

# 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.

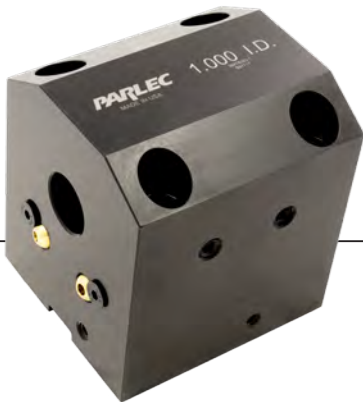
**SEE PAGE: 8**



## **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** >>>

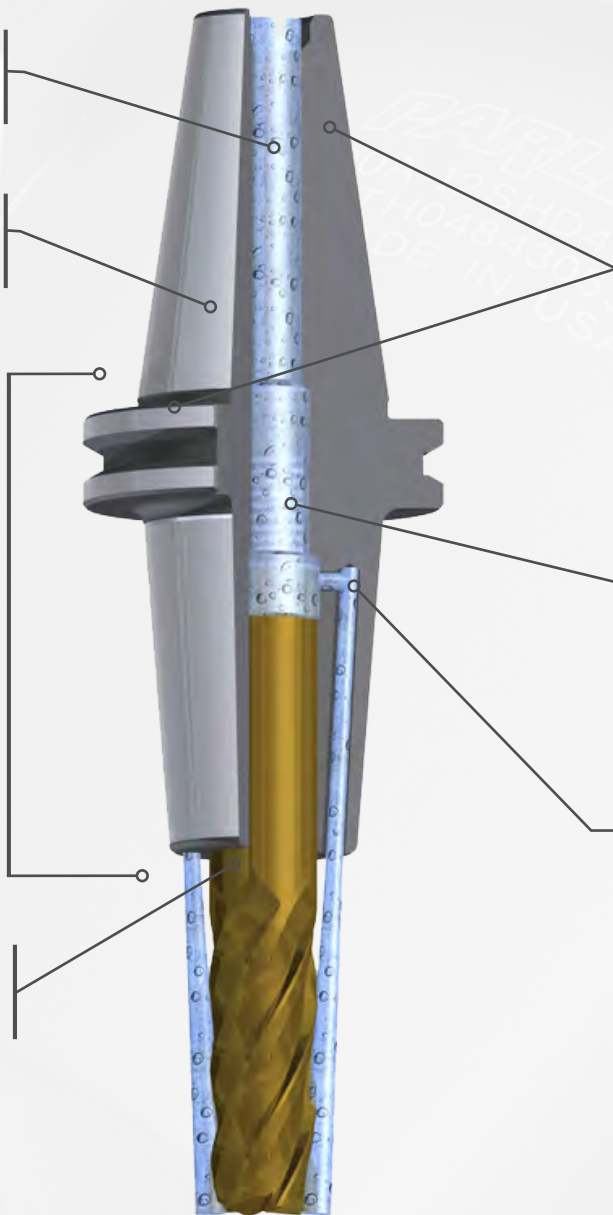
Through spindle coolant  
Also available with convertible  
DIN-B coolant delivery

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



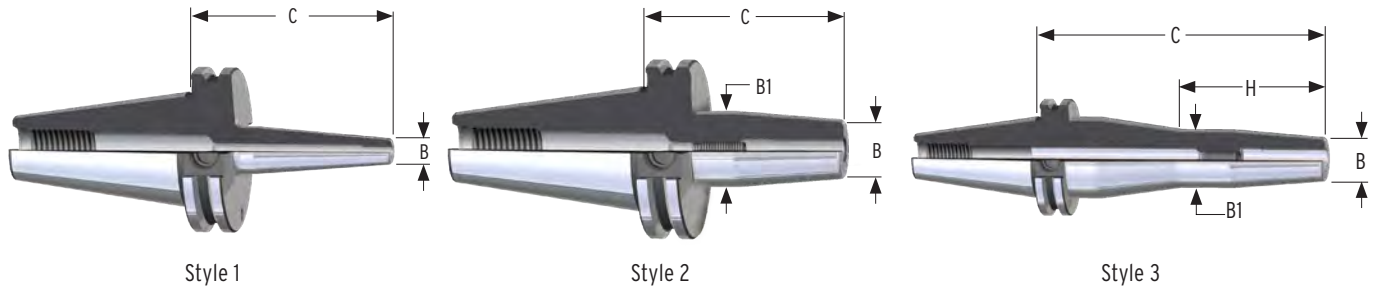
Certified Balance to G2.5 and AT3  
Taper Specification for consistent  
reliable performance tool change  
to tool change.

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

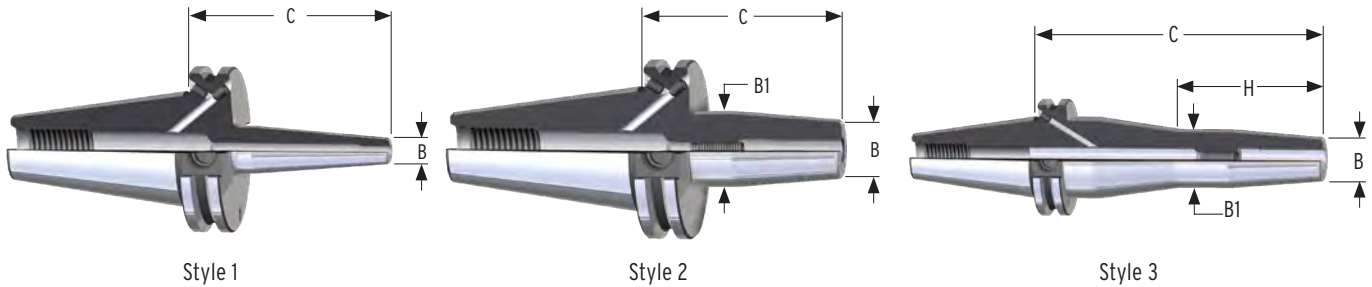
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

### 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

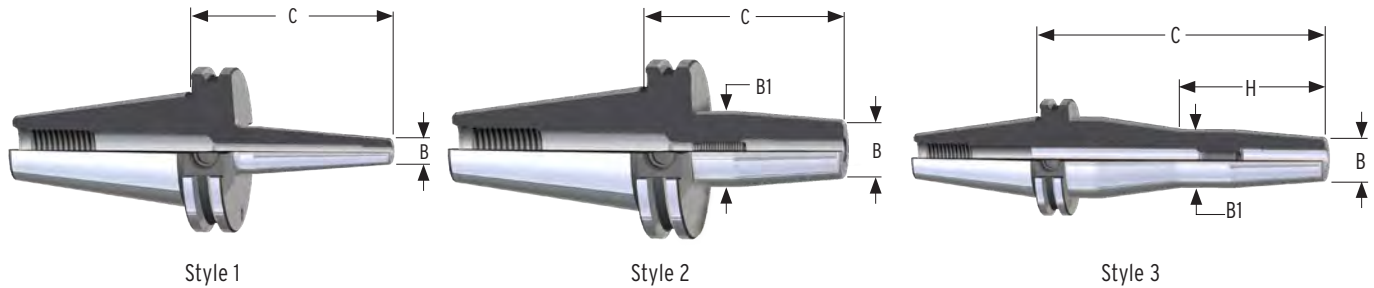
- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B flange coolant enabled
- Balanced to 25,000 rpm @ G2.5

### 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



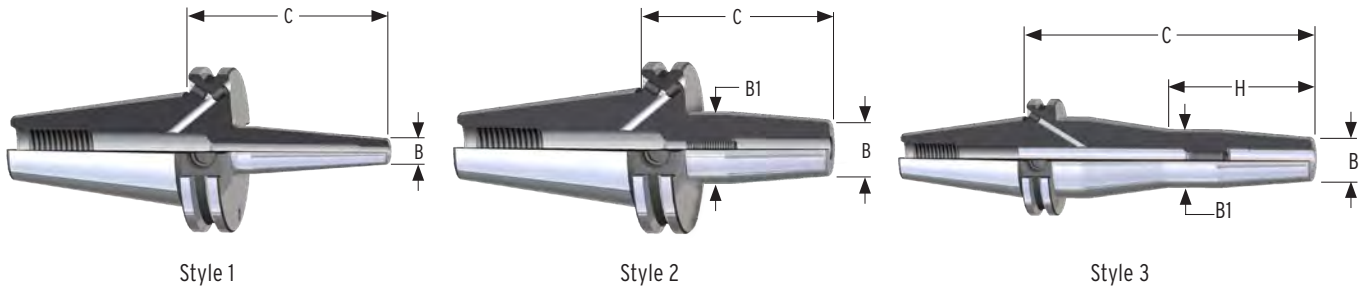
### FEATURES

- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gauge 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
- Gauge 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

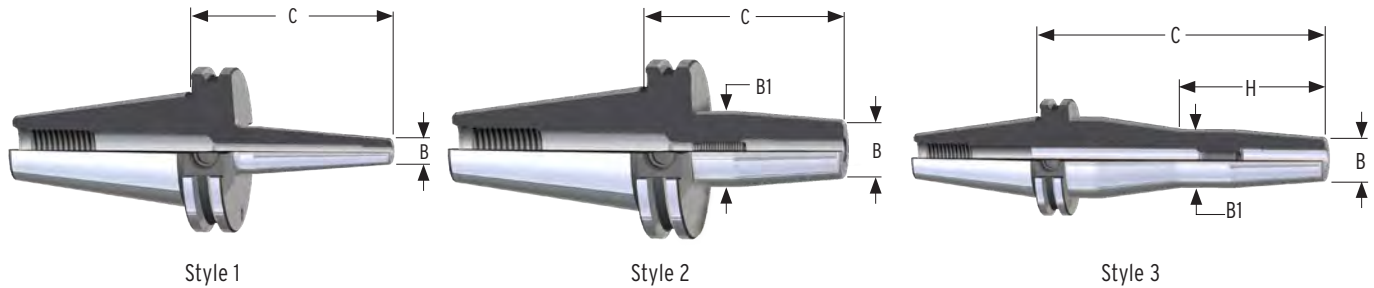
### CAT40 SHRINK FIT - METRIC

| 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



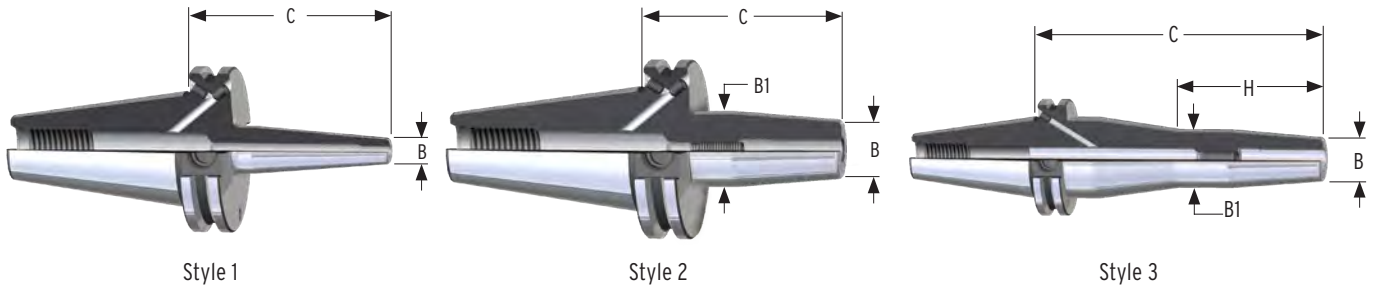
### FEATURES

- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gauge 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

