Inch

Part No.	Size	Pieces	Size Range
CK-16R-S05-ISP	ER16	5	1/8" - 3/8"
CK-20R-S07-ISP	ER20	7	1/8" - 1/2"

ER25, ER32, ER40, ER50 are also available. Call for Details & Part Numbers

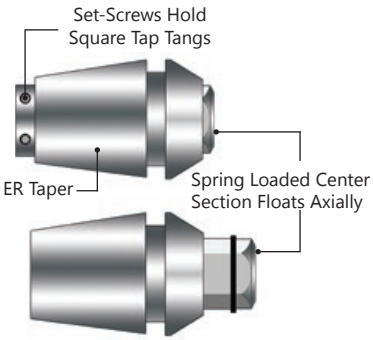
PCM® Axial Floating Tap Collets

PCM floating tapping collets are an economical solution to replace expensive tapping sleeves and eliminate tapping error. Ideal for use on machines that do not have a rigid tapping function.

The ET1 floating tap collets can also be used with rigid tapping function to compensate for pitch error due to the torsional stress that can occur on small taps eliminating the difference between the tap and the CNC.

Tapping Collets (Inch)

Shank	ER11	ER16	ER20	ER25	ER32
0.141"	ET1-12141	ET1-16141	ET1-20141	ET1-25141	
0.168"		ET1-16168	ET1-20168	ET1-25168	ET1-32168
0.194"		ET1-16194	ET1-20194	ET1-25194	ET1-32194
0.220"		ET1-16220	ET1-20220	ET1-25220	ET1-32220
0.255"			ET1-20255	ET1-25255	ET1-32255
0.318"				ET1-25318	ET1-32318
0.323"				ET1-25323	ET1-32323
0.367"				ET1-25367	ET1-32367
0.381"				ET1-25381	ET1-32381
0.429"					ET1-32429
0.437"					ET1-32437
0.480"					ET1-32480



Tapping Collets (Metric)

Shank	ER11	ER16	ER20	ER25
1mm	ET1-12100AL	ET1-16100AL		
1.4mm	ET1-12140	ET1-16140		
1.5mm	ET1-12150AL	ET1-16150AL		
1.6mm	ET1-12160	ET1-16160		
1.8mm	ET1-12180	ET1-16180		
2mm	ET1-12200	ET1-16200		
2.2mm	ET1-12221	ET1-16221	ET1-20221	
2.24mm	ET1-12224	ET1-16224	ET1-20224	
2.5mm	ET1-12250	ET1-16250	ET1-20250	ET1-25250
2.8mm	ET1-12280	ET1-16280	ET1-20280	ET1-25280
3mm	ET1-12300	ET1-16300	ET1-20300	ET1-25300
3.15mm	ET1-12315	ET1-16315	ET1-20315	ET1-25315
3.5mm	ET1-12350	ET1-16350	ET1-20350	ET1-25350
3.55mm	ET1-12355	ET1-16355	ET1-20355	ET1-25355

Tapping Collets (Metric)

Shank	ER16	ER20	ER25
4mm	ET1-16400	ET1-20400	ET1-25400
4.5mm	ET1-16450	ET1-20450	ET1-25450
5mm	ET1-16500	ET1-20500	ET1-25500
5.5mm	ET1-16550	ET1-20550	ET1-25550
5.6mm	ET1-16560	ET1-20560	ET1-25560
6mm	ET1-16600	ET1-20600	ET1-25600
6.2mm	ET1-16620	ET1-20620	ET1-25620
6.3mm	ET1-16630	ET1-20630	ET1-25630
7mm		ET1-20700	ET1-25700
7.1mm			ET1-25710
8mm			ET1-25800
8.5mm			ET1-25850
9mm			ET1-25900
10mm			ET1-25100

