

# PARLEC

*Measurably Better*



## HIGH-PRECISION CNC TOOLING SOLUTIONS

Toolholding, Tapping,  
Angle Heads and Boring



Parlec is a proud member of Techniks Tool Group

**CNC TOOLING SOLUTIONS**  
**FROM SPINDLE TO WORKPIECE**

800.866.5872 | [www.parlec.com](http://www.parlec.com) | [sales@parlec.com](mailto:sales@parlec.com)



Parlec is a proud member of Techniks Tool Group. Since 1948 Parlec has been providing a broad range of made-in-USA productivity enhancing tooling solutions to manufacturers throughout North America. Our adherence to the strictest quality standards ensures each tool is engineered to deliver outstanding performance even in the most demanding applications.

Our high-performance solutions include Shrink Fit holders and machines, the P3 (Parlec Pro Precision) collet system featuring the world's first coated collet technology, collet chucks, Micron Milling Chucks, HVC (High-Volume Coolant) Face Mill Holders, Numertap Tapping System, Precision Modular Boring, and MegaFORCE retention knobs. When you're looking for high-performance tooling, look to Parlec!



# Our Mission

At Parlec, our mission is to provide high-quality and innovative solutions that optimize manufacturing processes for customers engaged in metalworking, composites machining, and woodworking to meet the most challenging applications, improve machining processes, and create cost efficiencies. We build long-term and valued relationships by providing superior high-performance solutions, excellent customer service, knowledgeable applications support, and rapid order fulfillment.

**PARLEC**  
*Measurably Better*

# What's New



## ***Tool Holder Blanks***

Parlec offers a wide variety of tool holder blanks, in two materials, so customers may machine their own configurations for specific applications.

**SEE PAGE: 189**

Parlec's "Measurably Better" solutions include the high-performance tooling you need to meet the most demanding applications and deliver unequalled results. Our performance leading products include:



## ***MegaFORCE Retention Knobs***

Built for today's high-speed, high material removal rate machining.

**SEE PAGE: 252**



## ***Micron Milling Chucks***

### ***Extreme Accuracy***

The performance, accuracy, and clearance of shrink fit in a milling chuck.

**SEE PAGE: 30**



## ***HVC (High-Volume Coolant) Face Mill Holders***

Deliver a 500% increase in coolant volume for superior chip evacuation and surface finishes.

**SEE PAGE: 122**



## **Shrink Fit** **Expanded Offering**

Our expanded line of shrink fit solutions includes coolant ported holders, thick-walled holders for high stock removal rates, straight shank extensions, and automated shrink fit machines.

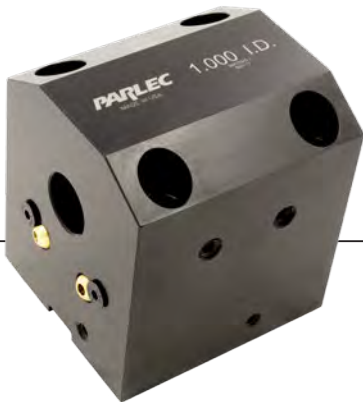
**SEE PAGE: 8**



## **P3 Collet System** **(Parlec Pro Precision)**

The ultimate in collet chuck accuracy from the world's first coated collet technology.

**SEE PAGE: 90**



## **BMT65 Tool Holders** **CNC Lathe Tooling**

Made from ductile iron to provide superior vibration damping and wear resistance.

**SEE PAGE: 266**



## **Evolution Angle Heads** **Automatic Tool Change**

Add more machining axis to your CNC.

**SEE PAGE: 192**

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# SHRINK FIT

## TOOLING & MACHINES





# PARLEC

## Parlec ShrinkFIT System Features

**CERTIFIED**  
**G2.5**  
**HIGH SPEED PERFORMANCE** >>>

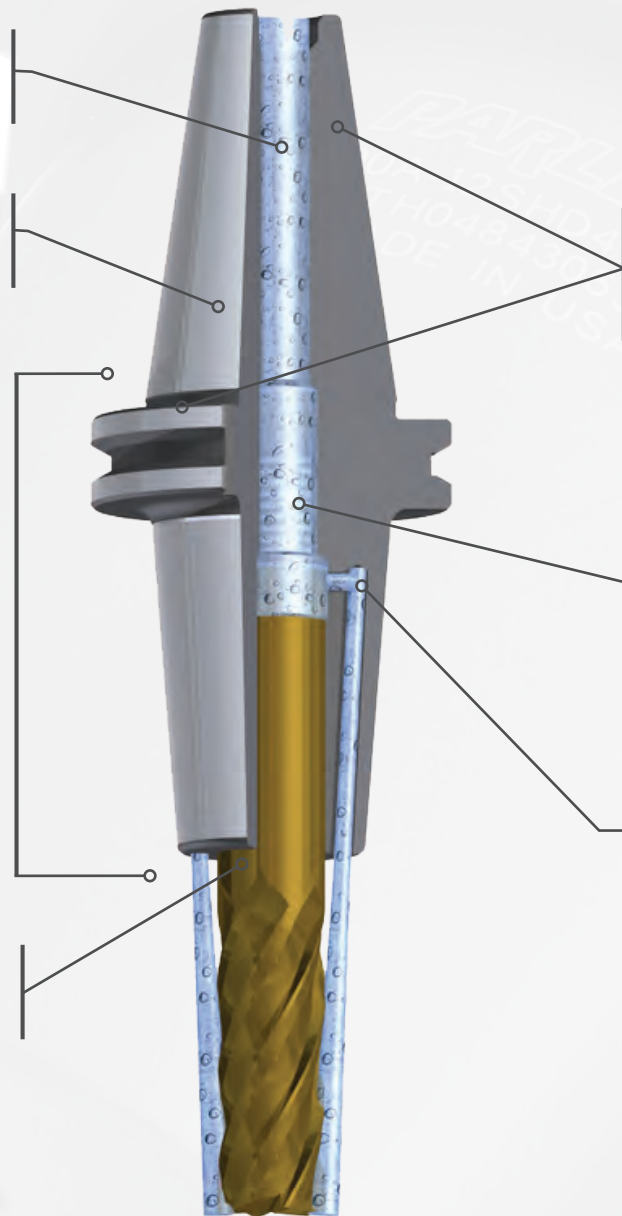
Through spindle coolant  
Also available with convertible  
DIN-B coolant delivery

H13 double tempered steel  
for the best balance of  
toughness and wear strength

Short to extended  
projections available in stock  
or custom upon request.

European projections eliminate  
need to reprogram 5-axis.

3 micron bore tolerance



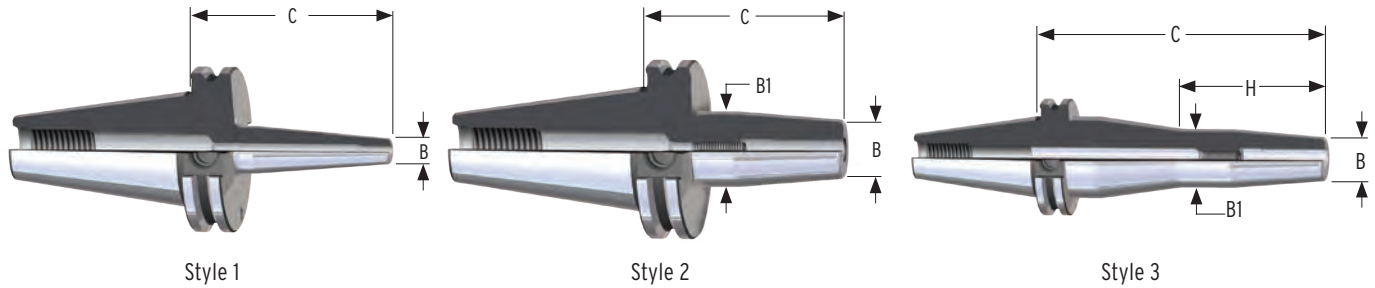
Certified Balance to G2.5 and AT3  
Taper Specification for consistent  
reliable performance tool change  
to tool change.

Back-Up screw thread standard

Available with angled  
coolant-ports to direct  
coolant directly to the  
cutting path.

# Shrink Fit Holders

## CAT40 Shrink Fit with Coolant Ports | Inch



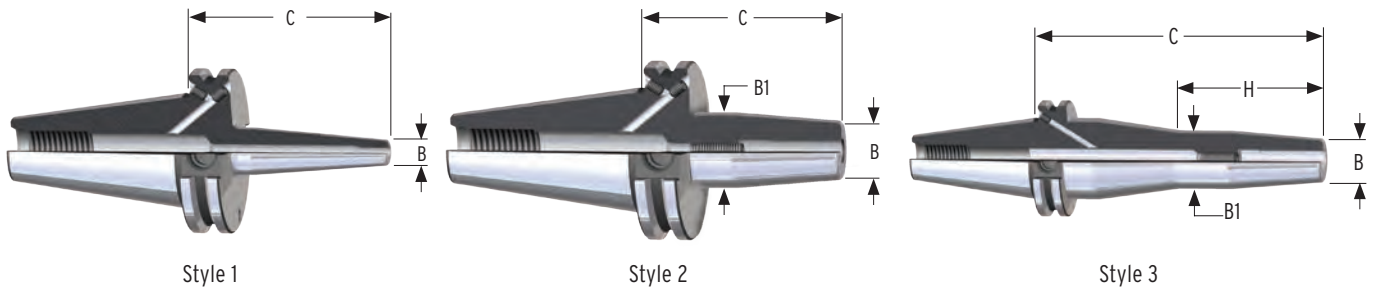
### FEATURES

- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

### CAT40 SHRINKFIT WITH COOLANT PORTS - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
C40A-25SF315-9C	1/4"	2	.83"	1.06"	3.15"	-	BS-SFM058-16
C40A-25SF512-9C	1/4"	2	.83"	1.06"	5.12"	-	BS-SFM058-16
C40A-25SF630-9C	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
C40A-31SF315-9C	5/16"	2	.83"	1.06"	3.15"	-	BS-SFM061-16
C40A-31SF512-9C	5/16"	2	.83"	1.06"	5.12"	-	BS-SFM061-16
C40A-31SF630-9C	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
C40A-38SF315-9C	3/8"	2	.94"	1.26"	3.15"	-	BS-SFM081-16
C40A-38SF512-9C	3/8"	2	.94"	1.26"	5.12"	-	BS-SFM081-16
C40A-38SF630-9C	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
C40A-50SF315-9C	1/2"	2	.94"	1.26"	3.15"	-	BS-SFM101-20
C40A-50SF512-9C	1/2"	2	.94"	1.26"	5.12"	-	BS-SFM101-20
C40A-50SF630-9C	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
C40A-62SF315-9C	5/8"	2	1.06"	1.34"	3.15"	-	BS-SFM121-20
C40A-62SF512-9C	5/8"	2	1.06"	1.34"	5.12"	-	BS-SFM121-20
C40A-62SF630-9C	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
C40A-75SF315-9C	3/4"	2	1.30"	1.65"	3.15"	-	BS-SFM161-20
C40A-75SF512-9C	3/4"	2	1.30"	1.65"	5.12"	-	BS-SFM161-20
C40A-75SF630-9C	3/4"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
C40A-10SF394-9C	1"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C40A-10SF512-9C	1"	2	1.73"	2.09"	5.12"	-	BS-SFM161-20
C40A-10SF630-9C	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
C40A-12SF394-9C	1-1/4"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C40A-12SF512-9C	1-1/4"	2	1.73"	2.09"	5.12"	-	BS-SFM161-20
C40A-12SF630-9C	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

## CAT40 Shrink Fit | Inch



### FEATURES

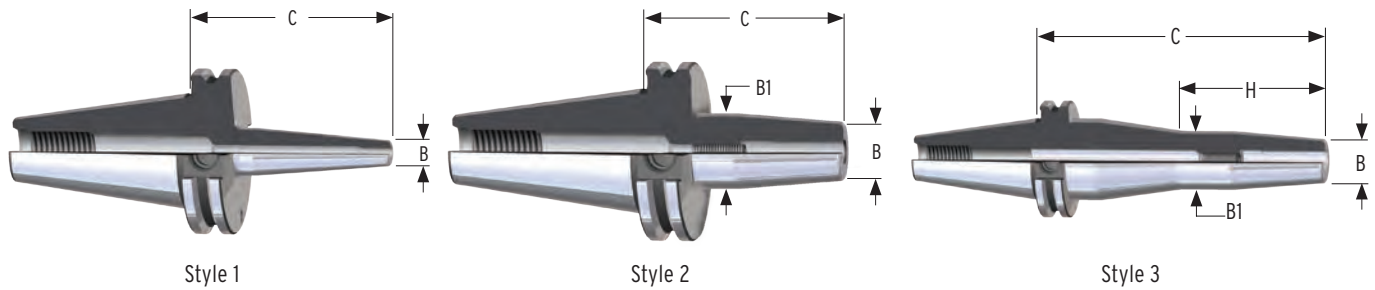
- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B flange coolant enabled
- Balanced to 25,000 rpm @ G2.5

### CAT40 SHRINK FIT - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
C40A-01SF315-9	1/8"	2	.39"	.62"	3.15"	-	-
C40A-18SF315-9	3/16"	2	.39"	.72"	3.15"	-	-
C40-25SF315-9	1/4"	2	.83"	1.06"	3.15"	-	BS-SFM058-16
C40-25SF630-9	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
C40-31SF315-9	5/16"	2	.83"	1.06"	3.15"	-	BS-SFM061-16
C40-31SF630-9	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
C40-38SF315-9	3/8"	2	.94"	1.26"	3.15"	-	BS-SFM081-16
C40-38SF630-9	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
C40-50SF315-9	1/2"	2	.94"	1.26"	3.15"	-	BS-SFM101-20
C40-50SF630-9	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
C40-62SF315-9	5/8"	2	1.06"	1.34"	3.15"	-	BS-SFM121-20
C40-62SF630-9	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
C40-75SF315-9	3/4"	2	1.30"	1.65"	3.15"	-	BS-SFM161-20
C40-75SF630-9	3/4"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
C40-10SF394-9	1"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C40-10SF630-9	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
C40-12SF394-9	1-1/4"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C40-12SF630-9	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

# Shrink Fit Holders

## CAT40 Shrink Fit with Coolant Ports | Metric



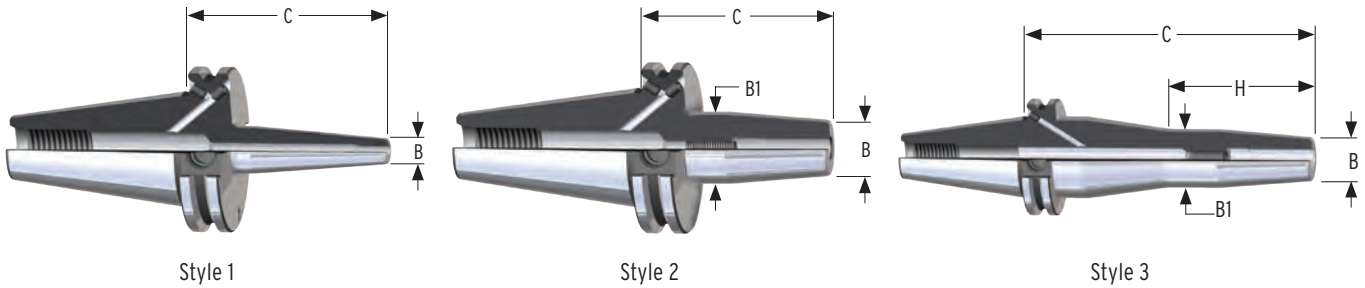
### FEATURES

- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

### CAT40 SHRINK FIT WITH COOLANT PORTS - METRIC

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
C40A-M06SF80-9C	6 mm	2	21 mm	27 mm	80 mm	-	BS-SFM058-16
C40A-M06SF130-9C	6 mm	2	21 mm	27 mm	130 mm	-	BS-SFM058-16
C40A-M06SF160-9C	6 mm	3	21 mm	27 mm	160 mm	80 mm	BS-SFM058-16
C40A-M08SF80-9C	8 mm	2	21 mm	27 mm	80 mm	-	BS-SFM061-16
C40A-M08SF130-9C	8 mm	2	21 mm	27 mm	130 mm	-	BS-SFM061-16
C40A-M08SF160-9C	8 mm	3	21 mm	27 mm	160 mm	80 mm	BS-SFM061-16
C40A-M10SF80-9C	10 mm	2	24 mm	32 mm	80 mm	-	BS-SFM081-16
C40A-M10SF130-9C	10 mm	2	24 mm	32 mm	130 mm	-	BS-SFM081-16
C40A-M10SF160-9C	10 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM081-16
C40A-M12SF80-9C	12 mm	2	24 mm	32 mm	80 mm	-	BS-SFM101-20
C40A-M12SF130-9C	12 mm	2	24 mm	32 mm	130 mm	-	BS-SFM101-20
C40A-M12SF160-9C	12 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM101-20
C40A-M14SF80-9C	14 mm	2	27 mm	34 mm	80 mm	-	BS-SFM101-20
C40A-M14SF130-9C	14 mm	2	27 mm	34 mm	130 mm	-	BS-SFM101-20
C40A-M14SF160-9C	14 mm	3	27 mm	34 mm	160 mm	80 mm	BS-SFM101-20
C40A-M16SF80-9C	16 mm	2	27 mm	34 mm	80 mm	-	BS-SFM121-20
C40A-M16SF130-9C	16 mm	2	27 mm	34 mm	130 mm	-	BS-SFM121-20
C40A-M16SF160-9C	16 mm	3	27 mm	34 mm	160 mm	80 mm	BS-SFM121-20
C40A-M20SF80-9C	20 mm	2	33 mm	42 mm	80 mm	-	BS-SFM161-20
C40A-M20SF130-9C	20 mm	2	33 mm	42 mm	130 mm	-	BS-SFM161-20
C40A-M20SF160-9C	20 mm	2	33 mm	42 mm	160 mm	-	BS-SFM161-20
C40A-M25SF100-9C	25 mm	2	44 mm	53 mm	100 mm	-	BS-SFM161-20
C40A-M25SF130-9C	25 mm	2	44 mm	53 mm	130 mm	-	BS-SFM161-20
C40A-M25SF160-9C	25 mm	2	44 mm	53 mm	160 mm	-	BS-SFM161-20
C40A-M32SF100-9C	32 mm	2	44 mm	53 mm	100 mm	-	BS-SFM161-20
C40A-M32SF130-9C	32 mm	2	44 mm	53 mm	130 mm	-	BS-SFM161-20

## CAT40 Shrink Fit | Metric



### FEATURES

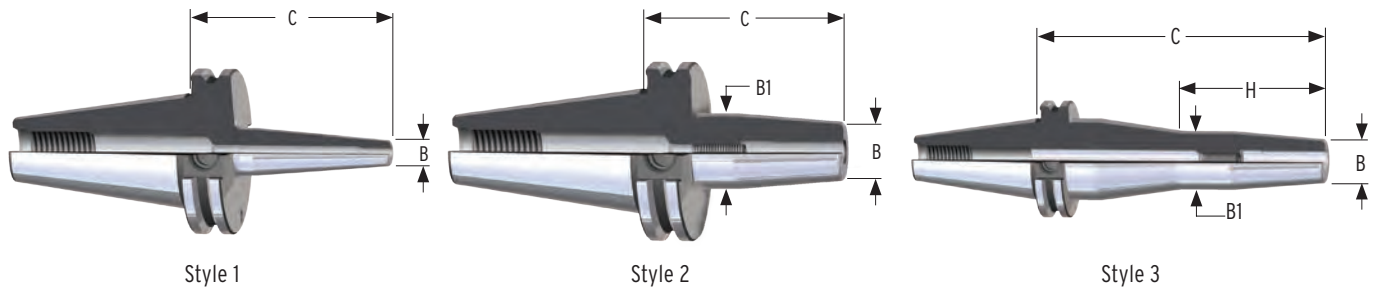
- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B flange coolant enabled
- Balanced to 25,000 rpm @ G2.5

### CAT40 SHRINK FIT - METRIC

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
C40-M06SF80-9	6 mm	2	21 mm	27 mm	80 mm	-	BS-SFM058-16
C40-M08SF80-9	8 mm	2	21 mm	27 mm	80 mm	-	BS-SFM061-16
C40-M10SF80-9	10 mm	2	24 mm	32 mm	80 mm	-	BS-SFM081-16
C40-M12SF80-9	12 mm	2	24 mm	32 mm	80 mm	-	BS-SFM101-20
C40-M16SF80-9	16 mm	2	27 mm	34 mm	80 mm	-	BS-SFM121-20
C40-M20SF80-9	20 mm	2	33 mm	42 mm	80 mm	-	BS-SFM161-20
C40-M25SF100-9	25 mm	2	44 mm	53 mm	100 mm	-	BS-SFM161-20
C40-M32SF100-9	32 mm	2	44 mm	53 mm	100 mm	-	BS-SFM161-20

# Shrink Fit Holders

## CAT50 Shrink Fit with Coolant Ports | Inch



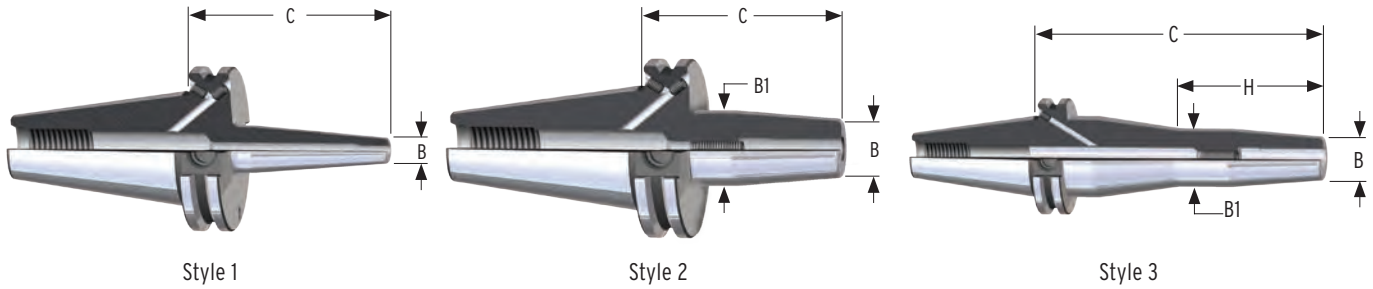
### FEATURES

- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 20,000 rpm @ G2.5

### CAT50 SHRINK FIT WITH COOLANT PORTS - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
C50A-25SF315-9C	1/4"	2	.83"	1.06"	3.15"	-	BS-SFM058-16
C50A-25SF512-9C	1/4"	2	.83"	1.06"	5.12"	-	BS-SFM058-16
C50A-25SF630-9C	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
C50A-31SF315-9C	5/16"	2	.83"	1.06"	3.15"	-	BS-SFM061-16
C50A-31SF512-9C	5/16"	2	.83"	1.06"	5.12"	-	BS-SFM061-16
C50A-31SF630-9C	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
C50A-38SF315-9C	3/8"	2	.94"	1.26"	3.15"	-	BS-SFM081-16
C50A-38SF512-9C	3/8"	2	.94"	1.26"	5.12"	-	BS-SFM081-16
C50A-38SF630-9C	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
C50A-50SF315-9C	1/2"	2	.94"	1.26"	3.15"	-	BS-SFM101-20
C50A-50SF512-9C	1/2"	2	.94"	1.26"	5.12"	-	BS-SFM101-20
C50A-50SF630-9C	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
C50A-62SF315-9C	5/8"	2	1.06"	1.34"	3.15"	-	BS-SFM121-20
C50A-62SF512-9C	5/8"	2	1.06"	1.34"	5.12"	-	BS-SFM121-20
C50A-62SF630-9C	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
C50A-75SF315-9C	3/4"	2	1.30"	1.65"	3.15"	-	BS-SFM161-20
C50A-75SF512-9C	3/4"	2	1.30"	1.65"	5.12"	-	BS-SFM161-20
C50A-75SF630-9C	3/4"	3	1.30"	1.65"	6.30"	3.15"	BS-SFM161-20
C50A-10SF394-9C	1"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C50A-10SF512-9C	1"	2	1.73"	2.09"	5.12"	-	BS-SFM161-20
C50A-10SF630-9C	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
C50A-12SF394-9C	1-1/4"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C50A-12SF512-9C	1-1/4"	2	1.73"	2.09"	5.12"	-	BS-SFM161-20
C50A-12SF630-9C	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

## CAT50 Shrink Fit | Inch



### FEATURES

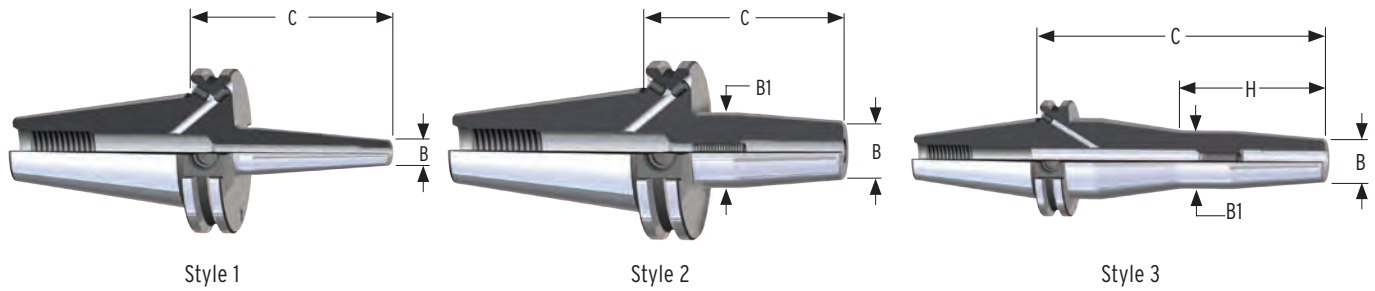
- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B flange coolant enabled
- Balanced to 20,000 rpm @ G2.5

### CAT50 SHRINK FIT - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
C50-25SF315-9	1/4"	2	.83"	1.06"	3.15"	-	BS-SFM058-16
C50-25SF630-9	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
C50-31SF315-9	5/16"	2	.83"	1.06"	3.15"	-	BS-SFM061-16
C50-31SF630-9	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
C50-38SF315-9	3/8"	2	.94"	1.26"	3.15"	-	BS-SFM081-16
C50-38SF630-9	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
C50-50SF315-9	1/2"	2	.94"	1.26"	3.15"	-	BS-SFM101-20
C50-50SF630-9	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
C50-62SF315-9	5/8"	2	1.06"	1.34"	3.15"	-	BS-SFM121-20
C50-62SF630-9	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
C50-75SF315-9	3/4"	2	1.30"	1.65"	3.15"	-	BS-SFM161-20
C50-75SF630-9	3/4"	3	1.30"	1.65"	6.30"	3.15"	BS-SFM161-20
C50-10SF394-9	1"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C50-10SF630-9	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
C50-12SF394-9	1-1/4"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
C50-12SF630-9	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

# Shrink Fit Holders

## CAT50 Shrink Fit | Metric



### FEATURES

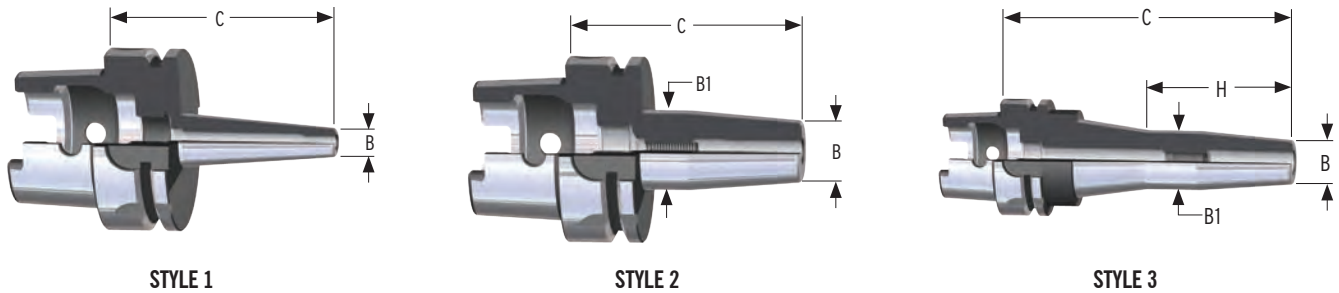
- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B flange coolant enabled
- Balanced to 20,000 rpm @ G2.5

### CAT50 SHRINK FIT - METRIC

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
C50-M06SF80-9	6 mm	2	21 mm	27 mm	80 mm	-	BS-SFM058-16
C50-M06SF160-9	6 mm	3	21 mm	27mm	160 mm	80 mm	BS-SFM058-16
C50-M08SF80-9	8 mm	2	21 mm	27mm	80 mm	-	BS-SFM061-16
C50-M08SF160-9	8 mm	3	21 mm	27mm	160 mm	80 mm	BS-SFM061-16
C50-M10SF80-9	10 mm	2	24 mm	32mm	80 mm	-	BS-SFM081-16
C50-M10SF160-9	10 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM081-16
C50-M12SF80-9	12 mm	2	24 mm	32 mm	80 mm	-	BS-SFM101-20
C50-M12SF160-9	12 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM101-20
C50-M16SF80-9	16 mm	2	27 mm	34 mm	80 mm	-	BS-SFM121-20
C50-M16SF160-9	16 mm	3	27 mm	34 mm	160 mm	80 mm	BS-SFM121-20
C50-M20SF80-9	20 mm	2	33 mm	42 mm	80 mm	-	BS-SFM161-20
C50-M20SF160-9	20 mm	3	33 mm	42 mm	160 mm	80 mm	BS-SFM161-20
C50-M25SF100-9	25 mm	2	44 mm	53 mm	100 mm	-	BS-SFM161-20
C50-M25SF160-9	25 mm	2	44 mm	53 mm	160 mm	-	BS-SFM161-20
C50-M32SF100-9	32 mm	2	44 mm	53 mm	100 mm	-	BS-SFM161-20
C50-M32SF160-9	32 mm	2	44 mm	53 mm	160 mm	-	BS-SFM161-20



## HSK 63A Shrink Fit with Coolant Ports | Inch



### FEATURES

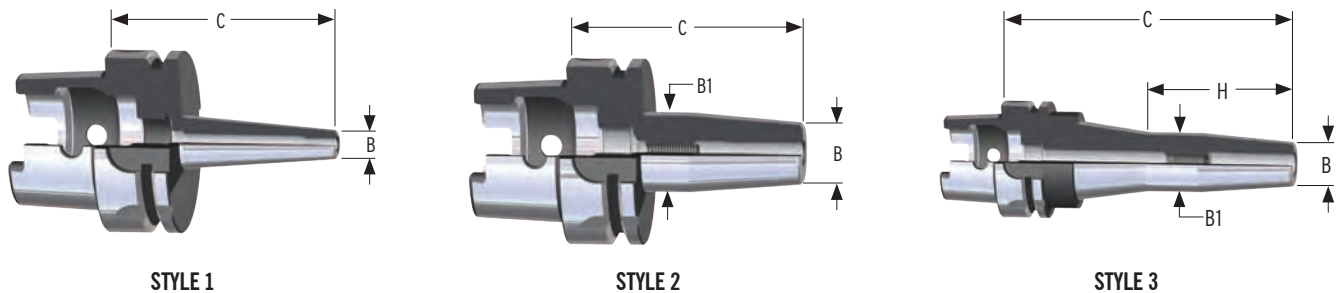
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 @ G2.5

### HSK 63A SHRINK FIT WITH COOLANT PORTS - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H63A-25SF315-9C	1/4"	2	.83"	1.06"	3.15"	-	BS-SFM058-16
H63A-25SF512-9C	1/4"	2	.83"	1.06"	5.12"	-	BS-SFM058-16
H63A-25SF630-9C	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
H63A-31SF315-9C	5/16"	2	.83"	1.06"	3.15"	-	BS-SFM061-16
H63A-31SF512-9C	5/16"	2	.83"	1.06"	5.12"	-	BS-SFM061-16
H63A-31SF630-9C	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
H63A-38SF335-9C	3/8"	2	.94"	1.26"	3.35"	-	BS-SFM081-16
H63A-38SF512-9C	3/8"	2	.94"	1.26"	5.12"	-	BS-SFM081-16
H63A-38SF630-9C	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
H63A-50SF354-9C	1/2"	2	.94"	1.26"	3.54"	-	BS-SFM101-20
H63A-50SF512-9C	1/2"	2	.94"	1.26"	5.12"	-	BS-SFM101-20
H63A-50SF630-9C	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
H63A-62SF374-9C	5/8"	2	1.06"	1.34"	3.75"	-	BS-SFM121-20
H63A-62SF512-9C	5/8"	2	1.06"	1.34"	5.12"	-	BS-SFM121-20
H63A-62SF630-9C	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
H63A-75SF394-9C	3/4"	2	1.30"	1.65"	3.94"	-	BS-SFM161-20
H63A-75SF512-9C	3/4"	2	1.30"	1.65"	5.12"	-	BS-SFM161-20
H63A-75SF630-9C	3/4"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
H63A-10SF453-9C	1"	2	1.73"	2.09"	4.53"	-	BS-SFM161-20
H63A-10SF630-9C	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
H63A-12SF472-9C	1-1/4"	2	1.73"	2.09"	4.72"	-	BS-SFM161-20
H63A-12SF630-9C	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

# Shrink Fit Holders

## HSK 63A Shrink Fit | Inch



### FEATURES

- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

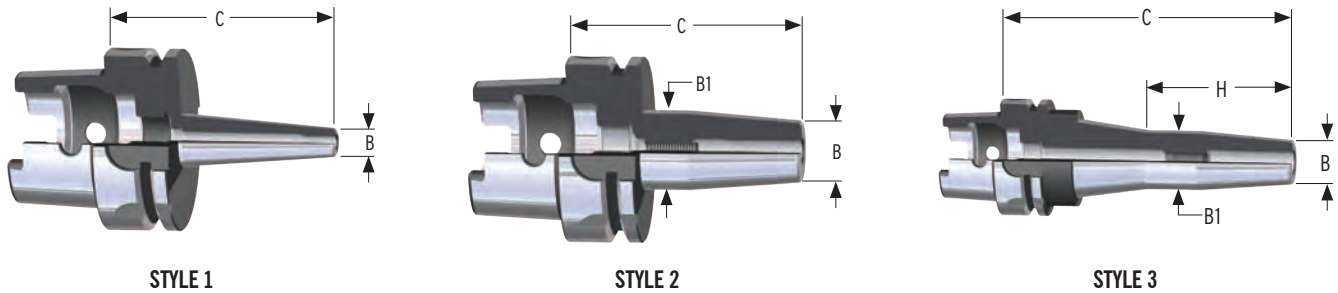
### HSK 63A SHRINK FIT - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H63A-01SF315-9	1/8"	2	.39"	.62"	3.15"	-	-
H63A-18SF315-9	3/16"	1	.39"	-	3.15"	-	-
H63A-25SF315-9	1/4"	2	.83"	1.06"	3.15"	-	BS-SFM058-16
H63A-25SF630-9	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
H63A-31SF315-9	5/16"	2	.83"	1.06"	3.15"	-	BS-SFM061-16
H63A-31SF630-9	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
H63A-38SF335-9	3/8"	2	.94"	1.26"	3.35"	-	BS-SFM081-16
H63A-38SF630-9	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
H63A-50SF354-9	1/2"	2	.94"	1.26"	3.54"	-	BS-SFM101-20
H63A-50SF630-9	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
H63A-62SF374-9	5/8"	2	1.06"	1.34"	3.75"	-	BS-SFM121-20
H63A-62SF630-9	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
H63A-75SF394-9	3/4"	2	1.30"	1.65"	3.94"	-	BS-SFM161-20
H63A-75SF630-9	3/4"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
H63A-10SF453-9	1"	2	1.73"	2.09"	4.53"	-	BS-SFM161-20
H63A-10SF630-9	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
H63A-12SF472-9	1-1/4"	2	1.73"	2.09"	4.72"	-	BS-SFM161-20
H63A-12SF630-9	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

### ACCESSORIES

Part #	Description
H63TUBE	HSK63 Coolant Tube
H63W	HSK63 Coolant Tube Wrench

## HSK 63A Shrink Fit with Coolant Ports | Metric



### FEATURES

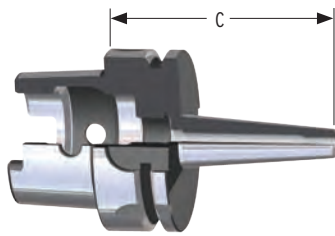
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

### HSK 63A SHRINK FIT WITH COOLANT PORTS - METRIC

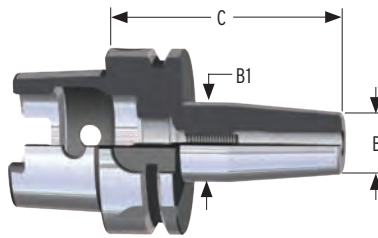
Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H63A-M04SF80-9C	4 mm	1	10 mm	-	80 mm	-	BS-SFM058-16
H63A-M06SF80-9C	6 mm	2	21 mm	27 mm	80 mm	-	BS-SFM058-16
H63A-M06SF130-9C	6 mm	2	21 mm	27 mm	130 mm	-	BS-SFM058-16
H63A-M06SF160-9C	6 mm	3	21 mm	27 mm	160 mm	80 mm	BS-SFM058-16
H63A-M08SF80-9C	8 mm	2	21 mm	27 mm	80 mm	-	BS-SFM061-16
H63A-M08SF130-9C	8 mm	2	21 mm	27 mm	130 mm	-	BS-SFM061-16
H63A-M08SF160-9C	8 mm	3	21 mm	27 mm	160 mm	80 mm	BS-SFM061-16
H63A-M10SF85-9C	10 mm	2	24 mm	32 mm	85 mm	-	BS-SFM081-16
H63A-M10SF130-9C	10 mm	2	24 mm	32 mm	130 mm	-	BS-SFM081-16
H63A-M10SF160-9C	10 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM081-16
H63A-M12SF90-9C	12 mm	2	24 mm	32 mm	90 mm	-	BS-SFM101-20
H63A-M12SF130-9C	12 mm	2	24 mm	32 mm	130 mm	-	BS-SFM101-20
H63A-M12SF160-9C	12 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM101-20
H63A-M16SF95-9C	16 mm	2	27 mm	34 mm	95 mm	-	BS-SFM121-20
H63A-M16SF130-9C	16 mm	2	27 mm	34 mm	130 mm	-	BS-SFM121-20
H63A-M16SF160-9C	16 mm	3	27 mm	34 mm	160 mm	80 mm	BS-SFM121-20
H63A-M20SF100-9C	20 mm	2	33 mm	42 mm	100 mm	-	BS-SFM161-20
H63A-M20SF130-9C	20 mm	2	33 mm	42 mm	130 mm	-	BS-SFM161-20
H63A-M20SF160-9C	20 mm	2	33 mm	42 mm	160 mm	-	BS-SFM161-20
H63A-M25SF115-9C	25 mm	2	44 mm	53 mm	115 mm	-	BS-SFM161-20
H63A-M25SF160-9C	25 mm	2	44 mm	53 mm	160 mm	-	BS-SFM161-20
H63A-M32SF120-9C	32 mm	2	44 mm	53 mm	120 mm	-	BS-SFM161-20
H63A-M32SF160-9C	32 mm	2	44 mm	53 mm	160 mm	-	BS-SFM161-20

# Shrink Fit Holders

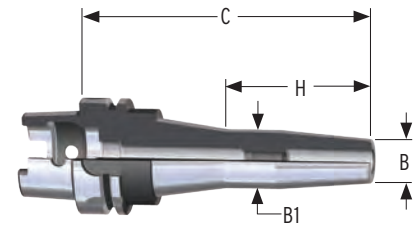
## HSK 63A Shrink Fit | Metric



STYLE 1



STYLE 2



STYLE 3

### FEATURES

- Proudly Made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

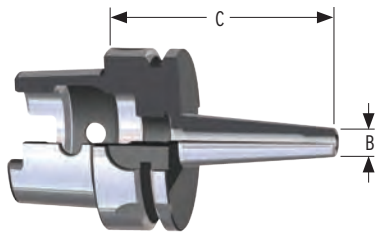
### HSK 63A SHRINK FIT - METRIC

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H63A-M04SF80-9	4 mm	1	10 mm	-	80 mm	-	BS-SFM058-16
H63A-M06SF80-9	6 mm	2	21 mm	27 mm	80 mm	-	BS-SFM058-16
H63A-M06SF130-9	6 mm	2	21 mm	27 mm	130 mm	-	BS-SFM058-16
H63A-M06SF160-9	6 mm	3	21 mm	27 mm	160 mm	80 mm	BS-SFM058-16
H63A-M08SF80-9	8 mm	2	21 mm	27 mm	80 mm	-	BS-SFM061-16
H63A-M08SF130-9	8 mm	2	21 mm	27 mm	130 mm	-	BS-SFM061-16
H63A-M08SF160-9	8 mm	3	21 mm	27 mm	160 mm	80 mm	BS-SFM061-16
H63A-M10SF85-9	10 mm	2	24 mm	32 mm	85 mm	-	BS-SFM081-16
H63A-M10SF130-9	10 mm	2	24 mm	32 mm	130 mm	-	BS-SFM081-16
H63A-M10SF160-9	10 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM081-16
H63A-M12SF90-9	12 mm	2	24 mm	32 mm	90 mm	-	BS-SFM101-20
H63A-M12SF130-9	12 mm	2	24 mm	32 mm	130 mm	-	BS-SFM101-20
H63A-M12SF160-9	12 mm	3	24 mm	32 mm	160 mm	80 mm	BS-SFM101-20
H63A-M16SF95-9	16 mm	2	27 mm	34 mm	95 mm	-	BS-SFM121-20
H63A-M16SF130-9	16 mm	2	27 mm	34 mm	130 mm	-	BS-SFM121-20
H63A-M16SF160-9	16 mm	3	27 mm	34 mm	160 mm	80 mm	BS-SFM121-20
H63A-M20SF100-9	20 mm	2	33 mm	42 mm	100 mm	-	BS-SFM161-20
H63A-M20SF160-9	20 mm	2	33 mm	42 mm	160 mm	-	BS-SFM161-20
H63A-M25SF115-9	25 mm	2	44 mm	53 mm	115 mm	-	BS-SFM161-20
H63A-M25SF160-9	25 mm	2	44 mm	53 mm	160 mm	-	BS-SFM161-20
H63A-M32SF120-9	32 mm	2	44 mm	53 mm	120 mm	-	BS-SFM161-20
H63A-M32SF160-9	32 mm	2	44 mm	53 mm	160 mm	-	BS-SFM161-20

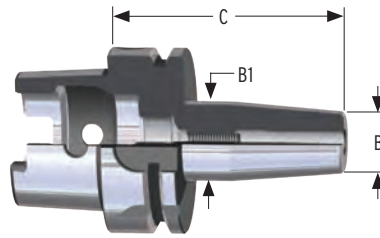
### ACCESSORIES

Part #	Description
H63TUBE	HSK63 Coolant Tube
H63W	HSK63 Coolant Tube Wrench

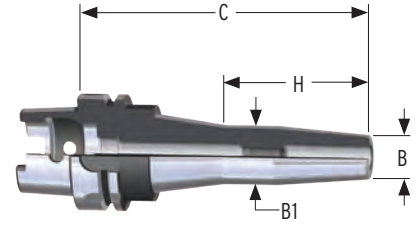
## HSK 100A Shrink Fit with Coolant Ports | Inch



STYLE 1



STYLE 2



STYLE 3

### FEATURES

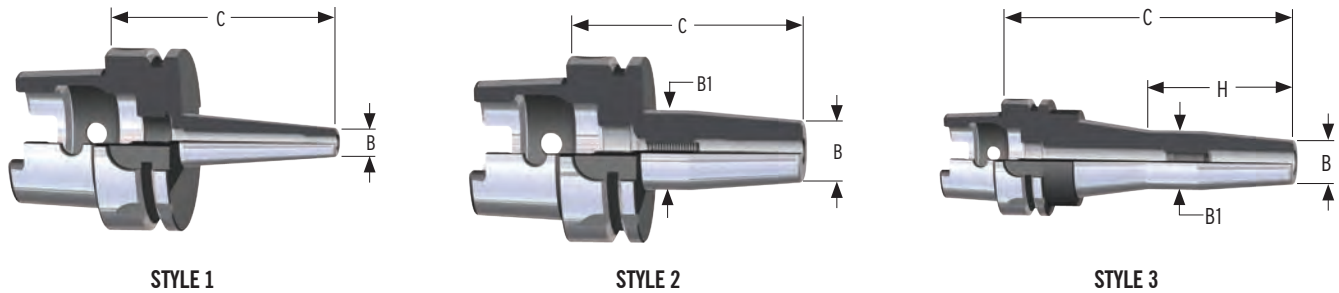
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting path
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 20,000 rpm @ G2.5

### HSK 100A SHRINK FIT WITH COOLANT PORTS - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H100A-25SF335-9C	1/4"	2	.83"	1.06"	3.35"	-	BS-SFM058-16
H100A-25SF512-9C	1/4"	2	.83"	1.06"	5.12"	-	BS-SFM058-16
H100A-25SF630-9C	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
H100A-31SF335-9C	5/16"	2	.83"	1.06"	3.35"	-	BS-SFM061-16
H100A-31SF512-9C	5/16"	2	.83"	1.06"	5.12"	-	BS-SFM061-16
H100A-31SF630-9C	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
H100A-38SF354-9C	3/8"	2	.94"	1.26"	3.54"	-	BS-SFM081-16
H100A-38SF512-9C	3/8"	2	.94"	1.26"	5.12"	-	BS-SFM081-16
H100A-38SF630-9C	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
H100A-43SF354-9C	7/16"	2	.94"	1.26"	3.54"	-	BS-SFM081-16
H100A-43SF512-9C	7/16"	2	.94"	1.26"	5.12"	-	BS-SFM081-16
H100A-43SF630-9C	7/16"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
H100A-50SF374-9C	1/2"	2	.94"	1.26"	3.74"	-	BS-SFM101-20
H100A-50SF512-9C	1/2"	2	.94"	1.26"	5.12"	-	BS-SFM101-20
H100A-50SF630-9C	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
H100A-62SF394-9C	5/8"	2	1.06"	1.34"	3.94"	-	BS-SFM121-20
H100A-62SF512-9C	5/8"	2	1.06"	1.34"	5.12"	-	BS-SFM121-20
H100A-62SF630-9C	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
H100A-75SF413-9C	3/4"	2	1.30"	1.65"	4.13"	-	BS-SFM121-20
H100A-75SF512-9C	3/4"	2	1.30"	1.65"	5.12"	-	BS-SFM121-20
H100A-75SF630-9C	3/4"	3	1.30"	1.65"	6.30"	3.15"	BS-SFM121-20
H100A-10SF453-9C	1"	2	1.73"	2.09"	4.53"	-	BS-SFM161-20
H100A-10SF512-9C	1"	2	1.73"	2.09"	5.12"	-	BS-SFM161-20
H100A-10SF630-9C	1"	3	1.73"	2.09"	6.30"	3.15"	BS-SFM161-20
H100A-12SF472-9C	1-1/4"	2	1.73"	2.09"	4.72"	-	BS-SFM161-20
H100A-12SF512-9C	1-1/4"	2	1.73"	2.09"	5.12"	-	BS-SFM161-20
H100A-12SF630-9C	1-1/4"	3	1.73"	2.09"	6.30"	3.15"	BS-SFM161-20

# Shrink Fit Holders

## HSK 100A Shrink Fit | Inch



### FEATURES

- Proudly made-in-USA
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 20,000 rpm @ G2.5

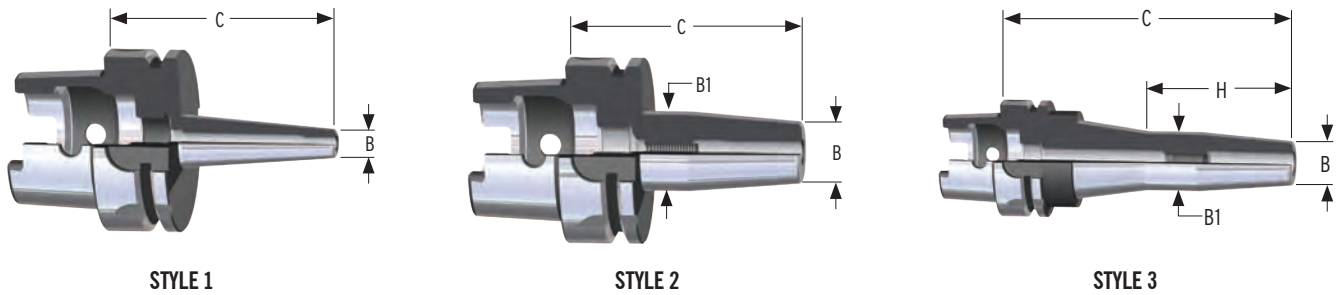
### HSK 100A SHRINK FIT - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H100A-25SF335-9	1/4"	2	.83"	1.06"	3.35"	-	-
H100A-25SF630-9	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
H100A-31SF335-9	5/16"	2	.83"	1.06"	3.35"	-	BS-SFM061-16
H100A-31SF630-9	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
H100A-38SF354-9	3/8"	2	.94"	1.26"	3.54"	-	BS-SFM081-16
H100A-38SF630-9	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
H100A-50SF374-9	1/2"	2	.94"	1.26"	3.74"	-	BS-SFM101-20
H100A-50SF630-9	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
H100A-62SF394-9	5/8"	2	1.06"	1.34"	3.94"	-	BS-SFM121-20
H100A-62SF630-9	5/8"	3	1.06"	1.34"	6.30"	3.15"	BS-SFM121-20
H100A-75SF413-9	3/4"	2	1.30"	1.65"	4.13"	-	BS-SFM121-20
H100A-75SF630-9	3/4"	3	1.30"	1.65"	6.30"	3.15"	BS-SFM121-20
H100A-10SF453-9	1"	2	1.73"	2.09"	4.53"	-	BS-SFM161-20
H100A-10SF630-9	1"	3	1.73"	2.09"	6.30"	3.15"	BS-SFM161-20
H100A-12SF472-9	1-1/4"	2	1.73"	2.09"	4.72"	-	BS-SFM161-20
H100A-12SF630-9	1-1/4"	3	1.73"	2.09"	6.30"	3.15"	BS-SFM161-20

### ACCESSORIES

Part #	Description
H100TUBE	HSK100 Coolant Tube
H100W	HSK100 Coolant Tube Wrench

## HSK 100A Shrink Fit with Coolant Ports | Metric



### FEATURES

- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 20,000 rpm @ G2.5

### HSK 100A SHRINK FIT WITH COOLANT PORTS - METRIC

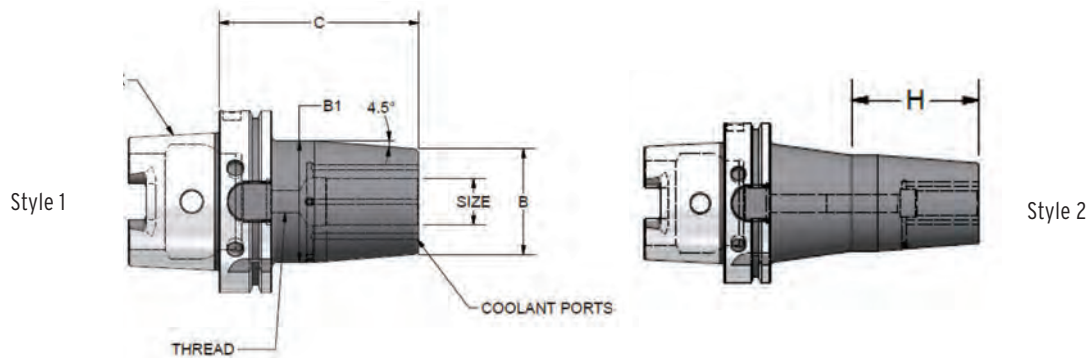
Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H100A-M06SF85-9C	6 mm	2	21 mm	27 mm	85 mm	-	BS-SFM058-16
H100A-M08SF85-9C	8 mm	2	21 mm	27 mm	85 mm	-	BS-SFM061-16
H100A-M10SF90-9C	10 mm	2	24 mm	32 mm	90 mm	-	BS-SFM081-16
H100A-M12SF95-9C	12 mm	2	24 mm	32 mm	95 mm	-	BS-SFM101-20
H100A-M16SF100-9C	16 mm	2	27 mm	34 mm	100 mm	-	BS-SFM121-20
H100A-M20SF105-9C	20 mm	2	33 mm	42 mm	105 mm	-	BS-SFM161-20
H100A-M25SF115-9C	25 mm	2	44 mm	53 mm	115 mm	-	BS-SFM161-20
H100A-M32SF100-9C	32 mm	2	44 mm	53 mm	100 mm	-	BS-SFM121-20

### ACCESSORIES

Part #	Description
H100TUBE	HSK100 Coolant Tube
H100W	HSK100 Coolant Tube Wrench

# Shrink Fit Holders

## HSK 100A Heavy Duty Shrink Fit with Coolant Ports | Inch



### FEATURES

- Proudly made-in-USA
- Thick wall design enhances rigidity and holding power for high metal removal applications
- 4 angled ports direct coolant to the cutting path
- Made from H13 steel for superior rigidity and longevity
- Balanced to 20,000 rpm @ G2.5

### HSK 100A SHRINK FIT WITH COOLANT PORTS - INCH

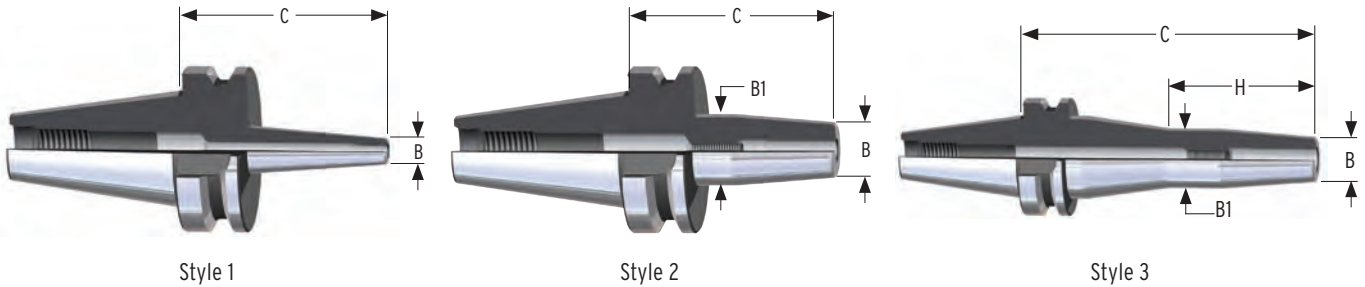
Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
H100A-38SHD630-9C	3/8"	2	1.51"	1.78"	6.30"	3.07"	BS-SFM081-16
H100A-50SHD374-9C	1/2"	1	1.06"	1.33"	3.74"	-	BS-SFM101-20
H100A-50SHD630-9C	1/2"	2	1.06"	1.34"	6.30"	3.54"	BS-SFM081-16
H100A-50SHD787-9C	1/2"	2	1.06"	1.33"	7.87"	3.54"	BS-SFM101-20
H100A-62SHD394-9C	5/8"	1	2.13"	2.36"	3.94"	-	BS-SFM121-20
H100A-62SHD630-9C	5/8"	2	1.98"	2.36"	6.30"	3.15"	BS-SFM121-20
H100A-75SHD394-9C	3/4"	1	2.28"	2.64"	3.94"	-	BS-SFM121-20
H100A-75SHD413-9C	3/4"	1	2.28"	2.64"	4.13"	-	BS-SFM161-20
H100A-75SHD512-9C	3/4"	1	2.28"	2.64"	5.12"	-	BS-SFM161-20
H100A-75SHD630-9C	3/4"	1	2.28"	2.64"	6.30"	-	BS-SFM161-20
H100A-75SHD787-9C	3/4"	1	2.28"	2.64"	7.87"	-	BS-SFM161-20
H100A-10SHD433-9C	1"	1	2.28"	2.64"	4.33"	-	-
H100A-10SHD472-9C	1"	1	2.48"	2.83"	4.72"	-	BS-SFM161-20
H100A-10SHD630-9C	1"	1	2.48"	2.83"	6.30"	-	BS-SFM161-20
H100A-10SHD787-9C	1"	1	2.28"	2.64"	7.87"	-	BS-SFM161-20
H100A-12SHD433-9C	1-1/4"	1	2.76"	3.07"	4.33"	-	-
H100A-12SHD472-9C	1-1/4"	1	2.76"	3.07"	4.72"	-	-
H100A-12SHD512-9C	1-1/4"	1	2.28"	2.71"	5.12"	2.93"	-
H100A-12SHD630-9C	1-1/4"	1	2.76"	3.07"	6.30"	-	BS-SFM161-20
H100A-12SHD787-9C	1-1/4"	1	2.76"	3.07"	7.87"	-	BS-SFM161-20

### ACCESSORIES

Part #	Description
H100TUBE	HSK100 Coolant Tube
H100W	HSK100 Coolant Tube Wrench



## BT40 Shrink FIT with Coolant Ports | Inch



### FEATURES

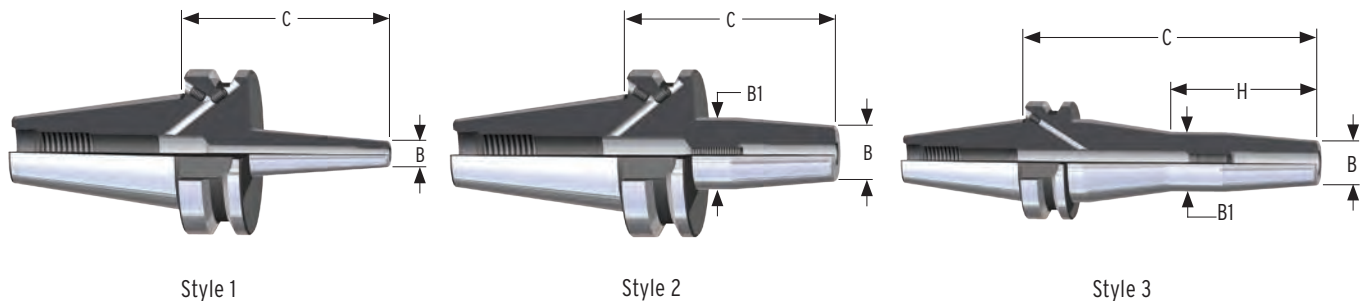
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

### BT40 SHRINK FIT WITH COOLANT PORTS - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
BT40-18SF354-9C	3/16"	2	.39"	.62"	3.54"	-	-
BT40-25SF354-9C	1/4"	2	.83"	1.06"	3.54"	-	BS-SFM058-16
BT40-25SF630-9C	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
BT40-31SF354-9C	5/16"	2	.83"	1.06"	3.54"	-	BS-SFM061-16
BT40-31SF630-9C	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
BT40-38SF354-9C	3/8"	2	.94"	1.26"	3.54"	-	BS-SFM081-16
BT40-38SF630-9C	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
BT40-43SF354-9C	7/16"	2	.94"	1.26"	3.54"	-	BS-SFM081-16
BT40-50SF354-9C	1/2"	2	.94"	1.26"	3.54"	-	BS-SFM101-20
BT40-50SF630-9C	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
BT40-62SF354-9C	5/8"	2	1.06"	1.34"	3.54"	-	BS-SFM121-20
BT40-62SF630-9C	5/8"	2	1.06"	1.34"	6.30"	-	BS-SFM121-20
BT40-75SF354-9C	3/4"	2	1.30"	1.65"	3.54"	-	BS-SFM161-20
BT40-75SF630-9C	3/4"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
BT40-88SF354-9C	7/8"	2	1.30"	1.65"	3.54"	-	BS-SFM161-20
BT40-88SF630-9C	7/8"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
BT40-10SF394-9C	1"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
BT40-10SF630-9C	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
BT40-12SF394-9C	1-1/4"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
BT40-12SF630-9C	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

# Shrink Fit Holders

## BT40 Shrink FIT | Inch



### FEATURES

- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gage lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B through flange coolant enabled
- Balanced to 25,000 rpm @ G2.5

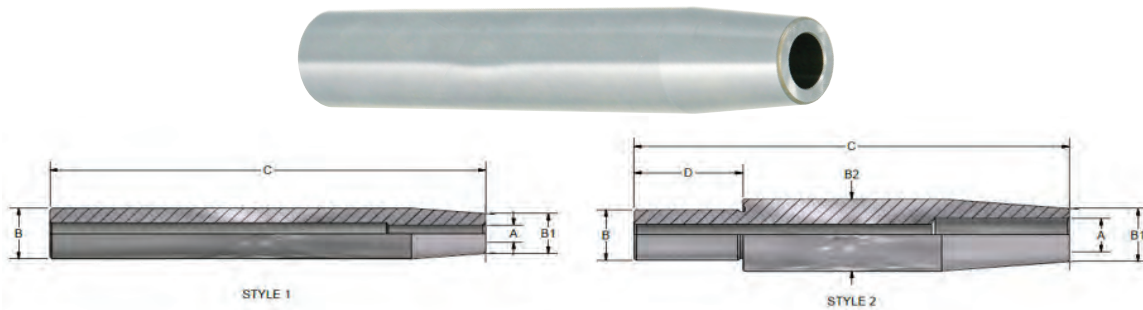
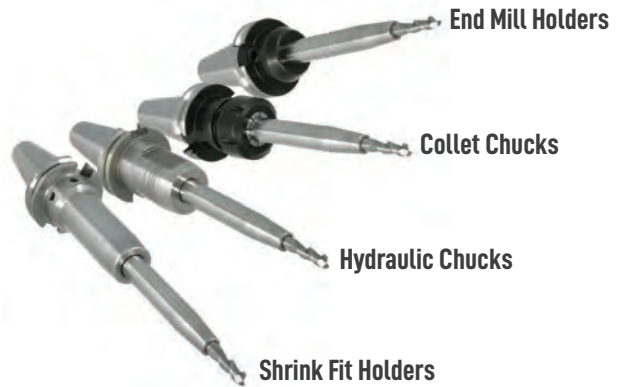
### BT40 SHRINK FIT - INCH

Part #	Bore Size	Style	B (Dia.)	B1 (Dia.)	C	H	Stop screw (opt.)
BT40-18SF354-9	3/16"	2	.39"	.62"	3.54"	-	-
BT40-25SF354-9	1/4"	2	.83"	1.06"	3.54"	-	BS-SFM058-16
BT40-25SF630-9	1/4"	3	.83"	1.06"	6.30"	3.15"	BS-SFM058-16
BT40-31SF354-9	5/16"	2	.83"	1.06"	3.54"	-	BS-SFM061-16
BT40-31SF630-9	5/16"	3	.83"	1.06"	6.30"	3.15"	BS-SFM061-16
BT40-38SF354-9	3/8"	2	.94"	1.26"	3.54"	-	BS-SFM081-16
BT40-38SF630-9	3/8"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
BT40-43SF354-9	7/16"	2	.94"	1.26"	3.54"	-	BS-SFM081-16
BT40-43SF630-9	7/16"	3	.94"	1.26"	6.30"	3.15"	BS-SFM081-16
BT40-50SF354-9	1/2"	2	.94"	1.26"	3.54"	-	BS-SFM101-20
BT40-50SF630-9	1/2"	3	.94"	1.26"	6.30"	3.15"	BS-SFM101-20
BT40-62SF354-9	5/8"	2	1.06"	1.34"	3.54"	-	BS-SFM121-20
BT40-62SF630-9	5/8"	2	1.06"	1.34"	6.30"	-	BS-SFM121-20
BT40-75SF354-9	3/4"	2	1.30"	1.65"	3.54"	-	BS-SFM161-20
BT40-75SF630-9	3/4"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
BT40-88SF354-9	7/8"	2	1.30"	1.65"	3.54"	-	BS-SFM161-20
BT40-88SF630-9	7/8"	2	1.30"	1.65"	6.30"	-	BS-SFM161-20
BT40-10SF394-9	1"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
BT40-10SF630-9	1"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20
BT40-12SF394-9	1-1/4"	2	1.73"	2.09"	3.94"	-	BS-SFM161-20
BT40-12SF630-9	1-1/4"	2	1.73"	2.09"	6.30"	-	BS-SFM161-20

## Shrink Fit Extensions

### FEATURES

- Proudly made-in-USA quality
- Narrow body and nose diameter provide excellent clearance
- Made from H13 steel for superior rigidity and longevity
- Can be used in any tool holding system



### SHRINK FIT EXTENSIONS

Part #	Style	A	B	B1	B2	C	D
EXT50-01SF600	1	1/8"	1/2"	.35"	-	6"	-
EXT50-18SF600	1	3/16"	1/2"	.35"	-	6"	-
EXT75-25SF600	1	1/4"	3/4"	.59"	-	6"	-
EXT75-31SF600	1	5/16"	3/4"	.59"	-	6"	-
EXT75-38SF600	2	3/8"	3/4"	.79"	1.06"	6"	1.50"
EXT75-43SF600	2	7/16"	3/4"	.79"	1.06"	6"	1.50"
EXT75-50SF600	2	1/2"	3/4"	.79"	1.06"	6"	1.50"

## Stop Screws



Part #	Size	Thread	Hex	Length
BS-SFM058-16	1/4"	M5 x .8	2.5 mm	.630" (16 mm)
BS-SFM058-16	M6	M5 x .8	2.5 mm	.630" (16 mm)
BS-SFM061-16	5/16"	M6 x 1	3 mm	.630" (16 mm)
BS-SFM061-16	M8	M6 x 1	3 mm	.630" (16 mm)
BS-SFM081-16	3/8"	M8 x 1	4 mm	.630" (16 mm)
BS-SFM081-16	M10	M8 x 1	4 mm	.630" (16 mm)

Part #	Size	Thread	Hex	Length
BS-SFM101-20	1/2"	M10 x 1	5 mm	.787" (20 mm)
BS-SFM101-20	9/16"	M10 x 1	5 mm	.787" (20 mm)
BS-SFM101-20	M12	M10 x 1	5 mm	.787" (20 mm)
BS-SFM121-20	5/8"	M12 X 1	6 mm	.787" (20 mm)
BS-SFM121-20	5/8"	M12 X 1	6 mm	.787" (20 mm)
BS-SFM161-20	3/4"	M16 X 1	8 mm	.787" (20 mm)
BS-SFM161-20	1"	M16 X 1	8 mm	.787" (20 mm)
BS-SFM161-20	1 1/4"	M16 X 1	8 mm	.787" (20 mm)
BS-SFM161-20	M20	M16 X 1	8 mm	.787" (20 mm)
BS-SFM161-20	M25	M16 X 1	8 mm	.787" (20 mm)
BS-SFM161-20	M32	M16 X 1	8 mm	.787" (20 mm)

# Shrink Fit Machines



## ShrinkSTATION TIHS-400

### FEATURES

- Induction coil technology enables tool changes in 15 - 20 seconds
- Easy-to-use touch screen design
- Automatically aligns tool holder with the induction head
- Heating time is automatically set by tool diameter
- Cooling cycle uses shop air
- Tool lengths up to 22"

Part #	Tool Diameters	Power	L x D x H	Weight
TIHS-400	1/8" to 1/1/4"	220V, 20A, 1- phase	16" x 16" x 22"	70 lbs.



The ShrinkSTATION TIHS-400 comes with a NEMA L6-15P plug installed. Requires a NEMA L6-15R receptacle (not included).

### Each SHRINKSTATION Includes:

Part #	Description
00600-00165	Induction Ring (3 - 5 mm shanks)
00600-00166	Induction Ring (6 - 12 mm shanks)
00600-00167	Induction Ring (14 - 20 mm shanks)
00600-00168	Induction Ring (25 - 32 mm shanks)
385-11878-2	Tool Holder Adapter - 40 taper & C6
385-11878-1	Tool Holder Adapter - 50 taper
385-11878-7	Tool Holder Adapter - HSK63A
26139-L	Thermal Insulated Glove

### Additional Options Available:

Part #	Description
385-11878-9	Tool Holder Adapter - 30 taper
385-11989-6	Tool Holder Adapter - HSK40 & C4
385-11878-8	Tool Holder Adapter - HSK50 & C5
00400/00450-EP	Extension Pedestal for long tool holders

# Shrink Fit Machines

## ShrinkSTATION TIHS-450

More powerful compact SHRINKstation

### FEATURES

- Induction coil technology enables tool changes in 6 - 8 seconds
- Easy-to-use touch screen design
- Automatically aligns tool holder with the induction head
- Heating time is automatically set by tool diameter
- Cooling cycle uses shop air
- Tool lengths up to 22"



Part #	Tool Diameters	Power	L x D x H	Weight
TIHS-450	1/8" to 1/1/4"	440-480V, 20A, 3-phase	16" x 16" x 22"	70 lbs.

### Each SHRINKSTATION Includes:

Part #	Description
00600-00165	Induction Ring (3 - 5 mm shanks)
00600-00166	Induction Ring (6 - 12 mm shanks)
00600-00167	Induction Ring (14 - 20 mm shanks)
00600-00168	Induction Ring (25 - 32 mm shanks)
385-11878-2	Tool Holder Adapter - 40 taper & C6
385-11878-1	Tool Holder Adapter - 50 taper
385-11878-7	Tool Holder Adapter - HSK63A
26139-L	Thermal Insulated Glove

### Additional Options Available:

Part #	Description
385-11878-9	Tool Holder Adapter - 30 taper
385-11989-6	Tool Holder Adapter - HSK40 & C4
385-11878-8	Tool Holder Adapter - HSK50 & C5
00400/00450-EP	Extension Pedestal for long tool holders



The ShrinkSTATION TIHS-450 comes with a NEMA L16-20P plug installed. Requires a NEMA L16-20R receptacle (not included).

# Shrink Fit Machines

## ShrinkPRO TIHS-600



### FEATURES

- Induction coil technology enables tool changes in 3 - 6 seconds
- Ease-to-use touch screen design
- Heating time is automatically set by tool diameter
- Cooling cycle uses shop air

### Easy-to-Use Touchscreen



Select your shank size and ShrinkPRO sets heating duration

Part #	Tool Diameters	Power	L x D x H	Weight
TIHS-600	1/8" to 1-1/4"	480V, 20A, 3-phase	20" x 20" x 37"	84 lbs.



The ShrinkPRO TIHS-600 comes with a NEMA L16-20P plug installed. Requires a NEMA L16-20R receptacle (not included).

### Each ShrinkPRO Includes:

Part #	Description
00600-00165	Induction Ring (3 - 5 mm shanks)
00600-00166	Induction Ring (6 - 12 mm shanks)
00600-00167	Induction Ring (14 - 20 mm shanks)
00600-00168	Induction Ring (25 - 32 mm shanks)
00600-9006	Tool Holder Adapter - HSK63/HSK100
00600-9002	Tool Holder Adapter - 40 taper
00600-9003	Tool Holder Adapter - HSK40 & C4
00600-9004	Tool Holder Adapter - HSK50 & C5
00600-9005	Tool Holder Adapter - 30 taper
00600-9006	Tool Holder Adapter - C6
26139-L	Thermal Insulated Glove

# Shrink Fit Machines

## ShrinkPRO Quencher TIHS-500



### FEATURES

- Induction coil technology enables tool changes in 3 - 6 seconds
- Ease-to-use touch screen design
- Heating time is automatically set by tool diameter
- Coolant bath and air-drying system cools tools in under 30 seconds

Part #	Tool Diameters	Power	L x D x H	Weight
TIHS-500	1/8" to 1-1/4"	480V, 20A, 3-phase	37" x 24" 71"	660 lbs.

### Additional Options Available:

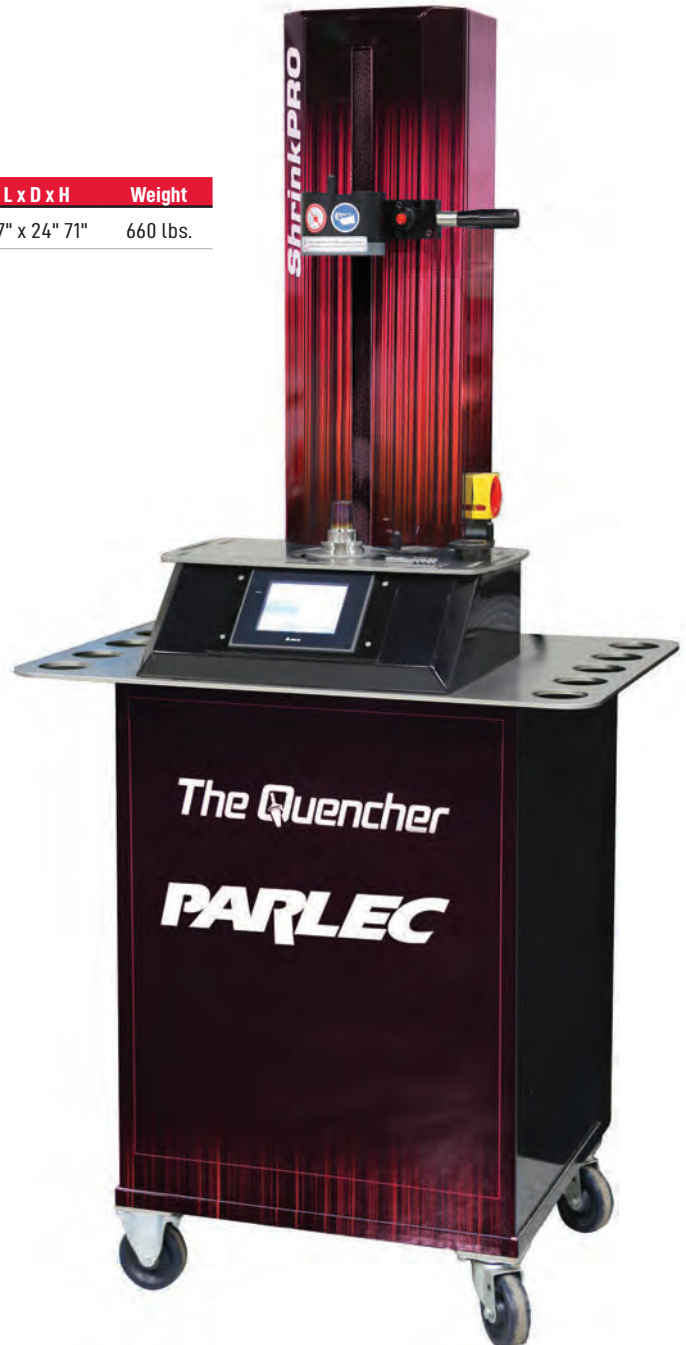
Part #	Description
00500-C	1 Gallon Quencher Coolant

### Each ShrinkPRO Quencher Includes:

Part #	Description
00600-00165	Induction Ring (3 - 5 mm shanks)
00600-00166	Induction Ring (6 - 12 mm shanks)
00600-00167	Induction Ring (14 - 20 mm shanks)
00600-00168	Induction Ring (25 - 32 mm shanks)
00600-9006	Tool Holder Adapter - HSK63/HSK100
00600-9002	Tool Holder Adapter - 40 taper
00600-9003	Tool Holder Adapter - HSK40 & C4
00600-9004	Tool Holder Adapter - HSK50 & C5
00600-9005	Tool Holder Adapter - 30 taper
00600-9006	Tool Holder Adapter - C6
26139-L	Thermal Insulated Glove



The ShrinkPRO Quencher TIHS-500 comes with a NEMA L16-20P plug installed. Requires a NEMA L16-20R receptacle (not included).



# MICRON MILLING

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## CHUCKS





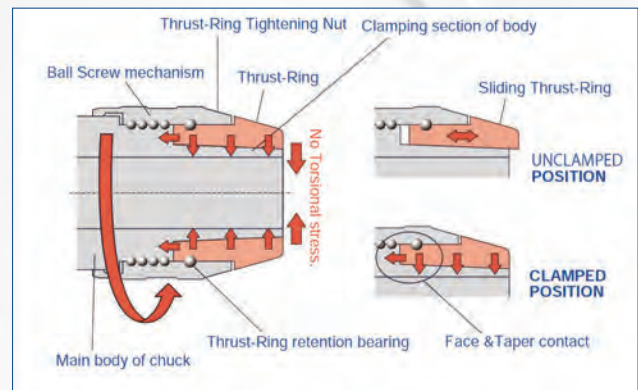
# RAMTEC

## Micron Milling Chucks



- Extreme accuracy of 5 microns at 3xD enhances cutting performance and tool life
- Thrust-Ring System delivers exceptional holding power
- Use reducing sleeves to hold virtually any shank size
- Available in officially licensed Big-Plus® configurations

- Unique Thrust-Ring System creates even clamping pressure along entire shank of the cutting tool
- Simultaneous face & taper contact creates extremely rigid assembly reducing vibration and enhancing cutting performance and tool life
- Thrust-Ring has positive stop against tool body eliminating potential to over-tighten

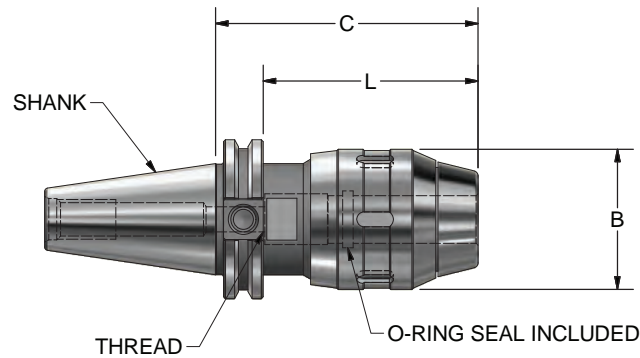


## M-Style (Mold-Style)



- Narrow nose design allows for deep, hard-to-reach machining
- Max. T.I.R. of 5 microns at 3xD enhances performance and tool life
- Balanced to 15,000 RPM @ G2.5
- Simple setup requires only a hook wrench

# Micron Milling Chucks



## FEATURES

- Max. T.I.R. of 5 microns at 3xD enhances performance and tool-life
- Unique Thrust-Ring clamping system produces 4x the holding power of ER collet chucks
- Positive stop design prevents over-tightening the nut
- Balanced to 10,000 RPM @ G2.5

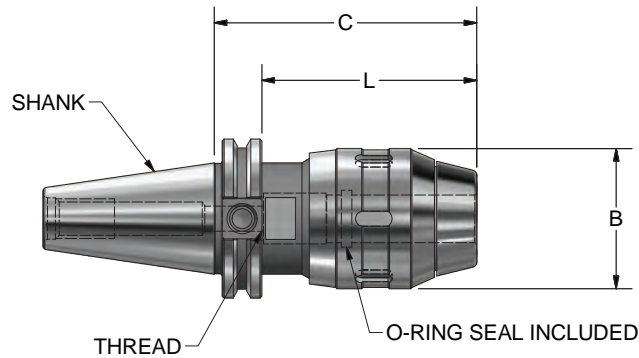
## CAT 40 Micron Milling Chucks

Part #	Old Description	Description	Bore Size	B	C	L
74304053	CV40-HPC075-105A	CAT40 x MMC 3/4" - 4.13"	3/4"	2.20"	4.13"	3.38"
74304054	CV40-HPC075-105F	CAT40 x MMC 3/4" - 4.13" with AD/B Coolant	3/4"	2.20"	4.13"	3.38"
74304055	CV40-HPC075-135A	CAT40 x MMC 3/4" - 5.31"	3/4"	2.20"	5.31"	4.56"
74305056	CV40-HPC100-105A	CAT40 x MMC 1" - 4.13"	1"	2.44"	4.13"	3.38"
74305031	CV40-HPC100-135A	CAT40 x MMC 1" - 5.31"	1"	2.44"	5.31"	4.56"
74304057	CV40-HPC125-105A	CAT40 x MMC 1-1/4" - 4.13"	1_1/4"	2.76"	4.13"	3.38"

## CAT 50 Micron Milling Chucks

Part #	Old Description	Description	Bore Size	B	C	L
74305058	CV50-HPC075-105A	CAT50 x MMC 3/4" - 4.13"	3/4"	2.20"	4.13"	3.38"
74305059	CV50-HOS075-135A	CAT50 x MMC 3/4" - 5.31"	3/4"	2.20"	5.31"	4.56"
74305060	CV50-HPC100-105A	CAT50 x MMC 1" - 4.13"	1"	2.44"	4.13"	3.38"
74305061	CV50-HPC100-135A	CAT50 x MMC 1" - 5.31"	1"	2.44"	5.31"	4.56"
74305062	CV50-HPC125-105A	CAT50 x MMC 1-1/4" - 4.13"	1_1/4"	2.76"	4.13"	3.38"
74305063	CV50-HPC125-135A	CAT50 x MMC 1-1/4" - 5.31"	1_1/4"	2.76"	5.31"	4.56"

# Micron Milling Chucks



## FEATURES

- Max. T.I.R. of 5 microns at 3xD enhances performance and tool-life
- Unique Thrust-Ring clamping system produces 4x the holding power of ER collet chucks
- Positive stop design prevents over-tightening the nut
- Balanced to 10,000 RPM @ G2.5

## HSK 63A Micron Milling Chucks

Part #	Old Description	Description	Bore Size	B	C	L
74406049	HSK63A-HPC075-110A	HSK63A x MMC 3/4" - 4.33"	3/4"	2.20"	4.33"	3.31"
74304054	HSK63-HPC100-115A	HSK63A x MMC 1" - 4.52"	1"	2.44"	4.53"	3.50"
74304055	HSK63A-HPC125-120A	HSK63A x MMC 1-1/4" - 4.72"	1_1/4"	2.76"	4.72"	3.70"

## HSK 100A Micron Milling Chucks

Part #	Old Description	Description	Bore Size	B	C	L
74401043	HSK100A-HPC075-110A	HSK100A x MMC 3/4" - 4.33"	3/4"	2.20"	4.33"	3.19"
74401044	HSK100A-HPC100-115A	HSK100A x MMC 1" - 4.52"	1"	2.44"	4.53"	3.39"
74401045	HSK100A-HPC125-120A	HSK100A x MMC 1-1/4" - 4.72"	1_1/4"	2.76"	4.72"	3.58"

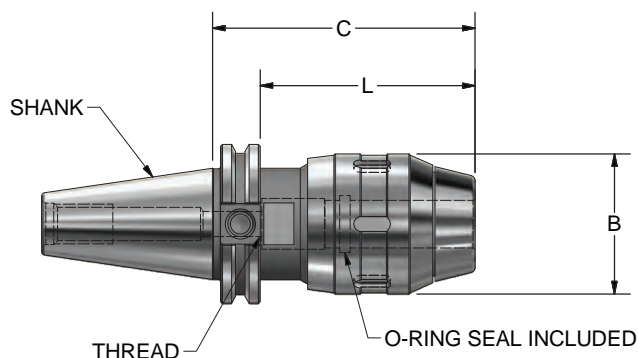
## BT 30 Micron Milling Chucks

Part #	Old Description	Description	Bore Size	B	C	L
74203009	BT30-HPC075-100A	BT30 x MMC 3/4" - 3.94"	3/4"	2.20"	3.94"	3.15"

## BT 40 Micron Milling Chucks

Part #	Old Description	Description	Bore Size	B	C	L
74204064	BT40-HPC075-105A	BT40 x MMC 3/4" - 4.13"	3/4"	2.20"	4.13"	3.35"
74204017	BT40-HPC075-120A	BT40 x MMC 3/4" - 4.72"	3/4"	2.20"	4.72"	3.74"
74204018	BT40-HPC100-105A	BT40 x MMC 1" - 4.13"	1"	2.44"	4.13"	3.35"
74204019	BT40-HPC100-135A	BT40 x MMC 1" - 5.31"	1"	2.44"	5.31"	4.33"
74204020	BT40-HPC125-105A	BT40 x MMC 1-1/4" - 4.13"	1_1/4"	2.76"	4.13"	3.35"
74204021	BT40-HPC125-135A	BT40 x MMC 1-1/4" - 5.13"	1_1/4"	2.76"	5.31"	4.33"

# Micron Milling Chucks



## FEATURES

- Officially licensed BIG-PLUS® holders
- Simultaneous taper and flange contact with the spindle provides greater rigidity

### CAT 40 Micron Milling Chucks with Simulfit

Part #	Old Description	Description	Bore Size	B	C	L
74304097	BCV40-HPC075-105A	CAT40 x MMC 3/4" - 4.13" Simulfit	3/4"	2.20"	4.13"	3.38"
74304157	BCV40-HPC075-135A	CAT40 x MMC 3/4" - 5.31" Simulfit	3/4"	2.20"	5.31"	4.56"
74304098	BCV40-HPC100-105A	CAT40 x MMC 1" - 4.13" Simulfit	1"	2.44"	4.13"	3.38"
74304156	BCV40-HPC100-135A	CAT40 x MMC 1" - 5.31" Simulfit	1"	2.44"	5.31"	4.56"
74304099	BCV40-HPC125-105A	CAT40 x MMC 1-1/4" - 4.13" Simulfit	1_1/4"	2.76"	4.13"	3.38"

### CAT 50 Micron Milling Chucks with Simulfit

Part #	Old Description	Description	Bore Size	B	C	L
74305100	BCV50-HPC075-105A	CAT50 x MMC 3/4" - 4.13" Simulfit	3/4"	2.20"	4.13"	3.38"
74205007	BCV50-HPC100-105A	CAT50 x MMC 1" - 4.13" Simulfit	1"	2.44"	4.13"	3.38"
74305102	BCV50-HPC125-105A	CAT50 x 1-1/4" - 4.13" Simulfit	1_1/4"	2.76"	4.13"	3.38"
74205008	BCV50-HPC125-135A	CAT50 x 1-1/4" - 5.31" Simulfit	1_1/4"	2.76"	5.31"	4.56"

### BT 40 Micron Milling Chucks with Simulfit

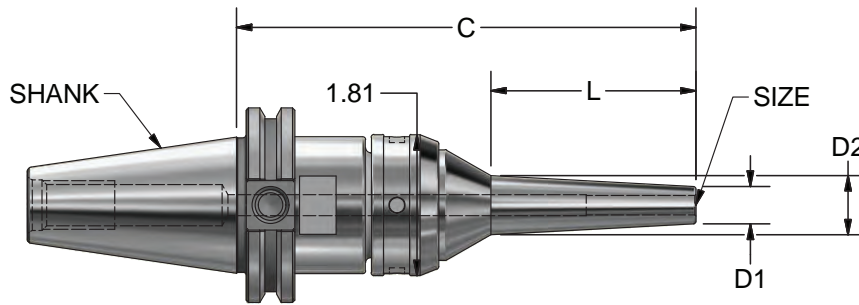
Part #	Old Description	Description	Bore Size	B	C	L
74234103	BBT40-HPC075-105A	BT40 x MMC 3/4" - 4.13" Simulfit	3/4"	2.20"	4.13"	3.35"
74234001	BBT40-HPC100-105A	BT40 x MMC 1" - 4.13" Simulfit	1"	2.44"	4.13"	3.35"
74234105	BBT40-HPC125-105A	BT40 x MMC 1-1/4" - 4.13" Simulfit	1_1/4"	2.76"	4.13"	3.35"

### BT 50 Micron Milling Chucks with Simulfit

Part #	Old Description	Description	Bore Size	B	C	L
74235002	BBT50-HPC100-135A	BT50 x MMC 1" - 5.31" Simulfit	1"	2.44"	5.31"	3.94"
74235003	BBT50-HPC125-105A	BT50 x MMC 1-1/4" - 4.13" Simulfit	1_1/4"	2.76"	4.13"	2.56"

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# Mold-Style Milling Chucks



## FEATURES

- Narrow nose design allows for deep, hard-to-reach machining
- Max. T.I.R. of 5 microns at 3xD enhances performance and tool-life
- Balanced to 15,000 RPM @ G2.5
- Unique Thrust-Ring clamping system produces exceptional holding power