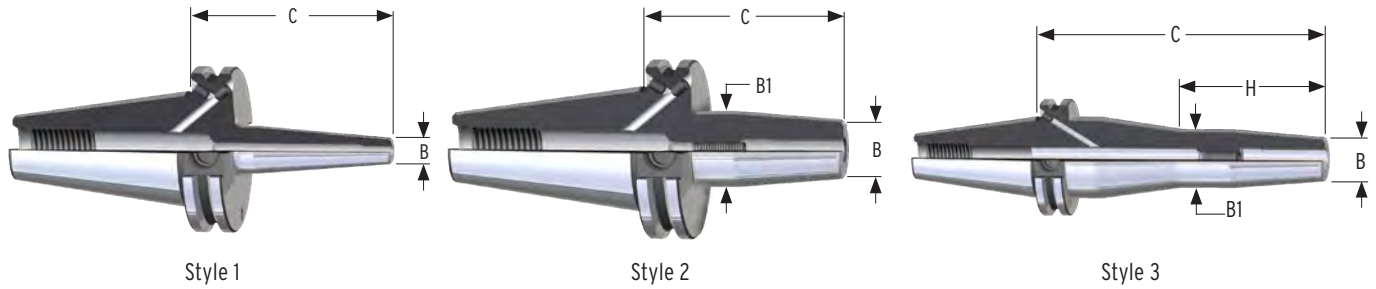
- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B flange coolant enabled
- Balanced to 20,000 rpm @ G2.5

### 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

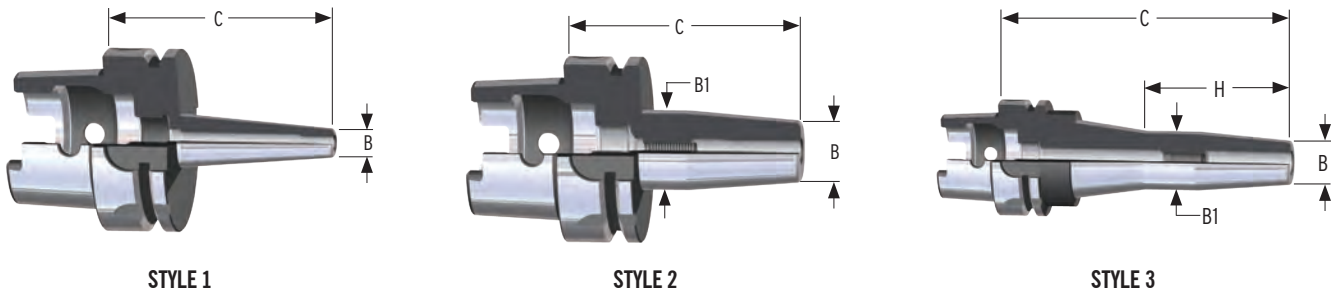
- Proudly made-in-USA
- 0.0001" accuracy maximizes performance and tool life
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- DIN-B flange coolant enabled
- Balanced to 20,000 rpm @ G2.5

### 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

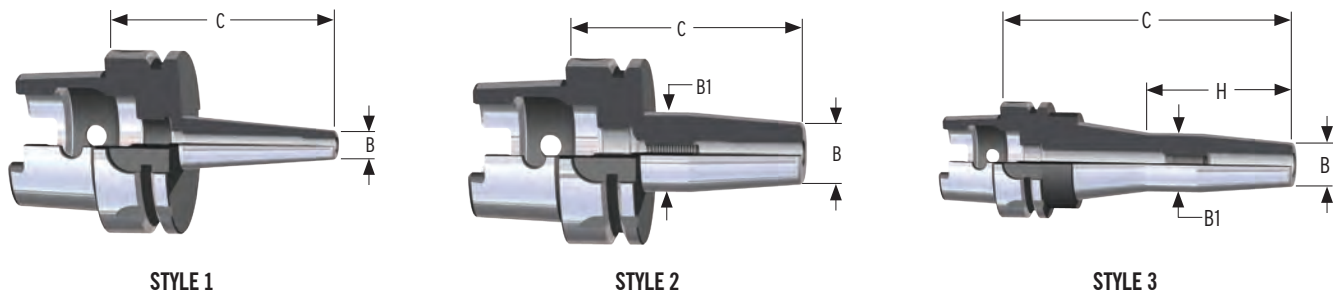
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 @ G2.5

### 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
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

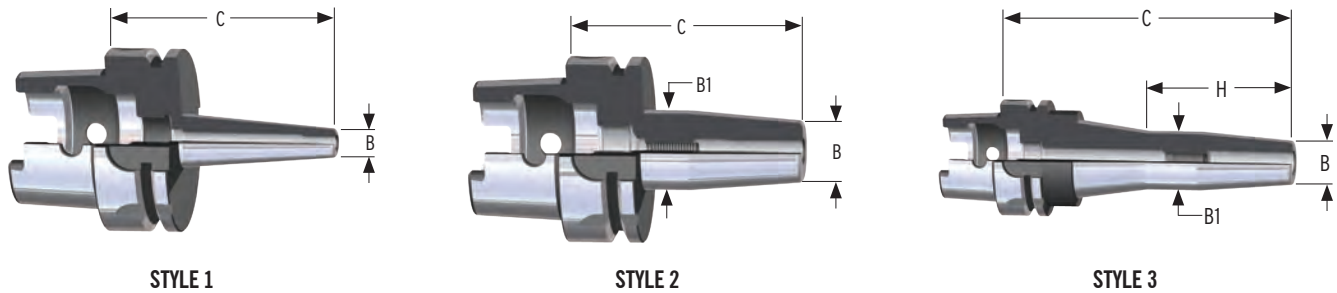
### HSK 63A SHRINK FIT - INCH

| 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
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

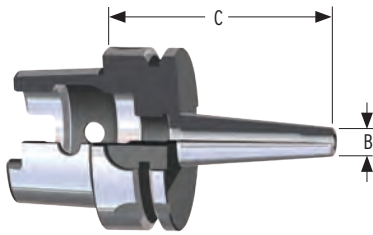
### HSK 63A SHRINK FIT WITH COOLANT PORTS - METRIC

| 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      |

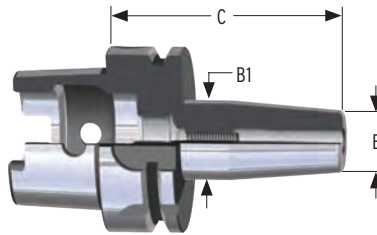


# Shrink Fit Holders

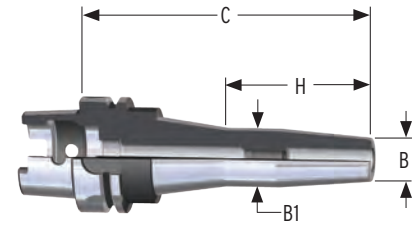
## HSK 63A Shrink Fit | Metric



STYLE 1



STYLE 2



STYLE 3

### FEATURES

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

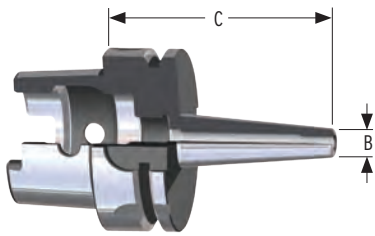
### HSK 63A SHRINK FIT - METRIC

| 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      |

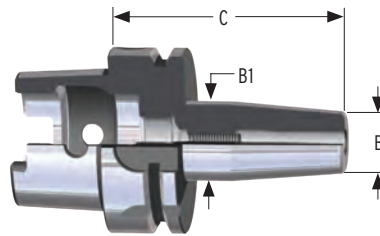
### ACCESSORIES

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

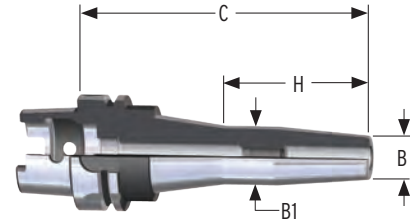
## HSK 100A Shrink Fit with Coolant Ports | Inch



STYLE 1



STYLE 2



STYLE 3

### FEATURES

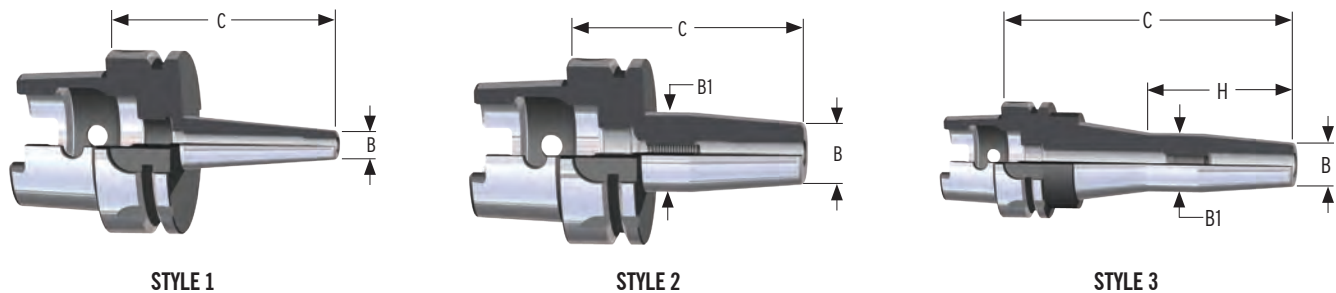
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting path
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 20,000 rpm @ G2.5