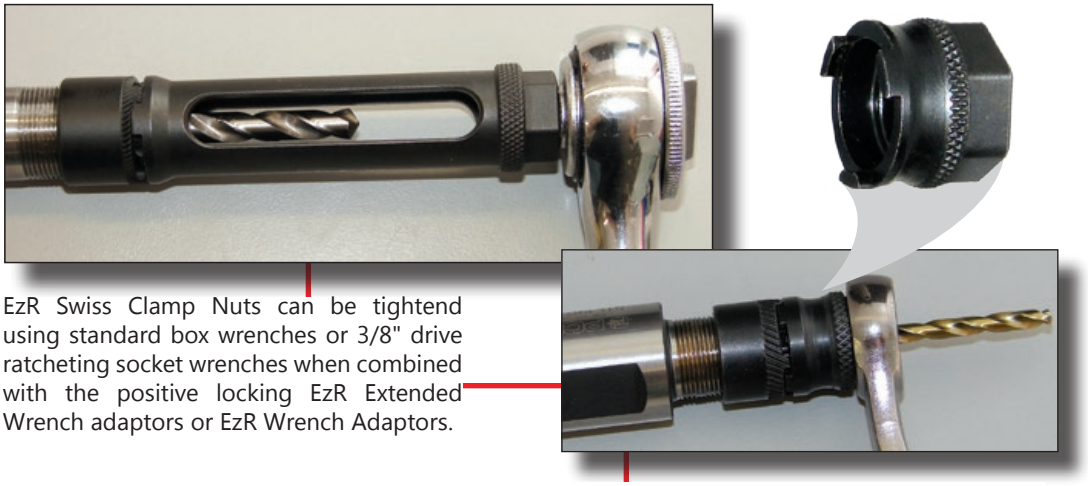
EZR Swiss Clamp: Positive Engaging Collet Nuts

EZR Swiss Clamp System

Upgrade your current tool holders with "EzR Swiss-Clamp" ER Collet clamping nuts from GenSwiss. This system eliminates wrench slippage and keeps machine operators clear of sharp, fragile tooling, thus reducing operator injury and preventing accidental breakage of expensive ID micro-tooling. The unique drive feature also eliminates losing clamping nuts in the machine sump/chip bin by affixing to the wrench adaptor.

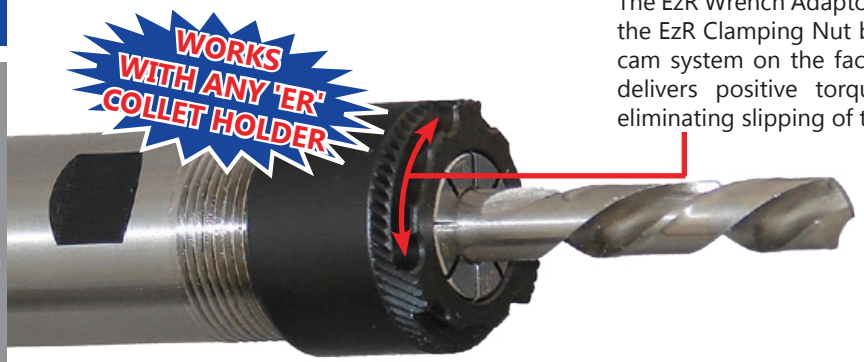
Balanced for use with Live Tooling Too!

EzR Extended Wrench Adaptor clears sharp tooling keeping your hands safe from injury while enabling accurate tightening of ER Tooling



EzR Swiss Clamp Nuts can be tightend using standard box wrenches or 3/8" drive ratcheting socket wrenches when combined with the positive locking EzR Extended Wrench adaptors or EzR Wrench Adaptors.

The EzR Wrench Adaptor engages and locks to the EzR Clamping Nut by way of a specialized cam system on the face. This locking system delivers positive torque to the nut while eliminating slipping of the wrench.



EzR Swiss Clamp nuts are now included with the **GenBore®**

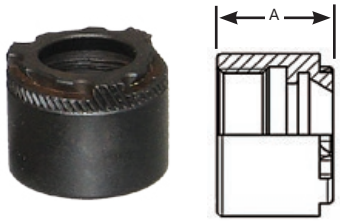
EZR Swiss Clamp: Make Your Setup EASY

NEVER drop an ER clamping nut in your machine sump again!

