UNIVERSAL / DeVlieg Inc.

World Class Precision

The most comprehensive offering in the industry!

2008 PRODUCT CATALOG

Pioneers in Tool Holding and High Precision Boring Solutions

Universal / DeVlieg Inc. has been providing innovative and cost cutting solutions for over 80 years to the machine tool industry, servicing a diversified customer base. We have continued to push the envelope in production and tooling performance with sound, proven technology that is continually evolving.

Specials are still a main part of our manufacturing and focus.

We have over 32,000 active part numbers and over 10,000 standard items. This allows us to provide tooling solutions unmatched in the industry complemented with our design engineering expertise and technical support staff.

We have several new products and updates in this catalog release including:

- Sealed ER Collets
- Improved MOD-Flex Modular Boring Offering
- Expanded CNC Tool Holder Offering and many other expansions and updates

The advantage of being “original pioneers” and having manufactured special tooling for over 80 years is that we have built just about every configuration imaginable. This gives us the experience necessary to provide working solutions the first time!

Quality has never been an issue with tapers manufactured to ISO AT3 taper tolerances. We pride ourselves on a high quality product that performs for years consistently and accurately.

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Product Warranty

Universal / DeVlieg Inc. warrants all standard tooling systems to be free of defects in material or manufacture for a period of one year from shipping date. Non-Catalog and Special items are warranted for material and workmanship only, the customer accepts all responsibility for design and function. Product malfunction meeting the above criteria will be rectified immediately at no charge to the customer. This applies to the product supplied only and does not include any other considerations or misuse of the product.

All other warranties, expressed or implied, are excluded from all sales by Universal / DeVlieg Inc..

Universal / DeVlieg Inc. has no control over the use of our products by our customers. All recommendations in this catalog, web site or by our staff is given in good faith. It is the responsibility of the user to test and insure the products are suitable for the application.

Safety Warnings

Proper safety and protection must be observed when using any machining product. In the machining process material, cutting tool or holding device fragments may be thrown at high speeds which can cause serious bodily harm. It is important to use proper shielding, protective garments, safety equipment and general safety during all machining practices.

Carbide Warnings

When used properly Carbide products are designed to be safe and without risk to person or property. Please review recommended usage and make sure the tool is being used within designed diameter, speed and feeds for the operation being performed. Improper use can cause serious bodily harm and damage to personal property.

These products use materials which are classified as hazardous by OSHA. This may include one or more of the following: Tungsten Carbide, Titanium Carbide, Chromium Carbide, Chromium Cadmium, Cobalt and Nickel.

Carbide products are brittle and may fracture from impact which may cause fragments to detach at high speed. All insert holders are designed to accept a standard configuration and should fit tight and secure in the insert pocket. Carbide should never be forced or loosely fit in the insert holder. It is imperative that proper shielding, protective garments, safety equipment and general safety are observed while using any carbide products. Do not grind carbide without proper equipment and ventilation, grinding carbide may release dangerous levels of cobalt. Material Safety Data Sheets, are available upon request.

Retention Knob Warnings

Unfortunately in our industry the machine tool manufactures have used thousands of different retention knob configurations. Many look similar but have dimensional differences which if misapplied may allow a tool holder to release from a machine spindle causing personal injury or property damage. It is very important that the proper retention knob is used with the proper tool holder for each individual machine.

Make sure all retention knobs are fully tightened, workable thread locking compound is recommended. Do not over tighten, excessive run out or damage may occur to the tool holder and / or spindle.

Universal / DeVlieg Inc. builds to industry standards and meet material, tensile and yield designated by the ANSI, ISO, DIN or JIS standards. All special knobs are built to these standards unless otherwise specified by the customer who assumes all responsibility and liability for the design.

Table of Contents

CNC Tool Holding
- CAT40 & CAT50 Shank
- BT 40 Shank
- HSK63A & HSK100A Shank



Pages 4-49

Straight, Taper & Acme Threaded Shank Tooling
- Collet Chucks
- Tap Chucks
- Max-Float Floating Holders



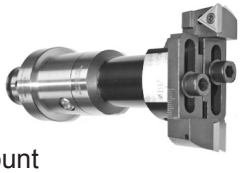
Pages 50-61

DeVlieg® Micro-Adjust Boring Systems
- Technical Data
- Mod-Flex Modular Tooling
- “GA” Gear Adjust Boring Heads
- Micro-Adjust Boring Bars & Boring Rings
- “GA” Gear Adjust Boring Bars & Boring Rings



Pages 62-132

Twinbore & Tribore Rough Boring Systems
- Twinbore Holders
- Twinbore & Tribore Component Data
- Tribore Holders
- Cartridges
- Mod-Flex Standard Adapters, Straight Shank & Pilot Flange Mount



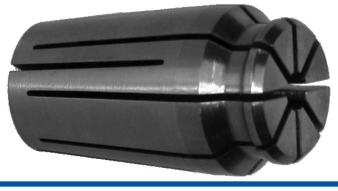
Pages 133-155

Kwik-Switch® Tooling Systems
- Spindles & Master Holders
- Adapters
- Accessories



Pages 156-171

Collets
- Acura-Flex®, Acura-Tap®, Acura-Grip®
- Double Taper
- “ER” Collets
- SG (TG) & Double Angle Collets



Pages 172-193

Accessories
- Collet Nuts & Wrenches
- HSK Coolant Tubes & Wrenches
- Tap Adapters & Tap Extensions
- Retention Knobs
- Shell Mill Screws
- Locking Fixtures
- Preset Height Gages



Pages 194-206

Microset Tool Presetting
- Models Available
- Service & Calibration, Parts



Pages 207-208

CAT40 Shank Tooling
- Acura-Flex®, ER & SG Collet Chucks
- End Mill, Shell Mill Adapters & Stub Arbors
- Shrinker®
- Morse & Jacobs Taper Adapters
- Tap Drivers
- Kwik-Switch® Nose & Soft Blank Nose



Pages 5-15

CAT50 Shank Tooling
- Acura-Flex®, ER & SG Collet Chucks
- End Mill, Shell Mill Adapters & Stub Arbors
- Shrinker®
- Morse & Jacobs Taper
- Tap Drivers
- Kwik-Switch® Nose & Soft Blank Nose



Pages 16-26

BT40 Shank Tooling
- Acura-Flex®, SG & ER Collet Chucks
- End Mill & Shell Mill Adapters
- Shrinker®
- Morse & Jacobs Taper Adapters
- Tap Drivers
- Soft Blank Nose



Pages 27-37

HSK 63A Shank Tooling
- Acura-Flex® & ER Collet Chucks
- End Mill & Shell Mill Adapters
- Shrinker®
- Soft Blank Nose



Pages 38-43

HSK 100A Shank Tooling
- Acura-Flex® & ER Collet Chucks
- End Mill & Shell Mill Adapters
- Shrinker®
- Soft Blank Nose

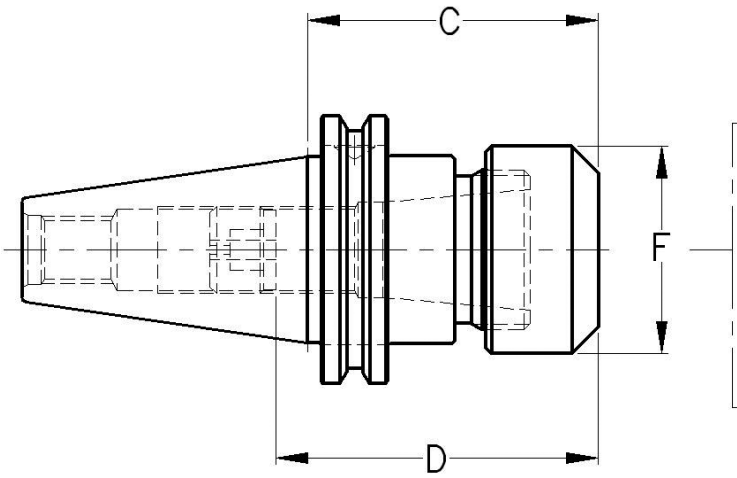


Pages 44-49

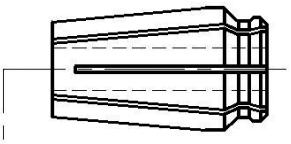
Acura-Flex® Collet Chucks with CAT40 Shanks

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature
- ANSI B 5.50 1994-AT3 taper tolerance
- DIN coolant thru the flange available upon request

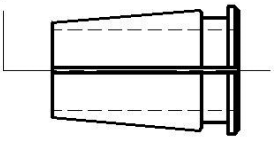




Acura-Flex
- Extended range
- Excellent gripping power



Acura-Grip
- Extreme precision
- 1/2, 3/4, 1” collet ranges



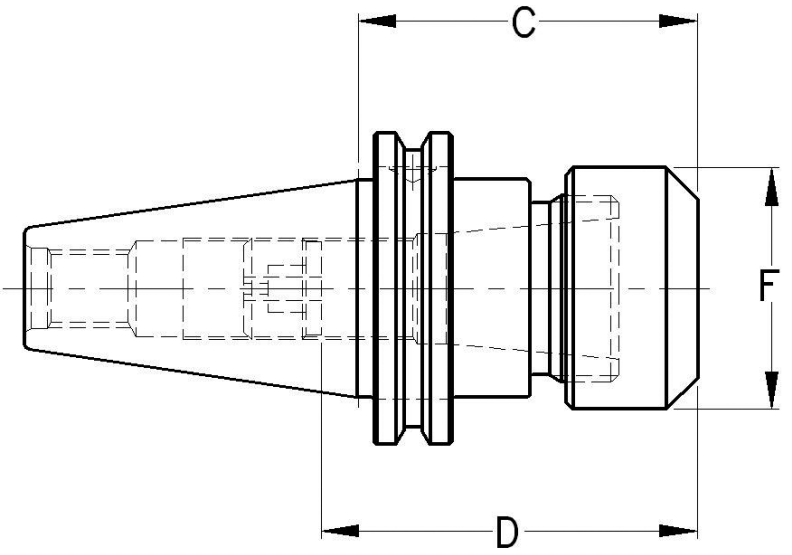

P: 173

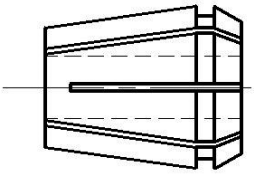

P: 203

Part Number	Collet Range (Acura-Flex Collet No.’s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF912807 AF913533 AF913534	1/16 - 3/8 (AF21 - AF44)	3.00 4.00 6.00	3.00	1.00 Octagon	9400002	40 ft/lbs	55068
AF91963 AF914004 AF913501	7/64 - 1/2 (AF55 - AF82)	2.25 3.86 6.00	2.88 2.88 3.25	1.25 Octagon	9400020	50 ft/lbs	55105
AF911628 AF914005 AF912715	7/64 - 3/4 (AF95 - AF140)	2.72 4.09 6.00	3.50 3.91 4.00	1.94 Spanner	9400005	75 ft/lbs	55139
AF91964 AF912713	7/32 – 1” (AF162 - AF213)	3.00 6.00	3.25 4.25	2.50 Spanner	9400021	90 ft/lbs	55171

ER Collet Chucks with CAT40 Shanks

- ER extended range collets
- Order collets separately by matching collet series
- Coolant thru feature
- ANSI B 5.50 1994-AT3 taper tolerance
- DIN coolant thru the flange available upon request





ER collets

- Extended range





P: 184



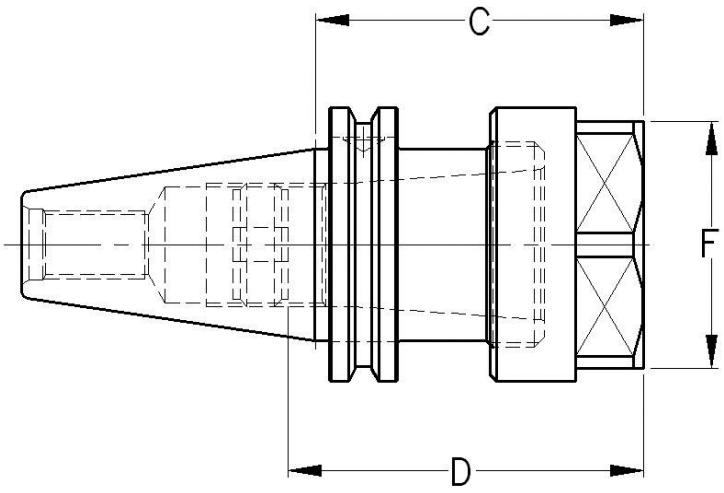
P: 203

Part Number	Collet Series	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
40CTER1125	ER11 (.020 - .276)	2.50	2.25	.67 Hex.	NER11	20 ft. lbs.	WER11
40CTER1140		4.00	3.00				
40CTER1160		6.00	3.00				
40CTER1625	ER 16 (.020 - .394)	2.50	3.00	.98 Hex.	NER16	50 ft. lbs.	WER16
40CTER1630		3.00	3.00				
40CTER1640		4.00	3.00				
40CTER1650		5.00	3.00				
40CTER1660		6.00	3.00				
40CTER2030	ER20 (.039 - .512)	3.00	3.00	1.18 Hex.	NER20	75 ft. lbs.	WER20
40CTER2040		4.00	4.00				
40CTER2060		6.00	4.00				
40CTER2080		8.00	4.00				
40CTER2525	ER25 (.039 - .630)	2.50	2.50	1.65 Span.	NER25	95 ft. lbs.	WER25
40CTER2540		4.00	4.00				
40CTER2560		6.00	4.00				
40CTER3225	ER32 (.079 - .787)	2.50	3.00	1.96 Span.	NER32	125 ft. lbs.	WER32
40CTER3230		3.00	3.29				
40CTER3240		4.00	4.00				
40CTER3260		6.00	4.00				
40CTER3280		8.00	6.00				
40CTER4030	ER40 (.118 - 1.181)	3.00	3.00	2.48 Span.	NER40	140 ft. lbs.	WER40
40CTER4040		4.00	4.00				
40CTER4060		6.00	4.00				
40CTER2080		8.00	4.00				

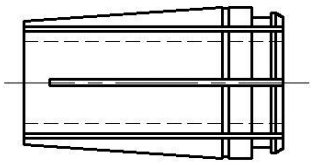
SG (TG) Collet Chucks with CAT40 Shanks

- SG (TG) extended range collets
- Order collet separately by matching collet series
- ANSI B 5.50 1994-AT3 taper tolerance
- Coolant thru feature
- ANSI B5.50 1994 - AT3 Taper Tolerance





SG (TG) collets
- Single angle



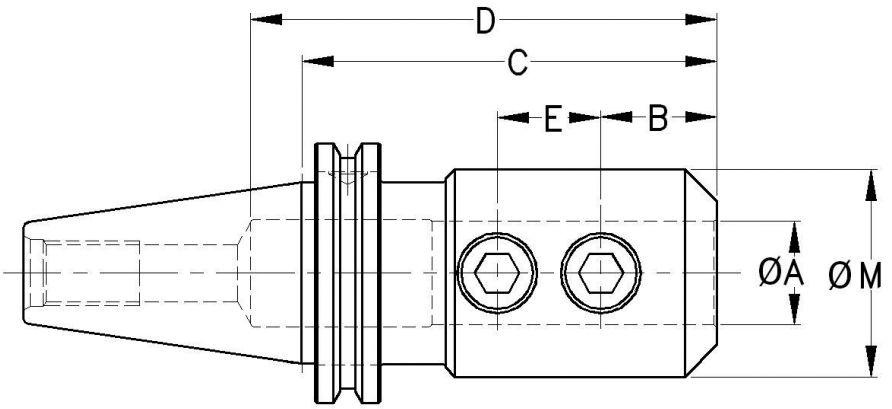

P: 188


P: 203

Part Number	Collet Series	Collet Range	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
440483	75SG	.062 - .750	3.00	3.00	1.88 Hex	440107	60 ft. lbs.	505955
440484	10SG	.093 - 1.000	3.00	3.35	2.25 Hex	440003	60 ft. lbs.	505646
440485			5.00	4.54				
440486			6.50	6.00				

End Mill Adapters with CAT40 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru - DIN coolant thru the flange available upon request





Part Number	A End Mill Shank Size	B	C	D	E	M	Set Screw No.
4617755* 4610557	.1875	.56 .56	1.38 4.00	2.88 2.32	—	.69	FS1032 02500 FS1032 02500
4617756* 4610558	.2500	.62	1.38 4.00	2.88 2.38	—	.88 1.00	FS1620 03125 FS1620 03750
4617757* 4610559	.3125	.56 .75	1.38 4.00	2.88 2.50	—	1.00	FS2018 03125
4617745* 463657 4615739* 4610234 4611616 4612034	.3750	.62 .75 .75 .75 .75 .75	1.38 2.50 3.00 4.00 5.00 6.00	2.88 2.56 2.56 2.56 2.56 2.56	—	1.00 1.12 1.12 1.12 1.12 1.12	602611
4617746* 463658 4615740 4610235 4612037 4612038	.5000	.88	1.75 2.50 3.00 4.00 5.00 6.00	3.25 3.00 3.00 3.00 3.00 3.00	—	1.75 1.38 1.38 1.38 1.38 1.38	602713
4617747* 4615741* 463659 4612041 4612042	.6250	.94	1.75 3.00 3.38 5.00 6.00	2.10 3.50 3.50 3.50 3.50	—	1.75	602812
4617748* 4615742* 463660 4612045 4612046	.7500	1.00	1.75 3.00 3.38 5.00 6.00	2.35 3.88 3.88 3.88 3.88	—	1.75	603014
4617749* 463661 4610238* 4612050	.8750	1.00	1.75 3.38 4.00 6.00	2.35 4.25 4.25 4.25	— .81 .81 .81	1.75	603015 603015** 603015** 603015**
4617750* 463662 4610239 4611405	1.0000	1.00 1.12 1.12 1.12	1.75 3.38 4.00 6.00	2.35 3.12 4.00 5.00	— 1.00 1.00 1.00	2.00† 2.12 2.12 2.12	603126 603113 & 603131 603113** 603113**
4617751* 466997 4612056	1.2500	1.00 1.12 1.12	2.00 4.25 6.00	2.22 2.56 2.56	— 1.00 1.00	2.47† 2.50 2.50	603126 603115** 603115**



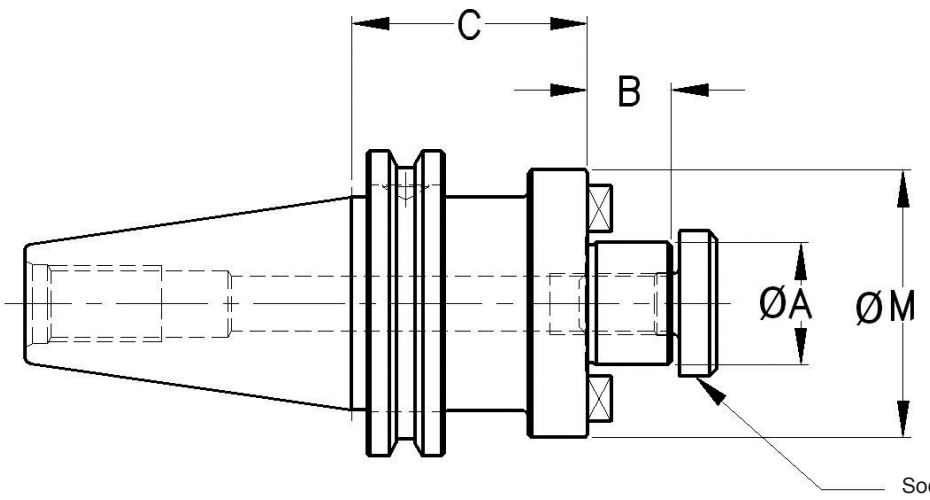
P: 203

* Set screws in line with shank drive slots.
** Requires 2 set screws
† Part no. 4617750 & 4617751 "M" exceeds 1.750 Diameter. May not have clearance for tool changer. Deviates from ANSI B5.50-1994.
Note: Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holders.

Shell Mill Adapters with CAT40 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance
- DIN coolant thru the flange available upon request
- Coolant thru screw options available see page 204
- Keys and socket cap screw furnished







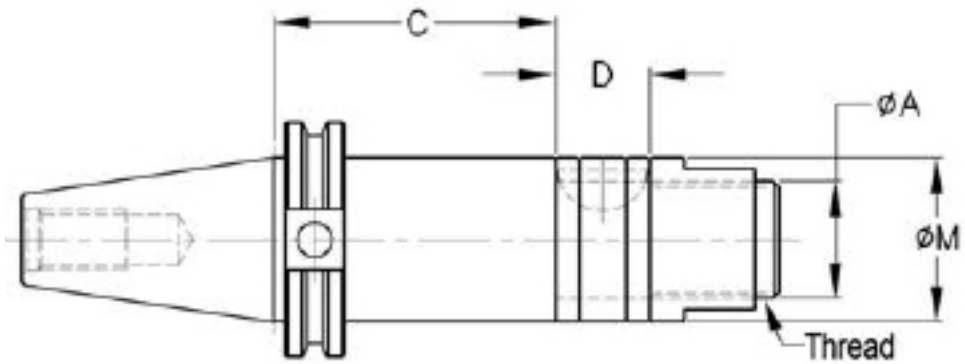
P: 203

Part Number	A Pilot Dia.	B	C	M	Drive Key	Screw Thread
463664 4610240	.7500	.69	1.50 4.00	1.69	.31	3/8 - 24
463665 4610241	1.0000	.69	1.94 4.00	2.19	.38	1/2 - 20
463666 4610242	1.2500	.69	2.06 4.00	2.75	.50	5/8 - 18
463667 4610245	1.5000	.94	2.19 4.00	3.62	.63	3/4 - 16

Note: Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load in extended length holders.

Stub Arbors with CAT40 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance
- Arbor nuts, key and spacers are included



Part Number	A Pilot Dia.	C	D	M	Thread
4618395	1.0000	4.00	1.25	1.56	1” - 14
4618396	1.2500			1.88	1-1/4 - 12
4618397	1.5000			2.00	1-1/2 - 12



P: 203

CAT40 Shrink Fit

SHRINKER®

- Balanceable & coolant ports available upon request
- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru - DIN coolant thru the flange available upon request



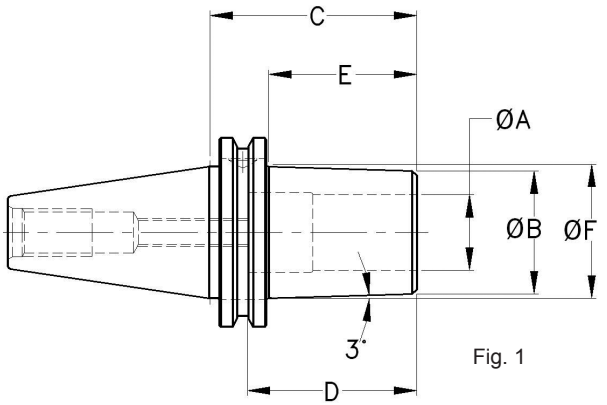


Fig. 1



P: 203

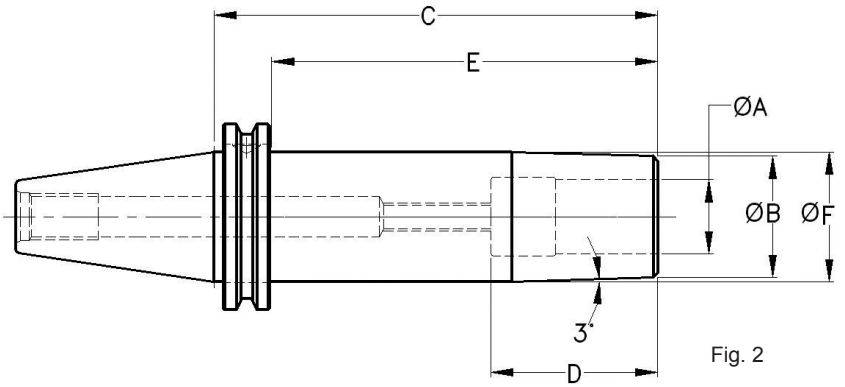


Fig. 2

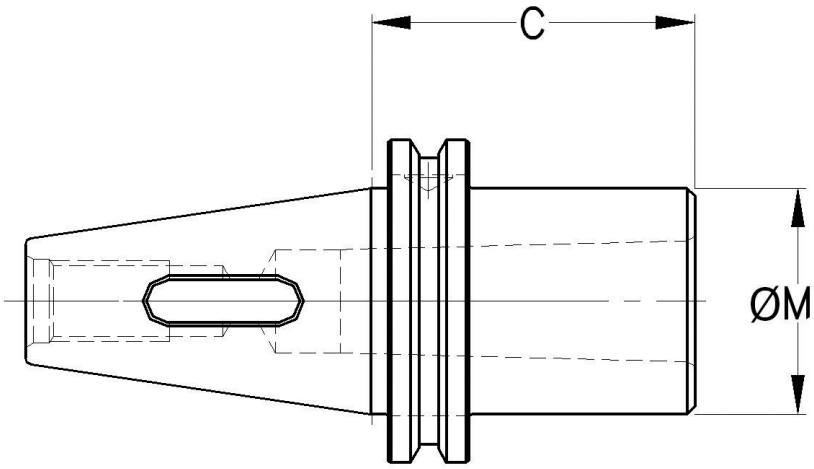
Part Number (Fig. 1)	ØA		B	C	D	E	F
4618437	3/16	.1875	.72	3.00	2.00	2.02	.94
4618438	1/4	.2500	.87	3.00	1.25	2.00	1.08
4618439	5/16	.3125	.87	3.00	1.70	2.01	1.08
4618440	3/8	.3750	1.01	2.75	1.88	1.76	1.20
4618441	1/2	.5000	1.14	2.75	2.00	1.82	1.34
4618442	5/8	.6250	1.27	2.75	2.00	1.88	1.47
4618443	3/4	.7500	1.37	2.75	2.00	1.93	1.57
4618444	1”	1.0000	1.63	2.75	2.25	1.97	1.75
4618445	1-1/4	1.2500	1.85	3.00	2.25	2.22	2.01
Extended Lengths (Fig. 2)	**ØA**		**B**	**C**	**D**	**E**	**F**
4618446	3/8	.3750	1.01	6.00	1.88	4.56	1.49
4618447	1/2	.5000	1.14		2.00	5.59	1.64
4618448	5/8	.6250	1.27		2.00	5.20	1.75
4618449	3/4	.7500	1.37		2.00	5.22	1.75
4618450	1”	1.0000	1.63		2.25	5.22	1.75
4618451	1-1/4	1.2500	1.85		2.25	5.22	2.00

Note:

- Cutting tool shank size must be h6 tolerance to work properly or cutter sticking or slipping may occur.
- Cutter shanks must fully engage the length of the Shrink Fit holder bore.
- Improper heating and cooling may cause damage to the holder. Please refer to your Shrink Fit machine manual for proper clamping and un-clamping.
- Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holder.

Morse Taper Adapters with CAT40 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance





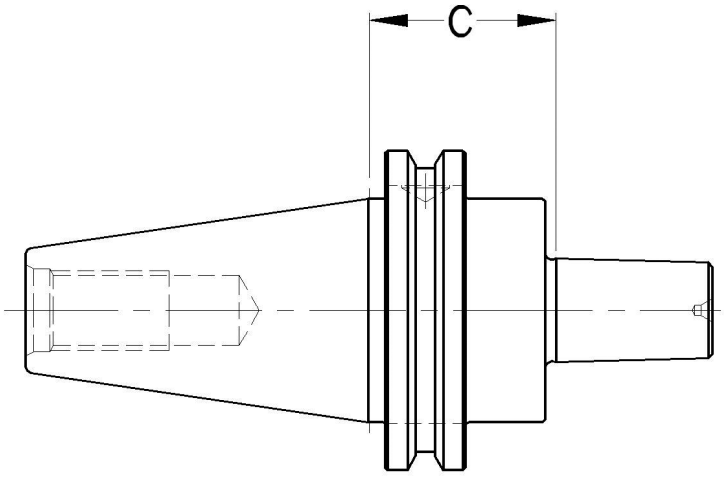

P: 203

Part Number	Morse Taper	C	M
463668*	2	1.75	1.75
463669*	3	2.50	1.75
463670*	4	3.50	2.00

* These adapters are for rear-feed thru-coolant tools.

Jacobs Taper Adapters with CAT40 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance





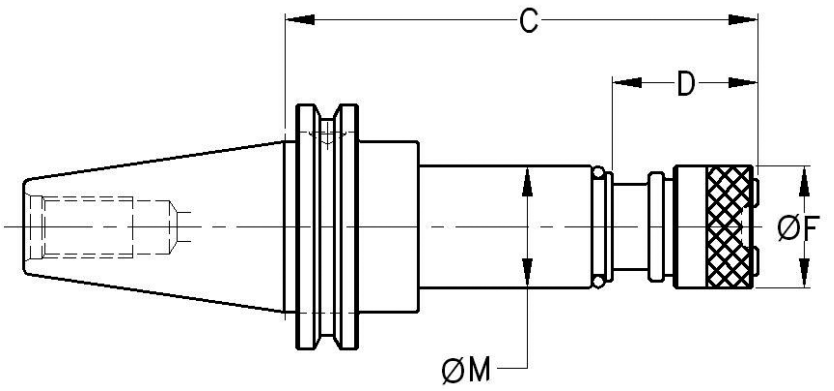

P: 203

Part Number	Jacobs Taper	C
468377	2	1.47
469338	3	
469339	33	
4613193	4	
468622	6	

Universal Heavy Duty
Quick Change Tension & Compression
Tap Drivers with CAT40 Shanks

- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance
- Full tension available upon request





Solid tap adapter

Torque control tap adapter

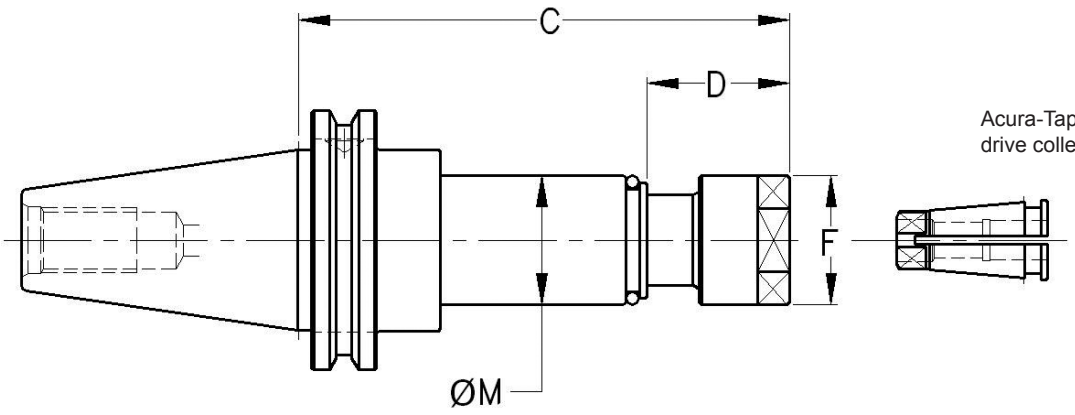


P: 199 P: 203

Part Number	Adapter Size	Tap Range	C	D	F	M	Tension	Compression
163884	1	#0 - 9/16 Hand 1/8 Pipe	4.88	1.50	1.25	1.25	.88	.38
163885	2	1/4 - 7/8 Hand 1/4 - 1/2 pipe	5.62	2.06	1.97	1.69		

Universal Acura-Tap® Heavy Duty Tension & Compression Tap Drivers with CAT40 Shanks

- Acura-Tap collets
- Order collets separately by matching tap range
- ANSI B5.50 1994 - AT3 taper tolerance
- Full tension available upon request





Acura-Tap positive drive collets

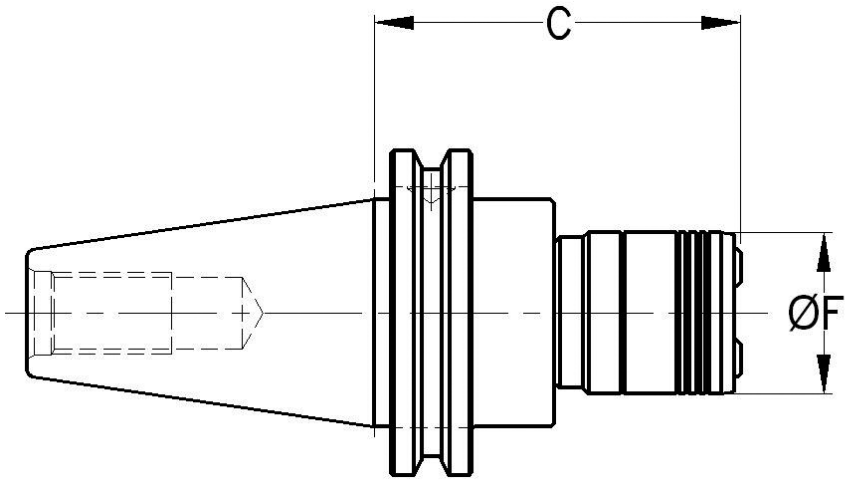


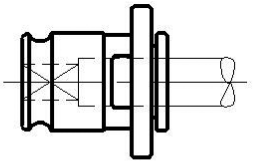
P: 181 P: 203

Part Number	Tap Range	C	D	F	M	Includes Nut No.	Tension	Compression	Ref. Wrench
163882	#0 - 1/2 Hand 1/8 Pipe	4.75	1.38	1.06 Hex.	1.25	280669	.88	.38	505643
163883	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	5.25	1.69	1.50 Hex.	1.69	280677			505651

Rigid Quick Change Tap Drivers with CAT40 Shanks

- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru
- Torque type tap adapters should not be used with these holders





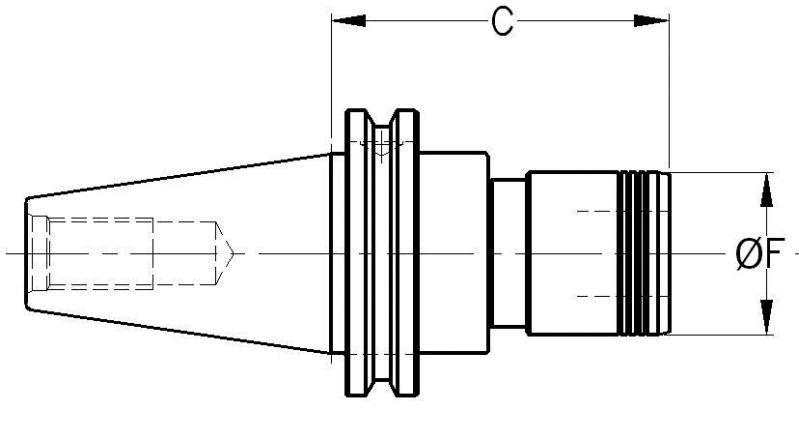
Part Number	Adapter Size	Tap Range	C	F
169012	1	#0 - 9/16 Hand 1/8 Pipe	2.92	1.26
169013	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	3.51	1.97

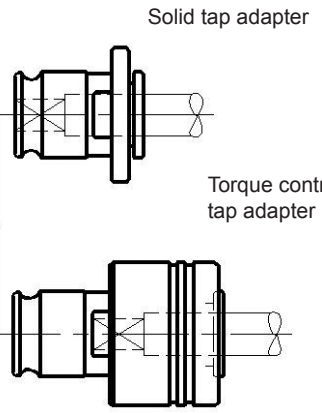


P: 199 P: 203

Short Style Quick Change Tension & Compression Tap Drivers with CAT40 Shanks

- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance





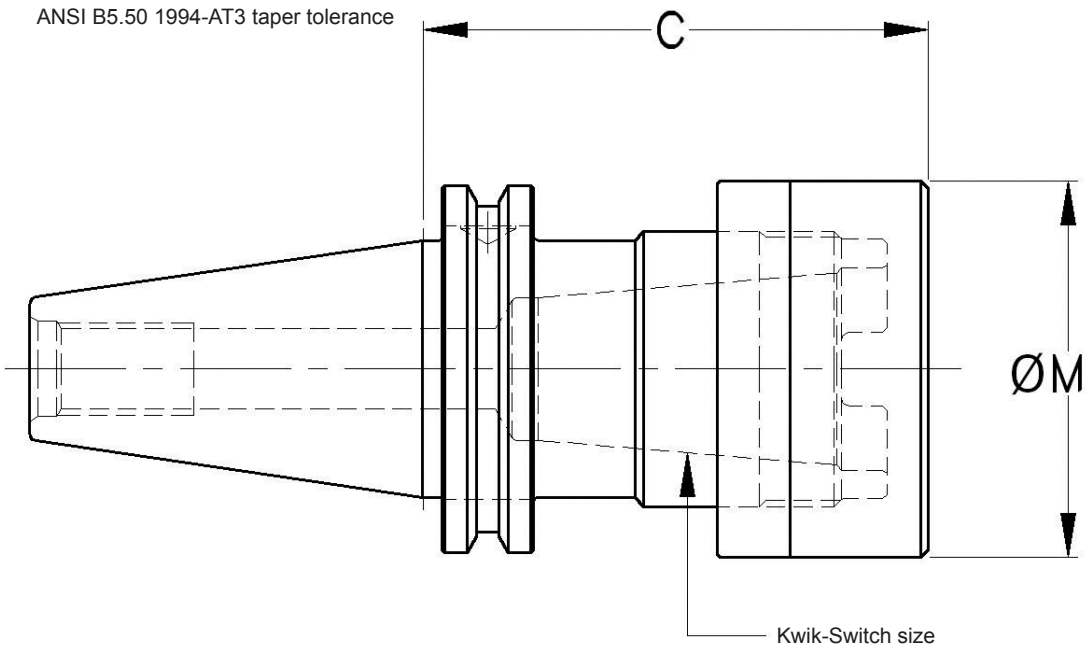
Part Number	Adapter Size	Tap Range	C	F	Tension	Compression
169014	1	#0 - 9/16 Hand 1/8 Pipe	3.00	1.42	.30	.30
169015	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	4.54	2.09	.49	.49



P: 199 P: 203

Kwik-Switch® II Master Holder with CAT40 Shank

- ANSI B5.50 1994-AT3 taper tolerance





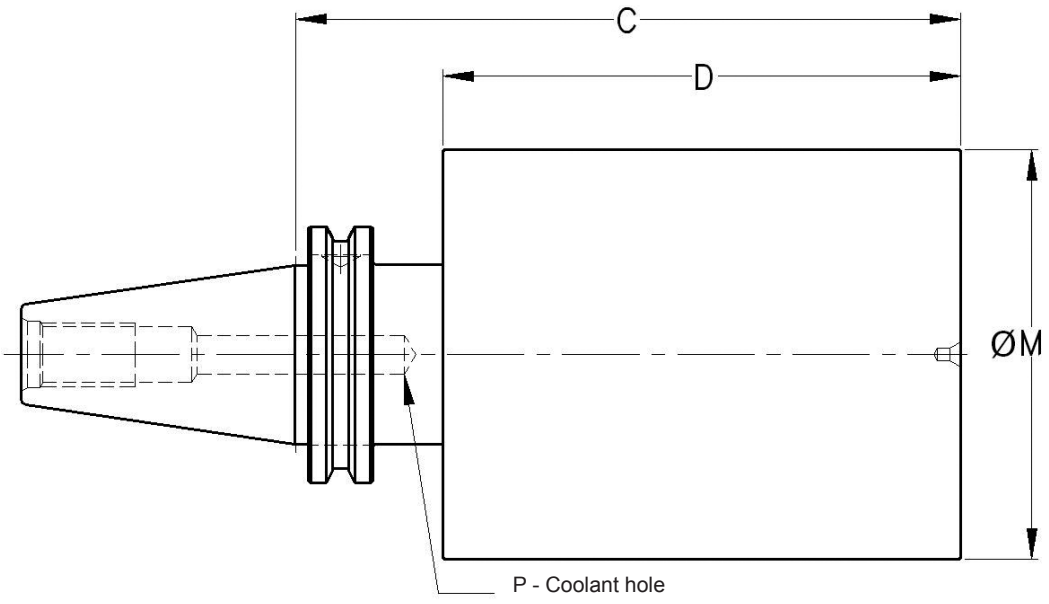
Part Number	Kwik-Switch Size	C	M	Includes Nut No.	Ref. Wrench No.
805922	200	3.44	2.56	805043	80203



P: 203

Soft Blank Nose with CAT40 Shanks

- Material: 8620
- Nose end Rockwell “C” 25-32
- ANSI B5.50 1994-AT3 taper tolerance



Part Number	C	D	M	P
5010539	7.44	6.00	2.50	——
5012446	6.50	5.06	4.00	3/8 Dia.



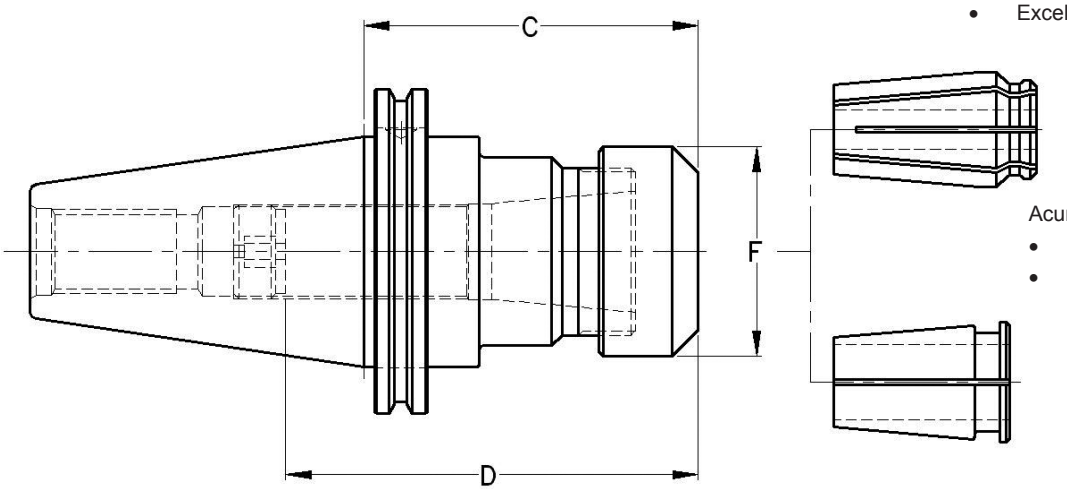
P: 203

Acura-Flex® Collet Chucks with CAT50 Shanks

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature
- ANSI B5.50 1994 - AT3 taper tolerance
- DIN coolant thru the flange available upon request
- Symmetrical Balance Design for speeds up to 10,000 RPM's *



Acura-Flex
- Extended range
- Excellent gripping power



Acura-Grip
- Extreme precision
- 1/2, 3/4, 1", 1-3/8 & 1-5/8 collet ranges



P: 173



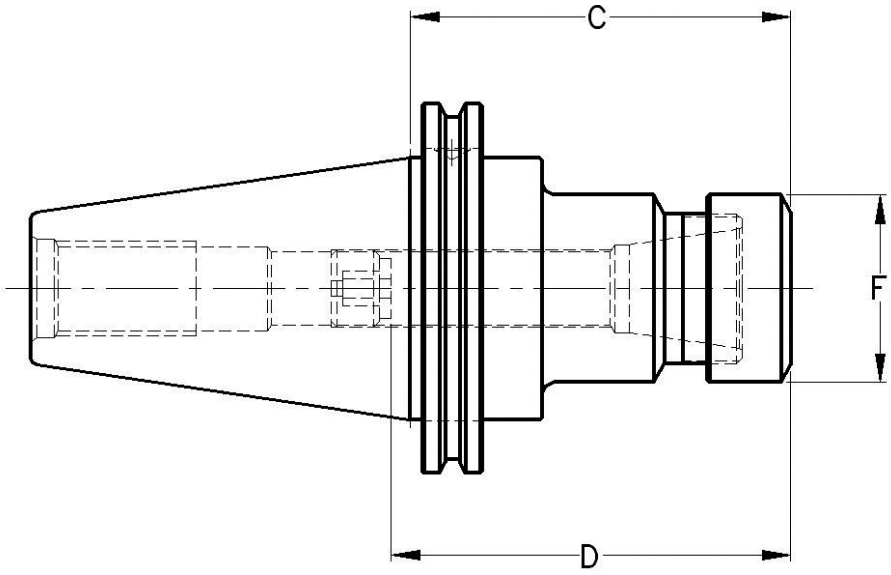
P: 203

Part Number	Collet Range (Acura-Flex Collet No.'s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF912983 AF913535	1/16 - 3/8 (AF21 - AF44)	4.00 6.00	3.00	1.00 Oct.	9400002	40 ft/lbs	55068
AF914006 AF913469	7/64 - 1/2 (AF55 - AF82)	3.86 6.00	3.25	1.25 Oct.	9400020	50 ft/lbs	55105
AF912984 AF914007	7/64 - 3/4 (AF95 - AF140)	2.72 5.09	3.50 4.47	1.94 Span.	9400005	75 ft/lbs	55139
AF91957 AF911499 AF911391 AF911392	7/32 - 1" (AF162 - AF213)	2.81 4.00 6.00 8.00	4.44 4.94 4.94 4.94	2.50 Span.	9400021	90 ft/lbs	55171
AF91958 AF911394	11/32 - 1-3/8 (AF241 - AF286)	3.12 6.00	4.50 6.00	3.00 Span.	9400011	110 ft. lbs.	85296
AF91959 AF911397	19/32 - 1-5/8 (AF331 - AF377)	3.12 6.00	4.25 6.00	3.38 Span.	9400014	110 ft. lbs.	55200

ER Collet Chucks with CAT50 Shanks

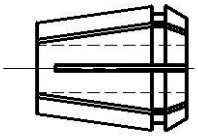
- ER extended range collets
- Order collet separately by matching collet series
- Coolant-thru feature
- ANSI B5.50 1994 - AT3 taper tolerance
- DIN coolant thru the flange available upon request





ER collets

- Extended range





P: 184

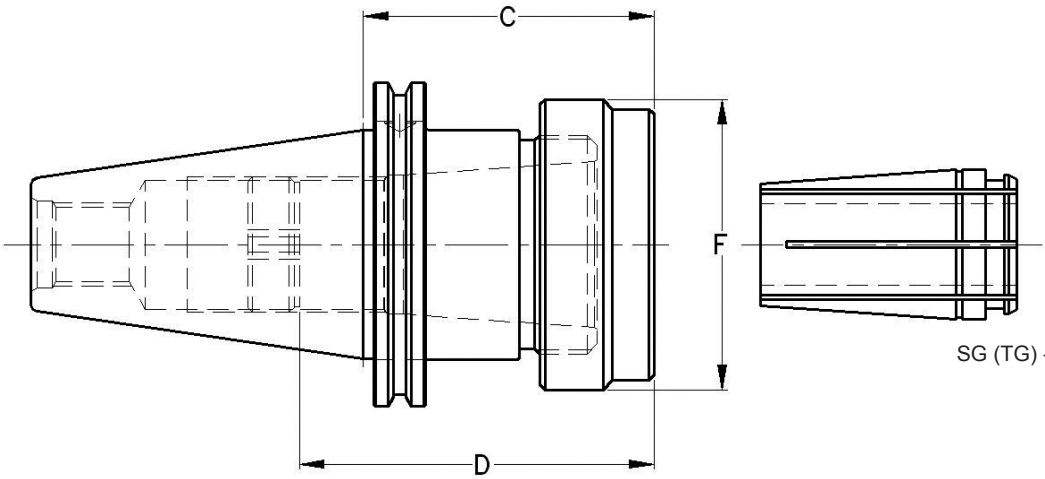


P: 203

Part Number	Collet Series	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
50CTER1640 50CTER1660 50CTER1680 50CTER161000	ER16 (.020 - .394)	4.00 6.00 8.00 10.00	3.00	.98 Hex.	NER16	50 ft. lbs.	WER16
50CTER2040 50CTER2060 50CTER2080	ER20 (.039 - .512)	4.00 6.00 8.00	3.50	1.18 Hex.	NER20	75 ft. lbs.	WER20
50CTER2540 50CTER2560 50CTER2580 50CTER251000	ER25 (.039 - .630)	4.00 6.00 8.00 10.00	4.00	1.65 Span.	NER25	95 ft. lbs.	WER25
50CTER3240 50CTER3260 50CTER3280 50CTER321000	ER32 (.079 - .787)	4.00 6.00 8.00 10.00	4.20 4.20 6.00 4.00	1.96 Span.	NER32	125 ft. lbs.	WER32
50CTER4040 50CTER4060 50CTER4080	ER40 (.118 - 1.181)	4.00 6.00 8.00	4.00	2.48 Span.	NER40	140 ft. lbs.	WER40

SG (TG) Collet Chucks with CAT50 Shanks

- SG (TG) extended range collets
- Order collet separately by matching collet series
- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru feature





SG (TG) -collets (single angle)



P: 188

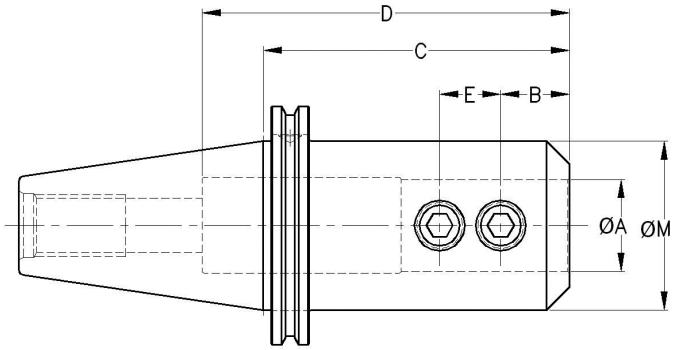


P: 203

Part Number	Collet Series	Collet Range	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
440041	10SG	3/32 - 1"	3.00	4.75	2.25 Hex.	440003	90 ft. lbs.	505646
440043			3.50	5.25				
440045			5.50	7.25				
440047			7.50	9.25				
440049	15SG	1/2 - 1-1/2	3.00	4.50	3.50 Span.	440009	110 ft. lbs.	9903538
440051			3.50	5.00				
440053			5.50	7.00				

End Mill Adapters with CAT50 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru - DIN coolant thru the flange available upon request







P: 203

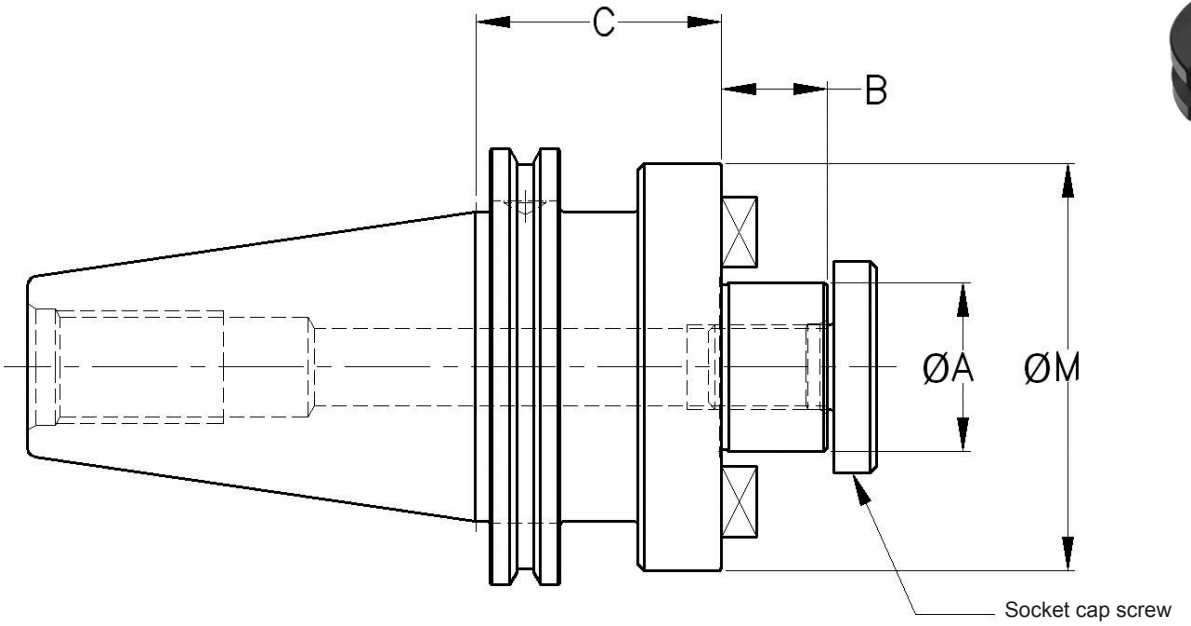
Part Number	ØA End Mill Shank Size	B	C	D	E	M	Set Screw No.
463630 4612002 464959 464960 464962	.375	.75	2.50 3.00 5.00 6.00 8.00	2.56	——	1.12	602611
463631 4612003 464965 464966 464968	.500	.88	2.62 3.00 5.00 6.00 8.00	3.00	——	1.38	602713
463632 4612356 464971 464972 464974	.625	.94	2.62 4.00 5.00 6.00 8.00	3.50	——	1.62	602812
463633 4611772 464977 464978 464980	.750	1.00	2.75 4.00 5.00 6.00 8.00	3.88	——	1.75	603014
463634 4611187 464983 464984 464986	.875	1.00	3.38 4.00 5.00 6.00 8.00	4.31	.81	2.75 2.25 2.12 2.12 2.12	603011* 603011* 603014* 603014* 603014*
463635 4611774 464989 464990 464992 464994	1.000	1.12	3.38 4.00 5.00 6.00 8.00 10.00	4.50 5.00 5.00 5.00 5.00 5.00	1.00	2.75 2.38 2.38 2.38 2.38 2.38	603127* 603128* 603115* 603115* 603115* 603115*
463636 4611775 464995 464996 464998 465000	1.250	1.12	3.38 4.00 5.00 6.00 8.00 10.00	3.12 5.00 5.00 5.00 5.00 5.00	1.00	2.75 2.62 2.62 2.62 2.62 2.62	603128* 603115* 603115* 603115* 603115* 603115*
463637 465001 465002 465004	1.500	1.12	3.38 5.00 6.00 8.00	3.00	1.00	2.75	603115*
468333 4615743 465007	2.000	1.38	5.25 5.50 7.00	3.32 3.50 3.75	1.44 1.38 1.44	3.92 4.00 3.88	603318*

* Requires 2 set screws **Note:** Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holders.

Shell Mill Adapters with CAT50 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru– DIN coolant thru the flange available upon request
- Coolant thru screw options available see page #204
- Keys and socket cap screw furnished







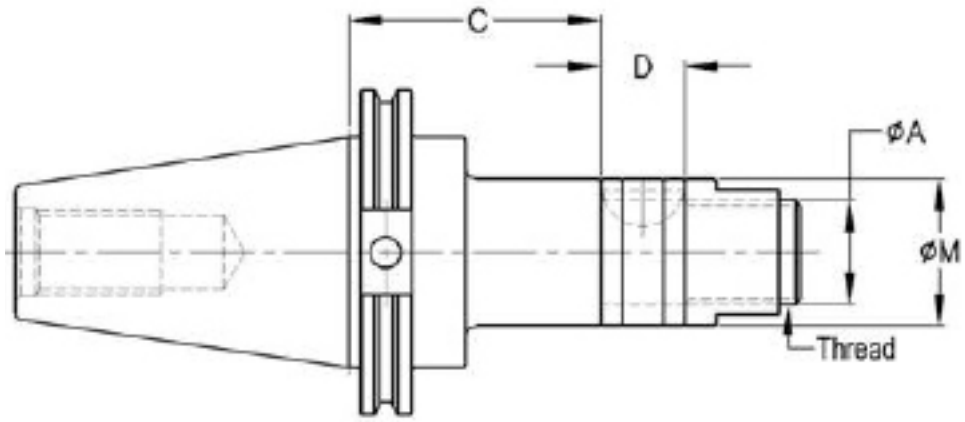
P: 203

Part Number	Dia. A	B	C	M	Drive Key	Screw Thread
463638 465011 465012 465013 465014 465016 465018 4615849	.7500	.69	1.50 3.00 4.00 5.00 6.00 8.00 10.00 12.00	1.69	5/16	3/8 - 24
463639 465019 465020 465021 465022 465024 465026 4615850	1.0000	.69	1.50 3.00 4.00 5.00 6.00 8.00 10.00 12.00	2.19	3/8	1/2 - 20
463640 465028 465029 465030 465032 465034 4615851	1.2500	.69	1.50 4.00 5.00 6.00 8.00 10.00 12.00	2.75	1/2	5/8 - 18
463641 465035 465036 465038 465040 465042	1.5000	.94	2.19 3.00 4.00 6.00 8.00 10.00	3.62	5/8	3/4 - 16
463642 465045	2.0000	.94	2.19 5.00	4.50	3/4	1" - 14
467053	2.5000	1.13	2.44	5.0618	1”	1" - 14

Note: Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holders.

Stub Arbors with CAT50 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance
- Arbor nuts, key and spacers are included





P: 203

Part Number	A Pilot Dia.	C	D	M	Thread
4618398	1.0000	4.00	1.25	1.56	1” - 14
4618399	1.2500	4.00	1.25	1.88	1-1/4 - 12
4618400	1.5000	4.00	1.25	2.00	1-1/2 - 12

CAT50 Shrink Fit

SHRINKER®

- Balanceable & coolant ports available upon request
- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru—DIN coolant thru the flange available upon request



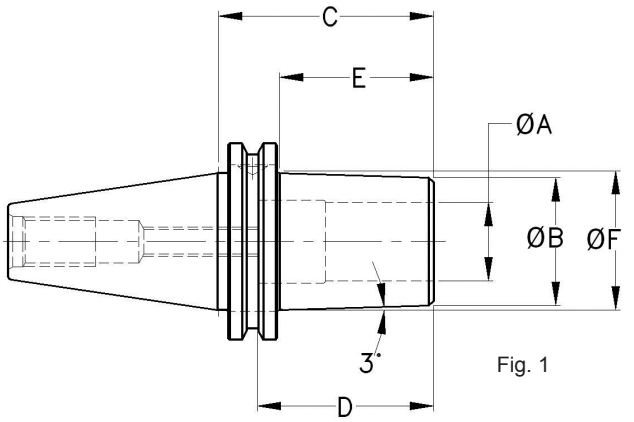


Fig. 1

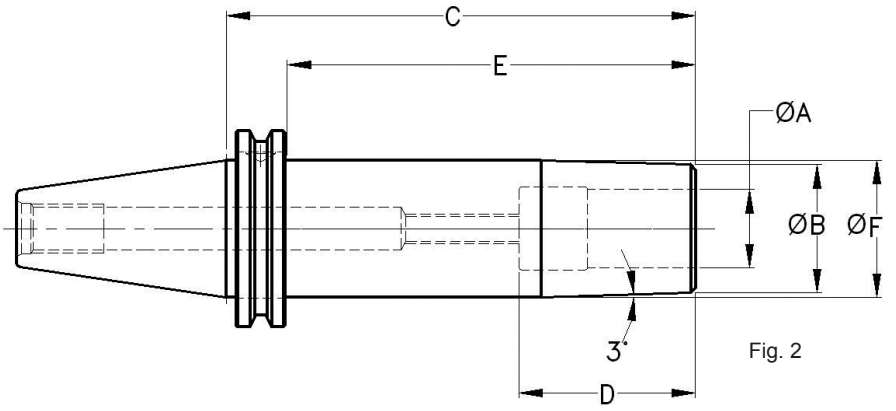


Fig. 2



P: 203

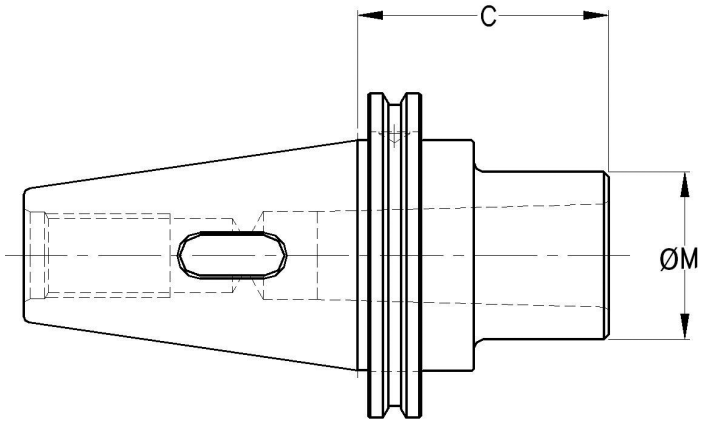
Part Number (Fig. 1)	ØA		B	C	D	E	F
4618452	1/4	.2500	.87	3.00	1.25	2.00	1.08
4618453	5/16	.3125	.87		1.70	2.01	1.08
4618454	3/8	.3750	1.01		1.88	2.01	1.23
4618455	1/2	.5000	1.14		2.00	2.00	1.36
4618456	5/8	.6250	1.27		2.00	2.00	1.48
4618457	3/4	.7500	1.37		2.00	2.01	1.58
4618458	1”	1.0000	1.63		2.25	2.01	1.83
4618459	1-1/4	1.2500	1.85		2.25	2.13	2.07
Extended Lengths (Fig. 2)	**ØA**		**B**	**C**	**D**	E	F
4618460	3/8	.3750	1.01	5.00	1.88	3.38	1.37
4618461	1/2	.5000	1.14		2.00	3.38	1.50
4618462	5/8	.6250	1.27		2.00	3.38	1.63
4618463	3/4	.7500	1.37		2.00	3.38	1.72
4618464	1”	1.0000	1.63		2.25	3.38	1.97
4618465	1-1/4	1.2500	1.85		2.25	3.43	2.20

Note:

- Cutting Tool Shank Size must be h6 tolerance to work properly or cutter sticking or slipping may occur.
- Cutter Shanks must fully engage the length of the Shrink Fit holder bore.
- Improper heating and cooling may cause damage to the holder. Please refer to your Shrink Fit machine manual for proper clamping and un-clamping.
- Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holders.

Morse Taper Adapters with CAT50 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance







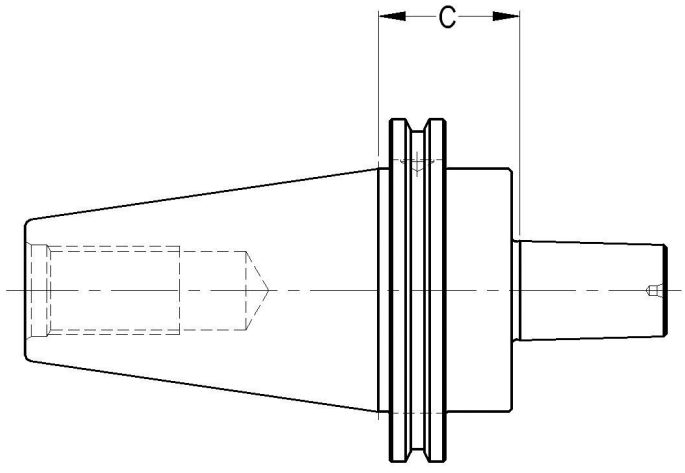
P: 203

Part Number	Morse Taper	C	M
463643*	2	1.38	2.75
463644* 465058 465060	3	2.00 4.00 6.00	1.75
463645* 465067	4	3.00 6.00	2.00
463646* 465074	5	4.25 8.00	2.75

* These adapters are for rear-feed thru-coolant tools.

Jacobs Taper Adapters with CAT50 Shanks

- ANSI B5.50 1994 - AT3 taper tolerance





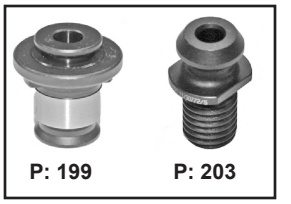


P: 203

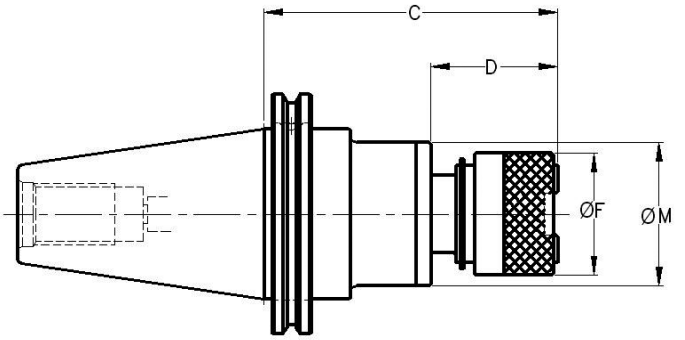
Part Number	Jacobs Taper	C
4610601	2	2.44
468822	3	1.59
4610299	33	1.47
468823	4	1.59
469458	6	1.47

Universal Heavy Duty Quick Change Tension & Compression Tap Drivers with CAT50 Shanks

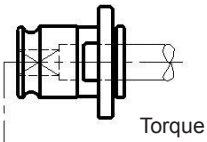
- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance
- Full tension available upon request



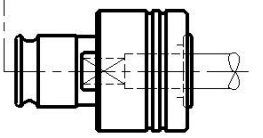




Solid tap adapter



Torque control tap adapter



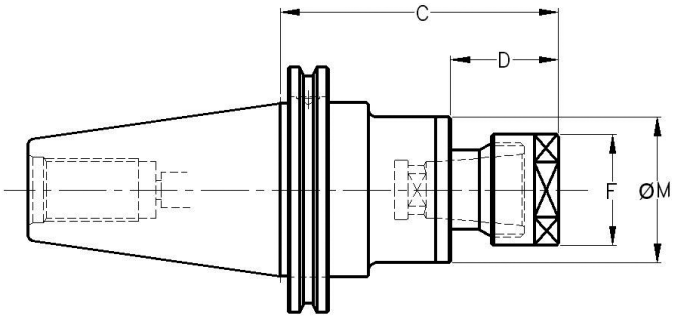
Part Number	Adapter Size	Tap Range	C	D	F	M	Tension	Compression
163844	1	#0 - 9/16 Hand 1/8 Pipe	4.00	1.50	1.25	1.88	.88	.38
163845	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	4.75	2.06	1.97	2.31		
163846	3	3/4 - 1-3/8 Hand 3/8 - 1" Pipe	6.19	2.88	2.83	2.75		

Universal Acura-Tap® Heavy Duty Tension & Compression Tap Drivers with CAT50 Shanks

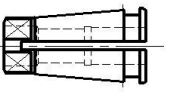
- Acura-Tap collets
- Order collets separately by matching tap range
- ANSI B5.50 1994 - AT3 taper tolerance
- Full tension available upon request







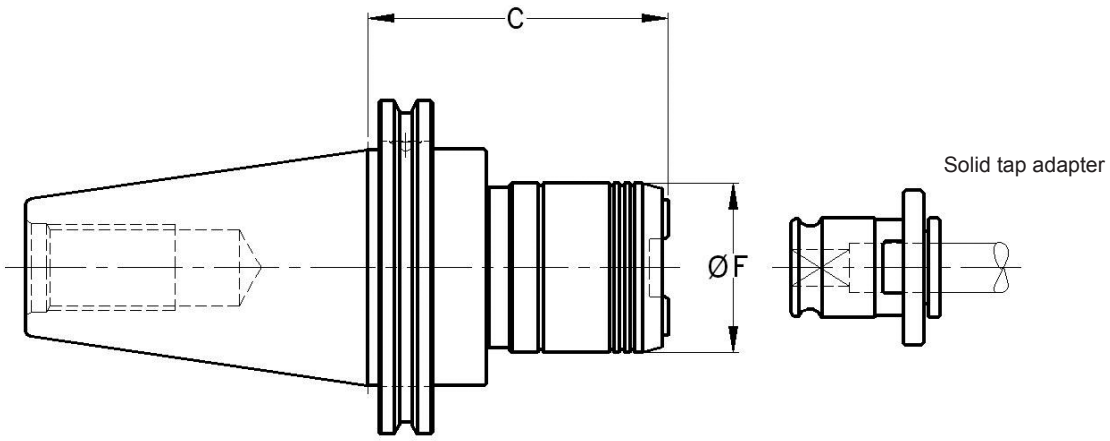
Acura-Tap positive drive collets



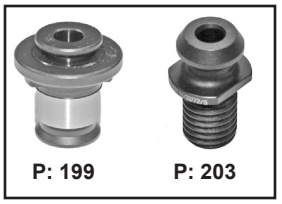
Part Number	Tap Range	C	D	F	M	Includes Nut No.	Tension	Compression	Ref. Wrench
163841	#0 - 1/2 Hand 1/8 Pipe	3.88	1.38	1.06 Hex.	1.88	280669	.88	.38	505643
163842	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	4.38	1.69	1.50 Hex.	2.31	280677			505651
163843	3/4 - 1-1/2 Hand 1/2 - 1-1/4 Pipe	5.94	2.62	2.75 Span.	2.75	280681			505650

Rigid Quick Change Tap Drivers with CAT50 Shanks

- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance
- Coolant thru
- Torque type tap adapters should not be used with these holders

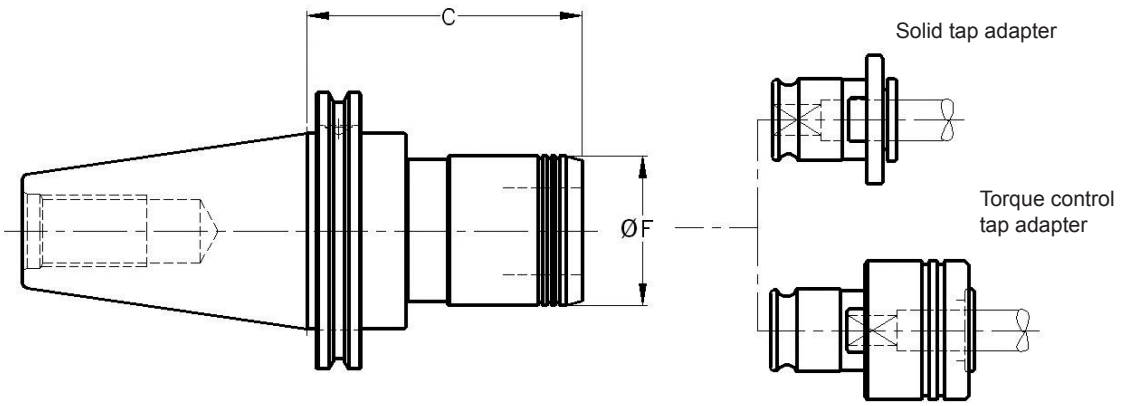


Part Number	Adapter Size	Tap Range	C	F
169016	1	#0 - 9/16 Hand 1/8 Pipe	2.92	1.26
169017	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	3.51	1.97
169018	3	3/4 - 1-3/8 Hand 3/8 - 1” Pipe	4.74	2.83

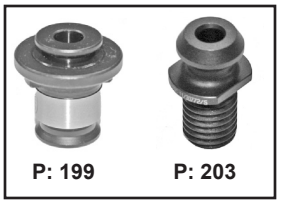


Short Style Quick Change Tension & Compression Tap Drivers with CAT50 Shanks

- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance

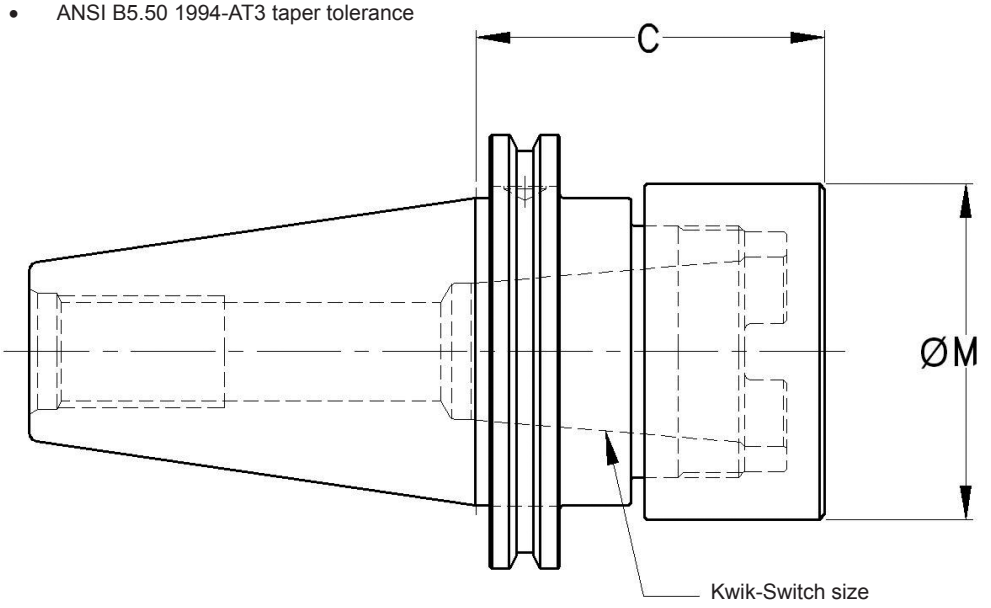


Part Number	Adapter Size	Tap Range	C	F	Tension	Compression
169019	1	#0 - 9/16 Hand 1/8 Pipe	3.00	1.42	.30	.30
169020	2	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	4.54	2.09	.49	.49
169021	3	3/4 - 1-3/8” Hand 3/8 - 1” Pipe	5.76	3.07	.79	.79



Kwik-Switch®II Master Holder with CAT50 Shanks

- ANSI B5.50 1994-AT3 taper tolerance





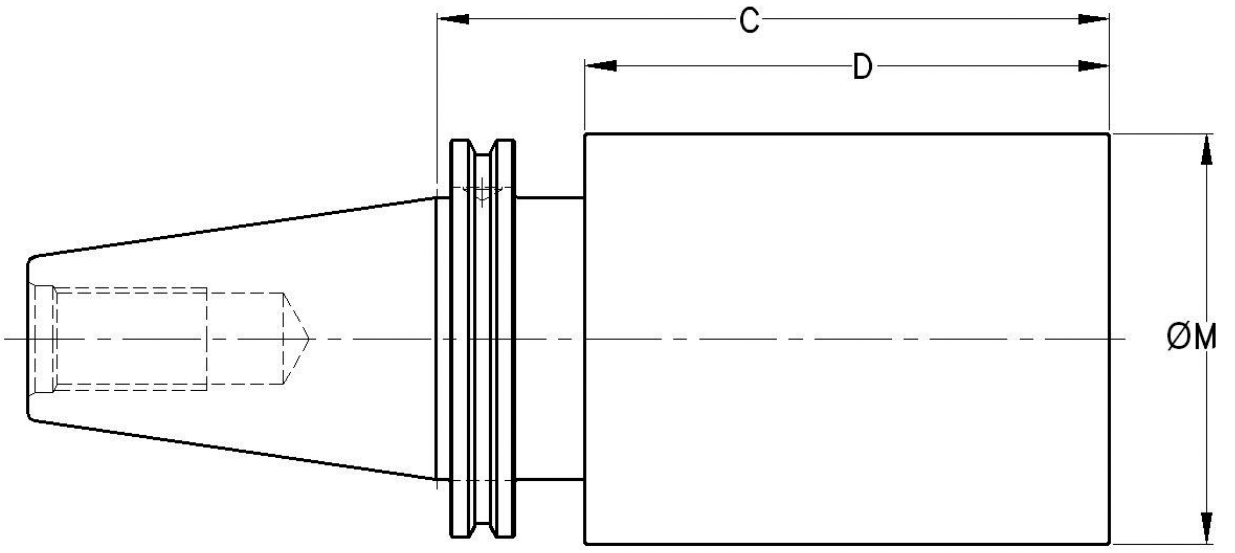


P: 203

Part No.	Kwik-Switch Size	C	M	Includes Nut No.	Ref. Wrench No.
806282	300	3.12	3.00	805044	80303
806283	400	4.06	3.89	809184	80403

Soft Blank Nose with CAT50 Shanks

- Material: 8620
- Nose end Rockwell “C” 25-32
- ANSI B5.50 1994-AT3 taper tolerance



Part No.	C	D	M
509991	11.44	10.00	4.00
5011648	7.00	5.56	6.12

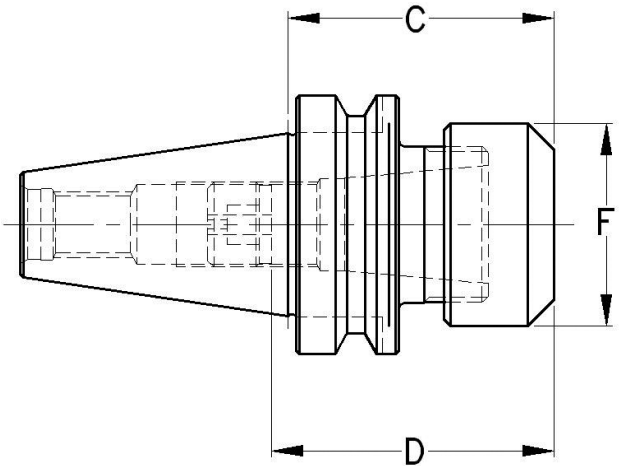


P: 203

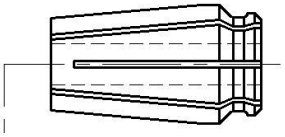
Acura-Flex® Collet Chucks with BT40 Shanks

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature
- JMTBA MAS403 JIS-B6339
- DIN coolant thru the flange available upon request

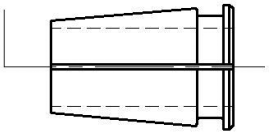




Acura-Flex
- Extended range
- Excellent gripping power



Acura-Grip
- Extreme precision
- 1/2, 3/4, 1” collet ranges





P: 173

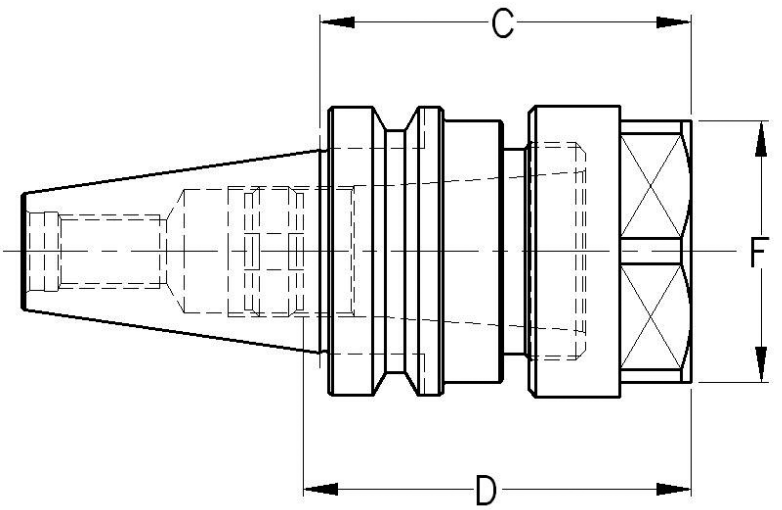


P: 203

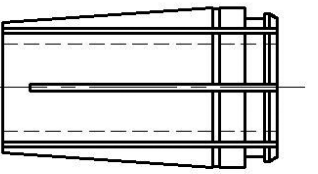
Part Number	Collet Range (Acura-Flex Collet No.’s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF912806 AF912380	1/16 - 3/8 (AF21 - AF44)	3.00 5.00	3.00 3.12	1.00 Oct.	9400002	40 ft/lbs	55068
AF914104 AF912382	7/64 - 1/2 (AF55 - AF82)	3.00 5.00	3.12 3.12	1.25 Oct.	9400020	50 ft/lbs	55105
AF911786 AF914105	7/64 - 3/4 (AF95 - AF140)	2.56 5.00	3.00 4.00	1.94 Span.	9400005	75 ft/lbs	55139
AF911784	7/32 – 1” (AF162 - AF213)	3.15	3.12	2.50 Span.	9400021	90 ft/lbs	55171

SG (TG) Collet Chucks with BT40 Shanks

- SG (TG) extended range collets
- Order collet separately by matching collet series
- JMTBA MAS403 JIS-B6339
- Coolant thru feature



SG (TG) -Collets (single angle)





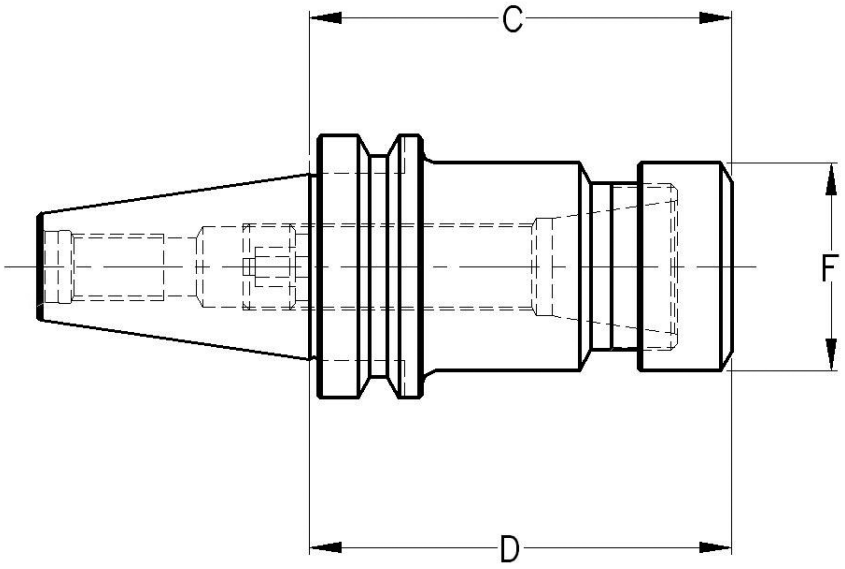
P: 188 P: 203

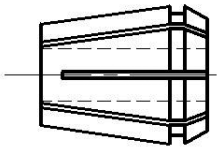
Part Number	Collet Series	Collet Range	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
440507	75SG	.062 - .750	2.75	3.00	1.88 Hex	440107	60 ft. lbs.	505955
440508	10SG	.093 - 1.000	3.00	3.40	2.25 Hex	440003	60 ft. lbs.	505646

ER Collet Chucks with BT40 Shanks

- ER extended range collets
- Order collet separately by matching collet series
- Coolant-thru feature
- JMTBA MAS403 JIS-B6339
- Coolant thru - DIN coolant thru the flange available upon request







ER collets
- Extended range

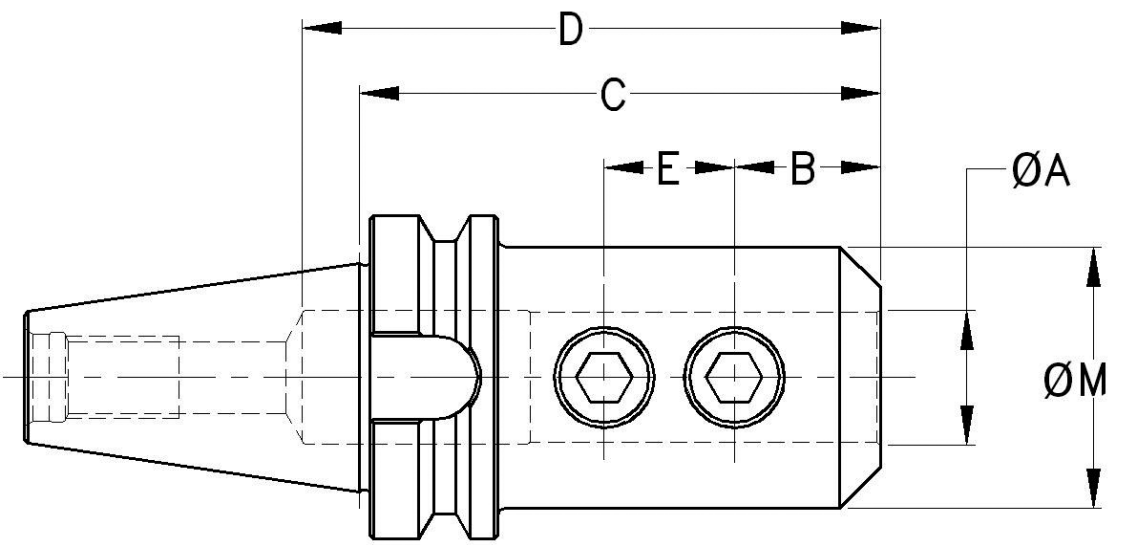

P: 184


P: 203

Part Number	Collet Series	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
40BTER1625	ER16 (.020 - .394)	2.50	2.75	.98 Hex.	NER16	50 ft. lbs.	WER16
40BTER1630		3.00	3.00				
40BTER1640		4.00	4.00				
40BTER1650		5.00	3.00				
40BTER1660		6.00	4.00				
40BTER2025	ER20 (.039 - .512)	2.50	2.50	1.18 Hex.	NER20	75 ft. lbs.	WER20
40BTER2040		4.00	4.00				
40BTER2060		6.00	4.00				
40BTER2525	ER25 (.039 - .630)	2.50	2.50	1.65 Span.	NER25	95 ft. lbs.	WER25
40BTER2540		4.00	4.00				
40BTER2560		6.00	4.00				
40BTER3225	ER32 (.079 - .787)	2.50	2.50	1.96 Span.	NER32	125 ft. lbs.	WER32
40BTER3230		3.00	3.29				
40BTER3240		4.00	4.00				
40BTER3260		6.00	4.00				
40BTER3280		8.00	4.05				
40BTER4040	ER40 (.118 - 1.181)	4.00	4.00	2.48 Span.	NER40	140 ft. lbs.	WER40
40BTER4060		6.00	4.00				

End Mill Adapters with BT40 Shanks

- JMTBA MAS403 JIS-B6339
- Coolant thru - DIN coolant thru the flange available upon request







P: 203

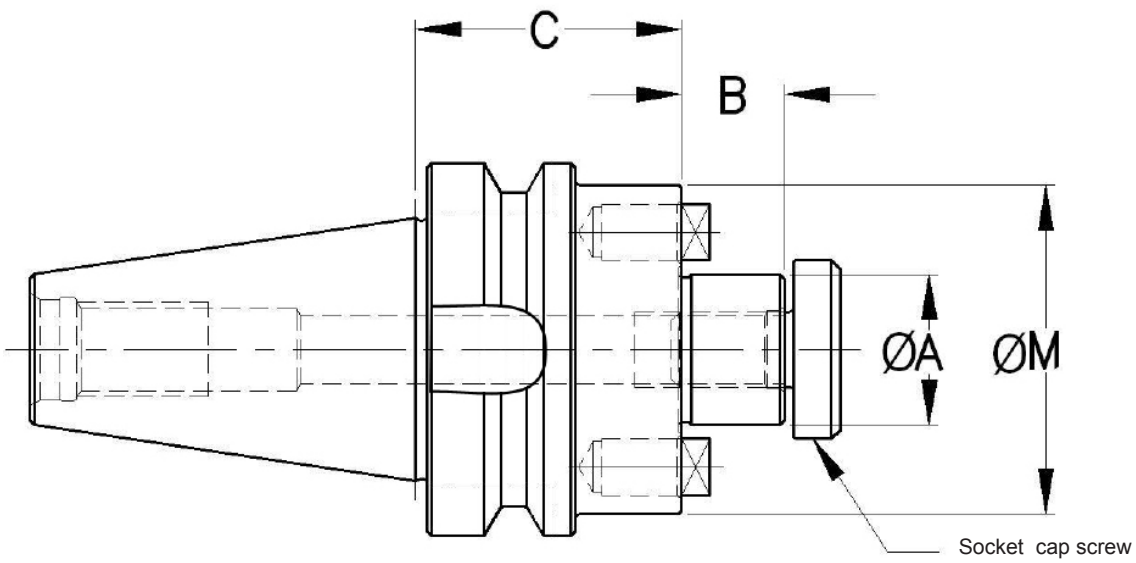
Part Number	ØA End Mill Shank Size	B	C	D	E	M	Set Screw No.
4618479 4610554	.1875	.44 .56	2.25 3.00	3.00 2.32	—	.69	FS1032 02500
4610555	.2500	.62	3.00	2.38	—	1.00	FS1620 03750
4610556	.3125	.75	3.00	2.50	—	1.00	FS2018 03125
4618480 466355 4615774	.3750	.75	2.25 2.56 4.00	3.00 2.56 2.56	—	1.00 1.12 1.12	602613 602611 602611
4618481 466356 4615775	.5000	.88	2.25 2.56 4.00	3.00	—	1.25 1.38 1.38	602716 602713 602713
466357 4614448	.6250	.94	2.56 4.00	3.50	—	1.62	602812
4618482 466358 4618483 4615776 4618484	.7500	1.00	1.75 2.56 3.38 4.00 6.00	2.38 3.88 3.88 3.88 3.94	—	2.48 1.88 1.75 1.88 1.75	603016 603014 603016 603014 603016
466359	.8750	1.00	3.34	4.19	.81	2.00	603014*
4618485 466360 4618486 468290	1.0000	1.12 .94 1.12 .94	1.75 3.34 4.00 6.00	2.62 4.19 3.50 4.19	— .94 1.00 .94	2.48 2.38 2.50 2.38	603044 603115* 603117* 603115*
4618487 466361 4618488 4615778	1.2500	1.12 .94 1.12 .94	2.00 3.34 4.00 6.00	2.41 3.00 3.38 3.00	— .94 1.00 .94	2.48 2.48 2.48 2.48	603018 603113* 603153* 603113*

* = Requires 2 set screws.