## CAT 40 Mold-Style Milling Chucks

Part #	Old Description	New Description	Bore Size	C	L	D1	D2
74304083	CV40-HPC0125M-150	CAT40 x MSMC 1/8" - 5.90"	1/8"	5.90"	2.63"	.35"	.63"
74304084	CV40-HPC0125M-200	CAT40 x MSMC 1/8" - 7.87"	1/8"	7.87"	4.01"	.35"	.70"
74304085	CV40-HPC0187M-150	CAT40 x MSMC 3/16" - 5.90"	3/16"	5.90"	2.63"	.43"	.72"
74304022	CV40-HPC0187M-200	CAT40 x MSMC 3/16" - 7.87"	3/16"	7.87"	4.01"	.43"	.86"
74304087	CV40-HPC0250M-150	CAT40 x MSMC 1/4" - 5.90"	1/4"	5.90"	2.63"	.48"	.76"
74304023	CV40-HPC0250M-200	CAT40 x MSMC 1/4" - 7.87"	1/4"	7.87"	4.01"	.48"	.91"
74304089	CV40-HPC0312M-150	CAT40 x MSMC 5/16" - 5.90"	5/16"	5.90"	2.63"	.55"	.83"
74304090	CV40-HPC0312M-200	CAT40 x MSMC 5/16" - 7.87"	5/16"	7.87"	4.01"	.55"	.97"
74304024	CV40-HPC0312M-200-T	CAT40 x MSMC 5/16" - 7.87" BST	5/16"	7.87"	4.01"	.55"	.97"
74304091	CV40-HPC0375M-150	CAT40 x MSMC 3/8" - 5.90"	3/8"	5.90"	2.63"	.61"	.89"
74304026	CV40-HPC0375M-200	CAT40 x MSMC 3/8" - 7.87"	3/8"	7.87"	4.01"	.61"	1.03"
74304027	CV40-HPC0437M-150	CAT40 x MSMC 7/16" - 5.90"	7/16"	5.90"	2.63"	.67"	.95"
74304028	CV40-HPC0437M-200	CAT40 x MSMC 7/16" - 7.87"	7/16"	7.87"	4.01"	.67"	1.09"
74304095	CV40-HPC0500M-150	CAT40 x MSMC 1/2" - 5.90"	1/2"	5.90"	2.63"	.74"	1.01"
74304096	CV40-HPC0500M-200	CAT40 x MSMC 1/2" - 7.87"	1/2"	7.87"	4.01"	.74"	1.16"
74304067	CV40-HPC03M-150	CAT40 x MSMC 3MM - 5.90"	3 mm	5.90"	2.63"	.35"	.63"
74304069	CV40-HPC04M-150	CAT40 x MSMC 4MM - 5.90"	4 mm	5.90"	2.63"	.39"	.67"
74304073	CV40-HPC06M-150	CAT40 x MSMC 6MM - 5.90"	6 mm	5.90"	2.63"	.47"	.75"
74304077	CV40-HPC08M-150	CAT40 x MSMC 8MM - 5.90"	8 mm	5.90"	2.63"	.55"	.83"
74304079	CV40-HPC10M-150	CAT40 x MSMC 10MM - 5.90"	10 mm	5.90"	2.63"	.63"	.92"
74304081	CV40-HPC12M-150	CAT40 x MSMC 12MM - 5.90"	12 mm	5.90"	2.63"	.71"	1.00"

# Mold-Style Milling Chucks

## CAT 50 Mold-Style Milling Chucks

Part #	Old Description	New Description	Bore Size	C	L	D1	D2
74305033	CV50-HPC0125M-150	CAT50 x MSMC 1/8" - 5.90"	1/8"	5.90"	2.63"	.35"	.63"
74305034	CV50-HPC0187M-150	CAT50 x MSMC 3/16" - 5.90"	3/16"	5.90"	2.63"	.43"	.72"
74305035	CV50-HPC0187M-200	CAT50 x MSMC 3/16" - 7.87"	1/6"	7.87"	4.01"	.43"	.86"
74305159	CV50-HPC0250M-150	CAT50 x MSMC 1/4" - 5.90"	1/4"	5.90"	2.63"	.48"	.76"
74305036	CV50-HPC0312M-150	CAT50 x MSMC 5/16" - 5.90"	3/16"	5.90"	2.63"	.55"	.83"
74305037	CV50-HPC0375M-200	CAT50 x MSMC 3/8" - 7.87"	3/8"	7.87"	4.01"	.61"	1.03"
74305136	CV50-HPC0500M-200-T	CAT50 x MSMC 1/2" - 7.87"	1/2"	7.87"	4.01"	.74"	1.01"
74305038	CV50-HPC06M-150	CAT50 x MSMC 6MM - 5.90"	6 mm	5.90"	2.63"	.47"	.75"
74305039	CV50-HPC06M-200	CAT50 x MSMC 6MM - 7.87"	6 mm	7.87"	4.01"	.47"	.89"

## BT 40 Mold-Style Milling Chucks

Part #	Old Description	New Description	Bore Size	C	L	D1	D2
74204135	BT40-HPC0125M-135	BT40 x MSMC 1/8" - 5.31"	1/8"	5.31"	2.63"	.35"	.63"
74204010	BT40-HPC0125M-185	BT40 x MSMC 1/8" - 7.28"	1/8"	7.28"	4.01"	.35"	.70"
74204011	BT40-HPC0187M-185	BT40 x MSMC 3/16" - 7.28"	3/16"	7.28"	4.01"	.43"	.72"
74204012	BT40-HPC0250M-185	BT40 x MSMC 1/4" - 7.28"	1/4"	7.28"	4.01"	.48"	.91"
74204013	BT40-HPC0312M-135 (T)	BT40 x MSMC 5/16" - 5.31"	5/16"	5.31"	2.63"	.55"	.83"
74204014	BT40-HPC0312M-185 (T)	BT40 x MSMC 5/16" - 7.28"	5/16"	7.28"	4.01"	.55"	.97"
74204015	BT40-HPC0375M-185	BT40 x MSMC 3/8" - 7.28"	3/8"	7.28"	4.01"	.61"	1.03"
74204016	BT40-HPC0500M-185	BT40 x MSMC 1/2" - 7.28"	1/2"	7.28"	4.01"	.74"	1.01"

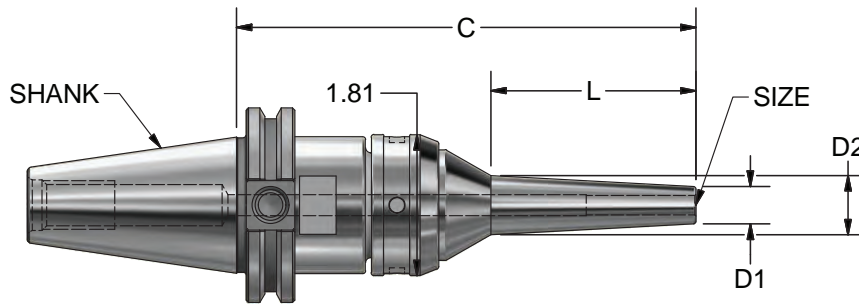
## HSK 63A Mold-Style Milling Chucks

Part #	Old Description	New Description	Bore Size	C	L	D1	D2
74406114	HSKA63-HPC0125M-150	HSK63A x MSMC 1/8" - 5.90"	1/8"	5.90"	2.63"	.35"	.63"
74406113	HSKA63-HPC0187M-150	HSK63A x MSMC 3/16" - 5.90"	3/16"	5.90"	2.63"	.43"	.72"
74406047	HSKA63-HPC0187M-200	HSK63A x MSMC 3/16" - 7.87"	3/16"	7.87"	4.01"	.43"	.86"
74406112	HSKA63-HPC0250M-150	HSK63A x MSMC 1/4" - 5.90"	1/4"	5.90"	2.63"	.48"	.76"
74406101	HSKA63-HPC0250M-200	HSK63A x MSMC 1/4" - 7.87"	1/4"	7.87"	4.01"	.48"	.91"
74406111	HSKA63-HPC0375M-150	HSK63A x MSMC 3/8" - 5.90"	3/8"	5.90"	2.63"	.61"	.89"
74406109	HSKA63-HPC0500M-150	HSK63A x MSMC 1/2" - 5.90"	1/2"	5.90"	2.63"	.74"	1.01"
74406048	HSKA63-HPC0500M-200-T	HSK63A x MSMC 1/2" - 7.87"	1/2"	7.87"	4.01"	.74"	1.01"

## HSK 100A Mold-Style Milling Chucks

Part #	Old Description	New Description	Bore Size	C	L	D1	D2
74401137	HSKA100-HPC0125M-155	HSK100A x MSMC 1/8" - 6.10"	1/8"	6.10"	2.63"	.35"	.63"
74401040	HSKA100-HPC0250M-155	HSK100A x MSMC 1/4" - 6.10"	1/4"	6.10"	2.63"	.48"	.76"
74401041	HSKA100-HPC0250M-205	HSK100A x MSMC 1/4" - 8.07"	1/4"	8.07"	4.01"	.48"	.91"
74401160	HSKA100-HPC0375M-155	HSK100A x MSMC 3/8" - 6.10"	3/8"	6.10"	2.63"	.61"	.89"
74401042	HSKA100-HPC0500M-155	HSK100A x MSMC 1/2" - 6.10"	1/2"	6.10"	2.63"	.74"	1.01"

# Mold-Style Milling Chucks



## FEATURES

- Officially licensed BIG-PLUS® holders
- Simultaneous taper and flange contact with the spindle provides greater rigidity

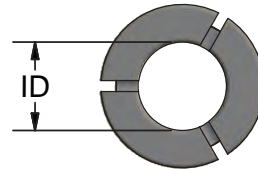
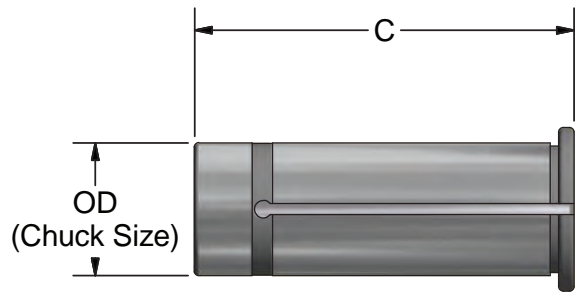
## CAT 40 Mold-Style Milling Chucks with Simulfit

Part #	Old Description	New Description	Bore Size	C	L	D1	D2
74204004	BCV40-HPC0187M-150	CAT40 x MSMC 3/16" - 5.90" Simulfit	3/16"	5.90"	2.63"	.433"	.72"
74204005	BCV40-HPC0250M-150	CAT40 x MSMC 1/4" - 5.90" Simulfit	1/4"	5.90"	2.63"	.48"	.76"
74204006	BCV40-HPC0375M-150-T	CAT40 x MSMC 3/8" - 5.90" Simulfit	3/8"	5.90"	2.63"	.61"	.89"

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# Micron Milling Chucks

## Micron Milling Chucks Reduction Sleeves



OD	C
3/4"	2.14"
1"	2.36"
1 1/4"	2.75"

### FEATURES

- Use reduction sleeves to hold many shank diameters in one Micron chuck
- 0.0001" max. T.I.R. for enhanced performance and tool life
- Coolant-sealed available for coolant-through tooling

### 3/4" O.D. Reduction Sleeves

Part #	I.D. Size
74875001	1/8"
74875002	3/16"
74875003	1/4"
74875004	5/16"
74875005	3/8"
74875006	7/16"
74875007	1/2"
74875008	9/16"
74875010	5/8"
74875009	6 mm
74875011	8 mm
74875012	10 mm
74875013	12 mm
74875014	14 mm
74875015	16 mm

### 1" O.D. Reduction Sleeves

Part #	I.D. Size
74810001	1/4"
74810002	5/16"
74810003	3/8"
74810004	7/16"
74810005	1/2"
74810006	9/16"
74810008	5/8"
74810009	3/4"
74810007	6 mm
74810010	8 mm
74810011	10 mm
74810012	12 mm
74810013	14 mm
74810014	16 mm
74810015	18 mm
74810016	20 mm

### 1-1/4" O.D. Reduction Sleeves

Part #	I.D. Size
74812001	1/4"
74812002	5/16"
74812003	3/8"
74812004	7/16"
74812005	1/2"
74812006	9/16"
74812008	5/8"
74812009	3/4"
74812011	7/8"
74812013	1"
74812007	6 mm
74812010	8 mm
74812012	10 mm
74812014	12 mm
74812015	14 mm
74812016	16 mm
74812017	18 mm
74812018	20 mm
74812019	25 mm



# Micron Milling Chucks

## Micron Milling Chucks Reduction Sleeves

### 3/4" O.D. Reduction Sleeves - Coolant Sealed

Part #	I.D. Size
74875016	1/4"
74875017	5/16"
74875018	3/8"
74875019	7/16"
74875020	1/2"
74875021	9/16"
74875023	5/8"
74875022	6 mm
74875024	8 mm
74875025	10 mm
74875026	12 mm
74875027	14 mm
74875028	16 mm

### 1" O.D. Reduction Sleeves - Coolant Sealed

Part #	I.D. Size
74810017	1/4"
74810018	5/16"
74810019	3/8"
74810020	7/16"
74810021	1/2"
74810022	9/16"
74810024	5/8"
74810025	3/4"
74810023	6 mm
74810026	8 mm
74810027	10 mm
74810028	12 mm
7481002	14 mm
74810030	16 mm
74810031	18 mm
74810032	20 mm

### 1-1/4" O.D. Reduction Sleeves - Coolant Sealed

Part #	I.D. Size
74812020	1/4"
74812021	5/16"
74812022	3/8"
74812023	7/16"
74812024	1/2"
74812025	9/16"
74812026	5/8"
74812027	3/4"
74812028	7/8"
74812030	1"
74812029	10 mm
74812031	12 mm
74812032	14 mm
74812033	16 mm
74812034	18 mm
74812035	20 mm
74812036	25 mm

## Wrenches



Part #	Description
35851	All Micron M-Style Chucks
35852	3/4" Micron Milling Chucks
35853	1" Micron Milling Chucks
35854	1-1/4" Micron Milling Chucks

# ERos®

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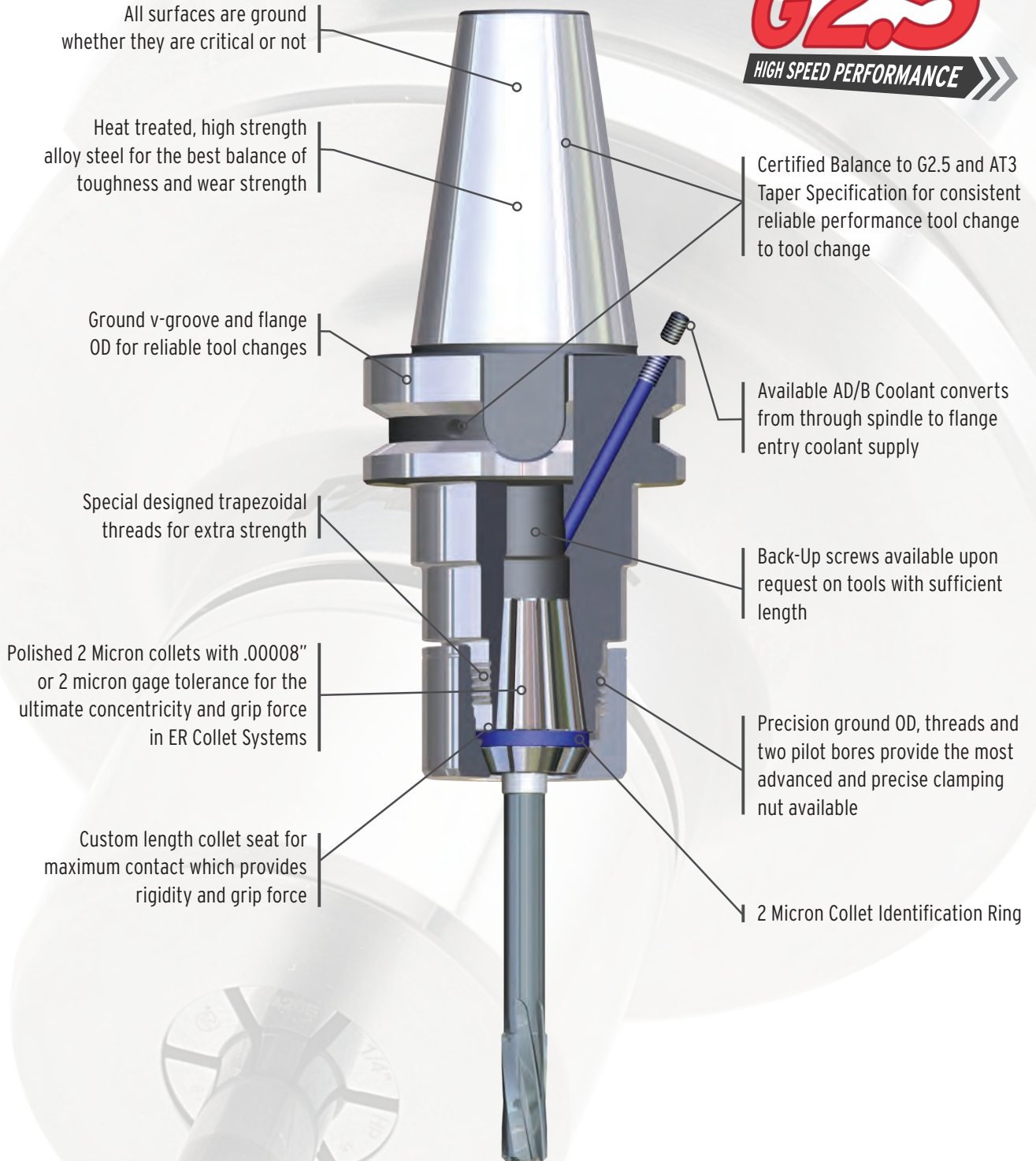
## COLLETS & CHUCKS



# PARLEC

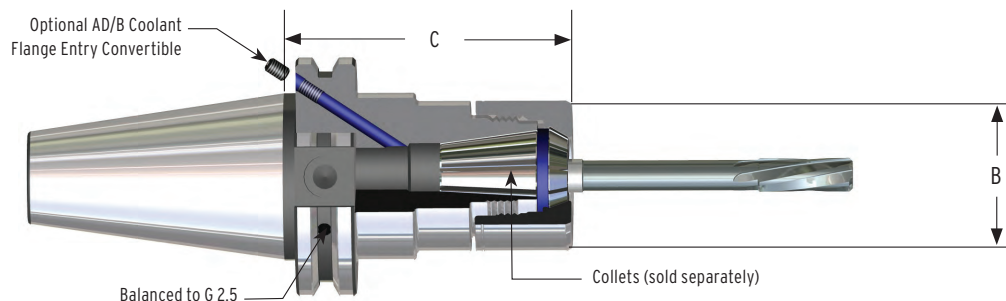
## Parlec EROS® System Features

**CERTIFIED**  
**G2.5**  
**HIGH SPEED PERFORMANCE** >>>



# ERos<sup>®</sup> Collet Chucks

## CAT40 EROs<sup>®</sup> Collet Chucks | with AD/B Coolant



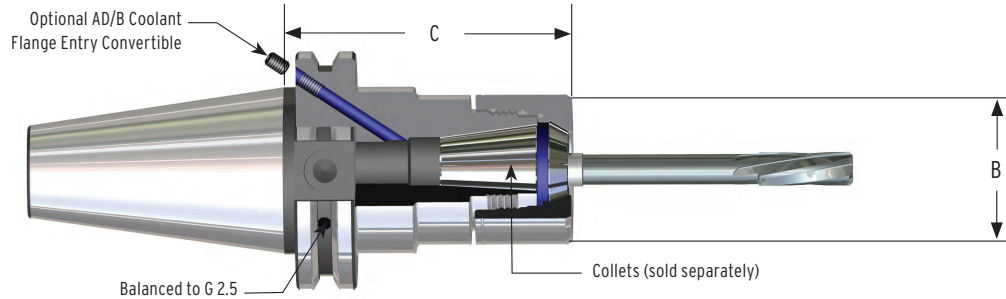
### FEATURES

- Made-in-USA quality
- Repeatability accuracy of 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- DIN-B flange coolant enabled
- Balanced to 25,000 RPM @ G2.5

### CAT40 EROs<sup>®</sup> Collet Chucks with AD/B Coolant

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
C40BC-11EROSM400	ER11	.63"	4.00"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
C40BC-16EROS250	ER16	1.18"	2.50"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
C40BC-16EROS400	ER16	1.18"	4.00"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
C40BC-16EROS500	ER16	1.18"	5.00"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
C40BC-20EROS300	ER20	1.26"	3.00"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
C40BC-20EROS400	ER20	1.26"	4.00"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
C40BC-25EROS300	ER25	1.57"	3.00"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
C40BC-25EROS400	ER25	1.57"	4.00"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
C40BC-32EROS300	ER32	1.97"	3.00"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
C40BC-32EROS400	ER32	1.97"	4.00"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
C40BC-32EROS500	ER32	1.97"	5.00"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
C40BC-32EROS600	ER32	1.97"	6.00"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
C40BC-40EROS400	ER40	2.48"	4.00"	1.023"	EROS40N	EROS40NW	EROSTW300	EROS40TWN

## CAT50 ERos® Collet Chucks | with AD/B Coolant



### FEATURES

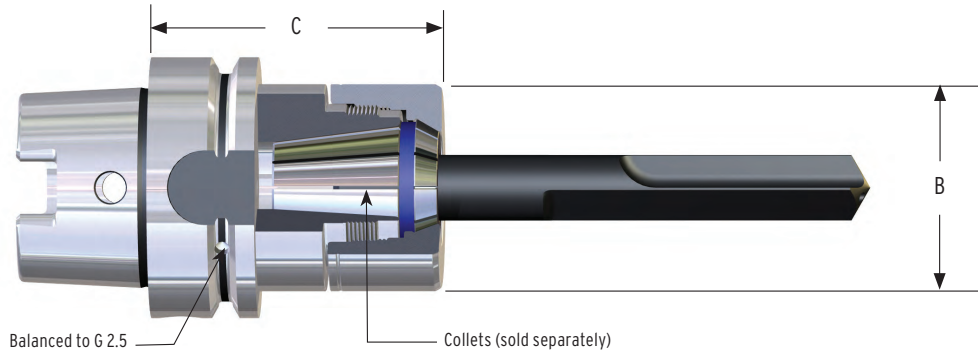
- Made-in-USA quality
- Repeatability accuracy of 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- DIN-B flange coolant enabled
- Balanced to 20,000 RPM @ G2.5

### CAT50 ERos® Collet Chucks with AD/B Coolant

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
C50BC-16EROS400	ER16	1.18"	4.00"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
C50BC-16EROS600	ER16	1.18"	6.00"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
C50BC-20EROS400	ER20	1.26"	4.00"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
C50BC-20EROS600	ER20	1.26"	6.00"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
C50BC-25EROS400	ER25	1.57"	4.00"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
C50BC-32EROS350	ER32	1.97"	3.50"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
C50BC-32EROS400	ER32	1.97"	4.00"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
C50BC-32EROS600	ER32	1.97"	6.00"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
C50BC-40EROS400	ER40	2.48"	4.00"	1.023"	EROS40N	EROS40NW	EROSTW300	EROS40TWN
C50BC-40EROS600	ER40	2.48"	6.00"	1.023"	EROS40N	EROS40NW	EROSTW300	EROS40TWN

# ERos® Collet Chucks

## HSK63A ERos® Collet Chucks



### FEATURES

- Made-in-USA quality
- Extreme accuracy - Concentricity to 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- Balanced to 25,000 RPM @ G2.5

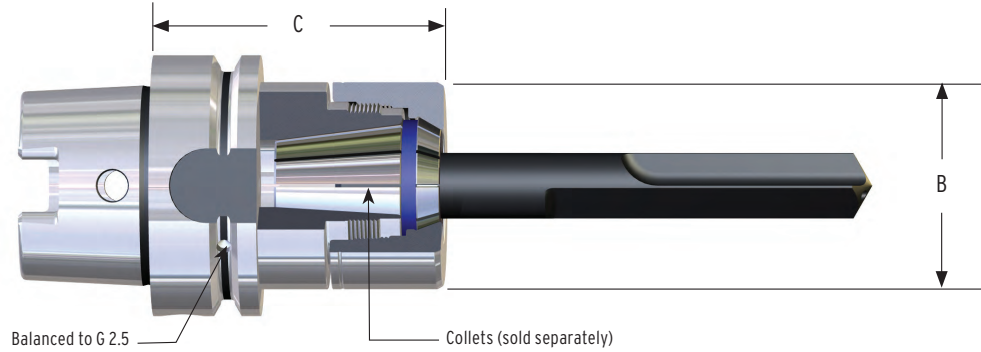
### HSK63A ERos® Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H63A-11EROSM275	ER11	.63"	2.75"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
H63A-11EROSM511	ER11	.63"	5.11"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
H63A-16EROS216	ER16	1.18"	2.16"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
H63A-16EROS394	ER16	1.18"	3.94"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
H63A-16EROS630	ER16	1.18"	6.30"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
H63A-20EROS236	ER20	1.26"	2.36"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
H63A-20EROS394	ER20	1.26"	3.94"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
H63A-25EROS236	ER25	1.57"	2.36"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
H63A-25EROS394	ER25	1.57"	3.94"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
H63A-32EROS275	ER32	1.97"	2.75"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
H63A-32EROS394	ER32	1.97"	3.94"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
H63A-32EROS630	ER32	1.97"	6.30"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
H63A-40EROS314	ER40	2.48"	3.14"	1.023"	EROS40N	EROS40NW	EROSTW300	EROS40TWN

### Accessories

Part #	Collet Size
H63TUBE	HSK63 Coolant Tube
H63W	HSK63 Coolant Tube Wrench

## HSK100A ERos® Collet Chucks



### FEATURES

- Made-in-USA quality
- Extreme accuracy - Concentricity to 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- Balanced to 25,000 RPM @ G2.5

### HSK100A ERos® Collet Chucks

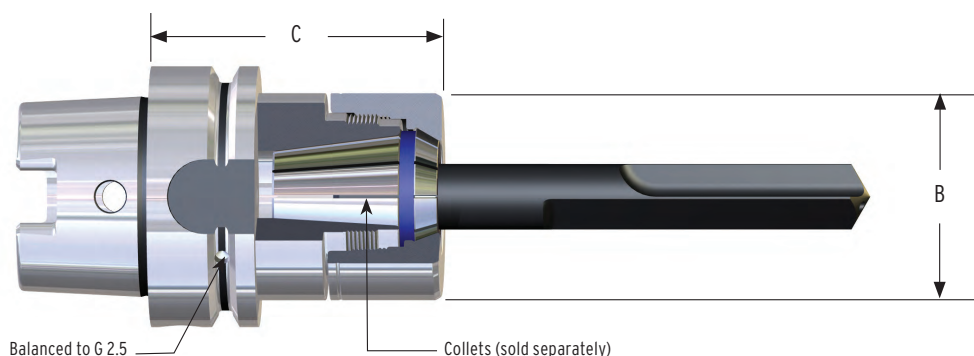
Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H100A-16EROS394	ER16	1.18"	3.94"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
H100A-16EROS630	ER16	1.18"	6.30"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
H100A-25EROS394	ER25	1.57"	3.94"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
H100A-32EROS394	ER32	1.97"	3.94"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
H100A-32EROS630	ER32	1.97"	6.30"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
H100A-32EROS787	ER32	1.97"	7.87"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
H100A-40EROS394	ER40	2.48"	3.94"	1.023"	EROS40N	EROS40NW	EROSTW300	EROS40TWN

### Accessories

Part #	Collet Size
H100TUBE	HSK100 Coolant Tube
H100W	HSK100 Coolant Tube Wrench

# ERos<sup>®</sup> Collet Chucks

## HSK32A/40A/50A ERos<sup>®</sup> Collet Chucks



### FEATURES

- Made-in-USA quality
- Extreme accuracy - Concentricity to 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- Balanced to 30,000 RPM @ G2.5

### HSK32A ERos<sup>®</sup> Collet Chuck

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H32A-20EROS196	ER20	1.26"	1.96"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN

### HSK40A ERos<sup>®</sup> Collet Chucks

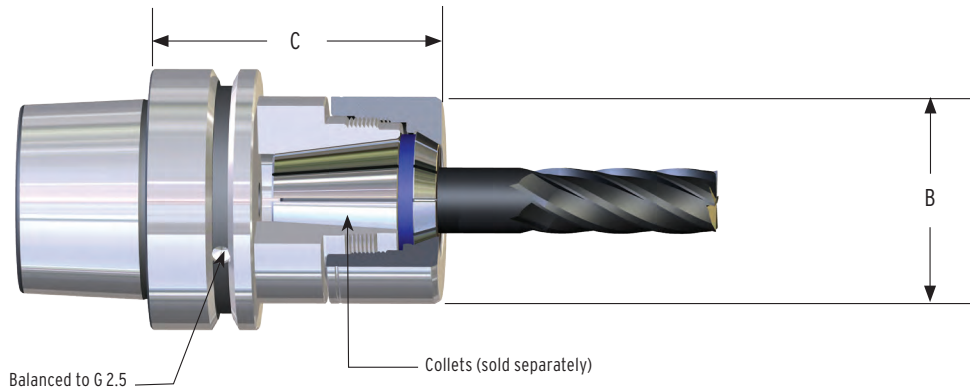
Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H40A-11EROSM236	ER11	.63"	2.36"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
H40A-11EROSM394	ER11	.63"	3.94"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
H40A-16EROS236	ER16	1.18"	2.36"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN

### HSK50A ERos<sup>®</sup> Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H50A-11EROSM511	ER11	.63"	5.11"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
H50A-16EROST394	ER16	.94"	3.94"	.406"	EROS16MTN	EROS16MNW	EROSTW100	EROS16MTWN
H50A-16EROST511	ER16	.94"	5.11"	.406"	EROS16MTN	EROS16MNW	EROSTW100	EROS16MTWN
H50A-25EROS275	ER25	1.57"	2.75"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
H50A-32EROS275	ER32	1.97"	2.75"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN



## HSK-E/F ERos® Collet Chucks



### FEATURES

- Made-in-USA quality
- Extreme accuracy - Concentricity to 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- Balanced to 30,000 RPM @ G2.5

### HSK32E ERos® Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H32E-16EROSM215	ER16	.86"	2.15"	.406"	EROS16MSN	EROS16SNW	EROSTW100	EROS16MSTWN
H32E-20EROS196	ER20	1.26"	1.96"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN

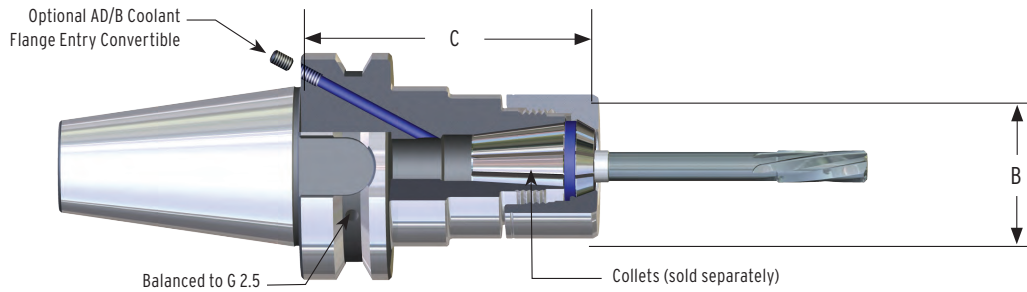
### HSK40E ERos® Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H40E-11EROSM196	ER11	.63"	1.96"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
H40E-11EROSM394	ER11	.63"	3.94"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
H40E-16EROSM216	ER16	.86"	2.16"	.406"	EROS16MSN	EROS16MSNW	EROSTW100	EROS16MSTWN
H40E-16EROSM394	ER16	.86"	3.94"	.406"	EROS16MSN	EROS16MSNW	EROSTW100	EROS16MSTWN
H40E-25EROS236	ER25	1.57"	2.36"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN

### HSK63F ERos® Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
H63F-16EROS394	ER16	1.18"	3.94"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
H63F-32EROS255	ER32	1.97"	2.55"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN

## BT 30 EROs<sup>®</sup> Collet Chucks



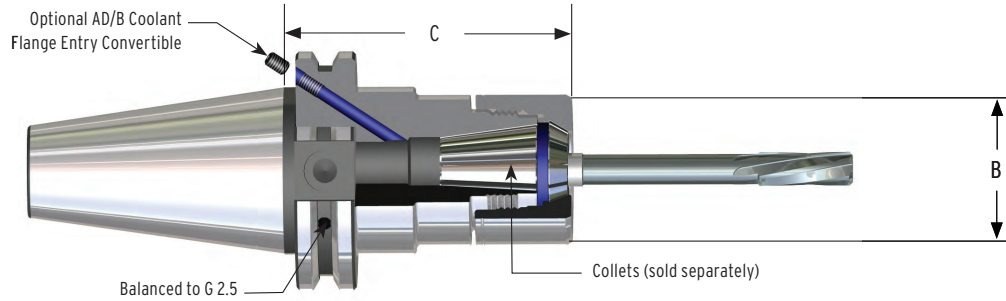
### FEATURES

- Made-in-USA quality
- Repeatability accuracy of 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- Balanced to 25,000 RPM @ G2.5

### BT30 EROs<sup>®</sup> COLLET CHUCKS

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
BT30-11EROSM196	ER11	.63"	1.96"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
BT30-11EROSM394	ER11	.63"	3.94"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
BT30-16EROS196	ER16	1.18"	1.96"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
BT30-16EROS354	ER16	1.18"	3.54"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
BT30-16EROS472	ER16	1.18"	4.72"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
BT30-20EROS295	ER20	1.26"	2.95"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
BT30-25EROS295	ER25	1.57"	2.95"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
BT30-32EROS236	ER32	1.97"	2.36"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN
BT30-32EROS354	ER32	1.97"	3.54"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN

## BT40 ERos<sup>®</sup> Collet Chucks with AD/B Coolant



### FEATURES

- Made-in-USA quality
- Repeatability accuracy of 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- DIN-B flange coolant enabled
- Balanced to 25,000 RPM @ G2.5

### BT40 EROS<sup>®</sup> COLLET CHUCKS WITH AD/B COOLANT

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Roller Wrench (Opt.)	Torque Wrench (Opt.)	Torque Wrench Nose (Opt.)
BT40BC-11EROSM295	ER11	.63"	2.95"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
BT40BC-11EROSM394	ER11	.63"	3.94"	.275"	EROS11MN	EROS11MNW	EROSTW50	EROS11MTWN
BT40BC-16EROS394	ER16	1.18"	3.94"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
BT40BC-16EROSM472	ER16	.86"	4.72"	.406"	EROS16MSN	EROS16MSNW	EROSTW100	EROS16MSTWN
BT40BC-16EROS630	ER16	1.18"	6.30"	.406"	EROS16N	EROS16NW	EROSTW100	EROS16TWN
BT40BC-20EROS295	ER20	1.26"	2.95"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
BT40BC-20EROS472	ER20	1.26"	4.72"	.512"	EROS20N	EROS20NW	EROSTW100	EROS20TWN
BT40BC-25EROS275	ER25	1.57"	2.75"	.630"	EROS25N	EROS25NW	EROSTW200	EROS25TWN
BT40BC-32EROS472	ER32	1.97"	4.72"	.788"	EROS32N	EROS32NW	EROSTW200	EROS32TWN

## ERos® Collets | Inch



ERos® 2 Micron Collet

ERos® Collet Size	ER11	ER16	ER20	ER32	ER40
Length (L)	0.708"	1.082"	1.240"	1.574"	1.811"
Diameter (D)	0.452"	0.669"	0.827"	1.300"	1.614"

### FEATURES

- Extreme accuracy - 2 micron max. T.I.R.
- Highly polished and coated to prevent corrosion
- Can be used in standard ER collet chucks

### ERos® 11 Collets - Inch

Part #	Size
EROS11-1/16	1/16"
EROS11-1/8	1/8"
EROS11-3/16	3/16"
EROS11-1/4	1/4"

### ERos® 11 Collet Set - Inch

Part #	Pcs.	Range
EROS11-SI004	4	1/16" - 1/4"

### ERos® 16 Collets - Inch

Part #	Size
EROS16-1/8	1/8"
EROS16-5/32	5/32"
EROS16-3/16	3/16"
EROS16-7/32	7/32"
EROS16-1/4	1/4"
EROS16-9/32	9/32"
EROS16-5/16	5/16"
EROS16-3/8	3/8"

### ERos® 16 Collet Set - Inch

Part #	Pcs.	Range
EROS16-SI008	8	1/8" - 3/8"

### ERos® 20 Collets - Inch

Part #	Size
EROS20-1/8	1/8"
EROS20-3/16	3/16"
EROS20-1/4	1/4"
EROS20-5/16	5/16"
EROS20-3/8	3/8"
EROS20-7/16	7/16"
EROS20-1/2	1/2"

### ERos® 20 Collet Set - Inch

Part #	Pcs.	Range
EROS20 -SI007	7	1/8" - 1/2"

## ERos<sup>®</sup> Collets | Inch (cont' d)

### ERos<sup>®</sup> 25 Collets - Inch

Part #	Size
EROS25-1/8	1/8"
EROS25-3/16	3/16"
EROS25-1/4	1/4"
EROS25-5/16	5/16"
EROS25-3/8	3/8"
EROS25-13/32	13/32"
EROS25-7/16	7/16"
EROS25-1/2	1/2"
EROS25-9/16	9/16"
EROS25-5/8	5/8"

### ERos<sup>®</sup> 32 Collets - Inch

Part #	Size
EROS32-1/8	1/8"
EROS32-3/16	3/16"
EROS32-1/4	1/4"
EROS32-5/16	5/16"
EROS32-3/8	3/8"
EROS32-7/16	7/16"
EROS32-1/2	1/2"
EROS32-9/16	9/16"
EROS32-5/8	5/8"
EROS32-3/4	3/4"

### ERos<sup>®</sup> 40 Collets - Inch

Part #	Size
EROS40-3/8	3/8"
EROS40-1/2	1/2"
EROS40-5/8	5/8"
EROS40-3/4	3/4"
EROS40-7/8	7/8"
EROS40-1	1"

### ERos<sup>®</sup> 25 Collet Set - Inch

Part #	Pcs.	Range
EROS25-SI010	10	1/8" - 5/8"

### ERos<sup>®</sup> 32 Collet Set - Inch

Part #	Pcs.	Range
EROS32-SI010	10	1/8" - 3/4"

### ERos<sup>®</sup> 40 Collet Set - Inch

Part #	Pcs.	Range
EROS40-SI006	6	3/8" - 1"

## ERos<sup>®</sup> Collets | Metric



**EROS 2 Micron Collet**

ERos <sup>®</sup> Collet Size	ER11	ER16	ER20	ER32	ER40
Length (L)	0.708"	1.082"	1.240"	1.574"	1.811"
Diameter (D)	0.452"	0.669"	0.827"	1.300"	1.614"

### FEATURES

- Extreme accuracy - 2 micron max. T.I.R.
- Highly polished and coated to prevent corrosion
- Can be used in standard ER collet chucks

### ERos<sup>®</sup> 11 Collets - Metric

Part #	Size
EROS11-1MM	1 mm
EROS11-1.5MM	1.5 mm
EROS11-2MM	2 mm
EROS11-2.5MM	2.5 mm
EROS11-3MM	3 mm
EROS11-3.5MM	3.5 mm
EROS11-4MM	4 mm
EROS11-4.5MM	4.5 mm
EROS11-5MM	5 mm
EROS11-5.5MM	5.5 mm
EROS11-6MM	6 mm
EROS11-6.5MM	6.5 mm
EROS11-7MM	7 mm

### ERos<sup>®</sup> 11 Collet Set - Metric

Part #	Pcs.	Range
EROS11-S013	13	1 - 7 mm

### ERos<sup>®</sup> 16 Collets - Metric

Part #	Size
EROS16-3MM	3 mm
EROS16-4MM	4 mm
EROS16-5MM	5 mm
EROS16-6MM	6 mm
EROS16-7MM	7 mm
EROS16-8MM	8 mm
EROS16-9MM	9 mm
EROS16-10MM	10 mm

### ERos<sup>®</sup> 16 Collet Set - Metric

Part #	Pcs.	Range
EROS16-S008	8	3 - 10 mm

### ERos<sup>®</sup> 20 Collets - Metric

Part #	Size
EROS20-3MM	3 mm
EROS20-4MM	4 mm
EROS20-5MM	5 mm
EROS20-6MM	6 mm
EROS20-7MM	7 mm
EROS20-8MM	8 mm
EROS20-9MM	9 mm
EROS20-10MM	10 mm
EROS20-11MM	11 mm
EROS20-12MM	12 mm
EROS20-13MM	13 mm

### ERos<sup>®</sup> 20 Collet Set - Metric

Part #	Pcs.	Range
EROS20-S011	11	3 - 13 mm

## ERos® Collets | Metric (cont' d)

### ERos® 25 Collets - Metric

Part #	Size
EROS25-3MM	3 mm
EROS25-4MM	4 mm
EROS25-5MM	5 mm
EROS25-6MM	6 mm
EROS25-7MM	7 mm
EROS25-8MM	8 mm
EROS25-9MM	9 mm
EROS25-10MM	10 mm
EROS25-11MM	11 mm
EROS25-12MM	12 mm
EROS25-13MM	13 mm
EROS25-14MM	14 mm
EROS25-15MM	15 mm
EROS25-16MM	16 mm

### ERos® 25 Collet Set - Metric

Part #	Pcs.	Range
EROS25-S014	14	3 - 16 mm

### ERos® 32 Collets - Metric

Part #	Size
EROS32-3MM	3 mm
EROS32-4MM	4 mm
EROS32-5MM	5 mm
EROS32-6MM	6 mm
EROS32-7MM	7 mm
EROS32-8MM	8 mm
EROS32-9MM	9 mm
EROS32-10MM	10 mm
EROS32-11MM	11 mm
EROS32-12MM	12 mm
EROS32-13MM	13 mm
EROS32-14MM	14 mm
EROS32-15MM	15 mm
EROS32-16MM	16 mm
EROS32-17MM	17 mm
EROS32-18MM	18 mm
EROS32-19MM	19 mm
EROS32-20MM	20 mm

### ERos® 32 Collet Set - Metric

Part #	Pcs.	Range
EROS32-S018	18	3 - 20 mm

### ERos® 40 Collets - Metric

Part #	Size
EROS40-10MM	10 mm
EROS40-11MM	11 mm
EROS40-12MM	12 mm
EROS40-13MM	13 mm
EROS40-14MM	14 mm
EROS40-15MM	15 mm
EROS40-16MM	16 mm
EROS40-17MM	17 mm
EROS40-18MM	18 mm
EROS40-19MM	19 mm
EROS40-20MM	20 mm
EROS40-21MM	21 mm
EROS40-22MM	22 mm
EROS40-23MM	23 mm
EROS40-24MM	24 mm
EROS40-25MM	25 mm
EROS40-26MM	26 mm

### ERos® 40 Collet Set - Metric

Part #	Pcs.	Range
EROS40-S017	17	10 - 26 mm

## ERos<sup>®</sup> Coolant Collets | Inch



**EROS 2 Micron  
Coolant Sealed Collet**

ERos <sup>®</sup> Collet Size	ER11	ER16	ER20	ER32	ER40
Lenght (L)	0.708"	1.082"	1.240"	1.574"	1.811"
Diameter (D)	0.452"	0.669"	0.827"	1.300"	1.614"

### FEATURES

- Coolant sealed to 750 PSI
- Extreme accuracy - 2 micron max. T.I.R.
- Highly polished and coated to prevent corrosion
- Can be used in standard ER collet chucks

### ERos<sup>®</sup> 11 Coolant Collets - Inch

Part #	Size
EROSC11-1/8	1/8"
EROSC11-3/16	3/16"
EROSC11-1/4	1/4"

### ERos<sup>®</sup> 20 Coolant Collets - Inch

Part #	Size
EROSC20-1/4	1/4"
EROSC20-5/16	5/16"
EROSC20-3/8	3/8"
EROSC20-1/2	1/2"

### ERos<sup>®</sup> 16 Coolant Collets - Inch

Part #	Size
EROSC16-1/8	1/8"
EROSC16-3/16	3/16"
EROSC16-1/4	1/4"
EROSC16-5/16	5/16"
EROSC16-3/8	3/8"

### ERos<sup>®</sup> 20 Coolant Collet Set - Inch

Part #	Pcs.	Range
EROSC20-SI004	4	1/4", 5/16", 3/8", 1/2"

### ERos<sup>®</sup> 16 Coolant Collet Set - Inch

Part #	Pcs.	Range
EROSC16-SI005	5	1/8", 3/16", 1/4", 5/16", 3/8"



## ERos® Coolant Collets - Inch (cont' d)

### ERos® 25 Coolant Collets - Inch

Part #	Size
EROSC25-1/8	1/8"
EROSC25-3/16	3/16"
EROSC25-1/4	1/4"
EROSC25-5/16	5/16"
EROSC25-3/8	3/8"
EROSC25-7/16	7/16"
EROSC25-1/2	1/2"
EROSC25-9/16	9/16"

### ERos® 32 Coolant Collets - Inch

Part #	Size
EROSC32-1/4	1/4"
EROSC32-5/16	5/16"
EROSC32-3/8	3/8"
EROSC32-7/16	7/16"
EROSC32-1/2	1/2"
EROSC32-9/16	9/16"
EROSC32-5/8	5/8"
EROSC32-3/4	3/4"

### ERos® 25 Coolant Collet Set - Inch

Part #	Pcs.	Range
EROSC25-SI008	8	1/8" to 9/16" by 1/16's

### ERos® 32 Coolant Collet Set - Inch

Part #	Pcs.	Range
EROSC32-SI008	8	1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/16", 9/16"

### ERos® 40 Coolant Collet - Inch

Part #	Size
EROSC40-1/2	1/2"
EROSC40-5/8	5/8"
EROSC40-3/4	3/4"
EROSC40-1	1"

### ERos® 40 Coolant Collet Set - Inch

Part #	Pcs.	Range
EROSC40-SI004	4	1/2", 5/8", 3/4", 1"

# ERos<sup>®</sup> Coolant Collets

## ERos<sup>®</sup> Coolant Collets | Metric



**EROS 2 Micron  
Coolant Sealed Collet**

ERos <sup>®</sup> Collet Size	ER11	ER16	ER20	ER32	ER40
Length (L)	0.708"	1.082"	1.240"	1.574"	1.811"
Diameter (D)	0.452"	0.669"	0.827"	1.300"	1.614"

### FEATURES

- Coolant sealed to 750 PSI
- Extreme accuracy - 2 micron max. T.I.R.
- Highly polished and coated to prevent corrosion
- Can be used in standard ER collet chucks

### ERos<sup>®</sup> 11 Coolant Collets - Metric

Part #	Size
EROSC11-3MM	3 mm
EROSC11-4MM	4 mm
EROSC11-5MM	5 mm
EROSC11-6MM	6 mm

### ERos<sup>®</sup> 16 Coolant Collets - Metric

Part #	Size
EROSC16-3MM	3 mm
EROSC16-4MM	4 mm
EROSC16-5MM	5 mm
EROSC16-6MM	6 mm
EROSC16-7MM	7 mm
EROSC16-8MM	8 mm
EROSC16-9MM	9 mm
EROSC16-10MM	10 mm

### ERos<sup>®</sup> 20 Coolant Collets - Metric

Part #	Size
EROSC20-3MM	3 mm
EROSC20-4MM	4 mm
EROSC20-5MM	5 mm
EROSC20-6MM	6 mm
EROSC20-7MM	7 mm
EROSC20-8MM	8 mm
EROSC20-10MM	10 mm
EROSC20-12MM	12 mm

### ERos<sup>®</sup> 16 Coolant Collet Set - Metric

Part #	Pcs.	Range
EROSC16-S005	5	3- 10 mm

### ERos<sup>®</sup> 20 Coolant Collet Set - Metric

Part #	Pcs.	Range
EROSC20-S006	6	3-12 mm

## ERos® Coolant Collets | Metric (cont' d)

### ERos® 25 Coolant Collets - Metric

Part #	Size
EROSC25-3MM	3 mm
EROSC25-4MM	4 mm
EROSC25-5MM	5 mm
EROSC25-6MM	6 mm
EROSC25-7MM	7 mm
EROSC25-8MM	8 mm
EROSC25-9MM	9 mm
EROSC25-10MM	10 mm
EROSC25-11MM	11 mm
EROSC25-12MM	12 mm
EROSC25-13MM	13 mm
EROSC25-14MM	14 mm
EROSC25-15MM	15 mm
EROSC25-16MM	16 mm

### ERos® 25 Coolant Collet Set - Metric

Part #	Pcs.	Range
EROSC25-S008	8	3-16 mm

### ERos® 32 Coolant Collets - Metric

Part #	Size
EROSC32-3MM	3 mm
EROSC32-4MM	4 mm
EROSC32-5MM	5 mm
EROSC32-6MM	6 mm
EROSC32-8MM	8 mm
EROSC32-10MM	10 mm
EROSC32-11MM	11 mm
EROSC32-12MM	12 mm
EROSC32-13MM	13 mm
EROSC32-14MM	14 mm
EROSC32-15MM	15 mm
EROSC32-16MM	16 mm
EROSC32-18MM	18 mm
EROSC32-20MM	20 mm

### ERos® 32 Coolant Collet Set - Metric

Part #	Pcs.	Range
EROSC32-S009	9	4-20 mm by 2mm

### ERos® 40 Coolant Collets - Metric

Part #	Size
EROSC40-16 MM	16 mm
EROSC40-20MM	20 mm
EROSC40-25MM	25 mm

# ERos<sup>®</sup> Coolant Jet Collets

## ERos<sup>®</sup> Coolant Jet Collets | Inch & Metric



**EROS 2 Micron  
Coolant Jet Collet**

ERos <sup>®</sup> Collet Size	ER11	ER16	ER20	ER32	ER40
Length (L)	0.708"	1.082"	1.240"	1.574"	1.811"
Diameter (D)	0.452"	0.669"	0.827"	1.300"	1.614"

### FEATURES

- 4 coolant ports direct coolant to the cutting area
- Coolant sealed to 750 PSI
- Extreme accuracy - 2 micron max. T.I.R.
- Highly polished and coated to prevent corrosion
- Can be used in standard ER collet chucks

### ERos<sup>®</sup> 16 Coolant Jet Collets - Inch

Part #	Size
EROSCJ16-1/8	1/8"
EROSCJ16-1/4	1/4"

### ERos<sup>®</sup> 16 Coolant Jet Collets - Metric

Part #	Size
EROSCJ16-4MM	4 mm
EROSCJ16-6MM	6 mm

### ERos<sup>®</sup> 32 Coolant Jet Collets - Inch

Part #	Size
EROSCJ32-1/4	1/4"
EROSCJ32-5/16	5/16"
EROSCJ32-3/8	3/8"
EROSCJ32-1/2	1/2"
EROSCJ32-5/8	5/8"
EROSCJ32-3/4	3/4"

### ERos<sup>®</sup> 32 Coolant Jet Collets - Metric

Part #	Size
EROSCJ32-6MM	6 mm
EROSCJ32-8MM	8 mm
EROSCJ32-10MM	10 mm
EROSCJ32-12MM	12 mm
EROSCJ32-14MM	14 mm
EROSCJ32-16MM	16 mm
EROSCJ32-18MM	18 mm
EROSCJ32-20MM	20 mm

### ERos<sup>®</sup> 40 Coolant Jet Collets - Inch

Part #	Size
EROSCJ40-5/8	5/8"
EROSCJ40-3/4	3/4"
EROSCJ40-1	1"

### ERos<sup>®</sup> 40 Coolant Jet Collets - Metric

Part #	Size
EROSCJ40-16MM	16 mm
EROSCJ40-20MM	20 mm
EROSCJ40-25MM	25 mm

## ERos® Replacement Nut



Part #	Diameter (mm)	Maximum Recommended Torque
EROS11M	EROS11 Mini Nut	88 in/lbs
EROS16MSN	EROS16 Mini Nut - 22 mm	15 ft/lbs
EROS16MTN	EROS16 Mini Taper Nut	15 ft/lbs
EROS16MN	EROS16 Mini TNUT - 24MM	15 ft/lbs
EROS16N	EROS16 NuT	41 ft/lbs
EROS20N	EROS20 NuT	56 ft/lbs
EROS25N	EROS25 Nut	63 ft/lbs
EROS32N	EROS32 Nut	105 ft/lbs
EROS40N	EROS40 Nut	150 ft/lbs



## ERos® Roller Wrenches

Part #	Fits Nut #
EROS11MNW	EROS11M
EROS16MSNW	EROS16MSN
EROS16MNW	EROS16MN
EROS16NW	EROS16N
EROS20NW	EROS20N
EROS25NW	EROS25N
EROS32NW	EROS32N
EROS40NW	EROS40N



Wrench nose

## ERos® Torque Wrenches Noses\*

Part #	Fits Nut #
EROS11MTWN	EROS11MN
EROS16MSTWN	EROS16MSN
EROS16MTWN	EROS16MN
EROS16TWN	EROS16N
EROS20TWN	EROS20N
EROS25TWN	EROS25N
EROS32TWN	EROS32N
EROS40TWN	EROS40N

\* Fit on any EROS® Torque Wrenches.

## ERos® Torque Wrenches\*

Part #	Torque Range
EROSTW50	5 - 15 ft/lbs
EROSTW100	7 - 75 ft/lbs
EROSTW200	14 - 150 ft/lbs
EROSTW300	40 - 225 ft/lbs

\* Add appropriate torque wrench nose (not included).

# ER

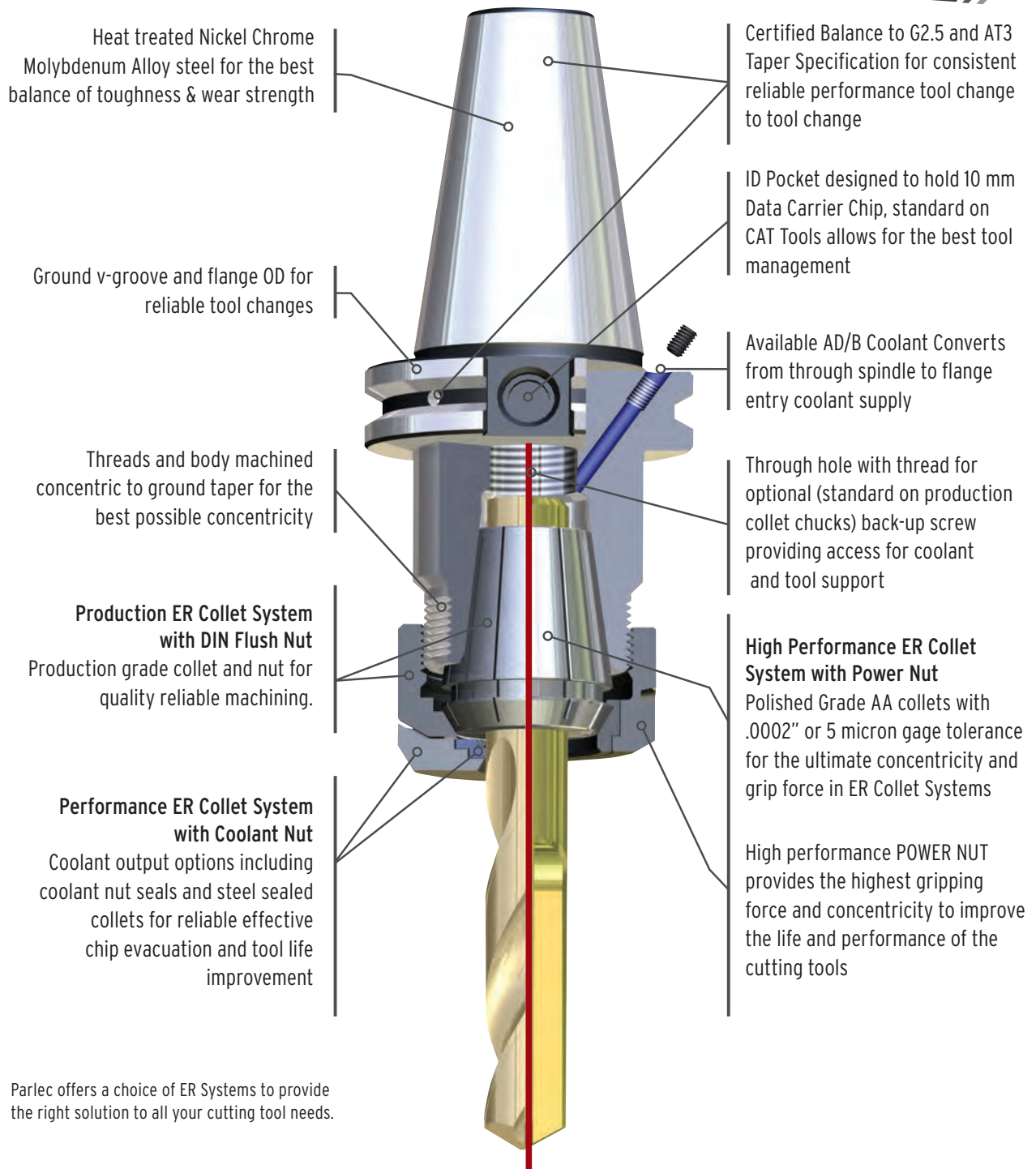
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## COLLETS & CHUCKS



# PARLEC

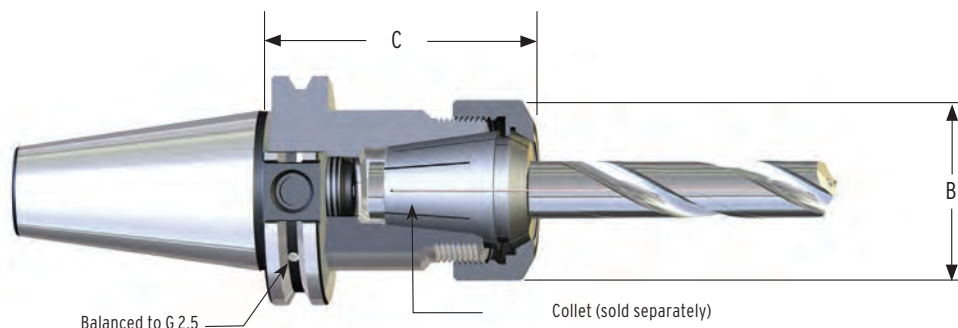
## Parlec ER System Features



Parlec offers a choice of ER Systems to provide the right solution to all your cutting tool needs.

# ER Collet Chucks

## CAT40 ER Collet Chucks | with Flush Nut



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### CAT40 ER Collet Chucks with Flush Nut

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
C40-11ERF250	ER11	0.75"	2.50"	0.275"	11ERHN	300CNW	029-909
C40-11ERF400	ER11	0.75"	4.00"	0.275"	11ERHN	300CNW	029-909
C40-11ERF600	ER11	0.75"	6.00"	0.275"	11ERHN	300CNW	029-909
C40-16ERF250	ER16	1.10"	2.50"	0.406"	16ERHN	ECN20W	BS-20
C40-16ERF300	ER16	1.10"	3.00"	0.406"	16ERHN	ECN20W	BS-20
C40-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
C40-16ERF500	ER16	1.10"	5.00"	0.406"	16ERHN	ECN20W	BS-20
C40-16ERF800	ER16	1.10"	8.00"	0.406"	16ERHN	ECN20W	BS-20
C40-20ERF300	ER20	1.34"	3.00"	0.512"	20ERHN	20ERHNW	BS-09
C40-20ERF400	ER20	1.34"	4.00"	0.512"	20ERHN	20ERHNW	BS-09
C40-20ERF600	ER20	1.34"	6.00"	0.512"	20ERHN	20ERHNW	BS-09
C40-20ERF800	ER20	1.34"	8.00"	0.512"	20ERHN	20ERHNW	BS-09
C40-25ERF250	ER25	1.65"	2.50"	0.630"	25ERN	25ERNW	BS-11
C40-25ERF400	ER25	1.65"	4.00"	0.630"	25ERN	25ERNW	BS-11
C40-25ERF600	ER25	1.65"	6.00"	0.630"	25ERN	25ERNW	BS-11
C40-32ERF236	ER32	1.97"	2.36"	0.788"	32ERN	32ERNW	BS-18
C40-32ERF300	ER32	1.97"	3.00"	0.788"	32ERN	32ERNW	BS-18
C40-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
C40-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18
C40-32ERF800	ER32	1.97"	8.00"	0.788"	32ERN	32ERNW	BS-18
C40-40ERF400	ER40	2.48"	4.00"	1.023"	40ERN	40ERNW	BS-10
C40-40ERF600	ER40	2.48"	6.00"	1.023"	40ERN	40ERNW	BS-10

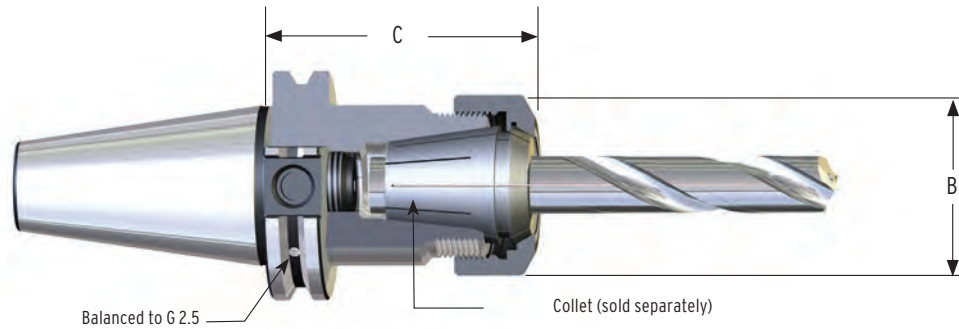
Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).



## CAT40 ER Collet Chucks | with SIMULFIT®

Simultaneous taper and flange contact with the spindle provides greater rigidity.



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### CAT40 ER Collet Chucks with SIMULFIT

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
C40F-11ERF400	ER11	0.75"	4.00"	0.275"	11ERHN	300CNW	029-909
C40F-11ERF600	ER11	0.75"	6.00"	0.275"	11ERHN	300CNW	029-909
C40F-16ERF250	ER16	1.10"	2.50"	0.406"	16ERHN	ECN20W	BS-20
C40F-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
C40F-16ERF500	ER16	1.10"	5.00"	0.406"	16ERHN	ECN20W	BS-20
C40F-16ERF600	ER16	1.10"	6.00"	0.406"	16ERHN	ECN20W	BS-20
C40F-16ERF800	ER16	1.10"	8.00"	0.406"	16ERHN	ECN20W	BS-20
C40F-20ERF300	ER20	1.34"	3.00"	0.512"	20ERHN	20ERHNW	BS-09
C40F-20ERF400	ER20	1.34"	4.00"	0.512"	20ERHN	20ERHNW	BS-09
C40F-20ERF600	ER20	1.34"	6.00"	0.512"	20ERHN	20ERHNW	BS-09
C40F-25ERF250	ER25	1.65"	2.50"	0.630"	25ERN	25ERNW	BS-11
C40F-25ERF400	ER25	1.65"	4.00"	0.630"	25ERN	25ERNW	BS-11
C40F-25ERF600	ER25	1.65"	6.00"	0.630"	25ERN	25ERNW	BS-11
C40F-32ERF300	ER32	1.97"	3.00"	0.788"	32ERN	32ERNW	BS-18
C40F-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
C40F-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18
C40F-32ERF800	ER32	1.97"	8.00"	0.788"	32ERN	32ERNW	BS-18
C40F-40ERF400	ER40	2.48"	2.48"	1.023"	40ERN	40ERNW	BS-10

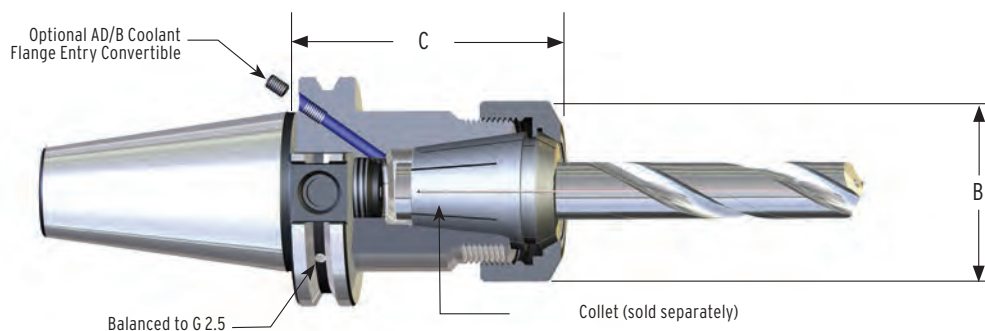
Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

# ER Collet Chucks

## CAT40 ER Collet Chucks | with AD/B Coolant

DIN-B flange coolant enabled



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

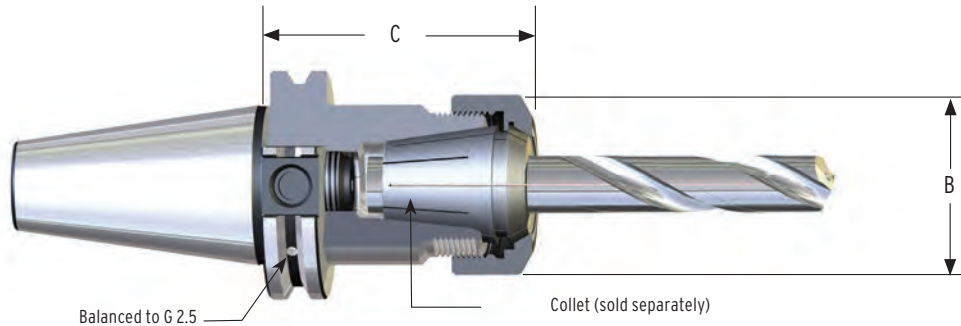
### CAT40 ER Collet Chucks with AD/B Coolant

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
C40BC-16ERF250	ER16	1.10"	2.50"	0.406"	16ERHN	ECN20W	BS-20
C40BC-16ERF300	ER16	1.10"	3.00"	0.406"	16ERHN	ECN20W	BS-20
C40BC-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
C40BC-16ERF500	ER16	1.10"	5.00"	0.406"	16ERHN	ECN20W	BS-20
C40BC-20ERF300	ER20	1.34"	3.00"	0.512"	20ERHN	20ERHNW	BS-09
C40BC-20ERF400	ER20	1.34"	4.00"	0.512"	20ERHN	20ERHNW	BS-09
C40BC-20ERF600	ER20	1.34"	6.00"	0.512"	20ERHN	20ERHNW	BS-09
C40BC-25ERF250	ER25	1.65"	2.50"	0.630"	25ERN	25ERNW	BS-11
C40BC-25ERF400	ER25	1.65"	4.00"	0.630"	25ERN	25ERNW	BS-11
C40BC-25ERF600	ER25	1.65"	6.00"	0.630"	25ERN	25ERNW	BS-11
C40BC-32ERF300	ER32	1.97"	3.00"	0.788"	32ERN	32ERNW	BS-18
C40BC-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
C40BC-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18
C40BC-40ERF400	ER40	2.48"	4.00"	1.023"	40ERN	40ERNW	BS-10

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

## CAT50 ER Collet Chucks | with Flush Nut



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 20,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### CAT50 ER Collet Chucks with Flush Nut

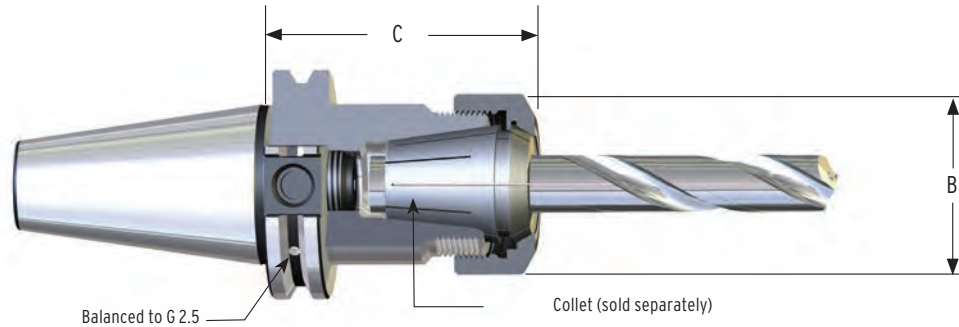
Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
C50-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
C50-16ERF600	ER16	1.10"	6.00"	0.406"	16ERHN	ECN20W	BS-20
C50-16ERF800	ER16	1.10"	8.00"	0.406"	16ERHN	ECN20W	BS-20
C50-16ERF1000	ER16	1.10"	10.00"	0.406"	16ERHN	ECN20W	BS-20
C50-20ERF400	ER20	1.34"	4.00"	0.512"	20ERHN	20ERHNW	BS-09
C50-20ERF600	ER20	1.34"	6.00"	0.512"	20ERHN	20ERHNW	BS-09
C50-20ERF800	ER20	1.34"	8.00"	0.512"	20ERHN	20ERHNW	BS-09
C50-20ERF1000	ER20	1.34"	10.00"	0.512"	20ERHN	20ERHNW	BS-09
C50-25ERF400	ER25	1.64"	4.00"	0.630"	25ERN	25ERNW	BS-11
C50-25ERF600	ER25	1.64"	6.00"	0.630"	25ERN	25ERNW	BS-11
C50-25ERF800	ER25	1.64"	8.00"	0.630"	25ERN	25ERNW	BS-11
C50-25ERF1000	ER25	1.64"	10.00"	0.630"	25ERN	25ERNW	BS-11
C50-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
C50-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18
C50-32ERF800	ER32	1.97"	8.00"	0.788"	32ERN	32ERNW	BS-18
C50-32ERF1000	ER32	1.97"	10.00"	0.788"	32ERN	32ERNW	BS-18
C50-40ERF400	ER40	2.47"	4.00"	1.023"	40ERN	40ERNW	BS-10
C50-40ERF600	ER40	2.47"	6.00"	1.023"	40ERN	40ERNW	BS-10
C50-40ERF800	ER40	2.47"	8.00"	1.023"	40ERN	40ERNW	BS-10
C50-40ERF1000	ER40	2.47"	10.00"	1.023"	40ERN	40ERNW	BS-10

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).  
 Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

# ER Collet Chucks

## CAT50 ER Collet Chucks | with SIMULFIT®

Simultaneous taper and flange contact with the spindle provides greater rigidity.



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 20,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### CAT50 ER Collet Chucks with SIMULFIT

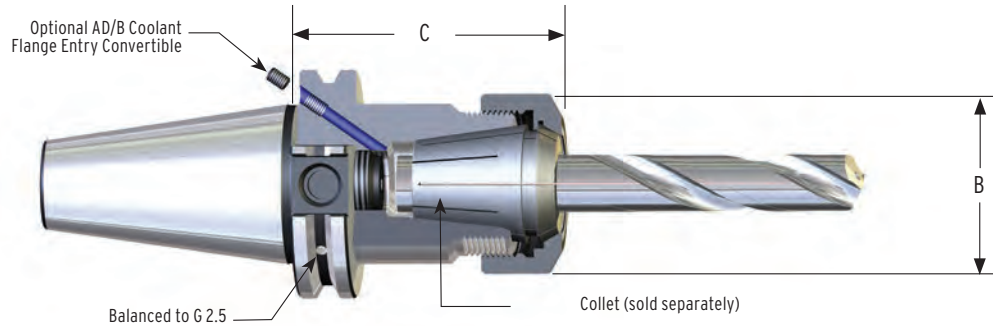
Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
C50F-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
C50F-16ERF600	ER16	1.10"	6.00"	0.406"	16ERHN	ECN20W	BS-20
C50F-16ERF800	ER16	1.10"	8.00"	0.406"	16ERHN	ECN20W	BS-20
C50F-32ERF1000	ER32	1.97"	10.00"	0.788"	32ERN	32ERNW	BS-18
C50F-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
C50F-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18
C50F-32ERF800	ER32	1.97"	8.00"	0.788"	32ERN	32ERNW	BS-18
C50F-40ERF400	ER40	2.47"	4.00"	1.023"	40ERN	40ERNW	BS-10
C50F-40ERF600	ER40	2.47"	6.00"	1.023"	40ERN	40ERNW	BS-10

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

## CAT50 ER Collet Chucks | with AD/B Coolant

DIN-B flange coolant enabled



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 20,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### CAT50 ER Collet Chucks with AD/B Coolant

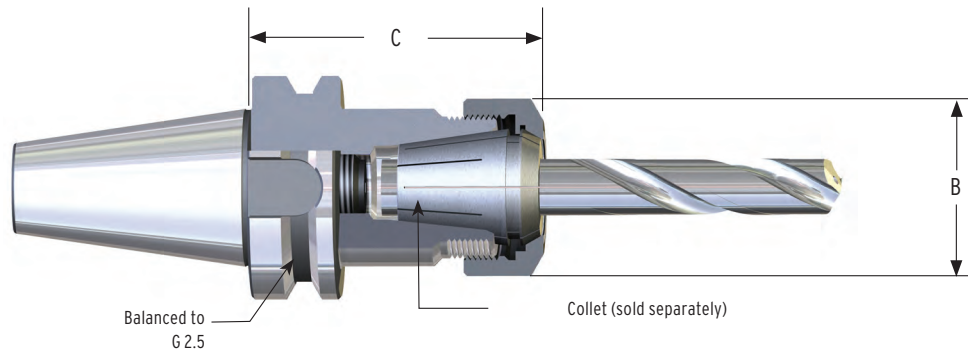
Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
C50BC-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
C50BC-16ERF600	ER16	1.10"	6.00"	0.406"	16ERHN	ECN20W	BS-20
C50BC-20ERF400	ER20	1.34"	4.00"	0.512"	20ERHN	20ERHNW	BS-09
C50BC-20ERF600	ER20	1.34"	6.00"	0.512"	20ERHN	20ERHNW	BS-09
C50BC-25ERF400	ER25	1.64"	4.00"	0.630"	25ERN	25ERNW	BS-11
C50BC-25ERF600	ER25	1.64"	6.00"	0.630"	25ERN	25ERNW	BS-11
C50BC-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
C50BC-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18
C50BC-40ERF400	ER40	2.47"	4.00"	1.023"	40ERN	40ERNW	BS-10
C50BC-40ERF600	ER40	2.47"	6.00"	1.023"	40ERN	40ERNW	BS-10

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

# ER Collet Chucks

## BT30 ER Collet Chucks | with Flush Nut



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### BT30 ER Collet Chucks with Flush Nut

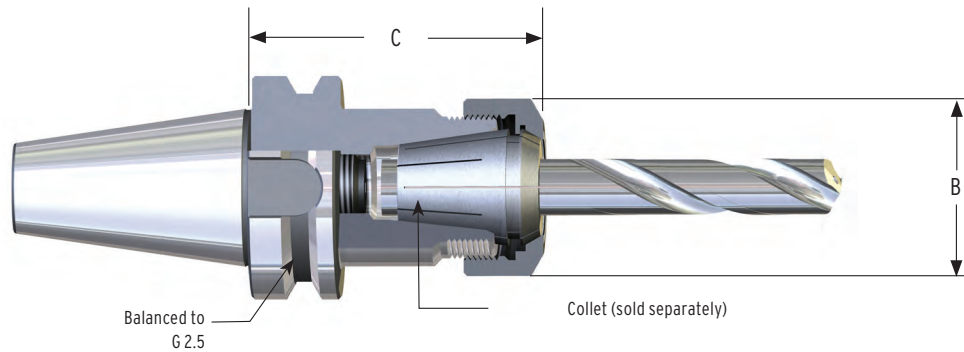
Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
B30-16ERF236	ER16	1.10"	2.36"	0.406"	16ERHN	ECN20W	BS-20
B30-20ERF236	ER20	1.34"	2.36"	0.512"	20ERHN	20ERHNW	BS-09
B30-32ERF236	ER32	1.97"	2.36"	0.788"	32ERN	32ERNW	BS-18

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

## BT30 ER Collet Chucks | with SIMULFIT®

Simultaneous taper and flange contact with the spindle provides greater rigidity.



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### BT30 ER Collet Chucks with SIMULFIT

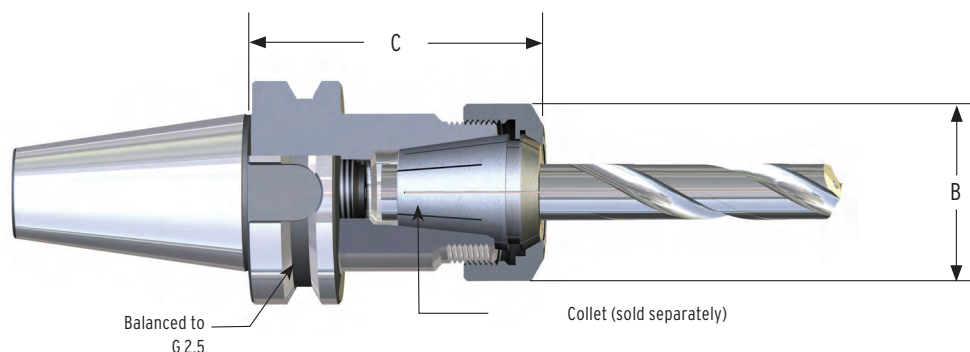
Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
B30F-16ERF236	ER16	1.10"	2.36"	0.406"	16ERHN	ECN20W	BS-20
B30F-20ERF236	ER20	1.34"	2.36"	0.512"	20ERHN	20ERHNW	BS-09
B30F-32ERF236	ER32	1.97"	2.36"	0.788"	32ERN	32ERNW	BS-18

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

# ER Collet Chucks

## BT40 ER Collet Chucks | with Flush Nut



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### BT40 ER Collet Chucks with Flush Nut

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
B40-11ERF400	ER11	0.75"	4.00"	0.275"	11ERHN	300CNW	029-909
B40-16ERF250	ER16	1.10"	2.50"	0.406"	16ERHN	ECN20W	BS-20
B40-16ERF300	ER16	1.10"	3.00"	0.406"	16ERHN	ECN20W	BS-20
B40-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
B40-16ERF500	ER16	1.10"	5.00"	0.406"	16ERHN	ECN20W	BS-20
B40-20ERF400	ER20	1.34"	4.00"	0.512"	20ERHN	ECN20W	BS-09
B40-20ERF600	ER20	1.34"	6.00"	0.512"	20ERHN	ECN20W	BS-09
B40-25ERF400	ER25	1.64"	4.00"	0.630"	25ERN	25ERNW	BS-11
B40-25ERF600	ER25	1.64"	6.00"	0.630"	25ERN	25ERNW	BS-11
B40-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
B40-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18
B40-40ERF400	ER40	2.47"	4.00"	1.023"	40ERN	40ERNW	BS-10
B40-40ERF600	ER40	2.47"	6.00"	1.023"	40ERN	40ERNW	BS-10

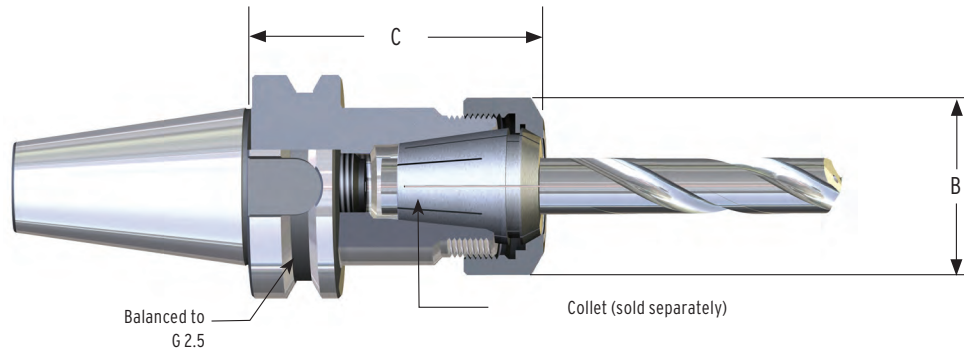
Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).



## BT40 ER Collet Chucks | with SIMULFIT®

Simultaneous taper and flange contact with the spindle provides greater rigidity.



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### BT40 ER Collet Chucks with SIMULFIT

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
B40F-16ERF300	ER16	1.10"	3.00"	0.406"	16ERHN	ECN20W	BS-20
B40F-16ERF500	ER16	1.10"	5.00"	0.406"	16ERHN	ECN20W	BS-20
B40F-20ERF400	ER20	1.34"	4.00"	0.512"	20ERHN	ECN20W	BS-09
B40F-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
B40F-32ERF600	ER32	1.97"	6.00"	0.788"	32ERN	32ERNW	BS-18

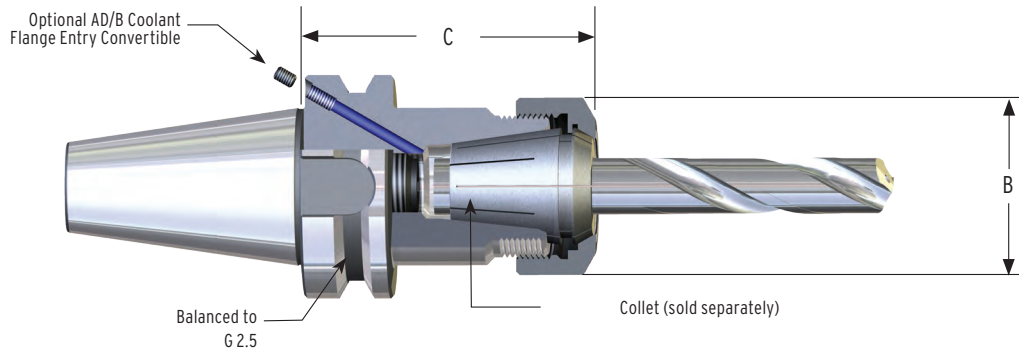
Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

# ER Collet Chucks

## BT40 ER Collet Chucks | with AD/B Coolant

DIN-B flange coolant enabled



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

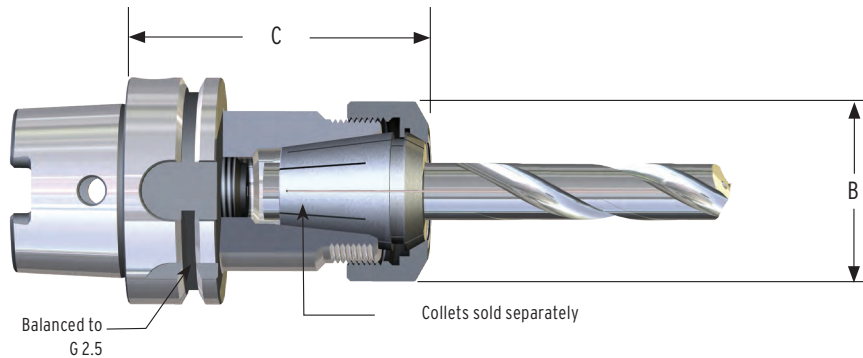
### BT40 ER Collet Chucks with AD/B Coolant

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
B40BC-11ERF400	ER11	0.75"	4.00"	0.275"	11ERHN	300CNW	029-909
B40BC-16ERF300	ER16	1.10"	3.00"	0.406"	16ERHN	ECN20W	BS-20
B40BC-16ERF400	ER16	1.10"	4.00"	0.406"	16ERHN	ECN20W	BS-20
B40BC-16ERF500	ER16	1.10"	5.00"	0.406"	16ERHN	ECN20W	BS-20
B40BC-32ERF400	ER32	1.97"	4.00"	0.788"	32ERN	32ERNW	BS-18
B40BC-40ERF400	ER40	2.47"	4.00"	1.023"	40ERN	40ERNW	BS-10

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

## HSK63A ER Collet Chucks | with Flush Nut



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 25,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### HSK63A ER Collet Chucks with Flush Nut

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
H63-16ERF394	ER16	1.10"	3.94"	0.406"	16ERHN	ECN20W	BS-20
H63-16ERF630	ER16	1.10"	6.30"	0.406"	16ERHN	ECN20W	BS-20
H63-20ERF394	ER20	1.34"	3.94"	0.512"	20ERHN	20ERHNW	BS-09
H63-20ERF630	ER20	1.34"	6.30"	0.512"	20ERHN	20ERHNW	BS-09
H63-25ERF315	ER25	1.64"	3.15"	0.630"	25ERN	25ERNW	BS-11
H63-25ERF630	ER25	1.64"	6.30"	0.630"	25ERN	25ERNW	BS-11
H63-32ERF327	ER32	1.97"	3.27"	0.788"	32ERN	32ERNW	BS-18
H63-32ERF394	ER32	1.97"	3.94"	0.788"	32ERN	32ERNW	BS-18
H63-32ERF472	ER32	1.97"	4.72"	0.788"	32ERN	32ERNW	BS-18
H63-40ERF394	ER40	2.47"	3.94"	1.023"	40ERN	40ERNW	BS-10

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

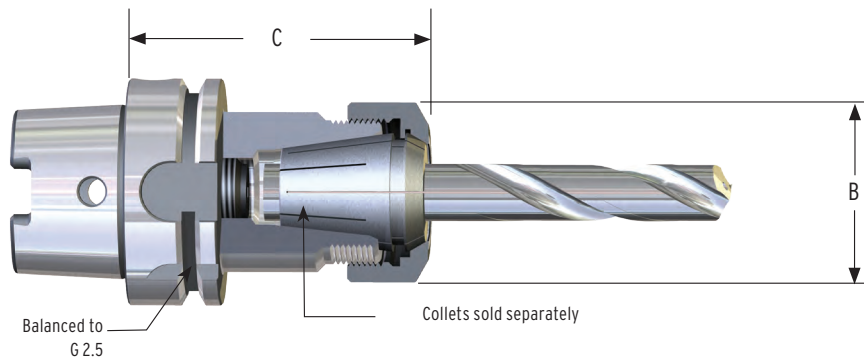
Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

### Accessories

Part #	Description
H63TUBE	HSK63 Coolant Tube
H63W	HSK63 Coolant Tube Wrench

# ER Collet Chucks

## HSK100A ER Collet Chucks | with Flush Nut



### FEATURES

- Made-in-USA quality
- Taper-to-pocket accuracy of 0.0001"
- Balanced to 20,000 RPM @ G2.5
- Three collet nut options - Flush, Power, and Coolant

### HSK100A ER Collet Chucks with Flush Nut

Part #	Collet Size	B (Dia.)	C	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Opt.)
H100-16ERF394	ER16	1.10"	3.94"	0.406"	16ERHN	ECN20W	BS-20
H100-16ERF630	ER16	1.10"	6.30"	0.406"	16ERHN	ECN20W	BS-20
H100-20ERF394	ER20	1.34"	3.94"	0.512"	20ERHN	20ERHN	BS-09
H100-20ERF630	ER20	1.34"	6.30"	0.512"	20ERHN	20ERHN	BS-09
H100-25ERF394	ER25	1.64"	3.94"	0.630"	25ERN	25ERNW	BS-11
H100-32ERF394	ER32	1.97"	3.94"	0.788"	32ERN	32ERNW	BS-18
H100-32ERF630	ER32	1.97"	6.30"	0.788"	32ERN	32ERNW	BS-18
H100-40ERF394	ER40	2.47"	3.94"	1.023"	40ERN	40ERNW	BS-10
H100-40ERF472	ER40	2.47"	4.72"	1.023"	40ERN	40ERNW	BS-10

Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).  
 Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

### Accessories

Part #	Description
H100TUBE	HSK100 Coolant Tube
H100W	HSK100 Coolant Tube Wrench

## Straight Shank ER Extensions | with Flush Nut



### Straight Shank ER Extensions with Flush Nut

Part #	A (Dia.)	B (Dia.)	OAL	Max. Shank	Nut (Incl.)	Wrench (Opt.)	Backup Screw (Incl.)
ER11-500-6H	0.500"	0.62"	6.65"	0.275"	LN-ER11	ECN56W	029-909
ER11-625-6H	0.625"	0.62"	6.65"	0.275"	LN-ER11	ECN56W	029-909
ER11-750-6H	0.750"	0.62"	6.65"	0.275"	11ERHN	300CNW	029-088
ER16-750-550	0.750"	1.11"	4.97"	0.413"	16ERHPN	ECN20W	BS-20
ER16-750-750	0.750"	1.11"	6.97"	0.413"	16ERHPN	ECN20W	BS-20
ER16-750-7H	0.750"	0.86"	7.00"	0.406"	LN-ER16	ECN78W	BS-20
ER20-625-560H	0.625"	1.10"	5.60"	0.551"	20ERN	20ERENW	029-E08
ER20-750-6H	0.750"	1.34"	7.70"	0.551"	20ERHPN	20ERHNW	029-E12
ER20-100-7H	1.000"	1.10"	7.10"	0.512"	LN-ER20	ENC20W	BS-SF5818LH-.75
ER25-750-4	0.750"	1.65"	5.75"	0.630"	25ERN	25ERNW	029-E12
ER25-750-531	0.750"	1.65"	5.31"	0.750"	25ERP	25ERNW	029-E12
ER25-100-531	1.000"	1.38"	5.31"	0.750"	25EREN	25ERENW	029-E12
ER32-100-425	1.000"	1.97"	4.25"	0.827"	32ERP	32ERNW	BS-11
ER32-125-6	1.250"	1.97"	4.25"	0.827"	32ERP	32ERNW	BS-11
ER32-750-425	0.750"	1.97"	4.25"	0.827"	32ERP	32ERNW	BS-20
ER40-125-413	1.250"	2.48"	4.13"	1.024"	40ERP	40ERNW	029-E18
ER40-125-2	1.250"	2.47"	4.75"	1.024"	40ERN	40ERNW	029-E18

## ER Collets | Inch



ER Standard Collet

### FEATURES

- Made from high-carbon bearing steel for improved flexibility
- Average 0.0002" T.I.R.

