

***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.

**Universal / DeVlieg Inc.**

**1270 Agricola Drive, Saginaw, Michigan 48604 USA**

**Ph: 989.752.3077 Toll Free: 877.308.3077**

**Fax: 989.753.9199**

**[www.universaldevlieg.com](http://www.universaldevlieg.com)**

**[sales@universaldevlieg.com](mailto:sales@universaldevlieg.com)**

### **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.

**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**

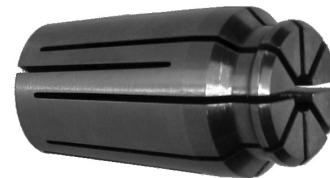
- Spindles & Master Holders
- Adapters
- Accessories



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



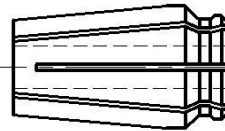
Pages  
44-49

**Acura-Flex® Collet Chucks with CAT40 Shanks**

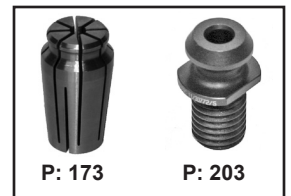
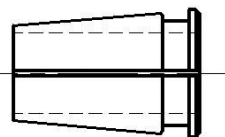
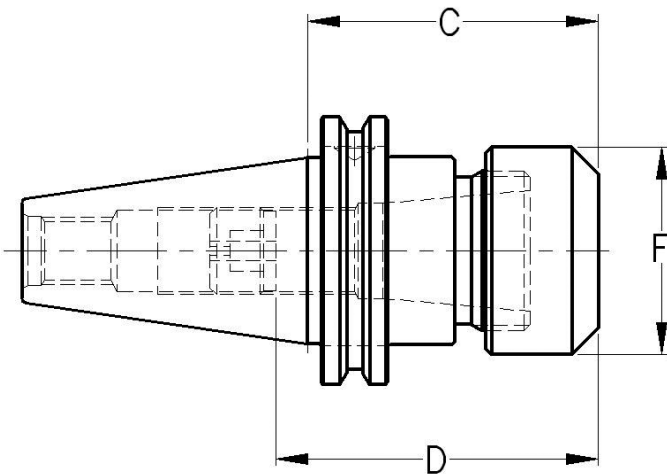
- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature
- ANSI B 5.50 1994-AT3 taper tolerance
- DIN coolant thru the flange available upon request


**Acura-Flex**

- Extended range
- Excellent gripping power


**Acura-Grip**

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


**P: 173**
**P: 203**


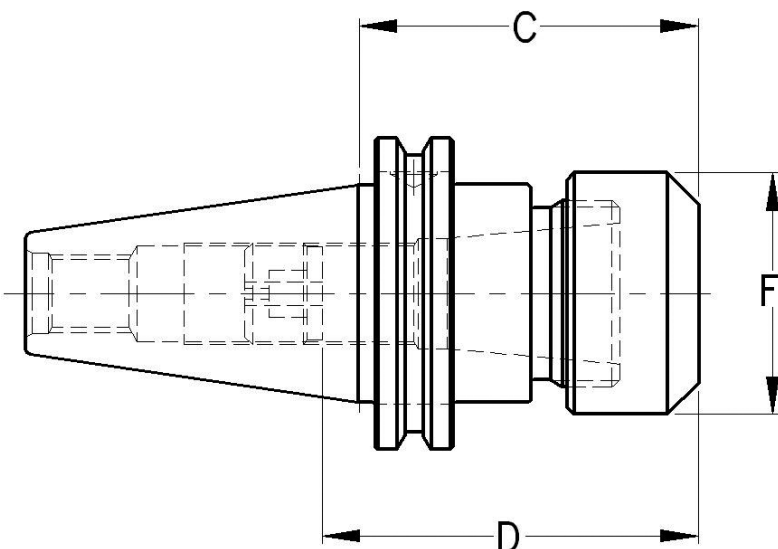
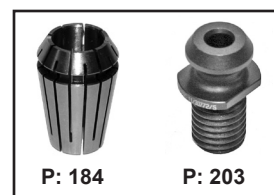
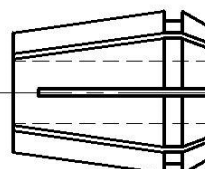
Part Number	Collet Range (Acura-Flex Collet No.'s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF912807	1/16 - 3/8 (AF21 - AF44)	3.00	3.00	1.00 Octagon	9400002	40 ft/lbs	55068
AF913533		4.00					
AF913534		6.00					
AF91963	7/64 - 1/2 (AF55 - AF82)	2.25	2.88	1.25 Octagon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

## 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



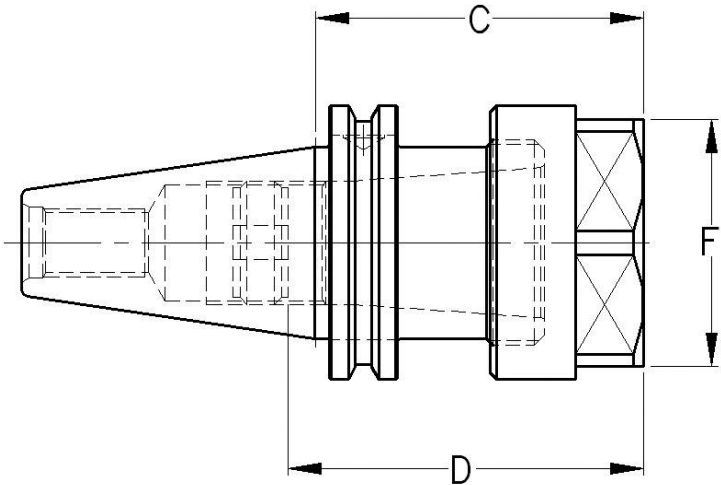
ER collets  
• Extended range



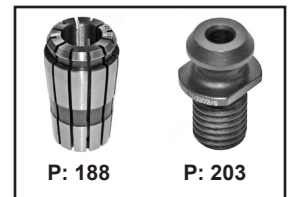
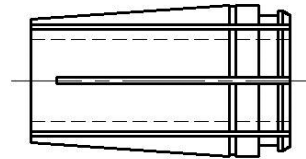
Part Number	Collet Series	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
40CTER1125	ER11 (.020 - .276)	2.50	2.25	.67 Hex.	NER11	20 ft. lbs.	WER11
40CTER1140		4.00	3.00				
40CTER1160		6.00	3.00				
40CTER1625	ER 16 (.020 - .394)	2.50	3.00	.98 Hex.	NER16	50 ft. lbs.	WER16
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



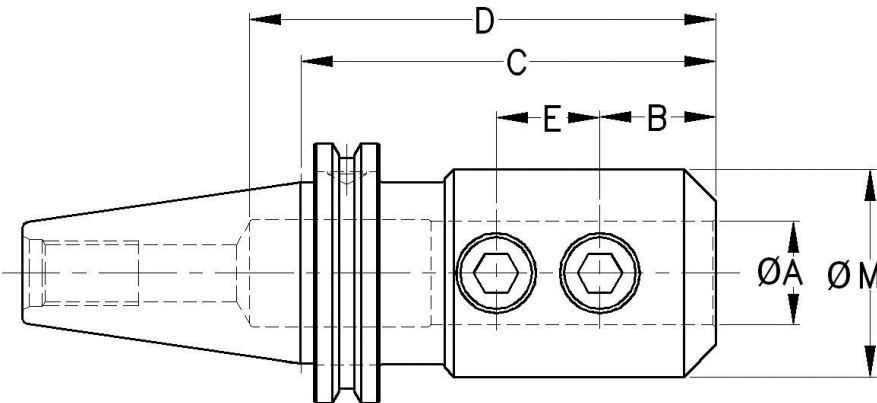
SG (TG) collets  
• Single angle



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*	.1875	.56	1.38	2.88	—	.69	FS1032 02500	
4610557		.56	4.00	2.32				
4617756*	.2500	.62	1.38	2.88	—	.88	FS1620 03125	
4610558		.62	4.00	2.38				
4617757*	.3125	.56	1.38	2.88	—	1.00	FS2018 03125	
4610559		.75	4.00	2.50				
4617745*	.3750	.62	1.38	2.88	—	1.00	602611	
463657		.75	2.50	2.56		1.12		
4615739*		.75	3.00	2.56		1.12		
4610234		.75	4.00	2.56		1.12		
4611616		.75	5.00	2.56		1.12		
4612034		.75	6.00	2.56		1.12		
4617746*	.5000	1.75	3.25	1.75	—	1.75	602713	
463658		2.50	3.00	1.38		1.38		
4615740		3.00	3.00	1.38		1.38		
4610235		4.00	3.00	1.38		1.38		
4612037		5.00	3.00	1.38		1.38		
4612038		6.00	3.00	1.38		1.38		
4617747*	.6250	1.75	2.10	—	1.75	602812		
4615741*		3.00	3.50					
463659		3.38	3.50					
4612041		5.00	3.50					
4612042	6.00	3.50						
4617748*	.7500	1.75	2.35	—	1.75	603014		
4615742*		3.00	3.88					
463660		3.38	3.88					
4612045		5.00	3.88					
4612046	6.00	3.88						
4617749*	.8750	1.75	2.35	—	1.75	603015		
463661		3.38	4.25			603015**		
4610238*		4.00	4.25			603015**		
4612050		6.00	4.25			603015**		
4617750*	1.0000	1.00	1.75	—	2.00†	603126		
463662		1.12	3.12			1.00	2.12	603113 & 603131
4610239		1.12	4.00			1.00	2.12	603113**
4611405		1.12	6.00			1.00	2.12	603113**
4617751*	1.2500	1.00	2.00	—	2.47†	603126		
466997		1.12	4.25			1.00	2.50	603115**
4612056		1.12	6.00			1.00	2.50	603115**



P: 203

\* Set screws in line with shank drive slots.

\*\* Requires 2 set screws

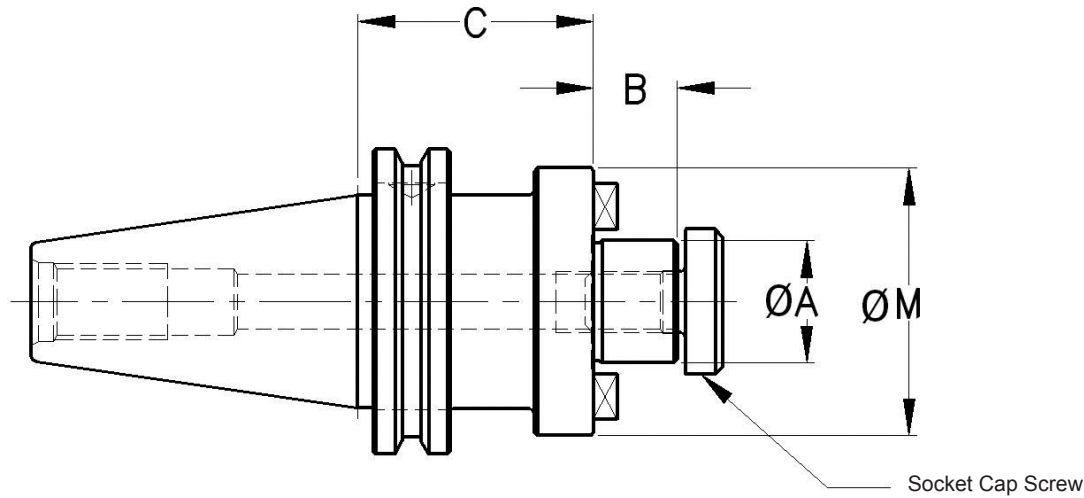
† Part no. 4617750 & 4617751 "M" exceeds 1.750 Diameter. May not have clearance for tool changer. Deviates from ANSI B5.50-1994.

**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

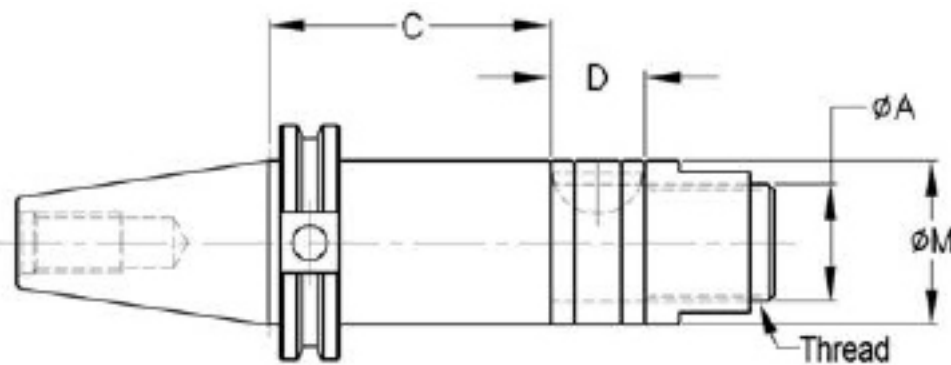


Part Number	A Pilot Dia.	B	C	M	Drive Key	Screw Thread
463664	.7500	.69	1.50	1.69	.31	3/8 - 24
4610240			4.00			
463665	1.0000	.69	1.94	2.19	.38	1/2 - 20
4610241			4.00			
463666	1.2500	.69	2.06	2.75	.50	5/8 - 18
4610242			4.00			
463667	1.5000	.94	2.19	3.62	.63	3/4 - 16
4610245			4.00			

**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



## CAT40 Shrink Fit



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

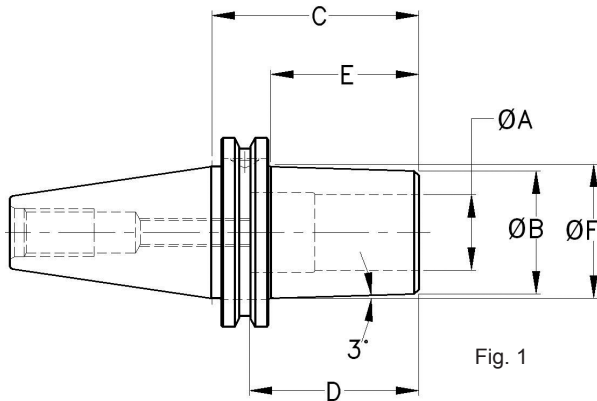


Fig. 1

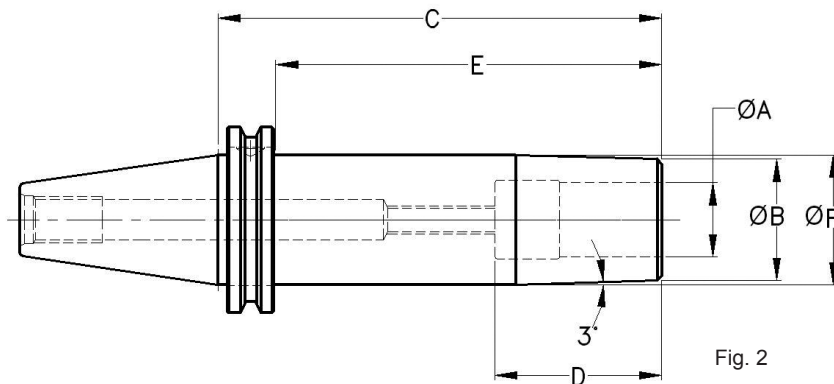


Fig. 2

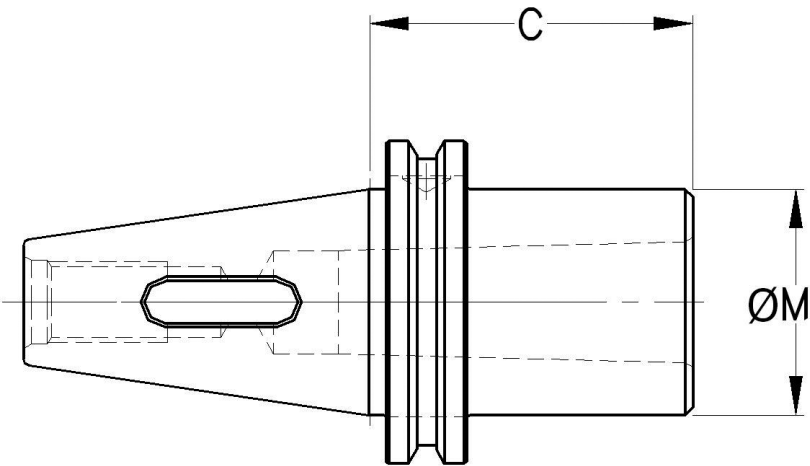
Part Number (Fig. 1)	ØA	B	C	D	E	F
4618437	3/16 .1875	.72	3.00	2.00	2.02	.94
4618438	1/4 .2500	.87	3.00	1.25	2.00	1.08
4618439	5/16 .3125	.87	3.00	1.70	2.01	1.08
4618440	3/8 .3750	1.01	2.75	1.88	1.76	1.20
4618441	1/2 .5000	1.14	2.75	2.00	1.82	1.34
4618442	5/8 .6250	1.27	2.75	2.00	1.88	1.47
4618443	3/4 .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

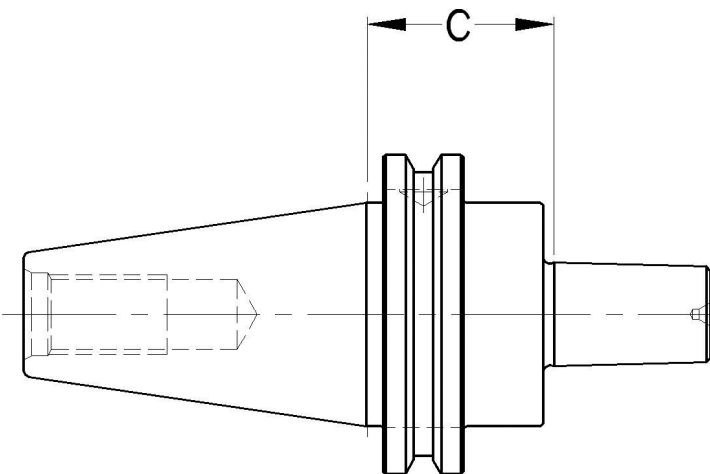


Part Number	Morse Taper	C	M
463668*	2	1.75	1.75
463669*	3	2.50	1.75
463670*	4	3.50	2.00

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

**Jacobs Taper Adapters with CAT40 Shanks**

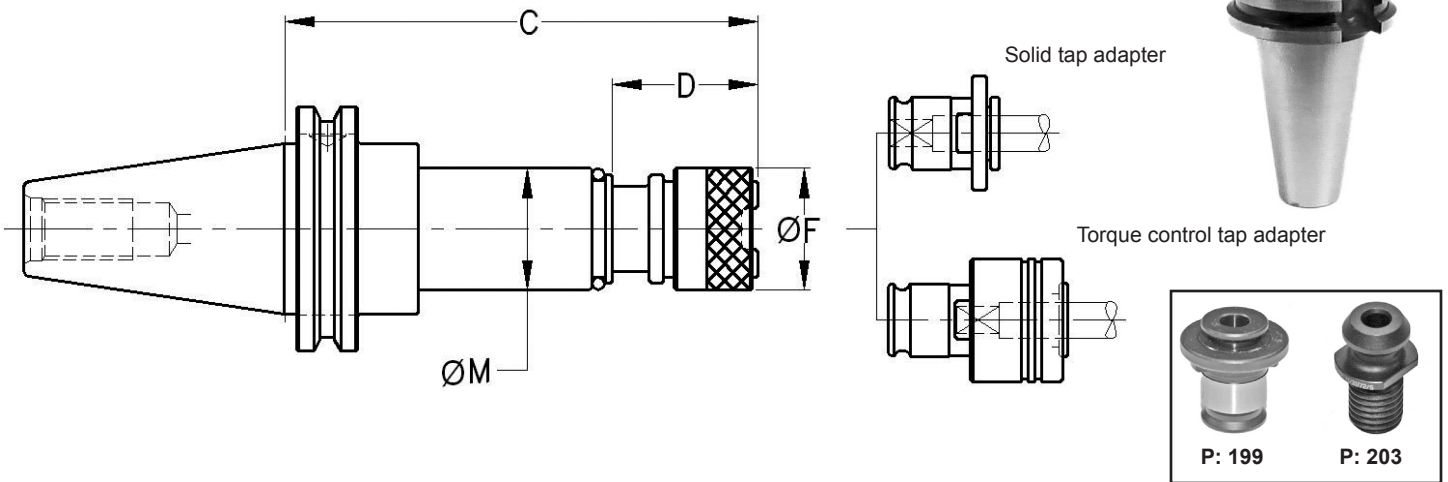
- ANSI B5.50 1994 - AT3 taper tolerance



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

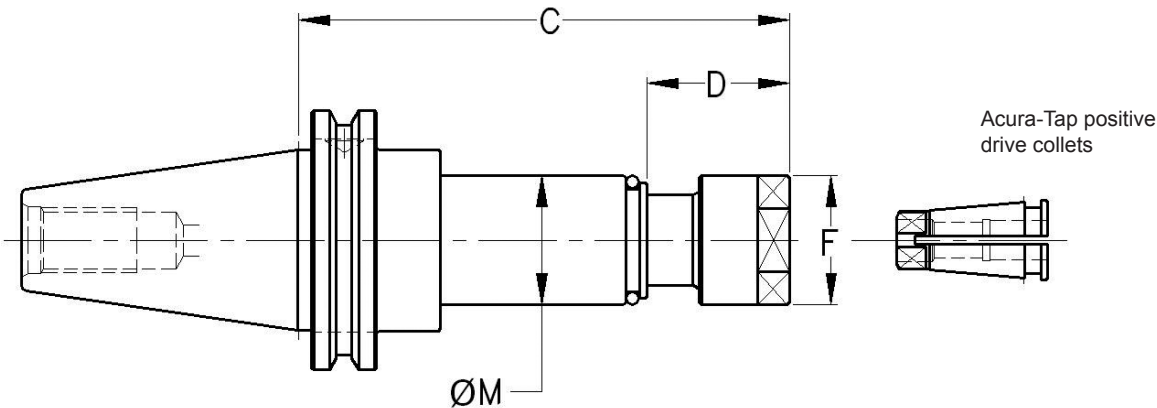
- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance
- Full tension available upon request



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**

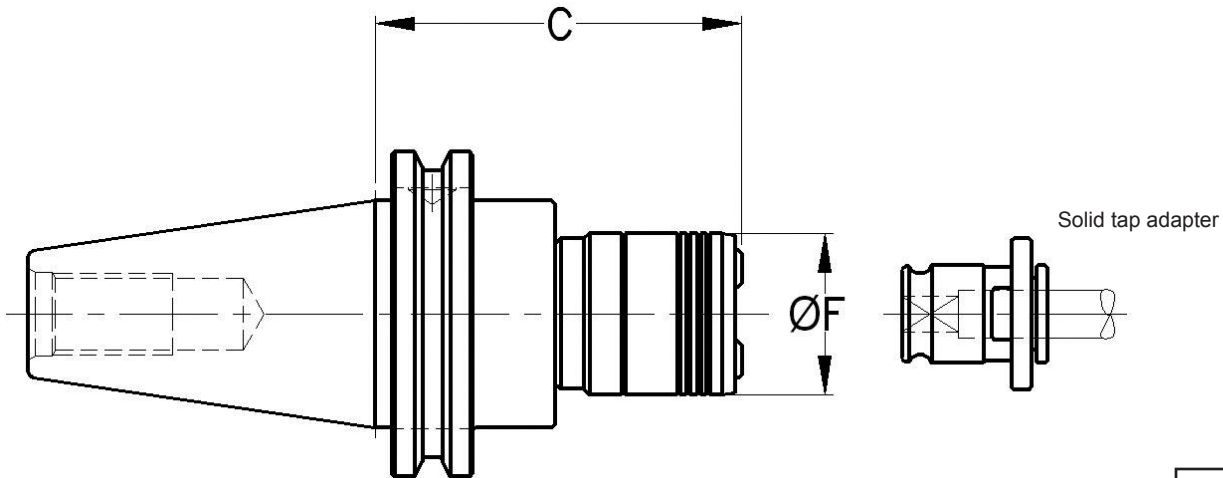
- Acura-Tap collets
- Order collets separately by matching tap range
- ANSI B5.50 1994 - AT3 taper tolerance
- Full tension available upon request



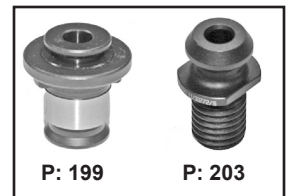
Part Number	Tap Range	C	D	F	M	Includes Nut No.	Tension	Compression	Ref. Wrench
163882	#0 - 1/2 Hand 1/8 Pipe	4.75	1.38	1.06 Hex.	1.25	280669	.88	.38	505643
163883	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	5.25	1.69	1.50 Hex.	1.69	280677			505651

## 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

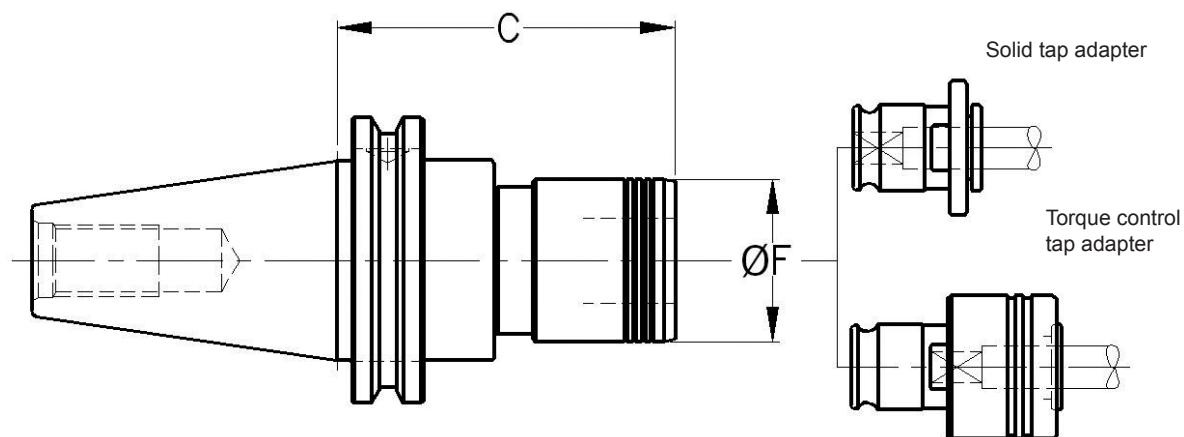


Part Number	Adapter Size	Tap Range	C	F
169012	1	#0 - 9/16 Hand 1/8 Pipe	2.92	1.26
169013	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	3.51	1.97

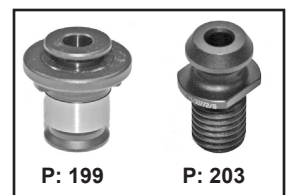


## Short Style Quick Change Tension & Compression Tap Drivers with CAT40 Shanks

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

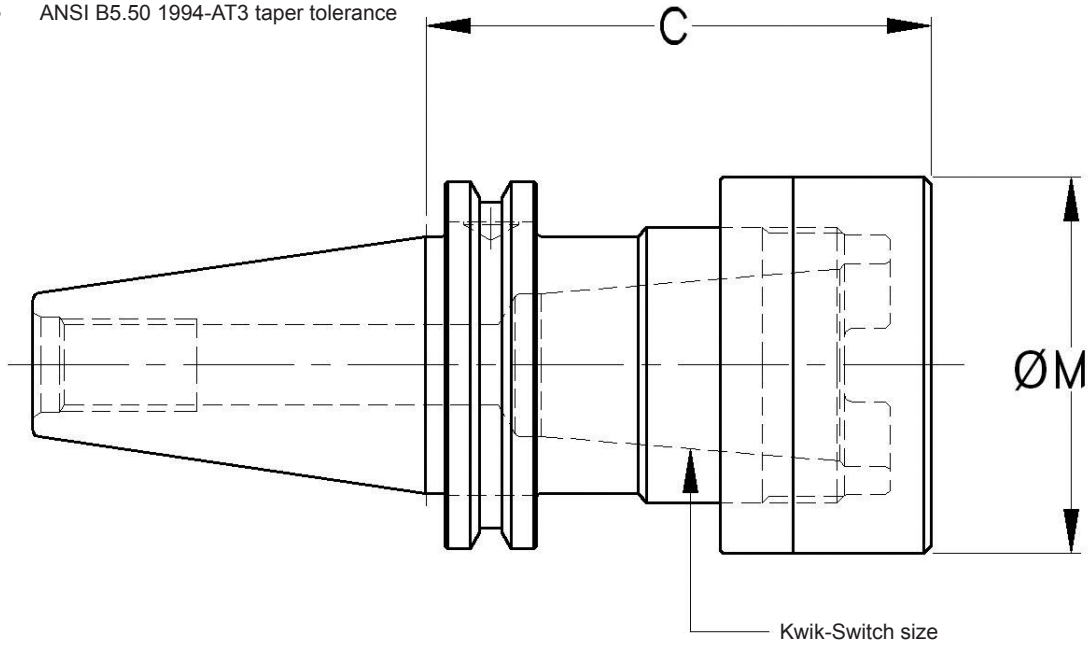


Part Number	Adapter Size	Tap Range	C	F	Tension	Compression
169014	1	#0 - 9/16 Hand 1/8 Pipe	3.00	1.42	.30	.30
169015	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	4.54	2.09	.49	.49



**Kwik-Switch® II Master Holder with CAT40 Shank**

- ANSI B5.50 1994-AT3 taper tolerance

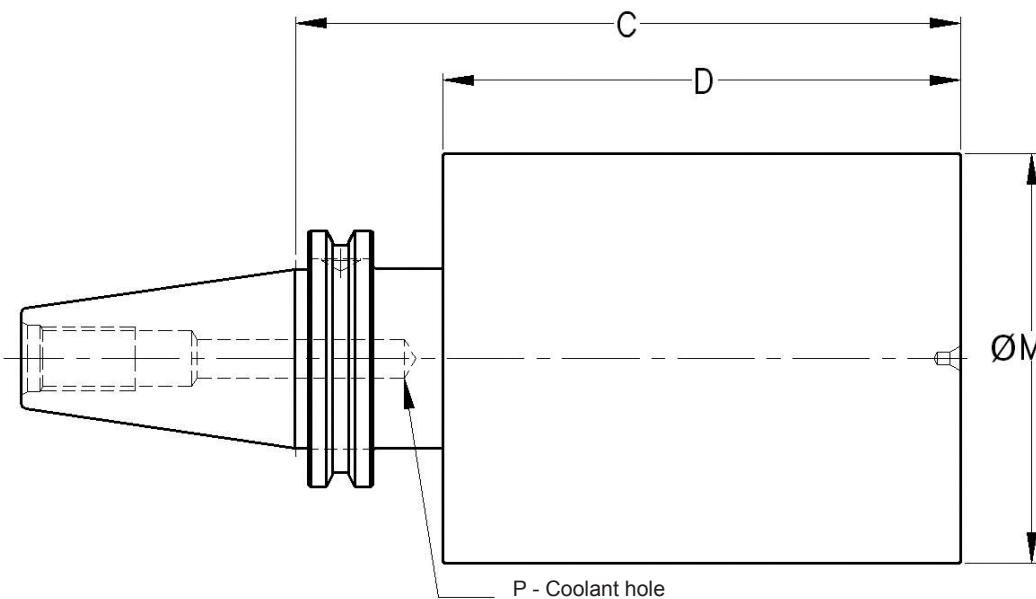


Part Number	Kwik-Switch Size	C	M	Includes Nut No.	Ref. Wrench No.
805922	200	3.44	2.56	805043	80203



**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.

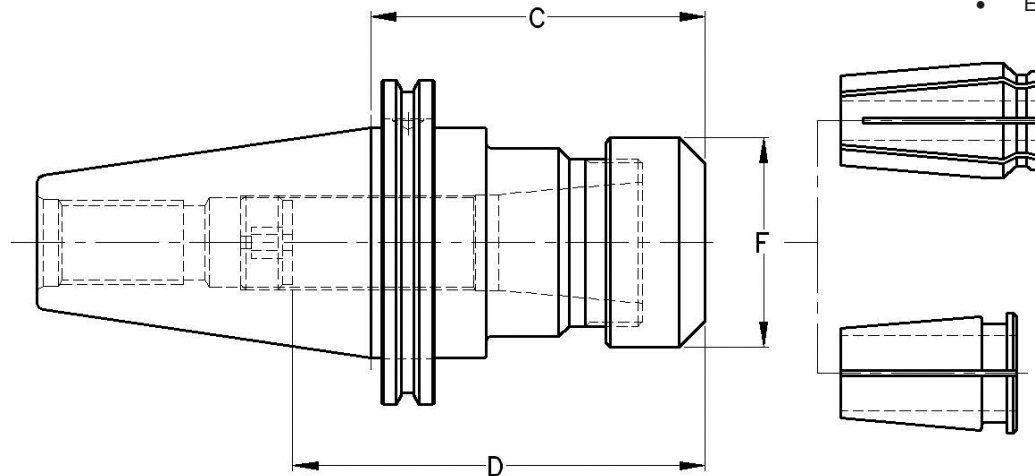


## Acura-Flex® Collet Chucks with CAT50 Shanks

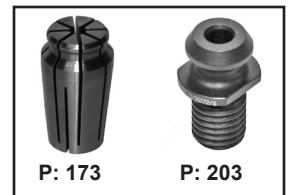
- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature
- ANSI B5.50 1994 - AT3 taper tolerance
- DIN coolant thru the flange available upon request
- Symmetrical Balance Design for speeds up to 10,000 RPM's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



- Acura-Flex
- Extended range
  - Excellent gripping power



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

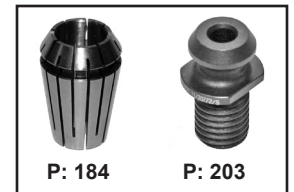
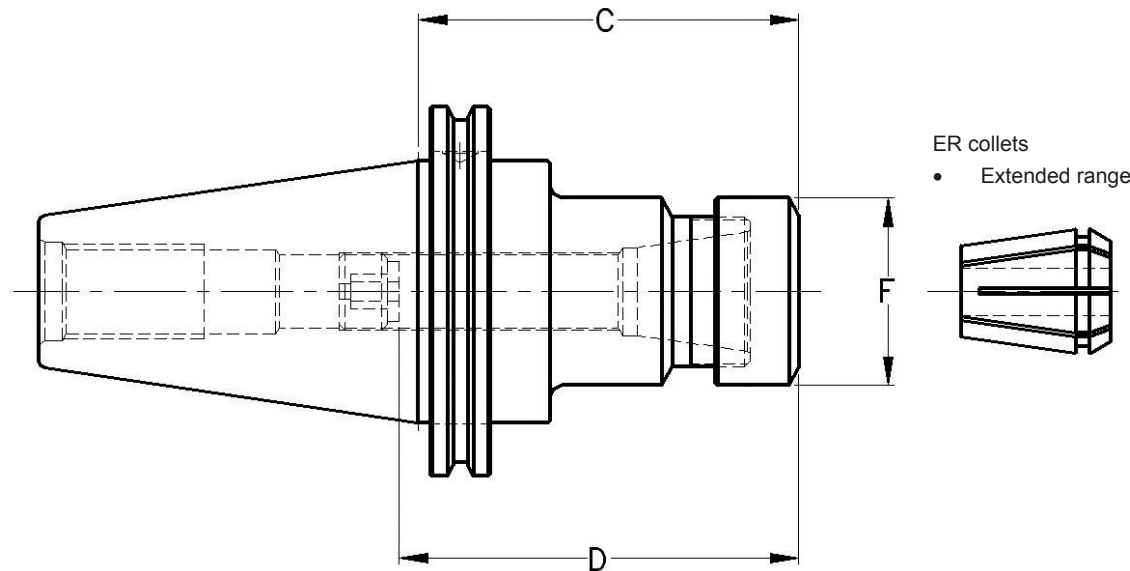


Part Number	Collet Range (Acura-Flex Collet No.'s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF912983	1/16 - 3/8	4.00	3.00	1.00 Oct.	9400002	40 ft/lbs	55068
AF913535	(AF21 - AF44)	6.00					
AF914006	7/64 - 1/2	3.86	3.25	1.25 Oct.	9400020	50 ft/lbs	55105
AF913469	(AF55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



**ER Collet Chucks with CAT50 Shanks**

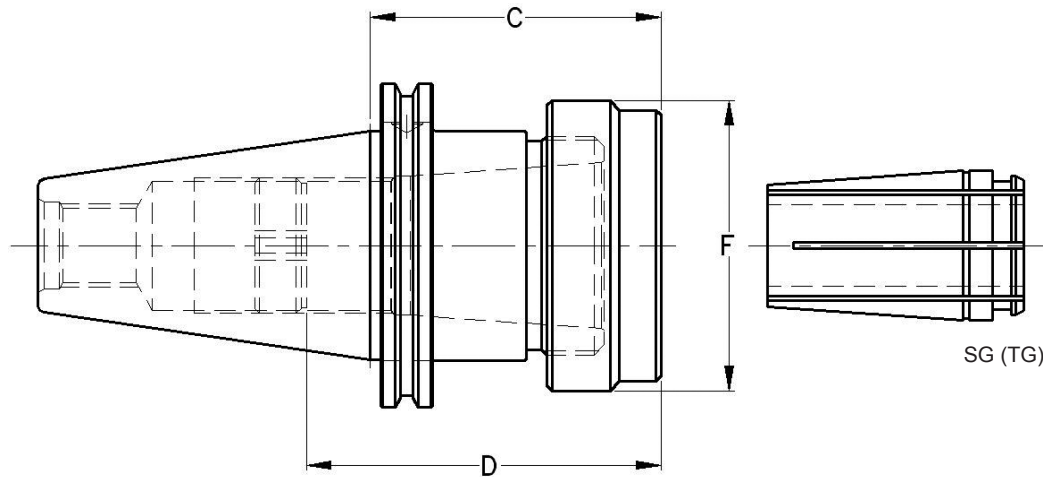
- ER extended range collets
- Order collet separately by matching collet series
- Coolant-thru feature
- ANSI B5.50 1994 - AT3 taper tolerance
- DIN coolant thru the flange available upon request



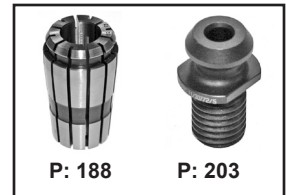
Part Number	Collet Series	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
50CTER1640	ER16 (.020 - .394)	4.00	3.00	.98 Hex.	NER16	50 ft. lbs.	WER16
50CTER1660		6.00					
50CTER1680		8.00					
50CTER161000		10.00					
50CTER2040	ER20 (.039 - .512)	4.00	3.50	1.18 Hex.	NER20	75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

## 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



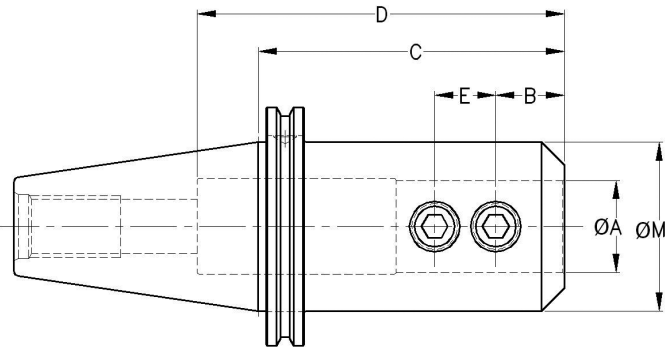
SG (TG) -collets (single angle)



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

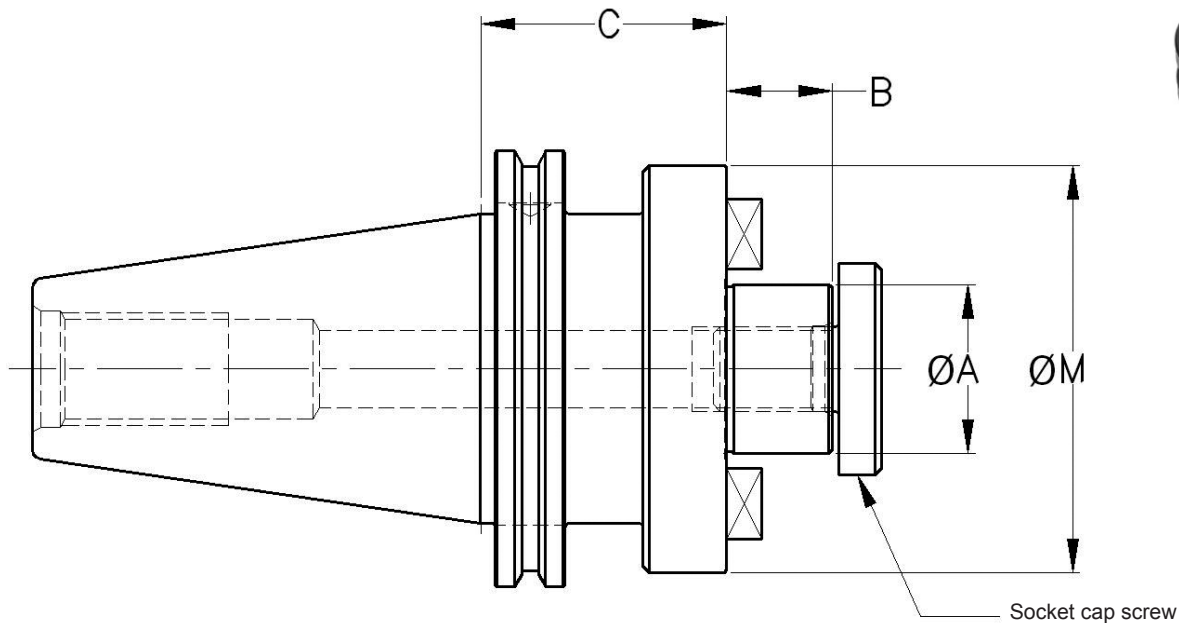


Part Number	ØA End Mill Shank Size	B	C	D	E	M	Set Screw No.
463630	.375	.75	2.50	2.56	—	1.12	602611
4612002			3.00				
464959			5.00				
464960			6.00				
464962			8.00				
463631	.500	.88	2.62	3.00	—	1.38	602713
4612003			3.00				
464965			5.00				
464966			6.00				
464968			8.00				
463632	.625	.94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

\* 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

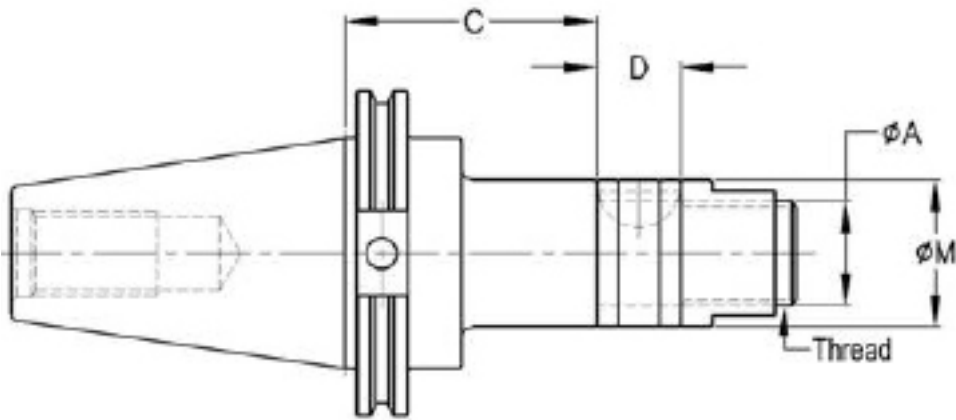


Part Number	Dia. A	B	C	M	Drive Key	Screw Thread
463638	.7500	.69	1.50	1.69	5/16	3/8 - 24
465011			3.00			
465012			4.00			
465013			5.00			
465014			6.00			
465016			8.00			
465018			10.00			
4615849	12.00					
463639	1.0000	.69	1.50	2.19	3/8	1/2 - 20
465019			3.00			
465020			4.00			
465021			5.00	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



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



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

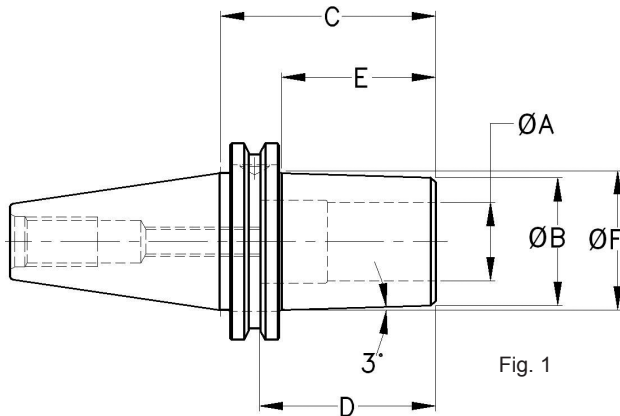


Fig. 1

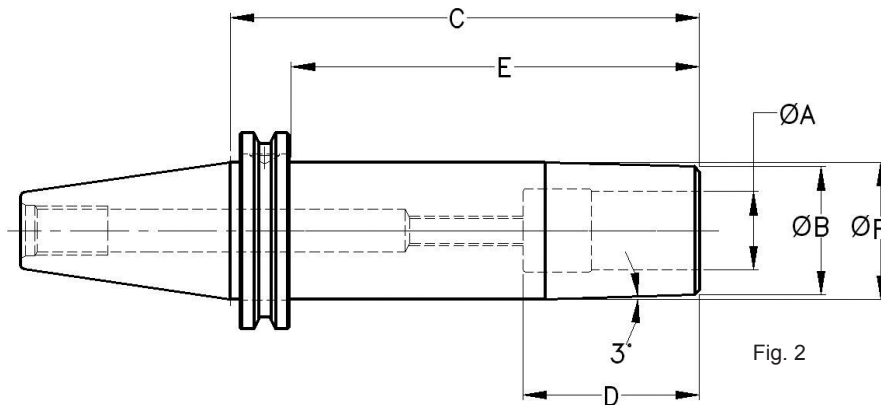


Fig. 2



P: 203

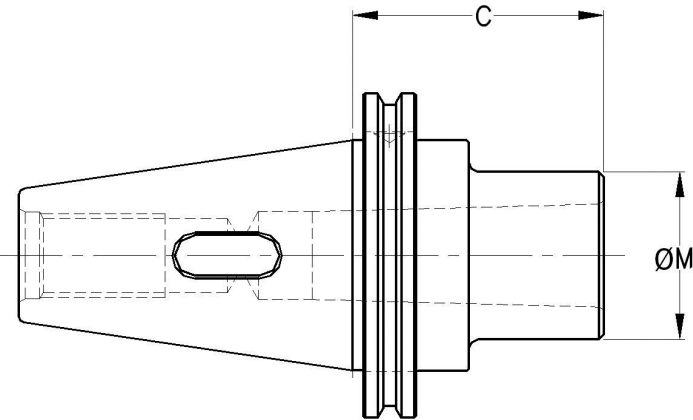
Part Number (Fig. 1)	ØA		B	C	D	E	F
4618452	1/4	.2500	.87	3.00	1.25	2.00	1.08
4618453	5/16	.3125	.87		1.70	2.01	1.08
4618454	3/8	.3750	1.01		1.88	2.01	1.23
4618455	1/2	.5000	1.14		2.00	2.00	1.36
4618456	5/8	.6250	1.27		2.00	2.00	1.48
4618457	3/4	.7500	1.37		2.00	2.01	1.58
4618458	1"	1.0000	1.63		2.25	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
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

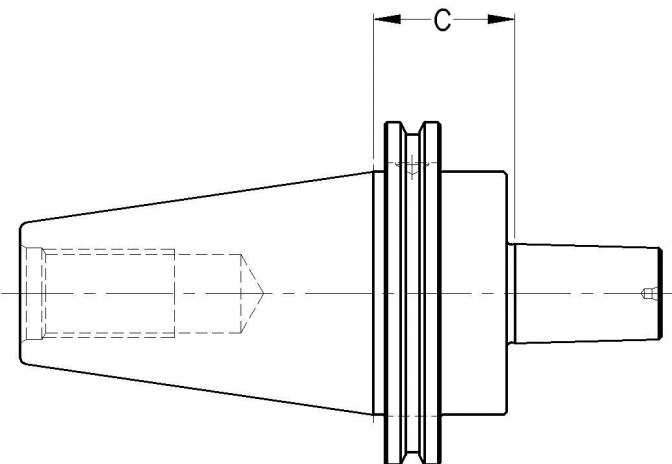


Part Number	Morse Taper	C	M
463643*	2	1.38	2.75
463644*		2.00	
465058	3	4.00	1.75
465060		6.00	
463645*	4	3.00	2.00
465067		6.00	
463646*	5	4.25	2.75
465074		8.00	

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

**Jacobs Taper Adapters with CAT50 Shanks**

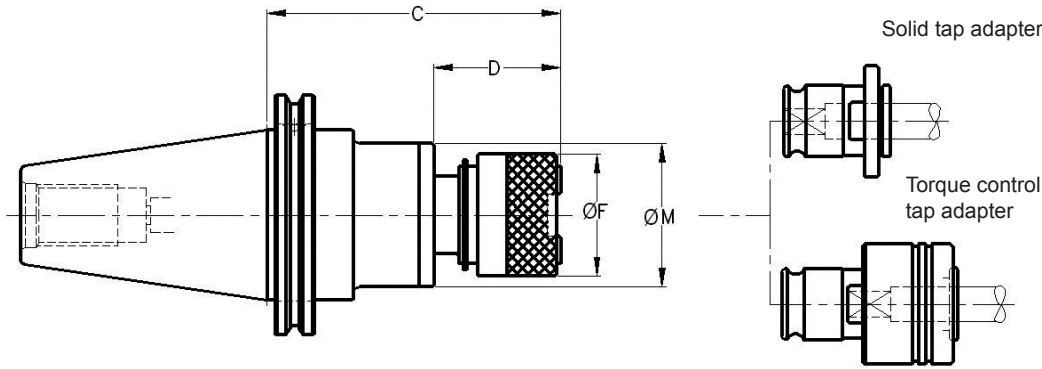
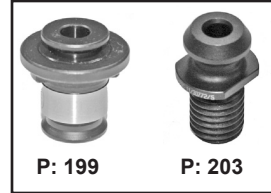
- ANSI B5.50 1994 - AT3 taper tolerance



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**

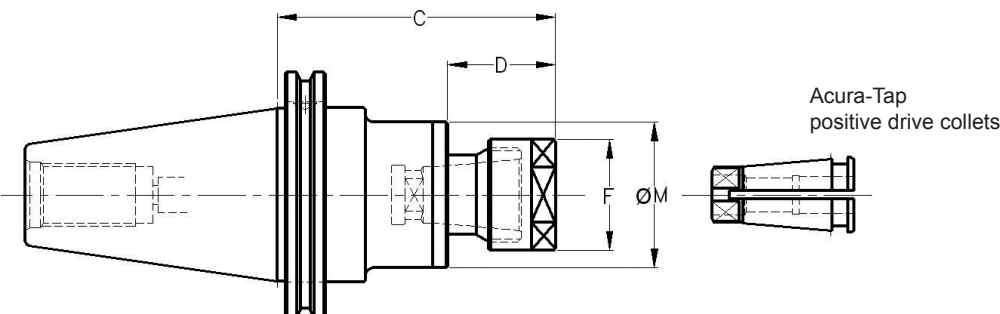
- Order tap adapter separately by matching adapter size
- ANSI B5.50 1994 - AT3 taper tolerance
- Full tension available upon request



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

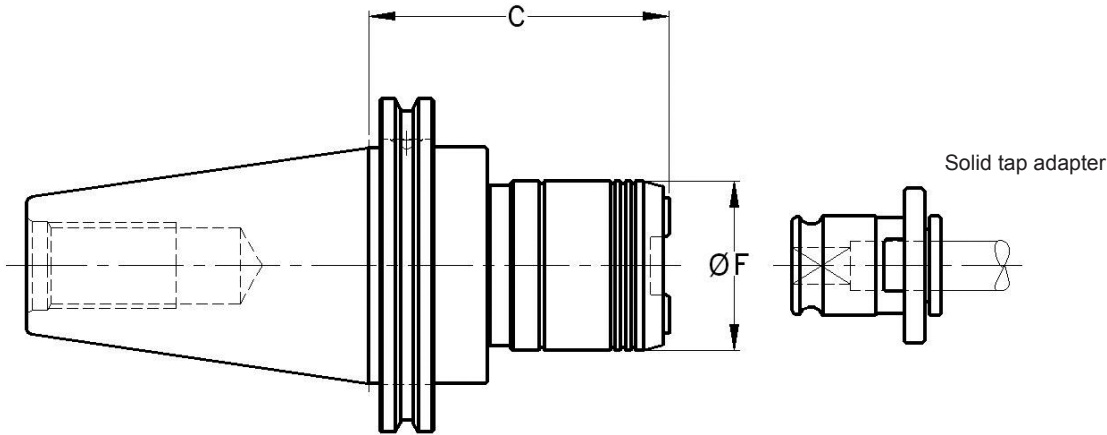


Part Number	Tap Range	C	D	F	M	Includes Nut No.	Tension	Compression	Ref. Wrench
163841	#0 - 1/2 Hand 1/8 Pipe	3.88	1.38	1.06 Hex.	1.88	280669	.88	.38	505643
163842	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	4.38	1.69	1.50 Hex.	2.31	280677			505651
163843	3/4 - 1-1/2 Hand 1/2 - 1-1/4 Pipe	5.94	2.62	2.75 Span.	2.75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

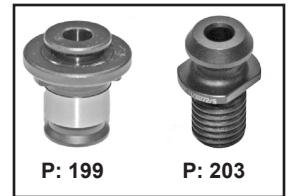


### Rigid Quick Change Tap Drivers with CAT50 Shanks

- 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

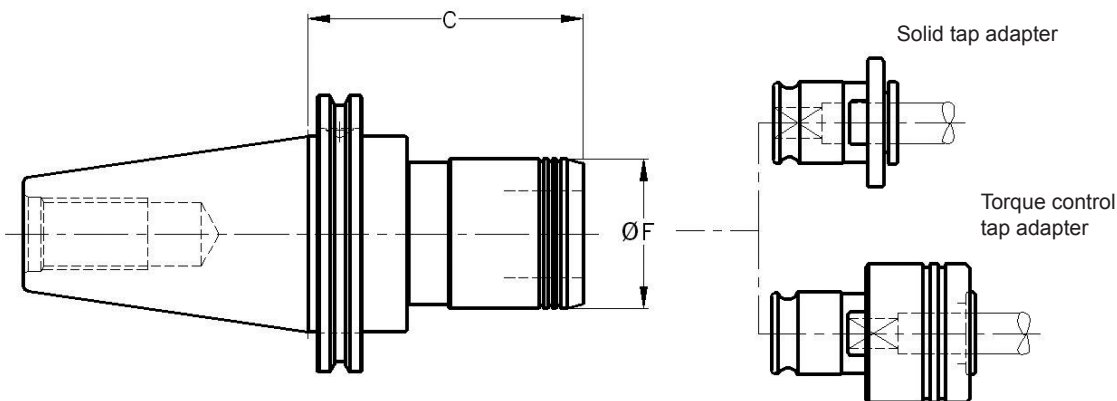


Part Number	Adapter Size	Tap Range	C	F
169016	1	#0 - 9/16 Hand 1/8 Pipe	2.92	1.26
169017	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	3.51	1.97
169018	3	3/4 - 1-3/8 Hand 3/8 - 1" Pipe	4.74	2.83

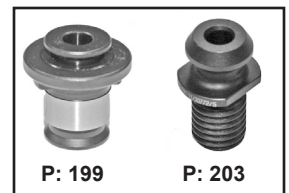


### Short Style Quick Change Tension & Compression Tap Drivers with CAT50 Shanks

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

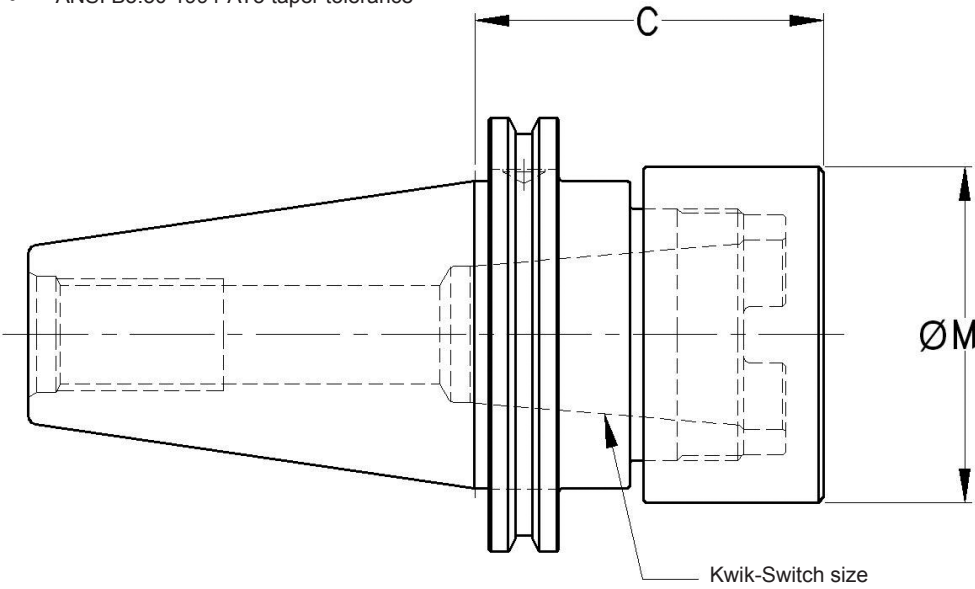


Part Number	Adapter Size	Tap Range	C	F	Tension	Compression
169019	1	#0 - 9/16 Hand 1/8 Pipe	3.00	1.42	.30	.30
169020	2	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	4.54	2.09	.49	.49
169021	3	3/4 - 1-3/8" Hand 3/8 - 1" Pipe	5.76	3.07	.79	.79



## Kwik-Switch®II Master Holder with CAT50 Shanks

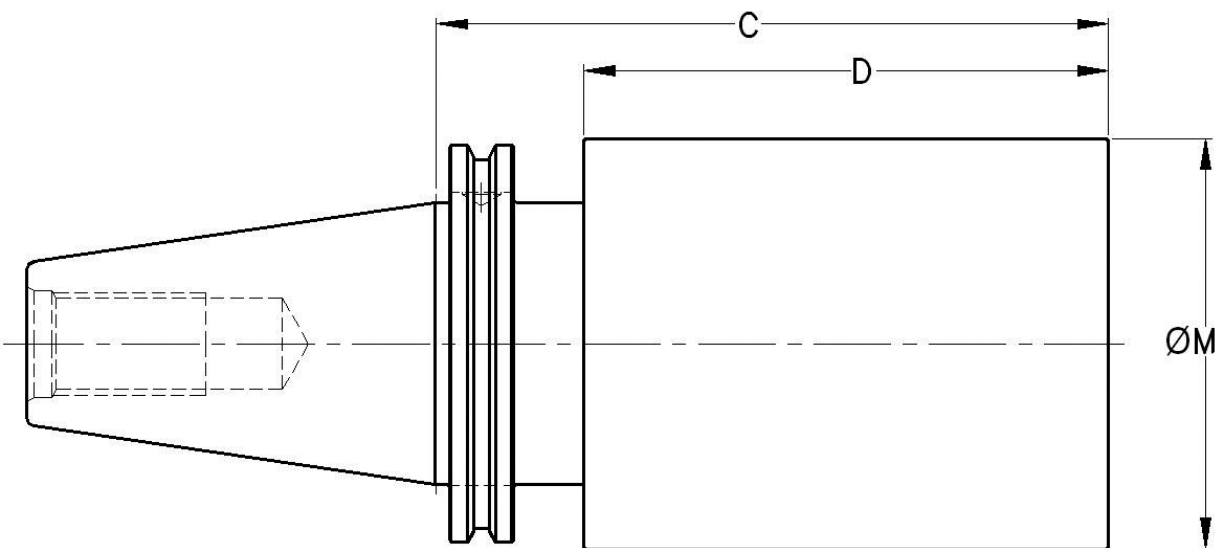
- ANSI B5.50 1994-AT3 taper tolerance



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

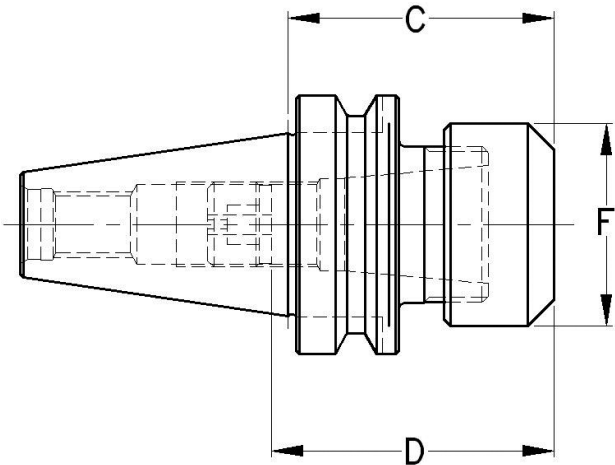


Part No.	C	D	M
509991	11.44	10.00	4.00
5011648	7.00	5.56	6.12



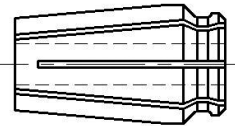
## Acura-Flex® Collet Chucks with BT40 Shanks