### 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
- Gauge 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

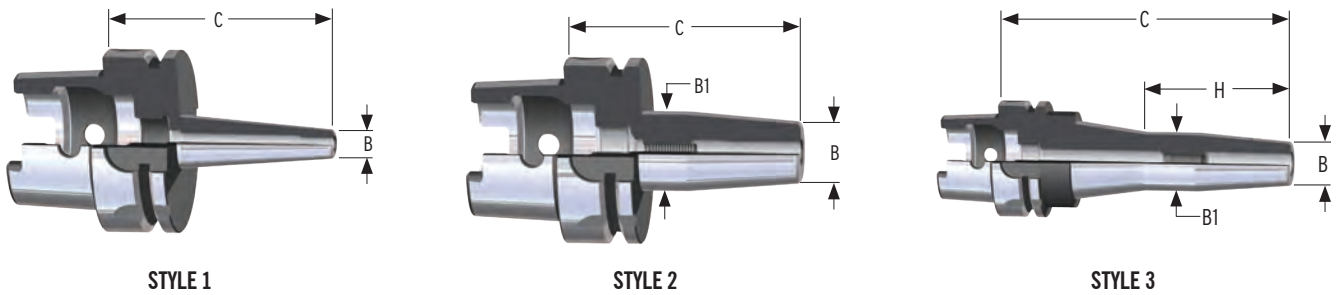
| Part #          | Bore Size | Style | B (Dia.) | B1 (Dia.) | C     | H     | Stop screw (opt.) |
|-----------------|-----------|-------|----------|-----------|-------|-------|-------------------|
| H100A-25SF335-9 | 1/4"      | 2     | .83"     | 1.06"     | 3.35" | -     | -                 |
| H100A-25SF630-9 | 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
- Gauge 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

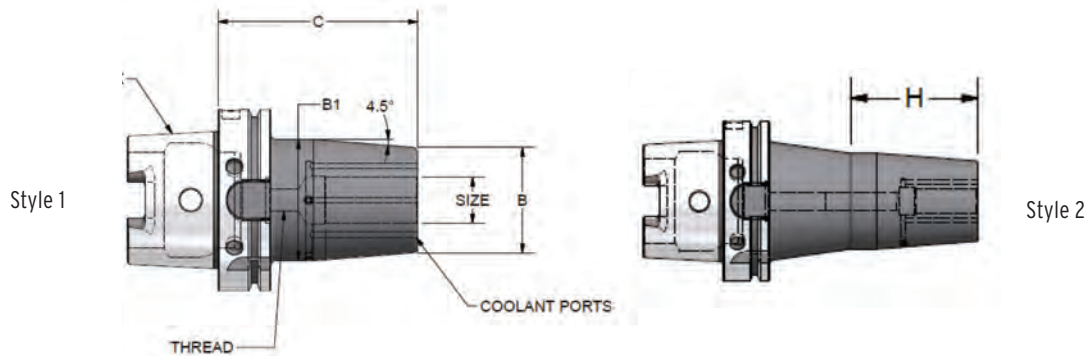
| Part #            | Bore Size | Style | B (Dia.) | B1 (Dia.) | C      | H | Stop screw (opt.) |
|-------------------|-----------|-------|----------|-----------|--------|---|-------------------|
| H100A-M06SF85-9C  | 6 mm      | 2     | 21 mm    | 27 mm     | 85 mm  | - | BS-SFM058-16      |
| H100A-M08SF85-9C  | 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

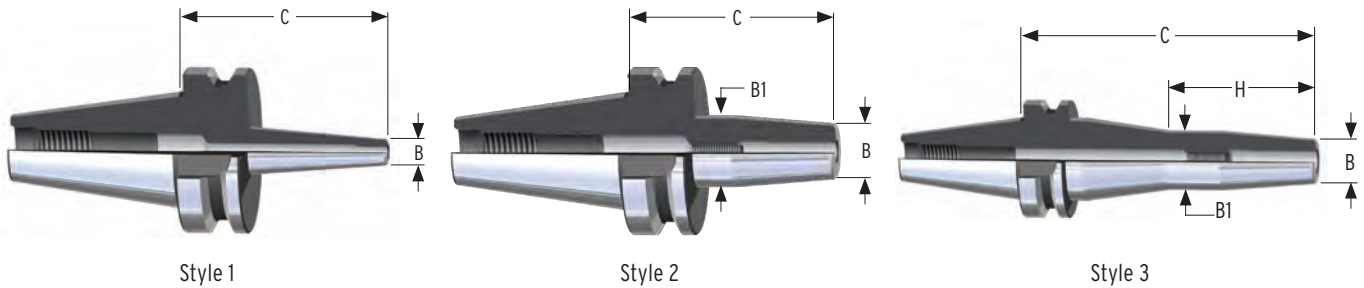
### HSK 100A SHRINK FIT WITH COOLANT PORTS - INCH

| 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

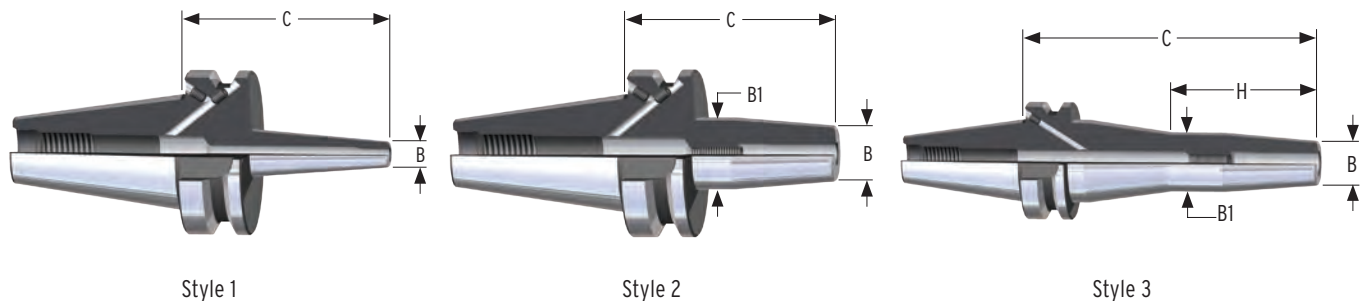
- Proudly made-in-USA
- 2 angled ports direct coolant to the cutting area
- Gauge lengths match popular international standards
- Made from H13 steel for superior rigidity and longevity
- Balanced to 25,000 rpm @ G2.5

### 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
- Gauge 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

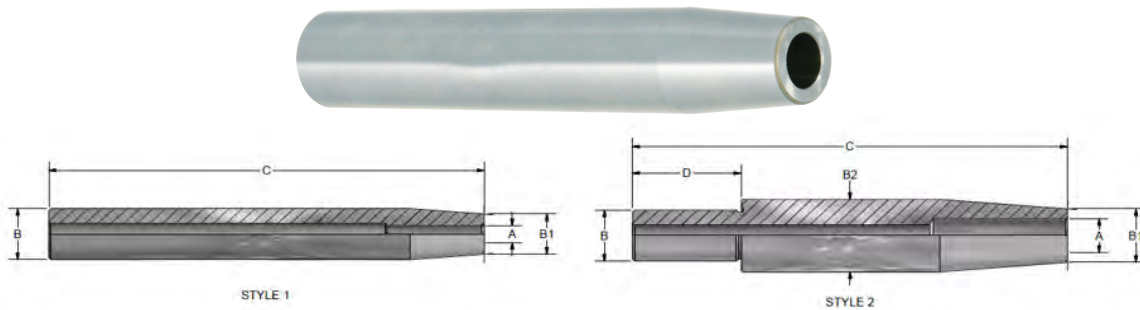
### BT40 SHRINK FIT - INCH

| 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:

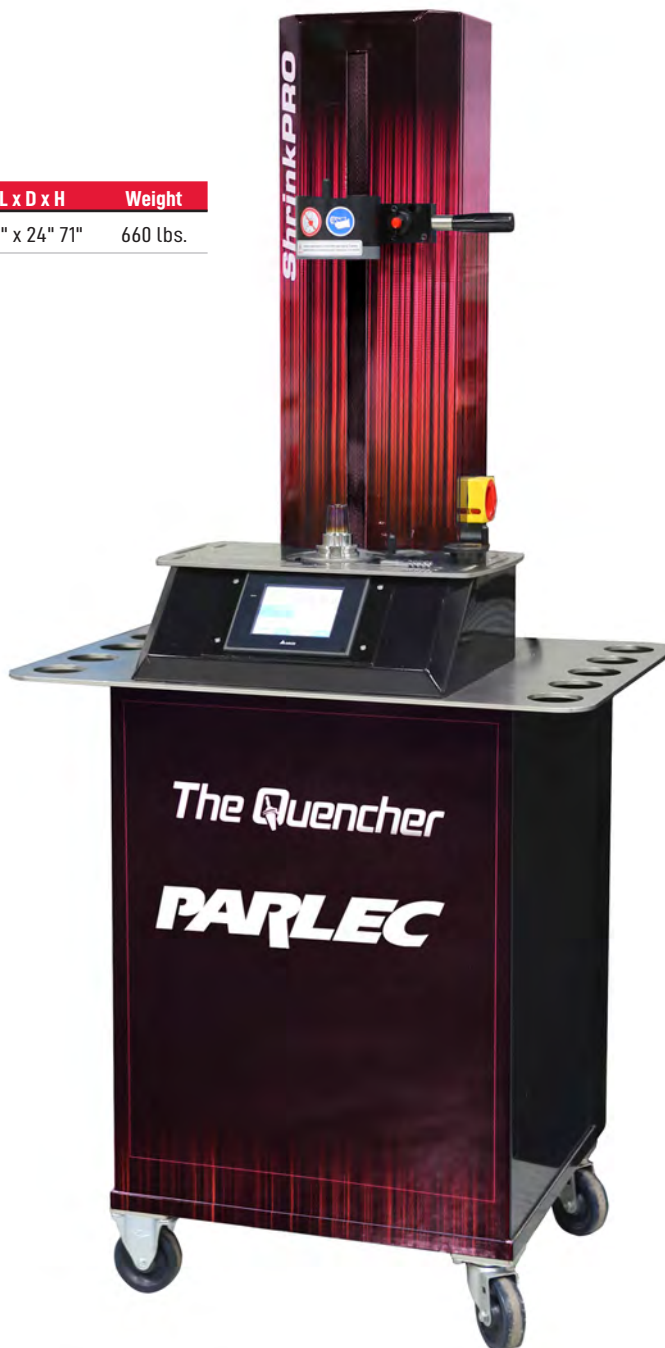
| Part #  | Description               |
|---------|---------------------------|
| 00500-C | 1 Gallon Quencher Coolant |