Note: Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holders.

Shell Mill Adapters with BT40 Shanks

- JMTBA MAS403 JIS-B6339
- Coolant thru - DIN coolant thru the flange available upon request
- Coolant thru screw options available see page #204
- Keys and socket cap screw furnished







P: 203

Part Number	ØA Pilot Dia.	B	C	M	Drive Key	Screw Thread
466364 4615779	.7500	.69	1.77 4.00	1.75	.31	3/8 - 24
466365 4615780	1.0000	.69	1.77 4.00	2.19	.38	1/2 - 20
466366 4615781	1.2500	.69	1.77 4.00	2.62	.50	5/8 - 18
466367 4615782	1.5000	.94	2.36 4.00	3.62	.63	3/4 - 16

Note: Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holders.

BT40 Shrink Fit

SHRINKER®

- JMTBA MAS403 JIS-B6339
- Coolant thru - DIN coolant thru the flange available upon request

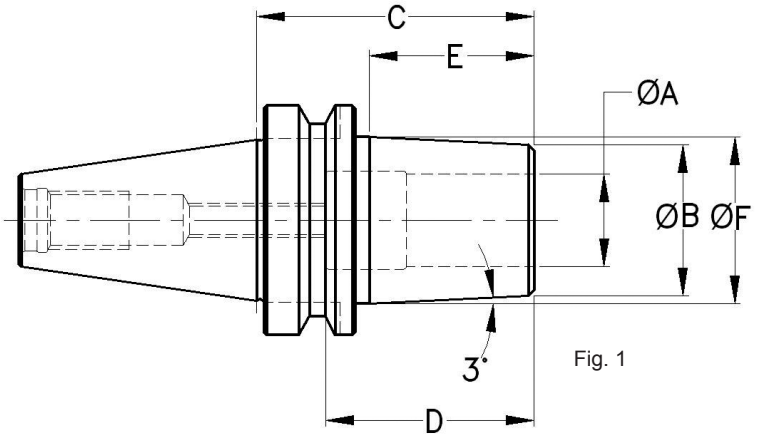


Fig. 1

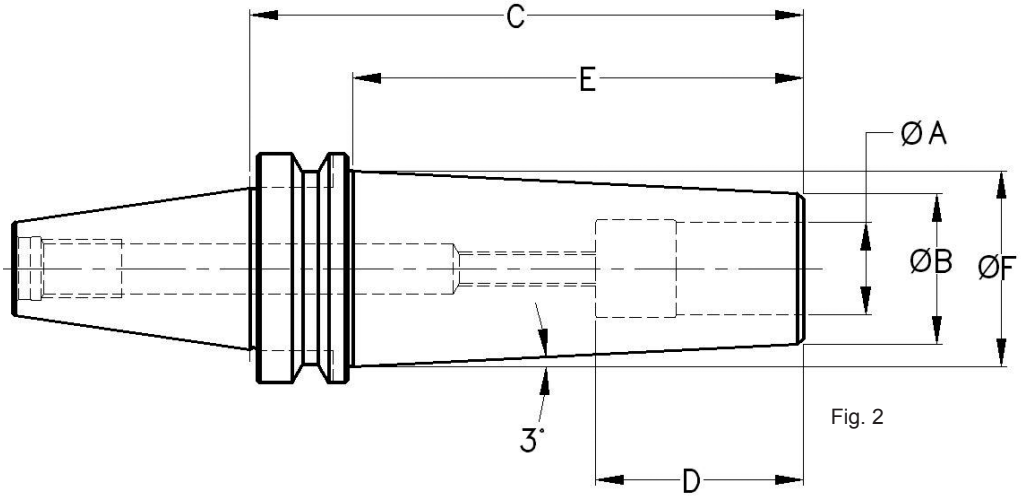


Fig. 2



P: 203

Part Number	ØA		B	C	D	E	F
4618466	1/4	.2500	.87	3.00	1.25	1.70	1.04
4618467	3/8	.3750	1.01		1.88	1.70	1.19
4618468	1/2	.5000	1.14		2.00	1.70	1.32
4618469	5/8	.6250	1.27		2.00	1.70	1.45
4618470	3/4	.7500	1.37		2.00	1.70	1.55
4618471	1”	1.0000	1.63		2.25	1.78	1.81
4618472	1-1/4	1.2500	1.85		2.25	1.82	2.01
Extended Lengths	**ØA**		**B**	**C**	**D**	**E**	**F**
4618473	3/8	.3750	1.01	6.00	1.88	4.70	1.50
4618474	1/2	.5000	1.14		2.00	4.70	1.64
4618475	5/8	.6250	1.27		2.00	4.70	1.76
4618476	3/4	.7500	1.37		2.00	4.70	1.86
4618477	1”	1.0000	1.63		2.25	4.88	2.13
4618478	1-1/4	1.2500	1.85		2.25	4.91	2.13

Note:

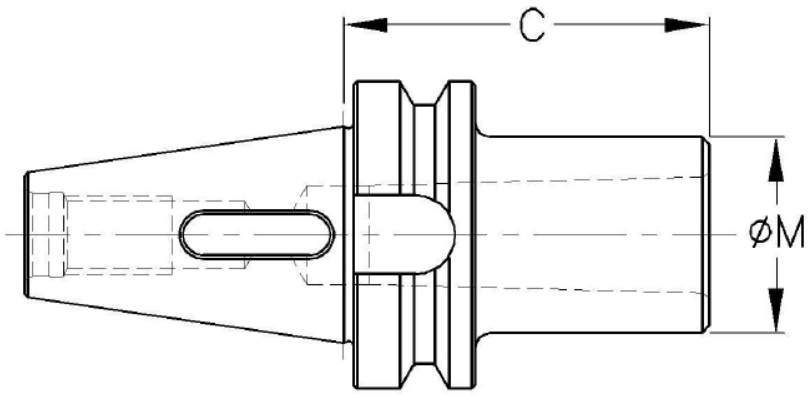
- Cutting tool shank size must be h6 tolerance to work properly or cutter sticking or slipping may occur.
- Cutter shanks must fully engage the length of the Shrink Fit holder bore.
- Improper heating and cooling may cause damage to the holder. Please refer to your Shrink Fit machine manual for proper clamping and un-clamping.

Note: Increased cutting tool vibration may result from excessive tool deflection caused by heavy side load on extended length holders.

Morse Taper Adapters with BT40 Shanks

- JMTBA MAS403 JIS-B6339







P: 203

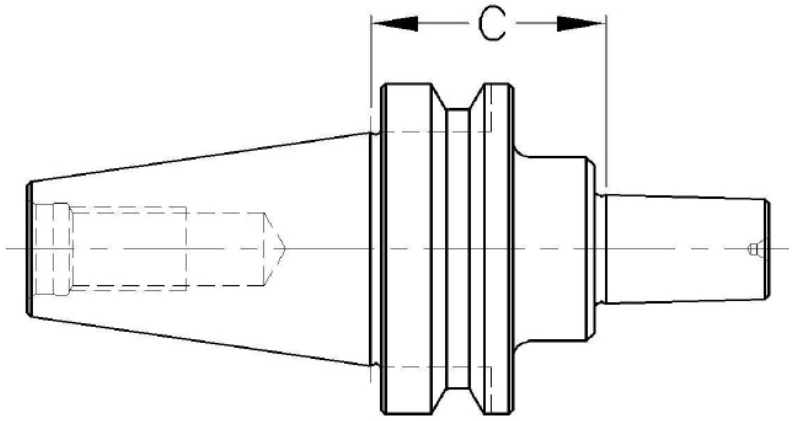
Part Number	Morse Taper	C	M
466369*	2	2.36	1.25
466370*	3	2.95	1.58
466371*	4	3.74	1.97

* These adapters are rear-feed thru-coolant tools.

Jacobs Taper Adapters with BT40 Shanks

- JMTBA MAS403 JIS-B6339





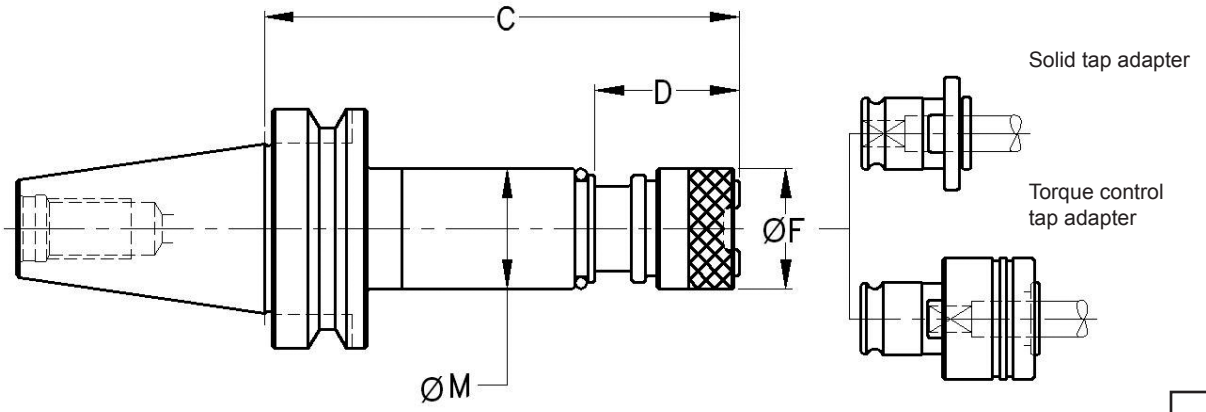


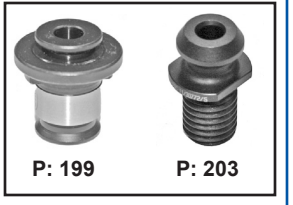
P: 203

Part Number	Jacobs Taper	C
466374	2	1.77
466375	3	1.77

Universal Heavy Duty
Quick Change Tension & Compression
Tap Drivers with BT40 Shanks

- Order tap adapter separately by matching adapter size
- JMTBA MAS403 JIS-B6339
- Full tension available upon request



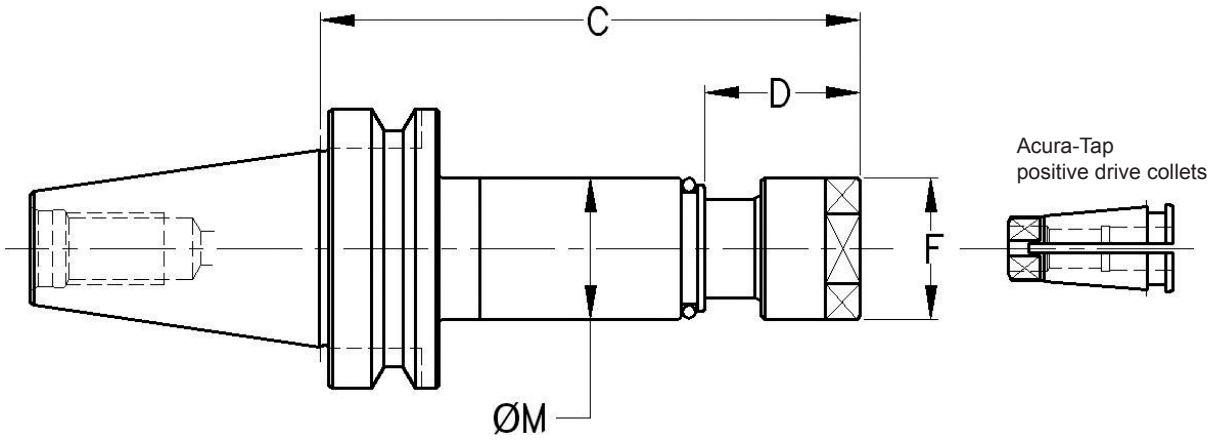


Part Number	Adapter Size	Tap Range	C	D	F	M	Tension	Compression
165767	1	#0 - 9/16 Hand 1/8 Pipe	4.92	1.50	1.25	1.25	.88	.38
165768	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	5.62	2.06	1.97	1.69		

Universal Acura-Tap® Heavy Duty Tension & Compression Tap Drivers with BT40 Shanks



- Acura-Tap collets
- Order collet separately by matching tap range
- JMTBA MAS403 JIS-B6339
- Full tension available upon request

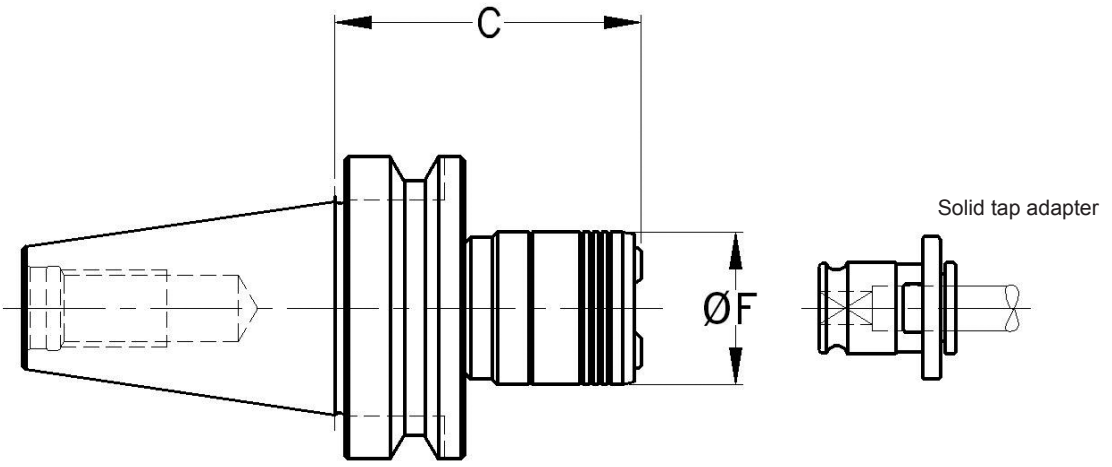




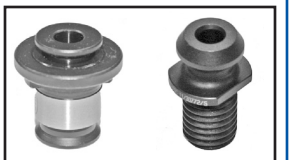
Part Number	Tap Range	C	D	F	M	Tension	Compression	Ref. Wrench
165765	#0 - 1/2 Hand 1/8 Pipe	4.80	1.38	1.06 Hex.	1.25	.88	.38	505643
165766	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	5.25	1.69	1.50 Hex.	1.69			505651

Rigid Quick Change Tap Drivers with BT40 Shanks

- Order tap adapter separately by matching adapter size
- JMTBA MAS403 JIS-B6339
- Coolant thru
- Torque type tap adapters should not be used with these holders

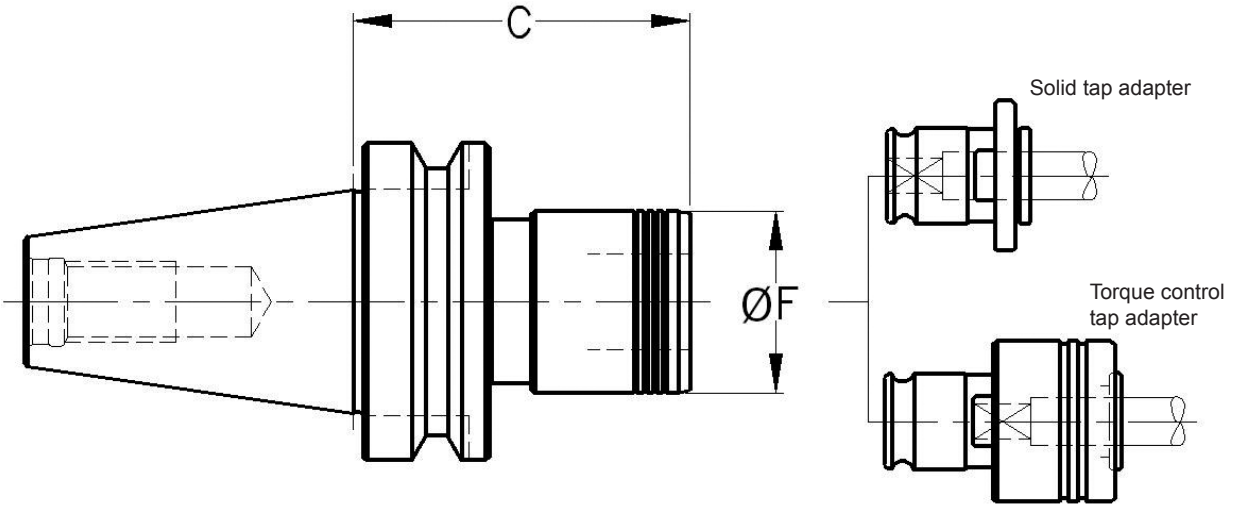


Part Number	Adapter Size	Tap Range	C	F
169022	1	#0 - 9/16 Hand 1/8 Pipe	2.98	1.26
169023	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	3.57	1.97

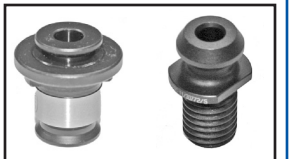


Short Style Quick Change Tension & Compression Tap Drivers with BT40 Shanks

- Order tap adapter separately by matching adapter size
- JMTBA MAS403 JIS-B6339

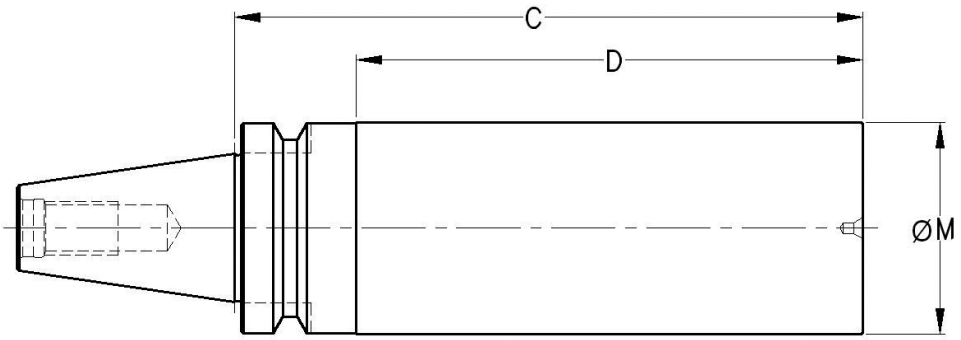


Part Number	Adapter Size	Tap Range	C	F	Tension	Compression
169024	1	#0 - 9/16 Hand 1/8 Pipe	3.06	1.42	.30	.30
169025	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	4.60	2.09	.49	.49



Soft Blank Nose with BT40 Shank

- Material: 8620
- Nose end Rockwell “C” 25-32
- JMTBA MAS403 JIS-B6339



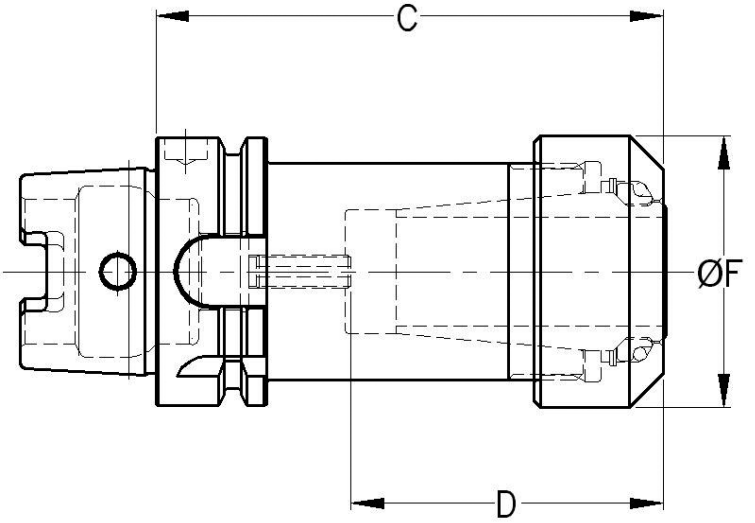


P: 203

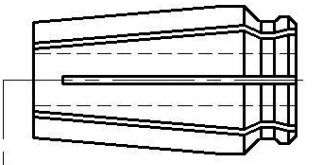
Part No.	C	D	M
5010469	7.44	6.00	2.50

Acura-Flex® Collet Chucks with HSK63A Shanks

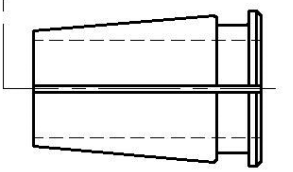
- DIN 69893 Form-A
- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature-Order coolant tubes separately
- Other size/style HSK shanks available on request



Acura-Flex
- Extended range
- Excellent gripping power



Acura-Grip
- Extreme precision







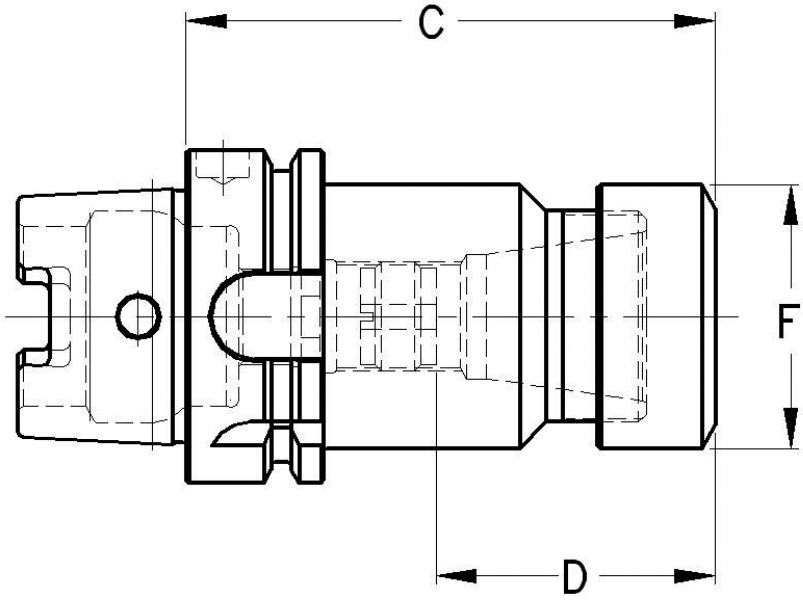


P: 173 P: 198

Part Number	Collet Range (Acura-Flex Collet No.'s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF914232	7/64 - 3/4 (AF95 - AF140)	4.39	2.65	1.94 Span.	9400204	75 ft/lbs	55139
AF914233	7/32 – 1" (AF162 - AF213)	4.69	2.94	2.50 Span.	9400205	90 ft/lbs	55171
AF914234	11/32 - 1-3/8 (AF241 - AF286)	5.66	3.91	3.00 Span.	9400206	110 ft. lbs.	85296

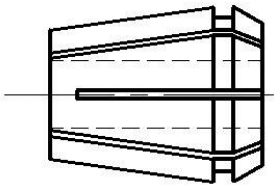
ER Collet Chucks with HSK63A Shanks

- DIN 69893 Form-A
- ER extended range collets
- Order collets separately by matching collet series
- Coolant thru - Order coolant tubes separately
- Other size/style HSK shanks available on request



ER Collets

- Extended range



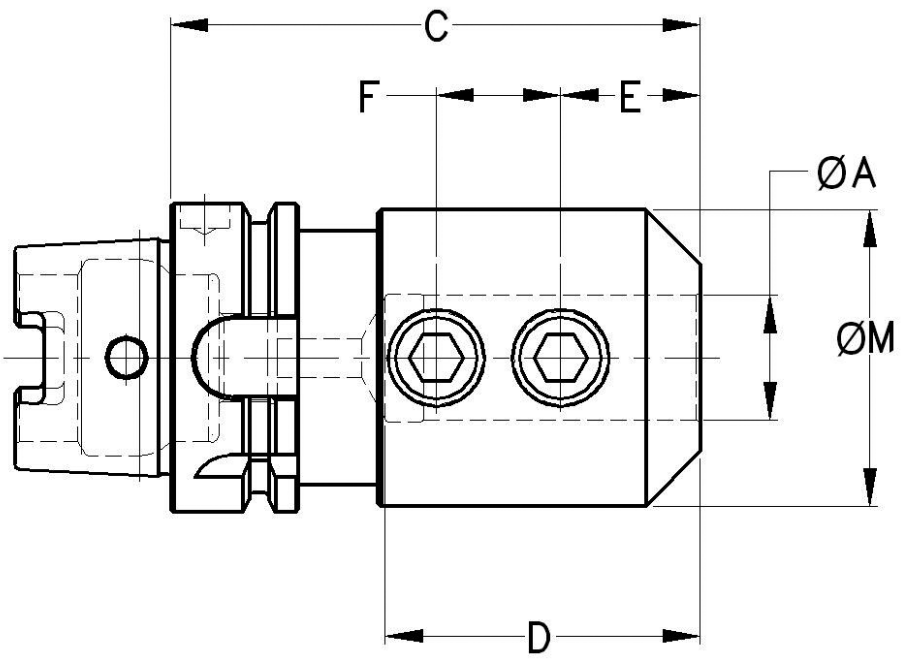

P: 184


P: 198

Part Number	Collet Series	C	D Max Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
H63AER16394 H63AER16472 H63AER16630	ER16 (.020-.394)	3.94 4.72 6.30	2.10 3.00 3.00	.98 Hex.	NER16	45 ft. lbs.	WER16
H63AER20394 H63AER20472 H63AER20630	ER20 (.039-.512)	3.94 4.72 6.30	1.88 2.68 3.38	1.18 Hex.	NER20	60 ft. lbs.	WER20
H63AER25327 H63AER25484	ER25 (.039-.630)	3.27 4.84	2.50 2.50	1.65 Span.	NERP25	95 ft. lbs.	WER25
H63AER32327 H63AER32406 H63AER32484	ER32 (.079-.787)	3.27 4.06 4.84	1.80 2.50 3.30	1.96 Span.	NERP32	125 ft. lbs.	WER32
H63AER40327 H63AER40406 H63AER40484	ER40 (.118-1.181)	3.27 4.06 4.84	1.60 2.20 3.00	2.48 Span.	NERP40	160 ft. lbs.	WER40

End Mill Adapters with HSK63A Shanks

- DIN 69893 Form-A Compatible
- Coolant thru - Order coolant tubes separately
- Other size/style HSK shanks available on request







P: 198

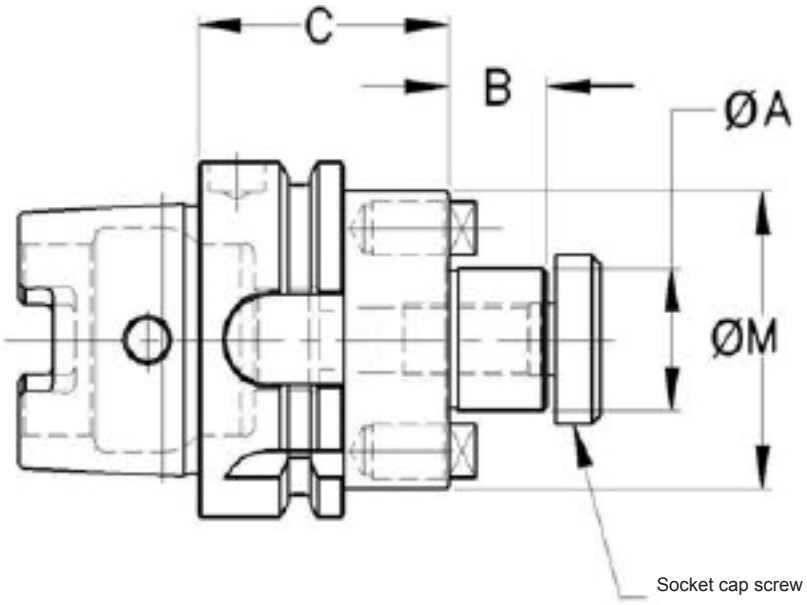
Part Number	A End Mill Shank Size	C	D	E	F	M	Set Screw Part Number	Ends
4618518	.3750	2.56	1.54	.75	-	1.38	602613	Single
4618519	.5000	3.13	2.10	.88	-	1.63	602716	Single
4618520	.6250	3.13	2.10	.94	-	1.88	602921	Single
4618521	.7500	3.13	2.10	1.00	-	1.94	603016	Single
4618522	1.0000	4.25	3.23	1.12	1.00	2.56	603126*	Single
4618523	1.2500	4.25	3.23	1.12	1.00	2.81	603153*	Single

* = Requires 2 set screws.

Shell Mill Adapters with HSK63A Shanks

- DIN 69893 Form-A
- Coolant thru—Order coolant tubes separately
- Coolant thru screw options available - see page #204
- Keys and socket cap screw furnished
- Other size/style HSK shanks available on request







P: 198

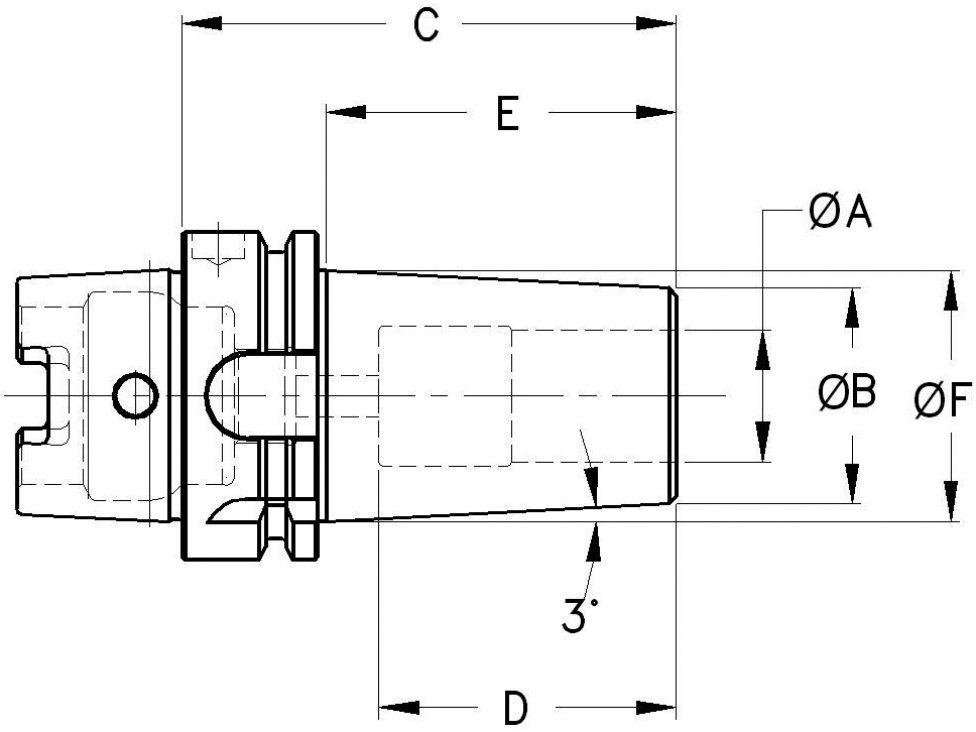
Part Number	A Pilot Dia.	B	C	M	Drive Key	Screw Thread
4618524	.7500	.68	2.37	1.75	.31	3/8 - 24
4618525	1.0000	.68	2.37	2.25	.38	1/2 - 20
4618526	1.2500	.68	2.37	2.75	.50	5/8 - 18
4618527	1.5000	.94	2.62	3.75	.62	3/4 - 16
4618541	2.0000	.94	2.37	3.85	.75	1”-14

HSK63A Shrink Fit

SHRINKER®

- DIN 69893 Form-A
- Designed for high pressure coolant thru - Order coolant tubes separately
- Balanceable & coolant ports available upon request
- Other size/style HSK shanks available on request







P: 198

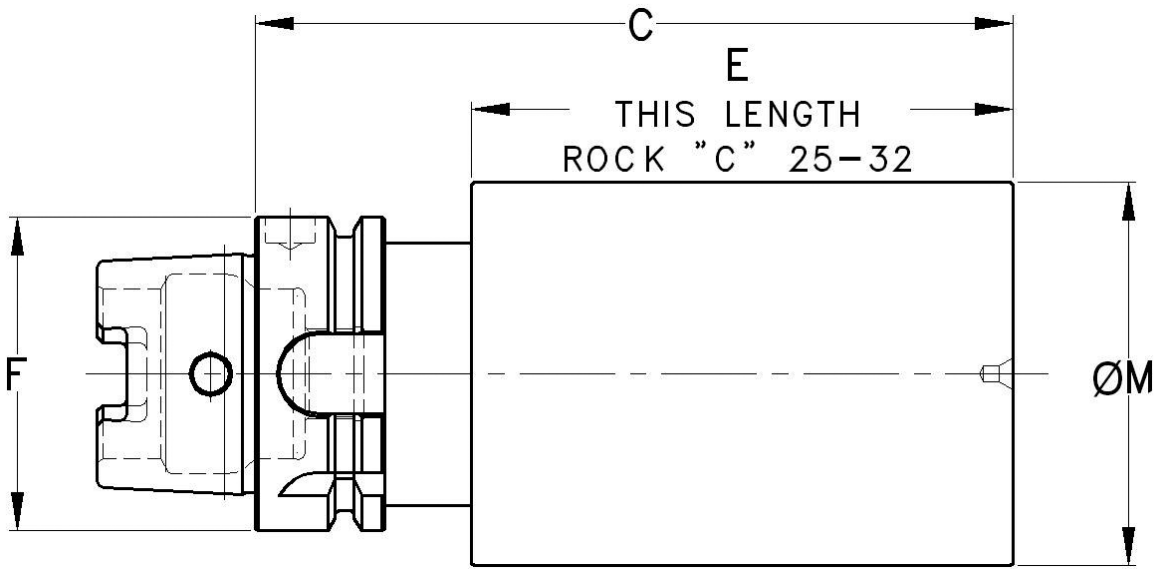
Part Number	ØA		B	C	D	E	F
4618491	1/4	.2500	.87	2.95	1.25	1.68	1.04
4618492	3/8	.3750	1.01	2.95	1.88	1.68	1.19
4618493	1/2	.5000	1.14	2.95	2.00	1.68	1.32
4618494	5/8	.6250	1.27	3.15	2.00	1.89	1.47
4618495	3/4	.7500	1.37	3.15	2.00	1.89	1.57
4618496	1”	1.0000	1.63	3.74	2.25	2.65	1.90
4618497	1-1/4	1.2500	1.85	3.94	2.25	2.86	2.00
Extended Lengths	**ØA**		**B**	**C**	**D**	**E**	**F**
4618498	1/4	.2500	.87	5.90	1.25	4.63	1.35
4618499	3/8	.3750	1.01		1.88	4.64	1.50
4618500	1/2	.5000	1.14		2.00	4.63	1.64
4618501	5/8	.6250	1.27		2.00	4.76	1.77
4618502	3/4	.7500	1.37		2.00	4.79	1.87
4618503	1”	1.0000	1.63		2.25	4.82	2.09
4618504	1-1/4	1.2500	1.85		2.25	4.82	2.00

Note:

- Cutting tool shank size must be h6 tolerance to work properly or cutter sticking or slipping may occur.
- Cutter shanks must fully engage the length of the Shrink Fit holder bore.
- Improper heating and cooling may cause damage to the holder. Please refer to your Shrink Fit machine manual for proper clamping and un-clamping.

Soft Blank Nose with HSK63A Shank

- DIN 69893 Form-A
- Other size/style HSK shanks available on request



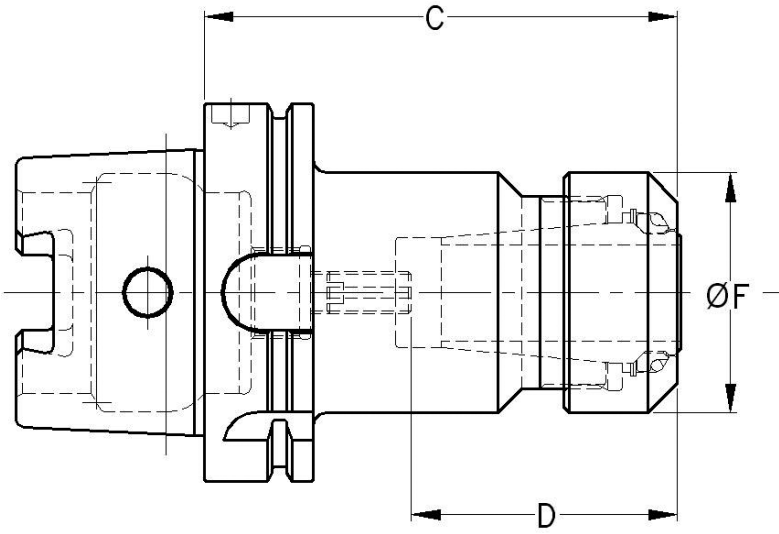
Part No.	HSK Size F	C	E	M
5012586	63A	6.00	4.29	3.03

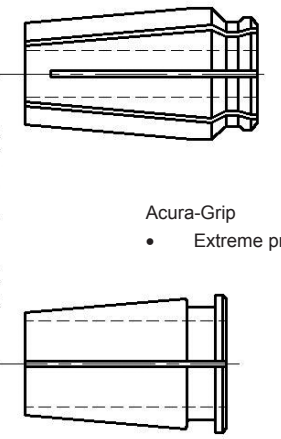
Acura-Flex® Collet Chucks with HSK100A Shanks

- DIN 69893 Form-A
- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature-Order coolant tubes separately
- Other size/style HSK shanks available on request



Acura-Flex
- Extended range
- Excellent gripping power





Acura-Grip
- Extreme precision



P: 173

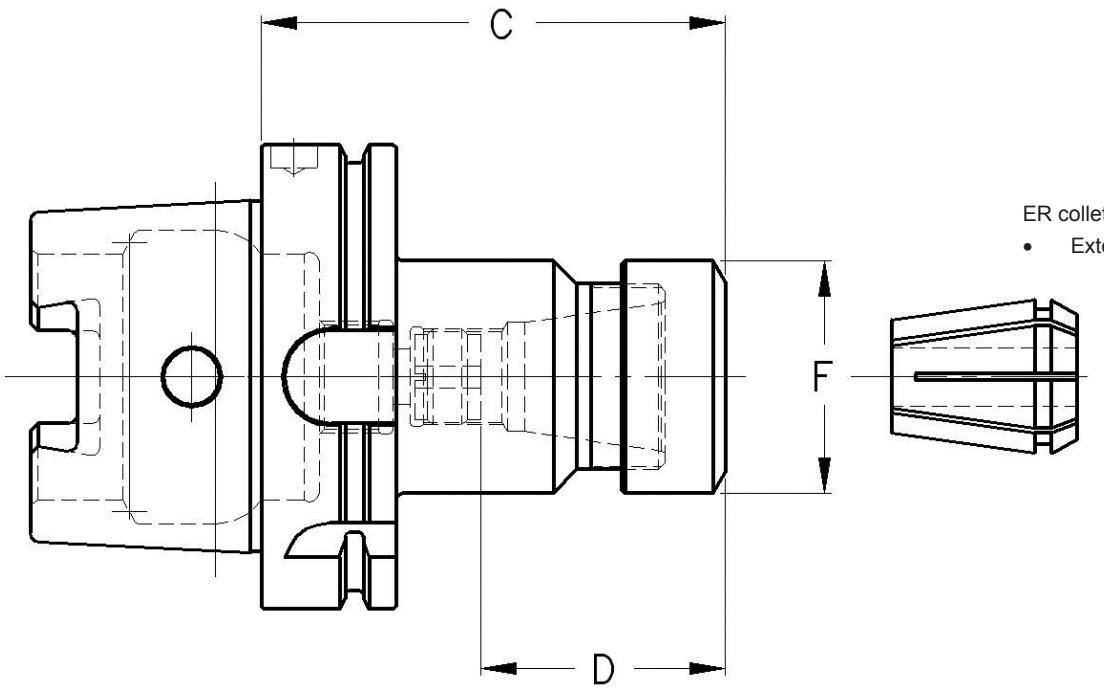


P: 198

Part Number	Collet Range (Acura-Flex Collet No.'s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF914235	7/64 - 3/4 (AF95 - AF140)	4.65	2.65	1.94 Span.	9400204	75 ft/lbs	55139
AF914236	7/32 – 1" (AF162 - AF213)	4.94	2.94	2.50 Span.	9400205	90 ft/lbs	55171
AF914237	11/32 - 1-3/8 (AF241 - AF286)	5.91	3.91	3.00 Span.	9400206	110 ft. lbs.	85296

ER Collet Chucks with HSK100A Shanks

- DIN 69893 Form-A
- ER extended range collets
- Order collets separately by matching collet series
- Coolant Thru-Order coolant tubes separately
- Other size/style HSK shanks available on request



ER collets

- Extended range



P: 184

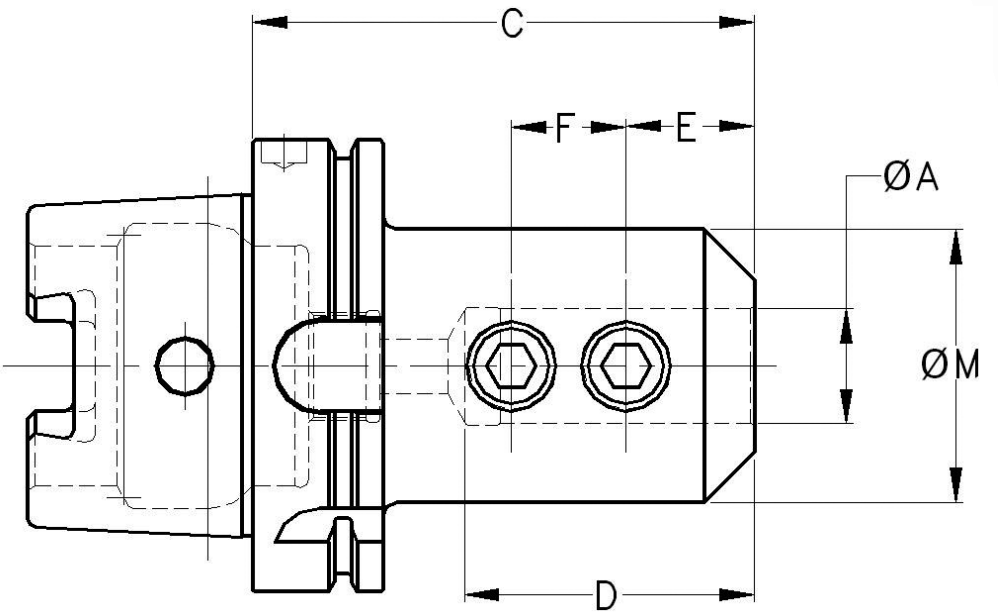


P: 198

Part Number	Collet Series	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
H100AER16394	ER16 (.020-.394)	3.94	2.10	.98 Hex.	NER16	45 ft. lbs.	WER16
H100AER16630		6.30	3.00				
H100AER20394	ER20 (.039-.512)	3.94	2.08	1.18 Hex.	NER20	60 ft. lbs.	WER20
H100AER20630		6.30	3.38				
H100AER25406	ER25 (.039-.630)	4.06	2.30	1.65 Span.	NERP25	95 ft. lbs.	WER25
H100AER32406	ER32 (.079-.787)	4.06	2.30	1.96 Span.	NERP32	125 ft. lbs.	WER32
H100AER32484		4.84	3.00				
H100AER32642		6.42	3.00				
H100AER40406	ER40 (.118-1.181)	4.06	1.80	2.48 Span	NERP40	160 ft. lbs.	WER40
H100AER40484		4.84	2.75				

End Mill Adapters with HSK100A Shanks

- DIN 69893 Form-A
- Coolant thru - Order coolant tubes separately
- Other size/style HSK shanks available on request







P: 198

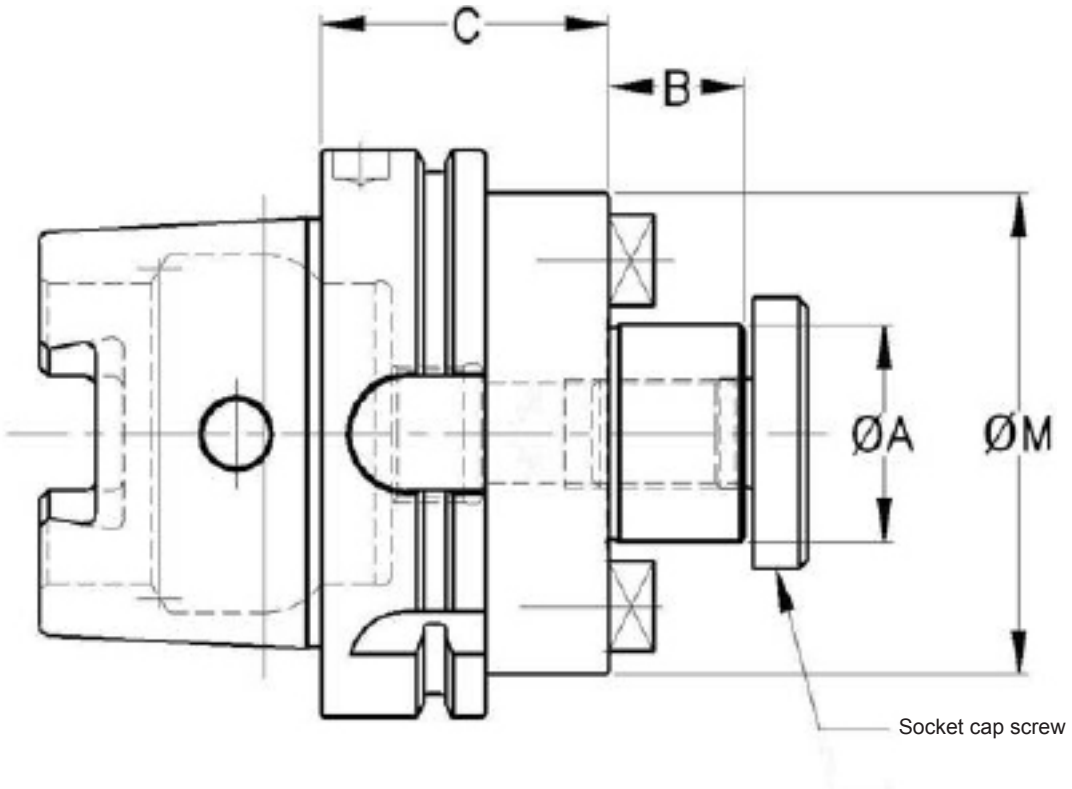
Part Number	ØA End Mill Shank Size	C	D	E	F	M	Set Screw Part Number	Ends
4618528	.3750	3.13	1.98	.75	—-	1.38	602613	Single
4618529	.5000	3.13	2.98	.88	—-	1.63	602716	Single
4618530	.6250	4.00	2.86	.94	—-	1.88	602921	Single
4618531	.7500	4.00	2.86	1.00	—-	1.94	603016	Single
4618532	1.0000	4.00	2.85	1.12	1.00	2.56	603126*	Single
4618533	1.2500	4.00	2.85	1.12	1.00	2.81	603153*	Single
4618534	1.5000	4.00	3.63	1.12	1.00	3.00	603153*	Single

* = Requires 2 set screws.

Shell Mill Adapters with HSK100A Shanks



- DIN 69893 Form-A
- Coolant thru - Order coolant tubes separately
- Coolant thru screw options available - see page #204
- Keys and socket cap screw furnished
- Other size/style HSK shanks available on request





P: 198

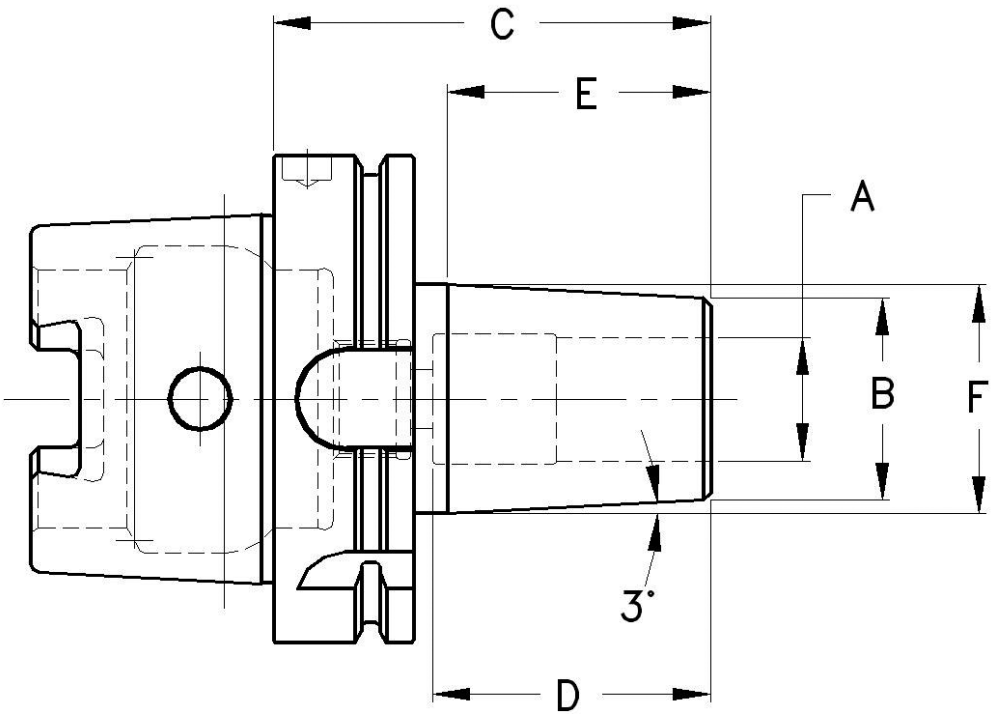
Part Number	A Pilot Dia.	B	C	M	Drive Key	Screw Thread
4618535	.7500	.68	3.00	1.75	.31	3/8 - 24
4618536	1.0000	.68	2.37	2.25	.38	1/2 - 20
4618537	1.2500	.68	1.87	2.75	.50	5/8 - 18
4618538	1.5000	.94	2.88	3.75	.62	3/4 - 16
4618539	2.0000	.94	2.37	3.85	.75	1” - 14
4618540	2.5000	1.12	2.87	4.88	1.00	1” - 14

HSK100A Shrink Fit

SHRINKER®

- DIN 69893 Form-A
- Coolant thru - Order coolant tubes separately
- Balanceable & coolant ports available upon request
- Other size/style HSK shanks available on request







P: 198

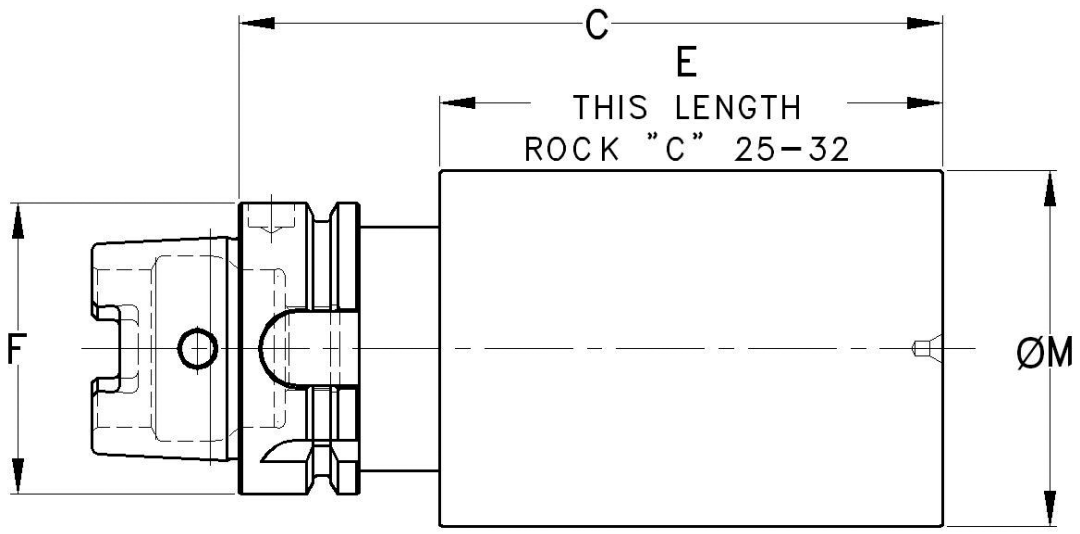
Part Number	ØA		B	C	D	E	F
4618505	1/4	.2500	.87	3.54	1.25	2.16	1.07
4618506	3/8	.3750	1.01		1.88	2.04	1.23
4618507	1/2	.5000	1.14		2.00	2.16	1.37
4618508	5/8	.6250	1.27		2.00	2.16	1.50
4618509	3/4	.7500	1.37		2.00	2.16	1.60
4618510	1”	1.0000	1.63		2.25	2.13	1.85
4618511	1-1/4	1.2500	1.85		2.25	2.16	2.07
Extended Lengths	**ØA**		**B**	**C**	**D**	**E**	**F**
4618512	3/8	.3750	1.01	6.50	1.88	5.12	1.55
4618513	1/2	.5000	1.14		2.00	5.12	1.68
4618514	5/8	.6250	1.27		2.00	5.12	1.81
4618515	3/4	.7500	1.37		2.00	5.12	1.91
4618516	1”	1.0000	1.63		2.25	5.12	2.16
4618517	1-1/4	1.2500	1.85		2.25	5.12	2.38

Note:

- Cutting Tool Shank Size must be h6 tolerance to work properly or cutter sticking or slipping may occur.
- Cutter Shanks must fully engage the length of the Shrink Fit holder bore.
- Improper heating and cooling may cause damage to the holder. Please refer to your Shrink fit machine manual for proper clamping and un-clamping.

Soft Blank Nose with HSK100A Shank

- DIN 69893 Form-A
- Other size/style HSK shanks available on request



Part Number	HSK Size F	C	E	M
5012587	100 A	8.00	6.17	4.03

Straight, Taper & Acme Threaded Shank Tooling - Index

Acura-Flex® Collet Chucks
- Straight Shank
- 1/4, 3/8, 1/2, 3/4 & 1” Capacity
- Acme Threaded Shank
- 3/8, 1/2, 3/4, 1”, 1 3/8, 1 5/8 Capacity



Pages 51-52

ER Collet Extensions
- Straight Shank
- ER8, ER11, ER16 & ER20
- Steel Shanks
- Utilizing ER Mini Nut for Close Center Applications



Double Angle Collet Extensions
- Straight Shank
- DA30, DA20,, and DA10 Collet Series
- Steel Shanks
- Utilizing Reduced Diameter Collet Nuts for Close Center Applications



Page 53

Tap Drivers
- Straight Shank
- Morse Taper Shank
- Universal Heavy Duty Quick Change Tension and Compression
- Acura-Tap® Heavy Duty Tension and Compression
- Quick Change Rigid Driver for End Mill Holders
- Quick Change Tension and Compression Driver for End Mill Holders



Pages 54-59

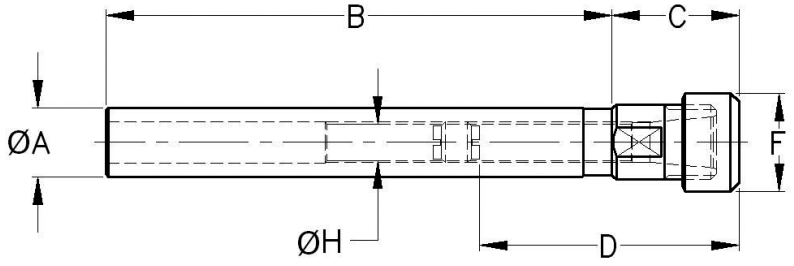
Max-Float Floating Holders
- Straight Shank
- Acme Threaded Shank
- Acura-Flex
- 1/4, 1/2, 3/4, 1”, 1 3/8 capacity
- Acura-Tap
- 1/2, 7/8, 1 1/2 Hand Capacity

Pages 60-61

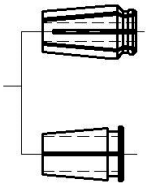
Acura-Flex® Straight Shank Collet Chucks

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix





Acura-Flex
- Extended range
- Excellent gripping power



Acura-Grip
- Extreme precision
- 1/2, 3/4, 1" collet ranges



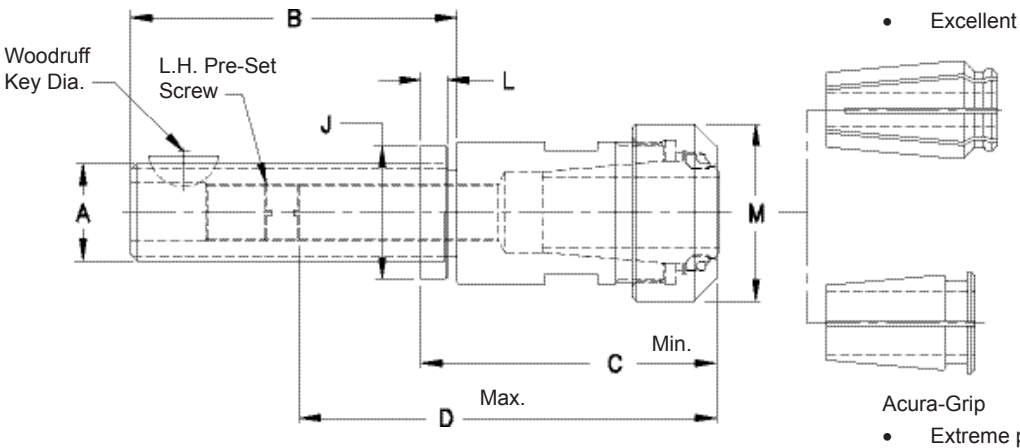
P: 173

Note:
Due to the thin wall design of these chucks wrench flats are provided for proper tightening of the collet using (2) wrenches. Improper tightening may cause damage or breakage.

Part Number	Collet Range (Acura-Flex Collet No.'s)	A	B	C	D Max. Preset Depth	F	H	Includes Nut No.	Max. Nut Tightening Torque	Ref. Wrench
AF90253	1/32 - 1/4 (AF000-AF14)	.5000	5.50	.94	2.90	.69 Oct.	.277	9400022	35 ft/lbs	55029
AF90397	1/16 - 3/8 (AF21-AF44)	.7500	5.50	1.34	3.44	1.00 Oct.	.397	9400002	40 ft/lbs	55068
AF90528	7/64 - 1/2 (AF55 - AF82)	1.0000	5.50	1.91	4.50	1.25 Oct.	.516	9400020	50 ft/lbs	55105
AF90754 AF90755	7/64 - 3/4 (AF95 - AF140)	1.2500 1.5000	5.00 5.00	1.88 1.88	5.50 5.25	1.94 Span.	.766	9400005	75 ft/lbs	55139
AF901003 AF901004	7/32 - 1" (AF162 -AF213)	1.2500 1.5000	5.00 5.00	3.62 3.68	6.00 7.00	2.50 Span.	.766 1.060	9400021	90 ft/lbs	55171

Acura-Flex® Acme Threaded Shank Collet Chucks

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix



Acura-Flex
- Extended range
- Excellent gripping power



P: 173

Acura-Grip
- Extreme precision
- 1/2, 3/4, 1", 1 3/8, 1 5/8 collet ranges

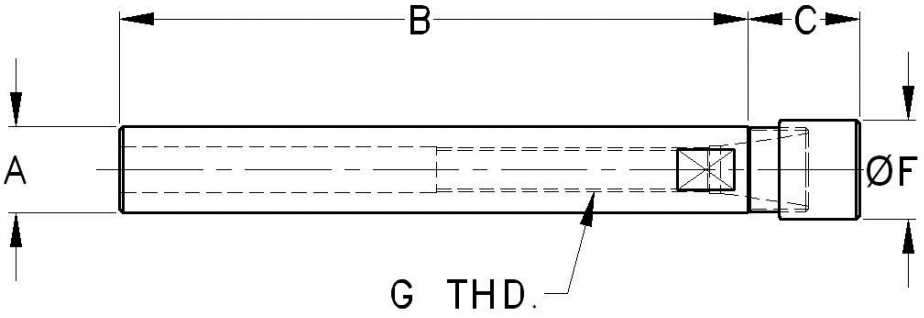
Part Number	Collet Range (Acura-Flex Collet No.'s)	A	B	Wood-ruff key dia.	Min. adjust C	Max. adjust D	Tool Diameter	L.H. pre-set screw	J	L	M Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF90409	1/16-3/8 (AF21-AF44)	5/8-16	3.00	.62	1.72	3.75 1.16	17/64< 17/64>	5/16-24	1.00	.38	9400002	40ft/lbs	55068
AF90410		3/4-12	3.00	.62	1.59	3.75		7/16-20	1.25				
AF90411		7/8-12	3.62	.75	2.00	4.75		7/16-20	1.25				
AF90541	7/64-1/2 (AF55-AF82)	7/8-12	3.62	.75	1.97	4.88			1.25	.38	9400020	50ft/lbs	55105
AF90542		1 1/16-12	3.62	.88	1.84	4.61		9/16-18	1.56				
AF90543		1 3/8-12	4.62	1.00	1.84	5.45			1.88				
AF90785	7/64-3/4 (AF95-AF140)	1 1/16-12	3.62	.88	3.22	5.88 2.25	5/8< 5/8>	11/16-16	1.56	.38	9400005	75ft/lbs	55139
AF90786		1 3/8-12	4.62	1.00	2.59	6.22		13/16-16	1.88				
AF901040	7/32-1" (AF162-AF213)	1 3/8-12	4.62	1.00	4.19	6.75 3.00	3/4< 3/4>	13/16-16	1.88	.38 .50	9400021	90ft/lbs	55171
AF901041		1 7/8-12	5.62	1.25	3.44	6.69		1 1/8-16	2.62				
AF901382	11/32-1 3/8 (AF241-AF286)	1 7/8-12	5.62	1.25	4.38	7.50 3.41	1 3/64< 1 3/64>	1 1/8-16	2.62	.50	9400011	110ft/lbs	85296
AF901658	19/32-1 5/8 (AF331-AF377)	1 7/8-12	5.62	1.25	4.75	7.88 3.38	1 3/64< 1 3/64>	1 1/8-16	2.62	.50	9400014	110ft/lbs	55200

ER Straight Shank Collet Chucks

- ER extended range collets
- Order collet separately by matching collet series



Note:
Due to the thin wall design of these chucks wrench flats are provided for proper tightening of the collet using (2) wrenches. Improper tightening may cause damage or breakage.



ER collets
- Extended range



P: 184

Part Number	Collet Series	A	B	C	F Span.	G Thd.	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench Number
SS03ER8M095	ER8 (.020 - .197)	.3750	3.94	.95	.47	.200 Dia. 1.08 Deep	NER8M	7 ft/lbs	WER8M
SS05ER11M104	ER11 (.020-.276)	.5000	5.51	1.04	.63	.300 Dia. 1.63 Deep	NER11M	14 ft/lbs	WER11M
SS07ER16M098	ER16 (.020 - .394)	.7500	5.51	.98	.87	M10 x 1.5 Thru	NER16M	22 ft/lbs	WER16M
SS10ER20M110	ER20 (.039 - .512)	1.0000	5.51	1.10	1.10	M10 x 1.5 Thru	NER20M	25 ft/lbs	WER20M

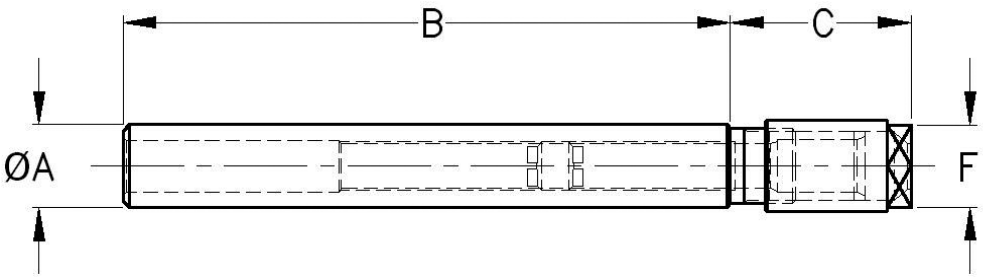
Double Angle Straight Shank Collet Chucks

- Order collet separately by matching collet series

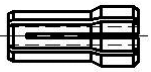




P: 192



E-Collet double angle



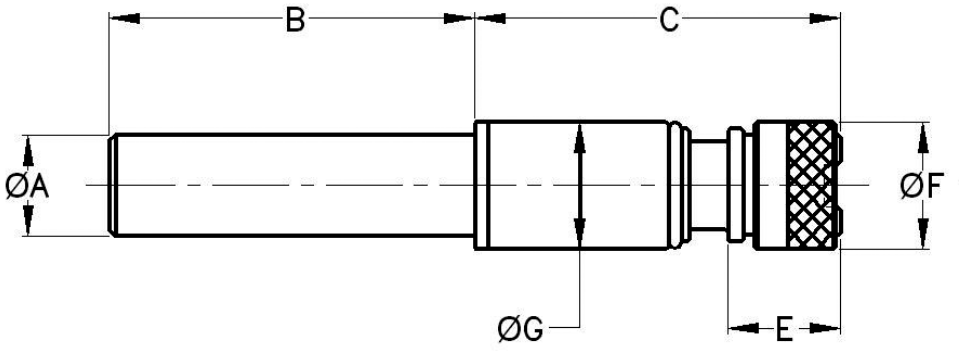
Note:
Due to the thin wall design of these chucks wrench flats are provided for proper tightening of the collet using (2) wrenches. Improper tightening may cause damage or breakage.

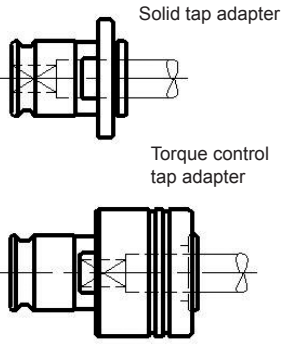
Part Number	Collet Series	Collet Range	A	B	C	F	Includes Nut No.	Max Nut Tightening Torque	Ref. Wrench Number
440116	DA30	1/64 –1/4	.5000	5.50	1.31	.50 Hex.	440119	30 ft/lbs	9903560
440117	DA20	1/64 –3/8	.7500	5.50	1.62	.75 Hex.	440120	40 ft/lbs	9903561
440118	DA10	1/64 - 9/16	1.0000	5.50	1.81	.94 Hex.	440121	50 ft/lbs	9903562

Quick Change Compensating Tap Holders

- Order tap adapter separately by matching adapter size
- Tension & Compression
- Heavy duty roller drive system
- Available in full tension & full compression







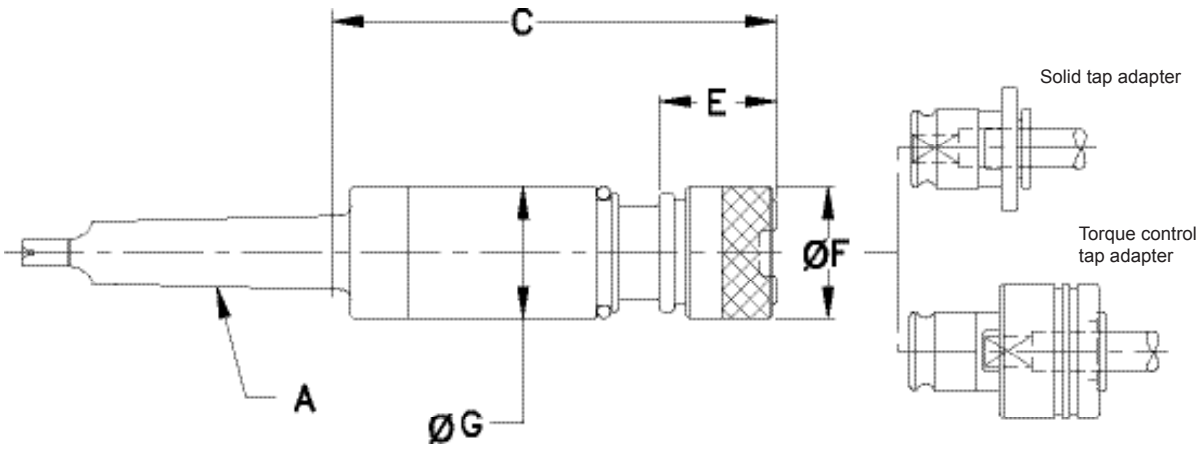


P: 199

Part Number	Adapter Size	Tap Range	A	B	C	E	F	G	Tension	Comp.
151000	1	#0 - 9/16 Hand 1/8 Pipe	.7500	3.62	3.62	1.12	1.25	1.25	.88	.38
151002	1		1.0000	3.62	3.62	1.12	1.25	1.25		
151004	1		1.2500	4.00	3.50	1.12	1.25	1.25		
151006	1		1.5000	4.00	3.50	1.12	1.25	1.25		
151008	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	1.0000	3.62	4.50	1.68	1.97	1.68		
151010	2		1.2500	4.00	4.50	1.68	1.97	1.68		
151012	2		1.5000	4.00	4.38	1.68	1.97	1.68		
151016	3	3/4 - 1” 3/8 Hand 3/8 - 1” Pipe	1.2500	4.00	5.68	2.50	2.83	2.75		
151019	3		1.5000	4.00	5.68	2.50	2.83	2.75		

Quick Change Compensating Tap Holders

- Order tap adapter separately by matching adapter size
- Tension & Compression
- Heavy duty roller drive system
- Available in full tension & full compression





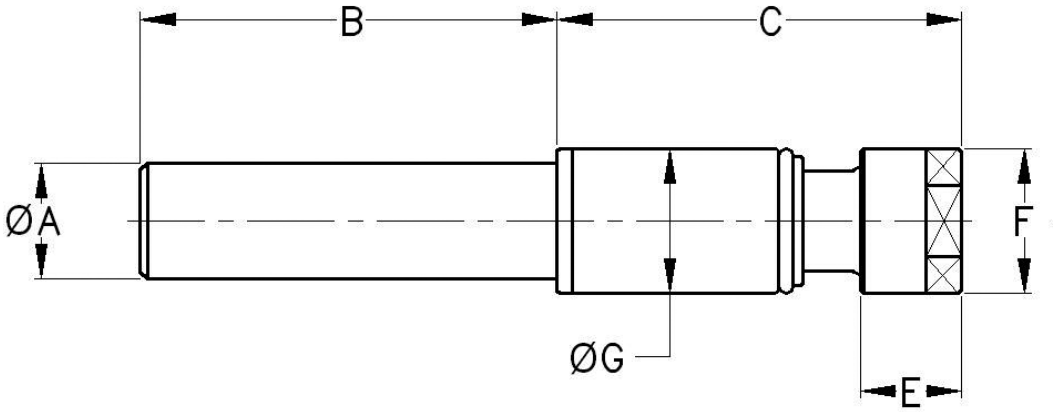
P: 199

Part Number	Adapter Size	Tap Range	A	C	E	F	G	Tension	Comp
162072	1	#0-9/16 Hand 1/8 Pipe	#2 Morse	4.22	1.12	1.25	1.25	.88	.38
162026	2	1/4-7/8 Hand 1/4-1/2 Pipe	#3 Morse	4.62	1.68	1.97	1.68		
162066	3	3/4-1 3/8 Hand 3/8-1” Pipe	#4 Morse	5.94	2.50	2.83	2.75		

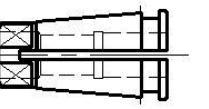
Acura-Tap® Compensating Tap Holders

- Acura-Tap collets
- Order collet separately by matching tap range
- Ideal for carbide and roll form taps
- Tension & Compression
- Heavy duty roller drive system
- Available in full tension & full compression





Acura-Tap
positive drive collets



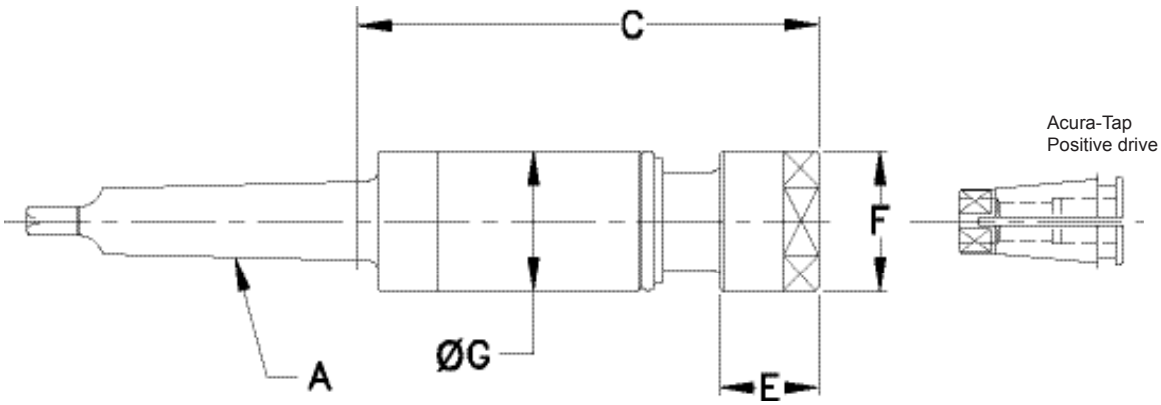


P: 181

Part Number	Tap Range	A	B	C	E	F	G	Includes Nut No.	Ten-sion	Comp.	Ref. Wrench
15898	#0 –1/2 Hand 1/8 Pipe	.7500	3.62	3.50	.88	1.06 Hex.	1.25	280669	.88	.38	505643
15900		1.0000	3.62	3.50							
15902		1.2500	4.00	3.38							
15904		1.5000	4.00	3.38							
15907	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	1.0000	3.62	4.12	1.06	1.50 Hex.	1.68	280677			505651
15909		1.2500	4.00	4.12							
15911		1.5000	4.00	4.00							
15916	3/4 - 1-1/2 Hand 1/2 - 1-1/4 Pipe	1.2500	4.00	5.44	1.28	2.75 Span.	2.75	280681			505650
15919		1.5000	4.00	5.44							

Acura-Tap® Compensating Tap Holders

- Acura-Tap collets
- Order collet separately by matching tap range
- Ideal for carbide and roll form taps
- Tension & Compression
- Heavy duty roller drive system
- Available in full tension & full compression



Acura-Tap
Positive drive collets



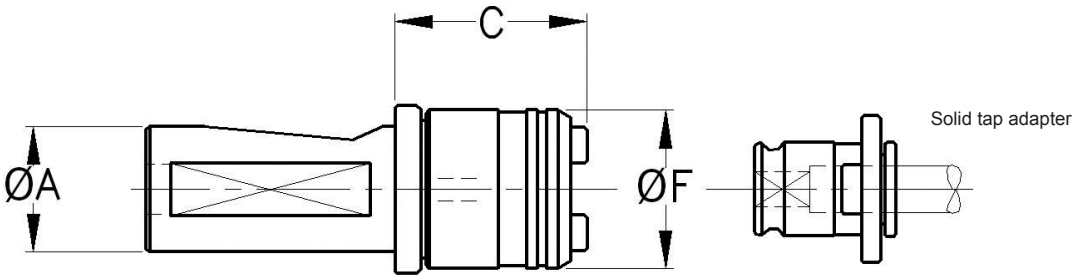
P: 181

Part Number	Tap Range	A	C	E	F	G	Includes Nut No.	Tension	Comp	Ref. Wrench
163762	#0-1/2 Hand 1/8 Pipe	#2 Morse	4.09	.88	1.06 Hex.	1.25	280669	.88	.38	505643
163763	1/4-7/8 Hand 1/8-1/2 Pipe	#3 Morse	4.25	1.06	1.50 Hex.	1.68	280677			505651
163764	3/4-1 1/2 Hand 1/2-1 1/4” Pipe	#4 Morse	5.68	1.28	2.75 Span.	2.75	280681			505650

Rigid Quick-Change Tap Holders

- Order tap adapter separately by matching adapter size
- Straight Shanks for collet, lathe & end mill adapters
- Coolant thru the center
- Torque type adapters should not be used with these holders







P: 199

Part Number	Tap Range	Adapter Size	A	C	F
169003	#0-9/16 Hand Tap 1/8 Pipe	1	1.0000	1.54	1.26
169004	1/4-7/8 Hand Tap 1/4 - 1/2 Pipe	2	1.0000	2.13	1.97
169005	3/4-1”3/8 Hand Tap 3/8 - 1” Pipe	3	1.5000	3.36	2.83

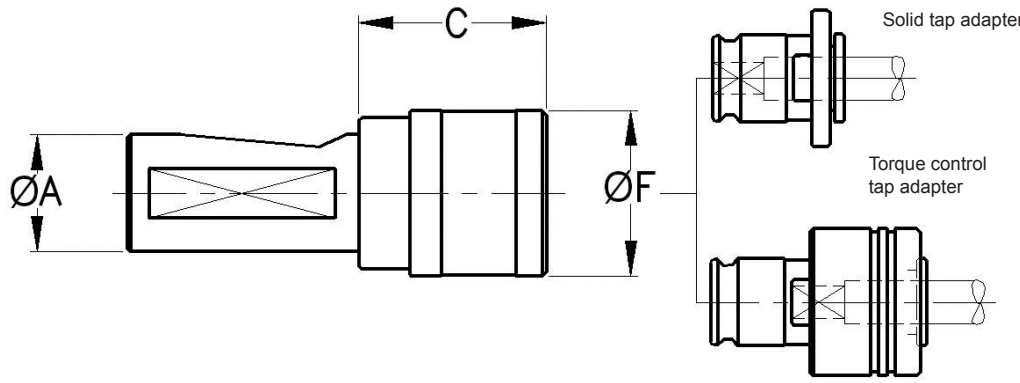
Short Compensating Tap Holders

- Order tap adapter separately by matching adapter size
- Tension & Compression
- Straight shanks for collet, lathe & end mill adapters





P: 199



Part Number	Tap Range	Adapter Size	A	C	F	Tension	Comp.
169006	#0-9/16 Hand 1/8 Pipe	1	1.0000	1.62	1.42	.30	.30
169007	1/4-7/8 Hand 1/4 - 1/2 Pipe	2	1.0000	3.16	2.09	.49	.49
169008	3/4 - 1-3/8 Hand 3/8 - 1” Pipe	3	1.5000	4.38	3.07	.79	.79

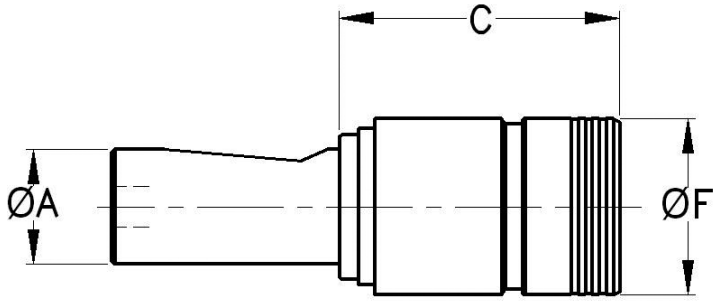
Short Compensating Tap Holders - Coolant Thru

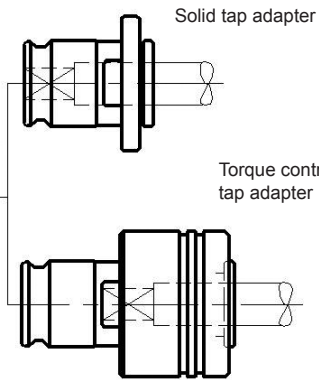
- Order tap adapter separately by matching adapter size
- Tension & Compression
- 50 bar (720 PSI) coolant thru the center
- Straight shanks for collet, lathe & end mill adapters





P: 199





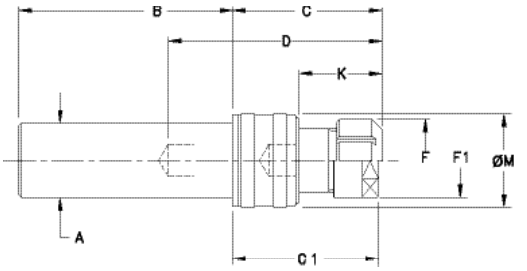
Part Number	Tap Range	Adapter Size	A	C	F	Tension	Comp.
169009	#0-9/16 Hand 1/8 Pipe	1	1.0000	2.44	1.535	.30	.30
169010	1/4-7/8 Hand 1/4 - 1/2 Pipe	2	1.0000	3.86	2.362	.39	.39
169011	3/4-1-3/8 Hand 3/8 - 1” Pipe	3	1.5000	5.79	3.386	.69	.69

Max-Float Floating Holders

- Order by part number.
- Collet nut furnished.
- Order wrench separately.
- Order collet separately by matching tool size range of collet and chuck.
- Sets of collets are available.
- Acura-Flex and Acura-Tap chuck assemblies may be interchanged by merely changing collet nuts.