- 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



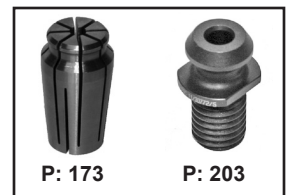
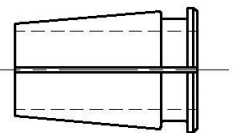
### Acura-Flex

- Extended range
- Excellent gripping power



### Acura-Grip

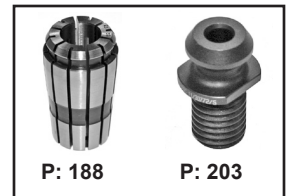
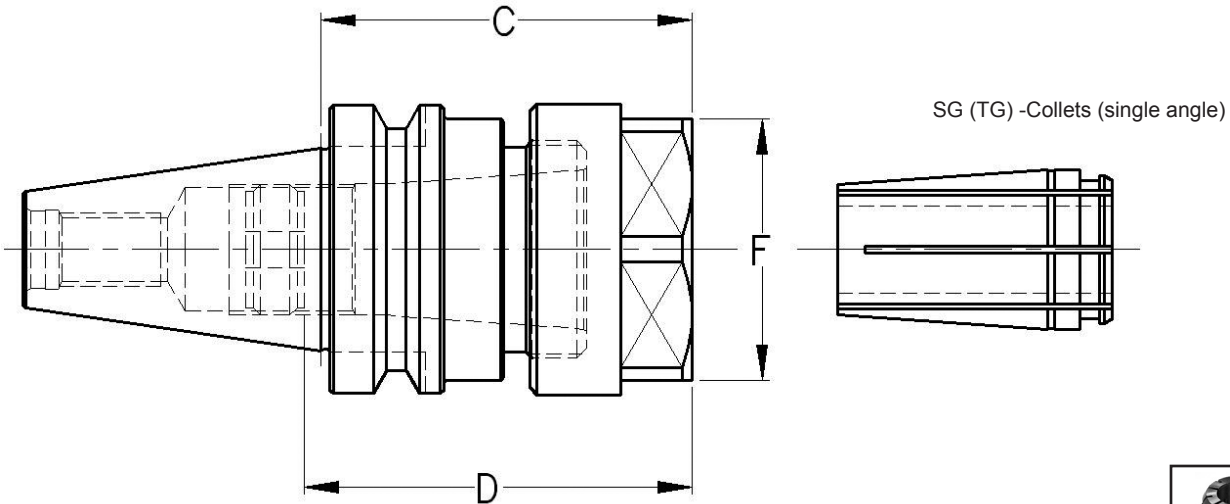
- Extreme precision
- 1/2, 3/4, 1" collet ranges



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

## SG (TG) Collet Chucks with BT40 Shanks

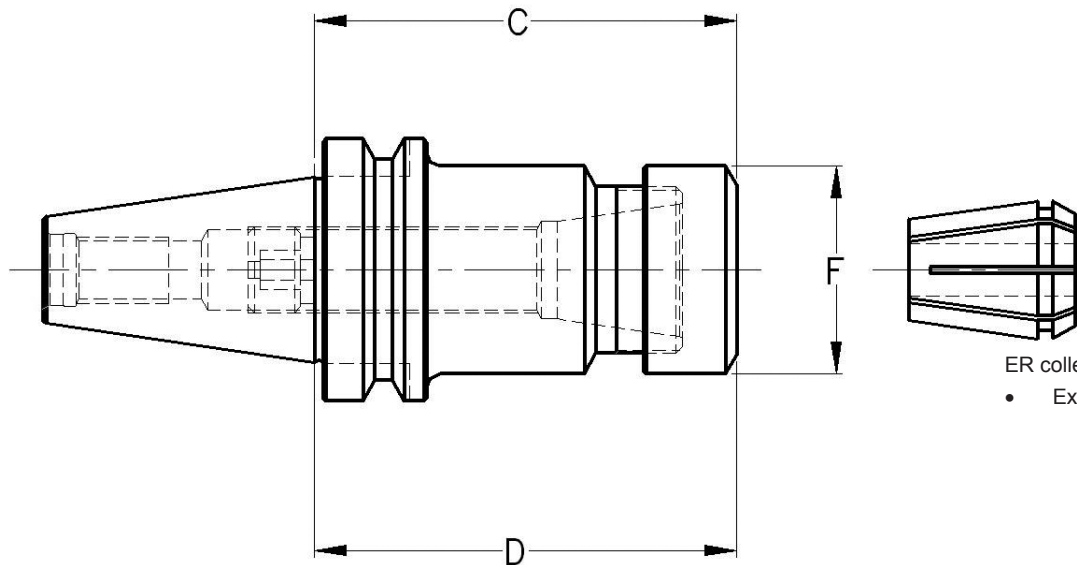
- SG (TG) extended range collets
- Order collet separately by matching collet series
- JMTBA MAS403 JIS-B6339
- Coolant thru feature



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

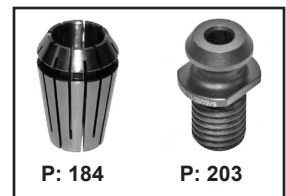
**ER Collet Chucks with BT40 Shanks**

- 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

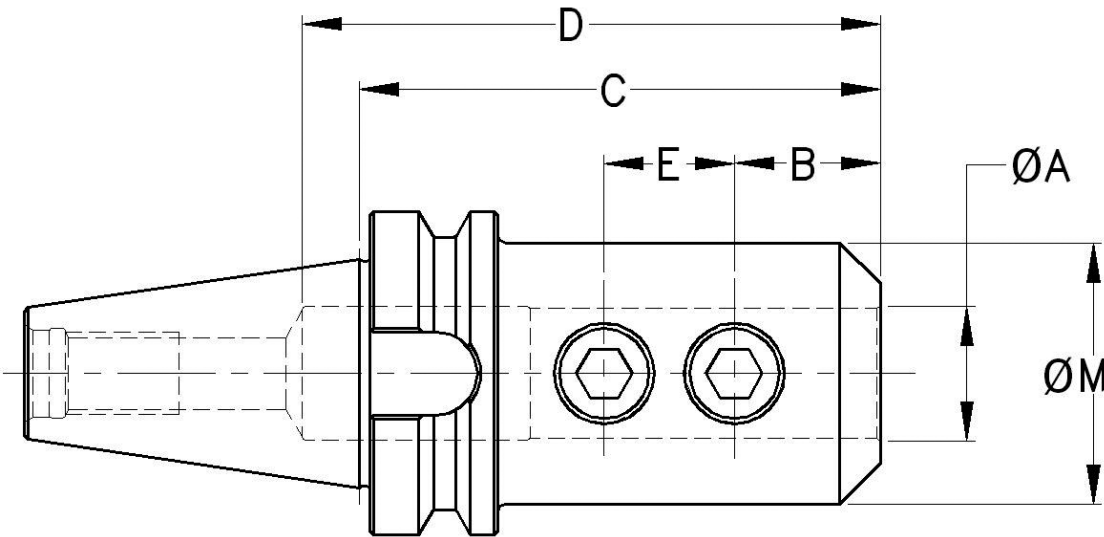
- Extended range



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



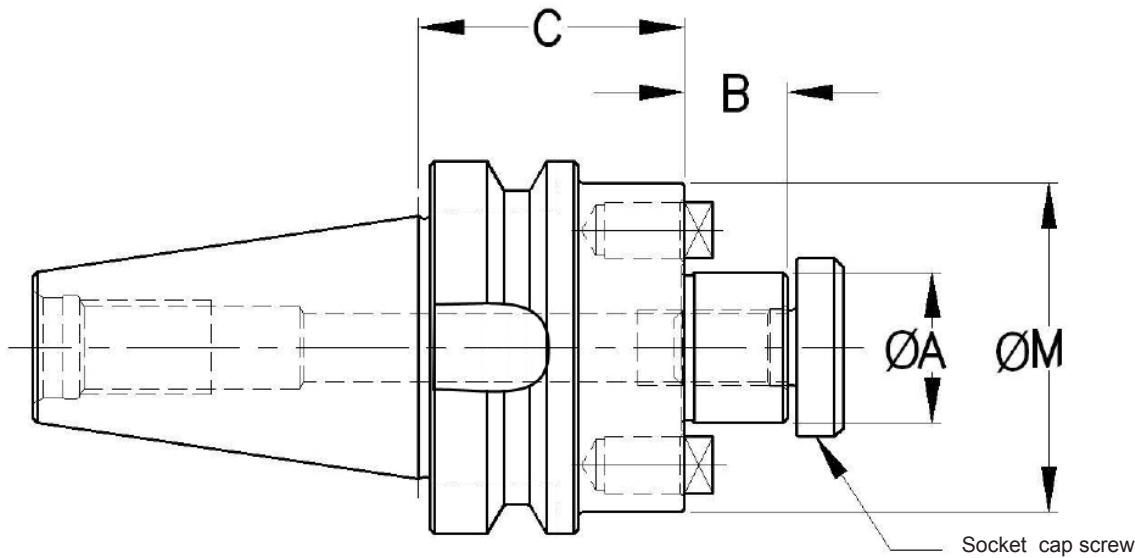
Part Number	ØA End Mill Shank Size	B	C	D	E	M	Set Screw No.
4618479	.1875	.44	2.25	3.00	—	.69	FS1032 02500
4610554		.56	3.00	2.32	—		
4610555	.2500	.62	3.00	2.38	—	1.00	FS1620 03750
4610556		.75	3.00	2.50	—		
4618480	.3750	.75	2.25	3.00	—	1.00	602613
466355		2.56	2.56	—	1.12		602611
4615774		4.00	2.56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



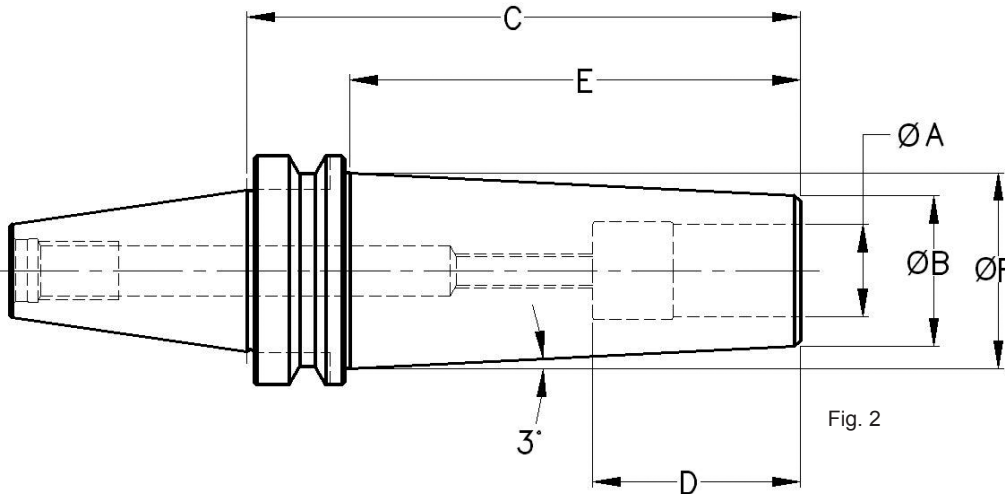
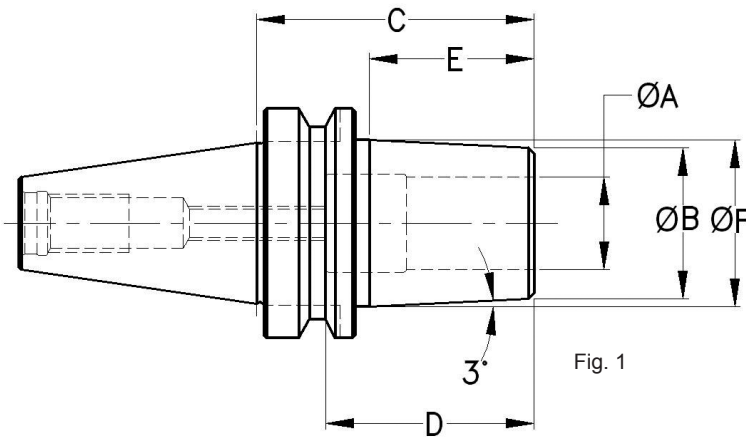
Part Number	ØA Pilot Dia.	B	C	M	Drive Key	Screw Thread
466364 4615779	.7500	.69	1.77 4.00	1.75	.31	3/8 - 24
466365 4615780	1.0000	.69	1.77 4.00	2.19	.38	1/2 - 20
466366 4615781	1.2500	.69	1.77 4.00	2.62	.50	5/8 - 18
466367 4615782	1.5000	.94	2.36 4.00	3.62	.63	3/4 - 16

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

## BT40 Shrink Fit



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



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:

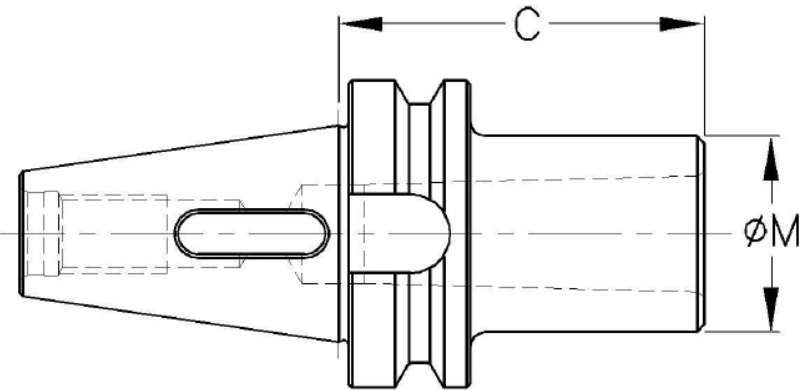
- Cutting tool shank size must be h6 tolerance to work properly or cutter sticking or slipping may occur.
- Cutter shanks must fully engage the length of the Shrink Fit holder bore.
- Improper heating and cooling may cause damage to the holder. Please refer to your Shrink Fit machine manual for proper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

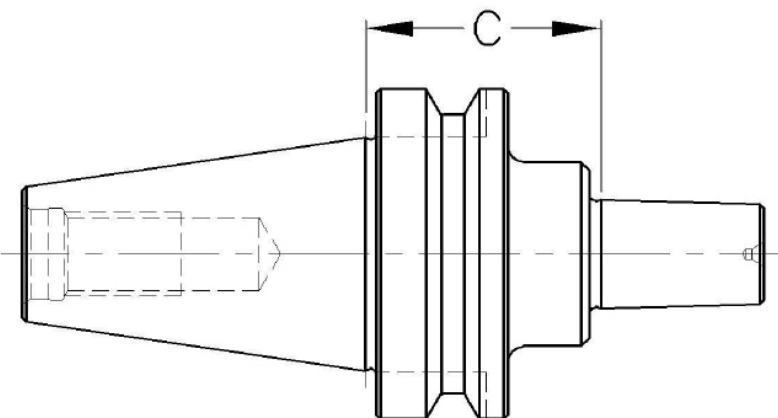


Part Number	Morse Taper	C	M
466369*	2	2.36	1.25
466370*	3	2.95	1.58
466371*	4	3.74	1.97

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

**Jacobs Taper Adapters with BT40 Shanks**

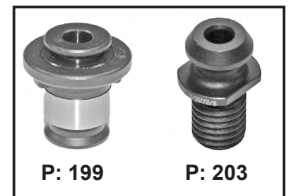
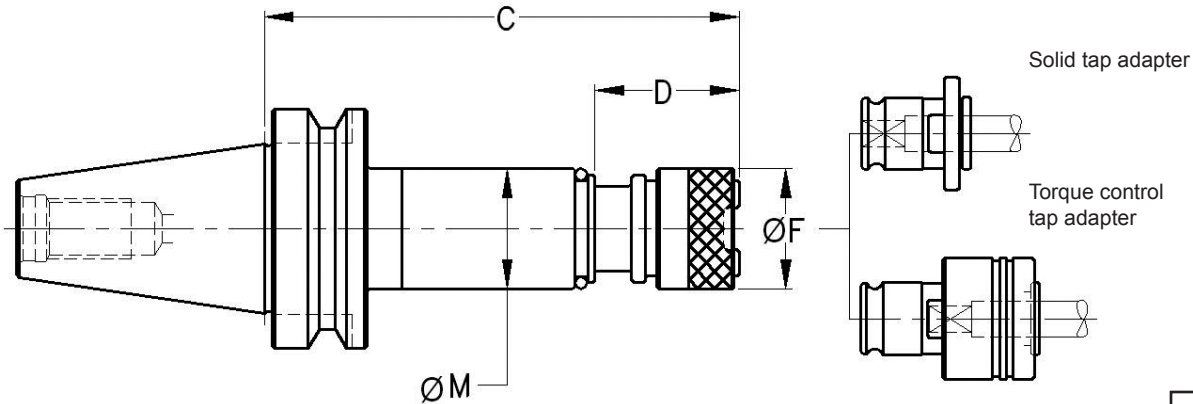
- JMTBA MAS403 JIS-B6339



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

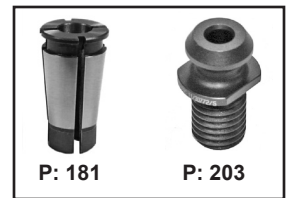
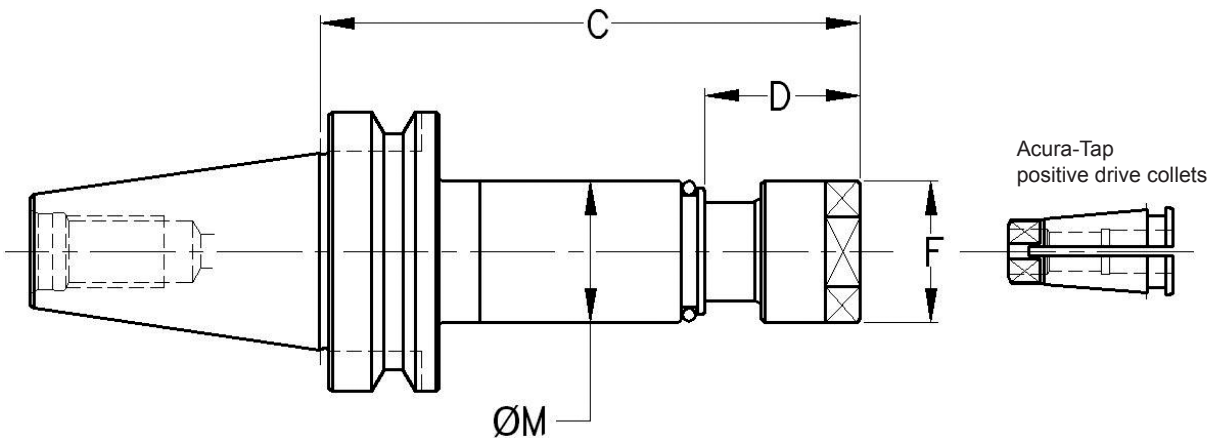
- Order tap adapter separately by matching adapter size
- JMTBA MAS403 JIS-B6339
- Full tension available upon request



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**

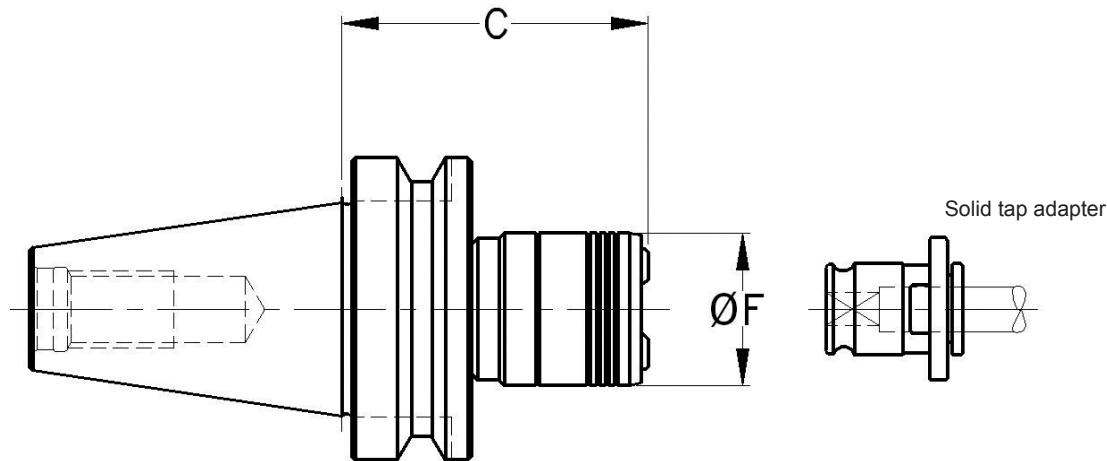
- Acura-Tap collets
- Order collet separately by matching tap range
- JMTBA MAS403 JIS-B6339
- Full tension available upon request



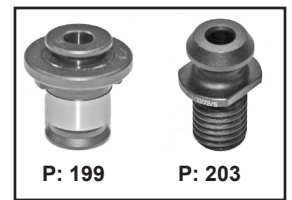
Part Number	Tap Range	C	D	F	M	Tension	Compression	Ref. Wrench
165765	#0 - 1/2 Hand 1/8 Pipe	4.80	1.38	1.06 Hex.	1.25	.88	.38	505643
165766	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	5.25	1.69	1.50 Hex.	1.69			505651

## 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

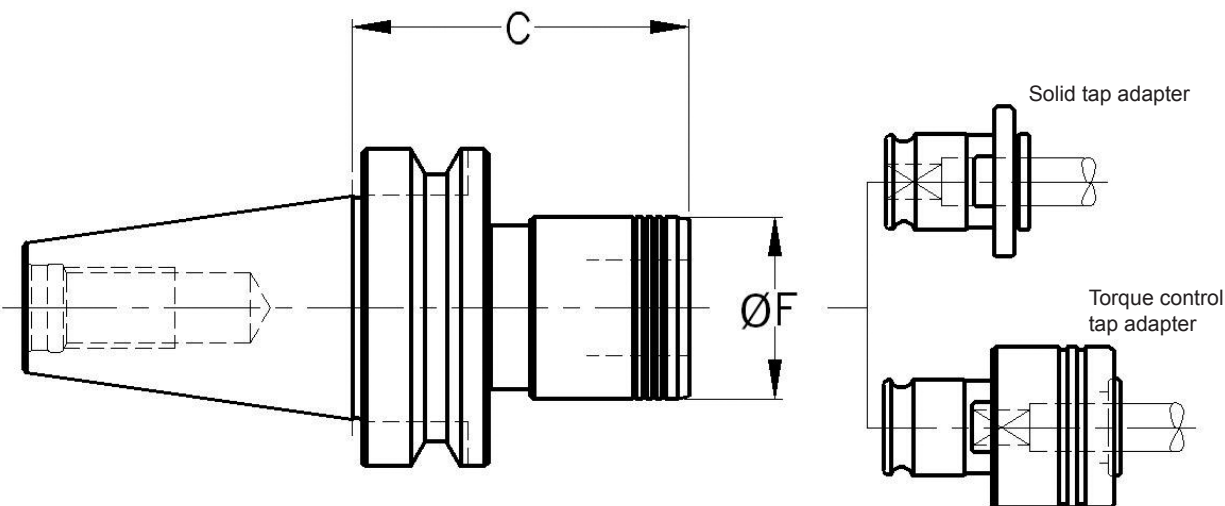


Part Number	Adapter Size	Tap Range	C	F
169022	1	#0 - 9/16 Hand 1/8 Pipe	2.98	1.26
169023	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	3.57	1.97

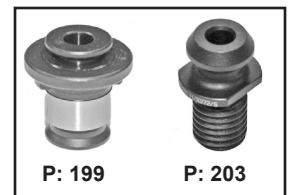


## Short Style Quick Change Tension & Compression Tap Drivers with BT40 Shanks

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

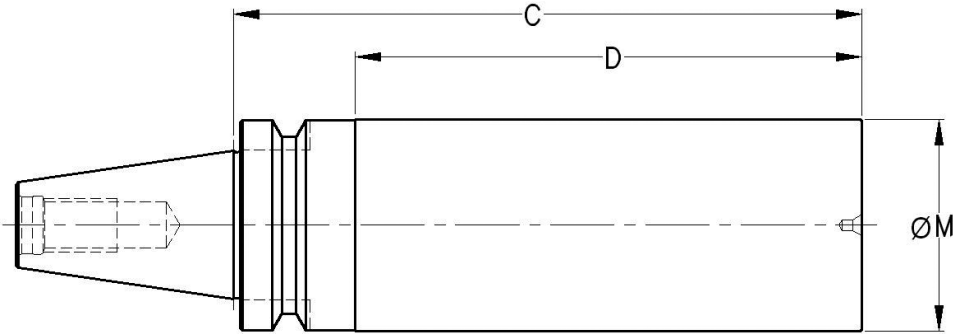


Part Number	Adapter Size	Tap Range	C	F	Tension	Compression
169024	1	#0 - 9/16 Hand 1/8 Pipe	3.06	1.42	.30	.30
169025	2	1/4 - 7/8 Hand 1/4 - 1/2 Pipe	4.60	2.09	.49	.49



**Soft Blank Nose with BT40 Shank**

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

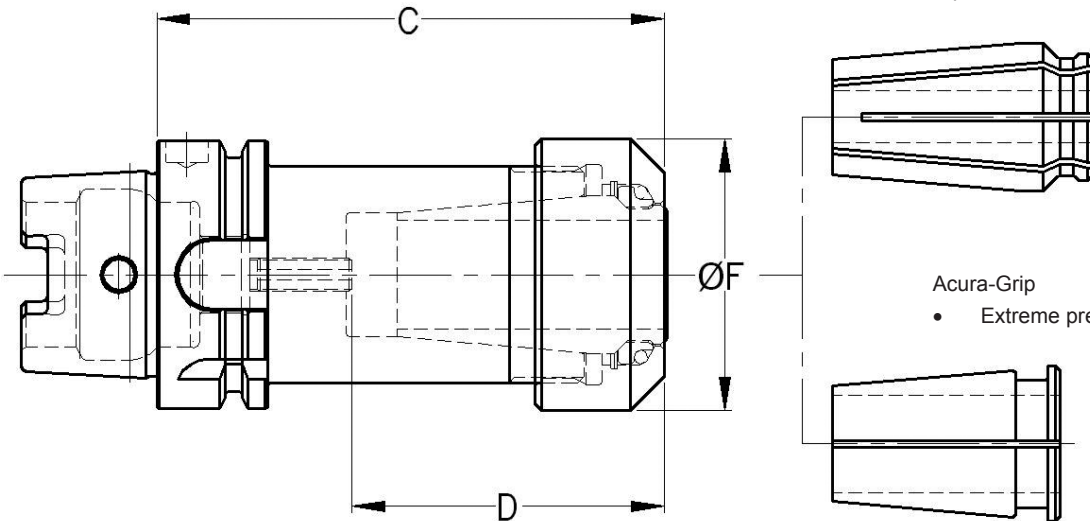
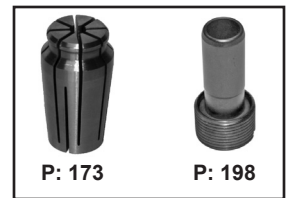


Part No.	C	D	M
5010469	7.44	6.00	2.50

## 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

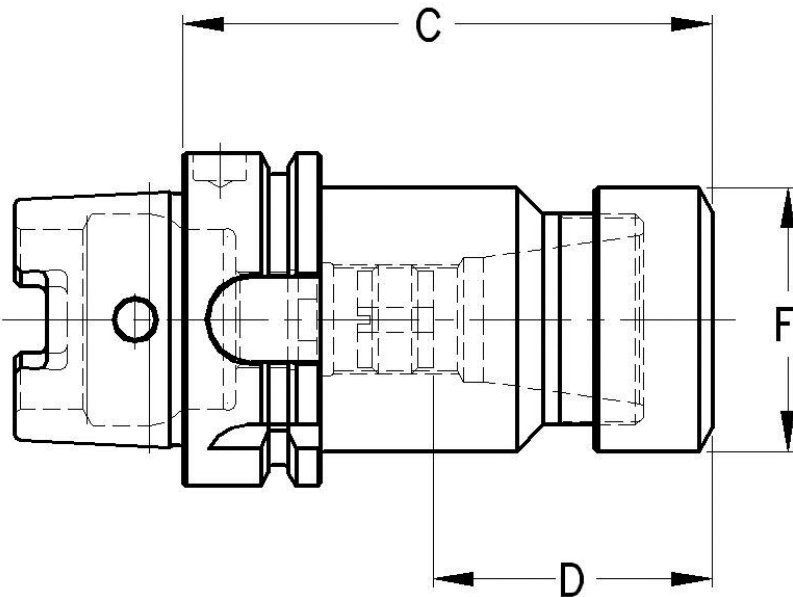
- Acura-Flex
- Extended range
  - Excellent gripping power



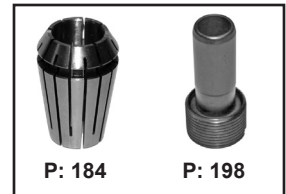
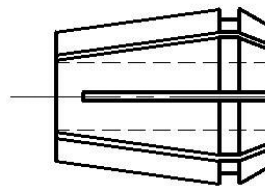
Part Number	Collet Range (Acura-Flex Collet No.'s)	C	D Max. Preset Depth	F	Includes Nut	Max. Nut Tightening Torque	Ref. Wrench
AF914232	7/64 - 3/4 (AF95 - AF140)	4.39	2.65	1.94 Span.	9400204	75 ft/lbs	55139
AF914233	7/32 - 1" (AF162 - AF213)	4.69	2.94	2.50 Span.	9400205	90 ft/lbs	55171
AF914234	11/32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



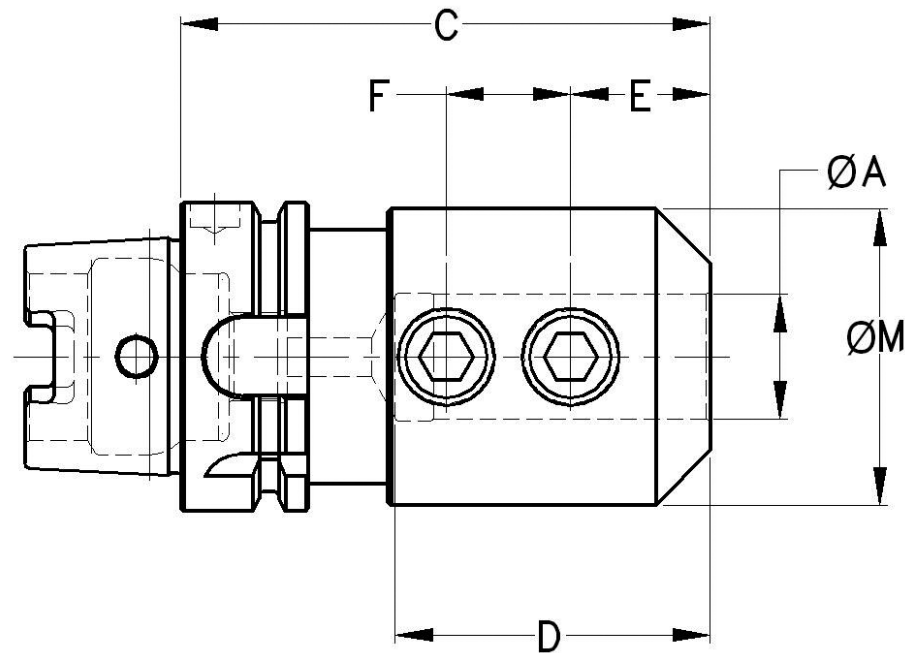
ER Collets  
• Extended range



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

## 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



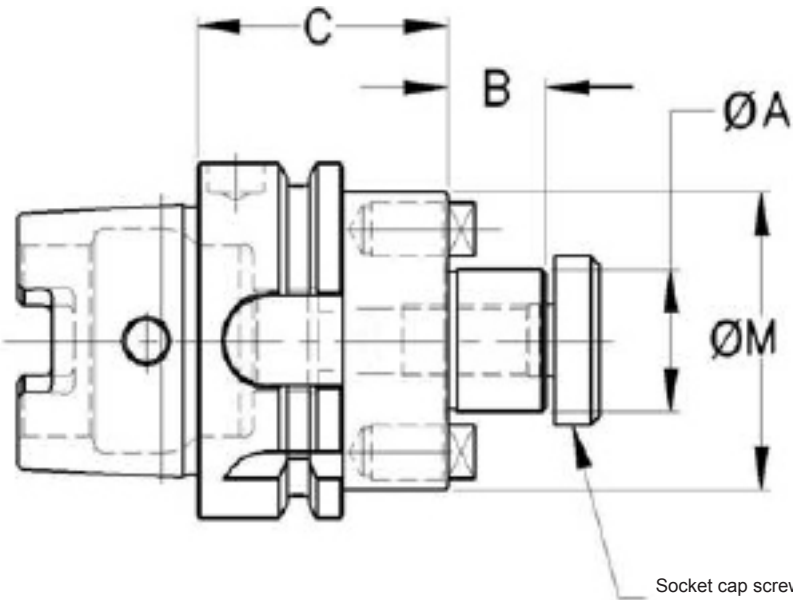
Part Number	A End Mill Shank Size	C	D	E	F	M	Set Screw Part Number	Ends
4618518	.3750	2.56	1.54	.75	-	1.38	602613	Single
4618519	.5000	3.13	2.10	.88	-	1.63	602716	Single
4618520	.6250	3.13	2.10	.94	-	1.88	602921	Single
4618521	.7500	3.13	2.10	1.00	-	1.94	603016	Single
4618522	1.0000	4.25	3.23	1.12	1.00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

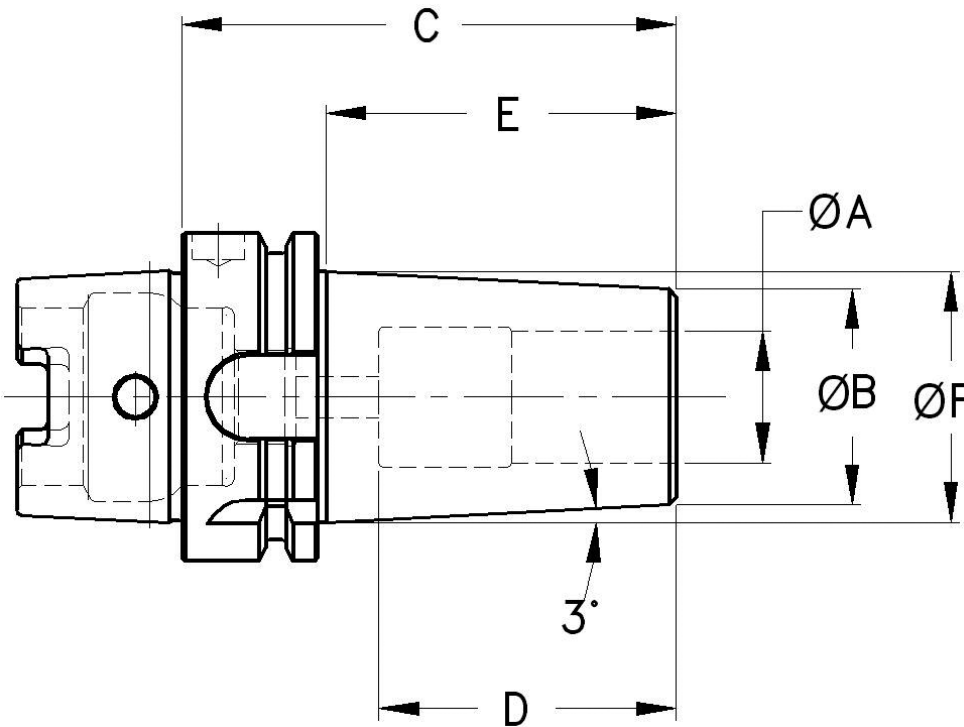
- DIN 69893 Form-A
- Coolant thru—Order coolant tubes separately
- Coolant thru screw options available - see page #204
- Keys and socket cap screw furnished
- Other size/style HSK shanks available on request



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

- 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



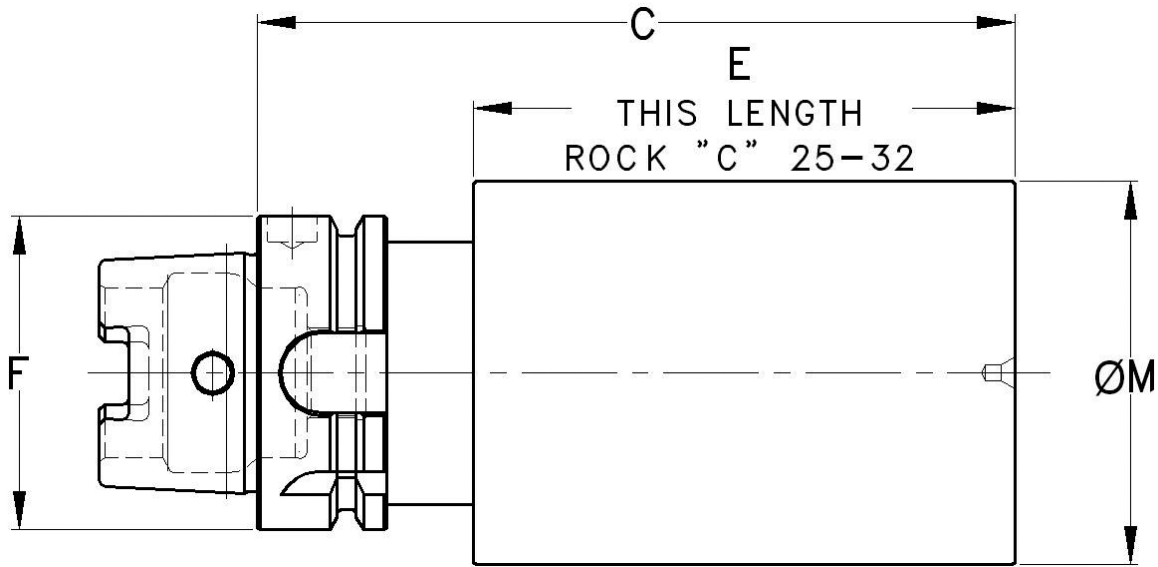
Part Number	ØA	B	C	D	E	F
4618491	1/4 .2500	.87	2.95	1.25	1.68	1.04
4618492	3/8 .3750	1.01	2.95	1.88	1.68	1.19
4618493	1/2 .5000	1.14	2.95	2.00	1.68	1.32
4618494	5/8 .6250	1.27	3.15	2.00	1.89	1.47
4618495	3/4 .7500	1.37	3.15	2.00	1.89	1.57
4618496	1" 1.0000	1.63	3.74	2.25	2.65	1.90
4618497	1-1/4 1.2500	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



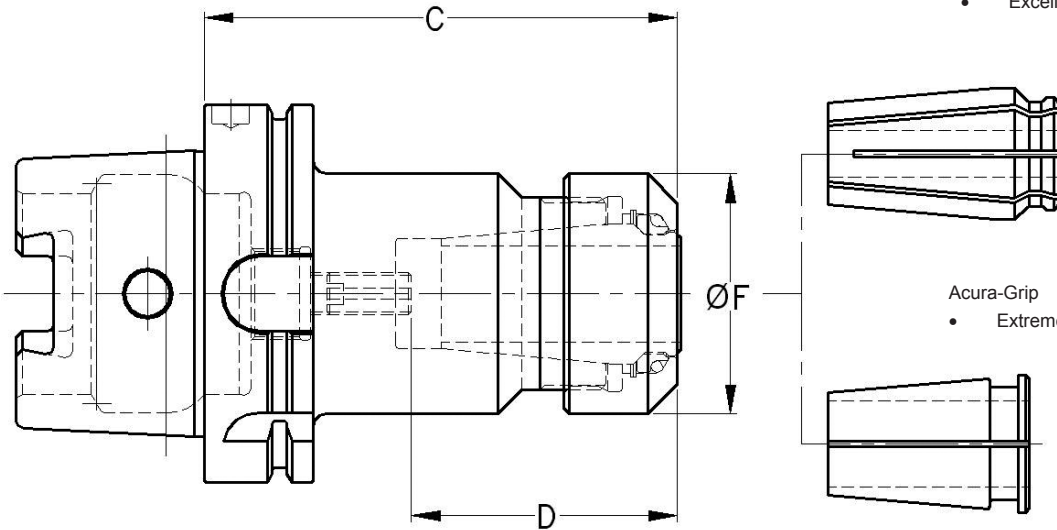
Part No.	HSK Size F	C	E	M
5012586	63A	6.00	4.29	3.03

## Acura-Flex® Collet Chucks with HSK100A Shanks

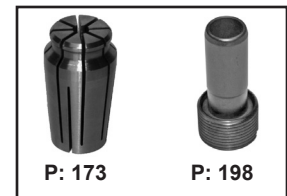
- DIN 69893 Form-A
- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix
- Coolant thru feature-Order coolant tubes separately
- Other size/style HSK shanks available on request



- Acura-Flex
- Extended range
  - Excellent gripping power



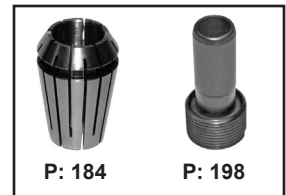
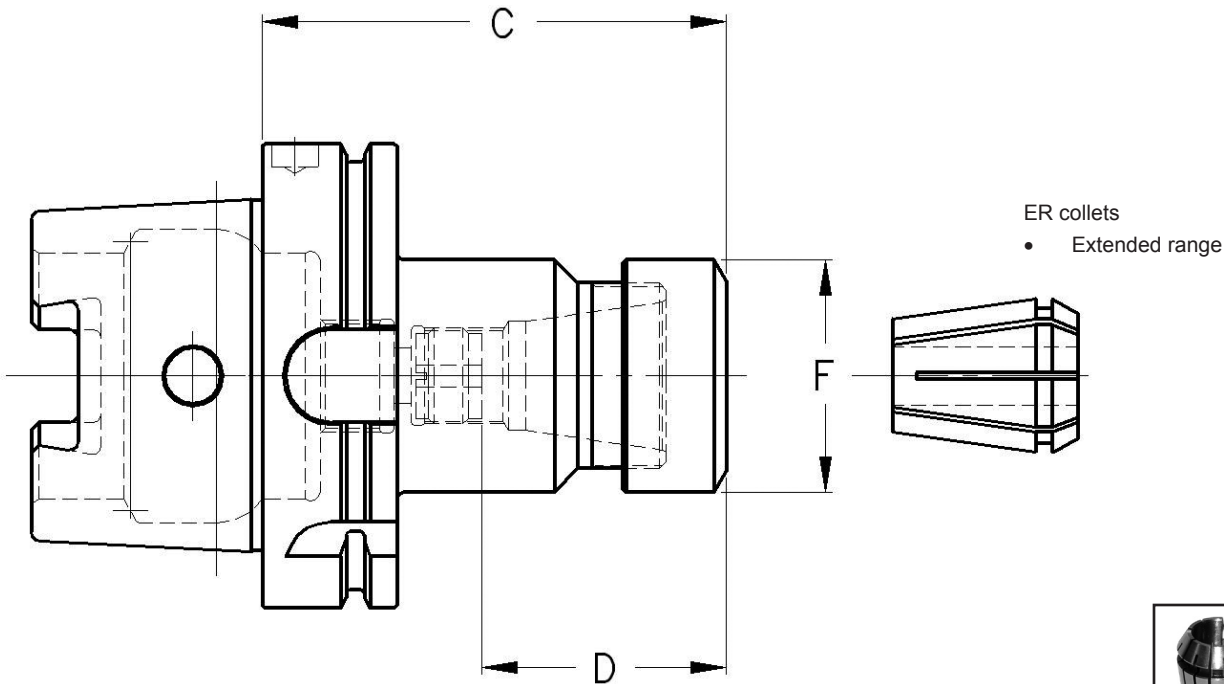
- Acura-Grip
- Extreme precision



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**

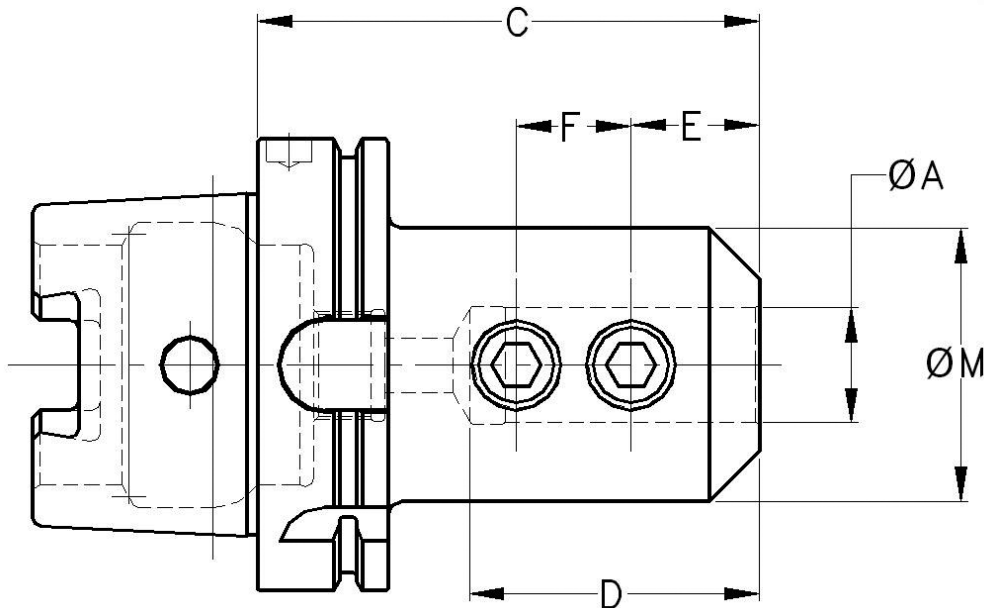
- DIN 69893 Form-A
- ER extended range collets
- Order collets separately by matching collet series
- Coolant Thru-Order coolant tubes separately
- Other size/style HSK shanks available on request



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
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	
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

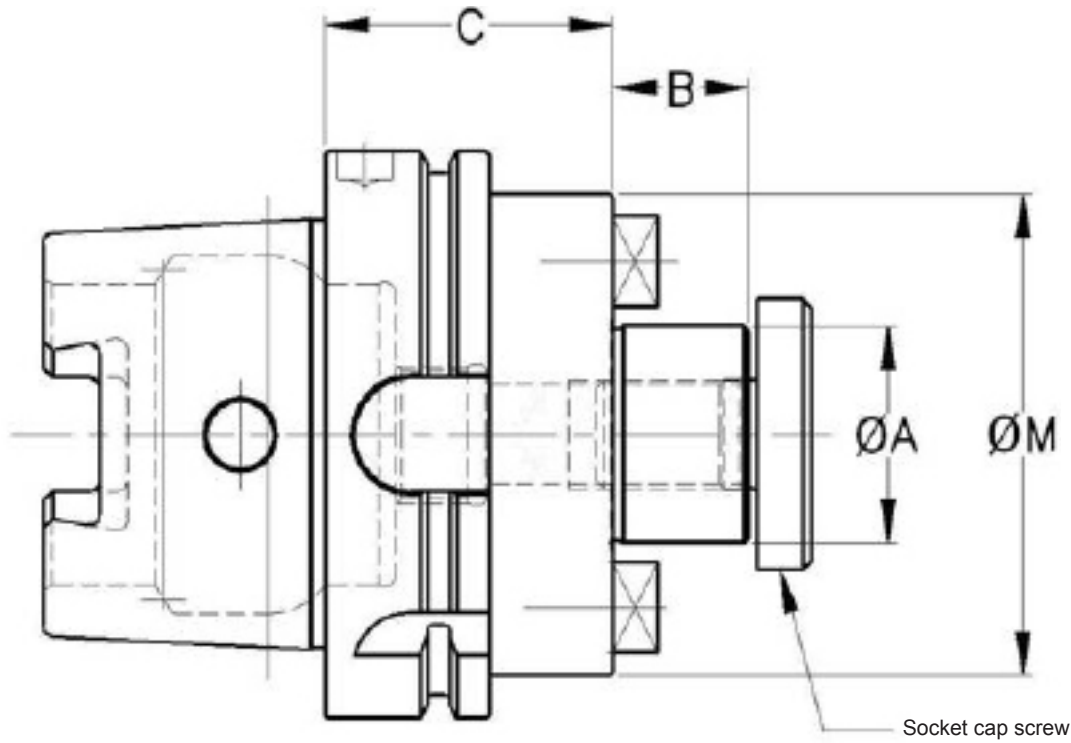


Part Number	ØA End Mill Shank Size	C	D	E	F	M	Set Screw Part Number	Ends
4618528	.3750	3.13	1.98	.75	—	1.38	602613	Single
4618529	.5000	3.13	2.98	.88	—	1.63	602716	Single
4618530	.6250	4.00	2.86	.94	—	1.88	602921	Single
4618531	.7500	4.00	2.86	1.00	—	1.94	603016	Single
4618532	1.0000	4.00	2.85	1.12	1.00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

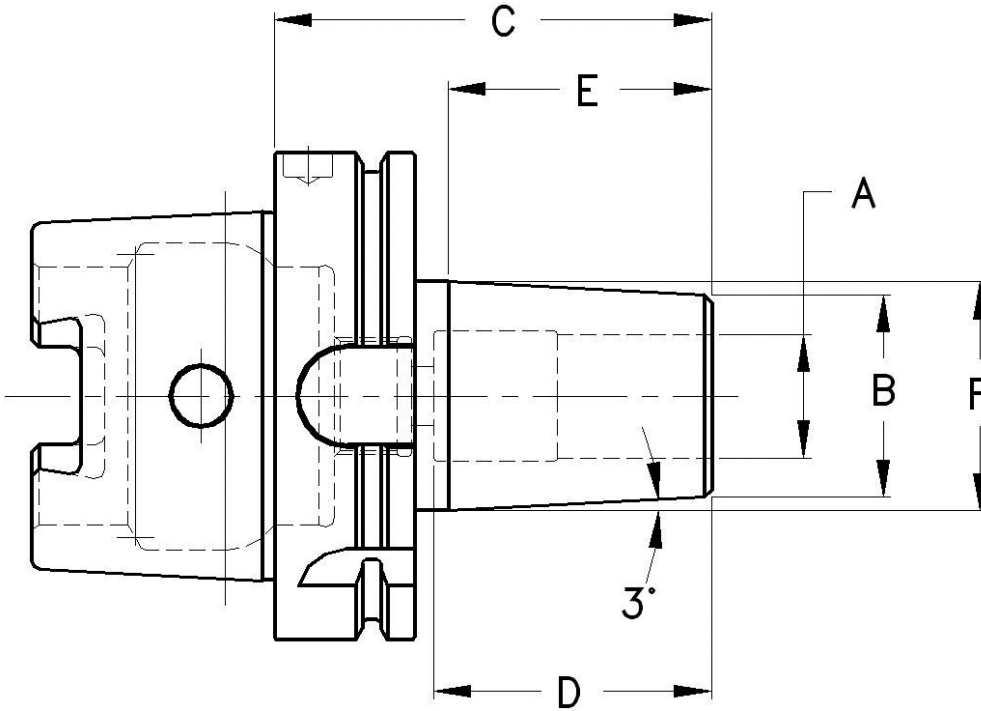
- DIN 69893 Form-A
- Coolant thru - Order coolant tubes separately
- Coolant thru screw options available - see page #204
- Keys and socket cap screw furnished
- Other size/style HSK shanks available on request



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

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



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

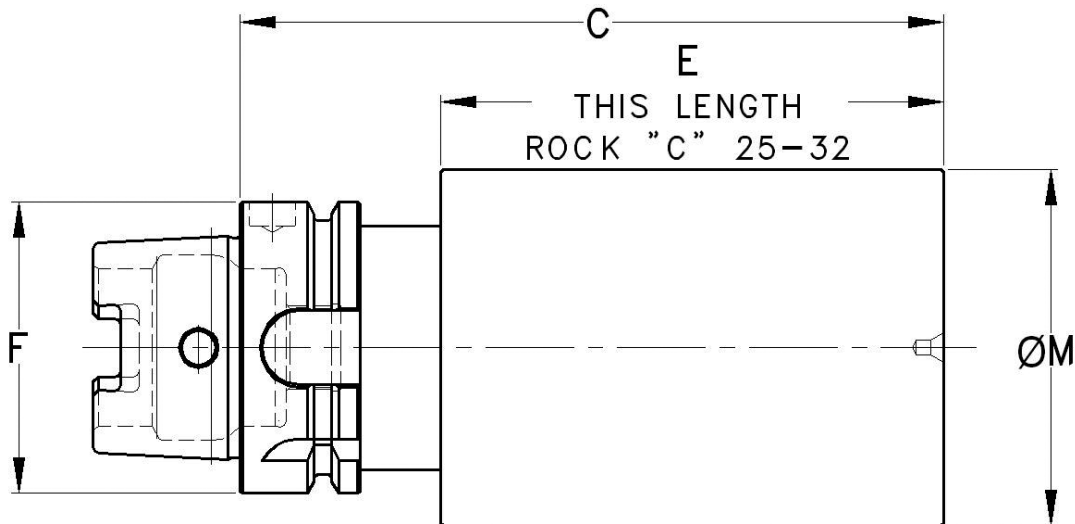
Note:

- 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

**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

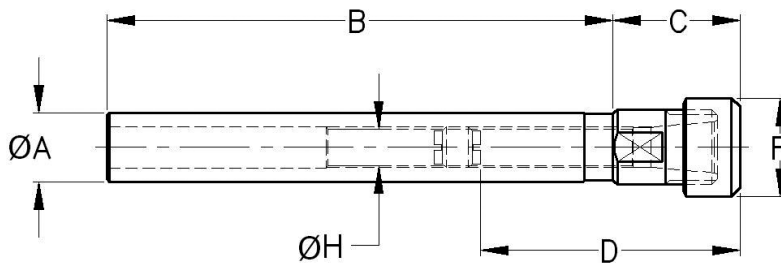
**Max-Float Floating Holders**

- 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

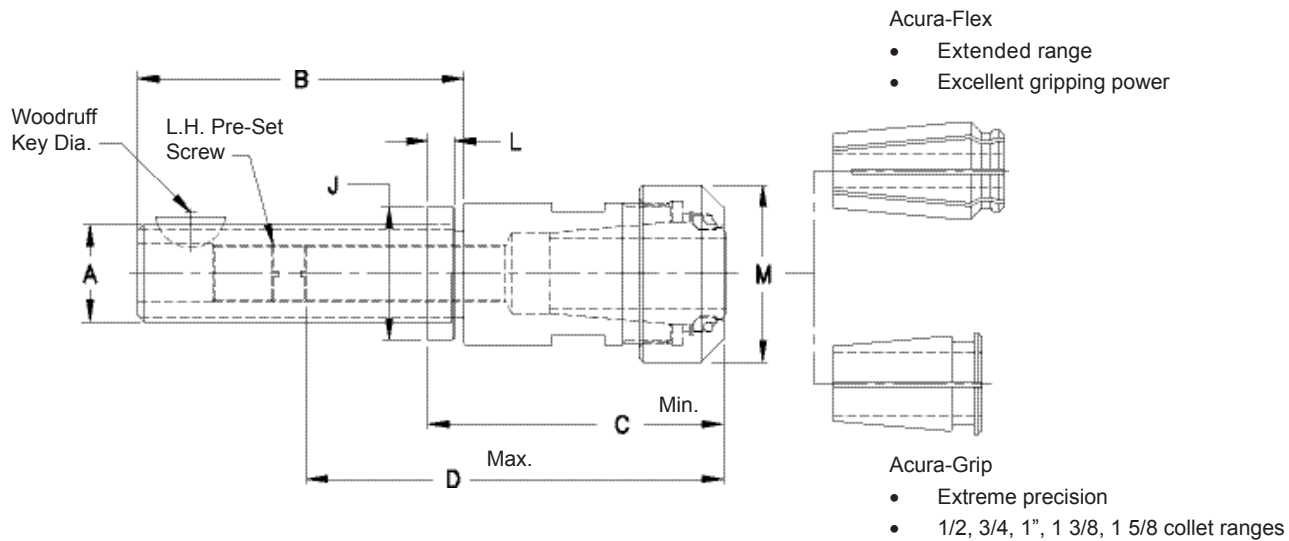
### Note:

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	7/64 - 3/4 (AF95 - AF140)	1.2500	5.00	1.88	5.50	1.94 Span.	.766	9400005	75 ft/lbs	55139
AF90755		1.5000	5.00	1.88	5.25					
AF901003	7/32 - 1" (AF162 - AF213)	1.2500	5.00	3.62	6.00	2.50 Span.	.766	9400021	90 ft/lbs	55171
AF901004		1.5000	5.00	3.68	7.00					

## 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



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	5/8-16	3.00	.62	1.72	3.75	17/64< 17/64>	5/16-24	1.00				
AF90410	(AF21-AF44)	3/4-12	3.00	.62	1.59	3.75		7/16-20	1.25	.38	9400002	40ft/lbs	55068
AF90411		7/8-12	3.62	.75	2.00	4.75		7/16-20	1.25				
AF90541	7/64-1/2	7/8-12	3.62	.75	1.97	4.88			1.25				
AF90542	(AF55-AF82)	1 1/16-12	3.62	.88	1.84	4.61		9/16-18	1.56	.38	9400020	50ft/lbs	55105
AF90543		1 3/8-12	4.62	1.00	1.84	5.45			1.88				
AF90785	7/64-3/4	1 1/16-12	3.62	.88	3.22	5.88	5/8< 5/8>	11/16-16	1.56				
AF90786	(AF95-AF140)	1 3/8-12	4.62	1.00	2.59	6.22		13/16-16	1.88	.38	9400005	75ft/lbs	55139
AF901040	7/32-1"	1 3/8-12	4.62	1.00	4.19	6.75	3/4< 3/4>	13/16-16	1.88	.38	9400021	90ft/lbs	55171
AF901041	(AF162-AF213)	1 7/8-12	5.62	1.25	3.44	6.69		1 1/8-16	2.62	.50			
AF901382	11/32-1 3/8	1 7/8-12	5.62	1.25	4.38	7.50	1 3/64< 1 3/64>	1 1/8-16	2.62	.50	9400011	110ft/lbs	85296
AF901658	19/32-1 5/8	1 7/8-12	5.62	1.25	4.75	7.88	1 3/64< 1 3/64>	1 1/8-16	2.62	.50	9400014	110ft/lbs	55200