### ER11 Collets - Inch

Part #	Size	Range
ER11-0062	1/16"	.043" - .062"
ER11-0093	3/32"	.074" - .094"
ER11-0125	1/8"	.105" - .125"
ER11-0157	5/32"	.136" - .156"
ER11-0187	3/16"	.167" - .187"
ER11-0218	7/32"	.198" - .218"
ER11-0250	1/4"	.230" - .250"

### ER11 Collet Set - Inch

Part #	Size	Range
ER11-S007	7	1/16" - 1/4"

### ER16 Collets - Inch

Part #	Size	Range
ER16-0062	1/16"	.043" - .063"
ER16-0093	3/32"	.074" - .094"
ER16-0125	1/8"	.105" - .125"
ER16-0157	5/32"	.116" - .156"
ER16-0187	3/16"	.147" - .187"
ER16-0218	7/32"	.178" - .218"
ER16-0250	1/4"	.210" - .250"
ER16-0281	9/32"	.241" - .281"
ER16-0312	5/16"	.272" - .312"
ER16-0343	11/32"	.303" - .343"
ER16-0375	3/8"	.335" - .375"
ER16-0406	13/32"	.366" - .406"

### ER16 Collet Set - Inch

Part #	Size	Range
ER16-S012	12	1/16" - 13/32"

### ER20 Collets - Inch

Part #	Size	Range
ER20-0062	1/16"	.043" - .063"
ER20-0093	3/32"	.074" - .094"
ER20-0125	1/8"	.105" - .125"
ER20-0157	5/32"	.116" - .156"
ER20-0187	3/16"	.147" - .187"
ER20-0218	7/32"	.178" - .218"
ER20-0250	1/4"	.210" - .250"
ER20-0281	9/32"	.241" - .281"
ER20-0312	5/16"	.272" - .312"
ER20-0343	11/32"	.303" - .343"
ER20-0375	3/8"	.335" - .375"
ER20-0406	13/32"	.366" - .406"
ER20-0437	7/16"	.397" - .437"
ER20-0468	15/32"	.428" - .468"
ER20-0500	1/2"	.460" - .500"

### ER20 Collet Set - Inch

Part #	Size	Range
ER20-S014	14	3/32" - 1/2"

## ER Collets | Inch

### ER25 Collets - Inch

Part #	Size	Range
ER25-0062	1/16"	.043" - .063"
ER25-0093	3/32"	.074" - .094"
ER25-0125	1/8"	.105" - .125"
ER25-0156	5/32"	.116" - .156"
ER25-0187	3/16"	.147" - .187"
ER25-0218	7/32"	.178" - .218"
ER25-0250	1/4"	.210" - .250"
ER25-0281	9/32"	.241" - .281"
ER25-0312	5/16"	.272" - .312"
ER25-0343	11/32"	.303" - .343"
ER25-0375	3/8"	.335" - .375"
ER25-0406	13/32"	.366" - .406"
ER25-0437	7/16"	.397" - .437"
ER25-0468	15/32"	.428" - .468"
ER25-0500	1/2"	.460" - .500"
ER25-0531	17/32"	.491" - .531"
ER25-0562	9/16"	.522" - .562"
ER25-0593	19/32"	.554" - .594"
ER25-0625	5/8"	.585" - .625"

### ER25 Collet Set - Inch

Part #	Size	Range
ER25-S016	16	3/16" - 5/8"

### ER32 Collets - Inch

Part #	Size	Range
ER32-0062	1/16"	.043" - .063"
ER32-0093	3/32"	.074" - .094"
ER32-0125	1/8"	.105" - .125"
ER32-0156	5/32"	.116" - .156"
ER32-0187	3/16"	.147" - .187"
ER32-0218	7/32"	.178" - .218"
ER32-0250	1/4"	.210" - .250"
ER32-0281	9/32"	.241" - .281"
ER32-0312	5/16"	.272" - .312"
ER32-0343	11/32"	.303" - .343"
ER32-0375	3/8"	.335" - .375"
ER32-0406	13/32"	.366" - .406"
ER32-0437	7/16"	.397" - .437"
ER32-0468	15/32"	.428" - .468"
ER32-0500	1/2"	.460" - .500"
ER32-0531	17/32"	.491" - .531"
ER32-0562	9/16"	.522" - .562"
ER32-0593	19/32"	.554" - .594"
ER32-0625	5/8"	.585" - .625"
ER32-0656	21/32"	.616" - .656"
ER32-0687	11/16"	.647" - .687"
ER32-0718	23/32"	.679" - .719"
ER32-0750	3/4"	.710" - .750"
ER32-0781	25/32"	.741" - .781"

### ER32 Collet Set - Inch

Part #	Size	Range
ER32-S021	21	1/8" - 3/4"

### ER40 Collets - Inch

Part #	Size	Range
ER40-0125	1/8"	.105" - .125"
ER40-0156	5/32"	.116" - .156"
ER40-0187	3/16"	.147" - .187"
ER40-0218	7/32"	.178" - .218"
ER40-0250	1/4"	.210" - .250"
ER40-0281	9/32"	.241" - .281"
ER40-0312	5/16"	.272" - .312"
ER40-0343	11/32"	.303" - .343"
ER40-0375	3/8"	.335" - .375"
ER40-0406	13/32"	.366" - .406"
ER40-0437	7/16"	.397" - .437"
ER40-0468	15/32"	.428" - .468"
ER40-0500	1/2"	.460" - .500"
ER40-0531	17/32"	.491" - .531"
ER40-0562	9/16"	.522" - .562"
ER40-0593	19/32"	.554" - .594"
ER40-0625	5/8"	.585" - .625"
ER40-0656	21/32"	.616" - .656"
ER40-0687	11/16"	.647" - .687"
ER40-0718	23/32"	.679" - .719"
ER40-0750	3/4"	.710" - .750"
ER40-0781	25/32"	.741" - .781"
ER40-0812	13/16"	.773" - .813"
ER40-0843	27/32"	.804" - .844"
ER40-0875	7/8"	.835" - .875"
ER40-0906	29/32"	.866" - .906"
ER40-0937	15/16"	.898" - .938"
ER40-0968	31/32"	.929" - .969"
ER40-1000	1"	.960" - 1.000"

### ER40 Collet Set - Inch

Part #	Size	Range
ER40-S024	24	9/32" - 1"

## ER Collets | Metric



ER Standard Collet

### FEATURES

- Made from high-carbon bearing steel for improved flexibility
- Average 0.0002" T.I.R.

### ER11 Collets - Metric

Part #	Size	Range
ER11-0039	1 mm	.5 - 1 mm
ER11-0059	1.5 mm	1 - 1.5 mm
ER11-0078	2 mm	1.5 - 2 mm
ER11-0098	2.5 mm	2 - 2.5 mm
ER11-0118	3 mm	2.5 - 3 mm
ER11-0137	3.5 mm	3 - 3.5 mm
ER11-0157	4 mm	3.5 - 4 mm
ER11-0177	4.5 mm	4 - 4.5 mm
ER11-0196	5 mm	4.5 - 5 mm
ER11-0216	5.5 mm	5 - 5.5 mm
ER11-0236	6 mm	5.5 - 6 mm
ER11-0255	6.5 mm	6 - 6.5 mm
ER11-0275	7 mm	6.5 - 7 mm

### ER11 Collet Set - Metric

Part #	Size	Range
ER11-S013	13	.5 - 7 mm

### ER16 Collets - Metric

Part #	Size	Range
ER16-0039	1 mm	.5 - 1 mm
ER16-0078	2 mm	1.5 - 2 mm
ER16-0098	2.5 mm	2 - 2.5 mm
ER16-0118	3 mm	2 - 3 mm
ER16-0137	3.5 mm	2.5 - 3.5 mm
ER16-0157	4 mm	3 - 4 mm
ER16-0177	4.5 mm	3.5 - 4.5 mm
ER16-0196	5 mm	4 - 5 mm
ER16-0216	5.5 mm	4.5 - 5.5 mm
ER16-0236	6 mm	5 - 6 mm
ER16-0255	6.5 mm	5.5 - 6.5 mm
ER16-0275	7 mm	6 - 7 mm
ER16-0295	7.5 mm	6.5 - 7.5 mm
ER16-0315	8 mm	7 - 8 mm
ER16-0334	8.5 mm	7.5 - 8.5 mm
ER16-0354	9 mm	8 - 9 mm
ER16-0393	10 mm	9 - 10 mm

### ER16 Collet Set - Metric

Part #	Size	Range
ER16-S010	10	1 - 10 mm

### ER20 Collets - Metric

Part #	Size	Range
ER20-0078	2 mm	1.5 - 2 mm
ER20-0118	3 mm	2 - 3 mm
ER20-0157	4 mm	3 - 4 mm
ER20-0196	5 mm	4 - 5 mm
ER20-0236	6 mm	5 - 6 mm
ER20-0275	7 mm	6 - 7 mm
ER20-0315	8 mm	7 - 8 mm
ER20-0354	9 mm	8 - 9 mm
ER20-0393	10 mm	9 - 10 mm
ER20-0433	11 mm	10 - 11 mm
ER20-0472	12 mm	11 - 12 mm
ER20-0511	13 mm	12 - 13 mm

### ER20 Collet Set - Metric

Part #	Size	Range
ER20-S012	12	2 - 13 mm



## ER Collets | Metric

### ER25 Collets - Metric

Part #	Size	Range
ER25-0078	2 mm	1.5 - 2 mm
ER25-0118	3 mm	2 - 3 mm
ER25-0157	4 mm	3 - 4 mm
ER25-0196	5 mm	4 - 5 mm
ER25-0236	6 mm	5 - 6 mm
ER25-0275	7 mm	6 - 7 mm
ER25-0315	8 mm	7 - 8 mm
ER25-0354	9 mm	8 - 9 mm
ER25-0393	10 mm	9 - 10 mm
ER25-0433	11 mm	10 - 11 mm
ER25-0472	12 mm	11 - 12 mm
ER25-0511	13 mm	12 - 13 mm
ER25-0551	14 mm	13 - 14 mm
ER25-0590	15 mm	14 - 15 mm
ER25-0630	16 mm	15 - 16 mm

### ER25 Collet Set - Metric

Part #	Size	Range
ER25-S015	15	2 - 16 mm

### ER32 Collets - Metric

Part #	Size	Range
ER32-0118	3 mm	2 - 3 mm
ER32-0157	4 mm	3 - 4 mm
ER32-0196	5 mm	4 - 5 mm
ER32-0236	6 mm	5 - 6 mm
ER32-0275	7 mm	6 - 7 mm
ER32-0315	8 mm	7 - 8 mm
ER32-0354	9 mm	8 - 9 mm
ER32-0393	10 mm	9 - 10 mm
ER32-0433	11 mm	10 - 11 mm
ER32-0472	12 mm	11 - 12 mm
ER32-0511	13 mm	12 - 13 mm
ER32-0551	14 mm	13 - 14 mm
ER32-0590	15 mm	14 - 15 mm
ER32-0630	16 mm	15 - 16 mm
ER32-0669	17 mm	16 - 17 mm
ER32-0708	18 mm	17 - 18 mm
ER32-0748	19 mm	18 - 19 mm
ER32-0787	20 mm	19 - 20 mm

### ER32 Collet Set - Metric

Part #	Size	Range
ER32-S018	18	3 - 20 mm

### ER40 Collets -Metric

Part #	Size	Range
ER40-0157	4 mm	3 - 4 mm
ER40-0196	5 mm	4 - 5 mm
ER40-0236	6 mm	5 - 6 mm
ER40-0275	7 mm	6 - 7 mm
ER40-0315	8 mm	7 - 8 mm
ER40-0354	9 mm	8 - 9 mm
ER40-0393	10 mm	9 - 10 mm
ER40-0433	11 mm	10 - 11 mm
ER40-0472	12 mm	11 - 12 mm
ER40-0511	13 mm	12 - 13 mm
ER40-0551	14 mm	13 - 14 mm
ER40-0590	15 mm	14 - 15 mm
ER40-0630	16 mm	15 - 16 mm
ER40-0669	17 mm	16 - 17 mm
ER40-0708	18 mm	17 - 18 mm
ER40-0748	19 mm	18 - 19 mm
ER40-0787	20 mm	19 - 20 mm
ER40-0826	21 mm	20 - 21 mm
ER40-0866	22 mm	21 - 22 mm
ER40-0905	23 mm	22 - 23 mm
ER40-0944	24 mm	23 - 24 mm
ER40-0984	25 mm	24 - 25 mm
ER40-1023	26 mm	25 - 26 mm
ER40-1063	27 mm	26 - 27 mm
ER40-1102	28 mm	27 - 28 mm
ER40-1141	29 mm	28 - 29 mm
ER40-1181	30 mm	29 - 30 mm

### ER40 Collet Set - Metric

Part #	Size	Range
ER40-S023	23	4 - 26 mm

## AA Grade 5 Micron Precision Collets | Inch



ER Grade AA  
5 Micron Collet

### FEATURES

- 5 micron max. T.I.R.
- Fewer slots for increased rigidity
- For use with on-size tooling

### ER11 AA Grade Collets - Inch

Part #	Size
5UMER11-0062	1/16"
5UMER11-0093	3/32"
5UMER11-0125	1/8"
5UMER11-0157	5/32"
5UMER11-0187	3/16"
5UMER11-0218	7/32"
5UMER11-0250	1/4"

### ER11 AA Grade Collet Set - Inch

Part #	Pcs.	Range
5UMER11-SI007	7	1/16" - 1/4"

### ER16 AA Grade Collets - Inch

Part #	Size
5UMER16-0062	1/16"
5UMER16-0093	3/32"
5UMER16-0125	1/8"
5UMER16-0157	5/32"
5UMER16-0187	3/16"
5UMER16-0218	7/32"
5UMER16-0250	1/4"
5UMER16-0281	9/32"
5UMER16-0312	5/16"
5UMER16-0343	11/32"
5UMER16-0375	3/8"
5UMER16-0406	13/32"

### ER16 AA Grade Collet Set - Inch

Part #	Pcs.	Range
5UMER16-SI010	10	1/16" - 3/8"

### ER20 AA Grade Collets - Inch

Part #	Size
5UMER20-0125	1/8"
5UMER20-0157	5/32"
5UMER20-0187	3/16"
5UMER20-0218	7/32"
5UMER20-0250	1/4"
5UMER20-0312	5/16"
5UMER20-0375	3/8"
5UMER20-0437	7/16"
5UMER20-0500	1/2"

### ER20 AA Grade Collet Set - Inch

Part #	Pcs.	Range
5UMER20-SI007	9	1/8" - 1/2"

## AA Grade 5 Micron Precision Collets | Inch

### ER25 AA Grade Collets - Inch

Part #	Size
5UMER25-0125	1/8"
5UMER25-0157	5/32"
5UMER25-0187	3/16"
5UMER25-0250	1/4"
5UMER25-0312	5/16"
5UMER25-0375	3/8"
5UMER25-0406	13/32"
5UMER25-0437	7/16"
5UMER25-0500	1/2"
5UMER25-0562	9/16"
5UMER25-0625	5/8"

### ER25 AA Grade Collet Set - Inch

Part #	Pcs.	Range
5UMER25-SI011	11	1/8" - 5/8"

### ER32 AA Grade Collets - Inch

Part #	Size
5UMER32-0125	1/8"
5UMER32-0157	5/32"
5UMER32-0187	3/16"
5UMER32-0250	1/4"
5UMER32-0312	5/16"
5UMER32-0375	3/8"
5UMER32-0437	7/16"
5UMER32-0500	1/2"
5UMER32-0562	9/16"
5UMER32-0625	5/8"
5UMER32-0687	11/16"
5UMER32-0750	3/4"
5UMER32-0812	13/16"

### ER32 AA Grade Collet Set - Inch

Part #	Pcs.	Range
5UMER32-SI014	14	1/8" - 13/16", 12mm

### ER40 AA Grade Collets - Inch

Part #	Size
5UMER40-0125	1/8"
5UMER40-0157	5/32"
5UMER40-0187	3/16"
5UMER40-0218	7/32"
5UMER40-0250	1/4"
5UMER40-0281	9/32"
5UMER40-0312	5/16"
5UMER40-0343	11/32"
5UMER40-0375	3/8"
5UMER40-0406	13/32"
5UMER40-0437	7/16"
5UMER40-0468	15/32"
5UMER40-0500	1/2"
5UMER40-0531	17/32"
5UMER40-0562	9/16"
5UMER40-0593	19/32"
5UMER40-0625	5/8"
5UMER40-0656	21/32"
5UMER40-0687	11/16"
5UMER40-0718	23/32"
5UMER40-0750	3/4"
5UMER40-0781	25/32"
5UMER40-0812	13/16"
5UMER40-0875	7/8"
5UMER40-1000	1"

### ER40 AA Grade Collet Set - Inch

Part #	Pcs.	Range
5UMER40-SI016	16	1/8" - 1", 12mm

## AA Grade 5 Micron Precision Collets | Metric



ER Grade AA  
5 Micron Collet

### FEATURES

- 5 micron max. T.I.R.
- Fewer slots for increased rigidity
- For use with on-size tooling

### ER11 AA Grade Collets - Metric

Part #	Size
5UMER-0039	1 mm
5UMER-0059	1.5 mm
5UMER-0078	2 mm
5UMER-0098	2.5 mm
5UMER-0118	3 mm
5UMER-0137	3.5 mm
5UMER-0157	4 mm
5UMER-0177	4.5 mm
5UMER-0196	5 mm
5UMER-0216	5.5 mm
5UMER-0236	6 mm
5UMER-0255	6.5 mm
5UMER-0275	7 mm

### ER11 AA Grade Collet Set - Metric

Part #	Pcs.	Range
5UMER11-SM013	13	1 - 7mm

### ER16 AA Grade Collets - Metric

Part #	Size
5UMER16-0039	1 mm
5UMER16-0078	2 mm
5UMER16-0118	3 mm
5UMER16-0157	4 mm
5UMER16-0196	5 mm
5UMER16-0236	6 mm
5UMER16-0275	7 mm
5UMER16-0315	8 mm
5UMER16-0354	9 mm
5UMER16-0393	10 mm

### ER16 AA Grade Collet Set - Metric

Part #	Pcs.	Range
5UMER16-SM010	10	1 - 10 mm

### ER20 AA Grade Collets - Metric

Part #	Size
5UMER20-0078	2 mm
5UMER20-0118	3 mm
5UMER20-0157	4 mm
5UMER20-0196	5 mm
5UMER20-0236	6 mm
5UMER20-0275	7 mm
5UMER20-0315	8 mm
5UMER20-0354	9 mm
5UMER20-0393	10 mm
5UMER20-0433	11 mm
5UMER20-0472	12 mm
5UMER20-0511	13 mm

### ER20 AA Grade Collet Set - Metric

Part #	Pcs.	Range
5UMER20-SM012	12	2 - 13 mm

## AA Grade 5 Micron Precision Collets | Metric

### ER25 AA Grade Collets - Metric

Part #	Size
5UMER25-0078	2 mm
5UMER25-0118	3 mm
5UMER25-0157	4 mm
5UMER25-0196	5 mm
5UMER25-0236	6 mm
5UMER25-0275	7 mm
5UMER25-0315	8 mm
5UMER25-0354	9 mm
5UMER25-0393	10 mm
5UMER25-0433	11 mm
5UMER25-0472	12 mm
5UMER25-0511	13 mm
5UMER25-0551	14 mm
5UMER25-0590	15 mm
5UMER25-0630	16 mm

### ER25 AA Grade Collet Set - Metric

Part #	Pcs.	Range
5UMER25-SM015	15	2 - 16 mm

### ER32 AA Grade Collets - Metric

Part #	Size
5UMER32-0118	3 mm
5UMER32-0157	4 mm
5UMER32-0196	5 mm
5UMER32-0236	6 mm
5UMER32-0275	7 mm
5UMER32-0315	8 mm
5UMER32-0354	9 mm
5UMER32-0393	10 mm
5UMER32-0433	11 mm
5UMER32-0472	12 mm
5UMER32-0511	13 mm
5UMER32-0551	14 mm
5UMER32-0590	15 mm
5UMER32-0630	16 mm
5UMER32-0669	17 mm
5UMER32-0708	18 mm
5UMER32-0748	19 mm
5UMER32-0787	20 mm

### ER32 AA Grade Collet Set - Metric

Part #	Pcs.	Range
5UMER32-SM018	18	3 - 20 mm

### ER40 AA Grade Collets - Metric

Part #	Size
5UMER40-0157	4 mm
5UMER40-0196	5 mm
5UMER40-0236	6 mm
5UMER40-0275	7 mm
5UMER40-0315	8 mm
5UMER40-0354	9 mm
5UMER40-0393	10 mm
5UMER40-0433	11 mm
5UMER40-0472	12 mm
5UMER40-0511	13 mm
5UMER40-0551	14 mm
5UMER40-0590	15 mm
5UMER40-0630	16 mm
5UMER40-0669	17 mm
5UMER40-0708	18 mm
5UMER40-0748	19 mm
5UMER40-0787	20 mm
5UMER40-0826	21 mm
5UMER40-0866	22 mm
5UMER40-0905	23 mm
5UMER40-0944	24 mm
5UMER40-0984	25 mm
5UMER40-1023	26 mm

### ER40 AA Grade Collet Set - Metric

Part #	Pcs.	Range
5UMER40-SM023	23	4 - 26 mm

## ER Steel-Sealed Collets | Inch



ERS Steel Sealed Collet

### FEATURES

- Sealed to 2,000 PSI
- No plugs to fail
- For use with on-size tooling

### ER16 Steel-Sealed ER Collets - Inch

Part #	Size
ERS16-0125	1/8"
ERS16-0157	5/32"
ERS16-0187	3/16"
ERS16-0218	7/32"
ERS16-0250	1/4"
ERS16-0281	9/32"
ERS16-0312	5/16"
ERS16-0343	11/32"
ERS16-0375	3/8"
ERS16-0406	13/32"

### ER16 Steel-Sealed ER Collet Set - Inch

Part #	Pcs.	Range
ERS16-S010	10	1/8" - 13/32"

### ER20 Steel-Sealed ER Collets - Inch

Part #	Size
ERS20-0157	5/32"
ERS20-0187	3/16"
ERS20-0218	7/32"
ERS20-0250	1/4"
ERS20-0281	9/32"
ERS20-0312	5/16"
ERS20-0343	11/32"
ERS20-0375	3/8"
ERS20-0406	13/32"
ERS20-0437	7/16"
ERS20-0500	1/2"

### ER20 Steel-Sealed ER Collet Set - Inch

Part #	Pcs.	Range
ERS20-S011	11	5/32" - 1/2"

### ER25 Steel-Sealed ER Collets - Inch

Part #	Size
ERS25-0157	5/32"
ERS25-0187	3/16"
ERS25-0218	7/32"
ERS25-0250	1/4"
ERS25-0281	9/32"
ERS25-0312	5/16"
ERS25-0343	11/32"
ERS25-0375	3/8"
ERS25-0406	13/32"
ERS25-0437	7/16"
ERS25-0500	1/2"
ERS25-0531	17/32"
ERS25-0562	5/8"
ERS25-0593	19/32"
ERS25-0625	5/8"

### ER25 Steel-Sealed ER Collet Set - Inch

Part #	Pcs.	Range
ERS25-S016	16	5/32" - 5/8"

## ER Steel-Sealed Collets | Inch

### ER32 Steel-Sealed ER Collets - Inch

Part #	Size
ERS32-0157	5/32"
ERS32-0187	3/16"
ERS32-0218	7/32"
ERS32-0250	1/4"
ERS32-0281	9/32"
ERS32-0312	5/16"
ERS32-0343	11/32"
ERS32-0375	3/8"
ERS32-0406	13/32"
ERS32-0437	7/16"
ERS32-0468	15/32"
ERS32-0500	1/2"
ERS32-0531	17/32"
ERS32-0562	5/8"
ERS32-0593	19/32"
ERS32-0625	5/8"
ERS32-0656	21/32"
ERS32-0687	11/16"
ERS32-0718	23/32"
ERS32-0750	3/4"
ERS32-0781	25/32"

### ER40 Steel-Sealed ER Collets - Inch

Part #	Size
ERS40-0250	1/4"
ERS40-0281	9/32"
ERS40-0312	5/16"
ERS40-0343	11/32"
ERS40-0375	3/8"
ERS40-0406	13/32"
ERS40-0437	7/16"
ERS40-0468	15/32"
ERS40-0500	1/2"
ERS40-0531	17/32"
ERS40-0562	5/8"
ERS40-0593	19/32"
ERS40-0625	5/8"
ERS40-0656	21/32"
ERS40-0687	11/16"
ERS40-0718	23/32"
ERS40-0750	3/4"
ERS40-0781	25/32"
ERS40-0875	7/8"
ERS40-1000	1"

### ER32 Steel-Sealed ER Collet Set - Inch

Part #	Pcs.	Range
ERS32-S021	21	5/32" - 25/32"

### ER40 Steel-Sealed ER Collet Set - Inch

Part #	Pcs.	Range
ERS40-S020	20	1/4" - 1"

## ER Steel-Sealed Collets | Metric



ERS Steel Sealed Collet

### FEATURES

- Sealed to 2,000 PSI
- No plugs to fail
- For use with on-size tooling

### ER16 Steel-Sealed ER Collets - Metric

Part #	Size
ERS16-0157	4 mm
ERS16-0196	5 mm
ERS16-0236	6 mm
ERS16-0275	7 mm
ERS16-0315	8 mm
ERS16-0354	9 mm
ERS16-0393	10 mm

### ER16 Steel-Sealed ER Collet Set - Metric

Part #	Pcs.	Range
ERS16-S007	7	4 - 10 mm

### ER20 Steel-Sealed ER Collets - Metric

Part #	Size
ERS20-0157	4 mm
ERS20-0196	5 mm
ERS20-0236	6 mm
ERS20-0275	7 mm
ERS20-0315	8 mm
ERS20-0354	9 mm
ERS20-0393	10 mm
ERS20-0433	11 mm
ERS20-0472	12 mm
ERS20-0511	13 mm

### ER20 Steel-Sealed ER Collet Set - Metric

Part #	Pcs.	Range
ERS20-S010	10	4 - 13 mm

### ER25 Steel-Sealed ER Collets - Metric

Part #	Size
ERS25-0157	4 mm
ERS25-0196	5 mm
ERS25-0236	6 mm
ERS25-0275	7 mm
ERS25-0315	8 mm
ERS25-0354	9 mm
ERS25-0393	10 mm
ERS25-0433	11 mm
ERS25-0472	12 mm
ERS25-0511	13 mm
ERS25-0551	14 mm
ERS25-0590	15 mm
ERS25-0630	16 mm

### ER25 Steel-Sealed ER Collet Set - Metric

Part #	Pcs.	Range
ERS25-S013	13	4 - 16 mm



## ER Steel-Sealed Collets | Metric

### ER32 Steel-Sealed ER Collets - Metric

Part #	Size
ERS32-0157	4 mm
ERS32-0196	5 mm
ERS32-0236	6 mm
ERS32-0275	7 mm
ERS32-0315	8 mm
ERS32-0354	9 mm
ERS32-0393	10 mm
ERS32-0433	11 mm
ERS32-0472	12 mm
ERS32-0511	13 mm
ERS32-0551	14 mm
ERS32-0590	15 mm
ERS32-0630	16 mm
ERS32-0669	17 mm
ERS32-0708	18 mm
ERS32-0748	19 mm
ERS32-0787	20 mm

### ER32 Steel-Sealed ER Collets Set - Metric

Part #	Pcs.	Range
ERS32-S017	17	4 - 20 mm

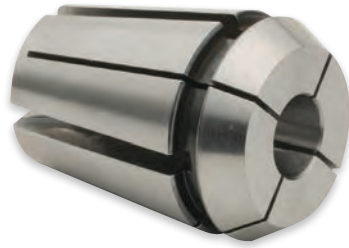
### ER40 Steel-Sealed ER Collets - Metric

Part #	Size
ERS40-0236	6 mm
ERS40-0275	7 mm
ERS40-0315	8 mm
ERS40-0354	9 mm
ERS40-0393	10 mm
ERS40-0433	11 mm
ERS40-0472	12 mm
ERS40-0511	13 mm
ERS40-0551	14 mm
ERS40-0590	15 mm
ERS40-0630	16 mm
ERS40-0669	17 mm
ERS40-0708	18 mm
ERS40-0748	19 mm
ERS40-0787	20 mm
ERS40-0826	21 mm
ERS40-0866	22 mm
ERS40-0905	23 mm
ERS40-0944	24 mm
ERS40-0984	25 mm
ERS40-1023	26 mm

### ER40 Steel-Sealed ER Collets Set - Metric

Part #	Pcs.	Range
ERS40-S021	21	6 - 26 mm

## ER Tap Collets | Inch and Metric



ER Tap Collet

### FEATURES

- Replaces expensive tap holders
- Reduce tap clearance requirements
- Special design locks tap square in slots

### ER16 Tap Collets

Part #	Inch Size	ANSI Metric
ERT16-#0-6	#0-#6	-
ERT-#8	#8	M4
ERT16-#10	#10	M4.5, M5
ERT16-#12	#12	-
ERT16-025	1/4"	M6, M6.5
ERT16-031	5/16"	M7, M8
ERT16-037	3/8"	M10
ERT16-043	7/16"	-
ERT16-050	1/2"	M12, M12.5

### ER16 Tap Collet Set

Part #	Pcs	Range
ERT16-S009	9	#0 - 1/2"

### ER20 Tap Collets

Part #	Inch Size	ANSI Metric
ERT20-#8	#8	M4
ERT20-#10	#10	M4.5, M5
ERT20-#12	#12	-
ERT20-025	1/4"	M6, M6.5
ERT20-031	5/16"	M7, M8
ERT20-037	3/8"	M10
ERT20-043	7/16"	-
ERT20-050	1/2"	M12, M12.5

### ER20 Tap Collet Set

Part #	Pcs	Range
ERT20-S008	8	#8 - 1/2"

### ER25 Tap Collets

Part #	Size	Range
ERT25-#8	#8	M4
ERT25-#10	#10	M4.5, M5
ERT25-#12	#12	-
ERT25-012N	1/8" NPT	-
ERT25-025	1/4"	M6, M6.5
ERT25-031	5/16"	M7, M8
ERT25-037	3/8"	M10
ERT25-043	7/16"	-
ERT25-050	1/2"	M12, M12.5
ERT25-056	9/16"	M14
ERT25-062	5/8"	M16

### ER25 Tap Collet Set

Part #	Pcs	Range
ERT25-S011	11	#8 - 5/8"

## ER Tap Collets | Inch and Metric

### ER32 Tap Collets

Part #	Inch Size	ANSI Metric
ERT32-#0-6	#0 - #6	-
ERT32-#8	#8 - ##8	M4
ERT32-#10	#10	M4.5, M5
ERT32-#12	#12	-
ERT32-012N	1/8" NPT	-
ERT32-025	1/4"	M6, M6.5
ERT32-025N	1/4" NPT	-
ERT32-031	5/16"	M7, M8
ERT32-037	3/8"	M10
ERT32-043	7/16"	-
ERT32-050	1/2"	M12, M12.5
ERT32-056	9/16"	M14
ERT32-062	5/8"	M16
ERT32-068	11/16"	M18
ERT32-075	3/4"	-
ERT32-081	13/16"	M20

### ER32 Tap Collet Set

Part #	Pcs	Range
ERT32-S016	16	#6 - 13/16"

### ER40 Tap Collets

Part #	Inch Size	ANSI Metric
ERT40-12N	1/8" NPT	-
ERT40-025	1/4"	M6, M6.5
ERT40-025N	1/4" NPT	-
ERT40-031	5/16"	M7, M8
ERT40-037	3/8"	M10
ERT40-037N	3/8" NPT	-
ERT40-043	7/16"	-
ERT40-050	1/2"	M12, M12.5
ERT40-050N	1/2" NPT	-
ERT40-056	9/16"	M14
ERT40-062	5/8"	M16
ERT40-068	11/16"	M18
ERT40-075	3/4"	-
ERT40-081	13/16"	M20
ERT40-087	7/8"	M22
ERT40-093	15/16"	M24
ERT40-100	1"	M25

### ER40 Tap Collet Set

Part #	Pcs	Range
ERT40-S017	17	1/4" - 1"

## Parlec P3 Collets | Inch

P3 = Parlec Pro Precision

Tooling for the most demanding applications



### FEATURES

- World's first anti-friction coated ER collet
- Reduces friction on collet face enhancing accuracy and gripping power
- 3 micron repeatable accuracy
- Works with any ER collet chuck
- Steel-sealed for coolant up to 2,000 PSI
- For on-size tooling

### ER11 P3 Collets - Inch

Part #	Size
P3M11-1/8	1/8"
P3M11-3/16	3/16"
P3MM11-1/4	1/4"

### ER11 P3 Collet Set - Inch

Part #	Pcs.	Range
P3M11-SI003	3	1/8" - 1/4"

### ER16 P3 Collets - Inch

Part #	Size
P3M16-1/8	1/8"
P3M16-5/32	5/32"
P3M16-3/16	3/16"
P3M16-7/32	7/32"
P3M16-1/4	1/4"
P3M16-9/32	9/32"
P3M16-5/16	5/16"
P3M16-3/8	3/8"

### ER16 P3 Collet Set - Inch

Part #	Pcs.	Range
P3M16-SI005	5	1/8" - 3/8" by 1/16's
P3M16-SI008	8	1/8" - 3/8"

### ER20 P3 Collets - Inch

Part #	Size
P3M20-1/8	1/8"
P3M20-3/16	3/16"
P3M20-1/4	1/4"
P3M20-5/16	5/16"
P3M20-3/8	3/8"
P3M20-7/16	7/16"
P3M20-1/2	1/2"

### ER20 P3 Collet Set - Inch

Part #	Pcs.	Range
P3M20-SI004	4	1/8" - 1/2" by 1/8's
P3M20-SI007	7	1/8" - 1/2" by 1/16's

## Parlec P3 Collets | Inch

### ER25 P3 Collets - Inch

Part #	Size
P3M25-1/8	1/8"
P3M25-3/16	3/16"
P3M25-1/4	1/4"
P3M25-5/16	5/16"
P3M25-3/8	3/8"
P3M25-13/32	13/32"
EROS25-7/16	7/16"
EROS25-1/2	1/2"
EROS25-9/16	9/16"
EROS25-5/8	5/8"

### ER32 P3 Collets - Inch

Part #	Size
P3M32-1/8	1/8"
P3M32-3/16	3/16"
P3M32-1/4	1/4"
P3M32-5/16	5/16"
P3M32-3/8	3/8"
P3M32-7/16	7/16"
P3M32-1/2	1/2"
P3M32-9/16	9/16"
P3M32-5/8	5/8"
P3M32-3/4	3/4"

### ER40 P3 Collets - Inch

Part #	Size
P3M40-3/8	3/8"
P3M40-1/2	1/2"
P3M40-5/8	5/8"
P3M40-3/4	3/4"
P3M40-7/8	7/8"
P3M40-1	1"

### ER25 P3 Collet Set - Inch

Part #	Pcs.	Range
P3M25-SI005	5	1/8" - 5/8" by 1/8's
P3M25-SI010	10	1/8" - 5/8"

### ER32 P3 Collet Set - Inch

Part #	Pcs.	Range
P3M32-SI006	6	1/8" - 3/4" by 1/8's
P3M32-SI010	10	1/8" - 3/4"

### ER40 P3 Collet Set - Inch

Part #	Pcs.	Range
P3M40-SI006	6	3/8" - 1"

## Parlec P3 Collets | Metric

P3 = Parlec Pro Precision

Tooling for the most demanding applications



### FEATURES

- World's first anti-friction coated ER collet
- Reduces friction on collet face enhancing accuracy and gripping power
- 3 micron repeatable accuracy
- Works with any ER collet chuck
- Steel-sealed for coolant up to 2,000 PSI
- For on-size tooling

### ER11 P3 Collets - Metric

Part #	Size
P3M11-3MM	3 mm
P3M11-3.5MM	3.5 mm
P3M11-4MM	4 mm
P3M11-4.5MM	4.5 mm
P3M11-5MM	5 mm
P3M11-5.5MM	5.5 mm
P3M11-6MM	6 mm
P3M11-6.5MM	6.5 mm
P3M11-7MM	7 mm

### ER11 P3 Collet Set - Metric

Part #	Pcs.	Range
P3M11-S009	9	3 - 7 mm

### ER16 P3 Collets - Metric

Part #	Size
P3M16-3MM	3 mm
P3M16-4MM	4 mm
P3M16-5MM	5 mm
P3M16-6MM	6 mm
P3M16-7MM	7 mm
P3M16-8MM	8 mm
P3M16-9MM	9 mm
P3M16-10MM	10 mm

### ER16 P3 Collet Set - Metric

Part #	Pcs.	Range
P3M16-S005	5	3, 4, 6, 8, 10 mm
P3M16-S008	8	3 - 10 mm

### ER20 P3 Collets - Metric

Part #	Size
P3M20-3MM	3 mm
P3M20-4MM	4 mm
P3M20-5MM	5 mm
P3M20-6MM	6 mm
P3M20-7MM	7 mm
P3M20-8MM	8 mm
P3M20-9MM	9 mm
P3M20-10MM	10 mm
P3M20-11MM	11 mm
P3M20-12MM	12 mm
P3M20-13MM	13 mm

### ER20 P3 Collet Set - Metric

Part #	Pcs.	Range
P3M20-S006	6	3, 4, 6, 8, 10, 12 mm
P3M20-S011	11	3 - 13 mm

## Parlec P3 Collets | Metric

### ER25 P3 Collets - Metric

Part #	Size
P3M25-3MM	3 mm
P3M25-4MM	4 mm
P3M25-5MM	5 mm
P3M25-6MM	6 mm
P3M25-7MM	7 mm
P3M25-8MM	8 mm
P3M25-9MM	9 mm
P3M25-10MM	10 mm
P3M25-11MM	11 mm
P3M25-12MM	12 mm
P3M25-13MM	13 mm
P3M25-14MM	14 mm
P3M25-15MM	15 mm
P3M25-16MM	16 mm

### ER25 P3 Collet Set - Metric

Part #	Pcs.	Range
P3M25-S014	14	3 - 16 mm

### ER32 P3 Collets - Metric

Part #	Size
P3M32-3MM	3 mm
P3M32-4MM	4 mm
P3M32-5MM	5 mm
P3M32-6MM	6 mm
P3M32-7MM	7 mm
P3M32-8MM	8 mm
P3M32-9MM	9 mm
P3M32-10MM	10 mm
P3M32-11MM	11 mm
P3M32-12MM	12 mm
P3M32-13MM	13 mm
P3M32-14MM	14 mm
P3M32-15MM	15 mm
P3M32-16MM	16 mm
P3M32-17MM	17 mm
P3M32-18MM	18 mm
P3M32-19MM	19 mm
P3M32-20MM	20 mm

### ER32 P3 Collet Set - Metric

Part #	Pcs.	Range
P3M32-S009	9	4, 6, 8, 10, 12, 14, 16, 18, 20 mm
EROS32-S018	18	3 - 20 mm

### ER32 P3 Collets - Metric

Part #	Size
P3M40-10MM	10 mm
P3M40-11MM	11 mm
P3M40-12MM	12 mm
P3M40-13MM	13 mm
P3M40-14MM	14 mm
P3M40-15MM	15 mm
P3M40-16MM	16 mm
P3M40-17MM	17 mm
P3M40-18MM	18 mm
P3M40-19MM	19 mm
P3M40-20MM	20 mm
P3M40-21MM	21 mm
P3M40-22MM	22 mm
P3M40-23MM	23 mm
P3M40-24MM	24 mm
P3M40-25MM	25 mm
P3M40-26MM	26 mm

### ER32 P3 Collet Set - Metric

Part #	Pcs.	Range
P3M40-S017	17	10 - 26 mm

# ER Coolant Rings

## ER Coolant Nut Seals | Inch & Metric



Coolant Nut Seal

### FEATURES

- For use with ER Coolant Nuts
- Use with standard ER collets or ER tap collets
- Seals up to 1,500 PSI
- Remove I.D. O-ring for coolant shower around tool shank

### ER16 Coolant Rings

Part #	Metric Range	Inch Range
CS16-0138	3 - 3.5 mm	.118" - .138"
CS16-0157	3.5 - 4 mm	.138" - .158"
CS16-0177	4 - 4.5 mm	.158" - .177"
CS16-0197	4.5 - 5 mm	.177" - .197"
CS16-0217	5 - 5.5 mm	.197" - .217"
CS16-0236	5.5 - 6 mm	.217" - .236"
CS16-0256	6 - 6.5 mm	.236" - .256"
CS16-0276	6.5 - 7 mm	.256" - .276"
CS16-0295	7 - 7.5 mm	.276" - .295"
CS16-0315	7.5 - 8 mm	.295" - .315"
CS16-0335	8 - 8.5 mm	.315" - .335"
CS16-0354	8.5 - 9 mm	.335" - .354"
CS16-0374	9 - 9.5 mm	.354" - .374"
CS16-0394	9.5 - 10 mm	.374" - .394"

### ER20 Coolant Rings

Part #	Metric Range	Inch Range
CS20-0138	3 - 3.5 mm	.118" - .138"
CS20-0157	3.5 - 4 mm	.138" - .158"
CS20-0177	4 - 4.5 mm	.158" - .177"
CS20-0197	4.5 - 5 mm	.177" - .197"
CS20-0217	5 - 5.5 mm	.197" - .217"
CS20-0236	5.5 - 6 mm	.217" - .236"
CS20-0256	6 - 6.5 mm	.236" - .256"
CS20-0276	6.5 - 7 mm	.256" - .276"
CS20-0295	7 - 7.5 mm	.276" - .295"
CS20-0315	7.5 - 8 mm	.295" - .315"
CS20-0335	8 - 8.5 mm	.315" - .335"
CS20-0354	8.5 - 9 mm	.335" - .354"
CS20-0374	9 - 9.5 mm	.354" - .374"
CS20-0394	9.5 - 10 mm	.374" - .394"
CS20-0413	10 - 10.5 mm	.394" - .413"
CS20-0433	10.5 - 11 mm	.413" - .433"
CS20-0453	11 - 11.5 mm	.433" - .453"
CS20-0472	11.5 - 12 mm	.453" - .472"
CS20-0492	12 - 12.5 mm	.472" - .492"
CS20-0512	12.5 - 13 mm	.492" - .512"

### ER25 Coolant Rings

Part #	Metric Range	Inch Range
CS25-0138	3 - 3.5 mm	.118" - .138"
CS25-0157	3.5 - 4 mm	.138" - .158"
CS25-0177	4 - 4.5 mm	.158" - .177"
CS25-0197	4.5 - 5 mm	.177" - .197"
CS25-0217	5 - 5.5 mm	.197" - .217"
CS25-0236	5.5 - 6 mm	.217" - .236"
CS25-0256	6 - 6.5 mm	.236" - .256"
CS25-0276	6.5 - 7 mm	.256" - .276"
CS25-0295	7 - 7.5 mm	.276" - .295"
CS25-0315	7.5 - 8 mm	.295" - .315"
CS25-0335	8 - 8.5 mm	.315" - .335"
CS25-0354	8.5 - 9 mm	.335" - .354"
CS25-0374	9 - 9.5 mm	.354" - .374"
CS25-0394	9.5 - 10 mm	.374" - .394"
CS25-0413	10 - 10.5 mm	.394" - .413"
CS25-0433	10.5 - 11 mm	.413" - .433"
CS25-0453	11 - 11.5 mm	.433" - .453"
CS25-0472	11.5 - 12 mm	.453" - .472"
CS25-0492	12 - 12.5 mm	.472" - .492"
CS25-0512	12.5 - 13 mm	.492" - .512"
CS25-0531	13 - 13.5 mm	.512" - .532"
CS25-0551	13.5 - 14 mm	.532" - .551"
CS25-0571	14 - 14.5 mm	.551" - .571"
CS25-0591	14.5 - 15 mm	.571" - .591"
CS25-0610	15 - 15.5 mm	.591" - .610"
CS25-0630	15.5 - 16 mm	.610" - .630"



## ER Coolant Nut Seals | Inch & Metric

### ER32 Coolant Rings

Part #	Metric Range	Inch Range
CS32-0138	3 - 3.5 mm	.118" - .138"
CS32-0157	3.5 - 4 mm	.138" - .158"
CS32-0177	4 - 4.5 mm	.158" - .177"
CS32-0197	4.5 - 5 mm	.177" - .197"
CS32-0217	5 - 5.5 mm	.197" - .217"
CS32-0236	5.5 - 6 mm	.217" - .236"
CS32-0256	6 - 6.5 mm	.236" - .256"
CS32-0276	6.5 - 7 mm	.256" - .276"
CS32-0295	7 - 7.5 mm	.276" - .295"
CS32-0315	7.5 - 8 mm	.295" - .315"
CS32-0335	8 - 8.5 mm	.315" - .335"
CS32-0354	8.5 - 9 mm	.335" - .354"
CS32-0374	9 - 9.5 mm	.354" - .374"
CS32-0394	9.5 - 10 mm	.374" - .394"
CS32-0413	10 - 10.5 mm	.394" - .413"
CS32-0433	10.5 - 11 mm	.413" - .433"
CS32-0453	11 - 11.5 mm	.433" - .453"
CS32-0472	11.5 - 12 mm	.453" - .472"
CS32-0492	12 - 12.5 mm	.472" - .492"
CS32-0512	12.5 - 13 mm	.492" - .512"
CS32-0531	13 - 13.5 mm	.512" - .532"
CS32-0551	13.5 - 14 mm	.532" - .551"
CS32-0571	14 - 14.5 mm	.551" - .571"
CS32-0591	14.5 - 15 mm	.571" - .591"
CS32-0610	15 - 15.5 mm	.591" - .610"
CS32-0630	15.5 - 16 mm	.610" - .630"
CS32-0650	16 - 16.5 mm	.630" - .650"
CS32-0669	16.5 - 17 mm	.650" - .670"
CS32-0689	17 - 17.5 mm	.670" - .689"
CS32-0709	17.5 - 18 mm	.689" - .709"
CS32-0728	18 - 18.5 mm	.709" - .729"
CS32-0748	18.5 - 19 mm	.729" - .748"
CS32-0768	19 - 19.5 mm	.748" - .768"
CS32-0787	19.5 - 20 mm	.768" - .787"

### ER40 Coolant Rings

Part #	Metric Range	Inch Range
CS40-0138	3 - 3.5 mm	.118" - .138"
CS40-0157	3.5 - 4 mm	.138" - .158"
CS40-0177	4 - 4.5 mm	.158" - .177"
CS40-0197	4.5 - 5 mm	.177" - .197"
CS40-0217	5 - 5.5 mm	.197" - .217"
CS40-0236	5.5 - 6 mm	.217" - .236"
CS40-0256	6 - 6.5 mm	.236" - .256"
CS40-0276	6.5 - 7 mm	.256" - .276"
CS40-0295	7 - 7.5 mm	.276" - .295"
CS40-0315	7.5 - 8 mm	.295" - .315"
CS40-0335	8 - 8.5 mm	.315" - .335"
CS40-0354	8.5 - 9 mm	.335" - .354"
CS40-0374	9 - 9.5 mm	.354" - .374"
CS40-0394	9.5 - 10 mm	.374" - .394"
CS40-0413	10 - 10.5 mm	.394" - .413"
CS40-0433	10.5 - 11 mm	.413" - .433"
CS40-0453	11 - 11.5 mm	.433" - .453"
CS40-0472	11.5 - 12 mm	.453" - .472"
CS40-0492	12 - 12.5 mm	.472" - .492"
CS40-0512	12.5 - 13 mm	.492" - .512"
CS40-0531	13 - 13.5 mm	.512" - .532"
CS40-0551	13.5 - 14 mm	.532" - .551"
CS40-0571	14 - 14.5 mm	.551" - .571"
CS40-0591	14.5 - 15 mm	.571" - .591"
CS40-0610	15 - 15.5 mm	.591" - .610"
CS40-0630	15.5 - 16 mm	.610" - .630"
CS40-0650	16 - 16.5 mm	.630" - .650"
CS40-0669	16.5 - 17 mm	.650" - .670"
CS40-0689	17 - 17.5 mm	.670" - .689"
CS40-0709	17.5 - 18 mm	.689" - .709"
CS40-0728	18 - 18.5 mm	.709" - .729"
CS40-0748	18.5 - 19 mm	.729" - .748"
CS40-0768	19 - 19.5 mm	.748" - .768"
CS40-0787	19.5 - 20 mm	.768" - .787"

### ER40 Coolant Rings

Part #	Metric Range	Inch Range
CS40-0807	20 - 20.5 mm	.787" - .807"
CS40-0826	20.5 - 21 mm	.807" - .827"
CS40-0846	21 - 21.5 mm	.827" - .847"
CS40-0866	21.5 - 22 mm	.847" - .866"
CS40-0886	22 - 22.5 mm	.866" - .886"
CS40-0905	22.5 - 23 mm	.886" - .906"
CS40-0925	23 - 23.5 mm	.906" - .926"
CS40-0944	23.5 - 24 mm	.926" - .945"
CS40-0964	24 - 24.5 mm	.945" - .965"
CS40-0984	24.5 - 25 mm	.965" - .984"
CS40-1003	25 - 25.5 mm	.984" - 1.004"
CS40-1023	25.5 - 26 mm	1.004" - 1.024"

# ER Collet Nuts

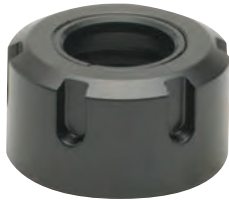


## FEATURES

- Minimum overhang
- Coated seat angle reduces friction improving grip force
- Solid one-piece durable construction

## ER Flush Nuts

ER Size	Part #	B	Size and Style	Wrench	Torque Wrench Nose	Torque Specs.
ER11	11ERHN	0.75"	11/16" Hex	300CNW	-	22 ft. lbs.
ER16	16ERHN	1.10"	1" Hex	ECN20W	TWN-16ERHNW	42 ft. Lbs.
ER20	20ERHN	1.34"	1-3/16" Hex	20ERHNW	TWN-20ERHNW	59 ft. lbs.
ER25	25ERN	1.65"	Spanner	25ERNW	TWN-25ERNW	77 ft. lbs.
ER32	32ERN	1.97"	Spanner	32ERNW	TWN-32ERNW	100 ft. lbs.
ER40	40ERN	2.48"	Spanner	40ERNW	TWN-40ERNW	130 ft. lbs.



## FEATURES

- Improves grip force
- Eliminates torsional force on the collet during clamping improving concentricity
- Floating bearing race ensures proper alignment with collet

## ER Power Nuts - Friction Race Design

ER Size	Part #	B	Size and Style	Wrench	Torque Wrench Nose	Torque Specs.
ER16	16ERHPN	1.10"	1" Hex	ECN20W	TWN-16ERHNW	42 ft. Lbs.
ER20	20ERHPN	1.34"	1-3/16" Hex	20ERHNW	TWN-20ERHNW	60 ft. lbs.
ER25	25ERP	1.65"	Spanner	25ERNW	TWN-25ERNW	86 ft. lbs.
ER32	32ERP	1.97"	Spanner	32ERNW	TWN-32ERNW	100 ft. lbs.
ER40	40ERP	2.48"	Spanner	40ERNW	TWN-40ERNW	146 ft. lbs.



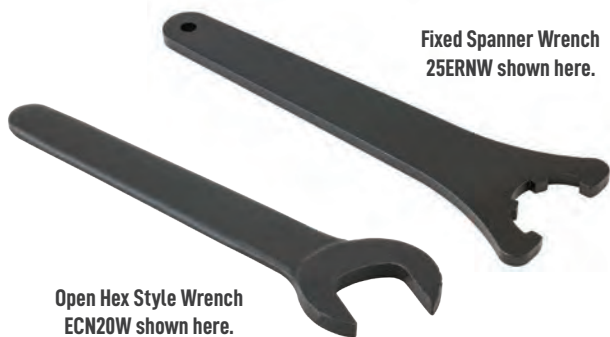
## FEATURES

- Use with Coolant Seals for coolant-through tooling
- Coated seat angle reduces friction improving grip force

## ER Coolant Nuts

ER Size	Part #	B	Size and Style	Wrench	Torque Wrench Nose	Torque Specs.
ER16	16ERHCN	1.11"	1" Hex	ECN20W	TWN-16ERHNW	42 ft. Lbs.
ER20	20ERHCN	1.34"	1-3/16" Hex	20ERHNW	TWN-20ERHNW	59 ft. lbs.
ER25	25ERCN	1.65"	Spanner	25ERNW	TWN-25ERNW	77 ft. lbs.
ER32	32ERCN	1.97"	Spanner	32ERNW	TWN-32ERNW	100 ft. lbs.
ER40	40ERCN	2.48"	Spanner	40ERNW	TWN-40ERNW	130 ft. lbs.

# ER Wrenches & Screws



Open Hex Style Wrench  
ECN20W shown here.

Fixed Spanner Wrench  
25ERNW shown here.

## ER Wrenches

Collet Series	Part #	Style
ER11	300CNW	Hex
ER16	ECN20W	Hex
ER20	20ERHNW	Hex
ER20	20ERNW	Spanner
ER25	25ERNW	Spanner
ER32	32ERNW	Spanner
ER40	40ERNW	Spanner



Torque Wrench TW-150 shown here.  
Nose sold separately.

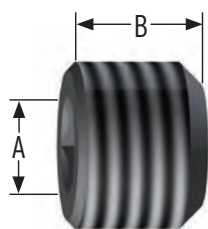


## Torque Wrenches

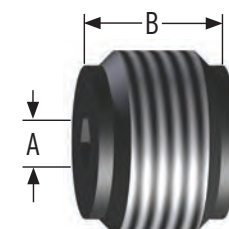
Part #	Range	Length
TW-45	5 - 45 ft. lbs.	12"
TW-150	30 - 150 ft. lbs.	16.6"
TW-220	45 - 220 ft. lbs.	22.2"

## ER Torque Wrench Noses

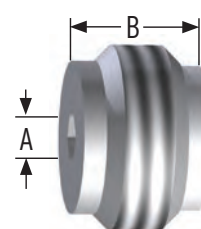
Collet Series	Part #	Style
ER16	TWN-16ERHNW	Hex
ER20	TWN-20ERHNW	Hex
ER25	TWN-25ERNW	Spanner
ER32	TWN-32ERNW	Spanner
ER40	TWN-40ERNW	Spanner



Type I Standard with Coolant Hole



Type II Standard with Coolant Hole



Type III Coolant with Nylon Seal

## Back-Up Screws

Collet Series	Part #	Hex Drive	B	Thread (Left Hand)	Type
ER11	029-909	5/32"	1/4"	5/16"-24	1
ER16	BS-20	7/32"	3/8"	7/16"-20	2
ER20	BS-09	3/16"	9/16"	9/16"-18	2
ER25	BS-11	5/16"	9/16"	11/16"-16	2
ER32	BS-18	3/16"	9/16"	13/16"-16	2
ER40	BS-10	3/16"	9/16"	1-1/8"-16	2

# PG / TG

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## SINGLE-ANGLE COLLETS & CHUCKS



# DAVITA



## PG / TG Collet Chucks and Collets

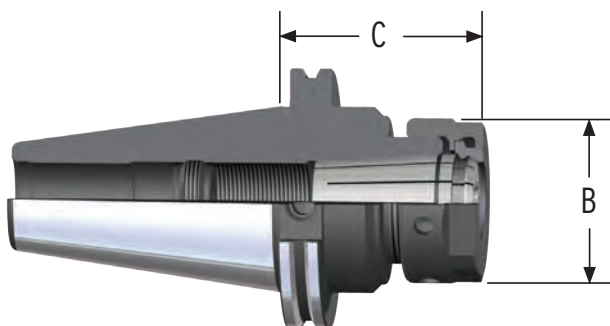
- Constructed from AISI 8620 Alloy Steel for wear resistance
- Hardened to 52-56 Rc for durability and long service life
- Max. T.I.R. of 0.0002" improves cutting performance and tool life
- Convertible DIN-B coolant delivery available



- Constructed from high-carbon bearing steel for improved flexibility
- 0.0004" max. T.I.R.
- Sealed collets or coolant seals available for coolant-through tooling
- Available in PG 75, 100, and 150 series

# PG / TG Collet Chucks

## PG / TG Collet Chucks



### FEATURES

- 0.0002" taper-to-pocket accuracy
- Convertible DIN-B flange coolant delivery available

### CAT 40 PG/TG Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Nut Torque
C40-75SC3	TG75	2.10"	3.00"	3/4"	BS-18	75HCN	60 ft/lbs
C40-10SC3	TG100	2.44"	3.00"	1"	BS-10	100HCN	60 ft/lbs
C40-10SC5	TG100	2.44"	5.00"	1"	BS-10	100HCN	60 ft/lbs
C40-10SC6	TG100	2.44"	6.50"	1"	BS-10	100HCN	60 ft/lbs
C40-15SC4	TG150	3.43"	4.88"	1-1/2"	BS-15	15CN	74 ft/lbs

### CAT 50 PG/TG Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Nut Torque
C50-10SC3	TG100	2.44"	3.00"	1"	BS-10	100HCN	60 ft/lbs
C50-10SC4	TG100	2.44"	3.50"	1"	BS-10	100HCN	60 ft/lbs
C50-10SC5	TG100	2.44"	5.50"	1"	BS-10	100HCN	60 ft/lbs
C50-10SC7	TG100	2.44"	7.50"	1"	BS-10	100HCN	60 ft/lbs
C50-15SC3	TG150	3.43"	3.00"	1-1/2"	BS-15	15CN	74 ft/lbs
C50-15SC4	TG150	3.43"	3.50"	1-1/2"	BS-15	15CN	74 ft/lbs
C50-15SC5	TG150	3.43"	5.50"	1-1/2"	BS-15	15CN	74 ft/lbs
C50-15SC7	TG150	3.43"	7.50"	1-1/2"	BS-15	15CN	74 ft/lbs

## PG / TG Collet Chucks

### CAT 40 PG/TG Collets with AD/B Coolant\*

Part #	Collet Size	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Nut Torque
C40BC-75SC300	TG75	2.10"	3.00"	3/4"	BS-18	75HCN	60 ft/lbs
C40BC-75SC600	TG75	2.10"	6.00"	3/4"	BS-18	75HCN	60 ft/lbs
C40BC-10SC300	TG100	2.44"	3.00"	1"	BS-10	100HCN	60 ft/lbs
C40BC-10SC650	TG100	2.44"	6.50"	1"	BS-10	100HCN	60 ft/lbs

\* DIN-B flange coolant enabled

### CAT 50 PG/TG Collet Chucks with AD/B Coolant\*

Part #	Collet Size	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Nut Torque
C50BC-75SC300	TG75	2.10"	3.00"	3/4"	BS-18	75HCN	60 ft/lbs
C50BC-75SC600	TG75	2.10"	6.00"	3/4"	BS-18	75HCN	60 ft/lbs
C50BC-10SC300	TG100	2.44"	3.00"	1"	BS-10	100HCN	60 ft/lbs
C50BC-10SC750	TG100	2.44"	7.50"	1"	BS-10	100HCN	60 ft/lbs

\* DIN-B flange coolant enabled

### BT 30 PG/TG Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Nut Torque
B30-75SC295	TG75	2.10"	2.95"	3/4"	BS-18	75HCN	60 ft/lbs

### BT 40 PG/TG Collet Chucks

Part #	Collet Size	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Nut Torque
B40-75SC3	TG75	2.10"	2.75"	3.4"	BS-18	75HCN	60 ft/lbs
B40-10SC3	TG100	2.44"	3.00"	1"	BS-10	100HCN	60 ft/lbs
B40-10SC5	TG100	2.44"	5.00"	1"	BS-10	100HCN	60 ft/lbs

## PG / TG Collets



Single-Angle Collet

### FEATURES

- Made from high-carbon bearing steel for improved flexibility
- Clamping range 1/64"
- 0.0004" max. T.I.R.
- Precision ground and hand inspected

### PG/TG 75 Collets

Part #	Nominal Size	Inch Range	Metric Range
75PG-0078	5/64"	.0625" - .0781"	2 mm
75PG-0093	3/32"	.0781" - .0938"	-
75PG-0109	7/64"	.0938" - .1094"	2.5 mm
75PG-0125	1/8"	.1094" - .1250"	3 mm
75PG-0140	9/64"	.1250" - .1406"	3.5 mm
75PG-0156	5/32"	.1406" - .1562"	-
75PG-0171	11/64"	.1562" - .1719"	4 mm
75PG-0187	3/16"	.1719" - .1875"	4.5 mm
75PG-0203	13/64"	.1875" - .2031"	5 mm
75PG-0218	7/32"	.2031" - .2188"	5.5 mm
75PG-0234	15/64"	.2188" - .2344"	-
75PG-0250	1/4"	.2344" - .2500"	6 mm
75PG-0265	17/64"	.2500" - .2656"	6.5 mm
75PG-0281	9/32"	.2656" - .2812"	7 mm
75PG-0296	19/64"	.2812" - .2996"	7.5 mm
75PG-0312	5/16"	.2996" - .3125"	-
75PG-0328	31/64"	.3125" - .3281"	8 mm
75PG-0343	11/32"	.3281" - .3438"	8.5 mm

### PG/TG 75 Collets (cont'd)

Part #	Nominal Size	Inch Range	Metric Range
75PG-0359	23/64"	.3438" - .3594"	9 mm
75PG-0375	3/8"	.3594" - .3750"	9.5 mm
75PG-0390	25/64"	.3750" - .3906"	-
75PG-0406	13/32"	.3906" - .4062"	10 mm
75PG-0421	27/64"	.4062" - .4219"	10.5 mm
75PG-0437	7/16"	.4219" - .4375"	11 mm
75PG-0453	29/64"	.4375" - .4531"	11.5 mm
75PG-0468	15/32"	.4531" - .4688"	-
75PG-0484	31/64"	.4688" - .4844"	12 mm
75PG-0500	1/2"	.4844" - .5000"	12.5 mm
75PG-0515	33/64"	.5000" - .5156"	13 mm
75PG-0531	17/32"	.5156" - .5312"	13.5 mm
75PG-0546	35/64"	.5312" - .5469"	-
75PG-0562	9/16"	.5469" - .5625"	14 mm
75PG-0578	37/64"	.5625" - .5781"	14.5 mm
75PG-0593	19/32"	.5781" - .5938"	15 mm
75PG-0609	39/64"	.5938" - .6094"	-
75PG-0625	5/8"	.6094" - .6250"	15.5 mm



## PG / TG Collets

### PG/TG 75 Collets (cont'd)

Part #	Nominal Size	Inch Range	Metric Range
75PG-0640	41/64"	.6250" - .6406"	16 mm
75PG-0656	21/32"	.6406" - .6562"	16.5 mm
75PG-0671	43/64"	.6562" - .6719"	17 mm
75PG-0687	11/16"	.6719" - .6875"	-
75PG-0703	45/64"	.6875" - .7031"	17.5 mm
75PG-0718	23/32"	.7031" - .7188"	18 mm
75PG-0734	47/64"	.7188" - .7344"	18.5 mm
75PG-0750	3/4"	.7344" - .7500"	19 mm

### PG/TG 75 Collet Sets

Part #	Pcs.	Range
75PG-S016	46	3/64" - 3/4" by 1/64"
75PG-S017	17	1/4" - 3/4" by 1/32"
75PG-S031	23	1/16" - 3/4" by 1/32"
75PG-S033	33	1/8" - 3/4" by 1/64"
75PG-S062	12	1/16" - 3/4" by 1/16"

### PG/TG 100 Collets

Part #	Nominal Size	Inch Range	Metric Range
100PG-0046	3/64"	.0312" - .0469"	1 mm
100PG-0062	1/16"	.0469" - .0625"	1.5 mm
100PG-0078	5/64"	.0625" - .0781"	2 mm
100PG-0093	3/32"	.0781" - .0938"	-
100PG-0109	7/64"	.0938" - .1094"	2.5 mm
100PG-0125	1/8"	.1094" - .1250"	3 mm
100PG-0140	9/64"	.1250" - .1406"	3.5 mm
100PG-0156	5/32"	.1406" - .1562"	-
100PG-0171	11/64"	.1562" - .1719"	4 mm
100PG-0187	3/16"	.1719" - .1875"	4.5 mm
100PG-0203	13/64"	.1875" - .2031"	5 mm
100PG-0218	7/32"	.2031" - .2188"	5.5 mm
100PG-0234	15/64"	.2188" - .2344"	-
100PG-0250	1/4"	.2344" - .2500"	6 mm
100PG-0265	17/64"	.2500" - .2656"	6.5 mm
100PG-0281	9/32"	.2656" - .2812"	7 mm
100PG-0296	19/64"	.2812" - .2969"	7.5 mm

### PG/TG 100 Collets (cont'd)

Part #	Nominal Size	Inch Range	Metric Range
100PG-0312	5/16"	.2996" - .3125"	-
100PG-0328	31/64"	.3125" - .3281"	8 mm
100PG-0343	11/32"	.3281" - .3438"	8.5 mm
100PG-0359	23/64"	.3438" - .3594"	9 mm
100PG-0375	3/8"	.3594" - .3750"	9.5 mm
100PG-0390	25/64"	.3750" - .3906"	-
100PG-0406	13/32"	.3906" - .4062"	10 mm
100PG-0421	27/64"	.4062" - .4219"	10.5 mm
100PG-0437	7/16"	.4219" - .4375"	11 mm
100PG-0453	29/64"	.4375" - .4531"	11.5 mm
100PG-0468	15/32"	.4531" - .4688"	-
100PG-0484	31/64"	.4688" - .4844"	12 mm
100PG-0500	1/2"	.4844" - .5000"	12.5 mm
100PG-0515	33/64"	.5000" - .5156"	13 mm
100PG-0531	17/32"	.5156" - .5312"	13.5 mm
100PG-0546	35/64"	.5312" - .5469"	-
100PG-0562	9/16"	.5469" - .5625"	14 mm
100PG-0578	37/64"	.5625" - .5781"	14.5 mm
100PG-0593	19/32"	.5781" - .5938"	15 mm
100PG-0609	39/64"	.5938" - .6094"	-
100PG-0625	5/8"	.6094" - .6250"	15.5 mm
100PG-0640	41/64"	.6250" - .6406"	16 mm
100PG-0656	21/32"	.6406" - .6562"	16.5 mm
100PG-0671	43/64"	.6562" - .6719"	17 mm
100PG-0687	11/16"	.6719" - .6875"	-
100PG-0703	45/64"	.6875" - .7031"	17.5 mm
100PG-0718	23/32"	.7031" - .7188"	18 mm
100PG-0734	47/64"	.7188" - .7344"	18.5 mm
100PG-0750	3/4"	.7344" - .7500"	19 mm
100PG-0765	49/64"	.7500" - .7656"	-
100PG-0781	25/32"	.7656" - .7812"	19.5 mm
100PG-0796	51/64"	.7812" - .7969"	20 mm
100PG-0812	13/16"	.7969" - .8125"	20.5 mm
100PG-0828	53/64"	.8125" - .8281"	21 mm
100PG-0843	27/32"	.8281" - .8438"	-
100PG-0859	55/64"	.8438" - .8594"	21.5 mm
100PG-0875	7/8"	.8594" - .8750"	22 mm

## PG / TG Collets



Single-Angle Collet

### FEATURES

- Made from high-carbon bearing steel for improved flexibility
- Clamping range 1/64"
- 0.0004" max. T.I.R.
- Precision ground and hand inspected

### PG/TG 100 Collets (cont'd)

Part #	Nominal Size	Inch Range	Metric Range
100PG-0890	57/64"	.8750" - .8906"	22.5 mm
100PG-0906	29/32"	.8906" - .9062"	23 mm
100PG-0921	59/64"	.9062" - .9219"	-
100PG-0937	15/16"	.9219" - .9375"	23.5 mm
100PG-0953	61/64"	.9375" - .9531"	24 mm
100PG-0968	31/32"	.9531" - .9688"	24.5 mm
100PG-0984	63/64"	.9688" - .9844"	25 mm
100PG-1000	1"	.9844" - 1.0000"	-
100PG-10MM	-	-	10 mm
100PG-12MM	-	-	12 mm
100PG-14MM	-	-	14 mm
100PG-16MM	-	-	16 mm
100PG-18MM	-	-	18 mm
100PG-20MM	-	-	20 mm

### PG/TG 100 Collet Sets

Part #	Pcs.	Range
100PG-S016	59	3/32" - 1" by 1/64"
100PG-S021	21	3/8" - 1" by 1/32"
100PG-S031	30	3/32" - 1" by 1/32"
100PG-S041	41	3/8" - 1" by 1/64"
100PG-S062	15	1/8" - 1" by 1/16"
100PG-S125	8	1/8" - 1" by 1/8"

### PG/TG 150 Collets

Part #	Nominal Size	Inch Range	Metric Range
150PG-0750	3/4"	.7344" - .7500"	19 mm
150PG-0765	49/64"	.7500" - .7656"	-
150PG-0781	25/32"	.7656" - .7812"	19.5 mm
150PG-0796	51/64"	.7812" - .7969"	20 mm
150PG-0812	13/16"	.7969" - .8125"	20.5 mm
150PG-0828	53/64"	.8125" - .8281"	21 mm
150PG-0843	27/32"	.8281" - .8438"	-
150PG-0859	55/64"	.8438" - .8594"	21.5 mm
150PG-0875	7/8"	.8594" - .8750"	22 mm

## PG / TG Collets

### PG/TG 150 Collets (cont'd)

Part #	Nominal Size	Inch Range	Metric Range
150PG-0890	5/16"	.8750" - .8906"	22.5 mm
150PG-0906	29/32"	.8906" - .9062"	23 mm
150PG-0921	59/64"	.9062" - .9219"	-
150PG-0937	15/16"	.9219" - .9375"	23.5 mm
150PG-0953	61/64"	.9375" - .9531"	24 mm
150PG-0968	31/32"	.9531" - .9688"	24.5 mm
150PG-0984	63/64"	.9688" - .9844"	25 mm
150PG-1000	1"	.9844" - 1.0000"	-
150PG-1015	1_1/64"	1.0000" - 1.0156"	25.5 mm
150PG-1031	1_1/32"	1.0156" - 1.0312"	26 mm
150PG-1046	1_3/64"	1.0312" - 1.0469"	26.5 mm
150PG-1062	1_1/16"	1.0469" - 1.0625"	27 mm
150PG-1078	1_5/64"	1.0625" - 1.0781"	-
150PG-1093	1_3/32"	1.0781" - 1.0938"	27.5 mm
150PG-1109	1_7/64"	1.0938" - 1.1094"	28 mm
150PG-1125	1_1/8"	1.1094" - 1.1250"	28.5 mm
150PG-1140	1_9/64"	1.1250" - 1.1406"	29 mm
150PG-1156	1_5/32"	1.1406" - 1.1562"	-
150PG-1171	1_11/64"	1.1562" - 1.1719"	29.5 mm
150PG-1187	1_3/16"	1.1719" - 1.1875"	30 mm

### PG/TG 150 Collets (cont'd)

Part #	Nominal Size	Inch Range	Metric Range
150PG-1203	1_13/64"	1.1875" - 1.2031"	30.5 mm
150PG-1218	1_7/32"	1.2031" - 1.2188"	31 mm
150PG-1234	1_15/64"	1.2188" - 1.2344"	-
150PG-1250	1_1/4"	1.2344" - 1.2500"	31.5 mm
150PG-1265	1_17/64"	1.2500" - 1.2656"	32 mm
150PG-1281	1_9/32"	1.2656" - 1.2812"	32.5 mm
150PG-1296	1_19/64"	1.2812" - 1.2969"	33 mm
150PG-1312	1_5/16"	1.2969" - 1.3125"	-
150PG-1328	1_21/64"	1.3125" - 1.3281"	33.5 mm
150PG-1343	1_11/32"	1.3281" - 1.3438"	34 mm
150PG-1359	1_23/64"	1.3438" - 1.3594"	34.5 mm
150PG-1375	1_3/8"	1.3594" - 1.3750"	35 mm
150PG-1390	1_25/64"	1.3750" - 1.3906"	-
150PG-1406	1_13/32"	1.3906" - 1.4062"	35.5 mm
150PG-1421	1_27/64"	1.4062" - 1.4219"	36 mm
150PG-1437	1_7/16"	1.4219" - 1.4375"	36.5 mm
150PG-1453	1_29/64"	1.4375" - 1.4531"	37 mm
150PG-1468	1_15/32"	1.4531" - 1.4688"	-
150PG-1484	1_31/64"	1.4688" - 1.4844"	37.5 mm
150PG-1500	1_1/2"	1.4844" - 1.5000"	38 mm

### PG/TG 150 Collet Sets

Part #	Pcs.	Range
150PG-S016	65	1/2" - 1-1/2" by 1/64"
150PG-S025	25	3/4" - 1-1/2" by 1/32"
150PG-S031	33	1/2" - 1-1/2" by 1/32"

## PG / TG Coolant Collets



Single-Angle Sealed Collet

### FEATURES

- Made from high-carbon bearing steel for improved flexibility
- Sealed up to 750 PSI
- 0.0004" Max. T.I.R.
- Clamping range 1/64"

### PG/TG 100 Coolant Collets

Part #	Inch Size
100RPG-0187	3/16"
100RPG-0218	7/32"
100RPG-0234	15/64"
100RPG-0250	1/4"
100RPG-0265	17/64"
100RPG-0281	9/32"
100RPG-0296	19/64"
100RPG-0312	5/16"
100RPG-0328	21/64"
100RPG-0343	11/32"
100RPG-0359	23/64"
100RPG-0375	3/8"
100RPG-0390	25/64"
100RPG-0406	13/32"
100RPG-0421	27/64"
100RPG-0437	7/16"
100RPG-0453	29/64"
100RPG-0468	15/32"
100RPG-0484	31/64"

### PG/TG 100 Coolant Collets (cont'd)

Part #	Inch Size
100RPG-0500	1/2"
100RPG-0515	33/64"
100RPG-0531	17/32"
100RPG-0546	35/64"
100RPG-0562	9/16"
100RPG-0578	37/64"
100RPG-0593	19/32"
100RPG-0609	39/64"
100RPG-0625	5/8"
100RPG-0640	41/64"
100RPG-0656	21/32"
100RPG-0671	43/64"
100RPG-0687	11/16"
100RPG-0703	45/64"
100RPG-0718	23/32"
100RPG-0734	47/64"
100RPG-0750	3/4"
100RPG-0765	49/64"
100RPG-0781	25/32"

### PG/TG 100 Coolant Collets (cont'd)

Part #	Inch Size
100RPG-0796	51/64"
100RPG-0812	13/16"
100RPG-0828	53/64"
100RPG-0843	27/32"
100RPG-0859	55/64"
100RPG-0875	7/8"
100RPG-0890	57/64"
100RPG-0906	29/32"
100RPG-0921	59/64"
100RPG-0937	15/16"
100RPG-0953	61/64"
100RPG-0968	31/32"
100RPG-0984	63/64"
100RPG-1000	1"

### PG/TG 150 Coolant Collets

Part #	Inch Size
150RPG-1000	1"
150RPG-1250	1-1/4"
150RPG-1500	1-1/2"

### PG/TG 100 Coolant Collet Sets

Part #	Pcs.	Range
100RPG100-S027	27	3/16" - 1" by 1/32"

## PG / TG Coolant Seals



### Collet Nut Thread Seal\*

Part #
CSPG100-0000

(\*Required for use with PG100 coolant seals)

### FEATURES

- Use with PG/TG Coolant Nuts and standard PG/TG collets
- Requires Coolant Nut Thread Seal

### PG/TG 100 Coolant Seals

Part #	Inch Size	Inch Size
CSPG100-0141	.122" - .141"	3.1 - 3.6 mm
CSPG100-0160	.142" - .160"	3.6 - 4.1 mm
CSPG100-0180	.161" - .180"	4.1 - 4.6 mm
CSPG100-0200	.181" - .200"	4.6 - 5.1 mm
CSPG100-0220	.201" - .220"	5.1 - 5.6 mm
CSPG100-0240	.221" - .240"	5.6 - 6.1 mm
CSPG100-0260	.241" - .260"	6.1 - 6.6 mm
CSPG100-0280	.261" - .280"	6.6 - 7.1 mm
CSPG100-0300	.281" - .300"	7.1 - 7.6 mm
CSPG100-0319	.301" - .319"	7.6 - 8.1 mm
CSPG100-0339	.320" - .339"	8.1 - 8.6 mm
CSPG100-0359	.340" - .359"	8.6 - 9.1 mm
CSPG100-0379	.360" - .379"	9.1 - 9.6 mm
CSPG100-0398	.380" - .398"	9.6 - 10.1 mm
CSPG100-0417	.399" - .417"	10.1 - 10.6 mm
CSPG100-0437	.418" - .437"	10.6 - 11.1 mm
CSPG100-0457	.438" - .457"	11.1 - 11.6 mm
CSPG100-0477	.458" - .477"	11.6 - 12.1 mm
CSPG100-0497	.478" - .497"	12.1 - 12.6 mm
CSPG100-0516	.498" - .516"	12.6 - 13.1 mm
CSPG100-0536	.517" - .536"	13.1 - 13.6 mm
CSPG100-0556	.537" - .556"	13.6 - 14.1 mm
CSPG100-0575	.557" - .575"	14.1 - 14.6 mm

### PG/TG 100 Coolant Seals (cont'd)

Part #	Inch Size	Inch Size
CSPG100-0595	.576" - .595"	14.6 - 15.1 mm
CSPG100-0614	.596" - .614"	15.1 - 15.6 mm
CSPG100-0634	.615" - .634"	15.6 - 16.1 mm
CSPG100-0654	.635" - .654"	16.1 - 16.6 mm
CSPG100-0673	.655" - .673"	16.6 - 17.1 mm
CSPG100-0693	.674" - .693"	17.1 - 17.6 mm
CSPG100-0713	.694" - .713"	17.6 - 18.1 mm
CSPG100-0732	.714" - .732"	18.1 - 18.6 mm
CSPG100-0752	.733" - .752"	18.6 - 19.1 mm
CSPG100-0772	.753" - .772"	19.1 - 19.6 mm
CSPG100-0792	.773" - .792"	19.6 - 20.1 mm
CSPG100-0811	.793" - .811"	20.1 - 20.6 mm
CSPG100-0831	.812" - .831"	20.6 - 21.1 mm
CSPG100-0851	.832" - .851"	21.1 - 21.6 mm
CSPG100-0870	.852" - .870"	21.6 - 22.1 mm
CSPG100-0890	.871" - .890"	22.1 - 22.6 mm
CSPG100-0910	.891" - .910"	22.6 - 23.1 mm
CSPG100-0929	.911" - .929"	23.1 - 23.6 mm
CSPG100-0949	.930" - .949"	23.6 - 24.1 mm
CSPG100-0969	.950" - .969"	24.1 - 24.6 mm
CSPG100-0988	.967" - .988"	24.6 - 25.1 mm
CSPG100-1008	.989" - 1.008"	25.1 - 25.6 mm

### PG/TG 100 Coolant Seals Set

Part #	Pcs.	Inch Range	Metric Range
CSPG100-S046	45	.122" - 1.008"	3.1 - 25.6

## PG / TG Collet Nuts



Style 1 Spanner

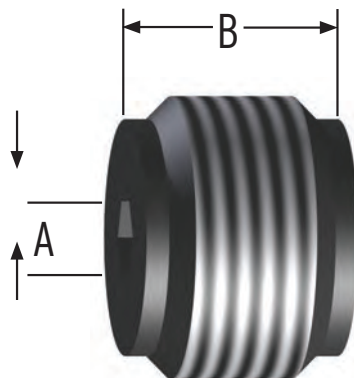


Style 2 Hex/Spanner

### PG/TG Collet Nuts

Part #	Collet Series	Type	B
75HCN	PG75	Hex/Spanner	2.10"
100HCN	PG100	Hex/Spanner	2.44"
15CN	PG150	Spanner	3.43"

## PG / TG Backup Screws



Type II Standard  
with Coolant Hole

### PG/TG Backup Screws

Part #	Collet Series	A	B	Thread (left hand)
BS-18	PG75	3/16"	.56"	1_3/16 - 16
BS-10	PG100	3/16"	.56"	1_1/8 - 16
BS-15	PG150	3/16"	.75"	1_5/8 - 12

## PG / TG Hand Wrenches



Adjustable Pin Spanner  
Wrench 100CNW shown here

Open End

### PG/TG Hand Wrenches

Part #	Collet Series	Type
75HCNW	PG75	Open End
100HCNW	PG100	Open End
100CNW	PG100	Pin Spanner

# DA

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## DOUBLE ANGLE COLLETS & CHUCKS





# DAVANCE



## DA (DOUBLE ANGLE) COLLET CHUCKS

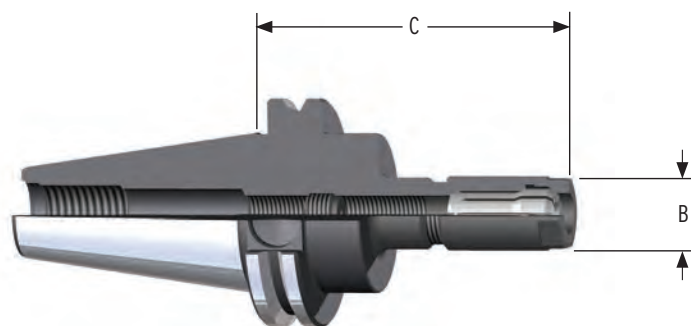
- Proudly made-in-USA
- Constructed with AISI 8620 Alloy Steel for superior wear resistance
- Hardened to 52-56 Rc for durability and long service life
- Available in CAT 40 /50, BT 40, and Straight-Shank Extensions
- Taper to collet seat accuracy of 0.0004" or better



## DA (DOUBLE ANGLE) COLLETS

- Huge selection of DA 300, 200, 100, and 180 series
- Inch and metric bore sizes for best holding power and accuracy
- Made from high-carbon bearing steel for improved flexibility

## Double-Angle Collet Chucks



### FEATURES

- Made-in-USA quality
- Constructed of alloy steel for long, durable service life
- Hardened to 52 - 56 RC for maximum durability
- Taper to collet seat accuracy of 0.0004" or better

### CAT 40 Double-Angle Collet Chucks

Part #	Collet Series	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Wrench (Opt.)
C40-30DC3	DA 300	.62"	3.38"	.250"	029-909	CN30	300CNW
C40-30DC5	DA 300	.62"	5.15"	.250"	029-909	CN30	300CNW
C40-20DC2	DA 200	1.10"	2.73"	.393"	BS-20	CN20	ECN75W
C40-20DC3	DA 200	1.10"	3.00"	.393"	BS-20	ECN75	ECN75W
C40-20DC5	DA 200	1.10"	5.00"	.393"	BS-20	ECN75	ECN75W
C40-18DC2	DA 180	1.44"	2.95"	.787"	BS-18	ECN12	ECN12W
C40-18DC3	DA 180	1.44"	3.38"	.787"	BS-18	ECN12	ECN12W
C40-18DC5	DA 180	1.44"	5.15"	.787"	BS-18	ECN12	ECN12W

### CAT 50 Double-Angle Collet Chucks

Part #	Collet Series	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Wrench (Opt.)
C50-18DC3	DA 180	1.44"	3.38"	.787"	BS-18	ECN12	ECN12W
C50-18DC6	DA 180	1.44"	6.15"	.787"	BS-18	ECN12	ECN12W
C50-18DC8	DA 180	1.44"	8.15"	.787"	BS-18	ECN12	ECN12W

### BT 40 Double-Angle Collet Chucks

Part #	Collet Series	B (Dia.)	C	Max. Shank	Backup Screw (Incl.)	Nut (Incl.)	Wrench (Opt.)
B40-30DC3	DA 300	.62"	3.00"	.250"	029-909	CN30	300CNW
B40-20DC2	DA 200	1.10"	2.75"	.393"	BS-20	CN20	ECN75W
B40-18DC3	DA 180	1.44"	3.00"	.787"	BS-18	ECN12	ECN12W

## Double Angle Collet Extensions



### FEATURES

- Made-in-USA quality
- Constructed of alloy steel for long, durable service life
- Hardened to 52 - 56 RC for maximum durability
- Taper to collet seat accuracy of 0.0004" or better

### DA 300 Extension

Part #	A (Dia.)	B (Dia.)	C	Overall Length	Max. Shank	Nut (Incl.)	Wrench (Opt.)
EXT500	.50"	.56"	1.32"	6.82"	.250"	ECN50	ECN50W

### DA 200 Extension

Part #	A (Dia.)	B (Dia.)	C	Overall Length	Max. Shank	Nut (Incl.)	Wrench (Opt.)
EXT750	.75"	.81"	1.69"	7.14"	.393"	ECN75	ECN75W

### DA 100 Extension

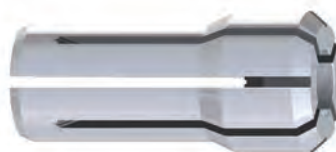
Part #	A (Dia.)	B (Dia.)	C	Overall Length	Max. Shank	Nut (Incl.)	Wrench (Opt.)
EXT100	1.00"	1.06"	1.83"	7.28"	.562"	ECN10	ECN10W

### DA 180 Extension

Part #	A (Dia.)	B (Dia.)	C	Overall Length	Max. Shank	Nut (Incl.)	Wrench (Opt.)
EXT125	1.25"	1.44"	1.81"	7.88"	.787"	ECN12	ECN12W

# DA Collet Chucks

## DA Collets | Inch



Double-Angle Collet

### FEATURES

- Made from high-carbon bearing steel for improved flexibility
- Precision ground accuracy
- 1/64" collapse range

### DA 300 Collets - Inch

Part #	Size	Range
DA300-0046	3/64"	.031" - .046"
DA300-0062	1/16"	.046" - .062"
DA300-0078	5/64"	.062" - .078"
DA300-0093	3/32"	.078" - .093"
DA300-0109	7/64"	.092" - .109"
DA300-0125	1/8"	.109" - .125"
DA300-0140	9/64"	.125" - .140"
DA300-0156	5/32"	.140" - .156"
DA300-0171	11/64"	.156" - .171"
DA300-0187	3/16"	.171" - .187"
DA300-0203	13/64"	.187" - .203"
DA300-0218	7/32"	.203" - .218"
DA300-0234	15/64"	.218" - .234"
DA300-0250	1/4"	.234" - .250"

### DA 300 Collet Set - Inch

Part #	Pcs.	Range
DA300-S005	5	1/8" - 1/4" by 1/32"
DA300-S008	8	3/64" - 1/4" by 1/32"
DA300-S009	9	1/8" - 1/4" by 1/64"
DA300-S016	14	3/64" - 1/4" by 1/64"
DA300-S031	7	1/8" - 1/4" by 1/32"

### DA 200 Collets - Inch

Part #	Size	Range
DA200-0046	3/64"	.031" - .046"
DA200-0062	1/16"	.046" - .062"
DA200-0078	5/64"	.062" - .078"
DA200-0093	3/32"	.078" - .093"
DA200-0109	7/64"	.092" - .109"
DA200-0125	1/8"	.109" - .125"
DA200-0140	9/64"	.125" - .140"
DA200-0156	5/32"	.140" - .156"
DA200-0171	11/64"	.156" - .171"
DA200-0187	3/16"	.171" - .187"
DA200-0203	13/64"	.187" - .203"
DA200-0218	7/32"	.203" - .218"
DA200-0234	15/64"	.218" - .234"
DA200-0250	1/4"	.234" - .250"
DA200-0265	17/64"	.250" - .265"
DA200-0281	9/32"	.265" - .281"
DA200-0296	19/64"	.281" - .296"
DA200-0312	5/16"	.296" - .312"
DA200-0328	21/64"	.312" - .328"
DA200-0343	11/32"	.328" - .343"
DA200-0359	23/64"	.343" - .359"
DA200-0375	3/8"	.359" - .375"
DA200-0390	25/64"	.375" - .390"

### DA 200 Collet Set - Inch

Part #	Pcs.	Range
DA200-S009	9	1/8" - 3/8" by 1/32"
DA200-S016	16	1/16" - 3/8" by 1/64"
DA200-S017	17	1/8" - 3/8" by 1/64"
DA200-S031	11	1/16" - 3/8" by 1/32"

### DA 100 Collets - Inch

Part #	Size	Range
DA100-0046	3/64"	.031" - .046"
DA100-0062	1/16"	.046" - .062"
DA100-0078	5/64"	.062" - .078"
DA100-0093	3/32"	.078" - .093"
DA100-0109	7/64"	.092" - .109"
DA100-0125	1/8"	.109" - .125"
DA100-0140	9/64"	.125" - .140"
DA100-0156	5/32"	.140" - .156"
DA100-0171	11/64"	.156" - .171"
DA100-0187	3/16"	.171" - .187"
DA100-0203	13/64"	.187" - .203"
DA100-0218	7/32"	.203" - .218"
DA100-0234	15/64"	.218" - .234"
DA100-0250	1/4"	.234" - .250"
DA100-0265	17/64"	.250" - .265"

## DA Collets | Inch

### DA 100 Collets - Inch (cont'd)

Part #	Size	Range
DA100-0281	9/32"	.265" - .281"
DA100-0296	19/64"	.281" - .296"
DA100-0312	5/16"	.296" - .312"
DA100-0328	21/64"	.312" - .328"
DA100-0343	11/32"	.328" - .343"
DA100-0359	23/64"	.343" - .359"
DA100-0375	3/8"	.359" - .375"
DA100-0390	25/64"	.375" - .390"
DA100-0406	13/32"	.390" - .406"
DA100-0421	27/64"	.406" - .421"
DA100-0437	7/16"	.421" - .437"
DA100-0453	29/64"	.437" - .453"
DA100-0468	15/32"	.453" - .468"
DA100-0484	31/64"	.468" - .484"
DA100-0500	1/2"	.484" - .500"
DA100-0515	33/64"	.500" - .515"
DA100-0531	17/32"	.515" - .531"
DA100-0546	35/64"	.531" - .546"
DA100-0562	9/16"	.546" - .562"