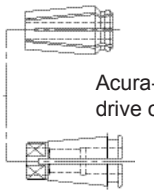
Features:

- Total radial float models
  106, 144, 169, 219– is .062”
  Models 269, 344–is .094”



Acura-Flex

- Extended range
- Excellent gripping power



Acura-Tap positive drive collets

Please Note!
Acura-Flex and Acura-Tap collets must be used with their respective nuts.



P: 173



P: 181

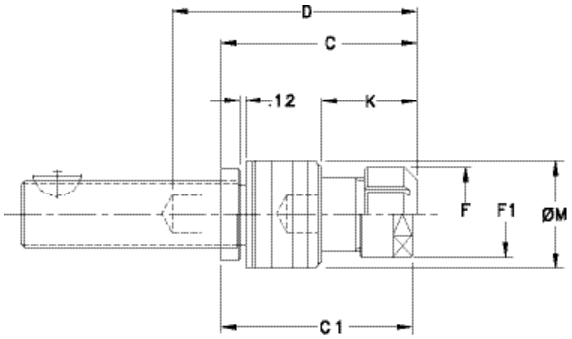
Collet Tool Size Range	AxB Shank	Model	Acura-Flex			Acura-Tap			D	K	M
			Part No.	C	F Wrench	Part No.	C_1	F_1 Wrench			
1/16-1/4	.625 x 3.00	106	AF241531	1.94	.68 Oct. 55029				1.09	.87	1.06
	.750 x 3.00		AF241532								
	.750 x 3.00	144	AF241537	1.88					3.00	.69	1.44
7/64 to 1/2 #0-1/2 Hand	.750 x 3.00	169	AF241626	2.31	1.25 Oct. 55105	AT241626	2.45	1.06 Hex 505643	1.69	1.03	1.69
	1.000 x 3.50		AF241631			AT241631			3.62		
	1.250 x 4.00		AF241632			AT241632			3.62		
7/64 to 3/4 3/8-7/8 Hand	1.000 x 3.50	219	AF241755	3.50	1.94 Dia. 55139	AT241755	3.41	1.50 Hex 505651	2.75	1.97	2.19
	1.250 x 4.00		AF241760			AT241760			5.00		
	1.500 x 4.00		AF241761			AT241761			5.00		
	1.750 x 5.00		AF241762			AT241762			5.00		
7/32 to 1”	1.250 x 4.00	269	AF241860	3.62	2.50 Dia. 55171				2.75	2.03	2.69
	1.500 x 4.00		AF241861								
	1.750 x 5.00		AF241865						5.75		
	2.000 x 5.00		AF241866						5.75		
11/32 to 1 3/8 3/4-1 1/2 Hand	1.750 x 5.00	344	AF241946	4.38	3.00 Dia. 85296	AT241946	4.22	2.75 Dia. 505650	3.84	2.50	3.44
	2.000 x 5.00		AF241947			AT241947					
	2.250 x 5.00		AF241950			AT241950			7.00		
	2.500 x 5.00		AF241951			AT241951					

Max-Float Floating Holders

- Order by part number.
- Collet nut furnished.
- Order wrench separately.
- Order collet separately by matching tool size range of collet and chuck.
- Sets of collets are available.
- Acura-Flex and Acura-Tap chuck assemblies may be interchanged by merely changing collet nuts.

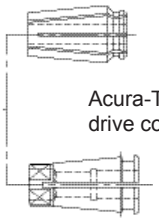
Features:

- Total radial float models
  106, 144, 169, 219– is .062”
  Models 269, 344–is .094”



Acura-Flex

- Extended range
- Excellent gripping power



Acura-Tap positive drive collets

Please Note!
Acura-Flex and Acura-Tap collets must be used with their respective nuts.



P: 173



P: 181

Collet Tool Size Range	Shank	Model Chuck Size	Acura-Flex			Acura-Tap			D	K	M
			Part No.	C	F Wrench	Part No.	C_1	F_1 Wrench			
1/16-1/4	5/8-16	106	AF241525	2.44	.68 Oct. 55029				1.09	.87	1.06
	3/4-12		AF241526								
	7/8-12		AF241527								
7/64 to 1/2 #0-1/2 Hand	3/4-12	169	AF241616	2.81	1.25 Oct. 55105	AT241616	2.95	1.06 Hex. 505643	1.69	1.03	1.69
	7/8-12		AF241617			AT241617					
	1 1/16-12		AF241621			AT241621			3.62		
	1 3/8-12		AF241622			AT241622			3.62		
7/64 to 3/4 3/8-7/8 Hand	1 1/16-12	219	AF241747	4.00	1.94 Dia. 55139	AT241747	3.91	1.50 Hex. 505651	2.75	1.97	2.19
	1 3/8-12		AF241750			AT241750			5.00		
	1 7/8-12		AF241751	4.12		AT241751	4.03		5.00		
7/32 to 1”	1 1/16-12	269	AF241852	4.12	2.50 Dia. 55171				2.75	2.03	2.69
	1 3/8-12		AF241854								
	1 7/8-12		AF241856	4.25					5.75		
11/32 to 1 3/8 3/4-1 1/2 Hand	1 3/8-12	344	AF241941	4.88	3.00 Dia. 85296	AT241941	4.72	2.75 Dia. 505650	3.84	2.50	3.44
	1 7/8-12		AF241942	5.00		AT241942	4.84				

DeVlieg® Micro-Adjust™ Boring Systems - Index

Technical Data
- DeVlieg Micro-Adjust™ Boring Bar Adjust & Component Data
- DeVlieg "GA" Gear Adjust Boring Bar Adjust & Component Data
- Mod-Flex Modular Interchange Data
- Mod-Flex Lock/Plug Screw & Wrench Data

Pages 63-68

Mod-Flex Modular Tooling
- Master Holders - HSK, Cat, BT, Flash Change/NMTB, & Straight Shank Styles
- Mod-Flex Extensions
- Mod-Flex Reducers
- Mod-Flex Acura-Flex® Collet Chucks
- Mod-Flex End Mill & Shell Mill Adapters
- Mod-Flex Quick-Change & Acura-Tap® Tap Drivers
- Mod-Flex Soft Blank Nose
- See page #164 for Kwik-Switch Shank Mod-Flex Holders

Pages 69-77

"GA" Gear Adjust Offset Boring Heads
- Finish Bore .31 - 1.46 Diameter
- Mod-Flex Shanks
- ASH Boring Bars
- ADA - ADB Thread & Pilot Mount "GA" Heads
- ADA - ADB Boring Head Adapters with Mod-Flex, Straight Shank, CAT40, & CAT50 Shank Styles

Pages 78-81

MICRO-Adjust™ Standard Boring Bars
- Finish Bore .50 - 5.62 Diameter
- CAT40 Shanks
- CAT50 Shanks
- Finish Bore .50 - 4.25 Diameter
- Straight Shanks
- Brazed & Indexable Cartridges

Pages 82-119

MICRO-Adjust™ Standard Boring Rings
- Finish Bore 3.125 - 6.500 Diameter
- ADE-1287 Pilot Flange Mount
- Finish Bore 5.500 - 17.875 Diameter
- ADE-1412 Pilot Flange Mount
- ADE-1287, ADE-1412 Boring Ring Adapters with Mod-Flex, CAT40, & CAT50 Shank Styles
- Brazed & Indexable Cartridges

Pages 120-126

"GA" Gear Adjust Boring Bars
- Finish Bore .97 - 8.90 Diameter
- Mod-Flex Shanks
- Indexable Cartridges

Pages 127-131

"GA" Gear Adjust Boring Rings
- Finish Bore 8.46 - 13.78 Diameter
- ADE-1412 Pilot Flange Mount
- Indexable Cartridges

Page 132

How to adjust DeVlieg® Micro-Adjust™ Standard Boring Bars

Accurate adjustment of a DeVlieg® Micro-Adjust™ tool is achieved by use of a graduated dial and vernier scale, both of which are calibrated to read directly on bore diameter. Referring to Figure 1, a dial movement of one graduation represents 0.001" (.0254mm) on diameter and the vernier scale divides one graduation of the dial into ten parts with a resultant change of .0001" (.00254mm) on diameter. Important: There is a difference in the dial graduations which must be used on angular and straight mounted tools. The table below shows correct dial graduations to use with the various tools.

Figure 1

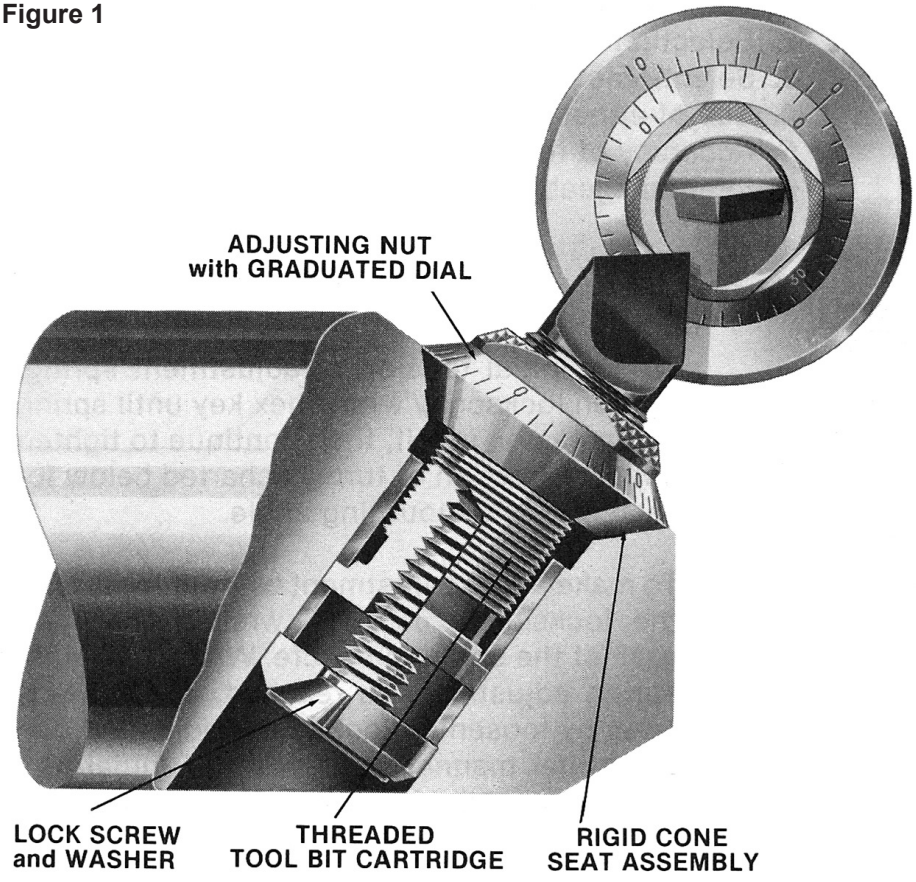


Figure 2

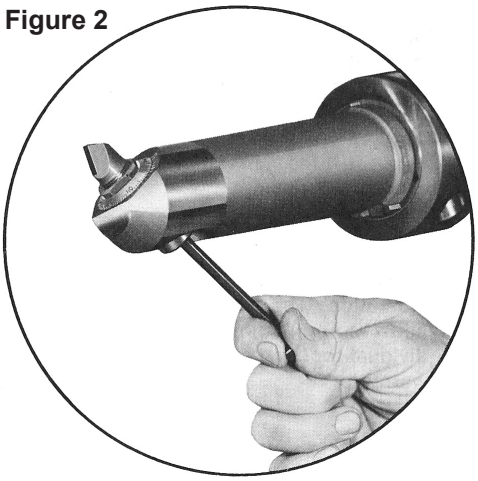


Figure 3

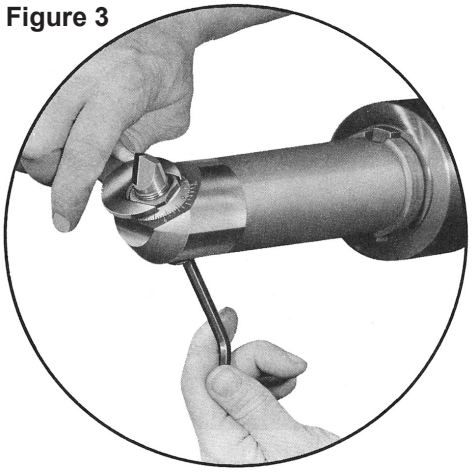
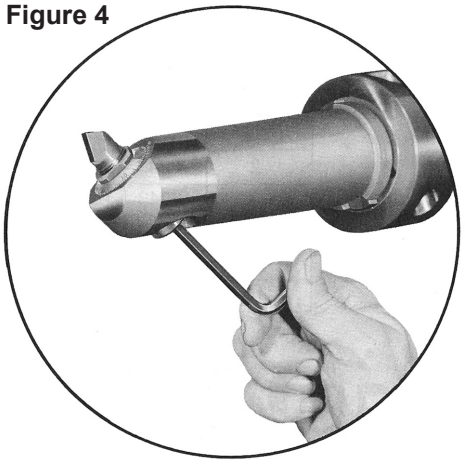


Figure 4



To make an adjustment on any DeVlieg® Micro-Adjust™ tool, loosen the lock screw at the back of the tool, using a hex key as shown in Figure 2.

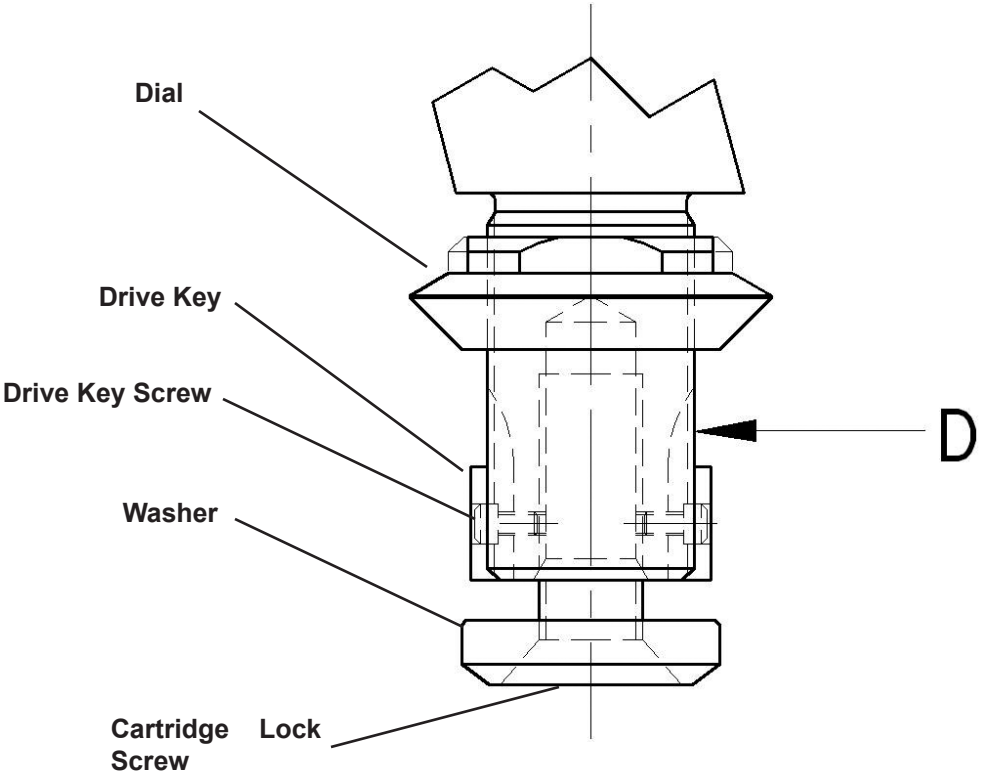
Move the dial with a dial wrench applied to the flats to make the required adjustment as shown in Figure 3.

Tighten the lock screw, using the hex key as shown in Figure 4. Only normal finger pressure on the short end of the hex key is required for proper locking of the unit assembly after adjustment to insure more accurate tool setting.

Dial Graduations To Use With Micro-Adjust Tools

Micro-Adjust Tool Size	1	2	3	5	7	10	15	20
Angular Mounted	30	40	40	40	80	80	80	80
Straight Mounted	40	50	50	50	100	100	100	100

Standard Micro-Adjust Cartridge Components



Cartridge Size	D Thread	Dial		Washer		Headed Cartridge Drive Key	Drive Key Screw	Cartridge Lock Screw Thread	Dial Wrench
		Angular	Straight	Standard	Encapsulated Spring*				
1	3/16 - .5mm	1203	1204	-	-	-	-	#4-40	1330A
2	1/4 - 40	2204	2205	2306	2301**	-	-	#5-40	2330A
3	5/16 - 40	3704	3705	3306	3301	-	-	#8-32	2330A
5	1/2 - 40	5704	5705	5306	5301	5325	S167	1/4-20	5330A
7	3/4 - 20	7708	7710	7306	7301	7325	S160	3/8-16	5330A
10	1” - 20	10708	10710	10306	10301	10325	S501	1/2-13	10330A

* For Fine Front Adjustment

** Includes Cartridge Lock Screw

How to adjust DeVlieg® Micro-Adjust™ "GA" Gear Adjust Boring Bars

Accurate adjustment of a DeVlieg® Micro-Adjust™ "GA" Gear Adjust tool is achieved by use of a graduated gear dial and graduated dial wrench, both of which are calibrated to read directly on bore diameter.

Referring to Figure 1, a dial wrench movement of one graduation represents 0.0001" (.00254mm) on diameter.

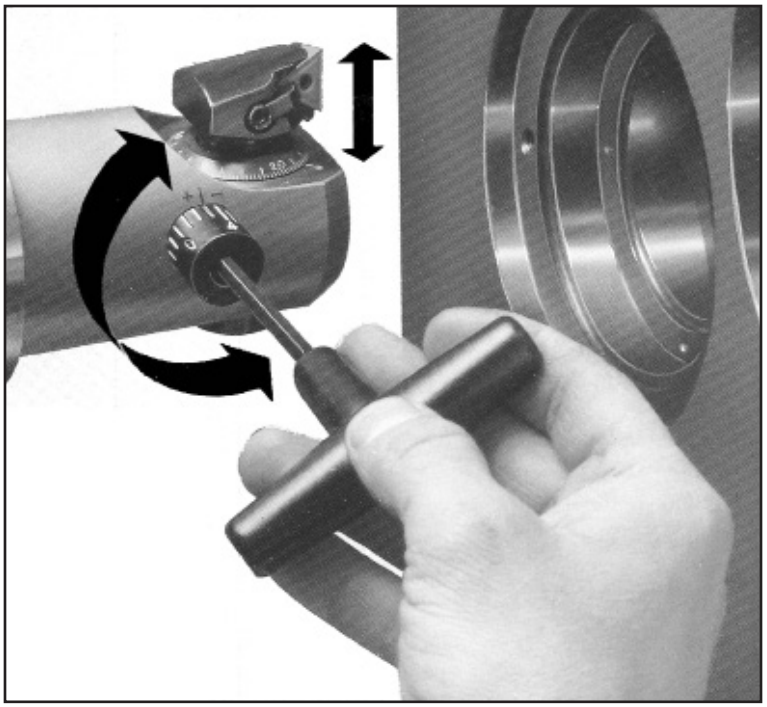


Figure 1

Initial Setup

1. Set tool to required diameter.
2. Tighten lock screw with hex key, compressing encapsulated spring washers flat.
3. Back off wrench the appropriate amount (see chart below).

To Adjust the "GA" Gear Adjust Tool

1. When the spring pressure is set, it is not necessary to loosen the lock screw to adjust. (See chart below for the amount of adjustment)
2. Insert wrench into hex of the worm gear and turn in a counterclockwise direction, plus (+), in order to increase diameter or turn in a clockwise direction, minus (-), to decrease diameter required.

Cartridge Size	Encapsulated Spring Assy.	To Set Tension, Back-Off Lock Screw	Direct Movement of Cartridge	Range of Adjust on Diameter	
				90° Mount	Angular Mount
2	2303	1/4 Turn	.009	.018	.014
3	3303	1/3 Turn	.008	.016	.013
5	5303	1/3 Turn	.012	.024	.019
7	7303	1/2 Turn	.021	.042	.033
10	10303	1/2 Turn	.024	.048	.038

Notes

1. When maximum spring adjustment is reached, there will be resistance when turning the wrench. The Unit should be reset by loosening the lock screw, adjusting the dial, if required, and resetting tension as described above.
2. To insure accuracy and allow for backlash in the gearing system, always advance the "GA" tool in the plus (+) counterclockwise direction moving the tool up to the required diameter.

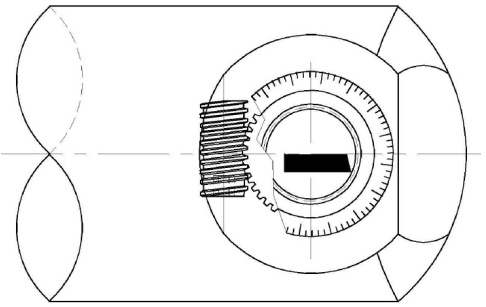
   Example:

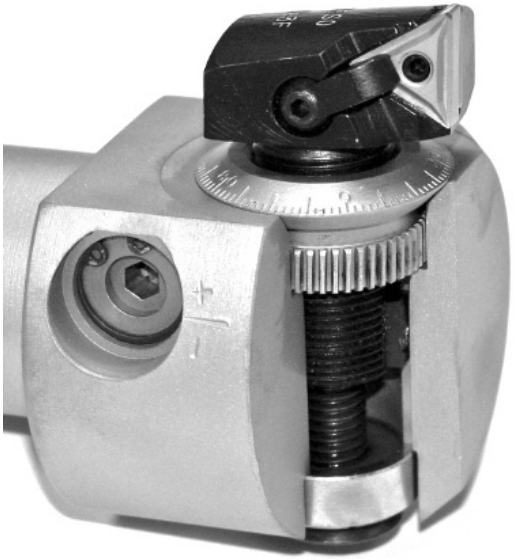
   If a minus amount of .0005" on diameter (which is equal to 5 graduations on the dial wrench) is required, the wrench should be rotated clockwise 15 graduations, then back counterclockwise 10 graduations to eliminate any backlash in the gear system. This will provide an effective amount of .0005 on diameter.

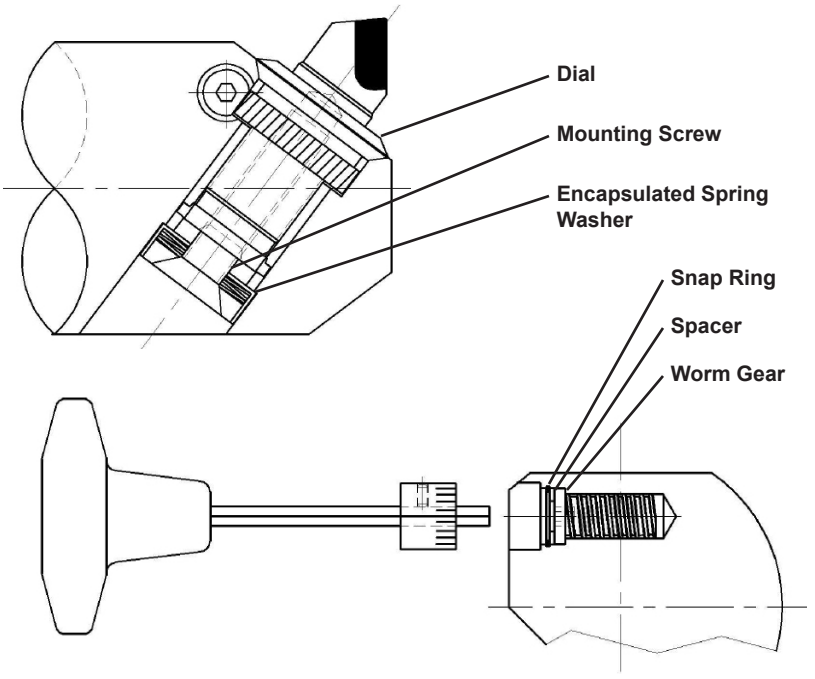
Important: Angular and Straight Mounted Tools have different number of dial graduations. (see chart below)

Mounting	Cartridge Size					
	2	3	5	7	10	12
Angular	40	40	40	80	80	80
Straight 90°	50	50	50	100	100	100

"GA" Gear Adjust Components







Cartridge Hole Size	Mount	Dial	Worm Gear	Encapsulated Spring Washer	Dial Wrench	Snap Ring	Spacer	Cartridge Mounting Screw Thread
2	Angular	2804	2820	2303 *	2841	N500025	2830	#5-40
	Straight	2805	2821		2842	N500031	2831	
3	Angular	3804	3820	3303	2841	N500031	2831	#8-32
	Straight	3805	3821		2842	N500037	3831	
5	Angular	5804	5820	5303	5841	N500043	5830	1/4-20
	Straight	5805	5821		5842	N500056	5831	
7	Angular	7808	7820	7303	7841	N500050	7830	3/8-16
	Straight	7810	7821		5842	N500062	7831	
10	Angular	10808	10821	10303	7841	N500062	10830	1/2-13
	Straight	10810	10821		5842	N500062	7831	

* Includes cartridge mounting screw

The Mod-Flex Connection

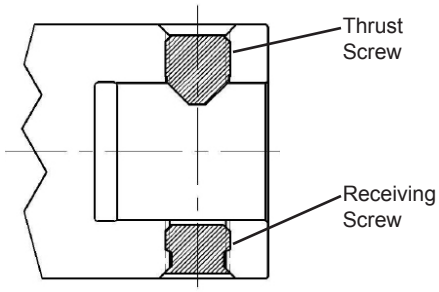
US Patent #5,110,240

Patented 100% Komet-ABS® Interchangeable Modular Boring System

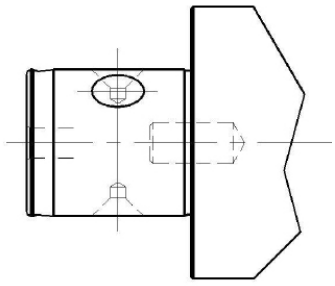
It's the best modular connection now available...
Plus! You get the opportunity to reap the benefits from the industry's highest quality and widest variety of tool holders and boring & facing tools …
ones that use standard cutting tool inserts...



Adapter Interchange Procedure with Komet-ABS® Holders

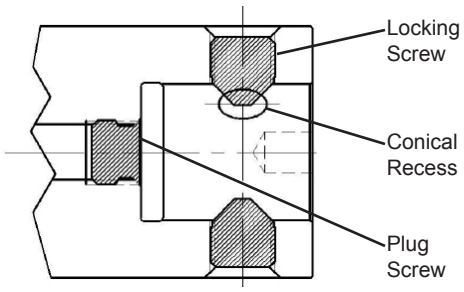


1. Remove thrust screw and receiving screw from the holder and replace with Mod-Flex locking screw package by matching connection Size.

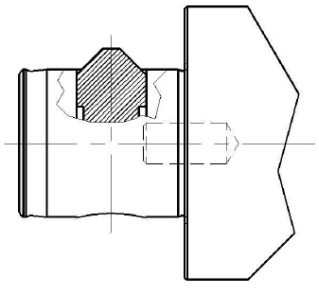


2. Install Mod-Flex adapter into converted holder and secure locking screws.

Holder Interchange Procedure with Komet-ABS® Adapters



1. Remove the locking screw adjacent to the conical recess from Mod-Flex holder and replace with Mod-Flex plug screw.



2. Install adapter into converted Mod-Flex holder and secure locking screw.

ABS® is a Registered Trademark of Komet Stahlhalter.und Werkzeugfabrik Robert Breuning. GmbH

Mod-Flex Lock / Plug Screw & Wrenches

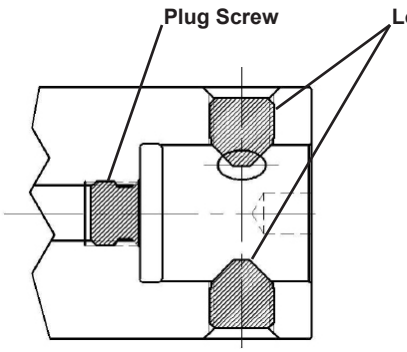


Fig. 1

Standard Mod-Flex Configuration (Fig. 1)

- (2) Locking screws
- (1) Plug Screw for Non-Coolant Applications
  Note: The plug screw is not required when using Mod-Flex adapters.

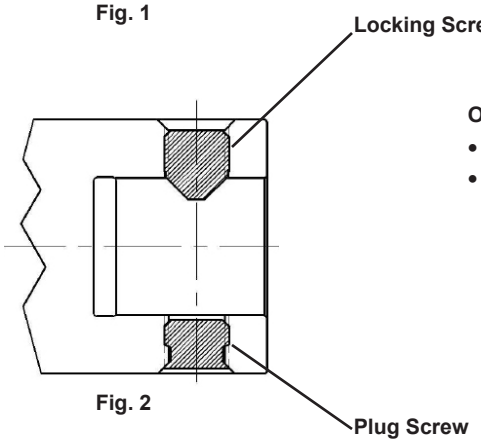


Fig. 2

Optional Configuration for ABS Adapters (Fig. 2)

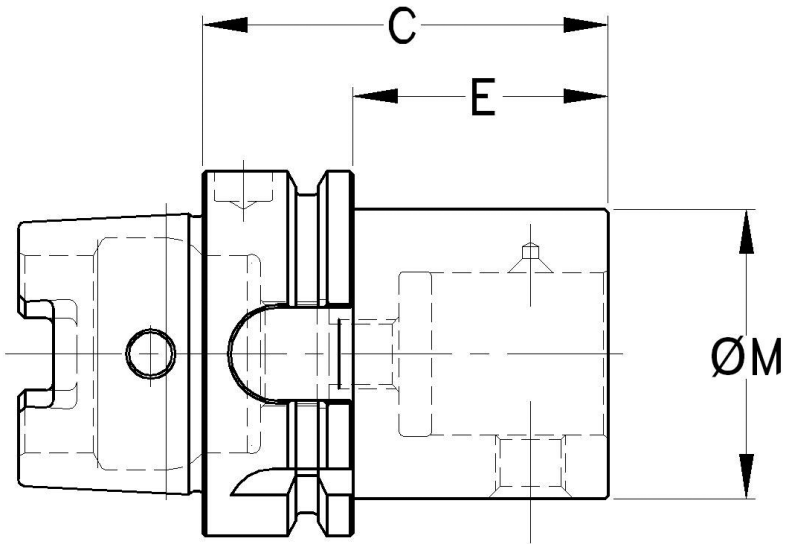
- (1) Locking screw 90 degree's from the orientation pin hole on the face of the holder.
- (1) Plug screw is installed in the off set locking screw position to prevent chips and coolant from entering the mechanism. Note: If non-coolant application the second locking screw can be stored in the plug screw position in Fig. 1.

Mod-Flex Size	Lock Screw Package Number (2 screws per pkg)	Wrench Part Number	Hex Key Size
025	025MF270001	9901465	3mm
032	032MF270002	9901466	4mm
040	040MF270003	9901467	5mm
050	050MF270004	9901468	6mm
063	063MF270005	9901469	8mm
080	080MF270006	9901470	10mm
1000	1000MF270007	9901471	12mm
1250	1250MF270008	9901472	14mm

Mod-Flex Size	Plug Screw Part Number	Wrench Part Number	Hex Key Size
025	025MF270188	9901464	2.5mm
032	032MF270189	9901465	3mm
040	040MF270190	9901466	4mm
050	050MF270191	9901466	4mm
063	063MF270192	9901467	5mm
080	080MF270193	9901468	6mm
1000	1000MF270194	9901469	8mm
1250	1250MF270195	9901470	10mm

Mod-Flex Holders with HSK Form A Shanks

- DIN 69893 Form A (also works in Form C)
- Coolant Thru - order coolant tubes separately





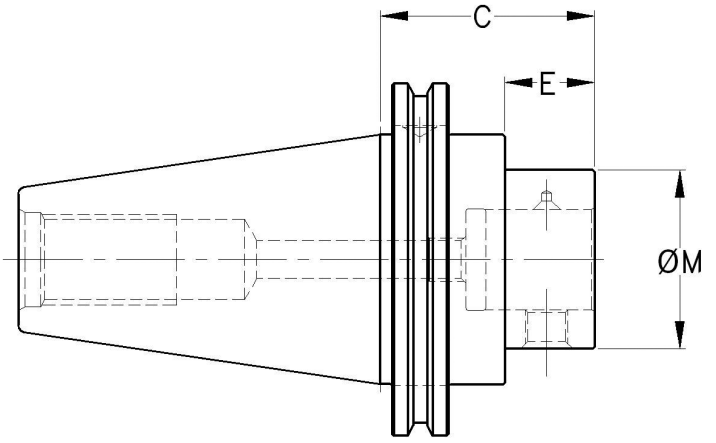
P: 198

Part Number	Shank	Mod-Flex Size	C	E	M	Weight lbs.
025MF270444	HSK-50A	025	1.969	.945	.984	1.0
032MF270445		032	1.969	.945	1.260	1.1
040MF270446		040	2.362	1.339	1.575	1.3
050MF270447		050	2.756	-	1.969	2.0
025MF270448	HSK-63A	025	1.969	.945	.984	2.0
032MF270449		032	1.969	.945	1.260	2.0
040MF270450		040	2.362	1.339	1.575	2.2
050MF270451		050	2.756	1.732	1.969	2.7
063MF270452		063	3.150	-	2.480	3.6
080MF270453		080	3.150	-	3.150	5.5
032MF270454	HSK-100A	032	2.362	1.220	1.260	5.1
040MF270455		040	3.150	2.008	1.575	5.4
050MF270456		050	3.150	2.008	1.969	5.9
063MF270457		063	3.150	2.008	2.480	6.6
080MF270458		080	3.543	2.402	3.150	8.2
1000MF270459		1000	3.937	-	3.937	10.5

Mod-Flex Holders with CAT Shanks

- ANSI B5.50 1994 - AT3 taper tolerance
- DIN/B coolant thru the flange available upon request
- Coolant thru



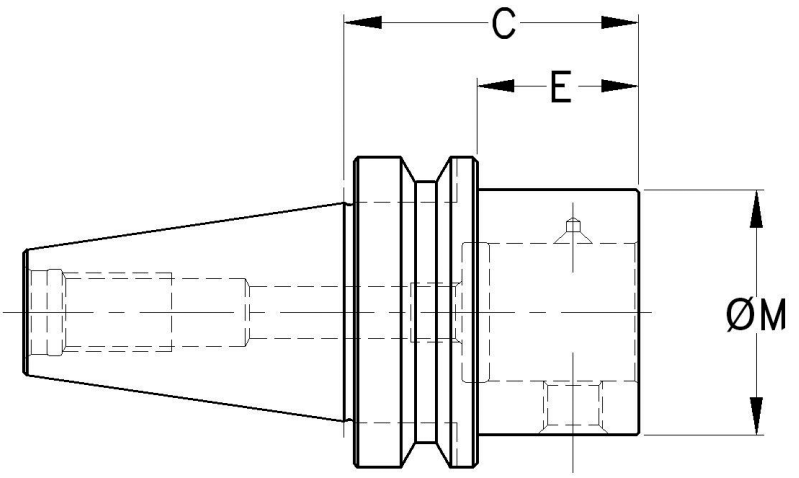


Part Number	Shank	Mod-Flex Size	C	E	M	Weight lbs.
025MF270009	Cat-40	025	2.362	.987	.984	2.4
032MF270010		032	2.362	.987	1.260	3.3
040MF270011		040	2.362	.987	1.575	3.3
050MF270012		050	2.953	1.516	1.969	3.4
063MF270013		063	3.543	2.106	2.480	4.8
032MF270019	Cat-50	032	2.362	.987	1.260	7.9
040MF270020		040			1.575	8.0
050MF270021		050			1.969	8.1
063MF270022		063	3.150	1.775	2.480	9.5
080MF270023		080	3.937	2.500	3.150	11.8
1000MF270024		1000	4.921	3.484	3.937	17.3


P: 203

Mod-Flex Holders with BT Shanks

- JMTBA MAS-403 - AT3 taper tolerance
- DIN/B coolant thru the flange available upon request
- Coolant thru



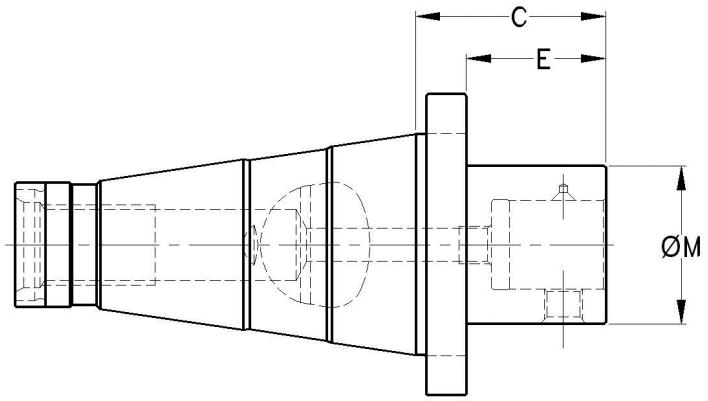


Part Number	Shank	Mod-Flex Size	C	E	M	Weight lbs.
025MF270030	BT40	025	2.362	1.299	.984	2.5
032MF270031		032			1.260	2.6
040MF270032		040			1.575	2.8
050MF270033		050			1.969	3.0


P: 203

Mod-Flex Holders with Flash Change / NMTB Shanks

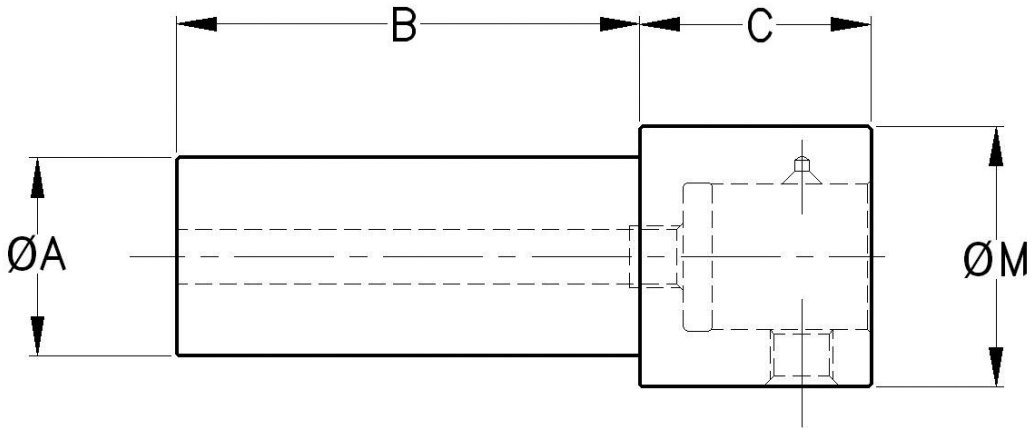
- ANSI B5.18-1972 with DeVlieg® Flash Change Notch Included
- Coolant thru



Part Number	Shank	Mod-Flex Size	C	E	M	Weight lbs.
025MF270045	NMTB40	025	1.969	1.580	.984	1.7
032MF270046		032			1.260	1.9
040MF270047		040			1.575	2.1
050MF270048		050			1.969	2.4
032MF270049	NMTB50	032	2.362	1.742	1.260	5.9
040MF270050		040			1.575	6.2
050MF270051		050			1.969	6.5
063MF270052		063	2.756	2.136	2.480	7.6
080MF270053		080	3.150	2.530	3.150	9.6
1000MF270054		1000	4.528	3.908	3.937	16.3

Mod-Flex Holders with Straight Shanks

- Coolant thru

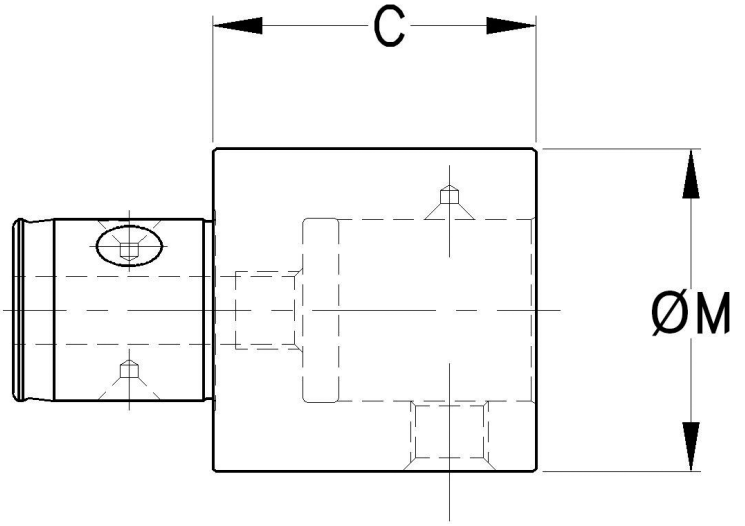


Part Number	Shank	Mod-Flex Size	A	B	C	M	Weight lbs.
050MF270055	1-1/2 SS	050	1.500	3.500	1.750	1.969	2.8
050MF270056	2" SS	050	2.000	4.674	1.688	1.969	5.2
063MF270059		063		4.559	2.000	2.480	6.2
080MF270062		080		4.256	2.500	3.150	7.8

Mod-Flex Extensions

- Coolant thru

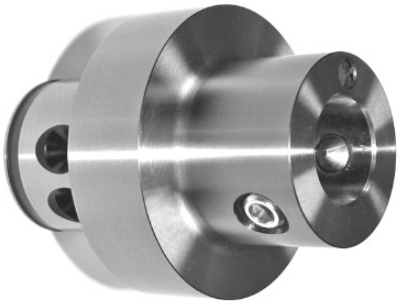


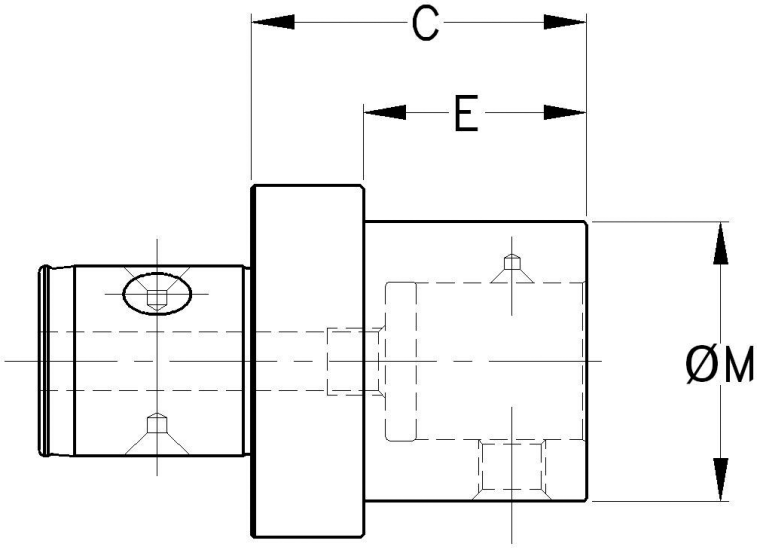


Part Number	Mod-Flex Size	C	M	Weight lbs.
025MF270084	025	1.772	.984	0.4
025MF270085		2.362		0.5
032MF270086	032	1.378	1.260	0.5
032MF270087		1.969		0.7
032MF270088		2.756		1.0
040MF270089	040	1.575	1.575	0.8
040MF270090		2.362		1.3
040MF270091		3.543		1.9
050MF270092	050	1.969	1.969	1.6
050MF270093		2.559		2.1
050MF270094		3.937		3.2
063MF270095	063	2.362	2.480	3.2
063MF270096		3.346		4.6
063MF270097		4.921		6.8
080MF270098	080	2.756	3.150	5.8
080MF270099		3.346		7.1
080MF270100		4.921		10.6
1000MF270101	1000	3.346	3.937	11.3
1000MF270102		4.921		16.8
1000MF270103		6.299		21.5

Mod-Flex Reducers

- Coolant thru





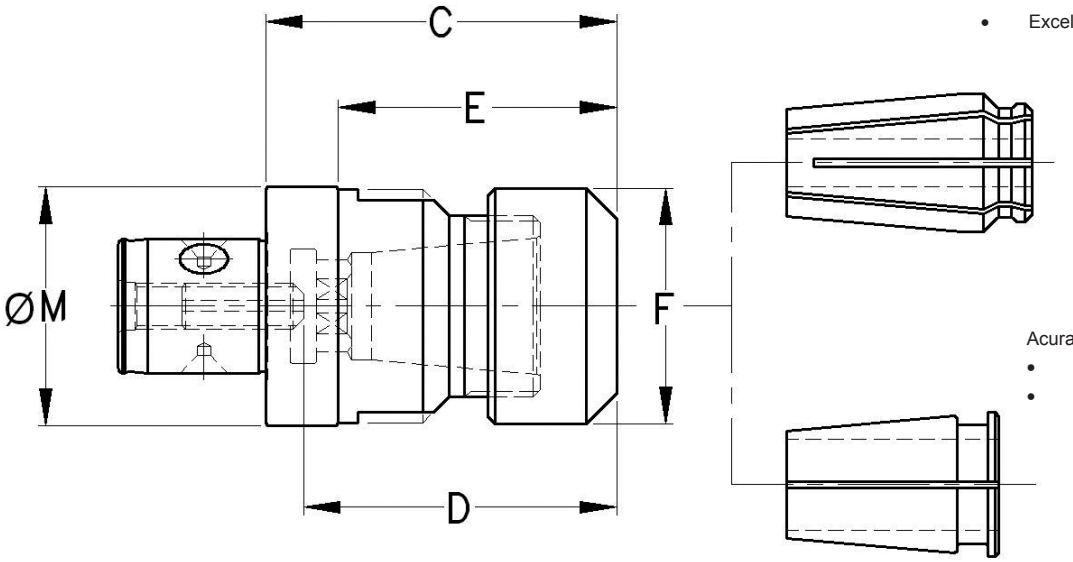
Part Number	Mod-Flex Shank	Mod-Flex Nose	C	E	M	Weight lbs.
032MF270106	032	025	1.575	1.181	.984	0.4
040MF270107	040	025	1.575	1.102	.984	0.6
040MF270108		032			1.260	0.7
050MF270109	050	025	1.969	1.378	.984	1.1
050MF270110		032			1.260	1.2
050MF270111		040			1.575	1.4
063MF270112	063	025	2.362	1.575	.984	2.0
063MF270113		032			1.260	2.1
063MF270114		040			1.575	2.4
063MF270115		050			1.969	2.6
080MF270116	080	032	2.362	1.378	1.260	3.8
080MF270117		040			1.575	4.0
080MF270118		050			1.969	4.1
080MF270119		063			2.480	4.6
1000MF270120	1000	040	3.150	1.969	1.575	7.3
1000MF270121		050			1.969	7.6
1000MF270122		063			2.480	8.5
1000MF270123		080			3.150	9.3

Acura-Flex® Collet Chucks

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature



Acura-Flex
- Extended range
- Excellent gripping power





P: 173

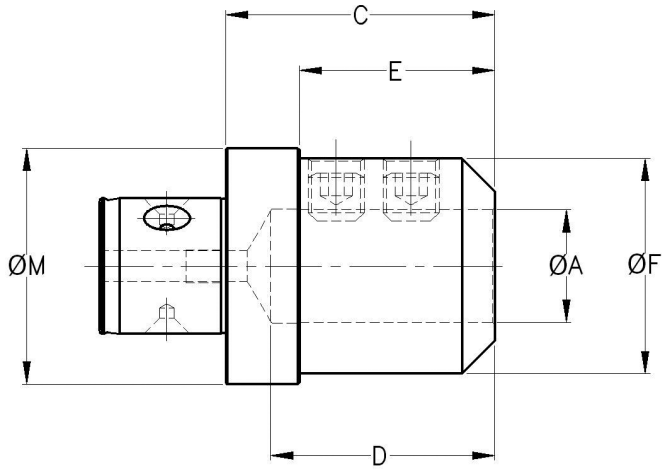
Acura-Grip
- Extreme precision
- 1/2, 3/4, 1”, 1-3/8 collet ranges

Part Number	Collet Range (Acura-Flex Collet No.’s)	Mod-Flex Size	C	D Max.	E	F	Includes Nut	M	Ref. Wrench
025MF270153	1/16 - 3/8 (AF21 - AF44)	025	1.54	1.38	-	1.00 Oct.	9400002	.984	55068
032MF270154	7/64 - 1/2 (AF55 - AF82)	032	2.05	1.77	-	1.25 Oct.	9400020	1.260	55105
040MF270155		040	2.52	2.18	1.93	1.25 Oct.	9400020	1.575	
040MF270156	7/64 - 3/4 (AF95 - AF140)	040	2.94	2.69	-	1.94 Span.	9400005	1.575	55139
050MF270157		050	2.88	2.69	2.28	1.94 Span.	9400005	1.969	
063MF270158	7/32 - 1” (AF162 - AF213)	063	3.23	2.94	-	2.50 Span.	9400021	2.480	55171
080MF270159	11/32 - 1-3/8 (AF241 - AF286)	080	4.28	3.96	3.69	3.00 Span.	9400011	3.150	85296

End Mill Adapters

- Coolant Thru



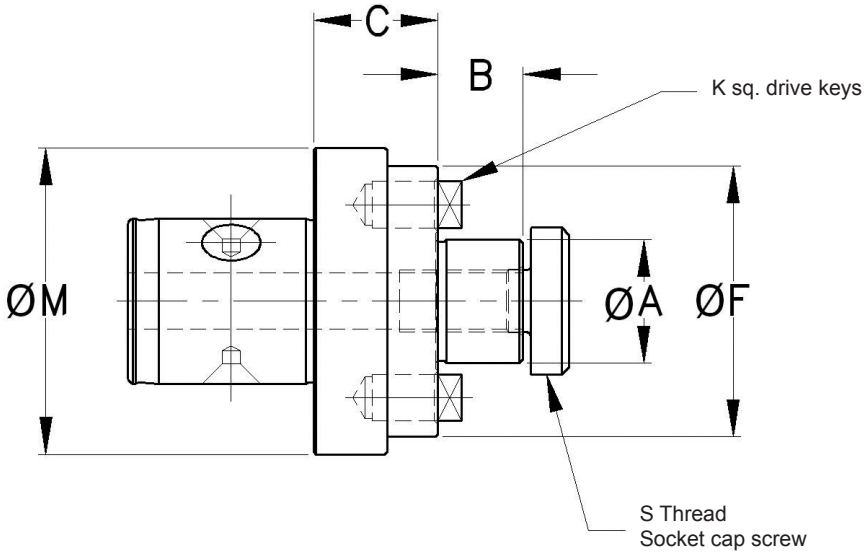


Part Number	A	Mod-Flex Size	C	D	E	F	M
050MF270129	.3750	050	2.00	1.72	1.41	1.00	1.969
050MF270130	.5000		2.50	1.83	1.91	1.38	
050MF270131	.6250		2.63	2.09	2.03	1.63	
050MF270132	.7500		2.75	2.21	2.16	1.75	
050MF270133	.8750		2.88	2.21	-	1.97	
063MF270134	1.0000	063	3.00	2.56	-	2.48	2.480
063MF270135	1.2500	063	3.00	2.56	-	2.48	2.480
080MF270136	1.5000	080	3.60	3.00	2.62	2.88	3.150

Shell Mill Adapters

- Coolant thru screw options available see page #204
- Keys and socket cap screw furnished

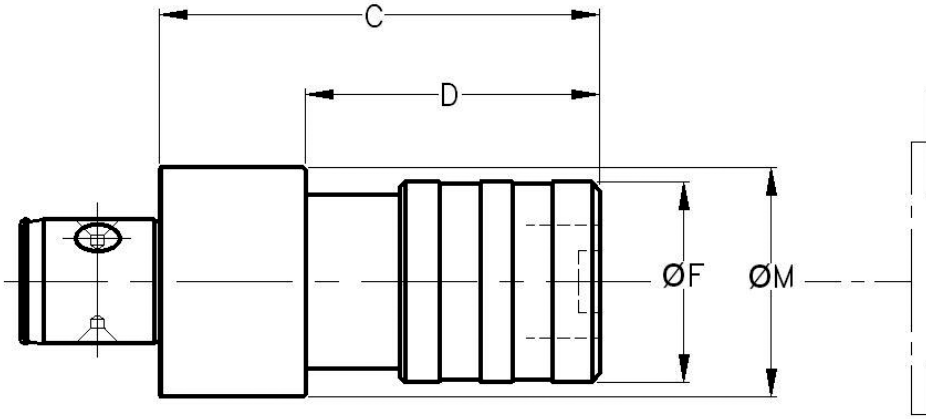


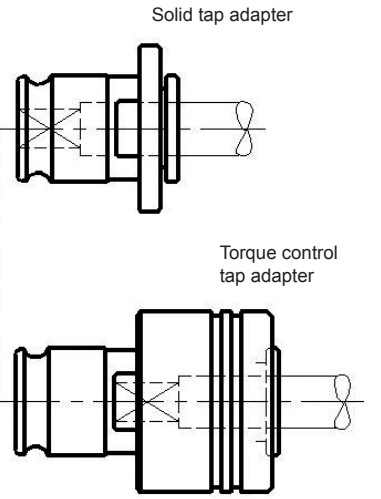


Part Number	A	Mod-Flex Size	B	C	F	K	M	S
050MF270144	.7500	050	.69	1.01	1.69	.31	1.969	3/8 - 24
063MF270145	.7500	063			1.69	.31	2.480	3/8 - 24
063MF270146	1.0000				2.19	.37	2.480	1/2 - 20
080MF270147	.7500	080	.69	1.28	1.69	.31	3.150	3/8 - 24
080MF270148	1.0000				2.19	.37	3.150	1/2 - 20
080MF270149	1.2500				2.75	.50	3.150	5/8 - 18

Quick Change Tension & Compression Chucks

- Order tap adapter separately by matching adapter size
- Full tension available upon request







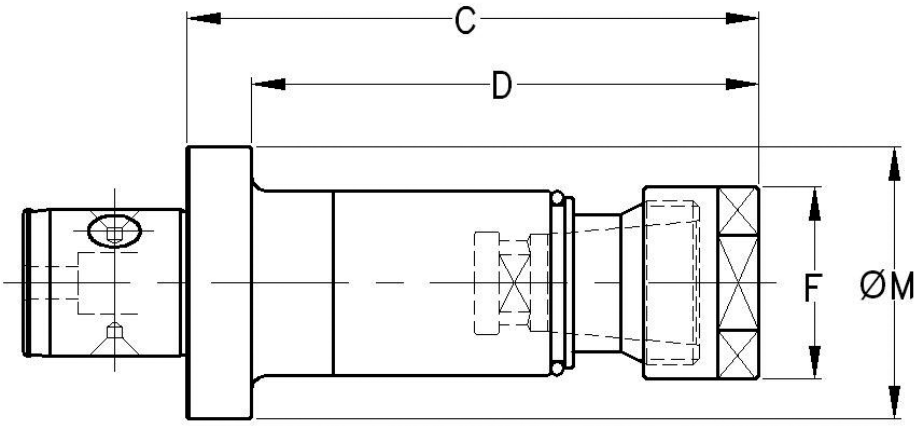
P: 199

Part Number	Adapter Size	Tap Range	Mod-Flex Size	C	D	F	M	Tension	Comp.
050MF270138	1	#0 - 9/16 Hand 1/8 Pipe	050	2.85	1.61	1.42	1.97	.23	.23
050MF270139	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	050	5.02	3.19	2.16	1.97	.44	.44
063MF270140	1	#0 - 9/16 Hand 1/8 Pipe	063	2.58	1.61	1.42	2.48	.23	.23
063MF270141	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	063	4.75	3.19	2.16	2.48	.44	.44
063MF270142	3	3/4 - 1”3/8 Hand 3/8 - 1” Pipe	063	7.04	4.72	3.08	2.48	.67	.67

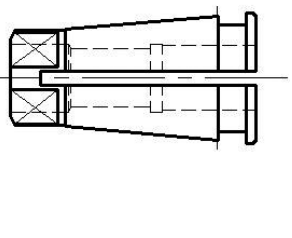
Acura-Tap® Tension & Compression Chucks

- Acura-Tap collets
- Order collet separately by matching tap range
- Full tension available upon request





Acura-Tap
positive drive collets



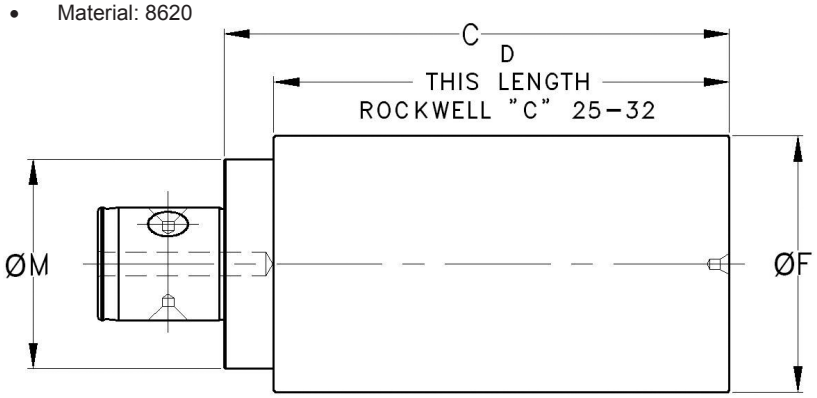


P: 181

Part Number	Tap Range	Mod-Flex Size	C	D	F	M	Includes Nut No.	Tension	Comp.	Ref. Wrench Number
050MF270160	#0 - 1/2 Hand 1/8 Pipe	050	5.02	4.42	1.06 Hex.	1.97	280669	.88	.38	505643
050MF270161	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	050	5.50	4.91	1.50 Hex.	1.97	280677			505651
063MF270162	#0 - 1/2 Hand 1/8 Pipe	063	4.75	4.16	1.06 Hex.	2.48	280669			505643
063MF270163	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	063	5.22	4.63	1.50 Hex.	2.48	280677			505651
063MF270164	3/4 - 1-1/2 Hand 1/2 - 1-1/4 Pipe	063	6.53	—	2.75 Span.	2.48	280681			505650

Soft Nose Blanks

- Specials available upon request
- Material: 8620

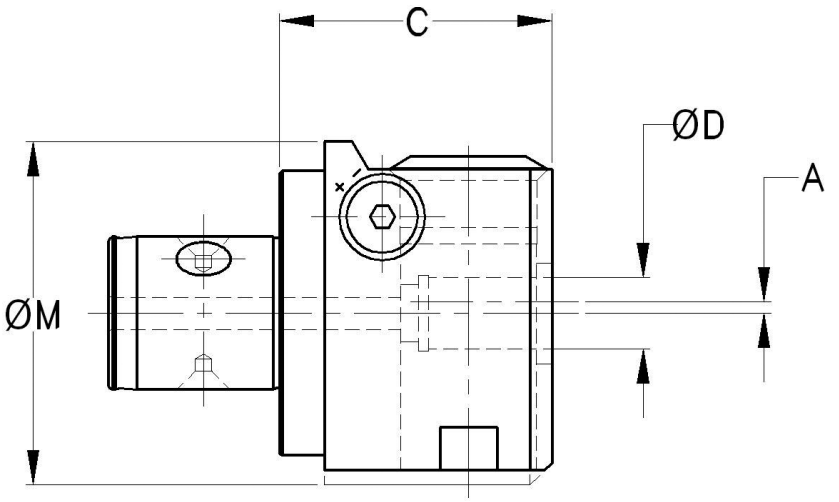


Part Number	Mod-Flex Size	C	D	F	M
025MF270168	025	4.00	3.61	1.02	.98
032MF270169	032	4.00	3.61	1.30	1.26
040MF270170	040	4.00	3.61	1.61	1.57
050MF270171	050	5.00	4.41	2.28	1.97
063MF270172	063	6.00	5.41	3.03	2.48
080MF270173	080	7.25	6.66	4.03	3.15
1000MF270174	1000	8.00	7.41	4.03	3.94

GA Boring Heads
Finish Bore .31 - 1.46 Diameter

- 0.0001 Adjustment on diameter
- Order boring bar separately
- Order wrench separately
- Coolant thru



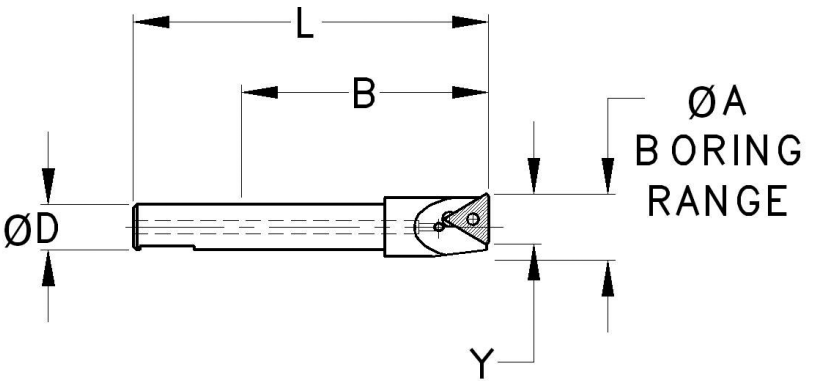


Part Number	Mod-Flex Shank	A	D	C	M	Weight lbs	Ref. Wrench
050MFGAH05037	050	.060	.3750	1.97	2.25	3.2	5843
063MFGAH07062	063	.100	.6250	2.38	3.00	3.5	5842

ASH Boring Bars for GA Boring Heads
Carbide Shank - Coolant Thru
Finish Bore .31 - 1.46 Diameter

- Specials available upon request

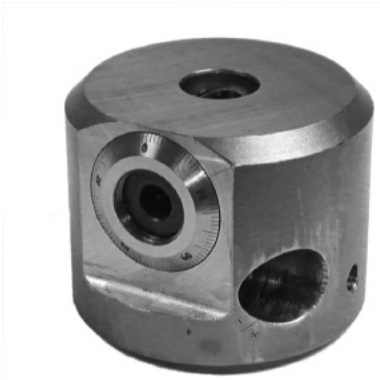


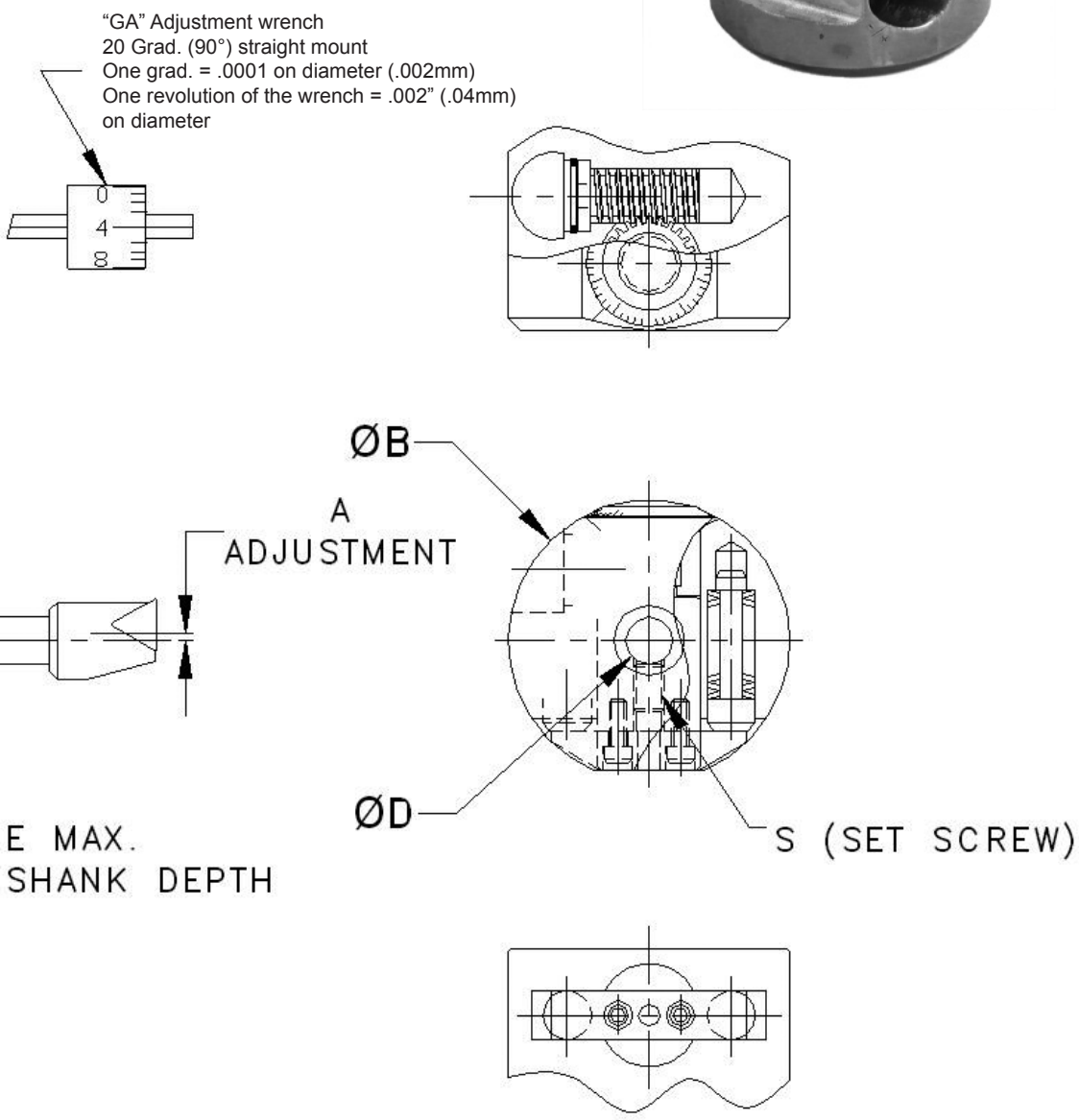


Part Number	A Boring Range		D	B	L	Insert Number	Y
	Min.	Max.					
ASH037031	.31	.43	.375	1.14	2.05	TCMT1.21.21	.27
ASH037043	.43	.55		1.65	2.56	TCMT1.21.21	.27
ASH037055	.55	.67		2.05	2.95	TCMT21.51	.43
ASH037067	.67	.79		2.05	2.95	TCMT21.51	.43
ASH037079	.79	.90		2.05	2.95	TCMT21.51	.43
ASH037090	.90	1.02		2.05	2.95	TCMT21.51	.43
ASH062047	.47	.67	.625	3.03	4.33	TCMT1.21.21	.27
ASH062067	.67	.87		4.21	5.51	TCMT21.51	.43
ASH062087	.87	1.06		4.21	5.51	TCMT21.51	.43
ASH062106	1.06	1.26		4.21	5.51	TCMT21.51	.43
ASH062126	1.26	1.46		4.21	5.51	TCMT21.51	.43

GA Boring Heads

- ADA-ADB Mount
- Order boring bar separately
- Order wrench separately
- Straight shank boring head adapters - page #80
- Mod-Flex boring head adapters - page #80
- Cat V-Flange boring head adapters - page #81

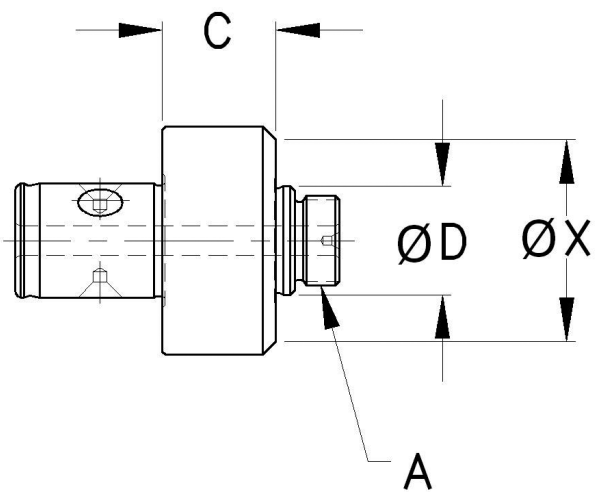




Part Number	A	B	C	D	E	S	Boring Head Adapter	Ref. Wrench
GAH05037	.060	2.25	1.59	.3750	1.00	1/4-20 x 3/8 S.H.S.S Flat Pt.	-ADA .750 Pilot Dia. 5/8-18 Thrd.	5843
GAH07050	.090	3.00	2.38	.5000	1.69	5/16-18 x 5/8 S.H.S.S. Flat. Pt.	-ADB 1.500 Pilot Dia. 1"-20 Thrd.	5842

Boring Head Adapters with Mod-Flex Shanks

- Type ADA & ADB



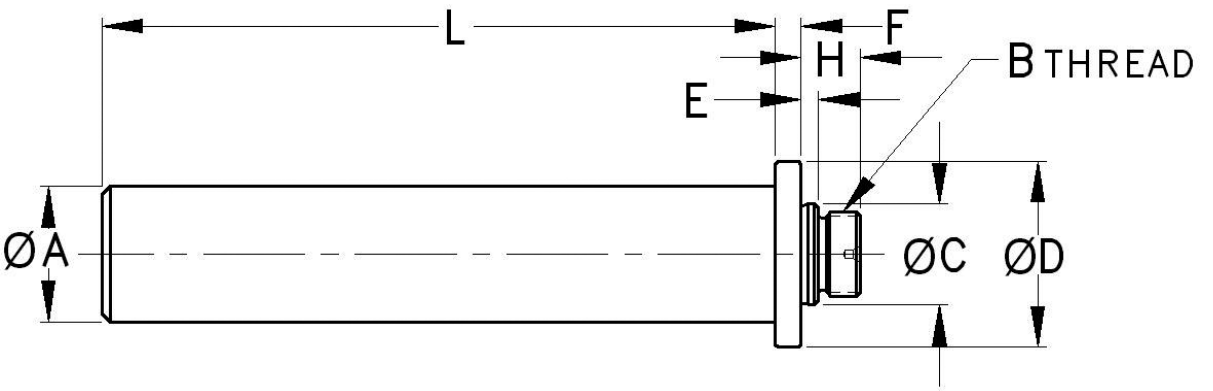


Part No.	Mod-Flex Size	D	C	X	Weight	A
040MFADA*	040	.7489 - .7495	.79	1.38	.6 lbs.	5/8-18 Thread
063MFADB*	063	1.4998 - 1.4995	.79	2.31	1.8 lbs.	1”-20 Thread

* These adapters are for use with standard “GA” boring heads without integral Mod-Flex shank.