### 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





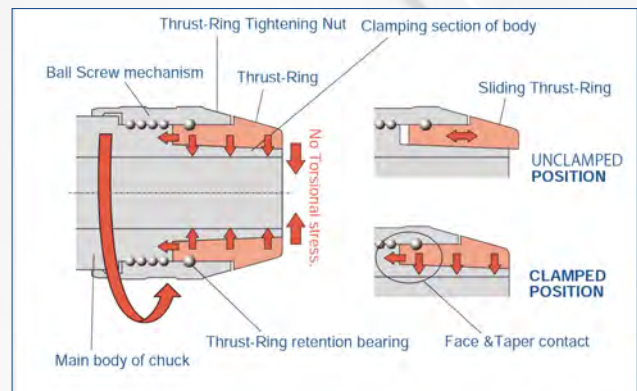
# DAVITEC

## 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

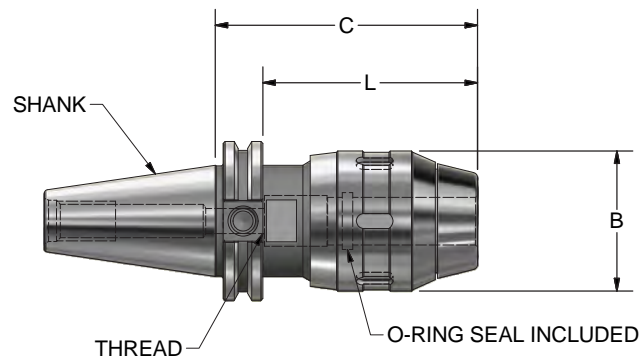


## M-Style (Mold-Style)



- 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

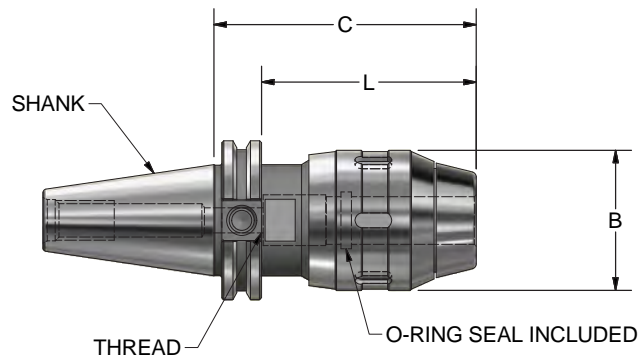
## CAT 40 Micron Milling Chucks

| 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" |
| 74304056 | CV40-HPC100-105A | CAT40 x MMC 1" - 4.13"                     | 1"        | 2.44" | 4.13" | 3.38" |
| 74304031 | 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" |
| 74406051 | HSK63-HPC100-115A  | HSK63A x MMC 1" - 4.52"     | 1"        | 2.44" | 4.53" | 3.50" |
| 74406052 | 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" |

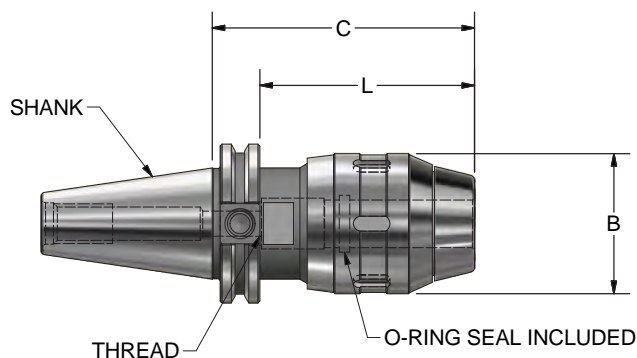
## BT 30 Micron Milling Chucks

| 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

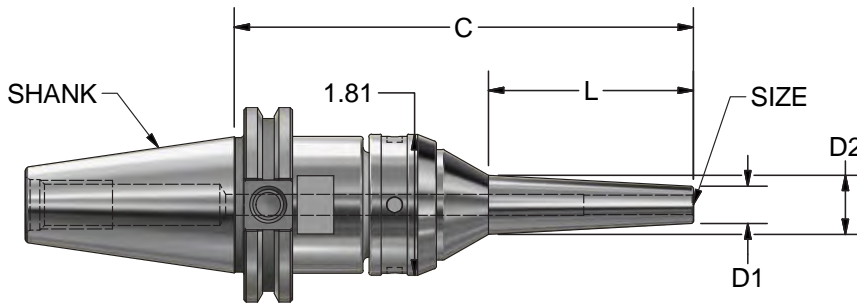
| Part #   | Old Description   | Description                        | Bore Size | B     | C     | L     |
|----------|-------------------|------------------------------------|-----------|-------|-------|-------|
| 74234103 | BBT40-HPC075-105A | BT40 x MMC 3/4" - 4.13" Simulfit   | 3/4"      | 2.20" | 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" |

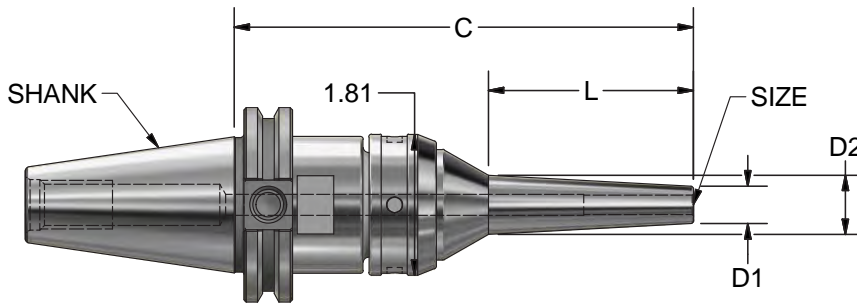
## HSK 63A Mold-Style Milling Chucks

| 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

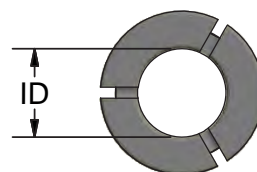
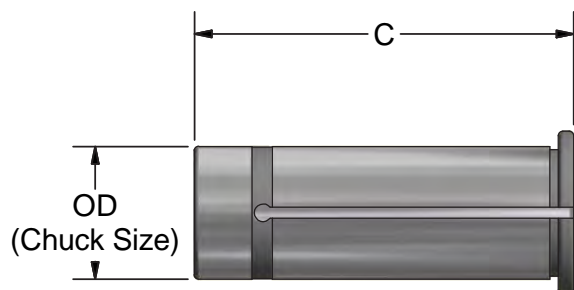
## CAT 40 Mold-Style Milling Chucks with Simulfit

| 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     |
| 74810029 | 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

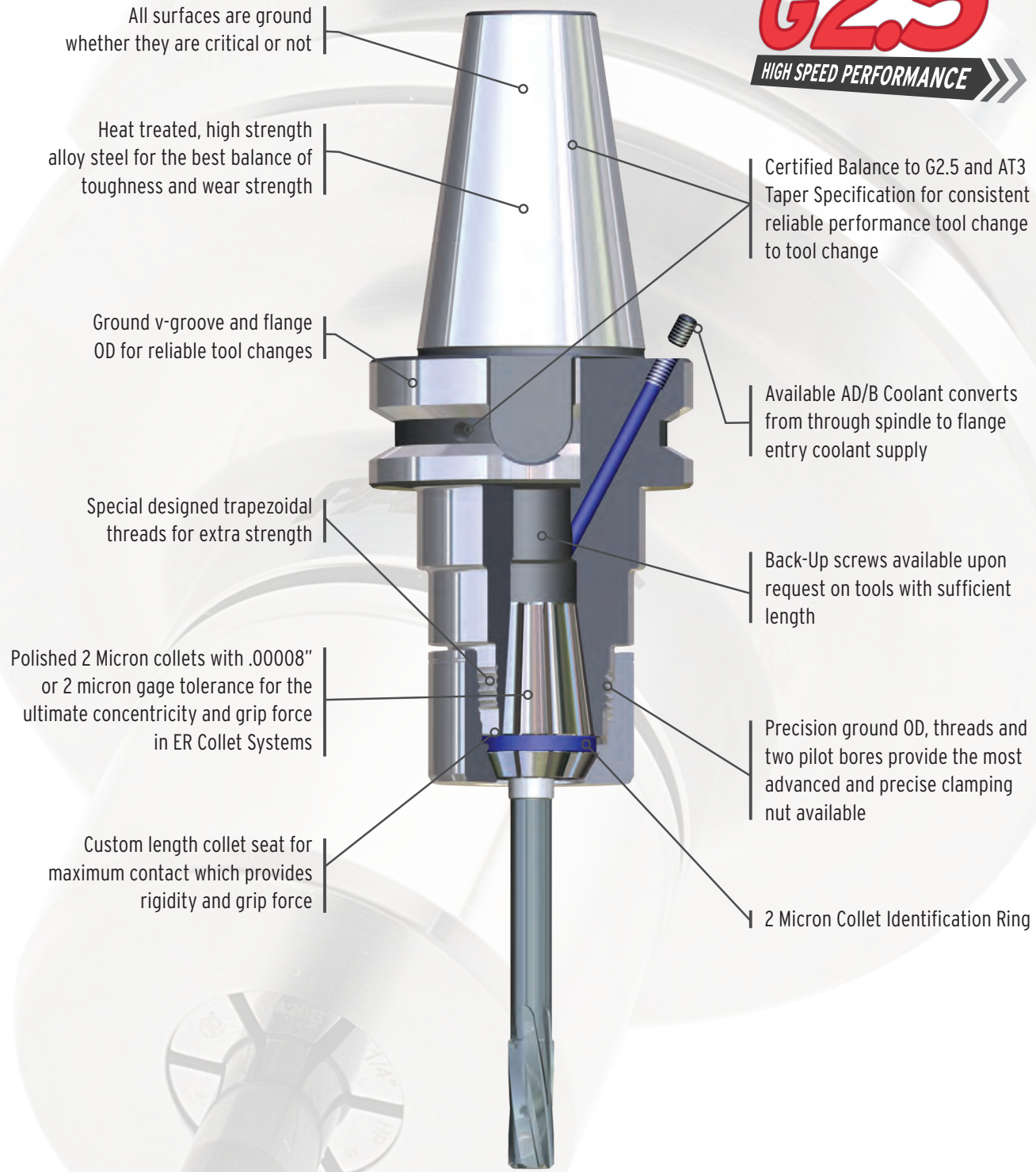




# PARLEC

## Parlec EROS® System Features

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



All surfaces are ground whether they are critical or not

Heat treated, high strength alloy steel for the best balance of toughness and wear strength