### DA 100 Collet Set - Inch

Part #	Size	Range
DA100-S011	11	1/4" - 9/16" by 1/32"
DA100-S016	29	1/8" - 9/16" by 1/64"
DA100-S021	21	1/4" - 9/16" by 1/64"
DA100-S031	15	1/8" - 9/16" by 1/32"
DA100-S033	33	1/16" - 9/16" by 1/64"

### DA 180 Collets - Inch

Part #	Size	Range
DA180-0046	3/64"	.031" - .046"
DA180-0062	1/16"	.046" - .062"
DA180-0078	5/64"	.062" - .078"
DA180-0093	3/32"	.078" - .093"
DA180-0109	7/64"	.092" - .109"
DA180-0125	1/8"	.109" - .125"
DA180-0140	9/64"	.125" - .140"
DA180-0156	5/32"	.140" - .156"
DA180-0171	11/64"	.156" - .171"
DA180-0187	3/16"	.171" - .187"
DA180-0203	13/64"	.187" - .203"
DA180-0218	7/32"	.203" - .218"
DA180-0234	15/64"	.218" - .234"
DA180-0250	1/4"	.234" - .250"
DA180-0265	17/64"	.250" - .265"
DA180-0281	9/32"	.265" - .281"
DA180-0296	19/64"	.281" - .296"
DA180-0312	5/16"	.296" - .312"
DA180-0328	21/64"	.312" - .328"
DA180-0343	11/32"	.328" - .343"
DA180-0359	23/64"	.343" - .359"
DA180-0375	3/8"	.359" - .375"
DA180-0390	25/64"	.375" - .390"
DA180-0406	13/32"	.390" - .406"
DA180-0421	27/64"	.406" - .421"
DA180-0437	7/16"	.421" - .437"
DA180-0453	29/64"	.437" - .453"

### DA 180 Collets - Inch (cont'd)

Part #	Size	Range
DA180-0468	15/32"	.453" - .468"
DA180-0484	31/64"	.468" - .484"
DA180-0500	1/2"	.484" - .500"
DA180-0515	33/64"	.500" - .515"
DA180-0531	17/32"	.515" - .531"
DA180-0546	35/64"	.531" - .546"
DA180-0562	9/16"	.546" - .562"
DA180-0578	37/64"	.562" - .578"
DA180-0593	16/32"	.578" - .593"
DA180-0609	39/64"	.593" - .609"
DA180-0625	5/8"	.609" - .625"
DA180-0640	41/64"	.625" - .640"
DA180-0656	21/32"	.640" - .656"
DA180-0671	43/64"	.656" - .671"
DA180-0687	11/16"	.671" - .687"
DA180-0703	45/64"	.687" - .703"
DA180-0718	23/32"	.703" - .718"
DA180-0734	47/64"	.718" - .734"
DA180-0750	3/4"	.734" - .750"

# DA Collet Chucks

## DA Collets | Metric



Double-Angle Collet

### FEATURES

- Made from high-carbon bearing steel for improved flexibility
- Precision ground accuracy
- 0.4 mm collapse range

### DA 300 Collets - Metric

Part #	Size
DA300-1MM	1 mm
DA300-1.5MM	1.5 mm
DA300-2MM	2 mm
DA300-2.5MM	2.5 mm
DA300-3MM	3 mm
DA300-3.5MM	3.5 mm
DA300-4MM	4 mm
DA300-4.5MM	4.5 mm
DA300-5MM	5 mm
DA300-5.5MM	5.5 mm
DA300-6MM	6 mm

### DA 200 Collets - Metric

Part #	Size
DA200-1MM	1 mm
DA200-1.5MM	1.5 mm
DA200-2MM	2 mm
DA200-2.5MM	2.5 mm
DA200-3MM	3 mm
DA200-3.5MM	3.5 mm
DA200-4MM	4 mm
DA200-4.5MM	4.5 mm
DA200-5MM	5 mm
DA200-5.5MM	5.5 mm
DA200-6MM	6 mm
DA200-6.5MM	6.5 mm
DA200-7MM	7 mm
DA200-7.5MM	7.5 mm
DA200-8MM	8 mm
DA200-8.5MM	8.5 mm
DA200-9MM	9 mm
DA200-9.5MM	9.5 mm
DA200-10MM	10 mm

### DA 100 Collets - Metric

Part #	Size
DA100-1MM	1 mm
DA100-1.5MM	1.5 mm
DA100-2MM	2 mm
DA100-2.5MM	2.5 mm
DA100-3MM	3 mm
DA100-3.5MM	3.5 mm
DA100-4MM	4 mm
DA100-4.5MM	4.5 mm
DA100-5MM	5 mm
DA100-5.5MM	5.5 mm
DA100-6MM	6 mm
DA100-6.5MM	6.5 mm
DA100-7MM	7 mm
DA100-7.5MM	7.5 mm
DA100-8MM	8 mm
DA100-8.5MM	8.5 mm
DA100-9MM	9 mm
DA100-9.5MM	9.5 mm
DA100-10MM	10 mm
DA100-10.5MM	10.5 mm
DA100-11MM	11 mm
DA100-11.5MM	11.5 mm

## DA Collets | Metric

### DA 100 Collets - Metric (cont'd)

Part #	Size
DA100-11.5MM	11.5 mm
DA100-12MM	12 mm
DA100-12.5MM	12.5 mm
DA100-13MM	13 mm
DA100-13.5MM	13.5 mm
DA100-14MM	14 mm

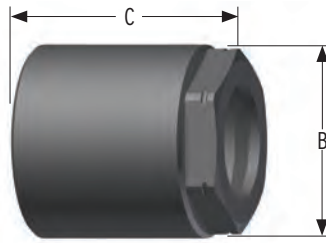
### DA 180 Collets - Metric

Part #	Size
DA180-1MM	1 mm
DA180-1.5MM	1.5 mm
DA180-2MM	2 mm
DA180-2.5MM	2.5 mm
DA180-3MM	3 mm
DA180-3.5MM	3.5 mm
DA180-4MM	4 mm
DA180-4.5MM	4.5 mm
DA180-5MM	5 mm
DA180-5.5MM	5.5 mm
DA180-6MM	6 mm
DA180-6.5MM	6.5 mm
DA180-7MM	7 mm
DA180-7.5MM	7.5 mm
DA180-8MM	8 mm
DA180-8.5MM	8.5 mm
DA180-9MM	9 mm
DA180-9.5MM	9.5 mm
DA180-10MM	10 mm
DA180-10.5MM	10.5 mm
DA180-11MM	11 mm
DA180-11.5MM	11.5 mm
DA180-12MM	12 mm
DA180-12.5MM	12.5 mm
DA180-13MM	13 mm

### DA 180 Collets - Metric (cont'd)

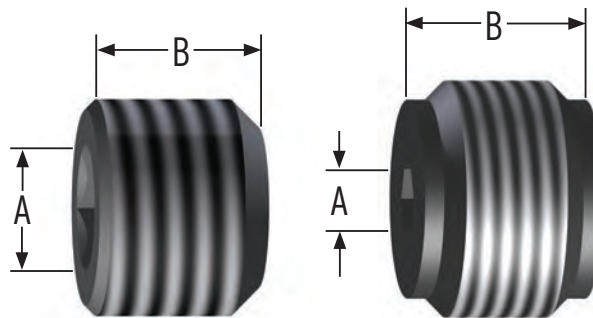
Part #	Size
DA180-13.5MM	13.5 mm
DA180-14MM	14 mm
DA180-14.5MM	14.5 mm
DA180-15MM	15 mm
DA180-15.5MM	15.5 mm
DA180-16MM	16 mm
DA180-16.5MM	16.5 mm
DA180-17MM	17 mm
DA180-17.5MM	17.5 mm
DA180-18MM	18 mm
DA180-18.5MM	18.5 mm
DA180-19MM	19 mm
DA180-19.5MM	19.5 mm
DA180-20MM	20 mm

## Double-Angle Collet Nuts



### Double-Angle Collet Nuts

Part #	Collet Series	B	C	Hex	Thread	Wrench
CN30	DA 300	.62"	1.10"	1/2"	1/2" - 28	300CNW
ECN50	DA 300	.56"	1.10"	1/2"	7/16" - 32	ECN50W
CN20	DA 200	1.10"	.88"	1"	3/4" - 16	ECN20W
ECN75	DA 200	1.44"	1.38"	3/4"	11/16" - 20	ECN75W
ECN10	DA 100	1.06"	1.50"	15/16"	15/16" - 20	ECN10W
ECN12	DA 180	1.44"	1.60"	1-1/4"	1-1/4" - 16	ECN12W



**Type I Standard  
with Coolant Hole**

**Type II Standard  
with Coolant Hole**

### Type I & II Backup Screws

Part #	Collet Series	Type	A	B	"Thread (left-handed)"
029-909	DA 300	I	5/32"	1/4"	15/16" - 24
BS-20	DA 200	II	7/32"	3/8"	7/16" - 20
029-911	DA 100	I	3/16"	9/16"	13/16" - 16
BS-18	DA 180	II	3/16"	9/16"	13/16" - 16



## Double-Angle Collet Wrenches



Open End Wrench ECN20W shown here

### Double-Angle Collet Wrenches

Part #	Collet Series	Hex
300CNW	DA 300	1/2"
ECN50W	DA 300	1/2"
ECN20W	DA 200	1"
ECN75W	DA 200	3/4"
ECN10W	DA 100	15/16"
ECN12W	DA 180	1-1/4"

# FACE MILL

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## HOLDERS



# DAVITA

## HVC (High Volume Coolant) Face Mill Holders



- 6 high-volume coolant ports
- 500% increase in coolant flow
- Superior chip removal
- Perfect for high-pressure coolant delivery

## High-Performance Face Mill Holders



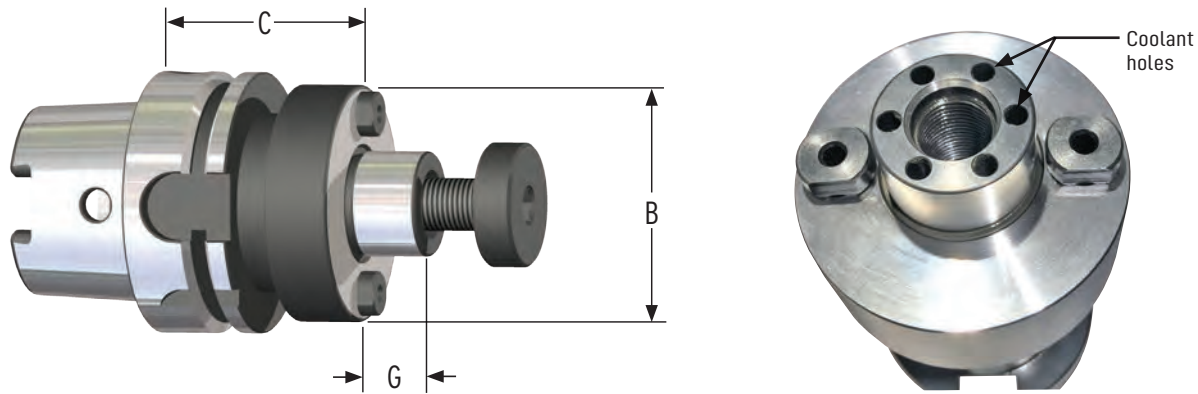
- Constructed from AISI 8620 Alloy Steel for wear resistance
- Hardened to 56-60 Rc for durability and long service life
- Pilot arbor maximum T.I.R. 0.0002"
- Extended gage lengths up to 14"

# HVC Face Mill Holders

## HVC (High Volume Coolant) Face Mill Holders

### FEATURES

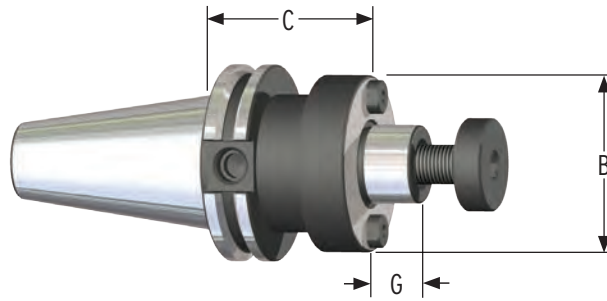
- 6 high-volume coolant ports
- Superior chip evacuation
- 500% increased coolant flow
- Perfect for high-pressure coolant delivery



### HSK 100A HVC Face Mill Holders with Coolant Ports

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
H100A-75SM300C	HSK100A x SM 3/4" - 3.00"	3/4"	1.75"	3.00"	.69"	75KY	-	028-192
H100A-75SM600C	HSK100A x SM 3/4" - 6.00"	3/4"	1.75"	6.00"	.69"	75KY	-	028-192
H100A-75SM800C	HSK100A x SM 3/4" - 8.00"	3/4"	1.75"	8.00"	.69"	75KY	-	028-192
H100A-75SM1000C	HSK100A x SM 3/4" - 10.00"	3/4"	1.75"	10.00"	.69"	75KY	-	028-192
H100A-10SM237C	HSK100A x SM 1" - 2.37"	1"	2.25"	2.37"	.69"	10KY	10LS	028-188
H100A-10SM400C	HSK100A x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
H100A-10SM600C	HSK100A x SM 1" - 6.00"	1"	2.25"	6.00"	.69"	10KY	10LS	028-188
H100A-10SM800C	HSK100A x SM 1" - 8.00"	1"	2.25"	8.00"	.69"	10KY	10LS	028-188
H100A-10SM1000C	HSK100A x SM 1" - 10.00"	1"	2.25"	10.00"	.69"	10KY	10LS	028-188
H100A-10SM1200C	HSK100A x SM 1" - 12.00"	1"	2.25"	12.00"	.69"	10KY	10LS	028-188
H100A-12SM250C	HSK100A x SM 1-1/4" - 2.50"	1-1/4"	2.75"	2.50"	.69"	12KY	12LS	028-193
H100A-12SM400C	HSK100A x SM 1-1/4" - 4.00"	1-1/4"	2.75"	4.00"	.69"	12KY	12LS	028-193
H100A-12SM600C	HSK100A x SM 1-1/4" - 6.00"	1-1/4"	2.75"	6.00"	.69"	12KY	12LS	028-193
H100A-12SM800C	HSK100A x SM 1-1/4" - 8.00"	1-1/4"	2.75"	8.00"	.69"	12KY	12LS	028-193
H100A-12SM1000C	HSK100A x SM 1-1/4" - 10.00"	1-1/4"	2.75"	10.00"	.69"	12KY	12LS	028-193
H100A-12SM1200C	HSK100A x SM 1-1/4" - 12.00"	1-1/4"	2.75"	12.00"	.69"	12KY	12LS	028-193
H100A-15SM400C	HSK100A x SM 1-1/2" - 4.00"	1-1/2"	3.75"	4.00"	.94"	15KY	15LS	-
H100A-15SM600C	HSK100A x SM 1-1/2" - 6.00"	1-1/2"	3.75"	6.00"	.94"	15KY	15LS	-
H100A-15SM800C	HSK100A x SM 1-1/2" - 8.00"	1-1/2"	3.75"	8.00"	.94"	15KY	15LS	-
H100A-20SM400C	HSK100A x SM 2" - 4.00"	2"	4.88"	4.00"	.94"	20KY	20LS	-

# HVC Face Mill Holders



## CAT 40 HVC Face Mill Holders with AD/B Coolant and Coolant Ports

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
C40BC-75SM150C	CAT40 x SM 3/4" - 1.50"	3/4"	1.75"	1.50"	.69"	75KY	-	028-192
C40BC-75SM400C	CAT40 x SM 3/4" - 4.00"	3/4"	1.75"	4.00"	.69"	75KY	-	028-192
C40BC-10SM200C	CAT40 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
C40BC-10SM400C	CAT40 x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
C40BC-12SM225C	CAT40 x SM 1-1/4" - 2.25"	1-1/4"	2.75"	2.25"	.69"	12KY	12LS	028-193
C40BC-12SM400C	CAT40 x SM 1-1/4" - 4.00"	1-1/4"	2.75"	4.00"	.69"	12KY	12LS	028-193
C40BC-15SM240C	CAT40 x SM 1-1/2" - 2.40"	1-1/2"	3.75"	2.40"	.94"	15KY	15LS	-
C40BC-15SM400C	CAT40 x SM 1-1/2" - 4.00"	1-1/2"	3.75"	4.00"	.94"	15KY	15LS	-

## CAT 50 HVC Face Mill Holders with AD/B Coolant and Coolant Ports

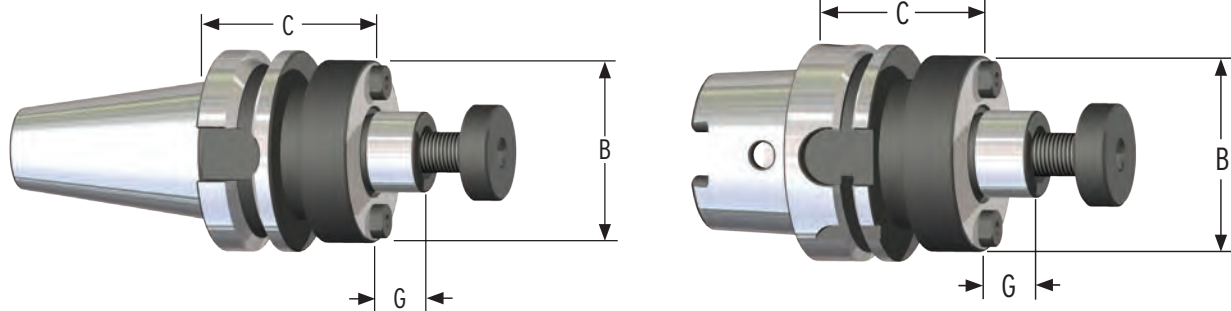
Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
C50BC-75SM150C	CAT50 x SM 3/4" - 1.50"	3/4"	1.75"	1.50"	.69"	75KY	-	028-192
C50BC-75SM350C	CAT50 x SM 3/4" - 3.50"	3/4"	1.75"	3.50"	.69"	75KY	-	028-192
C50BC-75SM550C	CAT50 x SM 3/4" - 5.50"	3/4"	1.75"	5.50"	.69"	75KY	-	028-192
C50BC-75SM800C	CAT50 x SM 3/4" - 8.00"	3/4"	1.75"	8.00"	.69"	75KY	-	028-192
C50BC-75SM1000C	CAT50 x SM 3/4" - 10.00"	3/4"	1.75"	10.00"	.69"	75KY	-	028-192
C50BC-10SM200C	CAT50 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
C50BC-10SM400C	CAT50 x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
C50BC-10SM600C	CAT50 x SM 1" - 6.00"	1"	2.25"	6.00"	.69"	10KY	10LS	028-188
C50BC-10SM800C	CAT50 x SM 1" - 8.00"	1"	2.25"	8.00"	.69"	10KY	10LS	028-188
C50BC-10SM1000C	CAT50 x SM 1" - 10.00"	1"	2.25"	10.00"	.69"	10KY	10LS	028-188
C50BC-12SM150C	CAT50 x SM 1-1/4" - 1.50"	1-1/4"	2.75"	1.50"	.69"	12KY	12LS	028-193
C50BC-12SM350C	CAT50 x SM 1-1/4" - 3.50"	1-1/4"	2.75"	3.50"	.69"	12KY	12LS	028-193
C50BC-12SM550C	CAT50 x SM 1-1/4" - 5.50"	1-1/4"	2.75"	5.50"	.69"	12KY	12LS	028-193
C50BC-12SM800C	CAT50 x SM 1-1/4" - 8.00"	1-1/4"	2.75"	8.00"	.69"	12KY	12LS	028-193
C50BC-12SM1000C	CAT50 x SM 1-1/4" - 10.00"	1-1/4"	2.75"	10.00"	.69"	12KY	12LS	028-193
C50BC-15SM240C	CAT50 x SM 1-1/2" - 2.40"	1-1/2"	3.75"	2.40"	.94"	15KY	15LS	-
C50BC-15SM400C	CAT50 x SM 1-1/2" - 4.00"	1-1/2"	3.75"	4.00"	.94"	15KY	15LS	-
C50BC-15SM600C	CAT50 x SM 1-1/2" - 6.00"	1-1/2"	3.75"	6.00"	.94"	15KY	15LS	-
C50BC-15SM800C	CAT50 x SM 1-1/2" - 8.00"	1-1/2"	3.75"	8.00"	.94"	15KY	15LS	-
C50BC-20SM240C	CAT50 x SM 2" - 2.40"	2"	4.88"	2.40"	.94"	20KY	20LS	-
C50BC-20SM400C	CAT50 x SM 2" - 4.00"	2"	4.88"	4.00"	.94"	20KY	20LS	-
C50BC-25SM240C	CAT50 x SM 2-1/2" - 2.40"	2-1/2"	4.88"	2.40"	1.13"	25KY	25LS	-

# Face Mill Holders

## Standard Face Mill Holders

### FEATURES

- Arbor pilot TIR < 0.0002"
- Compatible with all face mills
- Constructed of alloy steel for long, durable service life
- Hardened to 56 - 60 Rc for long service life



### HSK 63A Face Mill Holders

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
H63-75SM2	HSK63A x SM 3/4" - 2.37"	3/4"	1.75"	2.37"	.69"	75KY	75LS	028-192
H63-10SM2	HSK63A x SM 1" - 2.63"	1"	2.25"	2.63"	.69"	10KY	10LS	028-188
H63-12SM2	HSK63A x SM 1-1/4" - 2.63"	1-1/4"	2.75"	2.63"	.69"	12KY	12LS	028-193
H63-15SM2	HSK63A x SM 1-1/2" - 2.63"	1-1/2"	3.75"	2.63"	.94"	15KY	15LS	-

### HSK 100A Face Mill Holders

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
H100-75SM3	HSK100A x SM 3/4" - 3.00"	3/4"	1.75"	3.00"	.69"	75KY	75LS	028-192
H100-10SM2	HSK100A x SM 1" - 2.37"	1"	2.25"	2.37"	.68"	10KY	10LS	028-188
H100-12SM1	HSK100A x SM 1-1/4" - 1.88"	1-1/4"	2.75"	1.88"	.69"	12KY	12LS	028-193
H100-15SM2	HSK100A x SM 1-1/2" - 2.88"	1-1/2"	3.75"	2.88"	.94"	15KY	15LS	-
H100-20SM2	HSK100A x SM 2" - 2.88"	2"	4.88"	2.88"	.94"	20KY	20LS	-
H100-25SM2	HSK100A x SM 2-1/2" - 2.88"	2-1/2"	4.88"	2.88"	1.13"	25KY	25LS	-

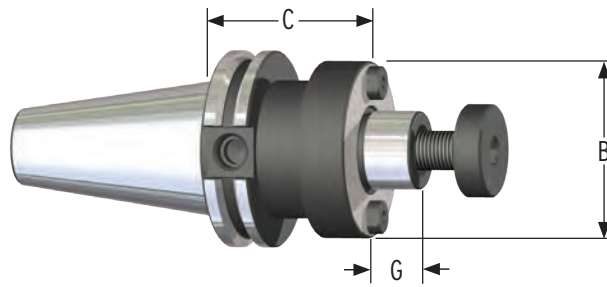
### BT 30 Face Mill Holders

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
B30-75SM118	BT30 x SM 3/4" - 1.18"	3/4"	1.75"	1.18"	.69"	75KY	-	028-192
B30-10SM177	BT30 x SM 1" - 1.77"	1"	2.25"	1.77"	.69"	10KY	10LS	028-188

### BT 40 Face Mill Holders

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
B40-75SM2	BT40 x SM 3/4" - 2.00"	3/4"	1.75"	2.00"	.69"	75KY	-	028-192
B40-75SM4	BT40 x SM 3/4" - 4.00"	3/4"	1.75"	4.00"	.69"	75KY	-	028-192
B40-10SM2	BT40 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
B40-10SM4	BT40 x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
B40-12SM2	BT40 x SM 1-1/4" - 2.25"	1-1/4"	2.75"	2.25"	.69"	12KY	12LS	028-193
B40-15SM2	BT40 x SM 1-1/2" - 2.25"	1-1/2"	3.75"	2.25"	.94"	15KY	15LS	-

# Face Mill Holders



## CAT 40 Face Mill Holders

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
C40-75SM1	CAT40 x SM 3/4" - 1.38"	3/4"	1.75"	1.38"	.69"	75KY	-	028-192
C40-75SM2	CAT40 x SM 3/4" - 1.50"	3/4"	1.75"	1.50"	.69"	75KY	-	028-192
C40-75SM200	CAT40 x SM 3/4" - 2.00"	3/4"	1.75"	2.00"	.69"	75KY	-	028-192
C40-75SM4	CAT40 x SM 3/4" - 4.00"	3/4"	1.75"	4.00"	.69"	75KY	-	028-192
C40-10SM1	CAT40 x SM 1" - 1.00"	1"	2.25"	1.00"	.69"	10KY	10LS	028-188
C40-10SM2	CAT40 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
C40-10SM4	CAT40 x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
C40-12SM1	CAT40 x SM 1-1/4" - 1.62"	1-1/4"	2.75"	1.62"	.69"	12KY	12LS	028-193
C40-12SM2	CAT40 x SM 1-1/4" - 2.94"	1-1/4"	2.75"	2.94"	.69"	12KY	12LS	028-193
C40-12SM4	CAT40 x SM 1-1/4" - 4.00"	1-1/4"	2.75"	4.00"	.69"	12KY	12LS	028-193
C40-15SM2	CAT40 x SM 1-1/2" - 2.40"	1-1/2"	3.75"	2.40"	.94"	15KY	15LS	-
C40-15SM4	CAT40 x SM 1-1/2" - 4.00"	1-1/2"	3.75"	4.00"	.94"	15KY	15LS	-

## CAT 50 Face Mill Holders

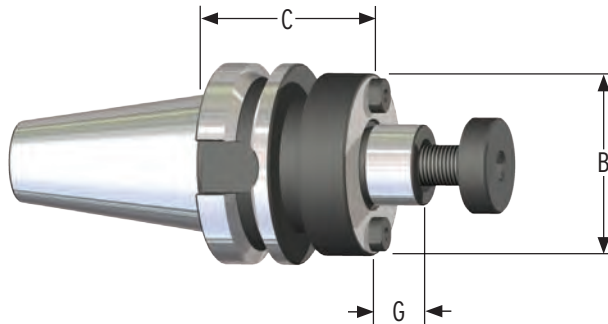
Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
C50-75SM1	CAT50 x SM 3/4" - 1.50"	3/4"	1.75"	1.50"	.69"	75KY	75LS	028-192
C50-75SM3	CAT50 x SM 3/4" - 3.50"	3/4"	1.75"	3.50"	.69"	75KY	75LS	028-192
C50-75SM5	CAT50 x SM 3/4" - 5.50"	3/4"	1.75"	5.50"	.69"	75KY	75LS	028-192
C50-10SM2	CAT50 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
C50-10SM4	CAT50 x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
C50-10SM6	CAT50 x SM 1" - 6.00"	1"	2.25"	6.00"	.69"	10KY	10LS	028-188
C50-10SM8	CAT50 x SM 1" - 8.00"	1"	2.25"	8.00"	.69"	10KY	10LS	028-188
C50-12SM1	CAT50 x SM 1-1/4" - 1.50"	1-1/4"	2.75"	1.50"	.69"	12KY	12LS	028-193
C50-12SM3	CAT50 x SM 1-1/4" - 3.50"	1-1/4"	2.75"	3.50"	.69"	12KY	12LS	028-193
C50-12SM5	CAT50 x SM 1-1/4" - 5.50"	1-1/4"	2.75"	5.50"	.69"	12KY	12LS	028-193
C50-15SM2	CAT50 x SM 1-1/2" - 2.00"	1-1/2"	3.75"	2.00"	.94"	15KY	15LS	-
C50-15SM4	CAT50 x SM 1-1/2" - 4.00"	1-1/2"	3.75"	4.00"	.94"	15KY	15LS	-
C50-15SM6	CAT50 x SM 1-1/2" - 6.00"	1-1/2"	3.75"	6.00"	.94"	15KY	15LS	-
C50-20SM2	CAT40 x SM 2" - 2.40"	2"	4.88"	2.40"	.94"	20KY	20LS	-
C50-20SM4	CAT40 x SM 2" - 4.00"	2"	4.88"	4.00"	.94"	20KY	20LS	-
C50-20SM6	CAT40 x SM 2" - 6.00"	2"	4.88"	6.00"	.94"	20KY	20LS	-
C50-25FM1	CAT50 x SM 2-1/2" - 2.25"	2-1/2"	5.06"	2.25"	1.00"	25KY	25LS	-
C50-25SM2	CAT50 x SM 2-1/2" - 2.40"	2-1/2"	4.88"	2.40"	1.13"	25KY	25LS	-
C50-25SM4	CAT50 x SM 2-1/2" - 4.00"	2-1/2"	4.88"	4.00"	1.13"	25KY	25LS	-
C50-25SM6	CAT50 x SM 2-1/2" - 6.00"	2-1/2"	4.88"	6.00"	1.13"	25KY	25LS	-

# Face Mill Holders

## Face Mill Holders with SIMULFIT®

### FEATURES

- Certified for dual-contact spindles
- Superior rigidity and reduced vibration
- Improved performance at high metal removal rates or when machining at extended lengths



### BT 30 Face Mill Holders with SIMULFIT®

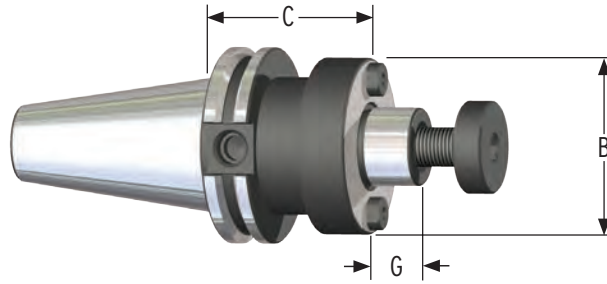
Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
B30F-75SM118	BT30 x SM 3/4" - 1.18"	3/4"	1.75"	1.18"	.69"	75KY	-	028-192
B30F-10SM177	BT30 x SM 1" - 1.77"	1"	2.25"	1.77"	.69"	10KY	10LS	028-188

### BT 40 Face Mill Holders with SIMULFIT®

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
B40F-75SM2	BT40 x SM 3/4" - 2.00"	3/4"	1.75"	2.00"	.69"	75KY	-	028-192
B40F-75SM4	BT40 x SM 3/4" - 4.00"	3/4"	1.75"	4.00"	.69"	75KY	-	028-192
B40F-10SM2	BT40 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
B40F-12SM2	BT40 x SM 1-1/4" - 2.25"	1-1/4"	2.75"	2.25"	.69"	12KY	12LS	028-192
B40F-15SM2	BT40 x SM 1-1/2" - 2.25"	1-1/2"	3.75"	2.25"	.94"	15KY	15LS	-



# Face Mill Holders



## CAT 40 Face Mill Holders with SIMULFIT®

Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
C40F-75SM1	CAT40 x SM 3/4" - 1.38"	3/4"	1.75"	1.38"	.69"	75KY	-	028-192
C40F-75SM2	CAT40 x SM 3/4" - 2.00"	3/4"	1.75"	2.00"	.69"	75KY	-	028-192
C40F-75SM4	CAT40 x SM 3/4" - 4.00"	3/4"	1.75"	4.00"	.69"	75KY	-	028-192
C40F-10SM1	CAT40 x SM 1" - 1.00"	1"	2.25"	1.00"	.69"	10KY	10LS	028-188
C40F-10SM2	CAT40 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
C40F-10SM4	CAT40 x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
C40F-12SM1	CAT40 x SM 1-1/4" - 1.62"	1-1/4"	2.75"	1.62"	.69"	12KY	12LS	028-193
C40F-12SM2	CAT40 x SM 1-1/4" - 2.25"	1-1/4"	2.75"	2.25"	.69"	12KY	12LS	028-193
C40F-15SM2	CAT40 x SM 1-1/2" - 2.40"	1-1/2"	3.75"	2.40"	.94"	15KY	15LS	-
C40F-15SM4	CAT40 x SM 1-1/2" - 4.00"	1-1/2"	3.75"	4.00"	.94"	15KY	15LS	-

## CAT 50 Face Mill Holders with SIMULFIT®

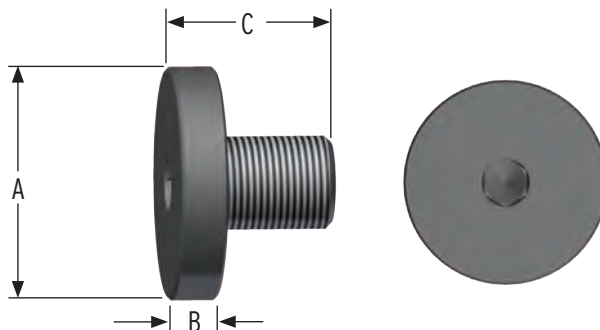
Part #	Description	Arbor Size	B (Dia.)	C	G	Drive Key (Incl.)	Lock Screw (Incl.)	Cap Screw (Incl.)
C50F-75SM1	CAT50 x SM 3/4" - 1.50"	3/4"	1.75"	1.50"	.69"	75KY	75LS	028-192
C50F-75SM3	CAT50 x SM 3/4" - 3.50"	3/4"	1.75"	3.50"	.69"	75KY	75LS	028-192
C50F-75SM5	CAT50 x SM 3/4" - 5.50"	3/4"	1.75"	5.50"	.69"	75KY	75LS	028-192
C50F-10SM2	CAT50 x SM 1" - 2.00"	1"	2.25"	2.00"	.69"	10KY	10LS	028-188
C50F-10SM4	CAT50 x SM 1" - 4.00"	1"	2.25"	4.00"	.69"	10KY	10LS	028-188
C50F-10SM6	CAT50 x SM 1" - 6.00"	1"	2.25"	6.00"	.69"	10KY	10LS	028-188
C50F-10SM8	CAT50 x SM 1" - 8.00"	1"	2.25"	8.00"	.69"	10KY	10LS	028-188
C50F-12SM3	CAT50 x SM 1-1/4" - 3.50"	1-1/4"	2.75"	3.50"	.69"	12KY	12LS	028-193
C50F-12SM5	CAT50 x SM 1-1/4" - 5.50"	1-1/4"	2.75"	5.50"	.69"	12KY	12LS	028-193
C50F-15SM2	CAT50 x SM 1-1/2" - 2.40"	1-1/2"	3.75"	2.40"	.94"	15KY	15LS	-
C50F-15SM4	CAT50 x SM 1-1/2" - 4.00"	1-1/2"	3.75"	4.00"	.94"	15KY	15LS	-
C50F-15SM6	CAT50 x SM 1-1/2" - 6.00"	1-1/2"	3.75"	6.00"	.94"	15KY	15LS	-
C50F-20SM2	CAT50 x SM 2" - 2.40"	2"	4.88"	2.40"	.94"	20KY	20LS	-
C50F-20SM4	CAT50 x SM 2" - 4.00"	2"	4.88"	4.00"	.94"	20KY	20LS	-
C50F-25SM2	CAT50 x SM 2-1/2" - 2.40"	2-1/2"	4.88"	2.40"	1.13"	25KY	25LS	-

# Face Mill Holders

## Lock & Cap Screws



Part # 10LS shown here



### Lock Screws

Part #	A	B	C	Thread	Hex	Torque
75LS	.88"	.38"	1.06"	3/8-24	1/4"	45 ft/lbs
10LS	1.19"	.28"	1.12"	1/2-20	5/16"	60 ft/lbs
12LS	1.50"	.50"	1.44"	5/8-18	5/16"	70 ft/lbs
15LS	1.88"	.50"	1.75"	3/4-16	3/8"	75 ft/lbs
20LS	2.50"	.50"	1.75"	1-14	1/2"	100 ft/lbs
25LS	3.12"	.50"	1.75"	1-14	1/2"	100 ft/lbs
75LSC	.88"	.38"	1.06"	3/8-24	1/4"	45 ft/lbs
10LSC	1.19"	.28"	1.20"	1/2-20	5/16"	60 ft/lbs
15LSC	1.88"	.50"	1.75"	3/4-16	3/8"	75 ft/lbs

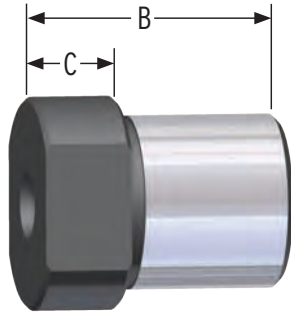
\* "C" at end of part number indicates Coolant-through Lock Screw

### Socket Head Cap Screws

Part #	A	B	C	Thread	Hex	Torque
028-188	.75"	.50"	1.75"	1/2-20	3/4"	60 ft/lbs
028-192	.56"	.37"	1.37"	3/8-24	5/16"	45 ft/lbs
028-193	.94"	.62"	1.87"	5/8-18	1/2"	70 ft/lbs
028-188C	.75"	.50"	1.75"	1/2-20	3/8"	60 ft/lbs
028-192C	.56"	.37"	1.37"	3/8-24	5/16"	45 ft/lbs

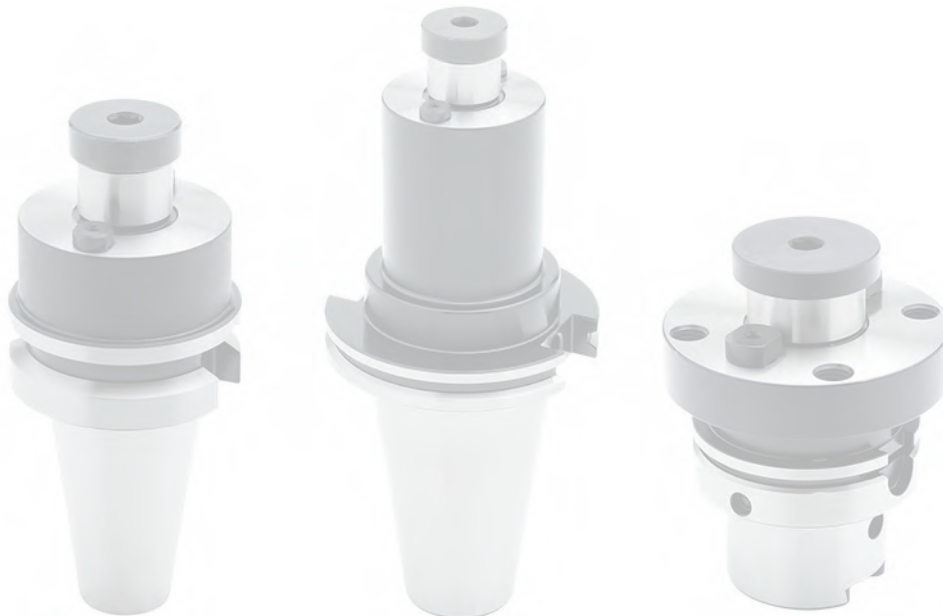
\* "C" at end of part number indicates Coolant-through Cap Screw

## Drive Keys



### Drive Keys

Part #	A	B	C
75KY	.31"	.52"	.16"
10KY	.38"	.67"	.19"
12KY	.50"	.86"	.25"
15KY	.62"	1.04"	.31"
20KY	.75"	1.10"	.38"
25KY	1.00"	1.23"	.50"



# BORING

## PRECISION MODULAR



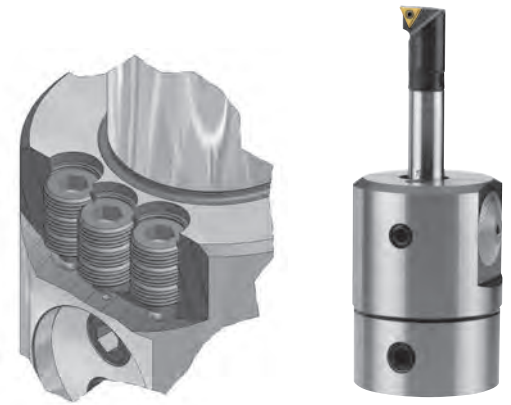
# DAVEBRO

## SMALL DIAMETER BORING SYSTEMS

- Boring bar receiver telescopes to minimize overhang.
- Balanced Modular Boring Bars and Noses available as standard combined with the balanceable head for extreme high velocity boring.



A .0001" Vernier is standard on all finish heads



## PRECISION FINISH BORING SYSTEMS

### Rigidity

- Created by Force - The face to face clamping forces are equal to the axial force  $F_a$ . Precision .0002" on Diameter.
- Orientation - The cross pin orientates the PC screw and transmits extreme forces.

### Self Tightening

- The torsional cutting forces are primarily transmitted by the friction between the matching faces.
- Any remaining torque will result in an additional wedge action between the locking screw and inner member.
- Due to very small resulting wedge angle, any increased torsional force ( $F_f$ ) will be transformed into very strong axial clamping force ( $F_a2$ )



Extended length insert holders allow expansion of the boring range

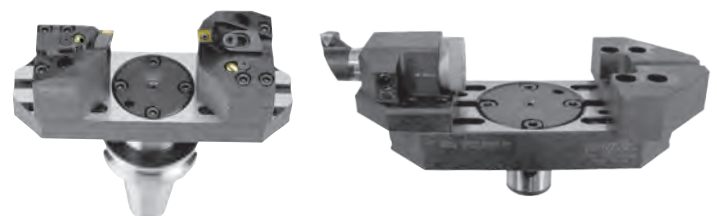
## TWIN BORE FOR HEAVY METAL REMOVAL RATES

Individually and easily adjusted cutting tips allow for balanced or step cutting from .95" (24 mm) to over 23" (600 mm) resulting in maximum metal removal rates.



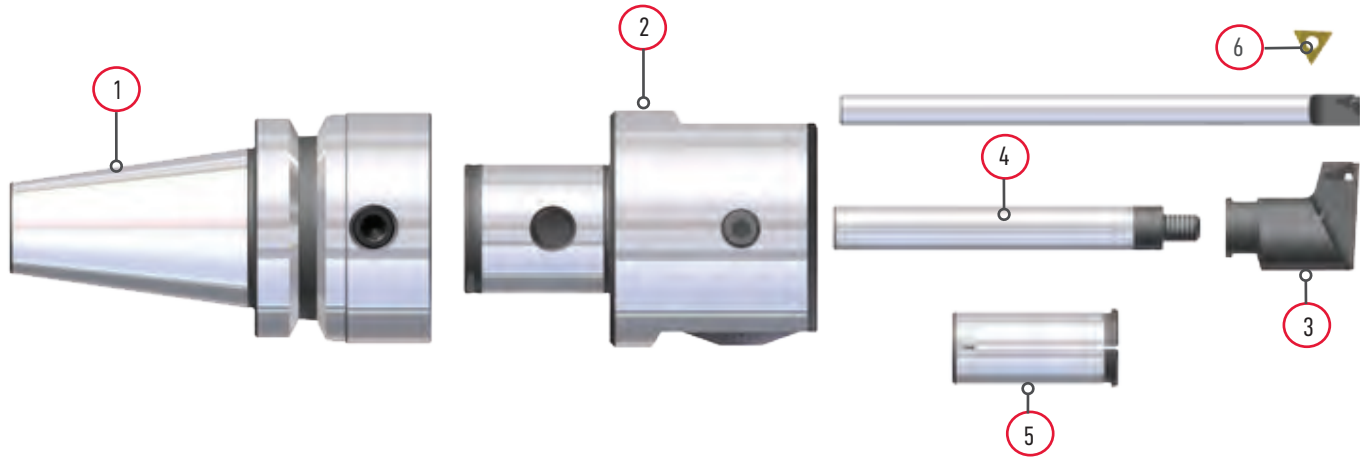
## LARGE DIAMETER BORING SYSTEM

Inverted assembly allows system to be used to bore OD's utilizing twin bore or precision finish.



# Precision Modular Boring

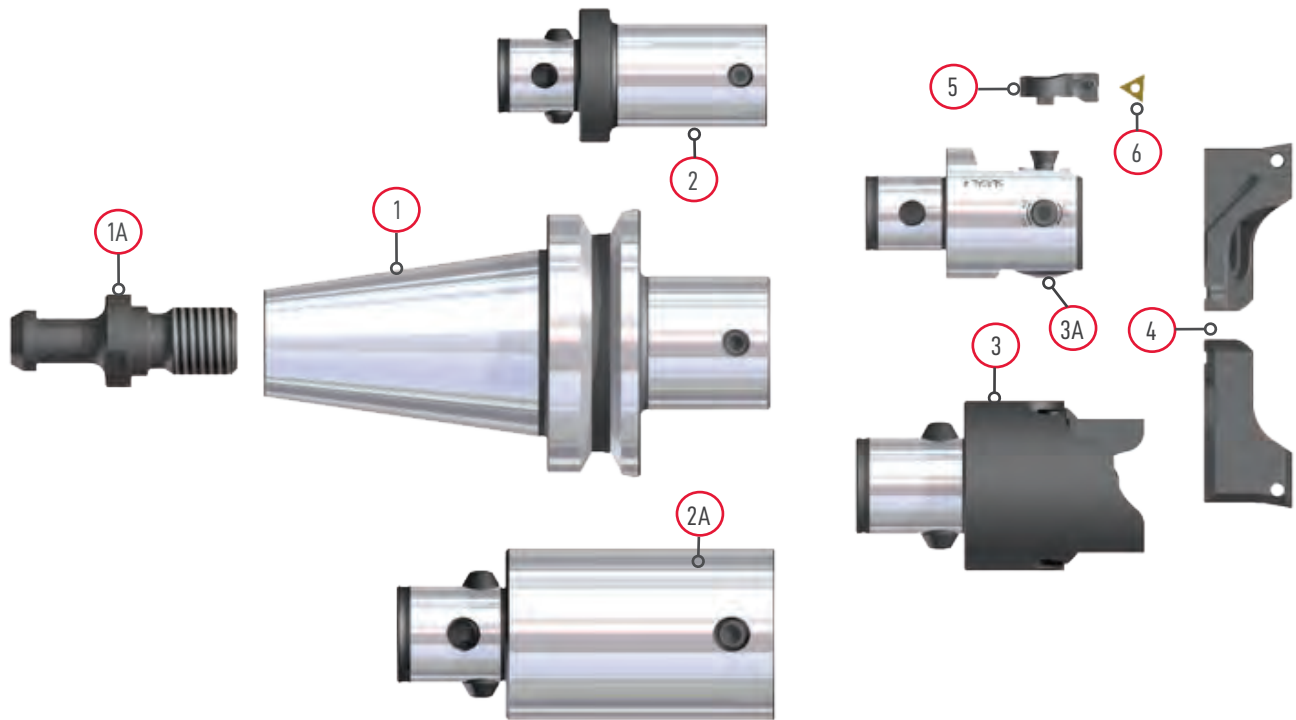
## Small Diameter | Product Tree



### Small Diameter Boring Range Tree: .078" - 1.89" (1.98 - 48 mm)

Label	Component	Selection Criteria	Catalog Page
1	Modular Shank	Machine tool taper and projection requirement	Pages 134 - 138
2	Small Diameter Finish Head	Telescoping bar and balance capability make is the right choice for boring small diameters	Page 150
3	Modular Boring Noses	Allows the diameter to be extended with less expense in boring bars. All noses are balanced and coolant through	Page 151
4	Boring Bar	Available as modular or solid for smaller diameters. Steel and Carbide with coolant-through standard on all modular style.	Pages 151 - 153
5	Reduction Bushing	Select to reduce the bore through receiver to the appropriate size boring bar	Pages 152 - 153
6	Inserts	Select based on geometry of insert holder, material of bore and radius	Pages 162 - 167

## Roughing & Finishing | Product Tree



### Rough and Finish Boring Range Tree: .98" - 6.00" (24.89 - 152.4 mm)

Label	Component	Selection Criteria	Catalog Page
1	Modular Shank	Machine tool taper and projection requirement	Pages 134 - 138
1A	Retention Knob	Machine tool specific	Page 252
2	Reducer	Used to extend the reach of a boring assembly	Page 139
2A	Extension	Used to extend the length to diameter ratio when reach and not clearance is the issue	Page 138
3	Twin Rough Boring Head	Select when metal removal is the goal and bore tolerance is larger.	Page 140
3A	Precision Finish Head	Select when much less material removal is required, such as after roughing, precision and ease of adjustment are the main critical requirements.	Page 144
4	Twin Bore Insert Holder (pair)	Select by bore configuration and size.	Page 141
5	Precision Finish Insert Holder	Select by bore size, use size 1 for maximum bar rigidity	Page 145
6	Inserts	Select based on geometry of insert holder, material of bore and radius	Pages 162 - 167

# Precision Modular Boring

## PC Screws



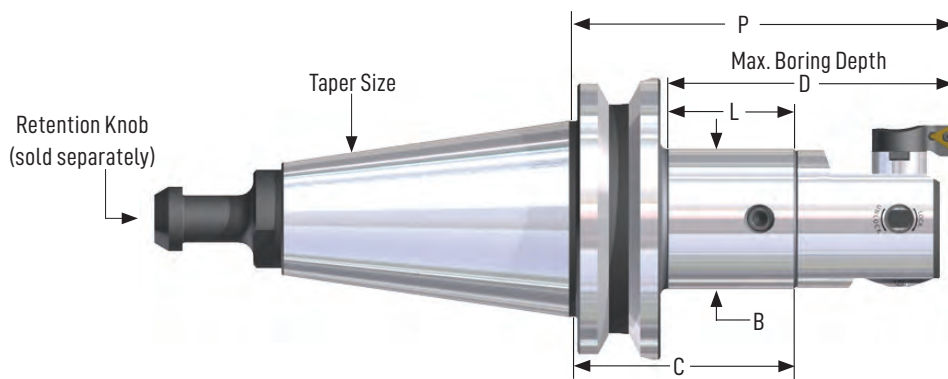
### Connection Diameter

PC Size	Diameter - Inch	Diameter - Metric
PC2	.94"	24 mm
PC3	1.22"	31 mm
PC4	1.54"	39 mm
PC5	1.97"	50 mm
PC6	2.52"	64 mm
PC7	3.54"	90 mm

### Screws

Part #	Connection Size	Wrench	Tightening Torque
880-002	PC2	018-102	25 in/lbs
880-003	PC3	018-103	42 in/lbs
880-004	PC4	018-104	84 in/lbs
880-005	PC5	018-105	168 in/lbs
880-006	PC6	018-106	336 in/lbs
880-007	PC7	018-107	840 in/lbs

## CAT Modular Shanks



### CAT 40 Modular Shanks

Part #	Connection Size	B	C	D	L	P*	Weight (lbs)
C40-PC2-2	PC2	.94"	2.07"	2.00"	.56"	3.54"	2.4
C40-PC2-3	PC2	.94"	3.33"	3.15"	1.95"	4.80"	2.5
C40-PC2-4	PC2	.94"	4.11"	3.94"	2.74"	5.59"	2.6
C40-PC3-3	PC3	1.22"	3.15"	3.20"	1.78"	4.76"	2.6
C40-PC3-5	PC3	1.22"	5.12"	5.57"	3.74"	6.3"	3.3
C40-PC4-1	PC4	1.75"	1.50"	1.75"	-	3.23"	2.2
C40-PC4-3	PC4	1.54"	2.87"	3.15"	1.50"	4.72"	2.7
C40-PC4-6	PC4	1.54"	6.02"	6.30"	4.26"	7.78"	4.3
C40-PC5-3	PC5	1.97"	2.48"	3.15"	1.11"	4.72"	2.8
C40-PC5-6	PC5	1.97"	5.53"	6.30"	4.26"	7.87"	5.5
C40-PC6-3**	PC6	2.52"	2.00"	3.42"	.63"	4.80"	3.1
C40-PC6-4	PC6	2.52"	2.72"	3.94"	1.34"	5.51"	3.3
C40-PC6-6	PC6	2.52"	2.52"	6.30"	3.70"	7.87"	6.3

\* Compute "P" dimension by adding all "C" dimensions for all components used. Maximum bore depth "D" may be increased by using extension adapters  
 \*\* Deviates from ANSI B5 1995 - No clearance for some tool changers



# Precision Modular Boring

## CAT 50 Modular Shanks

Part #	Connection Size	B	C	D	L	P*	Weight (lbs)
C50-PC2-2	PC2	.94"	2.07"	2.00"	.56"	3.54"	6.5
C50-PC2-4	PC2	.94"	4.11"	3.94"	2.74"	5.59"	7.1
C50-PC2-5	PC2	.94"	5.29"	5.12"	3.92"	6.77"	7.7
C50-PC3-4	PC3	1.22"	3.94"	4.39"	2.56"	5.55"	7.1
C50-PC3-5	PC3	1.22"	5.12"	5.57"	3.74"	6.73"	7.4
C50-PC3-6	PC3	1.22"	6.30"	6.13"	4.30"	7.91"	7.7
C50-PC4-4	PC4	1.54"	3.61"	3.94"	2.24"	5.46"	7.4
C50-PC4-6	PC4	1.54"	6.02"	6.30"	4.65"	7.87"	8.5
C50-PC4-8	PC4	1.54"	7.60"	7.88"	6.22"	9.45"	9.2
C50-PC5-4	PC5	1.97"	3.27"	3.94"	1.89"	5.51"	7.6
C50-PC5-6	PC5	1.97"	5.63"	6.30"	4.26"	7.87"	9.2
C50-PC5-8	PC5	1.97"	7.20"	7.88"	5.83"	9.45"	10.6
C50-PC5-10	PC5	1.97"	9.57"	10.24"	8.19"	11.81"	12.5
C50-PC6-4	PC6	2.52"	2.72"	3.94"	1.34"	5.51"	7.7
C50-PC6-6	PC6	2.52"	5.08"	6.30"	3.70"	7.87"	10.5
C50-PC6-8	PC6	2.52"	6.65"	7.88"	5.28"	9.45"	12.5
C50-PC6-10	PC6	2.52"	9.02"	10.24"	7.64"	11.81"	15.4
C50-PC6-12	PC6	2.52"	11.38"	12.60"	10.00"	14.17"	18.4
C50-PC7-6	PC7	3.54"	3.27"	6.30"	1.89"	7.87"	10.0
C50-PC7-8	PC7	3.54"	5.27"	8.30"	3.89"	9.87"	15.4
C50-PC7-10	PC7	3.54"	7.20"	10.24"	5.83"	11.81"	20.5

\* Compute "P" dimension by adding all "C" dimensions for all components used. Maximum bore depth "D" may be increased by using extension adapters

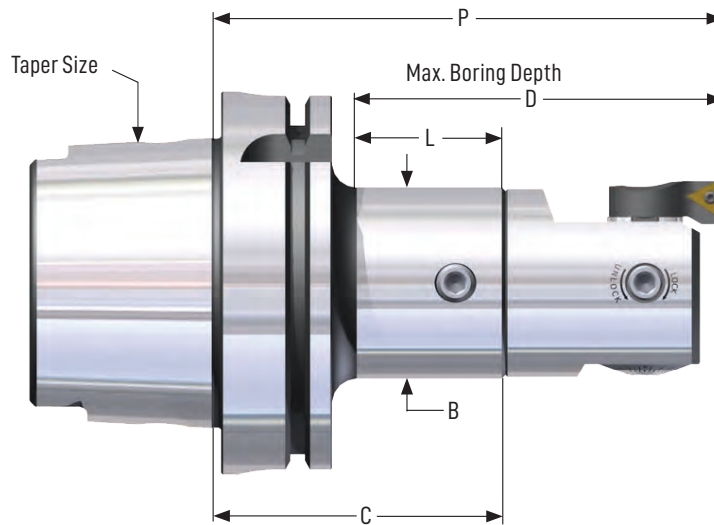
## CAT 40/50 Modular Shanks with SIMULFIT®

Part #	Connection Size	B	C	D	L	P*	Weight (lbs)
C40F-PC6-4	PC6	2.52"	2.72"	3.94"	1.34"	5.51"	3.3
C50F-PC2-4	PC2	.94"	4.11"	3.94"	2.74"	5.59"	7.2
C50F-PC2-5	PC2	.94"	5.29"	5.12"	3.92"	6.77"	7.8
C50F-PC3-5	PC3	1.22"	5.12"	5.57"	3.74"	6.73"	7.5
C50F-PC3-6	PC3	1.22"	6.30"	6.13"	4.30"	7.91"	7.8
C50F-PC4-4	PC4	1.54"	3.61"	3.94"	2.24"	5.46"	7.5
C50F-PC4-6	PC4	1.54"	6.02"	6.30"	4.65"	7.87"	8.6
C50F-PC4-8	PC4	1.54"	7.60"	7.88"	6.22"	9.45"	9.3
C50F-PC5-4	PC5	1.97"	3.27"	3.94"	1.89"	5.51"	7.7
C50F-PC5-6	PC5	1.97"	5.63"	6.30"	4.26"	7.87"	9.3
C50F-PC5-8	PC5	1.97"	7.20"	7.88"	5.83"	9.45"	10.7
C50F-PC5-10	PC5	1.97"	9.57"	10.24"	8.19"	11.81"	12.6
C50F-PC6-4	PC6	2.52"	2.72"	3.94"	1.34"	5.51"	7.8
C50F-PC6-6	PC6	2.52"	5.08"	6.30"	3.70"	7.87"	10.6
C50F-PC6-8	PC6	2.52"	6.65"	7.88"	5.28"	9.45"	12.6
C50F-PC6-12	PC6	2.52"	11.38"	12.60"	10.00"	14.17"	18.5
C50F-PC7-10	PC7	3.54"	7.20"	10.24"	5.83"	11.81"	20.6

\* Compute "P" dimension by adding all "C" dimensions for all components used. Maximum bore depth "D" may be increased by using extension adapters

# Precision Modular Boring

## HSK Modular Shanks



### HSK 63A Modular Shanks

Part #	Connection Size	B	C	D	L	P*	Weight (lbs)
H63A-PC2-73	PC2	.94"	3.52"	3.74"	2.26"	5.00"	2.0
H63A-PC3-103	PC3	1.22"	3.94"	4.29"	2.68"	5.55"	2.2
H63A-PC4-65	PC4	1.54"	2.50"	3.09"	1.24"	4.35"	2.3
H63A-PC4-178	PC4	1.54"	6.00"	6.59"	4.74"	7.85"	4.0
H63A-PC5-105	PC5	1.97"	3.26"	4.25"	2.01"	5.50"	3.1
H63A-PC6-100	PC6	2.52"	3.25"	4.78"	1.99"	6.04"	3.4
H63A-PC6-147	PC6	2.52"	5.13"	6.65"	3.86"	7.92"	6.0

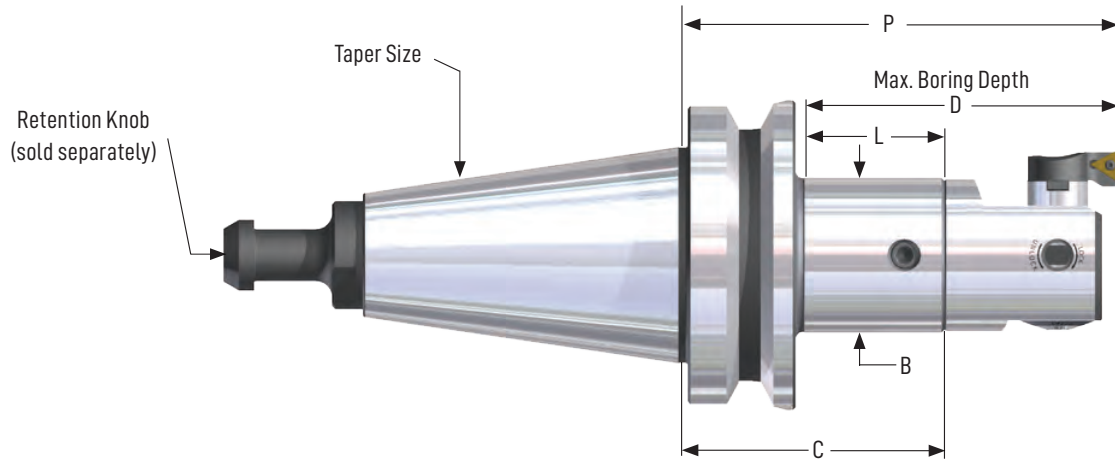
\* Compute "P" dimension by adding all "C" dimensions for all components used.  
Maximum bore depth "D" may be increased by using extension adapters.

### HSK 100A Modular Shanks

Part #	Connection Size	B	C	D	L	P*	Weight (lbs)
H100A-PC2-107	PC2	.94"	4.51"	4.61"	3013"	5.98"	6.4
H100A-PC3-122	PC3	1.22"	4.92"	5.16"	3.54"	6.53"	6.8
H100A-PC4-65	PC4	1.54"	2.50"	2097"	1.12"	4.35"	4.9
H100A-PC4-182	PC4	1.54"	7.00"	7.48"	5.63"	8.85"	8.4
H100A-PC5-122	PC5	1.97"	4.25"	5.12"	2.87"	6.49"	7.2
H100A-PC6-100	PC6	2.52"	3.25"	4.67"	1.87"	6.04"	7.7
H100A-PC6-190	PC6	2.52"	6.69"	8.11"	5.31"	9.48"	11.9

\* Compute "P" dimension by adding all "C" dimensions for all components used.  
Maximum bore depth "D" may be increased by using extension adapters.

## BT Modular Shanks



### BT 30 Modular Shank

Part #	Connection Size	B	C	D	L	P*	Weight (lbs)
B30-PC4-2	PC4	1.54"	1.75"	2.24"	.76"	3.60"	1.0

\* Compute "P" dimension by adding all "C" dimensions for all components used.  
Maximum bore depth "D" may be increased by using extension adapters.

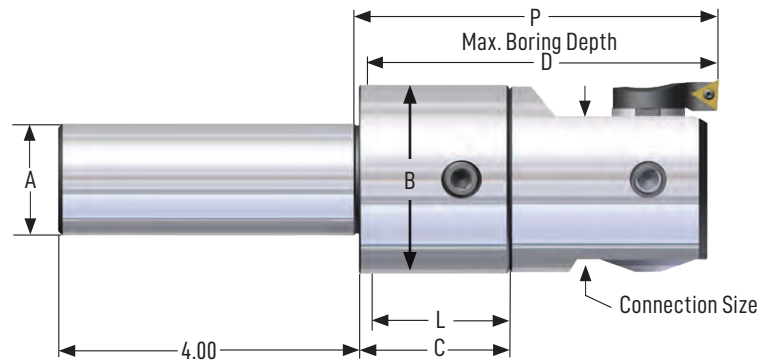
### BT 40 Modular Shanks

Part #	Connection Size	B	C	D	L	P*	Weight (lbs)
B40-PC2-4	PC2	.94"	3.80"	4.12"	2.64"	5.28"	2.5
B40-PC3-4	PC3	1.22"	3.70"	4.15"	2.54"	5.31"	2.6
B40-PC3-5	PC3	1.22"	4.80"	5.25"	3.64"	6.41"	3.2
B40-PC4-3	PC4	1.54"	2.56"	3.25"	1.40"	4.41"	2.8
B40-PC4-5	PC4	1.54"	4.53"	5.21"	3.36"	6.38"	3.6
B40-PC5-3	PC5	1.97"	2.16"	3.24"	1.00"	4.40"	2.8
B40-PC5-6	PC5	1.97"	5.31"	6.37"	4.13"	7.55"	5.8
B40-PC6-4	PC6	2.52"	2.40"	3.91"	1.12"	5.19"	3.1
B40-PC6-6	PC6	2.52"	4.76"	6.43"	3.64"	7.55"	6.5

\* Compute "P" dimension by adding all "C" dimensions for all components used.  
Maximum bore depth "D" may be increased by using extension adapters.

# Precision Modular Boring

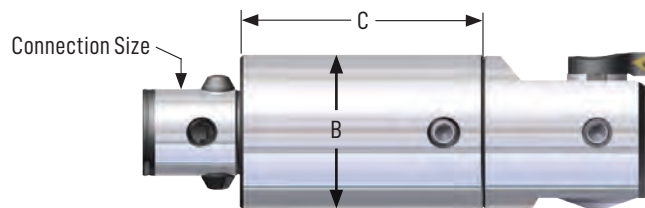
## Straight Modular Shanks



Part #	Connection Size	A	B	C	D	L	P*	Weight (lbs)
S12-PC4-3	PC4	1.25"	1.54"	2.00"	3.75"	1.90"	3.85"	2.0
S12-PC6-4	PC6	1.25"	2.52"	2.00"	4.70"	1.90"	4.80"	3.1

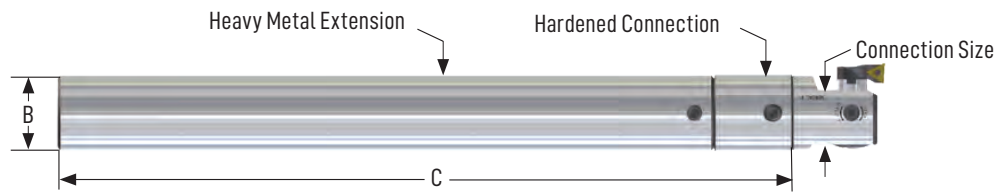
\* Compute "P" dimension by adding all "C" dimensions for all components used.  
Maximum bore depth "D" may be increased by using extension adapters.

## Extensions



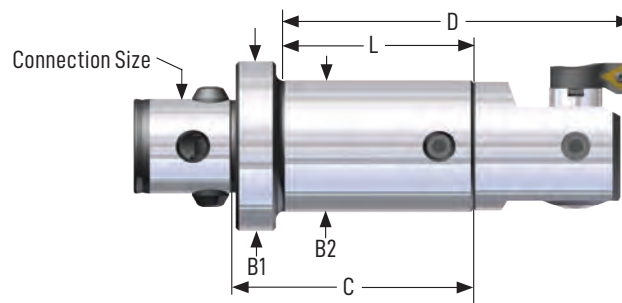
Part #	Connection Size	B	C	Weight (lbs)
PC2-PC2E1	PC2	.94"	1.18"	0.3
PC2-PC2E2	PC2	.94"	1.77"	0.4
PC3-PC3E1	PC3	1.22"	1.18"	0.4
PC3-PC3E2	PC3	1.22"	1.77"	0.5
PC4-PC4E1	PC4	1.54"	1.57"	0.8
PC4-PC4E2	PC4	1.54"	2.36"	1.1
PC5-PC5E2	PC5	1.97"	2.36"	1.9
PC5-PC5E3	PC5	1.97"	3.54"	2.8
PC6-PC6E2	PC6	2.52"	2.36"	3.0
PC6-PC6E4	PC6	2.52"	3.94"	5.0
PC7-PC7E4	PC7	3.54"	3.94"	9.9
PC7-PC7E6	PC7	3.54"	6.30"	17.0

## Heavy Metal Extensions



Part #	Connection Size	B	C	Weight (lbs)
PC2-094HM11	PC2	.94"	11.42"	3.9
PC3-125HM14	PC3	1.25"	13.78"	9.0
PC4-150HM15	PC4	1.50"	14.75"	13.0

## Reducers



Part #	Connection - In	Connection - Out	B1	B2	C	D	L	Weight (lbs)
PC3-PC2R1	PC3	PC2	1.22"	.95"	1.36"	2.36"	.97"	0.4
PC4-PC2R2	PC4	PC2	1.54"	.95"	2.03"	2.95"	1.56"	0.6
PC4-PC3R2	PC4	PC3	1.54"	1.22"	1.85"	2.95"	1.38"	1.0
PC5-PC2R3	PC5	PC2	1.97"	.95"	3.21"	3.94"	2.54"	1.1
PC5-PC3R3	PC5	PC3	1.97"	1.22"	3.03"	3.94"	2.36"	1.3
PC5-PC4R2	PC5	PC4	1.97"	1.54"	2.76"	3.94"	2.09"	1.6
PC6-PC2R3	PC6	PC2	2.52"	.95"	3.76"	4.53"	3.13"	1.8
PC6-PC3R3	PC6	PC3	2.52"	1.22"	3.58"	4.53"	2.95"	2.1
PC6-PC3R5	PC6	PC3	2.52"	1.22"	5.35"	6.30"	4.72"	2.6
PC6-PC4R1	PC6	PC4	2.52"	1.54"	1.93"	3.15"	1.30"	1.7
PC6-PC4R3	PC6	PC4	2.52"	1.54"	3.31"	4.53"	2.68"	1.3
PC6-PC4R5	PC6	PC4	2.52"	1.54"	5.08"	6.30"	4.45"	3.0
PC6-PC5R3	PC6	PC5	2.52"	1.97"	2.91"	4.53"	2.28"	2.8
PC7-PC6R4	PC7	PC6	3.54"	2.52"	4.18"	6.30"	3.50"	7.0

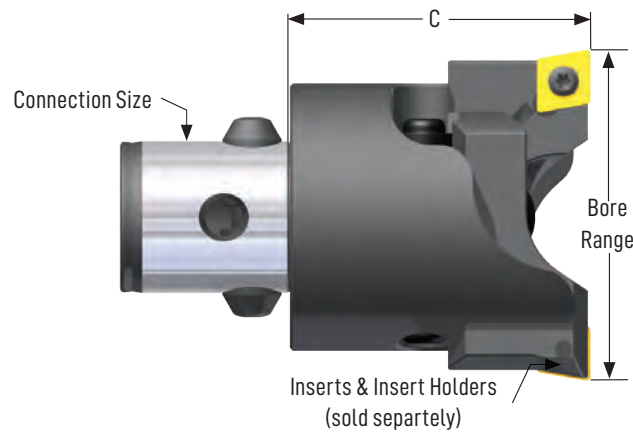
# Precision Modular Boring

## Twin Bore | Roughing System

### Twin Bore Roughing Heads

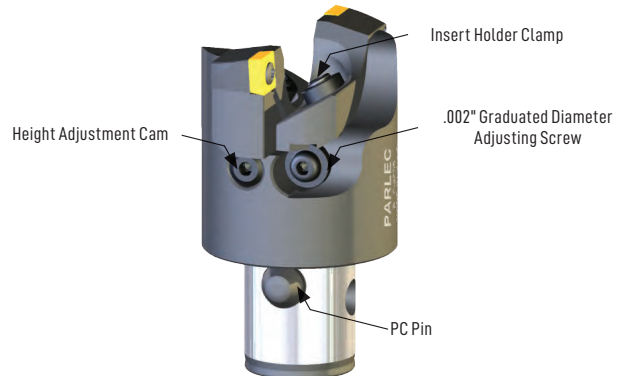
#### FEATURES

- For balanced or step cutting from .95" to over 23"
- Coolant ports direct coolant to the cutting area
- Two insert holders independently adjust for diameter and height



Part #	Bore Range Min.	Bore Range Max.	Connection Size	Inset Holder Size	Body Diameter	C	Weight (lbs)
PC2-4205	.95"	1.31"	PC2	21	.91"	1.39"	0.2
PC2-4205	1.13"	1.48"	PC2	22	.91"	1.39"	0.2
PC3-4305	1.27"	1.70"	PC3	31	1.18"	1.57"	0.4
PC3-4305	1.50"	1.95"	PC3	32	1.18"	1.57"	0.4
PC4-4405	1.58"	2.17"	PC4	41	1.50"	1.85"	0.7
PC4-4405	2.09"	2.53"	PC4	42	1.50"	1.85"	0.7
PC5-4505	2.06"	2.73"	PC5	51	1.93"	2.24"	1.4
PC5-4505	2.58"	3.30"	PC5	52	1.93"	2.24"	1.4
PC6-4605	2.61"	3.48"	PC6	61	2.48"	2.79"	2.8
PC6-4605	3.36"	4.20"	PC6	62	2.48"	2.79"	2.8
PC6-4605	4.10"	4.86"	PC6	63	2.48"	2.79"	2.8
PC6-4606	3.92"	4.84"	PC6	61	3.54"	2.79"	3.9
PC6-4606	4.68"	5.54"	PC6	62	3.54"	2.79"	3.9
PC6-4606	5.44"	6.20"	PC6	63	3.54"	2.79"	3.9
PC7-4705	3.92"	4.84"	PC7	61	3.54"	4.60"	10.6
PC7-4705	4.68"	5.54"	PC7	62	3.54"	4.60"	10.6
PC7-4705	5.44"	6.20"	PC7	63	3.54"	4.60"	10.6

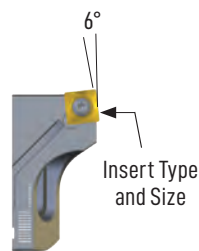
## Twin Boring Head Components



Part #	Diameter Adjustment Screw*	Insert Holder Clamp (Pair)*	Height Adjustment Cam (Pair)*	Wrench Kit*	Spare Kit	PC Pin
PC2-4205	4205-11	4205-12	4205-13	4205-14	4205-10	PCP-002
PC3-4305	4305-11	4305-12	4305-13	4305-14	4305-10	PCP-003
PC4-4405	4405-11	4405-12	4405-13	4405-14	4405-10	PCP-004
PC5-4505	4505-11	4505-12	4505-13	4505-14	4505-10	PCP-005
PC6-4605	4605-11	4605-12	4605-13	4605-14	4605-10	PCP-006
PC6-4606	4605-11	4605-12	4605-13	4605-14	4605-10	PCP-006
PC7-4705	4605-11	4605-12	4605-13	4605-14	4605-10	PCP-007

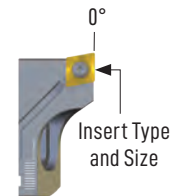
\* Included in spare kit

## Twin Bore Insert Holders



**Style 1: For use with SCMT Inserts** – Square SCMT insert holders have a 6° lead angle for through-hole boring or extreme core shifts

Part #	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench	Weight (lbs)
4305-31S09	31	SCMT 09	028-906	018-008	0.1
4405-41S09	41	SCMT 09	028-906	018-008	0.2
4505-51S12	51	SCMT 12	028-907	018-009	0.3
4605-61S12	61	SCMT 12	028-907	018-009	0.6
4605-62S12	62	SCMT 12	028-907	018-009	0.8
4606-63S12	63	SCMT 12	028-907	018-009	1.0



**Style 2: For use with CCMT Inserts** – Diamond CCMT insert holders for boring to a square bottom or deep bore depths

Part #	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench	Weight (lbs)
4205-21C06	21	CCMT 06	028-925	018-007	0.1
4205-22C06	22	CCMT 06	028-905	018-007	0.1
4305-31C06	31	CCMT 06	028-905	018-007	0.1
4305-32C06	32	CCMT 06	028-905	018-007	0.1
4405-41C09	41	CCMT 09	028-905	018-008	0.2
4405-42C09	42	CCMT 09	028-906	018-008	0.2
4505-51C12	51	CCMT 12	028-906	018-009	0.3
4505-52C12	52	CCMT 12	028-907	018-009	0.4
4605-61C12	61	CCMT 12	028-907	018-009	0.6
4605-62C12	62	CCMT 12	028-907	018-009	0.8
4605-63C12	63	CCMT 12	028-907	018-009	1.0

# Precision Modular Boring

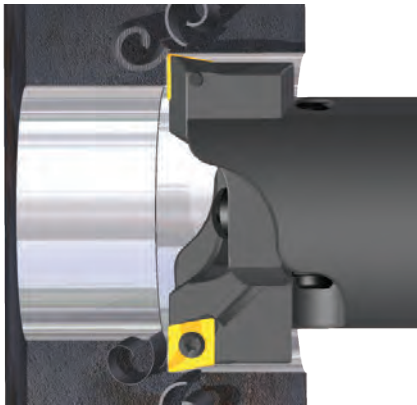
## Adjusting | Balanced Cutting



Balanced cutting allows both cutting edges to work simultaneously. A properly balanced twin cutter may be fed at almost four times the rate of a single cutter. Make sure the height cam is located with the reference mark (lowest point) in the vertical position as shown.

1. Loosen the insert holder clamps. Re-tighten enough to put drag on the insert holder.
2. Adjust the diameter by turning the adjusting screw. Always adjust in the clockwise direction.
3. Tighten the insert holder clamps.
4. Repeat for the second insert holder, adjusting both to  $\pm .001"$  (.025) on the diameter.

Balanced cutting occurs when both inserts are set to exactly the same height. This height balancing is much more important than diametric balancing. A slight difference in height, even that caused by the insert tolerance, can have a dramatic effect upon the tool's performance. This is particularly true in the case of long chipping materials.



### EXAMPLE OF UNBALANCED CUT:

- Feed rate .016 IPR (.4mm per rev).
- Insert "A" is .003" (.08) higher than insert "B." (The tolerance on an M style insert is .002"-.004".) (.05-.1)
- The material removed by insert "A" is .008" (.2) + .003" (.08) = .011" (2.8)
- The material removed by insert "B" is .008" (.2) + .003" (.08) = .005" (.12)
- The chip taken by insert "A" is over twice as thick as that taken by insert "B".

The difference in cutting forces caused by the differences in insert height illustrated above can have the following effects on the bar's performance:

1. Possible wobble or chatter; extra load on the machine tool;
2. Generally, the bore diameter becomes larger than the set diameter;
3. Uniform chip formation is not possible, making it difficult to break and clear chips.



Chip A

Chip B

### Maximum Allowable Setting Difference - For best performance

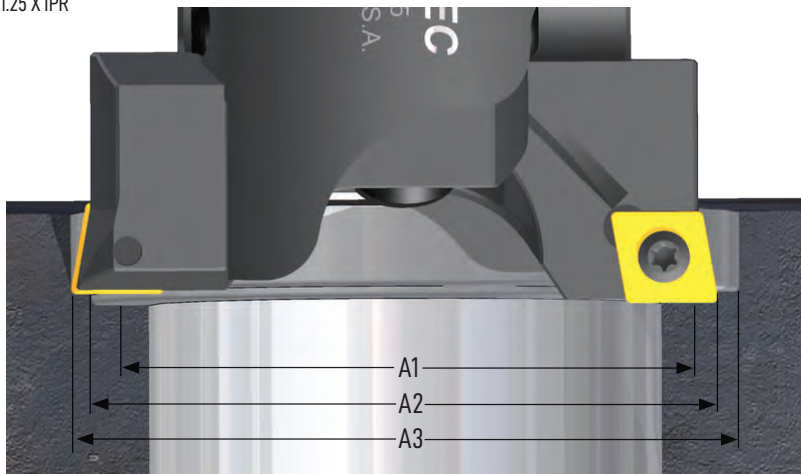
Bore Diameter Range (mm)	Insert Height (mm)	Cutting Diameter (mm)
.95 - 1.31" (24.1 - 33.3)	.001 (.025)	.008 (.2)
1.26 - 1.74" 32.3 - 43.2)	.001 (.025)	.012 (.3)
1.58 - 2.17" (40 - 55.1)	.001 (.025)	.012 (.3)
2.06 - 2.83" (52.4 - 69.3)	.002 (.05)	.016 (.4)
2.61 - 6.00" (66.3- 150)	.002 (.05)	.016 (.4)
6.00"+ (150+)	.002 (.05)	.020 (.5)



## Adjusting | Stepped Cutting

Stepped cutting is utilized when heavy depth of cut is required. The inserts are set at different diameters. The insert cutting the smaller diameter is given axial lead 1.25 times greater than the feed per revolution over the other insert. Use only insert holders with 0° lead. Stepped cutting allows 1.75 x the depth of cut per tables on page 40. Feed rates must be reduced to .5 x appropriate value.

Lead = 1.25 X IPR



### RULES OF STEPPED CUTTING

1. Use insert holders with 0° lead.
2. Set height in inner cutting edge to provide lead 1.25 times greater than the feed per revolution.
3. Feed rate as roughing with a single cutter.
4. Remove half of the material to be removed with each insert. This should be sufficient for most applications.

**TO BALANCE CUTTING FORCES, USE THE FORMULA BELOW**

$$A2 = .7071 (\sqrt{A3^2 - A1^2})$$

A1 – Hole starting diameter

A2 – Inside cutter set diameter

A3 – Outside cutter set diameter

**Stepped cutting allows removal of more metal since each insert is set at a different diameter.**

1. Make sure the height cam is located with the reference mark in the vertical position as shown.
2. Loosen the insert holder clamps. Re-tighten enough to put drag on the insert holder.
3. Adjust the diameter by turning the adjusting screw. Always adjust in the clockwise direction. Set the diameter of each insert to remove approximately one half the material.
4. Using the cam screw, adjust the inner cutting edge so that it has a lead over the outer cutting edge. This lead should be a minimum of 1 1/2 times the feed per revolution.
5. Tighten the insert holder clamps.

**NOTE:** When using stepped cutting, the feed rate must be that of a single cutter.

### Recommended Tightening Torque - in/lbs.

Rough Head	Insert Holder	PC Screw
PC2-4205	12 (1.3 Nm)	36 (4.1 Nm)
PC3-4305	36 (4.1 Nm)	48 (5.5 Nm)
PC4-4405	48 (5.5 Nm)	72 (8.3 Nm)
PC5-4505	72 (8.3 Nm)	96 (11.1 Nm)
PC6-4605	72 (8.3 Nm)	120 (13.9 Nm)

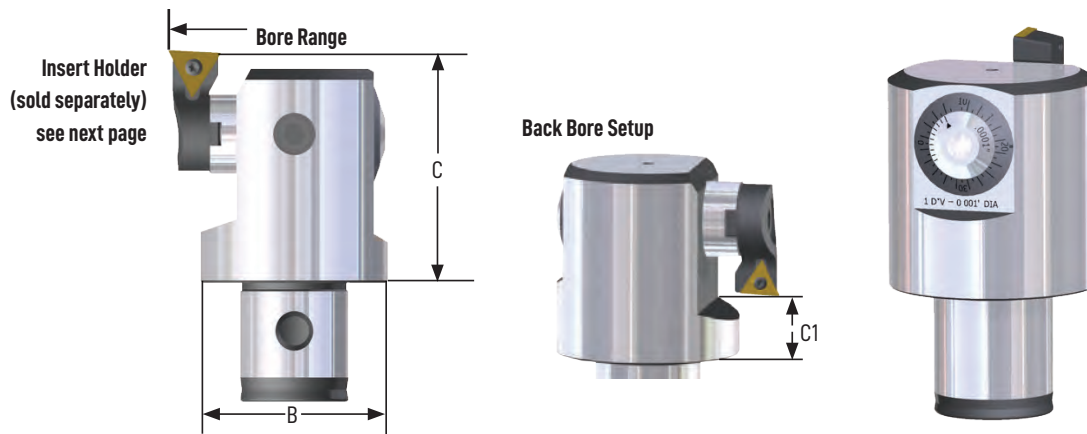
# Precision Modular Boring

## Precision Finish | Boring System

### Finish Boring Heads

#### FEATURES

- Precise, repeatable diameter adjustments to 0.0001"
- Coolant port directs coolant to the cutting area
- Wide work range from .984" to 8.220"



Part #	Insert Holder (Sold Separately)	Bore Range Minimum	Bore Range Maximum	Connection Size	Insert Holder Size	B Diameter	C	C1	Insert Clamp Holder	Insert Type and Size	Weight (lbs)
PC2-3215	321-T06-3	.984"	1.300"	PC2	2	.925"	1.48"	.61"	3215-01	TCMT 06	0.3
PC2-3215	322-T06-3	1.254"	1.570"	PC2	2	.925"	1.48"	.61"	3215-01	TCMT 06	0.3
PC2-3215	323-T06-3	1.534"	1.850"	PC2	2	.925"	1.48"	.61"	3215-01	TCMT 06	0.3
PC3-3315	331-T06-3	1.240"	1.654"	PC3	3	1.201"	1.61"	.54"	3315-01	TCMT 06	0.5
PC3-3315	332-T06-3	1.586"	2.000"	PC3	3	1.201"	1.61"	.54"	3315-01	TCMT 06	0.5
PC3-3315	333-T06-3	1.946"	2.360"	PC3	3	1.201"	1.61"	.54"	3315-01	TCMT 06	0.5
PC4-3415	341-T11-3	1.614"	2.216"	PC4	4	1.496"	1.85"	.51"	3415-01	TCMT 11	0.8
PC4-3415	342-T11-3	1.968"	2.480"	PC4	4	1.496"	1.85"	.51"	3415-01	TCMT 11	0.8
PC4-3415	343-T11-3	2.398"	2.910"	PC4	4	1.496"	1.85"	.51"	3415-01	TCMT 11	0.8
PC5-3515	351-T11-3	2.087"	2.756"	PC5	5	1.929"	2.24"	.62"	3515-01	TCMT-11	1.6
PC5-3515	352-T11-3	2.551"	3.220"	PC5	5	1.929"	2.24"	.62"	3515-01	TCMT-11	1.6
PC5-3515	353-T11-3	3.071"	3.740"	PC5	5	1.929"	2.24"	.62"	3515-01	TCMT-11	1.6
PC6-3615	361-T11-3	2.677"	4.000"	PC6	6	2.480"	2.79"	.90"	3615-01	TCMT-11	4.1
PC6-3615	362-T11-3	3.637"	4.960"	PC6	6	2.480"	2.79"	.90"	3615-01	TCMT-11	4.1
PC6-3615	363-T11-3	4.577"	5.900"	PC6	6	2.480"	2.79"	.90"	3615-01	TCMT-11	4.1
PC6-3715	361-T11-3	3.937"	6.000"	PC6	6	3.740"	3.35"	1.45"	3615-01	TCMT-11	7.0
PC6-3715	362-T11-3	4.970"	7.040"	PC6	6	3.740"	3.35"	1.45"	3615-01	TCMT-11	7.0
PC6-3715	363-T11-3	6.157"	8.220"	PC6	6	3.740"	3.35"	1.45"	3615-01	TCMT-11	7.0

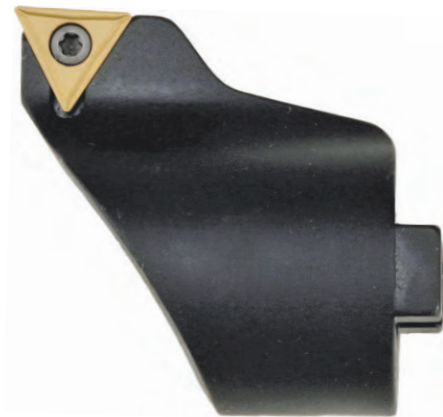
## Insert Holders



Extension  
Style 1



Extension  
Style 2



Extension  
Style 3

3° Part #	Insert Holder Size	Extension Style	Insert Type and Size	Insert Screw	Insert Screw Wrench
321-T06-3	2	1	TCMT 06	028-910	018-002
322-T06-3	2	2	TCMT 06	028-910	018-002
323-T06-3	2	3	TCMT 06	028-910	018-002
331-T06-3	3	1	TCMT 06	028-910	018-002
332-T06-3	3	2	TCMT 06	028-910	018-002
333-T06-3	3	3	TCMT 06	028-910	018-002
341-T11-3	4	1	TCMT 11	028-905	018-007
342-T11-3	4	2	TCMT 11	028-905	018-007
343-T11-3	4	3	TCMT 11	028-905	018-007
351-T11-3	5	1	TCMT 11	028-905	018-007
352-T11-3	5	2	TCMT 11	028-905	018-007
353-T11-3	5	3	TCMT 11	028-905	018-007
361-T11-3	6	1	TCMT 11	028-905	018-007
362-T11-3	6	2	TCMT 11	028-905	018-007
363-T11-3	6	3	TCMT 11	028-905	018-007

# Precision Modular Boring

## CONFIGURATION

Insert Holder mounted in the standard boring position.



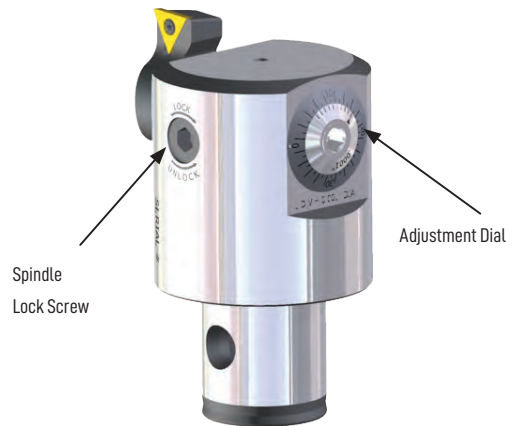
## ASSEMBLY

Install the Insert Holder to the Spindle using the Insert Holder Screw.



## ADJUSTMENT

1. Loosen the Spindle Lock Screw.
2. Adjust tool by turning and reading the dial. The dial is graduated in increments of .001" per graduation on the diameter. Fine adjustment of .0001" can be made utilizing the Vernier Scale.
3. Tighten the Spindle Lock Screw.



## Tightening Torque - Maximum

Head	Insert Holder Clamp	Slide Lock
2	11 in. lbs.(1 Nm)	5 in. lbs. (0.5 Nm)
3	20 in. lbs. (2.2 Nm)	13 in. lbs. (1.5 Nm)
4	25 in. lbs. (2.8 Nm)	22 in. lbs. (2.5 Nm)
5	50 in. lbs. (5.6 Nm)	50 in. lbs. (5.6 Nm)
6	130 in. lbs. (14.7 Nm)	85 in. lbs. (10 Nm)
7	130 in. lbs. (14.7 Nm)	85 in. lbs. (10 Nm)



## USING THE VERNIER SCALE

Find the line in the vernier scale that exactly lines up with a reference line.

Diametral increases in .001" are made by adjusting the Dial clockwise one full line on the fixed scale.

Diametral increases in .0001" are made by adjusting the Dial clockwise until the appropriate line on the vernier scale lines up with the next fixed scale reference line.