Boring Head Adapters with Straight Shanks

- Type ADA & ADB



Part No.	A	B Thread	C	D	E	F	H	L	For Use With
SS06ADA	.6240-.6245	5/8-18	.7495-.7498	1-3/8	1/8	3/16	7/16	2-13/16	GAH05 Boring Heads
SS07ADA	.7490-.7495	5/8-18	.7495-.7498	1-3/8	1/8	3/16	7/16	3-9/16	
SS10ADA	.9990-.9995	5/8-18	.7495-.7498	1-3/8	1/8	3/16	7/16	5	
SS10ADB		1”-20	1.4995-1.4998	2-5/16	3/16	1/2	5/8	5	GAH07 Boring Heads
SS12ADA	1.2490-1.2495	5/8-18	.7495-.7498	1-3/8	1/8	3/16	7/16	5	GAH05 Boring Heads
SS12ADB		1”-20	1.4995-1.4998	2-5/16	3/16	1/2	5/8	5	GAH07 Boring Heads

Boring Head Adapters with CAT Shanks

- Type ADA & ADB
- ANSI B5.50 1994-AT3 taper tolerance

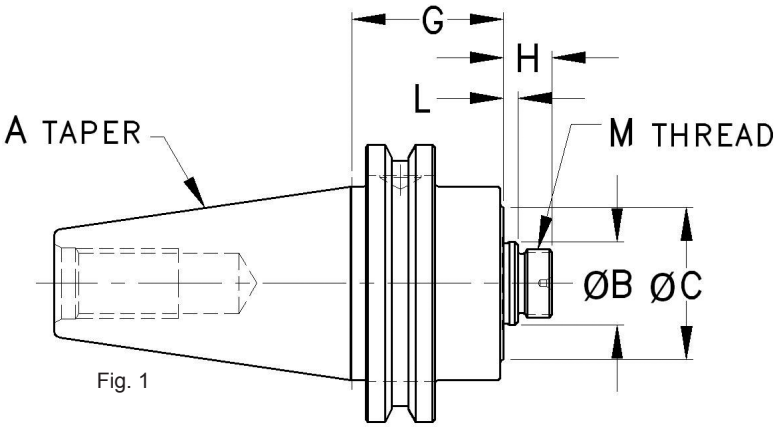


Fig. 1



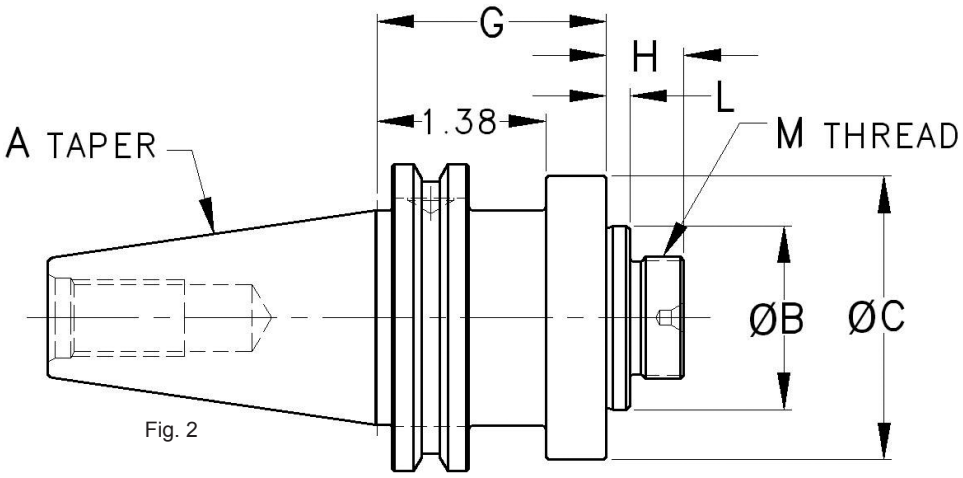


Fig. 2

CAT40

Figure No.	Part No.	A Taper	Approx. Weight	B	C	G	H	L	M	For Use With
1	40CTADA	No. 40	4 lbs	.7495-.7498	1-3/8	1-3/8	7/16	1/8	5/8-18	GAH05 Boring Heads
2	40CTADB	No. 40	4 lbs.	1.4995-1.4998	2-5/16	1-7/8	5/8	3/16	1”-20	GAH07 Boring Heads

CAT50

Figure No.	Part No.	A Taper	Approx. Weight	B	C	G	H	L	M	For Use With
1	50CTADA	No. 50	5 lbs	.7495-.7498	1-3/8	1-3/8	7/16	1/8	5/8-18	GAH05 Boring Heads
1	50CTADB	No. 50	5 lbs.	1.4995-1.4998	2-5/16	1-3/8	5/8	3/16	1”-20	GAH07 Boring Heads

Boring Bars with CAT40 Shanks
Single Tool Type - Angular Size 1

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994—AT3 taper tolerance



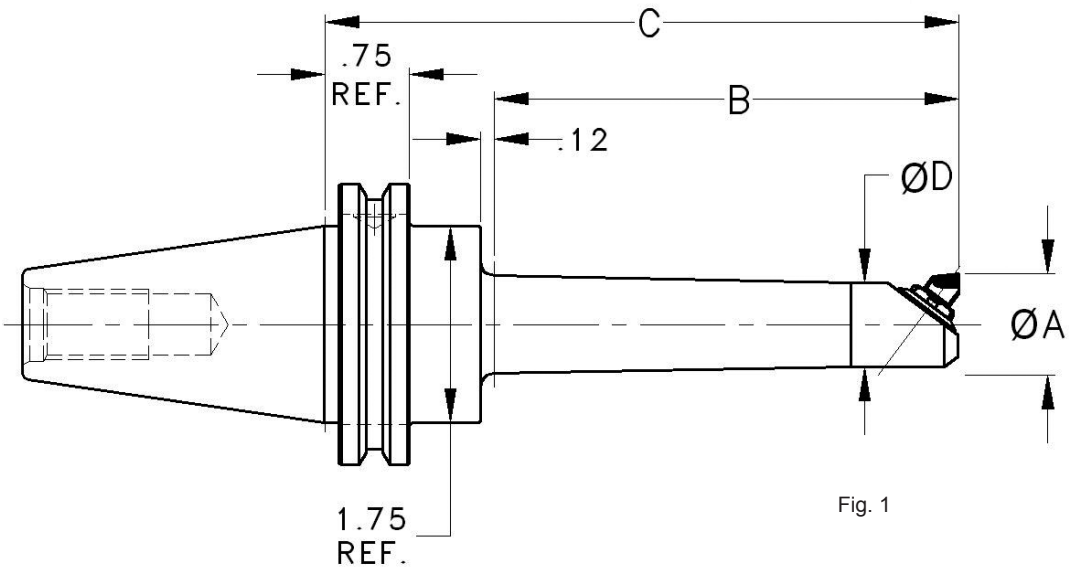


Fig. 1

Bore Range "51"
0.50 - 0.59 [12.7mm - 15.0mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT51	1	1B2*	.50 - .59	2.62	4.12	.47	1330A

Bore Range "52"
0.56 - 0.65 [14.2mm - 16.5mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT52	1	1B2*	.56 - .65	2.62	4.12	.47	1330A

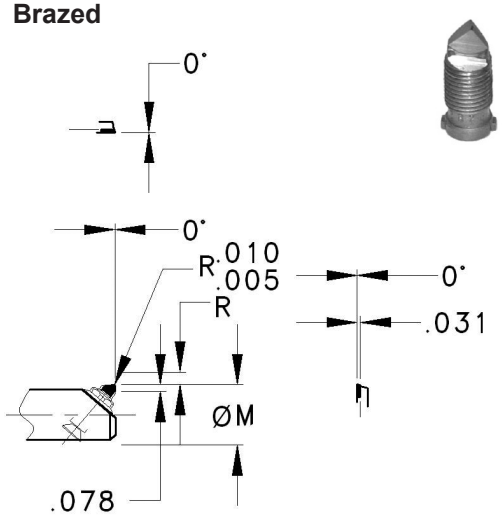
Bore Range "53"
0.62 - 0.78 [15.7mm - 19.8mm]

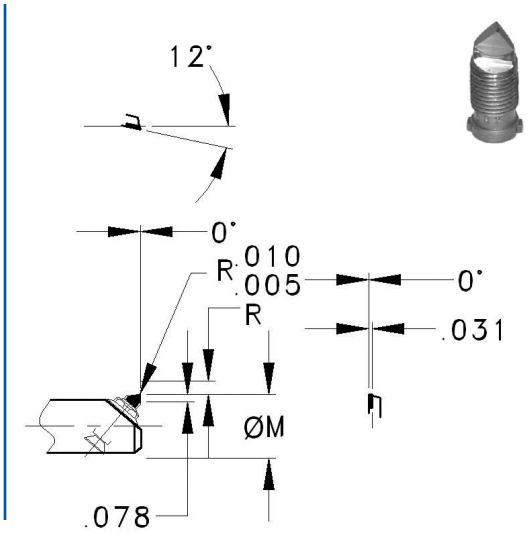
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT53	1	1A2*	.62 - .78	2.88	4.38	.50	1330A

Angular Size 1 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed





PART NUMBER	M	R
1A2*	.594	.125
1B2*	.500	.047

PART NUMBER	M	R
1A212*	.594	.125
1B212*	.500	.047

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 1B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 1203E1E

Boring Bar with CAT40 Shank
Single Tool Type - Angular Size 2

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994-AT3 Taper Tolerance



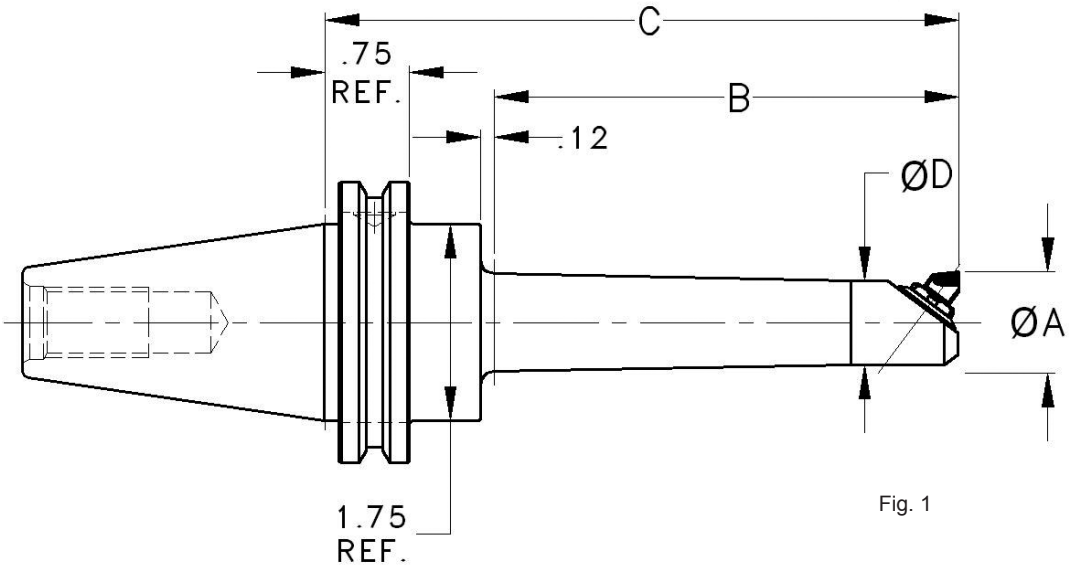


Fig. 1

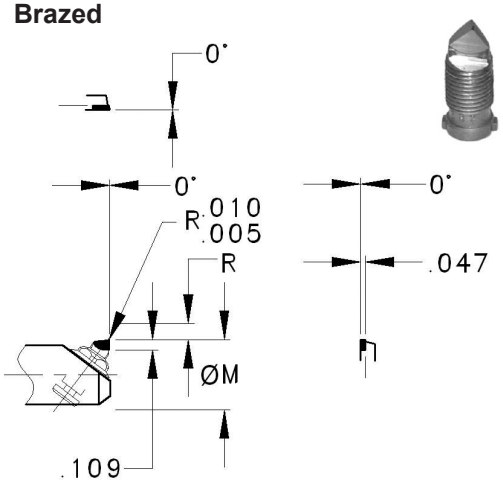
Bore Range "54"
0.75 - 0.90 [19.0mm - 22.8mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT54	1	2B2*	.75 - .90	3.38	4.88	.62	2330A

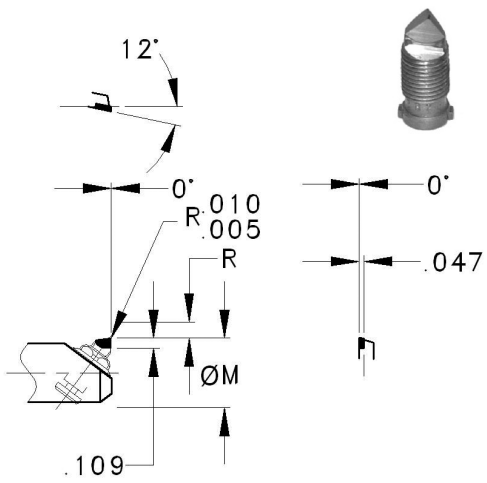
Angular Size 2 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
2A2*	.812	.172
2B2*	.719	.078



PART NUMBER	M	R
2A212*	.812	.172
2B212*	.719	.078

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 2B2F for Cast Iron

Coatings available upon request.

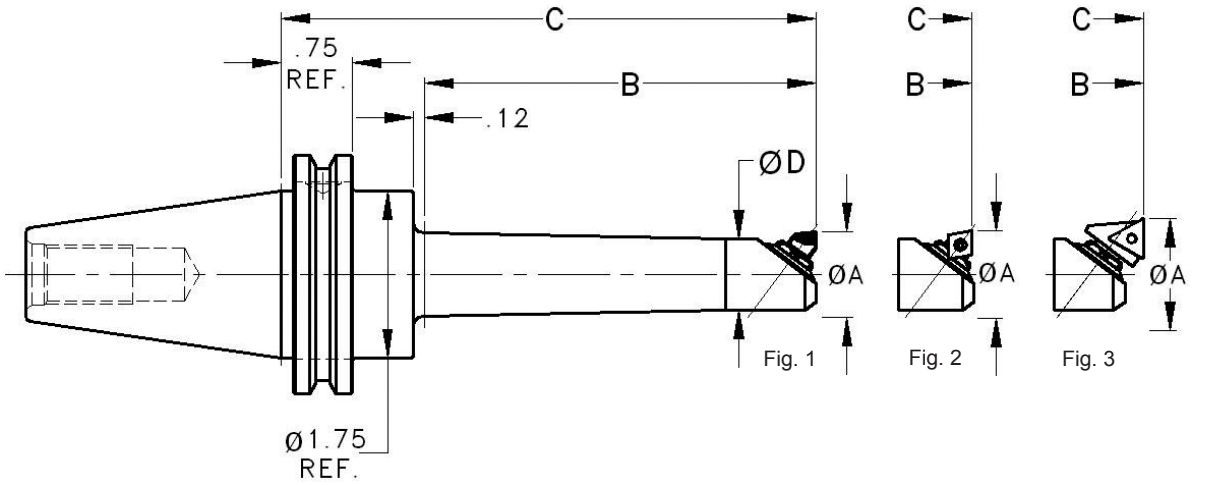
Hardware Package

- 2204E1E

Boring Bars with CAT40 Shanks
Single Tool Type - Angular Size 3



- Coolant Thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994-AT3 taper tolerance



Bore Range "55"
.90 - 1.48 [22.9mm - 37.6mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT55	1	3B2*	.90 - 1.15	4.12	5.62	.75	2330A
	2	3B2C06	.93 - 1.18	4.11	5.61		
	3	030BA090TN2C	1.28 - 1.48	4.36	5.86		
	3	030BA090TC2N	1.28 - 1.48	4.36	5.86		

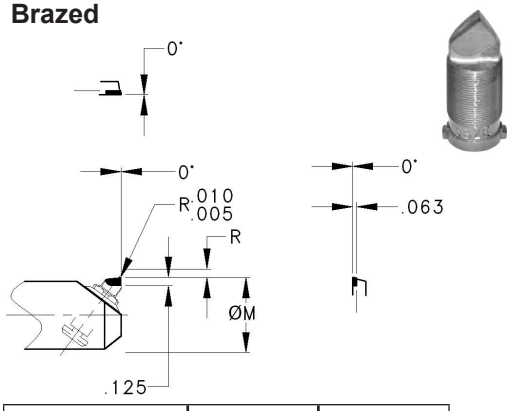
Bore Range "56"
1.12 - 1.76 [28.5mm - 44.7mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT56	1	3A2*	1.12 - 1.56	4.50	6.00	1.00	2330A
	2	3A2C06	1.15 - 1.59	4.48	5.98		
	3	030BA090TN2C	1.34 - 1.76	4.67	6.17		
	3	030BA090TC2N	1.34 - 1.76	4.67	6.17		

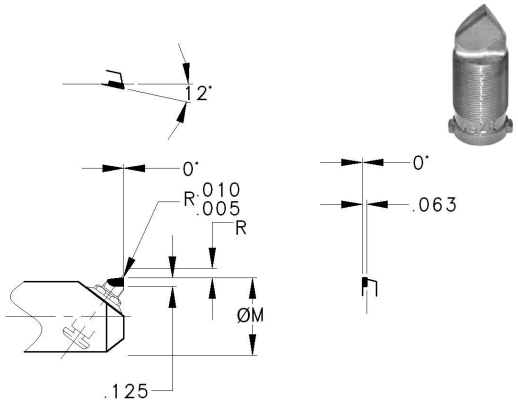
Angular Size 3 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
3A2*	1.031	.250
3B2*	.906	.125



PART NUMBER	M	R
3A212*	1.031	.250
3B212*	.906	.125

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

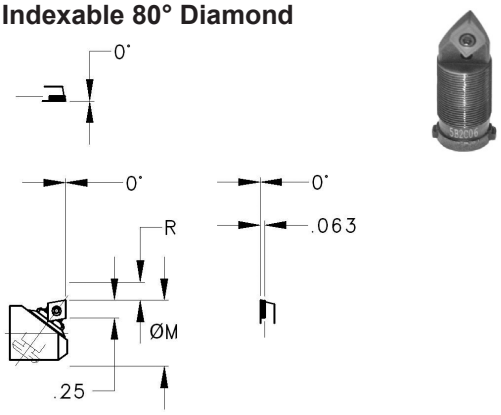
Example: 3B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 3704E1E

Indexable 80° Diamond



PART NUMBER	M	R
3A2C06	1.031	.250
3B2C06	.906	.125

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

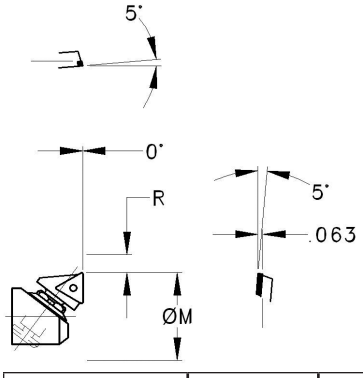
Parts

- Insert Screw #SP1910

Hardware Package

- 3704E1E

Indexable Triangle Heavy Duty



PART NUMBER	M	R
030BA090TN2C	1.28	.20
030BA090TC2N	1.28	.20

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-221 (030BA090TN2C)
- TCMT-21.51 (030BA090TC2N)

Parts

- NL Pin #NL23 (030BA090TN2C)
- Insert Screw #SP1910 (030BA090TC2N)

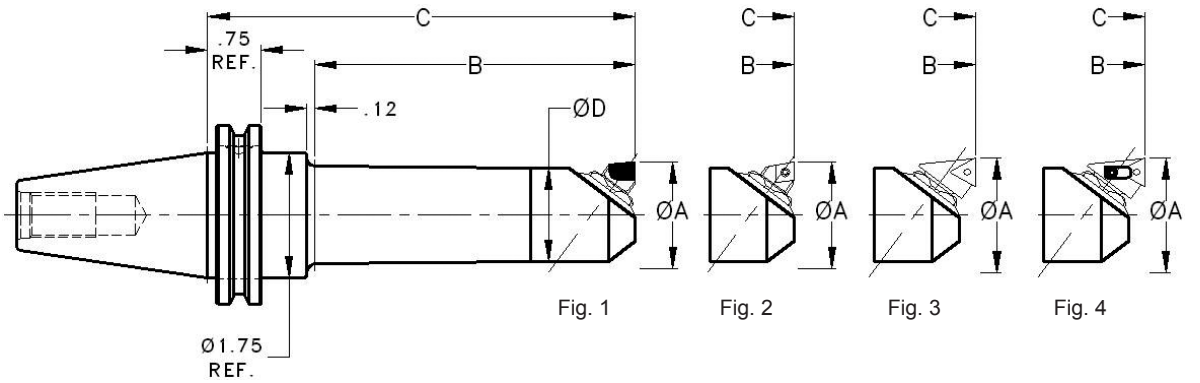
Hardware Package

- 3300X1E

Boring Bars with CAT40 Shanks
Single Tool Type - Angular Size 5



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994-AT3 taper tolerance



Bore Range "58"
1.50 - 2.16 [38.1mm - 54.8mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT58	1	5B2*	1.50 - 1.93	4.50	6.00	1.31	5330A
	2	5B2C06	1.50 - 1.93	4.50	6.00		
	3	050BA090TC2N	1.76 - 2.16	4.79	6.29		
	4	050BA090TN2E	1.76 - 2.16	4.79	6.29		

Bore Range "60"
1.81 - 2.62 [46.0mm - 66.5mm]

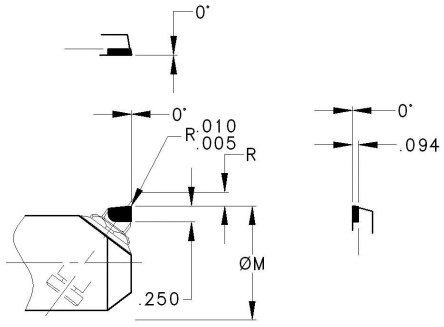
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT60	1	5A2*	1.81 - 2.62	4.50	6.00	1.50	5330A
	2	5A2C06	1.81 - 2.62	4.50	6.00		
	3	050BA090TC2N	1.90 - 2.48	4.72	6.22		
	4	050BA090TN2E	1.90 - 2.48	4.72	6.22		

Angular Size 5 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

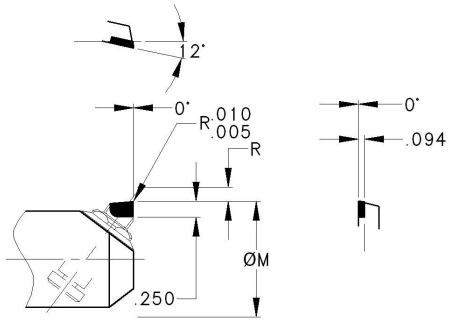
Brazed





PART NUMBER	M	R
5A2*	1.625	.406
5B2*	1.406	.219





PART NUMBER	M	R
5A212*	1.625	.406
5B212*	1.406	.219

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 5B2F for Cast Iron

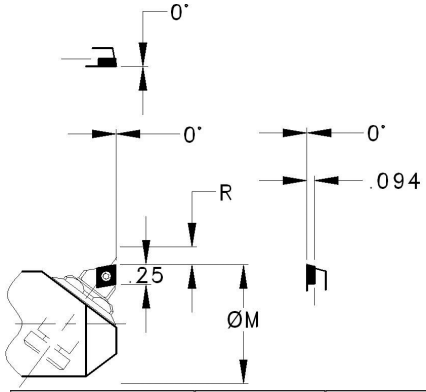
Coatings available upon request.

Hardware Package

- 5704E1E

Indexable 80° Diamond





PART NUMBER	M	R
5A2C06	1.625	.406
5B2C06	1.406	.219

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

Parts

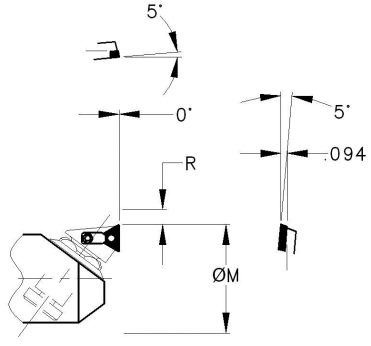
- Insert Screw #SP1910

Hardware Package

- 5704E1E

Indexable Triangle Heavy Duty





PART NUMBER	M	R
050BA090TN2E	1.76	.29
050BA090TC2N	1.76	.29

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-221 (050BA090TN2E)
- TCMT-21.51 (050BA090TC2N)

Parts

- NL Pin #NL23 (050BA090TN2E)
- Clamp #DL3 (050BA090TN2E)
- Clamp Screw #S500 (050BA090TN2E)
- Insert Screw #SP1910 (050BA090TC2N)

Hardware Package

- 5704E1E

Boring Bars with CAT40 Shanks
Single Tool Type - Angular Size 7

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- ANSI B5.50 1994-AT3 taper tolerance
- Specials available in any series and style



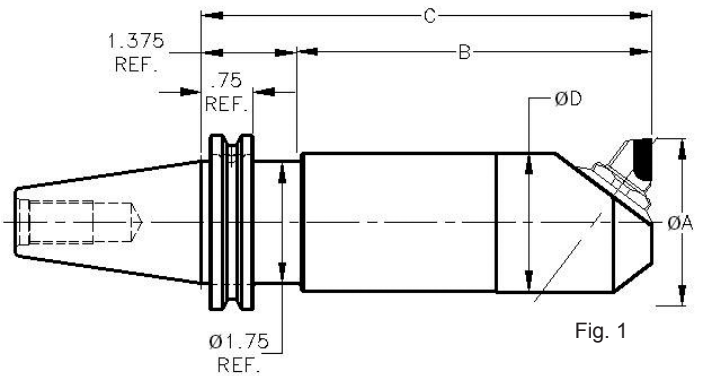


Fig. 1

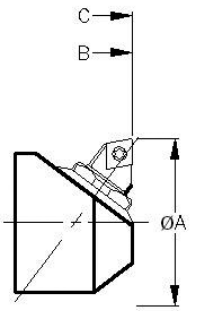


Fig. 2

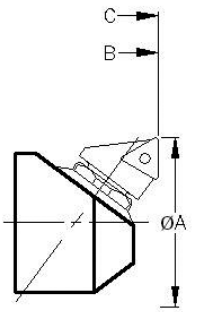


Fig. 3

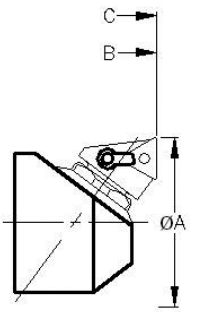


Fig. 4

Bore Range “63”
2.43 - 3.43 [61.7mm - 87.1mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT63	1	7A2*	2.43 - 3.43	5.12	6.50	2.00	5330A
	2	7A2C09	2.43 - 3.43	5.12	6.50		
	3	070BA090TC3N	2.42 - 3.25	5.47	6.85		
	4	070BA090TN3F	2.42 - 3.25	5.47	6.85		

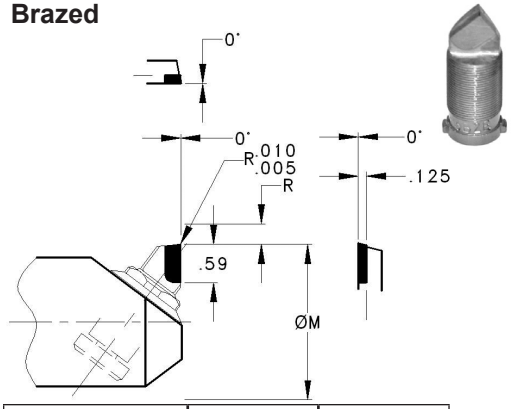
Bore Range “66”
3.25 - 4.25 [82.6mm - 108.0mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT66	1	7A2*	3.25 - 4.25	3.50	4.88	2.46	5330A
	2	7A2C09	3.25 - 4.25	3.50	4.88		
	3	070BA090TC3N	3.22 - 3.96	3.84	5.22		
	4	070BA090TN3F	3.22 - 3.96	3.84	5.22		

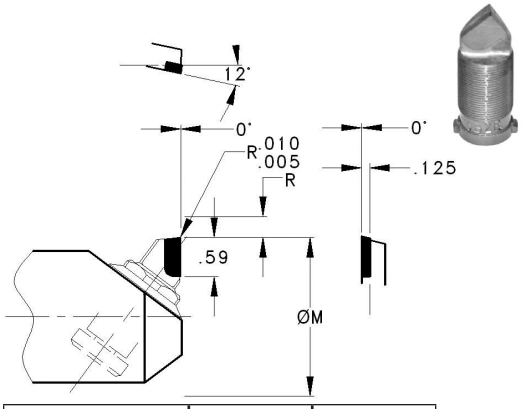
Angular Size 7 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
7A2*	2.312	.500
7B2*	2.093	.312



PART NUMBER	M	R
7A212*	2.312	.500
7B212*	2.093	.312

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

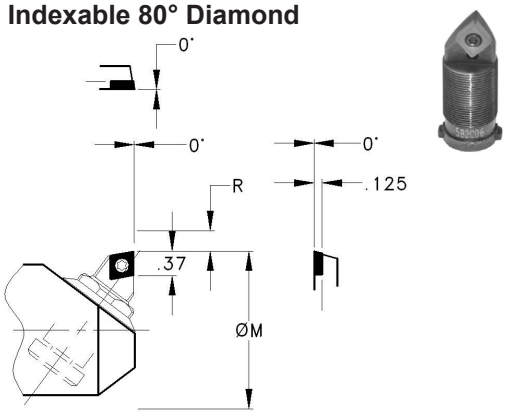
Example: 7B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 7708E1E

Indexable 80° Diamond



PART NUMBER	M	R
7A2C09	2.312	.500
7B2C09	2.093	.312

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

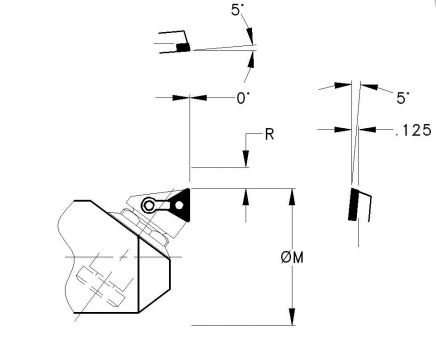
Parts

- Insert Screw #SP1911

Hardware Package

- 7708E1E

Indexable Triangle Heavy Duty



PART NUMBER	M	R
070BA090TN3F	2.42	.37
070BA090TC3N	2.42	.37

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- #TNMG-332 (070BA090TN3F)
- #TCMT-32.52 (070BA090TC3N)

Parts

- NL Pin #NL34L (070BA090TN3F)
- Seat #ITSN323 (070BA090TN3F)
- Clamp #DL5 (070BA090TN3F)
- Clamp Screw #XNS36 (070BA090TN3F)
- Insert Screw #SP1911 (070BA090TC3N)

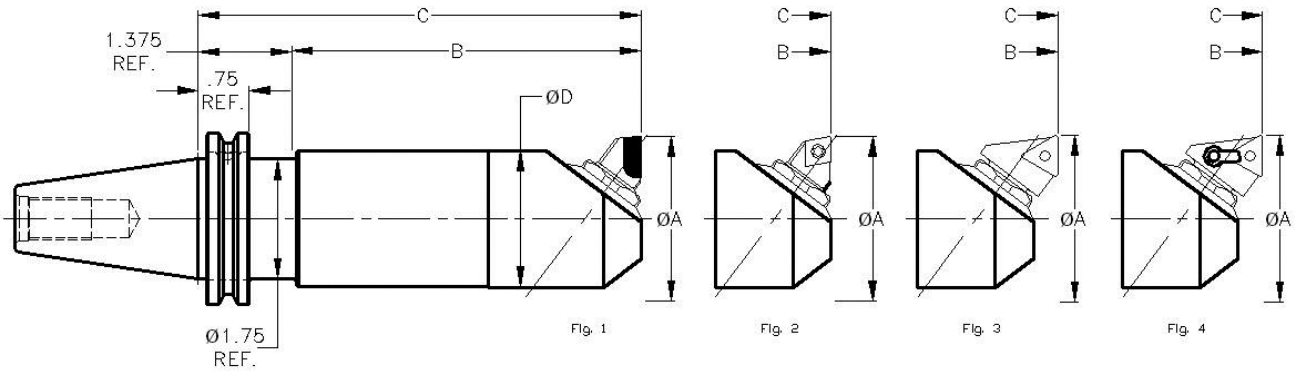
Hardware Package

- 7708E1E

Boring Bars with CAT40 Shanks
Single Tool Type - Angular Size 10

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- ANSI B5.50 1994-AT3 taper tolerance
- Specials available in any series and style





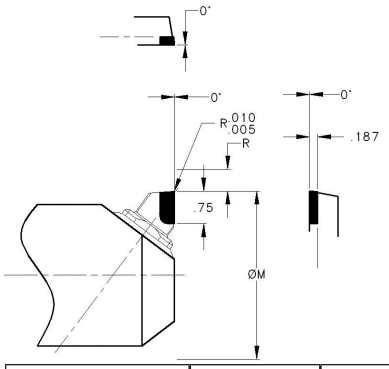
Bore Range “70”
3.87 - 5.62 [98.3mm - 142.7mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT70	1	10A2*	3.87 - 5.62	4.75	6.12	3.25	10330A
	2	10A2C12	3.87 - 5.62	4.75	6.12		
	3	100BA090TC3N	3.68 - 4.78	5.11	6.49		
	4	100BA090TN3F	3.68 - 4.78	5.11	6.49		
	4	100BA090TN4F	3.94 - 5.04	5.11	6.49		

Angular Size 10 Cartridges

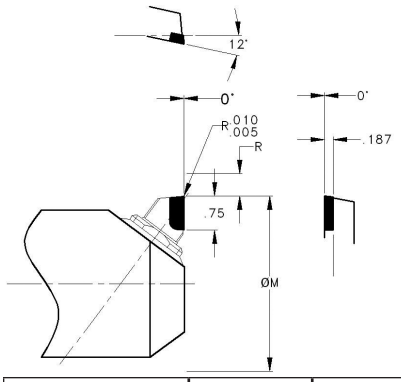
- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed





PART NUMBER	M	R
10A2*	3.09	.87
10B2*	2.69	.50





PART NUMBER	M	R
10A212*	3.09	.87
10B212*	2.69	.50

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

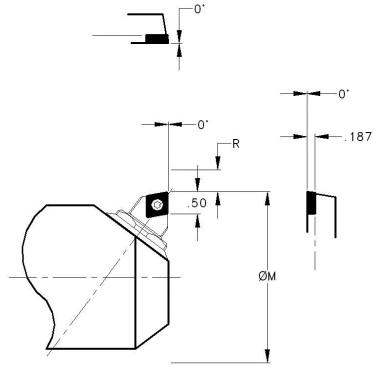
Example: 10B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 10708E1E

Indexable 80° Diamond





PART NUMBER	M	R
10A2C12	3.09	.87
10B2C12	2.69	.50

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMM 120408-27

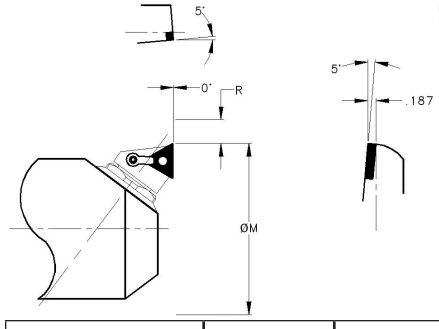
Parts

- Insert Screw #SP1999

Hardware Package

- 10708E1E

Indexable Triangle Heavy Duty





PART NUMBER	M	R
100BA090TN3F	3.68	.55
100BA090TC3N	3.68	.55
100BA090TN4F	3.94	.55

Recommended Inserts

- #TNMG-332 (100BA090TN3F)
- #TCMT-32.52 (100BA090TC3N)

Parts

- NL Pin #NL34L (100BA090TN3F)
- Seat #ITSN323 (100BA090TN3F)
- Clamp #DL7 (100BA090TN3F)
- Clamp Screw #XNS36 (100BA090TN3F)
- Insert Screw #SP1911 (100BA090TC3N)

Hardware Package

- 10708E1E

Recommended Inserts

- #TNMG-432 (100BA090TN4F)

Parts

- NL Pin #NL46 (100BA090TN4F)
- Seat #ITSN433 (100BA090TN4F)
- Clamp #DL7 (100BA090TN4F)
- Clamp Screw #XNS36 (100BA090TN4F)

Hardware Package

- 10708E1E

Boring Bars with CAT50 Shanks
Single Tool Type - Angular Size 1

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994—AT3 taper tolerance



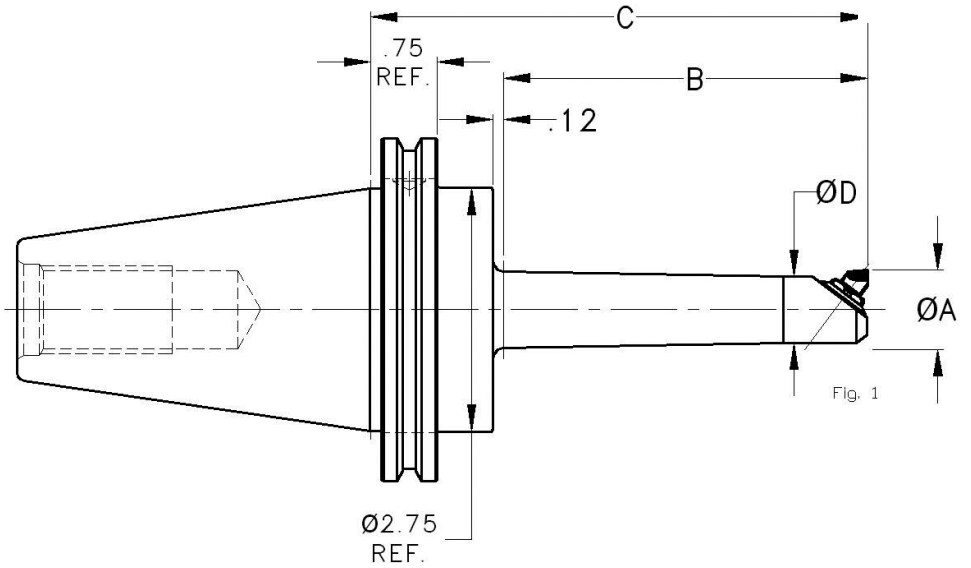


Fig. 1

Bore Range "51"
0.50 - 0.59 [12.7mm - 15.0mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT51	1	1B2*	.50 - .59	2.62	4.12	.47	1330A

Bore Range "52"
0.56 - 0.65 [14.2mm - 16.5mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT52	1	1B2*	.56 - .65	2.62	4.12	.47	1330A

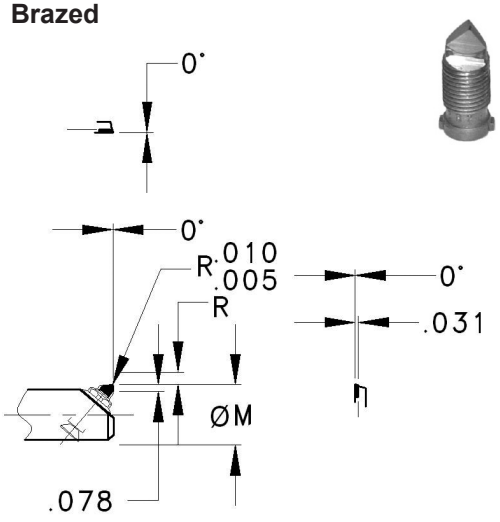
Bore Range "53"
0.62 - 0.78 [15.7mm - 19.8mm]

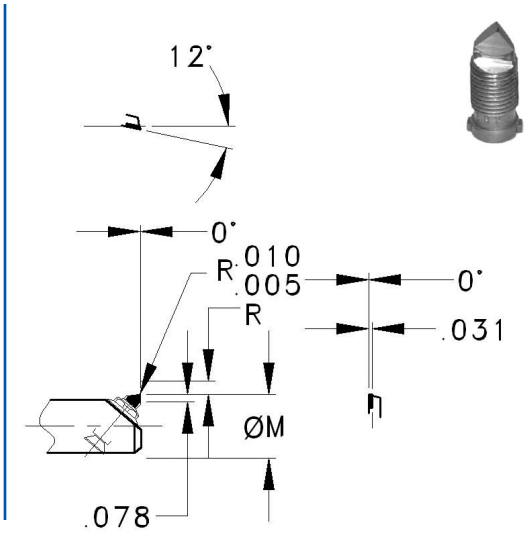
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT53	1	1A2*	.62 - .78	2.88	4.38	.50	1330A

Angular Size 1 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed





PART NUMBER	M	R
1A2*	.594	.125
1B2*	.500	.047

PART NUMBER	M	R
1A212*	.594	.125
1B212*	.500	.047

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 1B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 1203E1E

Boring Bar with CAT50 Shank
Single Tool Type - Angular Size 2



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994-AT3 taper tolerance

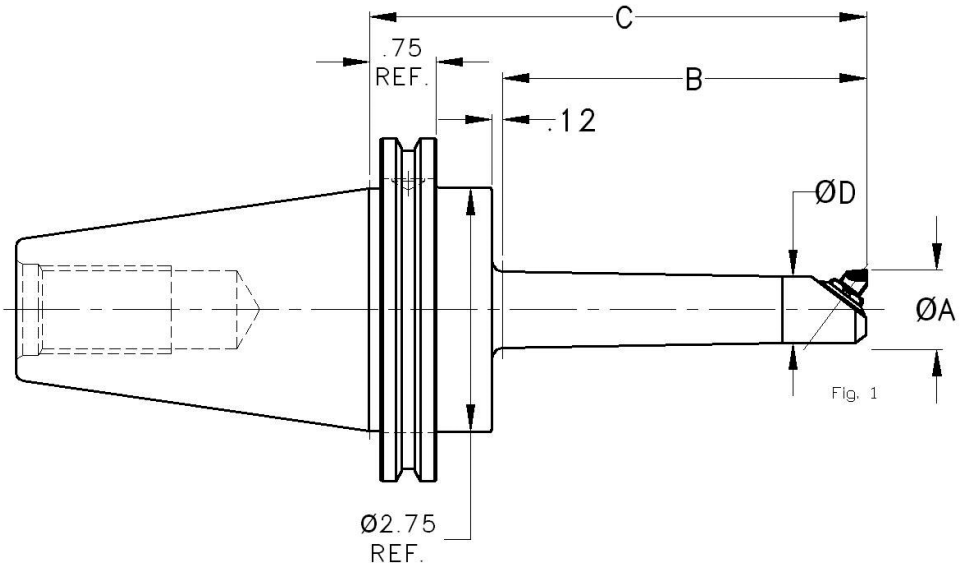


Fig. 1

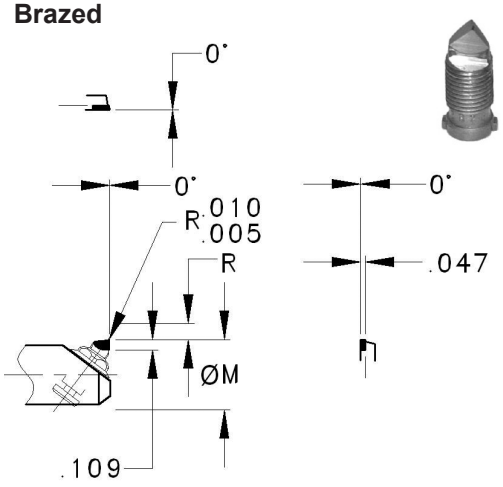
Bore Range "54"
0.75 - 0.90 [19.0mm - 22.8mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT54	1	2B2*	.75 - .90	3.38	4.88	.62	2330A

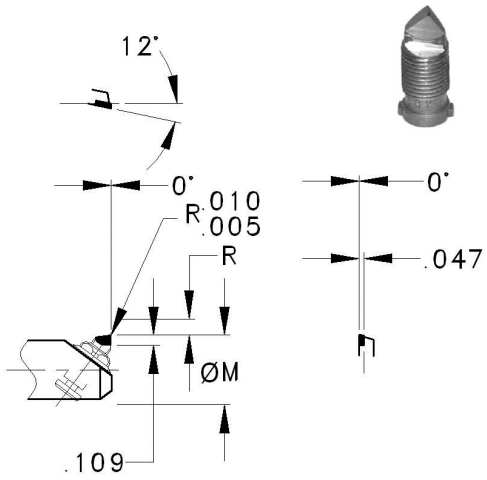
Angular Size 2 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
2A2*	.812	.172
2B2*	.719	.078



PART NUMBER	M	R
2A212*	.812	.172
2B212*	.719	.078

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 2B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 2204E1E

Boring Bars with CAT50 Shanks
Single Tool Type - Angular Size 3



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994-AT3 taper tolerance

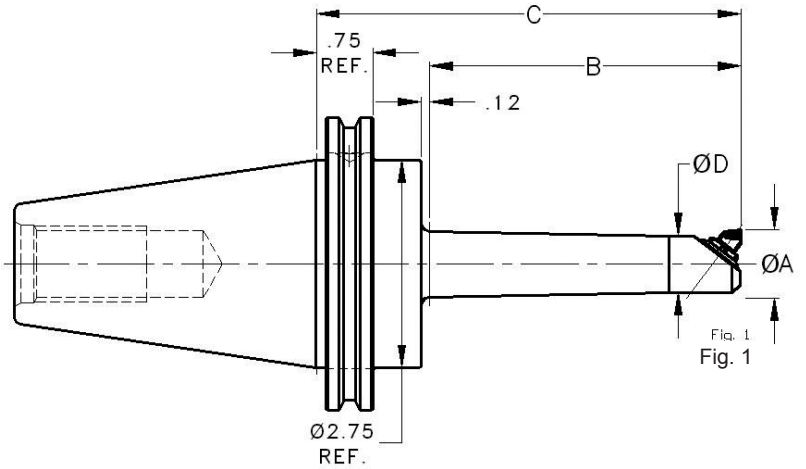


Fig. 1



Fig. 2

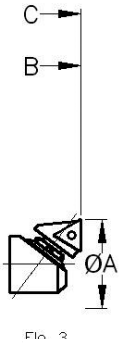


Fig. 3

Bore Range “55”
0.90 - 1.48 [22.9mm - 37.6mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT55	1	3B2*	.90 - 1.15	4.12	5.62	.75	2330A
	2	3B2C06	.93 - 1.18	4.11	5.61		
	3	030BA090TN2C	1.28 - 1.48	4.36	5.86		
	3	030BA090TC2N	1.28 - 1.48	4.36	5.86		

Bore Range “56”
1.12 - 1.76 [28.5mm - 44.7mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT56	1	3A2*	1.12 - 1.56	4.50	6.00	1.00	2330A
	2	3A2C06	1.15 - 1.59	4.48	5.98		
	3	030BA090TN2C	1.34 - 1.76	4.67	6.17		
	3	030BA090TC2N	1.34 - 1.76	4.67	6.17		

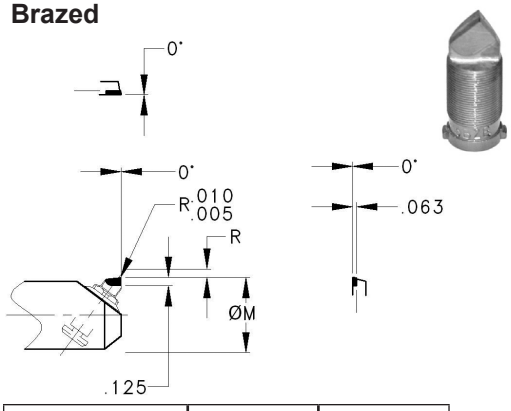
Bore Range “57”
1.12 - 1.76 [28.5mm - 44.7mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT57	1	3A2*	1.12 - 1.56	5.12	6.62	1.00	2330A
	2	3A2C06	1.15 - 1.59	5.11	6.61		
	3	030BA090TN2C	1.34 - 1.76	5.30	6.80		
	3	030BA090TC2N	1.34 - 1.76	5.30	6.80		

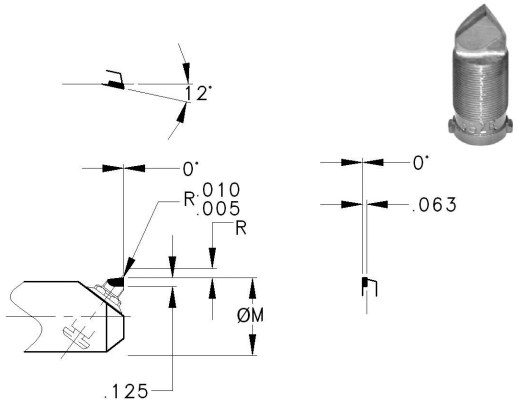
Angular Size 3 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
3A2*	1.031	.250
3B2*	.906	.125



PART NUMBER	M	R
3A212*	1.031	.250
3B212*	.906	.125

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

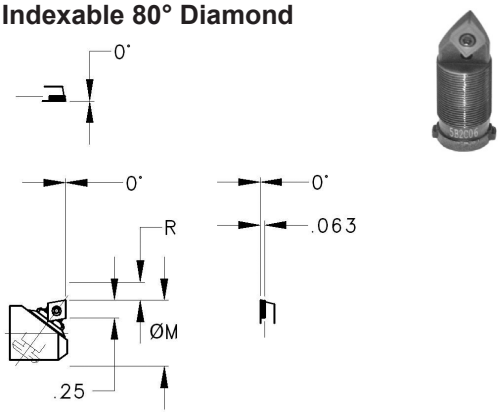
Example: 3B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 3704E1E

Indexable 80° Diamond



PART NUMBER	M	R
3A2C06	1.031	.250
3B2C06	.906	.125

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

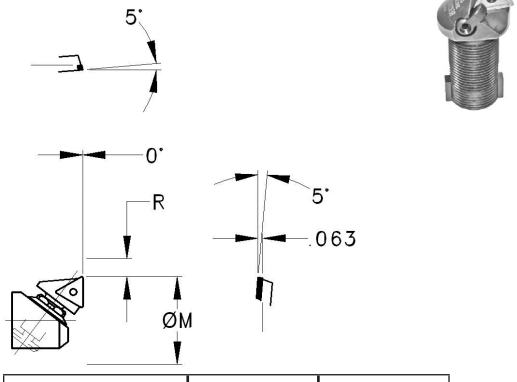
Parts

- Insert Screw #SP1910

Hardware Package

- 3704E1E

Indexable Triangle Heavy Duty



PART NUMBER	M	R
030BA090TN2C	1.28	.20
030BA090TC2N	1.28	.20

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-221 (030BA090TN2C)
- TCMT-21.51 (030BA090TC2N)

Parts

- NL Pin #NL23 (030BA090TN2C)
- Insert Screw #SP1910 (030BA090TC2N)

Hardware Package

- 3300X1E

Boring Bars with CAT50 Shanks
Single Tool Type - Angular Size 5



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994-AT3 taper tolerance

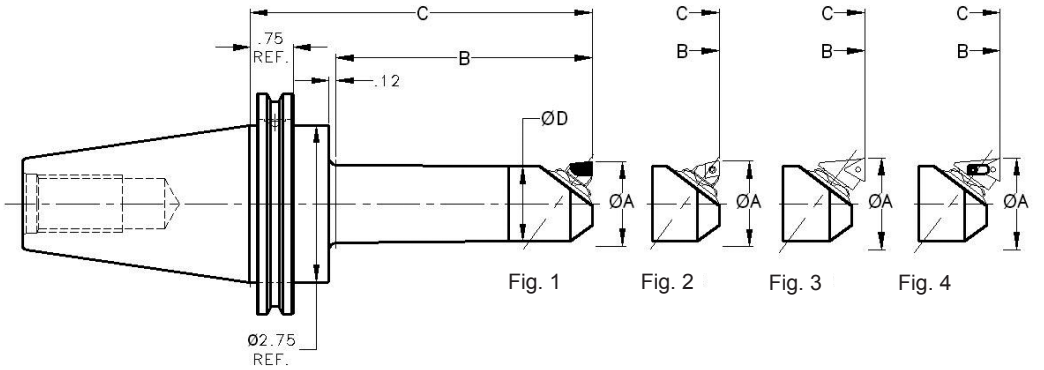


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Bore Range "58"
1.50 - 2.16 [38.1mm - 54.8mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT58	1	5B2*	1.50 - 1.93	4.50	6.00	1.31	5330A
	2	5B2C06	1.50 - 1.93	4.50	6.00		
	3	050BA090TC2N	1.76 - 2.16	4.79	6.29		
	4	050BA090TN2E	1.76 - 2.16	4.79	6.29		

Bore Range "59"
1.50 - 2.16 [38.1mm - 54.8mm]

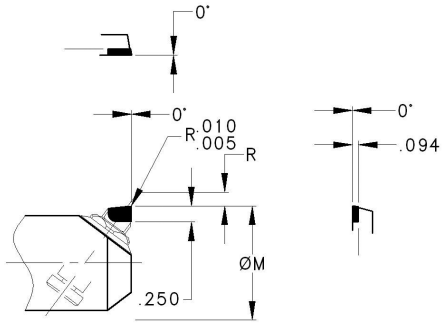
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT59	1	5B2*	1.50 - 1.93	6.75	8.25	1.31	5330A
	2	5B2C06	1.50 - 1.93	6.75	8.25		
	3	050BA090TC2N	1.76 - 2.16	7.04	8.54		
	4	050BA090TN2E	1.76 - 2.16	7.04	8.54		

Angular Size 5 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

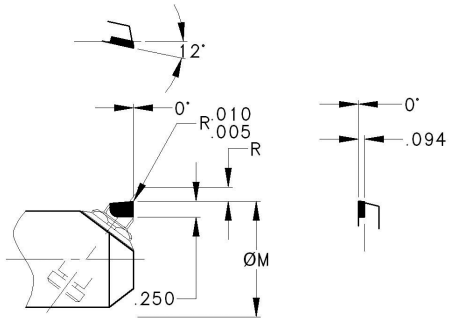
Brazed





PART NUMBER	M	R
5A2*	1.625	.406
5B2*	1.406	.219





PART NUMBER	M	R
5A212*	1.625	.406
5B212*	1.406	.219

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 5B2F for Cast Iron

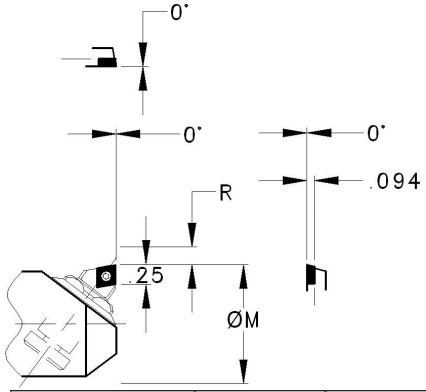
Coatings available upon request.

Hardware Package

- 5704E1E

Indexable 80° Diamond





PART NUMBER	M	R
5A2C06	1.625	.406
5B2C06	1.406	.219

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

Parts

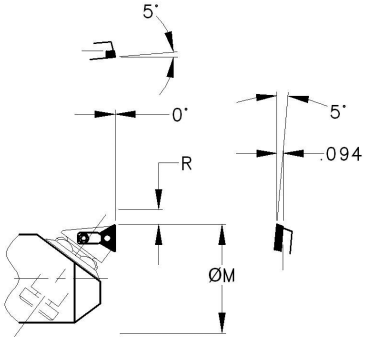
- Insert Screw #SP1910

Hardware Package

- 5704E1E

Indexable Triangle Heavy Duty





PART NUMBER	M	R
050BA090TN2E	1.76	.29
050BA090TC2N	1.76	.29

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-221 (050BA090TN2E)
- TCMT-21.51 (050BA090TC2N)

Parts

- NL Pin #NL23 (050BA090TN2E)
- Clamp #DL3 (050BA090TN2E)
- Clamp Screw #S500 (050BA090TN2E)
- Insert Screw #SP1910 (050BA090TC2N)

Hardware Package

- 5704E1E

Boring Bars with CAT50 Shanks
Single Tool Type - Angular Size 5



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ANSI B5.50 1994-AT3 taper tolerance

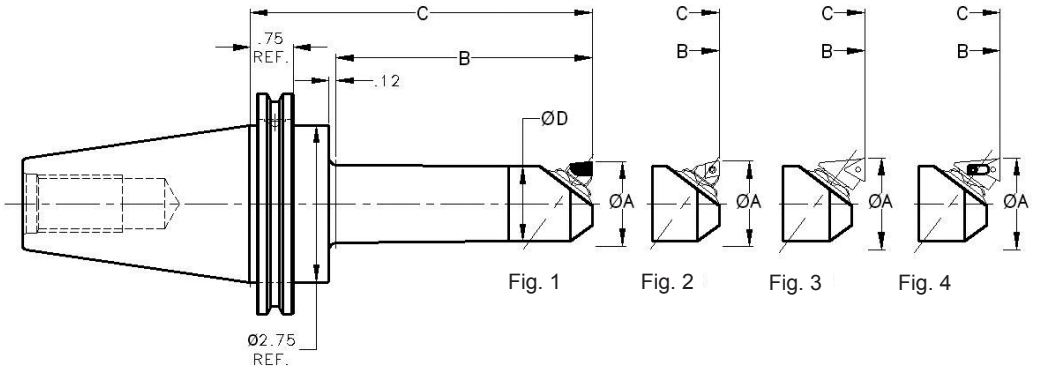


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Bore Range “60”
1.81 - 2.62 [46.0mm - 66.5mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT60	1	5A2*	1.81 - 2.62	4.50	6.00	1.50	5330A
	2	5A2C06	1.81 - 2.62	4.50	6.00		
	3	050BA090TC2N	1.90 - 2.48	4.72	6.22		
	4	050BA090TN2E	1.90 - 2.48	4.72	6.22		

Bore Range “61”
1.81 - 2.62 [46.0mm - 66.5mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT61	1	5A2*	1.81 - 2.62	7.25	8.75	1.50	5330A
	2	5A2C06	1.81 - 2.62	7.25	8.75		
	3	050BA090TC2N	1.90 - 2.48	7.47	8.97		
	4	050BA090TN2E	1.90 - 2.48	7.47	8.97		

Bore Range “62”
1.81 - 2.62 [46.0mm - 66.5mm]

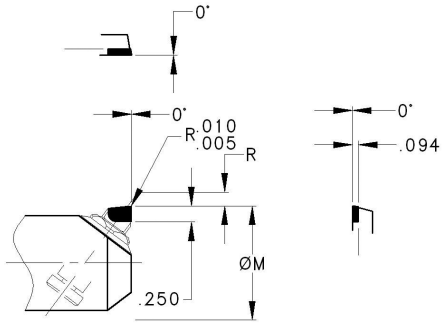
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT62	1	5A2*	1.81 - 2.62	8.12	9.62	1.50	5330A
	2	5A2C06	1.81 - 2.62	8.12	9.62		
	3	050BA090TC2N	1.90 - 2.48	8.35	9.85		
	4	050BA090TN2E	1.90 - 2.48	8.35	9.85		

Angular Size 5 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

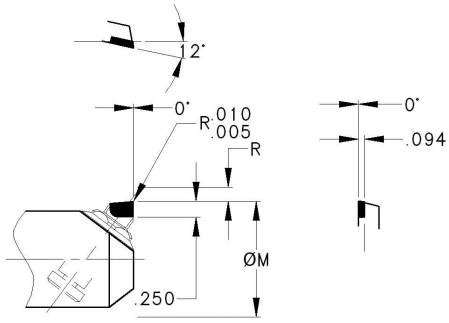
Brazed





PART NUMBER	M	R
5A2*	1.625	.406
5B2*	1.406	.219





PART NUMBER	M	R
5A212*	1.625	.406
5B212*	1.406	.219

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 5B2F for Cast Iron

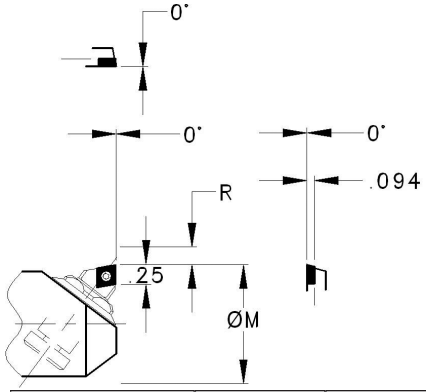
Coatings available upon request.

Hardware Package

- 5704E1E

Indexable 80° Diamond





PART NUMBER	M	R
5A2C06	1.625	.406
5B2C06	1.406	.219

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

Parts

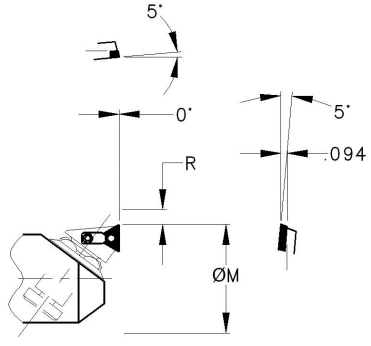
- Insert Screw #SP1910

Hardware Package

- 5704E1E

Indexable Triangle Heavy Duty





PART NUMBER	M	R
050BA090TN2E	1.76	.29
050BA090TC2N	1.76	.29

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-221 (050BA090TN2E)
- TCMT-21.51 (050BA090TC2N)

Parts

- NL Pin #NL23 (050BA090TN2E)
- Clamp #DL3 (050BA090TN2E)
- Clamp Screw #S500 (050BA090TN2E)
- Insert Screw #SP1910 (050BA090TC2N)

Hardware Package

- 5704E1E

Boring Bars with CAT50 Shanks
Single Tool Type - Angular Size 7



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- ANSI B5.50 1994-AT3 taper tolerance
- Specials available in any series and style

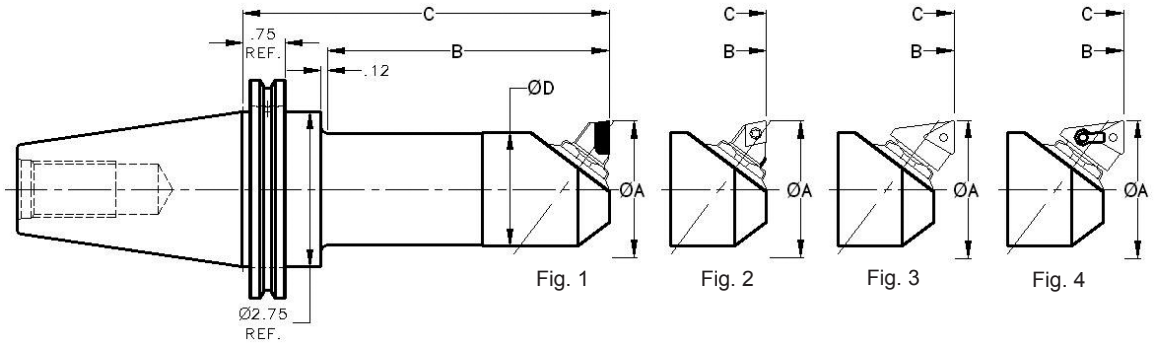


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Bore Range “63”
2.43 - 3.43 [61.7mm - 87.1mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT63	1	7A2*	2.43 - 3.43	5.00	6.50	2.00	5330A
	2	7A2C09	2.43 - 3.43	5.00	6.50		
	3	070BA090TC3N	2.42 - 3.25	5.37	6.85		
	4	070BA090TN3F	2.42 - 3.25	5.37	6.85		

Bore Range “64”
2.43 - 3.43 [61.7mm - 87.1mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT64	1	7A2*	2.43 - 3.43	7.25	8.75	2.00	5330A
	2	7A2C09	2.43 - 3.43	7.25	8.75		
	3	070BA090TC3N	2.42 - 3.25	7.60	9.10		
	4	070BA090TN3F	2.42 - 3.25	7.60	9.10		

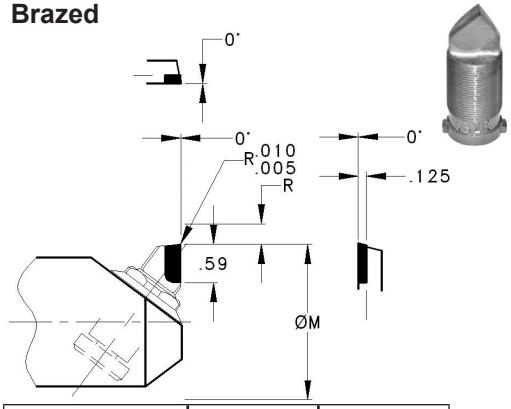
Bore Range “65”
2.43 - 3.43 [61.7mm - 87.1mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT65	1	7A2*	2.43 - 3.43	11.00	12.50	2.00	5330A
	2	7A2C09	2.43 - 3.43	11.00	12.50		
	3	070BA090TC3N	2.42 - 3.25	11.37	12.85		
	4	070BA090TN3F	2.42 - 3.25	11.37	12.85		

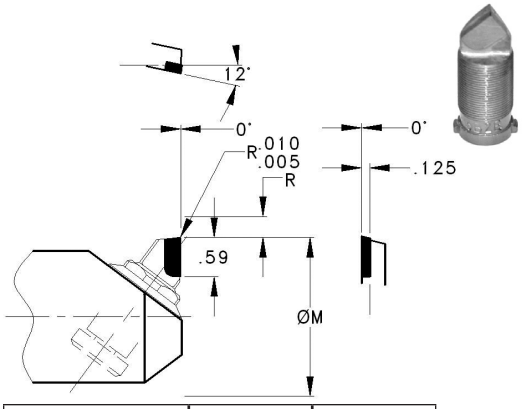
Angular Size 7 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
7A2*	2.312	.500
7B2*	2.093	.312



PART NUMBER	M	R
7A212*	2.312	.500
7B212*	2.093	.312

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

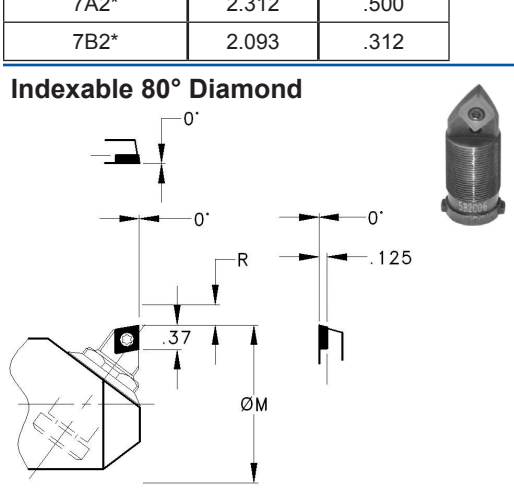
Example: 7B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 7708E1E

Indexable 80° Diamond



PART NUMBER	M	R
7A2C09	2.312	.500
7B2C09	2.093	.312

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

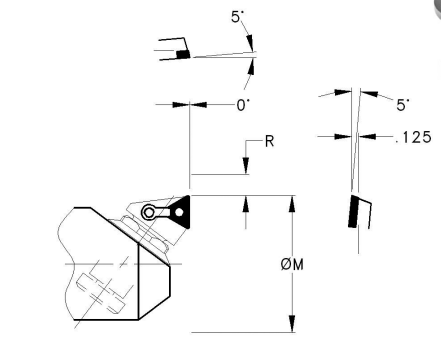
Parts

- Insert Screw #SP1911

Hardware Package

- 7708E1E

Indexable Triangle Heavy Duty



PART NUMBER	M	R
070BA090TN3F	2.42	.37
070BA090TC3N	2.42	.37

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- #TNMG-332 (070BA090TN3F)
- #TCMT-32.52 (070BA090TC3N)

Parts

- NL Pin #NL34L (070BA090TN3F)
- Seat #ITSN323 (070BA090TN3F)
- Clamp #DL5 (070BA090TN3F)
- Clamp Screw #XNS36 (070BA090TN3F)
- Insert Screw #SP1911 (070BA090TC3N)

Hardware Package

- 7708E1E

Boring Bars with CAT50 Shanks
Single Tool Type - Angular Size 7

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- ANSI B5.50 1994-AT3 taper tolerance



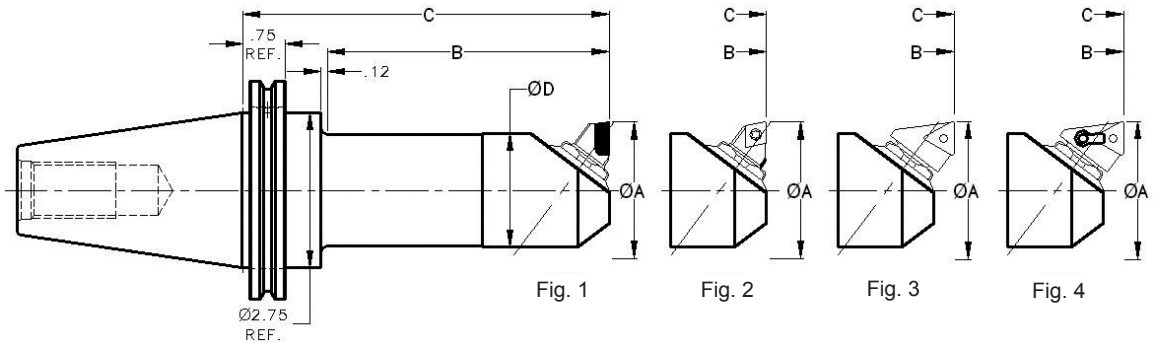


Fig. 1 Fig. 2 Fig. 3 Fig. 4

Bore Range "66"
3.25 - 4.25 [82.6mm - 108.0mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT66	1	7A2*	3.25 - 4.25	3.38	4.88	2.46	5330A
	2	7A2C09	3.25 - 4.25	3.38	4.88		
	3	070BA090TC3N	3.22 - 3.96	3.72	5.22		
	4	070BA090TN3F	3.22 - 3.96	3.72	5.22		

Bore Range "67"
3.25 - 4.25 [82.6mm - 108.0mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT67	1	7A2*	3.25 - 4.25	4.62	6.12	2.46	5330A
	2	7A2C09	3.25 - 4.25	4.62	6.12		
	3	070BA090TC3N	3.22 - 3.96	4.97	6.47		
	4	070BA090TN3F	3.22 - 3.96	4.97	6.47		

Bore Range "68"
3.25 - 4.25 [82.6mm - 108.0mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT68	1	7A2*	3.25 - 4.25	7.75	9.25	2.46	5330A
	2	7A2C09	3.25 - 4.25	7.75	9.25		
	3	070BA090TC3N	3.22 - 3.96	8.09	9.59		
	4	070BA090TN3F	3.22 - 3.96	8.09	9.59		

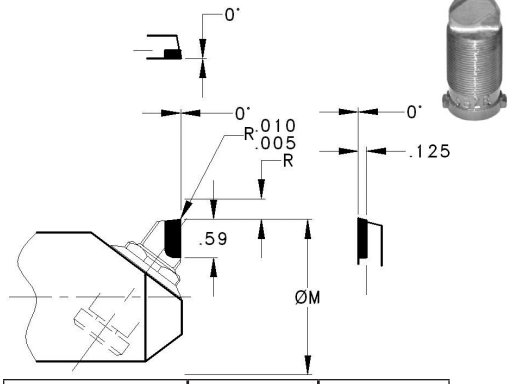
Bore Range "69"
3.25 - 4.25 [82.6mm - 108.0mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT69	1	7A2*	3.25 - 4.25	11.75	13.12	2.46	5330A
	2	7A2C09	3.25 - 4.25	11.75	13.12		
	3	070BA090TC3N	3.22 - 3.96	12.09	13.46		
	4	070BA090TN3F	3.22 - 3.96	12.09	13.46		

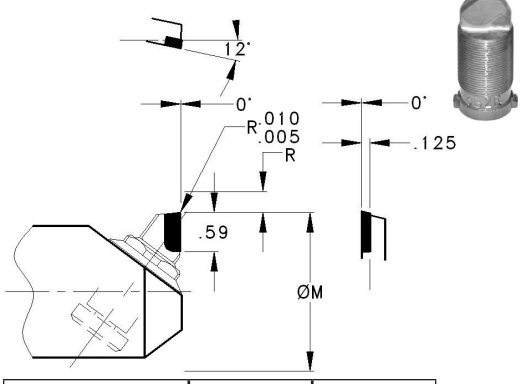
Angular Size 7 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
7A2*	2.312	.500
7B2*	2.093	.312



PART NUMBER	M	R
7A212*	2.312	.500
7B212*	2.093	.312

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

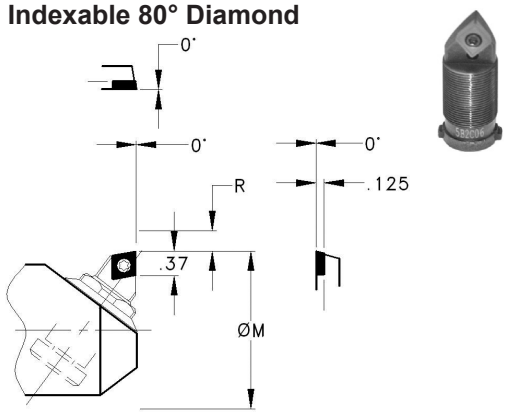
Example: 7B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 7708E1E

Indexable 80° Diamond



PART NUMBER	M	R
7A2C09	2.312	.500
7B2C09	2.093	.312

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

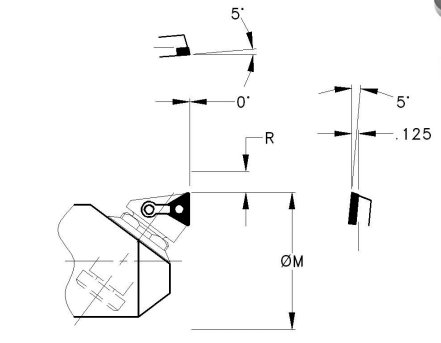
Parts

- Insert Screw #SP1911

Hardware Package

- 7708E1E

Indexable Triangle Heavy Duty



PART NUMBER	M	R
070BA090TN3F	2.42	.37
070BA090TC3N	2.42	.37

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- #TNMG-332 (070BA090TN3F)
- #TCMT-32.52 (070BA090TC3N)

Parts

- NL Pin #NL34L (070BA090TN3F)
- Seat #ITSN323 (070BA090TN3F)
- Clamp #DL5 (070BA090TN3F)
- Clamp Screw #XNS36 (070BA090TN3F)
- Insert Screw #SP1911 (070BA090TC3N)

Hardware Package

- 7708E1E

Boring Bars with CAT50 Shanks
Single Tool Type - Angular Size 10



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- ANSI B5.50 1994-AT3 taper tolerance

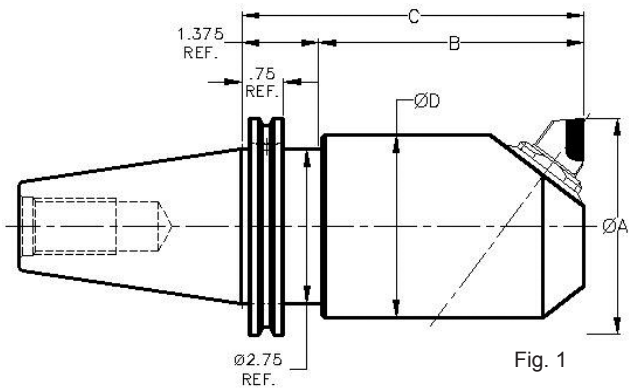


Fig. 1

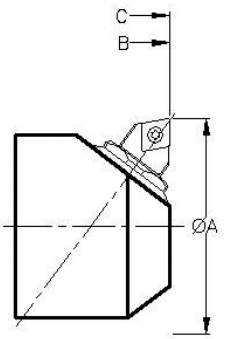


Fig. 2

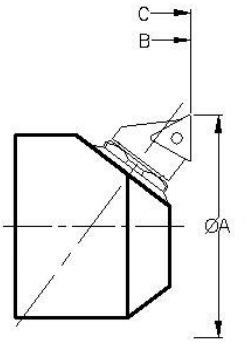


Fig. 3

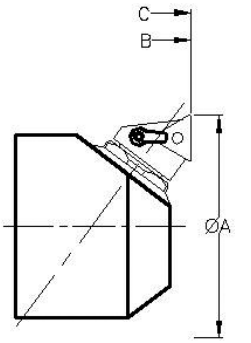


Fig. 4

Bore Range “70”
3.68 - 5.62 [93.5mm - 142.7mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT70	1	10A2*	3.87 - 5.62	4.75	6.12	3.25	10330A
	2	10A2C12	3.87 - 5.62	4.75	6.12		
	3	100BA090TC3N	3.68 - 4.78	5.11	6.49		
	4	100BA090TN3F	3.68 - 4.78	5.11	6.49		
	4	100BA090TN4F	3.94 - 5.04	5.11	6.49		

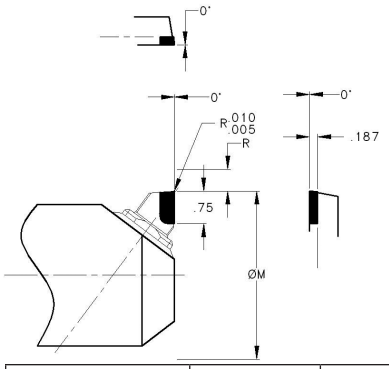
Bore Range “71”
3.68 - 5.62 [93.5mm - 142.7mm]

Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT71	1	10A2*	3.87 - 5.62	11.75	13.12	3.25	10330A
	2	10A2C12	3.87 - 5.62	11.75	13.12		
	3	100BA090TC3N	3.68 - 4.78	12.11	13.49		
	4	100BA090TN3F	3.68 - 4.78	12.11	13.49		
	4	100BA090TN4F	3.94 - 5.04	12.11	13.49		

Angular Size 10 Cartridges

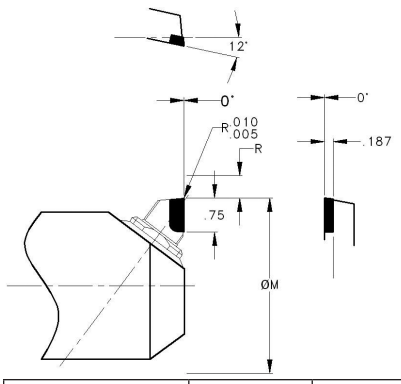
- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed





PART NUMBER	M	R
10A2*	3.09	.87
10B2*	2.69	.50





PART NUMBER	M	R
10A212*	3.09	.87
10B212*	2.69	.50

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

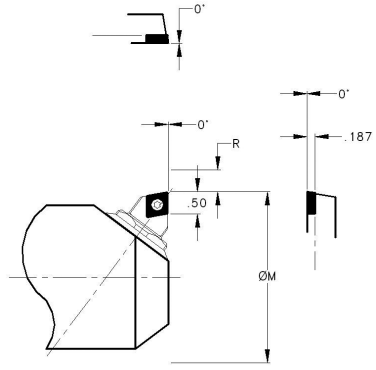
Example: 10B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 10708E1E

Indexable 80° Diamond





PART NUMBER	M	R
10A2C12	3.09	.87
10B2C12	2.69	.50

Recommended Inserts

- CCMM 120408-27

Parts

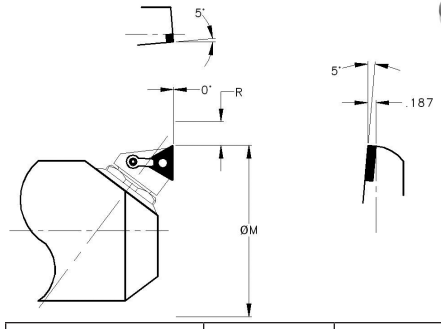
- Insert Screw #SP1999

Hardware Package

- 10708E1E

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Indexable Triangle Heavy Duty





PART NUMBER	M	R
100BA090TN3F	3.68	.55
100BA090TC3N	3.68	.55
100BA090TN4F	3.94	.55

Recommended Inserts

- #TNMG-332 (100BA090TN3F)
- #TCMT-32.52 (100BA090TC3N)

Parts

- NL Pin #NL34L (100BA090TN3F)
- Seat #ITSN323 (100BA090TN3F)
- Clamp #DL7 (100BA090TN3F)
- Clamp Screw #XNS36 (100BA090TN3F)
- Insert Screw #SP1911 (100BA090TC3N)

Hardware Package

- 10708E1E

Recommended Inserts

- #TNMG-432 (100BA090TN4F)

Parts

- NL Pin #NL46 (100BA090TN4F)
- Seat #ITSN433 (100BA090TN4F)
- Clamp #DL7 (100BA090TN4F)
- Clamp Screw #XNS36 (100BA090TN4F)

Hardware Package

- 10708E1E

Boring Bars with Straight Shanks
Single Tool Type - Angular Size 1



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style

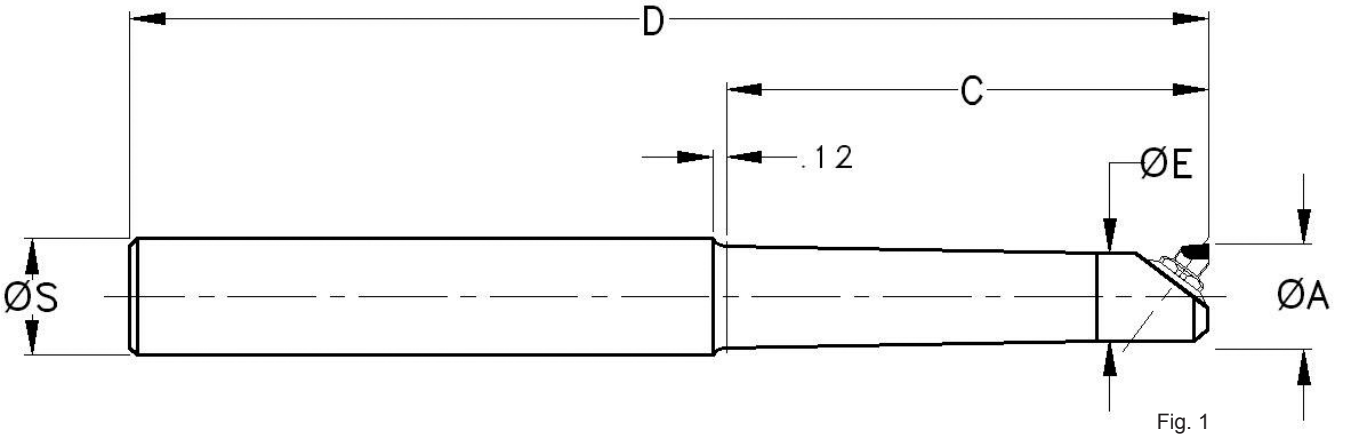


Fig. 1

Bore Range “51”
0.50 - 0.59 [12.7mm - 15.0mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS0465152	.4687	1	1B2*	.50 - .59	——	5.25	.47	1330A
SS1051	1.0000				2.62	7.75		

Bore Range “52”
0.56 - 0.65 [14.2mm - 16.5mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS0505255	.5000	1	1B2*	.56 - .65	——	5.50	.50	1330A
SS1052	1.0000				2.62	7.75		

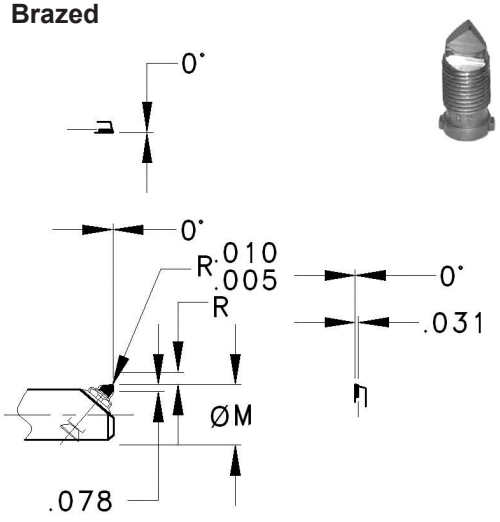
Bore Range “53”
0.62 - 0.78 [15.7mm - 19.8mm]

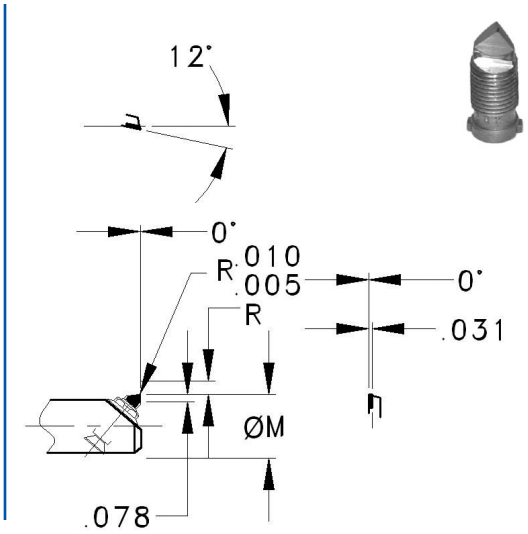
Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS0505357	.5000	1	1A2*	.62 - .78	——	5.75	.50	1330A
SS1053	1.0000				2.88	8.00		

Angular Size 1 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed





PART NUMBER	M	R
1A2*	.594	.125
1B2*	.500	.047

PART NUMBER	M	R
1A212*	.594	.125
1B212*	.500	.047

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 1B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 1203E1E

Boring Bar with Straight Shank
Single Tool Type - Angular Size 2



- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style

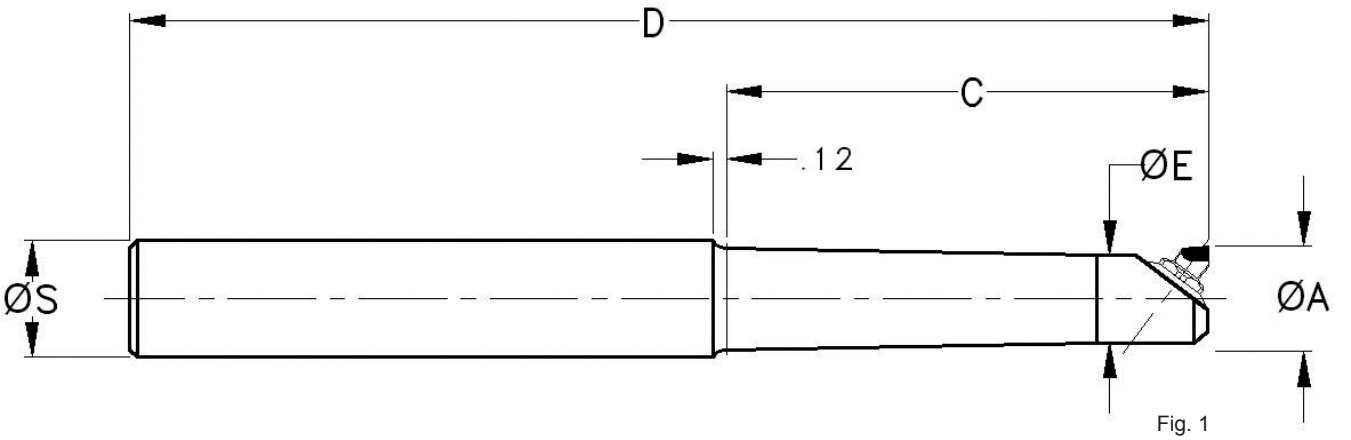


Fig. 1

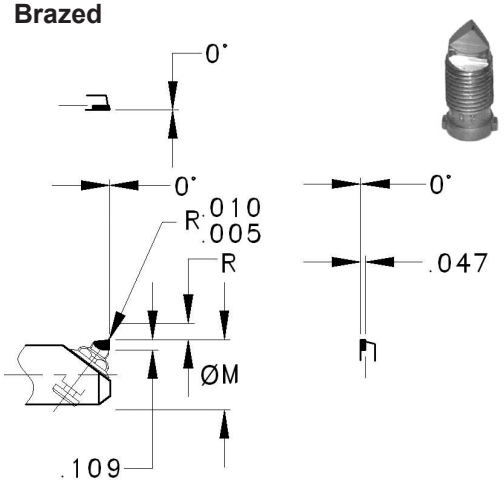
Bore Range “54”
0.75 - 0.90 [19.0mm - 22.8mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS0625462	.6250	1	2B2*	.75 - .90	——	6.25	.62	2330A
SS1054	1.0000				3.38	8.50		

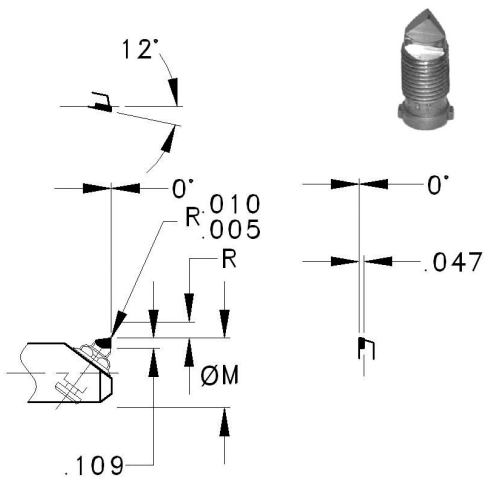
Angular Size 2 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
2A2*	.812	.172
2B2*	.719	.078



PART NUMBER	M	R
2A212*	.812	.172
2B212*	.719	.078

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 2B2F for Cast Iron

Coatings available upon request.