Ground v-groove and flange OD for reliable tool changes

Special designed trapezoidal threads for extra strength

Polished 2 Micron collets with .00008" or 2 micron gage tolerance for the ultimate concentricity and grip force in ER Collet Systems

Custom length collet seat for maximum contact which provides rigidity and grip force

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

Available AD/B Coolant converts from through spindle to flange entry coolant supply

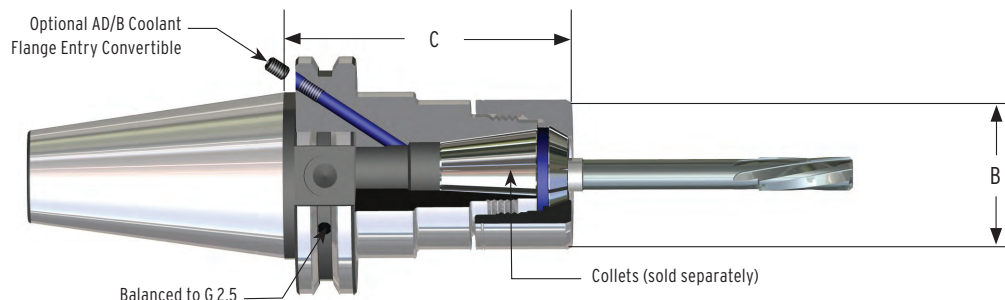
Back-Up screws available upon request on tools with sufficient length

Precision ground OD, threads and two pilot bores provide the most advanced and precise clamping nut available

2 Micron Collet Identification Ring

# ERos<sup>®</sup> Collet Chucks

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



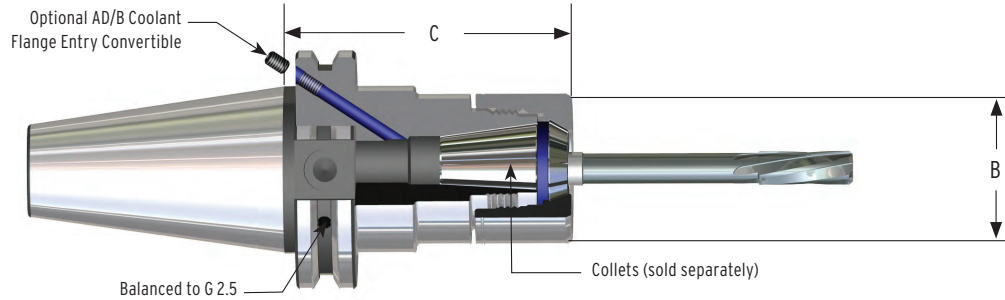
### FEATURES

- 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<sup>®</sup> Collet Chucks | with AD/B Coolant



### FEATURES

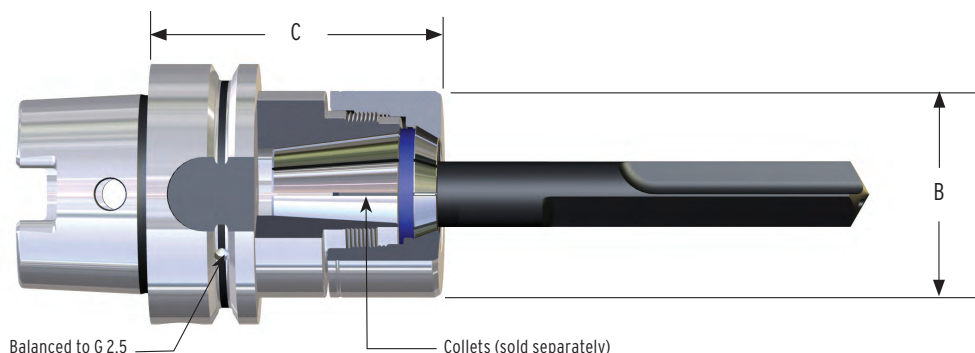
- Made-in-USA quality
- Repeatability accuracy of 3 microns at 3X diameter
- Simplicity - no expensive setup machines required
- DIN-B flange coolant enabled
- Balanced to 20,000 RPM @ G2.5

### CAT50 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.) |
|-----------------|-------------|----------|-------|------------|-------------|----------------------|----------------------|---------------------------|
| 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

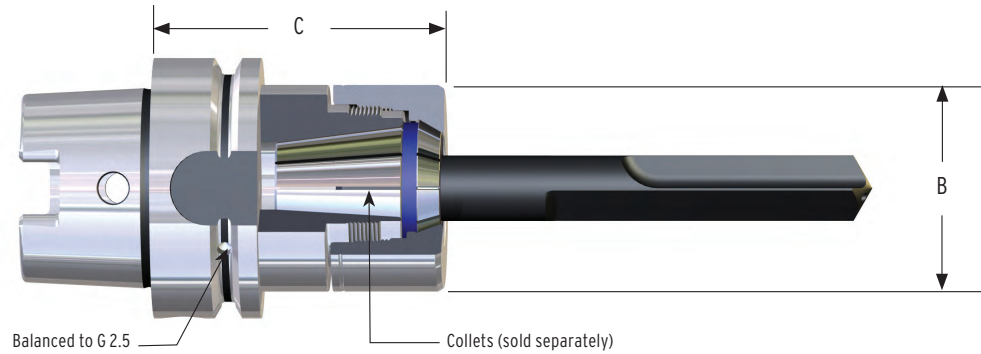
### HSK63A ERos® Collet Chucks

| 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                 |

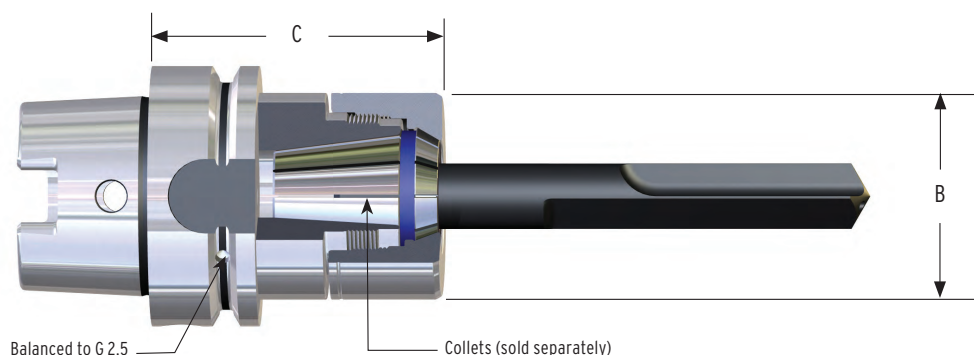
### Accessories

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



# ERos® Collet Chucks

## HSK32A/40A/50A 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

### HSK32A ERos® 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                 |

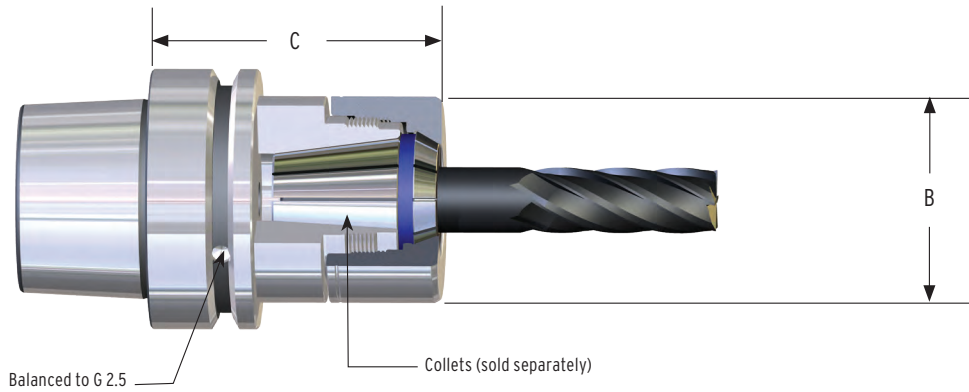
### HSK40A ERos® Collet Chucks

| 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® 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                 |

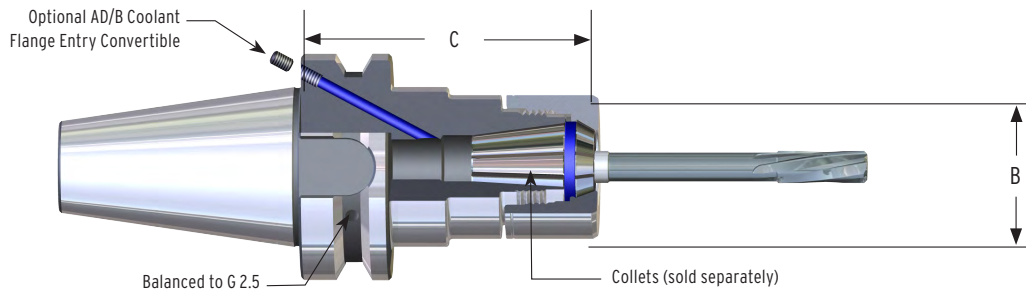
### HSK40E ERos® Collet Chucks

| 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



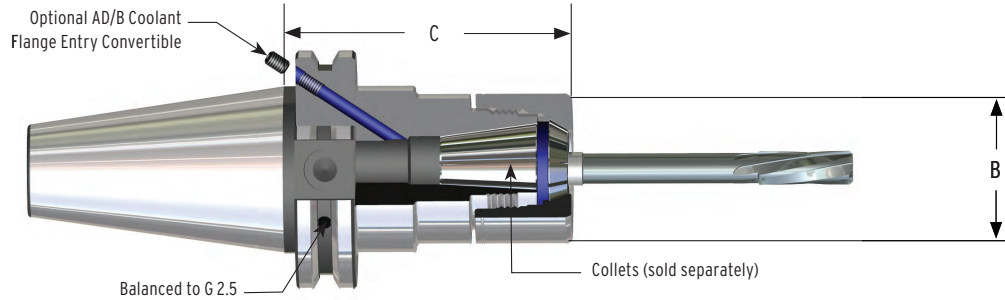
### FEATURES

- 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® Collet Chucks with AD/B Coolant