This Example Shows .001" Adjustment



Before adjustment

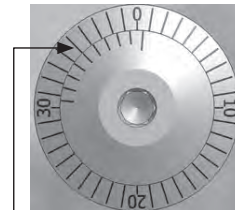


After adjustment

This Example Shows .0005" Adjustment

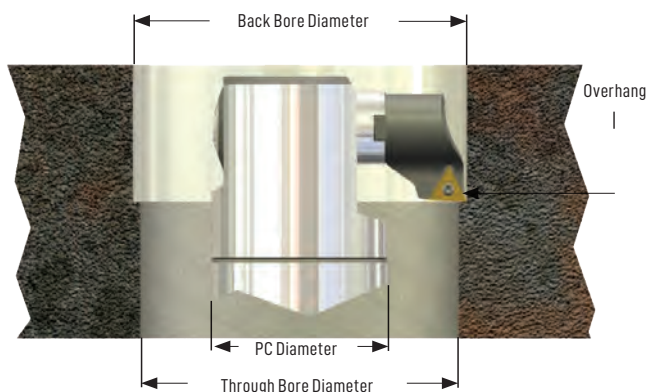


Before adjustment



After adjustment

## CALCULATING BACK BORE RANGE



- **Back Bore Diameter** is the same as "Bore Range" in the chart on page 144.
- **Minimum Through Bore Diameter** is calculated:  
 $(PC\ Diameter/2) + (Back\ Bore\ Diameter/2) +$   
minimal clearance (.010)
- **Overhang** of insert from boring bar connection should be measured to make sure there is enough clearance. Calculate  $(Back\ Bore\ Diameter - Through\ Bore\ Diameter)/2$

# Precision Modular Boring

## Finish Boring | Speeds

### Effects of Cutting Speed

Variable	Low Speed	High Speed
Machining Time	Longer	Shorter
Surface Finish	Coarser	Finer
Probability of Vibration	Lower	Higher

**330 BHN = Rc: 35**  
**250 BHN = Rc: 24-25**  
**220 BHN = Rc: 20**

### Recommended Finishing Speed for Steel

Steels	BHN	TR / TT / SN	C1 / C2	AL	AS	TE
Carbon Steel C = 0.15%	125	550-750	600-800	150-350	650-1000	950-1300
Carbon Steel C = 0.35%	150	525-800	600-800	150-350	625-950	850-1200
Carbon Steel C = 0.70%	180-250	425-625	550-750	150-250	500-750	750-950
Alloy Steel 4000	125-200	425-625	550-750	150-250	500-750	750-950
Alloy Steel 5000	225	250-500	350-525	150-250	300-600	400-650
Alloy Steel 8000	300	200-400	300-525	100-200	350-475	400-500
Stainless Steel, Annealed 400 SERIES	150-270	400-625	400-600	150-250	475-750	425-650
Stainless Steel, Annealed 300 SERIES	150-220	450-550	350-500	150-300	550-650	425-650
Cast Steel, Low Carbon	150	325-450	450-650	100-250	400-550	475-600
Cast Steel, Low Alloy	150-250	250-350	250-400	100-250	300-425	400-575
Cast Steel, High Alloy	160-250	-	250-400	75-250	-	400-500

All values are in SFM

### Other Materials

Material	BHN	TR / TT / SN	C1 / C2	AL	AS	TE
Malleable Cast Iron, Ferritic	110-150	525-700	300-450	600-1100	700-1000	-
Malleable Cast Iron, Pearlitic	150-270	250-400	200-250	600-1000	300-750	-
Grey Cast Iron, Low Tensile	150-220	525-800	325-525	400-1200	600-1600	-
Grey Cast Iron, High Tensile	200-330	350-600	225-400	400-900	350-900	-
Nodular Iron, Ferritic	125-230	300-500	300-400	400-950	450-900	-
Nodular Iron, Pearlitic	200-300	250-400	200-350	400-700	350-700	-
Aluminum Alloys	30-120	-	600-3000	-	-	-
Aluminum Alloys, Cast	100-130	-	600-3000	-	-	-
Extra Hard Steel	50-65RC	-	60-120	-	-	-
Waspalloy, Disalloy, Incoloy	180-250	-	50-200	-	-	150-350
Monel, Inconel	125-250	-	45-90	-	-	90-300







All values are in SFM. Feed rates .002 - .008 IPR. For best finish, feed rate should be approximately 25% of Insert Nose radius. Refer to next page.

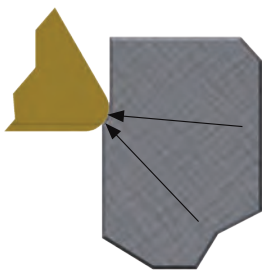
## Finish Boring | Feeds

### EFFECTS OF FINISH SPEED RATE

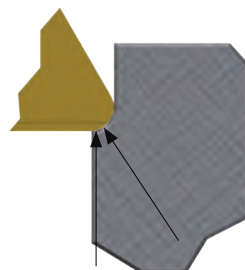
The best surface finish is produced when the tool is fed at approximately 25% of the tool nose radius. The effect of chip formation of the feed rate and depth of cut is illustrated below.

### Finish Feed Rate Effects

Feed Rates/Depth of Cut	Result	Chip Form	C1 / C2
Low	Bird's Nest Chips Difficult to remove		1. Increase Depth of Cut 2. Increase Feed Rate
Moderately Low	Long Stringy Chips Difficult to remove		1. Increase Depth of Cut 2. Increase Feed Rate
Ideal	Coil Spring Chips Easy to remove		Keep Running
Slightly Heavy	Slight Deformation of Chip		If Finish is Bad, Decrease Speed
Heavy	Deformation of Chip Increased cutting forces		If Finish is Bad, Decrease Speed
Very Heavy	Severe Deformation of Chip Increased cutting forces Heat build up		If Finish is Bad, Decrease Speed Good Chip for Roughing



Small Depth of cut allows cutting forces to push insert out of cut.



Depth of cut is large enough to prevent cutting forces from pushing insert out of cut.

A .016 nose radius insert fed at .004 IPR produces a finish as shown at the right:

A .016 nose radius insert fed at .008 IPR produces a finish as shown at the right:

A .016 nose radius insert fed at .016 IPR produces a finish as shown at the right:

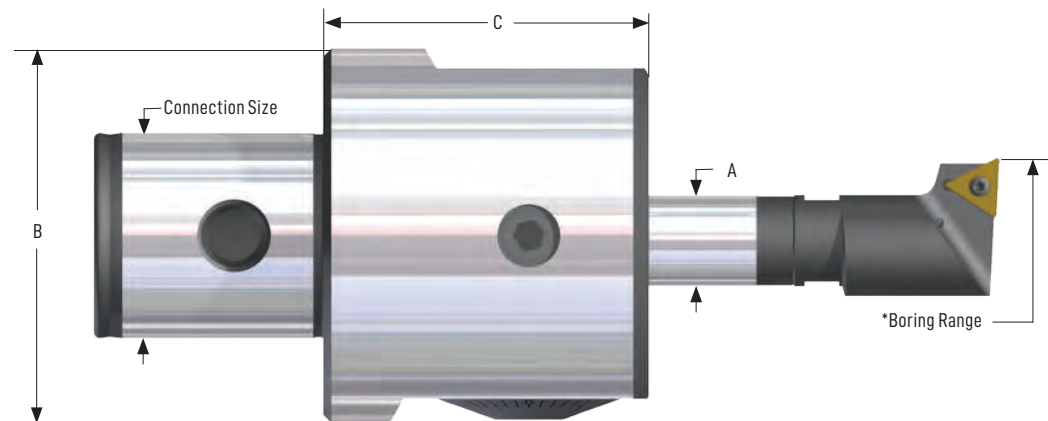
# Precision Modular Boring

## Small Diameter | Boring System

### Small Diameter Balanceable Boring Heads

#### FEATURES

- Precise, repeatable diameter adjustment to 0.0001"
- Wide work range from .078" to 1.89"
- Coolant port directs coolant to the cutting area
- Bored-through tool receiver allows boring tool to be telescoped for maximum rigidity
- Easy-to-use balancing system permits vibration-free high-speed boring



#### Inch Graduation

Part #	Bore Range Min.	Bore Range Max.	Connection Size	Adjustment Diameter	A	B	C	Weight (lbs)
PC4-20SDE50B	.078"	.790"	PC4	.200"	1/2"	2.00"	1.874"	1.00
PC6-20SDE62B	.078"	1.890"	PC6	.315"	5/8"	2.58"	2.24"	3.15

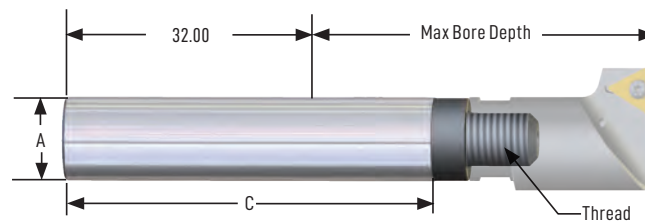


## Modular Boring | Noses & Bars



### Modular Boring Noses

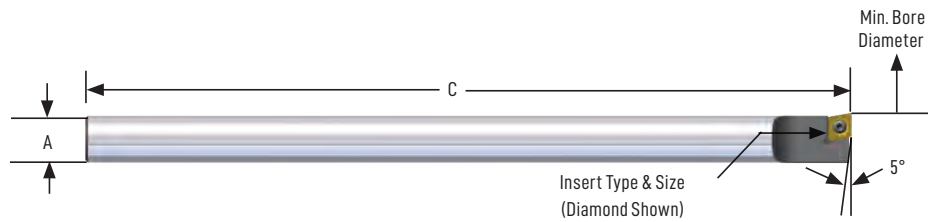
Part #	Min. Dia.	Max. Dia.	Extended Max. Dia.	Insert Size	Insert Screw	Insert Screw Wrench (sold separately)	Use w/ Bar Size	Wrench Size
BN8X9	.354"	.512"	.669"	TCMT 06	029-910	018-002	8 mm	6 mm
BN10X13	.512"	.669"	.827"	TCMT 06	029-910	018-002	10 mm	8 mm
BN12X17	.669"	.827"	.984"	TCMT 11	812-458	018-007	12 mm	10 mm
BN14X21	.827"	.984"	1.142"	TCMT 11	812-458	018-007	14 mm	12 mm
BN16X25	.984"	1.142"	1.299"	TCMT 11	028-905	018-007	16 mm or 5/8"	14 mm
BN16X29	1.142"	1.299"	1.457"	TCMT 11	028-905	018-007	16 mm or 5/8"	14 mm
BN16X33	1.299"	1.457"	1.614"	TCMT 11	028-905	018-007	16 mm or 5/8"	14 mm
BN16X37	1.457"	1.614"	1.772"	TCMT 11	028-905	018-007	16 mm or 5/8"	14 mm
BN16X41	1.614"	1.772"	1.890"	TCMT 11	028-905	018-007	16 mm or 5/8"	14 mm



### Modular Boring Bars

Part #	Material	A	Reduction Bushing Size	C	Min. Clamping Length	Max. Bore Depth	Thread
BSS8	Steel	8 mm	XXRB-08MM	2.83"	32 mm	1.57"	M5
BSC8	Carbide	8 mm	XXRB-08MM	3.78"	32 mm	2.52"	M5
BSS10	Steel	10 mm	XXRB-10MM	3.78"	32 mm	2.52"	M6
BSC10	Carbide	10 mm	XXRB-10MM	4.41"	32 mm	3.15"	M6
BSS12	Steel	12 mm	XXRB-12MM	3.82"	32 mm	2.56"	M6
BSC12	Carbide	12 mm	XXRB-12MM	5.04"	32 mm	3.78"	M6
BSS14	Steel	14 mm	XXRB-14MM	4.02"	32 mm	2.76"	M6
BSC14	Carbide	14 mm	XXRB-14MM	5.67"	32 mm	4.02"	M6
BSS16	Steel	16 mm	-	4.41"	32 mm	2.78"	M10
BSC16	Carbide	16 mm	-	6.46"	32 mm	4.41"	M10
BSS625	Steel	5/8"	-	4.41"	32 mm	3.15"	M10
BSC625	Carbide	5/8"	-	6.46"	32 mm	5.20"	M10

# Precision Modular Boring

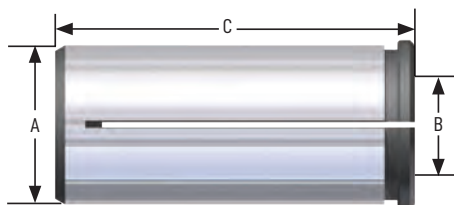


## Boring Bars - Inch Diameter

Part #	Coolant Part #	Bore Dia. Min.	Bore Dia. Max.	Reduction Bushing*	Max. Bore Depth	A	C	Bar Material	Insert Type and Size	Insert Screw	Insert Screw Wrench
CB15-18C056	CB-18C056C	.188"	.218"	XXRB-156	1.50"	5/32"	6.00"	Carbide	CD CD 05	028-919	018-002
SB18-18C052	-	.188"	.218"	XXRB-187	.50"	3/16"	2.50"	Steel	CD CD 05	028-919	018-002
CB18-21C054	-	.218"	.232"	XXRB-187	2.00"	3/16"	4.00"	Carbide	CD CD 05	028-919	018-002
SB18-23C052	-	.232"	.300"	XXRB-187	1.00"	3/16"	2.52"	Steel	CD CD 05	028-919	018-002
CB18-23C054	CB18-23C054C	.232"	.300"	XXRB-187	2.00"	3/16"	4.00"	Carbide	CD CD 05	028-919	018-002
SB18-28T053	-	.280"	.300"	XXRB-187	1.00"	3/16"	3.50"	Steel	TDAB 05	028-920	018-007
CB18-29T054	CB18-29T054C	.290"	.310"	XXRB-187	2.00"	3/16"	4.00"	Carbide	TDAB 05	028-920	018-007
SB25-29C053	-	.290"	.310"	XXRB-250	1.25"	1/4"	3.00"	Steel	CD CD 05	028-919	018-002
SB25-30T054	-	.300"	.362"	XXRB-250	1.25"	1/4"	4.00"	Steel	TDAB 05	028-920	018-007
CB25-30C054	CB25-30C054C	.300"	.362"	XXRB-250	2.50"	1/4"	4.00"	Carbide	CD CD 05	028-919	018-002
CB25-31T054	CB25-31T054C	.310"	.372"	XXRB-250	2.50"	1/4"	4.00"	Carbide	TDAB 05	028-920	018-007
SB31-36T054	-	.362"	.430"	XXRB-312	1.75"	5/16"	4.00"	Steel	TDAB 05	028-920	018-007
CB31-37T056	CB31-37T056C	.372"	.440"	XXRB-312	3.25"	5/16"	6.00"	Carbide	TDAB 05	028-920	018-007
SB37-43T105	SB37-43T105C	.430"	.580"	XXRB-375	2.00"	3/8"	5.00"	Steel	TPGH 11	028-921	018-003
CB37-44T107	CB37-44T107C	.440"	.590"	XXRB-375	4.00"	3/8"	7.00"	Carbide	TPGH 11	028-921	018-003
SB50-58T106	SB50-58T106C	.580"	.717"	XXRB-500	2.50"	1/2"	5.00"	Steel	TPGH 11	028-921	018-003
CB50-59T107	CB50-59T107C	.590"	.717"	XXRB-500	5.00"	1/2"	7.00"	Carbide	TPGH 11	028-921	018-003
SB62-71T117	SB62-71T117C	.717"	1.000"	-	3.50"	5/8"	7.00"	Steel	TPGH 11	028-921	018-003
CB62-71T118	CB62-71T118C	.717"	1.000"	-	6.00"	5/8"	8.00"	Carbide	TPGH 11	028-921	018-003
-	SB62-83T114C	.830"	1.450"	-	2.50"	5/8"	4.00"	Steel	TPGH 11	028-921	018-003
-	CB62-83T117C	.830"	1.450"	-	3.50"	5/8"	7.00"	Carbide	TPGH 11	028-921	018-003
-	SB62-83T114C	.830"	1.450"	-	2.50"	5/8"	4.00"	Steel	TPGH 11	028-921	018-003

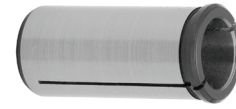
\* Replace XX with 50 for 1/2" OD bushing or 62 for 5/8" OD bushing

## Reduction Bushings for Inch Boring Bars



Part #	A	B	C
50RB-156	1/2"	5/32"	1.18"
50RB-187	1/2"	3/16"	1.18"
50RB-250	1/2"	1/4"	1.18"
50RB-312	1/2"	5/16"	1.18"
50RB-375	1/2"	3/8"	1.18"
62RB-156	5/8"	5/32"	1.42"
62RB-187	5/8"	3/16"	1.42"
62RB-250	5/8"	1/4"	1.42"
62RB-312	5/8"	5/16"	1.42"

# Precision Modular Boring

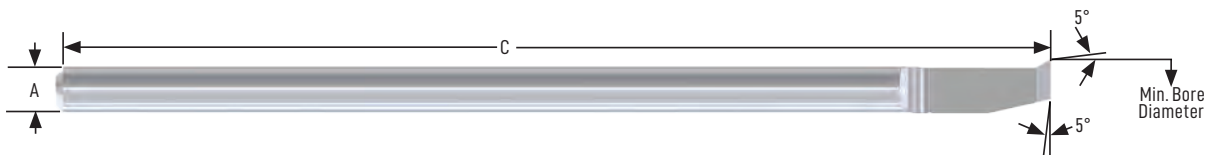


## Boring Nose Wrenches

Part #	Size (mm)
894 6	6
894 8	8
894 10	10
894 14	12
894 16	14

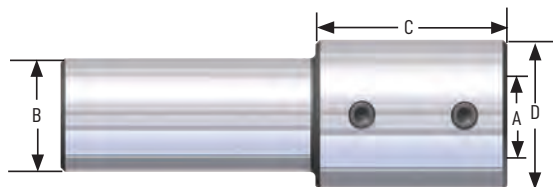
## Reduction Bushings for Modular Boring Bars

Part #	Description
62RB-08MM	5/8" to 8 mm
62RB-10MM	5/8" to 10 mm
62RB-12MM	5/8" to 12 mm
62RB-14MM	5/8" to 14 mm



## Boring Bars - Metric Diameter

Part #	Bore Dia. Min. (mm)	Bore Dia. Max. (mm)	Boring Bar Holder	Max. Bore Depth (mm)	A (mm)	C (mm)	Bar Material
CB2-078-393-AL41F	2	3	12RBX-04MM	10	4	24	Coated Carbide
CB3-118-590-AL41F	3	4	12RBX-04MM	15	4	30	Coated Carbide
CB4-157-787-AL41F	4	5	12RBX-04MM	20	4	34	Coated Carbide



## Metric Boring Bar Holder

Part #	A (mm)	B (mm)	C (mm)
12RBX-04MM	4	12	75

# Precision Modular Boring

## Boring Kit | Small Diameter

### FEATURES

- Part #: BTK-PC6S948B
- Boring range from .354" - 1.890"



### Kit Includes:

#### Boring Head

Part #	Qty	Connection Size
PC6-20SDE62B	1	PC6

#### Boring Noses

Part #	Qty	Description
BN8X9	1	TCMT06
BN10X13	1	TCMT06
BN12X17	1	TCMT11
BN4X21	1	TCMT11
BN16X25	1	TCMT11
BN16X29	1	TCMT11
BN16X33	1	TCMT11
BN16X37	1	TCMT11
BN16X41	1	TCMT11

#### Boring Bars

Part #	Qty	Description
BSS8	1	8 mm, steel
BSS10	1	10 mm, steel
BSS12	1	12 mm, steel
BSS14	1	14 mm, steel
BSS625	1	5/8", steel

#### Inserts

Part #	Qty	Insert Size
T061615TTP	4	TCMT 06
T060820C2G	4	TCMT 06
T111615TTP	4	TCMT 11
T111620C2G	4	TCMT 11

#### Wrenches

Part #	Qty	Description
018-105	1	5mm Hex T-handle
018-206	1	6 mm Hex Short Arm
018-002	1	T6 Torx
018-007	1	T7 Torx
894 6	1	6 mm wrench
894 8	1	8 mm wrench
894 10	1	10 mm wrench
894 12	1	12 mm wrench
894 14	1	14 mm wrench

#### Reduction Bushings

Part #	Qty	Description
62RB-08MM	1	5/8" to 8 mm
62RB-10MM	1	5/8" to 10 mm
62RB-12MM	1	5/8" to 12 mm
62RB-14MM	1	5/8" to 14 mm

#### Boring Case

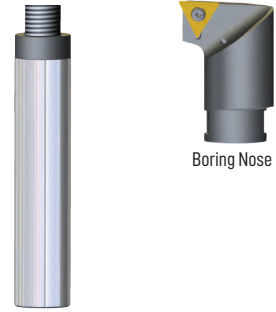
Part #	Qty	Description
902.152	1	Boring Tool Kit Case

#### Shanks

Order shanks separately. See pages xxx-xxx

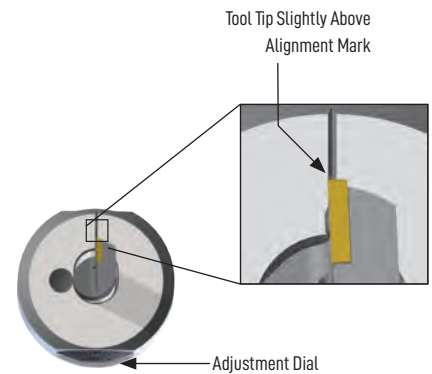
## ASSEMBLY

1. Screw boring nose onto boring bar shank.
2. Loosen the clamp screws.
3. Insert boring bar shank and reduction bushings (if applicable) with the slots 90° to clamp screws. Note: Do not use boring bars with flats.
4. Rotate the boring bar shank to align the insert tip to the alignment mark atop the boring head body. The bar should be slightly above the alignment mark for best timing.  
Note: Adjusting the position of the insert tip adjusts the "timing" of the bar which optimizes the surface finish and performance.
5. Adjust the boring bar to the minimum desired length.
6. Tighten the clamp screws, Max 20 ft/lbs. (1.13 Nm)



Boring Bar Shank

Boring Nose

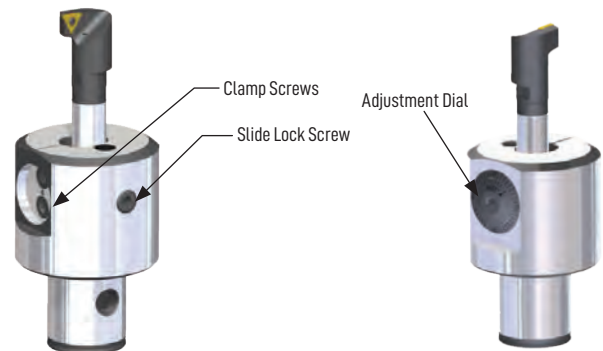


Tool Tip Slightly Above Alignment Mark

Adjustment Dial

## ADJUSTMENT

1. Loosen the slide lock screw.
2. Adjust tool position by turning and reading the dial. The dial is graduated in increments of .001" per graduation on the diameter. Fine adjustments of .0001" can be made utilizing the Vernier Scale. (See pg. 147 for instructions on using the Vernier Scale)
3. Tighten the slide lock screw, Max 10 ft/ lbs. (1.13 Nm)



Clamp Screws

Adjustment Dial

Slide Lock Screw

## MAINTENANCE

The internal components are self lubricating. To insure long service life, light spindle or machine oil may be applied to external moving parts. No further maintenance is required.

## Torque Specifications

Slide Lock Screw	Clamp Screw
10 ft/ lbs (1.13 Nm)	20 ft/ lbs (2.23 Nm)

# Precision Modular Boring

## BALANCE CONFIGURATION CHART

Use outlined configurations to achieve a range of boring diameters.  
(See balancing chart)

Balance Configuration - 0

Balance Configuration - 1

Balance Configuration - 2

Balance Configuration - 3

Balance Configuration - 4

Balance Configuration - 5

Balance Configuration - 6

Balance Configuration - 7

Balance Configuration - 8

No Weights

Balance Configuration - 9

For best balance results, shorten bars overall length

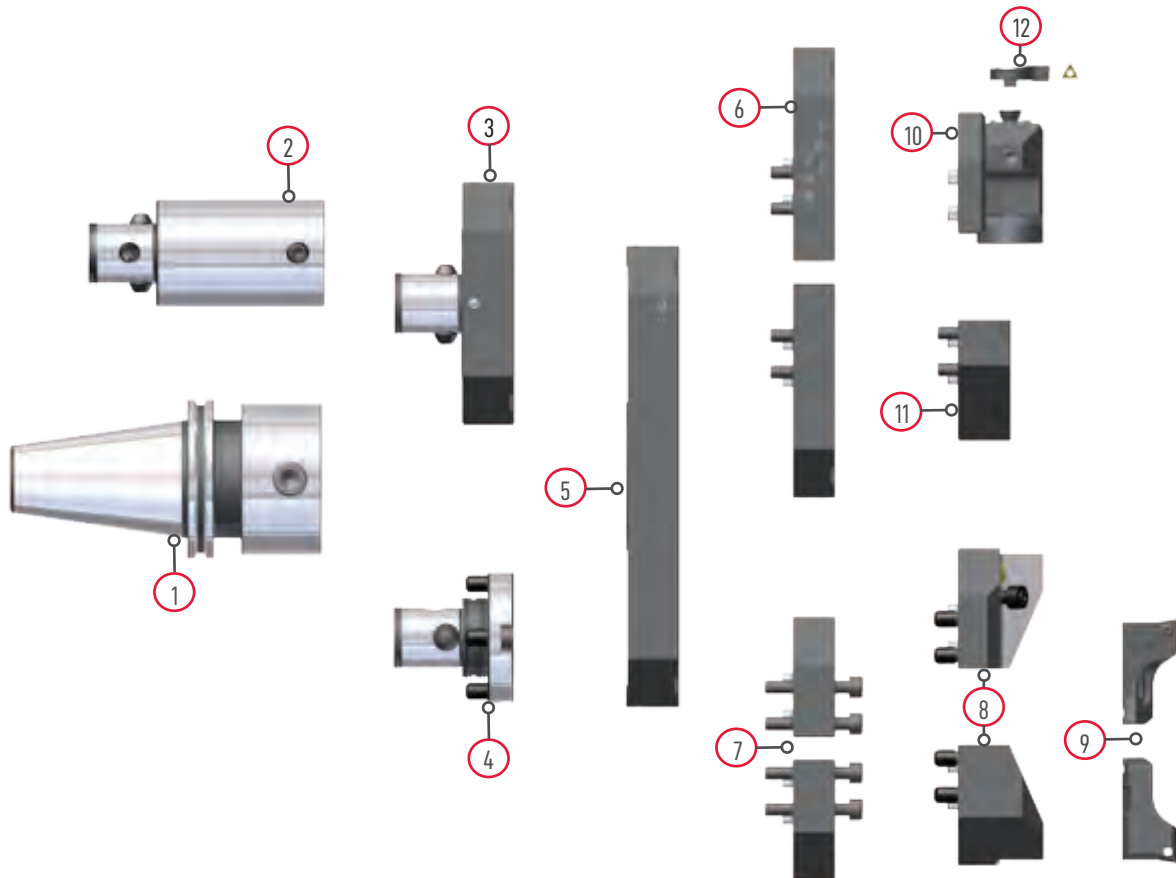
### \*\*Carbide Boring Bars

Part Number	OAL" (mm)
BSC8	2.60 (66)
BSC10	3.18 (81)
BSC12	3.50 (89)
BSC14	3.94 (100)
BSC16	4.68 (119)
BSC62	4.68 (119)

## BALANCING CHART

Diameter Range	Preferred Range		Extended Range		Preferred Range		Extended Range	
	Boring Bar Shank / Nose	Balance Configuration	Boring Bar Shank / Nose	Balance Configuration	Boring Bar Shank / Nose	Balance Configuration	Boring Bar Shank / Nose	Balance Configuration
9	0.35	0						
9.5	0.37	0			BSC8 / BN8X9	0		
10	0.39	1				1		
10.5	0.41	1				2		
11	0.43	2				2		
11.5	0.45	2				3		
12	0.47	3				3		
12.5	0.49	3				4		
13	0.51	0		4		0		
13.5	0.53	1		5		1		
14	0.55	2		5		1		
14.5	0.57	2		6		2		
15	0.59	3		6		3		
15.5	0.61	3		6		3		
16	0.63	4		7		4		
16.5	0.65	4		8		5		
17	0.67	0		5		0		
17.5	0.69	1		5		1		
18	0.71	1		6		1		
18.5	0.73	2		6		2		
19	0.75	2		7		3		
19.5	0.77	3		8		4		
20	0.79	3		8		4		
20.5	0.81	4		9		5		
21	0.83	0		5		0		
21.5	0.85	1		5		1		
22	0.87	1		6		2		
22.5	0.89	2		6		3		
23	0.91	3		7		4		
23.5	0.93	3		7		4		
24	0.94	4		8		5		
24.5	0.96	4		9		6		
25	0.98	0		5		0		
25.5	1.00	1		6		1		
26	1.02	1		6		2		
26.5	1.04	2		7		3		
27	1.06	3		8		4		
27.5	1.08	3		8		6		
28	1.10	4		9		7		
28.5	1.12	5		9		8		
29	1.14	0		5		0		
29.5	1.16	1		6		1		
30	1.18	2		7		2		
30.5	1.20	2		7		3		
31	1.22	3		8		4		
31.5	1.24	3		8		6		
32	1.26	4		9		7		
32.5	1.28	5		9		8		
33	1.30	0		6		0		
33.5	1.32	1		6		1		
34	1.34	1		7		2		
34.5	1.36	2		8		3		
35	1.38	3		8		5		
35.5	1.40	3		9		6		
36	1.42	4		9		7		
36.5	1.44	5		9		8		
37	1.46	0		5		0		
37.5	1.48	1		6		1		
38	1.50	2		7		2		
38.5	1.52	2		8		3		
39	1.54	3		8		5		
39.5	1.56	4		9		6		
40	1.57	4		9		7		
40.5	1.59	5		9		8		
41	1.61	0		6		0		
41.5	1.63	1		6		1		
42	1.65	2		7		2		
42.5	1.67	2		8		3		
43	1.69	3		9		5		
43.5	1.71	4		9		6		
44	1.73	4		9		8		
44.5	1.75	5		9		9		
45	1.77			6				
45.5	1.79			6				
46	1.81			7				
46.5	1.83			8				
47	1.85			9				
47.5	1.87			9				
48	1.89			9				
48.5	1.91			9				
49	1.93			9				

## Large Diameter | Product Tree



### Large Diameter Tree: 5.95" - 26.35" (151.13 - 669.29 mm)

Label	Component	Selection Criteria	Catalog page
1	Modular Shank	Machine tool taper and projection requirement	Pages 134 - 138
2	PC Extensions	Extended reach requirements	Pages 138 - 139
3	PC6 Extension Base	One piece design for 5.95"-8.50" (151.2 - 216 mm)	Page 158
4	Extension Base Coupler	Modular connection between shank and extension base	Page 158
5	Extension Base	Bore range 8.50" (216 mm) and up	Page 158
6	Extension Slide	Extends range of base to eliminate next size	Page 159
7	Riser	Extends reach when used for OD boss	Page 159
8	Insert Holder Base	Mounts rough insert holders to base	Page 160
9	Twin Bore Insert Holders	Mounts and adjusts insert to diameter	Page 160
10	Finish Boring Unit	For precision adjustment of finish bore diameter	Page 161
11	Counter Weight	Offset the mass of Finish Boring Unit for high rpm	Page 161
12	Finish Insert Holder	Mounts finish Insert to Finish Boring Unit	Page 161

# Precision Modular Boring

## Large Diameter | Boring System

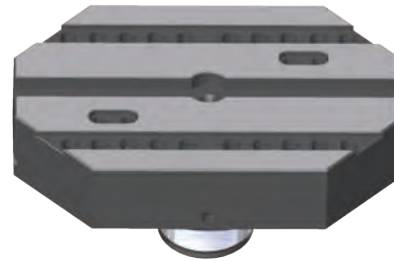
### FEATURES

- Boring range from 5.95" - 26.35"



### Extension Base Coupler

Part #	Connection Size	Weight (lbs)
PC6-EBC	PC6	2.3
PC7-EBC	PC7	2.75



### Integral PC Connection Extension Base

Part #	Bore Range Min.	Bore Range Max.	Weight (lbs)
PC6-910-850	5.95"	8.50"	6



### Extension Bases

Part #	Bore Range Min.	Bore Range Max.	Weight (lbs)
910-1150	8.50"	11.05"	6.6
910-1360	11.05"	13.60"	9.4
910-1615	13.60"	16.15"	12.4
910-1870	16.15"	18.70"	15.4
910-2125	18.70"	21.25"	18.4
910-2380	21.25"	23.80"	21.3
910-2635	23.80"	26.35"	24.2



## Extension Slide

### FEATURES

- Extends the range of extension base 2.55" or 65 mm
- Eliminates the requirement of next slide diameter for low volume or non-production applications



### Extension Slide

Part #	Boring Range	Weight (lbs)
910-RES	+2.55"	7.9

### Extension Slide Mounting Cap Screws (8 incl)

Part #
SHCSM8X30 (ea.)

## Riser



### Riser

Part #	Bore Reach	Weight (lbs)
910-ZRIS	+1.00"	4.4

### Riser Mounting Cap Screws (8 incl)

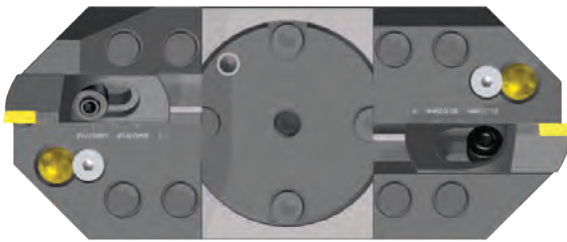
Part #
SHCSM8X50 (ea.)

# Precision Modular Boring

## Large Diameter | Rough Boring

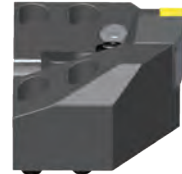
### FEATURES

- 3 positions allows a single insert holder to bore the complete range
- Coolant directed onto the cutting edge for maximum cooling, chip forming, and tool life
- Independent height and diameter setting permits balanced and step cutting
- ISO standard inserts



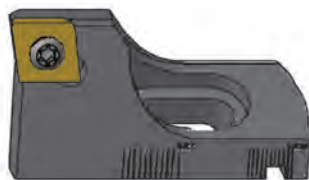
### Rough Boring Holder Base

Part #	Bore Range	Weight (lbs)
910-HBP	2.55"	4.7



### Spare Components

Mounting Cap Screw (8 incl.)	Insert Holder Clamps	Diameter Adjustment Screw	Height Adjustment Cam
SHCSM8X20 (ea.)	4605-12 (pair)	910-HBP-2 (2)	4605-13 (pair)



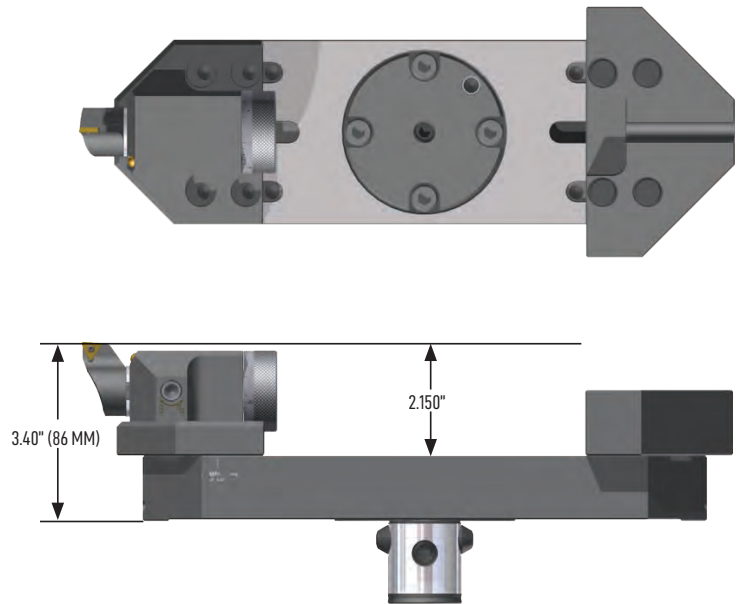
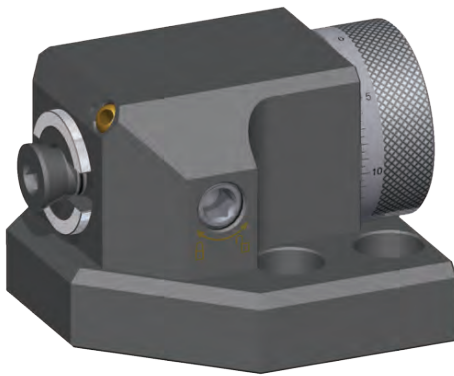
### Twin Bore Insert Holders

Part #	Size	Insert Type and Size	Lead Angle	Insert Screw	Insert Screw Wrench
4605-61S12	61	SCMT 12	6°	028-009	018-009
4605-61C12	61	CCMT 12	0°	028-907	018-009

## Large Diameter | Finish Boring

### FEATURES

- .0005" adjustment graduation
- Coolant directed onto the cutting edge for maximum cooling, chip forming, and tool life
- No movement between lock and unlock eliminates setting errors common to other systems
- Large easy to adjust dial



### Large Diameter Finish Boring Unit

Part #	Graduation	Bore Range	Weight (lbs)
910-FBU	Inch	2.55"	3.2

### Spare Parts

Insert Holder Clamp Screw	Mounting Screws (4 incl.)
3615-01	SHCSM8X20 (ea.)



### Counter Weight

Part #	Weight (lbs)
910-FCW	3.2

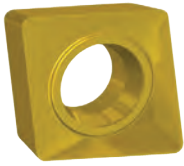


### Finish Insert Holder

Part #	Size	Insert Type and Size	Lead Angle	Insert Screw	Insert Screw Wrench
361-T11-3	6	TCMT 11	-3°	028-905	018-007

# Precision Modular Boring

## Inserts | Shape Descriptions



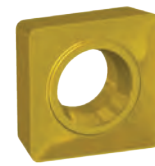
**80° DIAMOND**

- For rough boring to a shoulder or deep bore depths where maximum rigidity of the bar is required.
- For finishing small diameters where maximum edge strength is required.



**TRIANGLE**

- For finishing with three corners for maximum insert life.



**SQUARE**

- For rough boring through holes and castings to avoid exit hole breakout.
- Four usable edges for maximum insert life.

### CARBIDE GRADE

**Coated** - Longer service life at higher speeds.

**Uncoated** - Less expensive and effective in materials for which coatings do not add any benefit.

**Cermet** - Yields the highest speed and durability for selected materials.

### RADIUS

**Larger** - Better surface finish and longer insert life.

**Smaller** - Less cutting pressures in extreme conditions, reduced bar flex and chatter.

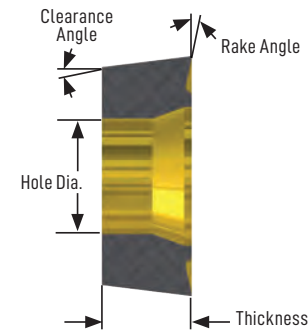
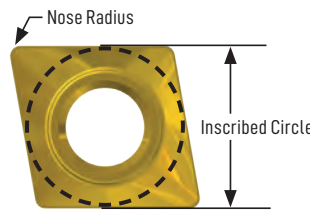
### PERIPHERY

**Pressed** - Utility grade for general purpose. Longer tool life.

**Ground** - Better for finishing where tight bore tolerances are required.

## Part Number Explanation

EXAMPLE:  
**C121615TTP**



C	12	16	15	TT	P
Shape	Size	Radius	Rake Angle	Grade	Periphery
T = Triangular S = Square C = Diamond (80°) W = Trigon	03, 04, 05, 06, 08, 09, 11, 12	07 = .007 08 = .008 12 = .012 16 = .016 31 = .031 47 = .047	00 = 0° 06 = 6° 15 = 15° 20 = 20°	See Carbide Grade section on Next Page	P = Pressed G = Ground

## Inserts | Carbide Grades

### Uncoated Grades

- C2** ■ Is a relatively fine grain grade on a WC-CO base. It has very good toughness and good rake angle resistance to abrasive wear. Applications include stainless steels, cast irons, non-ferrous metals, and most high temperature alloys.
- C7** ■ Finish and light roughing non-coated grade for steel and steel castings. Performs best in favorable conditions. High speeds and moderate feeds.

### Titanium Coated Grades

- TT** ■ Is a very tough grade with a triple coating of Tin, TiC, and TiN. It is a good grade for roughing and finishing in less than ideal conditions. Used in machining steels and stainless steels at low speeds.
- TE** ■ Is a carbide grade with a PVD coating. It is used for machining aerospace materials, high temperature alloys, and stainless steels.
- TR** ■ Is a PVD coated micro grain carbide. Performs well in alloy steels, nickel-based materials, and heat-treated materials up to Rc: 40.
- SN** ■ Delivers outstanding performance in moderate-roughing to semi-finishing operations, especially in interrupted cuts. An advanced multi-layer coating (TiCN/Al<sub>2</sub>O<sub>3</sub>/TiN), applied over a cobalt enriched substrate, gives SN a near optimum balance of toughness, surface lubricity, and resistance to metal build-up to yield excellent wear resistance throughout its application range.
- VN** ■ Is a micro-grained grade with an excellent balance of toughness and wear resistance. Coated with PVD TiN for improved lubricity and wear resistance with up-sharp cutting edges, VN excels in light roughing to high-speed finishing of high-temperature alloys, stainless steels, cast iron, aluminum, and non-ferrous materials.

### Cermet Grades

- CT** ■ Is a cermet grade of TiC and TiN particles in a nickel cobalt binder, for finishing steels at high cutting speeds.
- CM** ■ Is a cermet grade. It is slightly less hard than CT and can be used in less favorable conditions.

### Aluminum Oxide Coated Grades

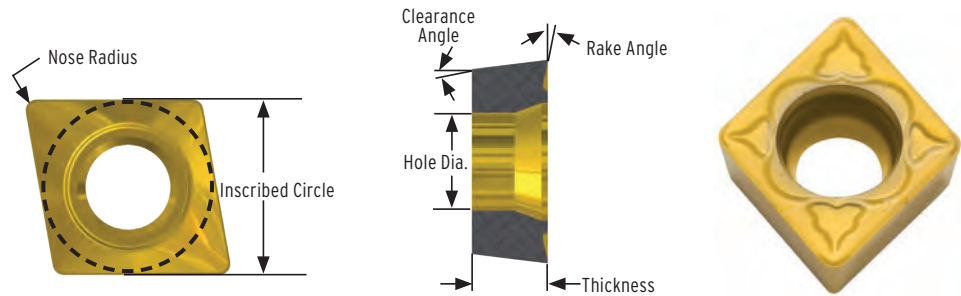
- AS** ■ Is an Al<sub>2</sub>O<sub>3</sub> coated insert. Its application is machining cast iron and steels at moderately high speeds.

### Polycrystalline Diamond Grades

- PCD** ■ Used for non-ferrous metals, high-silicon aluminum, carbon fiber, and fiber-reinforced plastics. Allows high cutting speed, long tool life, and high thermal conductivity.

# Precision Modular Boring

## Diamond Inserts



### Size: CDCD 05

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
C050700C2G	.156"	15°	.007"	.040"	0°	.084"	C2	Uncoated	Ground
C051600C2G	.156"	15°	.016"	.040"	0°	.084"	C2	Uncoated	Ground
C050700TRG	.156"	15°	.007"	.040"	0°	.084"	TR	Coated	Ground
C051600TRG	.156"	15°	.016"	.040"	0°	.084"	TR	Coated	Ground
C050700PCD	.156"	15°	.007"	.040"	0°	.084"	PCD	Diamond	Ground
C051600PCD	.156"	15°	.016"	.040"	0°	.084"	PCD	Diamond	Ground

### Size: CCMT 06

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
C061615C2P	.250"	7°	.016"	.094"	15°	.110"	C2	Uncoated	Pressed
C063115C2P	.250"	7°	.031"	.094"	15°	.110"	C2	Uncoated	Pressed
C061620C2G	.250"	7°	.016"	.094"	20°	.110"	C2	Uncoated	Ground
C061615TTP	.250"	7°	.016"	.094"	15°	.110"	TT	Coated	Pressed
C063115TTP	.250"	7°	.031"	.094"	15°	.110"	TT	Coated	Pressed

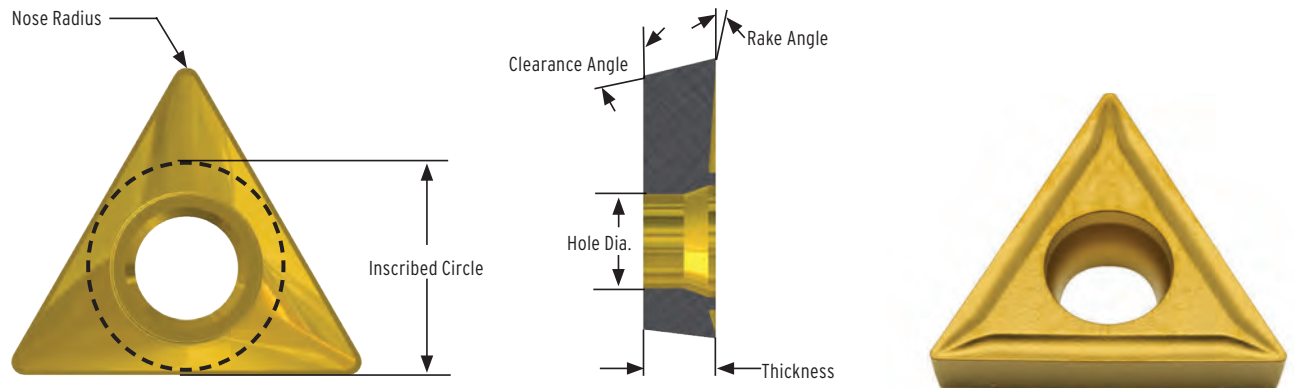
### Size: CCMT 09

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
C091615C2P	.375"	7°	.016"	.156"	15°	.173"	C2	Uncoated	Pressed
C093115C2P	.375"	7°	.031"	.156"	15°	.173"	C2	Uncoated	Pressed
C091620C2G	.375"	7°	.016"	.156"	20°	.173"	C2	Uncoated	Ground
C091615TTP	.375"	7°	.016"	.156"	15°	.173"	TT	Coated	Pressed
C093115TTP	.375"	7°	.031"	.156"	15°	.173"	TT	Coated	Pressed

### Size: CCMT 12

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
C121615C2P	.500"	7°	.016"	.188"	15°	.216"	C2	Uncoated	Pressed
C123115C2P	.500"	7°	.031"	.188"	15°	.216"	C2	Uncoated	Pressed
C124715C2P	.500"	7°	.047"	.188"	15°	.216"	C2	Uncoated	Pressed
C121620C2G	.500"	7°	.016"	.188"	20°	.216"	C2	Uncoated	Ground
C123120C2G	.500"	7°	.031"	.188"	20°	.216"	C2	Uncoated	Ground
C121615TTP	.500"	7°	.016"	.188"	15°	.216"	TT	Coated	Pressed
C123115TTP	.500"	7°	.031"	.188"	15°	.216"	TT	Coated	Pressed
C124715TTP	.500"	7°	.047"	.188"	15°	.216"	TT	Coated	Pressed

## Triangle Inserts



### Size: TDAB 05

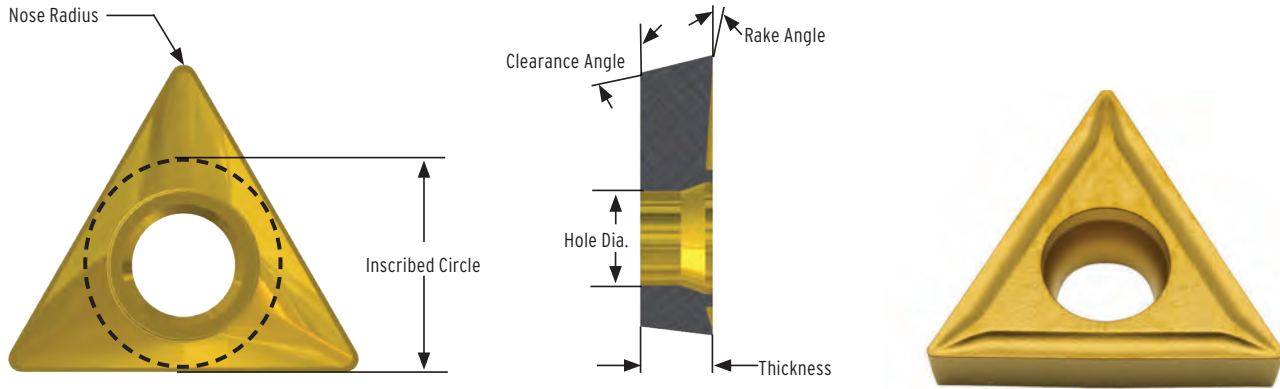
Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
T050700C2G	.160"	15°	.007"	.047"	0°	.094"	C2	Uncoated	Ground
T051600C2G	.160"	15°	.016"	.047"	0°	.094"	C2	Uncoated	Ground
T050700TRG	.160"	15°	.007"	.047"	0°	.094"	TR	Coated	Ground
T051600TRG	.160"	15°	.016"	.047"	0°	.094"	TR	Coated	Ground
T050700PCD	.160"	15°	.007"	.047"	0°	.094"	PCD	Diamond	Ground

### Size: TCMT 06

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
T061206C7G	.156"	7°	.012"	.078"	6°	.087"	C7	Uncoated	Ground
T060820C2G	.156"	7°	.008"	.078"	20°	.087"	C2	Uncoated	Ground
T060815C2P	.156"	7°	.008"	.078"	15°	.087"	C2	Uncoated	Pressed
T061615C2P	.156"	7°	.016"	.078"	15°	.087"	C2	Uncoated	Pressed
T060815TTP	.156"	7°	.008"	.078"	15°	.087"	TT	Coated	Pressed
T061615TTP	.156"	7°	.016"	.078"	15°	.087"	TT	Coated	Pressed
T060820CTG	.156"	7°	.008"	.078"	20°	.087"	CT	Cermet	Ground
T061620CTG	.156"	7°	.016"	.078"	20°	.087"	CT	Cermet	Ground
T060815CTP	.156"	7°	.008"	.078"	15°	.087"	CT	Cermet	Pressed
T061615CTP	.156"	7°	.016"	.078"	15°	.087"	CT	Cermet	Pressed
T061600PCD	.156"	7°	.016"	.078"	0°	.087"	PCD	Diamond	Ground

# Precision Modular Boring

## Triangular Inserts (continued)

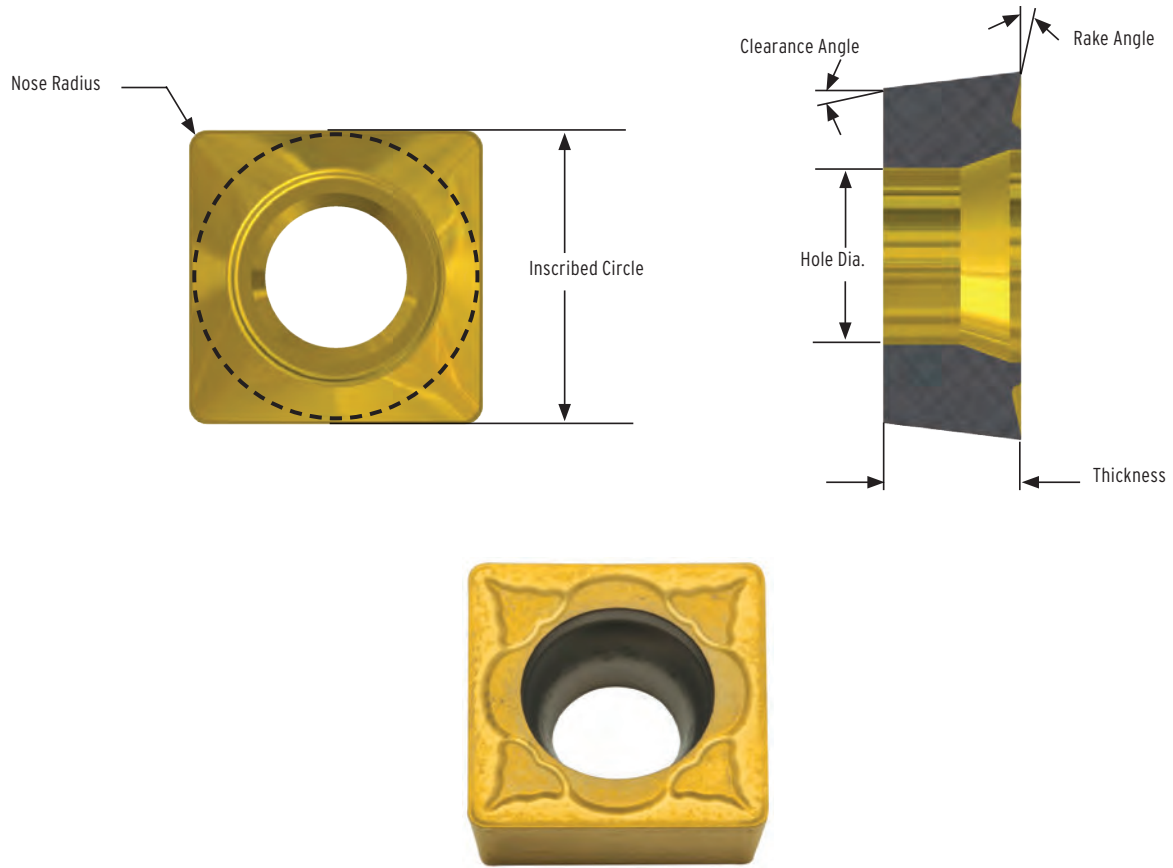


### Size: TCMT 11

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
T111615C7P	.250"	7°	.016"	.094"	15°	.108"	C7	Uncoated	Pressed
T111600C2P	.250"	7°	.016"	.094"	0°	.108"	C2	Uncoated	Pressed
T111615C2P	.250"	7°	.016"	.094"	15°	.108"	C2	Uncoated	Pressed
T113115C2P	.250"	7°	.031"	.094"	15°	.108"	C2	Uncoated	Pressed
T111620C2G	.250"	7°	.016"	.094"	20°	.108"	C2	Uncoated	Ground
T111600C2G	.250"	7°	.016"	.094"	0°	.108"	C2	Uncoated	Ground
T113120C2G	.250"	7°	.031"	.094"	20°	.108"	C2	Uncoated	Ground
T110815TTP	.250"	7°	.008"	.094"	15°	.108"	TT	Coated	Pressed
T111615TTP	.250"	7°	.016"	.094"	15°	.108"	TT	Coated	Pressed
T113115TTP	.250"	7°	.031"	.094"	15°	.108"	TT	Coated	Pressed
T110823TEG	.250"	7°	.008"	.094"	15°	.108"	TE	Coated	Ground
T111623TEG	.250"	7°	.016"	.094"	23°	.108"	TE	Coated	Ground
T111615CTP	.250"	7°	.016"	.094"	15°	.108"	CT	Cermet	Pressed
T111615CMP	.250"	7°	.016"	.094"	15°	.108"	CM	Cermet	Pressed
T111600ASP	.250"	7°	.016"	.094"	0°	.108"	AS	Coated	Pressed
T111600PCD	.250"	7°	.016"	.094"	0°	.108"	PCD	Diamond	Ground
T111615SNG	.250"	7°	.016"	.094"	15°	.108"	SN	Coated	Ground
T113115SNG	.250"	7°	.031"	.094"	15°	.108"	SN	Coated	Ground
T111615VNG	.250"	7°	.016"	.094"	15°	.108"	VN	Coated	Ground



## Square Inserts



### Size: SCMT 09

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
S091615C2P	.375"	7°	.016"	.156"	15°	.173"	C2	Uncoated	Pressed
S093115C2P	.375"	7°	.031"	.156"	15°	.173"	C2	Uncoated	Pressed
S091615TTP	.375"	7°	.016"	.156"	15°	.173"	TT	Coated	Pressed
S093115TTP	.375"	7°	.031"	.156"	15°	.173"	TT	Coated	Pressed

### Size: SCMT 12

Part #	IC	Clearance Angle	Nose Radius	Thickness	Rake Angle	Hole Diameter	Grade	Type	Periphery
S123115C2P	.500"	7°	.031"	.188"	15°	.216"	C2	Uncoated	Pressed
S121615TTP	.500"	7°	.016"	.188"	15°	.216"	TT	Coated	Pressed
S123115TTP	.500"	7°	.031"	.188"	15°	.216"	TT	Coated	Pressed
S124715TTP	.500"	7°	.047"	.188"	15°	.216"	TT	Coated	Pressed

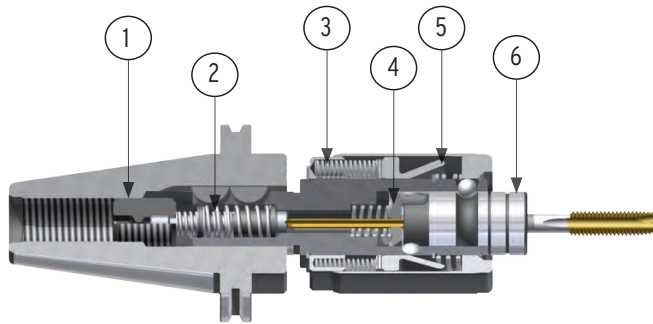
# NUMERTAP<sup>®</sup>

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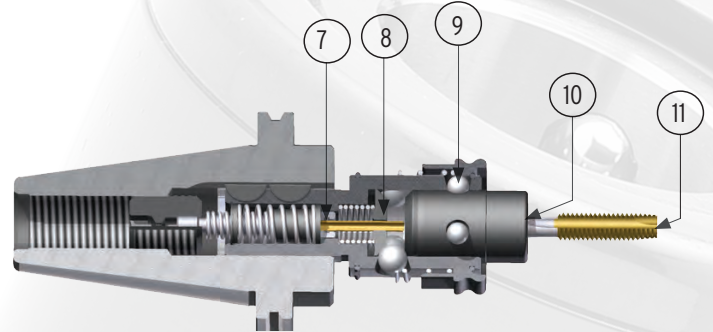
## TAPPING SYSTEMS



# DAVIT



Numertap C50-70TA5, Torque controlled, non-coolant



Numertap C50-77TA4C, Positive Drive, Coolant-Fed

## 1 Adjustable Length Compensation

Available on all 700/770 and Bilz-style tapping attachments with machine tapers.

## 2 Tension & Compression

Tap position returns +/- .001 after each cycle. Standard with all tapping attachments. Also available as tension only or rigid for synchronous tapping.

## 3 Torque Spring

Torque is controlled by spring pressure. This is standard on 80 and 700 units.

## 4 Torque Drive Ball

Standard on 80 and 700 torque controlled systems. Scallop size on the adapter pre-calibrates torque setting.

## 5 Torque Sleeve

Automatically controls the amount of torque transmitted to the adapter. Makes torque adjustments unnecessary.

## 6 Tap Adapter, Non-Coolant

Available for all standard tap sizes. Square drive ensures positive tap drive.

## 7 Coolant Feed Tube

Feeds coolant directly to the tap. Keeps coolant from contaminating the attachment's internal components. Restrictor allows for up to 800 PSI.

## 8 Seals in Coolant Fed Adapters

Keeps coolant from back feeding into attachments.

## 9 Retention Ball

Retains adapter in the attachment while maintaining quick release during changeover. Acts as drive ball for positive drive adapters.

## 10 Coolant Groove

Feeds coolant along the tap shank. Reduces the need for expensive coolant through taps.

## 11 Coolant-Through

Feed from coolant through taps.

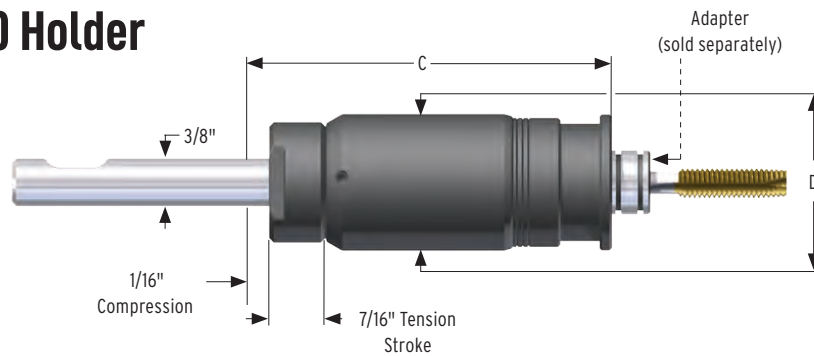
# NUMERTAP® Tapping Systems

## NUMERTAP 80 | Torque Controlled Tapping

### FEATURES

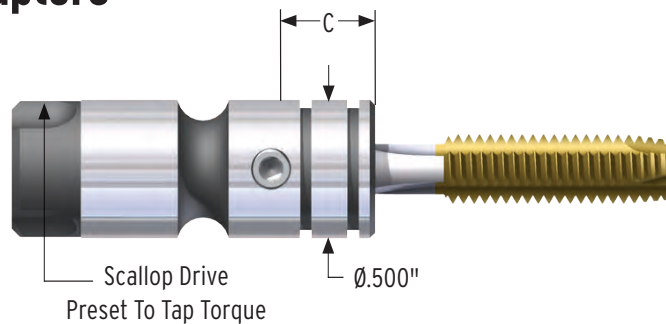
- From #4 - 1/4" (0 - 80 in./lbs.)
- Very sensitive, calibrated torque control prevents tap breakage when bottom tapping
- Free-floating ball bearing tension stroke ensures thread size and quality
- Small outside diameter allows tapping near shoulders without tap extensions
- Quick-change system allows taps to be replaced without removing the unit from the spindle
- \* Radial float improves thread quality and tap life

### NUMERTAP 80 Holder



Part #	Shank	C	D	Compression	Tension
S37-80TA3	3/8"	3.00"	1.06"	1/16"	7/16"

### NUMERTAP 80 Adapters



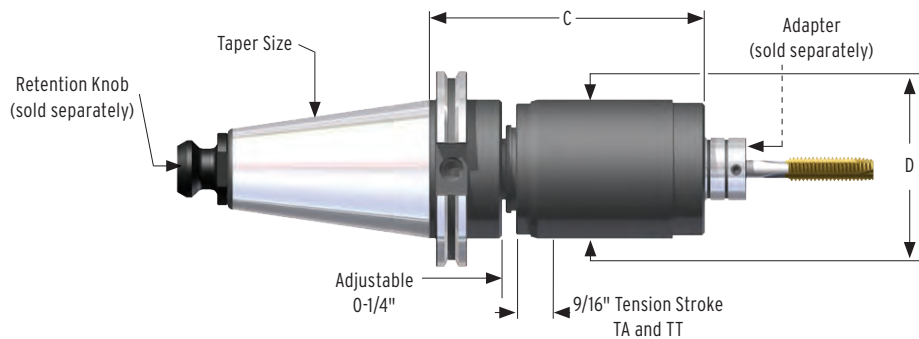
Part #	Tap Size	Metric Tap Size	C
8401-#4	#4	M2.5	.38"
8401-#6	#6	M3.5	.38"
8401-#8	#8	M4	.38"
8401-#10	#10	M5	.38"
8401-#12	#12	-	.38"
8401-025	1/4"	M6	.38"

## NUMERTAP 700 | Torque Controlled Tapping

### FEATURES

- From #6 - 3/4" in ferrous material and #6 - 1" in non-ferrous material
- Radial float improves thread quality and tap life
- Calibrated torque control prevents tap breakage when bottom tapping
- Adjustable compression stroke ensures depth control
- Free-floating tension stroke ensures thread quality and size
- Through-spindle coolant option gets coolant into the hole and flushes chips
- Quick-change system allows taps to be replaced without removing the unit from the spindle

### NUMERTAP 700 Holder



Part #	Description	C	D	Compression	Tension
B40-70TA5	BT40 Numertap 700 Chuck	5.90"	2.75"	0 - 1/4"	9/16"
C40-70TA5C	CAT40 Numertap 700 Chuck Coolant-Through	6.28"	2.75"	0 - 1/4"	9/16"
C50-70TA5C	CAT50 Numertap 700 Chuck Coolant-Through	5.46"	2.75"	0 - 1/4"	9/16"

### Capacity

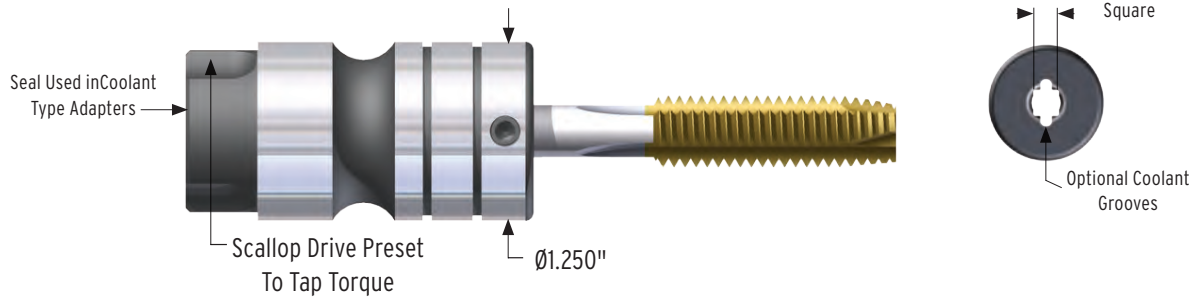
Type	Inch	Metric	NPT
Ferrous	#10 - 3/4"	M5 - M20	1/16" - 1/2" NPT
Non-Ferrous	#10 - 1"	M5 - M25	1/16" - 1/2" NPT
Positive Drive	#6 - 1_5/8"	M3.5 - M33	1/16" - 1_1/4" NPT

# NUMERTAP® Tapping Systems

## NUMERTAP 700 Adapters

### FEATURES

- For use with Numertap® 700 attachments
- Coolant Groove adapters must be used when coolant is fed through Numertap® attachments



Part #	Tap Size	Metric Tap Size	Shank	Square
7711-#6	#6	M3.5	.141"	.110"
7711-#8	#8	M4	.168"	.131"
7711-#10	#10	M5	.194"	.152"
7711-#12	#12	-	.220"	.155"
7711-025	1/4"	M6	.255"	.191"
7711-031	5/16"	M7, M8	.318"	.238"
7711-037	3/8"	M10	.381"	.286"
7711-043	7/16"	-	.323"	.242"
7711-050	1/2"	M12	.367"	.275"
7711-056	9/16"	M14	.429"	.322"
7711-062	5/8"	M16	.480"	.360"
7711-068	11/16"	M18	.542"	.406"
7711-075	3/4"	-	.590"	.442"
7711-081	13/16"	M20	.652"	.489"
7711-087	7/8"	M22	.697"	.523"
7711-093	15/16"	M24	.760"	.570"
7711-100	1"	M25	.800"	.600"
7714-006	1/16" NPT (1/8" NPT)	-	.312"	.234"
7714-012	1/8" NPT	-	.437"	.328"
7714-025	1/4" NPT	-	.562"	.421"
7714-037	3/8" NPT	-	.700"	.531"
7714-050	1/2" NPT	-	.687"	.515"

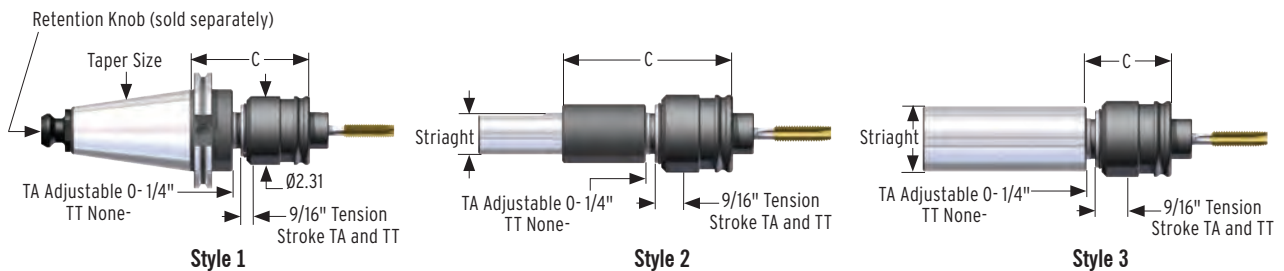
\* After 7711 or 7714 - Add "CG" for coolant groove design or "C" for coolant sealed design

## NUMERTAP 770 | Tension, Compression, and Rigid Tapping

### FEATURES

- From #6 - 1\_5/8" hand and 1/16" - 1\_1/4" NPT
- Adjustable compressions stroke ensures accurate depth control
- Free-floating tension stroke ensures thread size and quality
- Through-spindle coolant option gets coolant into the hole and flushes chips
- Radial float improves thread quality and tap life

## NUMERTAP 770 Tension & Compression Holders



Part #	Taper / Shank	C	Style	Weight (lbs)
B40-77TA4	BT40	4.99"	1	5
C40-77TA4	CAT40	4.85"	1	5
C50-77TA4	CAT50	4.04"	1	9
H63-77TA6	HSK63A	7.91"	1	5
H100-77TA6	HSK100A	7.91"	1	9
PC6-77TA5	PC6	5.16"	-	5
S10-77TA5	1" Straight Shank	5.25"	2	4
S12-77TA5	1_1/4" Straight Shank	5.25"	2	4
S15-77TA5	1_1/2" Straight Shank	5.25"	2	4
S20-77TA2	2" Straight Shank	2.75"	3	4

\* Add "C" to the end of the part # for coolant-through

### Capacity

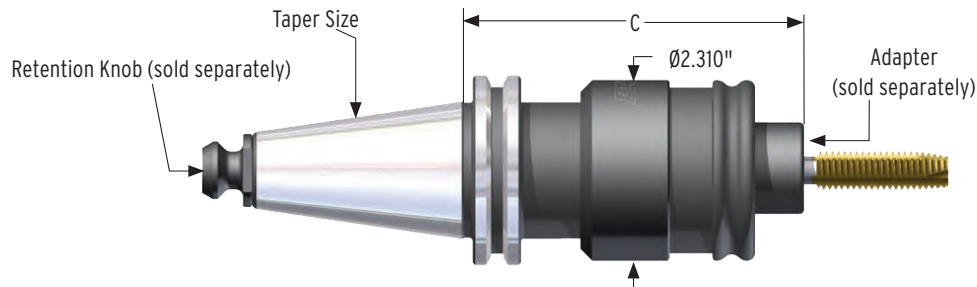
Inch	Metric	NPT
#6 - 1_5/8"	M3.5 - M36	1/16" - 1_1/4" NPT

# NUMERTAP® Tapping Systems

## NUMERTAP 770 Tension-Only & Rigid Holders

### FEATURES

- From #6 - 1\_5/8" hand and 1/16" - 1\_1/4" NPT
- Tension only (TT) allows synchronous tapping
- Radial float allows tap to follow the hole
- Through-spindle coolant option gets coolant into the hole and flushes chips



### NUMERTAP 770 Tension-Only Tapping Holders

Part #	Taper / Shank	C	Weight (lbs)
B40-77TT4	BT40	4.99"	5
C40-77TT4	CAT40	4.85"	5
C50-77TT4	CAT50	4.04"	9
C50F-77TT4C	CAT50 SIMULFIT	4.04"	9
PC6-77TT5	PC6	5.16"	5
S10-77TT5	1" Straight Shank	5.25"	4
S20-77TT2	2" Straight Shank	2.75"	4

\* Add "C" to the end of the part # for coolant-through

### NUMERTAP 770 Rigid Tapping Holders

Part #	Taper / Shank	C	Weight (lbs)
B40-77TR4	BT40	3.75"	5
C40-77TR4	CAT40	3.75"	5
C50-77TR4	CAT50	3.75"	9
C50F-77TR4C	CAT50 SIMULFIT	3.75"	9
H63-77TR5	HSK63A	5.00"	5
H100-77TR5	HSK100A	5.00"	9
PC6-77FS5	PC6	5.16"	5
S10-77FS5	1" Straight Shank	5.25"	4
S20-77FS2	2" Straight Shank	2.75"	4

\* Add "C" to the end of the part # for coolant-through (excludes S20-77FS2)

### Capacity

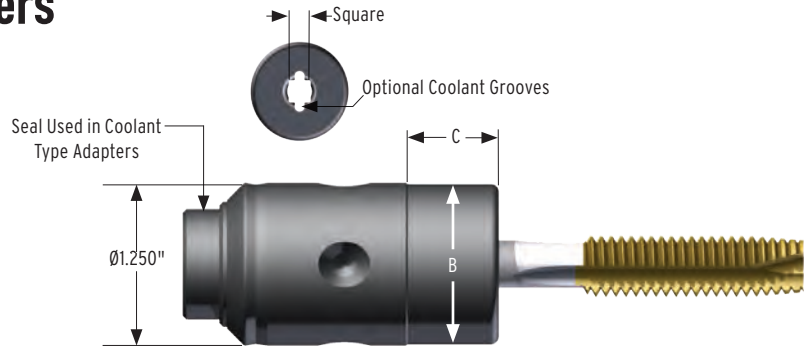
Inch	Metric	NPT
#6 - 1_5/8" Hand	M3.5 - M36	1/16" - 1_1/4" NPT



## NUMERTAP 770 Tap Adapters

### FEATURES

- Positive-drive, standard short length for use in NUMERTAP® 770 attachments
- Coolant groove or coolant-through adapters must be used when coolant is fed through Numertap® attachments



Part #	Tap Size	Metric Tap Size	B	C	Shank	Square
7716-#6	#6	M3.5	1.25"	.70"	.141"	.110"
7716-#8	#8	M4	1.25"	.70"	.168"	.131"
7716-#10	#10	M5	1.25"	.70"	.194"	.152"
7716-#12	#12	-	1.25"	.70"	.220"	.165"
7716-025	1/4"	M6	1.25"	.70"	.255"	.191"
7716-031	5/16"	M7, M8	1.25"	.70"	.318"	.238"
7716-037	3/8"	M10	1.25"	.70"	.381"	.286"
7716-043	7/16"	-	1.25"	.70"	.323"	.242"
7716-050	1/2"	M12	1.25"	.70"	.367"	.275"
7716-056	9/16"	M14	1.25"	.70"	.429"	.322"
7716-062	5/8"	M16	1.25"	.70"	.480"	.360"
7716-068	11/16"	M18	1.61"	2.25"	.542"	.406"
7716-075	3/4"	-	1.61"	2.25"	.590"	.442"
7716-081	13/16"	M20	1.61"	2.25"	.652"	.489"
7716-087	7/8"	M22	1.61"	2.25"	.697"	.523"
7716-093	15/16"	M24	1.61"	2.25"	.760"	.570"
7716-100	1"	M25	1.61"	2.25"	.800"	.600"
7716-106	1_1/16" & 1_1/8"	M27	1.61"	2.25"	.896"	.672"
7716-118	1_3/16" & 1_1/4"	M30	1.61"	2.25"	1.021"	.766"
7716-131	1_5/16" & 1_3/8"	M33	1.98"	2.25"	1.108"	.831"
7716-144	1_7/16" & 1_1/2"	-	1.98"	2.25"	1.233"	.925"
7716-162	1_5/8"	-	1.98"	2.25"	1.305"	.979"
7717-006	1/16" & 1/8" NPT	-	1.25"	.70"	.312"	.234"
7717-012	1/8" NPT	-	1.25"	.70"	.437"	.328"
7717-025	1/4" NPT	-	1.25"	.70"	.562"	.421"
7717-037	3/8" NPT	-	1.25"	.70"	.700"	.531"
7717-050	1/2" NPT	-	1.61"	2.25"	.687"	.515"
7717-075	3/4" NPT	-	1.61"	2.25"	.906"	.679"
7717-100	1" NPT	-	1.61"	2.25"	1.125"	.843"
7717-125	1_1/4" NPT	-	1.98"	2.25"	1.312"	.984"

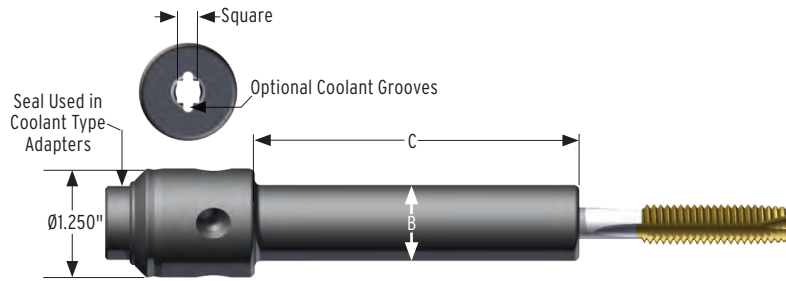
\*After 7716 or 7717, add "CG" for coolant groove design or "C" for coolant sealed design

# NUMERTAP® Tapping Systems

## NUMERTAP 770 Extended Length Tap Adapters

### FEATURES

- Positive-drive, extended length for use in Numertap® 770 attachments
- Coolant groove or coolant-through adapters must be used when coolant is fed through Numertap® attachments



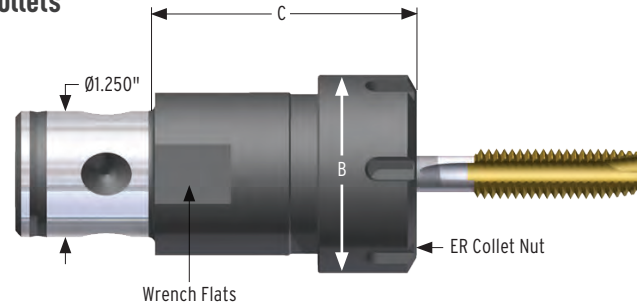
C = 3.70" (3" Extended)		C = 6.70" (6" Extended)				
Part #	Part #	Tap Size	Metric Tap Size	B	Shank	Square
7716-3-#6	7716-6-#6	#6	M3.5	.75"	.141"	.110"
7716-3-#8	7716-6-#8	#8	M4	.75"	.168"	.131"
7716-3-#10	7716-6-#10	#10	M5	.75"	.194"	.152"
7716-3-#12	7716-6-#12	#12	-	.75"	.220"	.165"
7716-3-025	7716-6-025	1/4"	M6	.75"	.255"	.191"
7716-3-031	7716-6-031	5/16"	M7, M8	.75"	.318"	.238"
7716-3-037	7716-6-037	3/8"	M10	.88"	.381"	.286"
7716-3-043	7716-6-043	7/16"	-	.88"	.323"	.242"
7716-3-050	7716-6-050	1/2"	M12	.88"	.367"	.275"
7716-3-056	7716-6-056	9/16"	M14	1.00"	.429"	.322"
7716-3-062	7716-6-062	5/8"	M16	1.00"	.480"	.360"
7716-3-068	7716-6-068	11/16"	M18	1.25"	.542"	.406"
7716-3-075	7716-6-075	3/4"	-	1.25"	.590"	.442"
7716-3-081	7716-6-081	13/16"	M20	1.25"	.652"	.489"
7716-3-087	7716-6-087	7/8"	M22	1.25"	.697"	.523"
7716-3-093	7716-6-093	15/16"	M24	1.50"	.760"	.570"
7716-3-100	7716-6-100	1"	M25	1.50"	.800"	.600"
7716-3-106	7716-6-106	1_1/16" & 1_1/8"	M27	1.61"	.896"	.672"
7716-3-118	7716-6-118	1_3/16" & 1_1/4"	M30	1.61"	1.021"	.766"
7716-3-131	7716-6-131	1_5/16" & 1_3/8"	M33	1.61"	1.108"	.831"
7716-3-144	7716-6-144	1_7/16" & 1_1/2"	-	1.98"	1.233"	.925"
7716-3-162	7716-6-162	1_5/8"	-	1.98"	1.305"	.979"
7717-3-006	7717-7-006	1/16" & 1/8" NPT	-	1.00"	.312"	.234"
7717-3-012	7717-7-012	1/8" NPT	-	1.00"	.437"	.328"
7717-3-025	7717-7-025	1/4" NPT	-	1.00"	.562"	.421"
7717-3-037	7717-7-037	3/8" NPT	-	1.25"	.700"	.531"
7717-3-050	7717-7-050	1/2" NPT	-	1.25"	.687"	.515"
7717-3-075	7717-7-075	3/4" NPT	-	1.61"	.906"	.679"
7717-3-100	7717-7-100	1" NPT	-	1.61"	1.125"	.843"
7717-3-125	7717-7-125	1_1/4" NPT	-	1.98"	1.312"	.984"

\*After 7716 or 7717, add "CG" for coolant groove design or "C" for coolant sealed design

## NUMERTAP 770 ER Collet Tap Adapters

### FEATURES

- For use with ER rigid tap collets

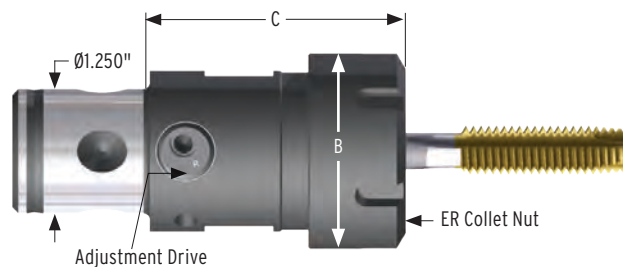


Part #	Part # w/ coolant	Collet Series	Tap Size Range	B	C	Collet Nut Wrench
7716-ER16	7716C-ER16	ER16	#8 - 1/4"	1.26"	1.54"	ECN20W
7716-ER20	7716C-ER20	ER20	#8 - 1/2"	1.38"	1.58"	20ERHNW
7716-ER25	7716C-ER25	ER25	#8 - 5/8"	1.65"	1.50"	25ERNW
7716-ER32	7716C-ER32	ER32	#8 - 13/16"	1.97"	2.34"	32ERNW
7716-ER40	7716C-ER40	ER40	1/4" - 1"	2.48"	2.34"	40ERNW

## NUMERTAP 770 Universal ER Collet Tap Adapters

### FEATURES

- For use with DIN, ISO, JIS, or ANSI (inch and metric) tap shanks
- Adjustable drive plug for any square size in the tap range
- Provides flexibility for any tap shank size
- Use with standard ER collets



Part #	Part # w/ coolant	Collet Series	Tap Size Range	B	C	Collet Nut Wrench
7716-ER16U	7716-ER16UC	ER16	#6 - 3/8"	1.26"	1.71"	ECN20W
7716-ER20U	7716-ER20UC	ER20	#10 - 5/8"	1.38"	1.93"	20ERHNW
7716-ER32U	7716-ER32UC	ER32	9/16" - 15/16"	1.97"	2.43"	32ERNW
7716-ER40U	7716-ER40UC	ER40	1" - 1_3/8"	2.48"	3.54"	40ERNW

# NUMERTAP® Tapping Systems

## ER Tap Collets

### FEATURES

- Replaces expensive tap holders
- Special design locks tap square in slots
- Reduce tap clearance requirements



### ER 16 Tap Collet Set

Part #	Pcs.	Range
ERT16-S009	9	#0 - 1/2"

### ER 16 Tap Collets

Part #	Inch Size	ANSI Metric
ERT16-#0-6	#0-#6	-
ERT16-#8	#8	M4
ERT16-#10	#10	M4.5, M5
ERT16-#12	#12	-
ERT16-025	1/4"	M6, M6.5
ERT16-031	5/16"	M7, M8
ERT16-037	3/8"	M10
ERT16-043	7/16"	-
ERT16-050	1/2"	M12, M12.5



### ER 25 Tap Collet Set

Part #	Pcs.	Range
ERT25-S011	11	#8 - 5/8"

### ER 25 Tap Collets

Part #	Inch Size	ANSI Metric
ERT25-#8	#8	M4
ERT25-#10	#10	M4.5, M5
ERT25-#12	#12	-
ERT25-012N	1/8" NPT	-
ERT25-025	1/4"	M6, M6.5
ERT25-031	5/16"	M7, M8
ERT25-037	3/8"	M10
ERT25-043	7/16"	-
ERT25-050	1/2"	M12, M12.5
ERT25-056	9/16"	M14
ERT25-062	5/8"	M16

### ER 20 Tap Collet Set

Part #	Pcs.	Range
ERT20-S008	8	#8 - 1/2"

### ER 20 Tap Collets

Part #	Inch Size	ANSI Metric
ERT20-#8	#8	M4
ERT20-#10	#10	M4.5, M5
ERT20-#12	#12	-
ERT20-025	1/4"	M6, M6.5
ERT20-031	5/16"	M7, M8
ERT20-037	3/8"	M10
ERT20-043	7/16"	-
ERT20-050	1/2"	M12, M12.5

## ER Tap Collets

### ER 32 Tap Collet Set

Part #	Pcs.	Range
ERT32-S016	16	#6 - 13/16"

### ER 32 Tap Collets

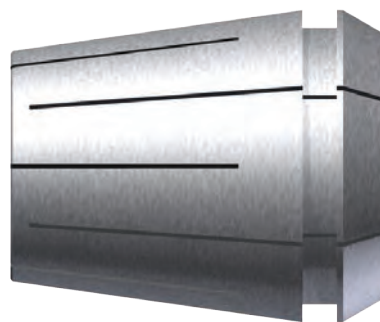
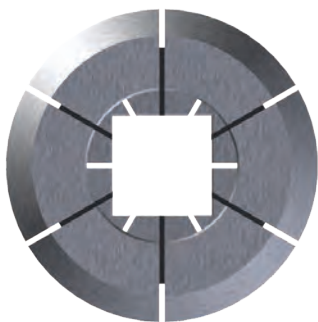
Part #	Inch Size	ANSI Metric
ERT32-#0-6	#0 - #6	-
ERT32-#8	#8 - ##8	M4
ERT32-#10	#10	M4.5, M5
ERT32-#12	#12	-
ERT32-012N	1/8" NPT	-
ERT32-025	1/4"	M6, M6.5
ERT32-025N	1/4" NPT	-
ERT32-031	5/16"	M7, M8
ERT32-037	3/8"	M10
ERT32-043	7/16"	-
ERT32-050	1/2"	M12, M12.5
ERT32-056	9/16"	M14
ERT32-062	5/8"	M16
ERT32-068	11/16"	M18
ERT32-075	3/4"	-
ERT32-081	13/16"	M20

### ER 40 Tap Collet Set

Part #	Pcs.	Range
ERT40-S017	17	1/4" - 1"

### ER 40 Tap Collets

Part #	Inch Size	ANSI Metric
ERT40-12N	1/8" NPT	-
ERT40-025	1/4"	M6, M6.5
ERT40-025N	1/4" NPT	-
ERT40-031	5/16"	M7, M8
ERT40-037	3/8"	M10
ERT40-037N	3/8" NPT	-
ERT40-043	7/16"	-
ERT40-050	1/2"	M12, M12.5
ERT40-050N	1/2" NPT	-
ERT40-056	9/16"	M14
ERT40-062	5/8"	M16
ERT40-068	11/16"	M18
ERT40-075	3/4"	-
ERT40-081	13/16"	M20
ERT40-087	7/8"	M22
ERT40-093	15/16"	M24
ERT40-100	1"	M25



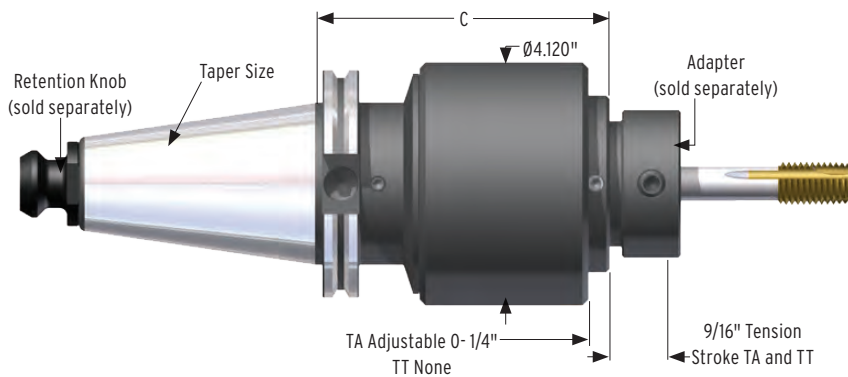
# NUMERTAP® Tapping Systems

## NUMERTAP 6000 | Tension & Compression Tapping

### FEATURES

- From 3/4" to 2\_1/2" 4-pitch and 3/4" to 3\_1/2" 6 or 8-pitch taps
- Synchronous solutions available upon request
- Large work range eliminates the need to purchase multiple units
- Free-floating tension stroke ensures thread size and quality
- Through-spindle coolant gets coolant into the hole and flushes chips

### NUMERTAP 6000 Holder



Part #	C	Taper/Shank Type	Weight (lbs)
C50-60TA5C	5.62"	CAT50	21
S20-60TA5C	6.00"	2" Straight Shank	17