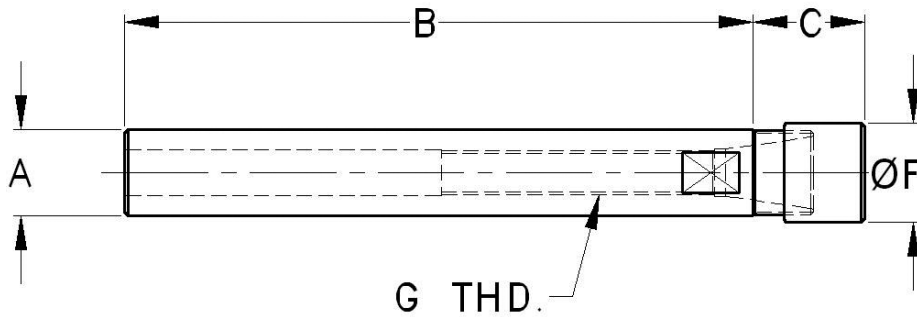
## ER Straight Shank Collet Chucks

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



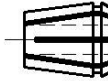
**Note:**

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

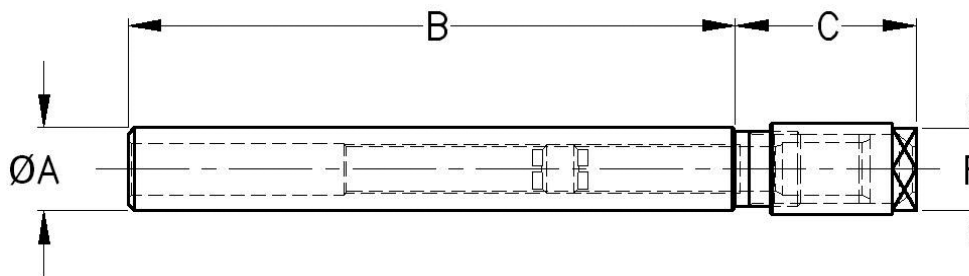
- Extended range



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



E-Collet double angle



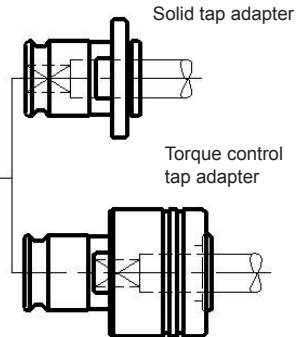
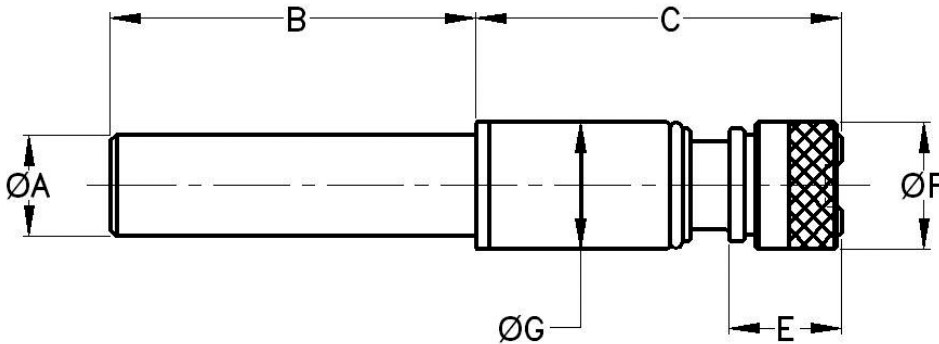
**Note:**

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

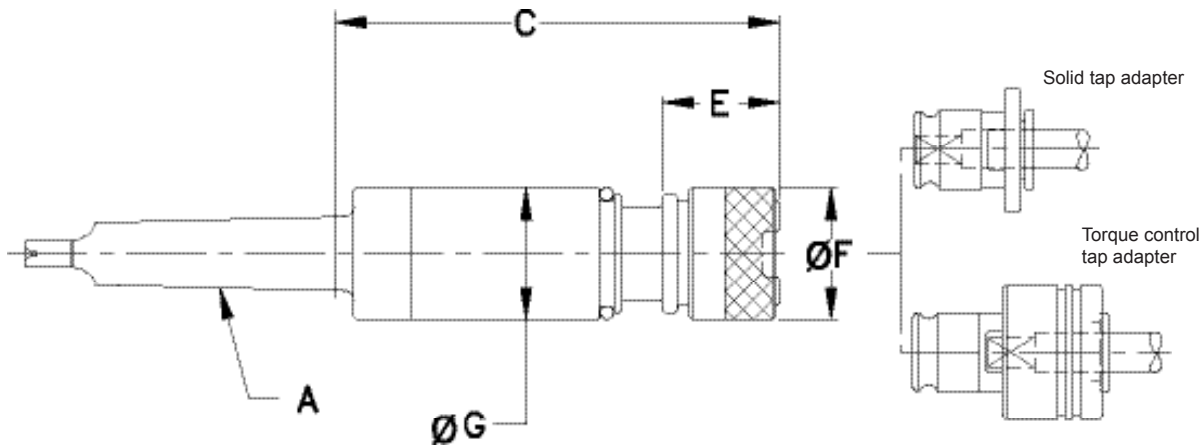
- Order tap adapter separately by matching adapter size
- Tension & Compression
- Heavy duty roller drive system
- Available in full tension & full compression



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**

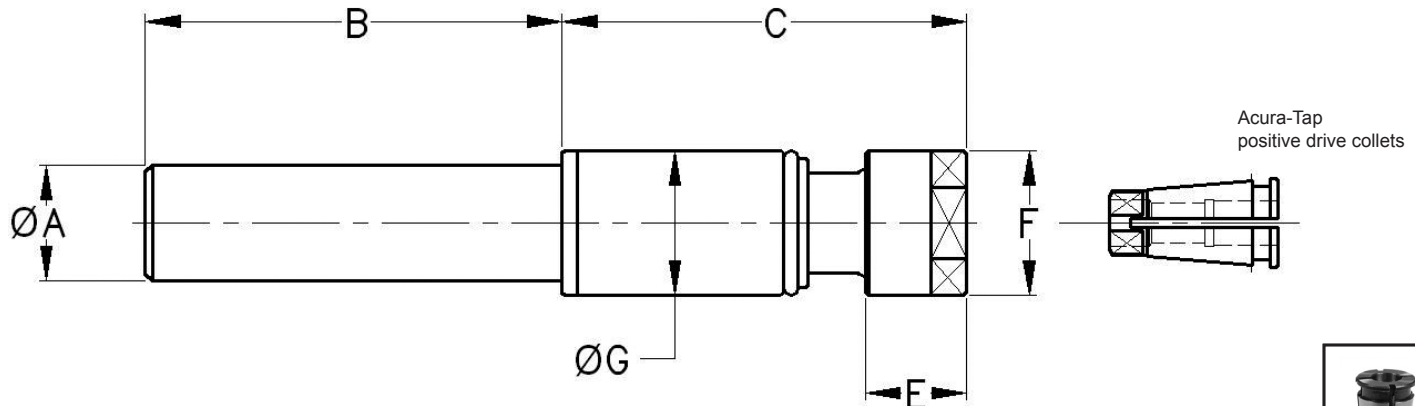
- Order tap adapter separately by matching adapter size
- Tension & Compression
- Heavy duty roller drive system
- Available in full tension & full compression



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

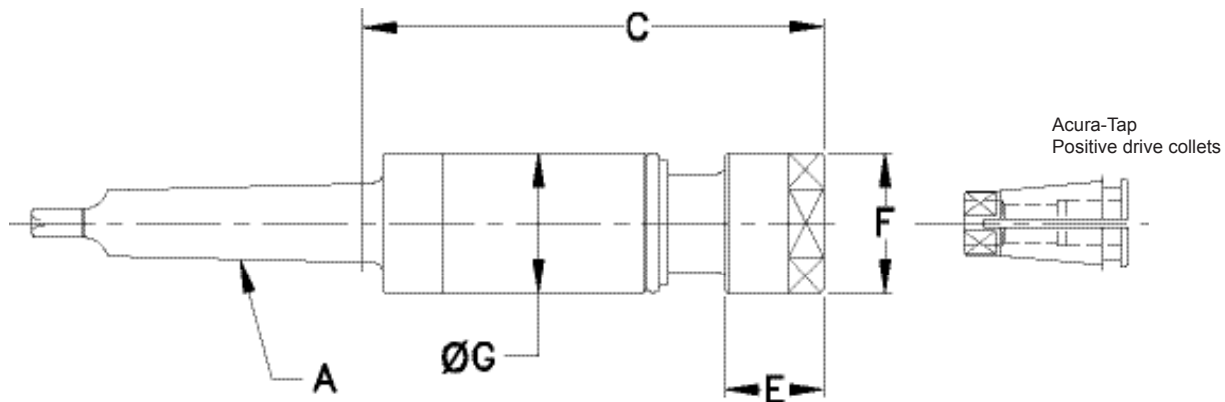


Part Number	Tap Range	A	B	C	E	F	G	Includes Nut No.	Tension	Comp.	Ref. Wrench
15898		.7500	3.62	3.50							
15900	#0 - 1/2 Hand 1/8 Pipe	1.0000	3.62	3.50	.88	1.06 Hex.	1.25	280669	.88	.38	505643
15902		1.2500	4.00	3.38							
15904		1.5000	4.00	3.38							
15907	1/4 - 7/8 Hand 1/8 - 1/2 Pipe	1.0000	3.62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



**Acura-Tap® Compensating Tap Holders**

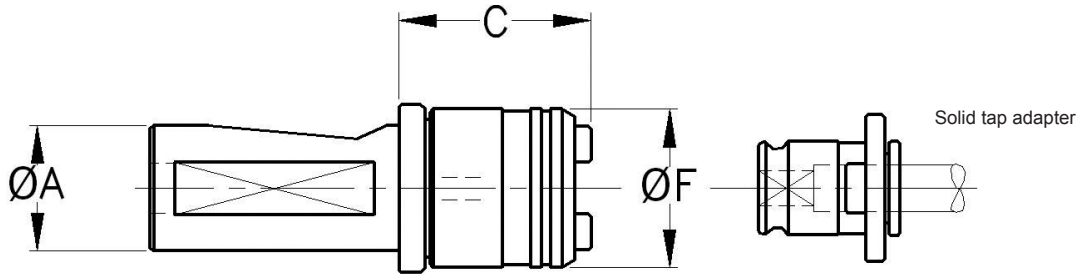
- Acura-Tap collets
- Order collet separately by matching tap range
- Ideal for carbide and roll form taps
- Tension & Compression
- Heavy duty roller drive system
- Available in full tension & full compression



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

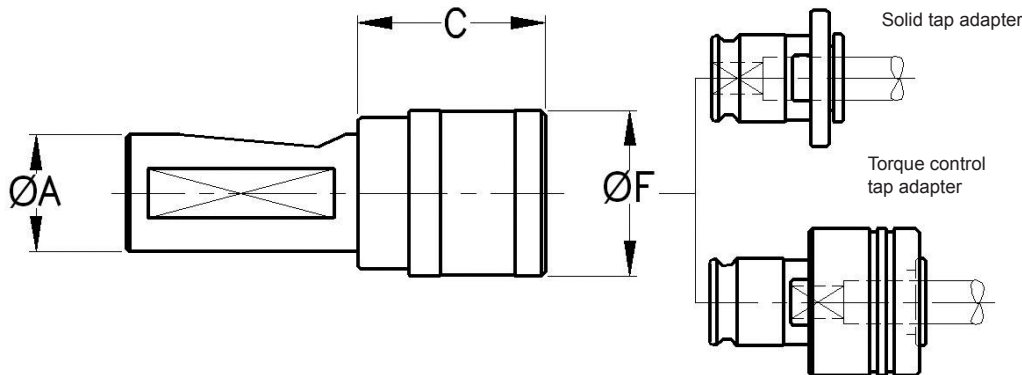
- Order tap adapter separately by matching adapter size
- Straight Shanks for collet, lathe & end mill adapters
- Coolant thru the center
- Torque type adapters should not be used with these holders



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

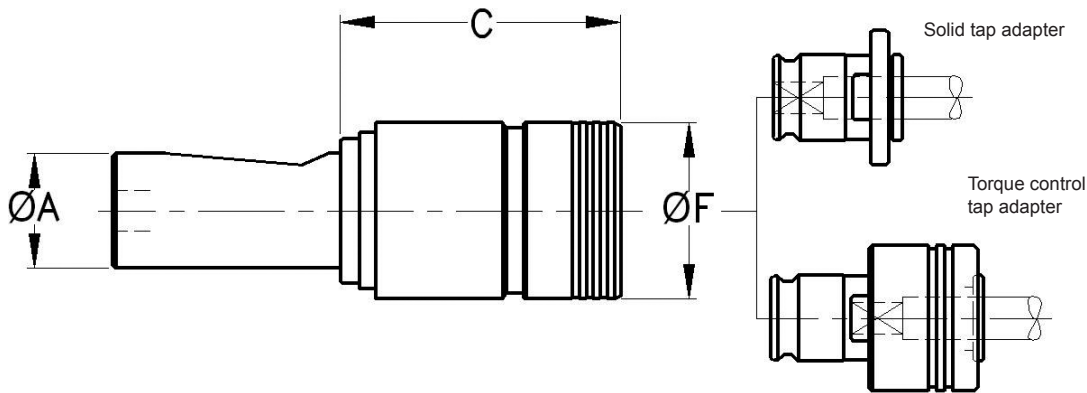
- Order tap adapter separately by matching adapter size
- Tension & Compression
- Straight shanks for collet, lathe & end mill adapters



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



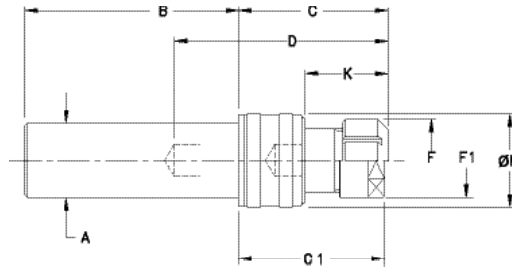
Part Number	Tap Range	Adapter Size	A	C	F	Tension	Comp.
169009	#0-9/16 Hand 1/8 Pipe	1	1.0000	2.44	1.535	.30	.30
169010	1/4-7/8 Hand 1/4 - 1/2 Pipe	2	1.0000	3.86	2.362	.39	.39
169011	3/4-1-3/8 Hand 3/8 - 1" Pipe	3	1.5000	5.79	3.386	.69	.69

## 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”

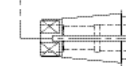


**Acura-Flex**

- 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.



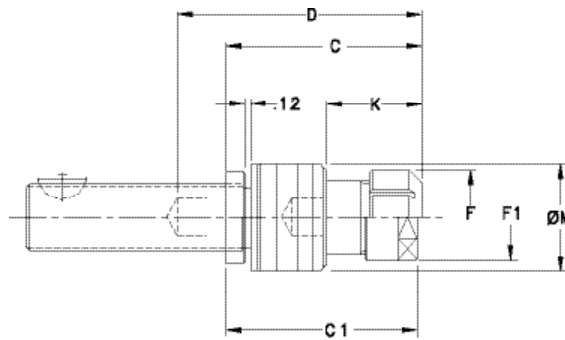
Collet Tool Size Range	Ax B Shank	Model	Acura-Flex			Acura-Tap			D	K	M
			Part No.	C	F Wrench	Part No.	C <sub>1</sub>	F <sub>1</sub> Wrench			
1/16-1/4	.625 x 3.00	106	AF241531	1.94	.68 Oct. 55029				1.09	.87	1.06
	.750 x 3.00		AF241532								
	.750 x 3.00	144	AF241537	1.88					3.00	.69	1.44
7/64 to 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"

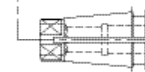


### Acura-Flex

- 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.



Collet Tool Size Range	Shank	Model Chuck Size	Acura-Flex			Acura-Tap			D	K	M
			Part No.	C	F Wrench	Part No.	C <sub>1</sub>	F <sub>1</sub> 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			3.62		
	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			AT241751			4.03		
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					5.75			
	1 7/8-12		AF241856			4.25					
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					

**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**

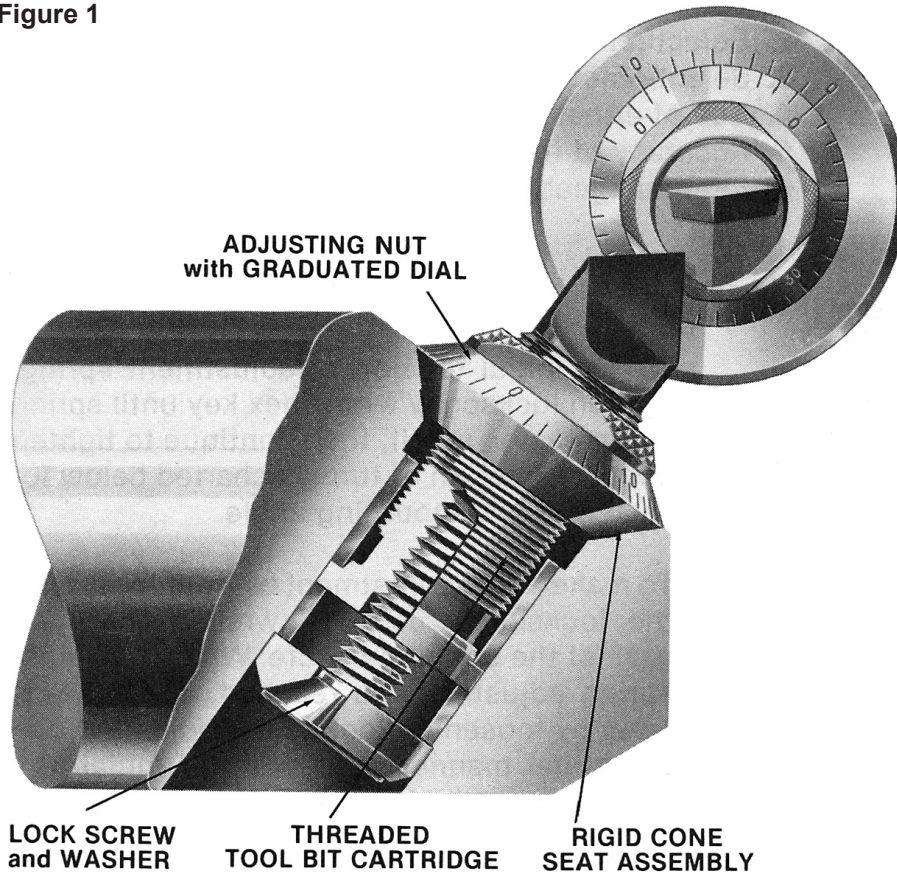
- Finish Bore 8.46 - 13.78 Diameter
- ADE-1412 Pilot Flange Mount
- Indexable Cartridges

Page  
132

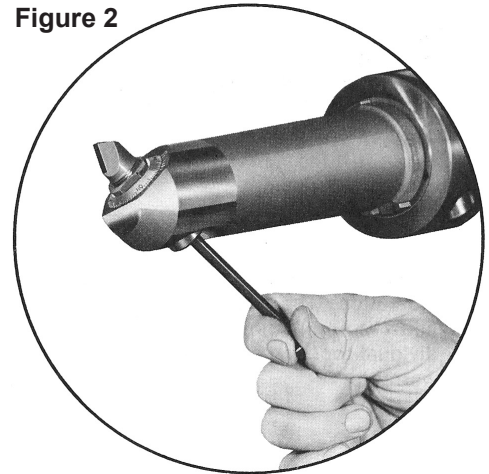
## How to adjust DeVlieg® Micro-Adjust™ Standard Boring Bars

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.

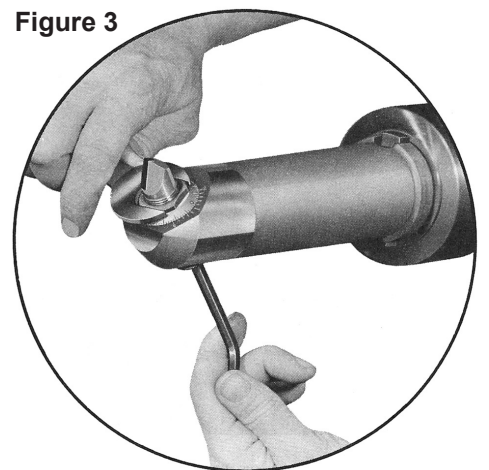
**Figure 1**



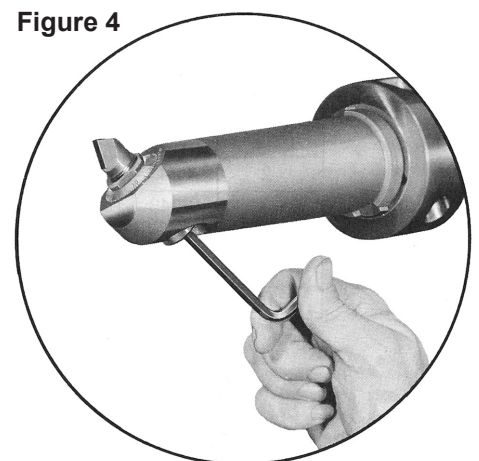
**Figure 2**



**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.

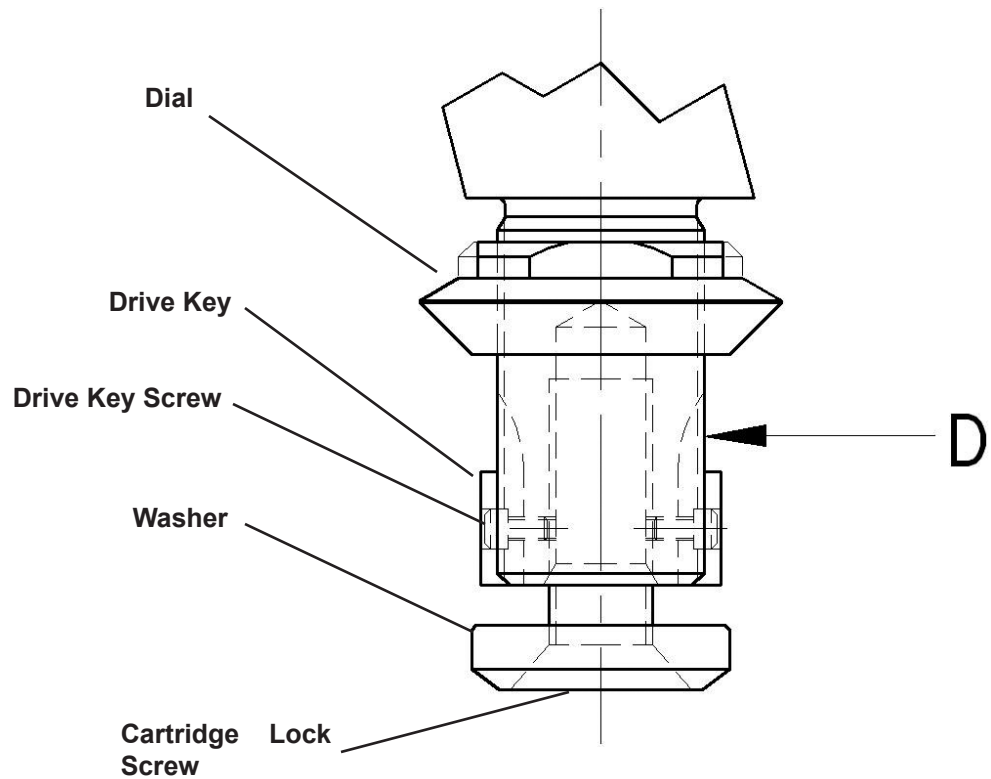
Move the dial with a dial wrench applied to the flats to make the required adjustment as shown in Figure 3.

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.

### 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.

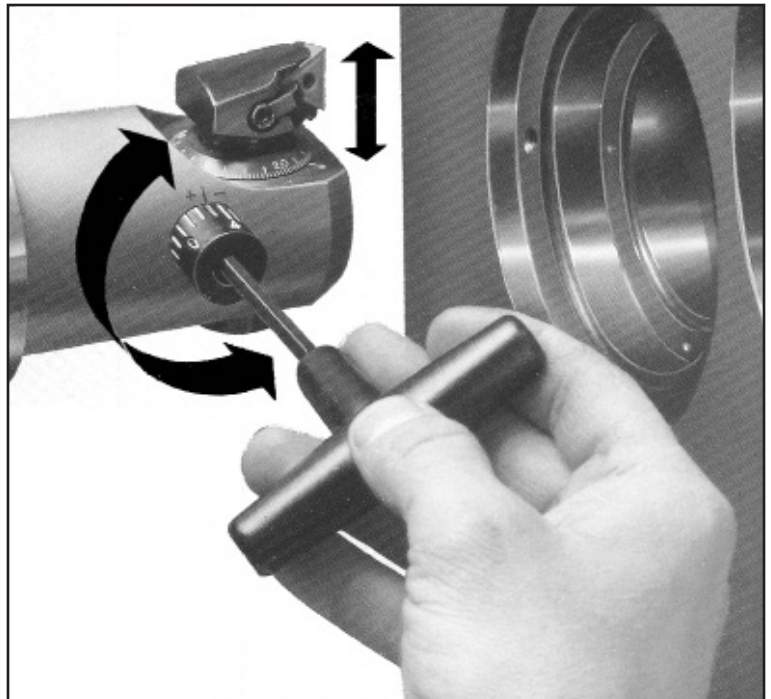


Figure 1

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.

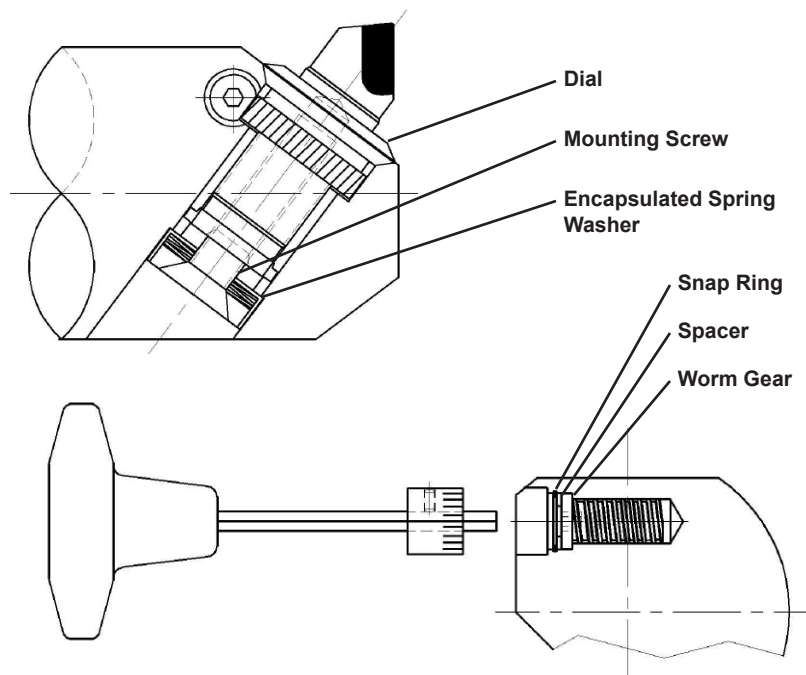
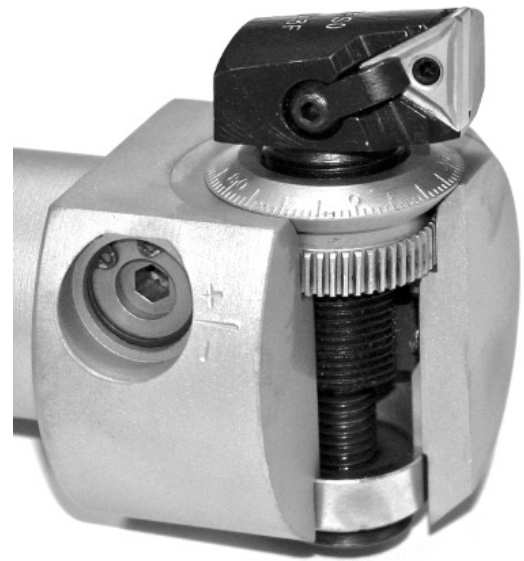
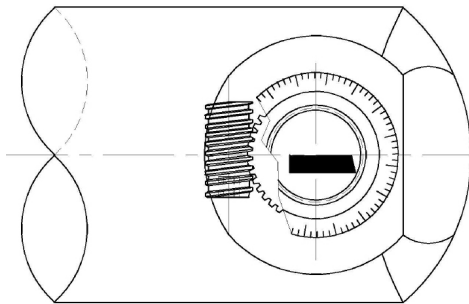
#### Example:

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**

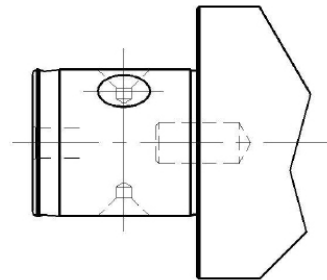
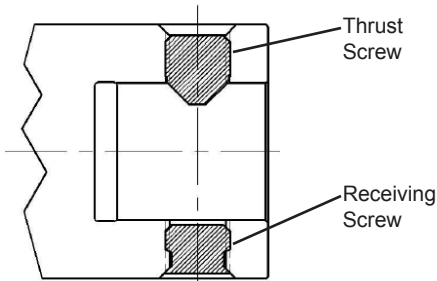
US Patent #5,110,240

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...



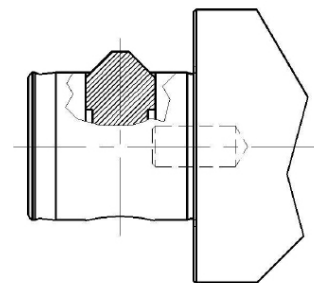
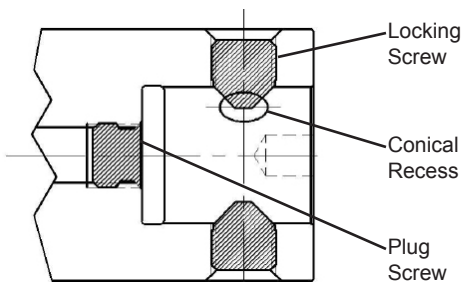
**Adapter Interchange Procedure with Komet-ABS® Holders**



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

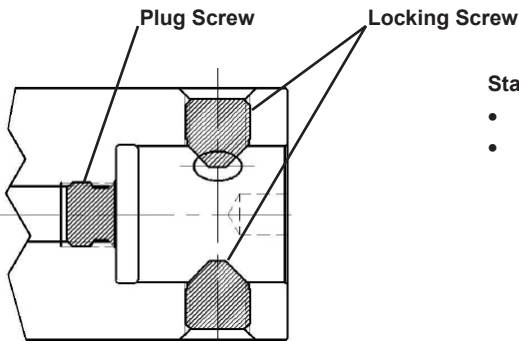


Fig. 1

### 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.

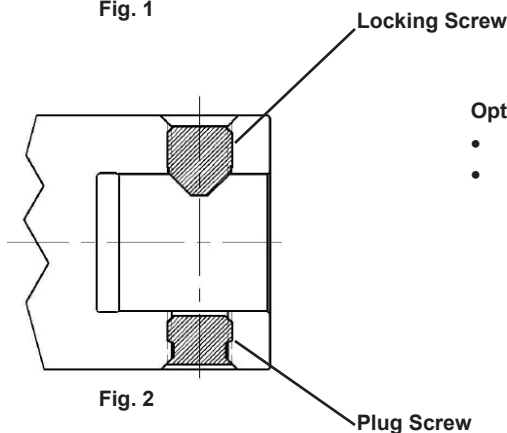


Fig. 2

### Optional Configuration for ABS Adapters (Fig. 2)

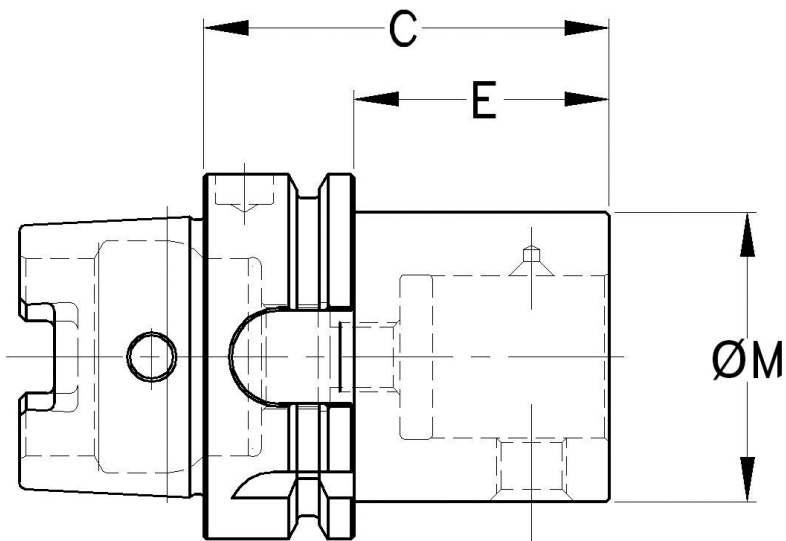
- (1) Locking screw 90 degree's from the orientation pin hole on the face of the holder.
- (1) Plug screw is installed in the off set locking screw position to prevent chips and coolant from entering the mechanism. Note: If non-coolant application the second locking screw can be stored in the plug screw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

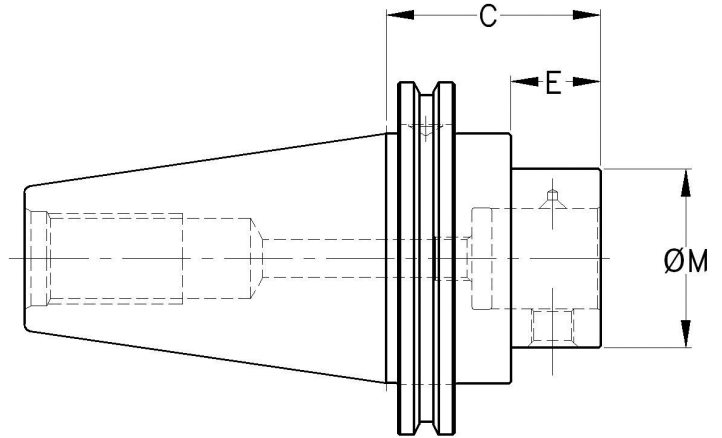
- DIN 69893 Form A (also works in Form C)
- Coolant Thru - order coolant tubes separately



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	HSK-100A	080	3.150	-	3.150	5.5
032MF270454		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

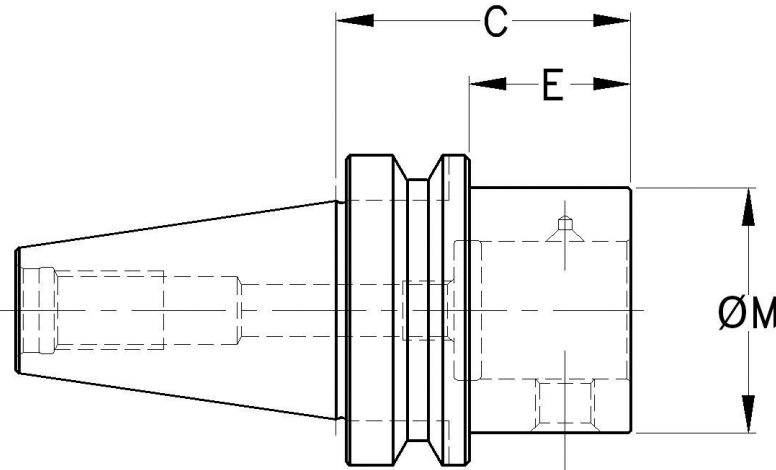


Part Number	Shank	Mod-Flex Size	C	E	M	Weight lbs.
025MF270009	Cat-40	025	2.362	.987	.984	2.4
032MF270010		032	2.362	.987	1.260	3.3
040MF270011		040	2.362	.987	1.575	3.3
050MF270012		050	2.953	1.516	1.969	3.4
063MF270013		063	3.543	2.106	2.480	4.8
032MF270019	Cat-50	032	2.362	.987	1.260	7.9
040MF270020		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



## Mod-Flex Holders with BT Shanks

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

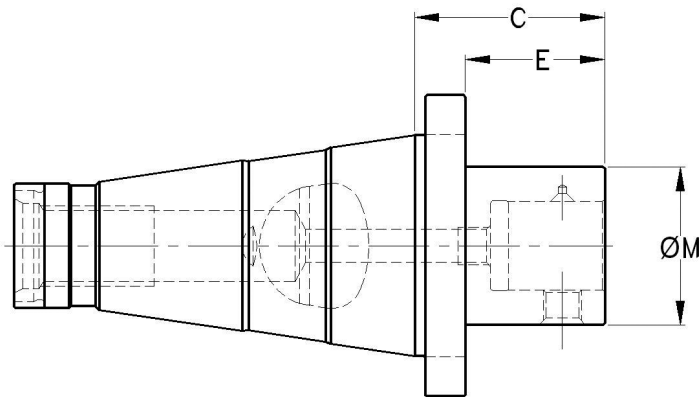


Part Number	Shank	Mod-Flex Size	C	E	M	Weight lbs.
025MF270030	BT40	025	2.362	1.299	.984	2.5
032MF270031		032			1.260	2.6
040MF270032		040			1.575	2.8
050MF270033		050			1.969	3.0



**Mod-Flex Holders with Flash Change / NMTB Shanks**

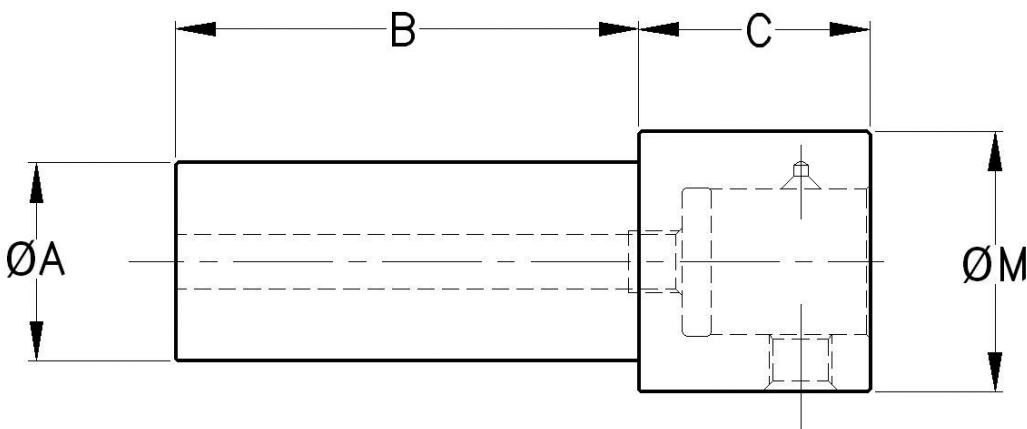
- ANSI B5.18-1972 with DeVlieg® Flash Change Notch Included
- Coolant thru



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			2.480	7.6
080MF270053		080			3.150	9.6
1000MF270054		1000			4.528	16.3

**Mod-Flex Holders with Straight Shanks**

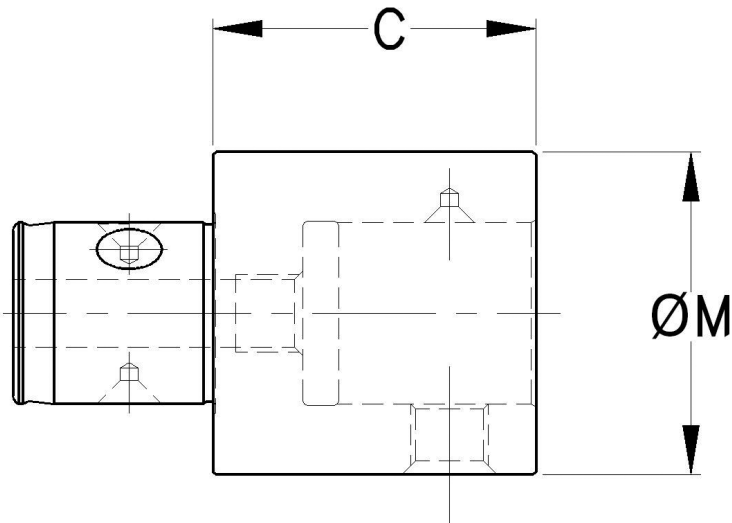
- Coolant thru



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

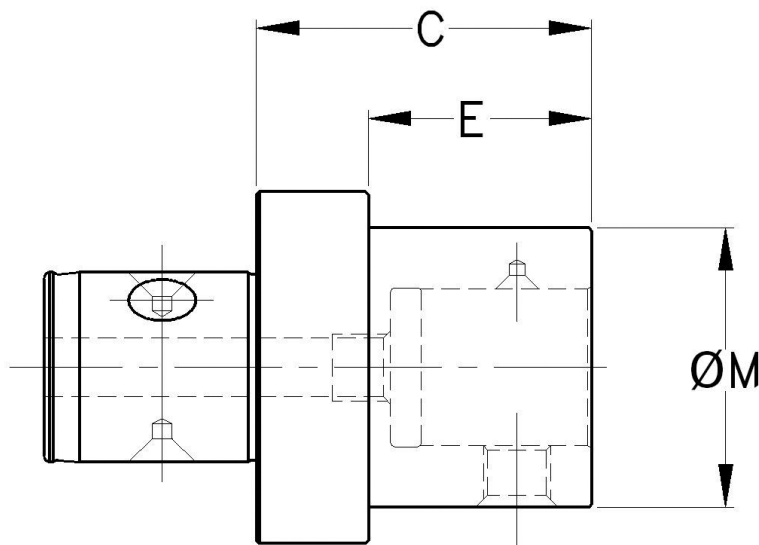
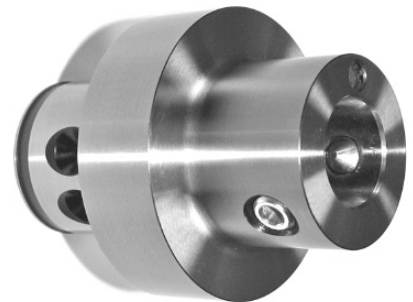


Part Number	Mod-Flex Size	C	M	Weight lbs.
025MF270084	025	1.772	.984	0.4
025MF270085		2.362		0.5
032MF270086	032	1.378	1.260	0.5
032MF270087		1.969		0.7
032MF270088		2.756		1.0
040MF270089	040	1.575	1.575	0.8
040MF270090		2.362		1.3
040MF270091		3.543		1.9
050MF270092	050	1.969	1.969	1.6
050MF270093		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

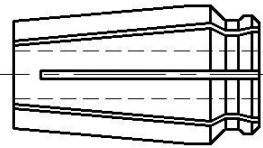
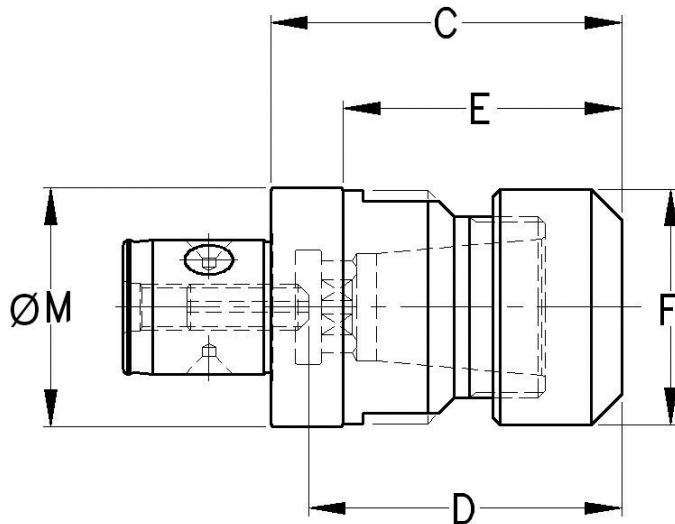
## Acura-Flex® Collet Chucks

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



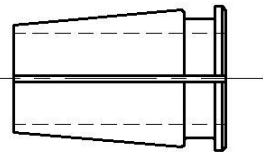
### Acura-Flex

- Extended range
- Excellent gripping power



### Acura-Grip

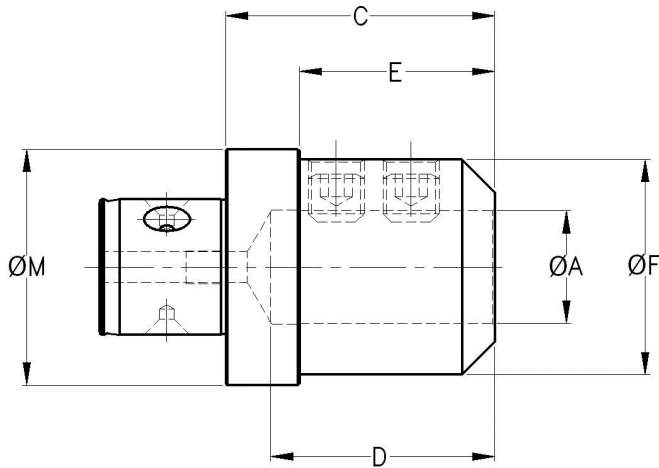
- Extreme precision
- 1/2, 3/4, 1", 1-3/8 collet ranges



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

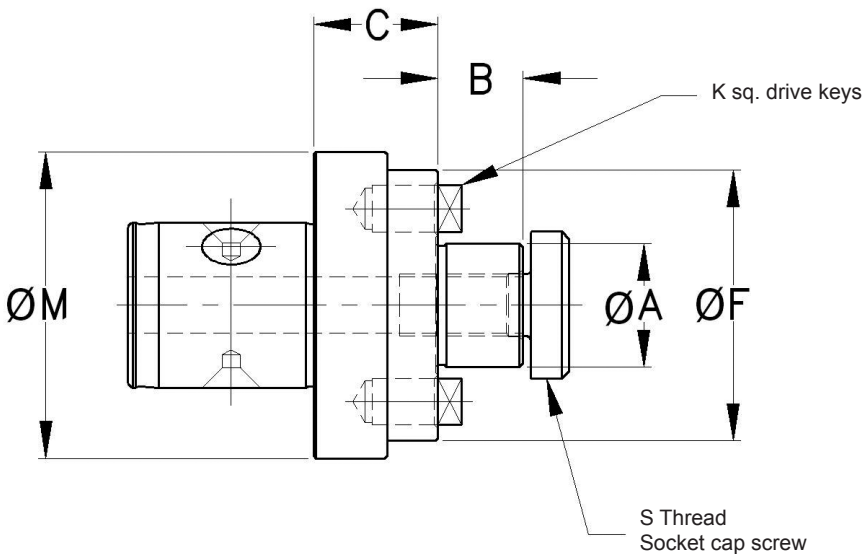
- Coolant Thru



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

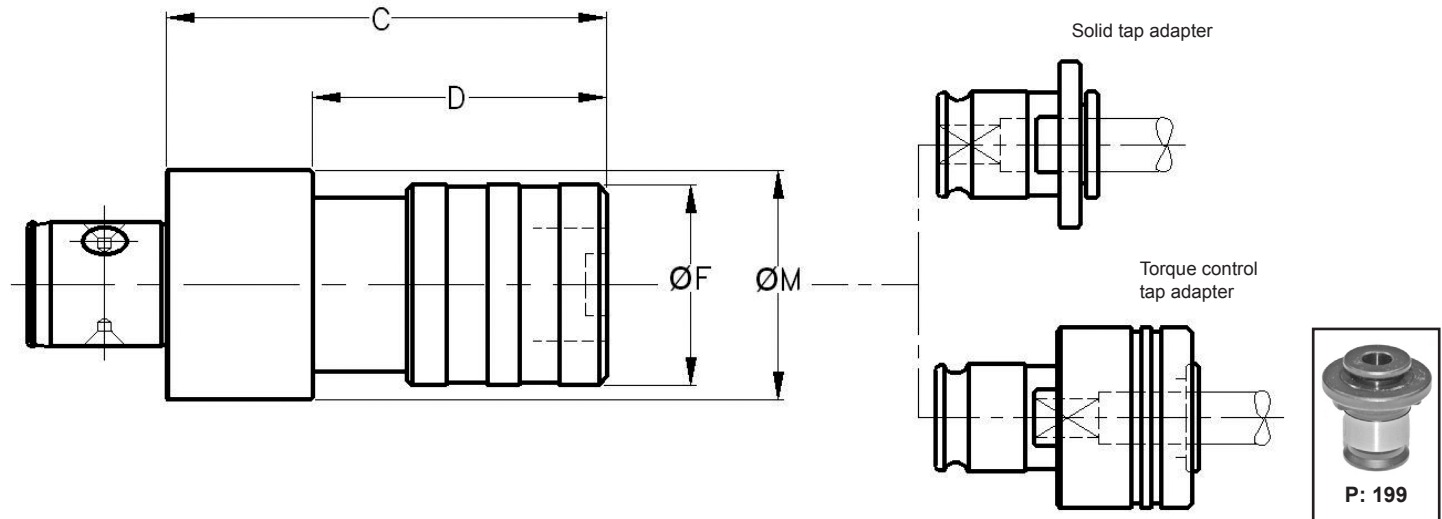
- Coolant thru screw options available see page #204
- Keys and socket cap screw furnished



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	063	.69	1.28	2.19	.37	2.480	1/2 - 20
080MF270147	.7500	080			1.69	.31	3.150	3/8 - 24
080MF270148	1.0000	080	.69	1.28	2.19	.37	3.150	1/2 - 20
080MF270149	1.2500	080			2.75	.50	3.150	5/8 - 18

## Quick Change Tension & Compression Chucks

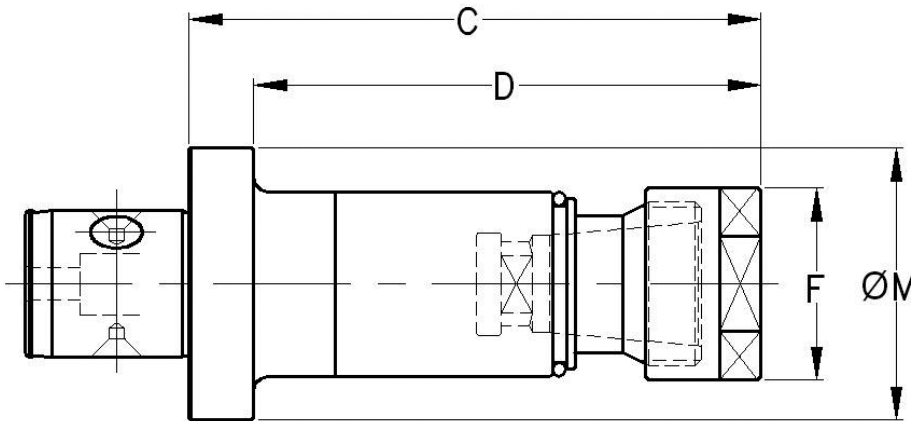
- Order tap adapter separately by matching adapter size
- Full tension available upon request



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



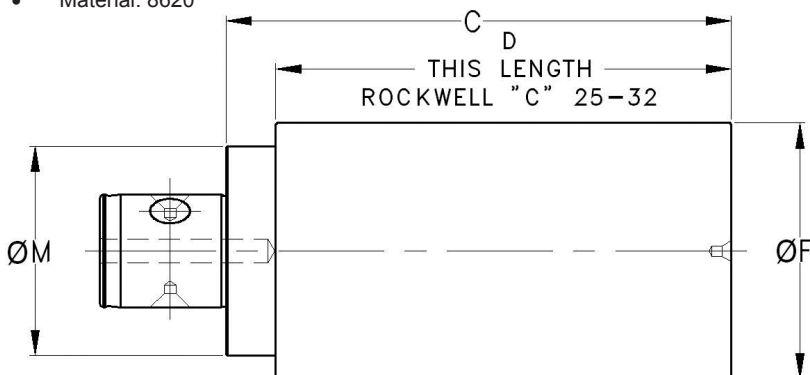
Acura-Tap positive drive collets



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

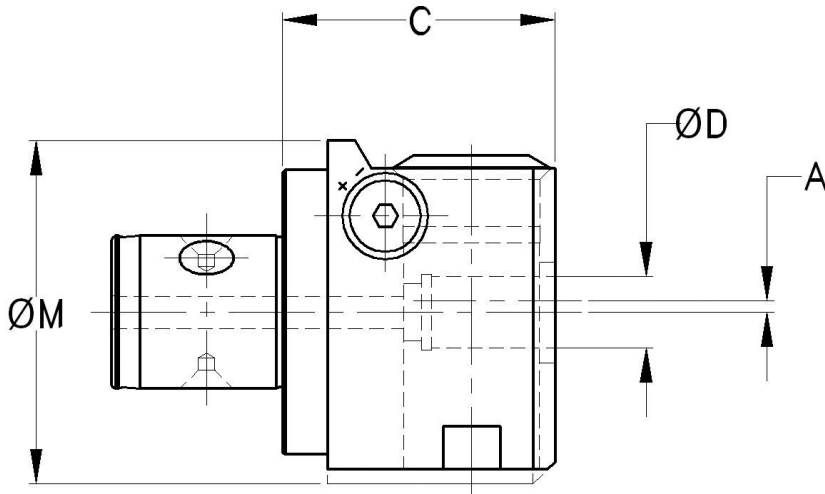
- Specials available upon request
- Material: 8620



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

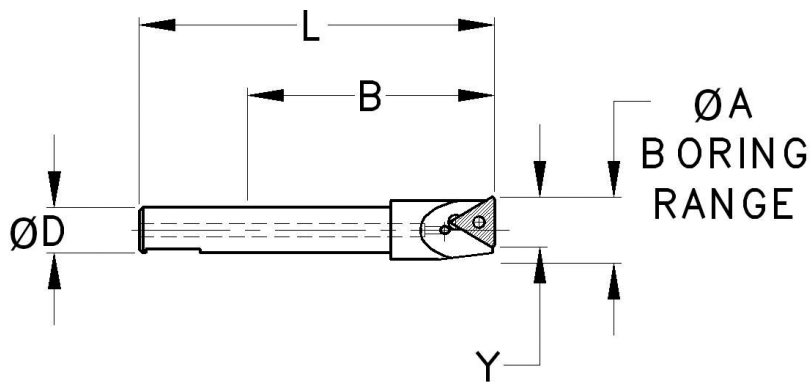
- 0.0001 Adjustment on diameter
- Order boring bar separately
- Order wrench separately
- Coolant thru



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



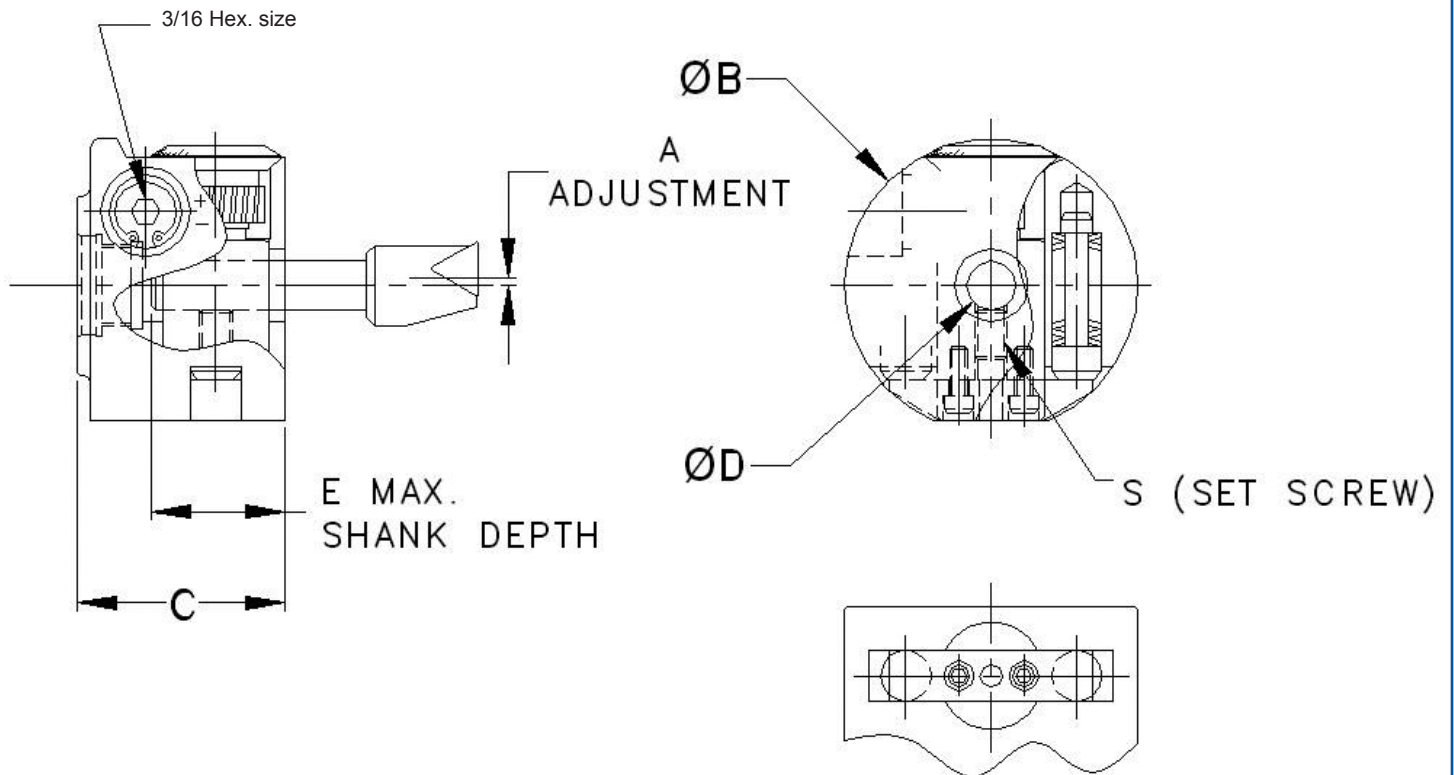
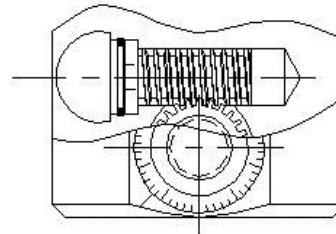
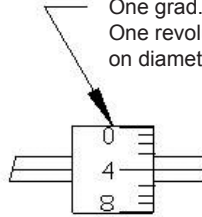
Part Number	A Boring Range		D	B	L	Insert Number	Y
	Min.	Max.					
ASH037031	.31	.43	.375	1.14	2.05	TCMT1.21.21	.27
ASH037043	.43	.55		1.65	2.56	TCMT1.21.21	.27
ASH037055	.55	.67		2.05	2.95	TCMT21.51	.43
ASH037067	.67	.79		2.05	2.95	TCMT21.51	.43
ASH037079	.79	.90		2.05	2.95	TCMT21.51	.43
ASH037090	.90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



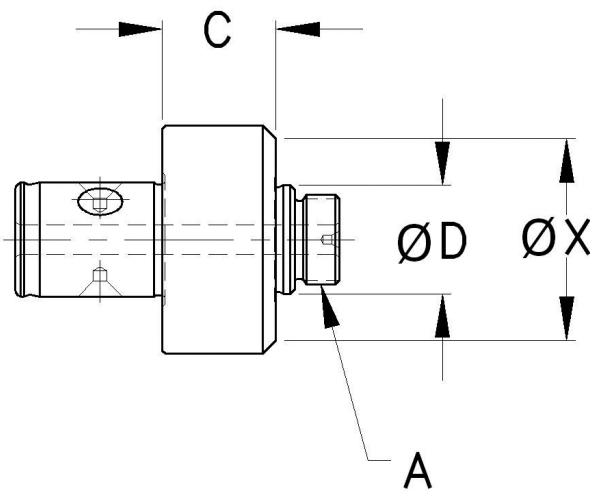
"GA" Adjustment wrench  
 20 Grad. (90°) straight mount  
 One grad. = .0001 on diameter (.002mm)  
 One revolution of the wrench = .002" (.04mm)  
 on diameter