### FEATURES

- Made-in-USA quality
- Repeatable 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® 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<sup>®</sup> Collets | Inch



ERos<sup>®</sup> 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 - Inch

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

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

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

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

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

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



**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 - 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® 11 Collet Set - Metric

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

### ERos® 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® 16 Collet Set - Metric

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

### ERos® 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® 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

## 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® Coolant Jet Collets

## ERos® Coolant Jet Collets | Inch & Metric



**EROS 2 Micron  
Coolant Jet 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

- 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® 16 Coolant Jet Collets - Inch

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

### ERos® 16 Coolant Jet Collets - Metric

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

### ERos® 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® 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® 40 Coolant Jet Collets - Inch

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

### ERos® 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

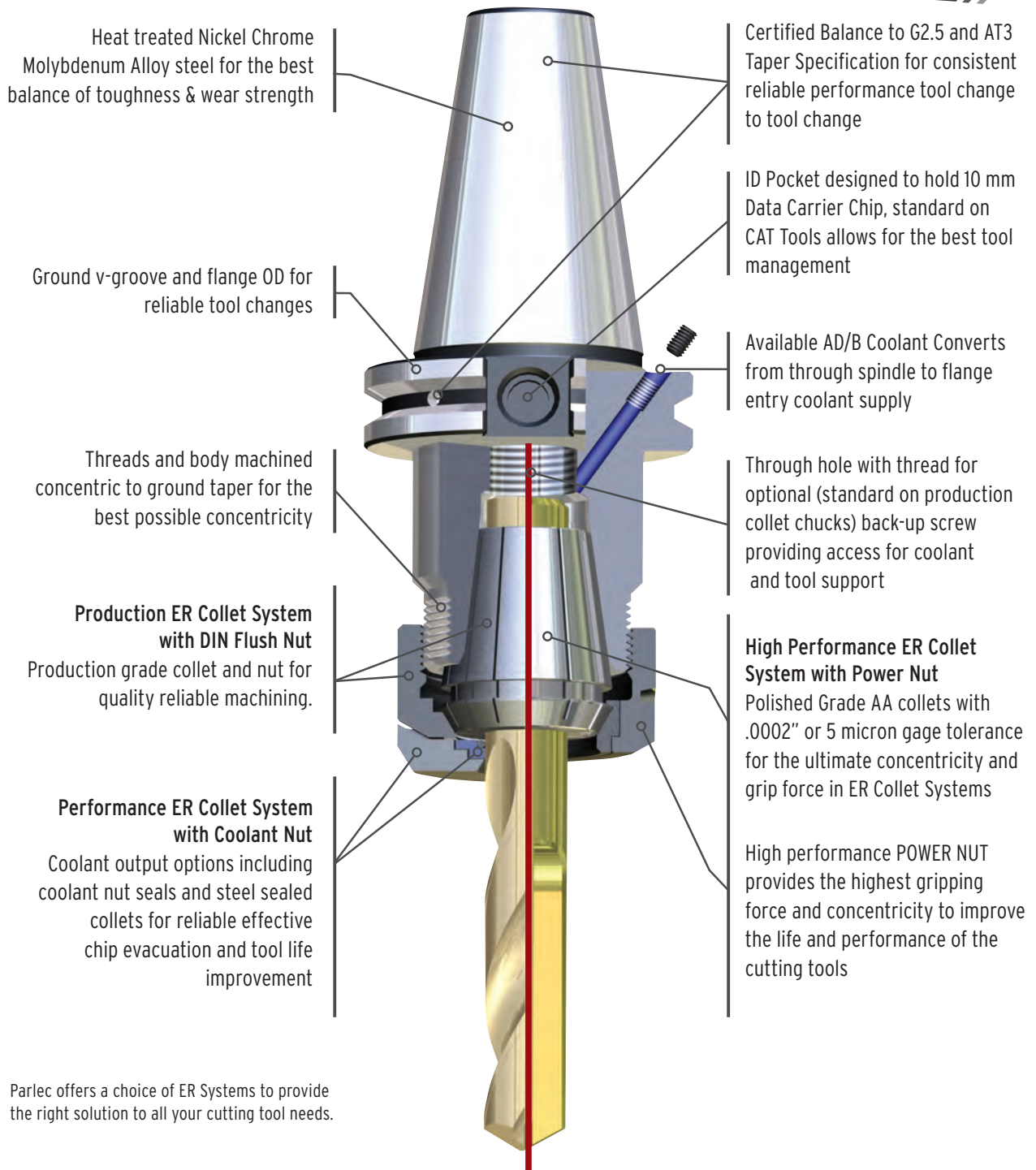




# PARLEC

## Parlec ER System Features

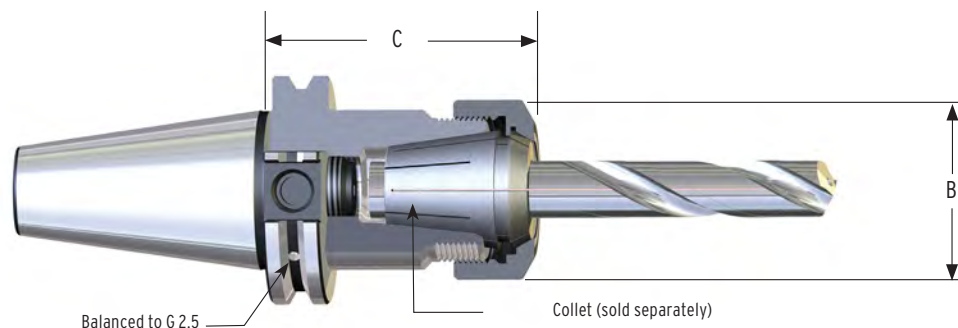
CERTIFIED  
**G2.5**  
HIGH SPEED PERFORMANCE



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

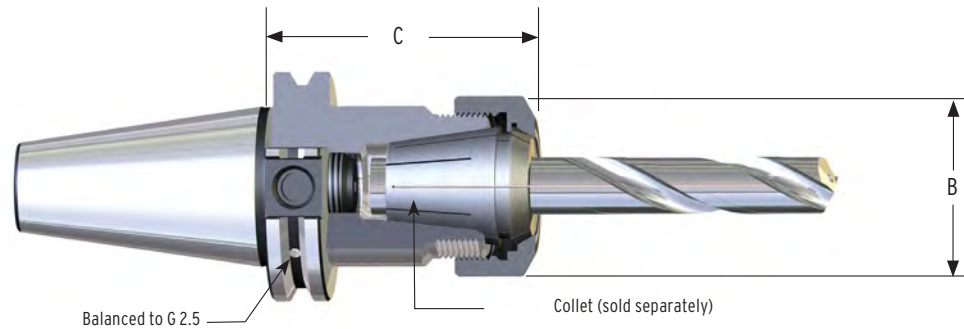
| Part #       | Collet Size | B (Dia.) | C     | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|--------------|-------------|----------|-------|------------|-------------|---------------|---------------------|
| C40-11ERF250 | ER11        | 0.75"    | 2.50" | 0.275"     | 11ERHN      | 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               |

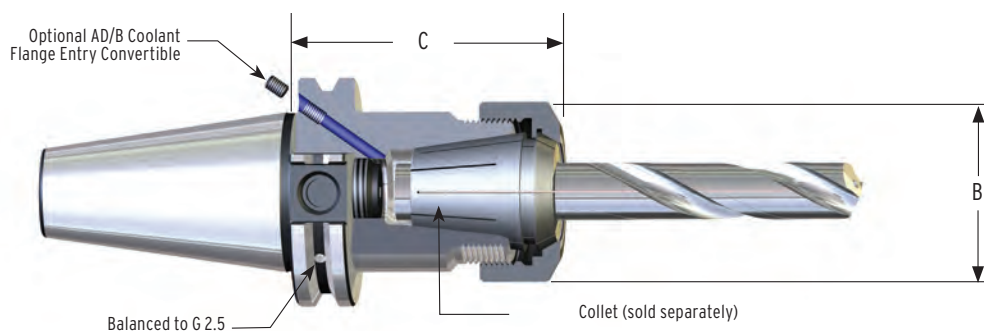
Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

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

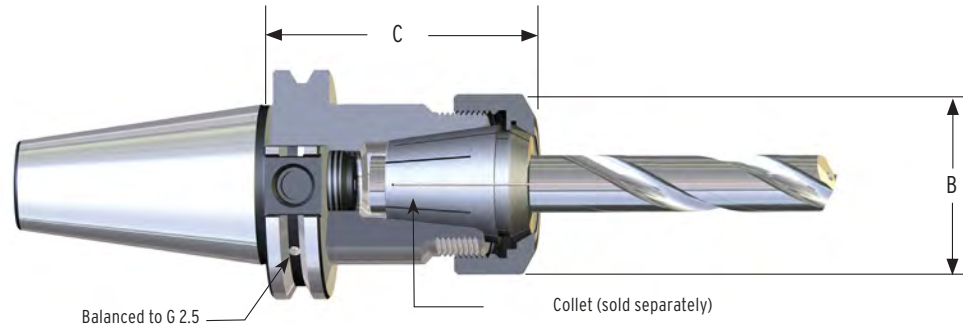
### CAT40 ER Collet Chucks with AD/B Coolant

| 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

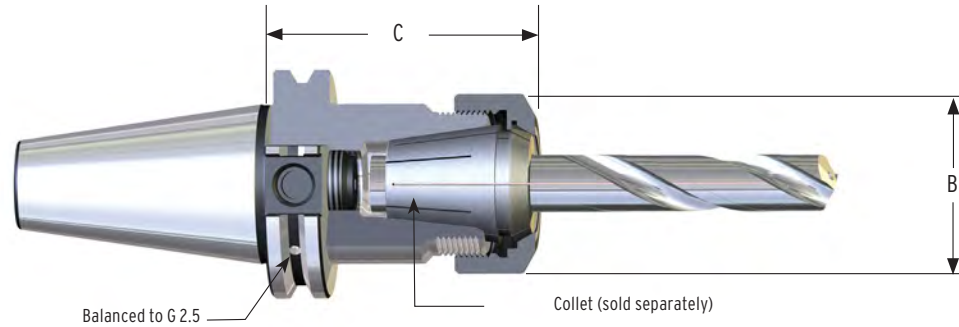
| Part #        | Collet Size | B (Dia.) | C      | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|---------------|-------------|----------|--------|------------|-------------|---------------|---------------------|
| C50-16ERF400  | ER16        | 1.10"    | 4.00"  | 0.406"     | 16ERHN      | 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               |