EzR Swiss Clamp Nuts

Replaces standard Mini-Nuts

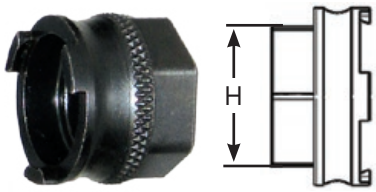
Part No.	Size	A	Thread
EZR08-NUT	ER11	11.3mm	M10 x .75
EZR11-NUT	ER11	11.3mm	M13 x .75
EZR16-NUT	ER16	17mm	M19 x 1.00
EZR20-NUT	ER20	19mm	M24 x 1.00
EZR25-NUT	ER25	20mm	M30 x 1.00
EZR32-NUT	ER32	23mm	M38 x 1.00



EzR Wrench Adapter

Hex-Driver for use with standard box wrenches or sockets

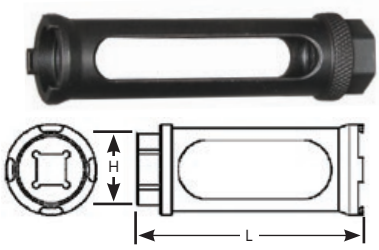
Part No.	Size	H
EZR08-ADP	ER08	12mm
EZR11-ADP	ER11	13mm
EZR16-ADP	ER16	17mm
EZR20-ADP	ER20	19mm
EZR25-ADP	ER25	22mm
EZR32-ADP	ER32	27mm



EzR Extended Wrench Adapter

Driver for clamping EzR Nuts using standard box wrenches or 3/8" drive ratchets.

Part No.	Size	L	H
EZR08-TQN	ER08	75mm	12mm
EZR11-TQN	ER11	75mm	13mm
EZR16-TQN	ER16	85mm	17mm
EZR20-TQN	ER20	90mm	19mm
EZR25-TQN	ER25	96mm	22mm
EZR32-TQN	ER32	96mm	27mm



EzR Swiss Clamp Kits

Retro-Fit your existing ER Collet Tool Holders with the EzR Swiss Clamp System. Kits include (6) EzR nuts, (1) Wrench Adaptor, (1) Torque nut and (1) EzR Spanner

Part No.	Size	L	H
EZR08-TQN	ER08	75mm	12mm
EZR11-TQN	ER11	75mm	13mm
EZR16-TQN	ER16	85mm	17mm
EZR20-TQN	ER20	90mm	19mm
EZR25-TQN	ER25	96mm	22mm
EZR32-TQN	ER32	96mm	27mm

Coolant Ring Seals

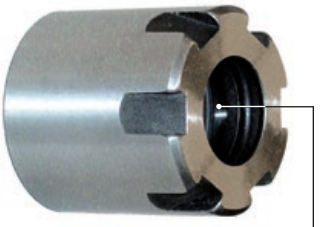
When combined with Coolant mini-nuts, coolant ring seals are ideal for use in high-pressure coolant delivery applications.

- Rated to ~2000 psi of pressure
- Sealing O-ring is resistant to aggressive coolant chemistries

Tool Shank Ø	ER16	ER20	Sealing Capacity
3/32"	CD-ER16- 03.0	CD-ER20- 03.0	3.0 - 2.5mm
1/8"	CD-ER16 - 03.5	CD-ER20 - 03.5	3.5 - 3.0mm
5/32"	CD-ER16 - 04.0	CD-ER20 - 04.0	4.0 - 3.5mm
	CD-ER16 - 04.5	CD-ER20 - 04.5	4.5 - 4.0mm
3/16"	CD-ER16 - 05.0	CD-ER20 - 05.0	5.0 - 4.5mm
7/32"	CD-ER16 - 05.5	CD-ER20 - 05.5	5.5 - 5.0mm
	CD-ER16 - 06.0	CD-ER20 - 06.0	6.0 - 5.5mm
1/4"	CD-ER16 - 06.5	CD-ER20 - 06.5	6.5 - 6.0mm
	CD-ER16 - 07.0	CD-ER20 - 07.0	7.0 - 6.5mm
9/32"	CD-ER16 - 07.5	CD-ER20 - 07.5	7.5 - 7.0mm
5/16"	CD-ER16 - 08.0	CD-ER20 - 08.0	8.0 - 7.5mm
	CD-ER16 - 08.5	CD-ER20 - 08.5	8.5 - 8.0mm
11/32"	CD-ER16 - 09.0	CD-ER20 - 09.0	9.0 - 8.5mm
3/8"	CD-ER16 - 09.5	CD-ER20 - 09.5	9.5 - 9.0mm
	CD-ER16 -10.0	CD-ER20 -10.0	10.0 - 9.5mm
13/32"		CD-ER20 -10.5	10.5 - 10.0mm
		CD-ER20 -11.0	11.0 - 10.5mm
7/16"		CD-ER20 -11.5	11.5 - 11.0mm
		CD-ER20 -12.0	12.0 - 11.5mm
		CD-ER20 -12.5	12.5- 12.0mm
1/2"		CD-ER20 - 13.0	13.0 - 12.5mm

Hi-Q® Coolant Mini Nuts

Coolant Mini-nuts are to be used in conjunction with coolant ring seals. The nut includes an internal grooved seat for insertion of coolant discs, allowing the use of standard ER Collets in thru-coolant applications.