### Capacity

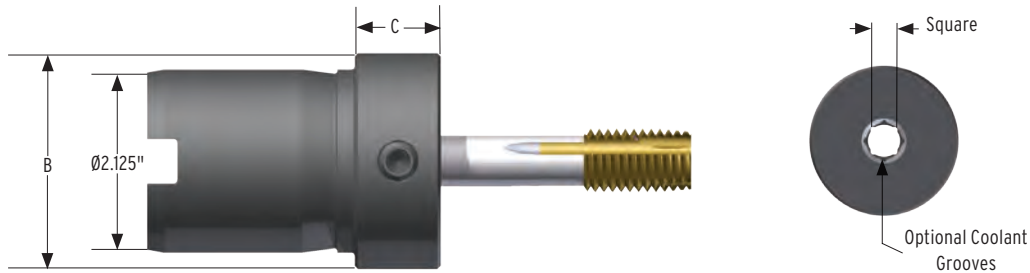
Synchronous / Tension & Compression

Inch	Metric	NPT
3/4" - 2_1/2" Hand	M19 - M56	1/2" - 2" NPT

## NUMERTAP 6000 Adapters

### FEATURES

- For use with Numertap® 6000 attachments
- Coolant Groove adapters must be used when coolant is fed through Numertap® attachments



Part #	Part # w/ Coolant Grooves	Tap Size	Metric Tap Size*	B	C	Shank	Square
6-075	6-075CG	3/4"	M19	2.50"	1.00"	.590"	.442"
6-081	-	13/16"	M20	2.50"	1.00"	.652"	.489"
6-087	-	7/8"	M22	2.50"	1.00"	.697"	.523"
6-093	-	15/16"	M24	2.50"	1.00"	.760"	.570"
6-100	6-100CG	1"	M25	2.50"	1.00"	.800"	.600"
6-106	6-106CG	1_1/16" & 1_1/8"	M27	2.50"	1.00"	.896"	.672"
6-118	6-118CG	1_3/16" & 1_1/4"	M30	2.50"	1.00"	1.021"	.766"
6-131	6-131CG	1_5/16" & 1_3/8"	M33	2.50"	1.00"	1.108"	.831"
6-144	6-144CG	1_7/16" & 1_1/2"	M36	2.50"	1.00"	1.233"	.925"
6-162	6-162CG	1_5/8"	M39	2.50"	1.00"	1.305"	.979"
6-175	6-175CG	1_3/4"	M42	3.20"	1.00"	1.430"	1.072"
6-187	6-187CG	1_7/8"	M45	3.20"	1.00"	1.519"	1.139"
6-200	6-200CG	2"	M48	3.20"	1.00"	1.644"	1.233"
6-212	6-212CG	2_1/8"	-	3.20"	3.10"	1.769"	1.327"
6-225	6-225CG	2_1/4"	M56	3.20"	3.10"	1.894"	1.420"
6-237	6-237CG	2_3/8"	-	3.20"	3.10"	2.018"	1.524"
6-250	6-250CG	2_1/2"	-	3.40"	3.10"	2.100"	1.585"
6-075N	-	3/4" NPT	-	2.50"	1.00"	.906"	.679"
6-100N	-	1" NPT	-	2.50"	1.00"	1.125"	.843"
6-125N	6-125NCG	1_1/4" NPT	-	2.50"	1.00"	1.312"	.984"
6-150N	6-150NCG	1_1/2" NPT	-	2.50"	1.00"	1.500"	1.125"
6-200N	6-200NCG	2" NPT	-	3.20"	3.10"	1.875"	1.406"

\* For DIN, ISO, or JIS metric shanks - available upon request

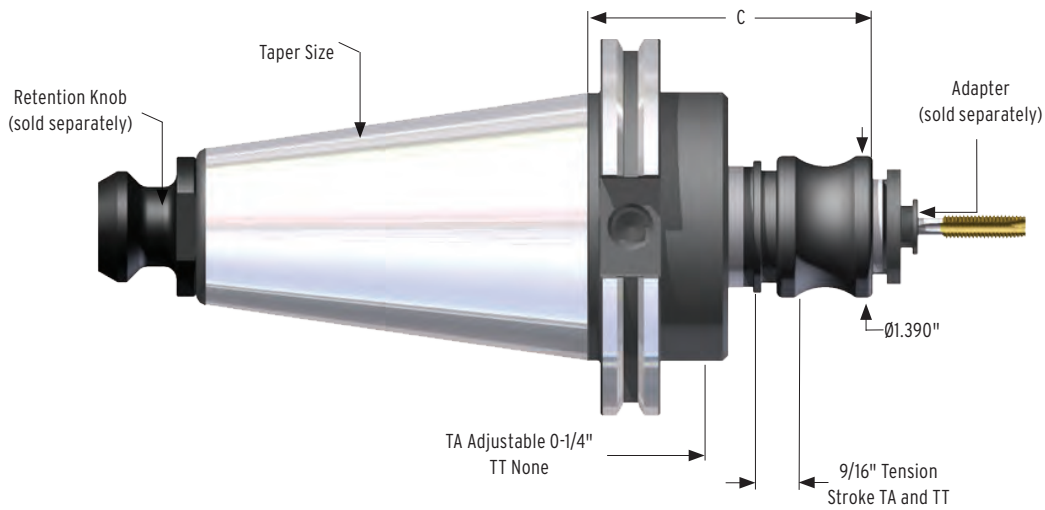
Coolant-through adapters available upon request

# NUMERTAP® Tapping Systems

## NUMERTAP 100 | Synchronous / Tension & Compression Tapping Holders

### FEATURES

- From 0 - 9/16" hand and 1/16" - 1/8" NPT
- For use with popular Bilz-style size 1 adapters
- Rigid and tension-only available for use with synchronous tapping cycles
- Radial float improves thread quality and tap life
- Adjustable short compression stroke ensures accurate depth control (TA models)
- Free-floating tension stroke ensures thread size and quality (TA and TT models)



Part #	Taper	Compression	Tension	C
B40-10TA3	BT40	0 - .250"	.56"	4.08"
B40-10TR3	BT40	Rigid	Rigid	3.93"
C40-10TA3	CAT40	0 - .250"	.56"	3.96"
C40-10TR3	CAT40	Rigid	Rigid	3.96"
C40-10TT3	CAT40	0	.56"	3.96"
C50-10TA3	CAT50	0 - .250"	.56"	3.15"
C50-10TR3	CAT50	Rigid	Rigid	3.15"
C50-10TT3	CAT50	0	.56"	3.96"
S10-10TA4	1" Straight Shank	.250"	.56"	4.43"
S10-10FS4	1" Straight Shank	Rigid	Rigid	4.43"

\* Add "C" to the end of the part # for coolant-through

### Capacity

Synchronous / Tension & Compression

Inch	NPT
#0 - 9/16" Hand	1/16" - 1/8" NPT

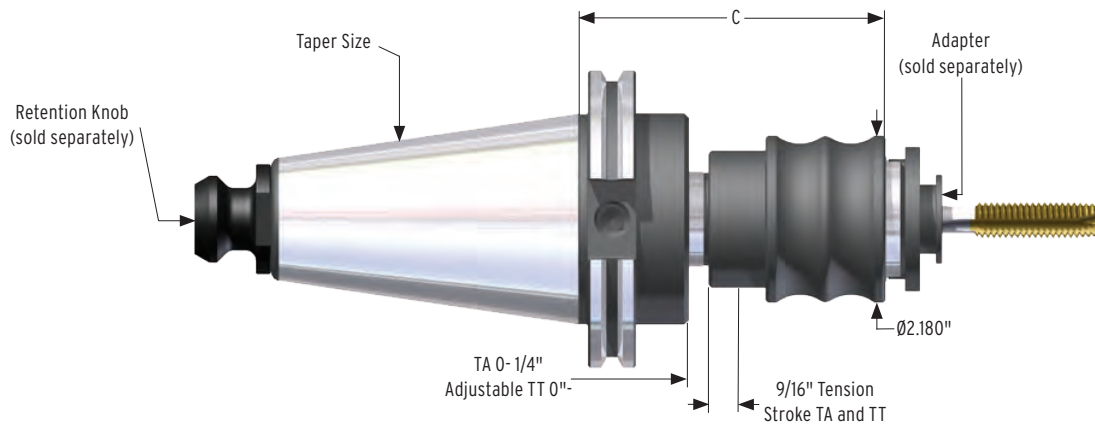


# NUMERTAP® Tapping Systems

## NUMERTAP 200 | Synchronous / Tension & Compression Tapping Holders

### FEATURES

- From 5/16" - 7/8" Hand and 1/4" - 1/2" NPT
- For use with popular Bilz-style size 2 adapters
- Rigid and tension-only available for use with synchronous tapping cycles
- Radial float improves thread quality and tap life
- Adjustable short compression stroke ensures accurate depth control (TA models)
- Free-floating tension stroke ensures thread size and quality (TA and TT models)



Part #	Taper	Compression	Tension	C
B40-20TA4	BT40	0 - 0.250"	.56"	5.19"
C40-20TA4	CAT40	0 - 0.250"	.56"	5.06"
C40-20TR4	CAT40	Rigid	Rigid	3.86"
C40-20TT4	CAT40	0	.56"	3.86"
C50-20TA4	CAT50	0 - 0.250"	.56"	4.25"
C50-20TR4	CAT50	Rigid	Rigid	4.25"
C50-20TT4	CAT50	0	.56"	4.25"
S10-20TA5	1" Straight Shank	0.250"	.56"	5.46"
S10-20FS5	1" Straight Shank	Rigid	Rigid	5.46"
S12-20TA5	1_1/4" Straight Shank	0 - 0.250"	.56"	5.46"
S20-20TA3	2" Straight Shank	0.250"	.56"	5.93"
S20-20FS3	2" Straight Shank	Rigid	Rigid	5.93"

\* Add "C" to the end of the part # for coolant-through

### Capacity

Synchronous / Tension & Compression

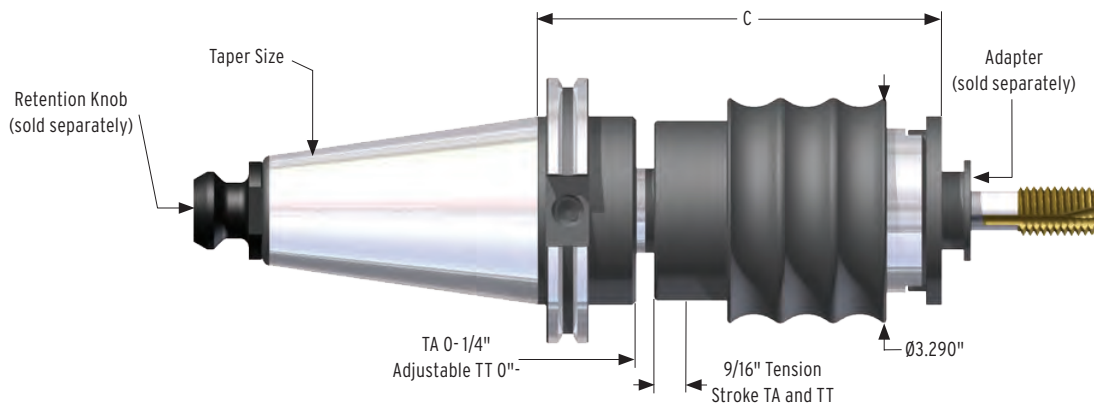
Inch	NPT
5/16" - 7/8" Hand	1/4" - 1/2" NPT

# NUMERTAP® Tapping Systems

## NUMERTAP 300 | Synchronous / Tension & Compression Tapping Holders

### FEATURES

- From 3/16" - 1\_3/8" Hand and 3/4" - 1" NPT
- For use with popular Bilz-style size 3 adapters
- Rigid and tension-only available for use with synchronous tapping cycles
- Radial float improves thread quality and tap life
- Adjustable short compression stroke ensures accurate depth control (TA models)
- Free-floating tension stroke ensures thread size and quality (TA and TT models)



Part #	Taper	Compression	Tension	C
C40-30TA5	CAT40	0-.250"	.56"	6.46"
C40-30FS5	CAT40	Rigid	Rigid	6.46"
C40-30TT5	CAT40	0	.56"	6.46"
C50-30TA5	CAT50	0-.250"	.56"	5.65"
C50-30FS5	CAT50	Rigid	Rigid	5.65"
C50-30TT5	CAT50	0	.56"	5.65"

\* Add "C" to the end of the part # for coolant-through

### Capacity

Synchronous / Tension & Compression

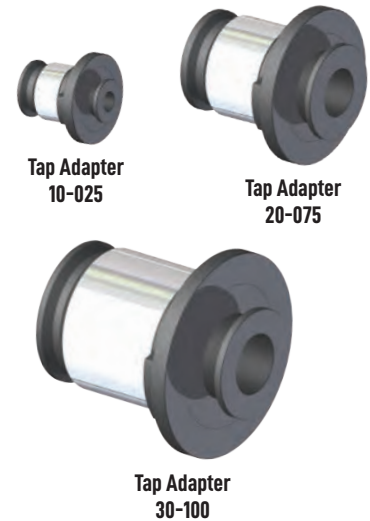
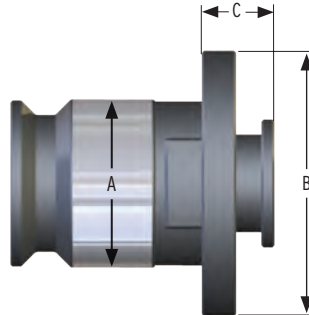
Inch	NPT
3/16" - 1_3/8" Hand	3/4" - 1" NPT

## NUMERTAP 100, 200, & 300 Adapters

- For use in NUMERTAP® 100, 200, & 300 attachments

### Tap Adapter Dimensions

Series	A	B	C
100	.75"	1.18"	.28"
200	1.22"	1.89"	.43"
300	1.89"	2.75"	.55"
100T	.75"	1.26"	.98"
200T	1.22"	1.97"	1.34"
300T	1.89"	2.83"	1.77"



Tap Size	Size 1: NUMERTAP 100			Size 2: NUMERTAP 200			Size 3: NUMERTAP 300		
	Part #	Part # w/ Coolant Groove	Part # Torque Controlled	Part #	Part # w/ Coolant Groove	Part # Torque Controlled	Part #	Part # w/ Coolant Groove	Part # Torque Controlled
#0 - 6	10-#0-6	10CG-#0-6	10T-#0-6	-	-	-	-	-	-
#8	10-#8	10CG-#8	10T-#8	-	-	-	-	-	-
#10	10-#10	10CG-#10	10T-#10	-	-	-	-	-	-
#12	10-#12	10CG-#12	10T-#12	-	-	-	-	-	-
1/4"	10-025	10CG-025	10T-025	-	-	-	-	-	-
5/16"	10-031	10CG-031	10T-031	20-031	20CG-031	20T-031	-	-	-
3/8"	10-037	10CG-037	10T-037	20-037	20CG-037	20T-037	-	-	-
7/16"	10-043	10CG-043	10T-043	20-043	20CG-043	20T-043	-	-	-
1/2"	10-050	10CG-050	10T-050	20-050	20CG-050	20T-050	-	-	-
9/16"	10-056	10CG-056	10T-056	20-056	20CG-056	20T-056	-	-	-
5/8"	-	-	-	20-062	20CG-062	20T-062	-	-	-
11/16"	-	-	-	20-068	20CG-068	20T-068	-	-	-
3/4"	-	-	-	20-075	20CG-075	20T-075	-	-	-
13/16"	-	-	-	20-081	20CG-081	20T-081	30-081	30-CG081	30T-081
7/8"	-	-	-	20-087	20CG-087	20T-087	30-087	30CG-087	30T-087
15/16"	-	-	-	-	-	-	30-093	30CG-093	30T-093
1"	-	-	-	-	-	-	30-100	30CG-100	30T-100
1_1/8"	-	-	-	-	-	-	30-106	30CG-106	30T-106
1_1/4"	-	-	-	-	-	-	30-118	30CG-118	30T-118
1_3/8"	-	-	-	-	-	-	30-131	30CG-131	30T-131
1/16" NPT	10-006N	10CG-006N	10T-006N	-	-	-	-	-	-
1/8" NPT	10-012N	10CG-012N	10T-012N	-	-	-	-	-	-
1/4" NPT	-	-	-	20-025N	20CG-025N	20T-025N	-	-	-
3/8" NPT	-	-	-	20-037N	20CG-037N	20T-037N	-	-	-
1/2" NPT	-	-	-	20-050N	20CG-050N	20T-050N	-	-	-
3/4" NPT	-	-	-	-	-	-	30-075N	30CG-075N	30T-075N
1" NPT	-	-	-	-	-	-	30-100N	30CG-100N	30T-100N
Set (1 ea.)	10-S012	10CG-S012	10T-S012	20-S013	20CG-S013	20T-S013	30-S009	30-CGS009	30T-S009

# PRODUCTION

## TOOL HOLDERS



# DAVITA



## Probe Holders

- Industry-standard .44" bore fits most popular probes
- All critical surfaces are precision ground

## Floating Reamer Holders

- For use with reamers and porting tools
- 0.015" radial float and 1 deg. of angular float to follow existing hole



## Tool Blanks

- Wide selection of tapers, projections, and diameters
- Taper hardened to 58-62 Rc, projection hardened to 15-20 Rc for easy machining



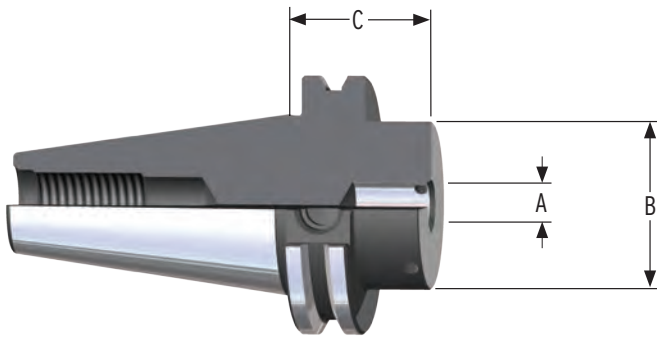
## Stub Arbors

- Arbor shaft 0.0002" max. T.I.R
- Constructed from AISI 8620 Alloy Steel for superior wear resistance



# Production Holders

## Probe Holders



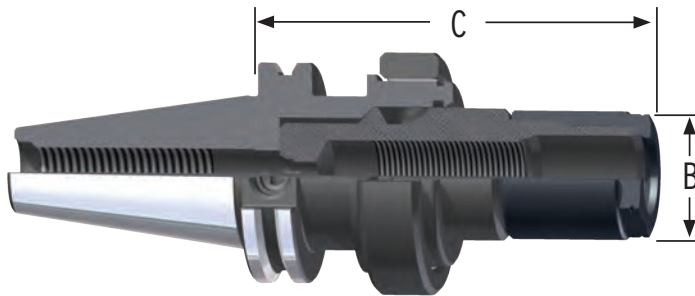
### FEATURES

- Constructed of alloy steel for long, durable service life
- All critical surfaces are precision ground
- Industry-standard .44" bore fits most popular probes

Part #	Taper	A	B	C	Set Screw
C40-M11PH1	CAT 40	.44"	1.63"	1.39"	029-092
C50-M11PH1	CAT 50	.44"	1.63"	1.39"	029-092
B30-M11PH1	BT 30	.44"	1.63"	1.70"	029-092
B340-M11PH1	BT 40	.44"	1.63"	1.70"	029-092



## Floating Reamer Holders



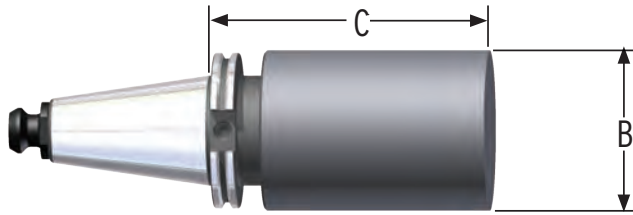
### FEATURES

- For use with reamers and porting tools
- 0.015" radial float and 1 deg. of angular float to following existing drilled hole
- Constructed of alloy steel for long, durable service life

Part #	Taper	B	C	Collet Nut (incl.)	Back-Up Screw (incl.)	Nut Torque
C40-10FH5C	CAT 40	2.44"	5.25"	100HCN	BS-18	60 ft/lbs
C40-75FH5C	CAT 40	1.44"	5.06"	ECN12	BS-18	40 ft/lbs
C50-10FH5C	CAT 50	2.44"	5.25"	100HCN	BS-18	60 ft/lbs
C50-15FH5C	CAT 50	3.43"	6.50"	15CN	BS-18	70 ft/lbs
C50-75FH5C	CAT 50	1.44"	5.06"	ECN12	BS-18	40 ft/lbs
B40-10FH5C	BT 40	2.44"	5.25"	100HCN	BS-18	60 ft/lbs
S10-10FH5C	1" SS	2.44"	5.25"	100HCN	BS-18	60 ft/lbs
S10-15FH6C	1" SS	3.43"	6.50"	15CN	BS-18	70 ft/lbs
S10-75FH5C	1" SS	1.44"	5.06"	ECN12	BS-18	40 ft/lbs



## Tool Blanks



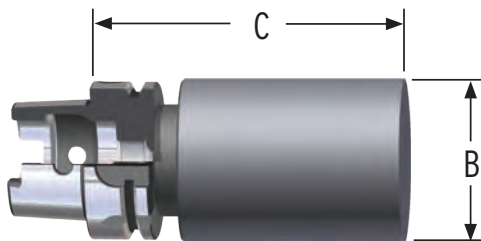
### FEATURES

- Parlec offers tool blanks made from two materials to meet any application
- Taper hardened to 58 - 62 Rc for wear resistance
- Projection hardened to 15 - 20 Rc and require heat-treatment after machining

### 8620 Tool Holder Blanks

Constructed of 8620 steel, preferred for long, durable life of steep taper tooling

Part #	Taper	B	C
B30-23BB500	BT30	2.3"	5"
B40-30BB700	BT40	3.0"	7"
C40-25BB8	CAT 40	2.5"	8"
C40-39BB1200	CAT40	3.9"	12"
C40-60BB800	CAT40	6.0"	8"
C40F-39BB1200	CAT40 SimulFit	3.9"	12"
C40F-60BB800	CAT40 SimulFit	6.0"	8"
C50-27BB8	CAT50	2.7"	8"
C50-39BB1000	CAT50	3.9"	10"
C50-40BB7	CAT50	4.0"	7"
C50-61BB7	CAT 50	6.1"	7"
C50F-39BB1000	CAT50 SimulFit	3.9"	10"
C50F-45BB1400	CAT50 SimulFit	4.5"	14"



### 5115 Tool Holder Blanks

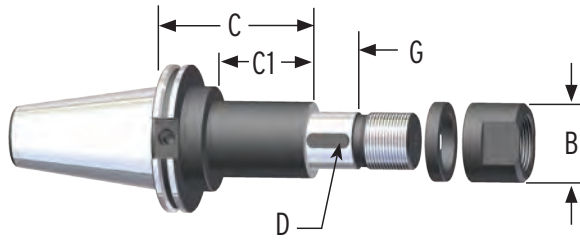
Constructed of 5115 steel preferred for superior fatigue strength and cracking resistance of HSK tooling

Part #	Taper	B	C
H63A-64BB100	HSK63A	2.5"	4"
H63A-39BB1000	HSK63A	3.9"	10"
H63A-39BB1200	HSK63A	3.9"	12"
H63A-60BB800	HSK63A	6.0"	8"
H100A-39BB1000	HSK100A	3.9"	10"
H100A-60BB800	HSK100A	6.0"	8"

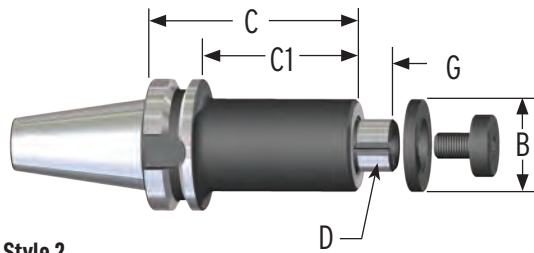


# Production Holders

## Stub Arbors



Style 1



Style 2

### FEATURES

- Arbor shaft 0.0002" max. T.I.R.
- Constructed of alloy steel for long, durable service life
- Hardened to 56 - 60 Rc



### CAT 40 Stub Arbors

Part #	Pilot Dia.	Style	B	C	C1	D	G	Drive Key (incl.)	Lock Screw (incl.)
C40-10SA4	1"	1	1.56"	4.00"	2.62"	.25"	1.25"	SAK-10	013-502
C40-10SA400	1"	2	1.75"	4.00"	3.25"	.25"	.72"	SAK-V10	10LS
C40-12SA4	1-1/4"	1	1.88"	4.00"	2.45"	.31"	1.25"	SAK-12	013-503
C40-12SA400	1-1/4"	2	1.75"	4.00"	3.25"	.31"	.72"	SAK-V12	12LS
C40-15SA400	1-1/2"	2	2.12"	4.00"	1.50"	.37"	.98"	SAK-V15	15LS

### CAT 50 Stub Arbors

Part #	Pilot Dia.	Style	B	C	C1	D	G	Drive Key (incl.)	Lock Screw (incl.)
C50-10SA4	1"	1	1.56"	4.00"	2.62"	.25"	1.25"	SAK-10	013-502
C50-10SA500	1"	2	1.50"	5.00"	1.70"	.25"	.72"	SAK-V10	10LS
C50-10SA6	1"	1	1.56"	6.00"	4.62"	.25"	1.25"	SAK-10	013-502
C50-12SA4	1-1/4"	1	1.88"	4.00"	2.62"	.31"	1.25"	SAK-12	013-503
C50-12SA6	1-1/4"	1	1.88"	6.00"	4.62"	.31"	1.25"	SAK-12	013-503
C50-12SA600	1-1/4"	2	1.75"	6.00"	1.50"	.31"	.72"	SAK-V12	12LS
C50-15SA4	1-1/2"	1	2.00"	4.00"	2.62"	.37"	1.25"	SAK-15	013-501
C50-15SA6	1-1/2"	1	2.00"	6.00"	2.62"	.37"	1.25"	SAK-15	013-501
C50-15SA600	1-1/2"	2	2.12"	6.00"	1.62"	.37"	.98"	SAK-V15	15LS
C50-20SA6	2"	1	2.75"	6.00"	5.25"	.50"	1.25"	SAK-20	013-500

### BT 40 Stub Arbors

Part #	Pilot Dia.	Style	B	C	C1	D	G	Drive Key (incl.)	Lock Screw (incl.)
B40-10SA400	1"	2	1.75"	4.00"	2.97"	.25"	.72"	SAK-V10	10LS
B40-12SA400	1-1/4"	2	1.75"	4.00"	2.94"	.31"	.72"	SAK-V12	12LS



## Stub Arbors | Accessories

### Spacers



Part #	Fits Arbor Dia.	Thickness
014-906	1"	.125"
014-921	1"	.250"
014-907	1"	.375"
014-908	1"	.750"
014-903	1-1/4"	.125"
014-915	1-1/4"	.250"
014-904	1-1/4"	.375"
014-905	1-1/4"	.750"
014-909	1-1/2"	.125"
014-902	1-1/2"	.250"
014-910	1-1/2"	.375"
014-901	1-1/2"	.500"
014-911	1-1/2"	.750"
014-912	2"	.125"
014-913	2"	.375"
014-914	2"	.750"

### Nuts (For Style 1 Stub Arbors)



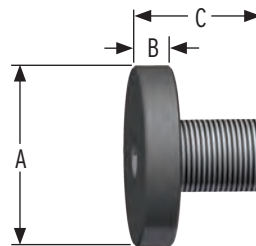
Part #	Thread	Length
013-502	1" - 14	1.00"
013-503	1-1/4" - 12	1.25"
013-501	1-1/2" - 12	1.50"
013-500	2" - 12	1.75"

### Drive Keys

Part #	Arbor Size
SAK-10	1"
SAK-V10	1"
SAK-12	1-1/4"
SAK-V12	1-1/4"
SAK-15	1-1/2"
SAK-V15	1-1/2"
SAK-20	2"



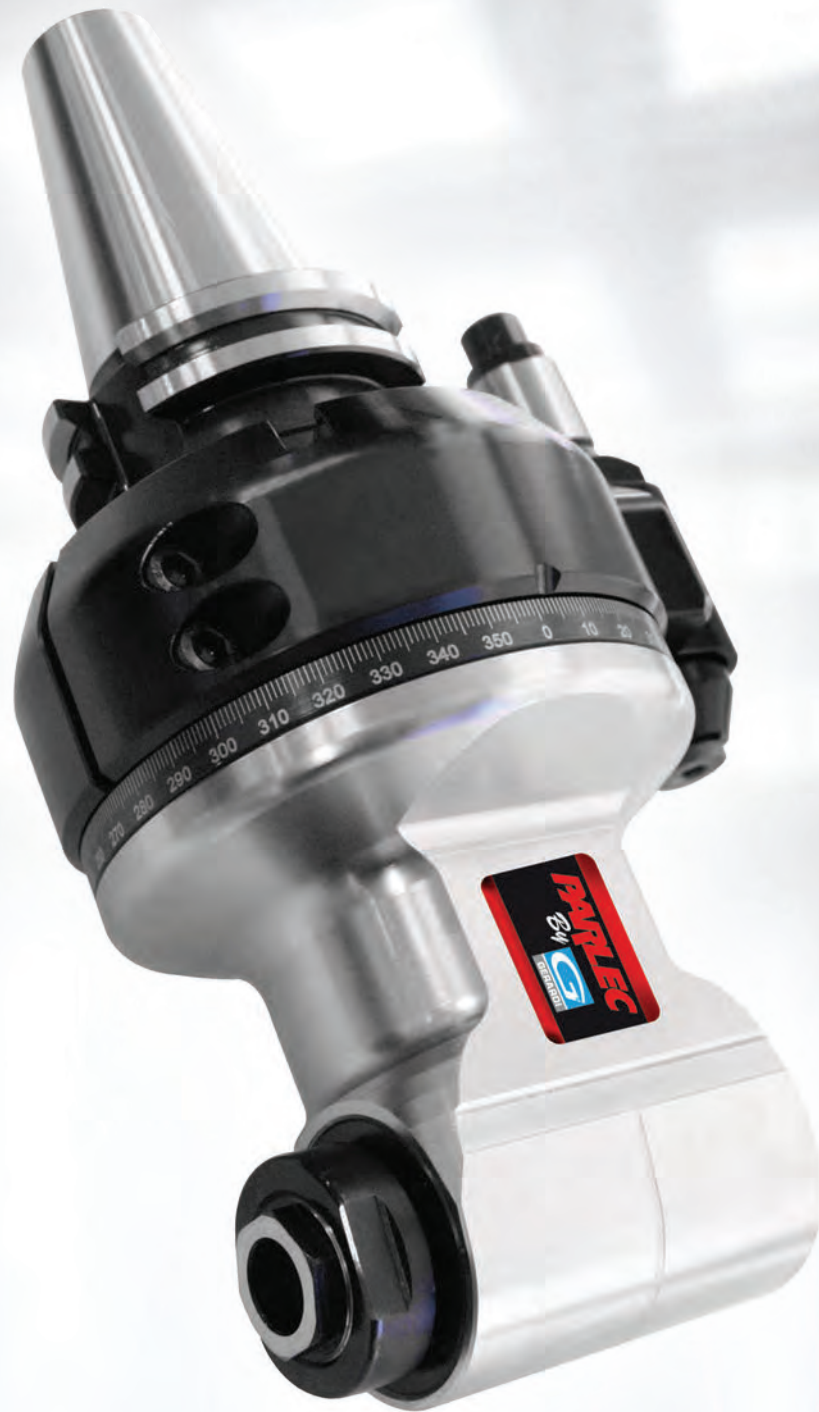
### Lock Screws (For Style 2 Stub Arbors)



Part #	Arbor Size	A	B	C	Thread	Hex	Torque
10LS	1"	1.19"	.28"	1.12"	1/2" - 20	5/16"	60 ft/lbs
12LS	1-1/4"	1.50"	.50"	1.44"	5/8" - 18	5/16"	70 ft/lbs
15LS	1-1/2"	1.88"	.50"	1.75"	3/4" - 16	3/8"	75 ft/lbs
20LS	2"	2.50"	.50"	1.75"	1" - 14	1/2"	100 ft/lbs
25LS	2-1/2"	3.12"	.50"	1.75"	1" - 14	1/2"	100 ft/lbs

# ANGLE HEADS

---



# RAM 430

## DESIGN

The Compact design, along with mentioned specifications, allows for high performance speeds, and long tool life.

Case hardened and ground shank and shaft

Modular antirotation group

Graduated retaining ring

## STOP BLOCK

with case hardened bushing and gasket



Positioning pin with automatic release

Standard 150Psi (10 bar) coolant through the pin

## OUTPUT

- ER collet (standard)
- Weldon
- Shell mill holder
- Special

Treated steel head body with 360° position and internal air pressure, maximum rigidity and corrosion resistant. Minimum thermal expansion

Precision/lapped surface for accurate alignment

## BEARINGS

Angular contact preloaded ball bearings of precision class ABEC 9



## GEARS

Gleason ground spiral bevel gears maximum performance and minimum vibration



# Angle Heads

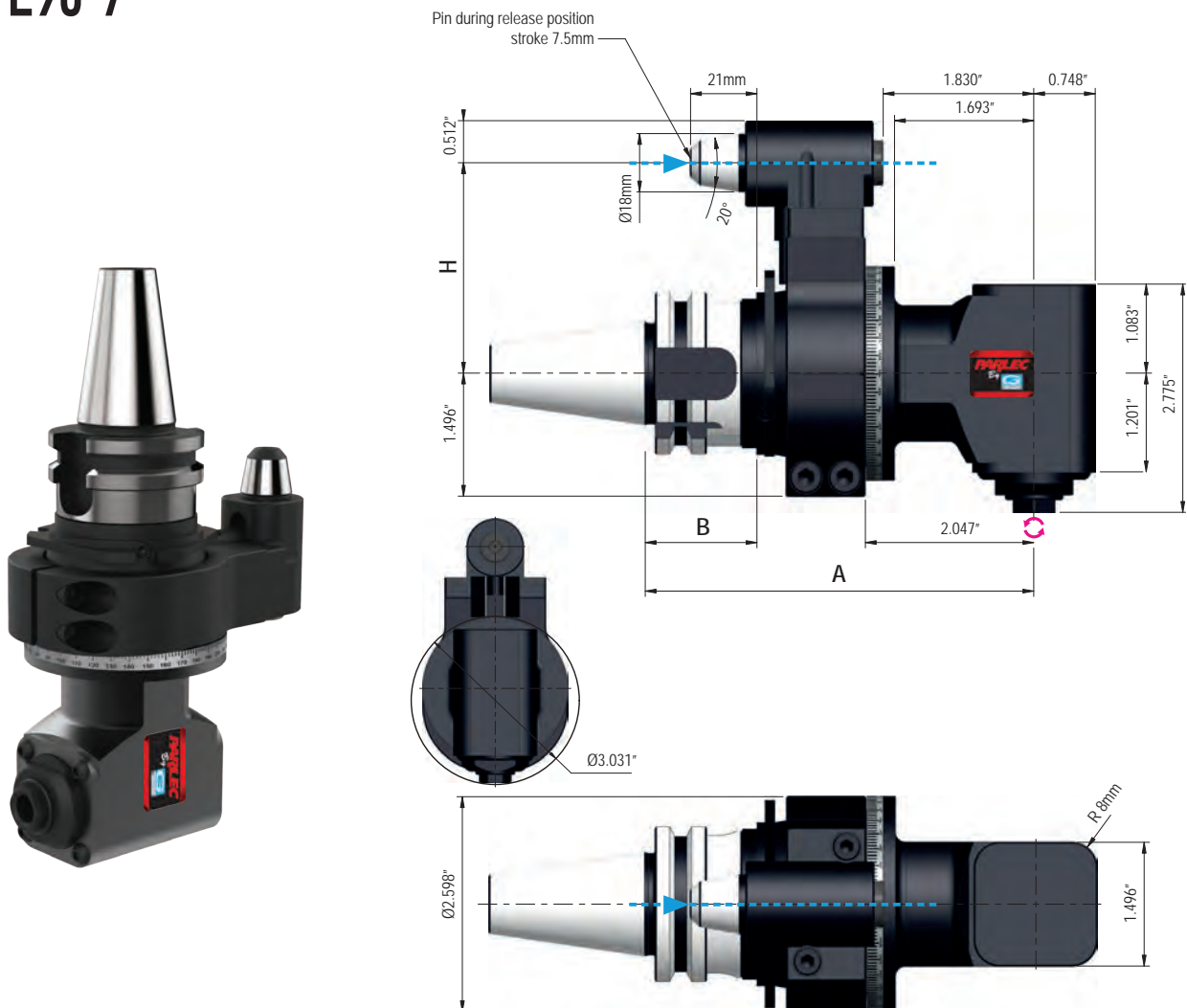
**One Head for Many Machines** - Interchangeable drive tapers



**One Machine with Many Heads** - System reduces cost



## FL90-7



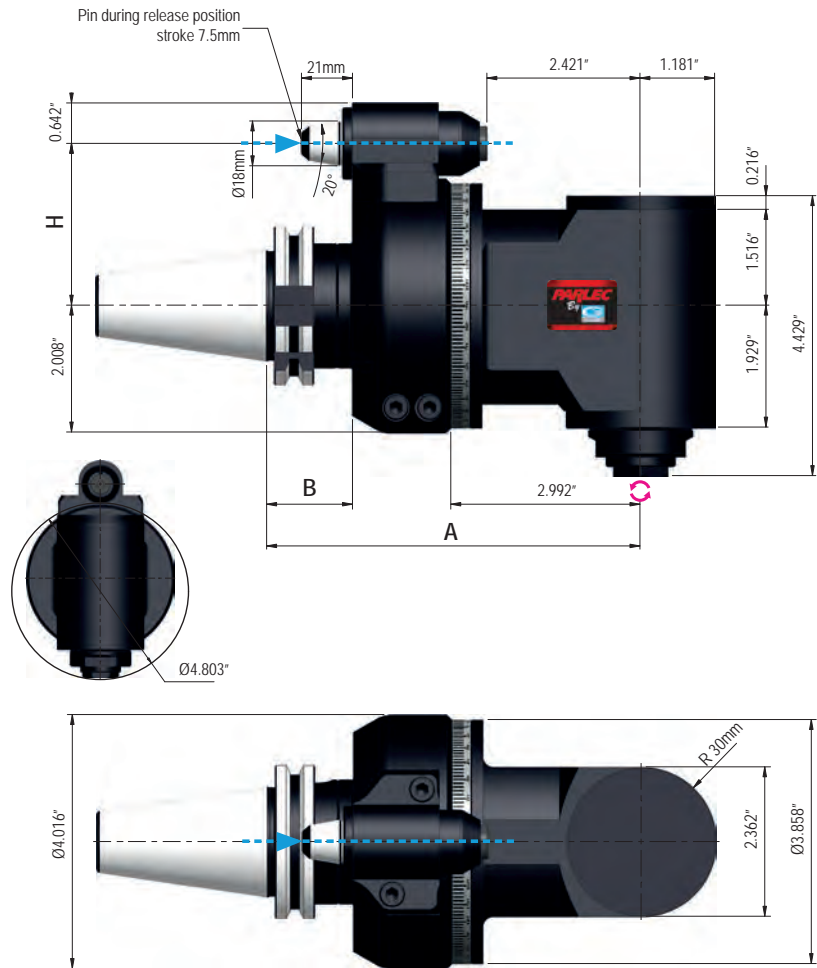
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER11	1/4"	1:1	8,000	27 ft/lbs	44 in/lbs	Through Positioning Pin	Opposite Spindle	Light

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	4.72"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	5.3 lbs
BT 40	4.72"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	5.3 lbs
CAT 50	4.72"	1.378"	3.15" (80)	4.33" (110)	9.3 lbs
HSK63A	5.08"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	5.3 lbs
HSK100A	5.08"	1.811"	3.15" (80)	4.33" (110)	9.3 lbs

\* Other spindle connections available: BT30, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FL90-13

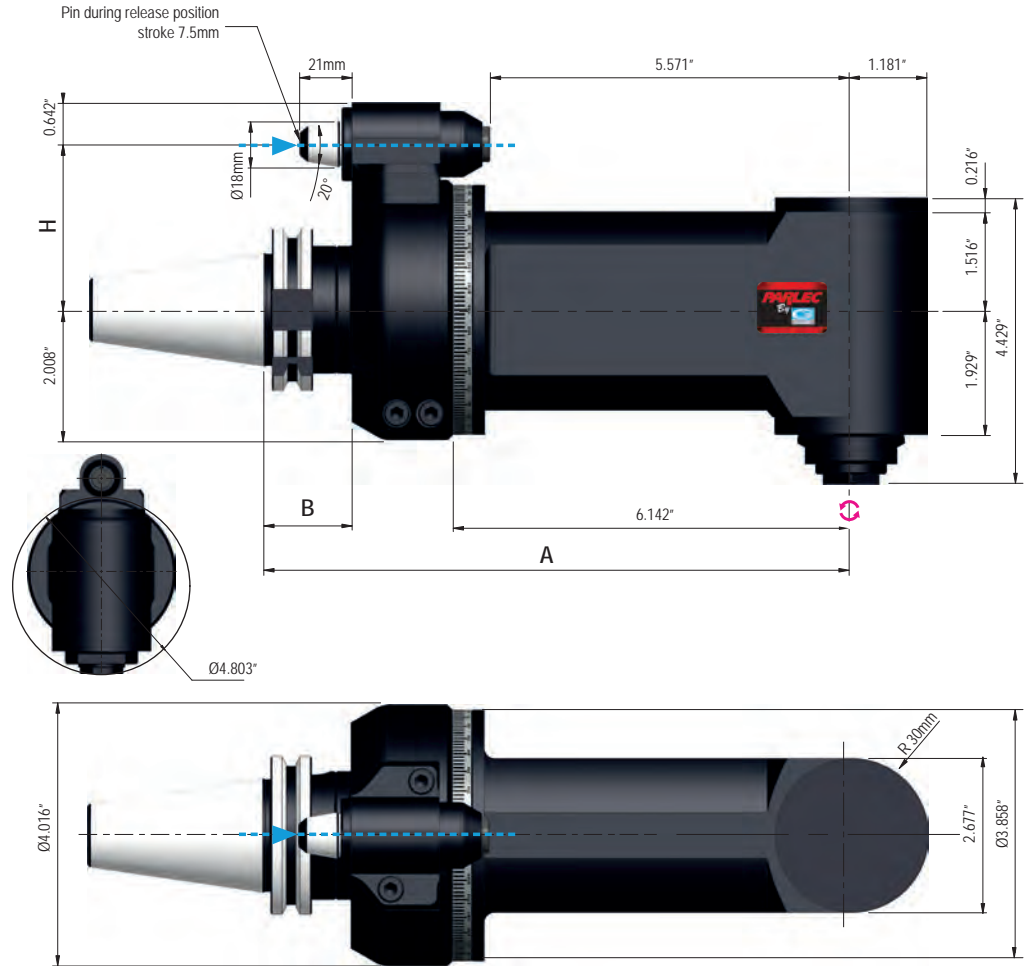


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER20	1/2"	1 : 1	6,000	126 ft/lbs	177 in/lbs	Through Positioning Pin	Opposite Spindle	Light

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
BT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
CAT 50	5.91"	1.378"	3.15" (80)	4.33" (110)	16.5 lbs
HSK63A	6.26"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
HSK100A	6.26"	1.811"	3.15" (80)	4.33" (110)	16.5 lbs

\*Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76–93.

## FL90-13L



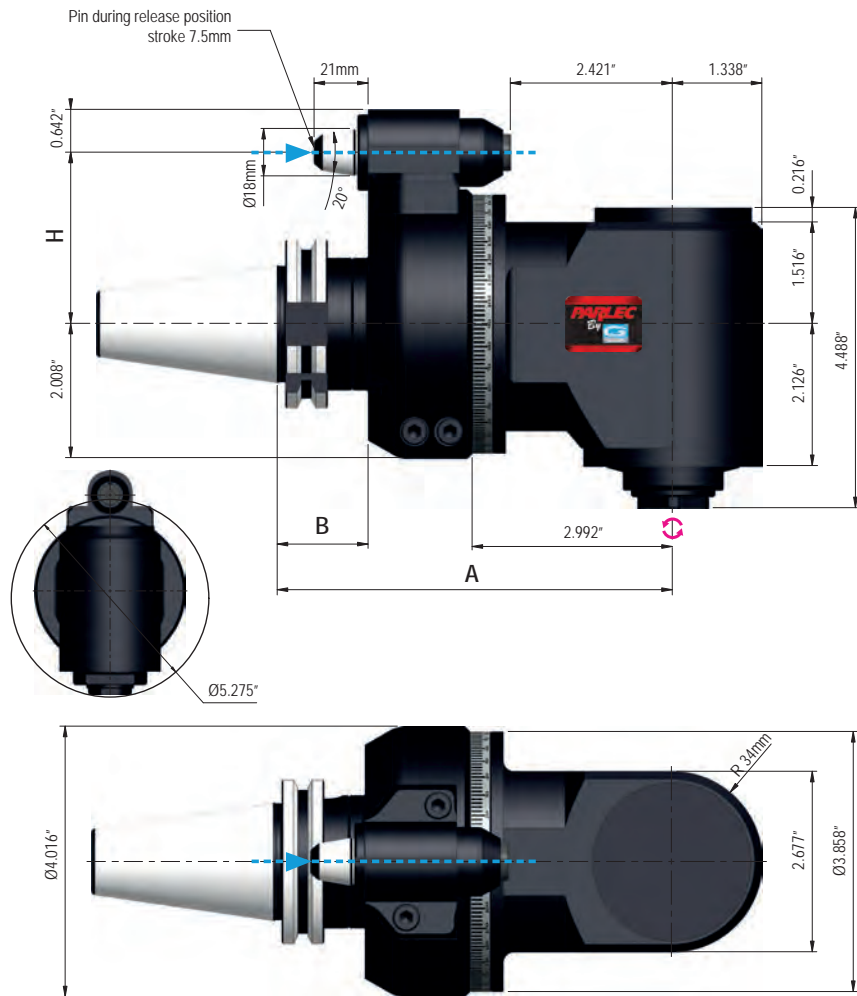
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER20	1/2"	1:1	6,000	126 ft/lbs	177 in/lbs	Through Positioning Pin	Opposite Spindle	Light

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	9.06"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	12.6 lbs
BT 40	9.06"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	12.6 lbs
CAT 50	9.06"	1.378"	3.15" (80)	4.33" (110)	17.6 lbs
HSK63A	9.41"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	12.6 lbs
HSK100A	9.41"	1.811"	3.15" (80)	4.33" (110)	17.6 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FL90-16



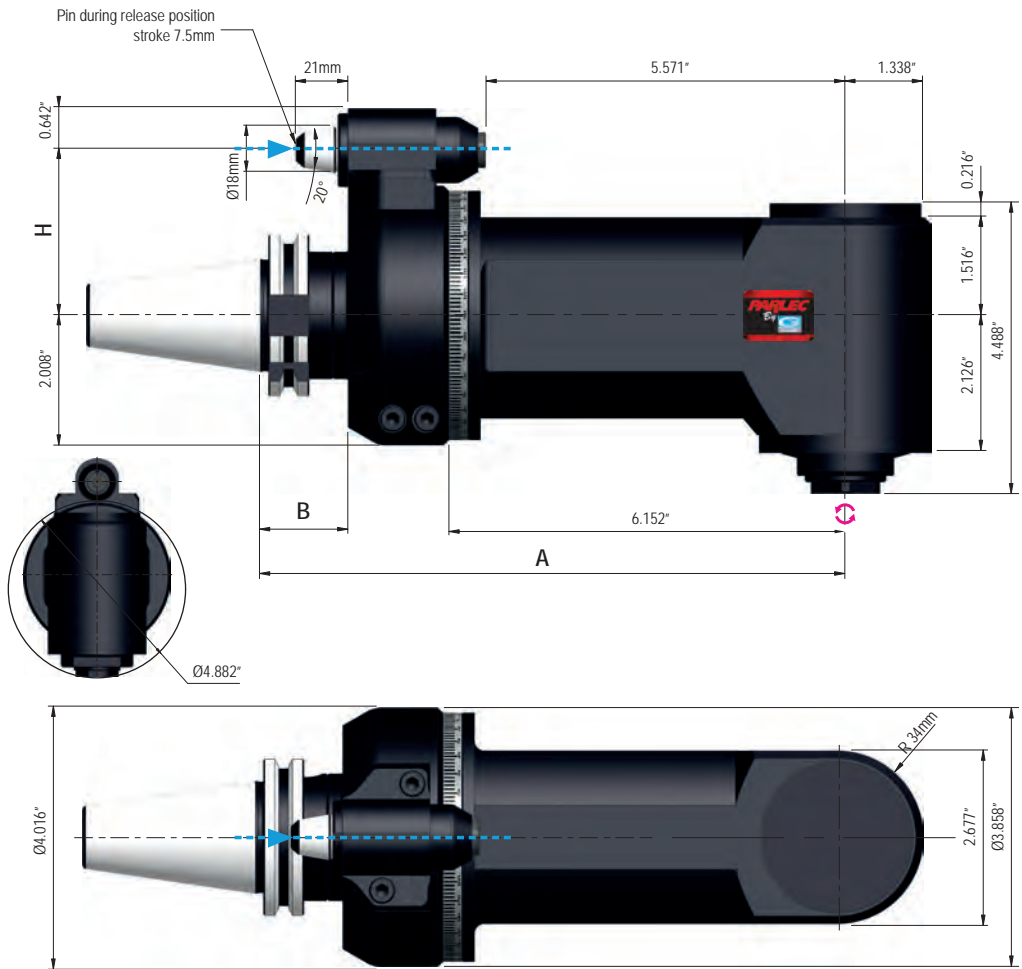
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	4,000	191 ft/lbs	230 in/lbs	Through Positioning Pin	Opposite Spindle	Light

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
BT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
CAT 50	5.91"	1.378"	3.15" (80)	4.33" (110)	16.5 lbs
HSK63A	6.26"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
HSK100A	6.26"	1.811"	3.15" (80)	4.33" (110)	16.5 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.



## FL90-16L



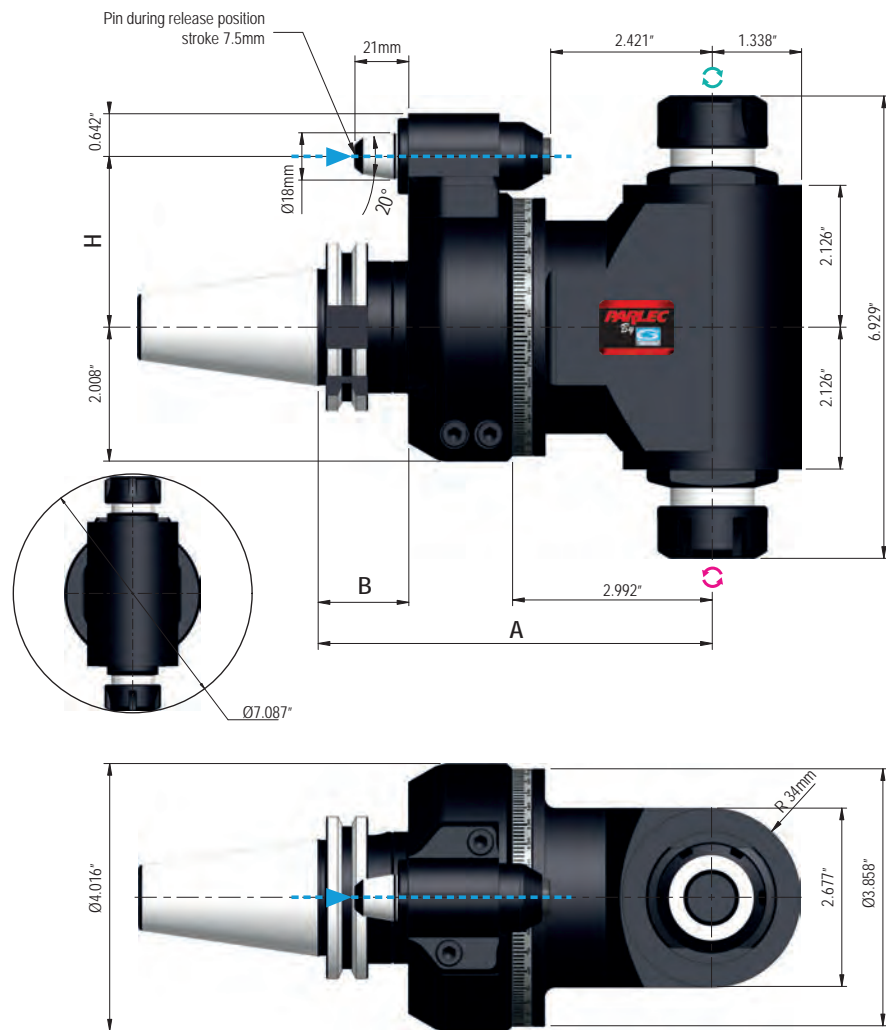
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	4,000	191 ft/lbs	230 in/lbs	Through Positioning Pin	Opposite Spindle	Light

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	9.06"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.5 lbs
BT 40	9.06"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.5 lbs
CAT 50	9.06"	1.378"	3.15" (80)	4.33" (110)	18.7 lbs
HSK63A	9.41"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	14.5 lbs
HSK100A	9.41"	1.811"	3.15" (80)	4.33" (110)	18.7 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FL90-16D

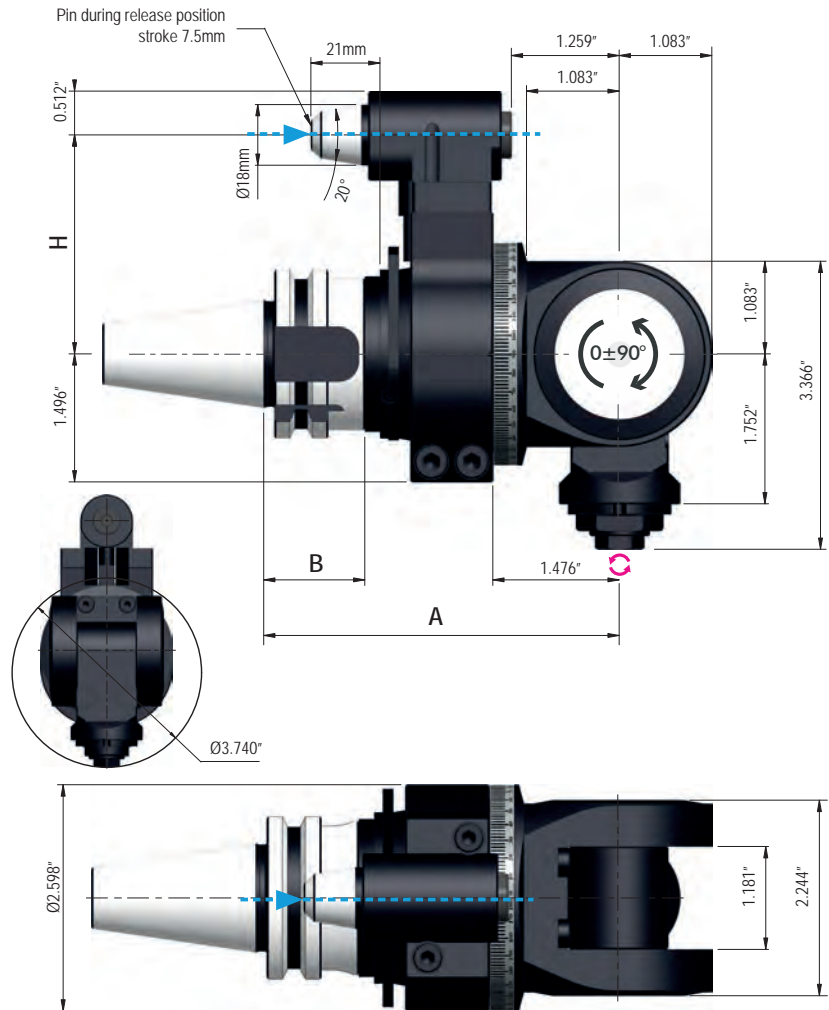


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	4,000	191 ft/lbs	230 in/lbs	Through Positioning Pin	One side same/ Opposite Spindle	Light

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.3 lbs
BT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.3 lbs
CAT 50	5.91"	1.378"	3.15" (80)	4.33" (110)	18.7 lbs
HSK63A	6.26"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	14.3 lbs
HSK100A	6.26"	1.811"	3.15" (80)	4.33" (110)	18.7 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## FLU-7



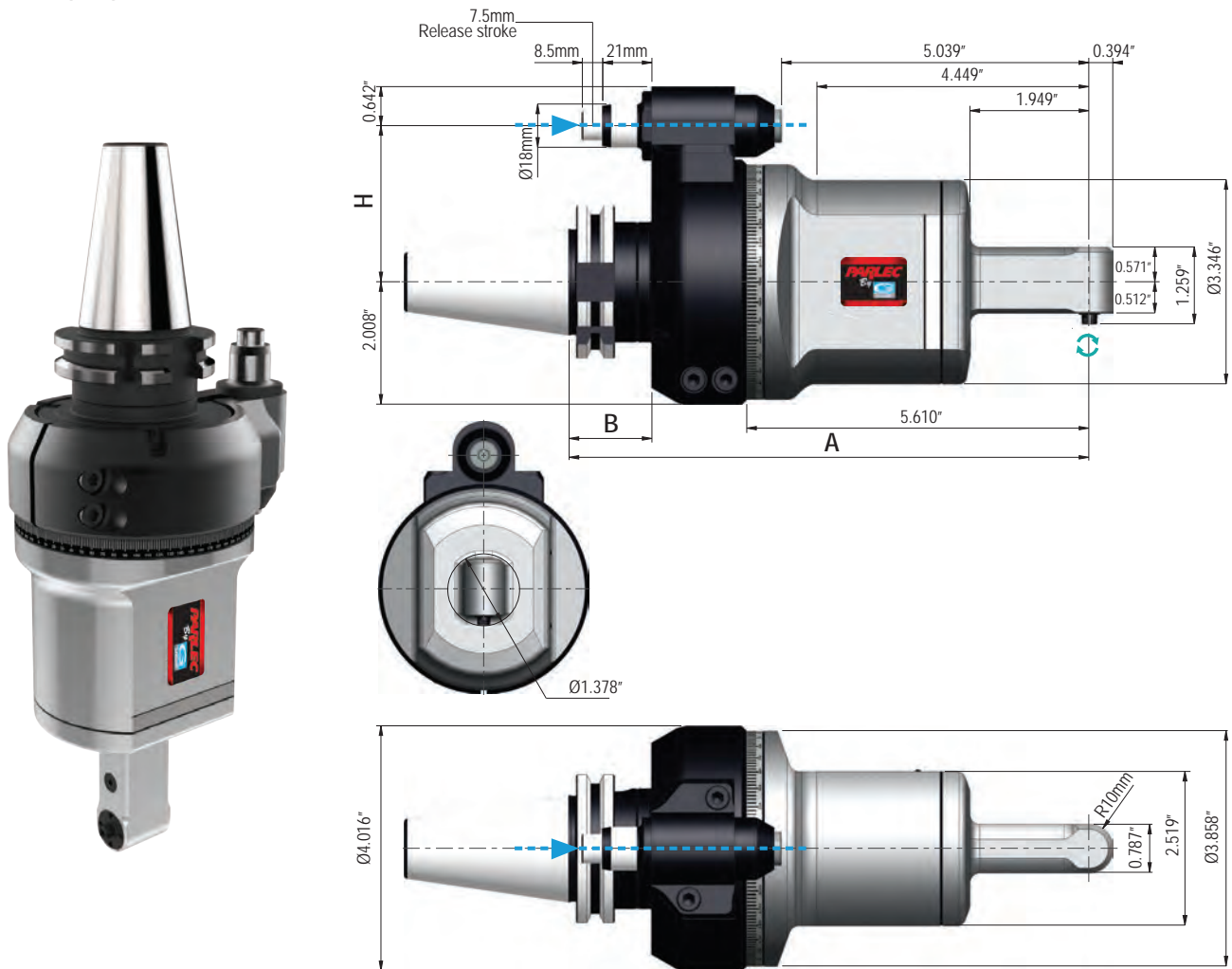
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER11	1/4"	1:1	8,000	18.5 ft/lb	44 in/lbs	Through Positioning Pin	Opposite Spindle	Light, Adjustable

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	4.15"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	4.4 lbs
BT 40	4.15"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	4.4 lbs
HSK63A	4.50"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	4.4 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FS90-3

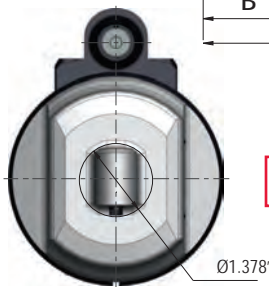
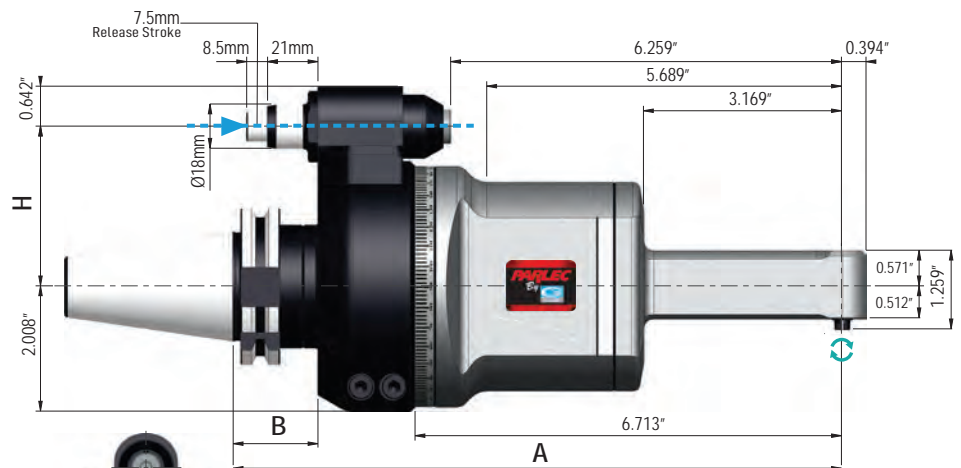


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
6023E	3 mm	1:1.2308	8,000	16 ft/lbs	18 in/lbs	Through Positioning Pin	Same as Spindle	Slim

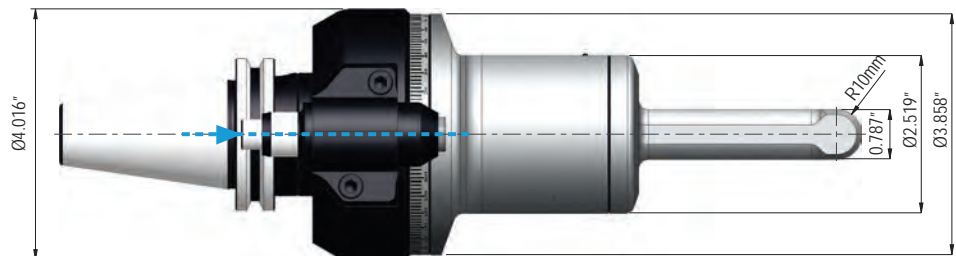
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	8.52"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	12.1 lbs
BT 40	8.52"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	12.1 lbs
CAT 50	8.52"	1.378"	3.15" (80)	4.33" (110)	16.5 lbs
HSK63A	8.88"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	12.1 lbs
HSK100A	8.88"	1.811"	3.15" (80)	4.33" (110)	16.5 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## FS90-3L



**POSSIBILITY OF DIFFERENT LENGTH WITH 50-80-100mm STEP**



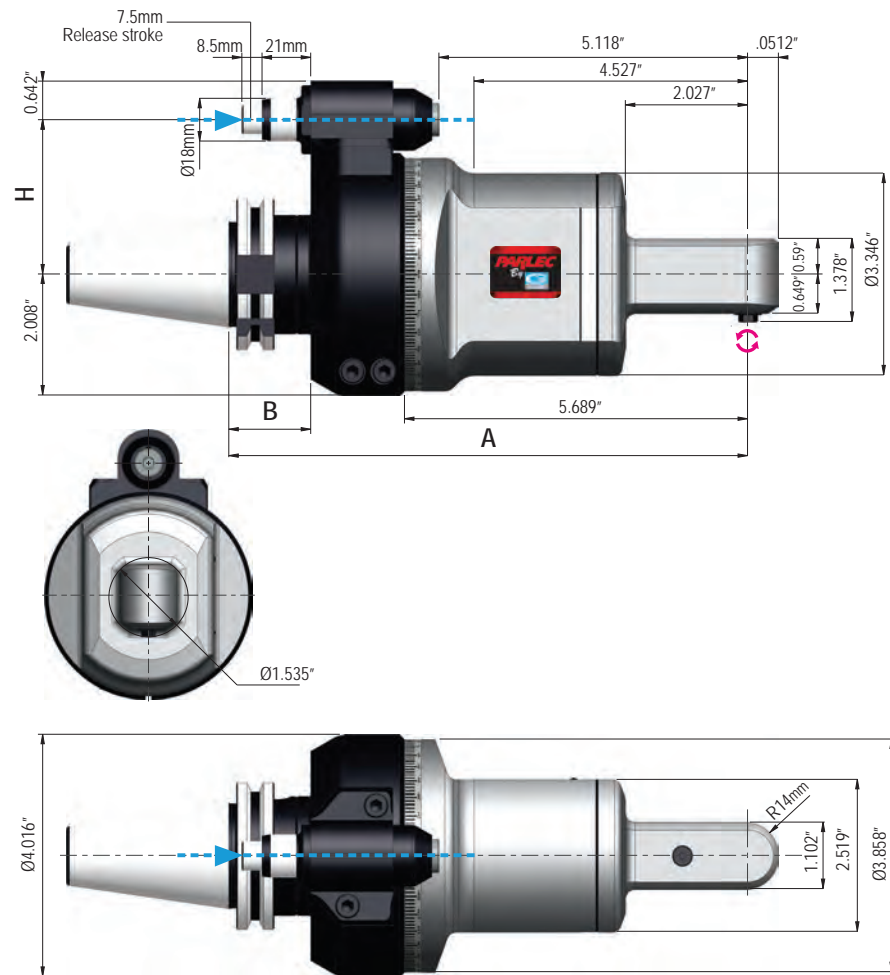
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
6023E	3 mm	1:1.2308	8,000	16 ft/lbs	18 in/lbs	Through Positioning Pin	Same as Spindle	Slim, Extended

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	9.74"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.1 lbs
BT 40	9.74"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.1 lbs
CAT 50	9.74"	1.378"	3.15" (80)	4.33" (110)	19.0 lbs
HSK63A	10.6"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	14.1 lbs
HSK100A	10.6"	1.811"	3.15" (80)	4.33" (110)	19.0 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FS90-4

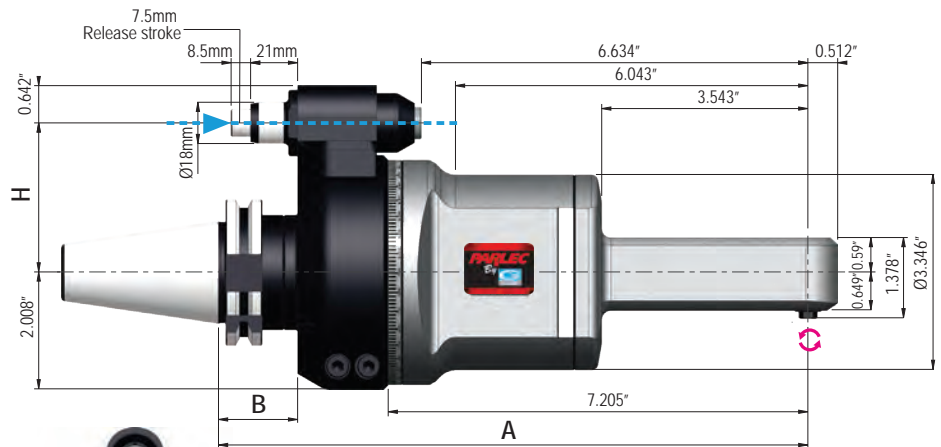


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
600E	4 mm	1:1	8,000	27 ft/lbs	31 in/lbs	Through Positioning Pin	Opposite Spindle	Slim

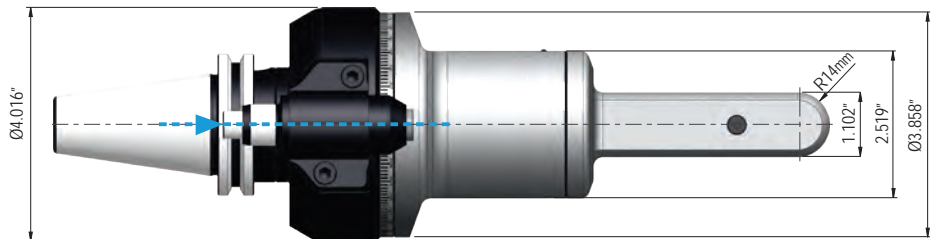
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	8.60"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	12.1 lbs
BT 40	8.60"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	12.1 lbs
CAT 50	8.60"	1.378"	3.15" (80)	4.33" (110)	16.5 lbs
HSK63A	8.95"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	12.1 lbs
HSK100A	8.95"	1.811"	3.15" (80)	4.33" (110)	16.5 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93..

## FS90-4L



**POSSIBILITY OF DIFFERENT LENGTH WITH 50-80-100mm STEP**



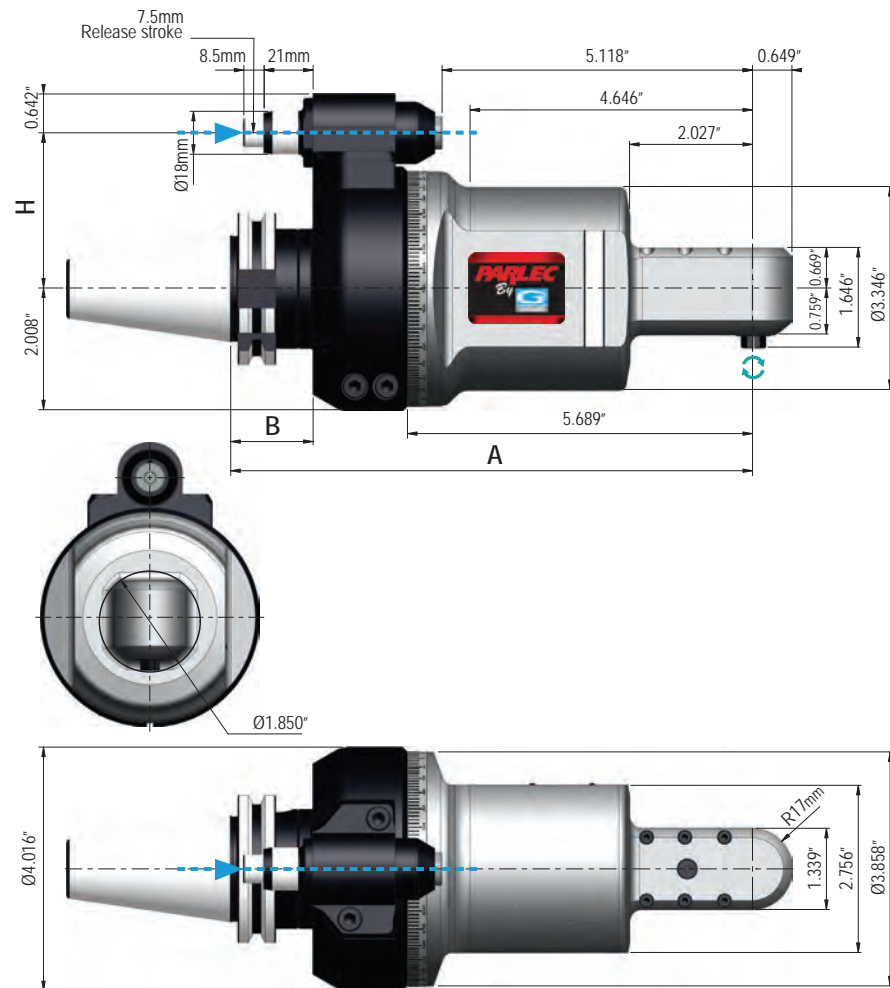
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
600E	4 mm	1:1	8,000	27 ft/lbs	31 in/lbs	Through Positioning Pin	Opposite Spindle	Slim, Extended

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	10.12"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.9 lbs
BT 40	10.12"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	14.9 lbs
CAT 50	10.12"	1.378"	3.15" (80)	4.33" (110)	19.8 lbs
HSK63A	10.47"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	14.9 lbs
HSK100A	10.47"	1.811"	3.15" (80)	4.33" (110)	19.8 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FS90-6



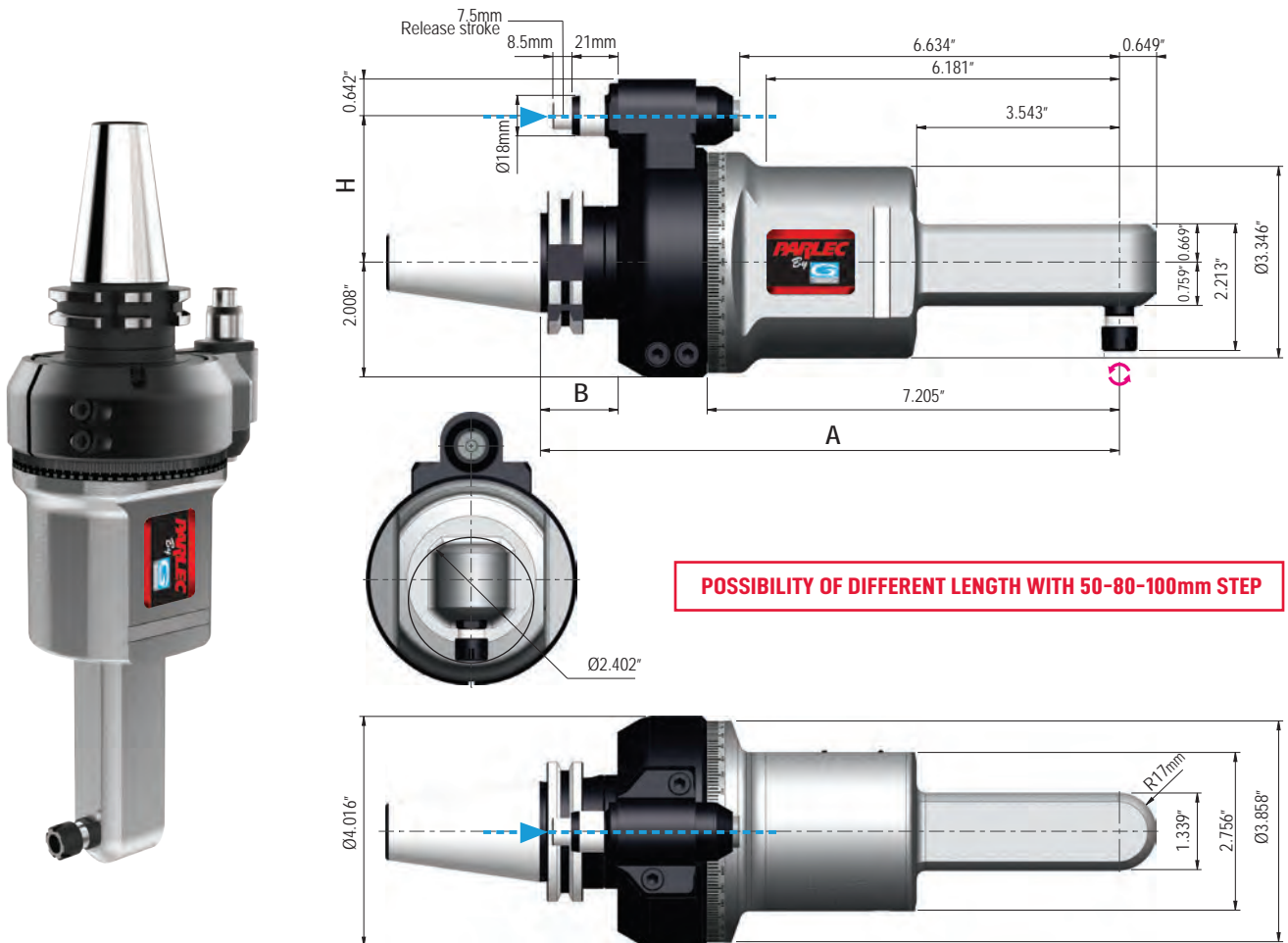
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
601E	6 mm	1:1	8,000	34 ft/lbs	35 in/lbs	Through Positioning Pin	Opposite Spindle	Slim

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	8.60"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.5 lbs
BT 40	8.60"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.5 lbs
CAT 50	8.60"	1.378"	3.15" (80)	4.33" (110)	18.5 lbs
HSK63A	8.96"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	13.5 lbs
HSK100A	8.96"	1.811"	3.15" (80)	4.33" (110)	18.5 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76–93.