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

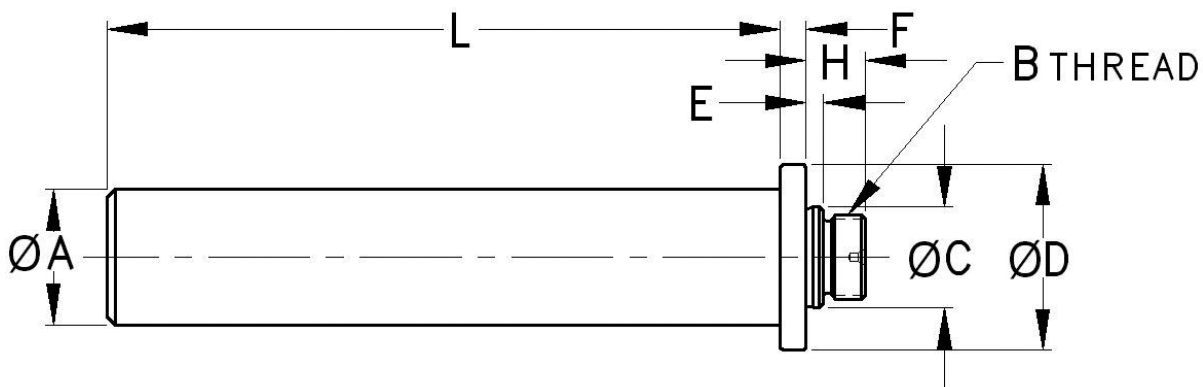


Part No.	Mod-Flex Size	D	C	X	Weight	A
040MFADA*	040	.7489 - .7495	.79	1.38	.6 lbs.	5/8-18 Thread
063MFADB*	063	1.4998 - 1.4995	.79	2.31	1.8 lbs.	1"-20 Thread

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

## Boring Head Adapters with Straight Shanks

- Type ADA & ADB

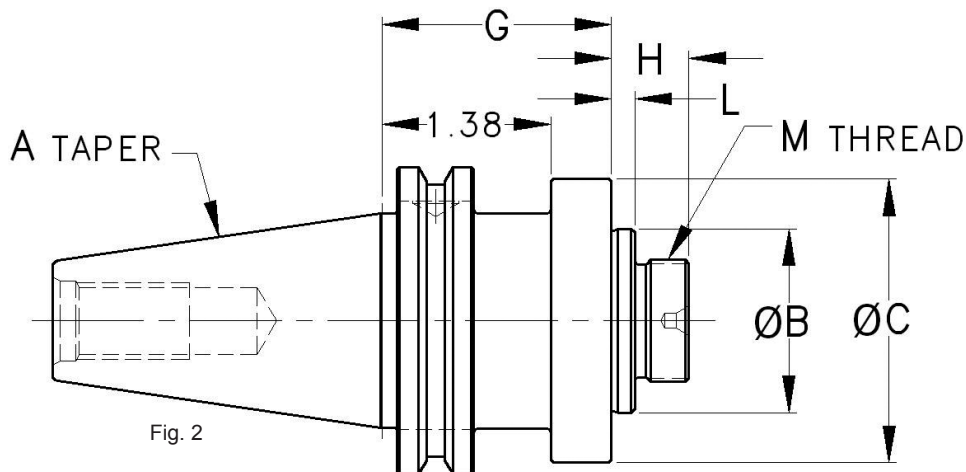
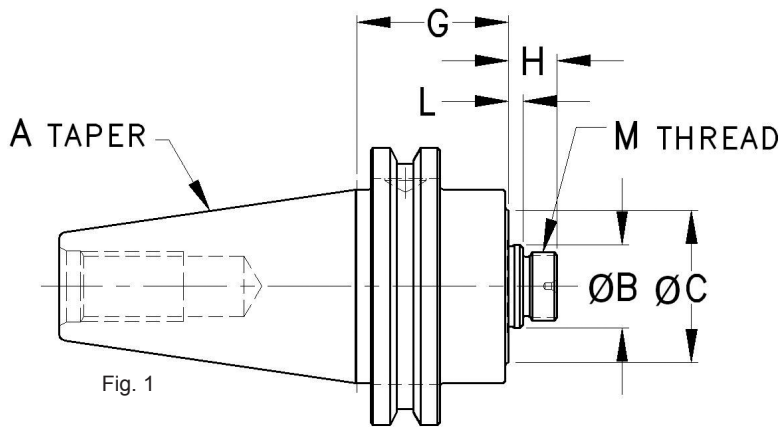


Part No.	A	B Thread	C	D	E	F	H	L	For Use With
SS06ADA	.6240-.6245	5/8-18	.7495-.7498	1-3/8	1/8	3/16	7/16	2-13/16	GAH05 Boring Heads
SS07ADA	.7490-.7495	5/8-18	.7495-.7498	1-3/8	1/8	3/16	7/16	3-9/16	
SS10ADA	.9990-.9995	5/8-18	.7495-.7498	1-3/8	1/8	3/16	7/16	5	
SS10ADB		1"-20	1.4995-1.4998	2-5/16	3/16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



### CAT40

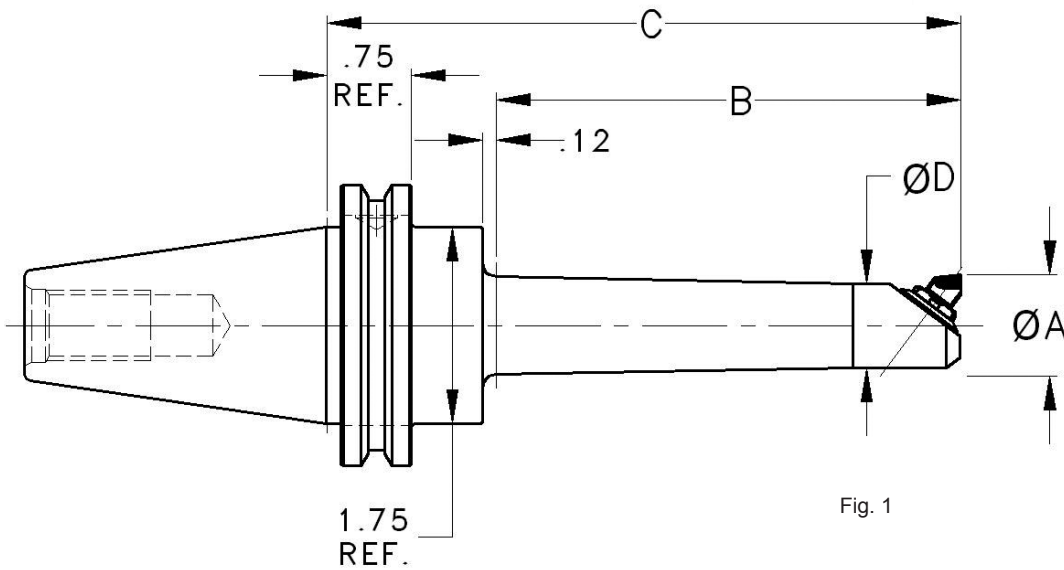
Figure No.	Part No.	A Taper	Approx. Weight	B	C	G	H	L	M	For Use With
1	40CTADA	No. 40	4 lbs	.7495-.7498	1-3/8	1-3/8	7/16	1/8	5/8-18	GAH05 Boring Heads
2	40CTADB	No. 40	4 lbs.	1.4995-1.4998	2-5/16	1-7/8	5/8	3/16	1"-20	GAH07 Boring Heads

### 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



### 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

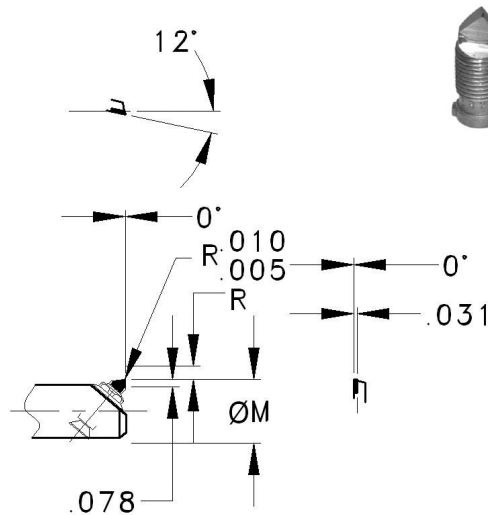
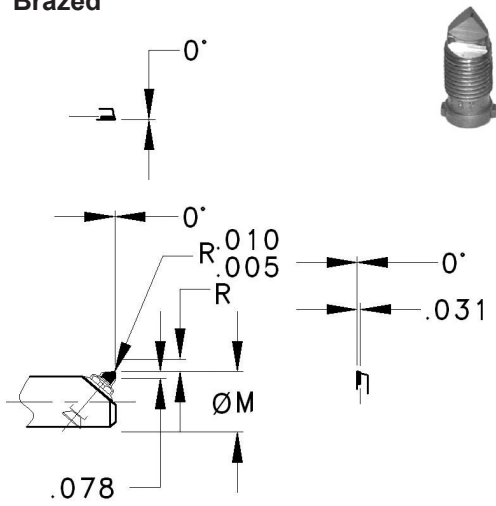
### Bore Range "53" 0.62 - 0.78 [15.7mm - 19.8mm]

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



### \* 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

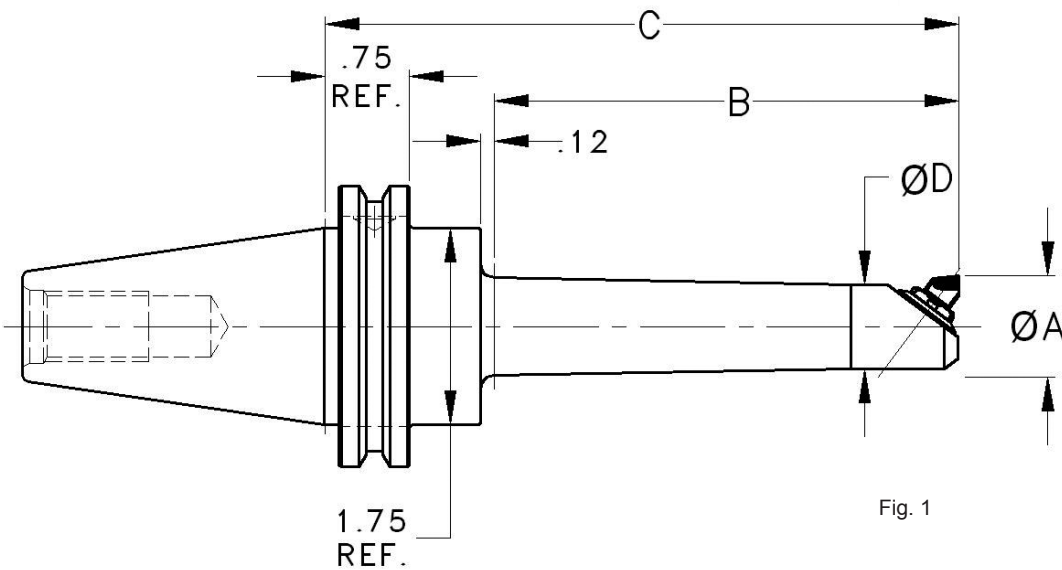
- 1203E1E

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

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

## 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



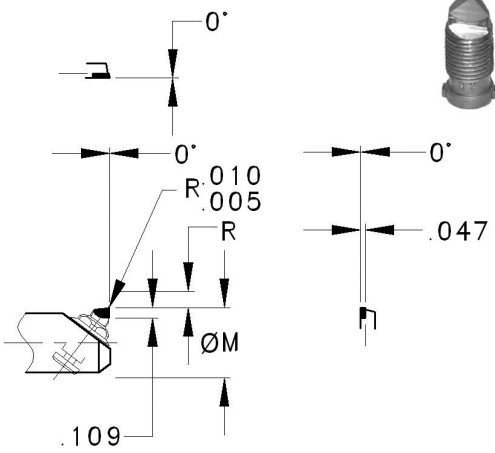
## Bore Range "54" 0.75 - 0.90 [19.0mm - 22.8mm]

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

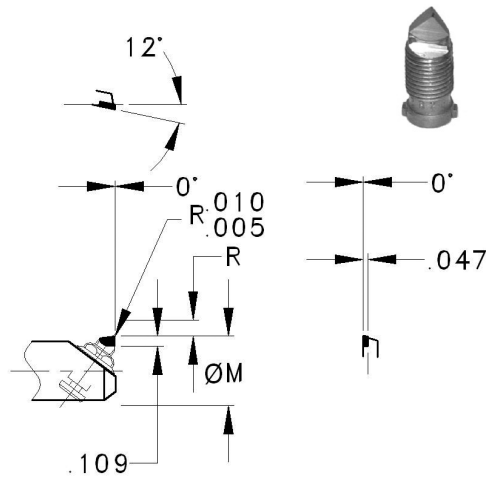
## Angular Size 2 Cartridges

- 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**

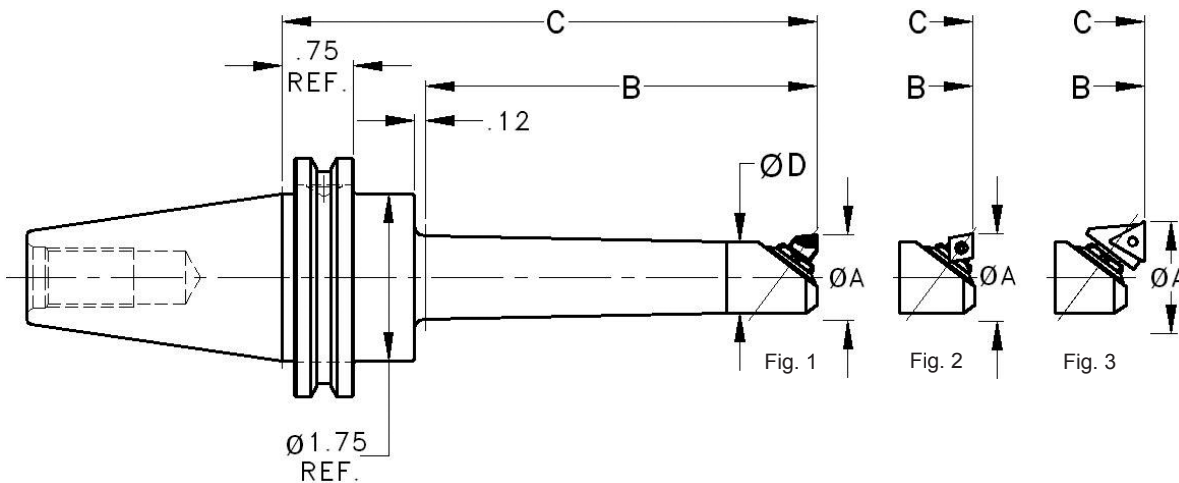
Coatings available upon request.

### 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		

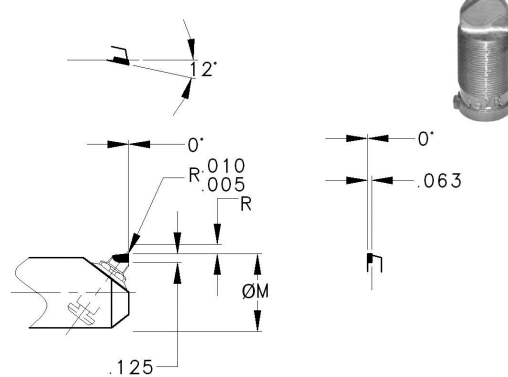
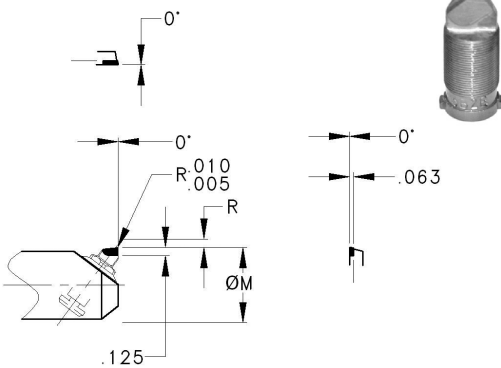
### Bore Range "56" 1.12 - 1.76 [28.5mm - 44.7mm]

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



#### \* 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.

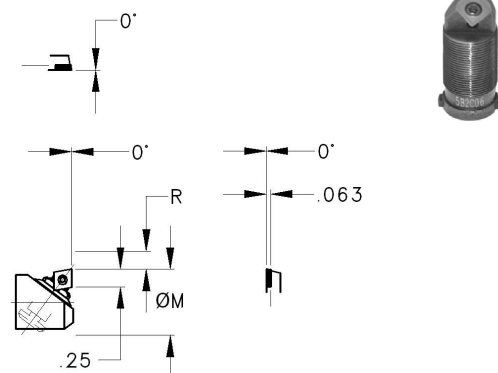
#### Hardware Package

- 3704E1E

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

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

### Indexable 80° Diamond



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

#### Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

#### Parts

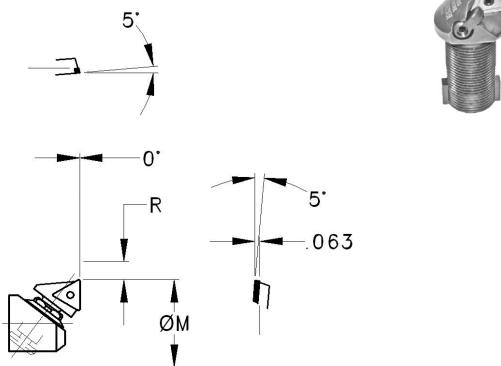
- Insert Screw #SP1910

#### Hardware Package

- 3704E1E

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

### Indexable Triangle Heavy Duty



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

#### Recommended Inserts

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

#### Parts

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

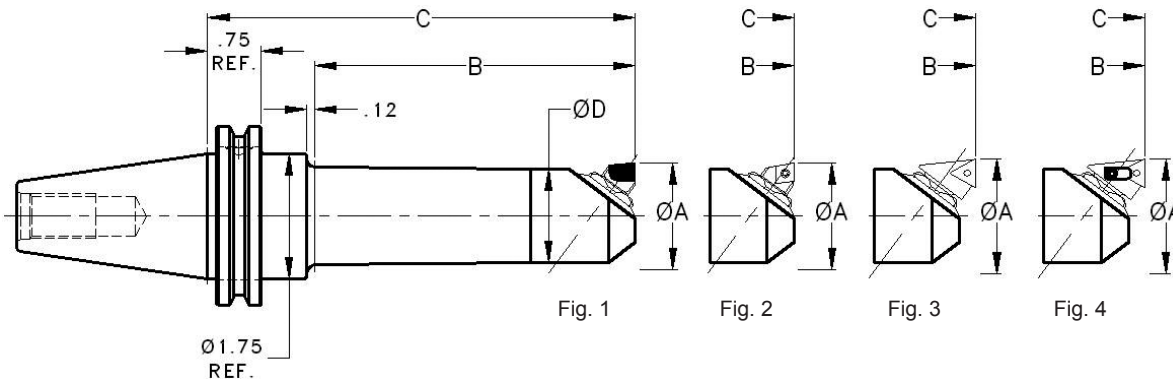
#### Hardware Package

- 3300X1E

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

## 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]

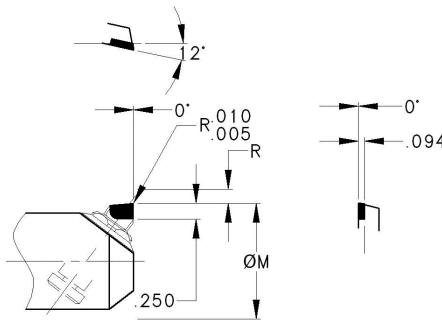
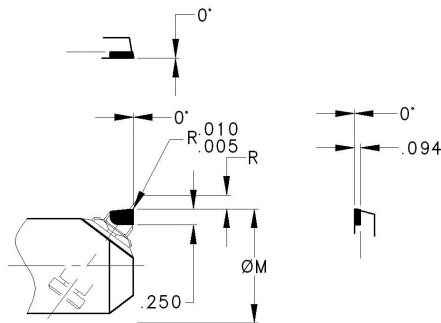
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
40CT60	1	5A2*	1.81 - 2.62	4.50	6.00	1.50	5330A
	2	5A2C06	1.81 - 2.62	4.50	6.00		
	3	050BA090TC2N	1.90 - 2.48	4.72	6.22		
	4	050BA090TN2E	1.90 - 2.48	4.72	6.22		



## 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



#### \* 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.

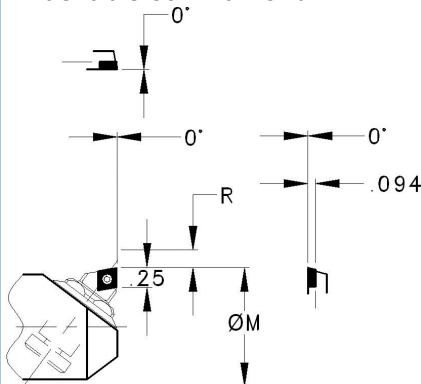
#### Hardware Package

- 5704E1E

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

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

### Indexable 80° Diamond



#### Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

#### Parts

- Insert Screw #SP1910

#### Hardware Package

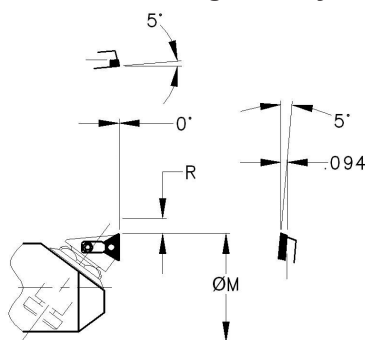
- 5704E1E

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.

### Indexable Triangle Heavy Duty



#### 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

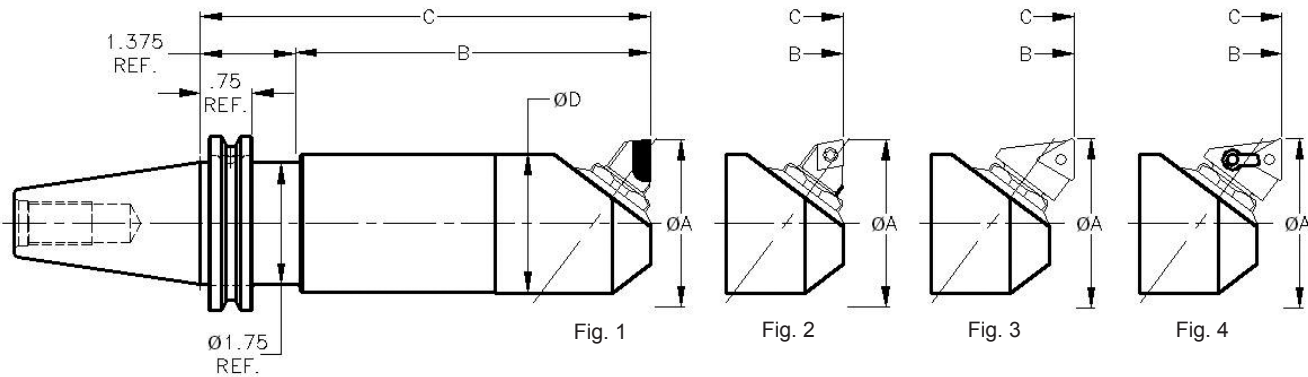
PART NUMBER	M	R
050BA090TN2E	1.76	.29
050BA090TC2N	1.76	.29

#### Note:

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

## 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



### 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		

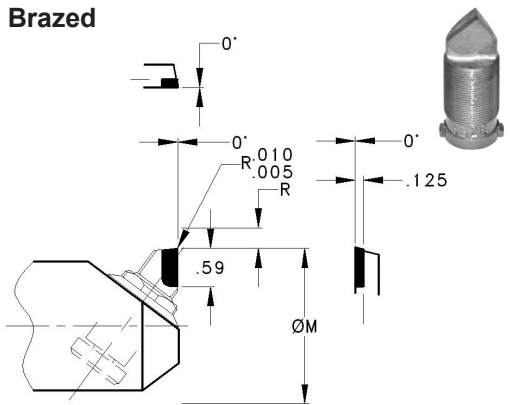
### Bore Range "66" 3.25 - 4.25 [82.6mm - 108.0mm]

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		

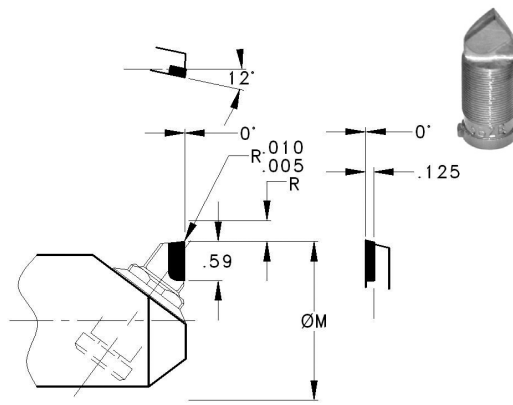
## Angular Size 7 Cartridges

- 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

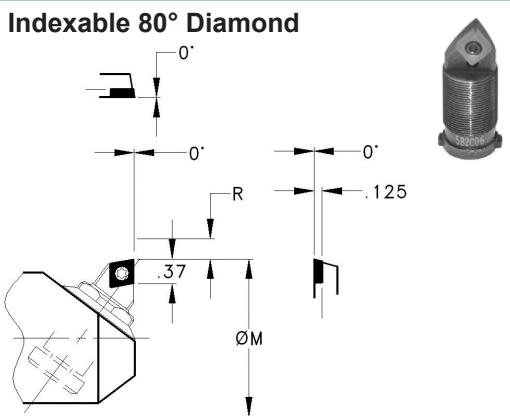
Example: 7B2F for Cast Iron

Coatings available upon request.

### Hardware Package

- 7708E1E

### Indexable 80° Diamond



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

### Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

### Parts

- Insert Screw #SP1911

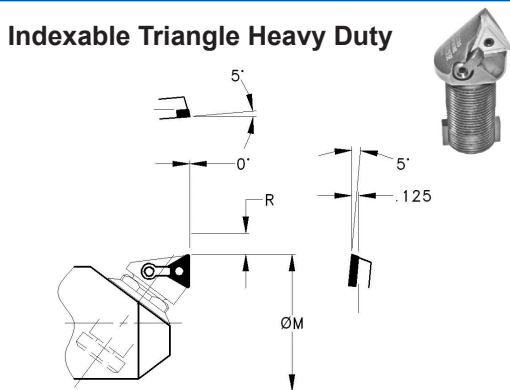
### Hardware Package

- 7708E1E

### Note:

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

### Indexable Triangle Heavy Duty



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

### 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

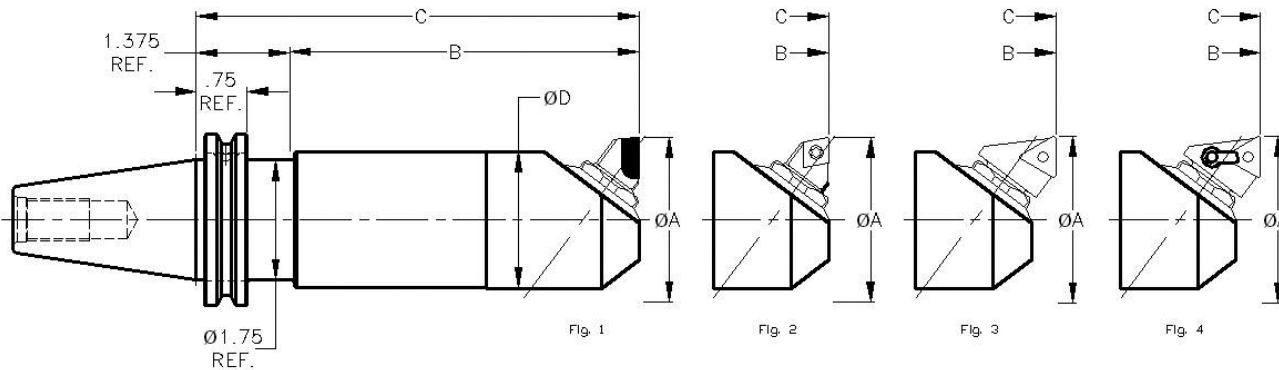
- 7708E1E

### Note:

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

## 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



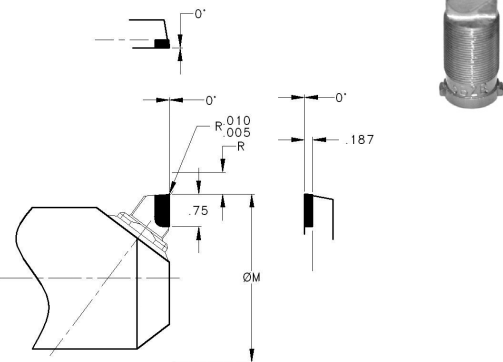
### Bore Range "70" 3.87 - 5.62 [98.3mm - 142.7mm]

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		

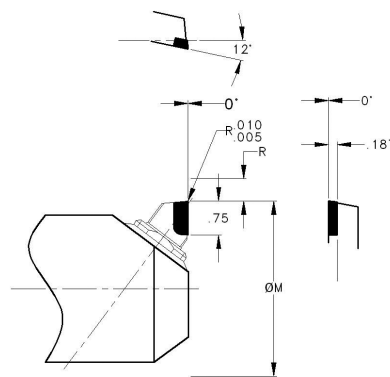
## Angular Size 10 Cartridges

- 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

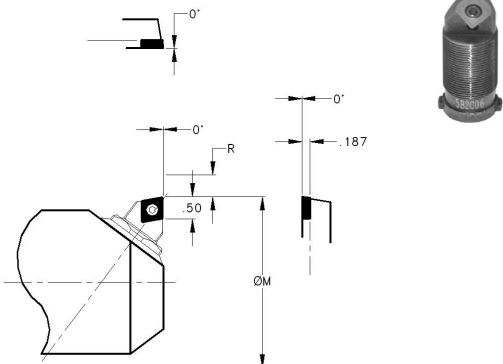
Example: 10B2F for Cast Iron

Coatings available upon request.

### Hardware Package

- 10708E1E

### Indexable 80° Diamond



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

### Recommended Inserts

- CCMM 120408-27

### Parts

- Insert Screw #SP1999

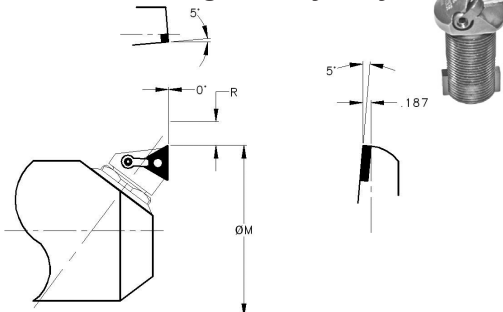
### Hardware Package

- 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

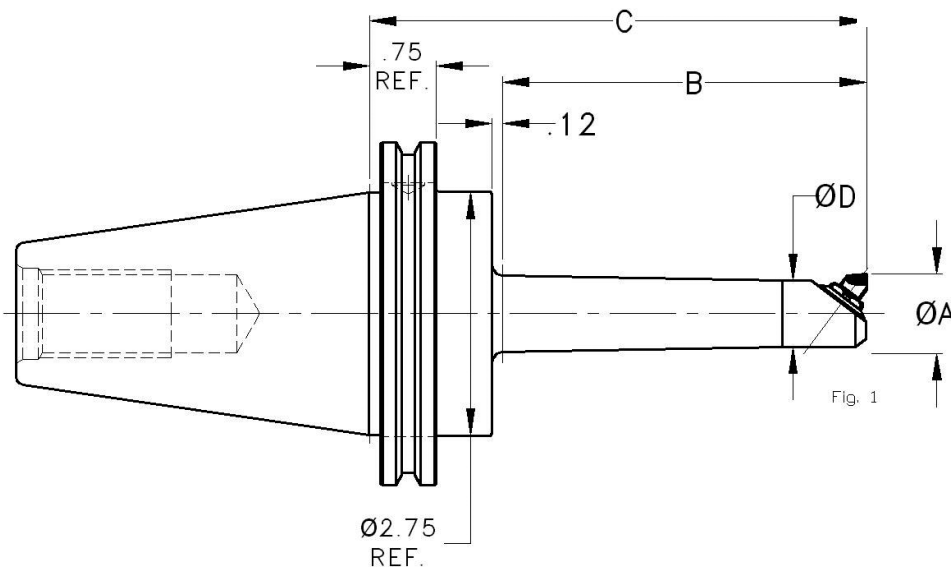
- NL Pin #NL46 (100BA090TN4F)
- Seat #ITSN433 (100BA090TN4F)
- Clamp #DL7 (100BA090TN4F)
- Clamp Screw #XNS36 (100BA090TN4F)

### Hardware Package

- 10708E1E

## Boring Bars with 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



### 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

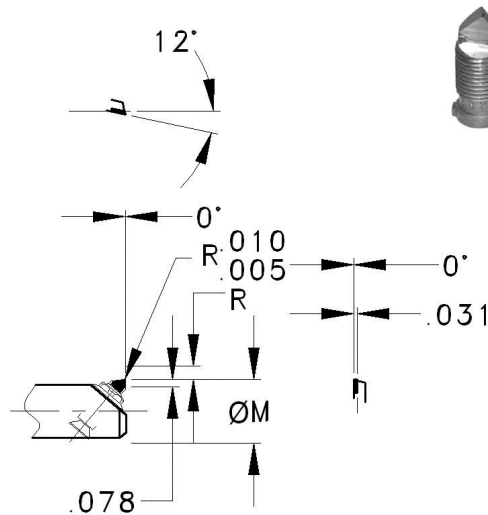
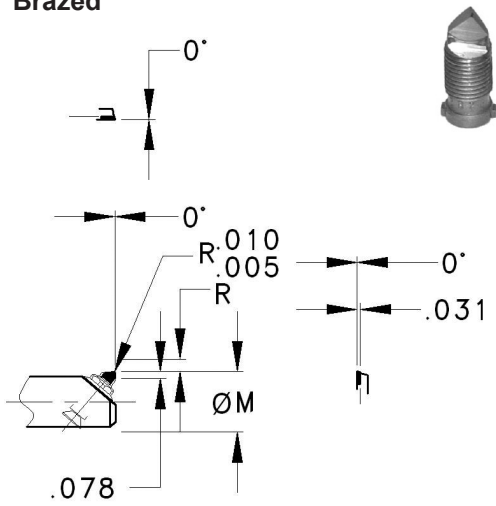
### Bore Range "53" 0.62 - 0.78 [15.7mm - 19.8mm]

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



### \* 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

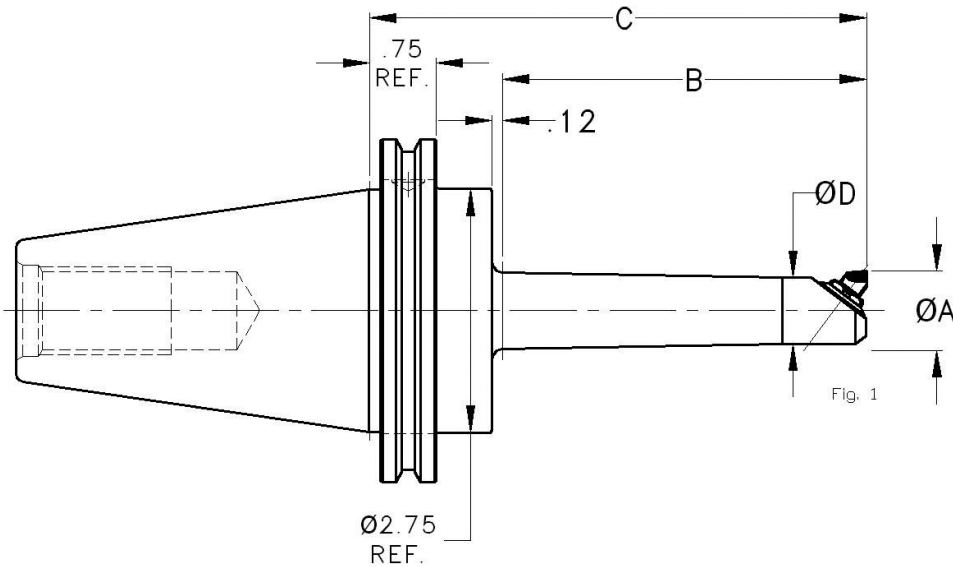
- 1203E1E

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

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

## 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



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

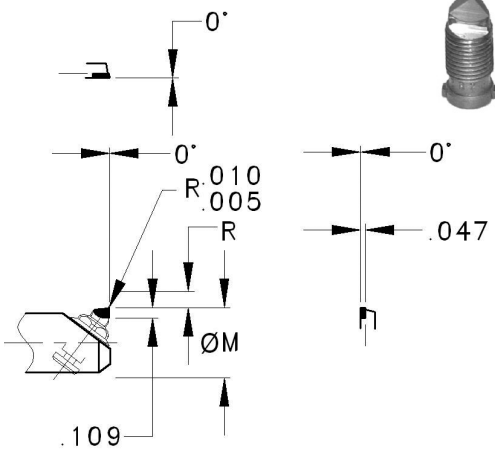
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT54	1	2B2*	.75 - .90	3.38	4.88	.62	2330A



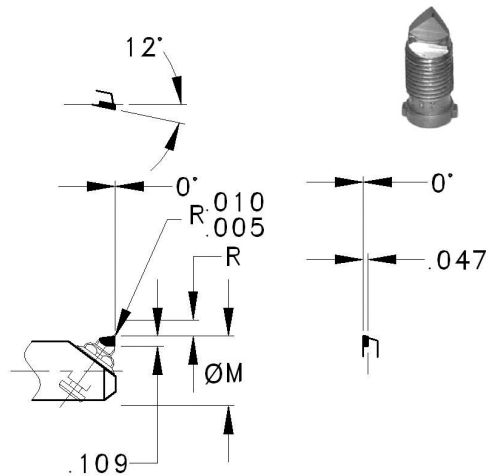
## Angular Size 2 Cartridges

- 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

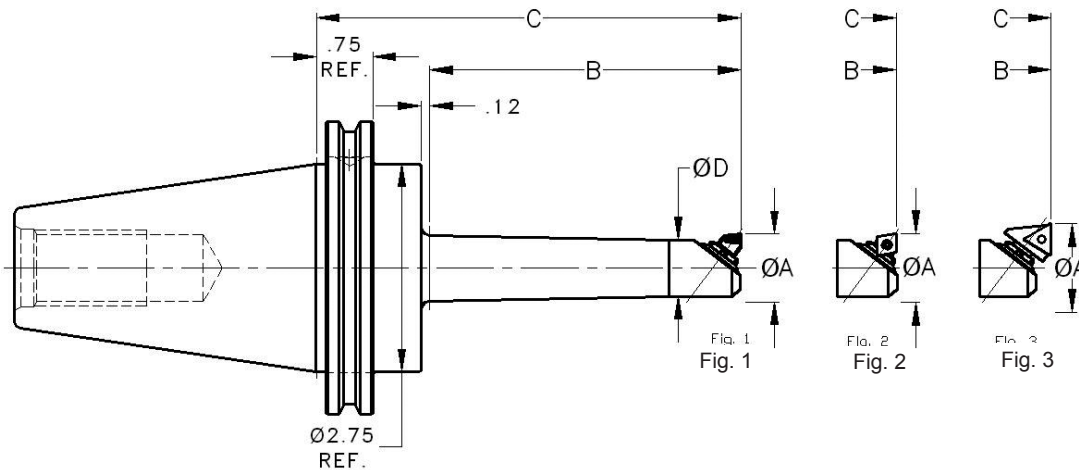
Coatings available upon request.

### 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



### 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		

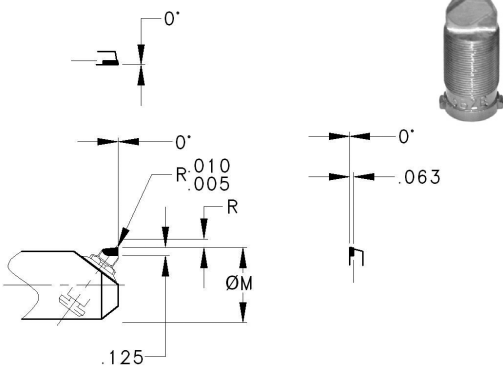
### Bore Range "57" 1.12 - 1.76 [28.5mm - 44.7mm]

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		

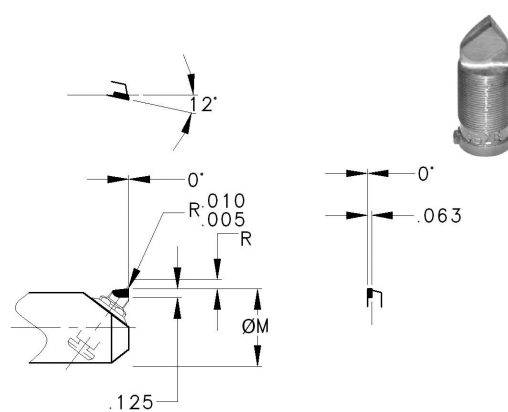
## Angular Size 3 Cartridges

- 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

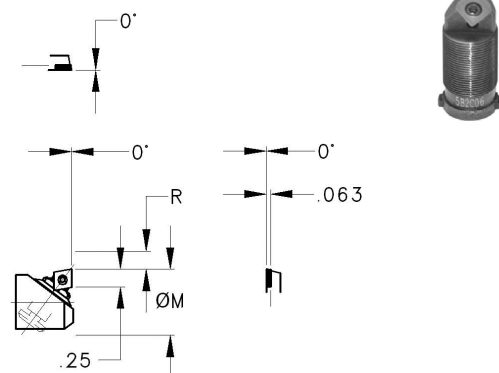
Example: 3B2F for Cast Iron

Coatings available upon request.

#### Hardware Package

- 3704E1E

### Indexable 80° Diamond



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

#### Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

#### Parts

- Insert Screw #SP1910

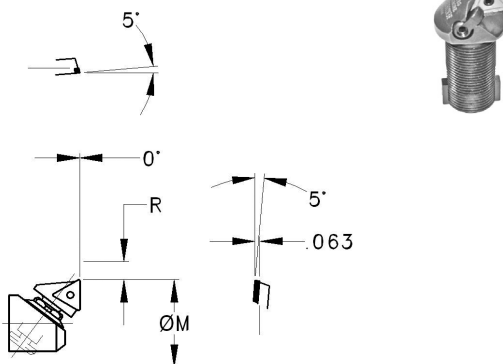
#### Hardware Package

- 3704E1E

#### Note:

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

### Indexable Triangle Heavy Duty



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

#### Recommended Inserts

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

#### Parts

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

#### Hardware Package

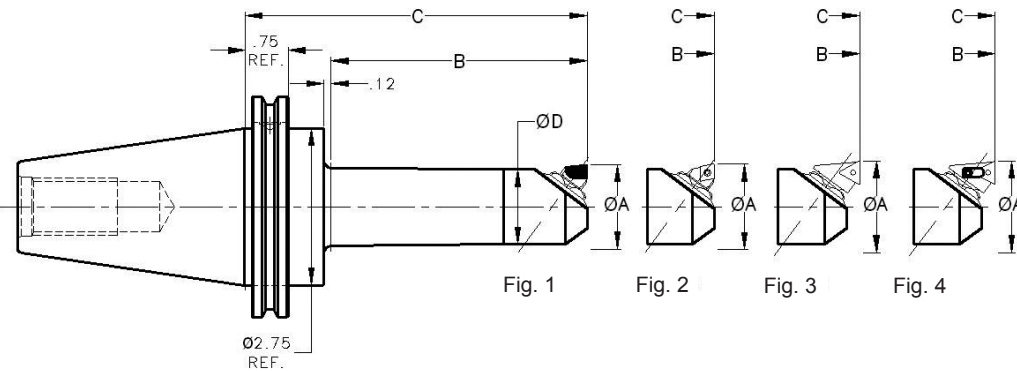
- 3300X1E

#### Note:

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

## 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



### 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		

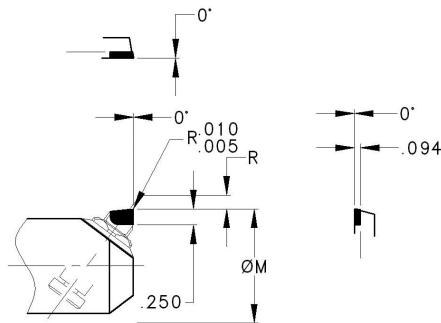
### Bore Range "59" 1.50 - 2.16 [38.1mm - 54.8mm]

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		

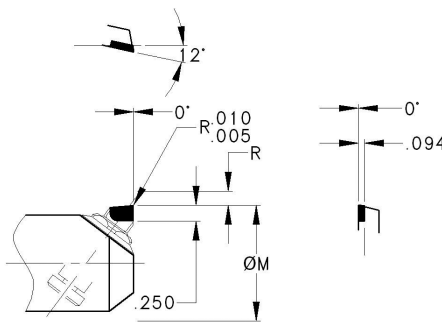
## Angular Size 5 Cartridges

- 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

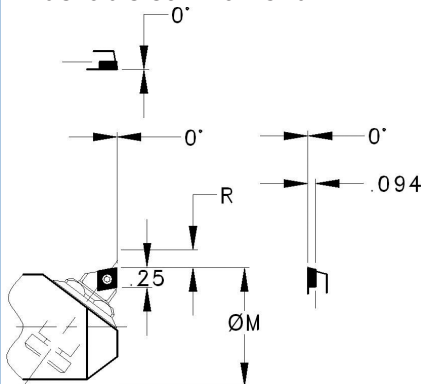
Example: 5B2F for Cast Iron

Coatings available upon request.

#### Hardware Package

- 5704E1E

### Indexable 80° Diamond



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

#### Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

#### Parts

- Insert Screw #SP1910

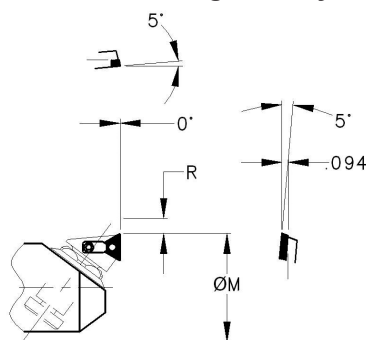
#### Hardware Package

- 5704E1E

#### Note:

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

### Indexable Triangle Heavy Duty



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

#### 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

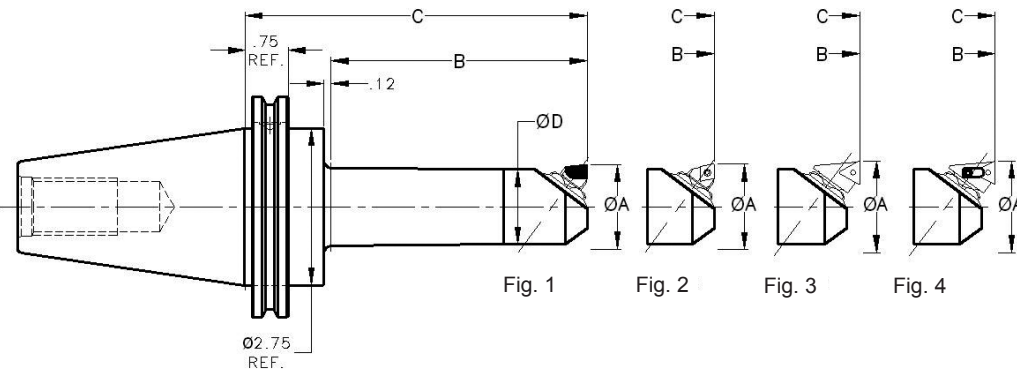
- 5704E1E

#### Note:

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

## 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



### 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		

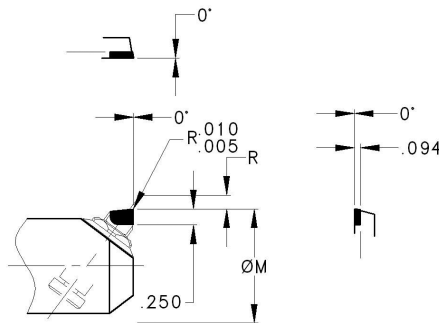
### Bore Range "62" 1.81 - 2.62 [46.0mm - 66.5mm]

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		

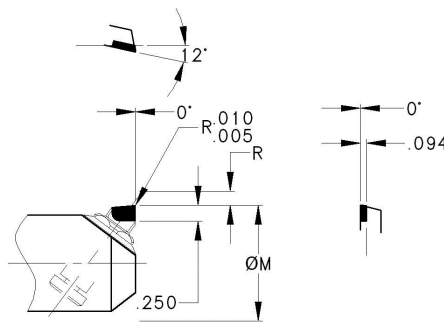
## Angular Size 5 Cartridges

- 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

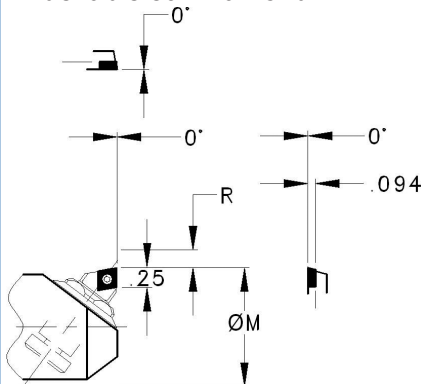
Example: 5B2F for Cast Iron

Coatings available upon request.

### Hardware Package

- 5704E1E

### Indexable 80° Diamond



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

### Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

### Parts

- Insert Screw #SP1910

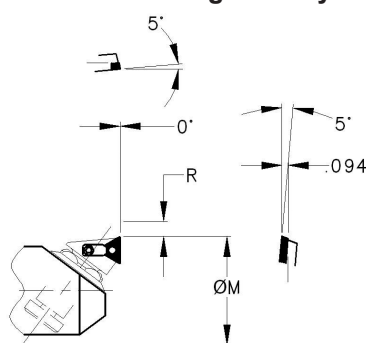
### Hardware Package

- 5704E1E

### Note:

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

### Indexable Triangle Heavy Duty



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

### 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

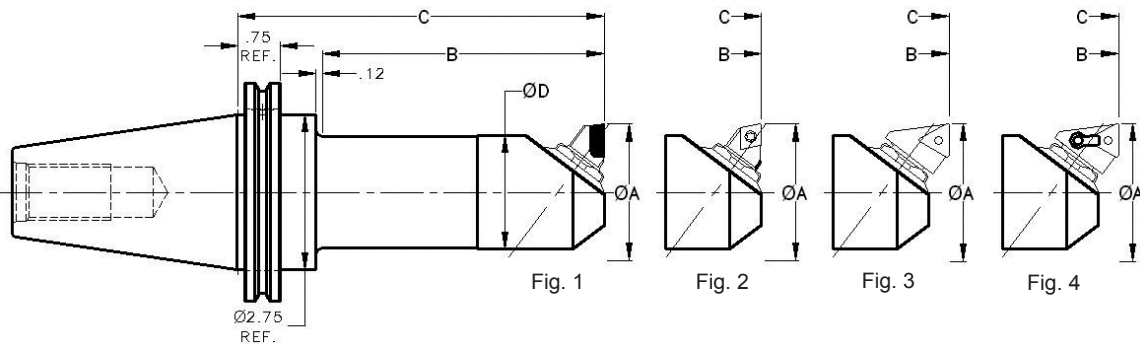
- 5704E1E

### Note:

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

## 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



### 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]

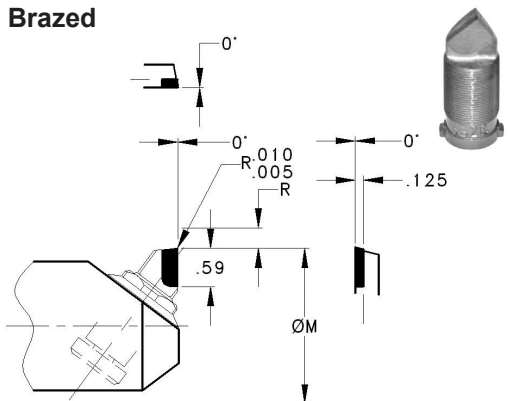
Part Number	Figure Number	Recommended Cartridge	A Effective Bore Range	B Min.	C	D	Ref. Wrench
50CT65	1	7A2*	2.43 - 3.43	11.00	12.50	2.00	5330A
	2	7A2C09	2.43 - 3.43	11.00	12.50		
	3	070BA090TC3N	2.42 - 3.25	11.37	12.85		
	4	070BA090TN3F	2.42 - 3.25	11.37	12.85		



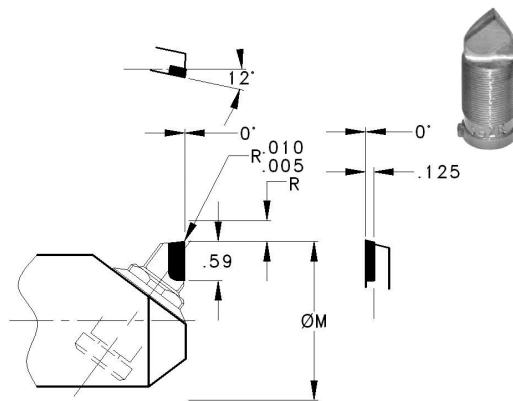
## Angular Size 7 Cartridges

- 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

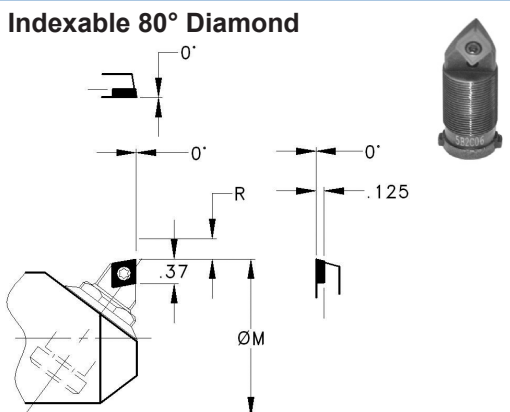
Example: 7B2F for Cast Iron

Coatings available upon request.

### Hardware Package

- 7708E1E

### Indexable 80° Diamond



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

### Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

### Parts

- Insert Screw #SP1911

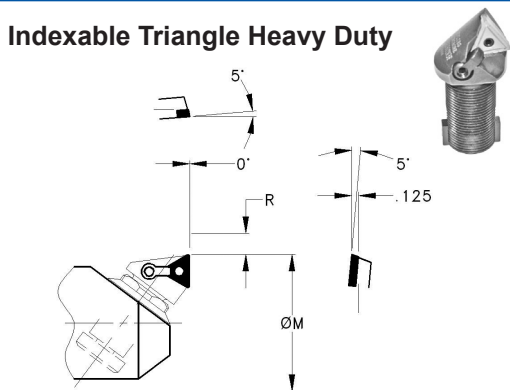
### Hardware Package

- 7708E1E

### Note:

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

### Indexable Triangle Heavy Duty



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

### 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

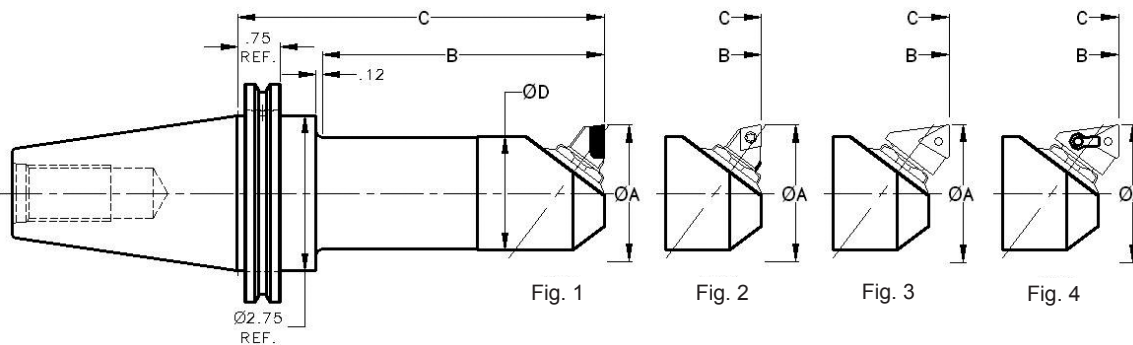
- 7708E1E

### Note:

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

## 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



### 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		

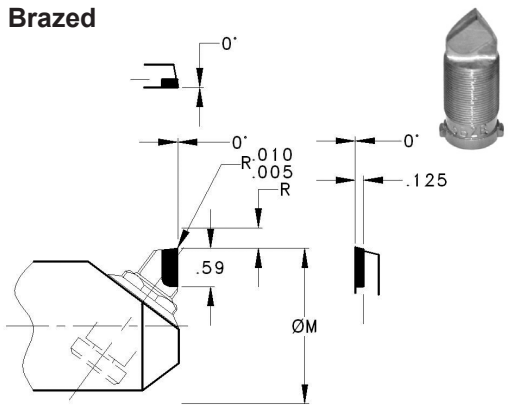
### Bore Range "69" 3.25 - 4.25 [82.6mm - 108.0mm]

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		

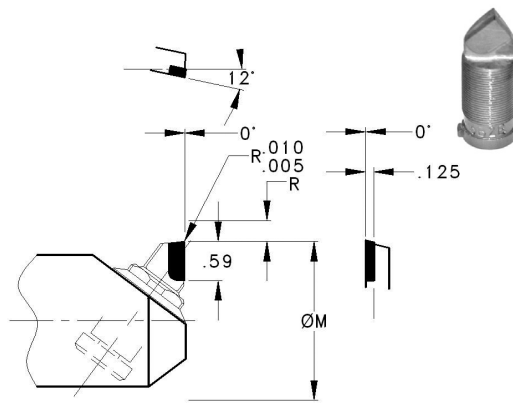
## Angular Size 7 Cartridges

- 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

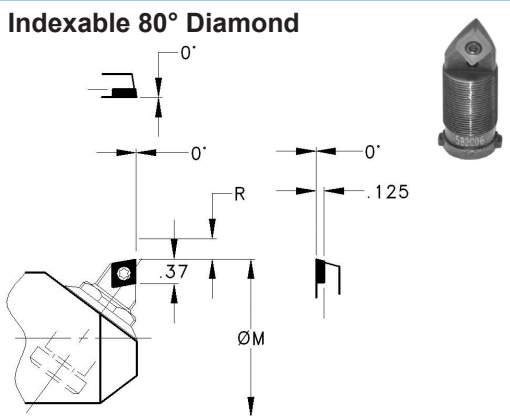
Example: 7B2F for Cast Iron

Coatings available upon request.