Internal Groove for Coolant Ring

Part No.	Size	Thread
CN-ER11-MNC	ER11	M13 x 0.75
CN-ER16-MNC	ER16	M19 x 1.00
CN-ER20-MNC	ER20	M24 x 1.00
CN-ER25-MNC	ER25	M30 x 1.00

IMPORTANT!

ER11 Hi-Q® Mini nuts feature built-in coolant seal. Specify tool diameter when ordering - Available Size Range: 3mm - 7mm

Hi-Q® ER Mini Nuts

For use with any ER Collet Chuck or Sleeve

Part No.	Size	Thread
CN-ER08-MNS	ER08	M10 x .75
CN-ER11-MNS	ER11	M13 x .75
CN-ER16-MNS	ER16	M19 x 1.00
CN-ER20-MNS	ER20	M24 x 1.00
CN-ER25-MNS	ER25	M30 x 1.00

Mini-Nut Spanner Wrenches

Ideal for use in tight tooling zones commonly found in CNC Swiss-Type Machines.

Part No.	Size
CW-04620	ER08
CW-04621	ER11
CW-04622	ER16
CW-04623	ER20

Collet Sleeve Bushings

Precision Reduction Sleeves are an inexpensive alternative to purchasing additional collet holders & tooling.

Part No.	OD	ID	OAL
CSB-254-160-040	1in	16mm	40mm
CSB-220-190-050K	22mm	3/4in	55mm
CSB-254-190-050J-M	1in	3/4in	50mm

Part No.	OD	ID	OAL
MRH 1600 1230	16mm	12mm	30mm
MRH 1905 1240	.750in	12mm	40mm
MRH 2200 1240	22mm	12mm	40mm
MRH 2540 1240	1.00in	12mm	40mm

Part No.	OD	ID	OAL
MRH 1905 1640	.750in	16mm	40mm
MRH 2200 1640	22mm	16mm	40mm
MRH 2540 1640	1.00in	16mm	40mm

Swiss Silver HP-A

Advance Your Small Parts Manufacturing with

SWISS SILVER

- NO STAINING RESINS - Your machine stays cleaner
- HIGH FLASH POINT - Reduces possibility of machine fires
- LOW MIST - Good for high pressure delivery
- LOW VISCOSITY - Reduces air entrapment

The Right Machine
The Right Tooling
The Right Oil

Swiss Silver is formulated from a highly refined mineral base oil that is as crystal clear as pure water. Low viscosity makes it perfect for Swiss-Type Machines and small parts manufacturing as it provides superior penetration on micro-parts and better flow to the cutting tool.

Swiss Silver Base Oil

A Higher Class of Oil

SWISS SILVER

Swiss Silver Products are Available in TYPE A or TYPE B

TYPE

A Good For All Metals including Brass & Copper

B Contains additives to enhance tool life in ferrous materials & tough alloys. Could possibly tarnish brass & copper parts if left uncleaned.

Swiss Silver Premium

Our Standard HIGH PERFORMANCE Premium Product. Ideal for all Swiss-Type Machines or Small Parts Turning Centers. For extended tool life & Medium pressure delivery & package for reduced mist & air entrapment.

Type A: LCO-SS00-A00-MGS ---- Type B: LCO-SS00-B00-MGS

Swiss Silver AB

Specifically designed for Aluminum, Brass and Copper applications. Special features include our Extended Tool Life Formulation for machining Aluminum & Brass with superior finish results. Prevents tarnishing of all yellow metals.

Standard: LCO-SSAB-000-MGS --- High Pressure: LCO-SSHP-AB0-MGS

Swiss Silver HM

Formulated for machining of "hard metals" such as high nickel materials, Inconel, Hastaloy and other extreme & exotic alloys. Includes tool life enhancing additives providing the superior finish results that Swiss Silver users expect.