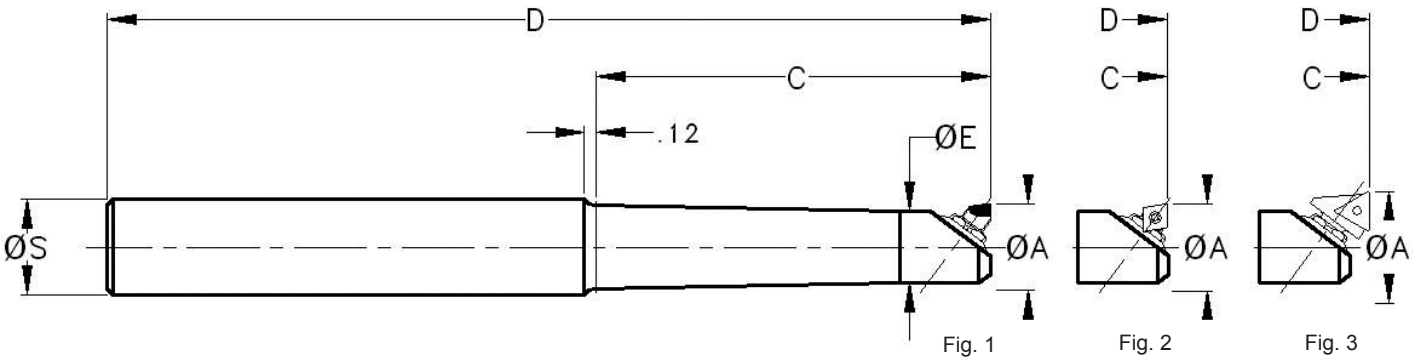
Hardware Package

- 2204E1E

Boring Bars with Straight Shanks
Single Tool Type - Angular Size 3

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style





Bore Range "55"
0.90 - 1.48 [22.9mm - 37.6mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS0755567	.7500	1	3B2*	.90 - 1.15	——	6.75	.75	2330A
		2	3B2CO6	.93 - 1.18	——	6.75		
		3	030BA090TN2C	1.28 - 1.48	——	6.99		
		3	030BA090TC2N	1.28 - 1.48	——	6.99		
SS1055	1.0000	1	3B2*	.90 - 1.15	4.12	9.25		
		2	3B2CO6	.93 - 1.18	4.11	9.23		
		3	030BA090TN2C	1.28 - 1.48	4.36	9.48		
		3	030BA090TC2N	1.28 - 1.48	4.36	9.48		

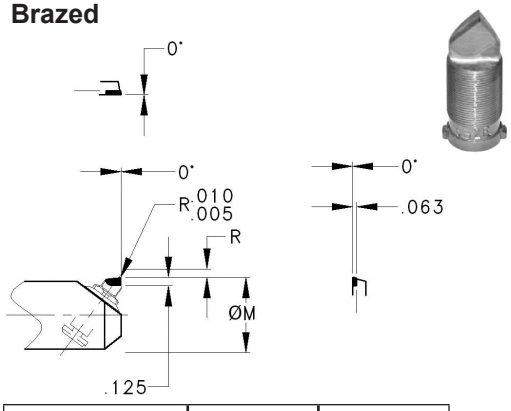
Bore Range "56"
1.12 - 1.76 [28.5mm - 44.7mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS105672	1.0000	1	3A2*	1.12 - 1.56	——	7.25	1.00	2330A
		2	3A2CO6	1.15 - 1.59	——	7.25		
		3	030BA090TN2C	1.34 - 1.76	——	7.42		
		3	030BA090TC2N	1.34 - 1.76	——	7.42		
SS1056	1.0000	1	3A2*	1.12 - 1.56	4.50	9.62		
		2	3A2CO6	1.15 - 1.59	4.48	9.60		
		3	030BA090TN2C	1.34 - 1.76	4.67	9.79		
		3	030BA090TC2N	1.34 - 1.76	4.67	9.79		

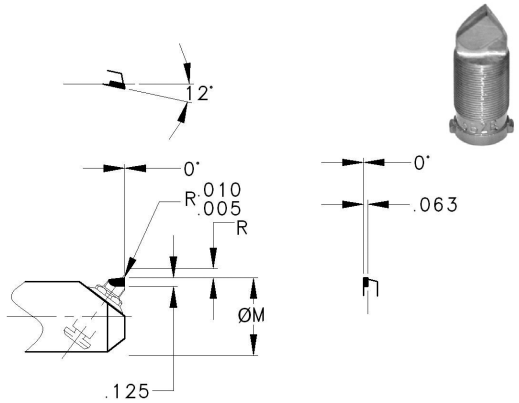
Angular Size 3 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
3A2*	1.031	.250
3B2*	.906	.125



PART NUMBER	M	R
3A212*	1.031	.250
3B212*	.906	.125

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

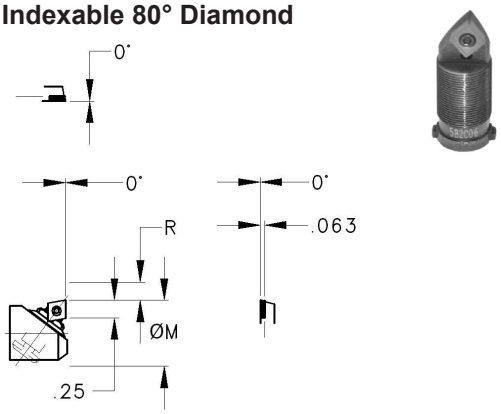
Example: 3B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 3704E1E

Indexable 80° Diamond



PART NUMBER	M	R
3A2C06	1.031	.250
3B2C06	.906	.125

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

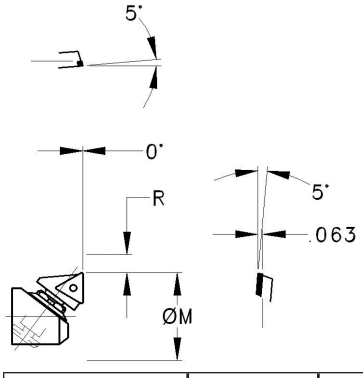
Parts

- Insert Screw #SP1910

Hardware Package

- 3704E1E

Indexable Triangle Heavy Duty



PART NUMBER	M	R
030BA090TN2C	1.28	.20
030BA090TC2N	1.28	.20

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-221 (030BA090TN2C)
- TCMT-21.51 (030BA090TC2N)

Parts

- NL Pin #NL23 (030BA090TN2C)
- Insert Screw #SP1910 (030BA090TC2N)

Hardware Package

- 3300X1E

Boring Bars with Straight Shanks
Single Tool Type - Angular Size 5

- Coolant Thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style



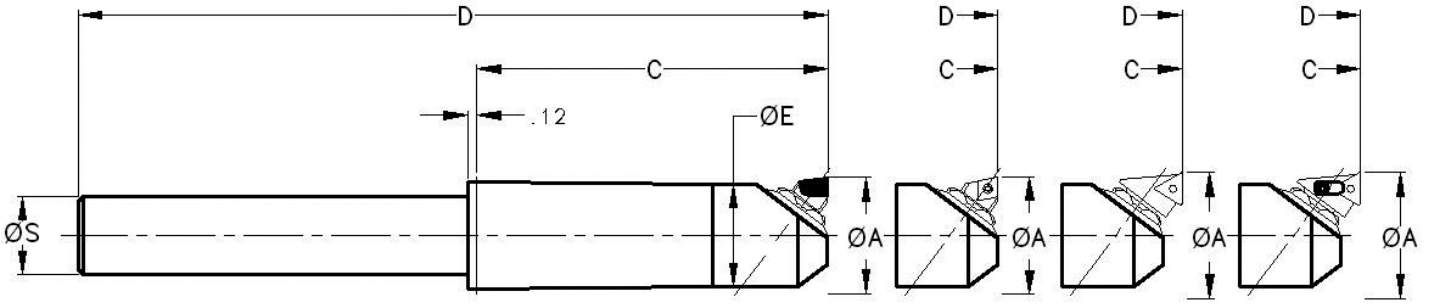


Fig. 1 Fig. 2 Fig. 3 Fig. 4

Bore Range "58"
1.50 - 2.16 [38.1mm - 54.8mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS1058	1.0000	1	5B2*	1.50 - 1.93	4.50	9.62	1.31	5330A
	1.0000	2	5B2CO6	1.50 - 1.93	4.50	9.62		
	1.0000	3	050BA090TC2N	1.76 - 2.16	4.79	9.91		
	1.0000	4	050BA090TN2E	1.76 - 2.16	4.79	9.91		

Bore Range "60"
1.81 - 2.62 [46.0mm - 66.5mm]

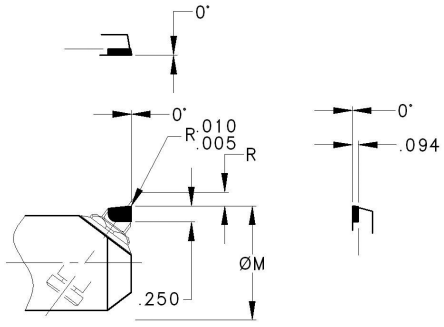
Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS1060	1.0000	1	5A2*	1.81 - 2.62	4.50	9.62	1.50	5330A
	1.0000	2	5A2CO6	1.81 - 2.62	4.50	9.62		
	1.0000	3	050BA090TC2N	1.90 - 2.48	4.72	9.84		
	1.0000	4	050BA090TN2E	1.90 - 2.48	4.72	9.84		

Angular Size 5 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

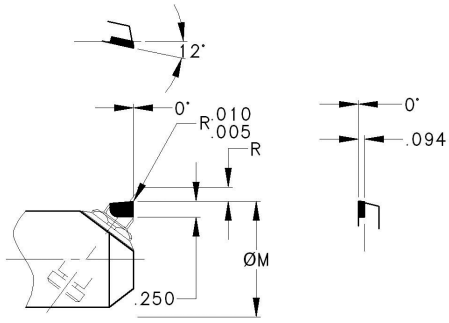
Brazed





PART NUMBER	M	R
5A2*	1.625	.406
5B2*	1.406	.219





PART NUMBER	M	R
5A212*	1.625	.406
5B212*	1.406	.219

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

Example: 5B2F for Cast Iron

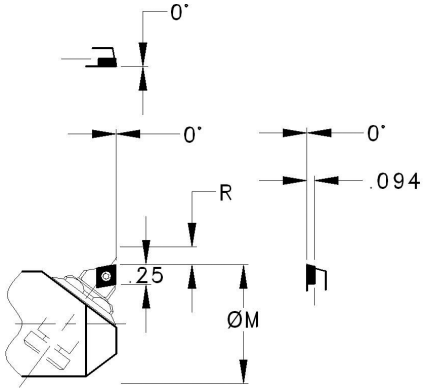
Coatings available upon request.

Hardware Package

- 5704E1E

Indexable 80° Diamond





PART NUMBER	M	R
5A2C06	1.625	.406
5B2C06	1.406	.219

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

Parts

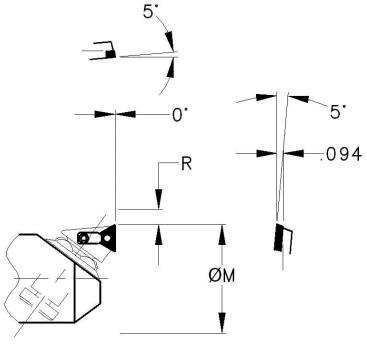
- Insert Screw #SP1910

Hardware Package

- 5704E1E

Indexable Triangle Heavy Duty





PART NUMBER	M	R
050BA090TN2E	1.76	.29
050BA090TC2N	1.76	.29

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-221 (050BA090TN2E)
- TCMT-21.51 (050BA090TC2N)

Parts

- NL Pin #NL23 (050BA090TN2E)
- Clamp #DL3 (050BA090TN2E)
- Clamp Screw #S500 (050BA090TN2E)
- Insert Screw #SP1910 (050BA090TC2N)

Hardware Package

- 5704E1E

Boring Bars with Straight Shanks
Single Tool Type - Angular Size 7

- Coolant thru available upon request
- Order cartridge, hardware package, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style



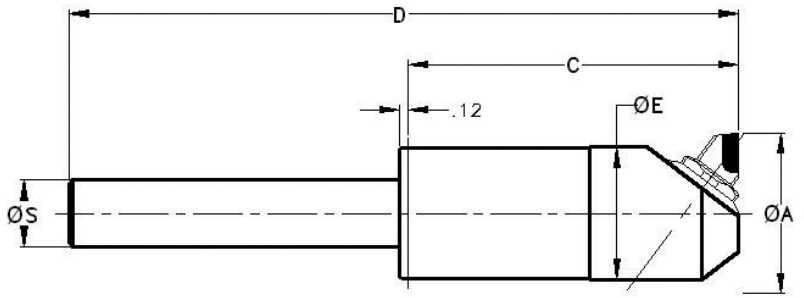


Fig. 1

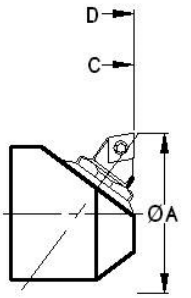


Fig. 2

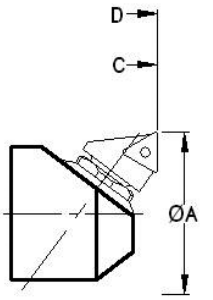


Fig. 3

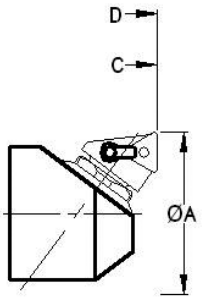


Fig. 4

Bore Range “63”
2.43 - 3.43 [61.7mm - 87.1mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS1063	1.0000	1	7A2*	2.43 - 3.43	5.00	10.12	2.00	5330A
		2	7A2C09	2.43 - 3.43	5.00	10.12		
		3	070BA090TC3N	2.42 - 3.25	5.35	10.47		
		4	070BA090TN3F	2.42 - 3.25	5.35	10.47		

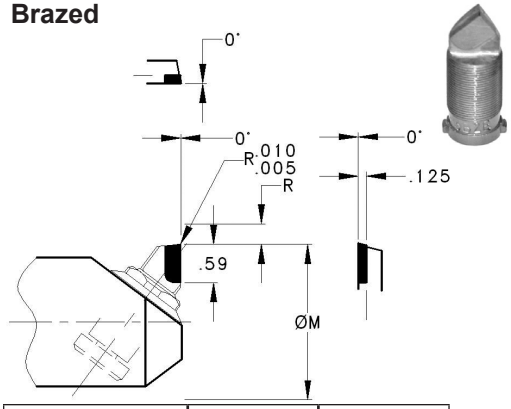
Bore Range “66”
3.25 - 4.25 [82.6mm - 108.0mm]

Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS1066	1.0000	1	7A2*	3.25 - 4.25	3.38	8.50	2.46	5330A
	1.0000	2	7A2C09	3.25 - 4.25	3.38	8.50		
	1.0000	3	070BA090TC3N	3.22 - 3.96	3.72	8.84		
	1.0000	4	070BA090TN3F	3.22 - 3.96	3.72	8.84		

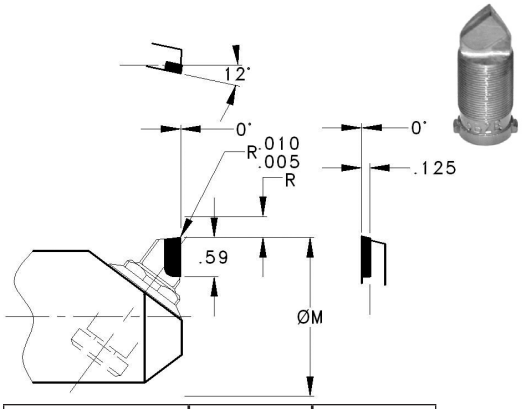
Angular Size 7 Cartridges

- Order cartridge & hardware package separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
7A2*	2.312	.500
7B2*	2.093	.312



PART NUMBER	M	R
7A212*	2.312	.500
7B212*	2.093	.312

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

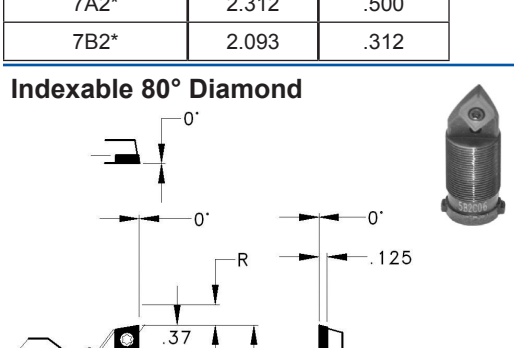
Example: 7B2F for Cast Iron

Coatings available upon request.

Hardware Package

- 7708E1E

Indexable 80° Diamond



PART NUMBER	M	R
7A2C09	2.312	.500
7B2C09	2.093	.312

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

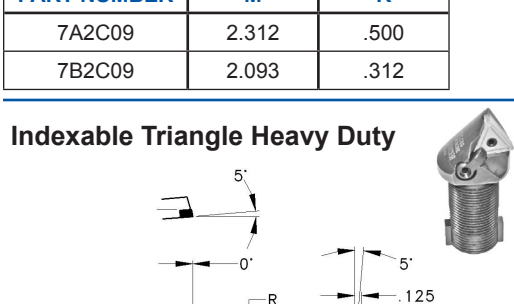
Parts

- Insert Screw #SP1911

Hardware Package

- 7708E1E

Indexable Triangle Heavy Duty



PART NUMBER	M	R
070BA090TN3F	2.42	.37
070BA090TC3N	2.42	.37

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- #TNMG-332 (070BA090TN3F)
- #TCMT-32.52 (070BA090TC3N)

Parts

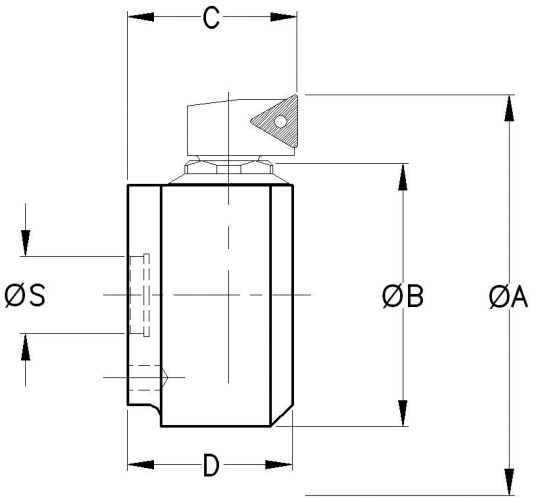
- NL Pin #NL34L (070BA090TN3F)
- Seat #ITSN323 (070BA090TN3F)
- Clamp #DL5 (070BA090TN3F)
- Clamp Screw #XNS36 (070BA090TN3F)
- Insert Screw #SP1911 (070BA090TC3N)

Hardware Package

- 7708E1E

Series R500 Steel Boring Rings
Single Tool Type - Straight Size 7
Bore Range 3.12 - 6.50 [79.3mm - 165.1mm]

- Order cartridge, dial, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- ADE-1287 Mod-flex adapter, Part #063MFADE1287 - See page #124
- ADE-1287 Cat V-Flange adapters - See page #125





Note: Picture reflects bottom boring application using recommended cartridge #070BS090TN3F

For Thru Hole Boring

Part Number	Approx. Weight	A Effective Bore Range	B Dia.	C	D	Recommended Cartridge	Ref. Dial	Ref. Wrench	S For Use With Adapter Type
R502	1.5 lbs	3.125 - 4.437	1.88	1.41	1.88	7A5C09	7710	5330A	ADE-1287
R504	2.5 lbs	3.813 - 5.125	2.50						
R506	3.5 lbs	4.500 - 5.812	3.00						
R508	5.0 lbs	5.188 - 6.500	3.50						

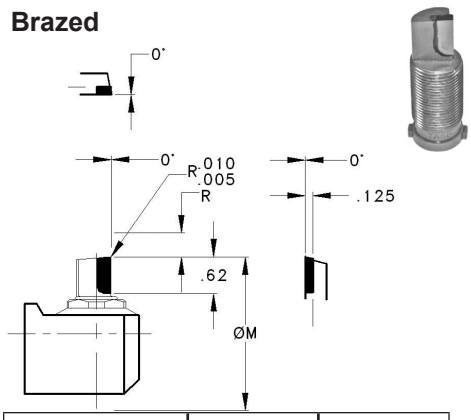
For Bottom Boring

Part Number	Approx. Weight	A Effective Bore Range	B Dia.	C	D	Recommended Cartridge	Ref. Dial	Ref. Wrench	S For Use With Adapter Type
R502	1.5 lbs	3.125 - 4.062	1.88	1.94	1.88	070BS090TN3F	7710	5330A	ADE-1287
R504	2.5 lbs	3.813 - 4.750	2.50						
R506	3.5 lbs	4.500 - 5.437	3.00						
R508	5.0 lbs	5.188 - 6.125	3.50						

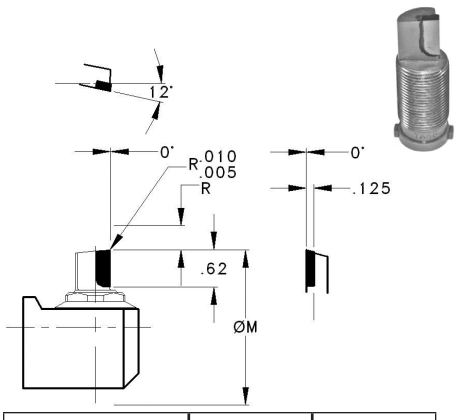
Straight Size 7 Cartridges

- Order cartridge & dial separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
7A5*	2.625	.656
7B5*	2.375	.406



PART NUMBER	M	R
7A512*	2.625	.656
7B512*	2.375	.406

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

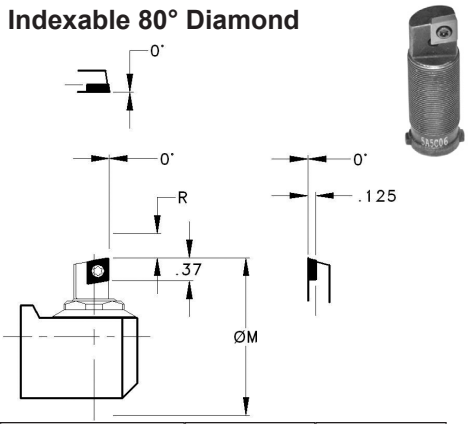
Example: 7B2F for Cast Iron

Coatings available upon request.

Ref. Dial

- 7710

Indexable 80° Diamond



PART NUMBER	M	R
7A5C09	2.625	.656
7B5C09	2.375	.406

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

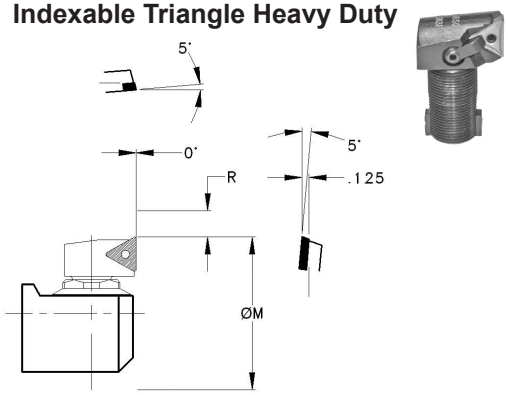
Parts

- Screw #SP1911

Ref. Dial

- 7710

Indexable Triangle Heavy Duty



PART NUMBER	M	R
070BS090TN3F	2.59	.46
070BS090TC3N	2.59	.46

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-332 (070BS090TN3F)
- TCMT-32.52 (070BS090TC3N)

Parts

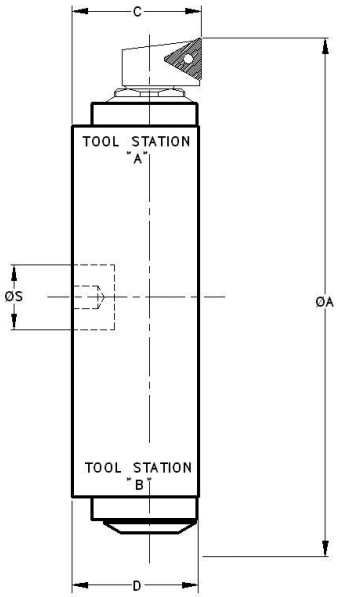
- NL Pin #NL34L (070BS090TN3F)
- Seat #ITSN323 (070BS090TN3F)
- Clamp #DL7 (070BS090TN3F)
- Clamp screw #XNS36 (070BS090TN3F)
- Insert screw #SP1911 (070BS090TC3N)

Ref. Dial

- 7710

Series R100 Boring Rings
Double End Type - Straight Size 10
Bore Range 5.50 - 17.87 [139.7mm - 453.9mm]

- Order cartridge, dial, and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- AL = Aluminum body
- ADE-1412 Mod-flex adapter, part #080MFADE1412 - See page #124
- ADE -1412 Cat V-Flange adapters - See page #126



Note: Picture reflects bottom boring application using recommended cartridge #100BS090TN4F



Part Number	Approx. Weight	A Effective Bore Range	Tool Station	C	D	Recommended Cartridge	Ref. Dial	Ref. Wrench	S For Use With Adapter Type
R100552T	8 lbs	5.500 - 7.750	A	1.50	2.03	10A5C12	10710	10330A	ADE-1412
		6.625 - 8.875	B						
R100772T	11 lbs	7.750 - 10.000	A	1.50	2.03				
		8.875 - 11.125	B						
R1001002TAL	9 lbs	10.000 - 12.250	A	1.88	2.44				
		11.125 - 13.375	B						
R1001222TAL	11 lbs	12.250 - 14.500	A	1.88	2.44				
		13.375 - 15.625	B						
R1001452TAL	14 lbs	14.500 - 16.750	A	1.88	2.44				
		15.625 - 17.875	B						

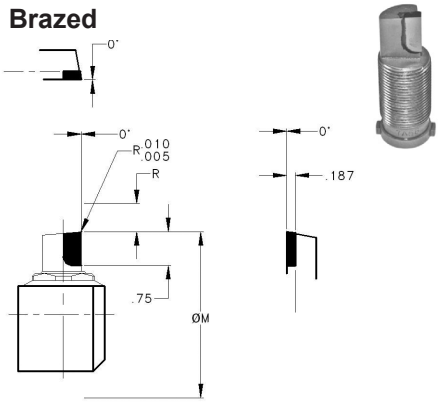
Part Number	Approx. Weight	A Effective Bore Range	Tool Station	C	D	Recommended Cartridge*	Ref. Dial	Ref. Wrench	S For Use With Adapter Type
R100552T	8 lbs	5.500 - 6.875	A	2.12	2.03	100BS090TN4F	10710	10330A	ADE-1412
		6.625 - 8.000	B						
R100772T	11 lbs	7.750 - 9.125	A	2.12	2.03				
		8.875 - 10.250	B						
R1001002TAL	9 lbs	10.000 - 11.375	A	2.50	2.44				
		11.125 - 12.500	B						
R1001222TAL	11 lbs	12.250 - 13.625	A	2.50	2.44				
		13.375 - 14.750	B						
R1001452TAL	14 lbs	14.500 - 15.875	A	2.50	2.44				
		15.625 - 17.000	B						

* Subtract 3/8" from maximum and minimum diameters when using cartridge #100BS090TN3F

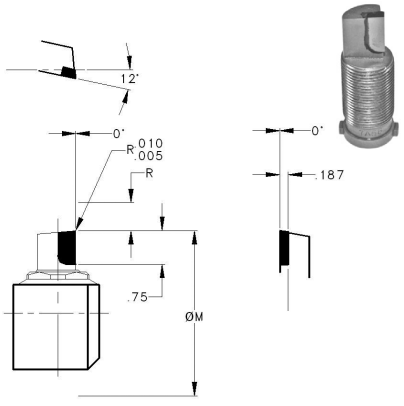
Straight Size 10 Cartridges

- Order cartridge & dial separately
- Bore diameter and projection may change depending on cartridge selection. Please refer to dimensions shown to calculate exact dimensions
- Specials available in any series and style

Brazed



PART NUMBER	M	R
10A5*	3.500	1.125
10B5*	3.000	.625



PART NUMBER	M	R
10A512*	3.500	1.125
10B512*	3.000	.625

*** Carbide Grade for Brazed Tools**

- "E" for Steel—Roughing (C6)
- "B" for Steel—Finishing (C7)
- "F" for Cast Iron (C2)
- "12F" for Aluminum (C2)
- "CX" - Diamond Tip
- "CBN" - Borazon Tip

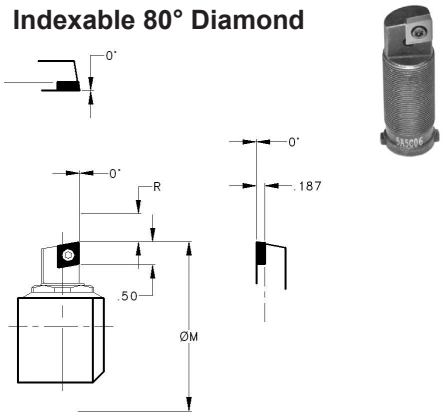
Example: 10B5F for Cast Iron

Coatings available upon request.

Ref. Dial

- 10710

Indexable 80° Diamond



PART NUMBER	M	R
10A5C12	3.500	1.125
10B5C12	3.000	.625

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- CCMM12040827

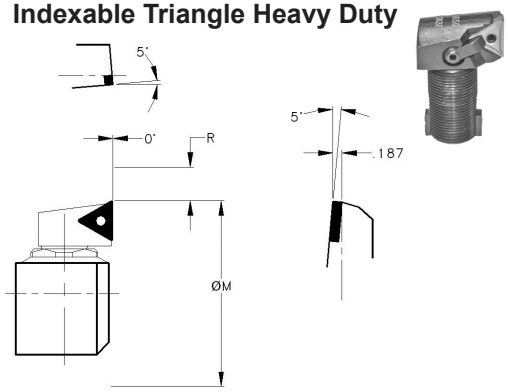
Parts

- Insert screw #SP1999

Ref. Dial

- 10710

Indexable Triangle Heavy Duty



PART NUMBER	M	R
100BS090TN4F	3.38	.69
100BS090TC4N	3.38	.69

Note:
Recommended inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts

- TNMG-432 (100BS090TN4F)
- TCMT-432 (100BS090TC4N)

Parts

- NL Pin #NL46 (100BS090TN4F)
- Seat #ITSN433 (100BS090TN4F)
- Clamp #DL9 (100BS090TN4F)
- Clamp screw #XNS59 (100BS090TN4F)
- Insert screw #SP1999 (100BS090TC4N)

Ref. Dial

- 10710

Boring Ring Adapters with Mod-Flex Shanks

- Type ADE-1287, ADE-1312, ADE-1412



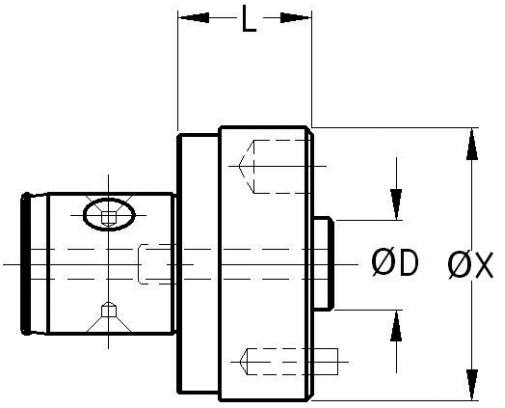
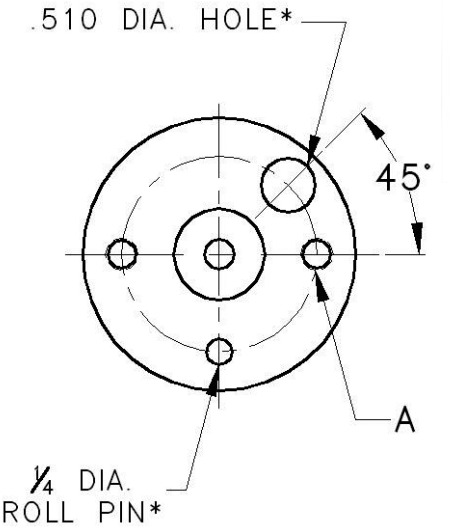


Fig. 1



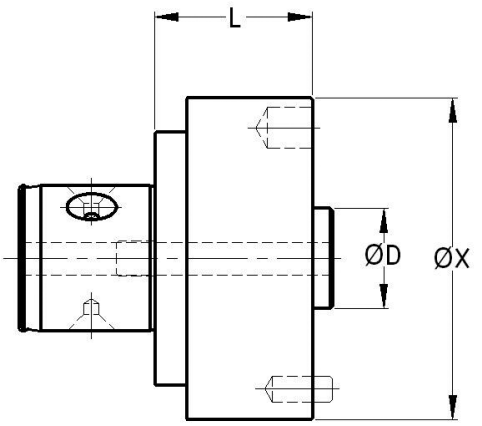
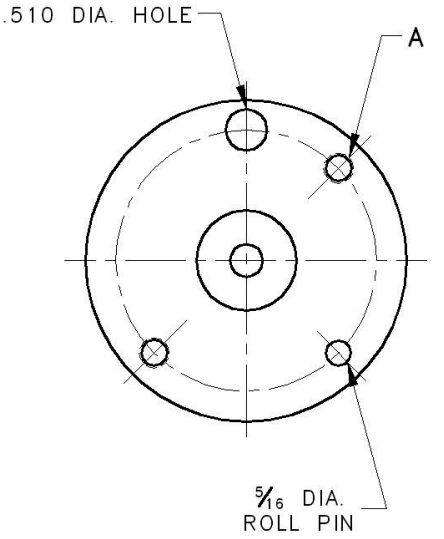


Fig. 2



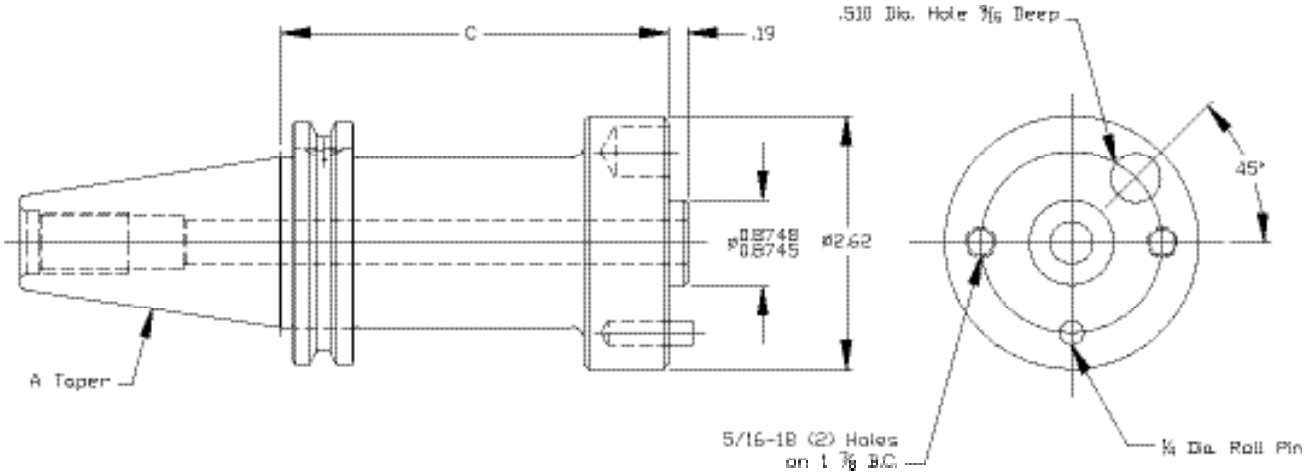
Part No.	Mod-Flex Size	D	L	X	Fig No.	Weight	A
063MFADE1287	063	.8745 - .8748	1.29	2.62	1	1.3 lbs.	5/16-18 (2) Holes - 1-7/8 B.C.
063MFADE1312	063	1.2495 - 1.2498	1.04	3.69	1	3.2 lbs.	3/8-16 (2) Holes - 3-1/16 B.C.
080MFADE1412	080	1.2495 - 1.2498	1.58	4.00	2	6.3 lbs.	3/8-16 (2) Holes - 3-1/4 B.C.

* .510 Hole and pin in #063MFADE1287 only.

Boring Ring Adapters with CAT Shanks



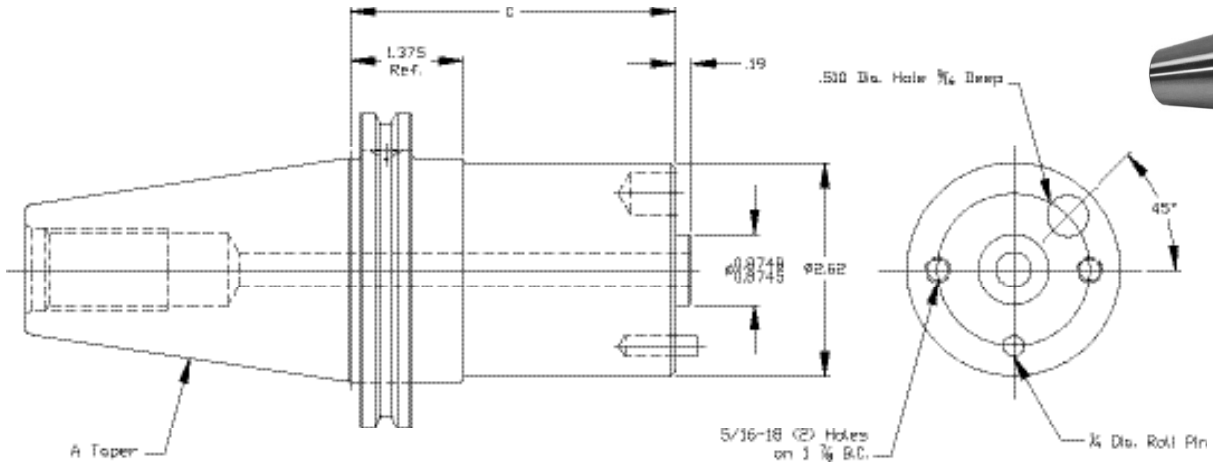
- Type ADE-1287
- ANSI B5.50 1994-AT3 Taper Tolerance
- Coolant thru



CAT40

Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000243	40CT ADE 1287 20 MTP	No. 40	4 lbs.	2.000	R500 Series Boring Rings
D0000246	40CT ADE 1287 40 MTP	No. 40	5 lbs.	4.000	





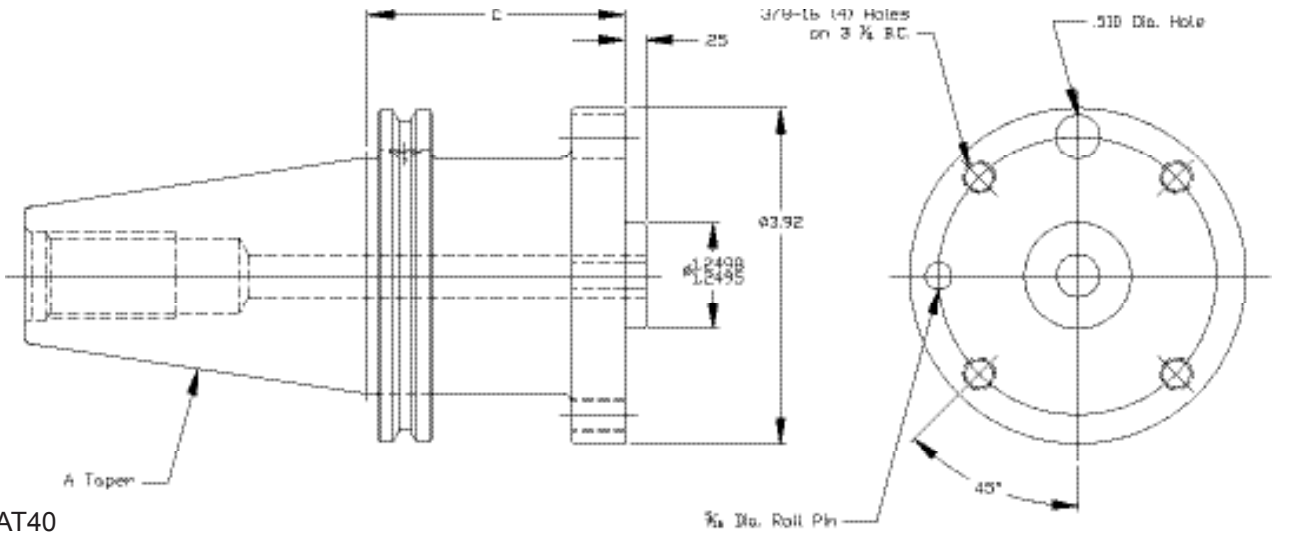
CAT50

Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000292	50CT ADE 1287 20 MTP	No. 50	9 lbs.	2.000	R500 Series Boring Rings
D0000294	50CT ADE 1287 30 MTP	No. 50	10 lbs.	3.000	
D0000296	50CT ADE 1287 40 MTP	No. 50	12 lbs.	4.000	
D0000300	50CT ADE 1287 50 MTP	No. 50	14 lbs.	5.000	
D0000302	50CT ADE 1287 60 MTP	No. 50	17 lbs.	6.000	
D0000306	50CT ADE 1287 80 MTP	No. 50	19 lbs.	8.000	

Boring Ring Adapters with CAT Shanks

- Type ADE-1412
- ANSI B5.50 1994-AT3 taper tolerance
- Coolant thru





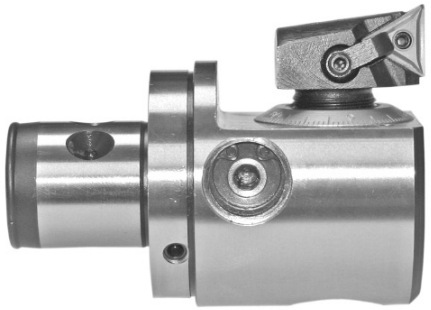
CAT40

Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000251	40CT ADE 1412 20 MTP	No. 40	5 lbs.	2.000	R100 Series Boring Rings
D0004819	40CT ADE 1412 30 MTP	No. 40	6 lbs.	3.000	
D0004814	40CT ADE 1412 40 MTP	No. 40	7 lbs.	4.000	
D0004804	40CT ADE 1412 50 MTP	No. 40	8 lbs.	5.000	

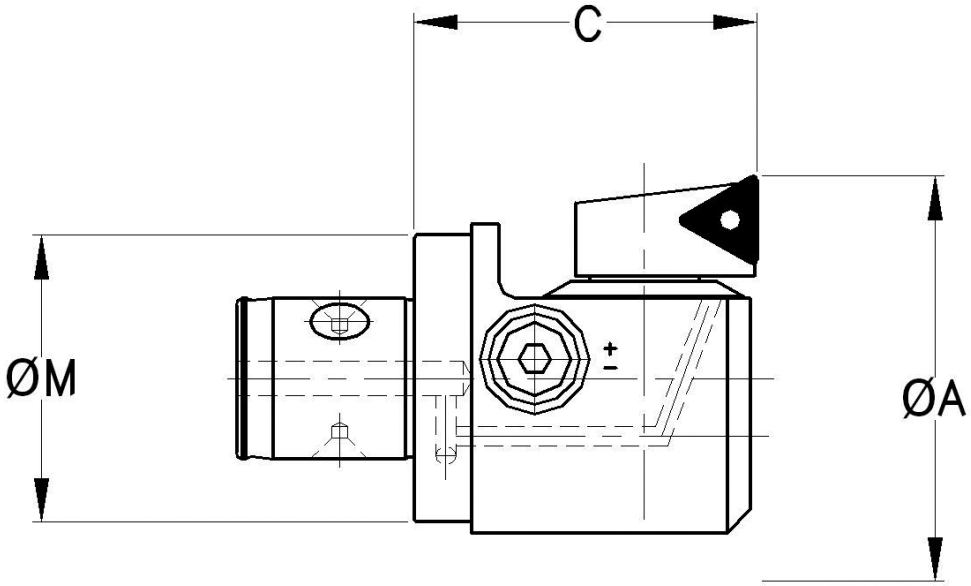
CAT50

Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000311	50CT ADE 1412 20 MTP	No. 50	11 lbs.	2.000	R100 Series Boring Rings
D0000313	50CT ADE 1412 30 MTP	No. 50	12 lbs.	3.000	
D0000315	50CT ADE 1412 40 MTP	No. 50	14 lbs.	4.000	
D0000319	50CT ADE 1412 50 MTP	No. 50	16 lbs.	5.000	
D0000321	50CT ADE 1412 60 MTP	No. 50	18 lbs.	6.000	
D0000325	50CT ADE 1412 80 MTP	No. 50	20 lbs.	8.000	

GA Boring Bar with #025 Mod-Flex Shanks
Single Tool Type - Straight Mount Size 2



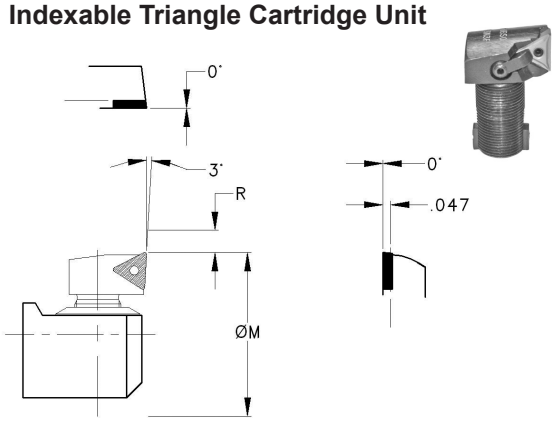
- Order cartridge unit and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru



Bore Range
0.97 - 1.35 [24.6mm - 34.29mm]

Part Number	Mod-Flex Size	Recommended Cartridge Unit	A Effective Bore Range	C	M	Weight lbs.	Ref. Wrench
025MFGAS09735	025	020BS093TC1NG	.97 - 1.08	3.54	.98	1.1	2842
025MFGAS10623			1.06 - 1.17	2.36	.98	.7	
025MFGAS11523			1.15 - 1.26	2.36	.98	.7	
025MFGAS12423			1.24 - 1.35	2.36	.98	.7	

Indexable Triangle Cartridge Unit



PART NUMBER	M	R
020BS093TC1NG	.97	.055

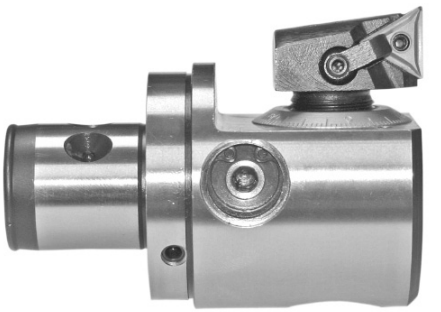
Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts
- #TCMT-1.2(1.2)0

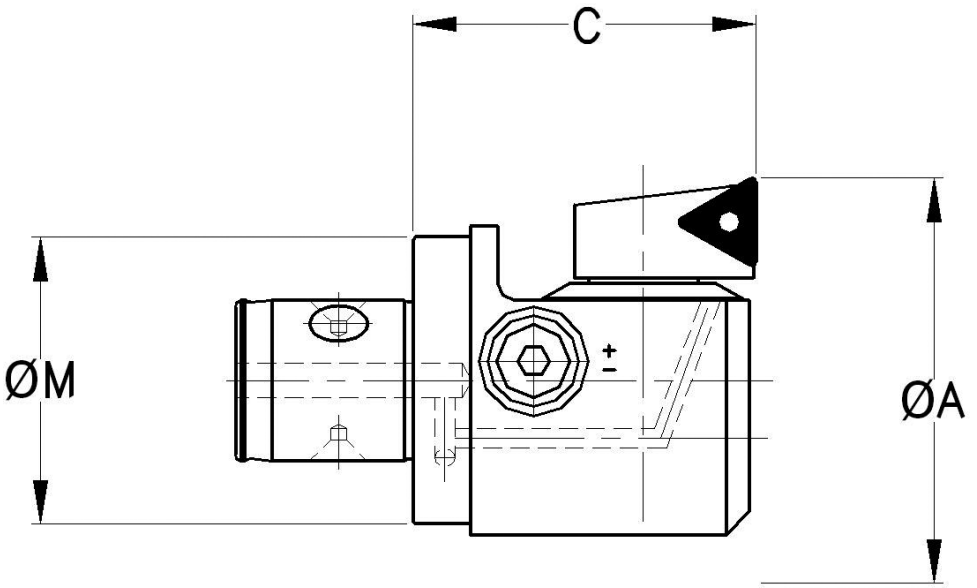
Cartridge Unit Parts
- Insert screw #S772
- Trapped GA dial #2805
- Spring washer #2303

Ref. Hardware Package
- 2805X3E

GA Boring Bar with Mod-Flex Shanks
Single Tool Type - Straight Mount Size 3



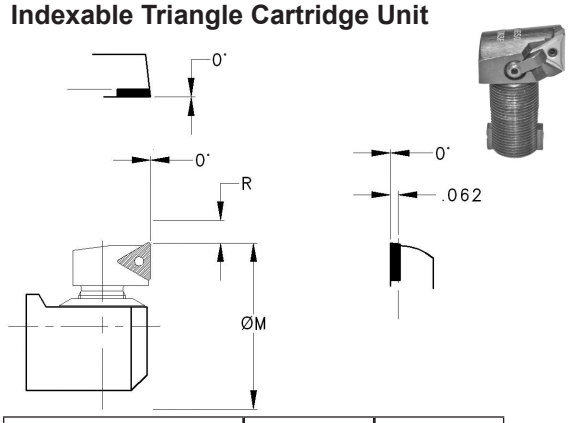
- Order cartridge unit and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru



Bore Range
1.33 - 2.11 [33.8mm - 53.5mm]

Part Number	Mod-Flex Size	Recommended Cartridge Unit	A Effective Bore Range	C	M	Weight lbs.	Ref. Wrench
025MFGAS13323	025	030BS090TC1NG	1.33 - 1.54	2.36	.98	.7	2842
032MFGAS15223	032		1.52 - 1.73		1.26	.9	
032MFGAS17123	032		1.71 - 1.92		1.26	.9	
040MFGAS19023	040		1.90 - 2.11		1.57	1.3	

Indexable Triangle Cartridge Unit



PART NUMBER	M	R
030BS090TC1NG	1.33	.105

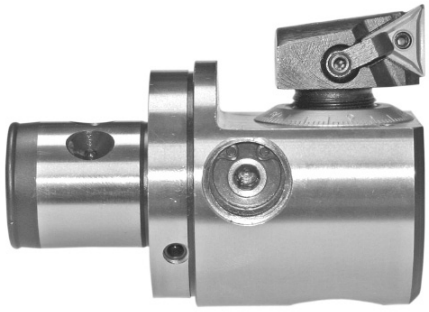
Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts
- #TCMT-1.21.21

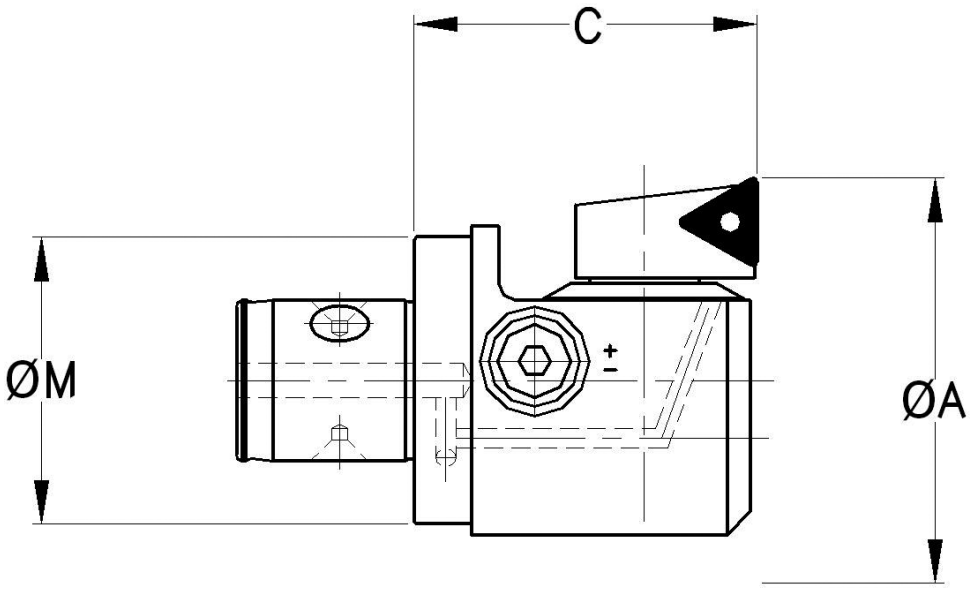
Cartridge Unit Parts
- Trapped GA dial #3805
- Spring washer #3303
- #8-32 x 5/8 Lg. flat head cap screw
- Insert screw #S772

Ref. Hardware Package
- 3303X3E

GA Boring Bar with Mod-Flex Shanks
Single Tool Type - Straight Mount Size 5



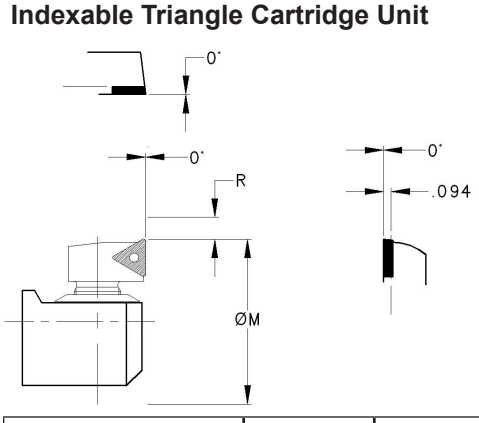
- Order cartridge unit and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru



Bore Range
2.09 - 2.80 [53.1mm - 71.1mm]

Part Number	Mod-Flex Size	Recommended Cartridge Unit	A Effective Bore Range	C	M	Weight lbs	Ref. Wrench
040MFGAS20923	040	050BS090TC2NG	2.09 - 2.34	2.36	1.57	1.3	5842
040MFGAS23223	040		2.32 - 2.57		1.57	1.3	
050MFGAS25523	050		2.55 - 2.80		1.97	2.4	

Indexable Triangle Cartridge Unit





PART NUMBER	M	R
050BS090TC2NG	2.09	.125

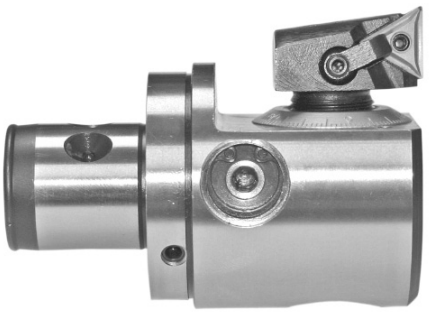
Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Recommended Inserts
- TCMT-21.51

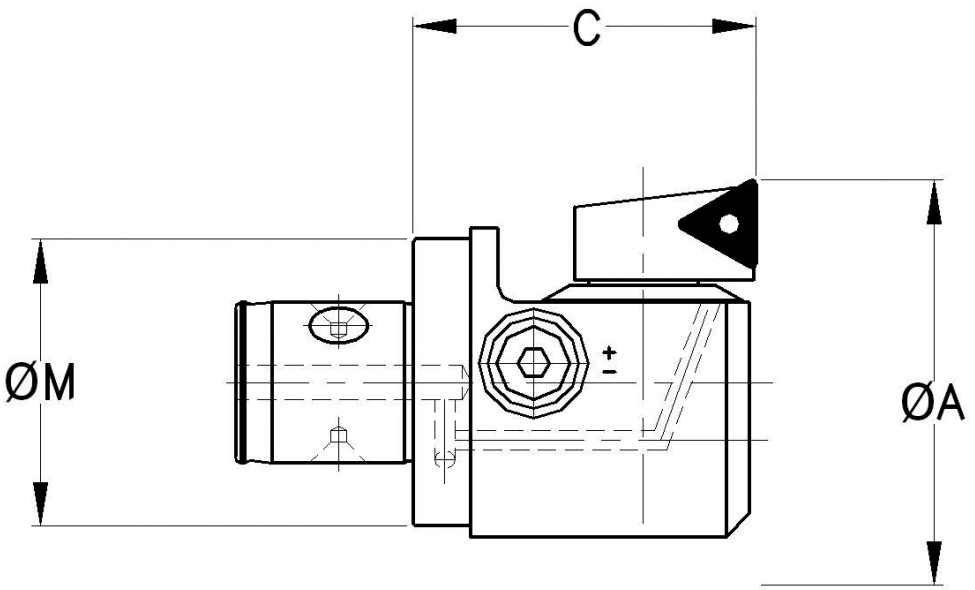
Cartridge Unit Parts
- GA Dial #5805
- Spring Washer #5303
- S120 Screw
- Insert screw #SP1910

Ref. Hardware Package
- 5805E3E

GA Boring Bar with #050 Mod-Flex Shanks
Single Tool Type - Straight Mount Size 7



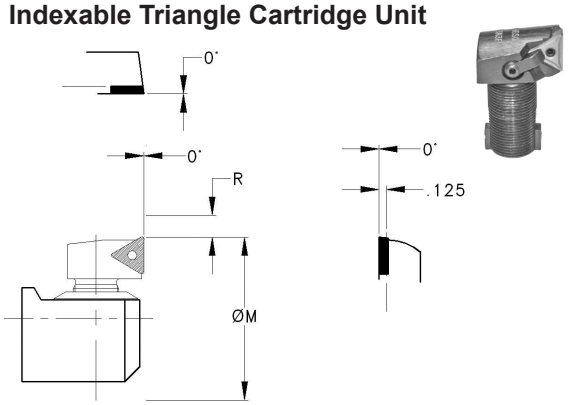
- Order cartridge unit and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- OthersShank styles available with Mod-Flex - See page #69
- Coolant thru



Bore Range
2.78 - 3.50 [70.6mm - 88.9mm]

Part Number	Mod-Flex Size	Recommended Cartridge Unit	A Effective Bore Range	C	M	Weight lbs	Ref. Wrench
050MFGAS27823	050	070BS090TC3NG	2.78 - 3.50	2.36	2.12	2.6	5842

Indexable Triangle Cartridge Unit



PART NUMBER	M	R
070BS090TC3NG	2.78	.36

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

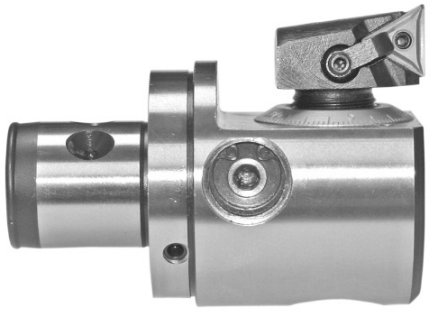
Recommended Inserts
- TCMT-32.52

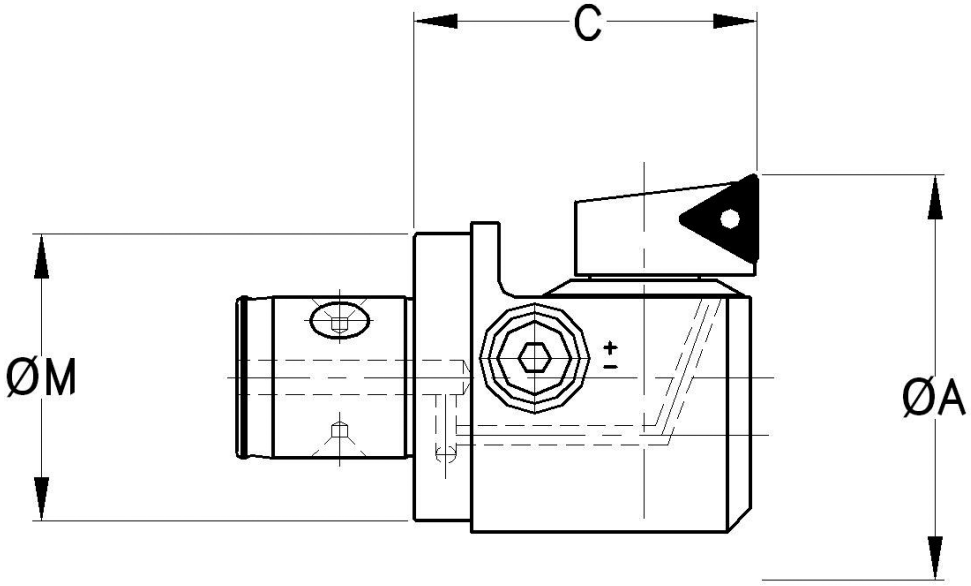
Cartridge Unit Parts
- GA Dial #7810
- Spring Washer #7303
- S131 Screw
- Insert screw #SP1911

Ref. Hardware Package
- 7810E3E

GA Boring Bar with #063 Mod-Flex Shanks
Single Tool Type - Straight Mount Size 10

- Order cartridge unit and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru

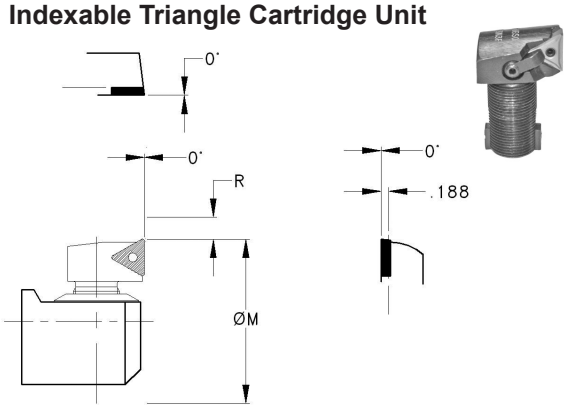




Bore Range
3.48 - 8.90 [88.4mm - 226.0mm]

Part Number	Mod-Flex Size	Recommended Cartridge Unit	A Effective Bore Range	C	M	Weight lbs	Ref. Wrench
063MFGAS34828	063	100BS090TC3NG	3.48 - 4.58	2.81	2.56	4.6	5842
063MFGAS45628			4.56 - 5.66			5.0	
063MFGAS56428			5.64 - 6.74			5.8	
063MFGAS67228			6.72 - 7.82			7.2	
063MFGAS78028			7.80 - 8.90			8.5	

Indexable Triangle Cartridge Unit



PART NUMBER	M	R
100BS090TC3NG	3.48	.55

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

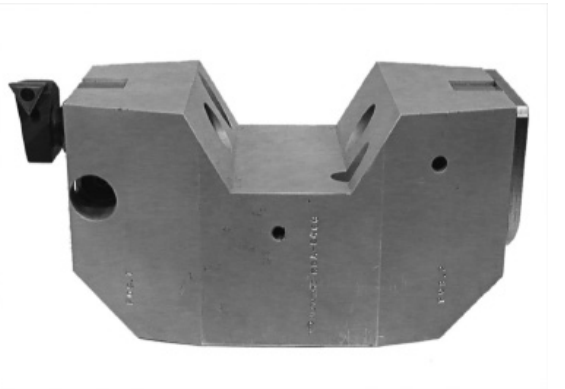
Recommended Inserts
- TCMT-32.52

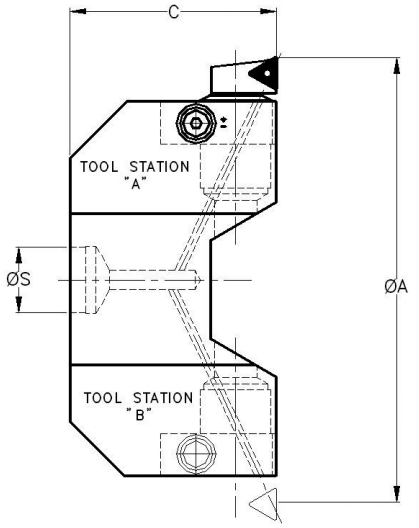
Cartridge Unit Parts
- GA dial #10810
- Spring washer #10303
- Screw #S142
- Insert screw #SP1911

Ref. Hardware Package
- 10810E3E

Gear Adjust Boring Rings
Double End Type - Straight Size 7
Bore Range 8.46 - 13.78 [214.9mm - 350.0mm]

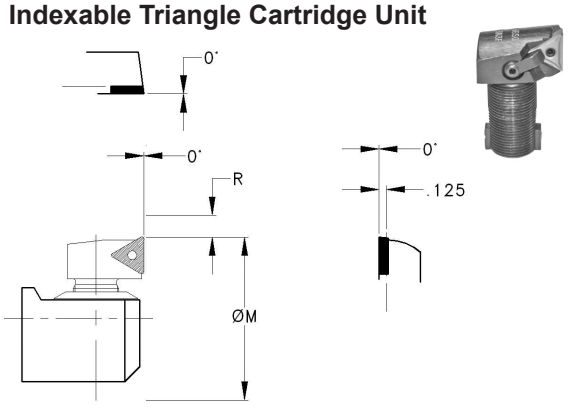
- Order cartridge unit and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- Aluminum body
- ADE-1412 Mod-flex adapter, Part #080MFADE1412 - See page #124
- ADE-1412 Cat V-Flange adapters - See page #126
- Bushing is removable (protective cover plate is furnished for second tool station.)
- Coolant thru





Part Number	Weight lbs	A Effective Bore Range	Tool Station	C	Recommended Cartridge Unit	Ref. Wrench	S For Use With Adapter Type
RGA846C	13.2	8.46 - 9.14	A	3.94	070BS090TC3NG	5842	ADE-1412
		9.14 - 9.82	B				
RGA978C	14.8	9.78 - 10.46	A				
		10.46 - 11.14	B				
RGA1110C	16.3	11.10 - 11.78	A				
		11.78 - 12.46	B				
RGA1242C	17.8	12.42 - 13.10	A				
		13.10 - 13.78	B				

Indexable Triangle Cartridge Unit



PART NUMBER	M	R
070BS090TC3NG	2.59	.34

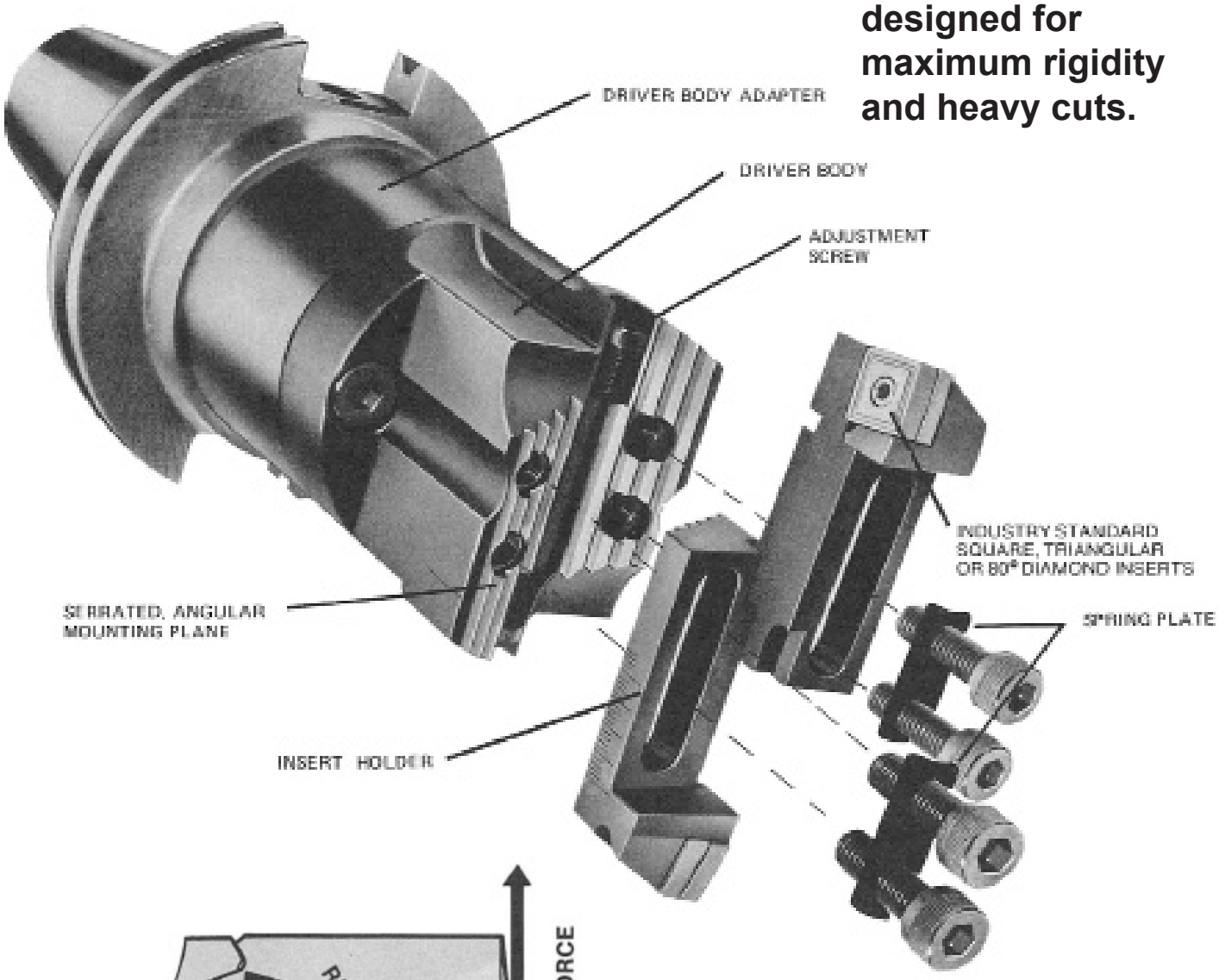
Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

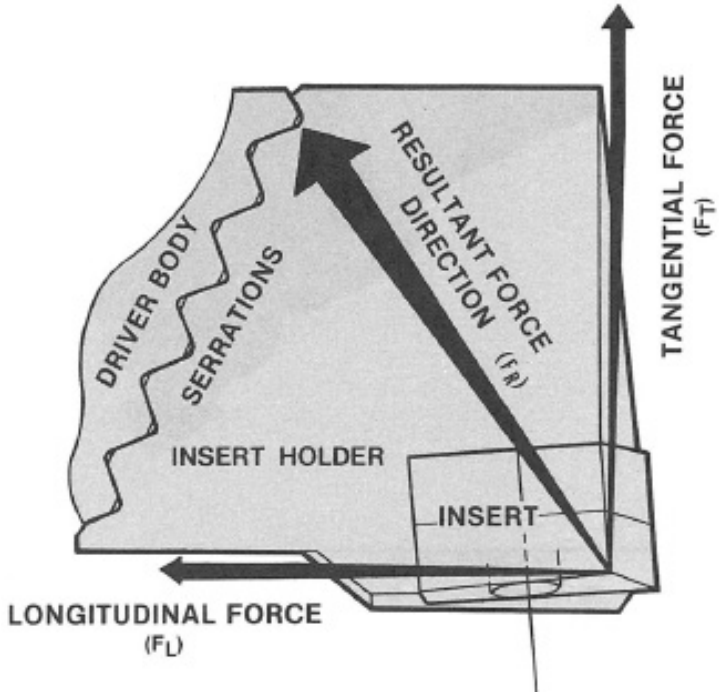
Recommended Inserts
- TCMT-32.52

Cartridge Unit Parts
- GA Dial #7810
- Spring Washer #7303
- S131 Screw
- Insert screw #SP1911

Ref. Hardware Package
- 7810E3E

Rugged, versatile Twinbore™ Tooling designed for maximum rigidity and heavy cuts.





Cutting forces absorbed

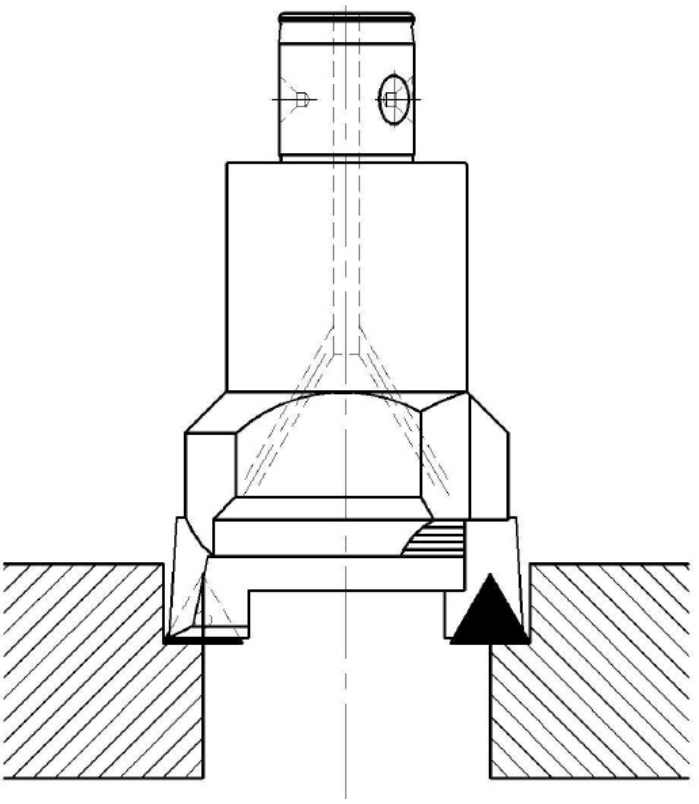
The drive body's angular serrations provide a solid, rigid surface to absorb the resultant cutting forces developed in normal rough machining.

Twinbore

Standard Boring

For Standard Boring arrangement two Standard Insert Holders are required and will setup to identical dimensions both radially and axially.

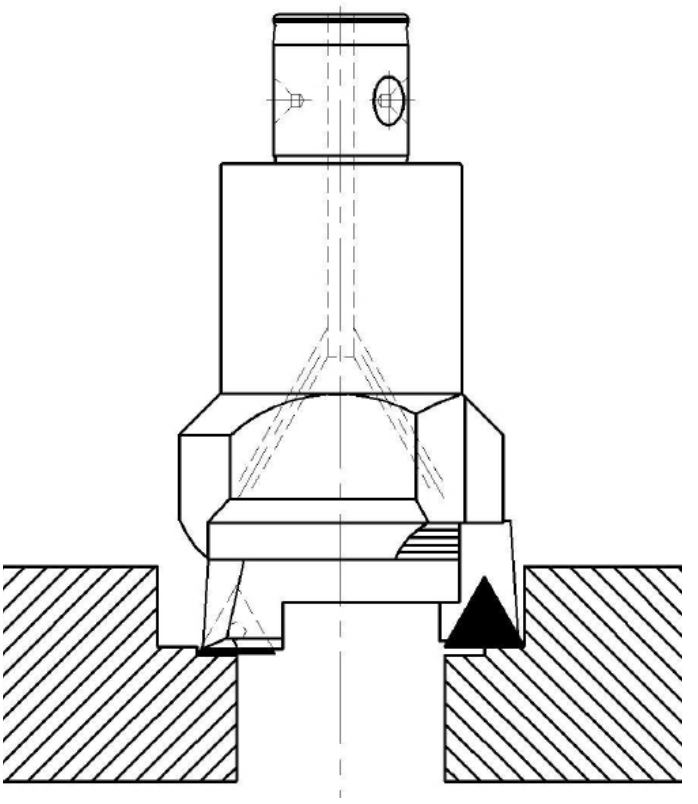
The insert holders can be set to cut the same diameter, which permits machining twice as fast as conventional boring. Diameter changes are quickly made by adjusting screws which provide lateral movement of the insert holder.



Step Boring

For Step Boring arrangement one Standard Insert Holder and one Step Insert Holder are required. The Step Boring Insert Holder will set up approximately 0.028” (0.70mm) behind the Standard (Lead) Insert Holder.

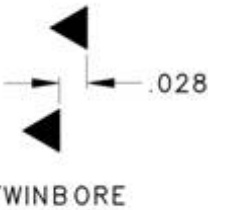
The leading insert cuts at one diameter and the following insert cuts a larger diameter.



Twinbore insert holders can be used in standard or step boring applications.