### Hardware Package

- 7708E1E

### Indexable 80° Diamond



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

### Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

### Parts

- Insert Screw #SP1911

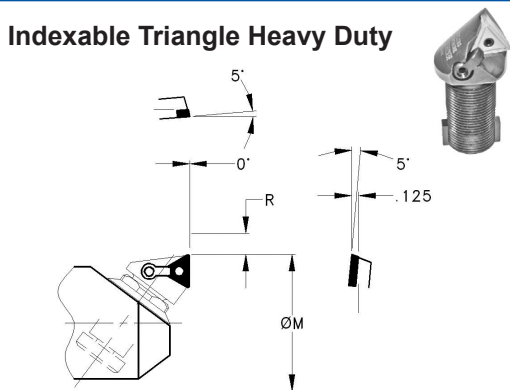
### Hardware Package

- 7708E1E

### Note:

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

### Indexable Triangle Heavy Duty



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

### 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

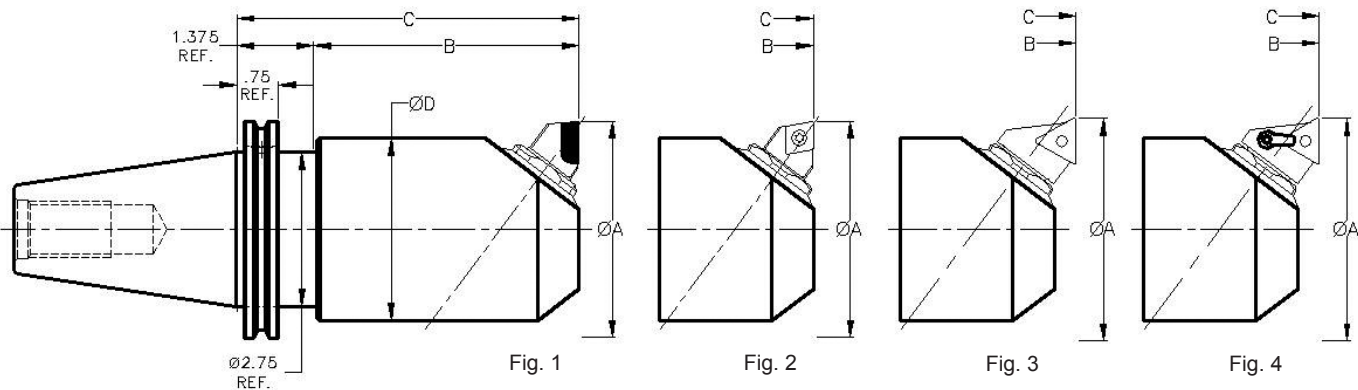
- 7708E1E

### Note:

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

## 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



### 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		

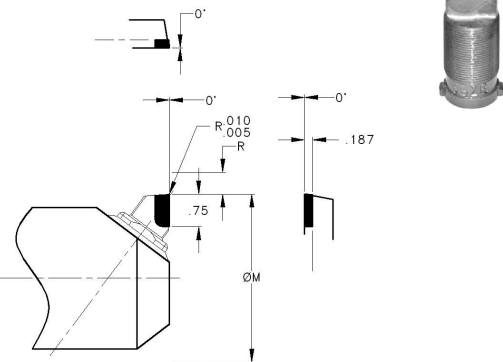
### Bore Range "71" 3.68 - 5.62 [93.5mm - 142.7mm]

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		

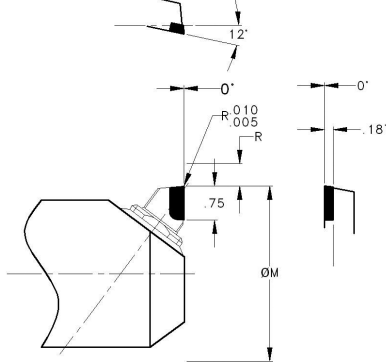
## Angular Size 10 Cartridges

- 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

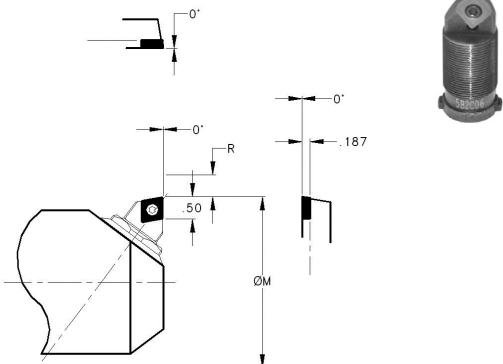
Example: 10B2F for Cast Iron

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

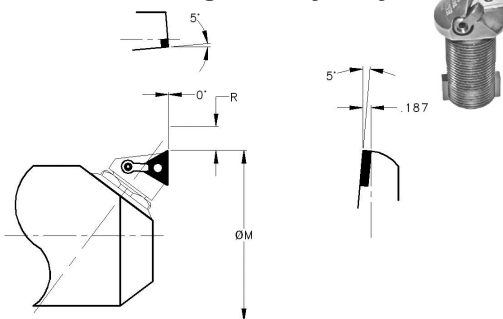
### Hardware Package

- 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

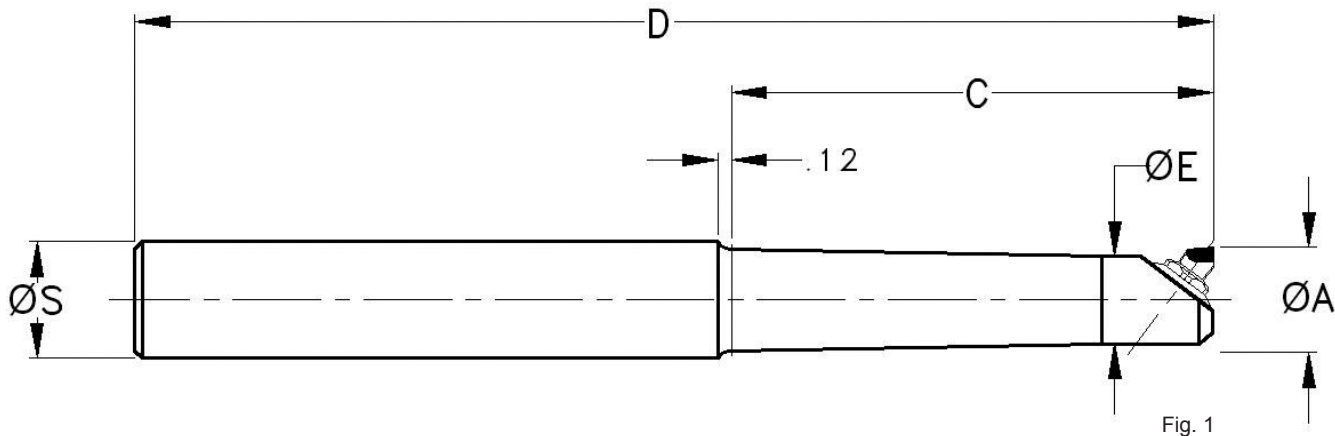
- NL Pin #NL46 (100BA090TN4F)
- Seat #ITSN433 (100BA090TN4F)
- Clamp #DL7 (100BA090TN4F)
- Clamp Screw #XNS36 (100BA090TN4F)

### 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



### 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		

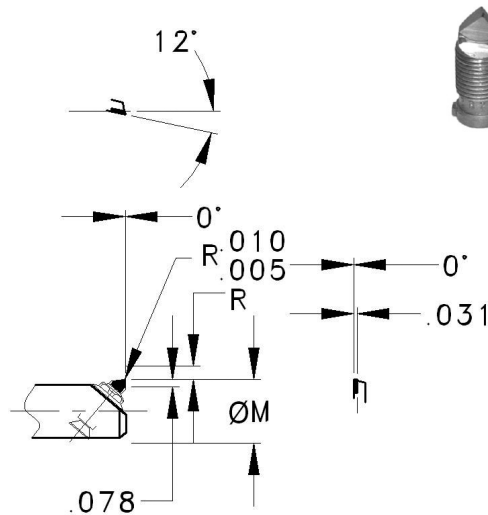
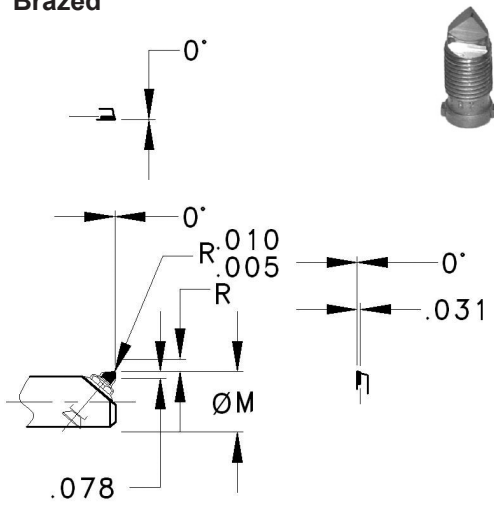
### Bore Range "53" 0.62 - 0.78 [15.7mm - 19.8mm]

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



### \* 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

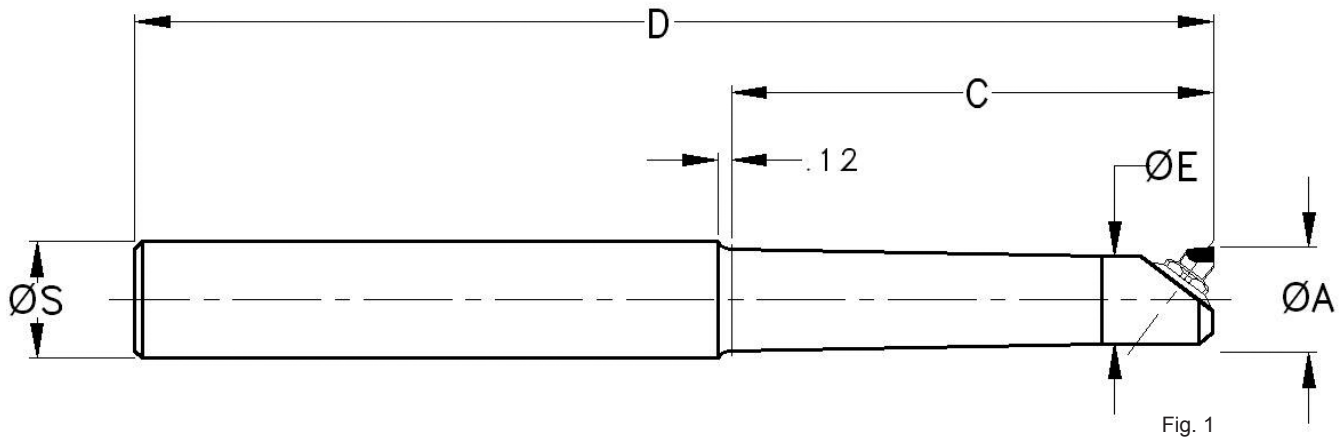
- 1203E1E

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

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

## 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



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

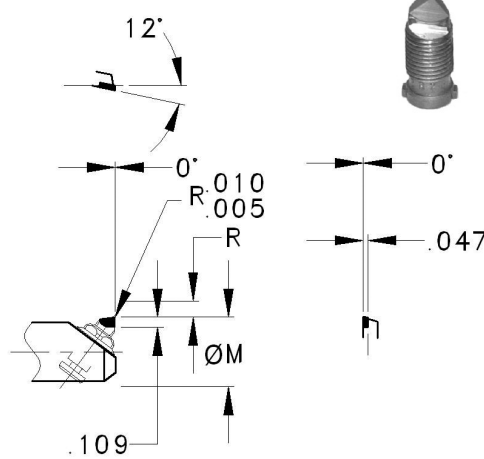
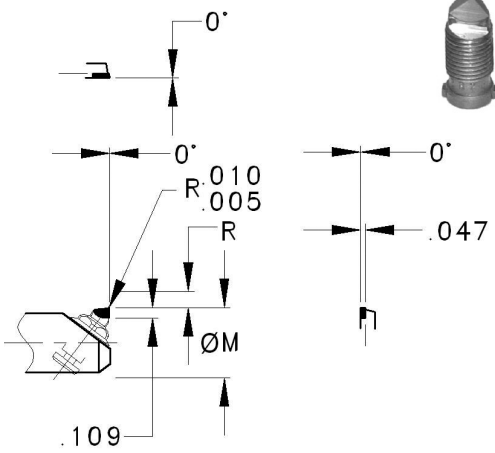
Part Number	S	Figure Number	Recommended Cartridge	A Effective Bore Range	C Min.	D	E	Ref. Wrench
SS0625462	.6250	1	2B2*	.75 - .90	—	6.25	.62	2330A
SS1054	1.0000				3.38	8.50		



## 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



### \* 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

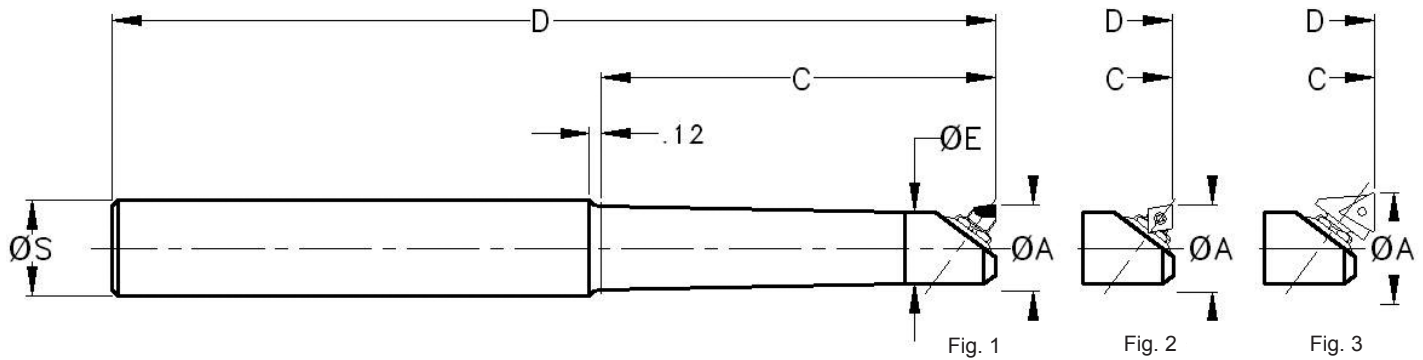
- 2204E1E

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

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

## 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		

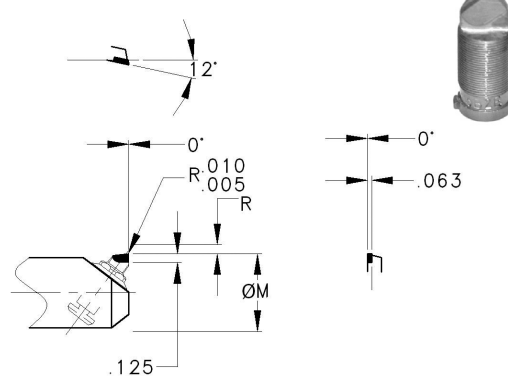
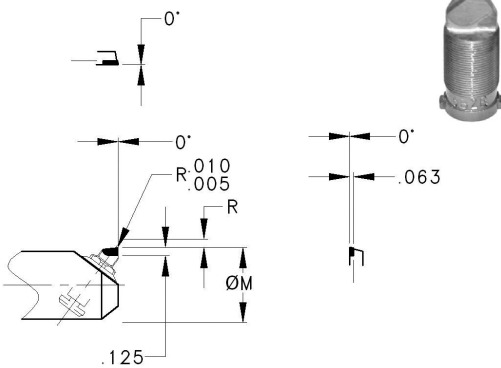
### Bore Range "56" 1.12 - 1.76 [28.5mm - 44.7mm]

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



#### \* 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.

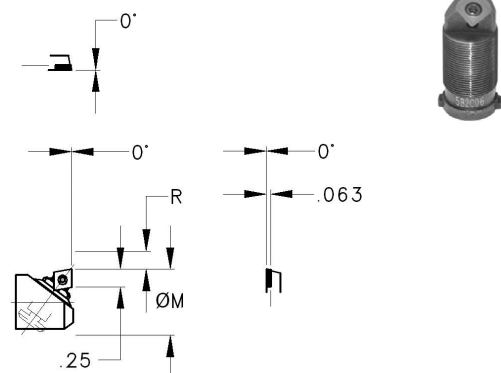
#### Hardware Package

- 3704E1E

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

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

### Indexable 80° Diamond



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

#### Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

#### Parts

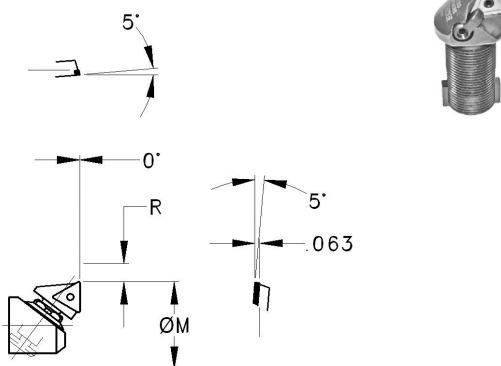
- Insert Screw #SP1910

#### Hardware Package

- 3704E1E

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

### Indexable Triangle Heavy Duty



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

#### Recommended Inserts

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

#### Parts

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

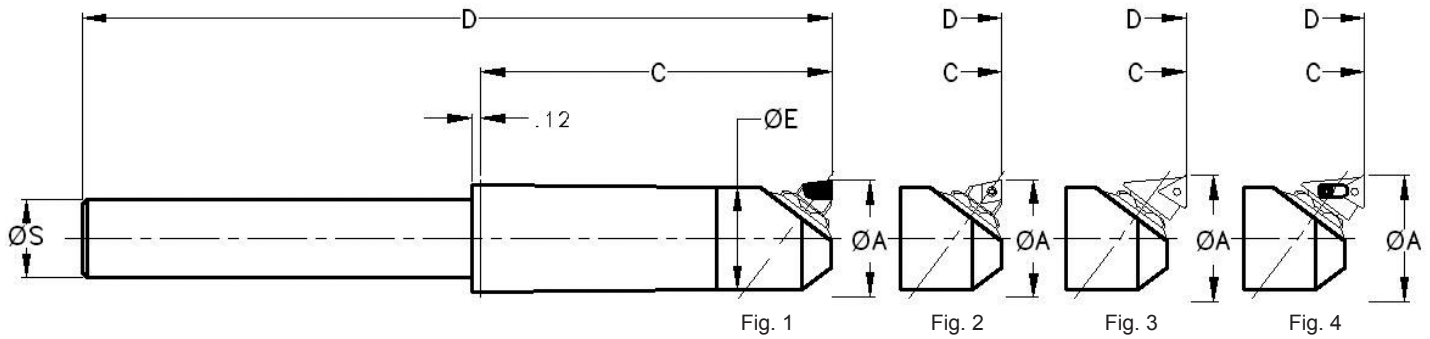
#### Hardware Package

- 3300X1E

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

## 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



### 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"

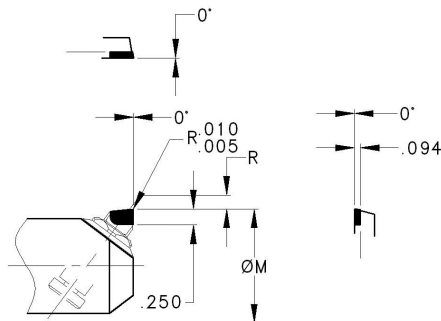
1.81 - 2.62 [46.0mm - 66.5mm]

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		

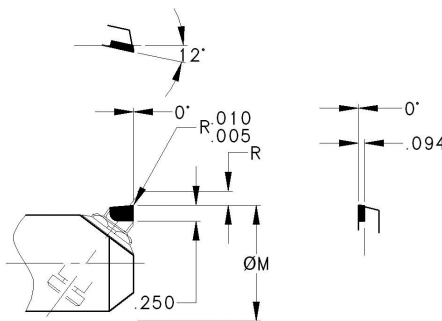
## Angular Size 5 Cartridges

- 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

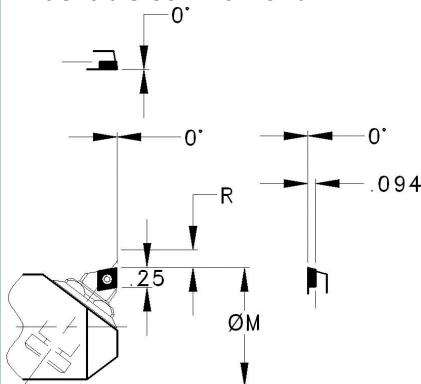
Example: 5B2F for Cast Iron

Coatings available upon request.

#### Hardware Package

- 5704E1E

### Indexable 80° Diamond



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

#### Recommended Inserts

- CCMT060202
- CCM2 (1.5) 1E14
- CCMT060204

#### Parts

- Insert Screw #SP1910

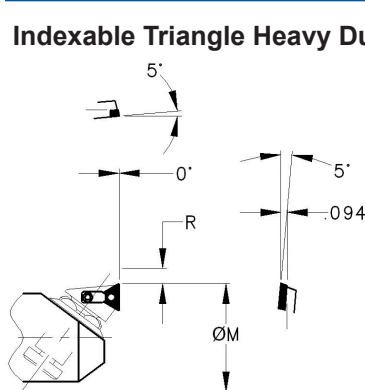
#### Hardware Package

- 5704E1E

#### Note:

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

### Indexable Triangle Heavy Duty



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

#### 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

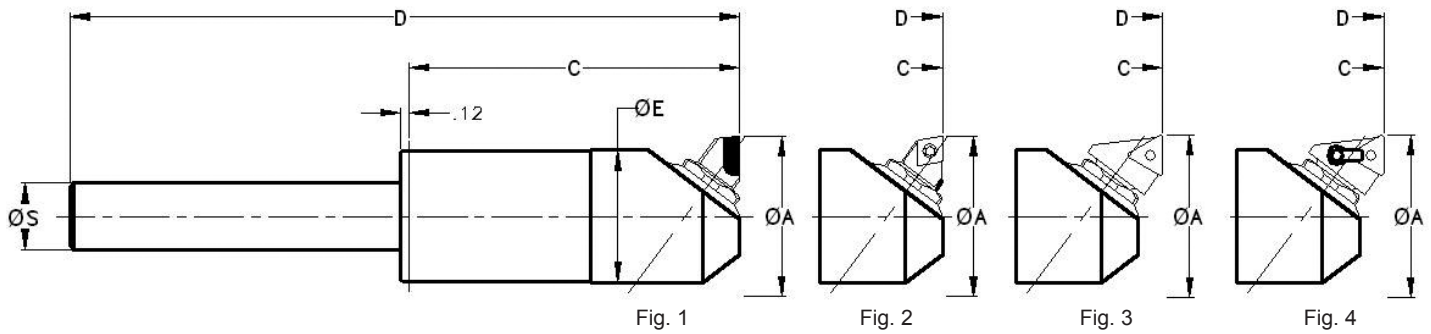
- 5704E1E

#### Note:

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

## 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



### 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		

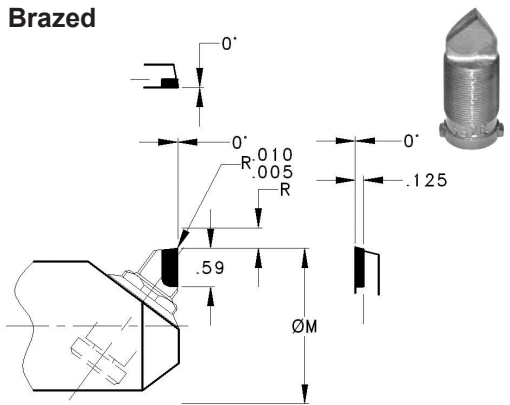
### Bore Range "66" 3.25 - 4.25 [82.6mm - 108.0mm]

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		

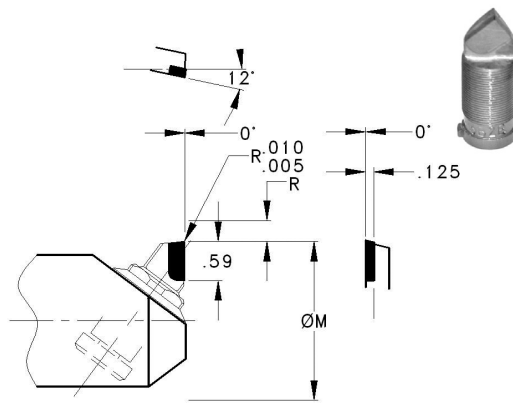
## Angular Size 7 Cartridges

- 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

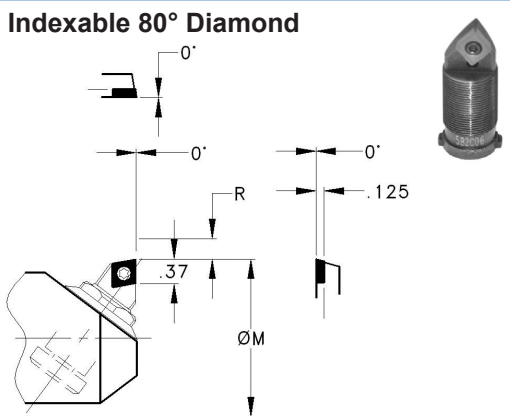
Example: 7B2F for Cast Iron

Coatings available upon request.

### Hardware Package

- 7708E1E

### Indexable 80° Diamond



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

### Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

### Parts

- Insert Screw #SP1911

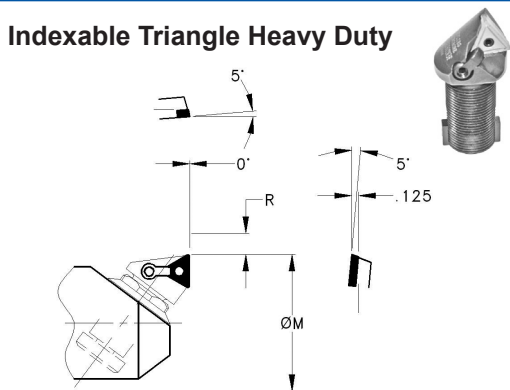
### Hardware Package

- 7708E1E

### Note:

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

### Indexable Triangle Heavy Duty



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

### 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

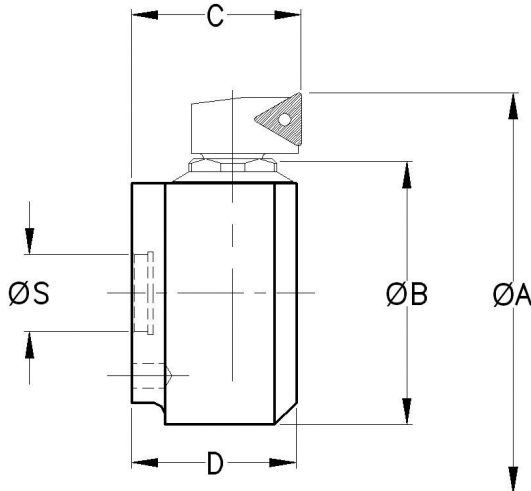
- 7708E1E

### Note:

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

## 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

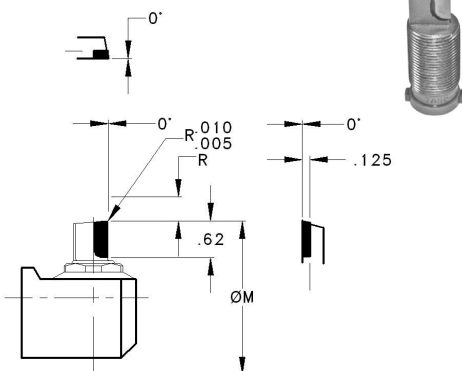
Part Number	Approx. Weight	A Effective Bore Range	B Dia.	C	D	Recommended Cartridge	Ref. Dial	Ref. Wrench	S For Use With Adapter Type
R502	1.5 lbs	3.125 - 4.062	1.88	1.94	1.88	070BS090TN3F	7710	5330A	ADE-1287
R504	2.5 lbs	3.813 - 4.750	2.50						
R506	3.5 lbs	4.500 - 5.437	3.00						
R508	5.0 lbs	5.188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



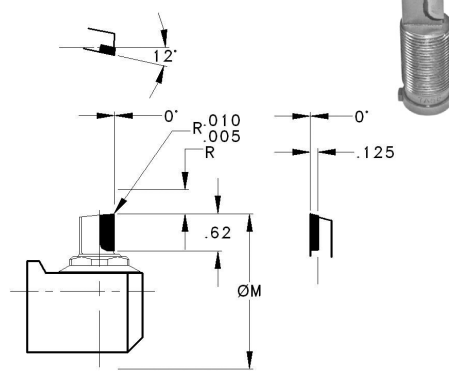
## Straight Size 7 Cartridges

- 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

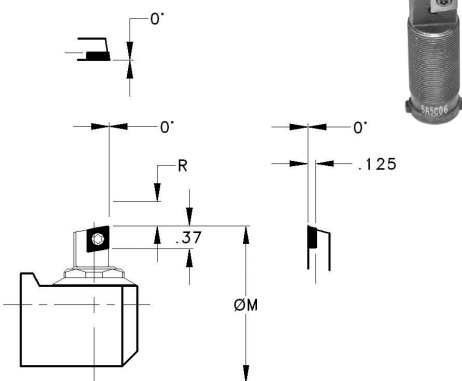
Example: 7B2F for Cast Iron

Coatings available upon request.

#### Ref. Dial

- 7710

### Indexable 80° Diamond



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

#### Recommended Inserts

- CCMT09T304
- CCMM3 (2.5) 1E14

#### Parts

- Screw #SP1911

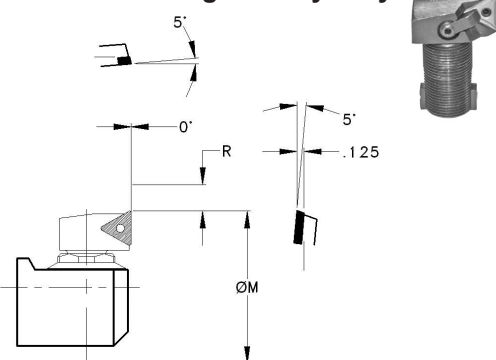
#### Ref. Dial

- 7710

#### Note:

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

### Indexable Triangle Heavy Duty



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

#### 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

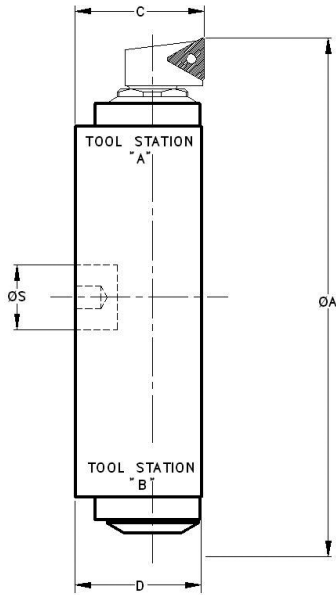
- 7710

#### Note:

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

## 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						

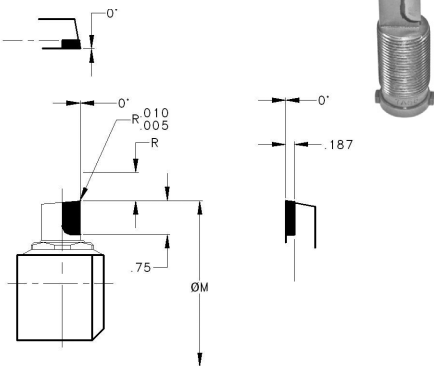
Part Number	Approx. Weight	A Effective Bore Range	Tool Station	C	D	Recommended Cartridge*	Ref. Dial	Ref. Wrench	S For Use With Adapter Type
R100552T	8 lbs	5.500 - 6.875	A	2.12	2.03	100BS090TN4F	10710	10330A	ADE-1412
		6.625 - 8.000	B						
R100772T	11 lbs	7.750 - 9.125	A	2.12	2.03				
		8.875 - 10.250	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

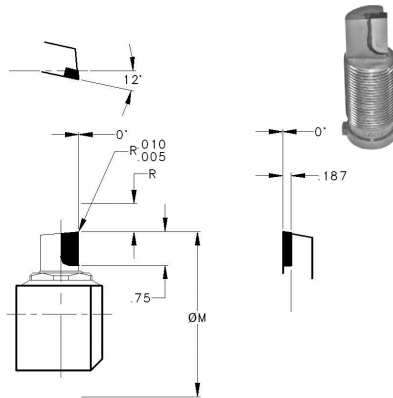
## Straight Size 10 Cartridges

- 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

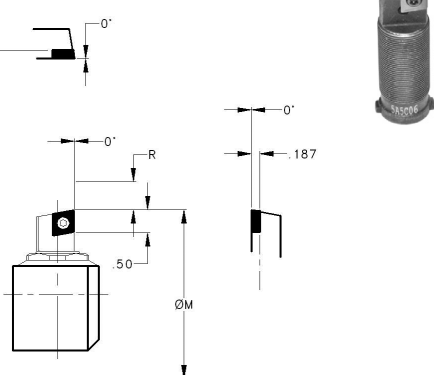
Example: 10B5F for Cast Iron

Coatings available upon request.

### Ref. Dial

- 10710

### Indexable 80° Diamond



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

### Recommended Inserts

- CCMM12040827

### Parts

- Insert screw #SP1999

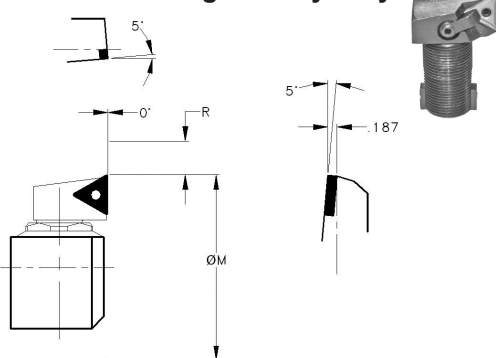
### Ref. Dial

- 10710

### Note:

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

### Indexable Triangle Heavy Duty



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

### 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

### Note:

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

## Boring Ring Adapters with Mod-Flex Shanks

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

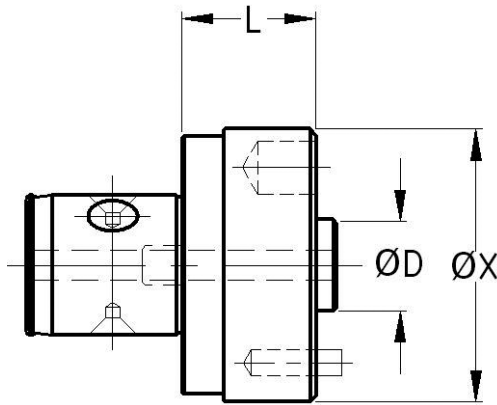


Fig. 1

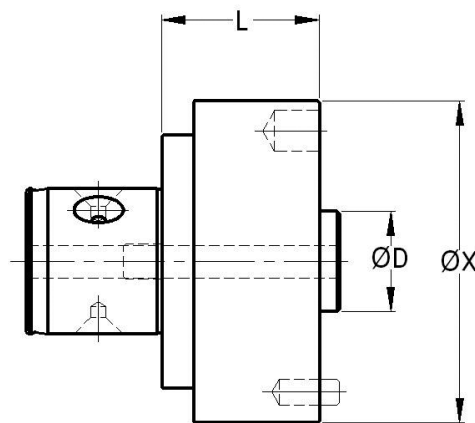
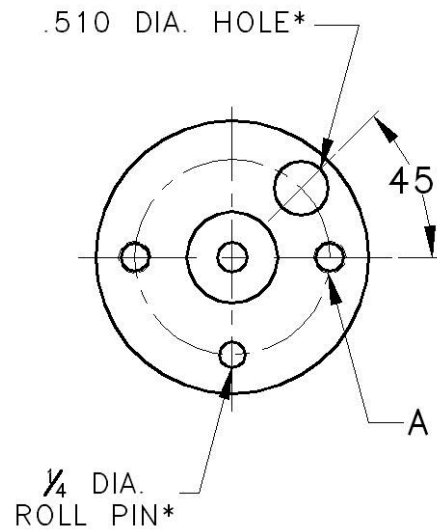
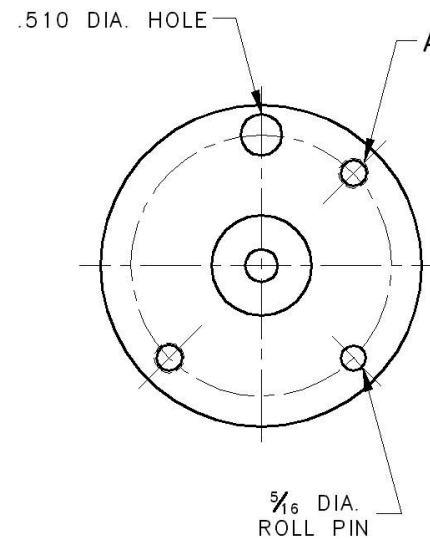


Fig. 2

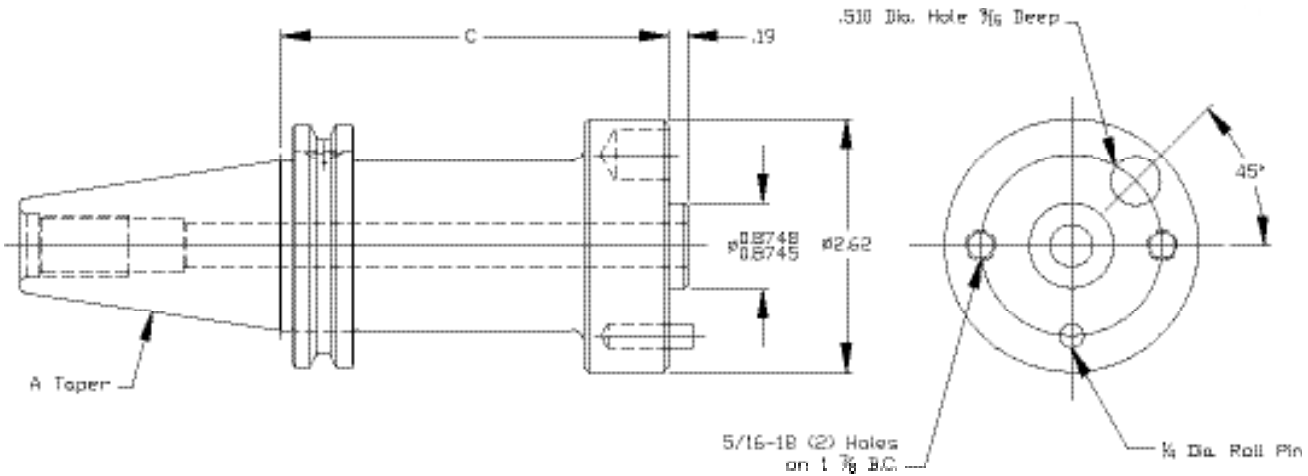


Part No.	Mod-Flex Size	D	L	X	Fig No.	Weight	A
063MFADE1287	063	.8745 - .8748	1.29	2.62	1	1.3 lbs.	5/16-18 (2) Holes - 1-7/8 B.C.
063MFADE1312	063	1.2495 - 1.2498	1.04	3.69	1	3.2 lbs.	3/8-16 (2) Holes - 3-1/16 B.C.
080MFADE1412	080	1.2495 - 1.2498	1.58	4.00	2	6.3 lbs.	3/8-16 (2) Holes - 3-1/4 B.C.

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

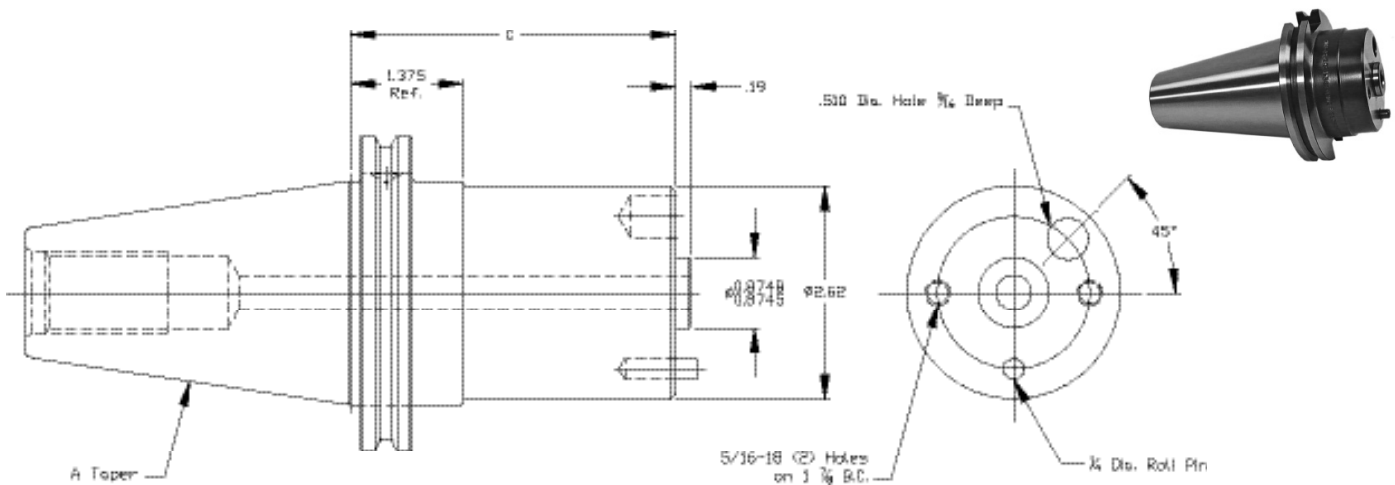
## Boring Ring Adapters with CAT Shanks

- 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	

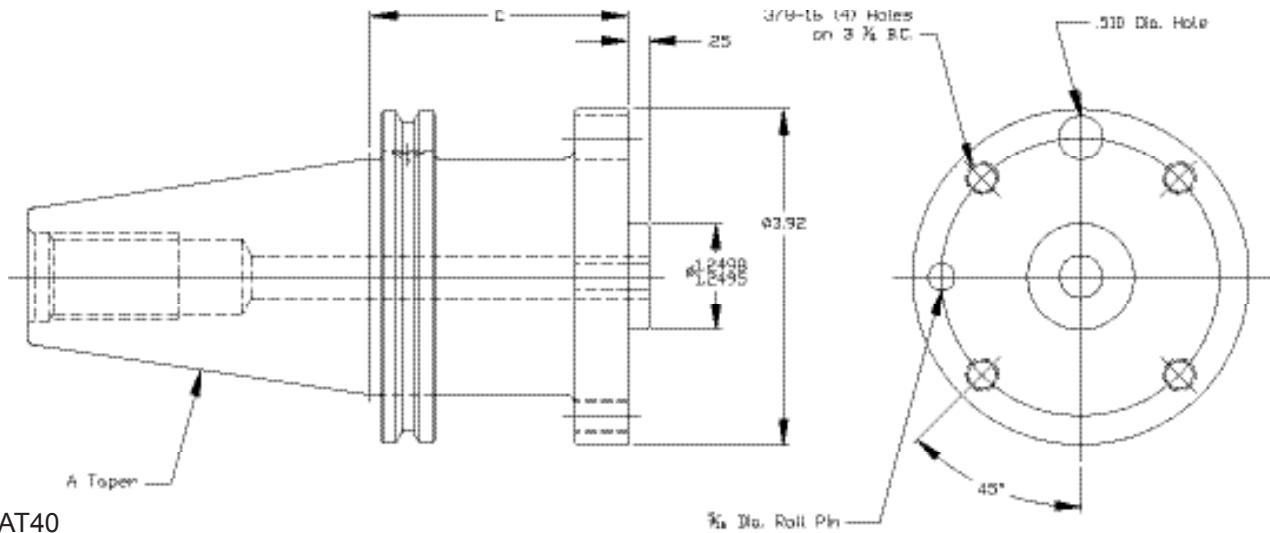


### CAT50

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

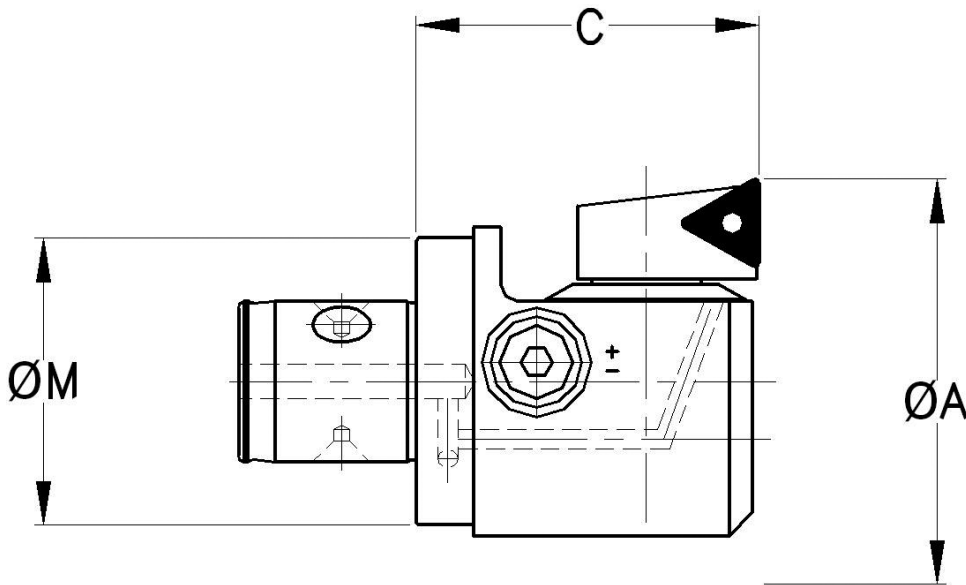
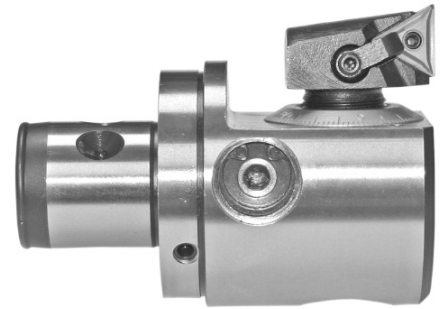
Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000251	40CT ADE 1412 20 MTP	No. 40	5 lbs.	2.000	R100 Series Boring Rings
D0004819	40CT ADE 1412 30 MTP	No. 40	6 lbs.	3.000	
D0004814	40CT ADE 1412 40 MTP	No. 40	7 lbs.	4.000	
D0004804	40CT ADE 1412 50 MTP	No. 40	8 lbs.	5.000	

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

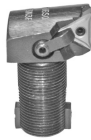
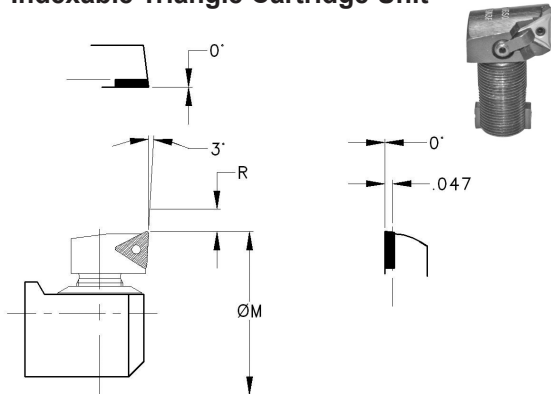


### Bore Range

**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



#### 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

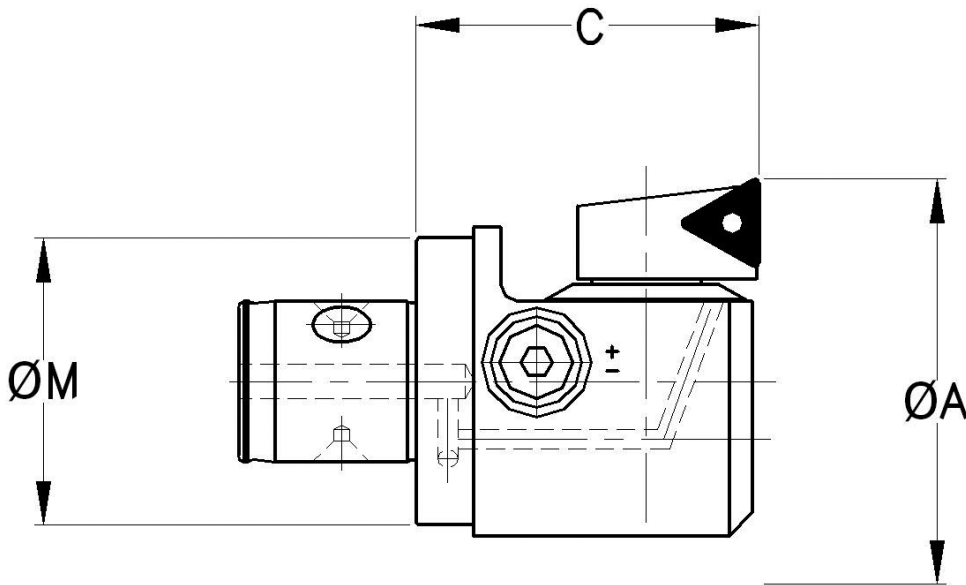
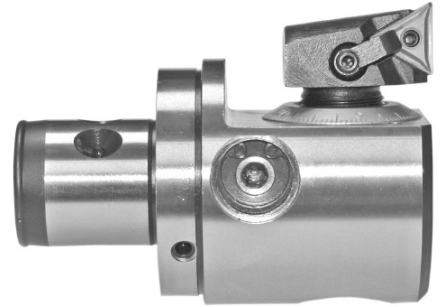
PART NUMBER	M	R
020BS093TC1NG	.97	.055

#### Note:

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

## 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

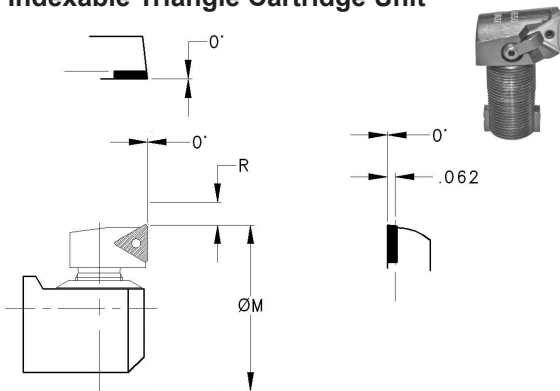


### Bore Range

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



#### 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

#### Note:

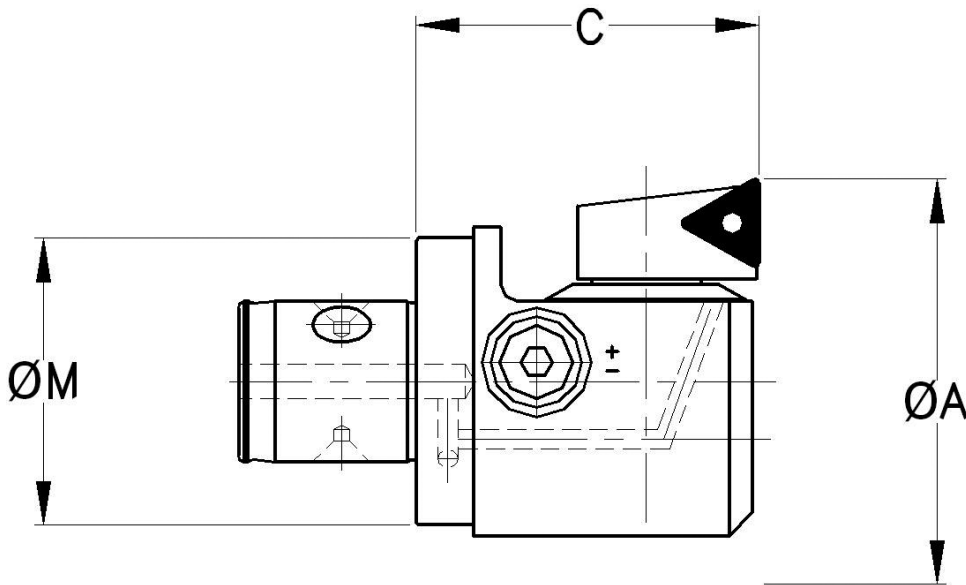
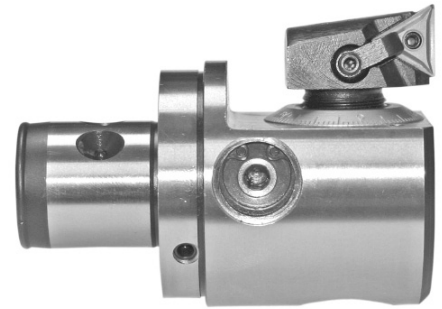
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.

PART NUMBER	M	R
030BS090TC1NG	1.33	.105



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

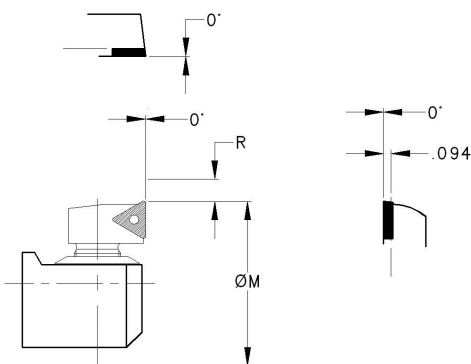
- Order cartridge unit and wrench separately
- Other cartridge styles & types available
- Specials available in any series and style
- Other shank styles available with Mod-Flex - See page #69
- Coolant thru



### 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

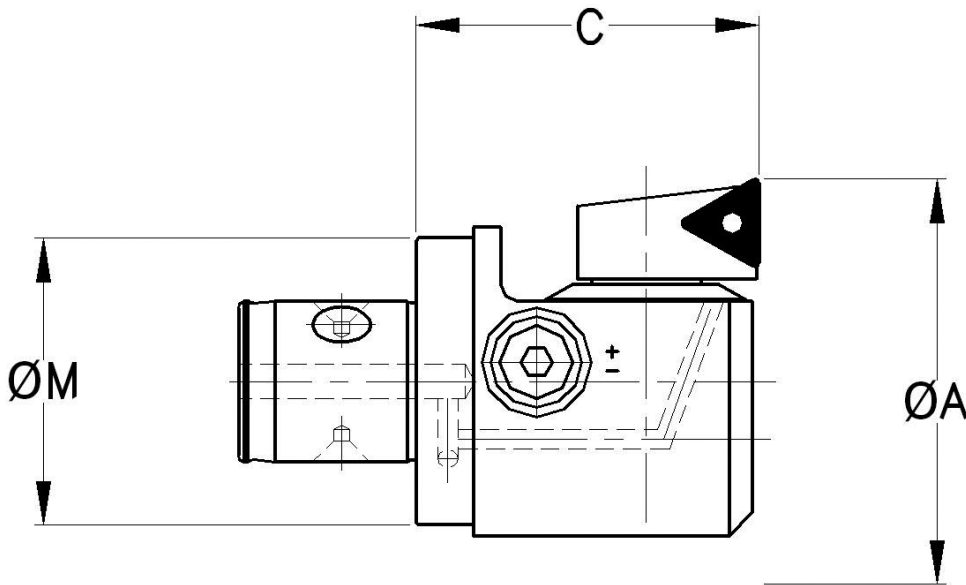
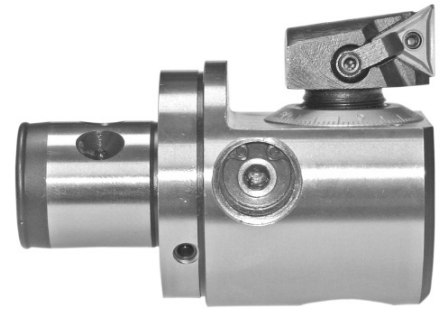
- GA Dial #5805
- Spring Washer #5303
- S120 Screw
- Insert screw #SP1910

#### 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

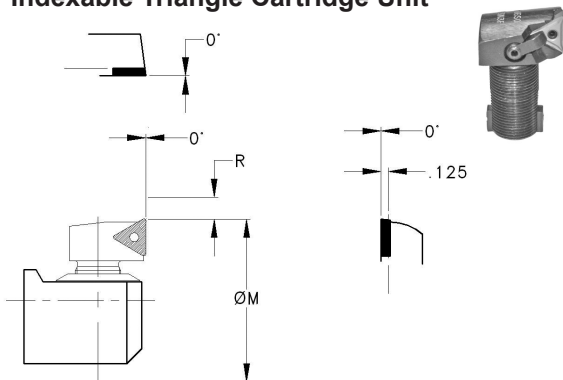


### Bore Range

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

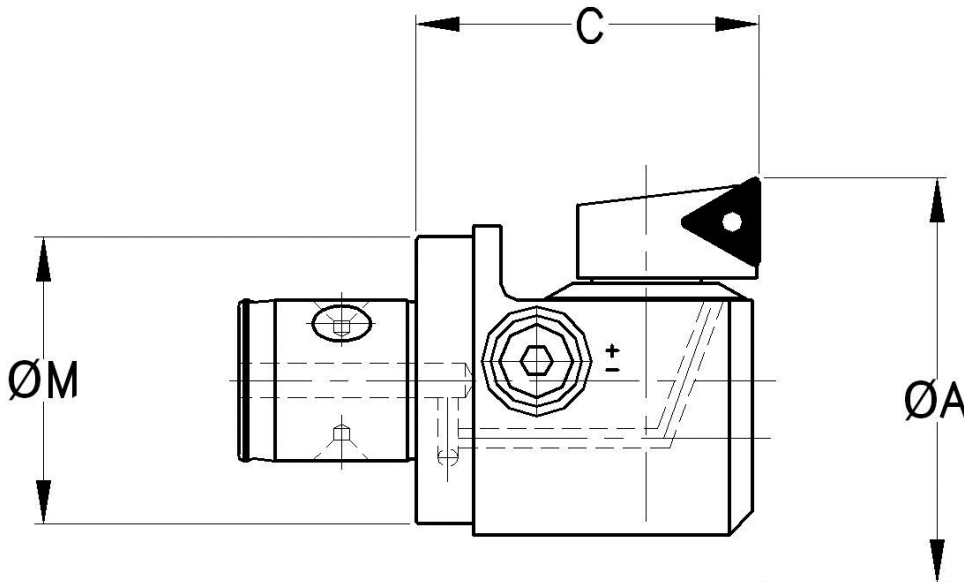
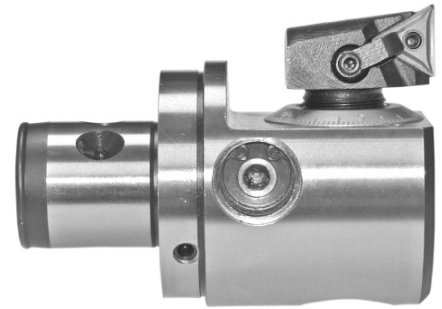
- GA Dial #7810
- Spring Washer #7303
- S131 Screw
- Insert screw #SP1911

#### 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

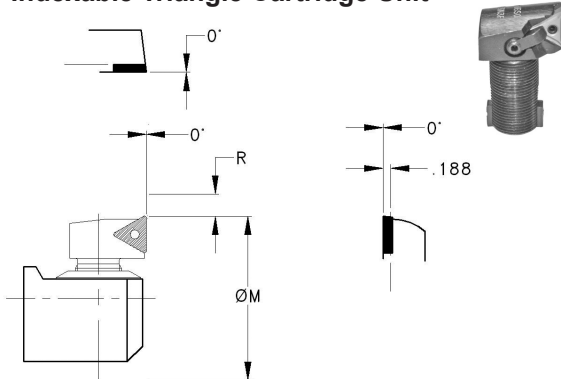


### Bore Range

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

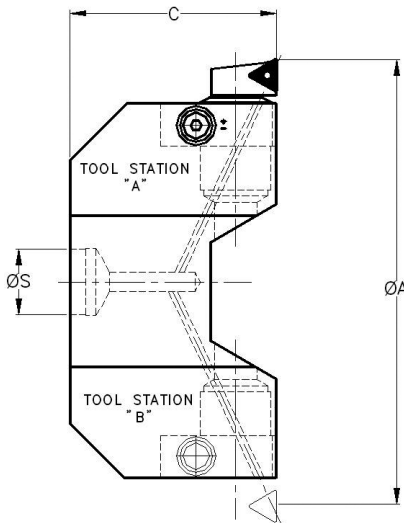
- GA dial #10810
- Spring washer #10303
- Screw #S142
- Insert screw #SP1911

#### Ref. Hardware Package

- 10810E3E

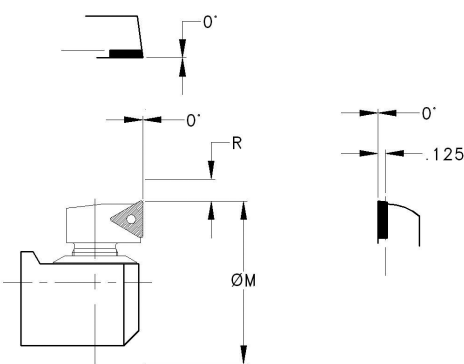
## Gear Adjust Boring Rings Double End Type - Straight Size 7 Bore Range 8.46 - 13.78 [214.9mm - 350.0mm]

- 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

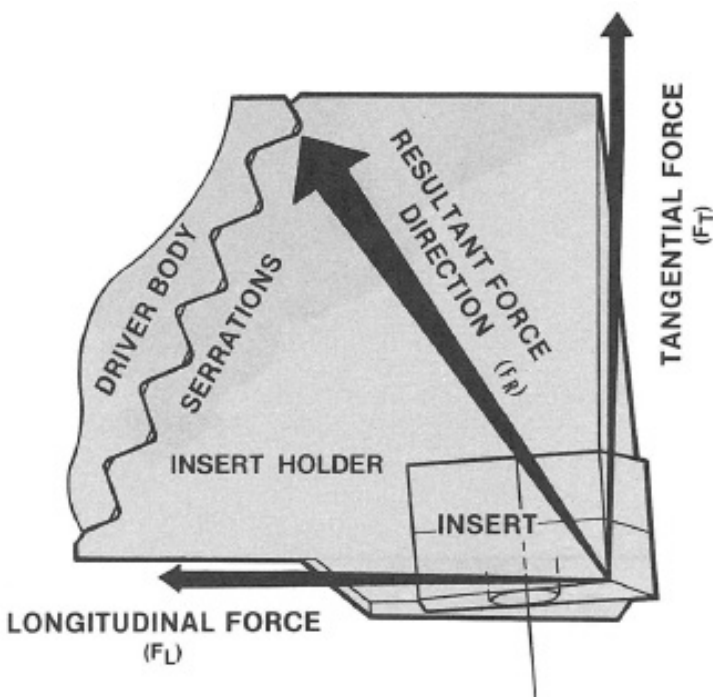
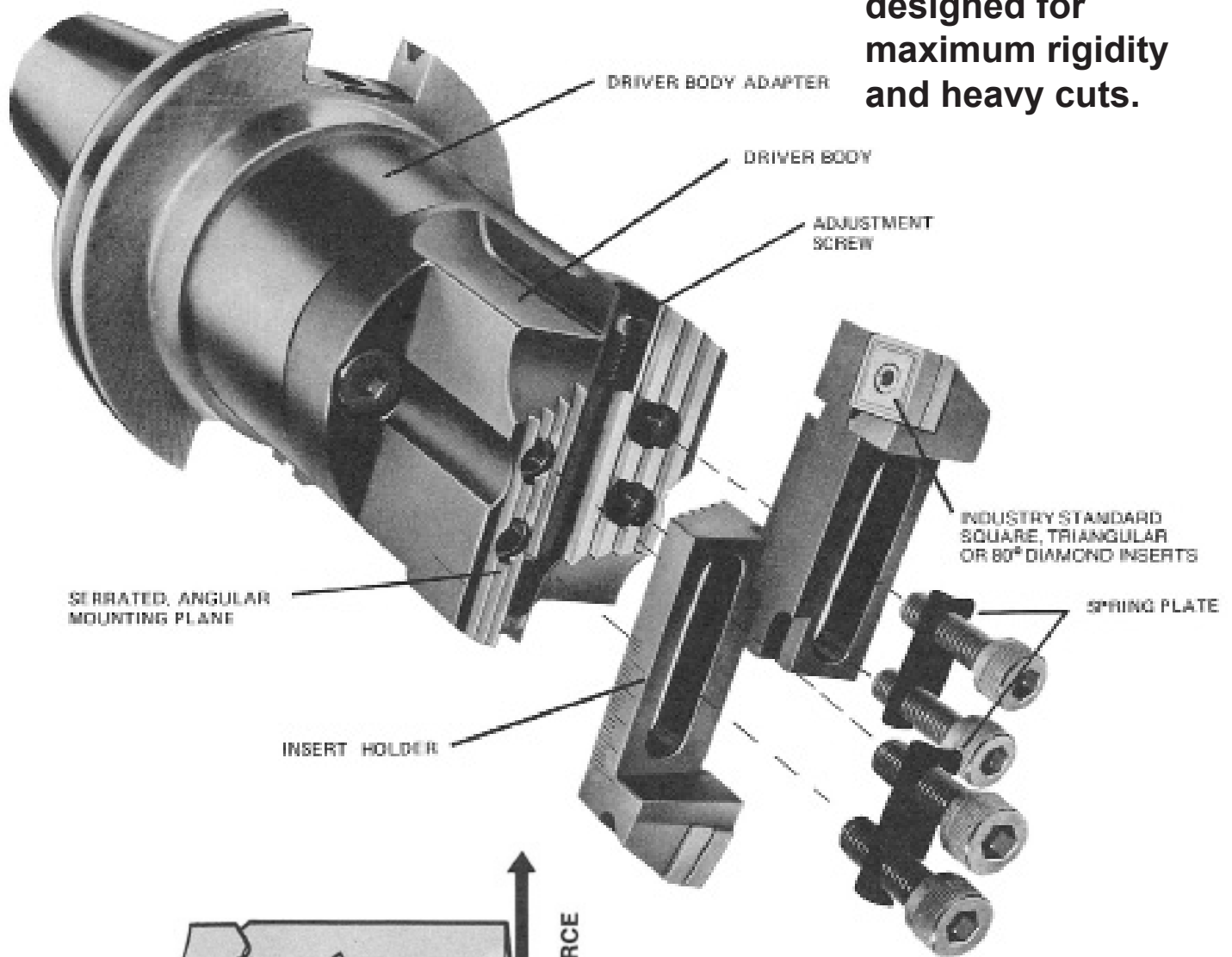
#### Cartridge Unit Parts

- 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**

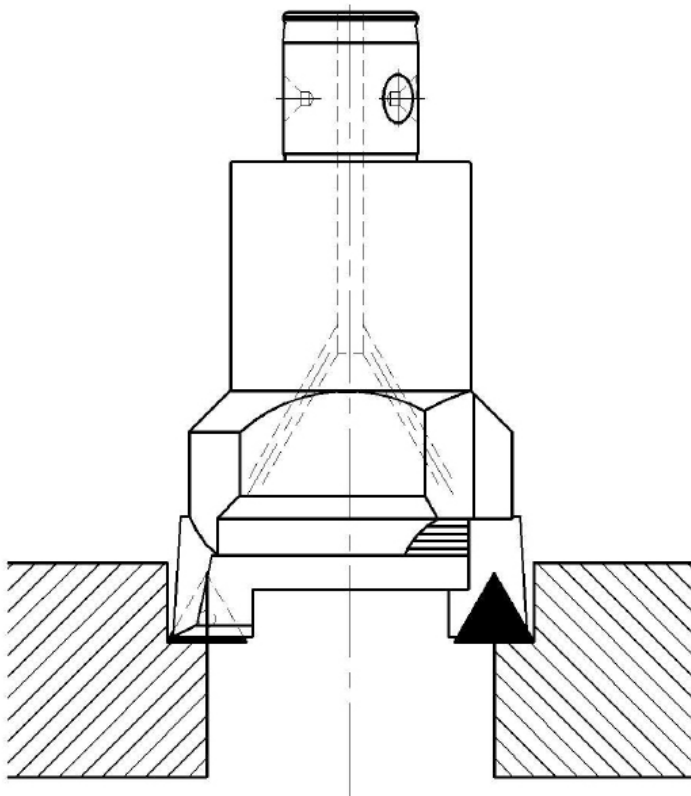
The drive body's angular serrations provide a solid, rigid surface to absorb the resultant cutting forces developed in normal rough machining.