## FS90-6L



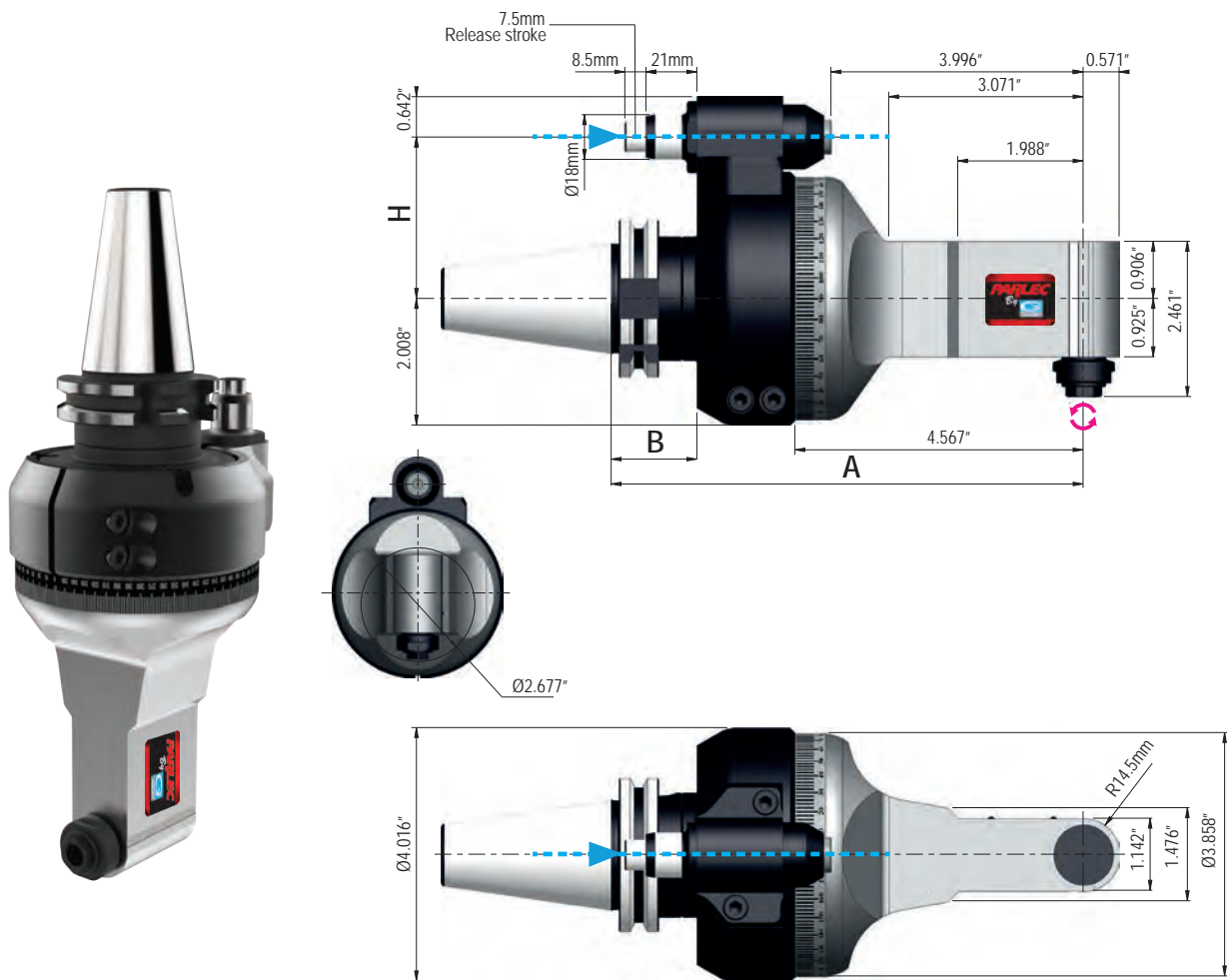
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER11	1/4"	1:1	8,000	34 ft/lbs	35 in/lbs	Through Positioning Pin	Opposite Spindle	Slim, Extended

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	10.12"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.5 lbs
BT 40	10.12"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.5 lbs
CAT 50	10.12"	1.378"	3.15" (80)	4.33" (110)	18.5 lbs
HSK63A	10.47"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	13.5 lbs
HSK100A	10.47"	1.811"	3.15" (80)	4.33" (110)	18.5 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## F90-7

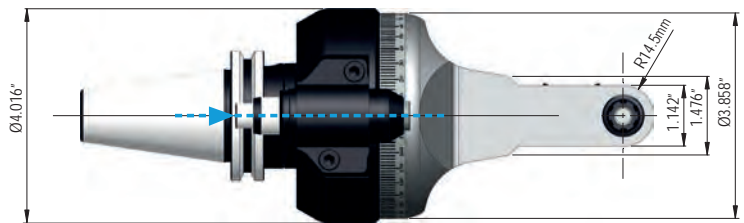
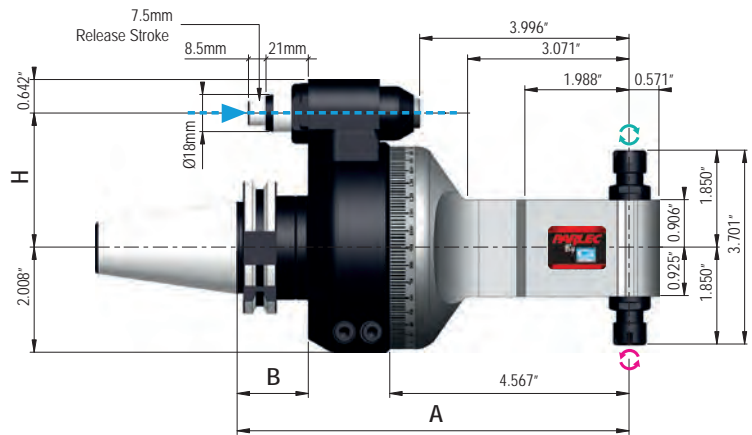
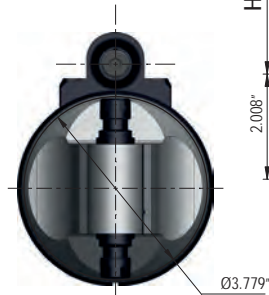


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER11	1/4"	1:1	10,000	29 ft/lbs	53 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

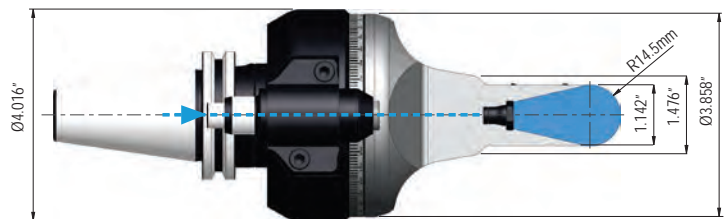
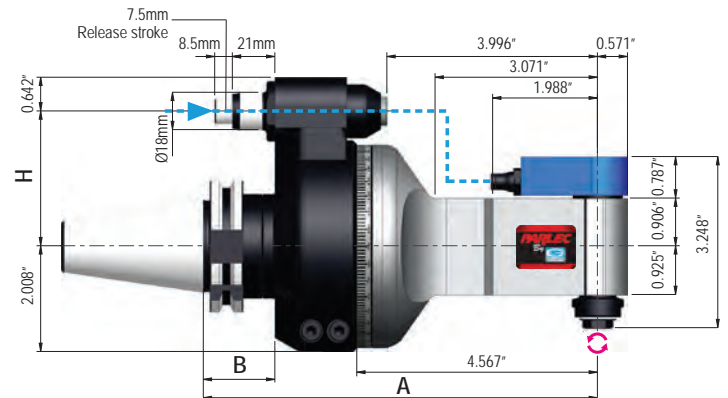
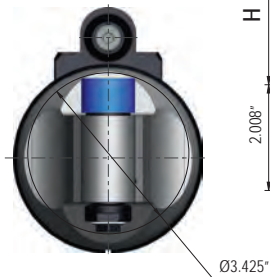
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	7.48"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
BT 40	7.48"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
CAT 50	7.48"	1.378"	3.15" (80)	4.33" (110)	15.4 lbs
HSK63A	7.83"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	11.0 lbs
HSK100A	7.83"	1.811"	3.15" (80)	4.33" (110)	15.4 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## F90-7D

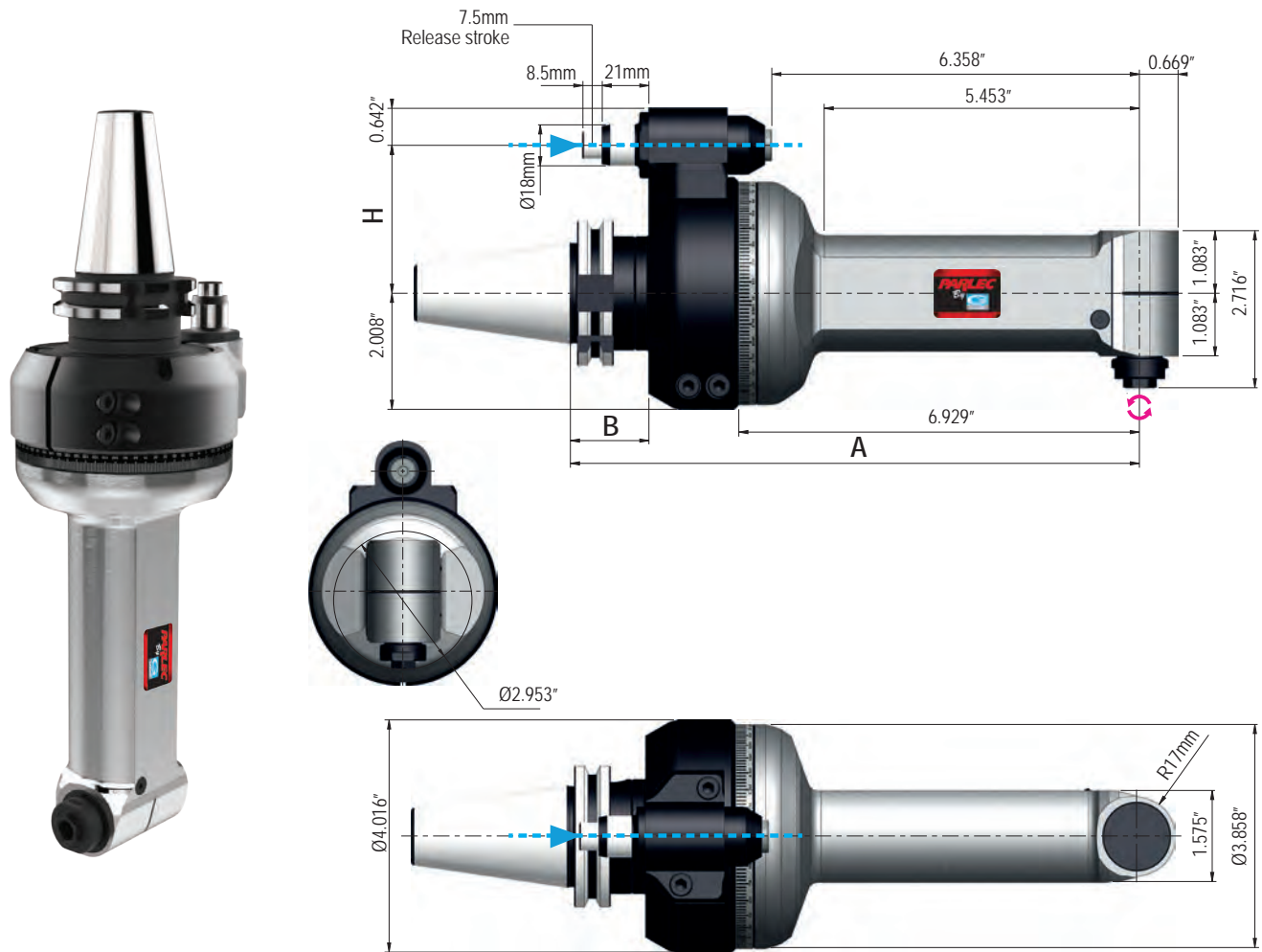


## F90-7C



# Angle Heads

## F90-7L

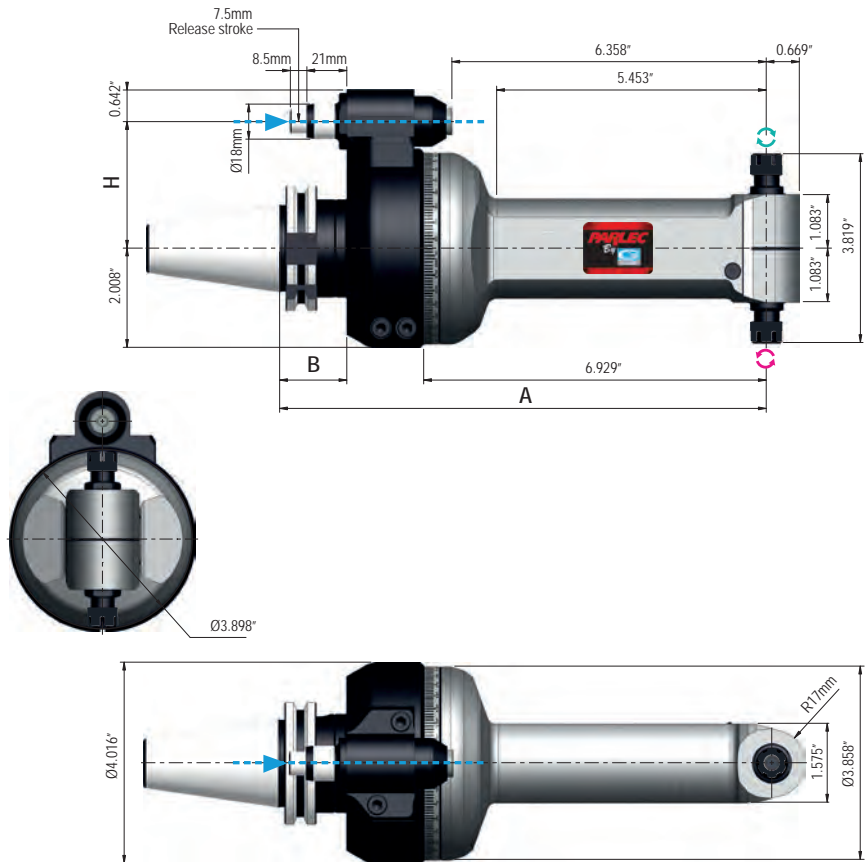


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER11	1/4"	1:1	10,000	40 ft/lbs	53 in/lbs	Through Positioning Pin	Opposite Spindle	Standard, Extended

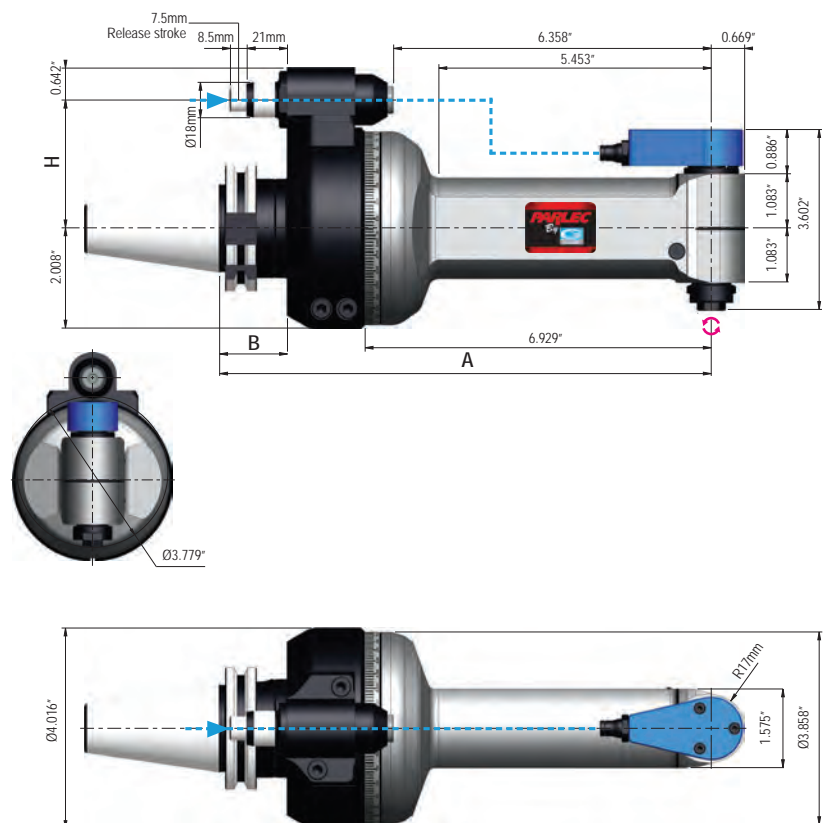
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	9.84"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.8 lbs
BT 40	9.84"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.8 lbs
CAT 50	9.84"	1.378"	3.15" (80)	4.33" (110)	18.7 lbs
HSK63A	10.20"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	13.8 lbs
HSK100A	10.20"	1.811"	3.15" (80)	4.33" (110)	18.7 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## F90-7LD

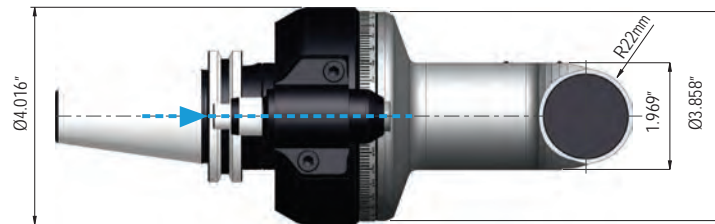
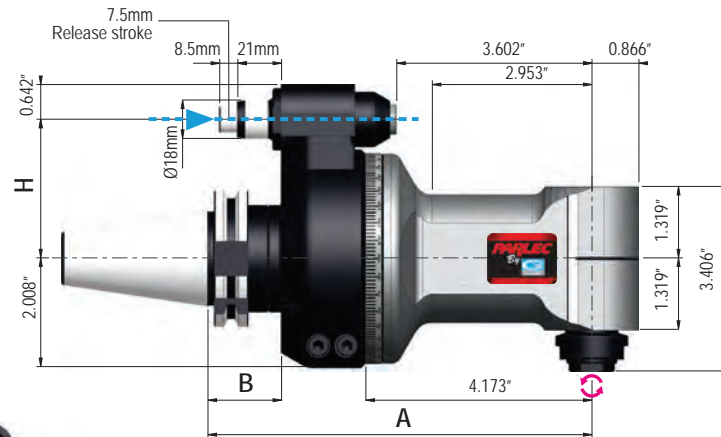


## F90-7LC



# Angle Heads

## F90-10

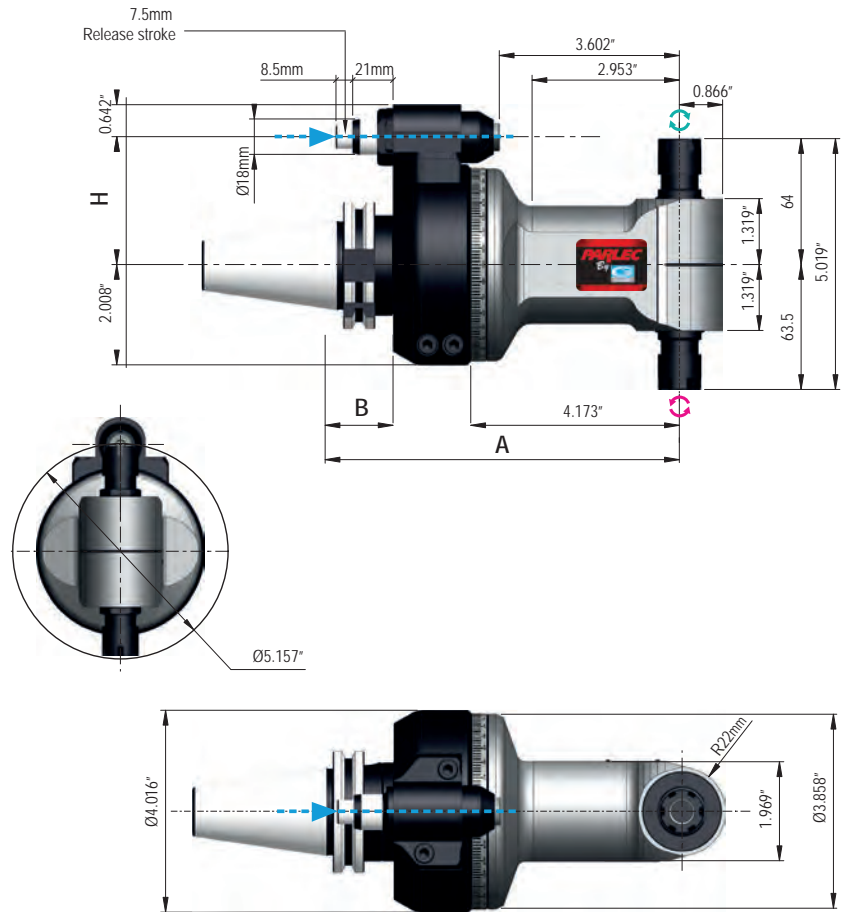


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER16	3/8"	1:1	10,000	90 ft/lbs	97 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

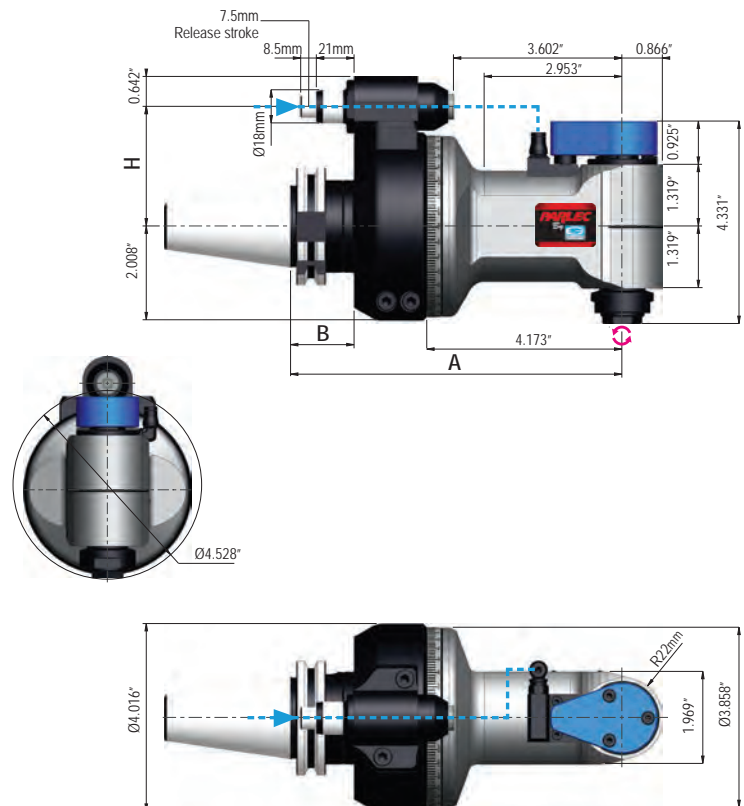
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	7.09"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.6 lbs
BT 40	7.09"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	11.6 lbs
CAT 50	7.09"	1.378"	3.15" (80)	4.33" (110)	16.5 lbs
HSK63A	7.44"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	11.7 lbs
HSK100A	7.44"	1.811"	3.15" (80)	4.33" (110)	16.5 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## F90-10D

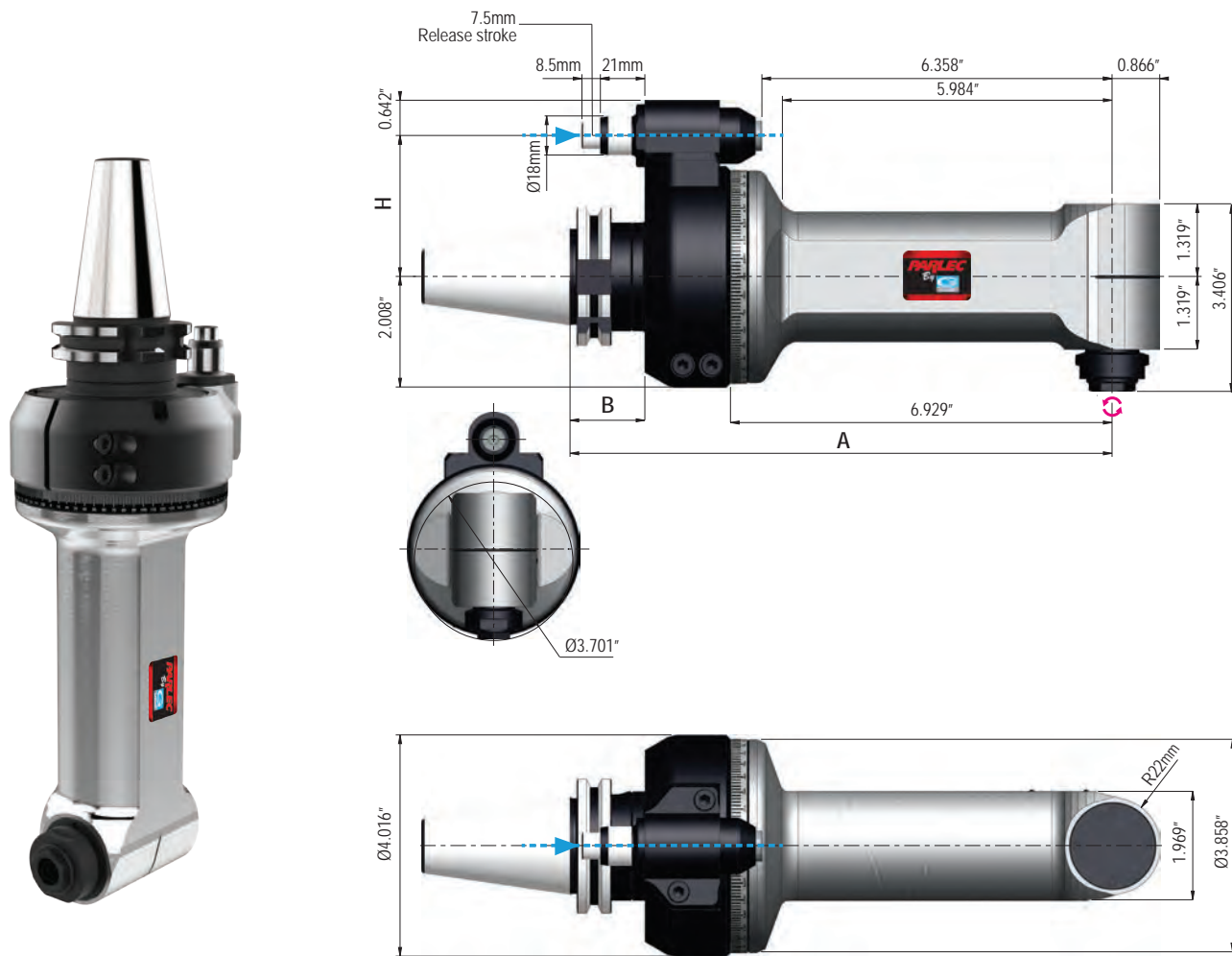


## F90-10C



# Angle Heads

## F90-10L



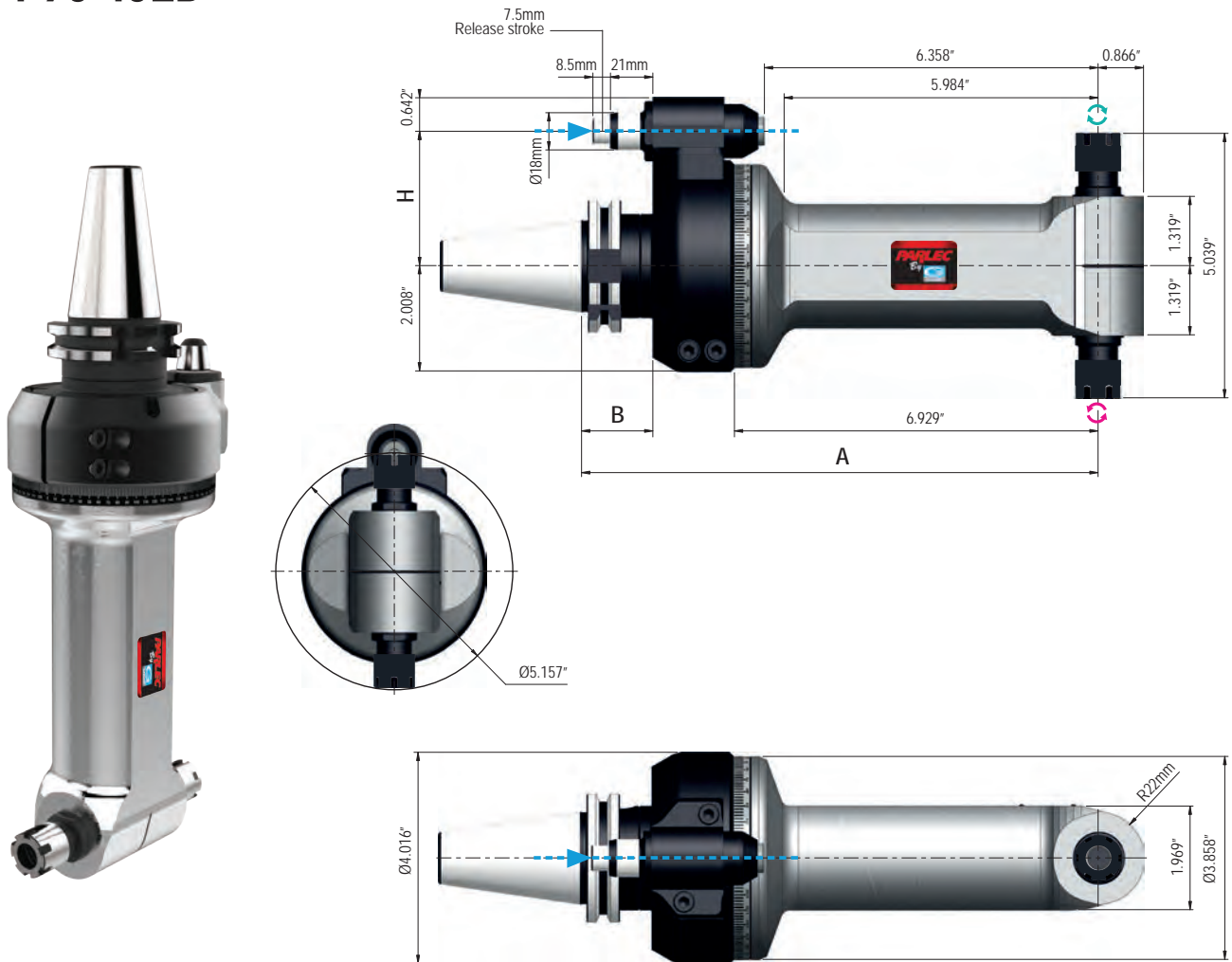
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER16	3/8"	1:1	10,000	90 ft/lbs	97 in/lbs	Through Positioning Pin	Opposite Spindle	Standard, Extended

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	9.84"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
BT 40	9.84"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
CAT 50	9.84"	1.378"	3.15" (80)	4.33" (110)	20.2 lbs
HSK63A	10.20"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
HSK100A	10.20"	1.811"	3.15" (80)	4.33" (110)	20.2 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.



## F90-10LD



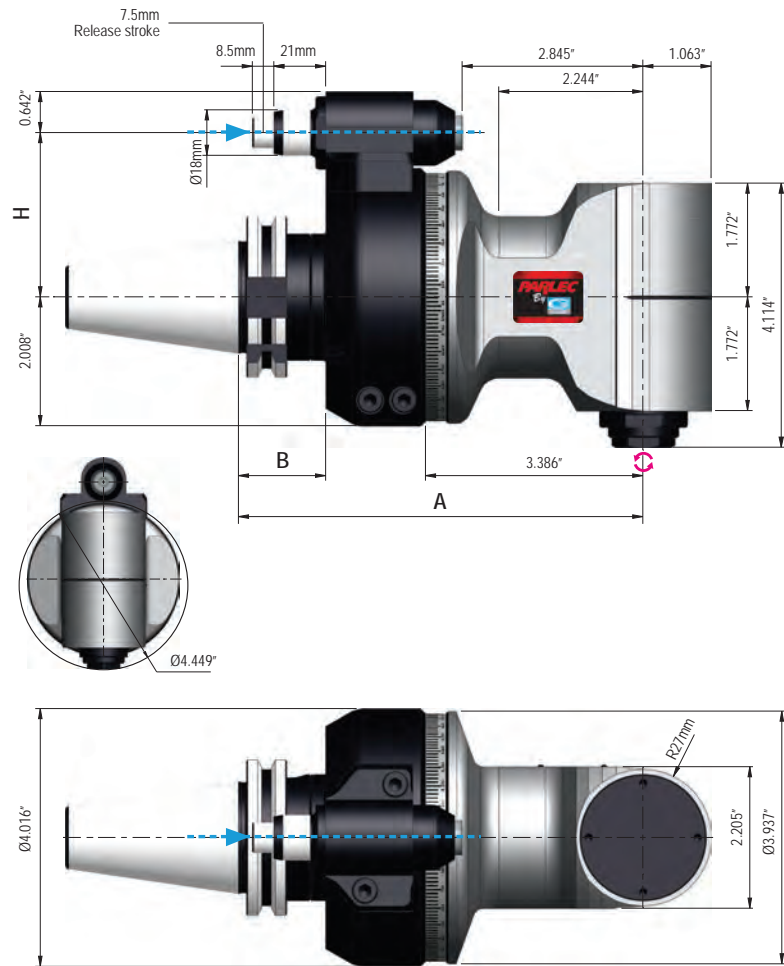
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER16	3/8"	1:1	10,000	90 ft/lbs	97 in/lbs	Through Positioning Pin	One side same, Opposite Spindle	Double Output, Extended

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	9.84"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
BT 40	9.84"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
CAT 50	9.84"	1.378"	3.15" (80)	4.33" (110)	19.7 lbs
HSK63A	10.19	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
HSK100A	10.19	1.811"	3.15" (80)	4.33" (110)	19.7 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## F90-13

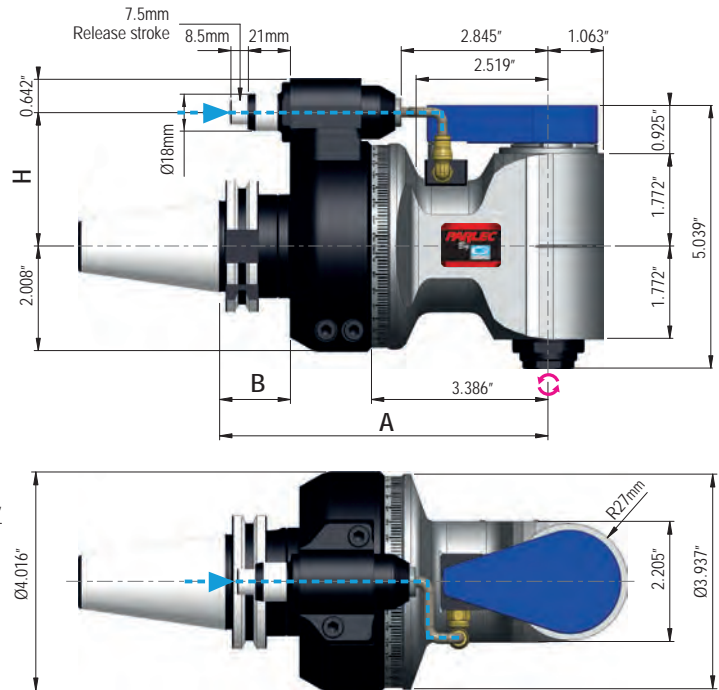
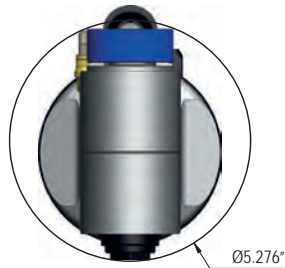


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER20	1/2"	1:1	8,000	182 ft/lbs	238 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

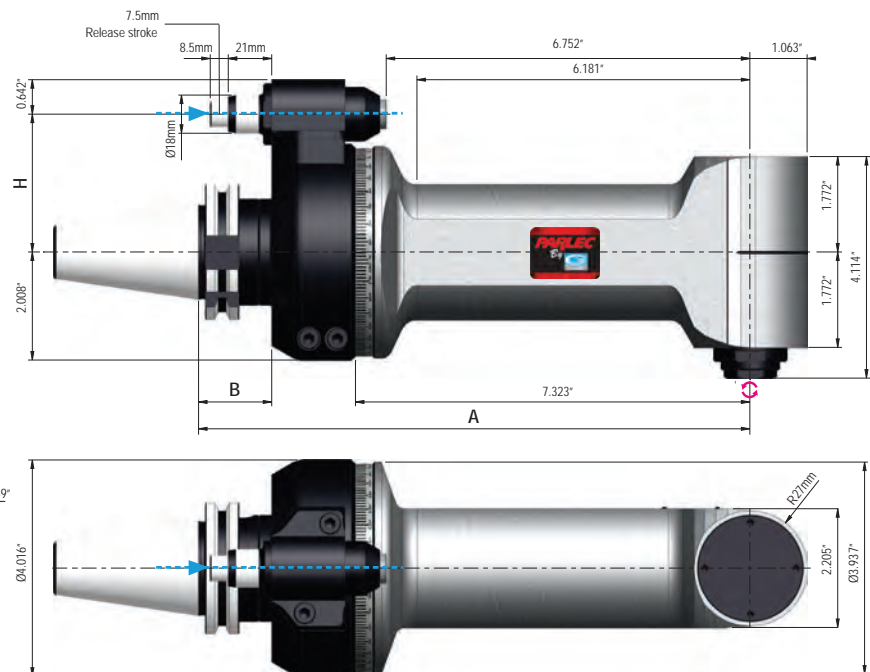
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	6.30"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.9 lbs
BT 40	6.30"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.9 lbs
CAT 50	6.30"	1.378"	3.15" (80)	4.33" (110)	18.9 lbs
HSK63A	6.65"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	13.9 lbs
HSK100A	6.65"	1.811"	3.15" (80)	4.33" (110)	18.9 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## F90-13C



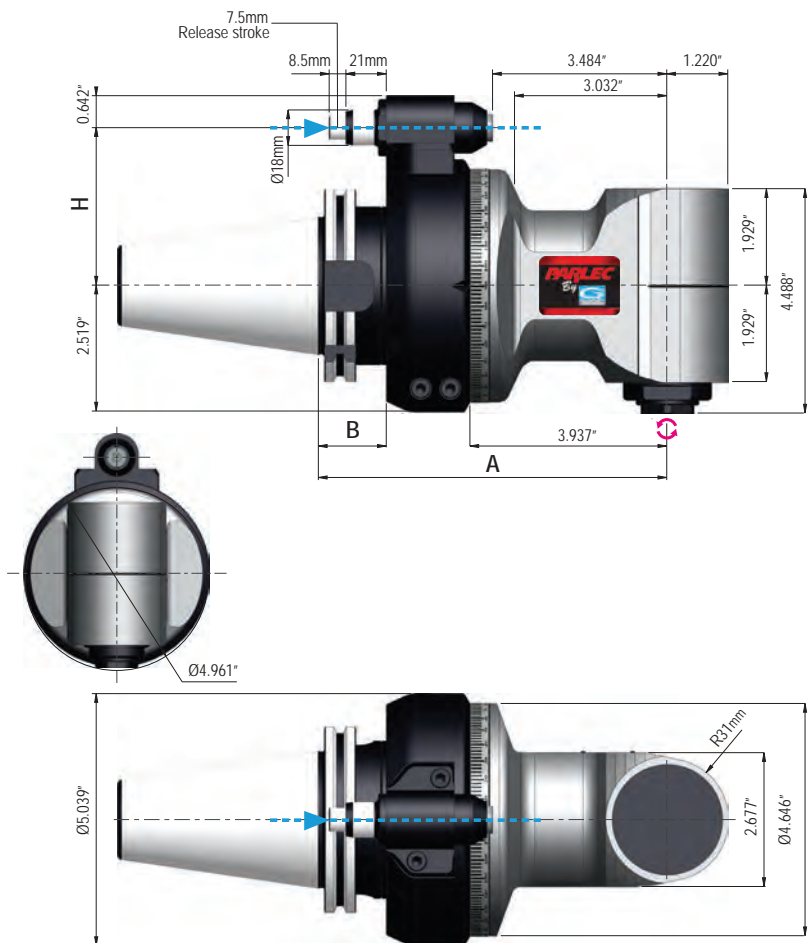
## F90-13L



Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	10.24"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.3 lbs
BT 40	10.24"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.3 lbs
CAT 50	10.24"	1.378"	3.15" (80)	4.33" (110)	20.3 lbs
HSK63A	10.59"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	15.3 lbs
HSK100A	10.59"	1.811"	3.15" (80)	4.33" (110)	20.3 lbs

# Angle Heads

## F90-16

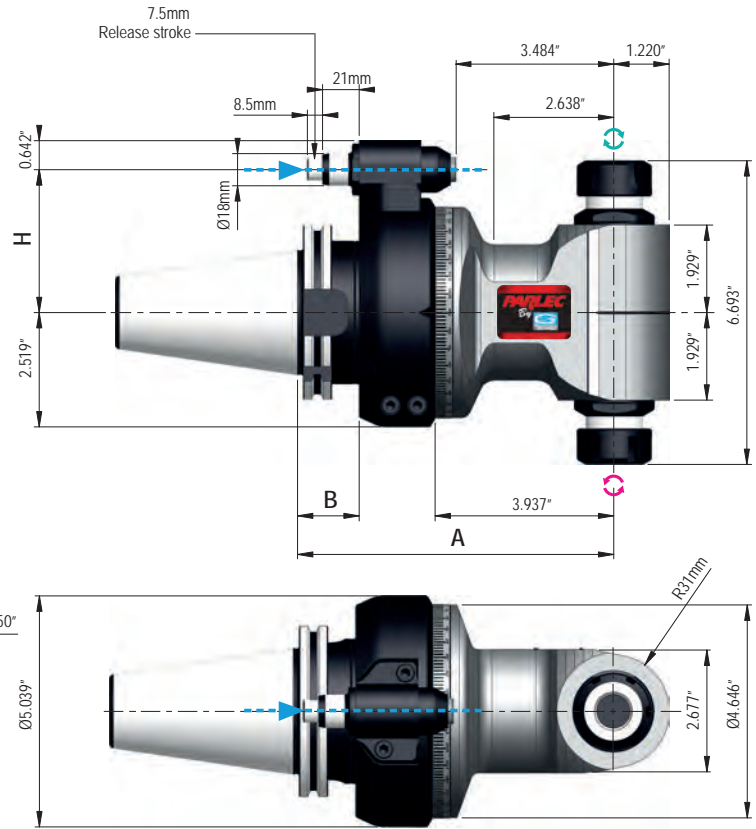


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	5,000	234 ft/lbs	407 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

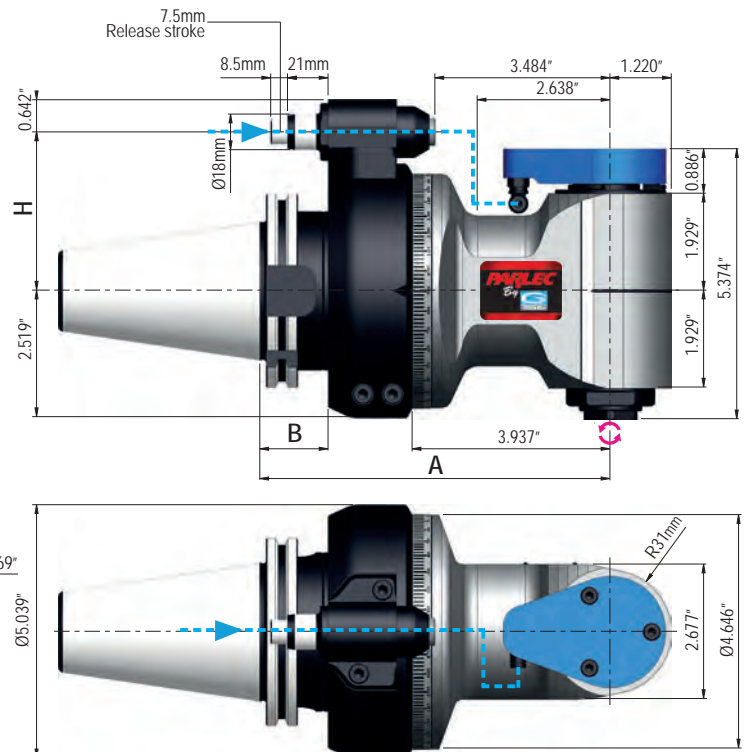
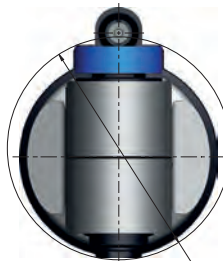
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 50	6.97"	1.378"	3.15" (80)	4.33" (110)	23.2 lbs
HSK100A	7.32"	1.811"	3.15" (80)	4.33" (110)	23.2 lbs

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

## F90-16D

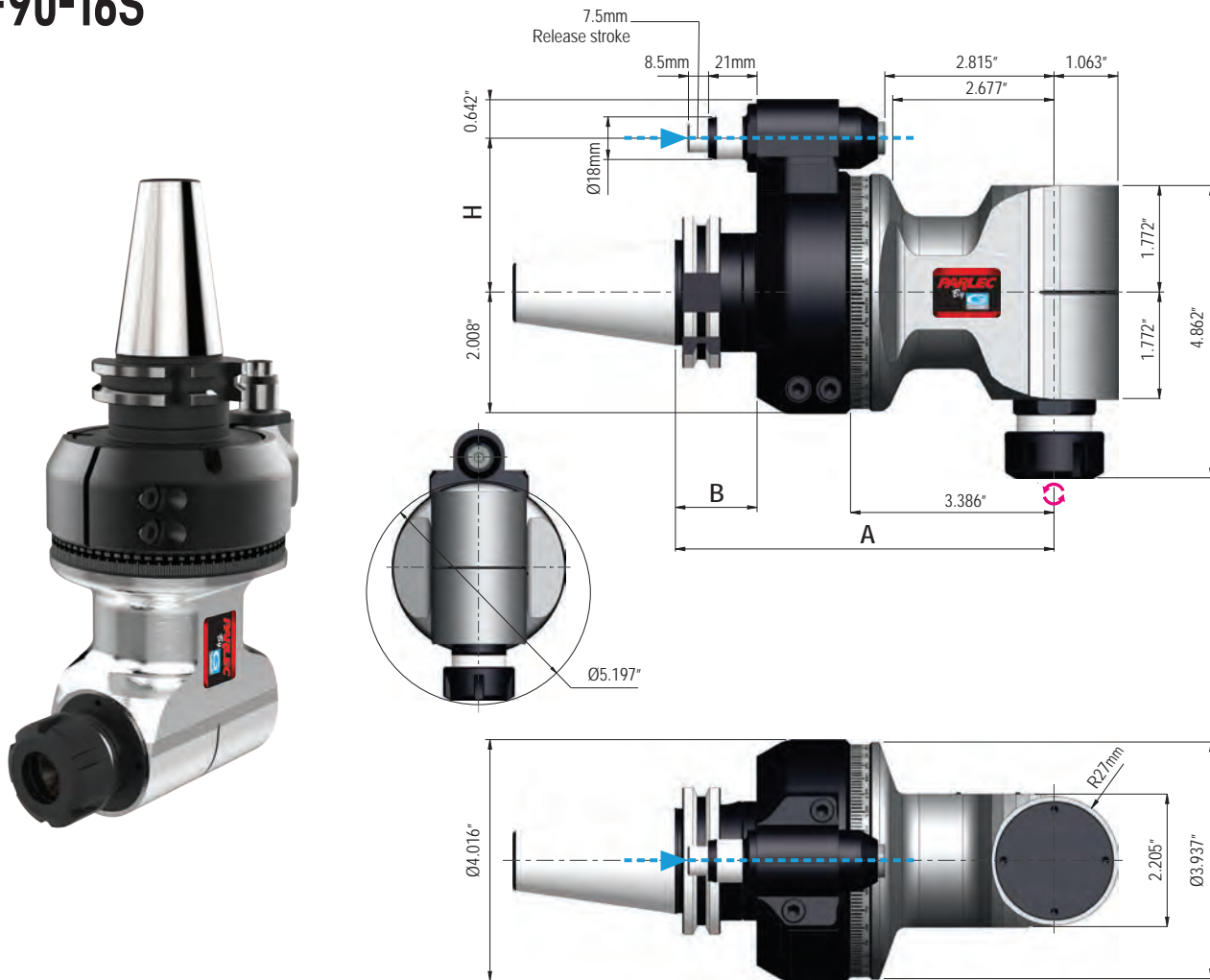


## F90-16C



# Angle Heads

## F90-16S

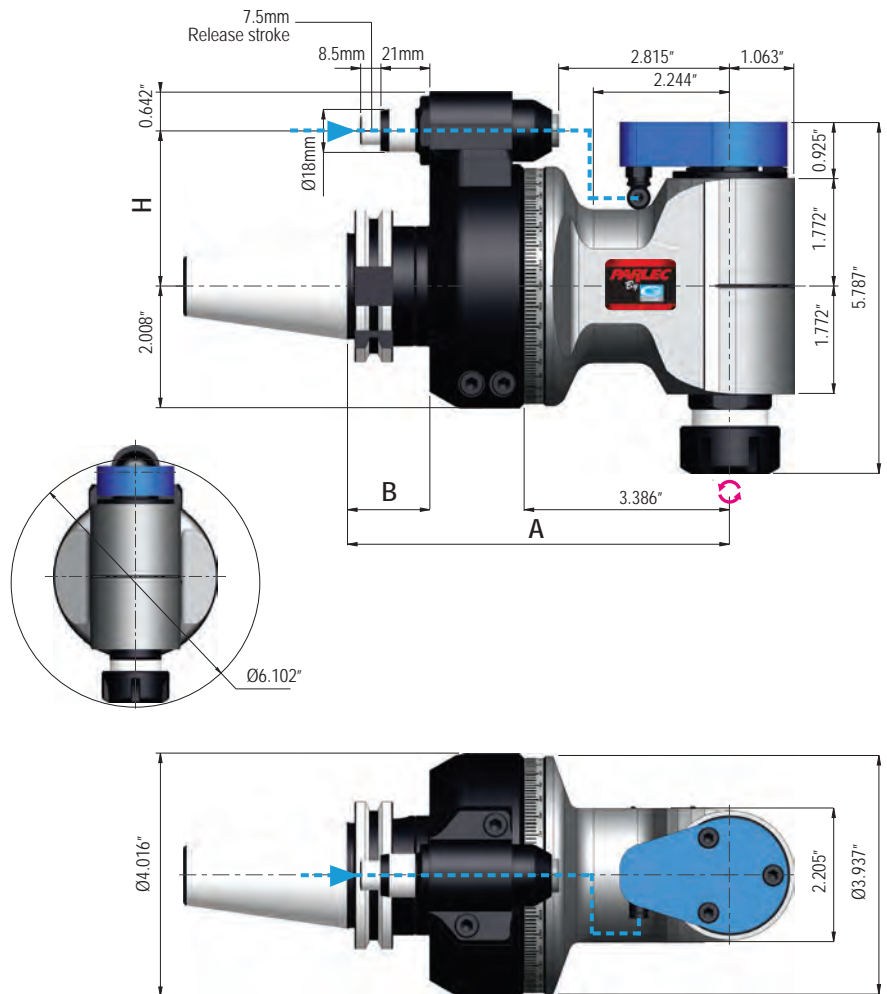


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	8,000	182 ft/lbs	239 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	6.30"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
BT 40	6.30"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
CAT 50	6.30"	1.378"	3.15" (80)	4.33" (110)	19.7 lbs
HSK63A	6.65"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
HSK100A	6.65"	1.811"	3.15" (80)	4.33" (110)	19.7 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## F90-16SC



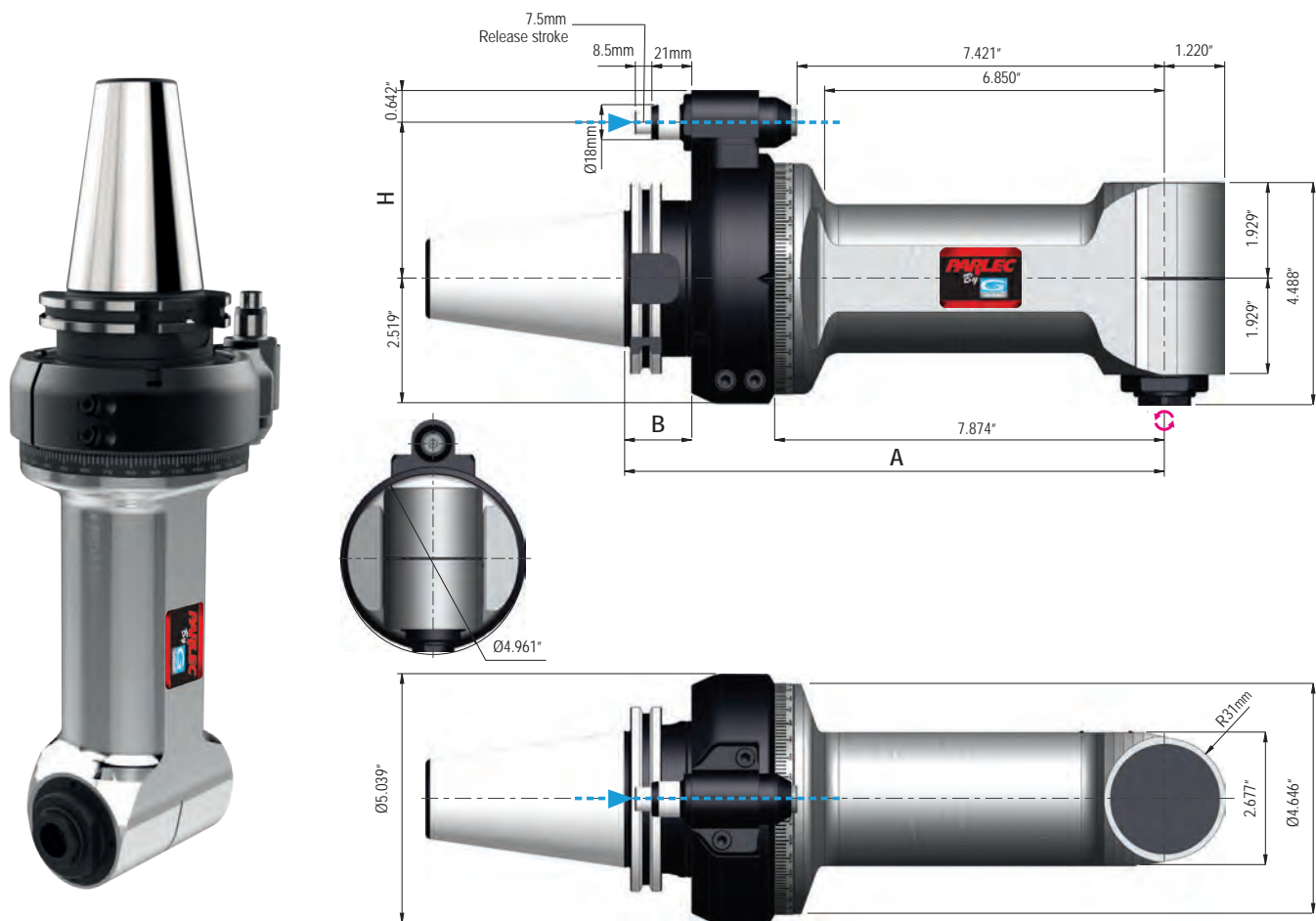
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	8,000	182 ft/lbs	239 in/lbs	Through Positioning Pin	Opposite Spindle	Standard, Coolant

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	6.30"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
BT 40	6.30"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
CAT 50	6.30"	1.378"	3.15" (80)	4.33" (110)	19.7 lbs
HSK63A	6.65"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	15.2 lbs
HSK100A	6.65"	1.811"	3.15" (80)	4.33" (110)	19.7 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## F90-16L



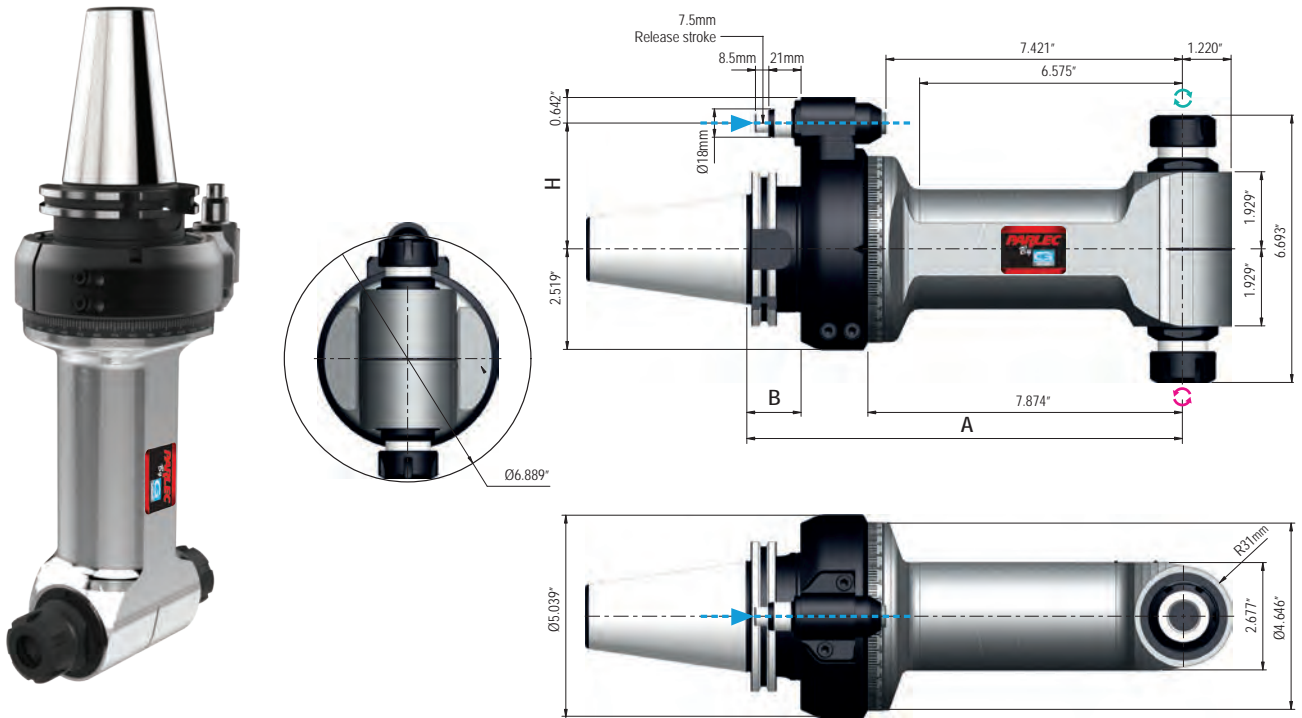
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	5,000	234 ft/lbs lbs	407 in/lbs	Through Positioning Pin	Opposite Spindle	Standard. Extended

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 50	10.91"	1.378"	3.15" (80)	4.33" (110)	28 lbs
HSK100A	11.26"	1.811"	3.15" (80)	4.33" (110)	28 lbs

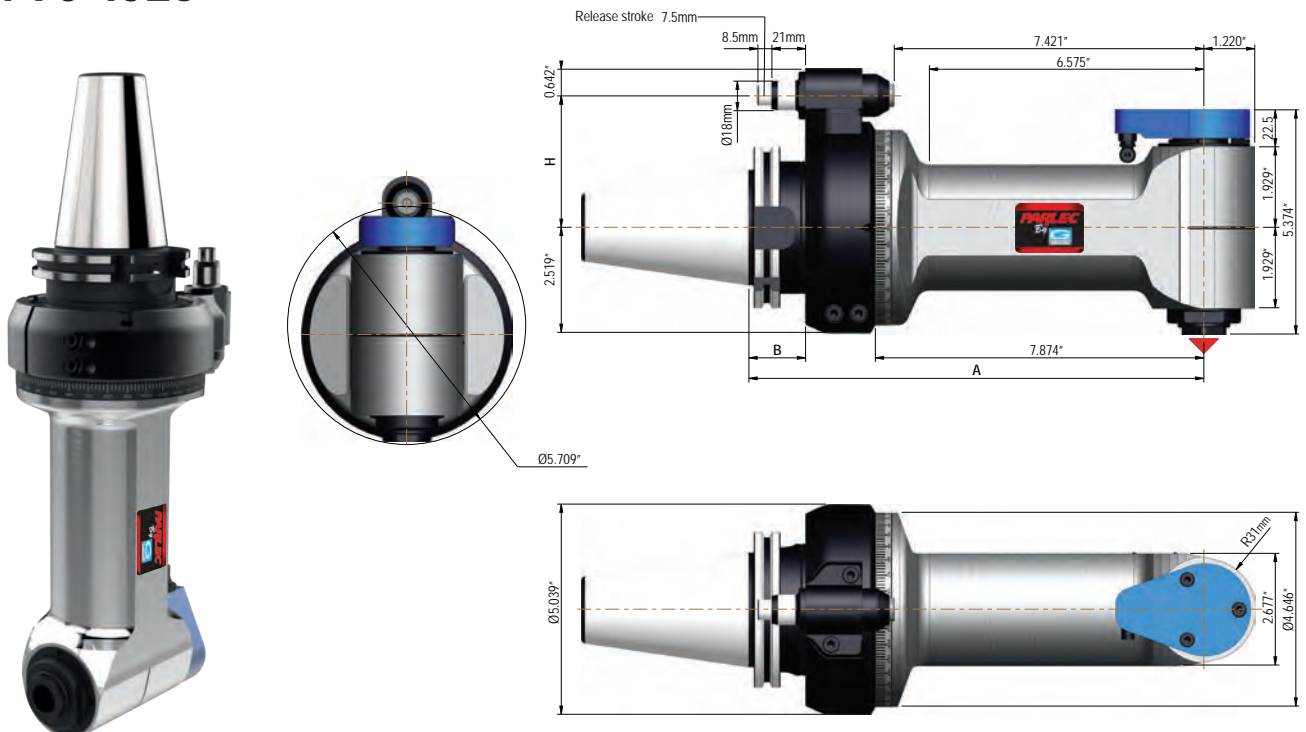
\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.



## F90-16LD

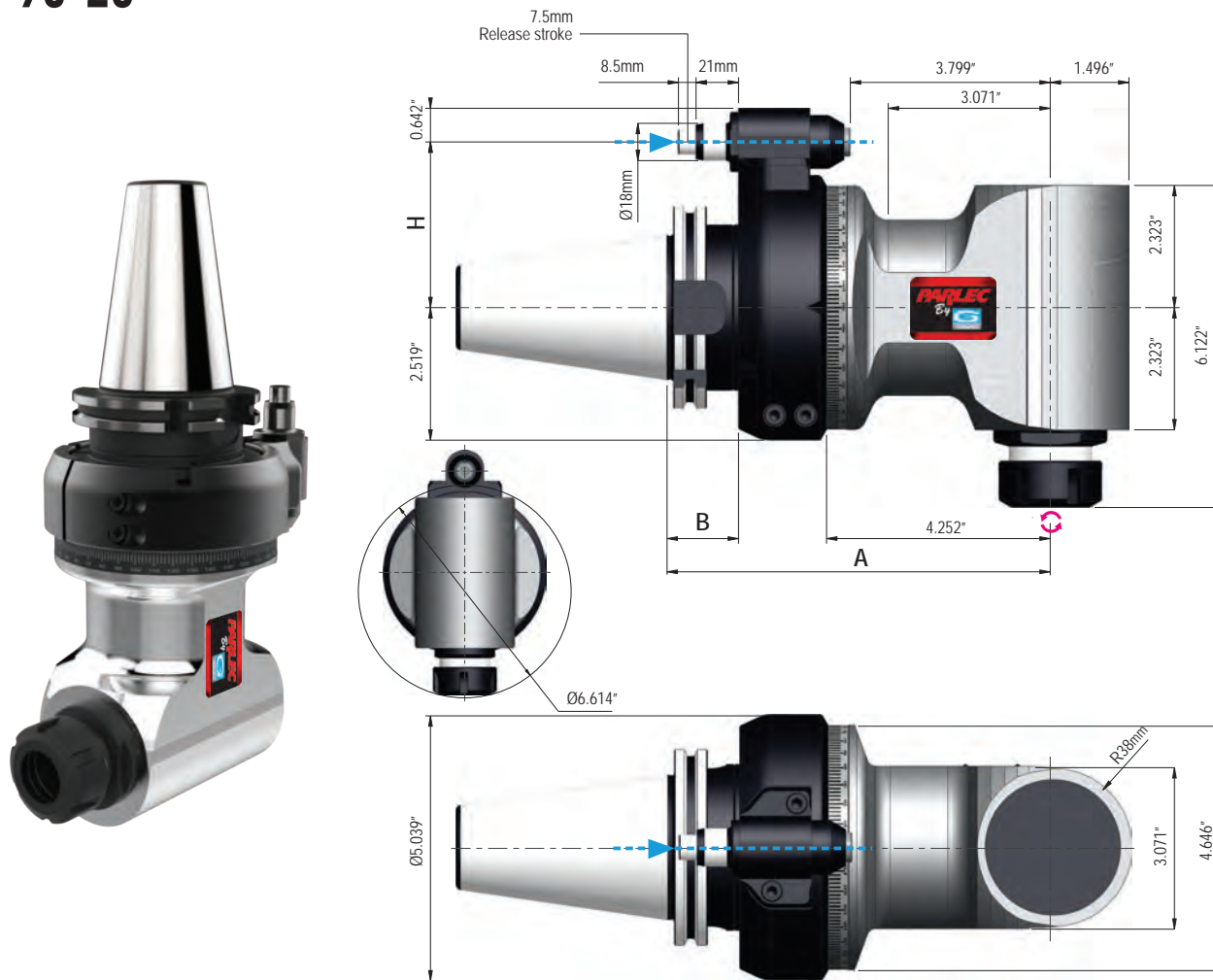


## F90-16LC



# Angle Heads

## F90-20

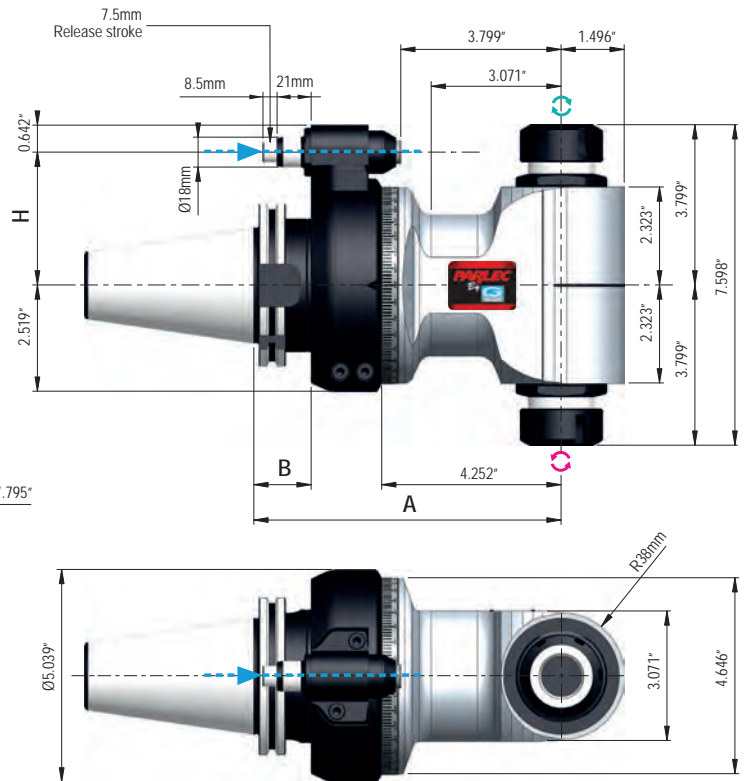
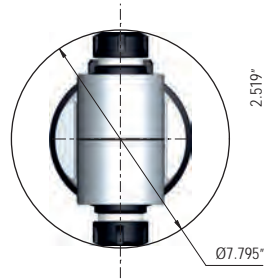


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER32	3/4"	1:1	3,500	328 ft/lbs	752 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

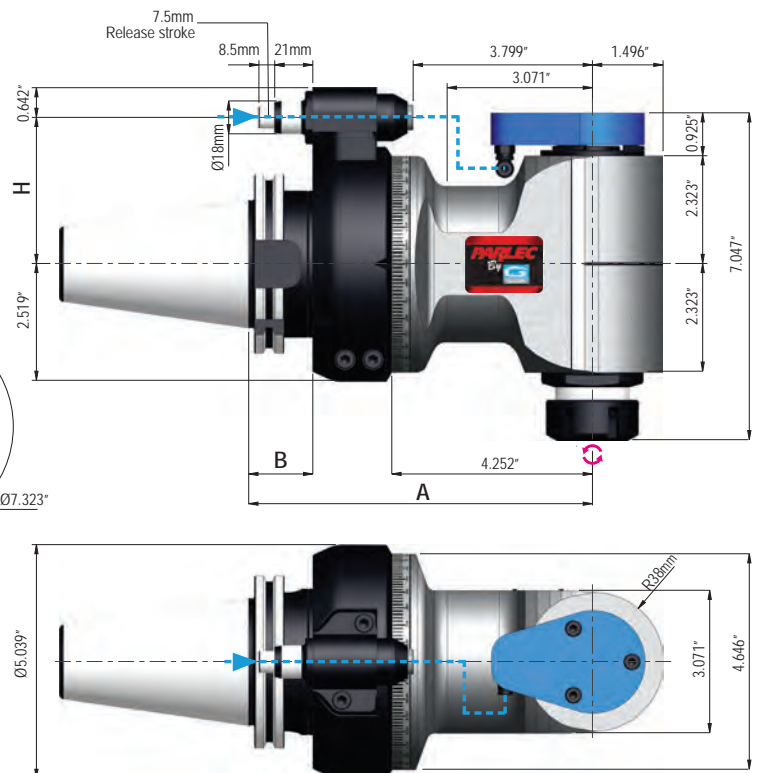
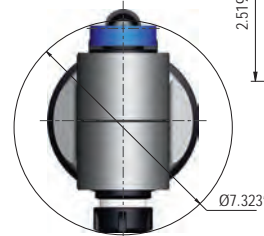
Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 50	7.09"	1.378"	3.15" (80)	4.33" (110)	27.7 lbs
HSK100A	7.64"	1.811"	3.15" (80)	4.33" (110)	27.7 lbs

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

## F90-20D

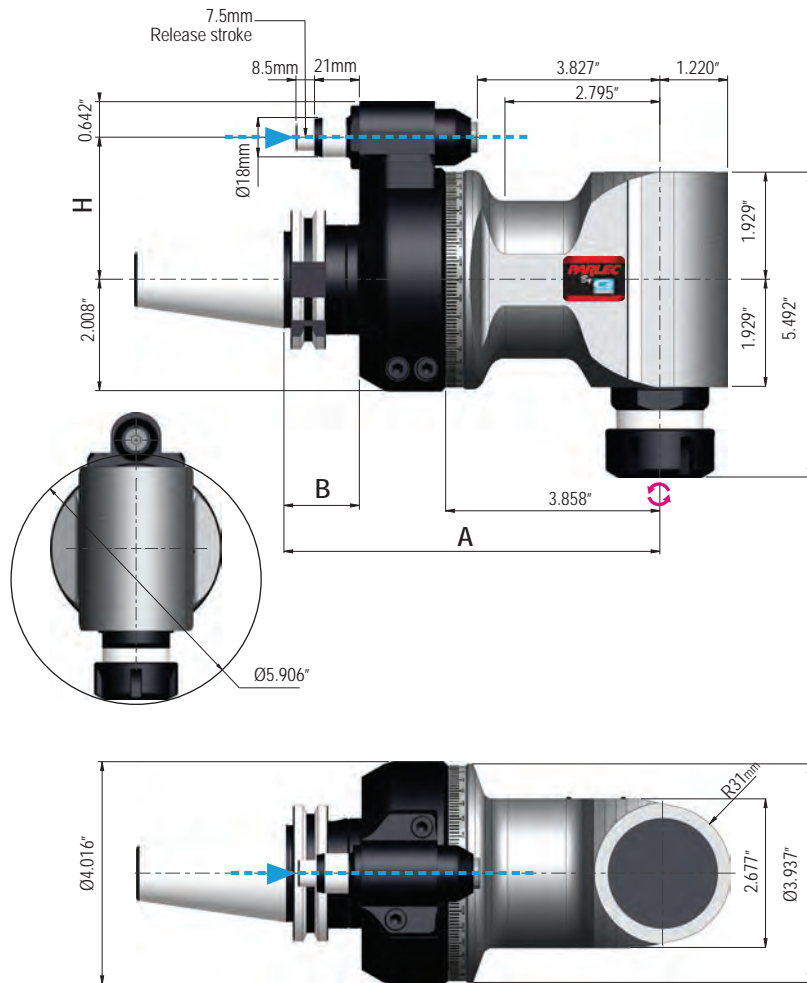


## F90-20C



# Angle Heads

## F90-20S

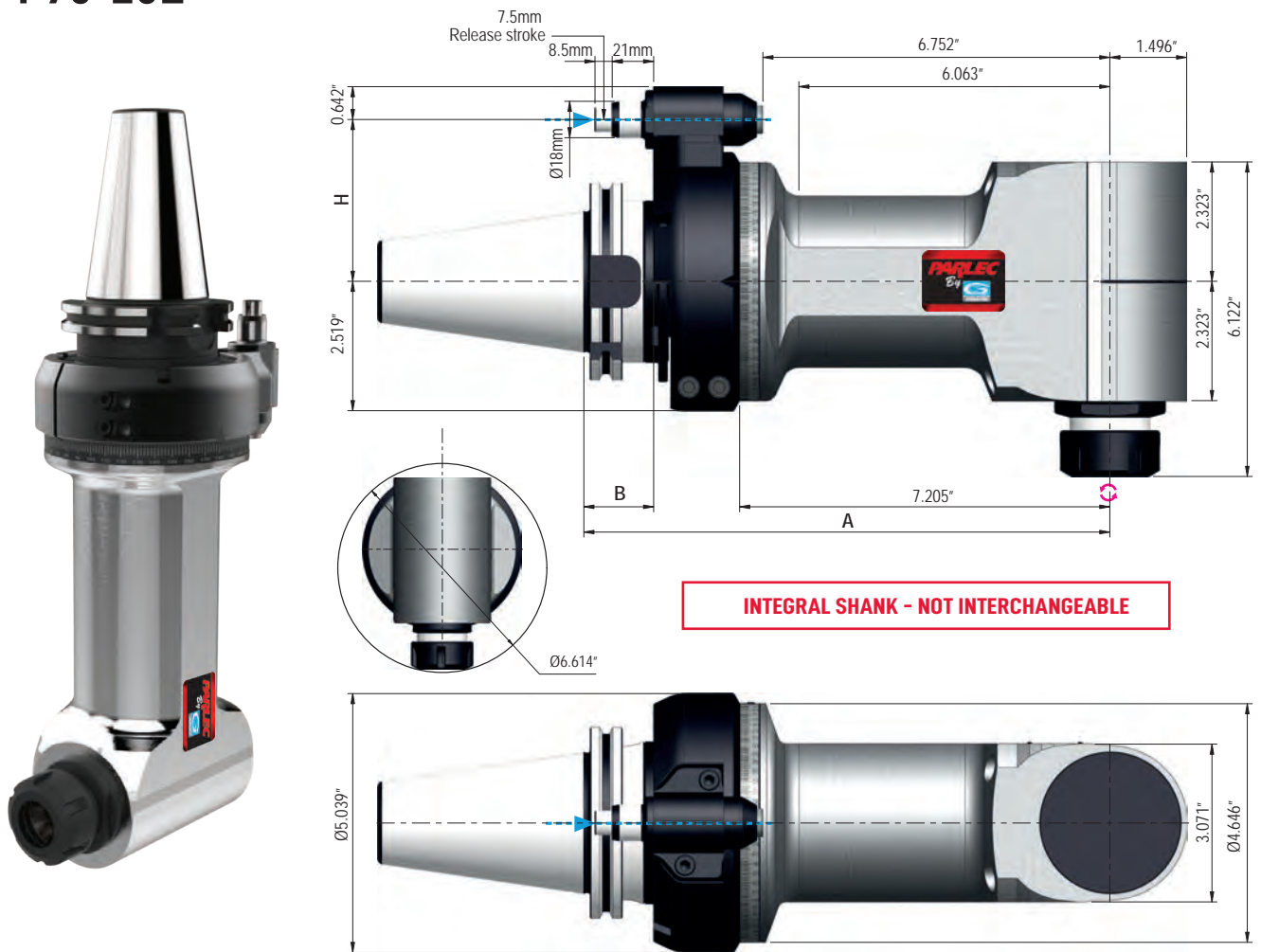


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER32	3/4"	1:1	5,000	234 ft/lbs	407 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	6.77"	1.378"	2.56" (65)	3.15"/4.33" (80/110)	15.1 lbs
BT 40	6.77"	1.378"	2.56" (65)	3.15"/4.33" (80/110)	15.1 lbs
HSK63A	7.126"	1.732"	2.56" (65)	3.15"/4.33" (80/110)	15.1 lbs

\* Other spindle connections available: BT50, HSK80A, C5, and KM63. Collets sold separately. See pages 76-93.

## F90-20L



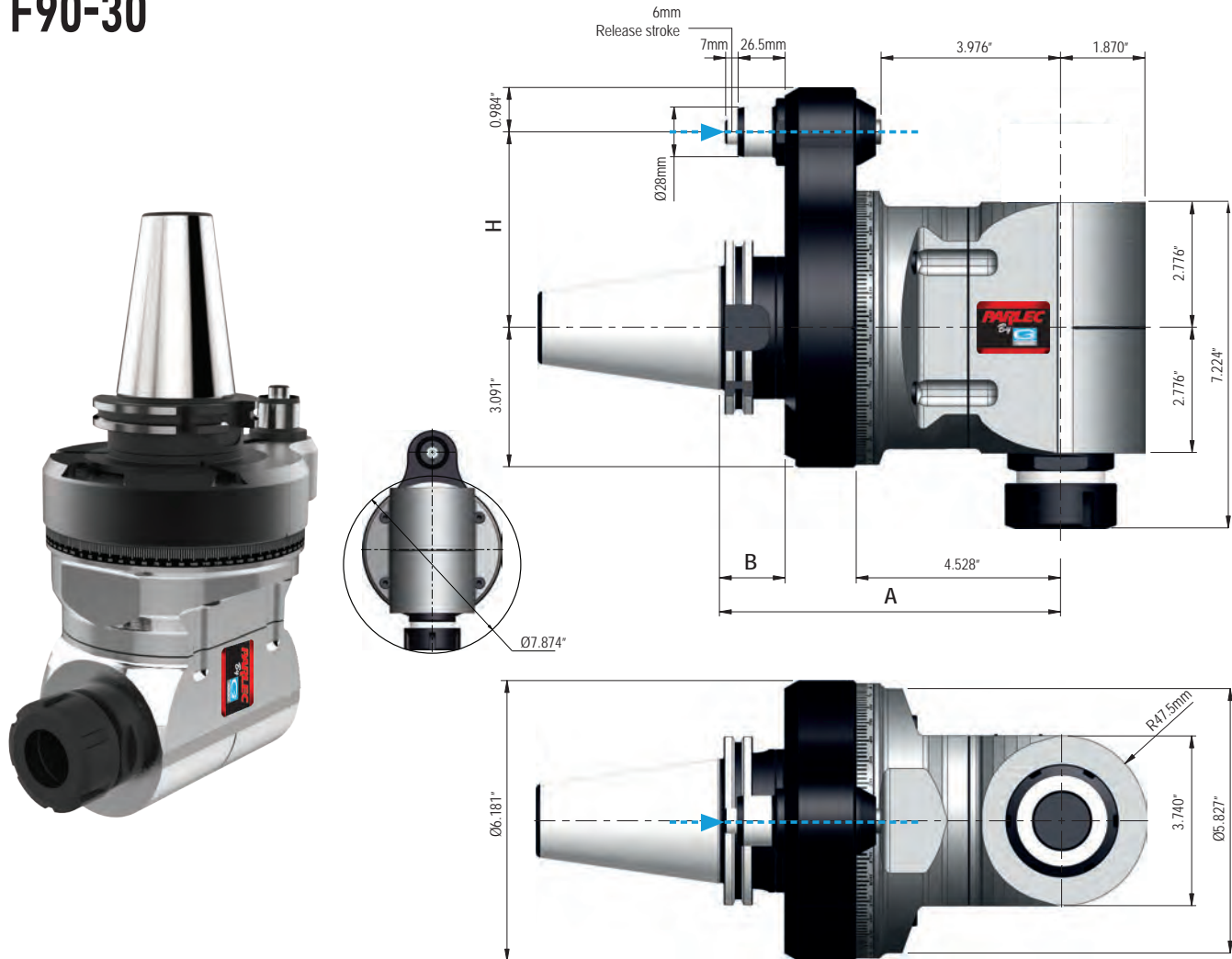
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER32	3/4"	1:1	3,500	328 ft/lbs	752 in/lbs	Through Positioning Pin	Opposite Spindle	Standard, Extended

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 50	10.24"	1.378"	3.15" (80)	4.33" (110)	29.1 lbs
HSK100A	10.59"	1.811"	3.15" (80)	4.33" (110)	29.1 lbs

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## F90-30

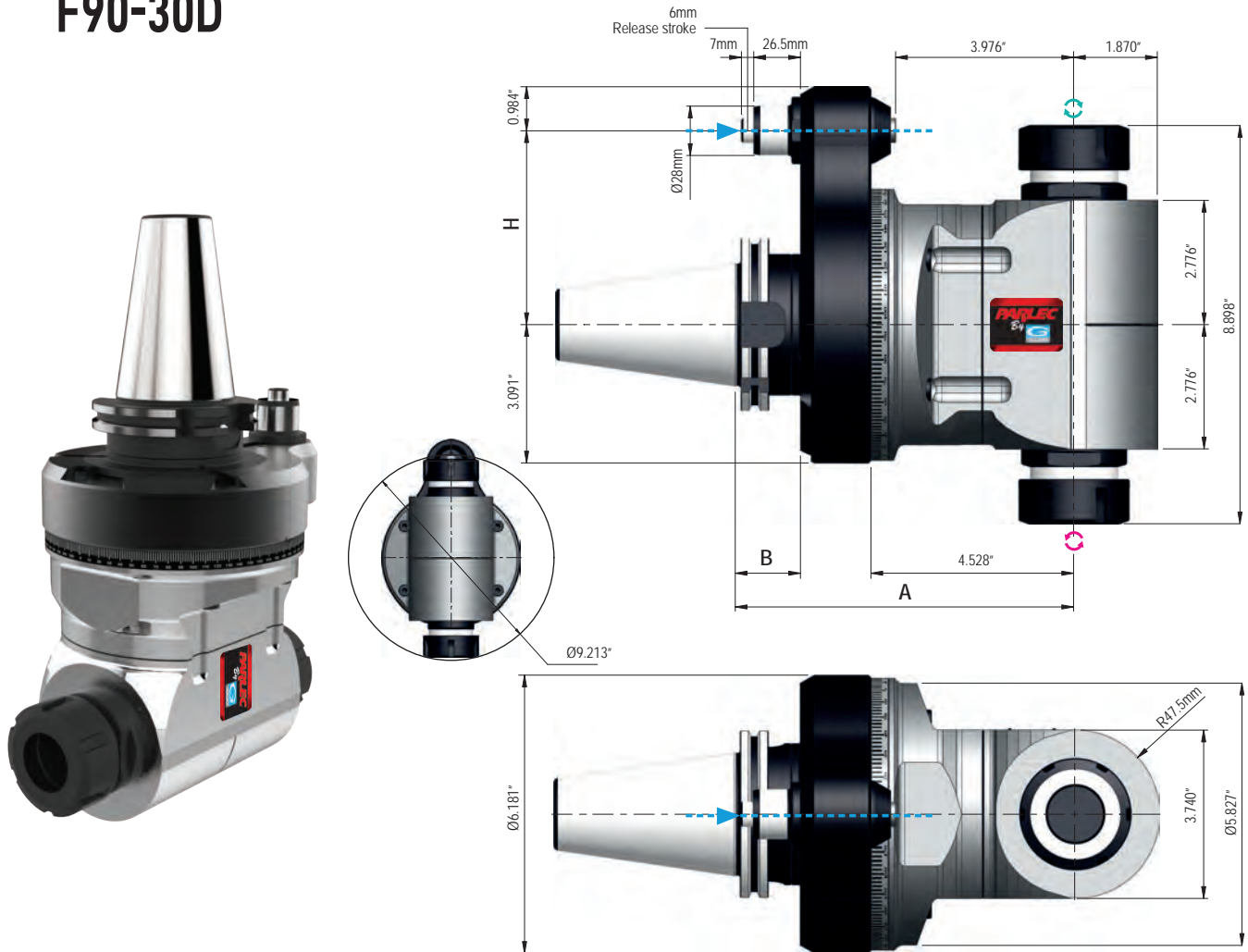


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER40	1"	1:1	2,500	679 ft/lbs	1,195 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

Spindle Connection	A	B	H (mm)	H Option	Weight
CAT 50	7.68"	1.456"	4.33" (110)	-	47.7 lbs
HSK100A	7.91"	1.889"	4.33" (110)	-	47.7 lbs

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

## F90-30D



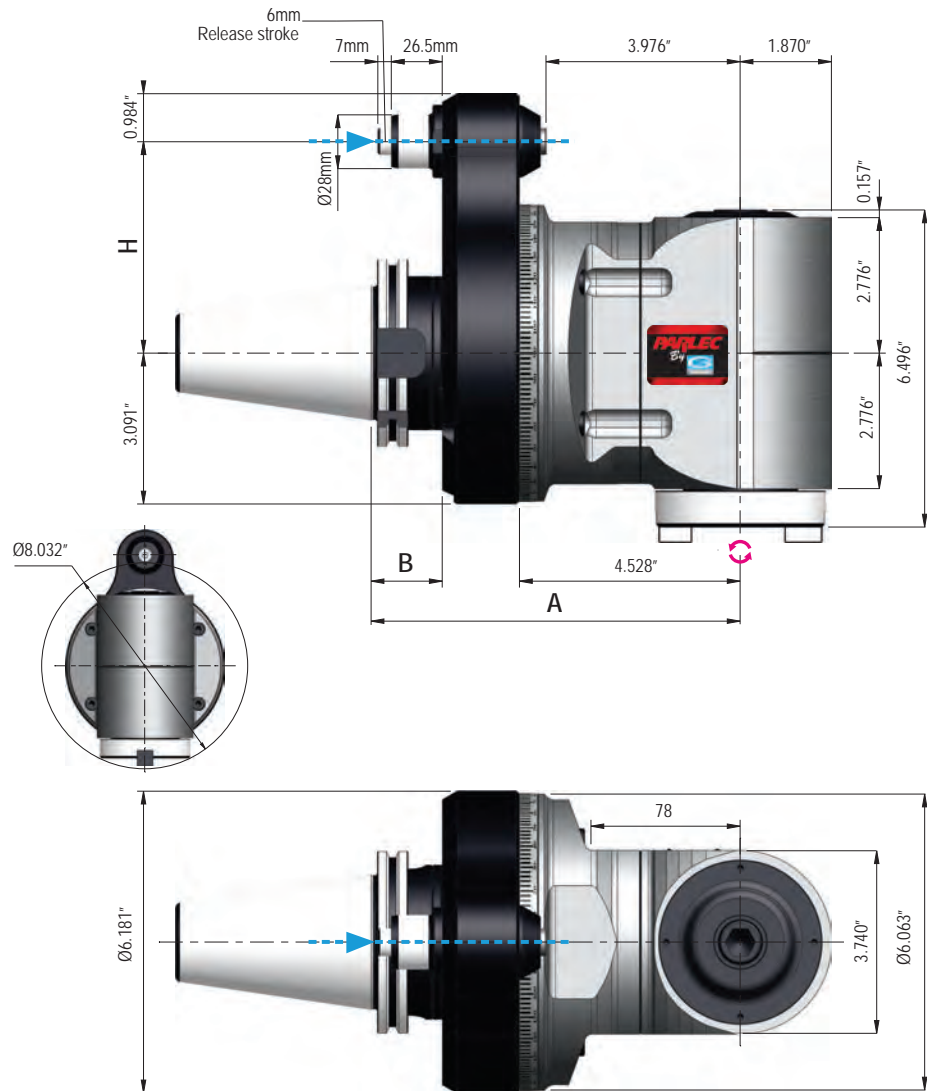
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER40	1"	1:1	2,500	679 ft/lbs	1,195 in/lbs	Through Positioning Pin	One side same, Opposite Spindle	Double Output

Spindle Connection	A	B	H (mm)	H Option	Weight
CAT 50	7.56"	1.456"	4.33" (110)	-	29.1 lbs
HSK100A	7.91"	1.889"	4.33" (110)	-	29.1 lbs

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## F90-S40



Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
CAT/BT40*	-	1:1	2,500	679 ft/lbs	1,195 in/lbs	Through Positioning Pin	Opposite Spindle	Standard

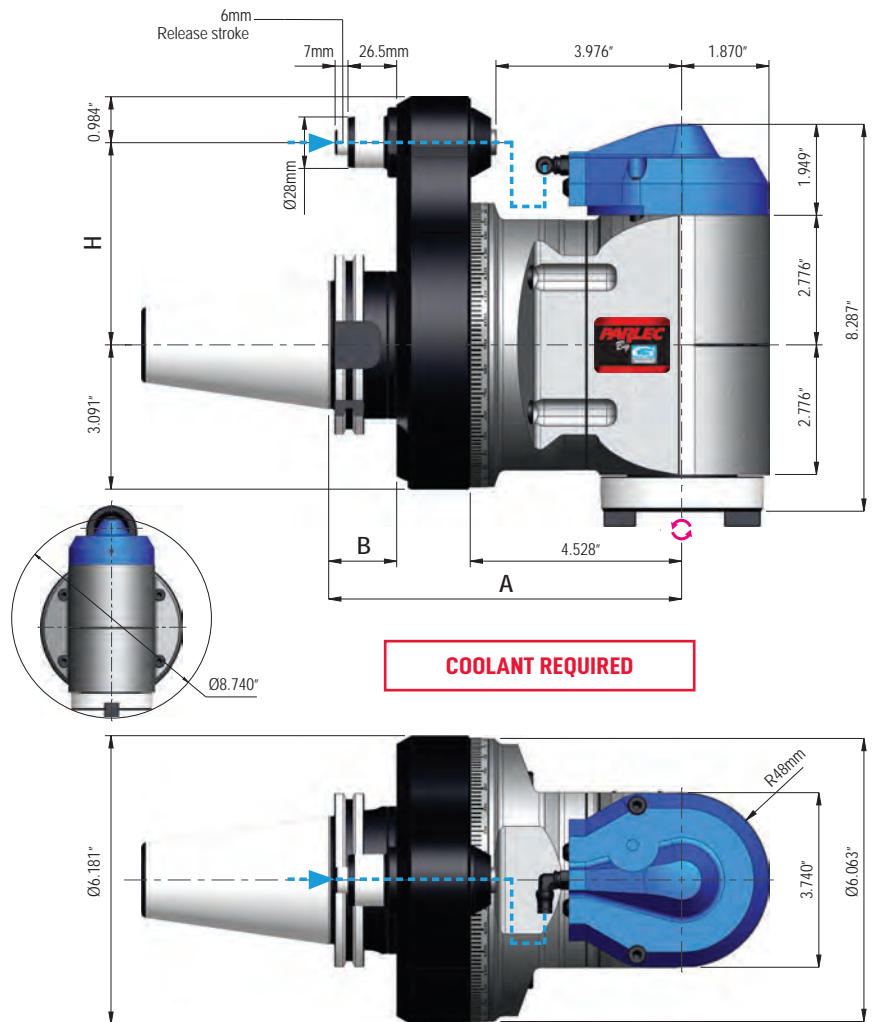
\* Other output options available: HSK63A and C5

Spindle Connection	A	B	H (mm)	H Option	Weight
CAT 50	7.56"	1.456"	4.33" (110)	-	48.0 lbs
HSK100A	7.91"	1.889"	4.33" (110)	-	48.0 lbs

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.



## F90-S40C



Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
CAT/BT40*	-	1:1	2,500	679 ft/lbs	1,195 in/lbs	Through Positioning Pin	Opposite Spindle	Standard, Coolant

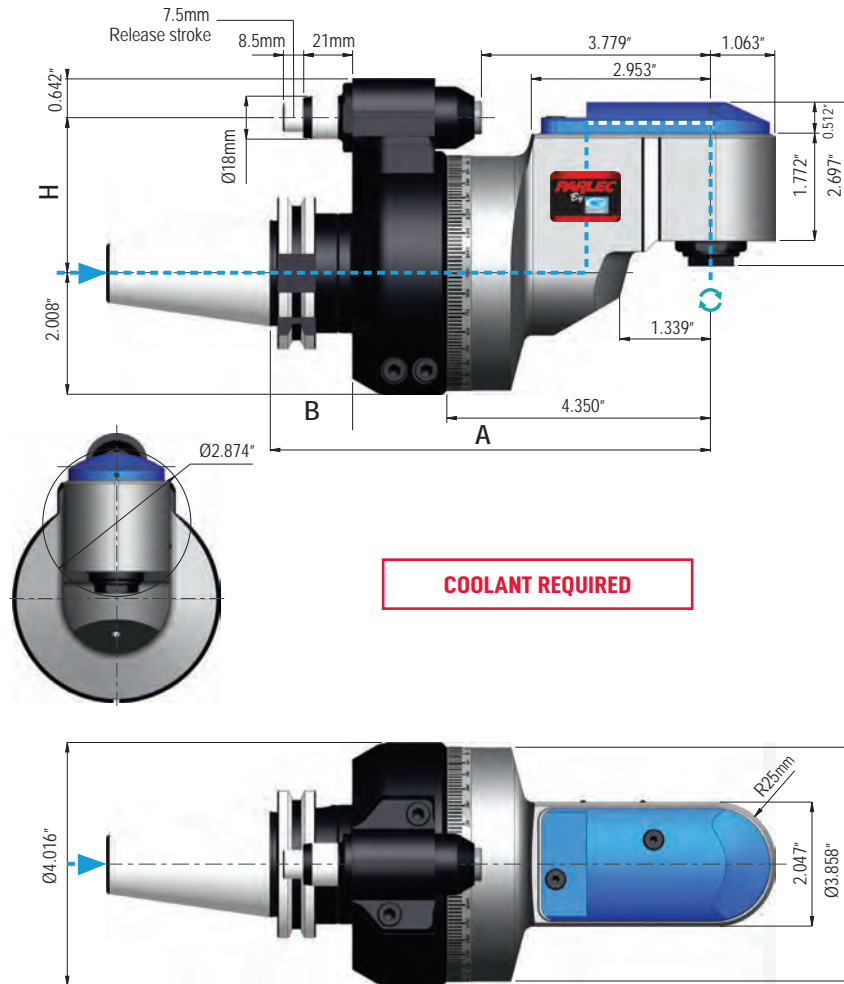
\* Other output options available: HSK63A and C5

Spindle Connection	A	B	H (mm)	H Option	Weight
CAT 50	7.56"	1.456"	4.33" (110)	-	48.0 lbs
HSK100A	7.91"	1.889"	4.33" (110)	-	48.0 lbs

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FR90-10



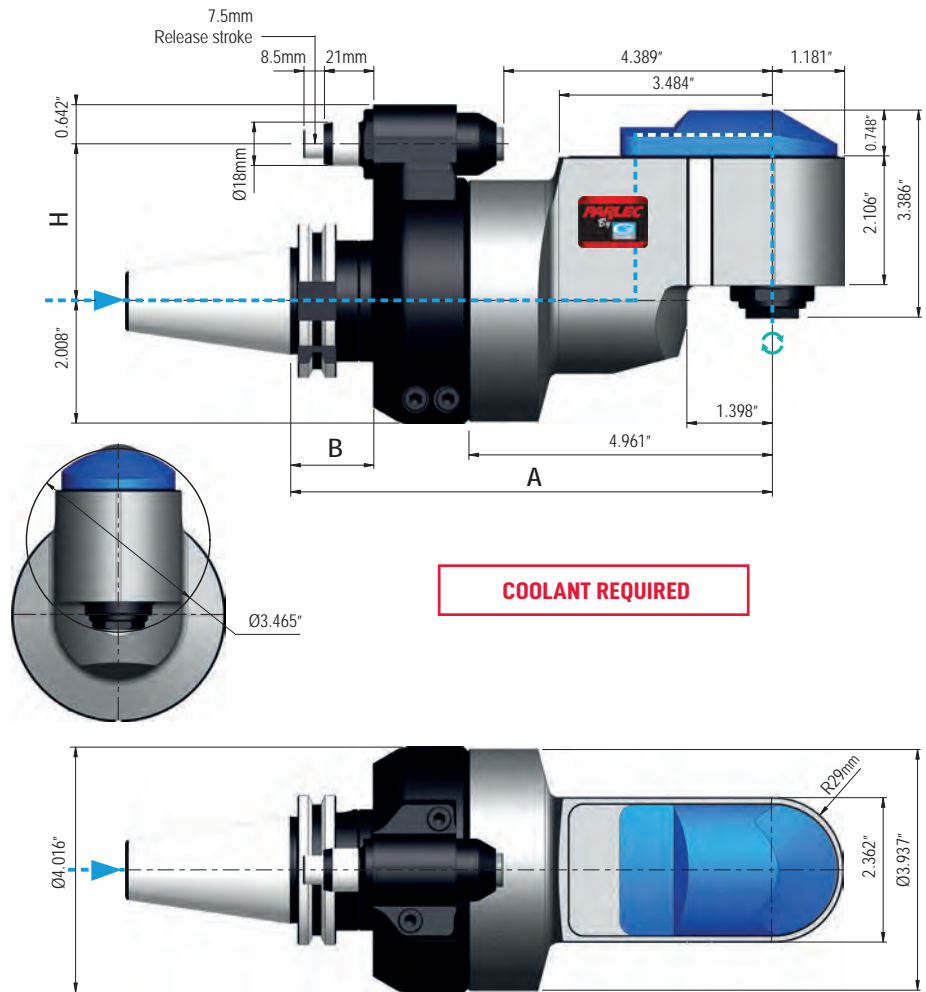
**COOLANT REQUIRED**

Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER16	3/8"	1:1	6,000	112 ft/lbs	195 in/lbs	Through Spindle 1000 psi	Same as Spindle	Set Back, Standard

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	7.26"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.6 lbs
BT 40	7.26"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.6 lbs
CAT 50	7.26"	1.378"	3.15" (80)	4.33" (110)	19.1 lbs
HSK63A	7.62"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	13.6 lbs
HSK100A	7.62"	1.811"	3.15" (80)	4.33" (110)	19.1 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## FR90-13



**COOLANT REQUIRED**

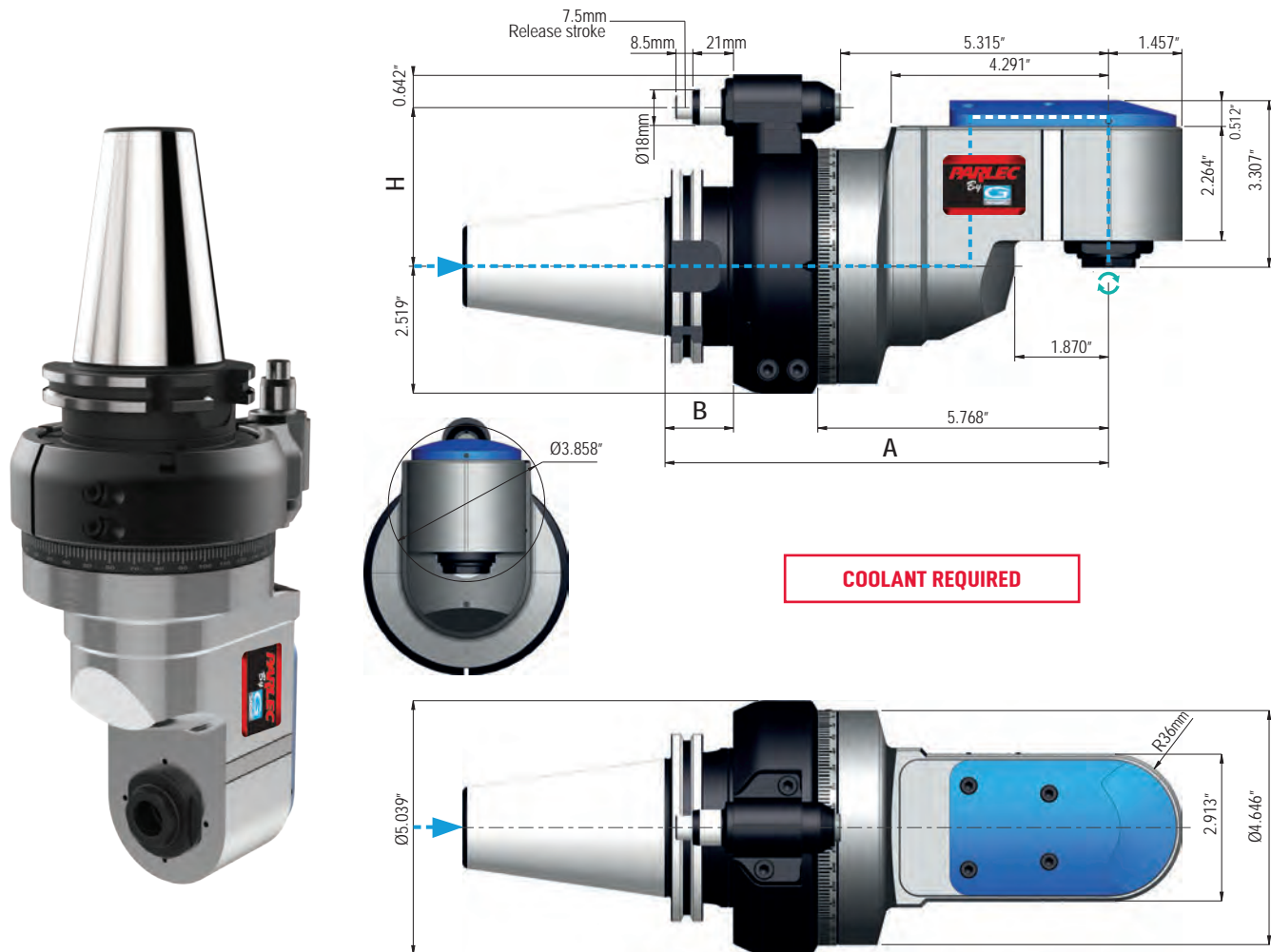
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER20	1/2"	1:1	4,500	128 ft/lbs	354 in/lbs	Through Spindle 1000 psi	Same as Spindle	Set Back, Standard

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	7.87"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	25.8 lbs
BT 40	7.87"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	25.8 lbs
CAT 50	7.87"	1.378"	3.15" (80)	4.33" (110)	30.3 lbs
HSK63A	8.23"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	25.8 lbs
HSK100A	8.23"	1.811"	3.15" (80)	4.33" (110)	30.3 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FR90-16



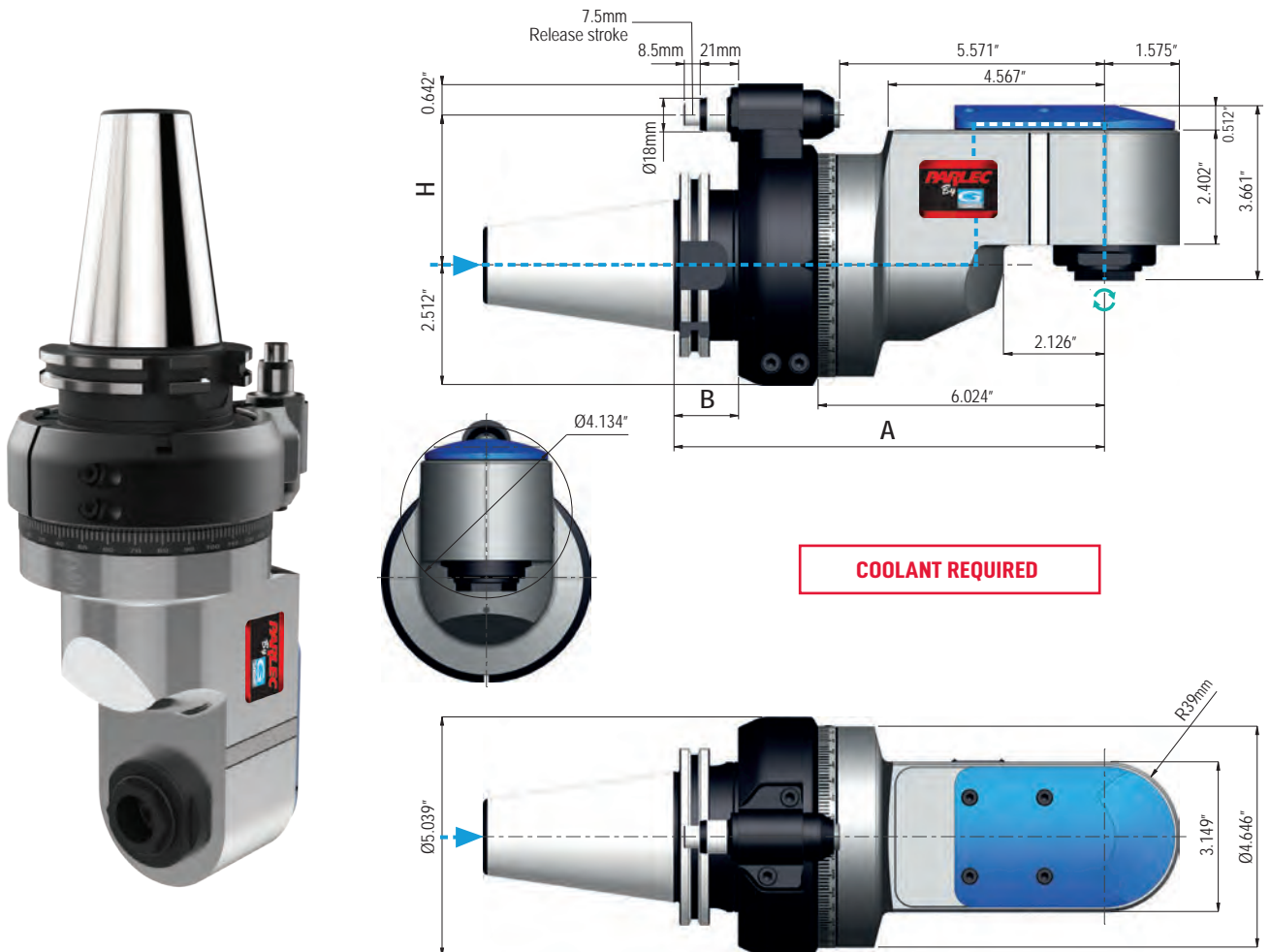
**COOLANT REQUIRED**

Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	4,000	182 ft/lbs	708 in/lbs	Through Spindle 1000 psi	Same as Spindle	Set Back, Standard

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 50	8.80"	1.378"	3.15" (80)	4.33" (110)	29.2 lbs
HSK100A	9.15"	1.811"	3.15" (80)	4.33" (110)	29.2 lbs

\* Other spindle connections available: BT50, HSK80A, C8, and KM80/100. Collets sold separately. See pages 76-93.