Example:
Standard boring - 2 Req’d MTP751TLZ

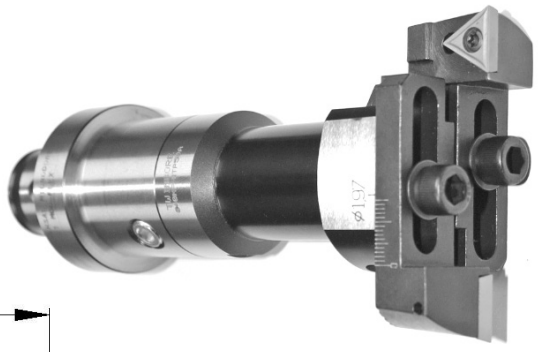
Step boring - 1 Req’d MTP751TLZ
- 1 Req’d MTP75107TLZ

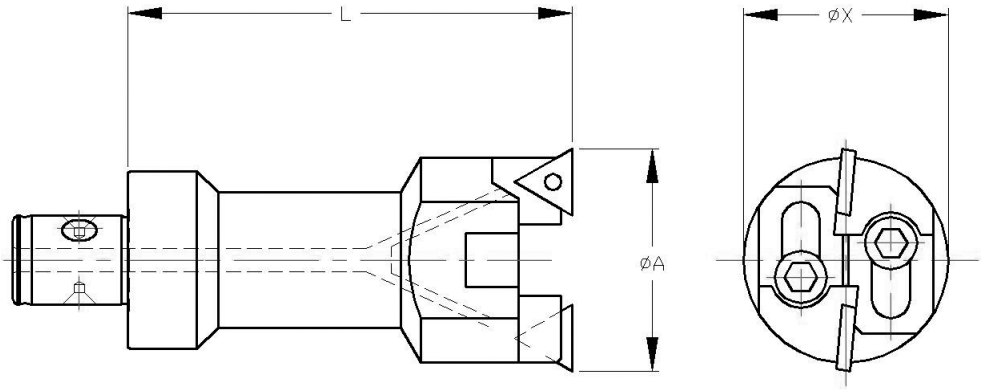


TWINBORE

Twinbore Mod-Flex Driver Bodies
Bore Range 1.10 - 1.40 [28.0mm - 35.5mm]

- Order insert holders separately
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru

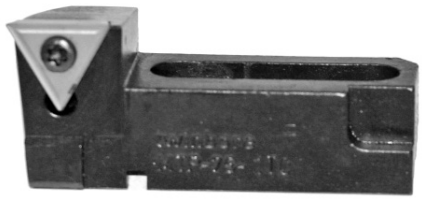




Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
025MFMTP28	025	1.10 - 1.40	3.94	1.02	.7	MTP28

Twinbore Insert Holders
Series MTP28

- Inserts not included



Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Fig. 1

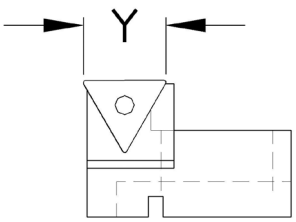
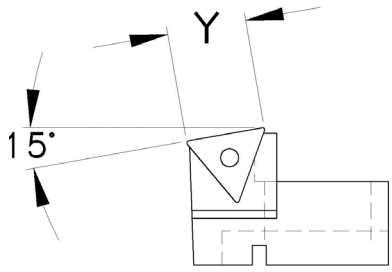


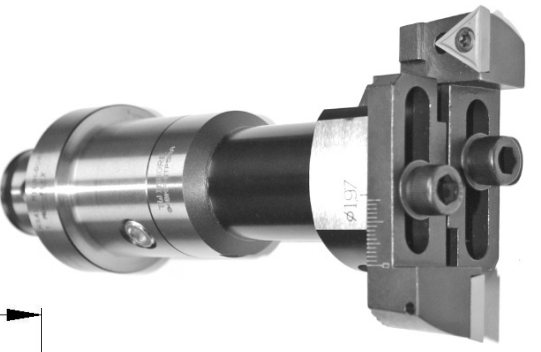
Fig. 2

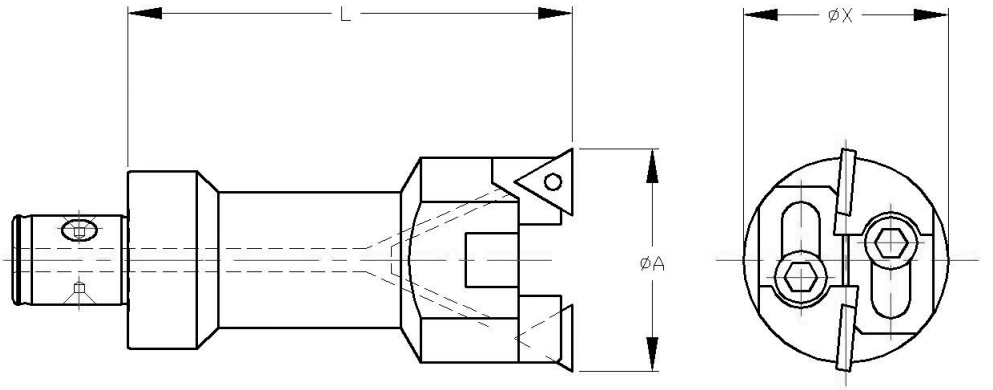


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP281TLZ	Standard	Neg. Rake	Pin Lock	0°	.43	1	TNMG -221
MTP28107TLZ	Stepped			0°		1	
MTP281TCZ	Standard	ISO 7°	Screw-On	0°		1	TCMG-21.51
MTP28107TCZ	Stepped			0°		1	
MTP281TC15Z	Lead Angle			15°		2	

Twinbore Mod-Flex Driver Bodies
Bore Range 1.40 - 1.97 [35.5mm - 50.0mm]

- Order insert holders separately
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru

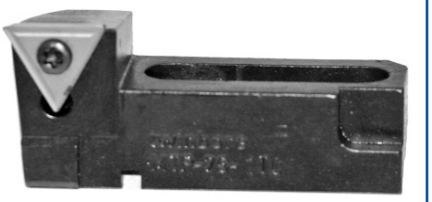




Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
032MFMTP36	032	1.40 - 1.97	3.94	1.30	0.9	MTP36

Twinbore Insert Holders
Series MTP36

- Inserts not included



Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Fig. 1

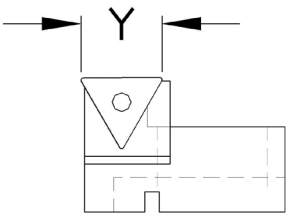
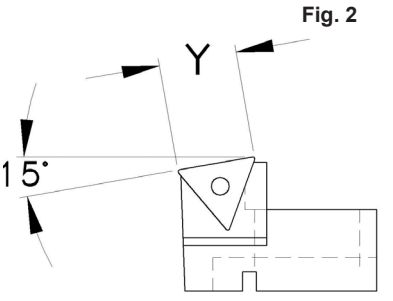


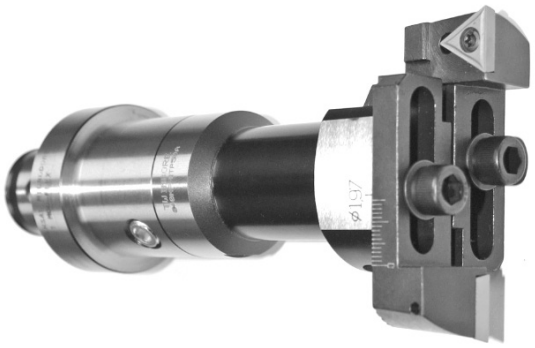
Fig. 2

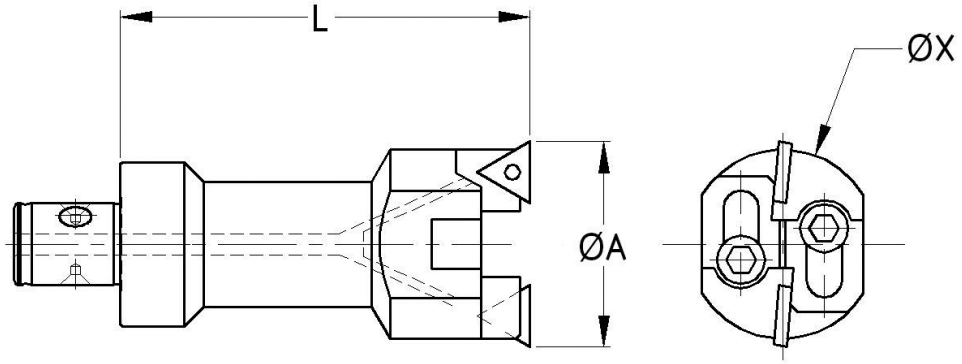


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP361TLZ	Standard	Neg. Rake	Pin Lock	0°	.43	1	TNMG -221
MTP36107TLZ	Stepped			0°		1	
MTP361TCZ	Standard	ISO 7°	Screw-On	0°		1	TCMG-21.51
MTP36107TCZ	Stepped			0°		1	
MTP361TC15Z	Lead Angle			15°		2	

Twinbore Mod-Flex Driver Bodies
Bore Range 1.97 - 3.00 [50.0mm - 76.2mm]

- Order insert holders separately
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru





Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
040MFMTP50	040	1.97 - 3.00	3.94	1.85	2.2	MTP50

Twinbore Insert Holders Series MTP50

- Inserts not included

Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

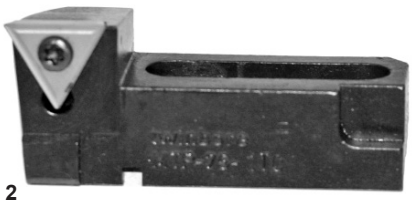


Fig. 1

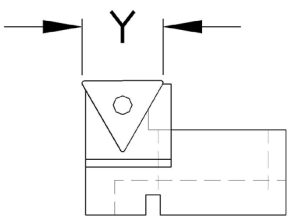


Fig. 2

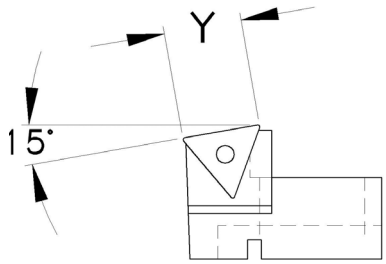
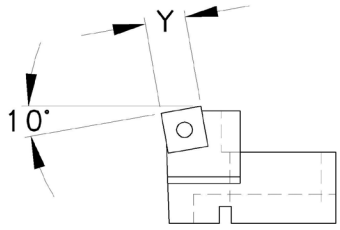


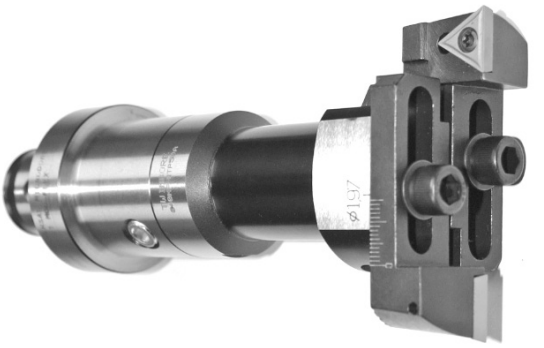
Fig. 3

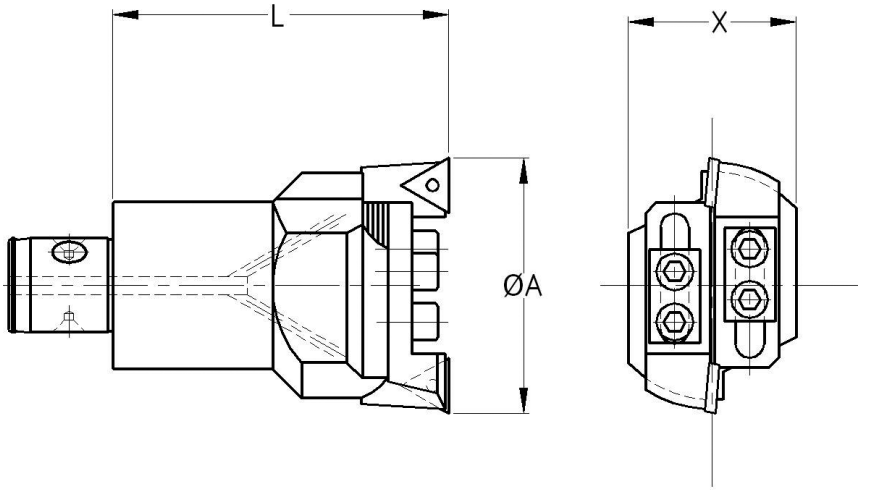


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP501TLZ	Standard	Neg. Rake	Pin Lock	0°	.65	1	TNMG-332
MTP50107TLZ	Stepped			0°	.65	1	
MTP501VLZ	Lead Angle			10°	.37	3	SNMG-322
MTP501TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP50107TCZ	Stepped			0°	.65	1	
MTP501TC15Z	Lead Angle			15°	.65	2	
MTP501SC10Z	Lead Angle			10°	.37	3	SCMG-32.52

Twinbore Mod-Flex Driver Bodies
Bore Range 3.00 - 5.31 [76.2mm - 134.8mm]

- Order insert holders separately
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru



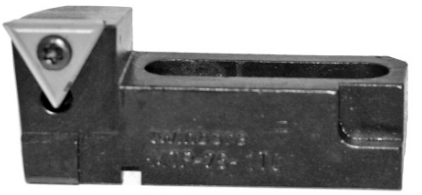


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
050MFMTP75	050	3.00 - 4.13	3.94	1.97	3.5	MTP75
063MFMTP105	063	4.13 - 5.31		2.48	4.9	

Twinbore Insert Holders Series MTP75

- Inserts not included

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.



Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Fig. 1

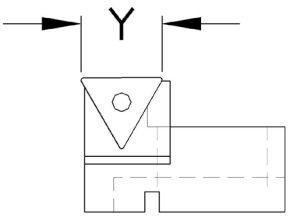


Fig. 2

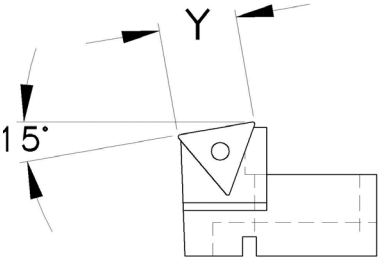
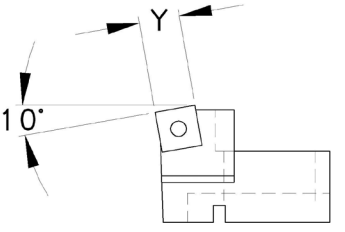


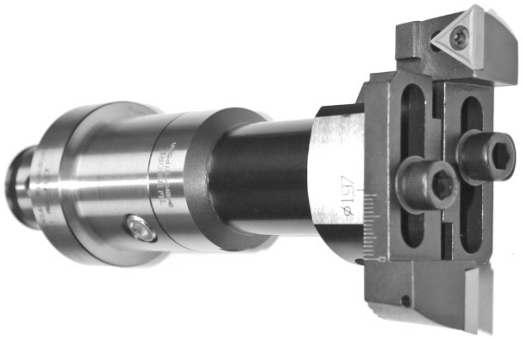
Fig. 3

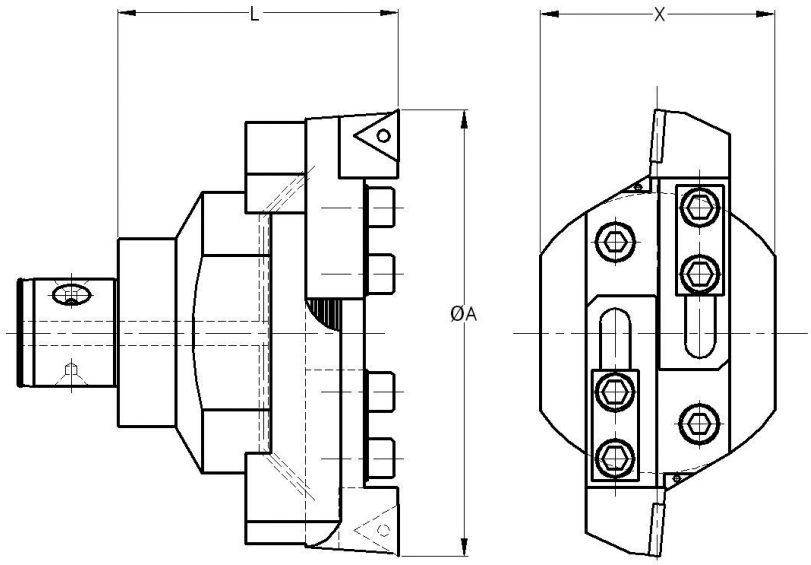


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP751TLZ	Standard	Neg. Rake	Pin Lock	0°	.65	1	TNMG-332
MTP75107TLZ	Stepped			0°	.65	1	
MTP751VLZ	Lead Angle			10°	.50	3	SNMG-432
MTP751TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP75107TCZ	Stepped			0°	.65	1	
MTP751TC15Z	Lead Angle			15°	.65	2	
MTP751SC10Z	Lead Angle			10°	.50	3	SCMG-432

Twinbore Mod-Flex Driver Bodies
Bore Range 5.31 - 14.00 [134.9mm - 355.6mm]

- Order insert holders separately
- Other Shank Styles available with Mod-Flex - See Page #69
- Coolant Thru





Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
080MFMTP135	080	5.31 - 7.50	3.94	3.15	8.1	MTP135
080MFMTP190		7.50 - 9.62	4.72	3.94	10.4	
080MFMTP245		9.62 - 11.81	4.72	3.94	11.9	
080MFMTP300		11.81 - 14.00	4.92	3.94	19.8	

Twinbore Insert Holders
Series MTP135

- Inserts not included

Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only.
Contact your distributor for the insert part number.

Fig. 1

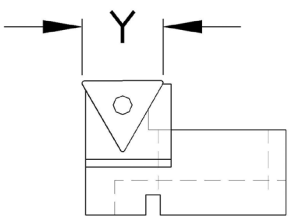


Fig. 2

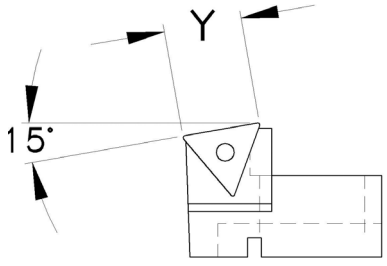
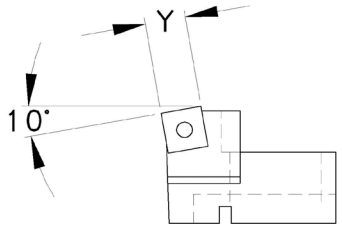


Fig. 3

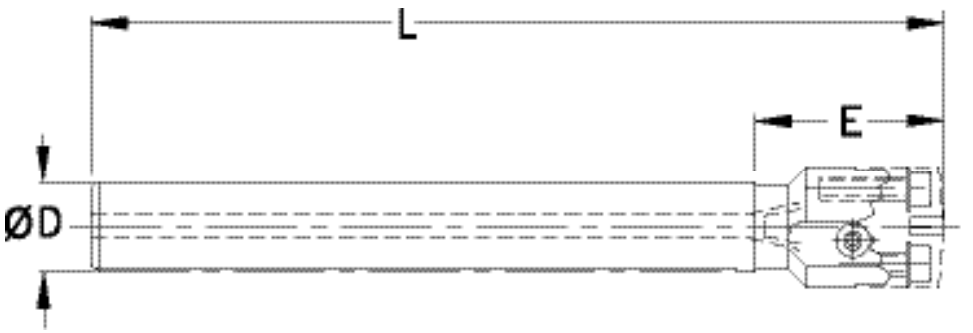


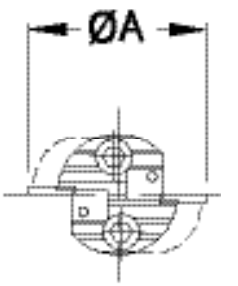


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP1351TLZ	Standard	Neg. Rake	Pin Lock	0°	.87	1	TNMG-432
MTP135107TLZ	Stepped			0°	.87	1	
MTP1351VLZ	Lead Angle			10°	.75	3	SNMG-643
MTP1351TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP135107TCZ	Stepped			0°	.65	1	
MTP1351TC15Z	Lead Angle			15°	.65	2	
MTP1351SC10Z	Lead Angle			10°	.62	3	SCMG-53.53

Twinbore Straight Shank Driver Bodies
Bore Range 1.10 - 1.40 [28.0mm - 35.5mm]

- Order insert holders separately
- For use with collet chuck adapter or end mill adapter
- Coolant thru

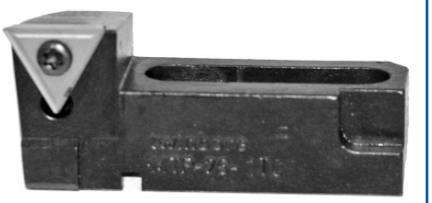




Part Number	A Boring Range	D	E	L	Weight Lbs.	Insert Holder Series
MTP28SS07C	1.10 - 1.40	.7495 / .7490	1.57	7.09	1	MTP28

Twinbore Insert Holders
Series MTP28

- Inserts not included



Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Fig. 1

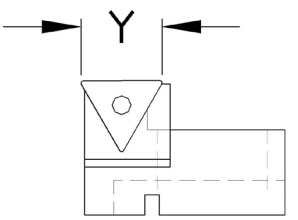
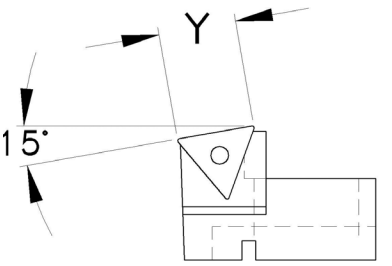


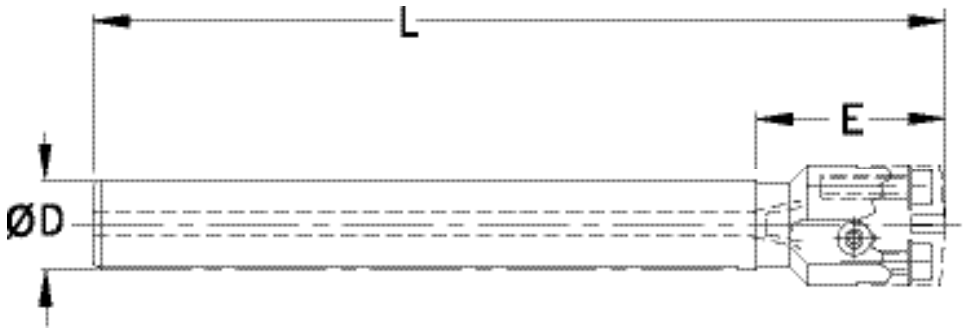
Fig. 2

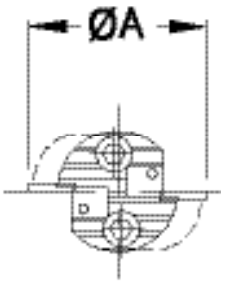


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP281TLZ	Standard	Neg. Rake	Pin Lock	0°	.43	1	TNMG -221
MTP28107TLZ	Stepped			0°		1	
MTP281TCZ	Standard	ISO 7°	Screw-On	0°		1	TCMG-21.51
MTP28107TCZ	Stepped			0°		1	
MTP281TC15Z	Lead Angle			15°		2	

Twinbore Straight Shank Driver Bodies
Bore Range 1.40 - 1.97 [35.5mm - 50.0mm]

- Order insert holders separately
- For use with collet chuck adapter or end mill adapter
- Coolant thru

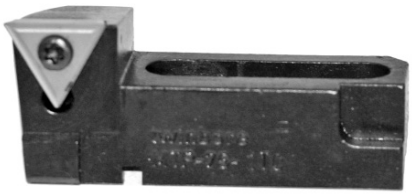




Part Number	A Boring Range	D	E	L	Weight Lbs.	Insert Holder Series
MTP36SS10C	1.40 - 1.97	.9995 / .9990	1.65	7.17	2	MTP36

Twinbore Insert Holders
Series MTP36

- Inserts not included



Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

Fig. 1

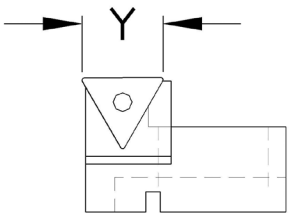
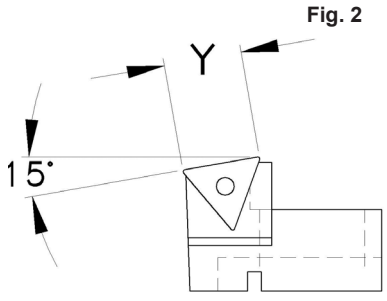


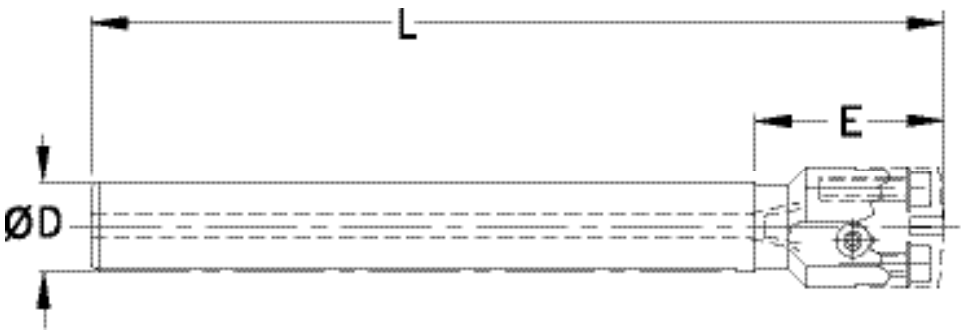
Fig. 2

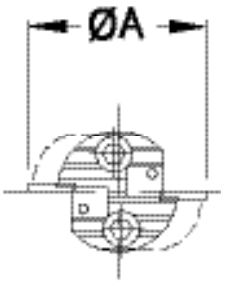


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP361TLZ	Standard	Neg. Rake	Pin Lock	0°	.43	1	TNMG -221
MTP36107TLZ	Stepped			0°		1	
MTP361TCZ	Standard	ISO 7°	Screw-On	0°		1	TCMG-21.51
MTP36107TCZ	Stepped			0°		1	
MTP361TC15Z	Lead Angle			15°		2	

Twinbore Straight Shank Driver Bodies
Bore Range 1.97 - 3.00 [50mm - 76.2mm]

- Order insert holders separately
- For use with collet chuck adapter or end mill adapter
- Coolant thru





Part Number	A Boring Range	D	E	L	Weight Lbs.	Insert Holder Series
MTP50SS12C	1.97 - 3.00	1.2495 / 1.2490	1.97	8.47	4	MTP50

Twinbore Insert Holders
Series MTP50

- Inserts not included

Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

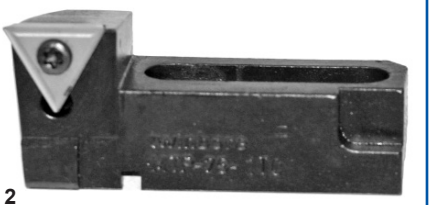
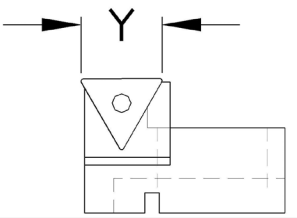


Fig. 2

Fig. 1



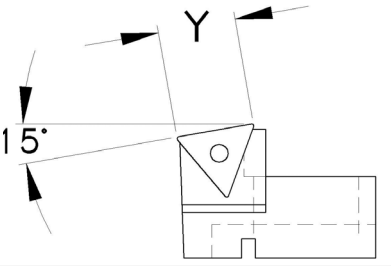
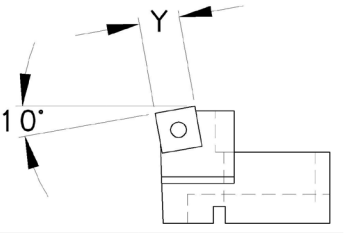


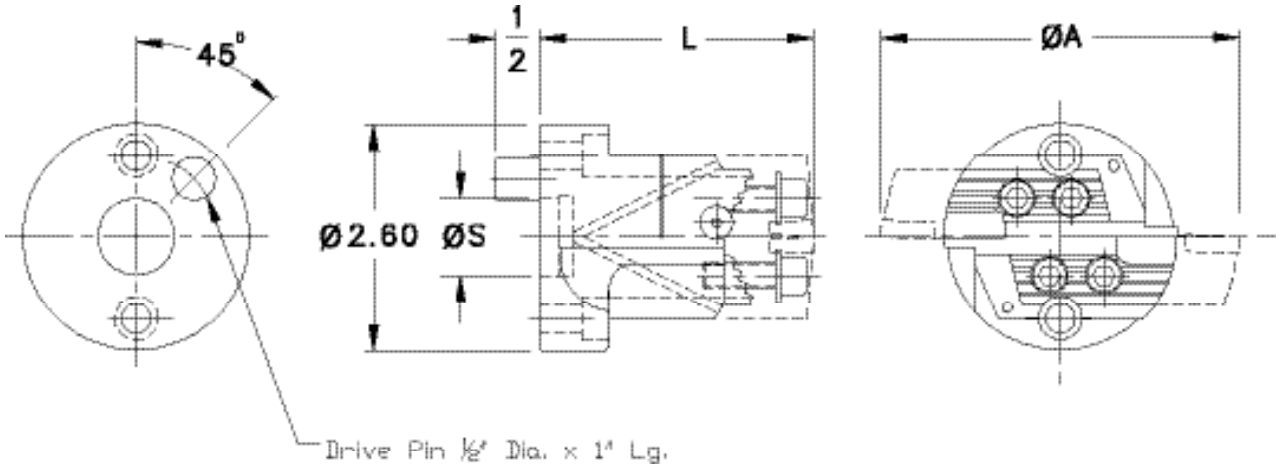
Fig. 3



Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP501TLZ	Standard	Neg. Rake	Pin Lock	0°	.65	1	TNMG-332
MTP50107TLZ	Stepped			0°	.65	1	
MTP501VLZ	Lead Angle			10°	.37	3	SNMG-322
MTP501TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP50107TCZ	Stepped			0°	.65	1	
MTP501TC15Z	Lead Angle			15°	.65	2	
MTP501SC10Z	Lead Angle			10°	.37	3	SCMG-32.52

Twinbore Pilot Mount Driver Bodies
Bore Range 3.00 - 5.31 [76.2mm - 134.9mm]

- Order insert holders separately
- Coolant thru
- ADE-1287 Cat V-Flange adapters - See page #153



Part Number	A Boring Range	L	Weight Lbs.	S For Use with Adapter Type	Insert Holder Series
MTP751287C	3.00 - 4.13	3.15	4	ADE-1287	MTP75
MTP1051287C	4.13 - 5.31	3.15	5	ADE-1287	

Twinbore Insert Holders Series MTP75

- Inserts not included

Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

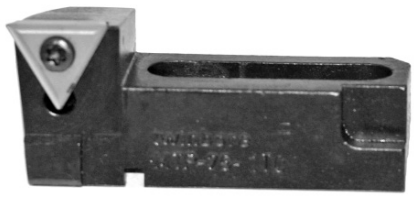


Fig. 1

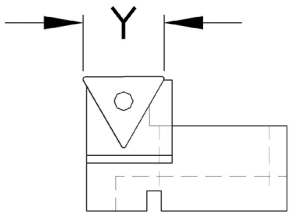


Fig. 2

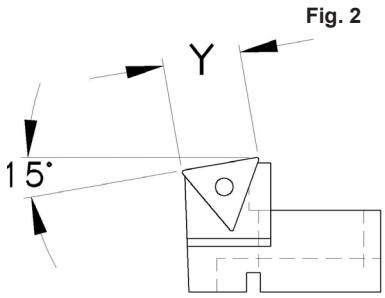
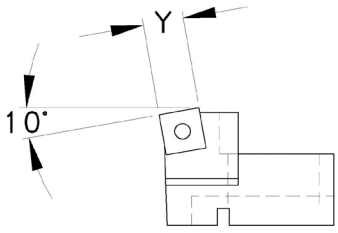


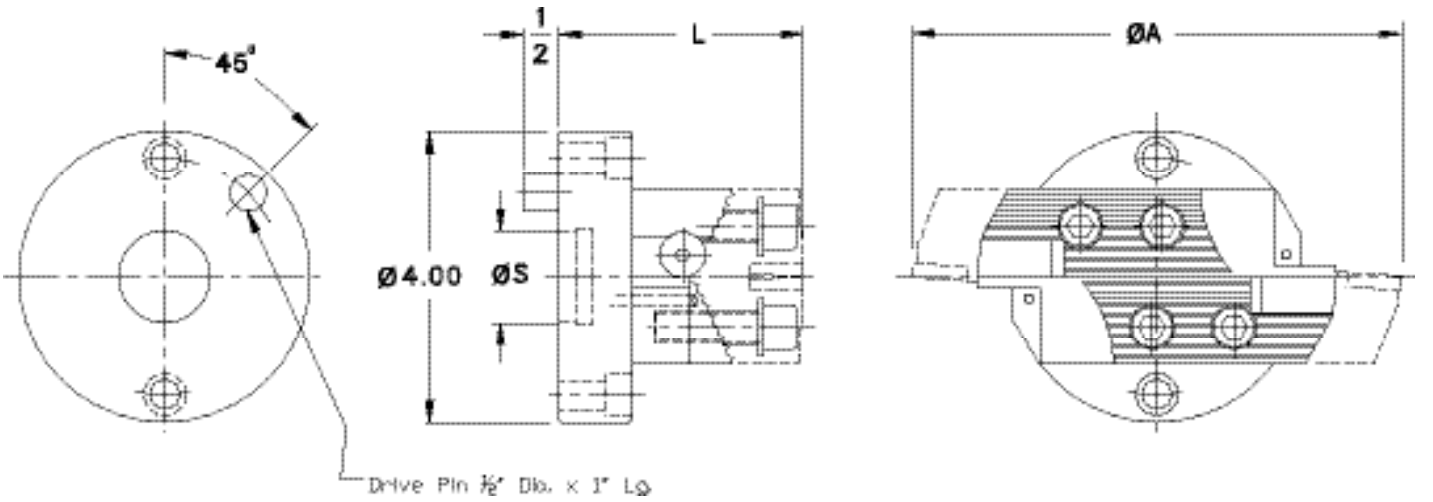
Fig. 3



Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP751TLZ	Standard	Neg. Rake	Pin Lock	0°	.65	1	TNMG-332
MTP75107TLZ	Stepped			0°	.65	1	
MTP751VLZ	Lead Angle			10°	.50	3	SNMG-432
MTP751TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP75107TCZ	Stepped			0°	.65	1	
MTP751TC15Z	Lead Angle			15°	.65	2	
MTP751SC10Z	Lead Angle			10°	.50	3	SCMG-432

Twinbore Pilot Mount Driver Bodies
Bore Range 5.31 - 7.50 [134.9mm - 190.5mm]

- Order insert holders separately
- Coolant thru
- ADE-1412 Cat V-Flange adapters - See page #154



Part Number	A Boring Range	L	Weight Lbs.	S For Use with Adapter Type	Insert Holder Series
MTP1351412C	5.31 - 7.50	3.35	13	ADE-1412	MTP135

Twinbore Insert Holders Series MTP135

- Inserts not included

Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only.
Contact your distributor for the insert part number.

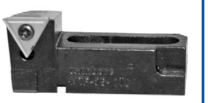

Fig. 3

Fig. 1

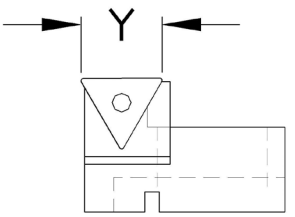
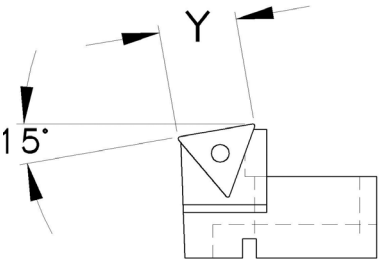
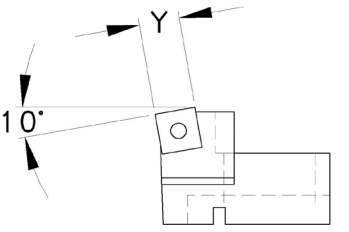


Fig. 2

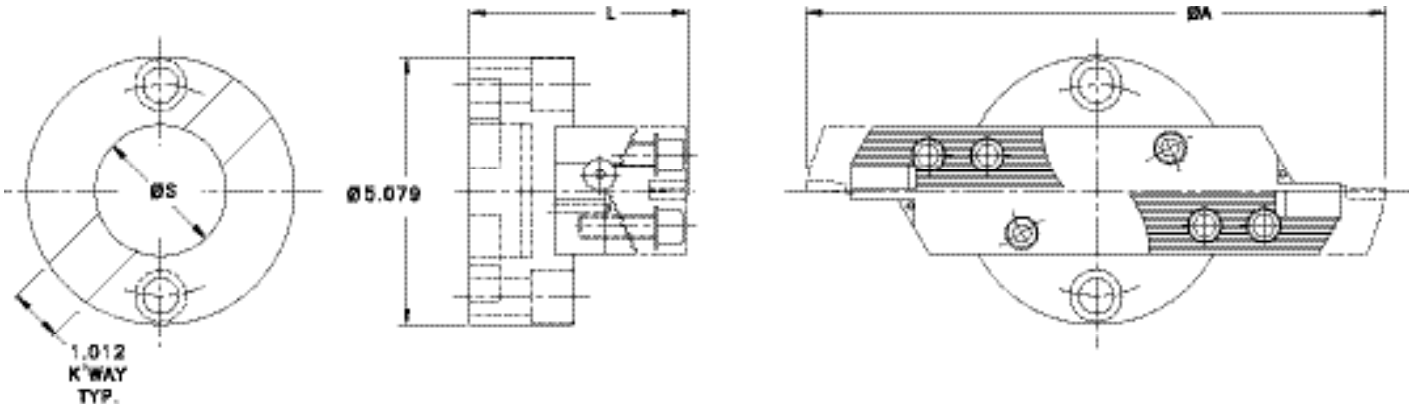




Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP1351TLZ	Standard	Neg. Rake	Pin Lock	0°	.87	1	TNMG-432
MTP135107TLZ	Stepped			0°	.87	1	
MTP1351VLZ	Lead Angle			10°	.75	3	SNMG-643
MTP1351TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP135107TCZ	Stepped			0°	.65	1	
MTP1351TC15Z	Lead Angle			15°	.65	2	
MTP1351SC10Z	Lead Angle			10°	.62	3	SCMG-53.53

Twinbore Pilot Mount Driver Bodies
Bore Range 7.50 - 14.00 [190.5mm - 355.6mm]

- Order insert holders separately
- Coolant thru
- F250 Cat V-Flange adapters - See page #155



Part Number	A Boring Range	L	Weight Lbs.	S For Use with Adapter Type	Insert Holder Series
MTP190F250C	7.50 - 9.62	4.13	13	F250	MTP135
MTP245F250C	9.62 - 11.81	4.13	16		
*MTP300F250C	11.81 - 14.00	4.33	19		

* Recommended only for mounting on size 50 taper or larger adapters

Twinbore Insert Holders
Series MTP135

- Inserts not included

Ordering:

- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

Note:
Recommended Inserts are for pocket configuration only.
Contact your distributor for the insert part number.

Fig. 1

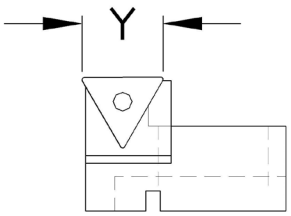


Fig. 2

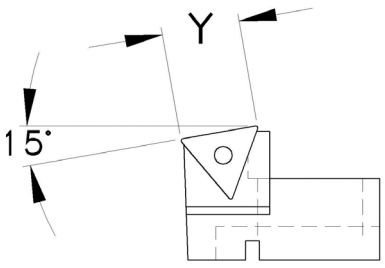
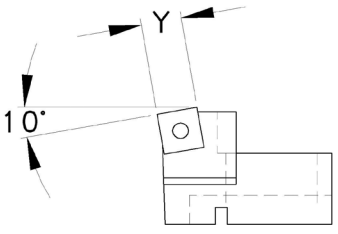


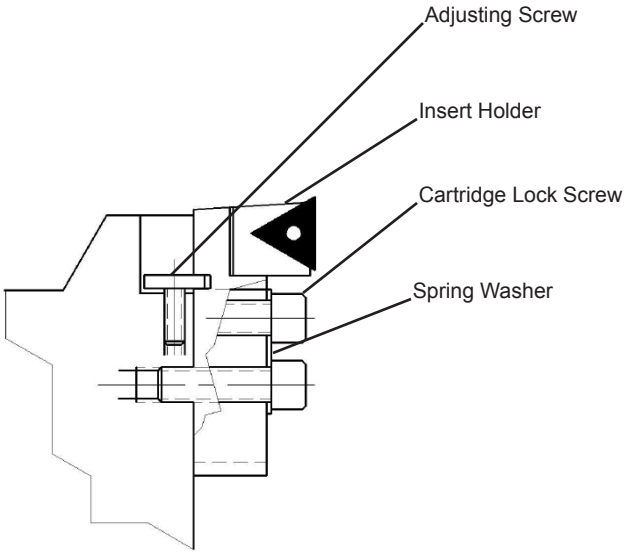
Fig. 3

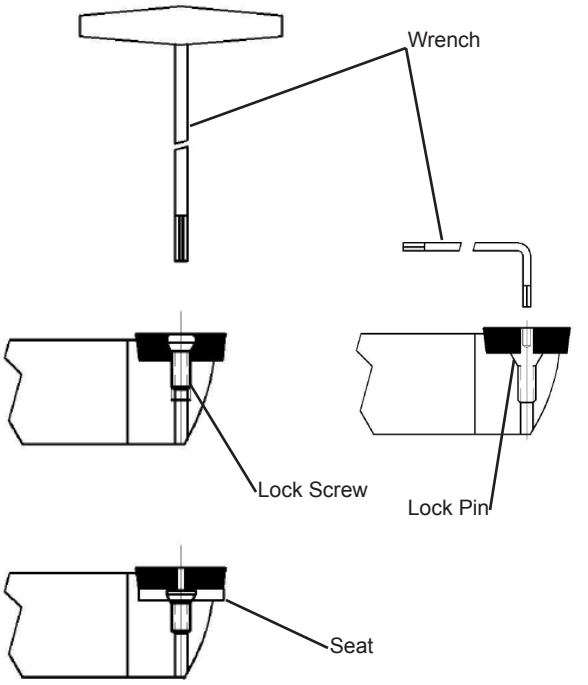




Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP1351TLZ	Standard	Neg. Rake	Pin Lock	0°	.87	1	TNMG-432
MTP135107TLZ	Stepped			0°	.87	1	
MTP1351VLZ	Lead Angle			10°	.75	3	SNMG-643
MTP1351TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP135107TCZ	Stepped			0°	.65	1	
MTP1351TC15Z	Lead Angle			15°	.65	2	
MTP1351SC10Z	Lead Angle			10°	.62	3	SCMG-53.53

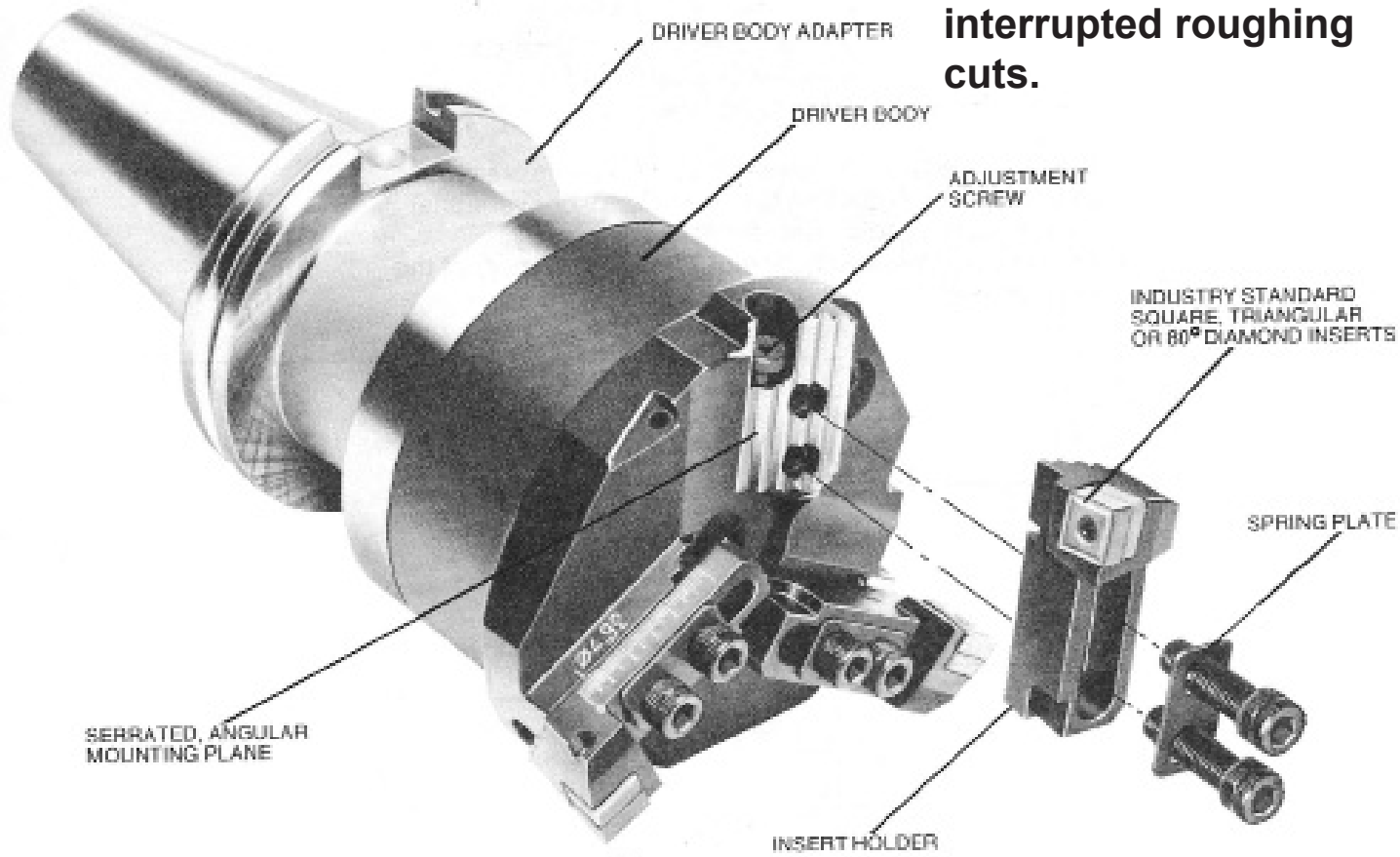
Twinbore / Tribore Components

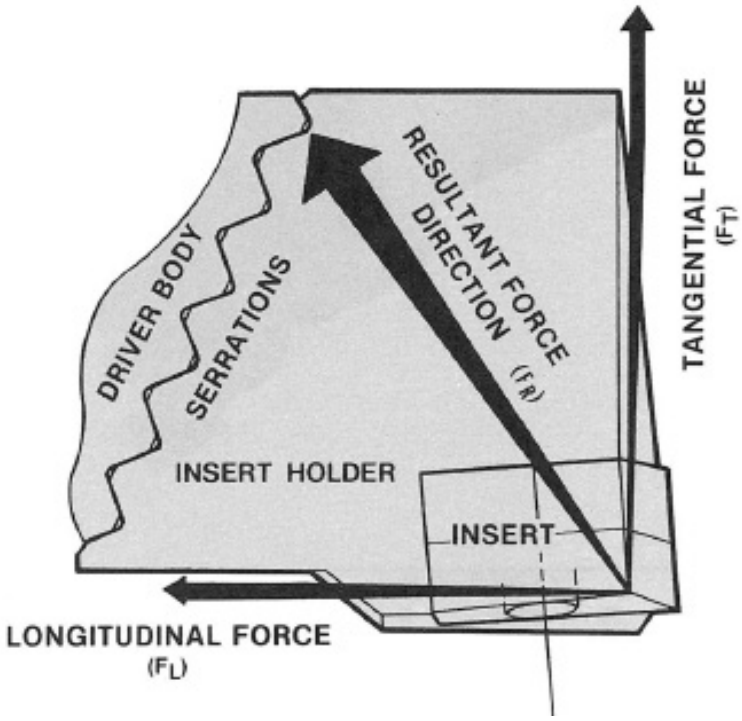




Twinbore / Tribore Ref. Driver Body Number	Insert Holder	Insert Lock Screw / Pin	Wrench	Seat	Adjusting Screw	Spring Washer	Cartridge Lock Screw
025MFMTP28 032MFMDP48 040MFMDP56 MTP28SS07C	MTP281TLZ	NL23	1/16 Hex.		MTP282	MTP2815	S507 #10-32x.75 Lg. S.H.C.S.
	MTP28107TLZ	NL23	1/16 Hex.				
	MTP281TCZ	551302003	T7				
	MTP28107TCZ	551302003	T7				
	MTP281TC15Z	551302002	T7				
032MFMTP36 040MFMDP64 MTP36SS10C	MTP361TLZ	NL23	1/16 Hex.		MTP282	MTP3615	S508 #1/4-28x.75 Lg. S.H.C.S.
	MTP36107TLZ	NL23	1/16 Hex.				
	MTP361TCZ	551302003	T7				
	MTP36107TCZ	551302003	T7				
	MTP361TC15Z	551302003	T7				
*040MFMTP50 **050MFMDP78 **063MFMDP100 *MTP50SS12C	MTP501TLZ	NL33L	5/64 Hex.		MTP502	MTP5015	*S509 5/16-24x.75 Lg. S.H.C.S.
	MTP50107TLZ	NL33L	5/64 Hex.				
	MTP501VLZ	NL34	5/64 Hex.				
	MTP501TCZ	551302001	T15				**S510 5/16-24x1.00 Lg. S.H.C.S.
	MTP50107TCZ	551302001	T15				
	MTP501TC15Z	551302001	T15				
	MTP501SC10Z	551302009	T15				
050MFMTP75 063MFMTP105 063MFMDP125 080MFMDP155 080MFMDP185 080MFMDP215 MTP751287C MTP1051287C	MTP751TLZ	NL34L	5/64 Hex.	ITSN322	MTP502	MTP7515	S510 5/16-24x1.00 Lg. S.H.C.S
	MTP75107TLZ	NL34L	5/64 Hex.	ITSN322			
	MTP751VLZ	NL46	3/32 Hex.	ISSN432			
	MTP751TCZ	551302001	T15				
	MTP75107TCZ	551302001	T15				
	MTP751TC15Z	551302001	T15				
	MTP751SC10Z	551302017	T15				
080MFMTP135 080MFMTP190 080MFMTP245 080MFMTP300 MTP1351412C MTP190F250C MTP245F250C MTP300F250C	MTP1351TLZ	NL46	3/32 Hex.	ITSN432	MTP1352	MTP13515	S511 7/16-20x1.75 Lg. S.H.C.S.
	MTP135107TLZ	NL46	3/32 Hex.	ITSN432			
	MTP1351VLZ	NL68	9/64 Hex.	ISSN633			
	MTP1351TCZ	551302001	T15				
	MTP135107TCZ	551302001	T15				
	MTP1351TC15Z	551302001	T15				
	MTP1351SC10Z	21480073	T15				

Tribore® Tooling designed for high horsepower maximum stock removal and interrupted roughing cuts.





Cutting forces absorbed

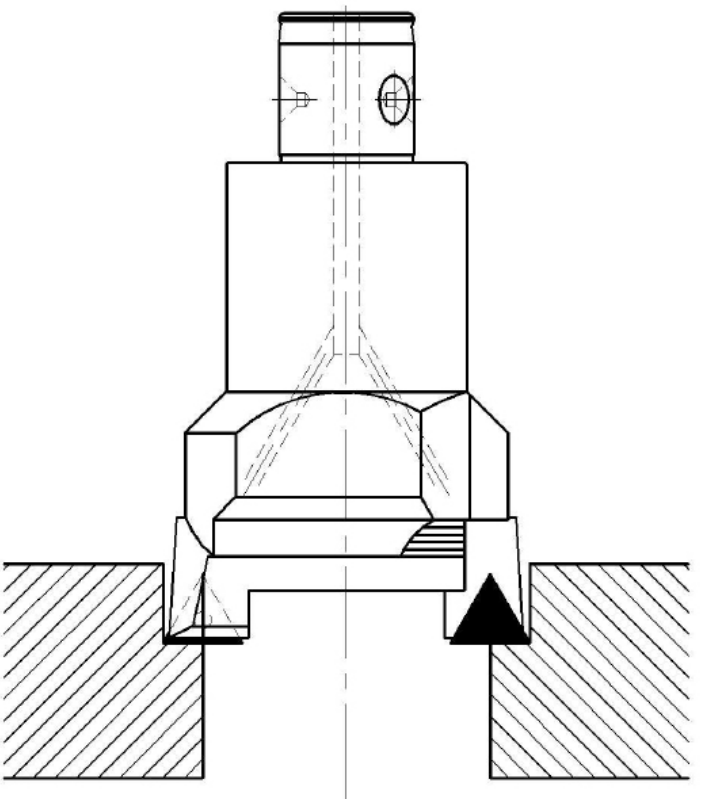
The drive body's angular serrations provide a solid, rigid surface to absorb the resultant cutting forces developed in normal rough machining.

Tribore

Standard Boring

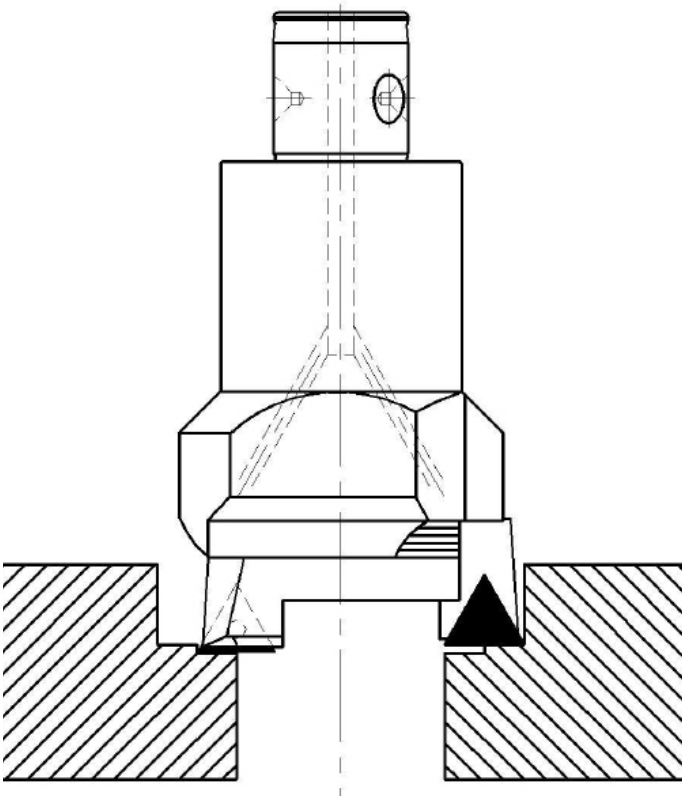
For Standard Boring arrangement three Standard Insert Holders are required and will setup to identical dimensions both radially and axially.

The insert holders can be set to cut the same diameter, which permits machining twice as fast as conventional boring. Diameter changes are quickly made by adjusting screws which provide lateral movement of the insert holder.



Step Boring

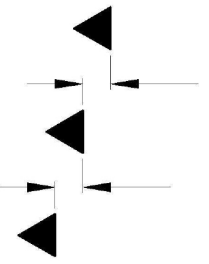
The Step Boring arrangement requires one Standard Insert Holder in position 1, a step bore holder in position 2, and a lead angle insert holder in position 3.



Tribore insert holders can be used in Standard or Step Boring applications.

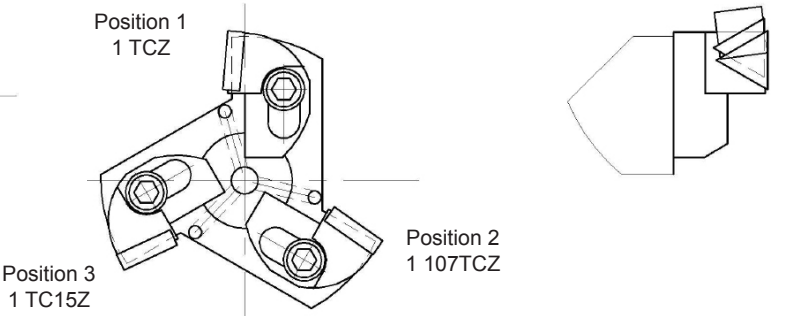
Example:
Standard Boring - 3 Req'd MTP751TCZ

Step Boring
- 1 Req'd MTP751TCZ
- 1 Req'd MTP75107TCZ
- 1 Req'd MTP751TC15Z



TRIBORE

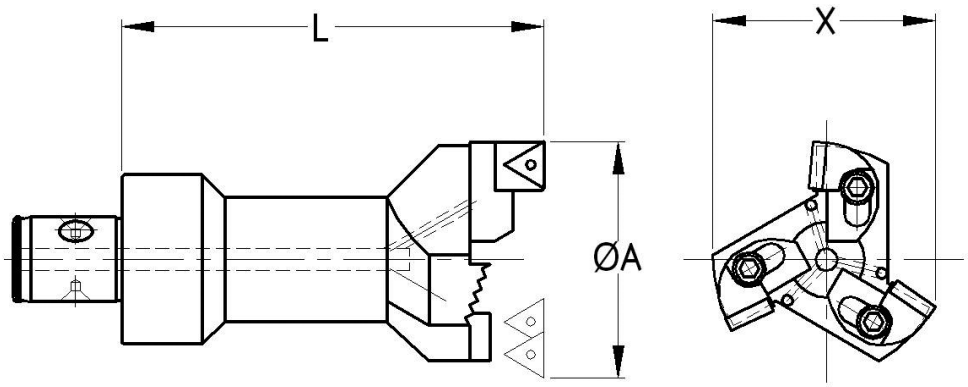
Tribore Insert Positions on Step Boring



Tribore Mod-Flex Driver Bodies
Bore Range 1.89 - 2.52 [48.0mm - 64.0mm]

- Order insert holders separately
- Other Shank Styles available with Mod-Flex - See Page #69
- Coolant Thru





Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
032MFMDP48	032	1.89 - 2.20	3.94	1.81	1.3	MTP28
040MFMDP56	040	2.20 - 2.52	3.94	2.12	2.0	

Tribore Insert Holders
Series MTP28

- Inserts not included

Ordering:

- Standard Boring
  - (3) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type
  - (1) TC15 Lead angle type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

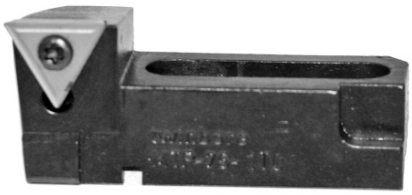


Fig. 1

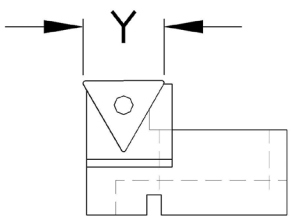
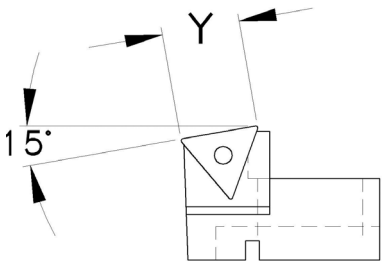


Fig. 2

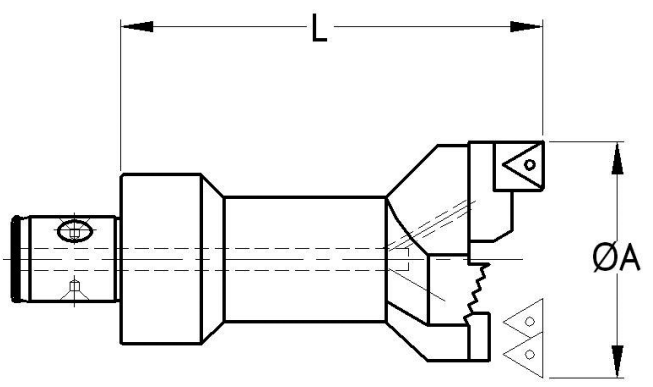


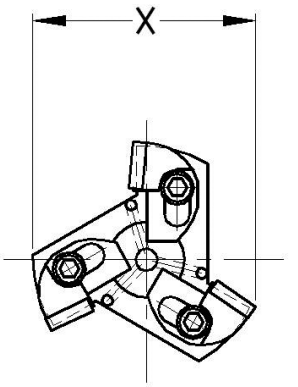
Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP281TLZ	Standard	Neg. Rake	Pin Lock	0°	.43	1	TNMG-221
MTP28107TLZ	Stepped			0°		1	
MTP281TCZ	Standard	ISO 7°	Screw-On	0°		1	TCMG-21.51
MTP28107TCZ	Stepped			0°		1	
MTP281TC15Z	Lead Angle			15°		2	

Tribore Mod-Flex Driver Bodies
Bore Range 2.52 - 3.07 [64.0mm - 78.0mm]

- Order insert holders separately
- Other Shank Styles available with Mod-Flex - See Page #69
- Coolant Thru







Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
040MFMDP64	040	2.52 - 3.07	3.94	2.40	2.2	MTP36

Tribore Insert Holders
Series MTP36

- Inserts not included

Ordering:

- Standard Boring
  - (3) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type
  - (1) TC15 Lead angle type

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

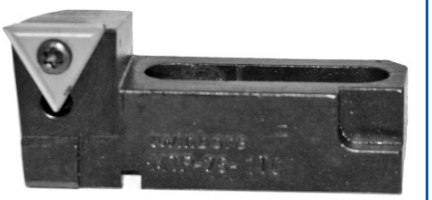


Fig. 1

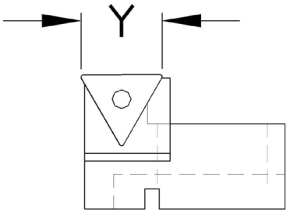
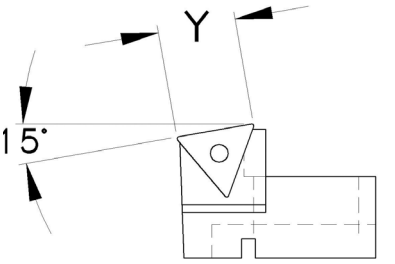


Fig. 2

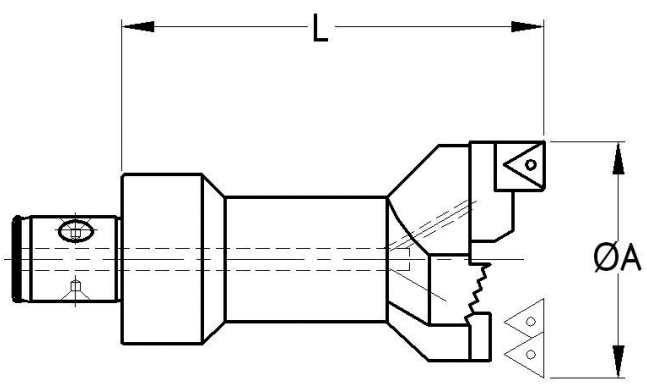


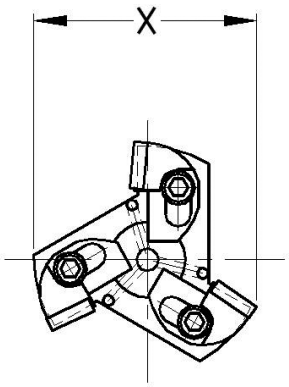
Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP361TLZ	Standard	Neg. Rake	Pin Lock	0°	0.43	1	TNMG-221
MTP36107TLZ	Stepped			0°		1	
MTP361TCZ	Standard	ISO 7°	Screw-On	0°		1	TCMG-21.51
MTP36107TCZ	Stepped			0°		1	
MTP361TC15Z	Lead Angle			15°		2	

Tribore Mod-Flex Driver Bodies
Bore Range 3.07 - 4.92 [78.0mm - 125.0mm]

- Order insert holders separately
- Other Shank Styles available with Mod-Flex - See Page #69
- Coolant Thru





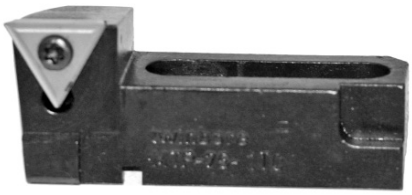


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
050MFMDP78	050	3.07 - 3.94	3.94	2.83	3.1	MTP50
063MFMDP100	063	3.94 - 4.92	3.94	3.82	6.0	

Tribore Insert Holders
Series MTP50

- Inserts not included

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.



Ordering:

- Standard Boring
  - (3) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type
  - (1) Lead angle type

Fig. 1

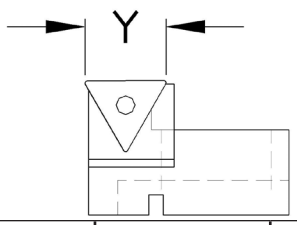


Fig. 2

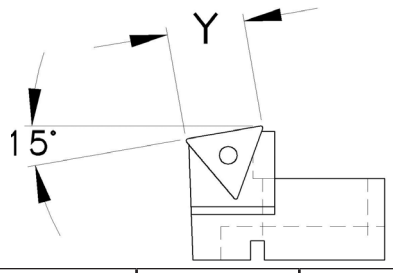
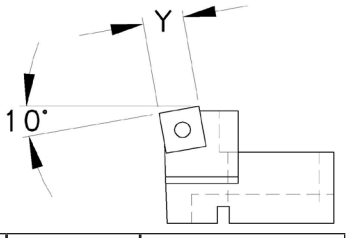


Fig. 3

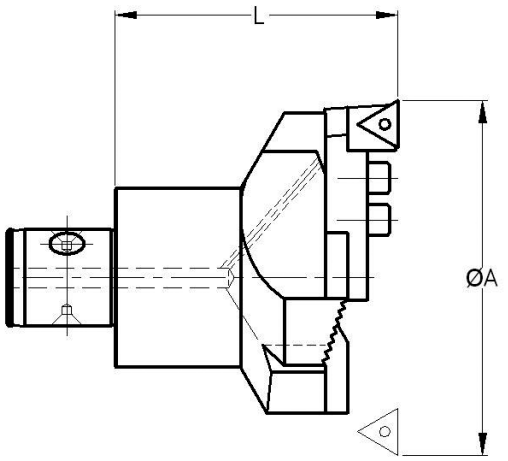


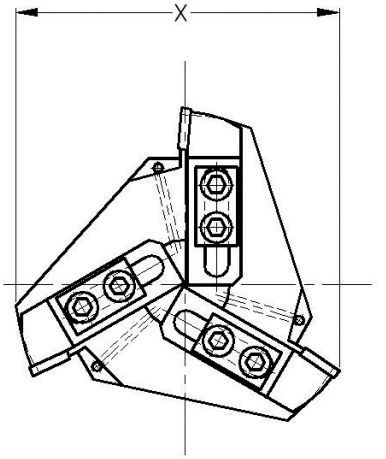
Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP501TLZ	Standard	Neg. Rake	Pin Lock	0°	.65	1	TNMG-332
MTP50107TLZ	Stepped			0°	.65	1	
MTP501VLZ	Lead Angle			10°	.37	3	SNMG-322
MTP501TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP50107TCZ	Stepped			0°	.65	1	
MTP501TC15Z	Lead Angle			15°	.65	2	
MTP501SC10Z	Lead Angle			10°	.37	3	SCMG-32.52

Tribore Mod-Flex Driver Bodies
Bore Range 4.92 - 9.65 [125.0mm - 245.1mm]

- Order insert holders separately
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru





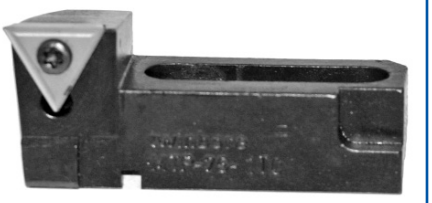


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
063MFMDP125	063	4.92 - 6.10	3.94	4.64	8.2	MTP75
080MFMDP155	080	6.10 - 7.28		5.82	9.9	
080MFMDP185	080	7.28 - 8.47		7.00	11.2	
080MFMDP215	080	8.47 - 9.65		8.19	21.3	

Tribore Insert Holders
Series MTP75

- Inserts not included

Note:
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.



Ordering:

- Standard Boring
  - (3) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type
  - (1) Lead Angle type

Fig. 1

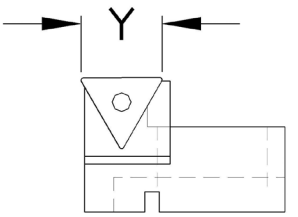


Fig. 2

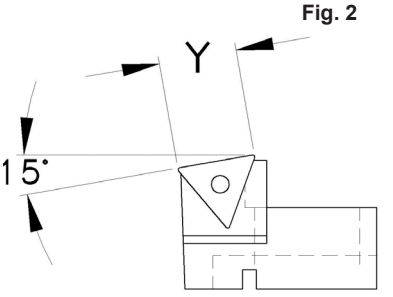
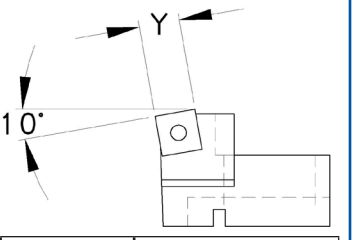


Fig. 3

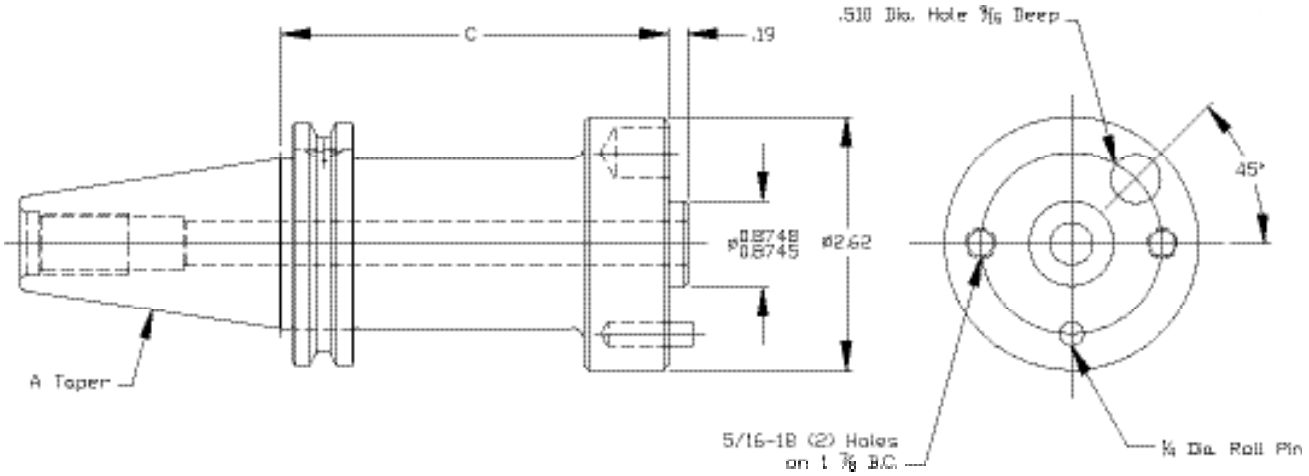


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP751TLZ	Standard	Neg. Rake	Pin Lock	0°	.65	1	TNMG-332
MTP75107TLZ	Stepped			0°	.65	1	
MTP751VLZ	Lead Angle			10°	.50	3	SNMG-432
MTP751TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP75107TCZ	Stepped			0°	.65	1	
MTP751TC15Z	Lead Angle			15°	.65	2	
MTP751SC10Z	Lead Angle			10°	.50	3	SCMG-432

Driver Body Adapters with CAT Shanks



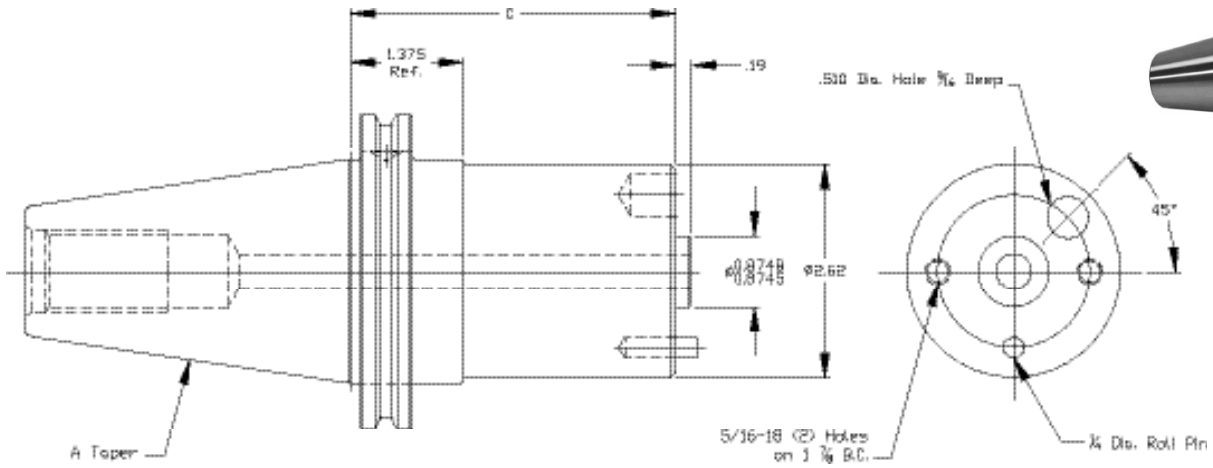
- Type ADE-1287
- ANSI B5.50 1994-AT3 Taper Tolerance
- Coolant thru



CAT40

Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000243	40CT ADE 1287 20 MTP	No. 40	4 lbs.	2.000	MTP751287C, MTP1051287C Driver Bodies
D0000246	40CT ADE 1287 40 MTP	No. 40	5 lbs.	4.000	





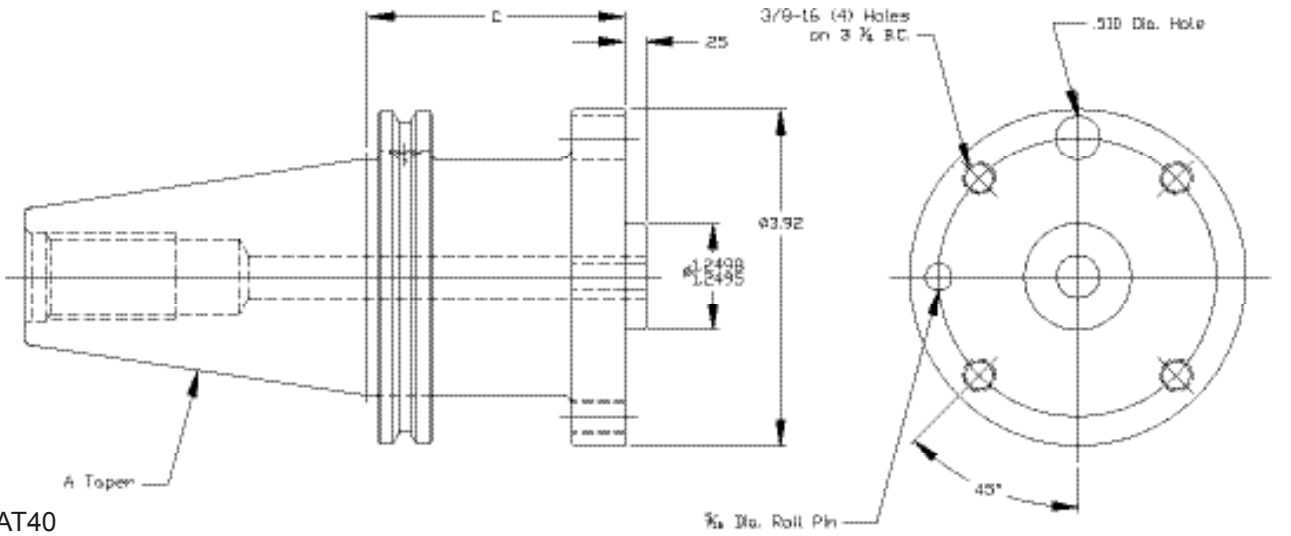
CAT50

Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000292	50CT ADE 1287 20 MTP	No. 50	9 lbs.	2.000	MTP751287C, MTP1051287C Driver Bodies
D0000294	50CT ADE 1287 30 MTP	No. 50	10 lbs.	3.000	
D0000296	50CT ADE 1287 40 MTP	No. 50	12 lbs.	4.000	
D0000300	50CT ADE 1287 50 MTP	No. 50	14 lbs.	5.000	
D0000302	50CT ADE 1287 60 MTP	No. 50	17 lbs.	6.000	
D0000306	50CT ADE 1287 80 MTP	No. 50	19 lbs.	8.000	

Driver Body Adapters with CAT Shanks

- Type ADE-1412
- ANSI B5.50 1994-AT3 taper tolerance
- Coolant thru





CAT40

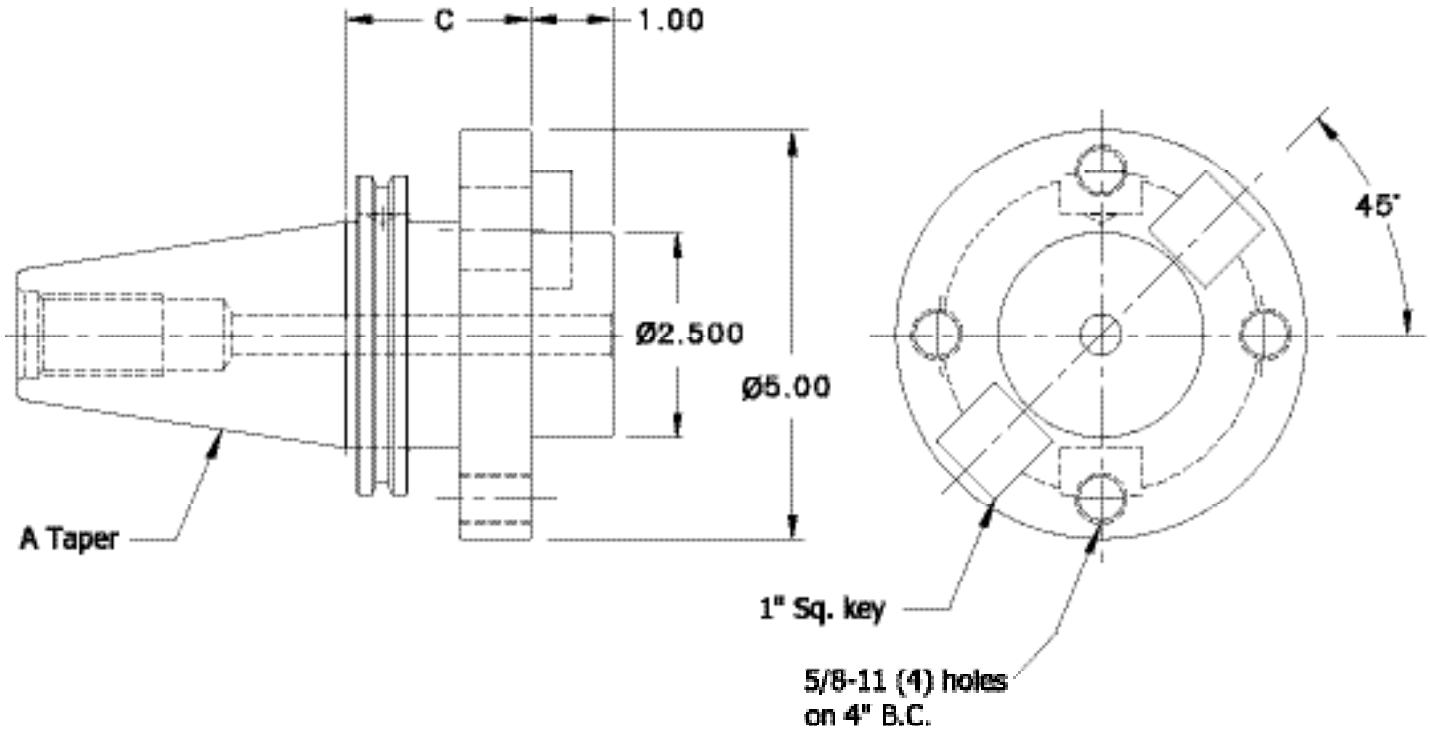
Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000251	40CT ADE 1412 20 MTP	No. 40	5 lbs.	2.000	MTP1351412C Driver Bodies
D0004819	40CT ADE 1412 30 MTP	No. 40	6 lbs.	3.000	
D0004814	40CT ADE 1412 40 MTP	No. 40	7 lbs.	4.000	
D0004804	40CT ADE 1412 50 MTP	No. 40	8 lbs.	5.000	

CAT50

Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000311	50CT ADE 1412 20 MTP	No. 50	11 lbs.	2.000	MTP1351412C Driver Bodies
D0000313	50CT ADE 1412 30 MTP	No. 50	12 lbs.	3.000	
D0000315	50CT ADE 1412 40 MTP	No. 50	14 lbs.	4.000	
D0000319	50CT ADE 1412 50 MTP	No. 50	16 lbs.	5.000	
D0000321	50CT ADE 1412 60 MTP	No. 50	18 lbs.	6.000	
D0000325	50CT ADE 1412 80 MTP	No. 50	20 lbs.	8.000	

Driver Body Adapters with CAT Shanks

- Type F250
- ANSI B5.50 1994-AT3 taper tolerance
- Coolant thru



CAT50

Part No.	A Taper	C	Approx. Weight	For Use With
50CTF250	50	2.250	15 lbs.	MTP190F250C, MTP245F250C, MTP300F250C Driver Bodies
50CTF25060	50	6.000	22 lbs.	

Kwik-Switch® Master Holders
- Spindles
- R8
- NMTB (Milling Machine)
- Morse Taper
- Morse Taper with Keeper Key
- CAT40 and CAT50



Pages 157-160

Kwik-Switch® Collet Chucks
- Acura-Flex® Collet Chucks
- Acura-Flex® Collet Chucks with Chips Shields for Automotive
- ER Collet Chucks



Pages 161-163

Kwik-Switch® Modular Adapters
- Mod-Flex Adapter Shank

Page 164

Kwik-Switch® Mill Adapters
- End Mill Adapters
- Shell Mill Adapters



Pages 165-166

Kwik-Switch® Adapters
- Morse Taper Adapters
- Jacobs Taper Adapters
- Quick Change Tension & Compression Tap Chucks
- Acura-Tap® Tension & Compression Tap Chucks



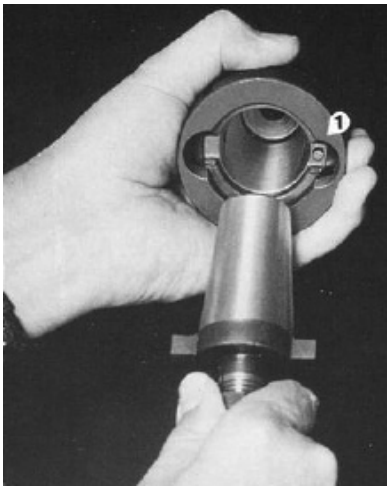
Pages 167-170

Kwik-Switch® Parts & Accessories
- Kwik-Switch® Replacement Nuts
- Repair Kits
- Wrenches
- Locking Fixtures



Page 171

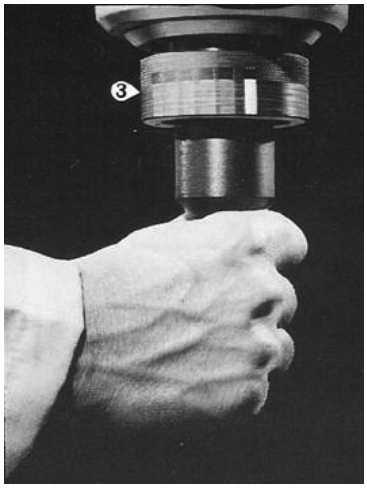
The Kwik-Switch® II Automatic Locking Principle



As the holder locknut is opened, coil springs are compressed. When the open position is reached, a mechanical latch holds the nut open. This latch is operated by a trigger pin (1).



The trigger pin is depressed by one of the tool adapters lugs (2) as the adapter is inserted into the spindle socket. When the trigger pin is depressed, it releases the compression springs.



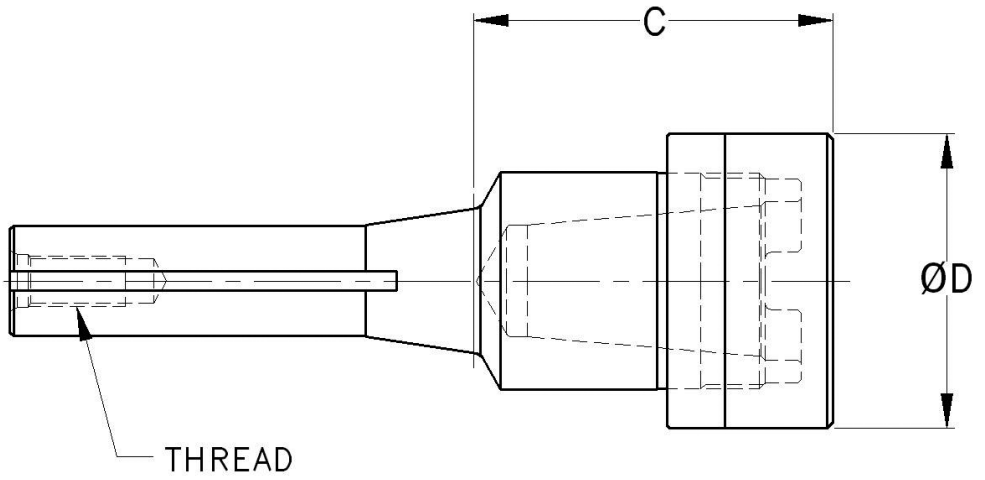
This causes the spindle nut to rotate (3) which draws the tool adapter up into the locking angle tapered socket. Since locking force are always present, the nut continues to tighten under load.