Type A: LCO-SSHM-A00-MGS ---- Type B: LCO-SSHM-B00-MGS

Swiss Silver HP

Specifically designed for High Pressure Coolant Delivery Systems. Provides incredible resistance to foaming while minimizing mist and air entrapment. Available in both TYPE A & TYPE B Grades. Suitable for all applications.

Type A: LCO-SSHP-A00-MGS ---- Type B: LCO-SSHP-B00-MGS

Swiss Silver Platinum

Specifically designed for High Pressure Coolant Delivery Systems. Provides low viscosity and better heat dispersion for precision micro machining and deep hole drilling. Available in both TYPE A & TYPE B Grades. Excels on stainless steel, tough alloys, titanium, brass, and aluminum.

Type A: LCO-SPLA-A00-MGS ---- Type B: LCO-SPLB-B00-MGS

Swiss Silver VX

High Performance Vegetable Based alternative product provides pure lubricity and unparalleled surface finish on parts. Biodegradable and environmentally acceptable for fulfilling 'green' machining objectives. Suitable for high pressure delivery applications.

Type A: LCO-SSVX-101A-VGS ---- Type B: LCO-SSVX-101B-VGS

Custom Formulations Available, Call for Details
Available in 55 gallon drums or 5 gallon pails

MAGNETIC FINISHING

No Feature Is Too Small

- Edge Rounding of .002-.003in
- Removes Micro-Burrs
- Improves Surface Finishes

Contact Us For A FREE Applications Trial

First developed for the jewelry industry, this sensitive burnishing device is quickly being adapted for medical, instrument and RF connector applications because of its non distorting method of finishing. Magnetic Finishers remove micro-burrs and improve surface finishes on non ferrous materials and some stainless steels. Small steel pins of .007" -.050" in diameter are spun at a high-speed by a magnetic wheel. The size of the pins enable them to travel through fragile parts to remove microscopic burrs that would normally be removed by hand. The non-aggressive burnishing action enables desirable edge rounding of .002-.003" without part damage to threads, knurls, or other fine edge surfaces.

Suggested Applications

Stainless Finishing Media

Magnetic Separator Tool

Precision De-Burr & Small Parts Automatically

Complete Sets - Includes Stainless Finishing Media & Supplies

Part No.	*Bowl Size*	*Description*
FR-CMF-610-S	6in	Includes Base, Turbo Finishing Pins, Burnishing Solution, & Magnetic Separator - 120V or 230V
FR-CMF-900-S	9in	Includes Base, Turbo Finishing Pins, Burnishing Solution, & Magnetic Separator - 120V or 230V
FR-CMF-1200-S	12in	Includes base, Turbo Finishing Pins, Burnishing Solution, & Magnetic Separator - 230V ONLY & requires plug wiring by qualified electrician.