## FR90-20



**COOLANT REQUIRED**

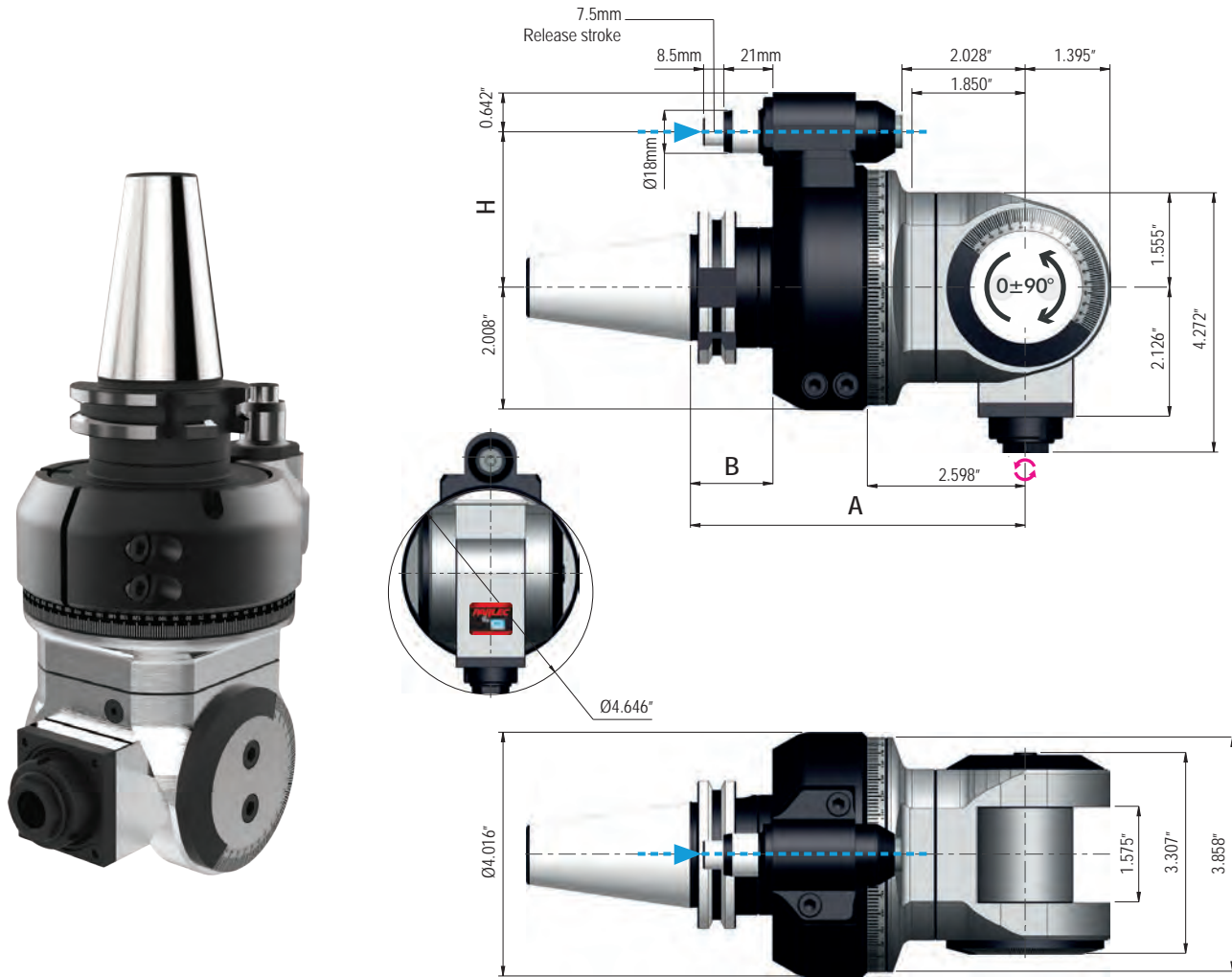
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER32	3/4"	1:1	3,500	259 ft/lbs	726 in/lbs	Through Spindle 1000 psi	Same as Spindle	Set Back, Standard

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 50	9.06"	1.378"	3.15" (80)	4.33" (110)	32.0 lbs
HSK100A	9.41"	1.811"	3.15" (80)	4.33" (110)	32.0 lbs

\* Other spindle connections available: BT50, HSK80A, C8, and KM80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FMU-10

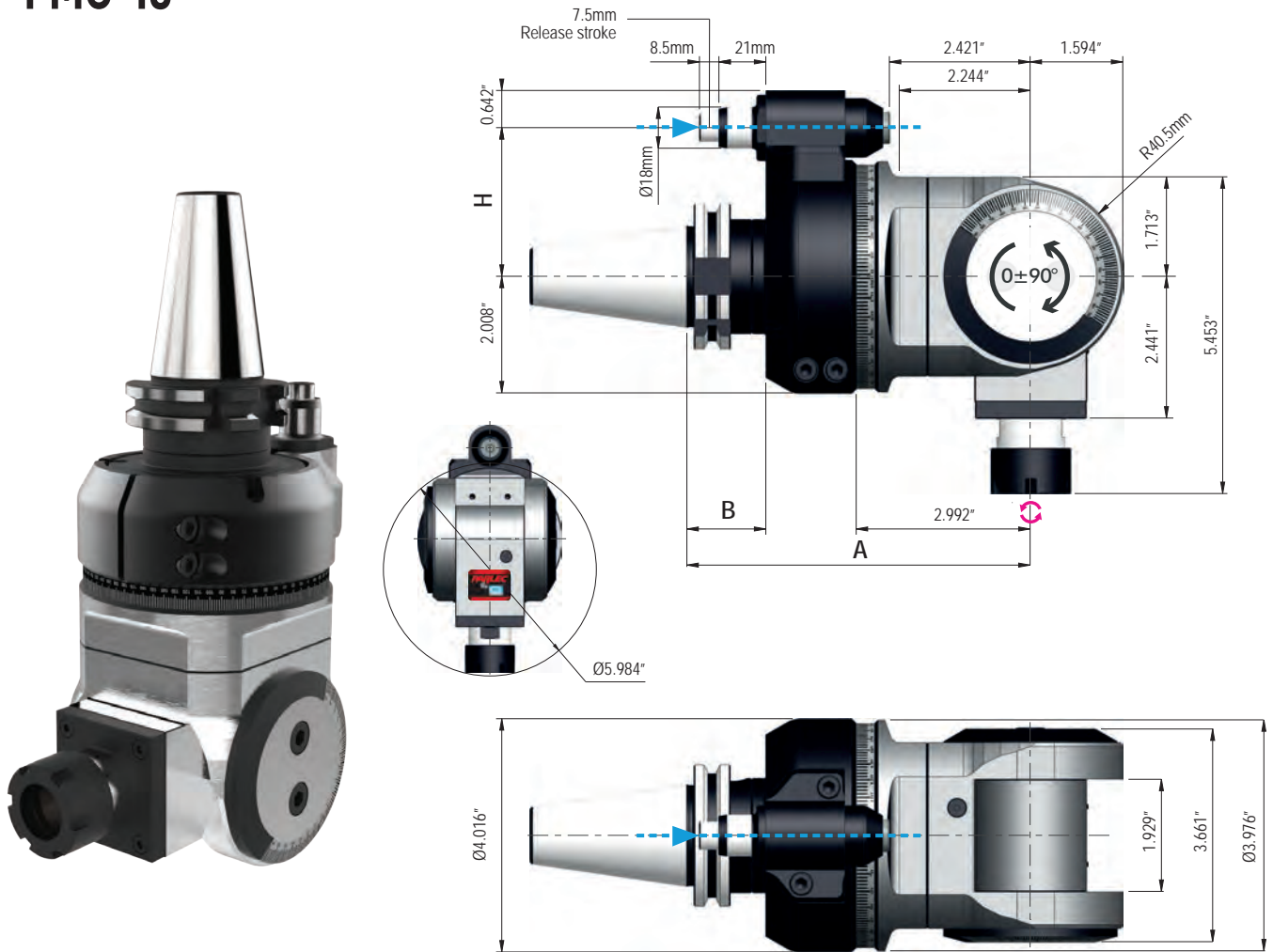


Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER16	3/8"	1:1	8,000	124 ft/lbs	80 in/lbs	Through Positioning Pin	Opposite Spindle	Adjustable

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	5.51"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.8 lbs
BT 40	5.51"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	13.8 lbs
CAT 50	5.51"	1.378"	3.15" (80)	4.33" (110)	18.3 lbs
HSK63A	5.87"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	13.8 lbs
HSK100A	5.87"	1.811"	3.15" (80)	4.33" (110)	18.3 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

## FMU-16



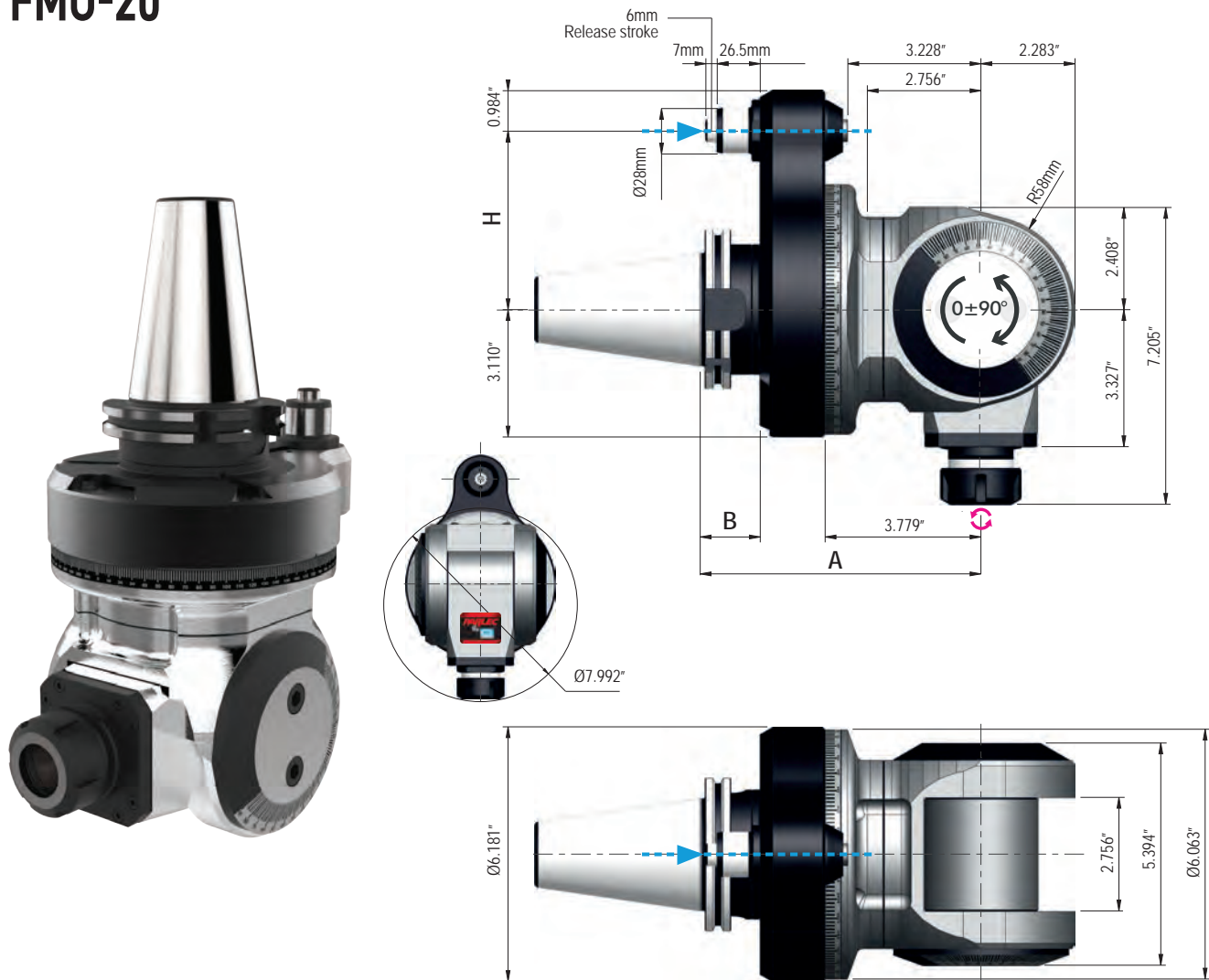
Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER25	5/8"	1:1	3,000	142 ft/lbs	133 in/lbs	Through Positioning Pin	Opposite Spindle	Adjustable

Spindle Connection	A	B	H (mm)	H Option (mm)	Weight
CAT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	18.0 lbs
BT 40	5.91"	1.378"	2.56" (65)	3.15" / 4.33" (80/110)	18.0 lbs
CAT 50	5.91"	1.378"	3.15" (80)	4.33" (110)	23.1 lbs
HSK63A	6.26"	1.732"	2.56" (65)	3.15" / 4.33" (80/110)	18.0 lbs
HSK100A	6.26"	1.811"	3.15" (80)	4.33" (110)	23.1 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.

# Angle Heads

## FMU-20



Output	Max. Shank	Gear Ratio	Max. RPM	Max. Axial Load	Torque	Coolant Delivery	Tool Rotation Direction	Series
ER32	3/4"	1:1	2,500	391 ft/lbs	425 in/lbs	Through Positioning Pin	Opposite Spindle	Adjustable

Spindle Connection	A	B	H (mm)	H Option	Weight
CAT 50	6.81"	1.456"	4.33" (110)	-	48.5 lbs
HSK100A	7.17"	1.889"	4.33" (110)	-	48.5 lbs

\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.



# MTC SERIES

MANUAL TOOL CHANGE



F90MTC-16



F90MTC-16L



F90MTC-S40



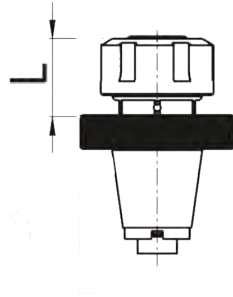
F90MTC-20



F90MTC-20L

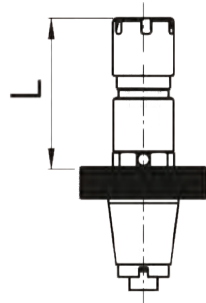
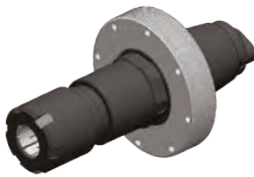
# Angle Heads

## Modular Quick Change Adapters | For Internal Nuts with External Threads



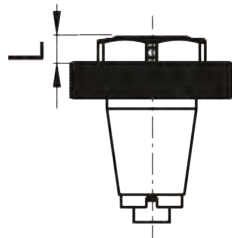
### Collet Chuck Adapters with Standard Collet Nuts

Part #	Adapter Connection	Output	L
9.HT.ER25I.16E	ER25	ER16	1.14"
9.HT.ER25I.20E	ER25	ER20	1.22"
9.HT.ER25I.25E	ER25	ER25	1.22"
9.HT.ER32I.20E	ER32	ER20	1.14"
9.HT.ER32I.25E	ER32	ER25	1.22"
9.HT.ER32I.32E	ER32	ER32	1.38"
9.HT.ER40I.25E	ER40	ER25	1.22"
9.HT.ER40I.32E	ER40	ER32	1.38"
9.HT.ER40I.40E	ER40	ER40	1.57"



### Extended Length Collet Chuck Adapters with Mini Nuts

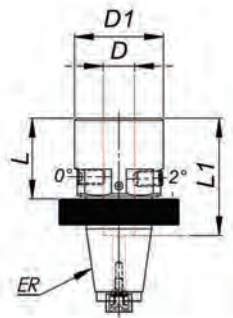
Part #	Adapter Connection	Output	L
9.HT.ER25I.11EL	ER25	ER11	1.18"
9.HT.ER25I.16EL	ER25	ER16	1.57"
9.HT.ER32I.11EL	ER32	ER11	1.57"
9.HT.ER32I.16EL	ER32	ER16	1.97"
9.HT.ER32I.20EL	ER32	ER20	1.97"
9.HT.ER40I.16EL	ER40	ER16	1.97"
9.HT.ER40I.20EL	ER40	ER20	1.97"
9.HT.ER40I.25EL	ER40	ER25	1.97"



### Collet Chuck Adapters with Internal Nuts

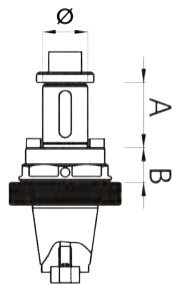
Part #	Adapter Connection	Output	L
9.HT.ER25I.11I	ER25	ER11	.35"
9.HT.ER25I.16I	ER25	ER16	.43"
9.HT.ER32I.20I	ER32	ER20	.43"
9.HT.ER32I.25I	ER32	ER25	.43"
9.HT.ER40I.25I	ER40	ER25	.47"
9.HT.ER40I.32I	ER40	ER32	.55"

## Modular Quick Change Adapters | For Internal Nuts with External Threads



End Mill Holder Adapters - Metric

Part #	Adapter Connection	D (mm)	D1 (mm)	L (mm)	L1 (mm)
9.HT.ER25I.W06	ER25	6	19	28	36
9.HT.ER25I.W08	ER25	8	21	28	36
9.HT.ER25I.W10	ER25	10	28	29	40
9.HT.ER25I.W12	ER25	12	34	31	45
9.HT.ER25I.W14	ER25	14	36	31	45
9.HT.ER32I.W06	ER32	6	19	28	36
9.HT.ER32I.W08	ER32	8	21	28	36
9.HT.ER32I.W10	ER32	10	28	29	40
9.HT.ER32I.W12	ER32	12	34	31	45
9.HT.ER32I.W14	ER32	14	36	31	45
9.HT.ER32I.W16	ER32	16	38	34	49
9.HT.ER32I.W18	ER32	18	40	34	49
9.HT.ER32I.W20	ER32	20	45	36	51
9.HT.ER40I.W06	ER40	6	19	28	36
9.HT.ER40I.W08	ER40	8	21	28	36
9.HT.ER40I.W10	ER40	10	28	29	40
9.HT.ER40I.W12	ER40	12	34	31	45
9.HT.ER40I.W14	ER40	14	36	31	45
9.HT.ER40I.W16	ER40	16	38	34	49
9.HT.ER40I.W18	ER40	18	40	34	49
9.HT.ER40I.W20	ER40	20	45	36	51

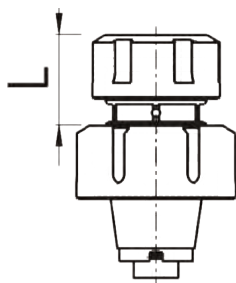


Face Mill Holder Adapters - Metric

Part #	Adapter Connection	Arbor Size (mm)	A (mm)	B (mm)
9.HT.ER25I.P16	ER25	16	27	16
9.HT.ER25I.P22	ER25	22	31	16
9.HT.ER32I.P16	ER32	16	27	17
9.HT.ER32I.P22	ER32	22	31	17
9.HT.ER40I.P22	ER40	22	31	20
9.HT.ER40I.P27	ER40	27	-	-

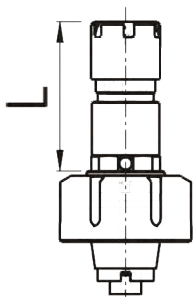
# Angle Heads

## Modular Quick Change Adapters | For External Nuts with Internal Threads



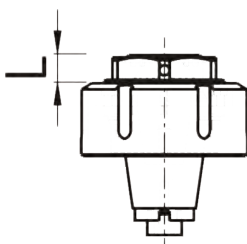
### Collet Chuck Adapters with Standard Collet Nuts

Part #	Adapter Connection	Output	L
9.HT.ER25E.16E	ER25	ER16	1.14"
9.HT.ER25E.20E	ER25	ER20	1.22"
9.HT.ER25E.25E	ER25	ER25	1.22"
9.HT.ER32E.20E	ER32	ER20	1.14"
9.HT.ER32E.25E	ER32	ER25	1.22"
9.HT.ER32E.32E	ER32	ER32	1.38"
9.HT.ER40E.25E	ER40	ER25	1.22"
9.HT.ER40E.32E	ER40	ER32	1.38"
9.HT.ER40E.40E	ER40	ER40	1.57"



### Extended Length Collet Chuck Adapters with Mini Nuts

Part #	Adapter Connection	Output	L
9.HT.ER25E.11EL	ER25	ER11	1.18"
9.HT.ER25E.16EL	ER25	ER16	1.57"
9.HT.ER32E.11EL	ER32	ER11	1.57"
9.HT.ER32E.16EL	ER32	ER16	1.97"
9.HT.ER32E.20EL	ER32	ER20	1.97"
9.HT.ER40E.16EL	ER40	ER16	1.97"
9.HT.ER40E.20EL	ER40	ER20	1.97"
9.HT.ER40E.25EL	ER40	ER25	1.97"



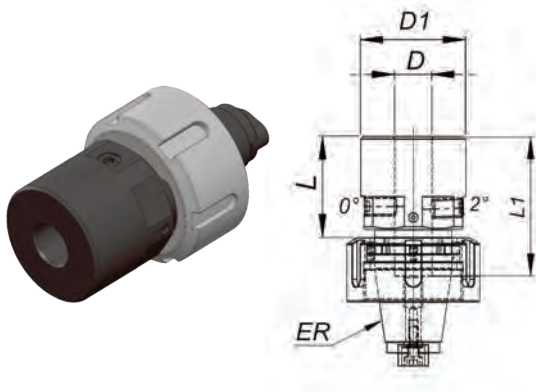
### Collet Chuck Adapters with Internal Nuts

Part #	Adapter Connection	Output	L
9.HT.ER25E.11I	ER25	ER11	.35"
9.HT.ER25E.16I	ER25	ER16	.43"
9.HT.ER32E.20I	ER32	ER20	.43"
9.HT.ER32E.25I	ER32	ER25	.43"
9.HT.ER40E.25I	ER40	ER25	.47"
9.HT.ER40E.32I	ER40	ER32	.55"

## Modular Quick Change Adapters | For External Nuts with Internal Threads

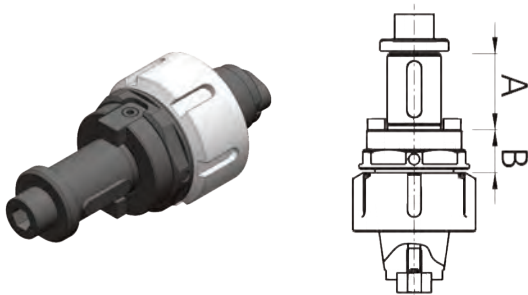
### End Mill Holder Adapters - Metric

Part #	Adapter Connection	D (mm)	D1 (mm)	L (mm)	L1 (mm)
9.HT.ER25E.W06	ER25	6	19	28	36
9.HT.ER25E.W08	ER25	8	21	28	36
9.HT.ER25E.W10	ER25	10	28	29	40
9.HT.ER25E.W12	ER25	12	34	31	45
9.HT.ER25E.W14	ER25	14	36	31	45
9.HT.ER32E.W06	ER32	6	19	28	36
9.HT.ER32E.W08	ER32	8	21	28	36
9.HT.ER32E.W10	ER32	10	28	29	40
9.HT.ER32E.W12	ER32	12	34	31	45
9.HT.ER32E.W14	ER32	14	36	31	45
9.HT.ER32E.W16	ER32	16	38	34	49
9.HT.ER32E.W18	ER32	18	40	34	49
9.HT.ER32E.W20	ER32	20	45	36	51
9.HT.ER40E.W06	ER40	6	19	28	36
9.HT.ER40E.W08	ER40	8	21	28	36
9.HT.ER40E.W10	ER40	10	28	29	40
9.HT.ER40E.W12	ER40	12	34	31	45
9.HT.ER40E.W14	ER40	14	36	31	45
9.HT.ER40E.W16	ER40	16	38	34	49
9.HT.ER40E.W18	ER40	18	40	34	49
9.HT.ER40E.W20	ER40	20	45	36	51



### Face Mill Holder Adapters - Metric

Part #	Adapter Connection	Arbor Size (mm)	A (mm)	B (mm)
9.HT.ER25E.P16	ER25	16	27	16
9.HT.ER25E.P22	ER25	22	31	16
9.HT.ER32E.P16	ER32	16	27	17
9.HT.ER32E.P22	ER32	22	31	17
9.HT.ER40E.P22	ER40	22	31	20
9.HT.ER40E.P27	ER40	27	-	-



# Angle Heads

## MultiPOINT Anti-Rotation System



Made of 4 brace points for:

- Greater rigidity
- Reducing vibration
- Heavy duty machining
- Mounting on any type of machine spindle



### Type 1

A	D	H	Option H	Pin Size	Optional Pin Size		
1.65 (41.75)	4.02 (102)	2.559 (65)	3.149 (80) / 4.330 (110)	18 mm	28 mm with 110 mm H only		
<b>MODELS</b>				<b>AVAILABLE SHANKS</b>			
FL90-13 / 13L • FL90-16 / 16L / 16D • FS90-3 / 3L • FS90-4 / 4L • FS90-6 / 6L F90-7 / 7D / 7C / 7L / 7LD / 7LC • F90-10 / 10D / 10C / 10L / 10LD • F90-13 / 13C / 13L F90-16S / 16SC • F90-20S • F90-20D • FMU-10 • FMU-16 • FR90-10 • FR90-13				<u>CAT</u> 40, 50	<u>DIN (SK)</u> 40, 50	<u>BT</u> 40, 50	<u>HSK A</u> 63, 80, 100
				<u>KM</u> 63, 80, 100	<u>ISO 26623</u> C5, C6, C8		

### Type 2

A	D	H	Option H	Pin Size	Optional Pin Size		
2.23 (56.75)	5.04 (128)	3.149 (80)	4.330 (110)	18 mm	28 mm with 110 mm H only		
<b>MODELS</b>				<b>AVAILABLE SHANKS</b>			
F90-16 / 16D / 16C / 16L / 16LD • F90-20 / 20C / 20L • FR90-16 • FR90-20				<u>CAT</u> 50	<u>BT</u> 50	<u>HSK A</u> 80, 100	<u>ISO 26623</u> C6, C8

### Type 3

A	D	H	Option H	Pin Size	Optional Pin Size			
-	6.18 (157)	4.330 (110)	-	28 mm	-			
<b>MODELS</b>				<b>AVAILABLE SHANKS</b>				
F90-S40 / S40C • F90-30 / 30D • FMU-20				<u>CAT</u> 50	<u>BT</u> 50	<u>HSK A</u> 80, 100	<u>KM</u> 80, 100	<u>ISO 26623</u> C6, C8

## ReCOOL ER Nuts

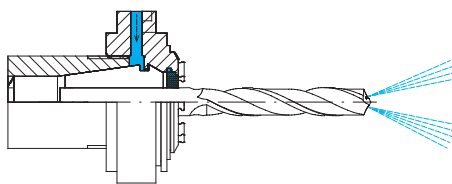


For External Nuts



For Internal Nuts

### Coolant Through

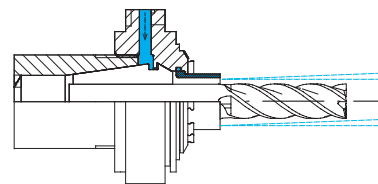


GDS



- Achieve coolant through with ReCool nuts
- Precise cooling at the cutting edge and improved chip removal
- Particularly suitable for deep cavities
- Lubrication of cutting edge
- Best surface quality

### External Coolant



GKS



- Achieve external cooling with ReCool nuts
- Applicable on Angle Heads and Driven Tools with internal coolant through suitable nut STDC - MINIC - AXC
- Coolant is fed along the side of the tool to the cutting edge
- Can be used for moderate cavities

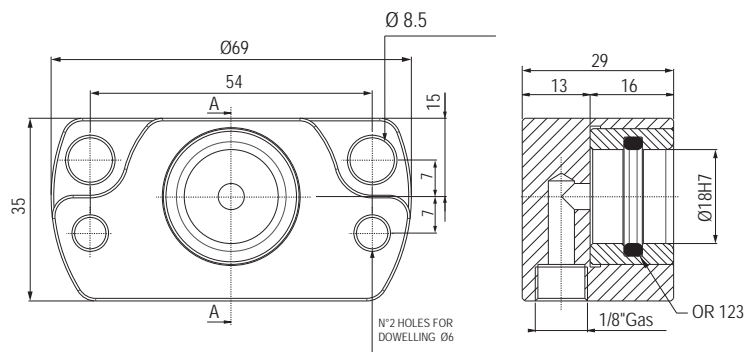
Part #	Collet Size	Fits Angle Head Type	Sealing Ring for Coolant-Through Tooling*	Sealing Ring for External Coolant*	Wrench
9.GR.CR16	ER16	F90-10/10L, FMU-10	9.GD.S16/xx	9.GK.S16/xx	9.CH.16AX
9.GR.CR20	ER20	FL90-13	9.GD.S20/xx	9.GK.S20/xx	9.CH.20AX
9.GR.CR25	ER25	F90-16/16S/16L, FL90-16, FMU-16	9.GD.S25/xx	9.GK.S25/xx	9.CH.25AX
9.GR.CR32	ER32	F90-20/20S/20L, FMU-20	9.GD.S32/xx	9.GK.S32/xx	9.CH.32AX
9.GR.CR40	ER40	F90-S40	9.GD.S40/xx	9.GK.S40/xx	9.CH.40AX

\*"xx" denotes tool shank diameter (ex. 9.GD.S16/10 means 10 mm shank diameter)

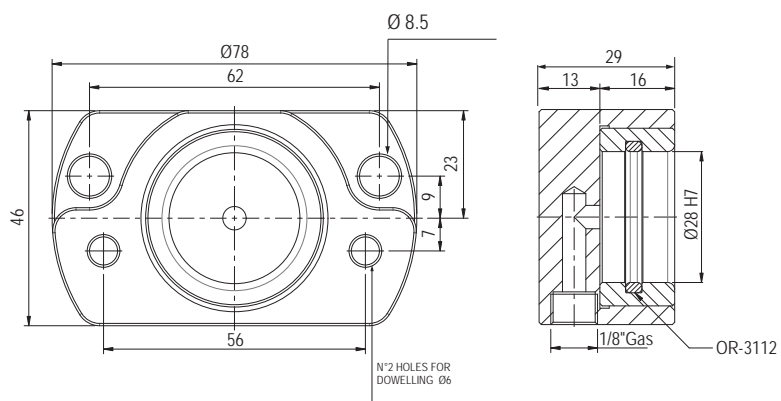
## Universal Block - Straight Pin



Ø18



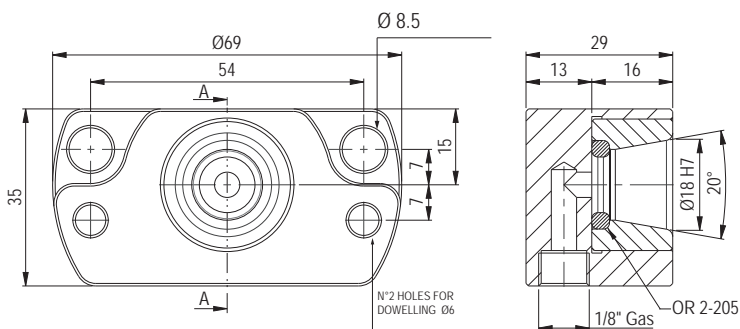
Ø28



## Universal Block - Conical Pin



Ø18



Part #

Bushing / Pin Size

9.F18.INDEX (straight pin, type 1 & 2)

18mm

9.F28.INDEX (straight pin, Type 3)

28mm

9.F18.INDEXC (conical pin, FL series, type 1 & 2)

18mm

\*9.F18.INDEX-HAAS21 (straight pin)

18mm

\*9.F18.INDEX-HAAS21C (conical pin, FL series)

18mm

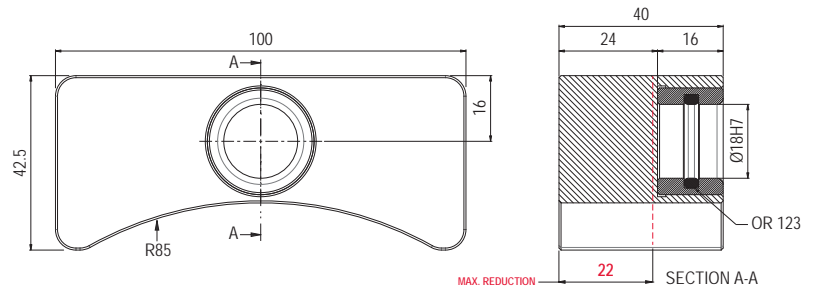
\* HAAS Blocks - Not Shown



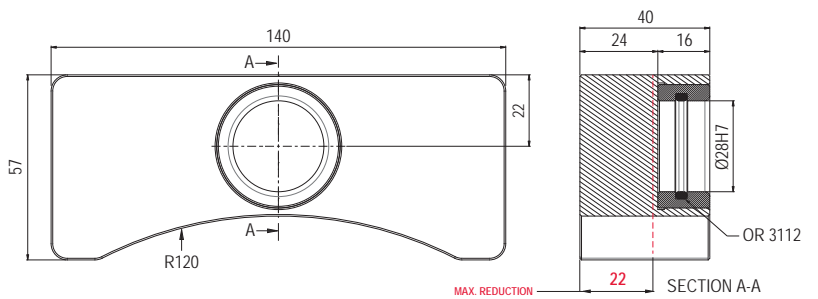
## Machinable Block - Straight Pin



Ø18



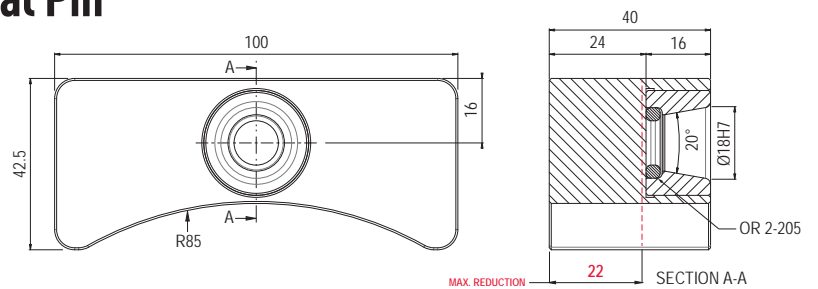
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## Machinable Block - Conical Pin



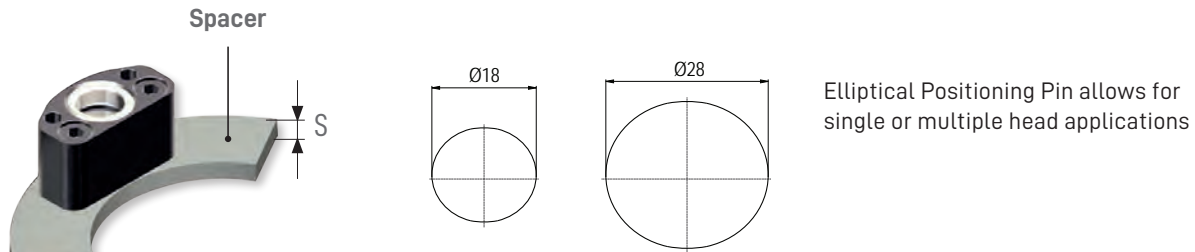
Ø18



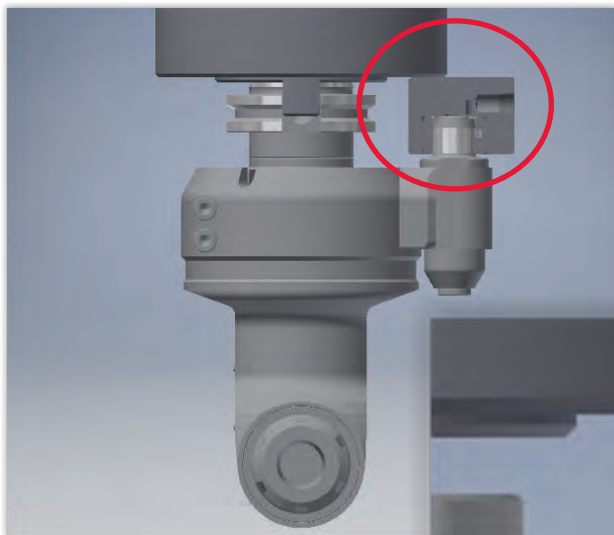
Part #	Bushing / Pin Size
9.G18.INDEX (straight pin, type 1 & 2)	18mm
9.G28.INDEX (straight pin, Type 3)	28mm
9.G18.INDEXC (conical pin, FL series, type 1 & 2)	18mm

# Angle Heads

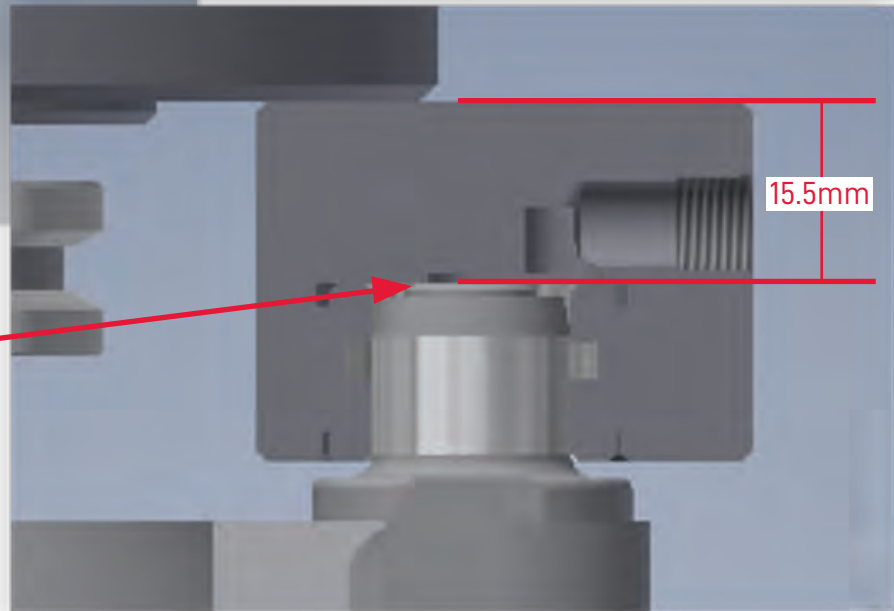
## Spacer Calculations | For Determining Need and Size of Spacer



Optional spacer is not provided. "S" thickness is for reference only. Actual thickness, and/or the need for a spacer, can be calculated below.



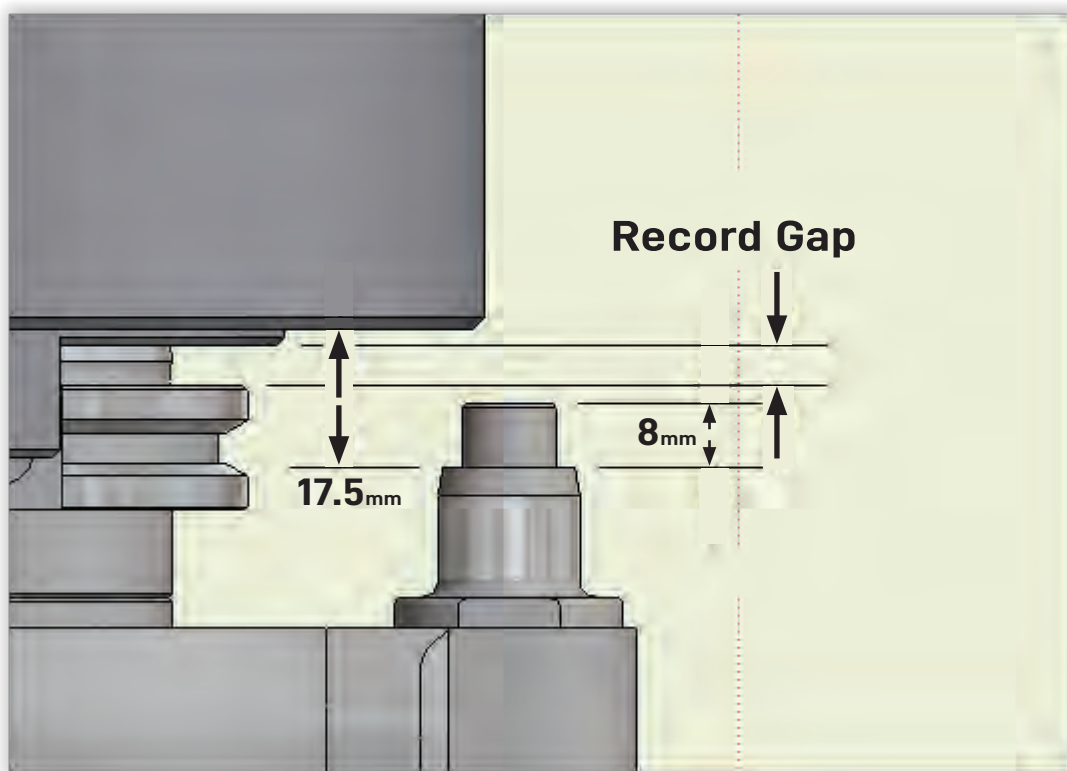
Stop Block shown with cutaway for pin length clarity. Distance from bottom of the fixed PIN plus 1mm free play is 15.5mm. Add spacer between the bottom of the stop block and face of spindle housing if needed.



Correct Free Play 1mm (.040") when installed into machine spindle and stop block.

## Spacer Calculations | For Determining Need and Size of Spacer

Check gap between fixed pin and face of spindle housing. In this example it is 17.5mm. The standard stop block is 14.5mm and the free play is 1mm. ( $14.5 + 1 = 15.5$  mm)  
Calculate  $17.5 - 15.5 = 2$ mm (in this example).  
This example requires a 2mm spacer.



Record distance between spindle face and toolholder flange. This is important to make sure you have full spindle engagement after final stop block installation. The distance should be the same after initial automatic tool change.

# RETENTION KNOBS

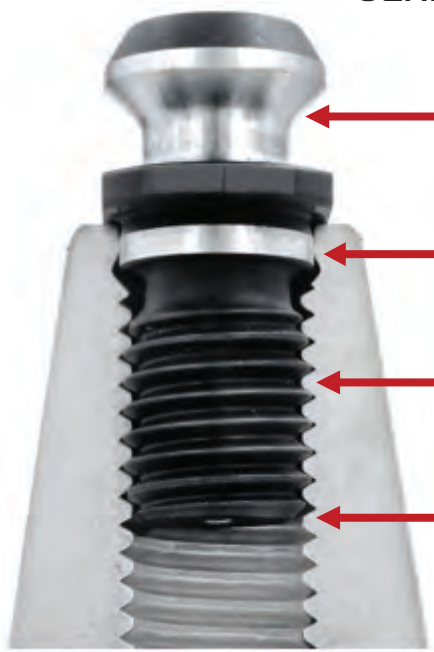
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# DAVITA

## MegaFORCE

ULTIMATE PERFORMANCE RETENTION KNOBS



Blended radii on neck improves strength

Precision pilot provides greater stability

Formed threads provide 20% greater strength vs. Cut threads

Deeper thread engagement reduces tool holder taper swelling for improved spindle contact



### High Performance Retention Knobs

- Wide selection of ANSI/ISO, DIN, and MAS style knobs
- Manufactured from aircraft quality AMS-6274 alloy steel for increased strength and fatigue resistance
- All mating surfaces precision ground
- Solid and coolant-through styles available

# Retention Knobs

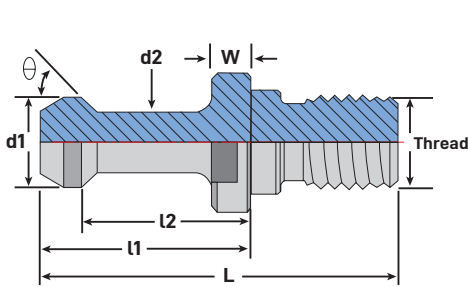


## MegaFORCE

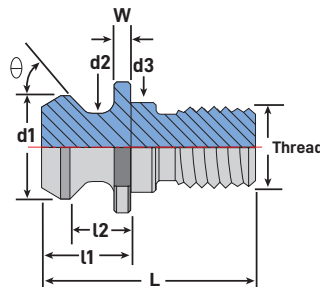
ULTIMATE PERFORMANCE RETENTION KNOBS

### FEATURES

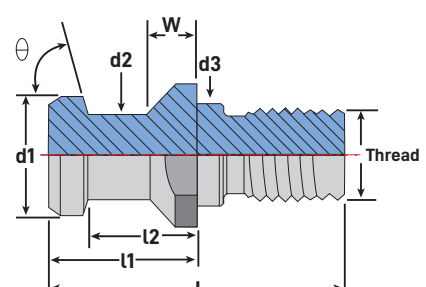
- Deeper thread engagement reduces tool holder taper swelling
- Blended radii on the neck improves strength
- Precision pilot provides greater stability
- Formed threads provide 20% greater strength vs. cut threads



MegaFORCE MAS Style



MegaFORCE ANSI/ISO Style



MegaFORCE DIN Style

### BT 40 - DIN MegaForce Retention Knob

Part #	Type	$\Theta$	d1	d2	L	l1	l2	W	Coolant Hole	Thread
4020TRK-MF	BT40 - MAS 75° Coolant-Through	75°	.748"	.551"	2.126"	1.142"	.906"	.276"	.276"	M16 - 2

### BT 30/40 - MAS MegaForce Retention Knobs

Part #	Type	$\Theta$	d1	d2	L	l1	l2	W	Coolant Hole	Thread
3003TRK-MF	BT30 - MAS 45° Solid	45°	.433"	.276"	1.693"	.906"	.709"	.197"	-	M12 - 1.75
3004TRK-MF	BT30 - MAS 60° Solid	60°	.433"	.276"	1.693"	.906"	.709"	.197"	-	M12 - 1.75
4003TRK-MF	BT40 - MAS 45° Solid	45°	.591"	.394"	2.362"	1.378"	1.102"	.236"	-	M16 - 2
4003TRKC-MF	BT40 - MAS 45° Coolant-Through	45°	.591"	.394"	2.362"	1.378"	1.102"	.236"	.591"	M16 - 2
4004TRKC-MF	BT40 - MAS 60° Coolant-Through	60°	.591"	.394"	2.362"	1.378"	1.102"	.236"	.591"	M16 - 2

## CAT 40/50 - ANSI/ISO MegaForce Retention Knobs

Part #	Type	Θ	d1	d2	L	l1	l2	W	Coolant Hole	Thread
40NTRK-MF	CAT40 - ANSI Solid	45°	.740"	.490"	1.624"	.640"	.440"	.118"	-	5/8" - 11
40TRK-MF	CAT40 - ANSI Coolant-Through	45°	.740"	.490"	1.624"	.640"	.440"	.118"	.280"	5/8" - 11
50NTRK-MF	CAT50 - ANSI Solid	45°	1.140"	.820"	.2300"	1.000"	.700"	.200"	-	1" - 8
50TRK-MF	CAT50 - ANSI Coolant-Through	45°	1.140"	.820"	.2300"	1.000"	.700"	.200"	.468"	1" - 8
M50TRK-MF	CAT50 - ANSI Coolant-Through Mazak O-Ring Seal Groove	45°	1.140"	.820"	.2300"	1.000"	.700"	.200"	.458"	1" - 8

## CAT 40/50 - DIN MegaForce Retention Knobs

Part #	Type	Θ	d1	d2	L	l1	l2	W	Coolant Hole	Thread
4008TRK-MF	CAT40 - DIN Solid	75°	.748"	.551"	2.126"	1.024"	.787"	.276"	-	5/8" - 11
4008TRKC-MF	CAT40 - DIN Coolant-Through	75°	.748"	.551"	2.126"	1.024"	.787"	.276"	.276"	5/8" - 11
4030TRK-MF	CAT40 - DIN Coolant-Through	75°	.748"	.551"	2.126"	1.024"	.787"	.157"	.276"	5/8" - 11
5030TRK-MF	CAT50 - DIN Coolant-Through	75°	1.102"	.827"	2.913"	.1339"	.984"	.197"	.453"	1" - 8

## CAT 40/50 - MAS MegaForce Retention Knobs

Part #	Type	Θ	d1	d2	L	l1	l2	W	Coolant Hole	Thread
4001TRK-MF	CAT40 - MAS 90° Solid	90°	.591"	.394"	2.250"	1.266"	.990"	.236"	-	5/8" - 11
4005TRKC-MF	CAT40 - MAS 45° Solid	45°	.591"	.394"	2.250"	1.266"	.990"	.124"	-	5/8" - 11
4005TRKC-MF	CAT40 - MAS 45° Coolant-Through	45°	.591"	.394"	2.250"	1.266"	.990"	.124"	.118"	5/8" - 11
4009TRK-MF	CAT40 - MAS 45° Solid	45°	.591"	.394"	2.250"	1.266"	.990"	.236"	-	5/8" - 11
4009TRKC-MF	CAT40 - MAS 45° Coolant-Through	45°	.591"	.394"	2.250"	1.266"	.990"	.236"	.157"	5/8" - 11
4014TRK-MF	CAT40 - MAS 60° Solid	60°	.591"	.394"	2.250"	1.266"	.990"	.236"	-	5/8" - 11
5001TRK-MF	CAT50 - MAS 90° Solid	90°	.906"	.669"	3.354"	1.780"	1.386"	.394"	-	1" - 8
5001TRKC-MF	CAT50 - MAS 90° Coolant-Through	90°	.906"	.669"	3.354"	1.780"	1.386"	.394"	.311"	1" - 8
5005TRK-MF	CAT50 - MAS 45° Solid	45°	.906"	.669"	3.354"	1.780"	1.386"	.394"	-	1" - 8
5005TRKC-MF	CAT50 - MAS 45° Coolant-Through	45°	.906"	.669"	3.354"	1.780"	1.386"	.394"	.311"	1" - 8
5014TRK-MF	CAT50 - MAS 60° Solid	60°	.906"	.669"	3.354"	1.780"	1.386"	.394"	-	1" - 8
5014TRKC-MF	CAT50 - MAS 60° Coolant-Through	60°	.906"	.669"	3.354"	1.780"	1.386"	.394"	.311"	1" - 8
MAK050TRK-MF	CAT50 - MAS 45° Makino Coolant-Through	45°	.906"	.669"	3.354"	1.780"	1.386"	.394"	.311"	1" - 8
TOY50TRK-MF	CAT50 - MAS 45° Toyoda Coolant-Through	45°	.906"	.669"	3.354"	1.780"	1.386"	.394"	.236"	1" - 8

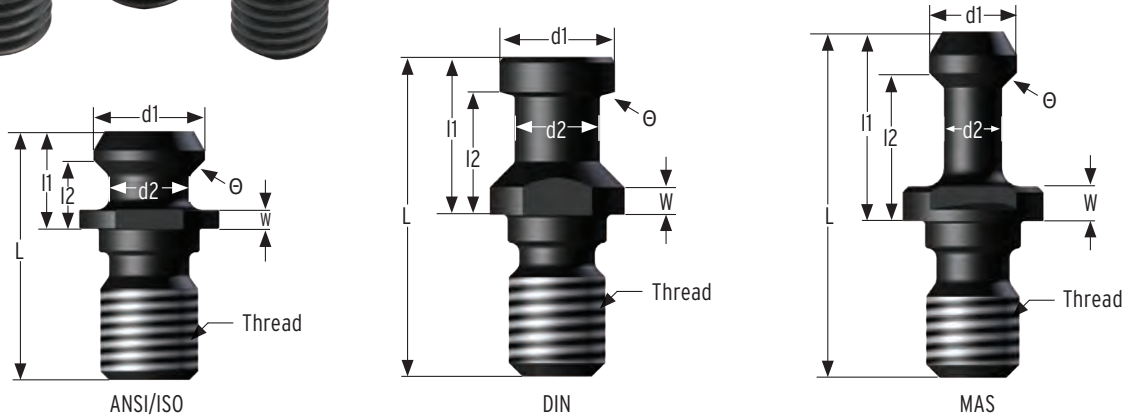
# Retention Knobs

## Standard | Inch Threads



### FEATURES

- All mating surfaces precision ground
- Manufactured from aircraft quality AMS-6274 alloy steel
- Hardened for maximum strength and longevity



### CAT 40/50 - ANSI/ISO Retention Knobs - Inch

Part #	Type	$\Theta$	d1	d2	L	l1	l2	W	Coolant Hole	Thread
40NTRK	CAT40 - ANSI 45° Solid	45°	.74"	.49"	1.68"	.64"	.44"	.12"	-	5/8" - 11
40TRK	CAT40 - ANSI 45° Coolant-Through	45°	.74"	.49"	1.68"	.64"	.44"	.12"	.281"	5/8" - 11
50NTRK	CAT50 - ANSI 45° Solid	45°	1.14"	.82"	2.54"	1.00"	.70"	.20"	-	1" - 9
50TRK	CAT50 - ANSI 45° Coolant-Through	45°	1.14"	.82"	2.54"	1.00"	.70"	.20"	.468"	1" - 9
50TRK-390-P	CAT50 - ANSI 45° Coolant-Through	45°	1.14"	.82"	2.30"	1.00"	.70"	.20"	.390"	1" - 9
50TRK-500	CAT50 - ANSI 45° Coolant-Through	45°	1.14"	.82"	2.54"	1.00"	.70"	.20"	.500"	1" - 9
M50TRK	CAT50 - ANSI 45° Coolant-Through Mazak	45°	1.14"	.82"	2.30"	1.00"	.70"	.20"	.468"	1" - 9

### CAT 40/50 - DIN Retention Knobs - Inch

Part #	Type	$\Theta$	d1	d2	L	l1	l2	W	Coolant Hole	Thread
4008TRK	CAT40 - DIN 75° Solid	75°	.744"	.549"	2.06"	1.024"	.787"	.28"	-	5/8" - 11
4008TRKC	CAT40 - DIN 75° Coolant-Through	75°	.744"	.549"	2.06"	1.024"	.787"	.28"	.28"	5/8" - 11
4010TRK	CAT40 - DIN 75° Coolant-Through	75°	.748"	.551"	2.13"	1.142"	.906"	.28"	.28"	5/8" - 11
4030TRK	CAT40 - DIN 75° Coolant-Through	75°	.75"	.55"	2.06"	1.02"	.79"	.18"	.28"	5/8" - 11
5030TRK	CAT50 - DIN 75° Coolant-Through	75°	1.10"	.83"	2.88"	1.35"	.99"	.20"	.47"	1" - 8



## Standard | Inch Threads

### CAT 40/50 - MAS Retention Knobs - Inch

Part #	Type	Θ	d1	d2	L	l1	l2	W	Coolant Hole	Thread
3001TRK	CAT30 - MAS 45° Solid Chiron	45°	.393"	.236"	1.42"	.787"	.63"	.12"	-	1/2" - 13
4001TRK	CAT40 - MAS 90° Solid	90°	.588"	.393"	2.32"	1.275"	.988"	.23"	-	5/8" - 11
4001TRKC	CAT40 - MAS 90° Coolant-Through	90°	.588"	.393"	2.32"	1.275"	.988"	.23"	.197"	5/8" - 11
4005TRK	CAT40 - MAS 45° Solid	45°	.588"	.393"	2.31"	1.268"	.988"	.13"	-	5/8" - 11
4005TRKC	CAT40 - MAS 45° Coolant-Through	45°	.588"	.393"	2.31"	1.268"	.988"	.13"	.157"	5/8" - 11
4006TRK	CAT40 - MAS 45° Solid	45°	.588"	.393"	2.45"	1.264"	.99"	.24"	-	5/8" - 11
4009TRK	CAT40 - MAS 45° Solid	45°	.588"	.393"	2.31"	1.264"	.99"	.24"	-	5/8" - 11
4009TRKC	CAT40 - MAS 45° Coolant-Through	45°	.588"	.393"	2.31"	1.264"	.99"	.24"	.197"	5/8" - 11
4014TRK	CAT40 - MAS 60° Solid	60°	.588"	.393"	2.31"	1.268"	.99"	.23"	-	5/8" - 11
4014TRKC	CAT40 - MAS 60° Coolant-Through	60°	.588"	.393"	2.31"	1.268"	.99"	.23"	.197"	5/8" - 11
4015TRK	CAT40 - MAS 60° Solid Thin Flange	60°	.588"	.393"	2.31"	1.268"	.99"	.13"	-	5/8" - 11
C400TRK	CAT40 - MAS 45° Solid	45°	.588"	.406"	2.48"	1.436"	1.137"	.19"	-	5/8" - 11
C400TRKC	CAT40 - MAS 45° Coolant-Through	45°	.588"	.404"	2.48"	1.436"	1.137"	.19"	.157"	5/8" - 11
TOY040TRK	CAT40 - MAS 45° Toyoda O-ring	45°	.588"	.393"	2.25"	1.268"	.988"	.12"	.118"	5/8" - 11
4008TRK	CAT40 - MAS 75° Solid	75°	.744"	.549"	2.06"	1.024"	.787"	.28"	-	5/8" - 11
4008TRKC	CAT40 - MAS 75° Coolant-Through	75°	.744"	.549"	2.06"	1.024"	.787"	.28"	.276"	5/8" - 11
4010TRK	CAT40 - MAS 75° Coolant-Through Long Neck	75°	.744"	.551"	2.13"	1.142"	.906"	.28"	.276"	5/8" - 11
5001TRK	CAT50 - MAS 90° Solid	90°	.904"	.667"	3.31"	1.77"	1.378"	.39"	-	1" - 8
5001TRKC	CAT50 - MAS 90° Coolant-Through	90°	.904"	.667"	3.31"	1.77"	1.378"	.39"	.25"	1" - 8
5005TRK	CAT50 - MAS 45° Solid	45°	.904"	.667"	3.33"	1.791"	1.378"	.41"	-	1" - 8
5005TRKC	CAT50 - MAS 45° Coolant-Through	45°	.904"	.667"	3.33"	1.791"	1.378"	.41"	.25"	1" - 8
5014TRK	CAT50 - MAS 60° Solid	60°	.904"	.667"	3.31"	1.77"	1.378"	.39"	-	1" - 8
5014TRKC	CAT50 - MAS 60° Coolant-Through	60°	.904"	.667"	3.31"	1.77"	1.378"	.39"	.25"	1" - 8
5021TRK	CAT50 - MAS 90° Solid Thin Flange	90°	.94"	.708"	2.77"	1.234"	.907"	.19"	-	1" - 8
MAK050TRK	CAT50 - MAS 45° Makino O-ring	45°	.904"	.667"	3.14"	1.78"	1.386"	.39"	.236"	1" - 8
MH500TRK	CAT50 - MAS 90° Solid	90°	.904"	.667"	3.32"	1.78"	1.386"	.40"	-	1" - 8
MH500TRKC	CAT50 - MAS 90° Coolant-Through	90°	.904"	.667"	3.32"	1.78"	1.386"	.40"	.25"	1" - 8
MS5034TRK	CAT50 - MAS 90° Mitsui Coolant-Through	90°	.94"	.706"	2.76"	1.218"	.903"	.20"	.315"	1" - 8
OKM050TRK	CAT50 - MAS 60° Okuma O-ring	60°	.904"	.667"	3.25"	1.77"	1.378"	.39"	.236"	1" - 8
TOY050TRK	CAT50 - MAS 45° Toyoda O-ring	45°	.904"	.667"	3.55"	1.78"	1.386"	.40"	.236"	1" - 8

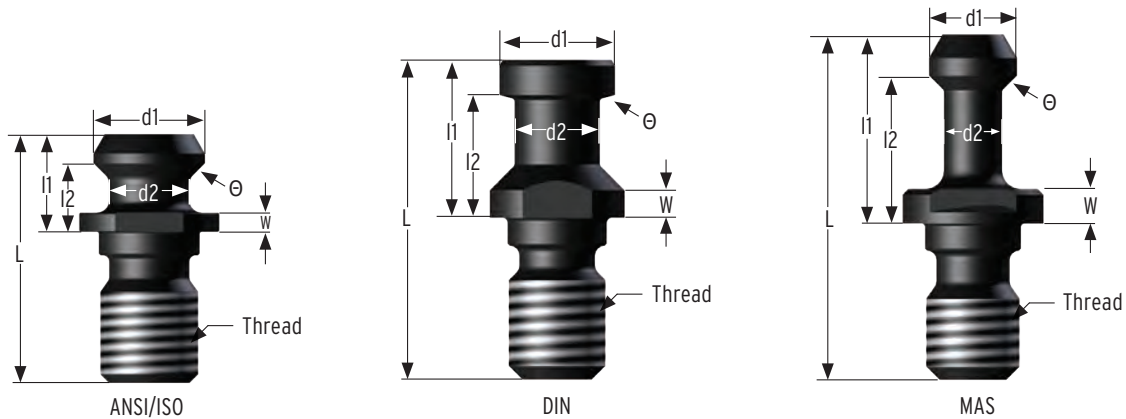
# Retention Knobs

## Standard | Metric Threads



### FEATURES

- All mating surfaces precision ground
- Manufactured from aircraft quality AMS-6274 alloy steel
- Hardened for maximum strength and longevity



### BT 40/50 - ANSI/ISO Retention Knobs - Metric

Part #	Type	$\theta$	d1	d2	L	l1	l2	W	Coolant Hole	Thread
A40TRK	BT40 - ANSI 45° Coolant-Through	45°	.74"	.49"	1.65"	.64"	.44"	.12"	.281"	M16 x 2
MZ40TRK	BT40 - MAS 45° Mazak	45°	.74"	.49"	1.85"	.75"	.55"	.12"	.281"	M16 x 2
F40TRK	BT40 - ANSI 45° Fadal	45°	.74"	.49"	1.85"	.75"	.55"	.23"	-	M16 x 2
A50TRK	BT50 - ANSI 45° Coolant-Through	45°	1.14"	.82"	2.58"	1.00"	.70"	.20"	.468"	M24 x 3

### BT 40 - DIN Retention Knobs - Metric

Part #	Type	$\theta$	d1	d2	L	l1	l2	W	Coolant Hole	Thread
4020NTRK	BT40 - DIN 75° Solid	75°	.748"	.55"	2.26"	1.142"	.905"	.28"	-	M16 x 2
4020TRK	BT40 - DIN 75° Coolant-Through	75°	.748"	.55"	2.26"	1.142"	.905"	.28"	.276"	M16 x 2
DIN40ATRK	BT40 - DIN 75° Coolant-Through	75°	.75"	.55"	2.13"	1.02"	.79"	.16"	.276"	M16 x 2

## Standard | Metric Threads

### BT 30/40/50 - MAS Retention Knobs - Metric

Part #	Type	Θ	d1	d2	L	l1	l2	W	Coolant Hole	Thread
3002TRK	BT30 - MAS 45° Chiron	45°	.393"	.236"	1.42"	.787"	.63"	.12"	-	M12 - 1.75
3003TRK	BT30 - MAS 45° Solid	45°	.43"	.273"	1.70"	.908"	.71"	.19"	-	M12 - 1.75
3003TRKC	BT30 - MAS 45° Coolant-Through	45°	.43"	.273"	1.70"	.908"	.71"	.19"	.125"	M12 - 1.75
3004TRK	BT30 - MAS 60° Solid	60°	.43"	.273"	1.70"	.908"	.71"	.19"	-	M12 - 1.75
4002TRK	BT40 - MAS 90° Solid	90°	.588"	.393"	2.36"	1.376"	1.102"	.23"	-	M16 x 2
4003TRK	BT40 - MAS 45° Solid	45°	.588"	.393"	2.36"	1.376"	1.102"	.23"	-	M16 x 2
4003TRKC	BT40 - MAS 45° Coolant-Through	45°	.588"	.393"	2.36"	1.376"	1.102"	.23"	.197"	M16 x 2
4004TRK	BT40 - MAS 60° Solid	60°	.588"	.393"	2.36"	1.376"	1.102"	.23"	-	M16 x 2
4004TRKC	BT40 - MAS 60° Coolant-Through	60°	.588"	.393"	2.36"	1.376"	1.102"	.23"	.243"	M16 x 2
4009MTRK	BT40 - MAS 45° Solid	45°	.588"	.393"	2.31"	1.264"	.99"	.24"	-	M16 x 2
4009MTRKC	BT40 - MAS 45° Coolant-Through	45°	.588"	.393"	2.31"	1.264"	.99"	.24"	.197"	M16 x 2
5002TRK	BT50 - MAS 90° Solid	90°	.904"	.667"	3.34"	1.77"	1.378"	.39"	-	M24 x 3
5003TRK	BT50 - MAS 45° Solid	45°	.904"	.667"	3.34"	1.77"	1.378"	.39"	-	M24 x 3
5003TRKC	BT50 - MAS 45° Coolant-Through	45°	.904"	.667"	3.34"	1.77"	1.378"	.39"	.25"	M24 x 3
5004TRK	BT50 - MAS 60° Solid	60°	.904"	.667"	3.34"	1.77"	1.378"	.39"	-	M24 x 3

#### WARNING:

Machine tool manufacturers have used many various styles and sizes of retention knobs. They often look very similar and appear to be interchangeable. The use of the incorrect knob, or the incorrect use of a knob, may result in injury or property damage. It is the responsibility of the end user to check that the supplied knobs are correct for the machine tool and taper type. It is very important not to use metric retention knobs with inch toolholders. Be sure to fully tighten the retention knob. Failure to do so may result in the toolholder coming loose during operation.

The use of sealing and thread lock is recommended. Overtightening may cause a toolholder taper deformation.

# SETUP

## EQUIPMENT



# PARLEC

Parlec has everything you need to properly set up your tooling to perform to its full potential

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## Torque Wrenches

- Repeatable, precise torque for collet nuts and retention knobs
- Easy-to-read dial for fast adjustments



## Hand Wrenches

- Quick and convenient
- Wide selection for collet nuts, milling chucks, and retention knobs



## Tightening Stands

- For all tapers (CAT, BT, HSK, PSC)
- Bench mount and vice mount styles

# Hand Wrenches

## ERos® Roller Wrenches



Part #	Fits Nut #
EROS11MNW	EROS11M
EROS16MSNW	EROS16MSN
EROS16MNW	EROS16MN
EROS16NW	EROS16N
EROS20NW	EROS20N
EROS25NW	EROS25N
EROS32NW	EROS32N
EROS40NW	EROS40N

## ER Collet Wrenches - Hex



Open Hex Style Wrench  
ECN20W shown here.

Part #	Description
300CNW	ER11 Hex Nut Wrench
ECN20W	ER16 Hex Nut Wrench
20ERHNW	ER20 Hex Nut Wrench

## ER Slotted Nut Wrenches



25ERNW shown here

Part #	Description
20ERNW	ER20 Slotted Nut Wrench
25ERNW	ER25 Slotted Nut Wrench
32ERNW	ER32 Slotted Nut Wrench
40ERNW	ER40 Slotted Nut Wrench

## PG Hand Wrenches



Part #	Collet Series	Type
75HCNW	PG75	Open End
100HCNW	PG100	Open End
100CNW	PG100 / PG150	Pin Spanner

## Double-Angle Collet Wrenches



Part #	Collet Series	Hex
300CNW	DA 300	1/2"
ECN50W	DA 300	1/2"
ECN20W	DA 200	1"
ECN75W	DA 200	3/4"
ECN10W	DA 100	15/16"
ECN12W	DA 180	1-1/4"

## Micron Milling Chuck Wrenches



Part #	Description
35851	All Micron M-Style Chucks
35852	3/4" Micron Milling Chucks
35853	1" Micron Milling Chucks
35854	1-1/4" Micron Milling Chucks

# Torque Wrench & Retention Knob

## Torque Wrench

### FEATURES

- Torque wrenches ensure proper torque values are applied to the collet nut and retention knobs
- Pull-release locking system makes locking wrench at correct values easy
- Easy to read dial for fast adjustments



Torque Wrench TW-150 shown here. Nose sold separately.



#### Torque Wrenches

Part #	Range	Length
TW-50	5 - 50 ft. lbs.	12"
TW-150	30 - 150 ft. lbs.	16.6"
TW-220	45 - 220 ft. lbs.	22.2"

#### Torque Wrench Noses - ER Nuts

Nut Size	Part #	Style
ER16	TWN-16ERHNW	Hex
ER20	TWN-20ERHNW	Hex
ER25	TWN-25ERNW	Spanner
ER32	TWN-32ERNW	Spanner
ER40	TWN-40ERNW	Spanner

#### Torque Wrench Noses - PG Nuts

Nut Size	Part #	Style
PG75	04018-TWA	Hook
PG100	03690-25	Hook

## Retention Knob Sockets



\* Proper retention torque is critical for the safe performance of the tool holder

\* Use with the proper Retention Knob Square Drive Adapter (not included - See table to the right)

Part #	Taper Size	Flats	Drive	Torque
PSS-30BT	BT30	.535"	3/8"	36 ft. lbs.
PSS-40	CAT40 / BT40	.750"	3/8"	75 ft. lbs.
PSC-50	CAT50 / BT50	1.187"	1/2"	100 ft. lbs.

## Retention Knob Square Drive Adapters



\* 16 mm spigot input fits all Parlec torque wrenches

Part #	Drive
29828	3/8"
29827	1/2"



# ERos Torque Wrench & Noses

## ERos® Torque Wrench



\* Add appropriate ERos® torque wrench nose (not included - See next table)

Part #	Torque Range
EROSTW50	5 - 15 ft/lbs
EROSTW100	7 - 75 ft/lbs
EROSTW200	14 - 150 ft/lbs
EROSTW300	40 - 225 ft/lbs

## ERos® Torque Wrench Noses



\* Fits on any ERos® Torque Wrenches

Part #	Fit Nut #
EROS11MTWN	EROS11MN
EROS16MSTWN	EROS16MSN
EROS16MTWN	EROS16MN
EROS16TWN	EROS16N
EROS20TWN	EROS20N
EROS25TWN	EROS25N
EROS32TWN	EROS32N
EROS40TWN	EROS40N

# Tightening Stands

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## Bench Mount Swivel



- Swivels to vertical and horizontal orientation
- Mounts directly to workbench

Taper Size	Part #
BT30	TFBS30
CAT40, BT40	TFBS40
CAT50, BT50	TFBS50
HSK63A	TFBSH63
HSK100A	TFBSH100

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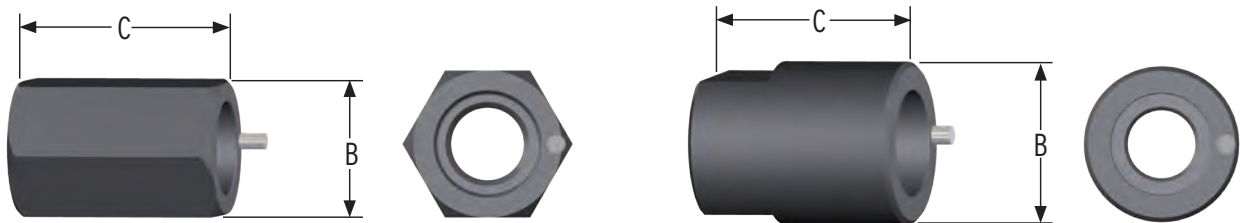
## Roller Bearing Tightening Fixture



- Compact design mounts to workbench

Taper Size	Part #
BT30	17386B
CAT40, BT40, HSK63A/E/F, C6	17846B
CAT50, BT50	17785B
HSK100A	17786B

## Vise Mounted Tightening Fixtures



- Simple, compact design mounts in a vise on the hex or flats

Taper Size	Part #	B	C	Thread	Style
BT30	TF30	2.50"	3.50"	3/8"-16	Hex
CAT40, BT40	TF40	2.50"	4.00"	3/8"-16	Hex
CAT50, BT50	TF50	4.25"	5.50"	3/8"-16	Flats (3.50")

# BMT65

## TOOL HOLDERS



# BMT65

by **PARLEC**

## Ductile Iron

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While other providers use steel for their BMT holders, Parlec uses ductile iron as required by some of the largest machine OEMs. Why ductile iron?

Ductile iron has 6.6x better vibration damping properties than steel for superior machining results. Plus, the higher graphite content of ductile iron has superior anti-abrasion characteristics than steel to provide long life.

## Fit & Finish

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Parlec BMT65 tool holders match popular machine OEM specifications to ensure seamless integration into your production.

Our BMT65 tool holders have a 70mm x 73mm bolt hole mounting pattern and feature three drive keys on the bottom to ensure perfect alignment without needing to make adjustments.

## OEM Quality

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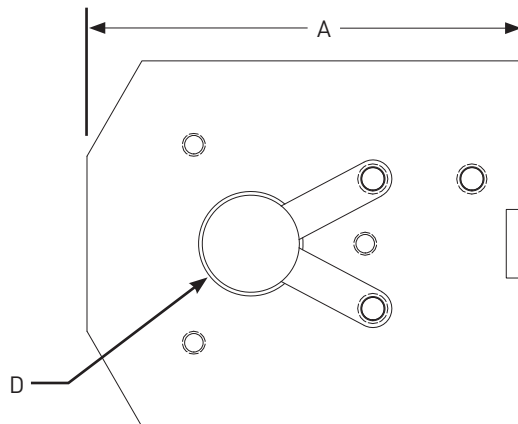
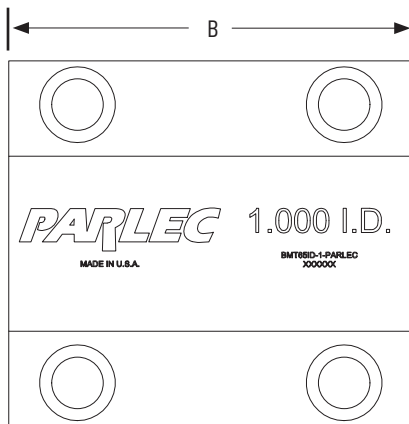
Having been a provider of BMT65 tool holding to some of the largest machine OEMs, we understand a thing or two about how to make world-class BMT65 tool holders for some of the most demanding customers.

# BMT65 Tool Holders

## BMT65 IDs | Round Shank Tooling

### FEATURES

- OEM level quality ensures optimal performance
- 70mm x 73mm bolt hole mounting pattern
- For round shank tooling
- Made from ductile iron for superior vibration damping and improved cutting performance
- Three drive keys on bottom ensure perfect alignment



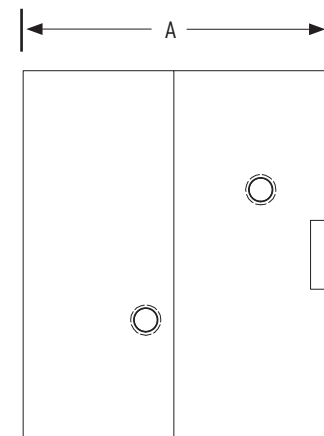
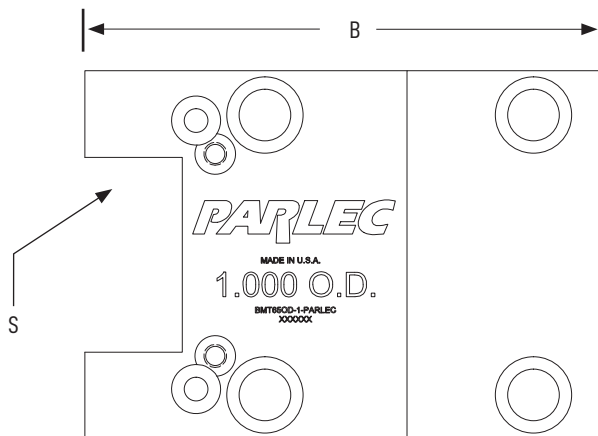
Part #	A	B	Tool Holding Diameter (D)
BMT65ID-1-PARLEC	4.528"	4.173"	1"
BMT65ID-1.50-PARLEC	4.528"	4.173"	1.5"
BMT65ID-1.25T-PARLEC*	4.528"	6.063"	1.25"
BMT65MID-25-PARLEC	115mm	106mm	25mm
BMT65MID-40-PARLEC	115mm	106mm	40mm

\* Double-sided

## BMT65 ODs | Square Shank Tooling

### FEATURES

- OEM level quality ensures optimal performance
- 70mm x 73mm bolt hole mounting pattern
- For square shank tooling
- Made from ductile iron for superior vibration damping and improved cutting performance
- Three drive keys on bottom ensure perfect alignment



Part #	A	B	Tool Holding (S)
BMT65OD-1-PARLEC	3.150"	5.315"	1"
BMT65OD-1T-PARLEC*	3.150"	6.457"	1"
BMT65MOD-25-PARLEC	80mm	135mm	25mm
BMT65MOD-25T-PARLEC*	80mm	164mm	25mm

\* Double-sided

## Numbers

00400/00450-EP.....	26	10CG-031.....	185	100PG-0625.....	103	100RPG-0593.....	106
00500-C.....	29	10CG-037.....	185	100PG-0640.....	103	100RPG-0609.....	106
00600-00165.....	26	10CG-043.....	185	100PG-0656.....	103	100RPG-0625.....	106
00600-00166.....	26	10CG-050.....	185	100PG-0671.....	103	100RPG-0640.....	106
00600-00167.....	26	10CG-056.....	185	100PG-0687.....	103	100RPG-0656.....	106
00600-00168.....	26	10CG-S012.....	185	100PG-0703.....	103	100RPG-0671.....	106
00600-00168.....	26	10KY.....	129	100PG-0718.....	103	100RPG-0687.....	106
00600-00168.....	26	10LS.....	128, 191	100PG-0734.....	103	100RPG-0703.....	106
00600-9002.....	28	10LSC.....	128	100PG-0750.....	103	100RPG-0718.....	106
00600-9003.....	28	10T-#0-6.....	185	100PG-0765.....	103	100RPG-0734.....	106
00600-9004.....	28	10T-#10.....	185	100PG-0781.....	103	100RPG-0750.....	106
00600-9005.....	28	10T-#12.....	185	100PG-0796.....	103	100RPG-0765.....	106
00600-9006.....	28	10T-#8.....	185	100PG-0812.....	103	100RPG-0781.....	106
013-500.....	191	10T-006N.....	185	100PG-0828.....	103	100RPG-0796.....	106
013-501.....	191	10T-012N.....	185	100PG-0843.....	103	100RPG-0812.....	106
013-502.....	191	10T-025.....	185	100PG-0859.....	103	100RPG-0828.....	106
013-503.....	191	10T-031.....	185	100PG-0875.....	103	100RPG-0843.....	106
014-901.....	191	10T-037.....	185	100PG-0890.....	104	100RPG-0859.....	106
014-902.....	191	10T-043.....	185	100PG-0906.....	104	100RPG-0875.....	106
014-903.....	191	10T-050.....	185	100PG-0921.....	104	100RPG-0890.....	106
014-904.....	191	10T-056.....	185	100PG-0937.....	104	100RPG-0906.....	106
014-905.....	191	10T-S012.....	185	100PG-0953.....	104	100RPG-0921.....	106
014-906.....	191	100CNW.....	261	100PG-0968.....	104	100RPG-0937.....	106
014-907.....	191	100HCN.....	108	100PG-0984.....	104	100RPG-0953.....	106
014-908.....	191	100HCNW.....	261	100PG-1000.....	104	100RPG-0968.....	106
014-909.....	191	100PG-0046.....	103	100PG-10MM.....	104	100RPG-0984.....	106
014-910.....	191	100PG-0062.....	103	100PG-12MM.....	104	100RPG-1000.....	106
014-911.....	191	100PG-0078.....	103	100PG-14MM.....	104	100RPG100-S027.....	106
014-912.....	191	100PG-0093.....	103	100PG-16MM.....	104	11ERHN.....	96
014-913.....	191	100PG-0109.....	103	100PG-18MM.....	104	12KY.....	129
014-914.....	191	100PG-0125.....	103	100PG-20MM.....	104	12LS.....	128, 191
014-915.....	191	100PG-0140.....	103	100PG-S016.....	104	12RBX-04MM.....	153
014-921.....	191	100PG-0156.....	103	100PG-S021.....	104	150PG-0750.....	104
028-188.....	128	100PG-0171.....	103	100PG-S031.....	104	150PG-0765.....	104
028-188C.....	128	100PG-0187.....	103	100PG-S041.....	104	150PG-0781.....	104
028-192.....	128	100PG-0203.....	103	100PG-S062.....	104	150PG-0796.....	104
028-192C.....	128	100PG-0218.....	103	100PG-S125.....	104	150PG-0812.....	104
028-193.....	128	100PG-0234.....	103	100RPG-0187.....	106	150PG-0828.....	104
029-909.....	97, 118	100PG-0250.....	103	100RPG-0218.....	106	150PG-0843.....	104
029-911.....	118	100PG-0265.....	103	100RPG-0234.....	106	150PG-0859.....	104
03690-25.....	262	100PG-0281.....	103	100RPG-0250.....	106	150PG-0875.....	104
04018-TWA.....	262	100PG-0296.....	103	100RPG-0265.....	106	150PG-0890.....	105
10-#0-6.....	185	100PG-0312.....	103	100RPG-0281.....	106	150PG-0906.....	105
10-#10.....	185	100PG-0328.....	103	100RPG-0296.....	106	150PG-0921.....	105
10-#12.....	185	100PG-0343.....	103	100RPG-0312.....	106	150PG-0937.....	105
10-#8.....	185	100PG-0359.....	103	100RPG-0328.....	106	150PG-0953.....	105
10-006N.....	185	100PG-0375.....	103	100RPG-0343.....	106	150PG-0968.....	105
10-012N.....	185	100PG-0390.....	103	100RPG-0359.....	106	150PG-0984.....	105
10-025.....	185	100PG-0406.....	103	100RPG-0375.....	106	150PG-1000.....	105
10-031.....	185	100PG-0421.....	103	100RPG-0390.....	106	150PG-1015.....	105
10-037.....	185	100PG-0437.....	103	100RPG-0406.....	106	150PG-1031.....	105
10-043.....	185	100PG-0453.....	103	100RPG-0421.....	106	150PG-1046.....	105
10-050.....	185	100PG-0468.....	103	100RPG-0437.....	106	150PG-1062.....	105
10-056.....	185	100PG-0484.....	103	100RPG-0453.....	106	150PG-1078.....	105
10-S012.....	185	100PG-0500.....	103	100RPG-0468.....	106	150PG-1093.....	105
10CG-#0-6.....	185	100PG-0515.....	103	100RPG-0484.....	106	150PG-1109.....	105
10CG-#10.....	185	100PG-0531.....	103	100RPG-0500.....	106	150PG-1125.....	105
10CG-#12.....	185	100PG-0546.....	103	100RPG-0515.....	106	150PG-1140.....	105
10CG-#8.....	185	100PG-0562.....	103	100RPG-0531.....	106	150PG-1156.....	105
10CG-006N.....	185	100PG-0578.....	103	100RPG-0546.....	106	150PG-1171.....	105
10CG-012N.....	185	100PG-0593.....	103	100RPG-0562.....	106	150PG-1187.....	105
10CG-025.....	185	100PG-0609.....	103	100RPG-0578.....	106	150PG-1203.....	105



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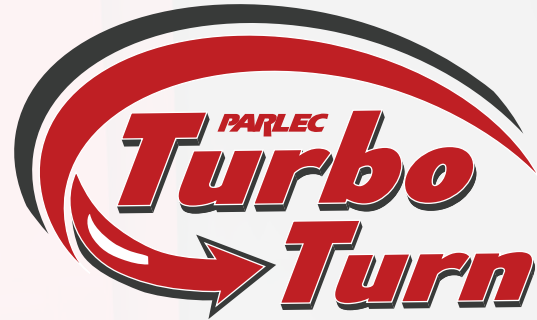
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