# Twinbore

## Standard Boring

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

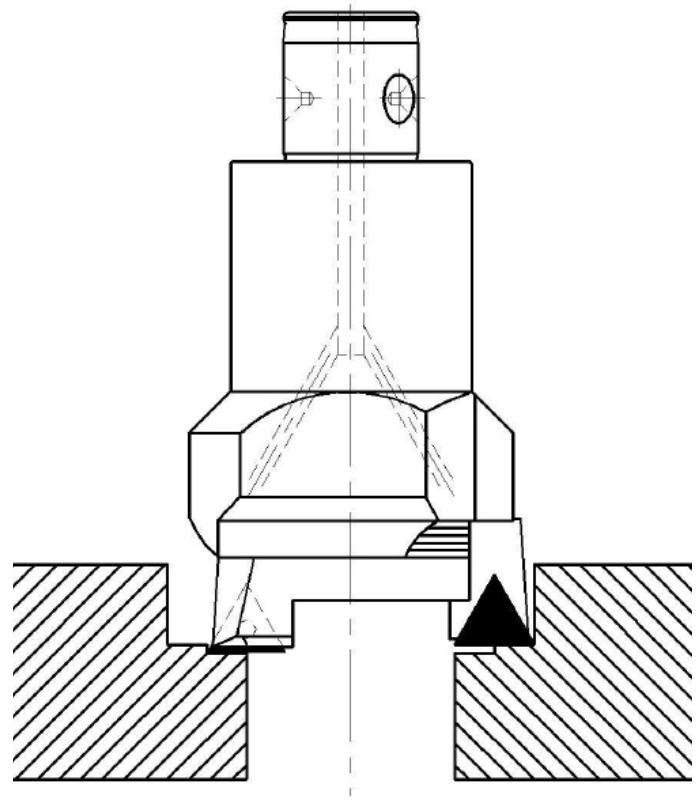
The insert holders can be set to cut the same diameter, which permits machining twice as fast as conventional boring. Diameter changes are quickly made by adjusting screws which provide lateral movement of the insert holder.



## 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.

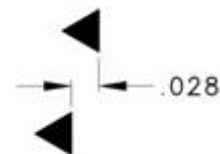
The leading insert cuts at one diameter and the following insert cuts a larger diameter.



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

Example:  
Standard boring - 2 Req'd MTP751TLZ

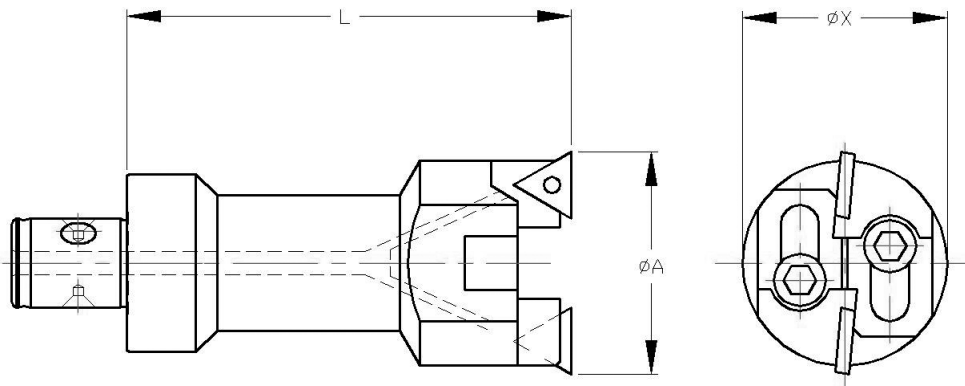
Step boring - 1 Req'd MTP751TLZ  
- 1 Req'd MTP75107TLZ



**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



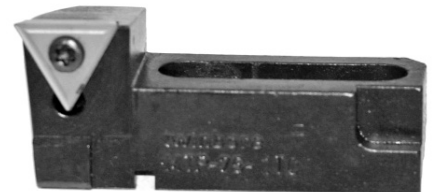
Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
025MFMT28	025	1.10 - 1.40	3.94	1.02	.7	MTP28

## Twinbore Insert Holders Series MTP28

- Inserts not included

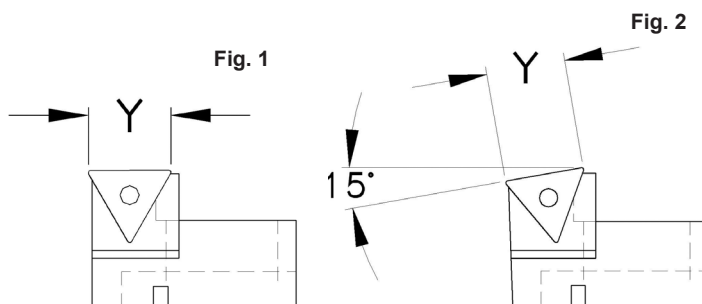
### Ordering:

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



### Note:

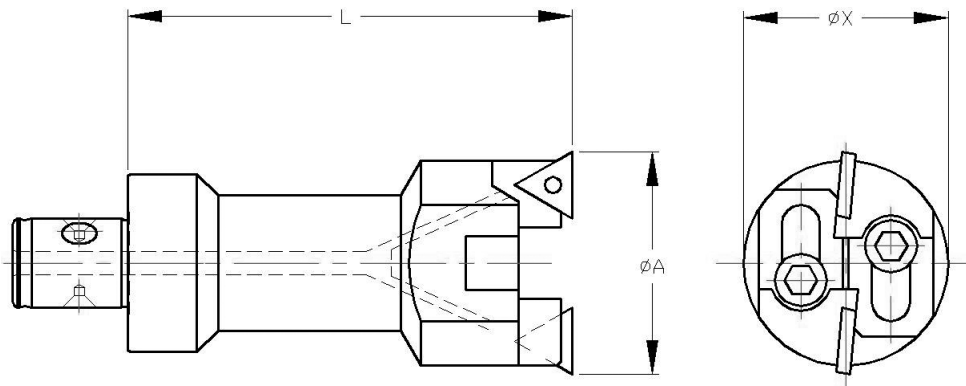
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.



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



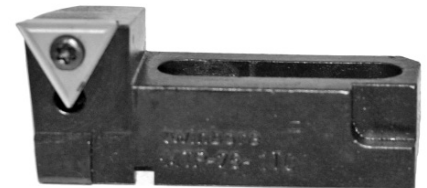
Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
032MFMT36	032	1.40 - 1.97	3.94	1.30	0.9	MTP36

## Twinbore Insert Holders Series MTP36

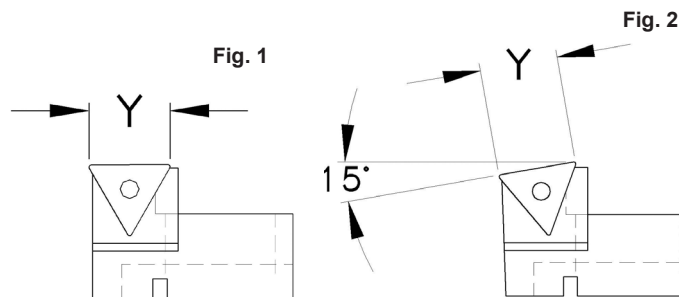
- Inserts not included

### 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.

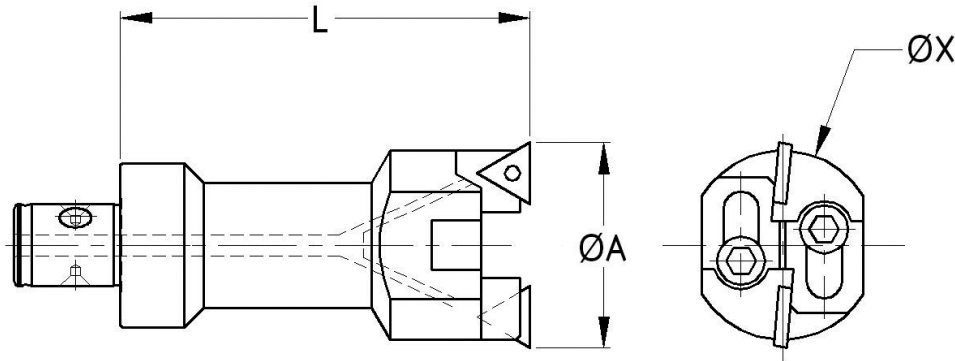


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP361TLZ	Standard	Neg. Rake	Pin Lock	0°	.43	1	TNMG -221
MTP36107TLZ	Stepped			0°		1	
MTP361TCZ	Standard	ISO 7°	Screw-On	0°		1	TCMG-21.51
MTP36107TCZ	Stepped			0°		1	
MTP361TC15Z	Lead Angle			15°	2		



## 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

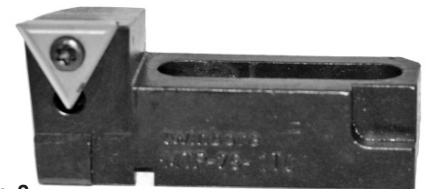


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
040MFMT50	040	1.97 - 3.00	3.94	1.85	2.2	MTP50

## Twinbore Insert Holders Series MTP50

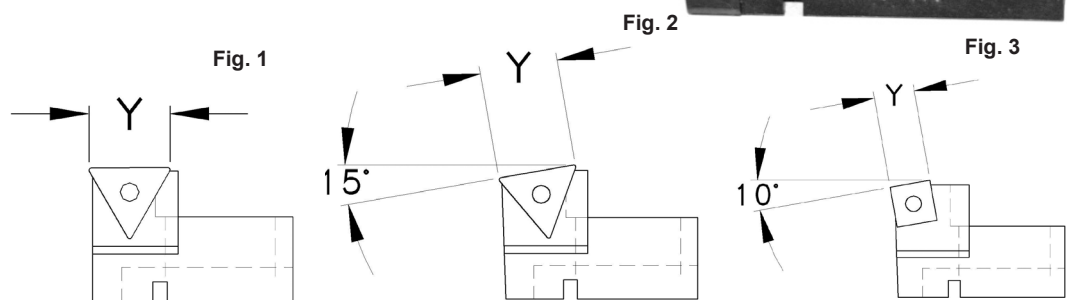
- Inserts not included

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



### Ordering:

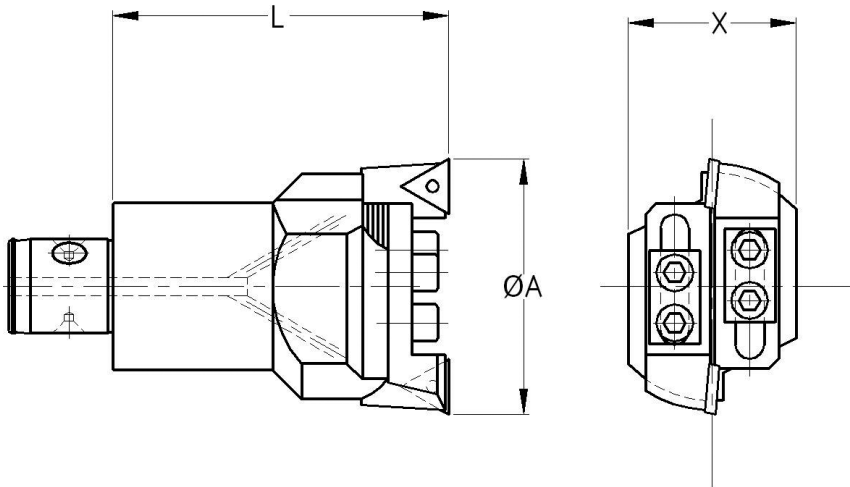
- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type



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	
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

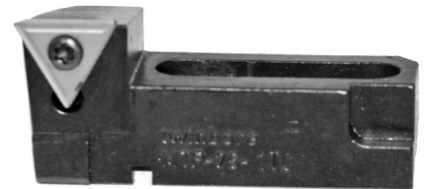


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
050MFMT75	050	3.00 - 4.13	3.94	1.97	3.5	MTP75
063MFMT105	063	4.13 - 5.31		2.48	4.9	

## Twinbore Insert Holders Series MTP75

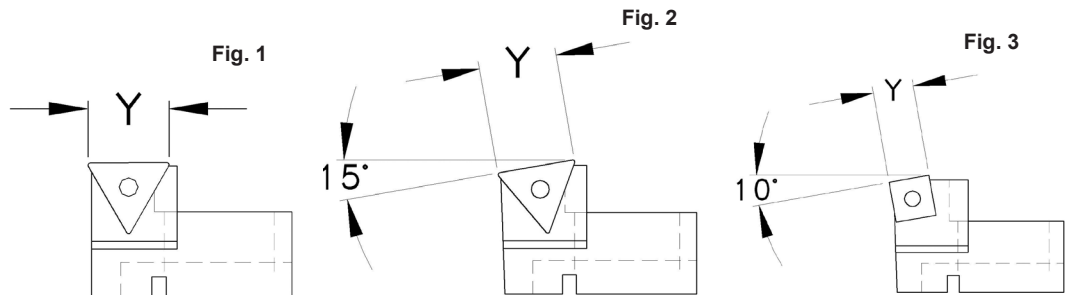
- Inserts not included

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



### Ordering:

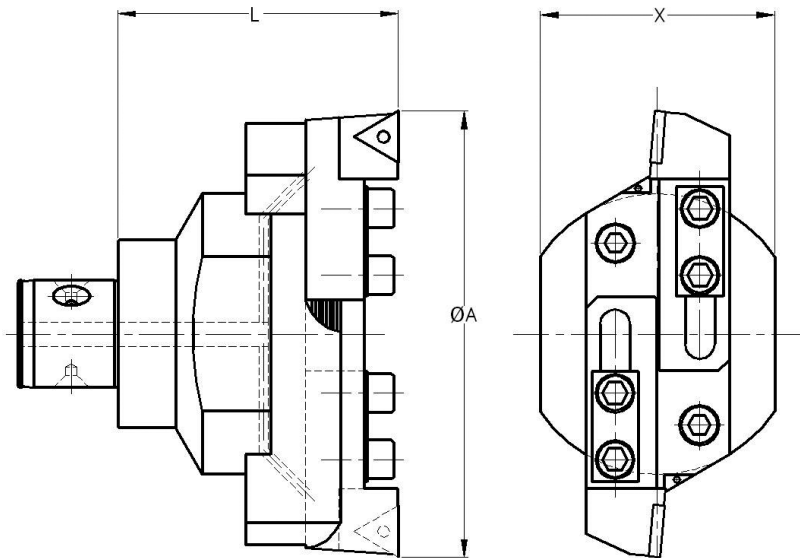
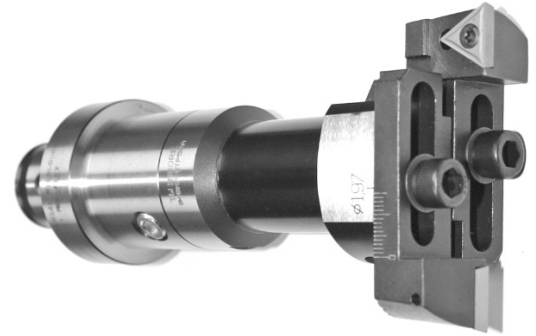
- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type



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	
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	

## 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
080MFMT135	080	5.31 - 7.50	3.94	3.15	8.1	MTP135
080MFMT190		7.50 - 9.62	4.72	3.94	10.4	
080MFMT245		9.62 - 11.81	4.72	3.94	11.9	
080MFMT300		11.81 - 14.00	4.92	3.94	19.8	

## Twinbore Insert Holders Series MTP135

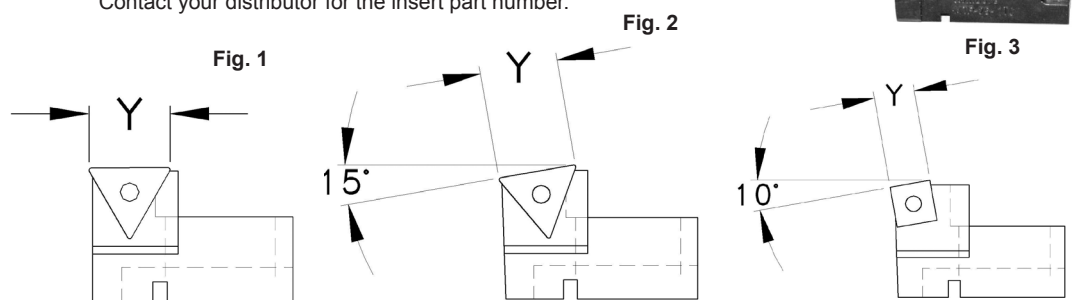
- Inserts not included

### Ordering:

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

### Note:

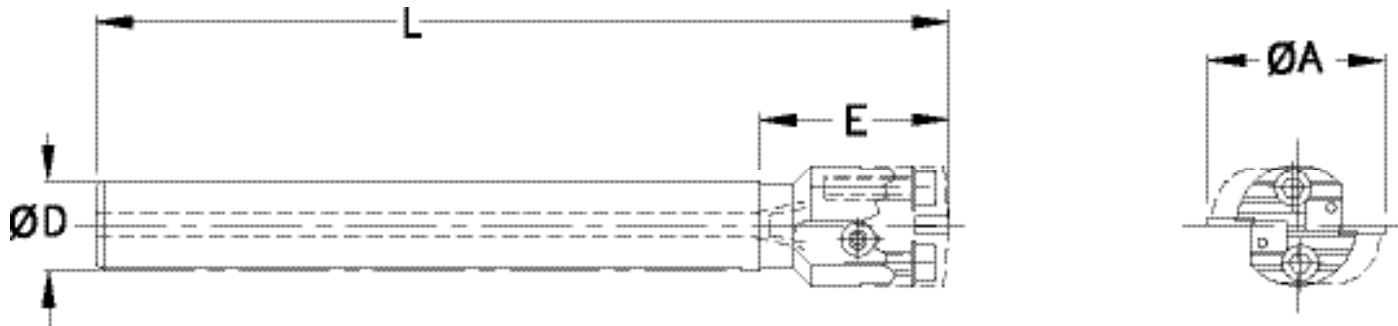
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.



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	ISO 7°	Screw-On	10°	.75	3	SNMG-643
MTP1351TCZ	Standard			0°	.65	1	
MTP135107TCZ	Stepped			0°	.65	1	TCMG-32.52
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



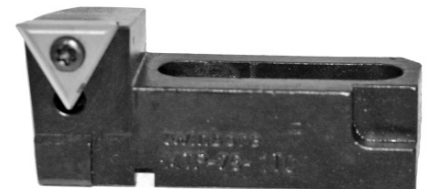
Part Number	A Boring Range	D	E	L	Weight Lbs.	Insert Holder Series
MTP28SS07C	1.10 - 1.40	.7495 .7490	1.57	7.09	1	MTP28

## Twinbore Insert Holders Series MTP28

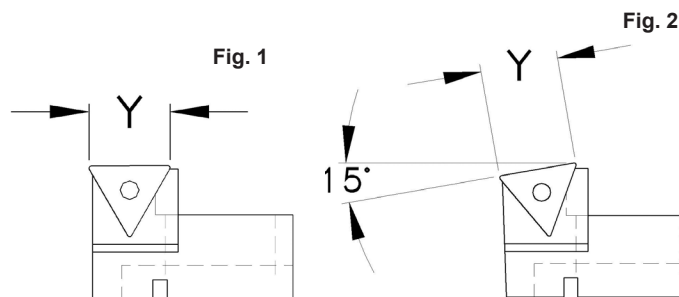
- Inserts not included

### Ordering:

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



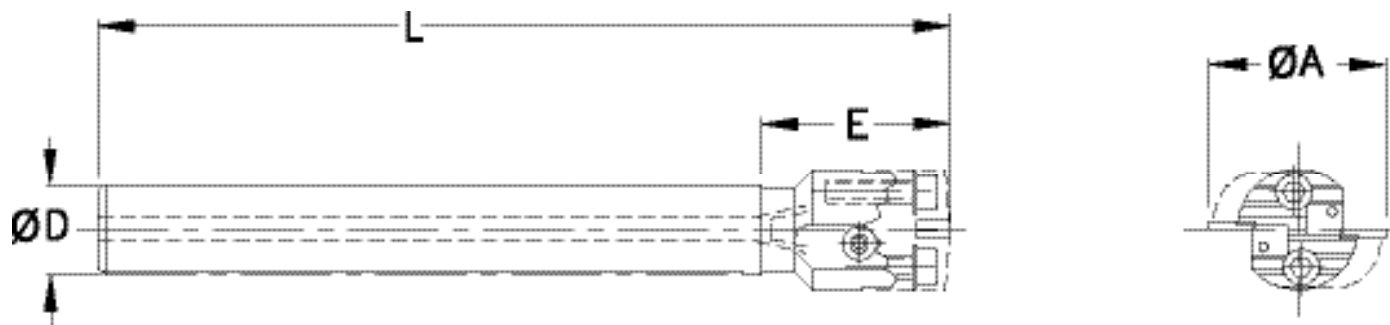
**Note:**  
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.



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



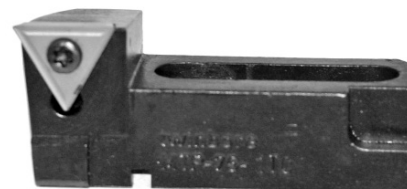
Part Number	A Boring Range	D	E	L	Weight Lbs.	Insert Holder Series
MTP36SS10C	1.40 - 1.97	.9995 .9990	1.65	7.17	2	MTP36

## Twinbore Insert Holders Series MTP36

- Inserts not included

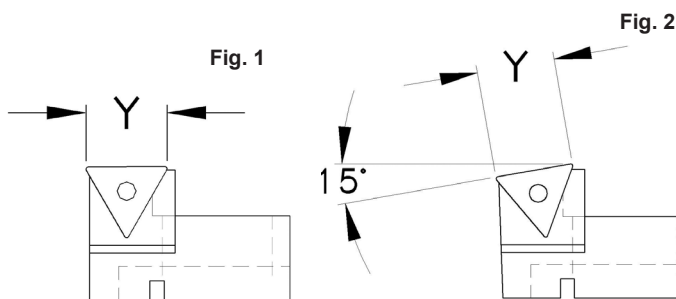
### Ordering:

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



### Note:

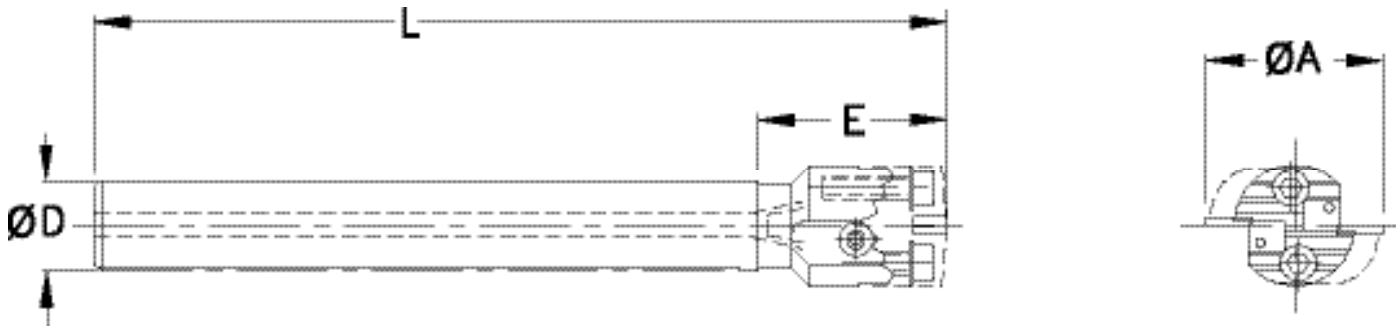
Recommended Inserts are for pocket configuration only. Contact your distributor for the insert part number.



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

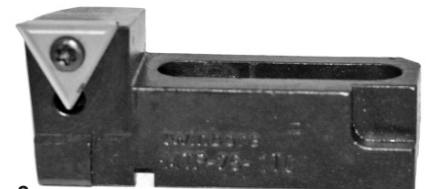


Part Number	A Boring Range	D	E	L	Weight Lbs.	Insert Holder Series
MTP50SS12C	1.97 - 3.00	$\frac{1.2495}{1.2490}$	1.97	8.47	4	MTP50

## Twinbore Insert Holders Series MTP50

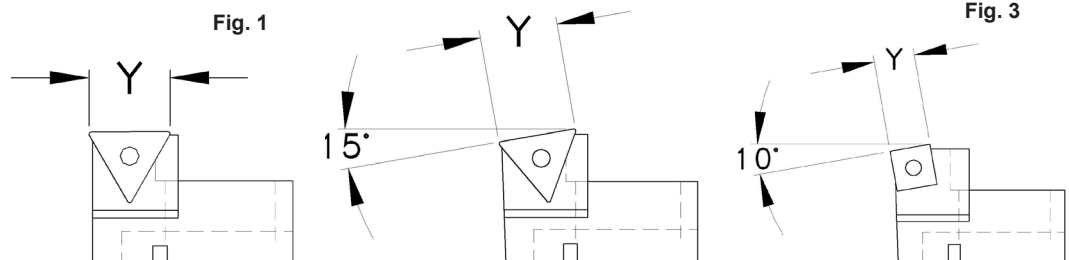
- Inserts not included

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



### Ordering:

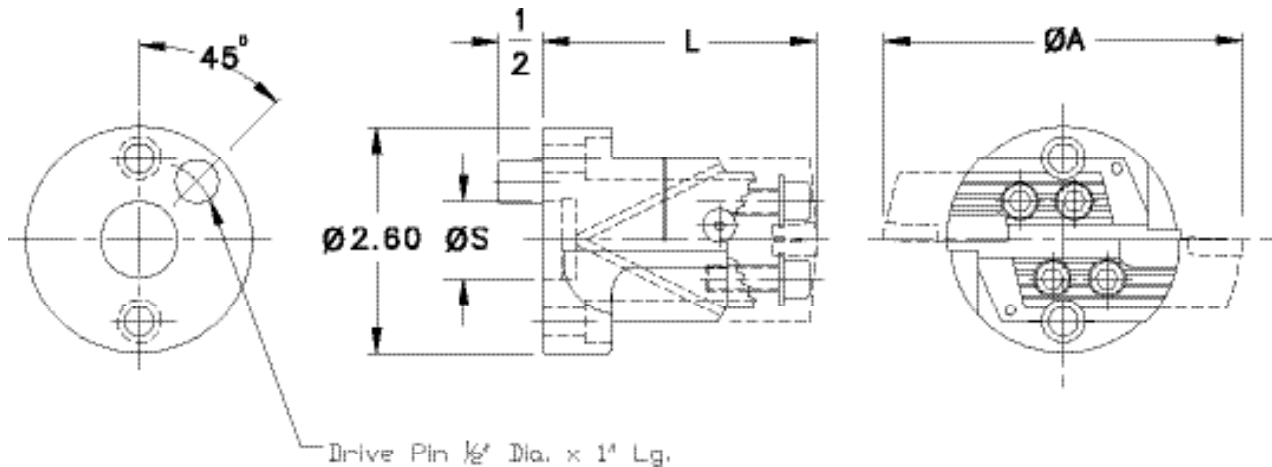
- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type



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	
MTP501TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP50107TCZ	Stepped			0°	.65	1	
MTP501TC15Z	Lead Angle			15°	.65	2	SCMG-32.52
MTP501SC10Z	Lead Angle			10°	.37	3	

## 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

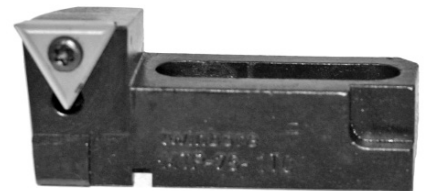


Part Number	A Boring Range	L	Weight Lbs.	S For Use with Adapter Type	Insert Holder Series
MTP751287C	3.00 - 4.13	3.15	4	ADE-1287	MTP75
MTP1051287C	4.13 - 5.31	3.15	5	ADE-1287	

## Twinbore Insert Holders Series MTP75

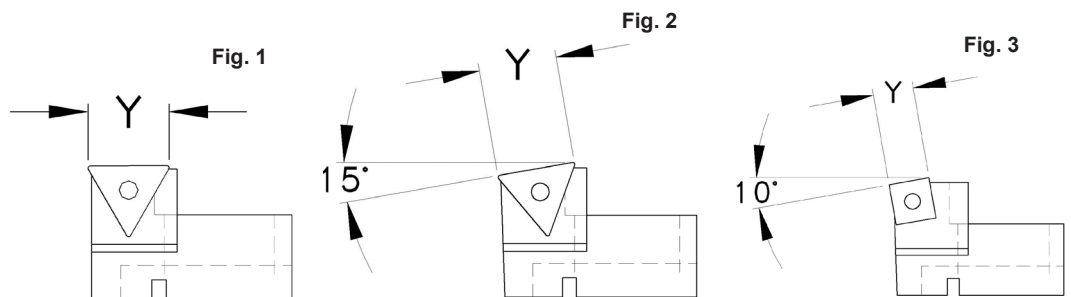
- Inserts not included

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



### Ordering:

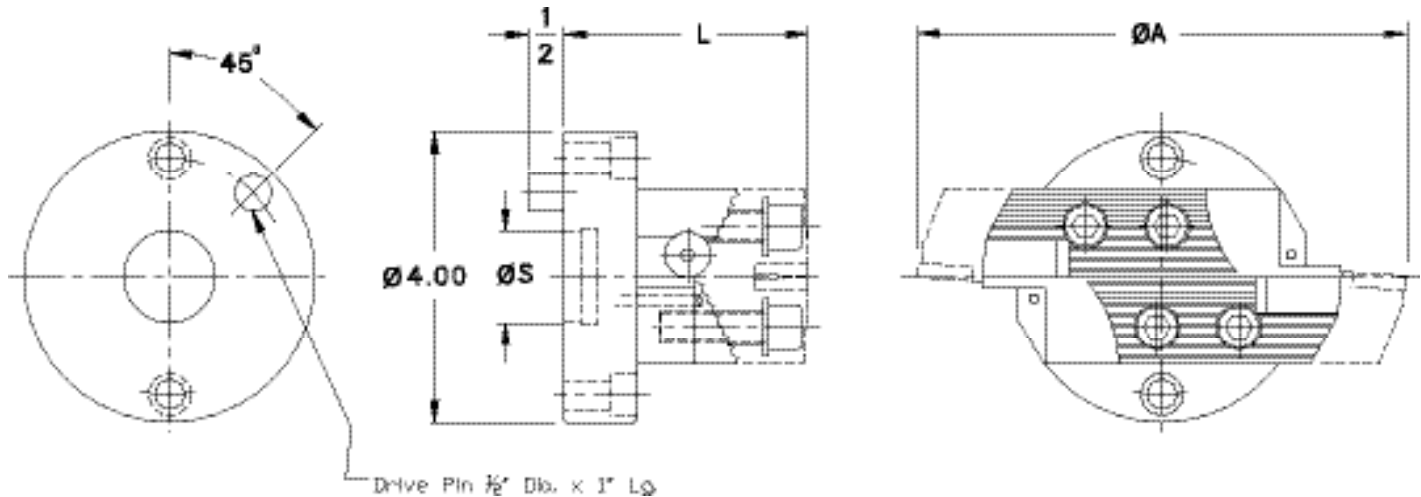
- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type



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	
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	

## 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

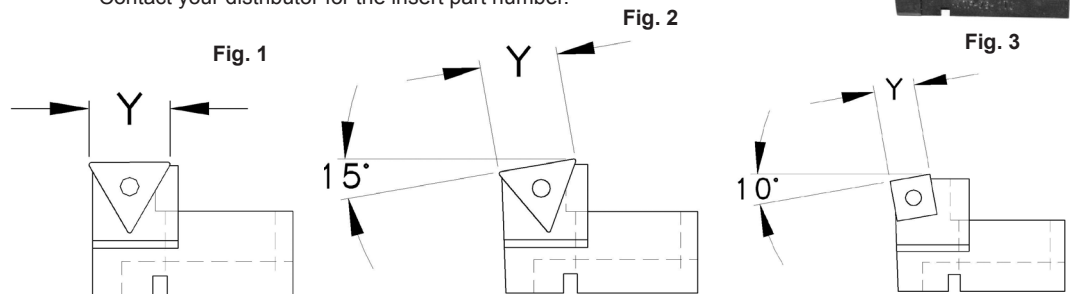
## Twinbore Insert Holders Series MTP135

- 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.

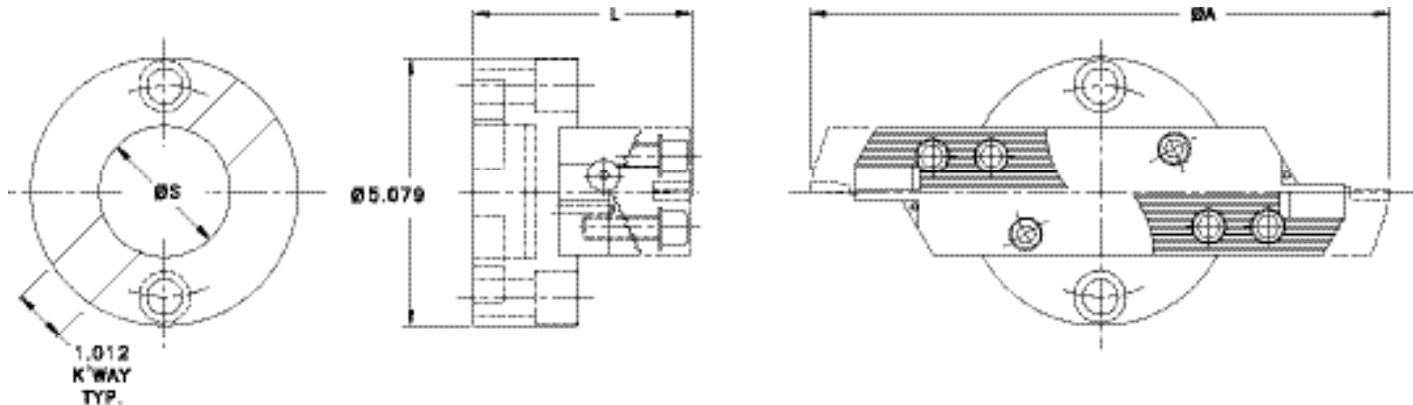


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP1351TLZ	Standard	Neg. Rake	Pin Lock	0°	.87	1	TNMG-432
MTP135107TLZ	Stepped			0°	.87	1	
MTP1351VLZ	Lead Angle			10°	.75	3	
MTP1351TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP135107TCZ	Stepped			0°	.65	1	
MTP1351TC15Z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



## 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

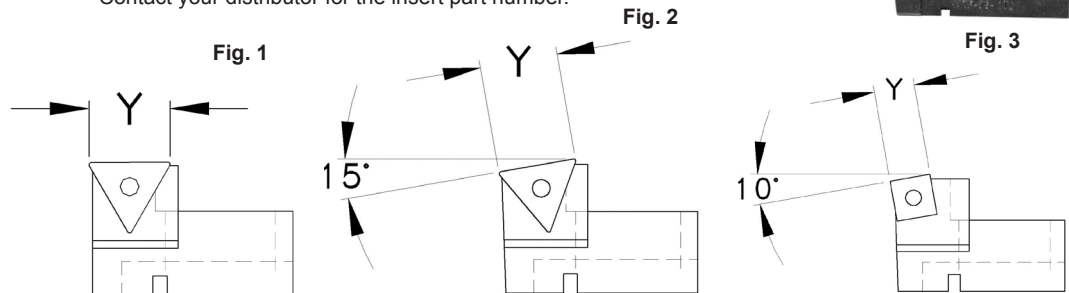
## Twinbore Insert Holders Series MTP135

- Inserts not included

### Ordering:

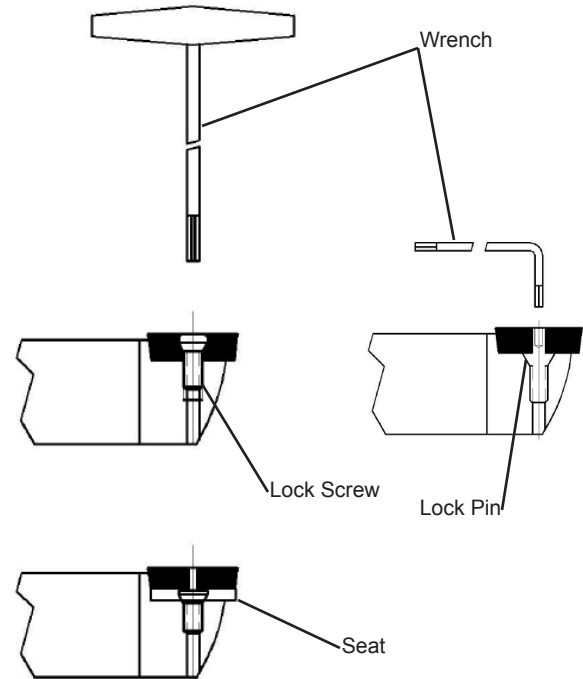
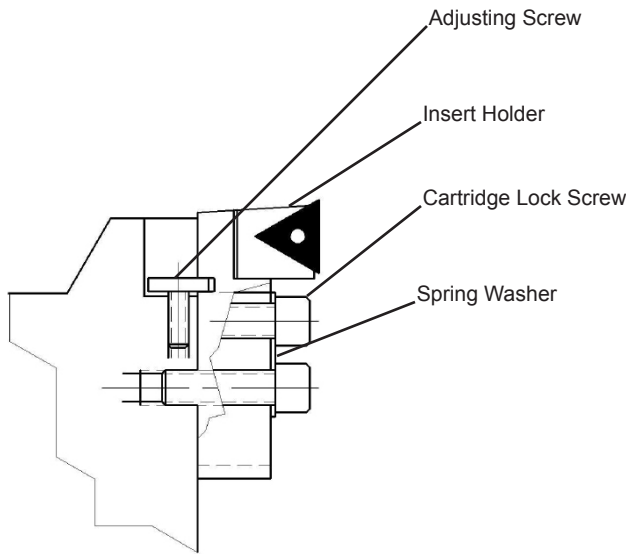
- Standard Boring
  - (2) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type

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



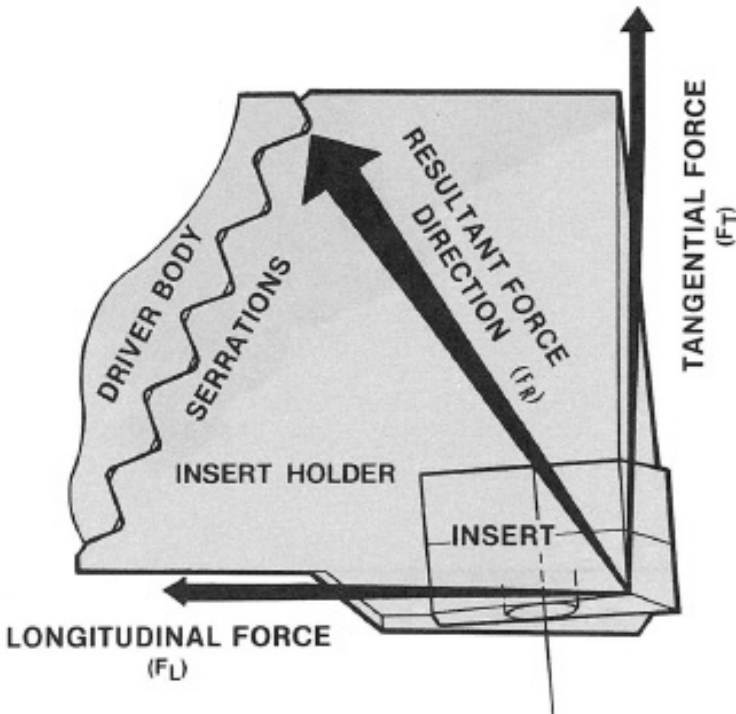
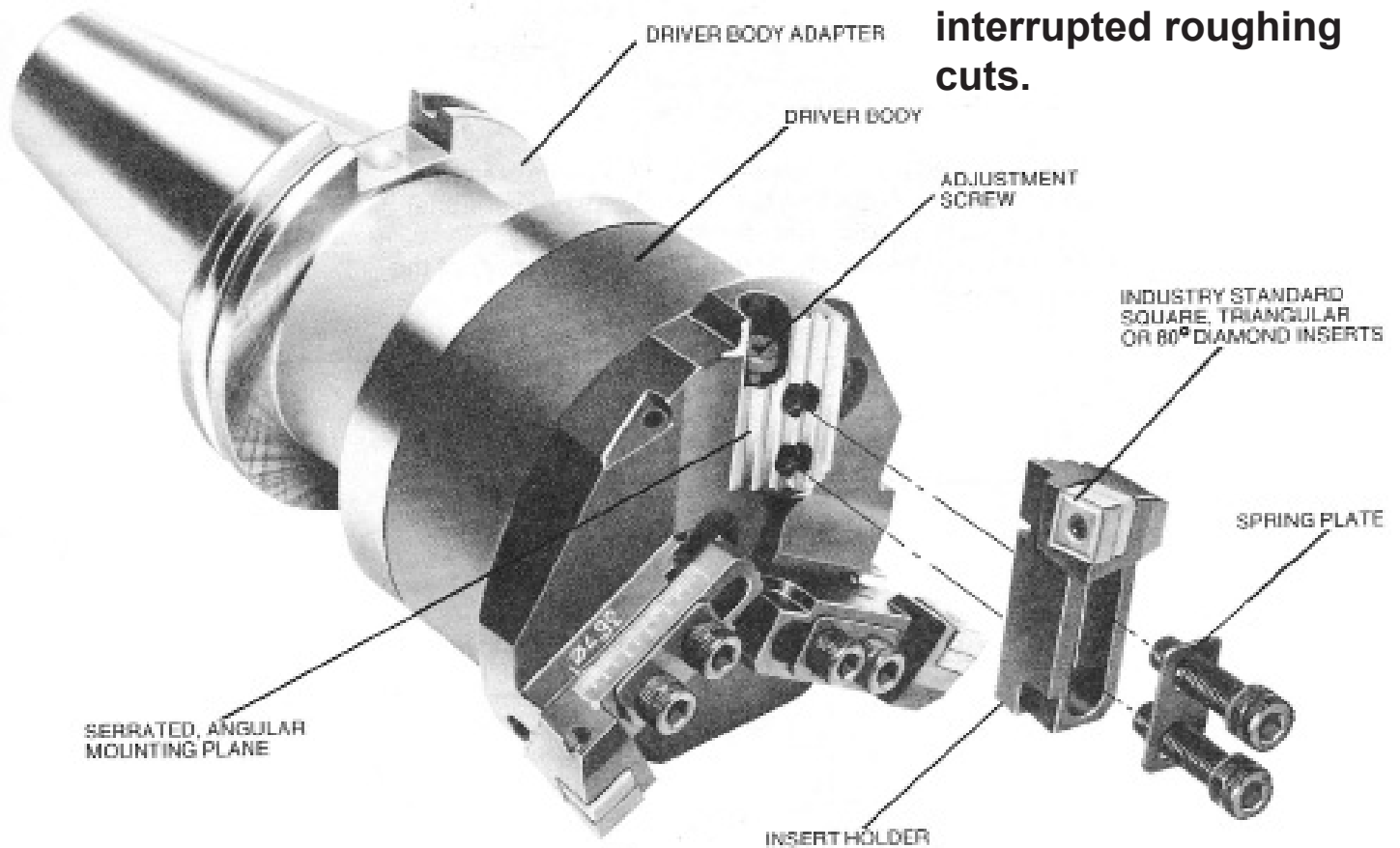
Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP1351TLZ	Standard	Neg. Rake	Pin Lock	0°	.87	1	TNMG-432
MTP135107TLZ	Stepped			0°	.87	1	
MTP1351VLZ	Lead Angle			10°	.75	3	
MTP1351TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP135107TCZ	Stepped			0°	.65	1	
MTP1351TC15Z	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
025MFMP28 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				
032MFMP36 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				
*040MFMP50 **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				
050MFMP75 063MFMP105 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				
080MFMP135 080MFMP190 080MFMP245 080MFMP300 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**

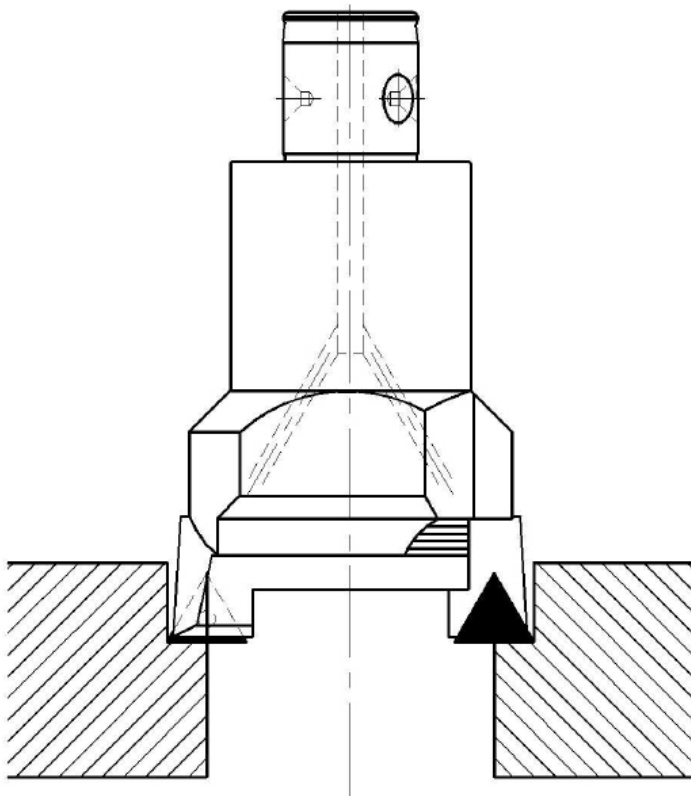
The drive body's angular serrations provide a solid, rigid surface to absorb the resultant cutting forces developed in normal rough machining.

# Tribore

## Standard Boring

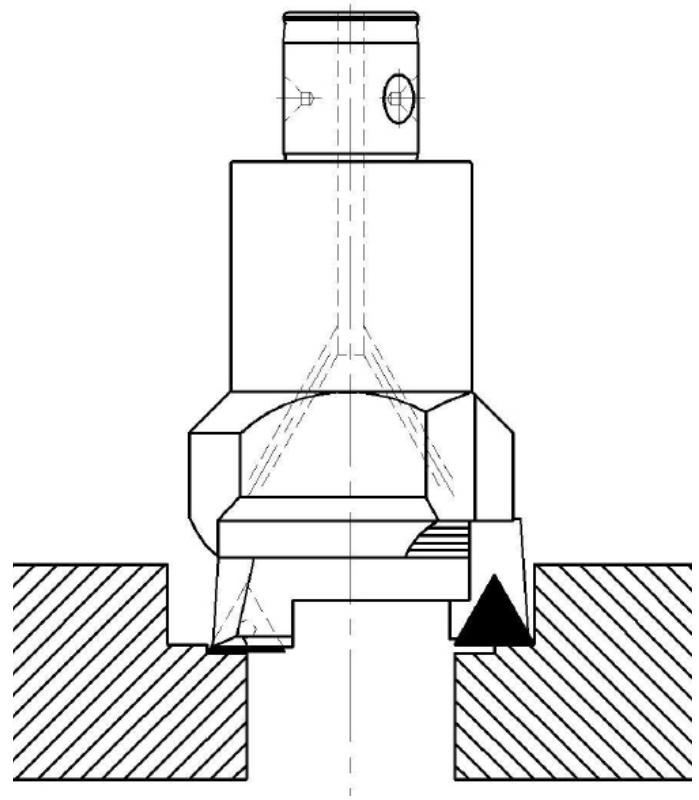
For Standard Boring arrangement three Standard Insert Holders are required and will setup to identical dimensions both radially and axially.

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

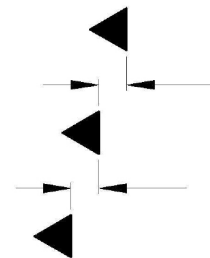
The Step Boring arrangement requires one Standard Insert Holder in position 1, a step bore holder in position 2, and a lead angle insert holder in position 3.