Universal Kwik-Switch® II Spindles are available to retrofit many machines.
Please consult with our engineering department for the correct cross over. Universal spindles include the spindle shaft and the Kwik-Switch® II nut. Bearings, spacers, locknuts and drivers must be purchased separately to current machine configuration.



Spindles to replace existing machine spindle	Kwik-Switch® Size	Part Number	Wrench Number
Alliant	200	807757	80203
Bridgeport with R8 spindle in Model J 1hp and Model 2J 1-1/2hp	200	80296	80203
Bridgeport 2hp CNC Mill	200	806841	80203
Bridgeport 4hp Series II model 4J	300	804325	80303
Hurco Model KMB1 & SM1	200	807235	80203
YCI Supermax	200	807655	80203
Pratt& Whitney Triax Drilling Machine and Models B & C with milling and boring capabilities	300	804333	80303
Cincinnati Cintimatic 2V and 2H (3711574/708243)	300	805001	80303

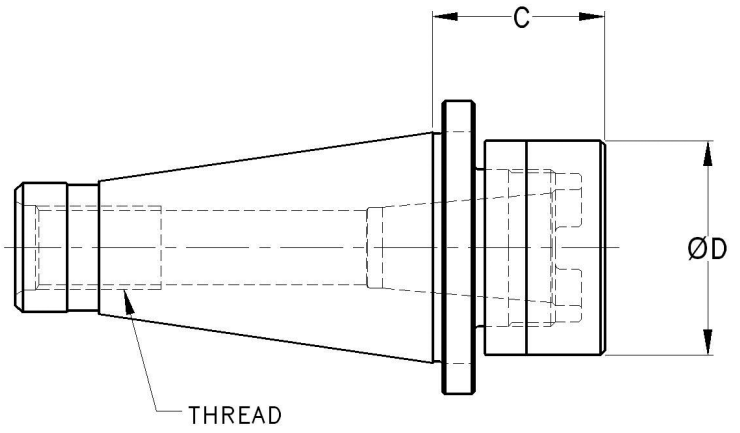
Kwik-Switch® II Master Holder with Bridgeport R-8 Shank



Part Number	Kwik-Switch® Size	C	D	Thread	Includes Nut No.	Ref. Wrench
804419	200	3.12	2.56	7/16-20	805043	80203

Kwik-Switch® II Master Holder with NMTB Shanks

- Conforms to ANSI B5.18-1972

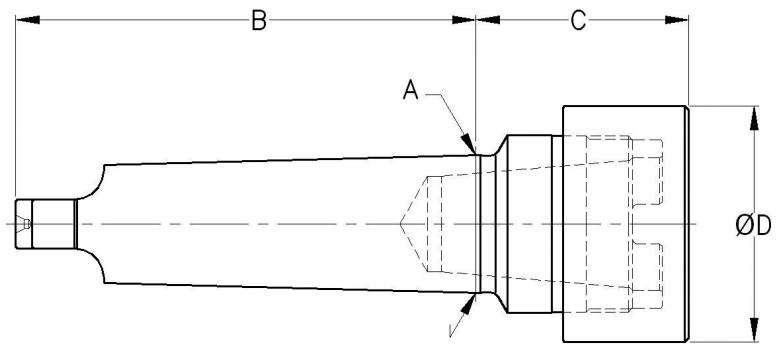




Part Number	NMTB Shank Size	Kwik-Switch® Size	C	D	Thread	Includes Nut No.	Ref. Wrench
80108	30	100	1.75	2.00	1/2-13	805063	80103
80225		200	3.28	2.56		805043	80203
80115	40	100	1.75	2.00	5/8-11	805063	80103
80238		200	2.00	2.56		805043	80203
804446		300	2.91	3.00		805044	80303
80248	50	200	2.06	2.56	1”-8	805043	80203
804448		300	2.25	3.00		805044	80303
804495		400	2.78	3.89		809184	80403

Kwik-Switch® II Master Holder with Morse Taper Shank

- ASME B5.10-1994



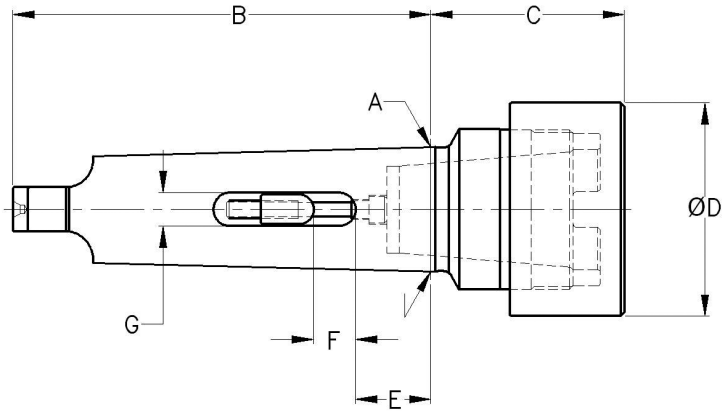


Part Number	Shank Size	Kwik-Switch® Size	A	B	C	D	Includes Nut No.	Ref. Wrench
80124	2 Morse	100	.700	2.94	2.03	2.00	805063	80103
80128	3 Morse	100	.938	3.68	2.00	2.00	805063	80103
80250*		200	.938	3.68	3.38	2.56	805043	80203
80257*	4 Morse	200	1.231	4.62	3.28	2.56	805043	80203
804454*		300	1.231	4.62	3.78	3.00	805044	80303
804497*		400	1.231	4.62	4.78	3.89	809184	80403
804456	5 Morse	300	1.748	5.88	2.72	3.00	805044	80303
804499*		400	1.748	5.88	4.78	3.89	809184	80403
804458	6 Morse	300	2.494	8.25	1.91	3.00	805044	80303
804501		400	2.494	8.25	3.47	3.89	809184	80403
804503	7 Morse	400	3.270	11.25	2.28	3.89	809184	80403

*For Light Duty Use.

Kwik-Switch® II Master Holder with Morse Taper Shank & Adjustable Keeper Key

- ASME B5.10-1994



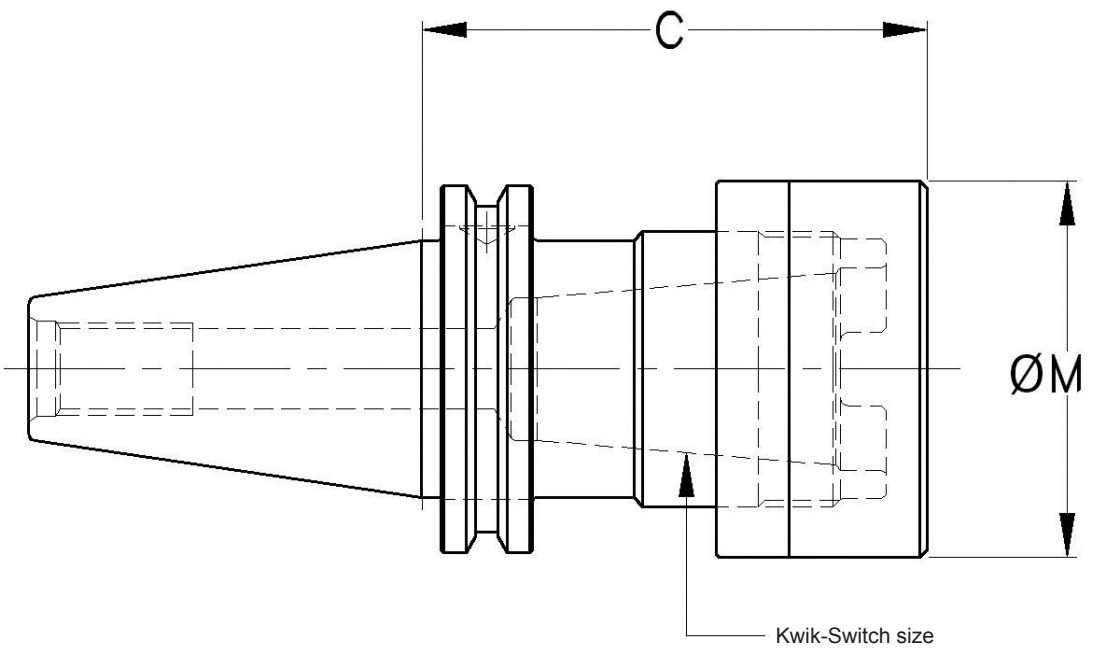


Part Number	Shank Size	Kwik-Switch® Size	A	B	C	D	E	F Adjustment		G	Includes Nut No.	Ref. Wrench
								Min.	Max.			
805878	5 Morse	300	1.748	5.88	2.72	3.00	1.06	.12	1.03	.44	805044	80303
805879*		400			4.78	3.89					809184	80403
805880	6 Morse	300	2.494	8.25	1.91	3.00	2.12		.81	.62	805044	80303
805881		400			3.47	3.89					809184	80403
805882	7 Morse	400	3.270	11.25	2.28	3.89	2.50		1.06		809184	80403

*For Light Duty Use.

Kwik-Switch® II Master Holder with CAT Shanks

- ANSI B5.50 1994 - AT3 taper tolerance





CAT40

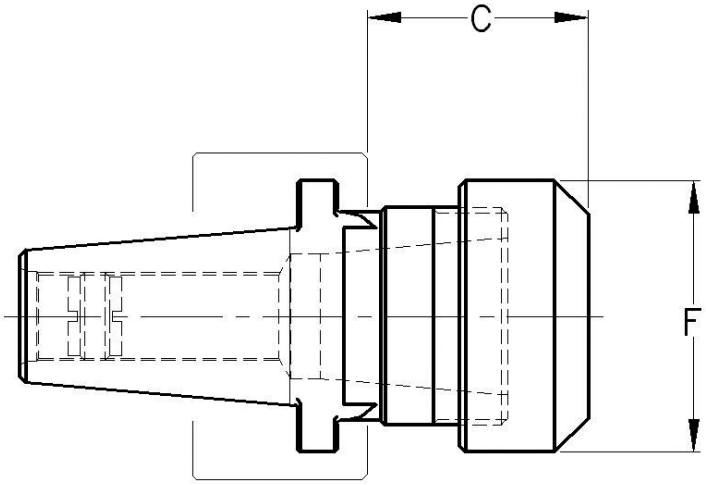
Part No.	Kwik-Switch Size	C	M	Includes Nut No.	Ref. Wrench No.
805922	200	3.44	2.56	805043	80203

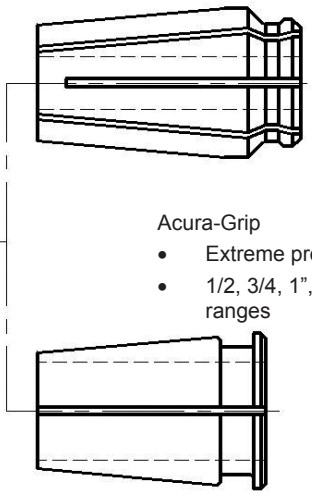
CAT50

Part No.	Kwik-Switch Size	C	M	Includes Nut No.	Ref. Wrench No.
806282	300	3.12	3.00	805044	80303
806283	400	4.06	3.89	809184	80403

Acura-Flex® Collet Chucks with Kwik-Switch® Shanks

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix





Acura-Flex
- Extended range
- Excellent gripping power



Acura-Grip
- Extreme precision
- 1/2, 3/4, 1", 1-3/8" 1-5/8" collet ranges

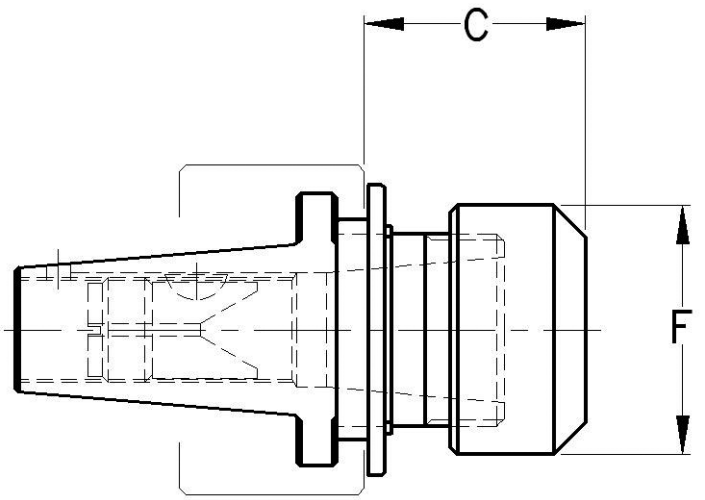


P: 173

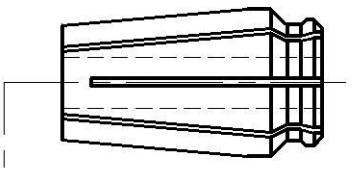
Part Number	Kwik-Switch® Size	Collet Range (Acura-Flex Collet No.'s)	C	F	Max. Nut Tightening Torque	Includes Nut	Ref. Wrench
AF80136	100	1/16 - 3/8 (AF21 - AF44)	.75	1.00 Oct.	40 ft. lbs.	9400002	55068
AF80137		7/64 - 1/2 (AF55 - AF82)	.84	1.25 Oct.	50 ft. lbs.	9400020	55105
AF80235	200	1/16 - 3/8 (AF21 - AF44)	1.12	1.00 Oct.	40 ft. lbs.	9400002	55068
AF80236		7/64 - 1/2 (AF55 - AF82)	1.12	1.25 Oct.	50 ft. lbs.	9400020	55105
AF80237		7/64 - 3/4 (AF95 - AF140)	1.81	1.94 Span.	75 ft. lbs.	9400005	55139
AF80348	300	1/16 - 3/8 (AF21 - AF44)	1.03	1.00 Oct.	40 ft. lbs.	9400002	55068
AF80349		7/64 - 1/2 (AF55 - AF82)	1.03	1.25 Oct.	50 ft. lbs.	9400020	55105
AF80350		7/64 - 3/4 (AF95 - AF140)	1.41	1.94 Span.	75 ft. lbs.	9400005	55139
AF80351		7/32-1" (AF162 - AF213)	2.03	2.50 Span.	90 ft. lbs.	9400021	55171
AF80415	400	7/64 - 1/2 (AF55 - AF82)	1.38	1.25 Oct.	50 ft. lbs.	9400020	55105
AF80416		7/64 - 3/4 (AF95 - AF140)	1.78	1.94 Span.	75 ft. lbs.	9400005	55139
AF80417		7/32-1" (AF162 - AF213)	1.88	2.50 Span.	90 ft. lbs.	9400021	55171
AF804290		11/32 - 1-3/8" (AF241 - AF286)	2.00	3.00 Span.	110 ft. lbs.	9400011	85296
AF80450		19/32 - 1-5/8" (AF331 - AF377)	3.28	3.38 Span.	110 ft. lbs.	9400014	55200

Acura-Flex® Collet Chucks with Kwik-Switch® Shanks Chip Shields, Corrosion & Wear Coating

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip, delete AF-Prefix



Acura-Flex
- Extended range
- Excellent gripping power

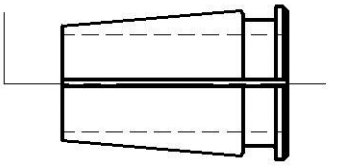






P: 173

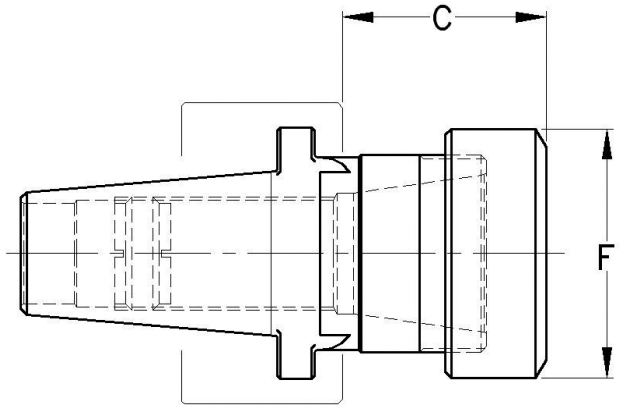
Acura-Grip
- Extreme precision
- 1/2, 3/4, 1” collet ranges



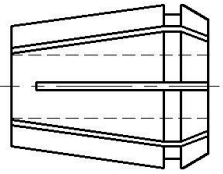
Part Number	Kwik-Switch® Size	Collet Range	C	F	Max. Nut TighteningTorque	Includes Nut	Ref. Wrench
AF808756	100	7/64 - 1/2 (AF55 - AF82)	1.05	1.25 Oct.	50 ft. lbs.	9400230	55105
AF808757	200	7/64 - 3/4 (AF95 - AF140)	1.72	1.94 Span.	75 ft. lbs.	9400229	55139
AF808758	300	7/32-1” (AF162 - AF213)	2.03	2.50 Span.	90 ft. lbs.	9400228	55171

ER Collet Chucks with Kwik-Switch® Shanks

- ER extended range collets
- Order collet separately by matching collet series



ER collets
- Extended range

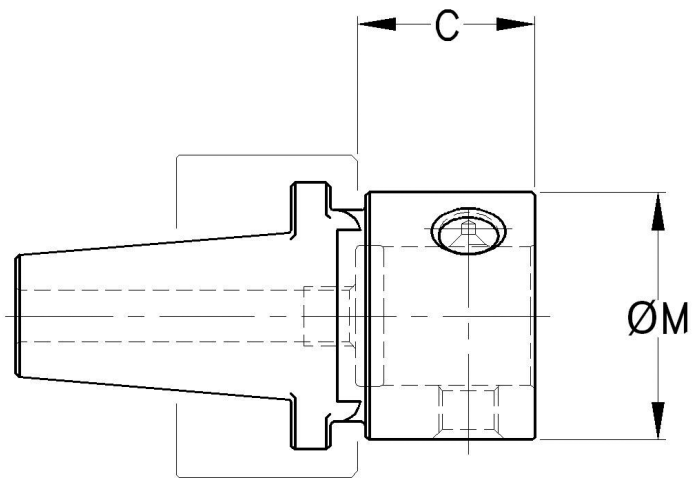




P: 184

Part Number	Kwik-Switch® Size	Collet Series	C	F	Max. Nut Tightening Torque	Includes Nut	Ref. Wrench
KS2ER16112	200	ER16 (.020 - .394)	1.12	.98 Hex.	50 ft. lbs.	NER16	WER16
KS2ER32181		ER32 (.079 - .787)	1.81	1.96 Span.	125 ft. lbs.	NER32	WER32
KS3ER16103	300	ER16 (.020 - 0.394)	1.03	.98 Hex.	50 ft. lbs.	NER16	WER16
KS3ER32141		ER32 (.079 - .787)	1.41	1.96 Span.	125 ft. lbs.	NER32	WER32
KS3ER40203		ER40 (.118 - 1.181)	2.03	2.48 Span.	140 ft. lbs.	NER40	WER40

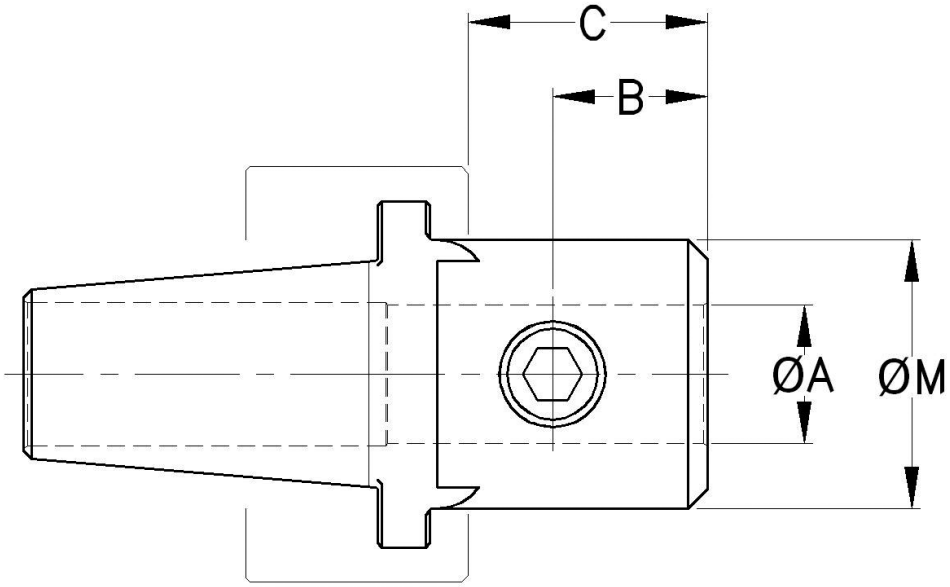
Mod-Flex Adapter with Kwik-Switch® Shanks



Part Number	Kwik-Switch® Size	Mod-Flex Size	C	M
025MF270358	200	025	.55	.98
032MF270308		032	.65	1.26
040MF270309		040	.80	1.57
050MF270413		050	1.41	1.97
063MF270439		063	2.12	2.48
050MF270311	300	050	.94	1.97
063MF270440		063	2.00	2.48
063MF270313	400	063	1.18	2.48

End Mill Adapters with Kwik-Switch® Shanks





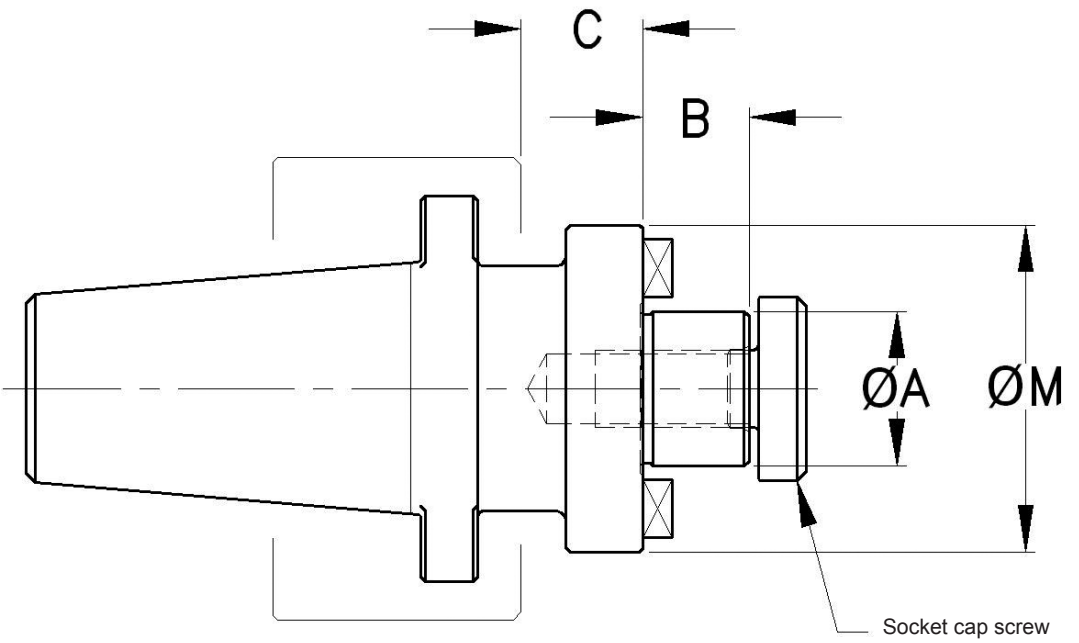
Part Number	Kwik-Switch® Size	A	B	C	M
80141	100	.1875	.56	1.03	.68
80142		.3750	.75	1.03	1.00
80143		.5000	.88	1.28	1.25
802785	200	.1250	.44	1.03	.62
801431		.1875	.56	1.03	.68
80721		.2500	.75	1.41	1.00
802481		.3125	.75	1.41	1.00
80242		.3750	.75	1.41	1.00
80243		.5000	.88	1.41	1.31
80244		.6250	.94	1.41	1.62
80245		.7500	1.00	1.66	1.72
80246		.8750**	1.00	1.91	1.94
80247		1.0000**	1.12	2.03	1.94
80342	300	.3750	.75	1.28	1.00
80343		.5000	.88	1.28	1.38
80344		.6250	.94	1.28	1.62
80345		.7500	1.00	1.53	1.62
80346*		.8750	1.00	1.53	1.94
80347		1.0000†	1.12	1.72	1.94
80851		1.2500**	1.12	3.19	2.50
80442	400	.3750	.75	1.03	1.00
80443		.5000	.88	1.22	1.38
80444		.6250	.94	1.22	1.62
80445		.7500	1.00	1.41	1.75
80446*		.8750	1.00	1.41	2.00
80447*		1.0000	1.12	1.66	2.25
80448*		1.2500	1.12	1.66	2.62
80451*		1.5000**	1.12	3.03	2.88
807032*		2.0000**	1.13	3.66	4.00

* Indicates dual set screws
** For light duty use and single end end mills only
† For light duty use only

Shell Mill Adapters with Kwik-Switch® Shanks

- Keys and Socket Cap Screw Furnished



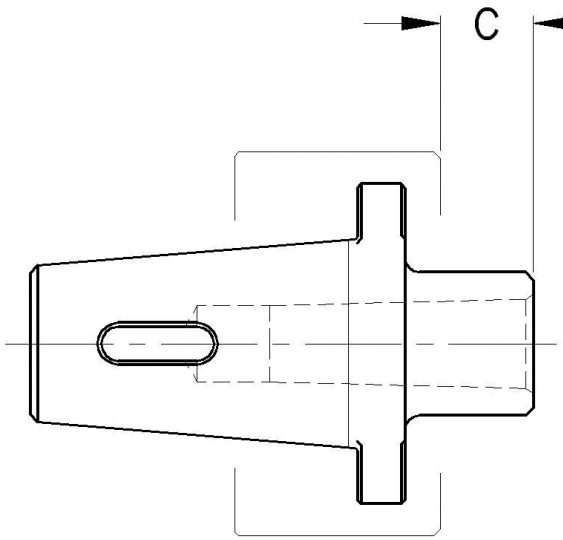


Part Number	Kwik-Switch® Size	A	B	C	M	Includes Drive Key	Thread
80130	100	.5000	.56	.56	1.22	1/4	1/4-28
80131		.7500	.68	.56	1.62	5/16	3/8-24
80231	200	.5000	.56	.69	1.22	1/4	1/4-28
80232		.7500	.68	.69	1.62	5/16	3/8-24
80233		1.0000	.68	.69	2.12	3/8	1/2-20
80333	300	.7500	.68	.78	1.59	5/16	3/8-24
80334		1.0000	.68	.78	2.12	3/8	1/2-20
80335		1.2500	.68	.91	2.75	1/2	5/8-18
80337*		1.5000	.94	1.03	3.62	5/8	3/4-16
80435	400	1.0000	.68	.84	2.18	3/8	1/2-20
80436		1.2500	.68	.84	2.75	1/2	5/8-18
80437		1.5000	.94	.91	3.62	5/8	3/4-16
801171*		2.0000	.94	.91	4.50	3/4	1"-14

* For light duty use only

Morse Taper Adapters with Kwik-Switch® Shanks

- With optional knockout drift fixtures



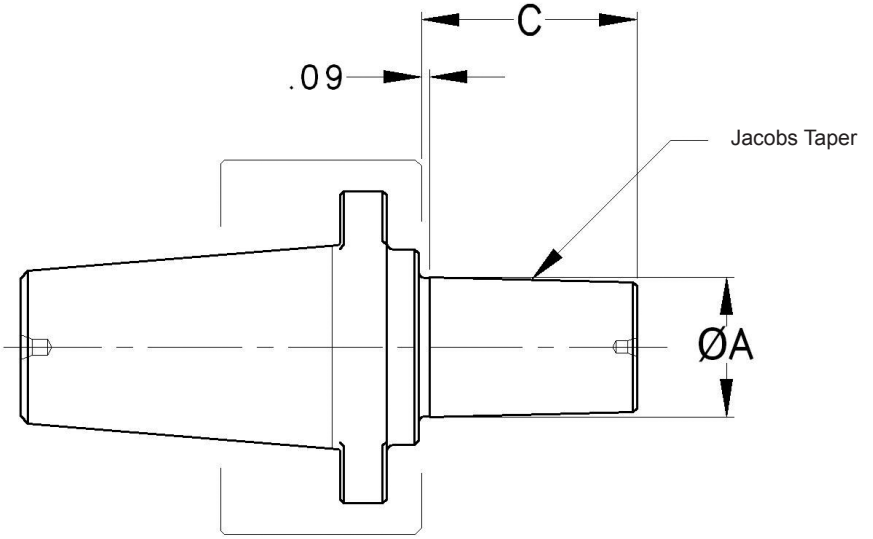


Part Number	Kwik-Switch® Size	ID Taper	C	Knockout Drift Fixture (Optional)
80127*	100	1 Morse	.91	80129
80226	200	1 Morse	.62	—
80227		2 Morse	.75	—
80228*		3 Morse	1.06	80230
80326	300	1 Morse	.72	—
80327		2 Morse	.72	—
80328*		3 Morse	.72	80331
80329*		4 Morse	1.59	80331
80427	400	1 Morse	.59	—
80428		2 Morse	.97	—
80429		3 Morse	.97	—
80430*		4 Morse	.97	80433
80431		5 Morse	3.28	—

* Indicates adapters with open end drift

Jacobs Taper Adapters with Kwik-Switch® Shanks

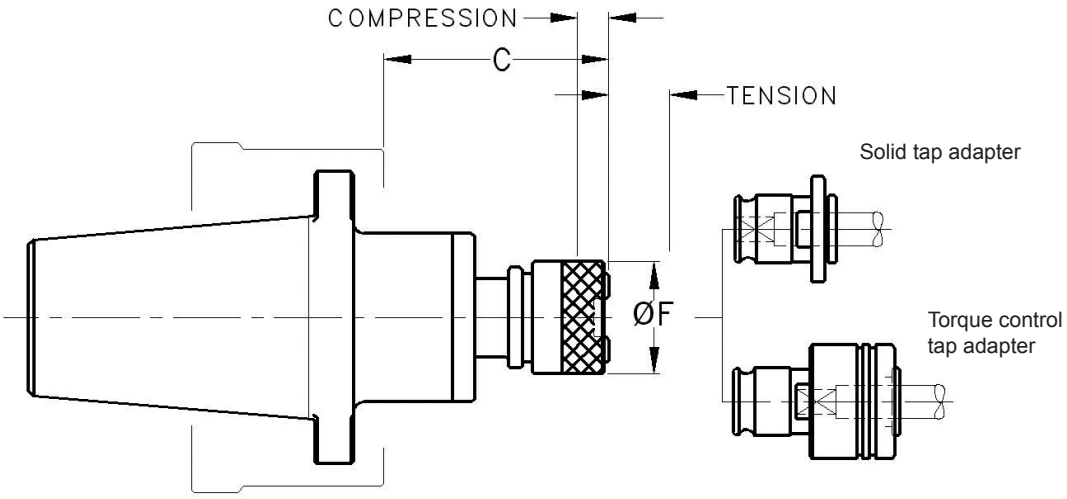




Part Number	Kwik-Switch Size	Jacobs Taper	A	C
80251	200	0	.250	.53
80252	200	1	.384	.75
80153	100	2	.559	.97
80253	200		.559	.97
80352	300		.559	.97
80452	400		.559	.97
80698	200	3	.811	1.31
80353	300		.811	1.31
80453	400		.811	1.31
801163	200	4	1.124	1.75
80354	300		1.124	1.75
80454	400		1.124	1.75
80254	200	6	.676	1.09
80355	300		.676	1.09
80455	400		.676	1.09
80255	200	33	.624	1.09
80356	300		.624	1.09
80456	400		.624	1.09

Quick Change Tension & Compression Tap Chucks with Kwik-Switch® Shanks

- Order tap adapter separately by matching adapter size
- Full tension available upon request





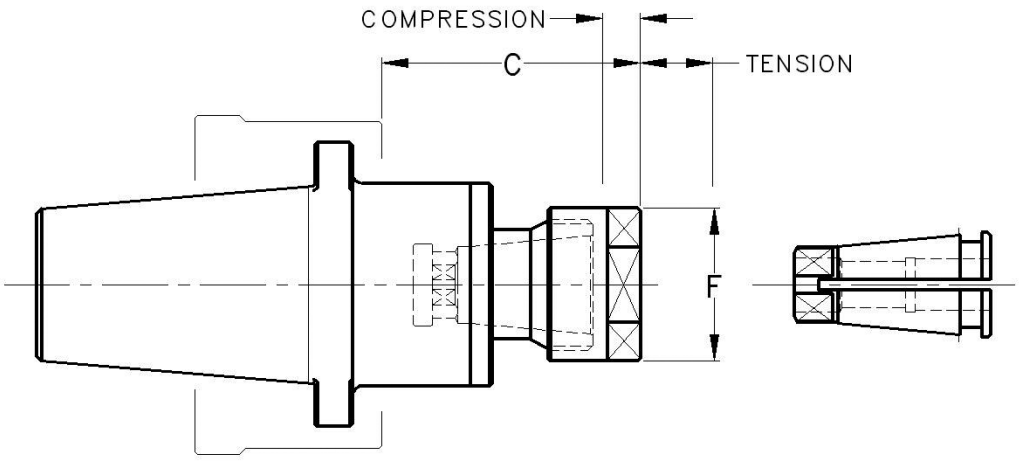


P: 199

Part Number	Kwik-Switch® Size	Tap Adapter Size	Tap Range	C	F	Tension	Compression
15925	200	1	#0-9/16 Hand 1/8 Pipe	3.68	1.25	.88	.38
15934	300			3.25			
15931	400			2.50			
161662	200	2	1/4-7/8 Hand 1/4-1/2 Pipe	4.38	1.97		
15936	300			4.00			
15937	400			3.31			
15938	300	3	3/4- 1-3/8 Hand 3/8-1” Pipe	5.75	2.83		
15939	400			5.56			

Acura-Tap® Tension & Compression Tap Chucks with Kwik-Switch® Shanks

- Acura -Tap collets
- Order collets separately by matching tap range
- Full tension available upon request





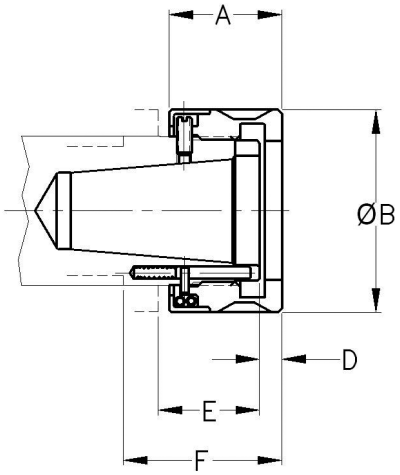
P: 181

Part Number	Kwik-Switch® Size	Tap Range	C	F	Includes Nut No.	Tension	Compression	Ref. Wrench
15905	200	#0-1/2 Hand 1/8 Pipe	3.56	1.06 Hex.	280669	.88	.38	505643
15906	300		3.12					
15928	400		2.38					
164314	200	1/4-7/8 Hand 1/8-1/2 Pipe	4.00	1.50 Hex.	280677			505651
15914	300		3.62					
15915	400		2.94					
15923	300	3/4- 1-1/2 Hand 1/2- 1-1/4 Pipe	5.56	2.75 Span.	280681			505650
15924	400		5.31					

Kwik-Switch® Replacement Nut Data

- All repair kits include these parts:

Stop Pin	Compression Spring
Release Pin	Wear Plug
Roll Pin	(2) Lock Springs



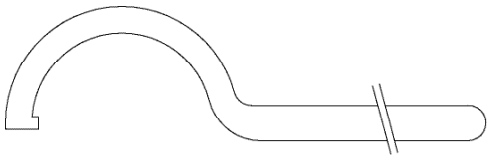


Part Number	Kwik-Switch® Size	A	B	D	E	F	Thread	Repair Kit
805063	100	1.23	2.00	.22	1.12	1.72	1-3/8 - 12 Acme	808792
808158*		1.34			1.17	1.72		8010524
805043	200	1.44	2.56	.28	1.28	2.00	1-7/8 - 12 Acme	808793
807813*		1.52			1.31	2.00		8010525
805044	300	1.61	3.00	.34	1.41	2.28	2-1/4 - 12 Acme	808794
808155*		1.74			1.47	2.28		8010526
809184	400	2.14	3.89	.41	1.78	2.66	3" - 12 Acme	809809

* Rear chip guard feature

Standard Kwik-Switch® Nut Wrench

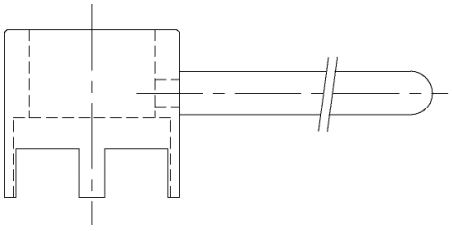
- Fits standard or rear chip guard featured nuts



Part Number	Kwik-Switch® Size
80103	100
80203	200
80303	300
80403	400

Lug Type Kwik-Switch® Wrenches

- Fits nuts with rear chip guard feature only



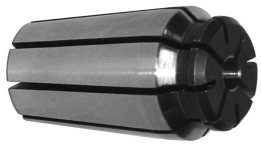
Part Number	Kwik-Switch® Size
807791	100
807792	200
807793	300

Kwik-Switch® Locking Fixtures

Part Number	Kwik-Switch® Size	Flats	Length
80139	100	1.25	1.50
80239	200	1.75	2.56
80339	300	2.12	3.00
80439	400	3.00	3.68



Acura-Flex®
- 1/4, 3/8, 1/2, 3/4, 1”, 1-3/8 & 1-5/8 Capacity



Pages 173-179

Traditional Universal Collets
- Acura-Grip® Collets
- Double Taper Collets
- Acura-Tap® Collets



Pages 180-181

Sealed ER
- ER16, ER20, ER25, ER32 & ER40
- Sealed by Design - Rated Up To 2,000 PSI
- Collets Range .003” Smaller from Nominal
- Inch Actual Size Collets



Pages 182-183

ER
- ER8, ER11, ER16, ER20, ER25, ER32 & ER40
- Standard Inch and Metric Size Collets



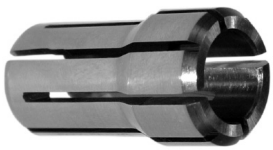
Pages 184-187

SG (TG)
- 75SG, 10SG & 15SG



Pages 188-191

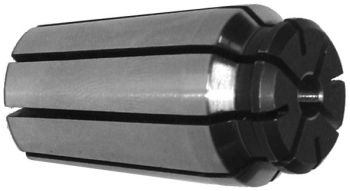
DA
- DA30, DA20 & DA10

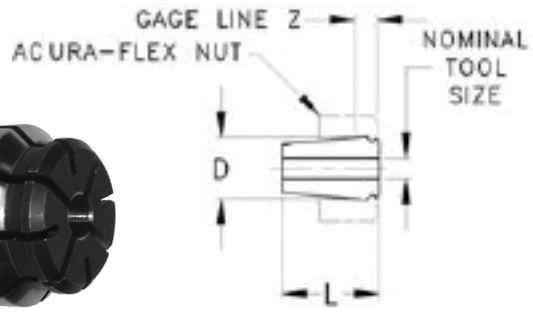


Pages 192-193

Acura-Flex® Extended Range Collets

- Order by part number listed
- Capacity of collet must match capacity of chuck (example 1-5/8" capacity collet must be used in a 1-5/8" capacity chuck)
- Collet sets available-see page #179
- Extended clamping range .02 - .04
- Collet sizes .172 thru 1.625 are guaranteed .0005 T.I.R. @ 2x tool diameter (max. 1" out)
- Collet sizes .032 thru .172 are guaranteed .001 T.I.R. at the nose



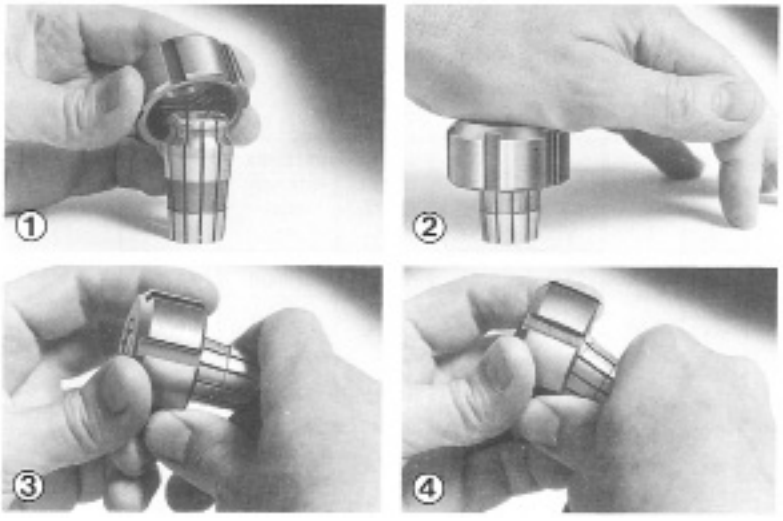


How to install Acura-Series Collets

1. Push down on the nut with the palm of hand.
2. The collet nose will collapse slightly allowing it to enter the nut.

Removal

3. Apply a bending pressure.
4. The collet will separate from the nut.



For use with 1/4" Capacity Acura-Flex Collet Chucks (1/32 - 1/4" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/32	0.8	AF000*
3/64	1.2	AF00**
1/16	1.5	AF0**
5/64	2.0	AF1
3/32	2.5	AF2
7/64		AF3
	3.0	AF4
1/8		AF5
9/64	3.5	AF6
5/32	4.0	AF7
11/64	4.5	AF8
3/16		AF9
	5.0	AF10
13/64		AF11
7/32	5.5	AF12
15/64	6.0	AF13
1/4	6.5	AF14

Clamping Rage: .02
Gage Dia. D: .438
Gage Line Location Z: .250
Collet Length L: 1.00"
Ref. Nut No. 9400022
*Clamping Range: .012
**Clamping Range: .015

Acura-Flex® Extended Range Collets continued

- Collet sets available - See page #179

For use with 3/8" Capacity Acura-Flex Collet Chucks (1/16 - 3/8" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
5/64	2.0	AF21
3/32	2.5	AF22
7/64		AF23
	3.0	AF24
1/8		AF25
9/64	3.5	AF26
5/32	4.0	AF27
11/64	4.5	AF28
3/16		AF29
	5.0	AF30
13/64		AF31
7/32	5.5	AF32
15/64	6.0	AF33
1/4	6.5	AF34
17/64		AF35
	7.0	AF36
9/32		AF37
19/64	7.5	AF38
5/16	8.0	AF39
21/64	8.5	AF40
11/32		AF41
	9.0	AF42
23/64		AF43
3/8	9.5	AF44

Clamping Range: .02
Gage Dia. D: .563
Gage Line Location Z: .250
Collet Length L: 1.03"
Ref. Nut No. 9400002

For use with 1/2" Capacity Acura-Flex Collet Chucks (7/64 - 1/2" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/8		AF55
9/64	3.5	AF56
5/32	4.0	AF57
11/64	4.5	AF58
3/16		AF59
	5.0	AF60
13/64		AF61
7/32	5.5	AF62
15/64	6.0	AF63
1/4	6.5	AF64
17/64		AF65
	7.0	AF66
9/32		AF67
19/64	7.5	AF68
5/16	8.0	AF69
21/64	8.5	AF70
11/32		AF71
	9.0	AF72
23/64		AF73
3/8	9.5	AF74
25/64	10.0	AF75
13/32	10.5	AF76
27/64		AF77
7/16	11.0	AF78
29/64	11.5	AF79
15/32	12.0	AF80
31/64	12.5	AF81
1/2		AF82

Clamping Range: .02
Gage Dia. D: .720
Gage Line Location Z: .250
Collet Length L: 1.16"
Ref. Nut No. 9400020

Acura-Flex® Extended Range Collets continued

- Collet sets available - See page #179



For use with 3/4" Capacity Acura-Flex Collet Chucks (7/64 - 3/4" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/8		AF95
9/64	3.5	AF96
5/32	4.0	AF97
11/64	4.5	AF98
3/16		AF99
	5.0	AF100
13/64		AF101
7/32	5.5	AF102
15/64	6.0	AF103
1/4	6.5	AF104
17/64		AF105
	7.0	AF106
9/32		AF107
19/64	7.5	AF108
5/16	8.0	AF109
21/64	8.5	AF110
11/32		AF111
	9.0	AF112
23/64		AF113
3/8	9.5	AF114
25/64	10.0	AF115
13/32	10.5	AF116
27/64		AF117
7/16	11.0	AF118
29/64	11.5	AF119
15/32	12.0	AF120
31/64	12.5	AF121
1/2		AF122
33/64	13.0	AF123
17/32	13.5	AF124
35/64	14.0	AF125
9/16	14.5	AF126
37/64		AF127

Clamping Range: .02
Gage Dia. D: 1.131
Gage Line Location Z: .63
Collet Length L: 2.02"
Ref. Nut No. 9400005

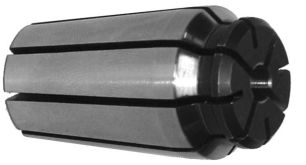
For use with 3/4" Capacity Acura-Flex Collet Chucks (7/64 - 3/4" Collet Range) continued

Nominal Tool Size		Part No.
Inch	MM	
19/32	15.0	AF128
39/64	15.5	AF129
5/8	16.0	AF130
41/64	16.5	AF131
21/32		AF132
43/64	17.0	AF133
11/16	17.5	AF134
45/64	18.0	AF135
23/32	18.5	AF136
47/64		AF137
3/4	19.0	AF138
49/64	19.5	AF139
25/32	20.0	AF140

Clamping Range: .02
Gage Dia. D: 1.131
Gage Line Location Z: .63
Collet Length L: 2.02"
Ref. Nut No. 9400005

Acura-Flex® Extended Range Collets continued

- Collet sets available - See page #179



For use with 1” Capacity Acura-Flex Collet Chucks (7/32 - 1” Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
15/64	6.0	AF162
1/4	6.5	AF163
17/64		AF164
	7.0	AF165
9/32		AF166
19/64	7.5	AF167
5/16	8.0	AF168
21/64	8.5	AF169
11/32		AF170
	9.0	AF171
23/64		AF172
3/8	9.5	AF173
25/64	10.0	AF174
13/32	10.5	AF175
27/64		AF176
7/16	11.0	AF177
29/64	11.5	AF178
15/32	12.0	AF179
31/64	12.5	AF180
1/2		AF181
33/64	13.0	AF182
17/32	13.5	AF183
35/64	14.0	AF184
9/16	14.5	AF185
37/64		AF186
19/32	15.0	AF187

Clamping Range: .02
Gage Dia. D: 1.446
Gage Line Location Z: .74
Collet Length L: 2.50”
Ref. Nut No. 9400021

For use with 1” Capacity Acura-Flex Collet Chucks (7/32 - 1” Collet Range) continued

Nominal Tool Size		Part No.
Inch	MM	
39/64	15.5	AF188
5/8	16.0	AF189
41/64	16.5	AF190
21/32		AF191
43/64	17.0	AF192
11/16	17.5	AF193
45/64	18.0	AF194
23/32	18.5	AF195
47/64		AF196
3/4	19.0	AF197
49/64	19.5	AF198
25/32	20.0	AF199
51/64	20.5	AF200
13/16		AF201
53/64	21.0	AF202
27/32	21.5	AF203
55/64	22.0	AF204
7/8		AF205
57/64	22.5	AF206
29/32	23.0	AF207
59/64	23.5	AF208
15/16	24.0	AF209
61/64		AF210
31/32	24.5	AF211
63/64	25.0	AF212
1”	25.5	AF213

Clamping Range: .02
Gage Dia. D: 1.446
Gage Line Location Z: .74
Collet Length L: 2.50”
Ref. Nut No. 9400021

Acura-Flex® Extended Range Collets continued

- Collet sets available - See page #179



For use with 1 3/8" Capacity Acura-Flex Collet Chucks (11/32 - 1-3/8 Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
3/8		AF241
	10.0	AF242
13/32		AF243
7/16	11.0	AF244
15/32	12.0	AF245
1/2		AF246
	13.0	AF247
17/32		AF248
	14.0	AF249
9/16		AF250
19/32	15.0	AF251
5/8	16.0	AF252
21/32		AF253

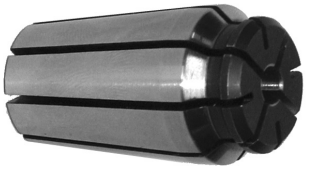
Clamping Range: .04
Gage Dia. D: 1.909
Gage Line Location Z: .91
Collet Length L: 3.11"
Ref. Nut No. 9400011

For use with 1 3/8" Capacity Acura-Flex Collet Chucks (11/32 - 1-3/8 Collet Range) continued

Nominal Tool Size		Part No.
Inch	MM	
	17.0	AF254
11/16		AF255
	18.0	AF256
23/32		AF257
3/4	19.0	AF258
25/32	20.0	AF259
13/16		AF261
	21.0	AF262
27/32		AF263
	22.0	AF260
7/8		AF264
29/32	23.0	AF265
15/16	24.0	AF266
31/32		AF267
	25.0	AF268
1"		AF269
	26.0	AF270
1 1/32		AF271
1 1/16	27.0	AF272
1 3/32	28.0	AF273
1 1/8		AF274
	29.0	AF275
1 5/32		AF276
	30.0	AF277
1 3/16		AF278
1 7/32	31.0	AF279
1 1/4	32.0	AF280
1 9/32		AF281
	33.0	AF282
1 5/16		AF283
	34.0	AF284
1 11/32		AF285
1 3/8	35.0	AF286

Clamping Range: .04
Gage Dia. D: 1.909
Gage Line Location Z: .91
Collet Length L: 3.11"
Ref. Nut No. 9400011

Acura-Flex® Extended Range Collets continued



For use with 1 5/8" Capacity Acura-Flex Collet Chucks (19/32 - 1 5/8" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
5/8	16.0	AF331
21/32		AF332
	17.0	AF333
11/16		AF334
	18.0	AF335
23/32		AF336
3/4	19.0	AF337
25/32	20.0	AF338
13/16		AF340
	21.0	AF341
27/32		AF342
	22.0	AF339
7/8		AF343
29/32	23.0	AF344
15/16	24.0	AF345
31/32		AF346
	25.0	AF347
1"		AF348
	26.0	AF349
1 1/32		AF350
1 1/16	27.0	AF351
1 3/32	28.0	AF352
1 1/8		AF353
	29.0	AF354

Clamping Range: .04
Gage Dia. D: 2.125
Gage Line Location Z: .90
Collet Length L: 3.13"
Ref. Nut No. 9400014

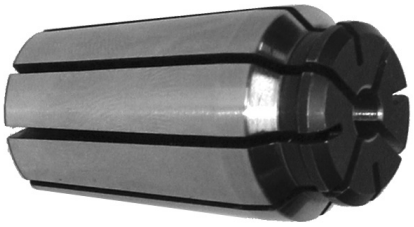
For use with 1 5/8" Capacity Acura-Flex Collet Chucks (19/32 - 1 5/8" Collet Range) continued

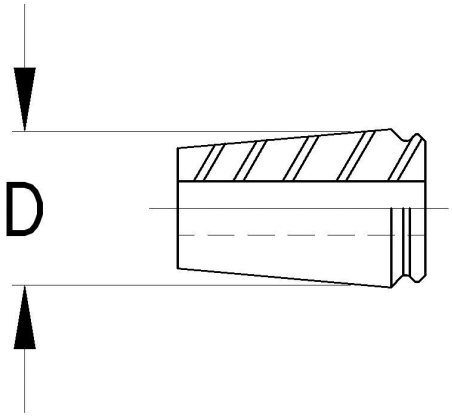
Nominal Tool Size		Part No.
Inch	MM	
1 5/32		AF355
	30.0	AF356
1 3/16		AF357
1 7/32	31.0	AF358
1 1/4	32.0	AF359
1 9/32		AF360
	33.0	AF361
1 5/16		AF362
	34.0	AF363
1 11/32		AF364
1 3/8	35.0	AF365
1 13/32		AF366
	36.0	AF367
1 7/16		AF368
	37.0	AF369
1 15/32		AF370
1 1/2	38.0	AF371
1 17/32	39.0	AF372
1 9/16		AF373
	40.0	AF374
1 19/32		AF375
	41.0	AF376
1 5/8		AF377

Clamping Range: .04
Gage Dia. D: 2.125
Gage Line Location Z: .90
Collet Length L: 3.13"
Ref. Nut No. 9400014

Acura-Flex® Extended Range Collet Sets

- Order by part number listed
- Capacity of collet must match capacity of chuck



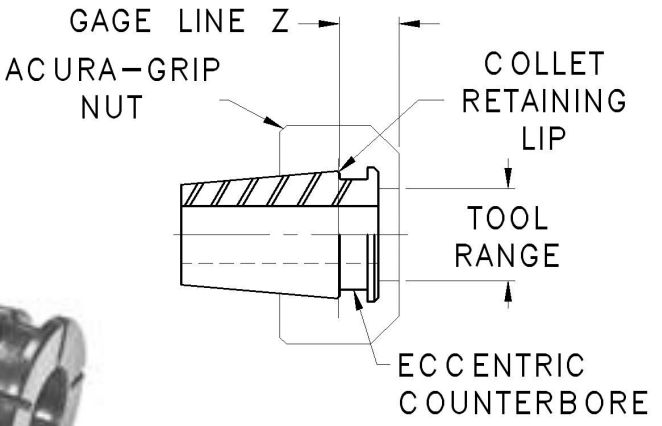


Collet Set Part No.	Collet Capacity	Collet Set Range	D	No. Pieces - Increments
9400042	1/4	1/16-1/4	.438	12 collets in 1/64's
9400043	3/8	1/16-3/8	.563	20 collets in 1/64's
9400108	3/8	1/16-3/8	.563	6 collets in 1/16's
9400044	1/2	7/64-1/2	.720	25 collets in 1/64's
9400045	3/4	1/4-3/4	1.131	33 collets in 1/64's
9400174	3/4	7/64-25/32	1.131	22 collets in 1/32's
9400046	1"	3/8-1"	1.446	40 collets in 1/64's
9400073	1"	23/64-1"	1.446	11 collets in 1/16's
9400074	1"	23/64-1"	1.446	6 collets in 1/8's
9400176	1"	25/64-1"	1.446	20 collets in 1/32's
9400177	1"	27/64-1"	1.446	10 collets in 1/16's
9400072	1 3/8	19/32-1-3/8	1.909	7 collets in 1/8's

Acura-Grip® Maximum Accuracy Collets

- Accuracy guaranteed to be 0.0005" T.I.R. at 8x tool diameter or a maximum of 4" out from the collet face.
- Can be used in Acura-Flex collet chucks by changing the nut.
- Order by part number listed and the desired size.
- Tool range of collet must match tool range of chuck.
- Available in all letter, number, and fractional sizes within range. Other sizes available to special order.





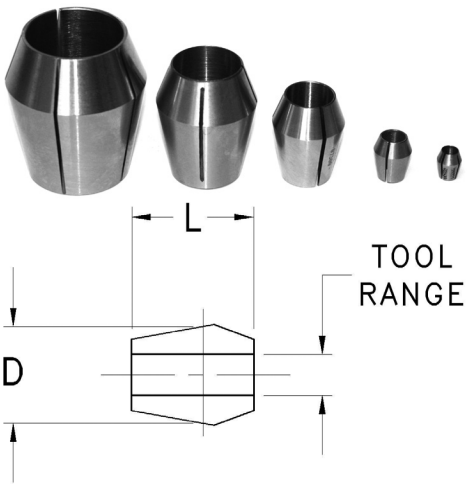
Part No. and Size	Tool Range	D	Z	Acura-Grip Nut No.	Wrench No.
90500 *_ _ _ _ _	3/16-1/2	.720	.39	90501	55105
90750 *_ _ _ _ _	1/4-3/4	1.131	.54	90751	55139
901000 *_ _ _ _ _	3/8-1"	1.446	.69	901001	55171
901375 *_ _ _ _ _	5/8-1"3/8	1.909	.72	901376	85296
901625 *_ _ _ _ _	3/4-1"5/8	2.125	.76	901626	55200

* Example: 90500 02500 for 1/4" hole size

Note: Collet must be assembled to nut before inserting in chuck. The collet retaining lip has been partially removed by an eccentric counterbore. Place collet in counterbore, move on center with nut, and insert assembly into chuck.

Double Taper Collets

- Collet sizes 0.172 thru 1.500 are guaranteed 0.001 T.I.R. at 2x tool diameter (max. 1" out.) Sizes 0.062 thru 0.172 are guaranteed 0.001 T.I.R. at the nose.
- Order by part number listed and the desired size.
- Tool range of collet must match tool range of chuck.
- Available in all letter, number, and fractional sizes within range. Other sizes available to special order.



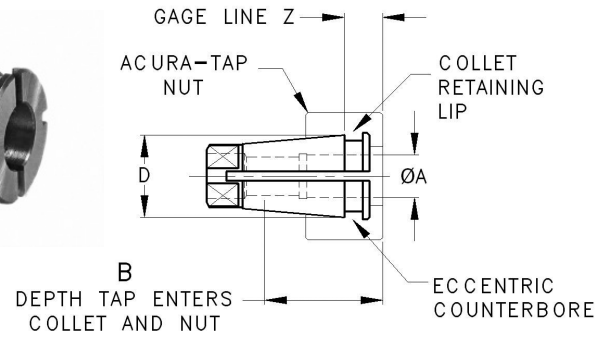
Part No. and Size	Tool Range	Type	D	L	Collet Nut No.	Wrench No.
55021*_ _ _ _ _	1/16-1/4	OW	.39	.50	551080	55029
55060*_ _ _ _ _	1/8-3/8	WW	.59	.75	551082	55068
55097*_ _ _ _ _	1/8-1/2	Y	.80	1.06	551084	55105
55132*_ _ _ _ _	1/4-3/4	Z	1.12	1.50	551090	55139
55165*_ _ _ _ _	3/8-1"	ZZ	1.56	2.00	551098	55171
55194*_ _ _ _ _	3/4-1"1/2	XZ	2.20	2.50	551108	55200

* Example: 55021 02500 for 1/4" hole size

Acura-Tap® Positive-Drive Collets

- Positive tap drive
- Excellent axial retention.
- Order by part number listed.
- Tap range of collet must match tap range of chuck.





Tap Range	Tap Size	Part Number	A	B	D	Z	Acura-Tap Nut No.	Wrench No.
#0-1/2 Hand 1/8 Pipe SS	#0-#6	15839	.141	1.00	.720	.39	280669	505643
	#8	15840	.168	1.06				
	#10	15841	.194	1.06				
	#12	15842	.220	1.09				
	1/4	15843	.255	1.09				
	5/16	15844	.318	1.12				
	3/8	15845	.381	1.19				
	7/16	15846	.323	1.22				
	1/2	15847	.367	1.25				
	1/8 Pipe SS	15850	.313	1.19				
1/4-7/8 Hand 1/8-1/2 Pipe	1/4	15856	.255	1.22	1.131	.54	280677	505651
	5/16	15857	.318	1.25				
	3/8	15858	.381	1.31				
	7/16	15859	.323	1.34				
	1/2	15860	.367	1.38				
	9/16	15861	.429	1.56				
	5/8	15862	.480	1.62				
	11/16	15863	.542	1.75				
	3/4	15864	.590	1.84				
	13/16	15865	.652	1.84				
	7/8	15866	.697	1.90				
	1/8 Pipe LS	15868	.438	1.31				
	1/4 Pipe	15869	.563	1.31				
	3/8 Pipe	15870	.700	1.44				
	1/2 Pipe	15871	.688	1.56				
3/4- 1-1/2 Hand 1/2- 1-1/4 Pipe	3/4	15880	.590	2.00	1.909	.72	280681	505650
	13/16	15881	.652	2.00				
	7/8	15882	.697	2.25				
	15/16	15883	.760	2.28				
	1	15884	.800	2.38				
	1-1/16-1-1/8	15886	.896	2.75				
	1-3/16-1-1/4	15888	1.021	3.00				
	1-5/16-1-3/8	15889	1.108	2.95				
	1-7/16-1-1/2	15891	1.233	3.25				
	1/2 Pipe	15894	.688	1.56				
	3/4 Pipe	15895	.906	1.68				
	1 Pipe	15896	1.125	1.81				
	1-1/4 Pipe	15897	1.313	2.06				

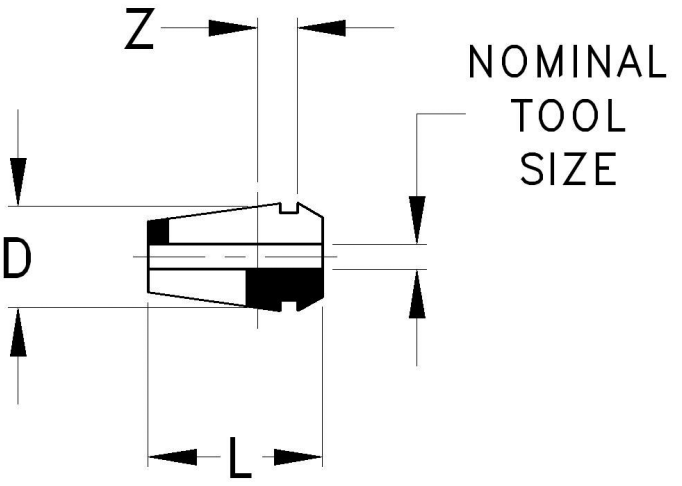
Note: Collet must be assembled to nut before inserting in chuck. The collet retaining lip has been partially removed by an eccentric counterbore. Place the collet in counterbore, move on center with nut, and insert assembly into chuck.

Acura-Tap Positive Drive Collet Sets

Tap Range	Part No.	Tap Sizes of Collets	D	Pieces
#0-1/2 Hand 1/8 Pipe SS	15943	#6, 8, 10, 12, 1/4, 5/16, 3/8, 7/16, 1/2 Hand, 1/8 Pipe SS	.720	10
3/8-7/8 Hand 1/8-1/2 Pipe	15944	3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8 Hand, 1/8 LS, 1/4, 3/8, 1/2 Pipe	1.131	11
3/4-1-1/2 Hand 1/2-1-1/4 Pipe	15946	3/4, 7/8, 1", 1-1/8, 1-1/4, 1-3/8, 1-1/2 Hand, 1/2, 3/4, 1", 1-1/4 Pipe	1.909	11

Inch Sealed ER Precision Coolant Collets

- Order by part number listed
- ER collet series must match ER series of chuck
- Works with standard ER collet nuts
- Collapse range: .003
- Standard .0004 T.I.R.
- Sealed by design - Rated up to 2,000 P.S.I.



ER16 Series (5/32-13/32" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
5/32	3.969	SER16 01562
3/16	4.763	SER16 01875
7/32	5.556	SER16 02187
1/4	6.350	SER16 02500
9/32	7.144	SER16 02812
5/16	7.938	SER16 03125
11/32	8.731	SER16 03437
3/8	9.525	SER16 03750
13/32	10.319	SER16 04062

Gage Dia. D: .6299
Gage Line Location Z: .246
Collet Length L: 1.083"
Ref. Nut No. NER16

ER20 Series (5/32-1/2" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
5/32	3.969	SER20 01562
3/16	4.763	SER20 01875
7/32	5.556	SER20 02187
1/4	6.350	SER20 02500
9/32	7.144	SER20 02812
5/16	7.938	SER20 03125
11/32	8.731	SER20 03437
3/8	9.525	SER20 03750
13/32	10.319	SER20 04062
7/16	11.113	SER20 04375
15/32	11.906	SER20 04687
1/2	12.700	SER20 05000

Gage Dia. D: .7874
Gage Line Location Z: .250
Collet Length L: 1.240"
Ref. Nut No. NER20

ER25 Series (7/32-5/8" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
7/32	5.556	SER25 02187
1/4	6.350	SER25 02500
9/32	7.144	SER25 02812
5/16	7.938	SER25 03125
11/32	8.731	SER25 03437
3/8	9.525	SER25 03750
13/32	10.319	SER25 04062
7/16	11.113	SER25 04375
15/32	11.906	SER25 04687
1/2	12.700	SER25 05000
17/32	13.494	SER25 05312
9/16	14.288	SER25 05625
19/32	15.081	SER25 05937
5/8	15.875	SER25 06250

Gage Dia. D: .9843
Gage Line Location Z: .262
Collet Length L: 1.338"
Ref. Nut No. NER25

Inch Sealed ER Precision Coolant Collets continued

ER32 Series (1/4-3/4" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/4	6.350	SER32 02500
9/32	7.144	SER32 02812
5/16	7.938	SER32 03125
11/32	8.731	SER32 03437
3/8	9.525	SER32 03750
13/32	10.319	SER32 04062
7/16	11.113	SER32 04375
15/32	11.906	SER32 04687
1/2	12.700	SER32 05000
17/32	13.494	SER32 05312
9/16	14.288	SER32 05625
19/32	15.081	SER32 05937
5/8	15.875	SER32 06250
21/32	16.669	SER32 06562
11/16	17.463	SER32 06875
23/32	18.256	SER32 07187
3/4	19.050	SER32 07500

Gage Dia. D: 1.2598
Gage Line Location Z: .282
Collet Length L: 1.575"
Ref. Nut No. NER32

ER40 Series (3/8-1" Collet Range)

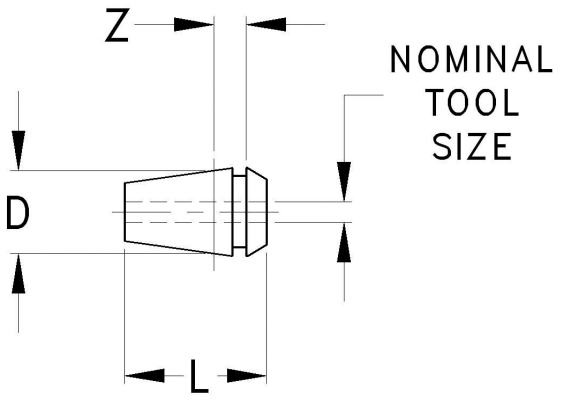
Nominal Tool Size		Part No.
Inch	MM	
3/8	9.525	SER40 03750
13/32	10.319	SER40 04062
7/16	11.113	SER40 04375
15/32	11.906	SER40 04687
1/2	12.700	SER40 05000
17/32	13.494	SER40 05312
9/16	14.288	SER40 05625
19/32	15.081	SER40 05937
5/8	15.875	SER40 06250
21/32	16.669	SER40 06562
11/16	17.463	SER40 06875
23/32	18.256	SER40 07187
3/4	19.050	SER40 07500
7/8	22.225	SER40 08750
1"	25.400	SER40 10000

Gage Dia. D: 1.5748
Gage Line Location Z: .302
Collet Length L: 1.811"
Ref. Nut No. NER40

ER Series Precision Inch & Metric Collets

- Order by part number listed
- ER collet series must match ER series of chuck
- Collet sets available - see page #187
- Extended clamping range: .020 - .039
- Standard .0004 T.I.R.





ER8 Series
(.020 - .197" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/32	1.0	ER8 00393
1/16	1.5	ER8 00625
3/32		ER8 00937
1/8	3.0	ER8 01250
5/32	4.0	ER8 01575
3/16	4.5	ER8 01875
	5.0	ER8 01968

Clamping Range: .02 (.5mm)
Gage Dia. D: .3149
Gage Line Location Z: .117
Collet Length L: .531"

ER11 Series
(.020 - .276" Collet Range)

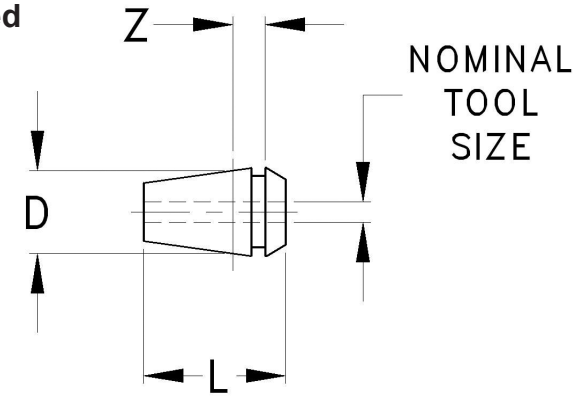
Nominal Tool Size		Part No.
Inch	Inch	
1/32	.8	ER11 00313
1/16	1.5	ER11 00625
5/64	2.0	ER11 00787
3/32		ER11 00937
1/8	3.0	ER11 01250
5/32	4.0	ER11 01575
3/16	4.5	ER11 01875
7/32	5.5	ER11 02187
15/64	6.0	ER11 02362
1/4		ER11 02500
17/64	7.0	ER11 02756

Clamping Range: .02 (.5mm)
Gage Dia. D: .4331
Gage Line Location Z: .149
Collet Length L: .708"
Ref. Nut No. NER11

ER Series Precision Inch & Metric Collets continued

- Collet sets available - See page #187





ER16 Series
(.020 - .394" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/32	.8	ER16 00313*
1/16	1.5	ER16 00625
5/64	2.0	ER16 00787
3/32		ER16 00937
1/8	3.0	ER16 01250
5/32	4.0	ER16 01575
3/16	4.5	ER16 01875
7/32	5.5	ER16 02187
15/64	6.0	ER16 02362
1/4		ER16 02500
9/32	7.0	ER16 02812
5/16		ER16 03125
	8.0	ER16 03150
11/32	8.5	ER16 03437
3/8	9.5	ER16 03750
	10.0	ER16 03937
13/32		ER16 04062

Clamping Range: .039 (1.0mm)
Gage Dia. D: .6299
Gage Line Location Z: .246
Collet Length L: 1.083"
Ref. Nut No. NER16
*Clamping Range: .02 (.5mm)

ER20 Series
(.039 - .512" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/16	1.5	ER20 00625
5/64	2.0	ER20 00787
3/32		ER20 00937
1/8	3.0	ER20 01250
5/32	4.0	ER20 01575
3/16	4.5	ER20 01875
7/32	5.5	ER20 02187
15/64	6.0	ER20 02362
1/4		ER20 02500
9/32	7.0	ER20 02812
5/16		ER20 03125
	8.0	ER20 03150
11/32	8.5	ER20 03437
3/8	9.5	ER20 03750
	10.0	ER20 03937
13/32		ER20 04062
7/16	11.0	ER20 04375
	12.0	ER20 04724
1/2	12.5	ER20 05000
	13.0	ER20 05118

Clamping Range: .039 (1.0mm)
Gage Dia. D: .7874
Gage Line Location Z: .250
Collet Length L: 1.240"
Ref. Nut No. NER20

ER Series Precision Inch & Metric Collets continued

- Collet sets available - See page #187



ER25 Series
(.039 - .630" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/16	1.5	ER25 00625
5/64	2.0	ER25 00787
3/32		ER25 00937
1/8	3.0	ER25 01250
5/32	4.0	ER25 01575
3/16	4.5	ER25 01875
7/32	5.5	ER25 02187
15/64	6.0	ER25 02362
1/4		ER25 02500
9/32	7.0	ER25 02812
5/16		ER25 03125
	8.0	ER25 03150
11/32	8.5	ER25 03437
3/8	9.5	ER25 03750
	10.0	ER25 03937
13/32		ER25 04062
7/16	11.0	ER25 04375
	12.0	ER25 04724
1/2	12.5	ER25 05000
17/32	13.5	ER25 05312
	14.0	ER25 05511
9/16		ER25 05625
19/32	15.0	ER25 05937
5/8		ER25 06250
	16.0	ER25 06299

Clamping Range: .039 (1.0mm)
Gage Dia. D: .9843
Gage Line Location Z: .262
Collet Length L: 1.338"
Ref. Nut No. NER25

ER32 Series
(.079 - .787" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
	3.0	ER32 01181
1/8		ER32 01250
5/32	4.0	ER32 01575
3/16	4.5	ER32 01875
7/32	5.5	ER32 02187
15/64	6.0	ER32 02362
1/4		ER32 02500
9/32	7.0	ER32 02812
5/16		ER32 03125
	8.0	ER32 03150
11/32	8.5	ER32 03437
3/8	9.5	ER32 03750
	10.0	ER32 03937
13/32		ER32 04062
7/16	11.0	ER32 04375
	12.0	ER32 04724
1/2	12.5	ER32 05000
17/32	13.5	ER32 05312
	14.0	ER32 05511
9/16		ER32 05625
19/32	15.0	ER32 05937
5/8		ER32 06250
	16.0	ER32 06299
21/32	16.5	ER32 06562
11/16		ER32 06875
	18.0	ER32 07087
23/32		ER32 07187
3/4	19.0	ER32 07500
25/32	20.0	ER32 07874
13/16	20.5	ER32 08125

Clamping Range: .039 (1.0mm)
Gage Dia. D: 1.2598
Gage Line Location Z: .282
Collet Length L: 1.575"
Ref. Nut No. NER32

ER Series Precision Inch & Metric Collets continued

- Collet sets available below.



ER40 Series
(.118 - 1.181" Collet Range)

Nominal Tool Size		Part No.
Inch	MM	
1/8	3.0	ER40 01250
3/16	4.5	ER40 01875
1/4		ER40 02500
5/16		ER40 03125
	8.0	ER40 03150
3/8	9.5	ER40 03750
	10.0	ER40 03937
13/32		ER40 04062
7/16	11.0	ER40 04375
	12.0	ER40 04724
1/2	12.5	ER40 05000
17/32	13.5	ER40 05312
9/16		ER40 05625
19/32	15.0	ER40 05937
5/8		ER40 06250
	16.0	ER40 06299
21/32	16.5	ER40 06562

Clamping Range: .039 (1.0mm)
Gage Dia. D: 1.5748
Gage Line Location Z: .302
Collet Length L: 1.811"
Ref. Nut No. NER40

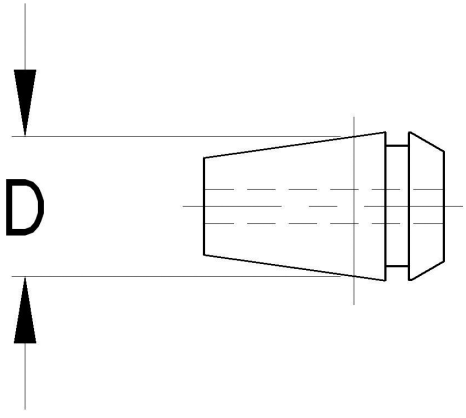
ER40 Series
(.118 - 1.181" Collet Range) (continued)

Nom Tool Size		Part No.
Inch	MM	
11/16		ER40 06875
23/32		ER40 07187
3/4	19.0	ER40 07500
25/32	20.0	ER40 07874
13/16	20.5	ER40 08125
27/32		ER40 08437
7/8		ER40 08750
29/32	23.0	ER40 09062
15/16		ER40 09375
31/32	24.5	ER40 09687
63/64	25.0	ER40 09843
1"		ER40 10000
1 1/16	27.0	ER40 10625
1 1/8	28.5	ER40 11250
	30.0	ER40 11811

Clamping Range: .039 (1.0mm)
Gage Dia. D: 1.5748
Gage Line Location Z: .302
Collet Length L: 1.811"
Ref. Nut No. NER40

ER Series Precision Inch Collet Sets

- Order by part number listed
- ER collet series must match ER series of chuck

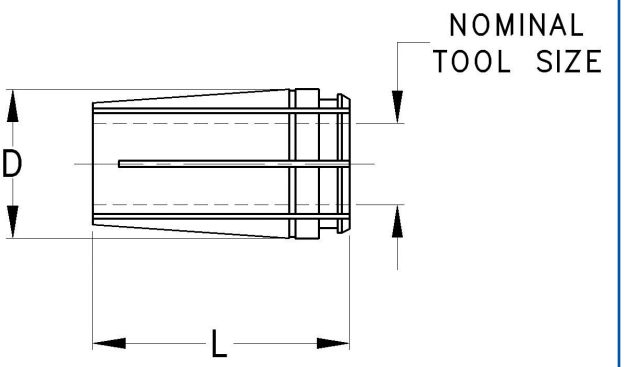


Collet Set Part No.	Collet Series	Collet Set Range	D	No. Pieces - Increments
ER8ISET	ER8	1/16-3/16	.3149	5 collets in 1/32's
ER11ISET	ER11	1/16-1/4	.4331	7 collets in 1/32's
ER16ISET	ER16	1/16-3/8	.6299	11 collets in 1/32's
ER20ISET	ER20	1/8-1/2	.7874	13 collets in 1/32's
ER25ISET	ER25	1/8-5/8	.9843	17 collets in 1/32's
ER32ISET	ER32	3/16-3/4	1.2598	19 collets in 1/32's
ER40ISET	ER40	1/8-1 1/8	1.5748	17 collets in 1/16's

SG (TG) Series Precision Inch Collets

- Order by part number listed
- Series of collet must match series of chuck
- Collet sets available - see page #191
- Extended clamping range: .016
- Standard .0005 T.I.R.