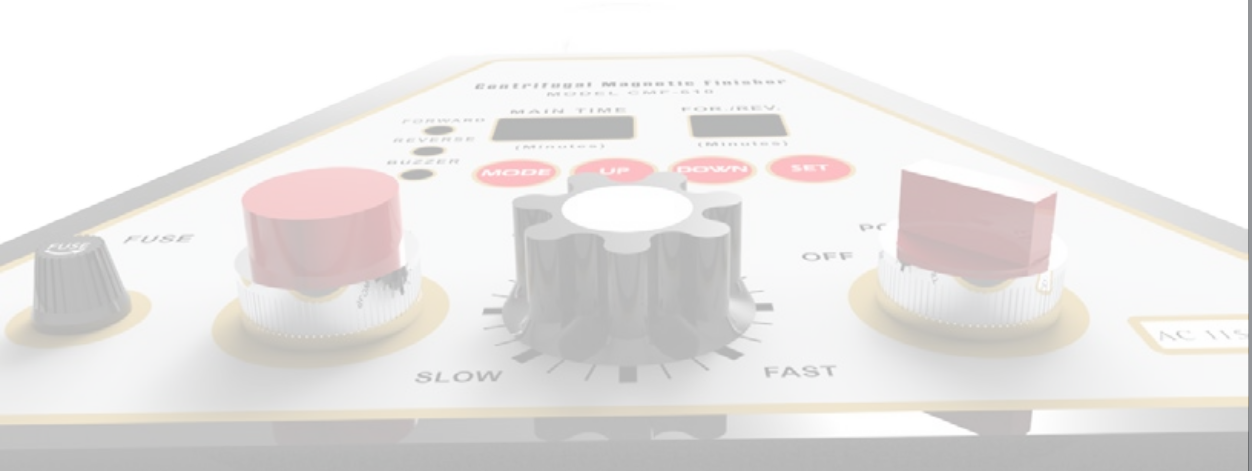
Finisher Units

Part No.	*Description*
FR-23051	6in Finisher Unit
FR-23052	9in Finisher Unit
FR-24145	12in Finisher Unit

Stainless Steel Media

Part No.	*Description*
FR-41372	(.250kg) .3mm Diameter x 5mm OAL
FR-41374	(1.00kg) .3mm Diameter x 5mm OAL
FR-41376	(.250kg) .5mm Diameter x 5mm OAL
FR-41378	(1.00kg) .5mm Diameter x 5mm OAL

Additional sizes available upon request



Drill Size Chart

FRACT #SIZE	METRIC (mm)	DECIMAL INCHES
80	0.3429	0.0135
79	0.368	0.0145
(1/64)	0.3969	0.0156
78	0.4064	0.016
77	0.4572	0.018
	0.5	0.0197
76	0.508	0.02
75	0.5334	0.021
74	0.5715	0.0225
73	0.6096	0.024
72	0.635	0.025
71	0.6604	0.026
70	0.7712	0.028
69	0.7417	0.0292
	0.75	0.0295
68	0.7874	0.031
(1/32)	0.7938	0.0312
67	0.8128	0.032
66	0.8382	0.033
65	0.889	0.035
64	0.9144	0.036
63	0.9398	0.037
62	0.9652	0.038
61	0.9906	0.039
	1	0.0394
60	1.016	0.04
59	1.0414	0.041
58	1.0668	0.042
57	1.0922	0.043
56	1.1811	0.0465
(3/64)	1.1906	0.0469
	1.25	0.0492
55	1.3208	0.052
54	1.397	0.055
	1.5	0.0591
53	1.5113	0.0595
(1/16)	1.5875	0.0625
52	1.6129	0.0635
51	1.7018	0.067
	1.75	0.0689
50	1.778	0.07
49	1.8542	0.073
48	1.9304	0.076
(5/64)	1.9844	0.0781
47	1.9939	0.0785
	2	0.0787
46	2.0574	0.081
45	2.0828	0.082
44	2.144	0.086
	2.25	0.0886
43	2.2606	0.089
42	2.3749	0.0935
(3/32)	2.3813	0.0938
41	2.4384	0.096
40	2.4892	0.098
	2.5	0.0984
39	2.5273	0.0995
38	2.5781	0.1015
37	2.6416	0.104
36	2.7051	0.1065

LETTER FRACT #SIZE	METRIC (mm)	DECIMAL INCHES
	2.75	0.1083
(7/64)	2.7781	0.1094
35	2.794	0.11
34	2.8194	0.111
33	2.8702	0.113
32	2.9464	0.116
	3	0.1181
31	3.048	0.12
(1/8)	3.175	0.125
	3.25	0.128
30	3.2639	0.1285
29	3.4544	0.136
	3.5	0.1378
28	3.5687	0.1405
(9/64)	3.5719	0.1406
27	3.6576	0.144
26	3.7973	0.147
	3.75	0.1476
25	3.7973	0.1495
24	3.8608	0.152
23	3.9116	0.154
(5/32)	3.9688	0.1562
22	3.9878	0.157
	4	0.1575
21	4.0386	0.159
20	4.0894	0.161
19	4.2164	0.166
	4.25	0.1673
18	4.3053	0.1695
(11/64)	4.3656	0.1719
17	4.3942	0.173
16	4.4958	0.177
	4.5	0.1772
15	4.572	0.18
14	4.6228	0.182
13	4.699	0.185
	4.75	0.187
(3/16)	4.7625	0.1875
12	4.8006	0.189
11	4.8514	0.191
10	4.9149	0.1935
9	4.9874	0.196
	5	0.1969
8	4.0546	0.199
7	5.1054	0.201
(13/64)	5.1594	0.2031
6	5.1816	0.204
5	5.2197	0.2055
	5.25	0.2067
4	5.3086	0.209
3	5.4102	0.213
	5.5	0.2165
(7/32)	5.5563	0.2188
2	5.6134	0.221
	5.75	0.2264
1	5.7912	0.228
A	5.9436	0.234
(15/64)	5.9531	0.2344
	6	0.2362
B	6.0452	0.238