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

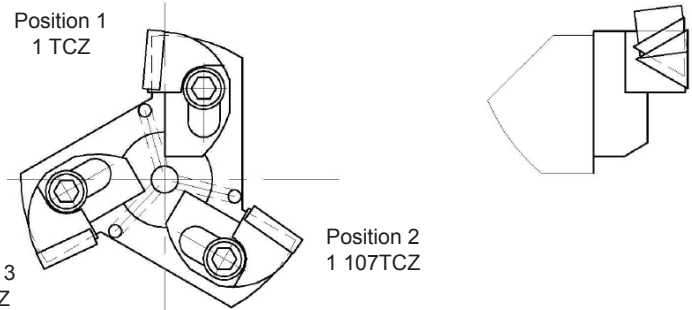
Example:  
Standard Boring - 3 Req'd MTP751TCZ

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



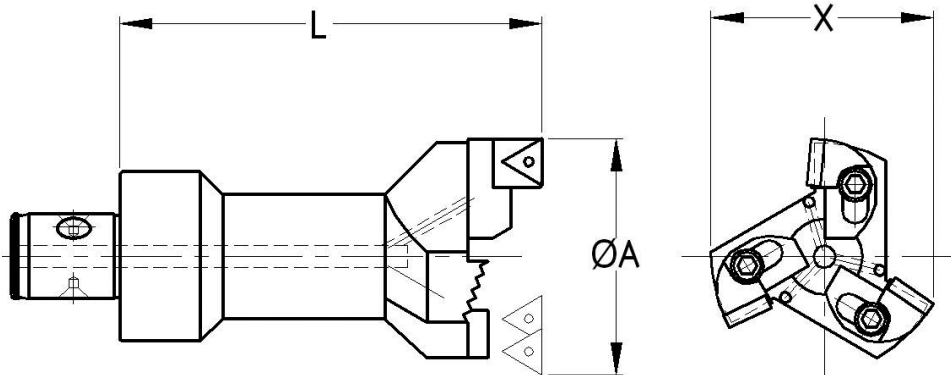
TRIBORE

## 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

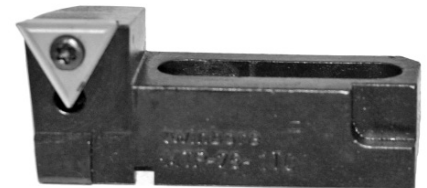


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
032MFMDP48	032	1.89 - 2.20	3.94	1.81	1.3	MTP28
040MFMDP56	040	2.20 - 2.52	3.94	2.12	2.0	

## Tribore Insert Holders Series MTP28

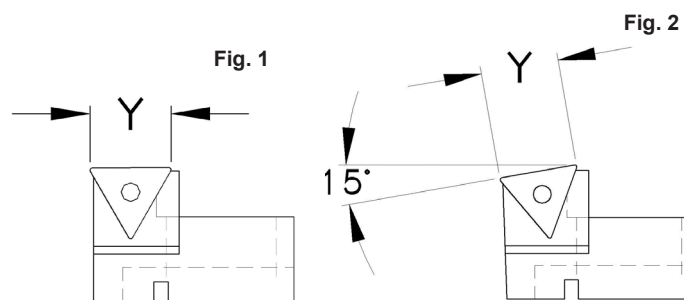
- Inserts not included

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



### Ordering:

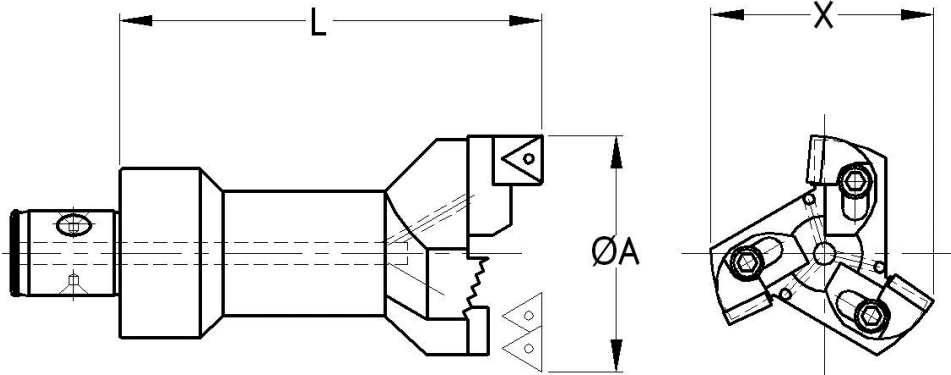
- Standard Boring
  - (3) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type
  - (1) TC15 Lead angle type



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

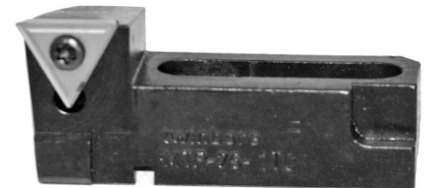


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
040MFMDP64	040	2.52 - 3.07	3.94	2.40	2.2	MTP36

## Tribore Insert Holders Series MTP36

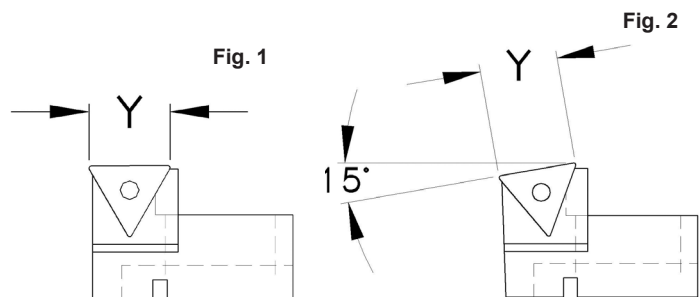
- Inserts not included

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



### Ordering:

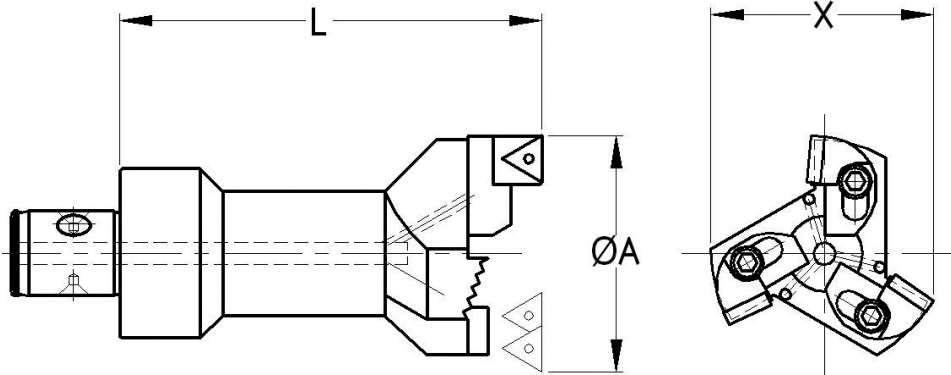
- Standard Boring
  - (3) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type
  - (1) TC15 Lead angle type



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

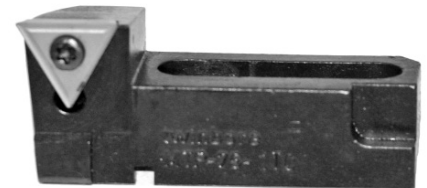


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
050MFMDP78	050	3.07 - 3.94	3.94	2.83	3.1	MTP50
063MFMDP100	063	3.94 - 4.92	3.94	3.82	6.0	

## Tribore Insert Holders Series MTP50

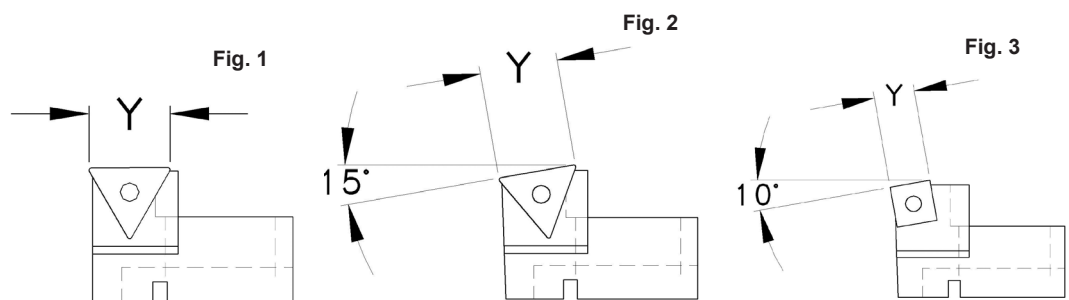
- Inserts not included

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



### Ordering:

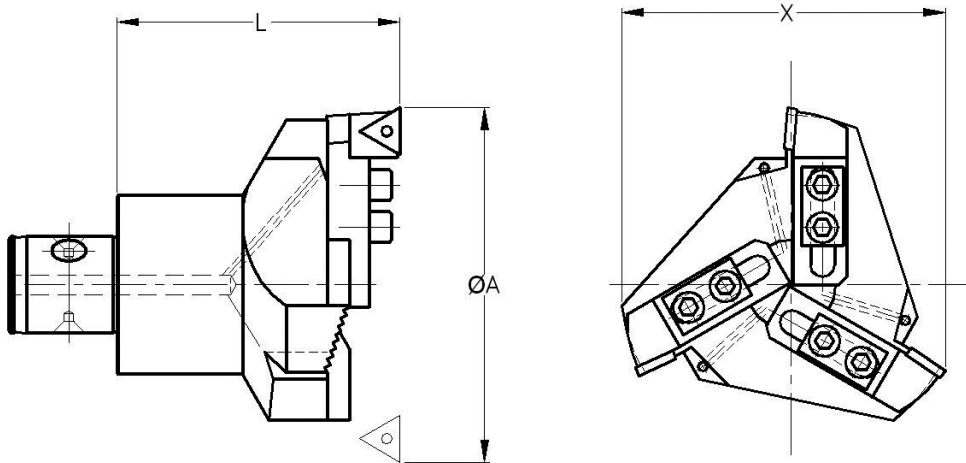
- Standard Boring
  - (3) Standard type
- Stepped Boring
  - (1) Standard type
  - (1) 107 Stepped type
  - (1) Lead angle type



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	
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	

## 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

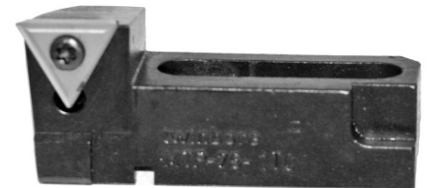


Part Number	Mod-Flex Size	A Boring Range	L	X	Weight lbs	Insert Holder Series
063MFMDP125	063	4.92 - 6.10	3.94	4.64	8.2	MTP75
080MFMDP155	080	6.10 - 7.28		5.82	9.9	
080MFMDP185	080	7.28 - 8.47		7.00	11.2	
080MFMDP215	080	8.47 - 9.65		8.19	21.3	

## Tribore Insert Holders Series MTP75

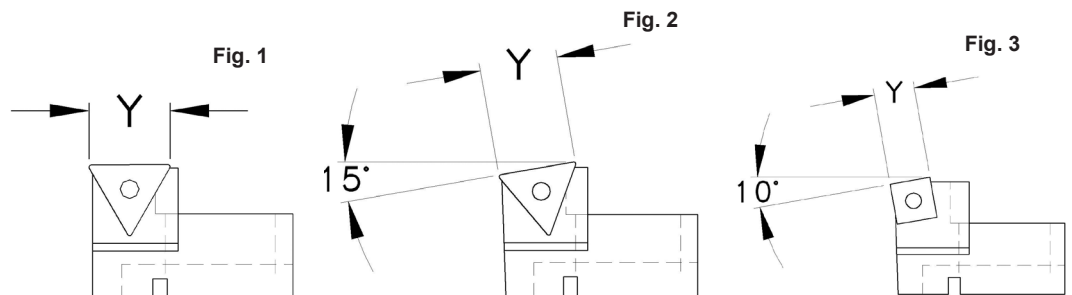
- Inserts not included

**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

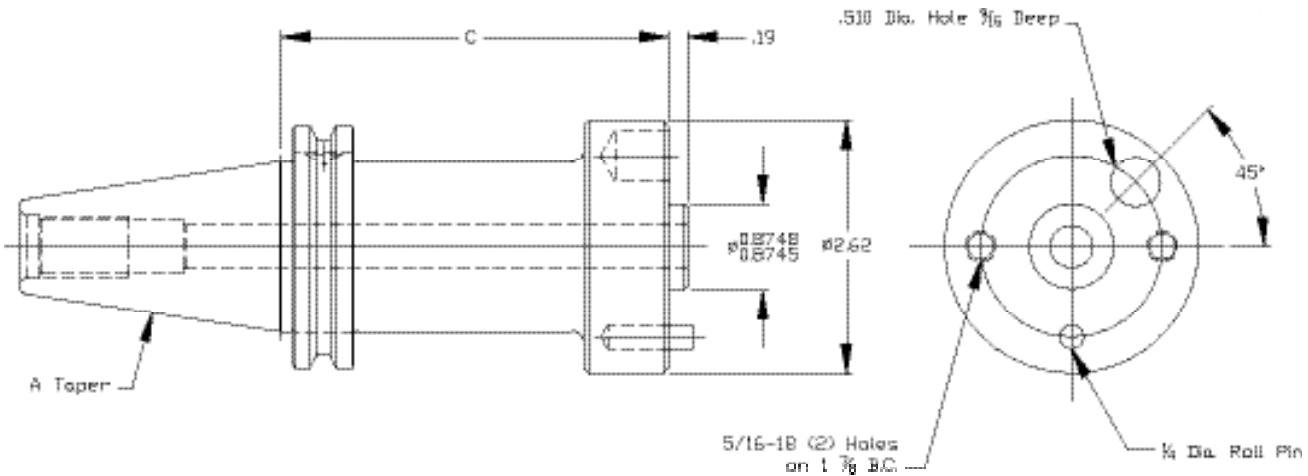


Part Number	Bore Type	Insert Style	Lock Type	Lead Angle	Y	FIG.	Ref. Insert No.
MTP751TLZ	Standard	Neg. Rake	Pin Lock	0°	.65	1	TNMG-332
MTP75107TLZ	Stepped			0°	.65	1	
MTP751VLZ	Lead Angle			10°	.50	3	
MTP751TCZ	Standard	ISO 7°	Screw-On	0°	.65	1	TCMG-32.52
MTP75107TCZ	Stepped			0°	.65	1	
MTP751TC15Z	Lead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



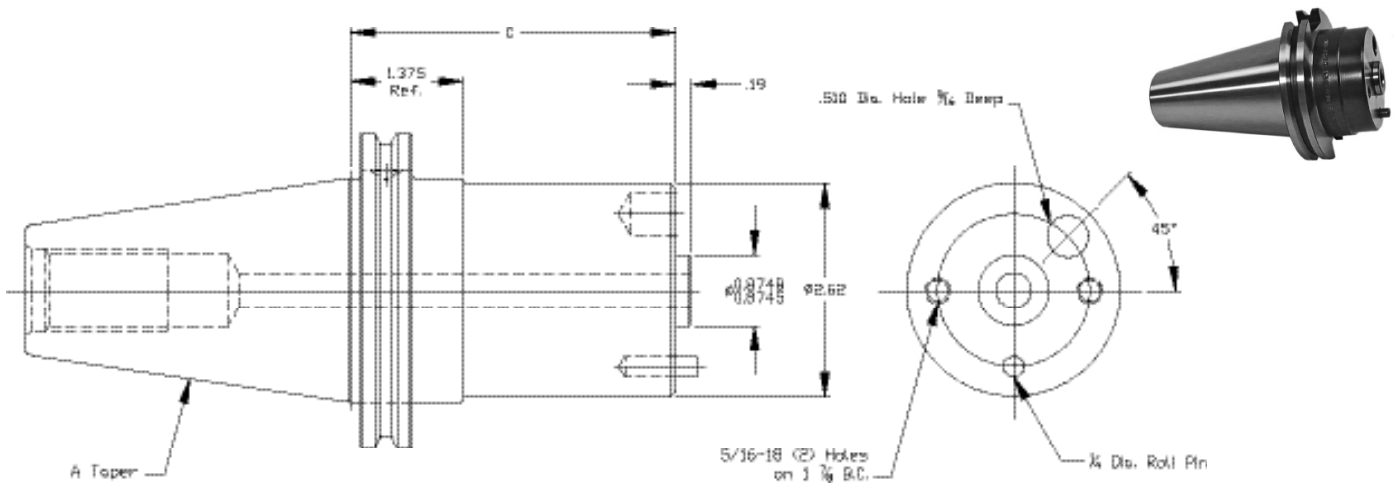
## Driver Body Adapters with CAT Shanks

- 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	

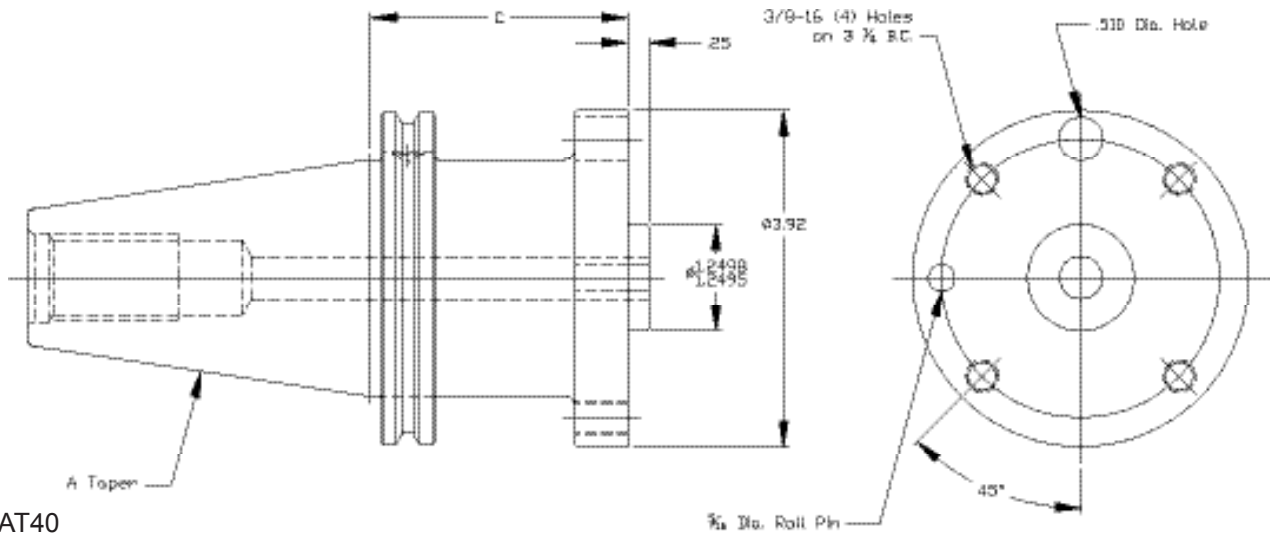


### CAT50

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

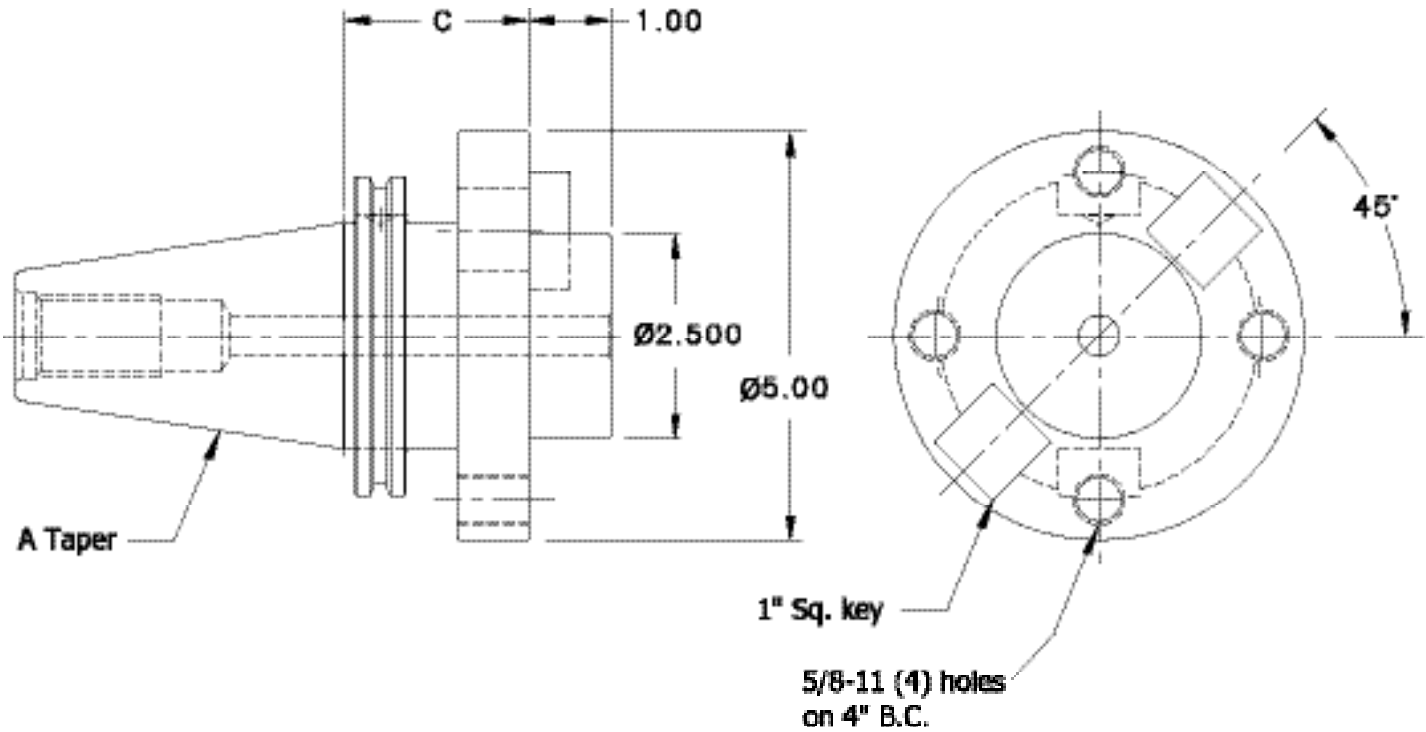
Part No.	Old Series Ref.	A Taper	Approx. Weight	C	For Use With
D0000251	40CT ADE 1412 20 MTP	No. 40	5 lbs.	2.000	MTP1351412C Driver Bodies
D0004819	40CT ADE 1412 30 MTP	No. 40	6 lbs.	3.000	
D0004814	40CT ADE 1412 40 MTP	No. 40	7 lbs.	4.000	
D0004804	40CT ADE 1412 50 MTP	No. 40	8 lbs.	5.000	

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

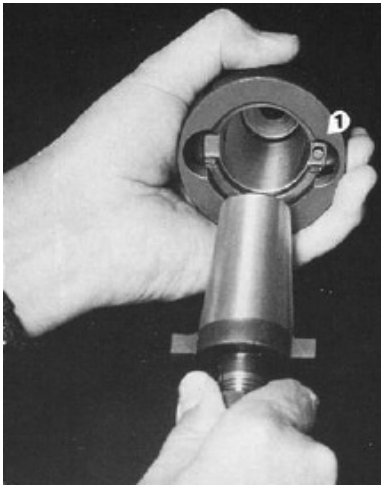
**Kwik-Switch® Parts & Accessories**

- Kwik-Switch® Replacement Nuts
- Repair Kits
- Wrenches
- Locking Fixtures



Page  
171

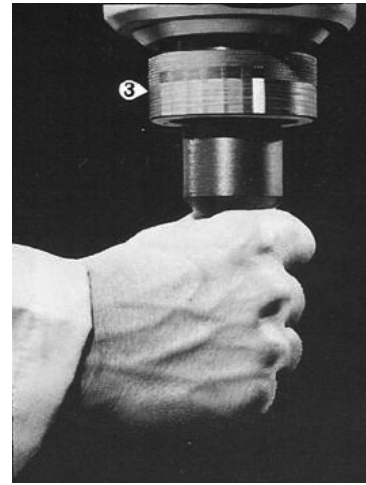
**The Kwik-Switch® II Automatic Locking Principle**



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.

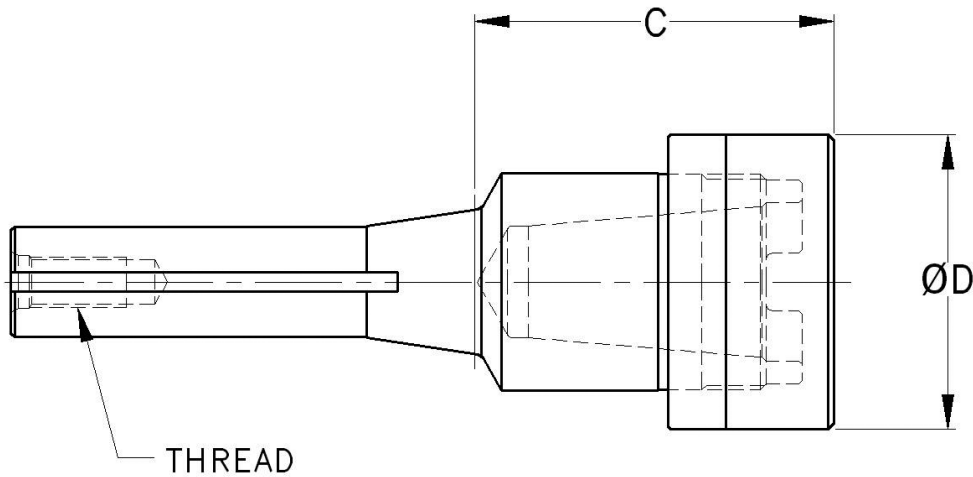
**Universal Kwik-Switch® II Spindles are available to retrofit many machines.**

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

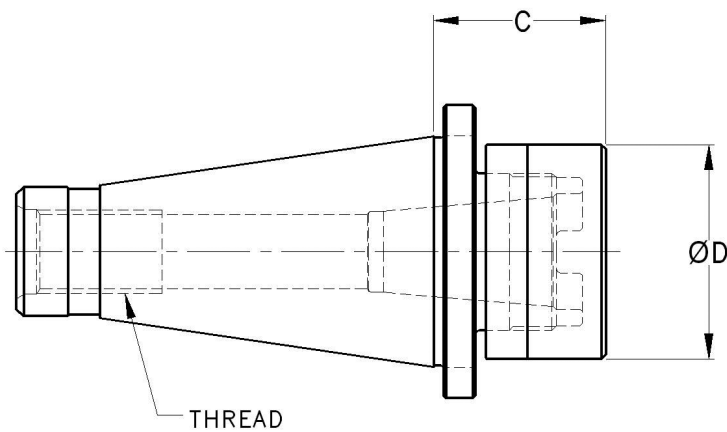
## Kwik-Switch® II Master Holder with Bridgeport R-8 Shank



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

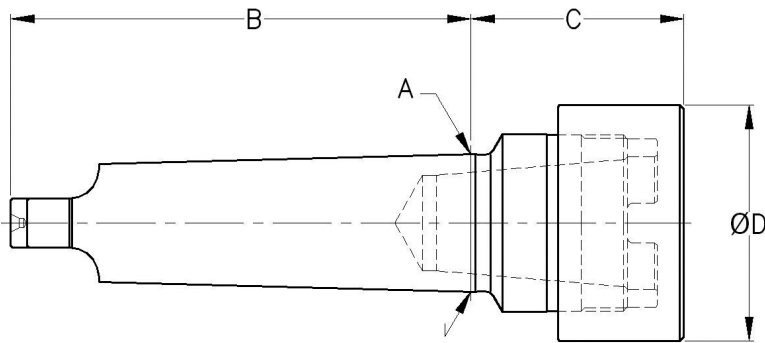
- Conforms to ANSI B5.18-1972



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

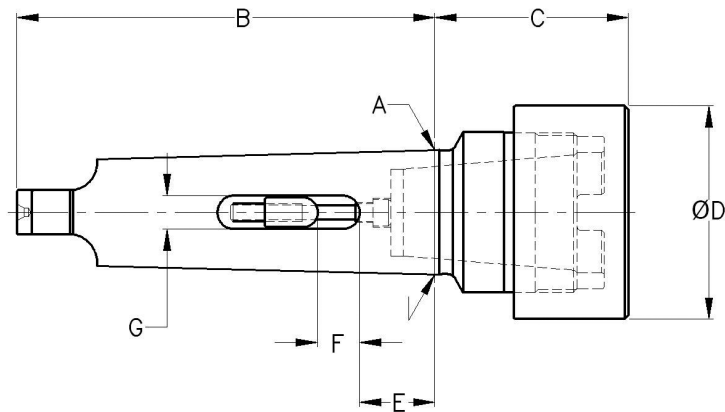


Part Number	Shank Size	Kwik-Switch® Size	A	B	C	D	Includes Nut No.	Ref. Wrench
80124	2 Morse	100	.700	2.94	2.03	2.00	805063	80103
80128	3 Morse	100	.938	3.68	2.00	2.00	805063	80103
80250*		200	.938	3.68	3.38	2.56	805043	80203
80257*	4 Morse	200	1.231	4.62	3.28	2.56	805043	80203
804454*		300	1.231	4.62	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

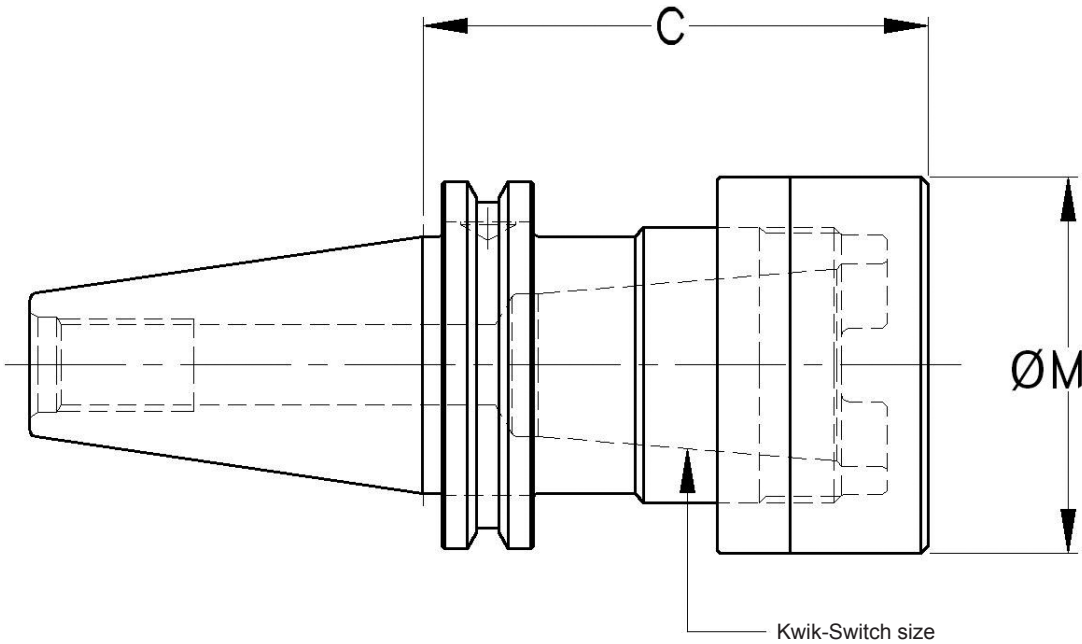


Part Number	Shank Size	Kwik-Switch® Size	A	B	C	D	E	F Adjustment		G	Includes Nut No.	Ref. Wrench
								Min.	Max.			
805878	5 Morse	300	1.748	5.88	2.72	3.00	1.06	.12	1.03	.44	805044	80303
805879*		400			4.78	3.89					809184	80403
805880	6 Morse	300	2.494	8.25	1.91	3.00	2.12	.12	.81	.62	805044	80303
805881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

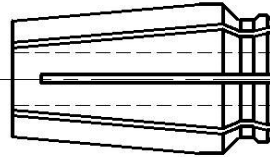
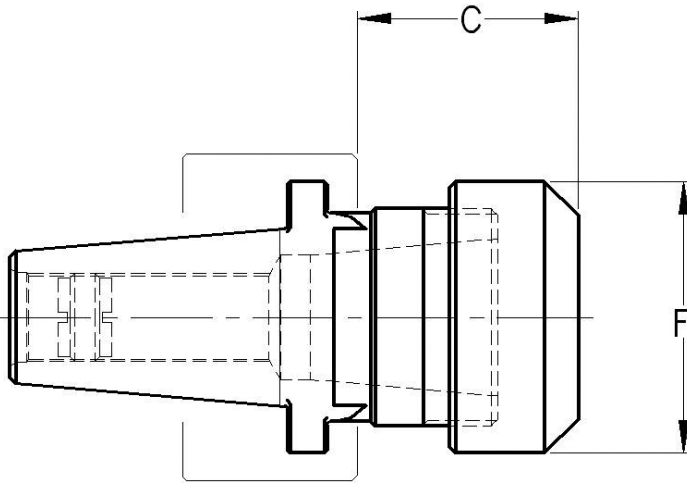


**Acura-Flex® Collet Chucks with Kwik-Switch® Shanks**

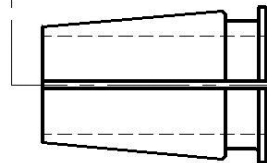
- Acura-Flex extended range collets
- Order collet separately by matching collet range
- To order Acura-Grip delete AF-prefix

**Acura-Flex**

- Extended range
- Excellent gripping power


**Acura-Grip**

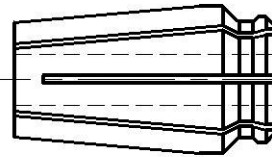
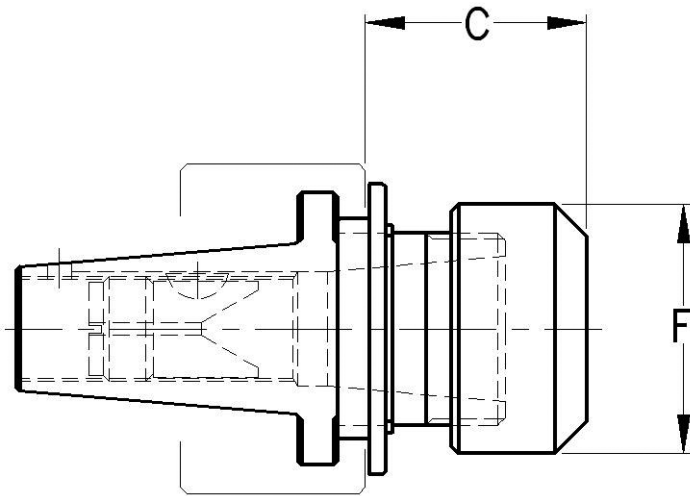
- Extreme precision
- 1/2, 3/4, 1", 1-3/8" 1-5/8" collet ranges


**P: 173**

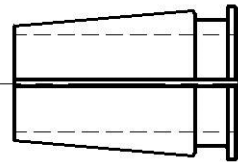
Part Number	Kwik-Switch® Size	Collet Range (Acura-Flex Collet No.'s)	C	F	Max. Nut Tightening Torque	Includes Nut	Ref. Wrench
AF80136	100	1/16 - 3/8 (AF21 - AF44)	.75	1.00 Oct.	40 ft. lbs.	9400002	55068
AF80137		7/64 - 1/2 (AF55 - AF82)	.84	1.25 Oct.	50 ft. lbs.	9400020	55105
AF80235	200	1/16 - 3/8 (AF21 - 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



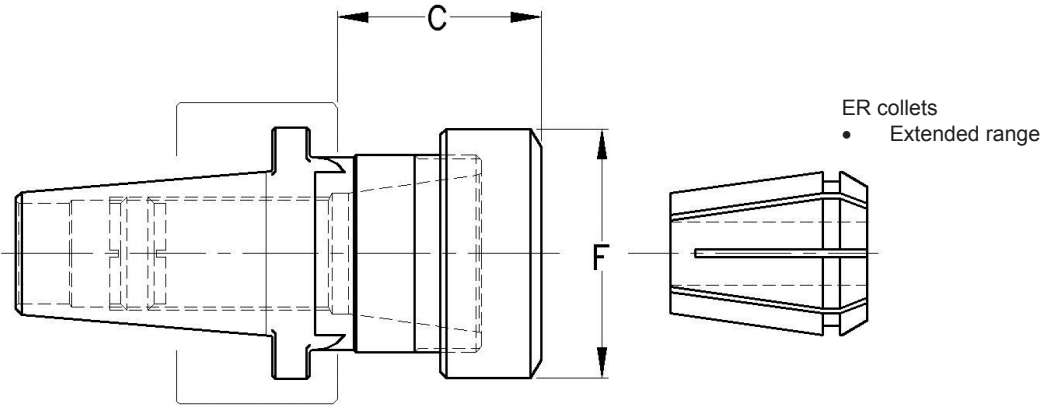
- Acura-Grip
- Extreme precision
  - 1/2, 3/4, 1" collet ranges



Part Number	Kwik-Switch® Size	Collet Range	C	F	Max. Nut Tightening Torque	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

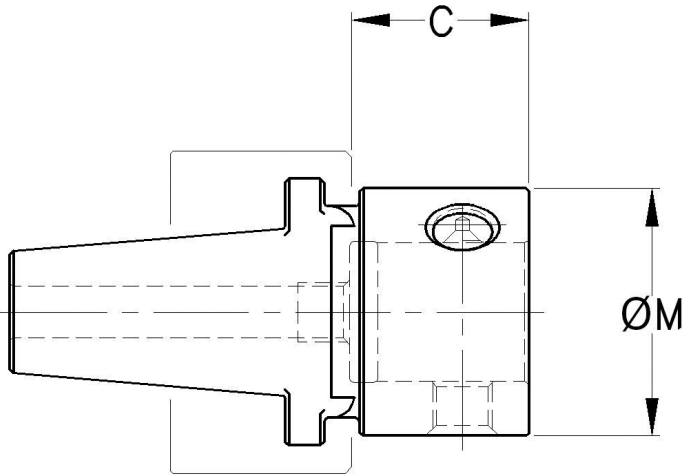
**ER Collet Chucks with Kwik-Switch® Shanks**

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



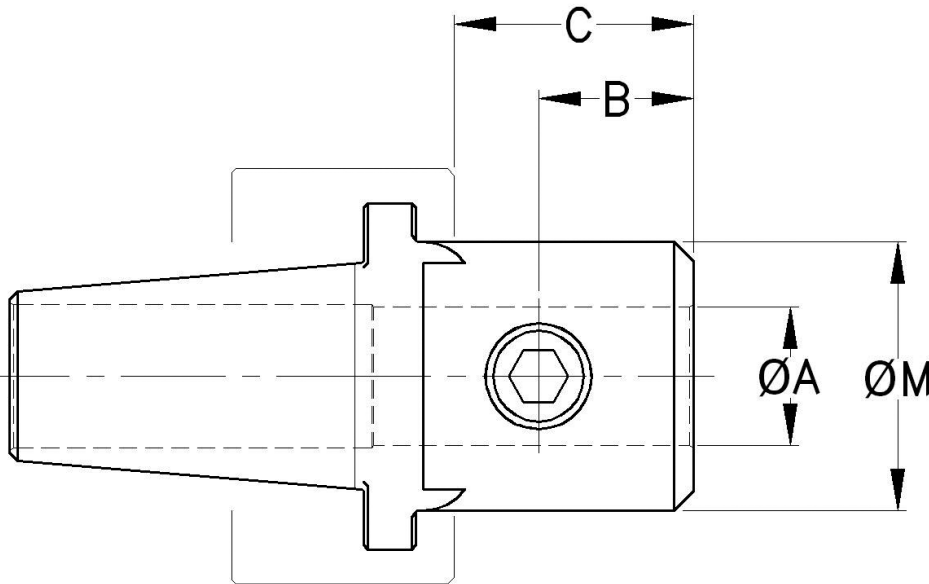
Part Number	Kwik-Switch® Size	Collet Series	C	F	Max. Nut Tightening Torque	Includes Nut	Ref. Wrench
KS2ER16112	200	ER16 (.020 - .394)	1.12	.98 Hex.	50 ft. lbs.	NER16	WER16
KS2ER32181		ER32 (.079 - .787)	1.81	1.96 Span.	125 ft. lbs.	NER32	WER32
KS3ER16103	300	ER16 (.020 - 0.394)	1.03	.98 Hex.	50 ft. lbs.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

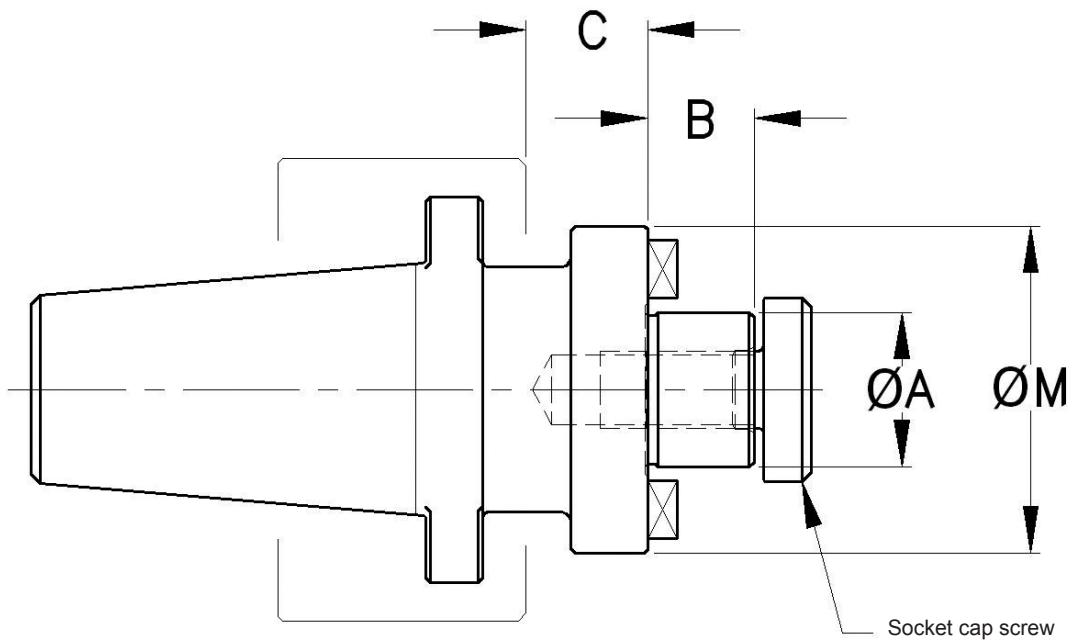
\* Indicates dual set screws

\*\* 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

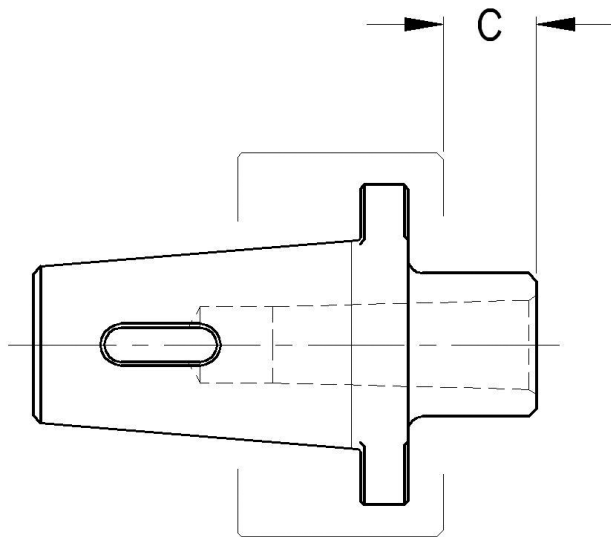


Part Number	Kwik-Switch® Size	A	B	C	M	Includes Drive Key	Thread
80130	100	.5000	.56	.56	1.22	1/4	1/4-28
80131		.7500	.68	.56	1.62	5/16	3/8-24
80231	200	.5000	.56	.69	1.22	1/4	1/4-28
80232		.7500	.68	.69	1.62	5/16	3/8-24
80233		1.0000	.68	.69	2.12	3/8	1/2-20
80333	300	.7500	.68	.78	1.59	5/16	3/8-24
80334		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**

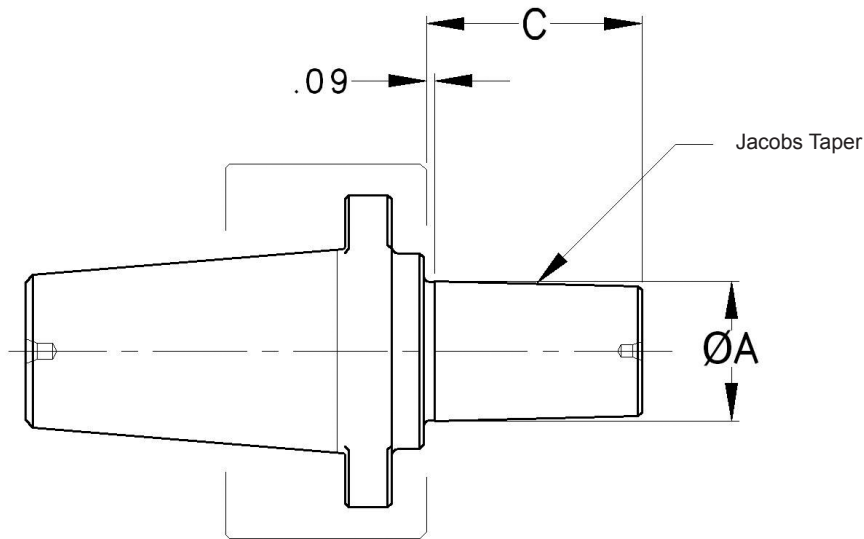
- With optional knockout drift fixtures



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

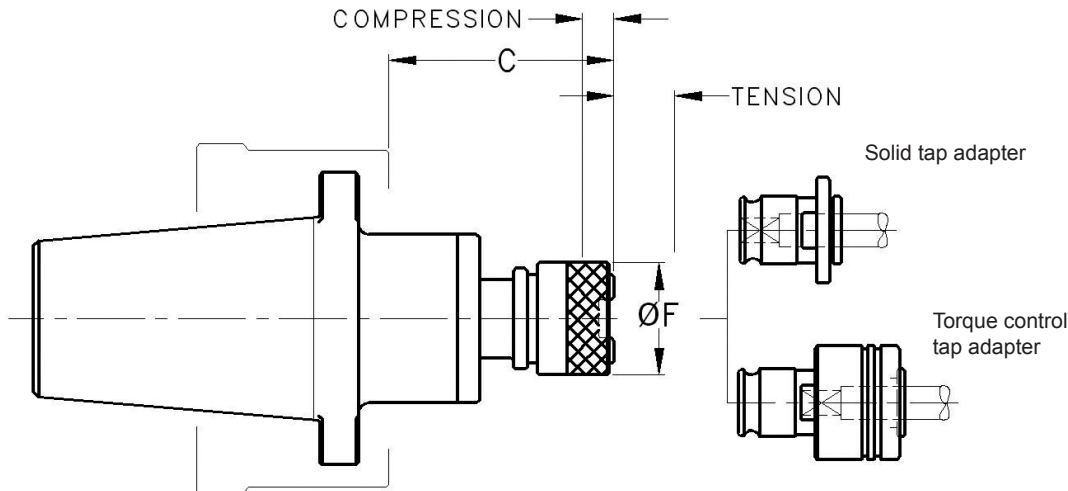


Part Number	Kwik-Switch Size	Jacobs Taper	A	C
80251	200	0	.250	.53
80252	200	1	.384	.75
80153	100	2	.559	.97
80253	200		.559	.97
80352	300		.559	.97
80452	400	3	.559	.97
80698	200		.811	1.31
80353	300		.811	1.31
80453	400	4	.811	1.31
801163	200		1.124	1.75
80354	300		1.124	1.75
80454	400	6	1.124	1.75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



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

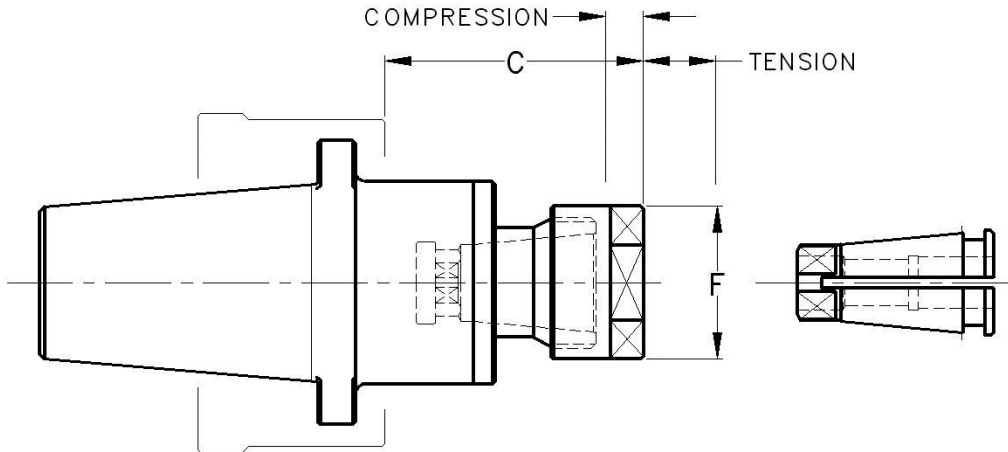
- Order tap adapter separately by matching adapter size
- Full tension available upon request



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

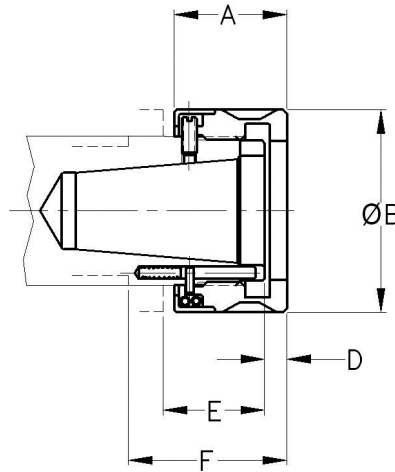


Part Number	Kwik-Switch® Size	Tap Range	C	F	Includes Nut No.	Tension	Compression	Ref. Wrench
15905	200	#0-1/2 Hand 1/8 Pipe	3.56	1.06 Hex.	280669	.88	.38	505643
15906	300		3.12					
15928	400		2.38					
164314	200	1/4-7/8 Hand 1/8-1/2 Pipe	4.00	1.50 Hex.	280677			
15914	300		3.62					
15915	400		2.94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

**Kwik-Switch® Replacement Nut Data**

• All repair kits include these parts:

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

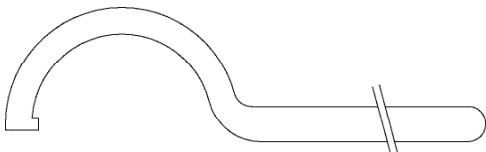


Part Number	Kwik-Switch® Size	A	B	D	E	F	Thread	Repair Kit
805063	100	1.23	2.00	.22	1.12	1.72	1-3/8 - 12 Acme	808792
808158*		1.34			1.17			8010524
805043	200	1.44	2.56	.28	1.28	2.00	1-7/8 - 12 Acme	808793
807813*		1.52			1.31			8010525
805044	300	1.61	3.00	.34	1.41	2.28	2-1/4 - 12 Acme	808794
808155*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

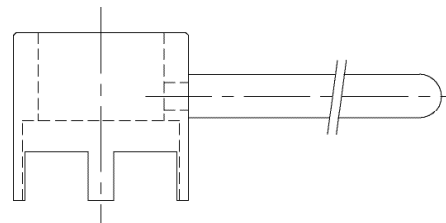
• Fits standard or rear chip guard featured nuts



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

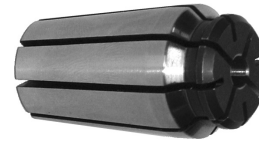
**Kwik-Switch® Locking Fixtures**

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**

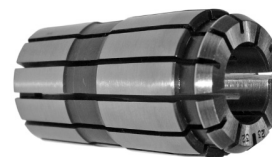
- ER8, ER11, ER16, ER20, ER25, ER32 & ER40
- Standard Inch and Metric Size Collets



Pages  
184-187

**SG (TG)**

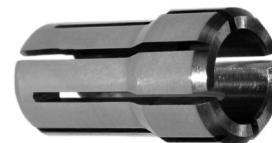
- 75SG, 10SG & 15SG



Pages  
188-191

**DA**

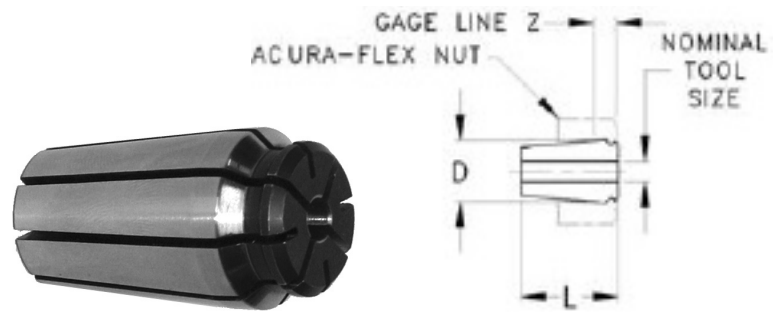
- DA30, DA20 & DA10



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



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

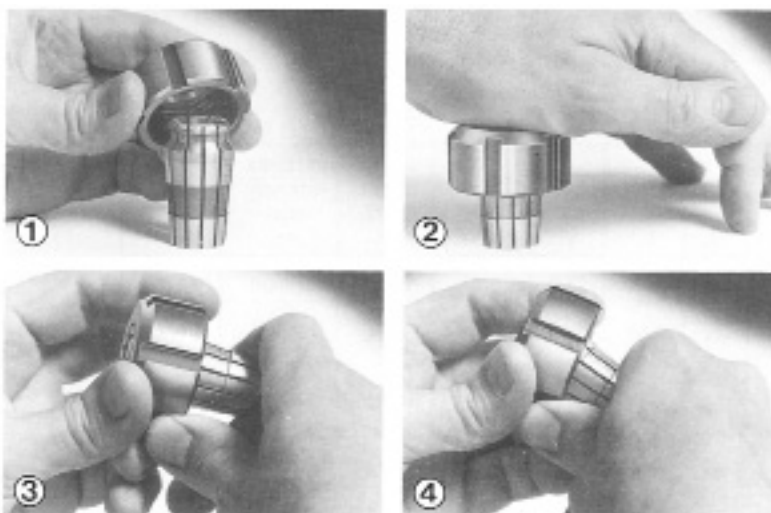
**How to install Acura-Series Collets**

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.

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 Range: .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)

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

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

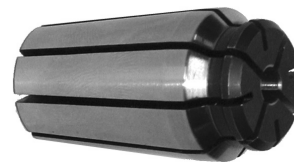
Clamping Range: .02  
Gage Dia. D: 1.131  
Gage Line Location Z: .63  
Collet Length L: 2.02"  
Ref. Nut No. 9400005

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) continued

For use with 1 3/8" Capacity Acura-Flex Collet Chucks (11/32 - 1-3/8 Collet Range)

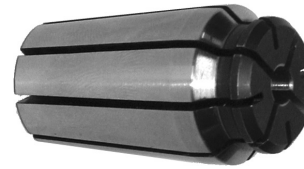
Nominal Tool Size		Part No.
Inch	MM	
3/8		AF241
	10.0	AF242
13/32		AF243
7/16	11.0	AF244
15/32	12.0	AF245
1/2		AF246
	13.0	AF247
17/32		AF248
	14.0	AF249
9/16		AF250
19/32	15.0	AF251
5/8	16.0	AF252
21/32		AF253

Clamping Range: .04  
Gage Dia. D: 1.909  
Gage Line Location Z: .91  
Collet Length L: 3.11"  
Ref. Nut No. 9400011

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)

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	
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

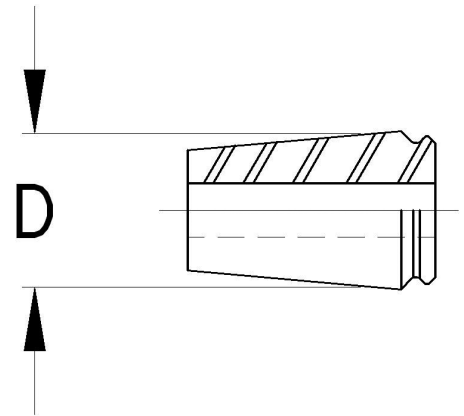
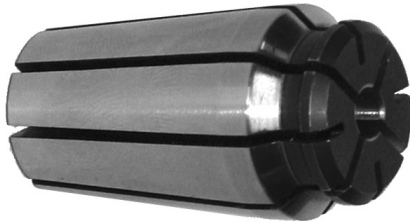
Clamping Range: .04  
 Gage Dia. D: 2.125  
 Gage Line Location Z: .90  
 Collet Length L: 3.13"  
 Ref. Nut No. 9400014

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**

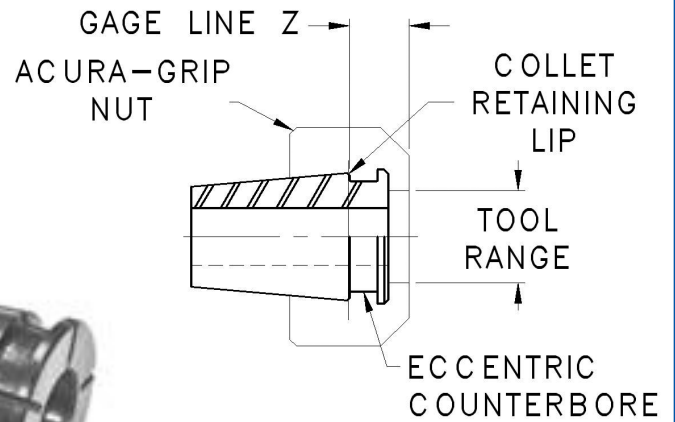
- Order by part number listed
- Capacity of collet must match capacity of chuck



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.



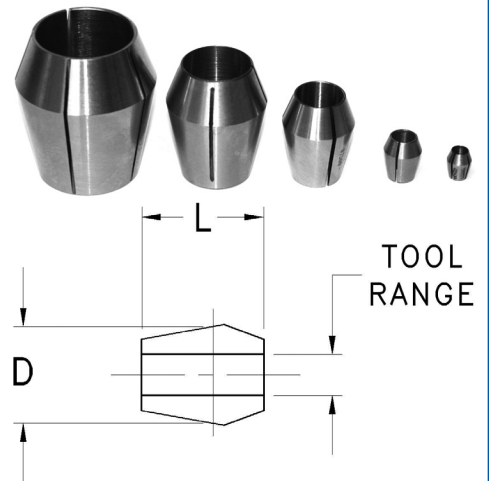
Part No. and Size	Tool Range	D	Z	Acura-Grip Nut No.	Wrench No.
90500 * _ _ _ _ _	3/16-1/2	.720	.39	90501	55105
90750 * _ _ _ _ _	1/4-3/4	1.131	.54	90751	55139
901000 * _ _ _ _ _	3/8-1"	1.446	.69	901001	55171
901375 * _ _ _ _ _	5/8-1"3/8	1.909	.72	901376	85296
901625 * _ _ _ _ _	3/4-1"5/8	2.125	.76	901626	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.

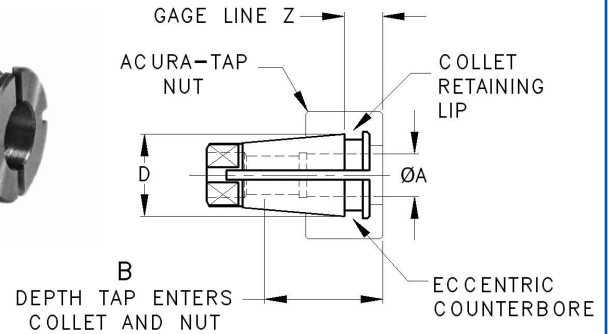


Part No. and Size	Tool Range	Type	D	L	Collet Nut No.	Wrench No.
55021* _ _ _ _ _	1/16-1/4	OW	.39	.50	551080	55029
55060* _ _ _ _ _	1/8-3/8	WW	.59	.75	551082	55068
55097* _ _ _ _ _	1/8-1/2	Y	.80	1.06	551084	55105
55132* _ _ _ _ _	1/4-3/4	Z	1.12	1.50	551090	55139
55165* _ _ _ _ _	3/8-1"	ZZ	1.56	2.00	551098	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				
1/4-7/8 Hand 1/8-1/2 Pipe	1/2	15847	.367	1.25	1.131	.54	280677	505651
	1/8 Pipe SS	15850	.313	1.19				
	1/4	15856	.255	1.22				
	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				
3/4- 1-1/2 Hand 1/2- 1-1/4 Pipe	1/4 Pipe	15869	.563	1.31	1.909	.72	280681	505650
	3/8 Pipe	15870	.700	1.44				
	1/2 Pipe	15871	.688	1.56				
	3/4	15880	.590	2.00				
	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					

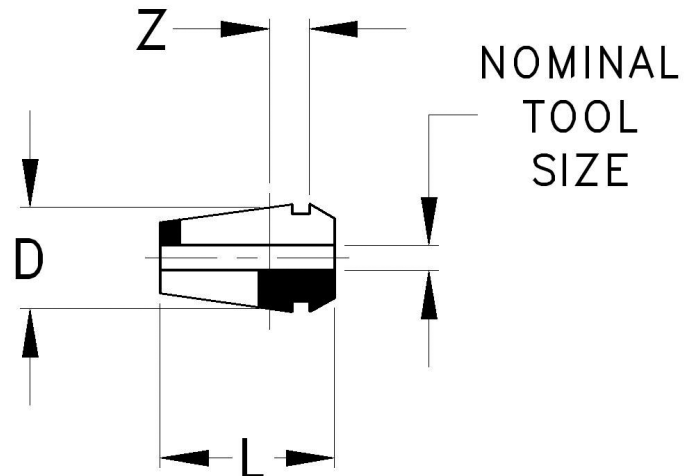
**Note:** Collet must be assembled to nut before inserting in chuck. The collet retaining lip has been partially removed by an eccentric counterbore. Place the collet in counterbore, move on center with nut, and insert assembly into chuck.