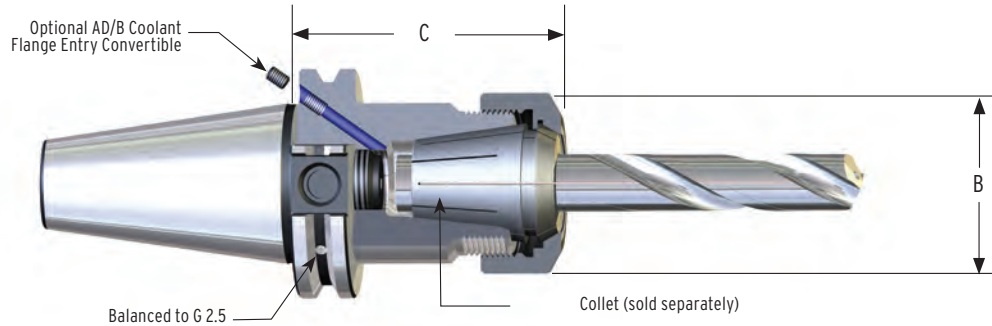
Replace "F" after "ER" with "P" for Power Nut, add 0.12" to projection (C dimension).

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

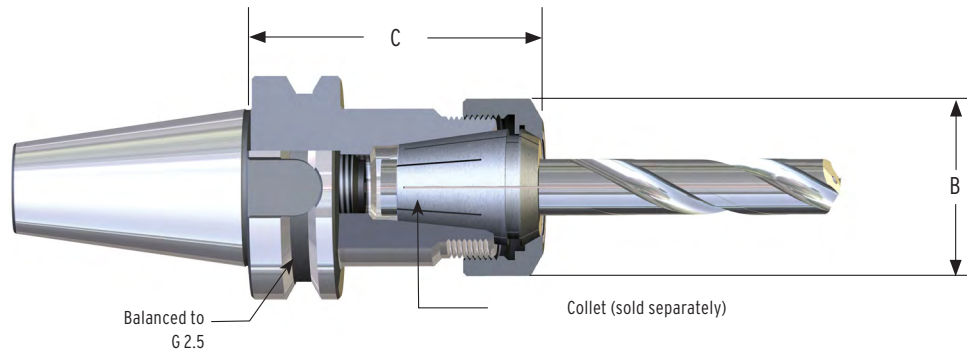
| Part #         | Collet Size | B (Dia.) | C     | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|----------------|-------------|----------|-------|------------|-------------|---------------|---------------------|
| C50BC-16ERF400 | ER16        | 1.10"    | 4.00" | 0.406"     | 16ERHN      | 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

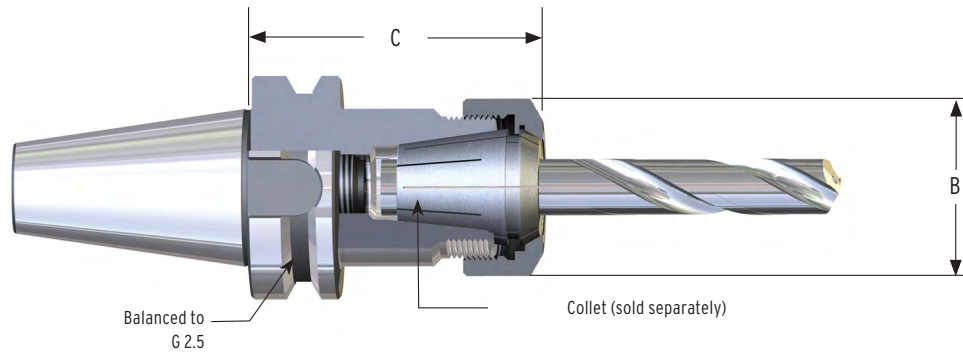
| Part #       | Collet Size | B (Dia.) | C     | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|--------------|-------------|----------|-------|------------|-------------|---------------|---------------------|
| B30-16ERF236 | ER16        | 1.10"    | 2.36" | 0.406"     | 16ERHN      | 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

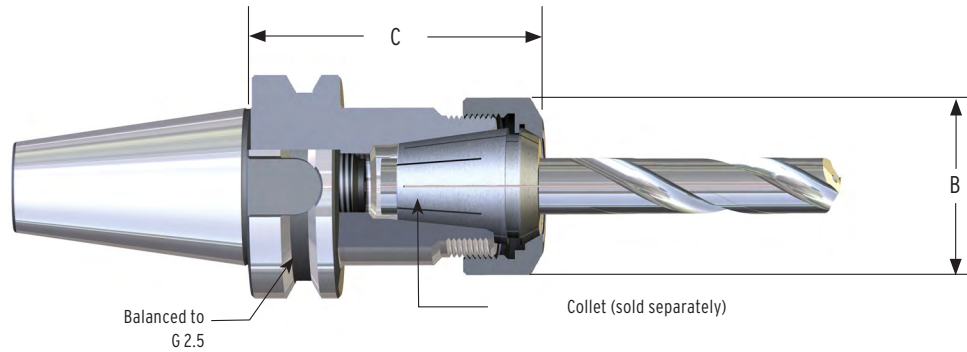
| Part #        | Collet Size | B (Dia.) | C     | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|---------------|-------------|----------|-------|------------|-------------|---------------|---------------------|
| B30F-16ERF236 | ER16        | 1.10"    | 2.36" | 0.406"     | 16ERHN      | 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

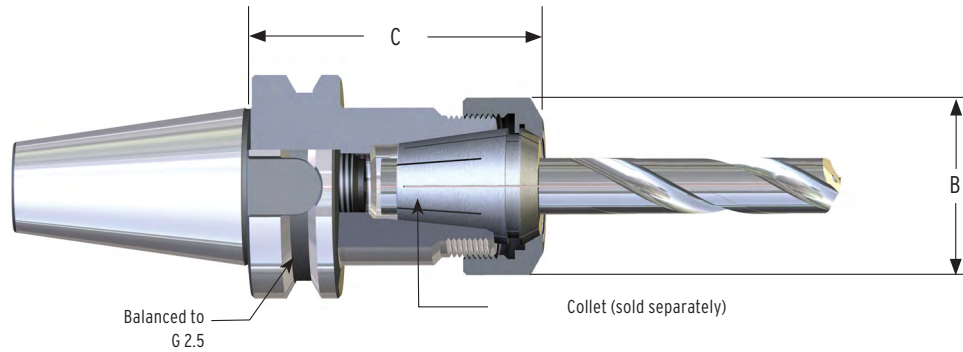
| Part #       | Collet Size | B (Dia.) | C     | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|--------------|-------------|----------|-------|------------|-------------|---------------|---------------------|
| B40-11ERF400 | ER11        | 0.75"    | 4.00" | 0.275"     | 11ERHN      | 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

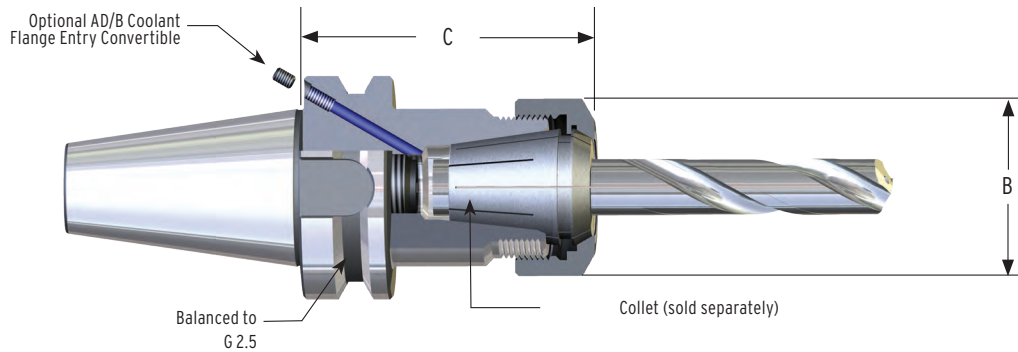
| Part #        | Collet Size | B (Dia.) | C     | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|---------------|-------------|----------|-------|------------|-------------|---------------|---------------------|
| B40F-16ERF300 | ER16        | 1.10"    | 3.00" | 0.406"     | 16ERHN      | 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

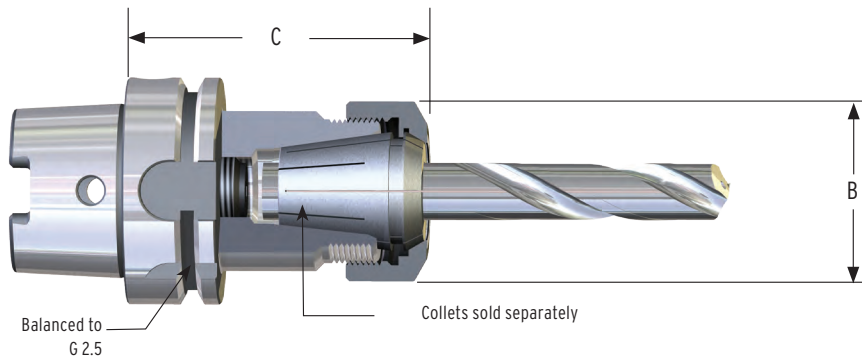
| Part #         | Collet Size | B (Dia.) | C     | Max. Shank | Nut (Incl.) | Wrench (Opt.) | Backup Screw (Opt.) |
|----------------|-------------|----------|-------|------------|-------------|---------------|---------------------|
| B40BC-11ERF400 | ER11        | 0.75"    | 4.00" | 0.275"     | 11ERHN      | 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).