75SG Series
(1/16-3/4" Collet Range)

Nominal Tool Size		Part No.
Fraction	Decimal	
5/64	.0781	75SG 00781
3/32	.0937	75SG 00937
7/64	.1093	75SG 01093
1/8	.1250	75SG 01250
9/64	.1406	75SG 01406
5/32	.1562	75SG 01562
11/64	.1719	75SG 01719
3/16	.1875	75SG 01875
13/64	.2031	75SG 02031
7/32	.2187	75SG 02187
15/64	.2344	75SG 02344
1/4	.2500	75SG 02500
17/64	.2656	75SG 02656
9/32	.2812	75SG 02812
19/64	.2968	75SG 02968
5/16	.3125	75SG 03125
21/64	.3281	75SG 03281
11/32	.3437	75SG 03437
23/64	.3594	75SG 03594
3/8	.3750	75SG 03750
25/64	.3906	75SG 03906
13/32	.4062	75SG 04062
27/64	.4219	75SG 04219

Clamping Range: .016
Gage Dia. D: 1.062
Collet Length L: 1.84"
Ref. Nut No. 440107

75SG Series
(1/16-3/4" Collet Range) continued

Nominal Tool Size		Part No.
Fraction	Decimal	
7/16	.4375	75SG 04375
29/64	.4531	75SG 04531
15/32	.4687	75SG 04687
31/64	.4843	75SG 04843
1/2	.5000	75SG 05000
33/64	.5156	75SG 05156
17/32	.5312	75SG 05312
35/64	.5469	75SG 05469
9/16	.5625	75SG 05625
37/64	.5781	75SG 05781
19/32	.5937	75SG 05937
39/64	.6094	75SG 06094
5/8	.6250	75SG 06250
41/64	.6406	75SG 06406
21/32	.6562	75SG 06562
43/64	.6719	75SG 06719
11/16	.6875	75SG 06875
45/64	.7031	75SG 07031
23/32	.7187	75SG 07187
47/64	.7344	75SG 07344
3/4	.7500	75SG 07500

Clamping Range: .016
Gage Dia. D: 1.062
Collet Length L: 1.84"
Ref. Nut No. 440107

SG (TG) Series Precision Inch Collets continued

- Collet sets available - See page #191



10SG Series
(3/32-1" Collet Range)

Nominal Tool Size		Part No.
Fraction	Decimal	
3/32	.0937	10SG 00937
7/64	.1093	10SG 01093
1/8	.1250	10SG 01250
9/64	.1406	10SG 01406
5/32	.1562	10SG 01562
11/64	.1719	10SG 01719
3/16	.1875	10SG 01875
13/64	.2031	10SG 02031
7/32	.2187	10SG 02187
15/64	.2344	10SG 02344
1/4	.2500	10SG 02500
17/64	.2656	10SG 02656
9/32	.2812	10SG 02812
19/64	.2968	10SG 02968
5/16	.3125	10SG 03125
21/64	.3281	10SG 03281
11/32	.3437	10SG 03437
23/64	.3594	10SG 03594
3/8	.3750	10SG 03750
25/64	.3906	10SG 03906
13/32	.4062	10SG 04062
27/64	.4219	10SG 04219
7/16	.4375	10SG 04375
29/64	.4531	10SG 04531
15/32	.4687	10SG 04687
31/64	.4843	10SG 04843
1/2	.5000	10SG 05000
33/64	.5156	10SG 05156
17/32	.5312	10SG 05312
35/64	.5469	10SG 05469

Clamping Range: .016
Gage Dia. D: 1.375
Collet Length L: 2.38"
Ref. Nut No. 440003

10SG Series
(3/32-1" Collet Range) continued

Nominal Tool Size		Part No.
Fraction	Decimal	
9/16	.5625	10SG 05625
37/64	.5781	10SG 05781
19/32	.5937	10SG 05937
39/64	.6094	10SG 06094
5/8	.6250	10SG 06250
41/64	.6406	10SG 06406
21/32	.6562	10SG 06562
43/64	.6719	10SG 06719
11/16	.6875	10SG 06875
45/64	.7031	10SG 07031
23/32	.7187	10SG 07187
47/64	.7344	10SG 07344
3/4	.7500	10SG 07500
49/64	.7656	10SG 07656
25/32	.7812	10SG 07812
51/64	.7969	10SG 07969
13/16	.8125	10SG 08125
53/64	.8281	10SG 08281
27/32	.8437	10SG 08437
55/64	.8594	10SG 08594
7/8	.8750	10SG 08750
57/64	.8906	10SG 08906
29/32	.9062	10SG 09062
59/64	.9219	10SG 09219
15/16	.9375	10SG 09375
61/64	.9531	10SG 09531
31/32	.9687	10SG 09687
63/64	.9844	10SG 09844
1"	1.0000	10SG 10000

Clamping Range:
.016
Gage Dia. D: 1.375
Collet Length L: 2.38"
Ref. Nut No. 440003

SG (TG) Series Precision Inch Collets continued

- Collet sets available - See page #191



15SG Series
(1/2- 1-1/2" Collet Range)

Nominal Tool Size		Part No.
Fraction	Decimal	
1/2	.5000	15SG 05000
33/64	.5156	15SG 05156
17/32	.5312	15SG 05312
35/64	.5469	15SG 05469
9/16	.5625	15SG 05625
37/64	.5781	15SG 05781
19/32	.5937	15SG 05937
39/64	.6094	15SG 06094
5/8	.6250	15SG 06250
41/64	.6406	15SG 06406
21/32	.6562	15SG 06562
43/64	.6719	15SG 06719
11/16	.6875	15SG 06875
45/64	.7031	15SG 07031
23/32	.7187	15SG 07187
47/64	.7344	15SG 07344
3/4	.7500	15SG 07500
49/64	.7656	15SG 07656
25/32	.7812	15SG 07812
51/64	.7969	15SG 07969
13/16	.8125	15SG 08125
53/64	.8281	15SG 08281
27/32	.8437	15SG 08437
55/64	.8594	15SG 08594
7/8	.8750	15SG 08750
57/64	.8906	15SG 08906
29/32	.9062	15SG 09062
59/64	.9219	15SG 09219
15/16	.9375	15SG 09375
61/64	.9531	15SG 09531
31/32	.9687	15SG 09687
63/64	.9844	15SG 09844

Clamping Range: .016
Gage Dia. D: 2.000
Collet Length L: 3.00"
Ref. Nut No. 440009

15SG Series
(1/2- 1-1/2" Collet Range) continued

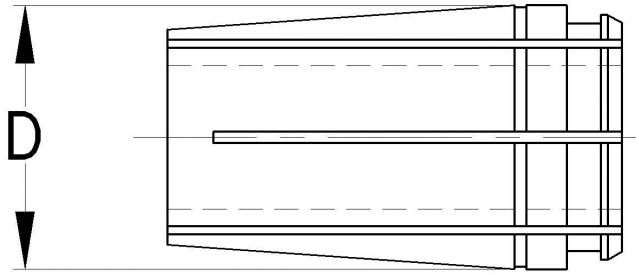
Nominal Tool Size		Part No.
Fraction	Decimal	
1"	1.0000	15SG 10000
1 1/64	1.0156	15SG 10156
1 1/32	1.0313	15SG 10313
1 3/64	1.0469	15SG 10469
1 1/16	1.0625	15SG 10625
1 5/64	1.0781	15SG 10781
1 3/32	1.0937	15SG 10937
1 7/64	1.1093	15SG 11093
1 1/8	1.1250	15SG 11250
1 9/64	1.1406	15SG 11406
1 5/32	1.1562	15SG 11562
1 11/64	1.1719	15SG 11719
1 3/16	1.1875	15SG 11875
1 13/64	1.2031	15SG 12031
1 7/32	1.2187	15SG 12187
1 15/64	1.2344	15SG 12344
1 1/4	1.2500	15SG 12500
1 17/64	1.2656	15SG 12656
1 9/32	1.2812	15SG 12812
1 19/64	1.2968	15SG 12968
1 5/16	1.3125	15SG 13125
1 21/64	1.3281	15SG 13281
1 11/32	1.3437	15SG 13437
1 23/64	1.3594	15SG 13594
1 3/8	1.3750	15SG 13750
1 25/64	1.3906	15SG 13906
1 13/32	1.4062	15SG 14062
1 27/64	1.4219	15SG 14219
1 7/16	1.4375	15SG 14375
1 29/64	1.4531	15SG 14531
1 15/32	1.4687	15SG 14687
1 31/64	1.4843	15SG 14843
1 1/2	1.5000	15SG 15000

Clamping Range: .016
Gage Dia. D: 2.000
Collet Length L: 3.00"
Ref. Nut No. 440009

SG (TG) Series Precision Inch Collet Sets

- Order by part number listed
- Series of collet must match series of chuck



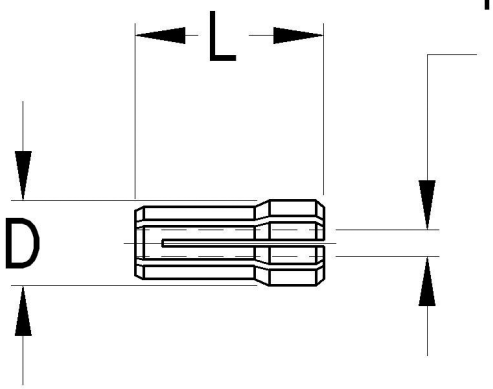


Collet Set Part No.	Collet Series	Collet Set Range	D	No. Pieces - Increments
440128	75SG	1/4-3/4	1.062	17 collets in 1/32's
440129	75SG	1/4-3/4	1.062	33 collets in 1/64's
440130	10SG	3/8-1"	1.375	21 collets in 1/32's
440131	10SG	3/32-1"	1.375	30 collets in 1/32's
440132	10SG	3/32-1"	1.375	59 collets in 1/64's
440133	15SG	3/4-1 1/2"	2.000	25 collets in 1/32's
440134	15SG	1/2-1 1/2"	2.000	33 collets in 1/32's

DA (Double Angle) Series Inch Collets

- Order by part number listed
- Series of collet must match series of chuck
- Collet sets available - See page #193
- Extended clamping range: .03





DA30 Series
(1/64-1/4" Collet Range)

Nominal Tool Size		Part No.
Fraction	Decimal	
1/32	.0313	30 00313
3/64	.0469	30 00469
1/16	.0625	30 00625
5/64	.0781	30 00781
3/32	.0937	30 00937
7/64	.1093	30 01093
1/8	.1250	30 01250
9/64	.1406	30 01406
5/32	.1562	30 01562
11/64	.1719	30 01719
3/16	.1875	30 01875
13/64	.2031	30 02031
7/32	.2187	30 02187
15/64	.2344	30 02344
1/4	.2500	30 02500

Clamping Range: .03
Gage Dia. D: .375
Collet Length L: 1.00"
Ref. Nut No. 440119

DA20 Series
(1/64-3/8" Collet Range)

Nominal Tool Size		Part No.
Fraction	Decimal	
3/64	.0469	20 00469
1/16	.0625	20 00625
5/64	.0781	20 00781
3/32	.0937	20 00937
7/64	.1093	20 01093
1/8	.1250	20 01250
9/64	.1406	20 01406
5/32	.1562	20 01562
11/64	.1719	20 01719
3/16	.1875	20 01875
13/64	.2031	20 02031
7/32	.2187	20 02187
15/64	.2344	20 02344
1/4	.2500	20 02500
17/64	.2656	20 02656
9/32	.2812	20 02812
19/64	.2968	20 02968
5/16	.3125	20 03125
21/64	.3281	20 03281
11/32	.3437	20 03437
23/64	.3594	20 03594
3/8	.3750	20 03750

Clamping Range: .03
Gage Dia. D: .539
Collet Length L: 1.19"
Ref. Nut No. 440120

DA (Double Angle) Series Inch Collets continued

- See collet sets below

DA10 Series
(1/64-9/16" Collet Range)

Nominal Tool Size		Part No.
Fraction	Decimal	
3/64	.0469	10 00469
1/16	.0625	10 00625
5/64	.0781	10 00781
3/32	.0937	10 00937
7/64	.1093	10 01093
1/8	.1250	10 01250
9/64	.1406	10 01406
5/32	.1562	10 01562
11/64	.1719	10 01719
3/16	.1875	10 01875
13/64	.2031	10 02031
7/32	.2187	10 02187
15/64	.2344	10 02344
1/4	.2500	10 02500
17/64	.2656	10 02656
9/32	.2812	10 02812
19/64	.2968	10 02968

Clamping Range: .03
Gage Dia. D: .769
Collet Length L: 1.44"
Ref. Nut No. 440121



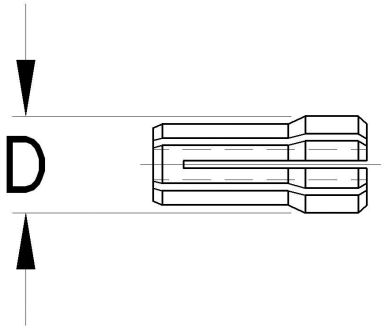
DA10 Series
(1/64-9/16" Collet Range) continued

Nominal Tool Size		Part No.
Fraction	Decimal	
5/16	.3125	10 03125
21/64	.3281	10 03281
11/32	.3437	10 03437
23/64	.3594	10 03594
3/8	.3750	10 03750
25/64	.3906	10 03906
13/32	.4062	10 04062
27/64	.4219	10 04219
7/16	.4375	10 04375
29/64	.4531	10 04531
15/32	.4687	10 04687
31/64	.4843	10 04843
1/2	.5000	10 05000
33/64	.5156	10 05156
17/32	.5312	10 05312
35/64	.5469	10 05469
9/16	.5625	10 05625

Clamping Range: .03
Gage Dia. D: .769
Collet Length L: 1.44"
Ref. Nut No. 440121

DA (Double Angle) Series Inch Collet Sets

- Order by part number listed
- Series of collet must match series of chuck



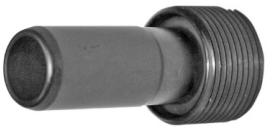
Collet Set Part No.	Collet Series	Collet Set Range	D	No. Pieces - Increments
440125	DA30	3/64-1/4	.375	8 collets in 1/32's
440126	DA20	3/32-3/8	.539	9 collets in 1/32's
440127	DA10	1/4-9/16	.769	11 collets in 1/32's

Collet Nuts & Wrenches
- Acura Series, ER, SG (TG), DA & Double Taper
- Wrenches



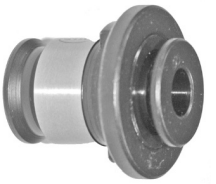
Pages 195-197

HSK Coolant Tubes & Wrenches



Page 198

Quick Change Tap Adapters & Accessories
- Rigid
- Adjustable Torque Control
- Acura-Flex Collet Style
- Tap Extensions



Pages 199-202

Retention Knobs
- CAT40, CAT50 & BT40



Page 203

Shell Mill Screws
- Standard
- Flood Coolant



Page 204

Locking Fixtures



Page 205

Preset Height Gages
- Cost Effective Preset Height Gages

Page 206

Microset Tool Presetting
- Models Available
- Service, Calibration, Parts

Pages 207-208

Acura Series Collet Nuts & Wrench

- Nut capacity must match collet capacity
- Order wrench separately



Acura-Flex® Nuts

Part Number	Capacity	Wrench Part Number	Style	Size
9400022	1/4	55029	Open End	0.68 Octagon
9400002	3/8	55068	Open End	1.00 Octagon
9400020	1/2	55105	Open End	1.25 Octagon
9400005	3/4	55139	Spanner	1.94 Diameter
9400021	1”	55171	Spanner	2.50 Diameter
9400011	1-3/8	85296	Spanner	3.00 Diameter
9400014	1-5/8	55200	Spanner	3.38 Diameter

Acura-Grip® Nuts

Part Number	Capacity	Wrench Part Number	Style	Size
90501	1/2	55105	Open End	1.25 Octagon
90751	3/4	55139	Spanner	1.94 Diameter
901001	1”	55171	Spanner	2.50 Diameter
901376	1-3/8	85296	Spanner	3.00 Diameter
901626	1-5/8	55200	Spanner	3.38 Diameter

Acura-Tap® Nuts

Part Number	Capacity	Wrench Part Number	Style	Size
280669	1/2	505643	Open End	1.06 Hexagon
280677	7/8	505651	Open End	1.50 Hexagon
280681	1-1/2	505650	Spanner	2.75 Diameter

ER Collet Nuts & Wrenches

- Spanner and Hex styles available
- Fits most standard ER collet chucks
- Nut series must match collet series
- Order wrench separately



Part Number	Series	Wrench Part Number	Style	Size	Thread Size
NER11	ER11	WER11	Open End	17mm	M14 x 0.75
NER16	ER16	WER16	Open End	25mm	M22 x 1.50
NER20	ER20	WER20	Open End	30mm	M25 x 1.50
NER25	ER25	WER25	Spanner	42mm	M32 x 1.50
NER32	ER32	WER32	Spanner	50mm	M40 x 1.50
NER40	ER40	WER40	Spanner	63mm	M50 x 1.50
	Optional ER				
5012761	ER16	5012861	Spanner	32mm	M22 x 1.50
5012762	ER20	5012873	Spanner	35mm	M25 x 1.50
	Mini ER				
NER8M	ER8	WER8M	Mini Spanner	12mm	M10 x 0.75
NER11M	ER11	WER11M		16mm	M13 x 0.75
NER16M	ER16	WER16M		22mm	M19 x 1.00
NER20M	ER20	WER20M		28mm	M24 x 1.00
NER25M	ER25	WER25M		35mm	M30 x 1.00

SG Standard Collet Nuts & Wrenches

- Fits most SG / TG collet chucks.
- Nut series must match collet series
- Order wrench separately



Part Number	Series	Wrench Part Number	Style	Size
440107	75SG	505955	Open End	1.88 Hexagon
440003	10SG	505646	Open End	2.25 Hexagon
440009	15SG	9903538	Spanner	3.50 Diameter

Double Taper Collet Nuts & Wrenchs

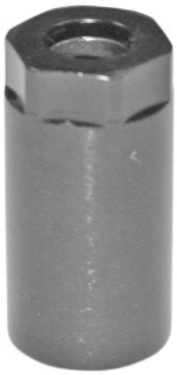
- Nut capacity must match collet capacity
- Order wrench separately



Part Number	Series	Capacity	Wrench Part Number	Style	Size
551080	OW	1/4	55029	Open End	.68 Octagon
551082	WW	3/8	55068		1.00 Octagon
551084	Y	1/2	55105		1.25 Octagon
551090	Z	3/4	55139	Spanner	1.94 Diameter
551098	ZZ	1”	55171		2.50 Diameter
551108	XZ	1-1/2	55200		3.38 Diameter

DA Standard Collet Nuts & Wrenches

- Nut series must match collet series
- Order wrench separately



Part Number	Series	Wrench Part Number	Style	Size
440119	DA30	9903560	Open End	.50 Hexagon
440120	DA20	9903561		.75 Hexagon
440121	DA10	9903562		.94 Hexagon

HSK Coolant Tubes & Wrenches



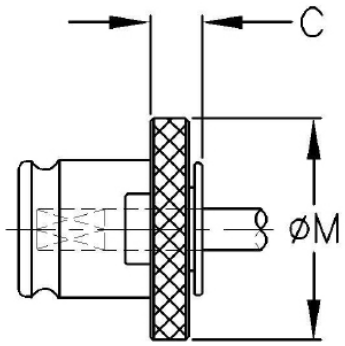


Series	Part Number	Wrench Part Number	Thread
50A	4616228	4616236	M16 x 1.0
63A	4616229	4616237	M18 x 1.0
100A	4616231	4616239	M24 x 1.5

Rigid QC Tap Adapters-ANSI

- Tang Drive
- Metric tap adapters available upon request (Specify tap shank diameter and square size)
- Adapter size and chuck adapter size must match
- See page #200 for adjustable torque control style adapters





Adapter Size	C	M
0	.28	.87
1	.28	1.18
2	.43	1.89
3	.55	2.76

Tap Size	Shank		Square		Adapter Size			
Inch	Inch	MM	INCH	MM	Size 0	Size 1	Size 2	Size 3
#0-#6	.141	3.58	.110	2.79	16822	16827		
#8	.168	4.27	.131	3.33	16823	16828		
#10	.194	4.93	.152	3.86	16824	16829		
#12	.220	5.59	.165	4.19	16825	16830		
1/4	.255	6.48	.191	4.85	16826	16831	163068	
5/16	.318	8.08	.238	6.05		16832	162173	
3/8	.381	9.68	.286	7.26		16833	162174	
7/16	.323	8.20	.242	6.15		16834	162175	
1/2	.367	9.32	.275	6.99		16835	162176	
9/16	.429	10.90	.322	8.18		16836	16837	
5/8	.480	12.19	.360	9.14			16838	
11/16	.542	13.77	.406	10.31			16839	
3/4	.590	14.99	.442	11.23			16840	163092
13/16	.652	16.56	.489	12.42			16841	16843
7/8	.697	17.70	.523	13.28			16842	16844
15/16	.760	19.30	.570	14.48				16845
1”	.800	20.32	.600	15.24				16846
1-1/16-1-1/8	.896	22.76	.672	17.07				16848
1-3/16-1-1/4	1.021	25.93	.766	19.46				16850
1-5/16-1-3/8	1.108	28.14	.831	21.11				16852
Pipe Tap								
1/8 PIPE SS	.313	7.95	.234	5.94		163949		
1/8 PIPE LS	.438	11.13	.328	8.33		161803		
1/4 PIPE	.563	14.30	.421	10.69			161693	
3/8 PIPE	.700	17.78	.531	13.49			161694	168827
1/2 PIPE	.688	17.48	.515	13.08			161695	165201
3/4 PIPE	.906	23.01	.679	17.25				161696
1” PIPE	1.125	28.58	.843	21.41				161697

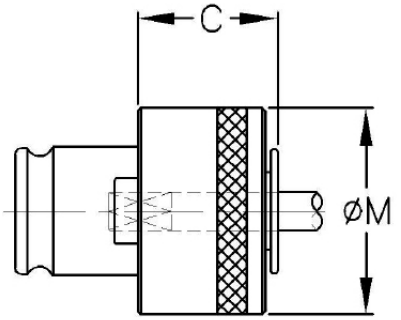
Rigid QC Tap Adapter Sets

Adapter Size	Tap Range	Adapters in Set	Set Part No.
1	#0 - 9/16	#6, #8, #10, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16 (9 adapters)	16580
2	5/16 - 7/8	5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8 (10 adapters)	16581

Adjustable Torque Control QC Tap Adapters-ANSI

- Tang Drive
- Metric tap adapters available upon request (Specify tap shank diameter and square size)
- Adapter size and chuck adapter size must match
- Use with length compensating chucks only





Adapter Size	C	M
0	.83	.91
1	.98	1.26
2	1.34	1.97
3	1.77	2.83

Tap Size	Shank		Square					Adapter Size
	Inch	MM	Inch	MM	Size 0	Size 1	Size 2	Size 3
#0-#6	.141	3.58	.110	2.79	16884B	16889B		
#8	.168	4.27	.131	3.33	16885B	16890B		
#10	.194	4.93	.152	3.86	16886B	16891B		
#12	.220	5.59	.165	4.19	16887B	16892B		
1/4	.255	6.48	.191	4.85	16888B	16893B	165490B	
5/16	.318	8.08	.238	6.05		16894B	162177B	
3/8	.381	9.68	.286	7.26		16895B	162178B	
7/16	.323	8.20	.242	6.15		16896B	162179B	
1/2	.367	9.32	.275	6.99		16897B	162180B	
9/16	.429	10.90	.322	8.18		16898B	16899B	
5/8	.480	12.19	.360	9.14			16900B	
11/16	.542	13.77	.406	10.31			16901B	
3/4	.590	14.99	.442	11.23			16902B	165791B
13/16	.652	16.56	.489	12.42			16903B	16905B
7/8	.697	17.70	.523	13.28			16904B	16906B
15/16	.760	19.30	.570	14.48				16907B
1”	.800	20.32	.600	15.24				16908B
1-1/16-1-1/8	.896	22.76	.672	17.07				16910B
1-3/16-1-1/4	1.021	25.93	.766	19.46				16912B
1-5/16-1-3/8	1.108	28.14	.831	21.11				16914B
PIPE TAP								
1/8 PIPE SS	.313	7.95	.234	5.94		164622B		
1/8 PIPE LS	.438	11.13	.328	8.33		162710B		
1/4 PIPE	.563	14.30	.421	10.69			161637B	
3/8 PIPE	.700	17.78	.531	13.49			161638B	
1/2 PIPE	.688	17.48	.515	13.08			161639B	168683B
3/4 PIPE	.906	23.01	.679	17.25				161640B
1” PIPE	1.125	28.58	.843	21.41				161641B

Quick Change Adjustable Torque Control Tap Adapter Sets

Adapter Size	Tap Range	Adapters in Set	Set Part No.
1	#0 - 9/16	#6, #8, #10, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16 (9 adapters)	16603
2	5/16 - 7/8	5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8 (10 adapters)	166305

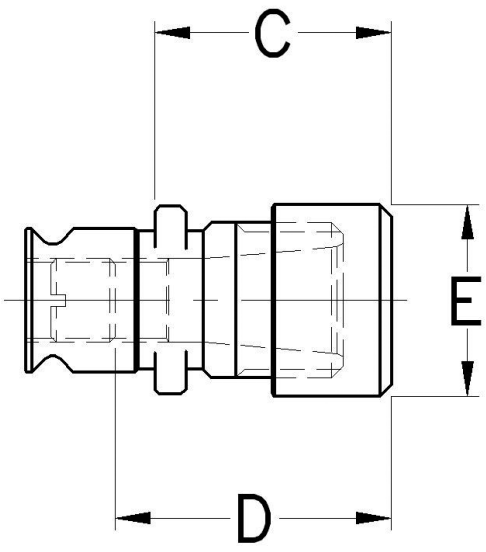
Acura-Flex Collet Chuck-Quick Change Adapter

- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip, delete AF-prefix
- Adapter size and chuck adapter size must match



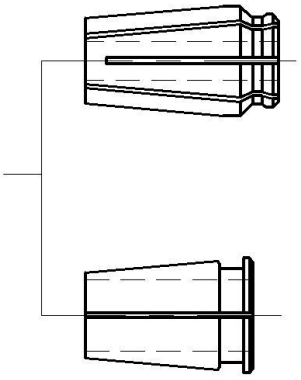


P: 173



Acura-Flex

- Extended range
- Excellent gripping power



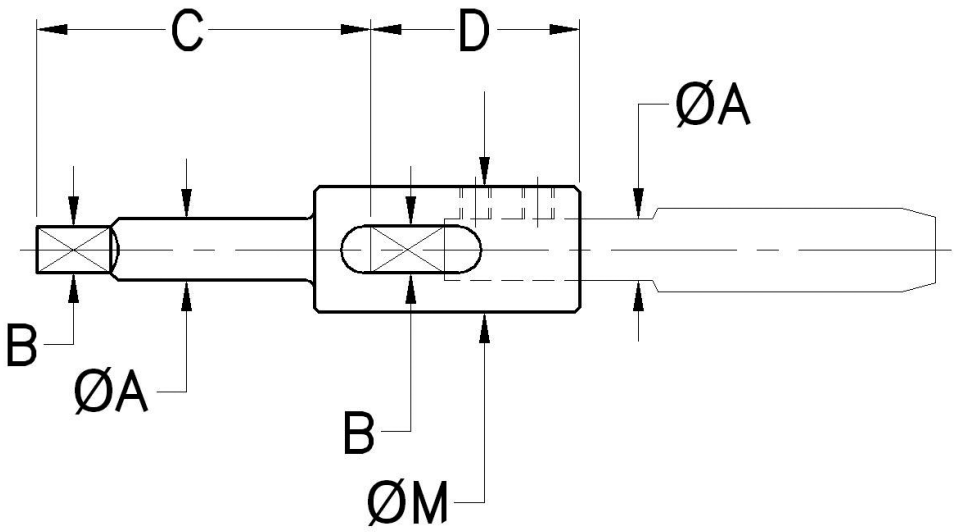
Acura-Grip

- Extreme precision
- 3/4 collet range

Part Number	Adapter Size	Collet Range (Acura-Flex Collet No.'s)	C	D Max. Preset Depth	E	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF91590	1	1/16-3/8 (AF21- AF44)	1.23	1.53	1.00 Oct.	9400002	40 ft. lbs.	55068
AF91592	2	7/64-3/4 (AF95 - AF140)	2.31	3.00	1.94 Span.	9400005	75 ft. lbs.	55139

Tap Extensions-ANSI



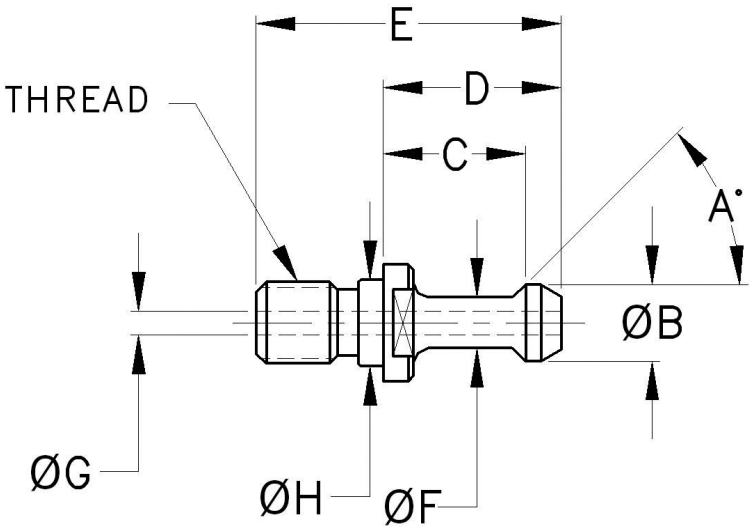


Part Number	Tap Size	A	B	C	D	M
508024	#0 - #6	.141	.110	2.00	1.00	.44
508027	#8	.168	.131	2.00	1.00	.44
508030	#10	.194	.152	2.00	1.00	.44
508033	1/4	.255	.191	2.00	1.12	.62
508036	5/16	.318	.238	2.00	1.12	.62
508039	3/8	.381	.286	2.00	1.25	.75
508042	7/16	.323	.242	2.00	1.25	.75
508045	1/2	.367	.275	2.00	1.25	.75
508048	9/16	.429	.322	3.00	1.38	.75
508051	5/8	.480	.360	3.00	1.62	.88
508054	3/4	.590	.442	3.00	1.75	1.00
508057	7/8	.697	.523	3.00	2.00	1.12
508440	1/8 PIPE SS	.312	.234	2.00	1.25	.62
508063	1/8 PIPE LS	.437	.328	2.00	1.25	.75
508066	1/4 PIPE	.562	.421	2.00	1.25	.88
508069	3/8 PIPE	.700	.531	3.00	1.50	1.12
508072	1/2 PIPE	.687	.515	3.00	1.50	1.12

Pull Studs

- Common pull studs shown below, other styles available upon request.
- Please verify all dimensions prior to ordering.





Warning: Certain machines require retention studs other than shown. Toolholder retention studs are not necessarily interchangeable across various types of toolholders or machine tool models. Use of metric-threaded studs in inch-threaded holders or vise versa is dangerous. Failure to use the proper thread or stud configuration could cause the toolholder to come free of the spindle which could result in serious personal injury.

Tool Shank	Part Number	A	B	C	D	E	F	G	H	Thread	Ref.
CAT40	507847	45	.740	.440	.640	1.500	.490	.283	-	5/8 - 11	ANSI B5.50 Coolant
	5012262	45	.740	.440	.640	1.500	.490	-	-		ANSI B5.50
	5010806	45	.589	.988	1.264	2.250	.392	-	.636		P40T-1
	5013067	45	.589	.988	1.264	2.250	.392	.157	.636		P40T-1 Coolant
	5013068	60	.589	.988	1.264	2.250	.392	-	.636		P40T-2
	5013069	60	.589	.988	1.264	2.250	.392	.157	.636		P40T-2 Coolant
	5013070	90	.589	.988	1.264	2.250	.392	-	.636		P40T-3
CAT50	507318	45	1.140	.700	1.000	2.300	.820	.468	-	1"-8	ANSI B5.50 Coolant
	5011717	45	1.140	.700	1.000	2.300	.820	-	-		ANSI B5.50
	5010497	45	.903	1.384	1.778	3.350	.668	-	1.026		P50T-1
	5013071	45	.903	1.384	1.778	3.350	.668	.250	1.026		P50T-1 Coolant
	5011686	60	.903	1.384	1.778	3.350	.668	-	1.026		P50T-2
	5013072	60	.903	1.384	1.778	3.350	.668	.250	1.026		P50T-2 Coolant
	5010122	90	.903	1.384	1.778	3.350	.668	-	1.026		P50T-3
BT40	508955	45	.589	1.100	1.376	2.360	.392	-	.669	M16 x 2.0	P40T-1
	509156	60	.589	1.100	1.376	2.360	.392	-	.669		P40T-2

Shell Mill Screws, Standard & Coolant Thru



Figure 1 The standard screw design, no coolant thru.

Figure 2
Coolant hole thru the center of the screw for flood coolant at the center of the cutter.

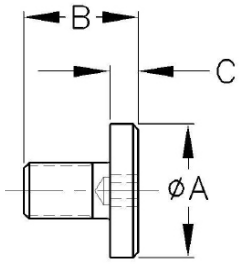


Fig. 1

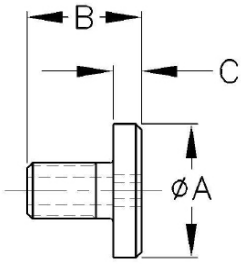
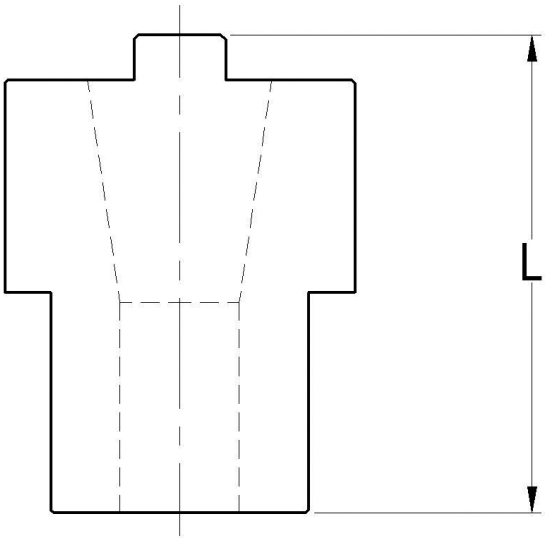


Fig. 2

Standard Screw (Included) Fig. 1	Shell Mill Pilot	Thread	A	B	C	Order Separately
						Coolant Thru Fig. 2
5002	.7500	3/8 - 24	.88	.94	.31	4610509
5003	1.0000	1/2 - 20	1.18	1.12	.31	466870
5004	1.2500	5/8 - 18	1.50	1.25	.31	4610510
5005	1.5000	3/4 - 16	1.88	1.50	.38	4610511
5006	2.0000	1" - 14	2.50	1.68	.38	466871
5007	2.5000	1" - 14	3.12	1.68	.38	4611441

Adapter Locking Fixtures

- Order by part number listed





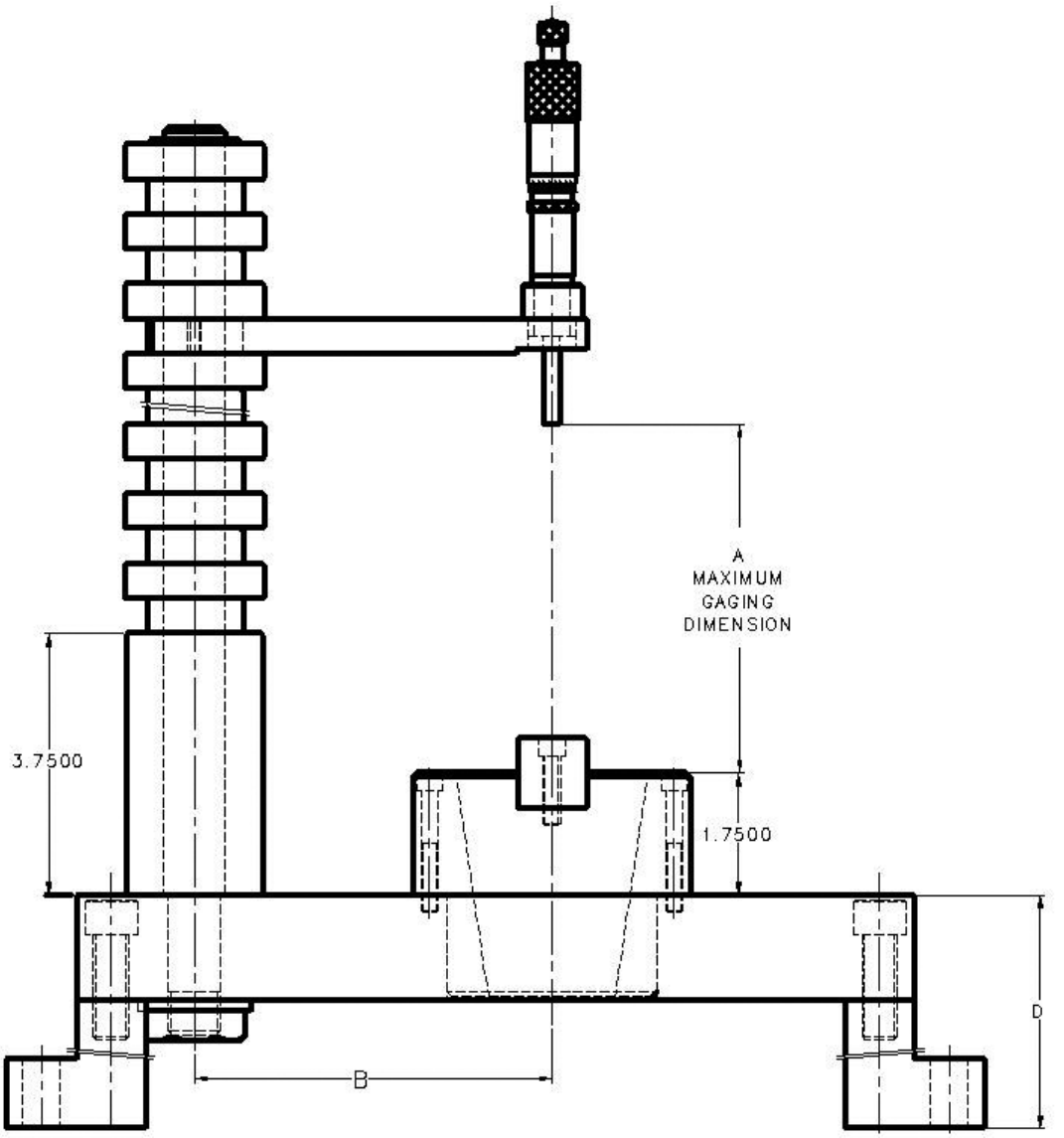
Taper	Part Number	L
30mm	506072	3.25
40mm	506063	4.25
50mm	506073	5.75

Notes:

1. These locking features can be used with NMTB, CAT V-Flange, BT and Flash-Change style taper shank tooling.
2. These locking features are used to radially hold and protect the adapter shank when changing tools in collet or shell mill adapters.

Height Gage

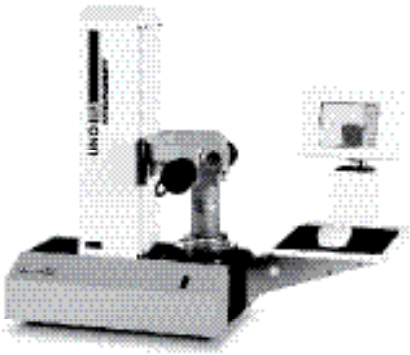
- Other shanks available upon request



Part Number	Maximum Tool Dia.	Tool Shank	A	B	D
503558	4.00	CAT30, 30NMTB	10.000 +/-.0015	3.00	2.43
506060	4.00	CAT40, 40NMTB, BT40, FLASH CHANGE 40	10.000 +/-.0015	3.00	2.43
503682	8.00	CAT50, 50NMTB, FLASH CHANGE 50	15.000 +/-.0025	5.12	5.50
506062	8.00	CAT50, 50NMTB, FLASH CHANGE 50	20.000 +/-.003	5.12	5.50
5012729	8.00	HSK 63A, 63C	20.000 +/-.003	5.12	5.50
803270	4.00	KWIK-SWITCH 100	10.000 +/-.0015	3.00	2.43
805655	4.00	KWIK-SWITCH 200	10.000 +/-.0015	3.00	2.43
805657	4.00	KWIK-SWITCH 300	15.000 +/-.0025	3.00	2.43
805658	4.00	KWIK-SWITCH 400	15.000 +/-.0025	3.00	2.43

UNO115

Models for small tool sizes.
230 mm / 9.06 inch diameter
370 mm / 14.57 inch length





All presetter come with Laser Edge Finder for quick alignment of tool edge.

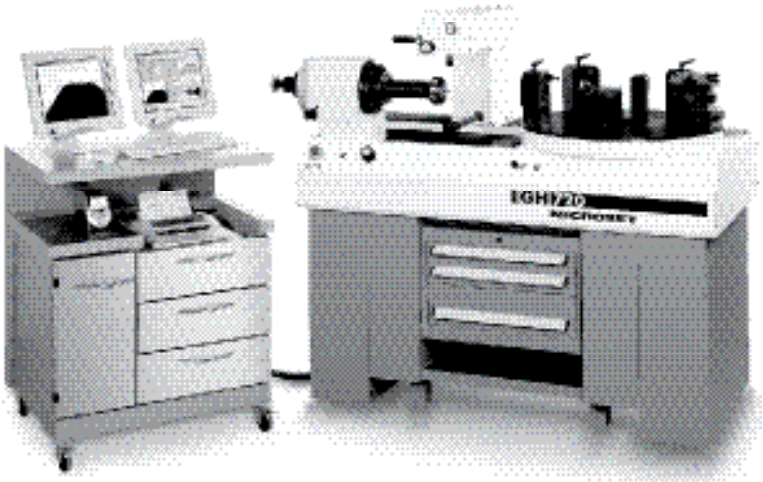
VIO

Models for medium tool sizes.
420 mm / 16.54 inch diameter
465 mm / 18.31 inch length



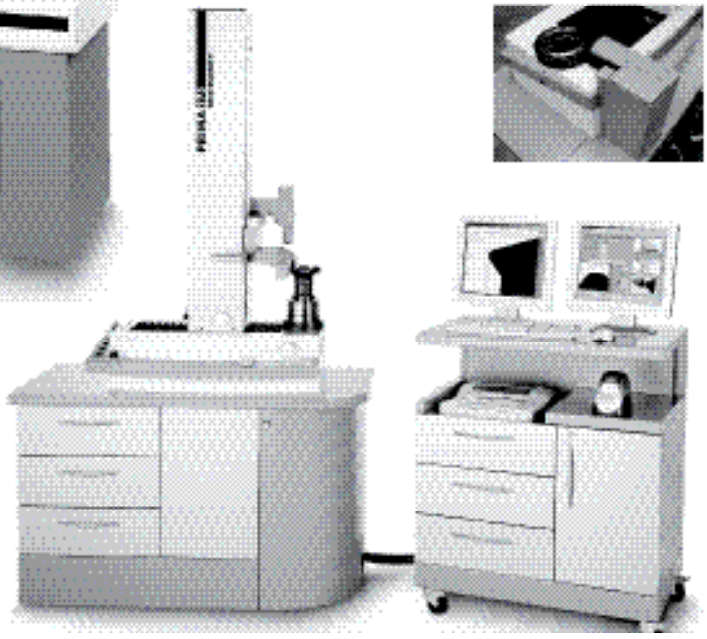
VIVA 720 Horizontal

640 mm / 25.2 inch diameter
720 mm / 28.35 inch length.
Presetter for rotating and lathe tooling.



Prima Presetter

Range: Up to 1000 mm / 39.37 inch diameter
Up to 815 mm / 32.00 inch length



Option:
Motorized axis and spindle.
Pneumatic clamping of tools.
Posting and printing tool data .
Capture of tool image and data for quality.
Second Camera for Lathe tools.
Electronic chip read/write.

TOOL PRESET SERVICE AND CALIBRATION

We provide support and service for the Microset Tool Presetters (See list of Models). We also have Parts and manuals for most DeVlieg Microset and Gildemeister Tool presetters.

Models we service and Calibrate

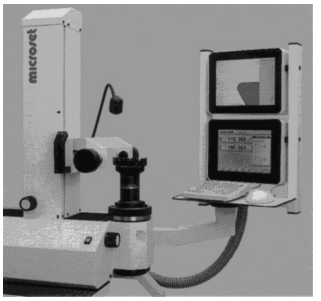
PSV150	EGS1535	EGS1035
PSV200	EGS2040	EGS1040
PSV2244	EGS2244	PS103
PSV2550	EGS2550	PS104
PSV2570	EGS2570	UNO
PSV5070	EGS5070	ECO I
PSV2245	EGS2245	ECO II
PSV2760	EGS2760	PRIMA
PSH3050	EGW3050	MICROSET
PSH3060	EGW3060	
PSV3070	EGW3070	

Optical preset calibration involves checking the alignment of the column, run out of the spindle, cleaning and alignment of projector and light source as needed.



Basic preventative maintenance involves cleaning and oiling of rails and ways, and adjustment of fine adjustment on axis.

Testing and setup of controls along with training of operators can be done on site.



Alignment and calibration of camera and infrared light systems

Installation of printers and retrofit upgrade controls.

Controls Manuals and Support

HEIDENHAIN VRZ SERIES
METRONICS DPS
DPS100, DPS320
MICROVISION
CAM-PRO

Projector Manuals, Support

MARCEL AUBERT, SNYDER

Common Parts in stock

6 and 12 Volt Bulbs
Bulb Sockets and Cables
X & Z Axis Switches
Printer Labels (Rolls)



Items We Can Order

Reducing Sleeves
Replacement Spindles
Mechanical Parts
Electrical Boards & Supplies

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Then



Now



Part Number	Page
AF0	173
AF00	173
AF000	173
AF1	173
AF10	173
AF100	175
AF101	175
AF102	175
AF103	175
AF104	175
AF105	175
AF106	175
AF107	175
AF108	175
AF109	175
AF11	173
AF110	175
AF111	175
AF112	175
AF113	175
AF114	175
AF115	175
AF116	175
AF117	175
AF118	175
AF119	175
AF12	173
AF120	175
AF121	175
AF122	175
AF123	175
AF124	175
AF125	175
AF126	175
AF127	175
AF128	175
AF129	175
AF13	173
AF130	175
AF131	175
AF132	175
AF133	175
AF134	175
AF135	175
AF136	175
AF137	175
AF138	175
AF139	175
AF14	173
AF140	175
AF162	176
AF163	176
AF164	176
AF165	176
AF166	176
AF167	176
AF168	176
AF169	176
AF170	176
AF171	176
AF172	176
AF173	176
AF174	176
AF175	176
AF176	176
AF177	176
AF178	176
AF179	176
AF180	176
AF181	176
AF182	176
AF183	176
AF184	176
AF185	176
AF186	176
AF187	176
AF188	176
AF189	176
AF190	176
AF191	176
AF192	176
AF193	176
AF194	176
AF195	176
AF196	176
AF197	176
AF198	176
AF199	176
AF2	173
AF200	176
AF201	176
AF202	176
AF203	176
AF204	176
AF205	176
AF206	176
AF207	176
AF208	176
AF209	176
AF21	174
AF210	176
AF211	176
AF212	176
AF213	176
AF22	174
AF23	174
AF24	174
AF241	177
AF241525	61
AF241526	61
AF241527	61
AF241531	60
AF241532	60
AF241537	60
AF241616	61
AF241617	61
AF241621	61
AF241622	61
AF241626	60
AF241631	60
AF241632	60
AF241747	61
AF241750	61
AF241751	61
AF241755	60
AF241760	60
AF241761	60
AF241762	60
AF241852	61
AF241854	61
AF241856	61
AF241860	60
AF241861	60
AF241865	60
AF241866	60
AF241941	61
AF241942	61
AF241946	60
AF241947	60
AF241950	60
AF241951	60
AF242	177
AF243	177
AF244	177
AF245	177
AF246	177
AF247	177
AF248	177
AF249	177
AF25	174
AF250	177
AF251	177
AF252	177
AF253	177
AF254	177
AF255	177
AF256	177
AF257	177
AF258	177
AF259	177
AF26	174
AF260	177
AF261	177
AF262	177
AF263	177
AF264	177
AF265	177
AF266	177
AF267	177
AF268	177
AF269	177
AF27	174
AF270	177
AF271	177
AF272	177
AF273	177
AF274	177
AF275	177
AF276	177
AF277	177
AF278	177
AF279	177
AF28	174
AF280	177
AF281	177
AF282	177
AF283	177
AF284	177
AF285	177
AF286	177
AF29	174
AF3	173
AF30	174
AF31	174
AF32	174
AF33	174
AF331	178
AF332	178
AF333	178
AF334	178
AF335	178
AF336	178
AF337	178
AF338	178
AF339	178
AF34	174
AF340	178
AF341	178
AF342	178
AF343	178
AF344	178
AF345	178
AF346	178
AF347	178
AF348	178
AF349	178
AF35	174
AF350	178
AF351	178
AF352	178
AF353	178
AF354	178
AF355	178
AF356	178
AF357	178
AF358	178
AF359	178
AF36	174
AF360	178
AF361	178
AF362	178
AF363	178

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
AF364	178
AF365	178
AF366	178
AF367	178
AF368	178
AF369	178
AF37	174
AF370	178
AF371	178
AF372	178
AF373	178
AF374	178
AF375	178
AF376	178
AF377	178
AF38	174
AF39	174
AF4	173
AF40	174
AF41	174
AF42	174
AF43	174
AF44	174
AF5	173
AF55	174
AF56	174
AF57	174
AF58	174
AF59	174
AF6	173
AF60	174
AF61	174
AF62	174
AF63	174
AF64	174
AF65	174
AF66	174
AF67	174
AF68	174
AF69	174
AF7	173
AF70	174
AF71	174
AF72	174
AF73	174
AF74	174
AF75	174
AF76	174
AF77	174
AF78	174
AF79	174
AF8	173
AF80	174
AF80136	161
AF80137	161
AF80235	161
AF80236	161
AF80237	161
AF80348	161
AF80349	161
AF80350	161
AF80351	161
AF80415	161
AF80416	161
AF80417	161
AF804290	161
AF80450	161
AF808756	162
AF808757	162
AF808758	162
AF81	174
AF82	174
AF9	173
AF901003	51
AF901004	51
AF901040	52
AF901041	52
AF901382	52
AF901658	52
AF90253	51
AF90397	51
AF90409	52
AF90410	52
AF90411	52
AF90528	51
AF90541	52
AF90542	52
AF90543	52
AF90754	51
AF90755	51
AF90785	52
AF90786	52
AF911391	16
AF911392	16
AF911394	16
AF911397	16
AF911499	16
AF911628	5
AF911784	27
AF911786	27
AF912380	27
AF912382	27
AF912713	5
AF912715	5
AF912806	27
AF912807	5
AF912983	16
AF912984	16
AF913469	16
AF913501	5
AF913533	5
AF913534	5
AF913535	16
AF914004	5
AF914005	5
AF914006	16
AF914007	16
AF914104	27
AF914105	27
AF914232	38
AF914233	38
AF914234	38
AF914235	44
AF914236	44
AF914237	44
AF91590	201
AF91592	201
AF91957	16
AF91958	16
AF91959	16
AF91963	5
AF91964	5
AF95	175
AF96	175
AF97	175
AF98	175
AF99	175
ASH037031	78
ASH037043	78
ASH037055	78
ASH037067	78
ASH037079	78
ASH037090	78
ASH062047	78
ASH062067	78
ASH062087	78
ASH062106	78
ASH062126	78
AT241616	61
AT241617	61
AT241621	61
AT241622	61
AT241626	60
AT241631	60
AT241632	60
AT241747	61
AT241750	61
AT241751	61
AT241755	60
AT241760	60
AT241761	60
AT241762	60
AT241941	61
AT241942	61
AT241946	60
AT241947	60
AT241950	60
AT241951	60
D0000243	125, 153
D0000246	125, 153
D0000251	126, 154
D0000292	125, 153
D0000294	125, 153
D0000296	125, 153
D0000300	125, 153
D0000302	125, 153
D0000306	125, 153
D0000311	126, 154
D0000313	126, 154
D0000315	126, 154
D0000319	126, 154
D0000321	126, 154
D0000325	126, 154
D0004804	126, 154
D0004814	126, 154
D0004819	126, 154
ER11ISET	187
ER11 00313	184
ER11 00625	184
ER11 00787	184
ER11 00937	184
ER11 01250	184
ER11 01575	184
ER11 01875	184
ER11 02187	184
ER11 02362	184
ER11 02500	184
ER11 02756	184
ER16ISET	187
ER16 00313	185
ER16 00625	185
ER16 00787	185
ER16 00937	185
ER16 01250	185
ER16 01575	185
ER16 01875	185
ER16 02187	185
ER16 02362	185
ER16 02500	185
ER16 02812	185
ER16 03125	185
ER16 03150	185
ER16 03437	185
ER16 03750	185
ER16 03937	185
ER16 04062	185
ER20ISET	187
ER20 00625	185
ER20 00787	185
ER20 00937	185
ER20 01250	185
ER20 01575	185
ER20 01875	185
ER20 02187	185
ER20 02362	185
ER20 02500	185
ER20 02812	185
ER20 03125	185
ER20 03150	185
ER20 03437	185
ER20 03750	185
ER20 03937	185

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
ER20 04062	185
ER20 04375	185
ER20 04724	185
ER20 05000	185
ER20 05118	185
ER25ISET	187
ER25 00625	186
ER25 00787	186
ER25 00937	186
ER25 01250	186
ER25 01575	186
ER25 01875	186
ER25 02187	186
ER25 02362	186
ER25 02500	186
ER25 02812	186
ER25 03125	186
ER25 03150	186
ER25 03437	186
ER25 03750	186
ER25 03937	186
ER25 04062	186
ER25 04375	186
ER25 04724	186
ER25 05000	186
ER25 05312	186
ER25 05511	186
ER25 05625	186
ER25 05937	186
ER25 06250	186
ER25 06299	186
ER32ISET	187
ER32 01181	186
ER32 01250	186
ER32 01575	186
ER32 01875	186
ER32 02187	186
ER32 02362	186
ER32 02500	186
ER32 02812	186
ER32 03125	186
ER32 03150	186
ER32 03437	186
ER32 03750	186
ER32 03937	186
ER32 04062	186
ER32 04375	186
ER32 04724	186
ER32 05000	186
ER32 05312	186
ER32 05511	186
ER32 05625	186
ER32 05937	186
ER32 06250	186
ER32 06299	186
ER32 06562	186
ER32 06875	186
ER32 07087	186

Part Number	Page
ER32 07187	186
ER32 07500	186
ER32 07874	186
ER32 08125	186
ER40ISET	187
ER40 01250	187
ER40 01875	187
ER40 02500	187
ER40 03125	187
ER40 03150	187
ER40 03750	187
ER40 03937	187
ER40 04062	187
ER40 04375	187
ER40 04724	187
ER40 05000	187
ER40 05312	187
ER40 05625	187
ER40 05937	187
ER40 06250	187
ER40 06299	187
ER40 06562	187
ER40 06875	187
ER40 07187	187
ER40 07500	187
ER40 07874	187
ER40 08125	187
ER40 08437	187
ER40 08750	187
ER40 09062	187
ER40 09375	187
ER40 09687	187
ER40 09843	187
ER40 10000	187
ER40 10625	187
ER40 11250	187
ER40 11811	187
ER8ISET	187
ER8 00393	184
ER8 00625	184
ER8 00937	184
ER8 01250	184
ER8 01575	184
ER8 01875	184
ER8 01968	184
GAH05037	79
GAH07050	79
H100AER16394	45
H100AER16630	45
H100AER20394	45
H100AER20630	45
H100AER25406	45
H100AER32406	45
H100AER32484	45
H100AER32642	45
H100AER40406	45
H100AER40484	45
H63AER16394	39

Part Number	Page
H63AER16472	39
H63AER16630	39
H63AER20394	39
H63AER20472	39
H63AER20630	39
H63AER25327	39
H63AER25484	39
H63AER32327	39
H63AER32406	39
H63AER32484	39
H63AER40327	39
H63AER40406	39
H63AER40484	39
KS2ER16112	163
KS2ER32181	163
KS3ER16103	163
KS3ER32141	163
KS3ER40203	163
MTP1051287C	143, 146
MTP135107TCZ	139, 144
MTP135107TLZ	139, 144
MTP1351412C	144, 146
MTP1351SC10Z	139, 144
MTP1351TC15Z	139, 144
MTP1351TCZ	139, 144
MTP1351TLZ	139, 144
MTP1351VLZ	139, 144
MTP190F250C	145, 146
MTP245F250C	145, 146
MTP28107TCZ	135, 140
MTP28107TLZ	135, 140
MTP281TC15Z	135, 140
MTP281TCZ	135, 140
MTP281TLZ	135, 140
MTP28SS07C	140, 146
MTP300F250C	145
MTP36107TCZ	136, 141
MTP36107TLZ	136, 141
MTP361TC15Z	136, 141
MTP361TCZ	136, 141
MTP361TLZ	136, 141
MTP36SS10C	141, 146
MTP50107TCZ	137, 142
MTP50107TLZ	137, 142
MTP501SC10Z	137, 142
MTP501TC15Z	137, 142
MTP501VLZ	137, 142
MTP50SS12C	142, 146
MTP75107TLZ	138, 143
MTP751287C	143, 146
MTP751SC10Z	138, 143
MTP751TC15Z	138, 143
MTP751VLZ	138, 143
NER11	196
NER11M	196
NER16	196
NER16M	196
NER20	196

Part Number	Page
NER20M	196
NER25	196
NER25M	196
NER32	196
NER40	196
NER8M	196
N500025	66
N500031	66
N500037	66
N500043	66
N500050	66
N500050	66
N500062	66
R1001002TAL	122
R1001222TAL	122
R1001452TAL	122
R100552T	122
R100772T	122
R502	120
R504	120
R506	120
R508	120
RGA1110C	132
RGA1242C	132
RGA846C	132
RGA978C	132
SER16 01562	182
SER16 01875	182
SER16 02187	182
SER16 02500	182
SER16 02812	182
SER16 03125	182
SER16 03437	182
SER16 03750	182
SER16 04062	182
SER20 01562	182
SER20 01875	182
SER20 02187	182
SER20 02500	182
SER20 02812	182
SER20 03125	182
SER20 03437	182
SER20 03750	182
SER20 04062	182
SER20 04375	182
SER20 04687	182
SER20 05000	182
SER25 02187	182
SER25 02500	182
SER25 02812	182
SER25 03125	182
SER25 03437	182
SER25 03750	182
SER25 04062	182
SER25 04375	182
SER25 04687	182
SER25 05000	182
SER25 05312	182

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
SER25 05625	182
SER25 05937	182
SER25 06250	182
SER32 02500	183
SER32 02812	183
SER32 03125	183
SER32 03437	183
SER32 03750	183
SER32 04062	183
SER32 04375	183
SER32 04687	183
SER32 05000	183
SER32 05312	183
SER32 05625	183
SER32 05937	183
SER32 06250	183
SER32 06562	183
SER32 06875	183
SER32 07187	183
SER32 07500	183
SER40 03750	183
SER40 04062	183
SER40 04375	183
SER40 04687	183
SER40 05000	183
SER40 05312	183
SER40 05625	183
SER40 05937	183
SER40 06250	183
SER40 06562	183
SER40 06875	183
SER40 07187	183
SER40 07500	183
SER40 08750	183
SER40 10000	183
SS03ER8M095	53
SS0465152	110
SS05ER11M104	53
SS0505255	110
SS0505357	110
SS06ADA	80
SS0625462	112
SS07ADA	80
SS07ER16M098	53
SS0755567	114
SS10ADA	80
SS10ADB	80
SS10ER20M110	53
SS1051	110
SS1052	110
SS1053	110
SS1054	112
SS1055	114
SS1056	114
SS105672	114
SS1058	116
SS1060	116
SS1063	118
SS1066	118
SS12ADA	80
SS12ADB	80
S160	64
S167	64
S501	64
WER11	196
WER11M	196
WER16	196
WER16M	196
WER20	196
WER20M	196
WER25	196
WER25M	196
WER32	196
WER40	196
WER8M	196
020BS093TC1NG	127
025MFGAS09735	127
025MFGAS10623	127
025MFGAS11523	127
025MFGAS12423	127
025MFGAS13323	128
025MFMTP28	135, 146
025MF270001	68
025MF270009	70
025MF270030	70
025MF270045	71
025MF270084	72
025MF270085	72
025MF270153	74
025MF270168	77
025MF270188	68
025MF270358	164
025MF270444	69
025MF270448	69
030BA090TC2N	87, 99
030BA090TN2C	87, 99
030BS090TC1NG	128
032MFGAS15223	128
032MFGAS17123	128
032MFMDP48	146, 149
032MFMTP36	136, 146
032MF270002	68
032MF270010	70
032MF270019	70
032MF270031	70
032MF270046	71
032MF270049	71
032MF270086	72
032MF270087	72
032MF270088	72
032MF270106	73
032MF270154	74
032MF270169	77
032MF270189	68
032MF270308	164
032MF270445	69
032MF270449	69
032MF270454	69
040MFADA	80
040MFGAS19023	128
040MFGAS20923	129
040MFGAS23223	129
040MFMDP56	146, 149
040MFMDP64	146, 150
040MFMTP50	137, 146
040MF270003	68
040MF270011	70
040MF270020	70
040MF270032	70
040MF270047	71
040MF270050	71
040MF270089	72
040MF270090	72
040MF270091	72
040MF270107	73
040MF270108	73
040MF270155	74
040MF270156	74
040MF270170	77
040MF270190	68
040MF270309	164
040MF270446	69
040MF270450	69
040MF270455	69
050BA090TC2N	89, 101
050BA090TN2E	89, 101
050BS090TC2NG	129
050MFGAH05037	78
050MFGAS25523	129
050MFGAS27823	130
050MFMDP78	146, 151
050MFMTP75	138
050MFMTP75	146
050MF270004	68
050MF270012	70
050MF270021	70
050MF270033	70
050MF270048	71
050MF270051	71
050MF270055	71
050MF270056	71
050MF270092	72
050MF270093	72
050MF270094	72
050MF270109	73
050MF270110	73
050MF270111	73
050MF270129	75
050MF270130	75
050MF270131	75
050MF270132	75
050MF270133	75
050MF270138	76
050MF270139	76
050MF270144	75
050MF270157	74
050MF270160	77
050MF270161	77
050MF270171	77
050MF270191	68
050MF270311	164
050MF270413	164
050MF270447	69
050MF270451	69
050MF270456	69
063MFADB	80
063MFADE1287	124
063MFADE1312	124
063MFGAH07062	78
063MFGAS34828	131
063MFGAS45628	131
063MFGAS56428	131
063MFGAS67228	131
063MFGAS78028	131
063MFMDP100	146, 151
063MFMDP125	146, 152
063MFMTP105	138, 146
063MF270005	68
063MF270013	70
063MF270022	70
063MF270052	71
063MF270059	71
063MF270095	72
063MF270096	72
063MF270097	72
063MF270112	73
063MF270113	73
063MF270114	73
063MF270115	73
063MF270134	75
063MF270135	75
063MF270140	76
063MF270141	76
063MF270142	76
063MF270145	75
063MF270146	75
063MF270158	74
063MF270162	77
063MF270163	77
063MF270164	77
063MF270172	77
063MF270192	68
063MF270313	164
063MF270439	164
063MF270440	164
063MF270452	69
063MF270457	69
070BA090TC3N	91, 105
070BA090TN3F	91, 105
070BS090TC3N	121
070BS090TC3NG	130, 132
070BS090TN3F	121

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
080MFADE1412	124
080MFMDP155	146, 152
080MFMDP185	146, 152
080MFMDP215	146, 152
080MFMTP135	139, 146
080MFMTP190	139, 146
080MFMTP245	139, 146
080MFMTP300	139, 146
080MF270006	68
080MF270023	70
080MF270053	71
080MF270062	71
080MF270098	72
080MF270099	72
080MF270100	72
080MF270116	73
080MF270117	73
080MF270118	73
080MF270119	73
080MF270136	75
080MF270147	75
080MF270148	75
080MF270149	75
080MF270159	74
080MF270173	77
080MF270193	68
080MF270453	69
080MF270458	69
1A2*	83, 95, 111
1A212*	83, 95, 111
1B2*	83, 95, 111
1B212*	83, 95, 111
10A2*	93, 109
10A212*	93, 109
10A2C12	93, 109
10A5*	123
10A512*	123
10A5C12	123
10B2*	93, 109
10B212*	93, 109
10B2C12	93, 109
10B5*	123
10B512*	123
10B5C12	123
10SG 00937	189
10SG 01093	189
10SG 01250	189
10SG 01406	189
10SG 01562	189
10SG 01719	189
10SG 01875	189
10SG 02031	189
10SG 02187	189
10SG 02344	189
10SG 02500	189
10SG 02656	189
10SG 02812	189
10SG 02968	189

Part Number	Page
10SG 03125	189
10SG 03281	189
10SG 03437	189
10SG 03594	189
10SG 03750	189
10SG 03906	189
10SG 04062	189
10SG 04219	189
10SG 04375	189
10SG 04531	189
10SG 04687	189
10SG 04843	189
10SG 05000	189
10SG 05156	189
10SG 05312	189
10SG 05469	189
10SG 05625	189
10SG 05781	189
10SG 05937	189
10SG 06094	189
10SG 06250	189
10SG 06406	189
10SG 06562	189
10SG 06719	189
10SG 06875	189
10SG 07031	189
10SG 07187	189
10SG 07344	189
10SG 07500	189
10SG 07656	189
10SG 07812	189
10SG 07969	189
10SG 08125	189
10SG 08281	189
10SG 08437	189
10SG 08594	189
10SG 08750	189
10SG 08906	189
10SG 09062	189
10SG 09219	189
10SG 09375	189
10SG 09531	189
10SG 09687	189
10SG 09844	189
10SG 10000	189
100BA090TC3N	93, 109
100BA090TN3F	93, 109
100BA090TN4F	93, 109
100BS090TC3NG	131
100BS090TC4N	123
100BS090TN4F	123
1000MF270007	68
1000MF270024	70
1000MF270054	71
1000MF270101	72
1000MF270102	72
1000MF270103	72
1000MF270120	73

Part Number	Page
1000MF270121	73
1000MF270122	73
1000MF270123	73
1000MF270174	77
1000MF270194	68
1000MF270459	69
10 00469	193
10 00625	193
10 00781	193
10 00937	193
10 01093	193
10 01250	193
10 01406	193
10 01562	193
10 01719	193
10 01875	193
10 02031	193
10 02187	193
10 02344	193
10 02500	193
10 02656	193
10 02812	193
10 02968	193
10 03125	193
10 03281	193
10 03437	193
10 03594	193
10 03750	193
10 03906	193
10 04062	193
10 04219	193
10 04375	193
10 04531	193
10 04687	193
10 04843	193
10 05000	193
10 05156	193
10 05312	193
10 05469	193
10 05625	193
10301	64
10303	66
10306	64
10325	64
10330A	64
10708	64
10708E1E	93, 109
10710	64
10808	66
10810	66
10821	66
10830	66
1203	64
1203E1E	83, 95, 11
1204	64
1250MF270008	68
1250MF270195	68
1330A	64

Part Number	Page
15SG 05000	190
15SG 05156	190
15SG 05312	190
15SG 05469	190
15SG 05625	190
15SG 05781	190
15SG 05937	190
15SG 06094	190
15SG 06250	190
15SG 06406	190
15SG 06562	190
15SG 06719	190
15SG 06875	190
15SG 07031	190
15SG 07187	190
15SG 07344	190
15SG 07500	190
15SG 07656	190
15SG 07812	190
15SG 07969	190
15SG 08125	190
15SG 08281	190
15SG 08437	190
15SG 08594	190
15SG 08750	190
15SG 08906	190
15SG 09062	190
15SG 09219	190
15SG 09375	190
15SG 09531	190
15SG 09687	190
15SG 09844	190
15SG 10000	190
15SG 10156	190
15SG 10313	190
15SG 10469	190
15SG 10625	190
15SG 10781	190
15SG 10937	190
15SG 11093	190
15SG 11250	190
15SG 11406	190
15SG 11562	190
15SG 11719	190
15SG 11875	190
15SG 12031	190
15SG 12187	190
15SG 12344	190
15SG 12500	190
15SG 12656	190
15SG 12812	190
15SG 12968	190
15SG 13125	190
15SG 13281	190
15SG 13437	190
15SG 13594	190
15SG 13750	190
15SG 13906	190

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
15SG 14062	190
15SG 14219	190
15SG 14375	190
15SG 14531	190
15SG 14687	190
15SG 14843	190
15SG 15000	190
151000	54
151002	54
151004	54
151006	54
151008	54
151010	54
151012	54
151016	54
151019	54
15839	181
15840	181
15841	181
15842	181
15843	181
15844	181
15845	181
15846	181
15847	181
15850	181
15856	181
15857	181
15858	181
15859	181
15860	181
15861	181
15862	181
15863	181
15864	181
15865	181
15866	181
15868	181
15869	181
15870	181
15871	181
15880	181
15881	181
15882	181
15883	181
15884	181
15886	181
15888	181
15889	181
15891	181
15894	181
15895	181
15896	181
15897	181
15898	56
15900	56
15902	56
15904	56
15905	170
15906	170
15907	56
15909	56
15911	56
15914	170
15915	170
15916	56
15919	56
15923	170
15924	170
15925	169
15928	170
15931	169
15934	169
15936	169
15937	169
15938	169
15939	169
15943	181
15944	181
15946	181
161637B	200
161638B	200
161639B	200
161640B	200
161641B	200
161662	169
161693	199
161694	199
161695	199
161696	199
161697	199
161803	199
162026	55
162066	55
162072	55
162173	199
162174	199
162175	199
162176	199
162177B	200
162178B	200
162179B	200
162180B	200
162710B	200
163068	199
163092	199
163762	57
163763	57
163764	57
163841	24
163842	24
163843	24
163844	24
163845	24
163846	24
163882	13
163883	13
163884	12
163885	12
163949	199
164314	170
164622B	200
165201	199
165490B	200
165765	35
165766	35
165767	34
165768	34
165791B	200
16580	199
16581	199
16603	200
166305	200
16822	199
16823	199
16824	199
16825	199
16826	199
16827	199
16828	199
16829	199
16830	199
16831	199
16832	199
16833	199
16834	199
16835	199
16836	199
16837	199
16838	199
16839	199
16840	199
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16842	199
16843	199
16844	199
16845	199
16846	199
16848	199
16850	199
16852	199
168683B	200
168827	199
16884B	200
16885B	200
16886B	200
16887B	200
16888B	200
16889B	200
16890B	200
16891B	200
16892B	200
16893B	200
16894B	200
16895B	200
16896B	200
16897B	200
16898B	200
16899B	200
16900B	200
169003	58
169004	58
169005	58
169006	58
169007	58
169008	58
169009	59
16901B	200
169010	59
169011	59
169012	14
169013	14
169014	14
169015	14
169016	25
169017	25
169018	25
169019	25
16902B	200
169020	25
169021	25
169022	36
169023	36
169024	36
169025	36
16903B	200
16904B	200
16905B	200
16906B	200
16907B	200
16908B	200
16910B	200
16912B	200
16914B	200
2A2*	85, 97, 113
2A212*	85, 97, 113
2B2*	85, 97, 113
2B212*	85, 97, 113
20 00469	192
20 00625	192
20 00781	192
20 00937	192
20 01093	192
20 01250	192
20 01406	192
20 01562	192
20 01719	192
20 01875	192
20 02031	192
20 02187	192
20 02344	192
20 02500	192

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
20 02656	192
20 02812	192
20 02968	192
20 03125	192
20 03281	192
20 03437	192
20 03594	192
20 03750	192
2204	64
2204E1E	85, 97, 113
2205	64
2301	64
2303	66
2306	64
2330A	64
2804	66
2805	66
280669	195
280677	195
280681	195
2820	66
2821	66
2830	66
2831	66
2841	66
2842	66
3A2*	87, 99, 115
3A212*	87, 99, 115
3A2C06	87, 99, 115
3B2*	87, 99, 115
3B212*	87, 99, 115
3B2C06	87, 99, 115
30 00313	192
30 00469	192
30 00625	192
30 00781	192
30 00937	192
30 01093	192
30 01250	192
30 01406	192
30 01562	192
30 01719	192
30 01875	192
30 02031	192
30 02187	192
30 02344	192
30 02500	192
3300X1E	87, 99, 115
3301	64
3303	66
3306	64
3704	64
3704E1E	87, 99, 115
3705	64
3804	66
3805	66
3820	66
3821	66
40BTER1625	29
40BTER1630	29
40BTER1640	29
40BTER1650	29
40BTER1660	29
40BTER2025	29
40BTER2040	29
40BTER2060	29
40BTER2525	29
40BTER2540	29
40BTER2560	29
40BTER3225	29
40BTER3230	29
40BTER3240	29
40BTER3260	29
40BTER3280	29
40BTER4040	29
40BTER4060	29
40CTADA	81
40CTADB	81
40CTER1125	6
40CTER1140	6
40CTER1160	6
40CTER1625	6
40CTER1630	6
40CTER1640	6
40CTER1650	6
40CTER1660	6
40CTER2030	6
40CTER2040	6
40CTER2060	6
40CTER2080	6
40CTER2525	6
40CTER2540	6
40CTER2560	6
40CTER3225	6
40CTER3230	6
40CTER3240	6
40CTER3260	6
40CTER3280	6
40CTER4030	6
40CTER4040	6
40CTER4060	6
40CTER4080	6
40CT51	82
40CT52	82
40CT53	82
40CT54	84
40CT55	86
40CT56	86
40CT58	88
40CT60	88
40CT63	90
40CT66	90
40CT70	92
440003	196
440009	196
440041	18
440043	18
440045	18
440047	18
440049	18
440051	18
440053	18
440107	196
440116	53
440117	53
440118	53
440119	197
440120	197
440121	197
440125	193
440126	193
440127	193
440128	191
440129	191
440130	191
440131	191
440132	191
440133	191
440134	191
440483	7
440484	7
440485	7
440486	7
440507	28
440508	28
4610234	8
4610235	8
4610238	8
4610239	8
4610240	9
4610241	9
4610242	9
4610245	9
4610299	23
4610509	204
4610510	204
4610511	204
4610554	30
4610555	30
4610556	30
4610557	8
4610558	8
4610559	8
4610601	23
4611187	19
4611405	8
4611441	204
4611616	8
4611772	19
4611774	19
4611775	19
4612002	19
4612003	19
4612034	8
4612037	8
4612038	8
4612041	8
4612042	8
4612045	8
4612046	8
4612050	8
4612056	8
4612356	19
4613193	11
4614448	30
4615739	8
4615740	8
4615741	8
4615742	8
4615743	19
4615774	30
4615775	30
4615776	30
4615778	30
4615779	31
4615780	31
4615781	31
4615782	31
4615849	20
4615850	20
4615851	20
4616228	198
4616229	198
4616231	198
4616236	198
4616237	198
4616239	198
4617745	8
4617746	8
4617747	8
4617748	8
4617749	8
4617750	8
4617751	8
4617755	8
4617756	8
4617757	8
4618395	9
4618396	9
4618397	9
4618398	21
4618399	21
4618400	21
4618437	10
4618438	10
4618439	10
4618440	10
4618441	10
4618442	10
4618443	10
4618444	10
4618445	10

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
4618446	10
4618447	10
4618448	10
4618449	10
4618450	10
4618451	10
4618452	22
4618453	22
4618454	22
4618455	22
4618456	22
4618457	22
4618458	22
4618459	22
4618460	22
4618461	22
4618462	22
4618463	22
4618464	22
4618465	22
4618466	32
4618467	32
4618468	32
4618469	32
4618470	32
4618471	32
4618472	32
4618473	32
4618474	32
4618475	32
4618476	32
4618477	32
4618478	32
4618479	30
4618480	30
4618481	30
4618482	30
4618483	30
4618484	30
4618485	30
4618486	30
4618487	30
4618488	30
4618491	42
4618492	42
4618493	42
4618494	42
4618495	42
4618496	42
4618497	42
4618498	42
4618499	42
4618500	42
4618501	42
4618502	42
4618503	42
4618504	42
4618505	48
4618506	48
4618507	48
4618508	48
4618509	48
4618510	48
4618511	48
4618512	48
4618513	48
4618514	48
4618515	48
4618516	48
4618517	48
4618518	40
4618519	40
4618520	40
4618521	40
4618522	40
4618523	40
4618524	41
4618525	41
4618526	41
4618527	41
4618528	46
4618529	46
4618530	46
4618531	46
4618532	46
4618533	46
4618534	46
4618535	47
4618536	47
4618537	47
4618538	47
4618539	47
4618540	47
4618541	41
463630	19
463631	19
463632	19
463633	19
463634	19
463635	19
463636	19
463637	19
463638	20
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463641	20
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463643	23
463644	23
463645	23
463646	23
463657	8
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463659	8
463660	8
463661	8
463662	8
463664	9
463665	9
463666	9
463667	9
463668	11
463669	11
463670	11
464959	19
464960	19
464962	19
464965	19
464966	19
464968	19
464971	19
464972	19
464974	19
464977	19
464978	19
464980	19
464983	19
464984	19
464986	19
464989	19
464990	19
464992	19
464994	19
464995	19
464996	19
464998	19
465000	19
465001	19
465002	19
465004	19
465007	19
465011	20
465012	20
465013	20
465014	20
465016	20
465018	20
465019	20
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465022	20
465024	20
465026	20
465028	20
465029	20
465030	20
465032	20
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465040	20
465042	20
465045	20
465058	23
465060	23
465067	23
465074	23
466355	30
466356	30
466357	30
466358	30
466359	30
466360	30
466361	30
466364	31
466365	31
466366	31
466367	31
466369	33
466370	33
466371	33
466374	33
466375	33
466870	204
466871	204
466997	8
467053	20
468290	30
468333	19
468377	11
468622	11
468822	23
468823	23
469338	11
469339	11
469458	23
5A2*	89, 101, 117
5A212*	89, 101, 117
5A2C06	89, 101, 117
5B2*	89, 101, 117
5B212*	89, 101, 117
5B2C06	89, 101, 117
50CTADA	81
50CTADB	81
50CTER161000	17
50CTER1640	17
50CTER1660	17
50CTER1680	17
50CTER2040	17
50CTER2060	17
50CTER2080	17
50CTER251000	17
50CTER2540	17
50CTER2560	17
50CTER2580	17
50CTER321000	17
50CTER3240	17
50CTER3260	17
50CTER3280	17
50CTER4040	17
50CTER4060	17

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Part Number	Page
50CTER4080	17
50CTF250	155
50CTF25060	155
50CT51	94
50CT52	94
50CT53	94
50CT54	96
50CT55	98
50CT56	98
50CT57	98
50CT58	100
50CT59	100
50CT60	102
50CT61	102
50CT62	102
50CT63	104
50CT64	104
50CT65	104
50CT66	106
50CT67	106
50CT68	106
50CT69	106
50CT70	108
50CT71	108
5002	204
5003	204
5004	204
5005	204
5006	204
5007	204
5010122	203
5010469	37
5010497	203
5010539	15
5010806	203
5011648	26
5011686	203
5011717	203
5012262	203
5012446	15
5012586	43
5012587	49
5012729	206
5012761	196
5012762	196
5012861	196
5012873	196
5013067	203
5013068	203
5013069	203
5013070	203
5013071	203
5013072	203
503558	206
503682	206
505643	195
505646	196
505650	195
505651	195
505955	196
506060	206
506062	206
506063	205
506072	205
506073	205
507318	203
507847	203
508024	202
508027	202
508030	202
508033	202
508036	202
508039	202
508042	202
508045	202
508048	202
508051	202
508054	202
508057	202
508063	202
508066	202
508069	202
508072	202
508440	202
508955	203
509156	203
509991	26
5301	64
5303	66
5306	64
5325	64
5330A	64
55021*_____	180
55029	195, 197
55060*_____	180
55068	195, 197
55097*_____	180
55105	195, 197
551080	197
551082	197
551084	197
551090	197
551098	197
551108	197
55132*_____	180
55139	195, 197
55165*_____	180
55171	195, 197
55194*_____	180
55200	195, 197
5704	64
5704E1E	89, 101, 103, 117
5705	64
5804	66
5805	66
5820	66
5821	66
5830	66
5831	66
5841	66
5842	66
7A2*	91, 105, 107, 119
7A212*	91, 105, 107, 119
7A2C09	91, 105, 107, 119
7A5*	121
7A512*	121
7A5C09	121
7B2*	91, 105, 107, 119
7B212*	91, 105, 107, 119
7B2C09	91, 105, 107, 119
7B5*	121
7B512*	121
7B5C09	121
7301	64
7303	66
7306	64
7325	64
75SG 00781	188
75SG 00937	188
75SG 01093	188
75SG 01250	188
75SG 01406	188
75SG 01562	188
75SG 01719	188
75SG 01875	188
75SG 02031	188
75SG 02187	188
75SG 02344	188
75SG 02500	188
75SG 02656	188
75SG 02812	188
75SG 02968	188
75SG 03125	188
75SG 03281	188
75SG 03437	188
75SG 03594	188
75SG 03750	188
75SG 03906	188
75SG 04062	188
75SG 04219	188
75SG 04375	188
75SG 04531	188
75SG 04687	188
75SG 04843	188
75SG 05000	188
75SG 05156	188
75SG 05312	188
75SG 05469	188
75SG 05625	188
75SG 05781	188
75SG 05937	188
75SG 06094	188
75SG 06250	188
75SG 06406	188
75SG 06562	188
75SG 06719	188
75SG 06875	188
75SG 07031	188
75SG 07187	188
75SG 07344	188
75SG 07500	188
7708	64
7708E1E	91, 105, 107, 119
7710	64
7808	66
7810	66
7820	66
7821	66
7830	66
7831	66
7841	66
80103	171
8010524	171
8010525	171
8010526	171
80108	158
80115	158
801163	168
801171	166
80124	159
80127	167
80128	159
80130	166
80131	166
80139	171
80141	165
80142	165
80143	165
801431	165
80153	168
80203	171
80225	158
80226	167
80227	167
80228	167
80231	166
80232	166
80233	166
80238	158
80239	171
80242	165
80243	165
80244	165
80245	165
80246	165
80247	165
80248	158
802481	165
80250	159
80251	168
80252	168
80253	168

*** Indicates carbide grade designation**

***_____ Indicates Size (Decimal)**

Part Number	Page
80254	168
80255	168
80257	159
802785	165
80296	157
80303	171
80326	167
80327	167
803270	206
80328	167
80329	167
80333	166
80334	166
80335	166
80337	166
80339	171
80342	165
80343	165
80344	165
80345	165
80346	165
80347	165
80352	168
80353	168
80354	168
80355	168
80356	168
80403	171
80427	167
80428	167
80429	167
80430	167
80431	167
804325	157
804333	157
80435	166
80436	166
80437	166
80439	171
804419	158
80442	165
80443	165
80444	165
804446	158
804448	158
80445	165
804454	159
804456	159
804458	159
80446	165
80447	165
80448	165
804495	158
804497	159
804499	159
804501	159
804503	159
80451	165
80452	168
80453	168
80454	168
80455	168
80456	168
805001	157
805043	171
805044	171
805063	171
805655	206
805657	206
805658	206
805878	159
805879	159
805880	159
805881	159
805882	159
805922	15, 160
806282	26, 160
806283	26, 160
806841	157
80698	168
807032	165
80721	165
807235	157
807655	157
807757	157
807791	171
807792	171
807793	171
807813	171
808155	171
808158	171
80851	165
808792	171
808793	171
808794	171
809809	171
809184	171
85296	195
901000*_ _ _ _ _	180
901001	195
901375*_ _ _ _ _	180
901376	195
901625*_ _ _ _ _	180
901626	195
90500*_ _ _ _ _	180
90501	195
90750*_ _ _ _ _	180
90751	195
9400002	195
9400005	195
9400011	195
9400014	195
9400020	195
9400021	195
9400022	195
9400042	179
9400043	179
9400044	179
9400045	179
9400046	179
9400072	179
9400073	179
9400074	179
9400108	179
9400174	179
9400176	179
9400177	179
9901464	68
9901465	68
9901466	68
9901467	68
9901468	68
9901469	68
9901470	68
9901471	68
9901472	68
9903538	196
9903560	197
9903561	197
9903562	197

*** Indicates carbide grade designation**

***_ _ _ _ _ Indicates Size (Decimal)**

Request for Quote: Tool Holder

Company Name: _____

Address: _____

_____

Contact Name: _____

Telephone: _____ Fax: _____

Email: _____

Machine Make: _____ Model: _____

Taper (Shank) Style: _____ Taper (Shank) Size: _____

Nose Configuration: _____

Projection from Gageline: _____ Overall Length (non-tapered tools): _____

Special OD for Clearance: _____

Runout Requirements (if different from standard): _____

Other: _____

_____

_____

Retention Knob: _____

Sketch or attach drawing

Please fax this page to 989-753-9199 or email request to sales@universaldevlieg.com

Request for Quote: Boring Bar

Company Name: _____

Address: _____

_____

Contact Name: _____

Telephone: _____ Fax: _____

Email: _____

Machine Make: _____ Shank Style: _____

Bore Size: _____ Tolerance: _____ Depth: _____

Material: _____ Hardness: _____ Finish Req'd: _____

Interrupted Cut: _____ Thru or Bottoming: _____

Coolant Type (Thru or Flood): _____

If Thru, Center or Flange: _____

Additional Requirements: _____

_____

_____

Note:If the tool requested is a multi-point please provide a part print or sketch of the finished form required, approval prints will be supplied after the order is received prior to manufacturing.

Sketch or attach drawing

Please fax this page to 989-753-9199 or email request to sales@universaldevlieg.com

Request for Quote: Microset Presetter

Company Name: _____

Address: _____

_____

Contact Name: _____

Telephone: _____ Fax: _____

Email: _____

Largest Tool Diameter: _____ Largest Tool Length: _____

Tool Shank Style(s): _____

Machine Type: ☐ Horizontal ☐ Vertical

Interface Type: ☐ Projector ☐ Camera ☐ Camera with Tool Management (PC)

Features: ☐ Machine Tool Interface ☐ Networking ☐ Print Labels ☐ Barcoding
☐ Chip Reading / Writing ☐ Tool Management Interface (Current Database)

Other Requirements: _____

_____

_____

_____

Please fax this page to 989-753-9199 or email request to sales@universaldevlieg.com