LETTER/ FRACT SIZE	METRIC (mm)	DECI-MAL INCHES
C	6.1468	0.242
D	6.2484	0.246
	6.25	0.2461
E (1/4)	6.35	0.25
	6.5	0.2559
F	6.5278	0.257
G	6.6294	0.261
(17/64)	6.7469	0.2656
	6.75	0.2657
H	6.7564	0.266
I	6.9088	0.272
	7	0.2756
J	7.0358	0.277
K	7.1374	0.281
(9/32)	7.1438	0.2812
	7.25	0.2854
L	7.366	0.29
M	7.493	0.295
	7.5	0.2953
(19/64)	7.5406	0.2969
N	7.6708	0.302
	7.75	0.3051
(5/16)	7.9375	0.3125
	8	0.315
O	8.0264	0.316
P	8.2042	0.323
	8.25	0.3248
(21/64)	8.3344	0.3281
Q	8.4328	0.332
	8.5	0.3346
R	8.6106	0.339
(11/32)	8.7316	0.3438
	8.75	0.3445
S	8.8392	0.348
	9	0.3543
T	9.0932	0.358
(23/64)	9.1281	0.3594
	9.25	0.3642
U	9.3472	0.368
	9.5	0.374
(3/8)	9.525	0.375
V	9.5758	0.377
	9.75	0.3839
W	9.8044	0.386
(25/64)	9.9219	0.3906
	10	0.3937
X	10.0838	0.397
Y	10.2616	0.404
(13/32)	10.3188	0.4063
Z	10.4902	0.413
	10.5	0.4134
(27/64)	10.7156	0.4219
	11	0.4331
(7/16)	11.1125	0.4375
	11.5	0.4528
(29/64)	11.5094	0.4531
(15/32)	11.9063	0.4688
	12	0.4724
(31/64)	12.3031	0.4844
	12.5	0.4921

FRACT SIZE	METRIC (mm)	DECIMAL INCHES
(1/2)	12.7	0.5
	13	0.5118
(33/64)	13.0969	0.5156
(17/32)	13.4938	0.5312
	13.5	0.5315
(35/64)	13.8906	0.5469
	14	0.5512
(9/16)	14.2875	0.5625
	14.5	0.5709
(37/64)	14.6844	0.5781
	15	0.5906
(19/32)	15.0813	0.5938
(39/64)	15.4781	0.6094
	15.5	0.6102
(5/8)	15.875	0.625
	16	0.6299
(41/64)	16.2719	0.6406
	16.5	0.6496
(21/32)	16.6687	0.6562
	17	0.6693
(43/64)	17.0656	0.6719
(11/16)	17.4625	0.6875
	17.5	0.689
(45/64)	17.8594	0.7031
	18	0.7087
(23/32)	18.2563	0.7188
	18.5	0.7283
(47/64)	18.6531	0.7344
	19	0.748
(3/4)	19.05	0.75
(49/64)	19.4469	0.7656
	19.5	0.7677
(25/32)	19.8438	0.7813
	20	0.7874
51/64	20.2406	0.7969
	20.5	0.8071
(13/16)	20.6375	0.8125
	21	0.8268
(53/64)	21.0344	0.8281
(27/32)	21.4313	0.8438
	21.5	0.8465
(55/64)	21.8281	0.8594
	22	0.8661
(7/8)	22.225	0.875
	22.5	0.8858
(57/64)	22.6219	0.8906
	23	0.9055
(29/32)	23.0188	0.9062
(21/23)	23.1913	0.913
(59/64)	23.4156	0.9219
	23.5	0.9252
(15/16)	23.8125	0.9375
	24	0.9449
(61/64)	24.2094	0.9531
	24.5	0.9646
(31/32)	24.6063	0.9688
	25	0.9843
(63/64)	25.0031	0.9844
1	25.4	1

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