**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

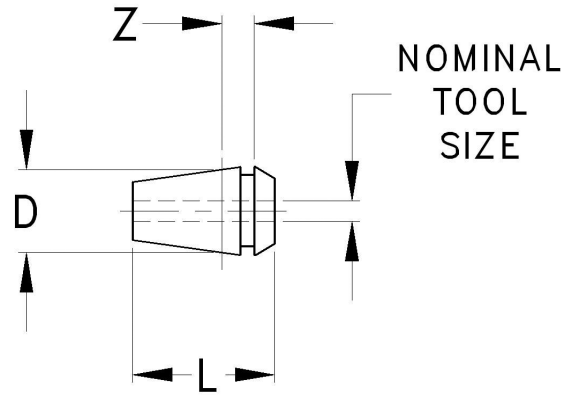
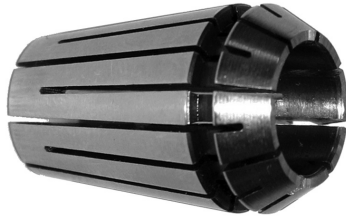
ER40 Series (3/8-1" Collet Range)

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)

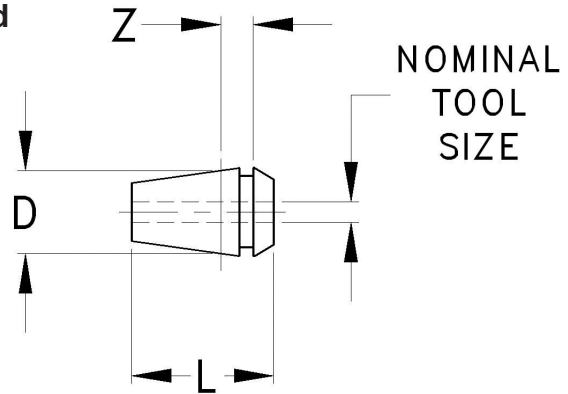
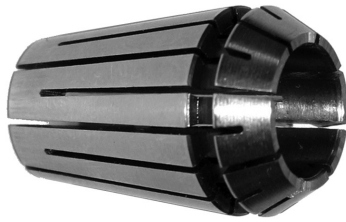
Nominal Tool Size		Part No.
Inch	Inch	
1/32	.8	ER11 00313
1/16	1.5	ER11 00625
5/64	2.0	ER11 00787
3/32		ER11 00937
1/8	3.0	ER11 01250
5/32	4.0	ER11 01575
3/16	4.5	ER11 01875
7/32	5.5	ER11 02187
15/64	6.0	ER11 02362
1/4		ER11 02500
17/64	7.0	ER11 02756

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)

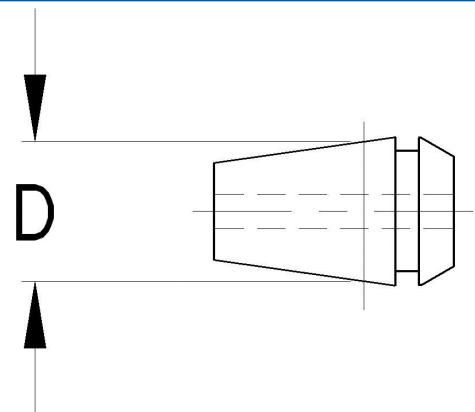
Nom Tool Size		Part No.
Inch	MM	
11/16		ER40 06875
23/32		ER40 07187
3/4	19.0	ER40 07500
25/32	20.0	ER40 07874
13/16	20.5	ER40 08125
27/32		ER40 08437
7/8		ER40 08750
29/32	23.0	ER40 09062
15/16		ER40 09375
31/32	24.5	ER40 09687
63/64	25.0	ER40 09843
1"		ER40 10000
1 1/16	27.0	ER40 10625
1 1/8	28.5	ER40 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**

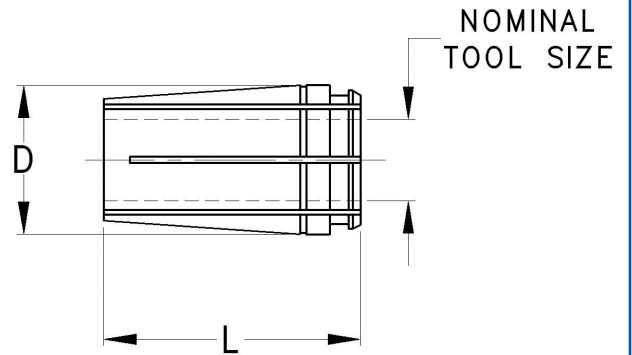
- Order by part number listed
- ER collet series must match ER series of chuck

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	3/32-3/8	.6299	10 collets in 1/32's
ER20ISET	ER20	5/32-1/2	.7874	12 collets in 1/32's
ER25ISET	ER25	3/16-5/8	.9843	15 collets in 1/32's
ER32ISET	ER32	7/32-3/4	1.2598	18 collets in 1/32's
ER40ISET	ER40	1/8-1"	1.5748	15 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

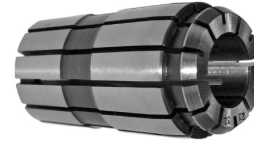
75SG Series  
(1/16-3/4" Collet Range) continued

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

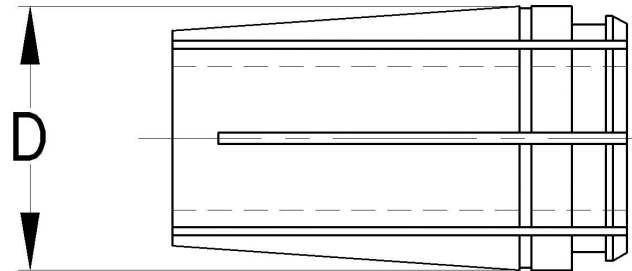
15SG Series  
(1/2- 1-1/2" Collet Range) continued

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**

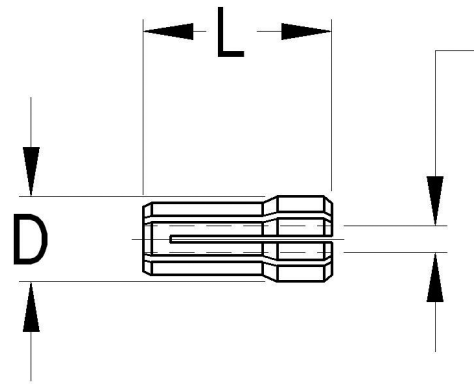
- Order by part number listed
- Series of collet must match series of chuck



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



NOMINAL  
TOOL  
SIZE

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



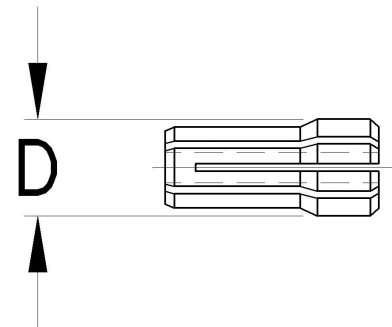
DA10 Series  
(1/64-9/16" Collet Range) continued

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

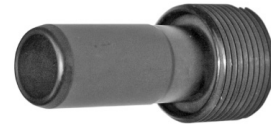
**Collet Nuts & Wrenches**

- 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
<b>Optional ER</b>					
5012761	ER16	5012861	Spanner	32mm	M22 x 1.50
5012762	ER20	5012873	Spanner	35mm	M25 x 1.50
<b>Mini ER</b>					
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**

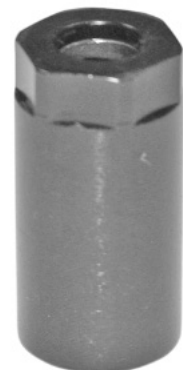
- Nut capacity must match collet capacity
- Order wrench separately



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

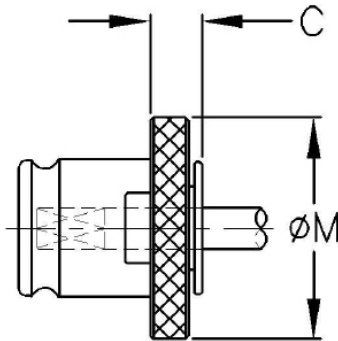
## HSK Coolant Tubes & Wrenches



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

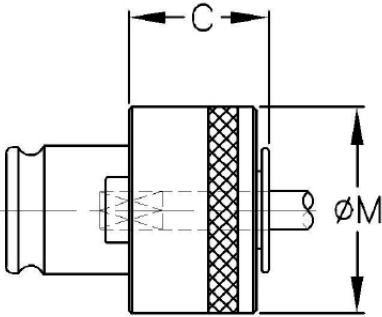
Tap Size	Shank		Square		Adapter Size			
	Inch	MM	INCH	MM	Size 0	Size 1	Size 2	Size 3
#0-#6	.141	3.58	.110	2.79	16822	16827		
#8	.168	4.27	.131	3.33	16823	16828		
#10	.194	4.93	.152	3.86	16824	16829		
#12	.220	5.59	.165	4.19	16825	16830		
1/4	.255	6.48	.191	4.85	16826	16831	163068	
5/16	.318	8.08	.238	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
<b>Pipe Tap</b>								
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		Size 0	Size 1	Size 2	Adapter Size
	Inch	MM	Inch	MM				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
<b>PIPE TAP</b>								
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

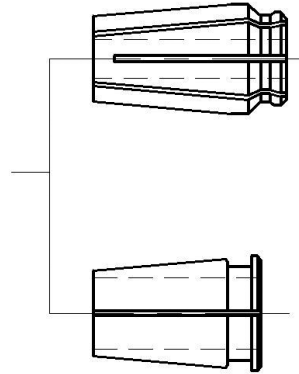
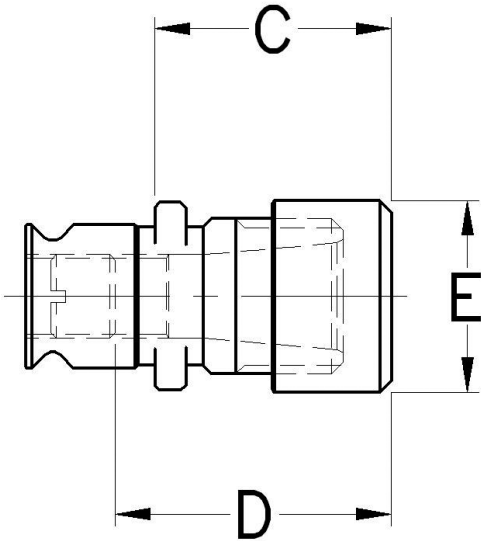


**Acura-Flex Collet Chuck-Quick Change Adapter**

- 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



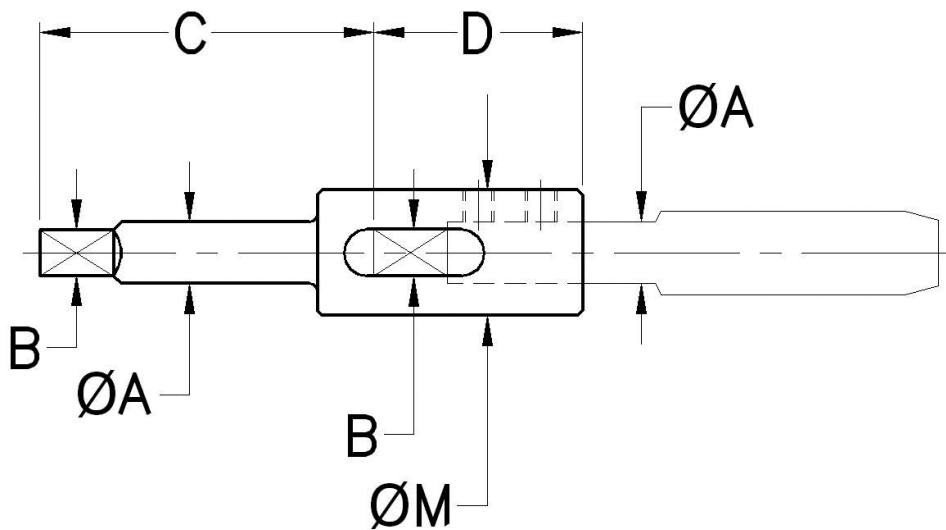
- Acura-Flex
- Extended range
  - Excellent gripping power



- 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

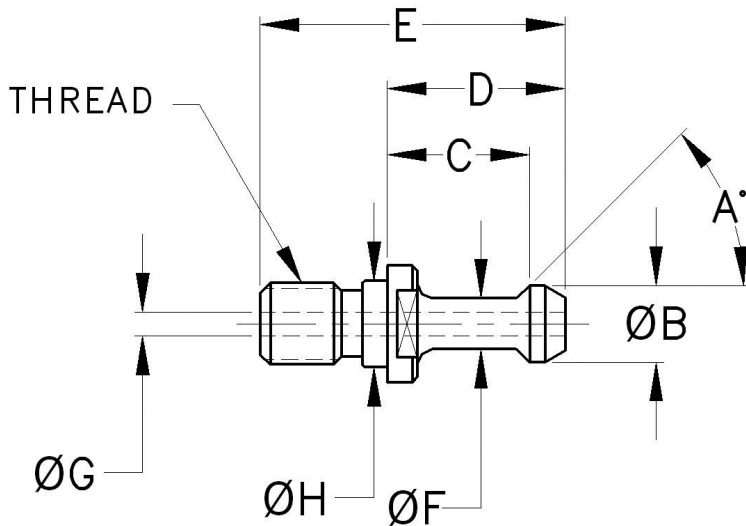
## Tap Extensions-ANSI



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 vice 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.

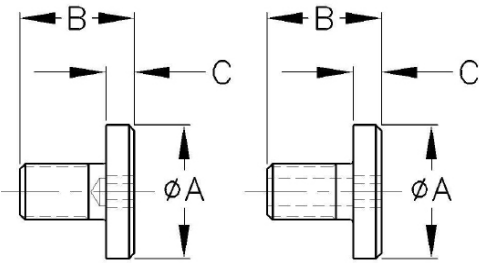


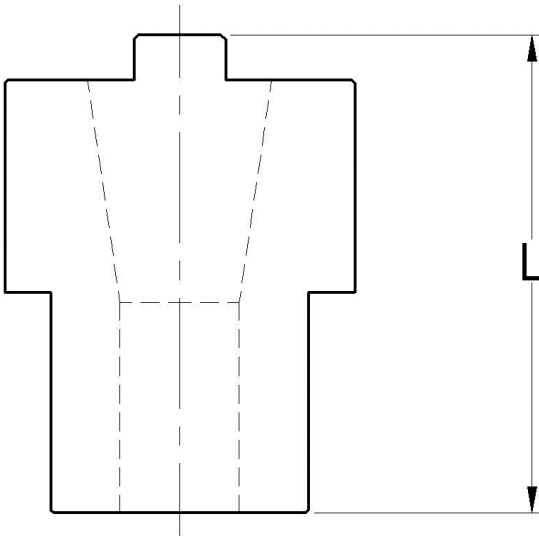
Fig. 1

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



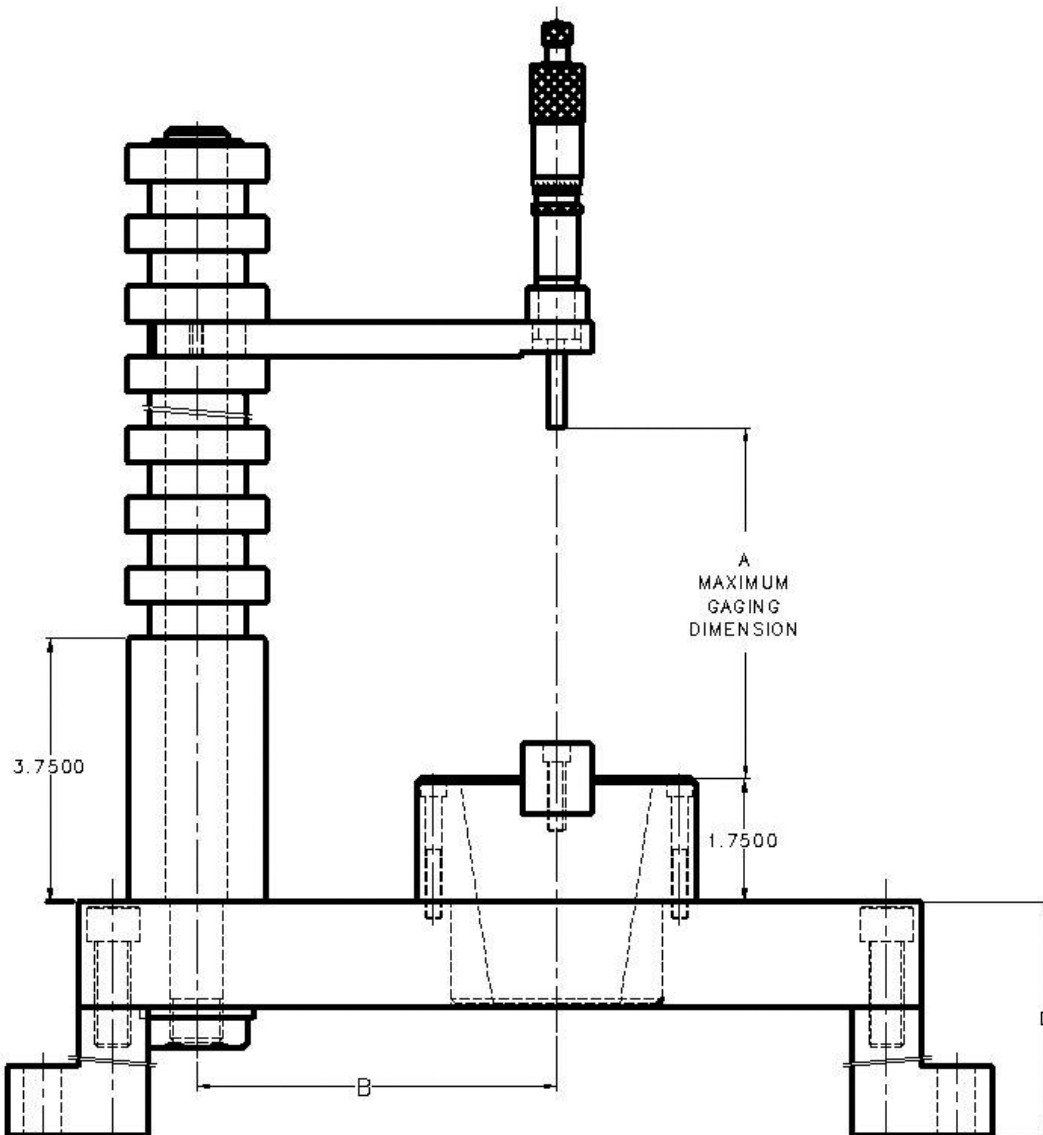
Taper	Part Number	L
30mm	506072	3.25
40mm	506063	4.25
50mm	506073	5.75

**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

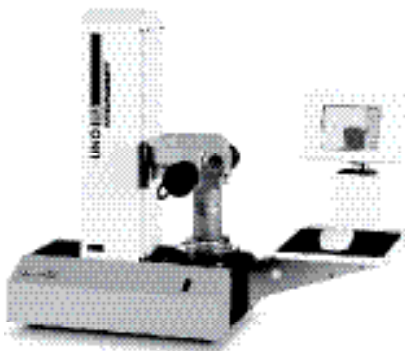
- Other shanks available upon request



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.

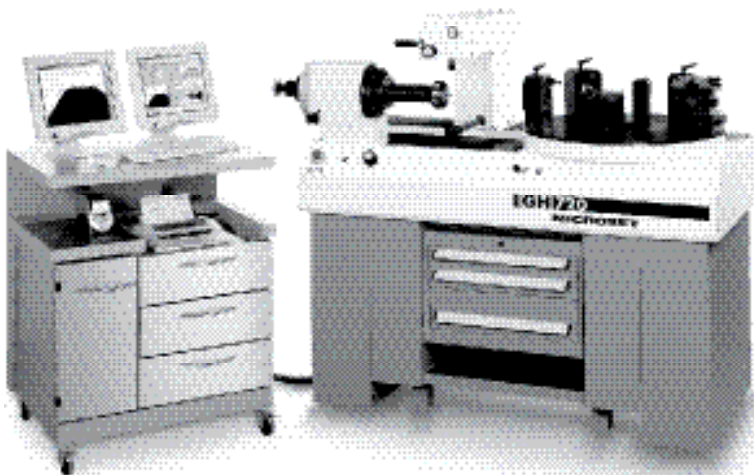
**VIO**

Models for medium tool sizes.  
420 mm / 16.54 inch diameter  
465 mm / 18.31 inch length



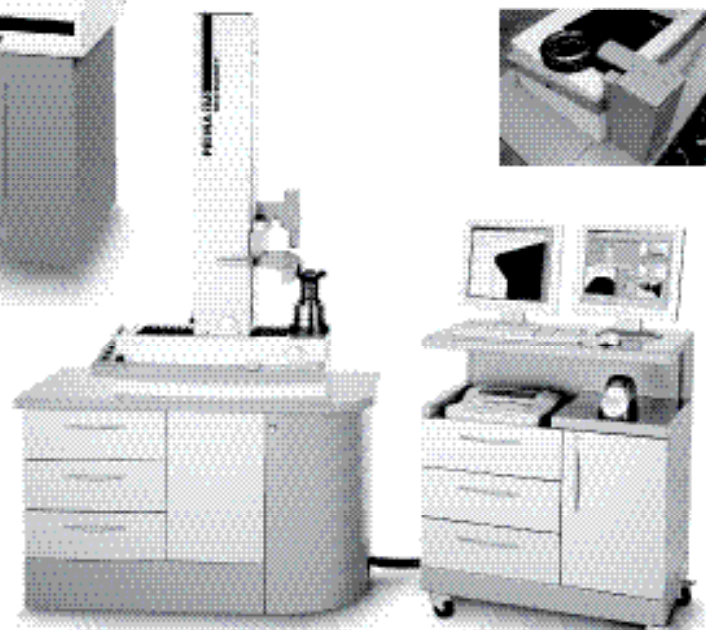
**VIVA 720 Horizontal**

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.

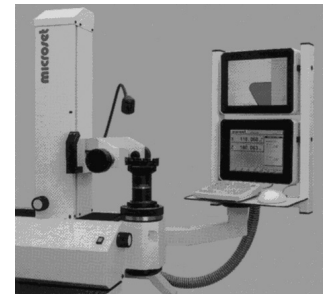


Basic preventative maintenance involves cleaning and oiling of rails and ways, and adjustment of fine adjustment on axis.

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

## 46 Years of advancing technology and customer service

*Then*



*Now*





Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
AF0	173	AF170	176	AF241621	61	AF272	177
AF00	173	AF171	176	AF241622	61	AF273	177
AF000	173	AF172	176	AF241626	60	AF274	177
AF1	173	AF173	176	AF241631	60	AF275	177
AF10	173	AF174	176	AF241632	60	AF276	177
AF100	175	AF175	176	AF241747	61	AF277	177
AF101	175	AF176	176	AF241750	61	AF278	177
AF102	175	AF177	176	AF241751	61	AF279	177
AF103	175	AF178	176	AF241755	60	AF28	174
AF104	175	AF179	176	AF241760	60	AF280	177
AF105	175	AF180	176	AF241761	60	AF281	177
AF106	175	AF181	176	AF241762	60	AF282	177
AF107	175	AF182	176	AF241852	61	AF283	177
AF108	175	AF183	176	AF241854	61	AF284	177
AF109	175	AF184	176	AF241856	61	AF285	177
AF11	173	AF185	176	AF241860	60	AF286	177
AF110	175	AF186	176	AF241861	60	AF29	174
AF111	175	AF187	176	AF241865	60	AF3	173
AF112	175	AF188	176	AF241866	60	AF30	174
AF113	175	AF189	176	AF241941	61	AF31	174
AF114	175	AF190	176	AF241942	61	AF32	174
AF115	175	AF191	176	AF241946	60	AF33	174
AF116	175	AF192	176	AF241947	60	AF331	178
AF117	175	AF193	176	AF241950	60	AF332	178
AF118	175	AF194	176	AF241951	60	AF333	178
AF119	175	AF195	176	AF242	177	AF334	178
AF12	173	AF196	176	AF243	177	AF335	178
AF120	175	AF197	176	AF244	177	AF336	178
AF121	175	AF198	176	AF245	177	AF337	178
AF122	175	AF199	176	AF246	177	AF338	178
AF123	175	AF2	173	AF247	177	AF339	178
AF124	175	AF200	176	AF248	177	AF34	174
AF125	175	AF201	176	AF249	177	AF340	178
AF126	175	AF202	176	AF25	174	AF341	178
AF127	175	AF203	176	AF250	177	AF342	178
AF128	175	AF204	176	AF251	177	AF343	178
AF129	175	AF205	176	AF252	177	AF344	178
AF13	173	AF206	176	AF253	177	AF345	178
AF130	175	AF207	176	AF254	177	AF346	178
AF131	175	AF208	176	AF255	177	AF347	178
AF132	175	AF209	176	AF256	177	AF348	178
AF133	175	AF21	174	AF257	177	AF349	178
AF134	175	AF210	176	AF258	177	AF35	174
AF135	175	AF211	176	AF259	177	AF350	178
AF136	175	AF212	176	AF26	174	AF351	178
AF137	175	AF213	176	AF260	177	AF352	178
AF138	175	AF22	174	AF261	177	AF353	178
AF139	175	AF23	174	AF262	177	AF354	178
AF14	173	AF24	174	AF263	177	AF355	178
AF140	175	AF241	177	AF264	177	AF356	178
AF162	176	AF241525	61	AF265	177	AF357	178
AF163	176	AF241526	61	AF266	177	AF358	178
AF164	176	AF241527	61	AF267	177	AF359	178
AF165	176	AF241531	60	AF268	177	AF36	174
AF166	176	AF241532	60	AF269	177	AF360	178
AF167	176	AF241537	60	AF27	174	AF361	178
AF168	176	AF241616	61	AF270	177	AF362	178
AF169	176	AF241617	61	AF271	177	AF363	178

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
AF364	178	AF80348	161	AF914007	16	D0000300	125, 153
AF365	178	AF80349	161	AF914104	27	D0000302	125, 153
AF366	178	AF80350	161	AF914105	27	D0000306	125, 153
AF367	178	AF80351	161	AF914232	38	D0000311	126, 154
AF368	178	AF80415	161	AF914233	38	D0000313	126, 154
AF369	178	AF80416	161	AF914234	38	D0000315	126, 154
AF37	174	AF80417	161	AF914235	44	D0000319	126, 154
AF370	178	AF804290	161	AF914236	44	D0000321	126, 154
AF371	178	AF80450	161	AF914237	44	D0000325	126, 154
AF372	178	AF808756	162	AF91590	201	D0004804	126, 154
AF373	178	AF808757	162	AF91592	201	D0004814	126, 154
AF374	178	AF808758	162	AF91957	16	D0004819	126, 154
AF375	178	AF81	174	AF91958	16	ER11ISET	187
AF376	178	AF82	174	AF91959	16	ER11 00313	184
AF377	178	AF9	173	AF91963	5	ER11 00625	184
AF38	174	AF901003	51	AF91964	5	ER11 00787	184
AF39	174	AF901004	51	AF95	175	ER11 00937	184
AF4	173	AF901040	52	AF96	175	ER11 01250	184
AF40	174	AF901041	52	AF97	175	ER11 01575	184
AF41	174	AF901382	52	AF98	175	ER11 01875	184
AF42	174	AF901658	52	AF99	175	ER11 02187	184
AF43	174	AF90253	51	ASH037031	78	ER11 02362	184
AF44	174	AF90397	51	ASH037043	78	ER11 02500	184
AF5	173	AF90409	52	ASH037055	78	ER11 02756	184
AF55	174	AF90410	52	ASH037067	78	ER16ISET	187
AF56	174	AF90411	52	ASH037079	78	ER16 00313	185
AF57	174	AF90528	51	ASH037090	78	ER16 00625	185
AF58	174	AF90541	52	ASH062047	78	ER16 00787	185
AF59	174	AF90542	52	ASH062067	78	ER16 00937	185
AF6	173	AF90543	52	ASH062087	78	ER16 01250	185
AF60	174	AF90754	51	ASH062106	78	ER16 01575	185
AF61	174	AF90755	51	ASH062126	78	ER16 01875	185
AF62	174	AF90785	52	AT241616	61	ER16 02187	185
AF63	174	AF90786	52	AT241617	61	ER16 02362	185
AF64	174	AF911391	16	AT241621	61	ER16 02500	185
AF65	174	AF911392	16	AT241622	61	ER16 02812	185
AF66	174	AF911394	16	AT241626	60	ER16 03125	185
AF67	174	AF911397	16	AT241631	60	ER16 03150	185
AF68	174	AF911499	16	AT241632	60	ER16 03437	185
AF69	174	AF911628	5	AT241747	61	ER16 03750	185
AF7	173	AF911784	27	AT241750	61	ER16 03937	185
AF70	174	AF911786	27	AT241751	61	ER16 04062	185
AF71	174	AF912380	27	AT241755	60	ER20ISET	187
AF72	174	AF912382	27	AT241760	60	ER20 00625	185
AF73	174	AF912713	5	AT241761	60	ER20 00787	185
AF74	174	AF912715	5	AT241762	60	ER20 00937	185
AF75	174	AF912806	27	AT241941	61	ER20 01250	185
AF76	174	AF912807	5	AT241942	61	ER20 01575	185
AF77	174	AF912983	16	AT241946	60	ER20 01875	185
AF78	174	AF912984	16	AT241947	60	ER20 02187	185
AF79	174	AF913469	16	AT241950	60	ER20 02362	185
AF8	173	AF913501	5	AT241951	60	ER20 02500	185
AF80	174	AF913533	5	D0000243	125, 153	ER20 02812	185
AF80136	161	AF913534	5	D0000246	125, 153	ER20 03125	185
AF80137	161	AF913535	16	D0000251	126, 154	ER20 03150	185
AF80235	161	AF914004	5	D0000292	125, 153	ER20 03437	185
AF80236	161	AF914005	5	D0000294	125, 153	ER20 03750	185
AF80237	161	AF914006	16	D0000296	125, 153	ER20 03937	185

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
ER20 04062	185	ER32 07187	186	H63AER16472	39	NER20M	196
ER20 04375	185	ER32 07500	186	H63AER16630	39	NER25	196
ER20 04724	185	ER32 07874	186	H63AER20394	39	NER25M	196
ER20 05000	185	ER32 08125	186	H63AER20472	39	NER32	196
ER20 05118	185	ER40ISET	187	H63AER20630	39	NER40	196
ER25ISET	187	ER40 01250	187	H63AER25327	39	NER8M	196
ER25 00625	186	ER40 01875	187	H63AER25484	39	N500025	66
ER25 00787	186	ER40 02500	187	H63AER32327	39	N500031	66
ER25 00937	186	ER40 03125	187	H63AER32406	39	N500037	66
ER25 01250	186	ER40 03150	187	H63AER32484	39	N500043	66
ER25 01575	186	ER40 03750	187	H63AER40327	39	N500050	66
ER25 01875	186	ER40 03937	187	H63AER40406	39	N500050	66
ER25 02187	186	ER40 04062	187	H63AER40484	39	N500062	66
ER25 02362	186	ER40 04375	187	KS2ER16112	163	R1001002TAL	122
ER25 02500	186	ER40 04724	187	KS2ER32181	163	R1001222TAL	122
ER25 02812	186	ER40 05000	187	KS3ER16103	163	R1001452TAL	122
ER25 03125	186	ER40 05312	187	KS3ER32141	163	R100552T	122
ER25 03150	186	ER40 05625	187	KS3ER40203	163	R100772T	122
ER25 03437	186	ER40 05937	187	MTP1051287C	143, 146	R502	120
ER25 03750	186	ER40 06250	187	MTP135107TCZ	139, 144	R504	120
ER25 03937	186	ER40 06299	187	MTP135107TLZ	139, 144	R506	120
ER25 04062	186	ER40 06562	187	MTP1351412C	144, 146	R508	120
ER25 04375	186	ER40 06875	187	MTP1351SC10Z	139, 144	RGA1110C	132
ER25 04724	186	ER40 07187	187	MTP1351TC15Z	139, 144	RGA1242C	132
ER25 05000	186	ER40 07500	187	MTP1351TCZ	139, 144	RGA846C	132
ER25 05312	186	ER40 07874	187	MTP1351TLZ	139, 144	RGA978C	132
ER25 05511	186	ER40 08125	187	MTP1351VLZ	139, 144	SER16 01562	182
ER25 05625	186	ER40 08437	187	MTP190F250C	145, 146	SER16 01875	182
ER25 05937	186	ER40 08750	187	MTP245F250C	145, 146	SER16 02187	182
ER25 06250	186	ER40 09062	187	MTP28107TCZ	135, 140	SER16 02500	182
ER25 06299	186	ER40 09375	187	MTP28107TLZ	135, 140	SER16 02812	182
ER32ISET	187	ER40 09687	187	MTP281TC15Z	135, 140	SER16 03125	182
ER32 01181	186	ER40 09843	187	MTP281TCZ	135, 140	SER16 03437	182
ER32 01250	186	ER40 10000	187	MTP281TLZ	135, 140	SER16 03750	182
ER32 01575	186	ER40 10625	187	MTP28SS07C	140, 146	SER16 04062	182
ER32 01875	186	ER40 11250	187	MTP300F250C	145	SER20 01562	182
ER32 02187	186	ER40 11811	187	MTP36107TCZ	136, 141	SER20 01875	182
ER32 02362	186	ER8ISET	187	MTP36107TLZ	136, 141	SER20 02187	182
ER32 02500	186	ER8 00393	184	MTP361TC15Z	136, 141	SER20 02500	182
ER32 02812	186	ER8 00625	184	MTP361TCZ	136, 141	SER20 02812	182
ER32 03125	186	ER8 00937	184	MTP361TLZ	136, 141	SER20 03125	182
ER32 03150	186	ER8 01250	184	MTP36SS10C	141, 146	SER20 03437	182
ER32 03437	186	ER8 01575	184	MTP50107TCZ	137, 142	SER20 03750	182
ER32 03750	186	ER8 01875	184	MTP50107TLZ	137, 142	SER20 04062	182
ER32 03937	186	ER8 01968	184	MTP501SC10Z	137, 142	SER20 04375	182
ER32 04062	186	GAH05037	79	MTP501TC15Z	137, 142	SER20 04687	182
ER32 04375	186	GAH07050	79	MTP501VLZ	137, 142	SER20 05000	182
ER32 04724	186	H100AER16394	45	MTP50SS12C	142, 146	SER25 02187	182
ER32 05000	186	H100AER16630	45	MTP75107TLZ	138, 143	SER25 02500	182
ER32 05312	186	H100AER20394	45	MTP751287C	143, 146	SER25 02812	182
ER32 05511	186	H100AER20630	45	MTP751SC10Z	138, 143	SER25 03125	182
ER32 05625	186	H100AER25406	45	MTP751TC15Z	138, 143	SER25 03437	182
ER32 05937	186	H100AER32406	45	MTP751VLZ	138, 143	SER25 03750	182
ER32 06250	186	H100AER32484	45	NER11	196	SER25 04062	182
ER32 06299	186	H100AER32642	45	NER11M	196	SER25 04375	182
ER32 06562	186	H100AER40406	45	NER16	196	SER25 04687	182
ER32 06875	186	H100AER40484	45	NER16M	196	SER25 05000	182
ER32 07087	186	H63AER16394	39	NER20	196	SER25 05312	182

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
SER25 05625	182	SS1066	118	032MF270449	69	050MF270144	75
SER25 05937	182	SS12ADA	80	032MF270454	69	050MF270157	74
SER25 06250	182	SS12ADB	80	040MFADA	80	050MF270160	77
SER32 02500	183	S160	64	040MFGAS19023	128	050MF270161	77
SER32 02812	183	S167	64	040MFGAS20923	129	050MF270171	77
SER32 03125	183	S501	64	040MFGAS23223	129	050MF270191	68
SER32 03437	183	WER11	196	040MFMDP56	146, 149	050MF270311	164
SER32 03750	183	WER11M	196	040MFMDP64	146, 150	050MF270413	164
SER32 04062	183	WER16	196	040MFMTTP50	137, 146	050MF270447	69
SER32 04375	183	WER16M	196	040MF270003	68	050MF270451	69
SER32 04687	183	WER20	196	040MF270011	70	050MF270456	69
SER32 05000	183	WER20M	196	040MF270020	70	063MFADB	80
SER32 05312	183	WER25	196	040MF270032	70	063MFADE1287	124
SER32 05625	183	WER25M	196	040MF270047	71	063MFADE1312	124
SER32 05937	183	WER32	196	040MF270050	71	063MFGAH07062	78
SER32 06250	183	WER40	196	040MF270089	72	063MFGAS34828	131
SER32 06562	183	WER8M	196	040MF270090	72	063MFGAS45628	131
SER32 06875	183	020BS093TC1NG	127	040MF270091	72	063MFGAS56428	131
SER32 07187	183	025MFGAS09735	127	040MF270107	73	063MFGAS67228	131
SER32 07500	183	025MFGAS10623	127	040MF270108	73	063MFGAS78028	131
SER40 03750	183	025MFGAS11523	127	040MF270155	74	063MFMDP100	146, 151
SER40 04062	183	025MFGAS12423	127	040MF270156	74	063MFMDP125	146, 152
SER40 04375	183	025MFGAS13323	128	040MF270170	77	063MFMTTP105	138, 146
SER40 04687	183	025MFMTTP28	135, 146	040MF270190	68	063MF270005	68
SER40 05000	183	025MF270001	68	040MF270309	164	063MF270013	70
SER40 05312	183	025MF270009	70	040MF270446	69	063MF270022	70
SER40 05625	183	025MF270030	70	040MF270450	69	063MF270052	71
SER40 05937	183	025MF270045	71	040MF270455	69	063MF270059	71
SER40 06250	183	025MF270084	72	050BA090TC2N	89, 101	063MF270095	72
SER40 06562	183	025MF270085	72	050BA090TN2E	89, 101	063MF270096	72
SER40 06875	183	025MF270153	74	050BS090TC2NG	129	063MF270097	72
SER40 07187	183	025MF270168	77	050MFGAH05037	78	063MF270112	73
SER40 07500	183	025MF270188	68	050MFGAS25523	129	063MF270113	73
SER40 08750	183	025MF270358	164	050MFGAS27823	130	063MF270114	73
SER40 10000	183	025MF270444	69	050MFMDP78	146, 151	063MF270115	73
SS03ER8M095	53	025MF270448	69	050MFMTTP75	138	063MF270134	75
SS0465152	110	030BA090TC2N	87, 99	050MFMTTP75	146	063MF270135	75
SS05ER11M104	53	030BA090TN2C	87, 99	050MF270004	68	063MF270140	76
SS0505255	110	030BS090TC1NG	128	050MF270012	70	063MF270141	76
SS0505357	110	032MFGAS15223	128	050MF270021	70	063MF270142	76
SS06ADA	80	032MFGAS17123	128	050MF270033	70	063MF270145	75
SS0625462	112	032MFMDP48	146, 149	050MF270048	71	063MF270146	75
SS07ADA	80	032MFMTTP36	136, 146	050MF270051	71	063MF270158	74
SS07ER16M098	53	032MF270002	68	050MF270055	71	063MF270162	77
SS0755567	114	032MF270010	70	050MF270056	71	063MF270163	77
SS10ADA	80	032MF270019	70	050MF270092	72	063MF270164	77
SS10ADB	80	032MF270031	70	050MF270093	72	063MF270172	77
SS10ER20M110	53	032MF270046	71	050MF270094	72	063MF270192	68
SS1051	110	032MF270049	71	050MF270109	73	063MF270313	164
SS1052	110	032MF270086	72	050MF270110	73	063MF270439	164
SS1053	110	032MF270087	72	050MF270111	73	063MF270440	164
SS1054	112	032MF270088	72	050MF270129	75	063MF270452	69
SS1055	114	032MF270106	73	050MF270130	75	063MF270457	69
SS1056	114	032MF270154	74	050MF270131	75	070BA090TC3N	91, 105
SS105672	114	032MF270169	77	050MF270132	75	070BA090TN3F	91, 105
SS1058	116	032MF270189	68	050MF270133	75	070BS090TC3N	121
SS1060	116	032MF270308	164	050MF270138	76	070BS090TC3NG	130, 132
SS1063	118	032MF270445	69	050MF270139	76	070BS090TN3F	121

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
080MFADE1412	124	10SG 03125	189	1000MF270121	73	15SG 05000	190
080MFMDP155	146, 152	10SG 03281	189	1000MF270122	73	15SG 05156	190
080MFMDP185	146, 152	10SG 03437	189	1000MF270123	73	15SG 05312	190
080MFMDP215	146, 152	10SG 03594	189	1000MF270174	77	15SG 05469	190
080MFMTTP135	139, 146	10SG 03750	189	1000MF270194	68	15SG 05625	190
080MFMTTP190	139, 146	10SG 03906	189	1000MF270459	69	15SG 05781	190
080MFMTTP245	139, 146	10SG 04062	189	10 00469	193	15SG 05937	190
080MFMTTP300	139, 146	10SG 04219	189	10 00625	193	15SG 06094	190
080MF270006	68	10SG 04375	189	10 00781	193	15SG 06250	190
080MF270023	70	10SG 04531	189	10 00937	193	15SG 06406	190
080MF270053	71	10SG 04687	189	10 01093	193	15SG 06562	190
080MF270062	71	10SG 04843	189	10 01250	193	15SG 06719	190
080MF270098	72	10SG 05000	189	10 01406	193	15SG 06875	190
080MF270099	72	10SG 05156	189	10 01562	193	15SG 07031	190
080MF270100	72	10SG 05312	189	10 01719	193	15SG 07187	190
080MF270116	73	10SG 05469	189	10 01875	193	15SG 07344	190
080MF270117	73	10SG 05625	189	10 02031	193	15SG 07500	190
080MF270118	73	10SG 05781	189	10 02187	193	15SG 07656	190
080MF270119	73	10SG 05937	189	10 02344	193	15SG 07812	190
080MF270136	75	10SG 06094	189	10 02500	193	15SG 07969	190
080MF270147	75	10SG 06250	189	10 02656	193	15SG 08125	190
080MF270148	75	10SG 06406	189	10 02812	193	15SG 08281	190
080MF270149	75	10SG 06562	189	10 02968	193	15SG 08437	190
080MF270159	74	10SG 06719	189	10 03125	193	15SG 08594	190
080MF270173	77	10SG 06875	189	10 03281	193	15SG 08750	190
080MF270193	68	10SG 07031	189	10 03437	193	15SG 08906	190
080MF270453	69	10SG 07187	189	10 03594	193	15SG 09062	190
080MF270458	69	10SG 07344	189	10 03750	193	15SG 09219	190
1A2*	83, 95, 111	10SG 07500	189	10 03906	193	15SG 09375	190
1A212*	83, 95, 111	10SG 07656	189	10 04062	193	15SG 09531	190
1B2*	83, 95, 111	10SG 07812	189	10 04219	193	15SG 09687	190
1B212*	83, 95, 111	10SG 07969	189	10 04375	193	15SG 09844	190
10A2*	93, 109	10SG 08125	189	10 04531	193	15SG 10000	190
10A212*	93, 109	10SG 08281	189	10 04687	193	15SG 10156	190
10A2C12	93, 109	10SG 08437	189	10 04843	193	15SG 10313	190
10A5*	123	10SG 08594	189	10 05000	193	15SG 10469	190
10A512*	123	10SG 08750	189	10 05156	193	15SG 10625	190
10A5C12	123	10SG 08906	189	10 05312	193	15SG 10781	190
10B2*	93, 109	10SG 09062	189	10 05469	193	15SG 10937	190
10B212*	93, 109	10SG 09219	189	10 05625	193	15SG 11093	190
10B2C12	93, 109	10SG 09375	189	10301	64	15SG 11250	190
10B5*	123	10SG 09531	189	10303	66	15SG 11406	190
10B512*	123	10SG 09687	189	10306	64	15SG 11562	190
10B5C12	123	10SG 09844	189	10325	64	15SG 11719	190
10SG 00937	189	10SG 10000	189	10330A	64	15SG 11875	190
10SG 01093	189	100BA090TC3N	93, 109	10708	64	15SG 12031	190
10SG 01250	189	100BA090TN3F	93, 109	10708E1E	93, 109	15SG 12187	190
10SG 01406	189	100BA090TN4F	93, 109	10710	64	15SG 12344	190
10SG 01562	189	100BS090TC3NG	131	10808	66	15SG 12500	190
10SG 01719	189	100BS090TC4N	123	10810	66	15SG 12656	190
10SG 01875	189	100BS090TN4F	123	10821	66	15SG 12812	190
10SG 02031	189	1000MF270007	68	10830	66	15SG 12968	190
10SG 02187	189	1000MF270024	70	1203	64	15SG 13125	190
10SG 02344	189	1000MF270054	71	1203E1E	83, 95, 111	15SG 13281	190
10SG 02500	189	1000MF270101	72	1204	64	15SG 13437	190
10SG 02656	189	1000MF270102	72	1250MF270008	68	15SG 13594	190
10SG 02812	189	1000MF270103	72	1250MF270195	68	15SG 13750	190
10SG 02968	189	1000MF270120	73	1330A	64	15SG 13906	190

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
15SG 14062	190	15905	170	163883	13	16895B	200
15SG 14219	190	15906	170	163884	12	16896B	200
15SG 14375	190	15907	56	163885	12	16897B	200
15SG 14531	190	15909	56	163949	199	16898B	200
15SG 14687	190	15911	56	164314	170	16899B	200
15SG 14843	190	15914	170	164622B	200	16900B	200
15SG 15000	190	15915	170	165201	199	169003	58
151000	54	15916	56	165490B	200	169004	58
151002	54	15919	56	165765	35	169005	58
151004	54	15923	170	165766	35	169006	58
151006	54	15924	170	165767	34	169007	58
151008	54	15925	169	165768	34	169008	58
151010	54	15928	170	165791B	200	169009	59
151012	54	15931	169	16580	199	16901B	200
151016	54	15934	169	16581	199	169010	59
151019	54	15936	169	16603	200	169011	59
15839	181	15937	169	166305	200	169012	14
15840	181	15938	169	16822	199	169013	14
15841	181	15939	169	16823	199	169014	14
15842	181	15943	181	16824	199	169015	14
15843	181	15944	181	16825	199	169016	25
15844	181	15946	181	16826	199	169017	25
15845	181	161637B	200	16827	199	169018	25
15846	181	161638B	200	16828	199	169019	25
15847	181	161639B	200	16829	199	16902B	200
15850	181	161640B	200	16830	199	169020	25
15856	181	161641B	200	16831	199	169021	25
15857	181	161662	169	16832	199	169022	36
15858	181	161693	199	16833	199	169023	36
15859	181	161694	199	16834	199	169024	36
15860	181	161695	199	16835	199	169025	36
15861	181	161696	199	16836	199	16903B	200
15862	181	161697	199	16837	199	16904B	200
15863	181	161803	199	16838	199	16905B	200
15864	181	162026	55	16839	199	16906B	200
15865	181	162066	55	16840	199	16907B	200
15866	181	162072	55	16841	199	16908B	200
15868	181	162173	199	16842	199	16910B	200
15869	181	162174	199	16843	199	16912B	200
15870	181	162175	199	16844	199	16914B	200
15871	181	162176	199	16845	199	2A2*	85, 97, 113
15880	181	162177B	200	16846	199	2A212*	85, 97, 113
15881	181	162178B	200	16848	199	2B2*	85, 97, 113
15882	181	162179B	200	16850	199	2B212*	85, 97, 113
15883	181	162180B	200	16852	199	20 00469	192
15884	181	162710B	200	168683B	200	20 00625	192
15886	181	163068	199	168827	199	20 00781	192
15888	181	163092	199	16884B	200	20 00937	192
15889	181	163762	57	16885B	200	20 01093	192
15891	181	163763	57	16886B	200	20 01250	192
15894	181	163764	57	16887B	200	20 01406	192
15895	181	163841	24	16888B	200	20 01562	192
15896	181	163842	24	16889B	200	20 01719	192
15897	181	163843	24	16890B	200	20 01875	192
15898	56	163844	24	16891B	200	20 02031	192
15900	56	163845	24	16892B	200	20 02187	192
15902	56	163846	24	16893B	200	20 02344	192
15904	56	163882	13	16894B	200	20 02500	192

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
20 02656	192	40BTER1625	29	440043	18	4612037	8
20 02812	192	40BTER1630	29	440045	18	4612038	8
20 02968	192	40BTER1640	29	440047	18	4612041	8
20 03125	192	40BTER1650	29	440049	18	4612042	8
20 03281	192	40BTER1660	29	440051	18	4612045	8
20 03437	192	40BTER2025	29	440053	18	4612046	8
20 03594	192	40BTER2040	29	440107	196	4612050	8
20 03750	192	40BTER2060	29	440116	53	4612056	8
2204	64	40BTER2525	29	440117	53	4612356	19
2204E1E	85, 97, 113	40BTER2540	29	440118	53	4613193	11
2205	64	40BTER2560	29	440119	197	4614448	30
2301	64	40BTER3225	29	440120	197	4615739	8
2303	66	40BTER3230	29	440121	197	4615740	8
2306	64	40BTER3240	29	440125	193	4615741	8
2330A	64	40BTER3260	29	440126	193	4615742	8
2804	66	40BTER3280	29	440127	193	4615743	19
2805	66	40BTER4040	29	440128	191	4615774	30
280669	195	40BTER4060	29	440129	191	4615775	30
280677	195	40CTADA	81	440130	191	4615776	30
280681	195	40CTADB	81	440131	191	4615778	30
2820	66	40CTER1125	6	440132	191	4615779	31
2821	66	40CTER1140	6	440133	191	4615780	31
2830	66	40CTER1160	6	440134	191	4615781	31
2831	66	40CTER1625	6	440483	7	4615782	31
2841	66	40CTER1630	6	440484	7	4615849	20
2842	66	40CTER1640	6	440485	7	4615850	20
3A2*	87, 99, 115	40CTER1650	6	440486	7	4615851	20
3A212*	87, 99, 115	40CTER1660	6	440507	28	4616228	198
3A2C06	87, 99, 115	40CTER2030	6	440508	28	4616229	198
3B2*	87, 99, 115	40CTER2040	6	4610234	8	4616231	198
3B212*	87, 99, 115	40CTER2060	6	4610235	8	4616236	198
3B2C06	87, 99, 115	40CTER2080	6	4610238	8	4616237	198
30 00313	192	40CTER2525	6	4610239	8	4616239	198
30 00469	192	40CTER2540	6	4610240	9	4617745	8
30 00625	192	40CTER2560	6	4610241	9	4617746	8
30 00781	192	40CTER3225	6	4610242	9	4617747	8
30 00937	192	40CTER3230	6	4610245	9	4617748	8
30 01093	192	40CTER3240	6	4610299	23	4617749	8
30 01250	192	40CTER3260	6	4610509	204	4617750	8
30 01406	192	40CTER3280	6	4610510	204	4617751	8
30 01562	192	40CTER4030	6	4610511	204	4617755	8
30 01719	192	40CTER4040	6	4610554	30	4617756	8
30 01875	192	40CTER4060	6	4610555	30	4617757	8
30 02031	192	40CTER4080	6	4610556	30	4618395	9
30 02187	192	40CT51	82	4610557	8	4618396	9
30 02344	192	40CT52	82	4610558	8	4618397	9
30 02500	192	40CT53	82	4610559	8	4618398	21
3300X1E	87, 99, 115	40CT54	84	4610601	23	4618399	21
3301	64	40CT55	86	4611187	19	4618400	21
3303	66	40CT56	86	4611405	8	4618437	10
3306	64	40CT58	88	4611441	204	4618438	10
3704	64	40CT60	88	4611616	8	4618439	10
3704E1E	87, 99, 115	40CT63	90	4611772	19	4618440	10
3705	64	40CT66	90	4611774	19	4618441	10
3804	66	40CT70	92	4611775	19	4618442	10
3805	66	440003	196	4612002	19	4618443	10
3820	66	440009	196	4612003	19	4618444	10
3821	66	440041	18	4612034	8	4618445	10

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
4618446	10	4618506	48	463662	8	465058	23
4618447	10	4618507	48	463664	9	465060	23
4618448	10	4618508	48	463665	9	465067	23
4618449	10	4618509	48	463666	9	465074	23
4618450	10	4618510	48	463667	9	466355	30
4618451	10	4618511	48	463668	11	466356	30
4618452	22	4618512	48	463669	11	466357	30
4618453	22	4618513	48	463670	11	466358	30
4618454	22	4618514	48	464959	19	466359	30
4618455	22	4618515	48	464960	19	466360	30
4618456	22	4618516	48	464962	19	466361	30
4618457	22	4618517	48	464965	19	466364	31
4618458	22	4618518	40	464966	19	466365	31
4618459	22	4618519	40	464968	19	466366	31
4618460	22	4618520	40	464971	19	466367	31
4618461	22	4618521	40	464972	19	466369	33
4618462	22	4618522	40	464974	19	466370	33
4618463	22	4618523	40	464977	19	466371	33
4618464	22	4618524	41	464978	19	466374	33
4618465	22	4618525	41	464980	19	466375	33
4618466	32	4618526	41	464983	19	466870	204
4618467	32	4618527	41	464984	19	466871	204
4618468	32	4618528	46	464986	19	466997	8
4618469	32	4618529	46	464989	19	467053	20
4618470	32	4618530	46	464990	19	468290	30
4618471	32	4618531	46	464992	19	468333	19
4618472	32	4618532	46	464994	19	468377	11
4618473	32	4618533	46	464995	19	468622	11
4618474	32	4618534	46	464996	19	468822	23
4618475	32	4618535	47	464998	19	468823	23
4618476	32	4618536	47	465000	19	469338	11
4618477	32	4618537	47	465001	19	469339	11
4618478	32	4618538	47	465002	19	469458	23
4618479	30	4618539	47	465004	19	5A2*	89, 101, 117
4618480	30	4618540	47	465007	19	5A212*	89, 101, 117
4618481	30	4618541	41	465011	20	5A2C06	89, 101, 117
4618482	30	463630	19	465012	20	5B2*	89, 101, 117
4618483	30	463631	19	465013	20	5B212*	89, 101, 117
4618484	30	463632	19	465014	20	5B2C06	89, 101, 117
4618485	30	463633	19	465016	20	50CTADA	81
4618486	30	463634	19	465018	20	50CTADB	81
4618487	30	463635	19	465019	20	50CTER161000	17
4618488	30	463636	19	465020	20	50CTER1640	17
4618491	42	463637	19	465021	20	50CTER1660	17
4618492	42	463638	20	465022	20	50CTER1680	17
4618493	42	463639	20	465024	20	50CTER2040	17
4618494	42	463640	20	465026	20	50CTER2060	17
4618495	42	463641	20	465028	20	50CTER2080	17
4618496	42	463642	20	465029	20	50CTER251000	17
4618497	42	463643	23	465030	20	50CTER2540	17
4618498	42	463644	23	465032	20	50CTER2560	17
4618499	42	463645	23	465034	20	50CTER2580	17
4618500	42	463646	23	465035	20	50CTER321000	17
4618501	42	463657	8	465036	20	50CTER3240	17
4618502	42	463658	8	465038	20	50CTER3260	17
4618503	42	463659	8	465040	20	50CTER3280	17
4618504	42	463660	8	465042	20	50CTER4040	17
4618505	48	463661	8	465045	20	50CTER4060	17

\* Indicates carbide grade designation

\* \_ \_ \_ \_ \_ Indicates Size (Decimal)



Part Number	Page	Part Number	Page	Part Number	Page	Part Number	Page
50CTER4080	17	505651	195	5821	66	75SG 06562	188
50CTF250	155	505955	196	5830	66	75SG 06719	188
50CTF25060	155	506060	206	5831	66	75SG 06875	188
50CT51	94	506062	206	5841	66	75SG 07031	188
50CT52	94	506063	205	5842	66	75SG 07187	188
50CT53	94	506072	205	7A2*	91, 105, 107, 119	75SG 07344	188
50CT54	96	506073	205	7A212*	91, 105, 107, 119	75SG 07500	188
50CT55	98	507318	203	7A2C09	91, 105, 107, 119	7708	64
50CT56	98	507847	203	7A5*	121	7708E1E	91, 105, 107, 119
50CT57	98	508024	202	7A512*	121	7710	64
50CT58	100	508027	202	7A5C09	121	7808	66
50CT59	100	508030	202	7B2*	91, 105, 107, 119	7810	66
50CT60	102	508033	202	7B212*	91, 105, 107, 119	7820	66
50CT61	102	508036	202	7B2C09	91, 105, 107, 119	7821	66
50CT62	102	508039	202	7B5*	121	7830	66
50CT63	104	508042	202	7B512*	121	7831	66
50CT64	104	508045	202	7B5C09	121	7841	66
50CT65	104	508048	202	7301	64	80103	171
50CT66	106	508048	202	7303	66	8010524	171
50CT67	106	508051	202	7306	64	8010525	171
50CT68	106	508054	202	7325	64	8010526	171
50CT69	106	508057	202	75SG 00781	188	80108	158
50CT70	108	508063	202	75SG 00937	188	80115	158
50CT71	108	508066	202	75SG 01093	188	801163	168
5002	204	508069	202	75SG 01250	188	801171	166
5003	204	508072	202	75SG 01406	188	80124	159
5004	204	508440	202	75SG 01562	188	80127	167
5005	204	508955	203	75SG 01719	188	80128	159
5006	204	509156	203	75SG 01875	188	80130	166
5007	204	509991	26	75SG 02031	188	80131	166
5010122	203	5301	64	75SG 02031	188	80139	171
5010469	37	5303	66	75SG 02187	188	80141	165
5010497	203	5306	64	75SG 02344	188	80142	165
5010539	15	5325	64	75SG 02500	188	80143	165
5010806	203	5330A	64	75SG 02656	188	801431	165
5011648	26	55021*_____	180	75SG 02812	188	80153	168
5011686	203	55029	195, 197	75SG 02968	188	80203	171
5011717	203	55060*_____	180	75SG 03125	188	80225	158
5012262	203	55068	195, 197	75SG 03281	188	80226	167
5012446	15	55097*_____	180	75SG 03437	188	80227	167
5012586	43	55105	195, 197	75SG 03594	188	80228	167
5012587	49	551080	197	75SG 03750	188	80231	166
5012729	206	551082	197	75SG 03906	188	80232	166
5012761	196	551084	197	75SG 04062	188	80233	166
5012762	196	551090	197	75SG 04219	188	80238	158
5012861	196	551098	197	75SG 04375	188	80239	171
5012873	196	551108	197	75SG 04531	188	80242	165
5013067	203	55132*_____	180	75SG 04687	188	80243	165
5013068	203	55139	195, 197	75SG 04843	188	80244	165
5013069	203	55165*_____	180	75SG 05000	188	80245	165
5013070	203	55171	195, 197	75SG 05156	188	80246	165
5013071	203	55194*_____	180	75SG 05312	188	80247	165
5013072	203	55200	195, 197	75SG 05469	188	80248	158
503558	206	5704	64	75SG 05625	188	802481	165
503682	206	5704E1E	89, 101, 103, 117	75SG 05781	188	80250	159
505643	195	5705	64	75SG 05937	188	80251	168
505646	196	5804	66	75SG 06094	188	80252	168
505650	195	5805	66	75SG 06250	188	80253	168
		5820	66	75SG 06406	188		

\* Indicates carbide grade designation

\*\_\_\_\_\_ Indicates Size (Decimal)

Part Number	Page	Part Number	Page	Part Number	Page
80254	168	80452	168	9400043	179
80255	168	80453	168	9400044	179
80257	159	80454	168	9400045	179
802785	165	80455	168	9400046	179
80296	157	80456	168	9400072	179
80303	171	805001	157	9400073	179
80326	167	805043	171	9400074	179
80327	167	805044	171	9400108	179
803270	206	805063	171	9400174	179
80328	167	805655	206	9400176	179
80329	167	805657	206	9400177	179
80333	166	805658	206	9901464	68
80334	166	805878	159	9901465	68
80335	166	805879	159	9901466	68
80337	166	805880	159	9901467	68
80339	171	805881	159	9901468	68
80342	165	805882	159	9901469	68
80343	165	805922	15, 160	9901470	68
80344	165	806282	26, 160	9901471	68
80345	165	806283	26, 160	9901472	68
80346	165	806841	157	9903538	196
80347	165	80698	168	9903560	197
80352	168	807032	165	9903561	197
80353	168	80721	165	9903562	197
80354	168	807235	157		
80355	168	807655	157		
80356	168	807757	157		
80403	171	807791	171		
80427	167	807792	171		
80428	167	807793	171		
80429	167	807813	171		
80430	167	808155	171		
80431	167	808158	171		
804325	157	80851	165		
804333	157	808792	171		
80435	166	808793	171		
80436	166	808794	171		
80437	166	809809	171		
80439	171	809184	171		
804419	158	85296	195		
80442	165	901000*_____	180		
80443	165	901001	195		
80444	165	901375*_____	180		
804446	158	901376	195		
804448	158	901625*_____	180		
80445	165	901626	195		
804454	159	90500*_____	180		
804456	159	90501	195		
804458	159	90750*_____	180		
80446	165	90751	195		
80447	165	9400002	195		
80448	165	9400005	195		
804495	158	9400011	195		
804497	159	9400014	195		
804499	159	9400020	195		
804501	159	9400021	195		
804503	159	9400022	195		
80451	165	9400042	179		

\* 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](mailto: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](mailto: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](mailto:sales@universaldevlieg.com)

Blank area for notes.

Blank area for notes.