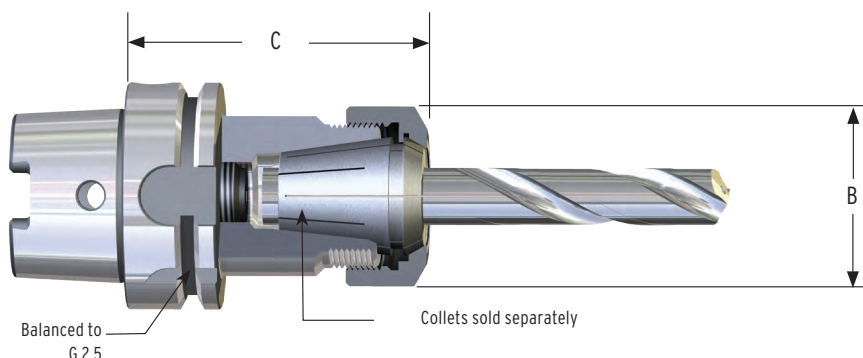
Replace "F" after "ER" with "C" for Coolant Nut, add 0.22" to projection (C dimension).

### 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-SI009 | 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   |
|--------------|--------|
| 5UMER11-0039 | 1 mm   |
| 5UMER11-0059 | 1.5 mm |
| 5UMER11-0078 | 2 mm   |
| 5UMER11-0098 | 2.5 mm |
| 5UMER11-0118 | 3 mm   |
| 5UMER11-0137 | 3.5 mm |
| 5UMER11-0157 | 4 mm   |
| 5UMER11-0177 | 4.5 mm |
| 5UMER11-0196 | 5 mm   |
| 5UMER11-0216 | 5.5 mm |
| 5UMER11-0236 | 6 mm   |
| 5UMER11-0255 | 6.5 mm |
| 5UMER11-0275 | 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 |

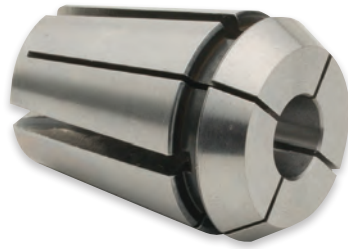
### ER40 Steel-Sealed ER Collets - Metric

| 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     | -           |
| 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  |

### 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" |
| P3M11-1/4  | 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"   |
| CS40-0885 | 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

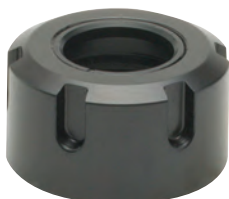


## FEATURES

- 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



## 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 |

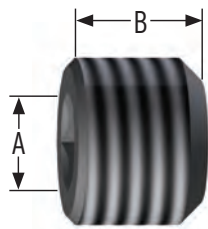


## Torque Wrenches

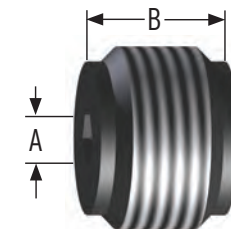
| Part # | Range             | Length |
|--------|-------------------|--------|
| TW-45  | 5 - 45 ft. lbs.   | 12"    |
| TW-150 | 30 - 150 ft. lbs. | 16.6"  |
| TW-220 | 45 - 220 ft. lbs. | 22.2"  |

## ER Torque Wrench Noses

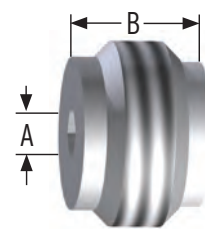
| Collet Series | Part #      | Style   |
|---------------|-------------|---------|
| ER16          | TWN-16ERHNW | Hex     |
| ER20          | TWN-20ERHNW | Hex     |
| ER25          | TWN-25ERNW  | Spanner |
| ER32          | TWN-32ERNW  | Spanner |
| ER40          | TWN-40ERNW  | Spanner |



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

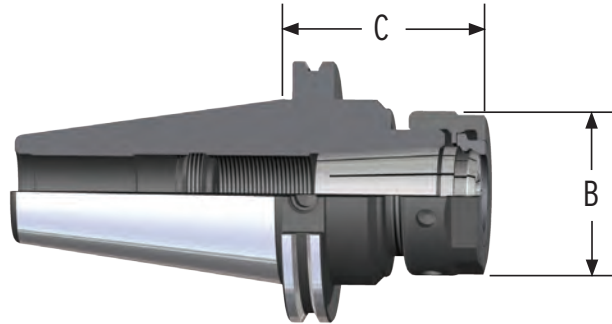
- Constructed from AISI 8620 Alloy Steel for wear resistance
- Hardened to 52-56 Rc for durability and long service life
- Max. T.I.R. of 0.0002" improves cutting performance and tool life
- Convertible DIN-B coolant delivery available



- 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 |
| CSPG100-1000 | .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

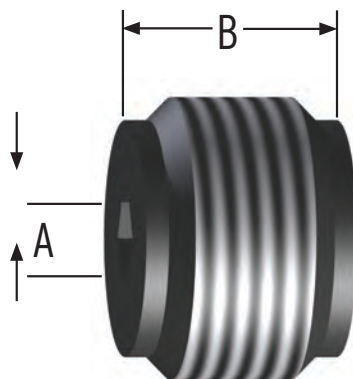


Style 2 Hex/Spanner

### 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

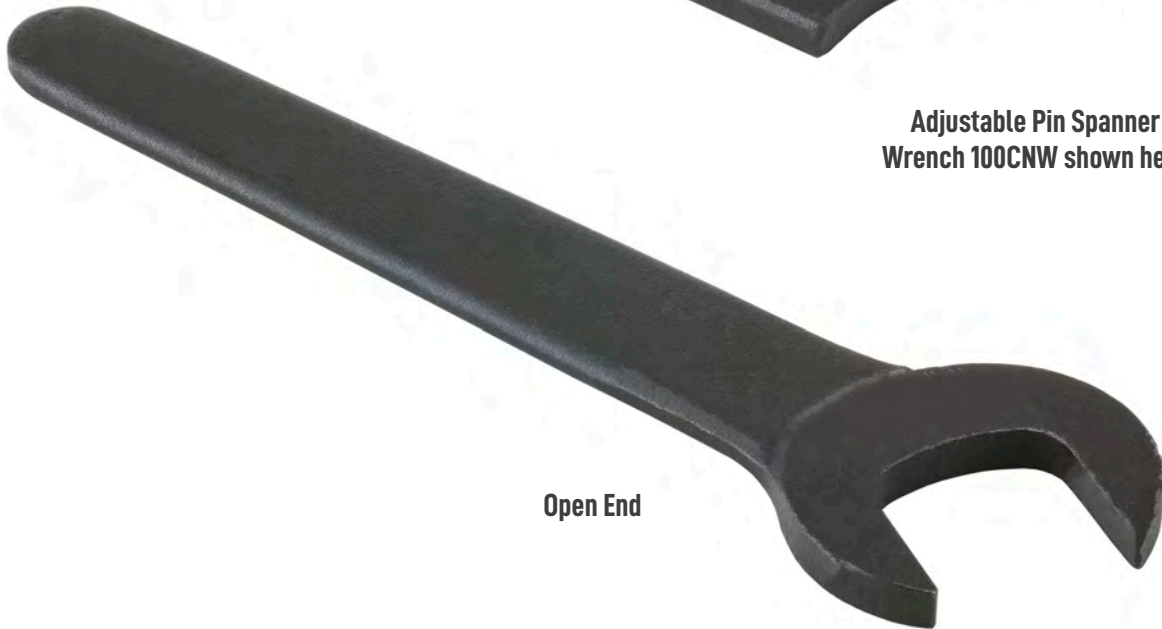
### PG/TG Backup Screws

| 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

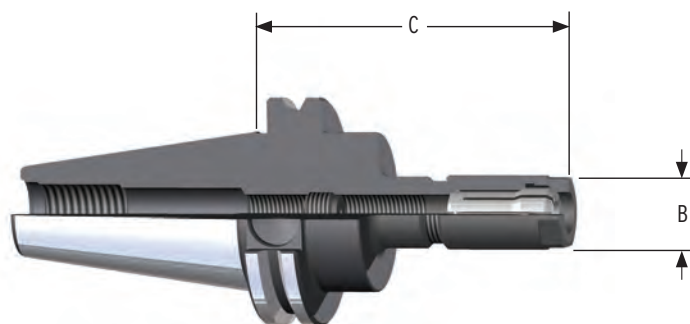
- Proudly made-in-USA
- Constructed with AISI 8620 Alloy Steel for superior wear resistance
- Hardened to 52-56 Rc for durability and long service life
- Available in CAT 40 /50, BT 40, and Straight-Shank Extensions
- Taper to collet seat accuracy of 0.0004" or better



## 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

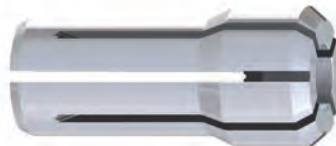
| Part # | A (Dia.) | B (Dia.) | C     | Overall Length | Max. Shank | Nut (Incl.) | Wrench (Opt.) |
|--------|----------|----------|-------|----------------|------------|-------------|---------------|
| EXT100 | 1.00"    | 1.06"    | 1.83" | 7.28"          | .562"      | ECN10       | ECN10W       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

### 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    | 1/16" - 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

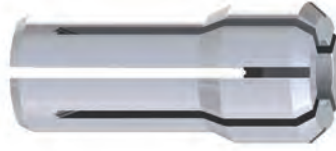
| Part #     | Size   | Range         |
|------------|--------|---------------|
| DA180-0046 | 3/64"  | .031" - .046" |
| DA180-0062 | 1/16"  | .046" - .062" |
| DA180-0078 | 5/64"  | .062" - .078" |
| DA180-0093 | 3/32"  | .078" - .093" |
| DA180-0109 | 7/64"  | .092" - .109" |
| DA180-0125 | 1/8"   | .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   |

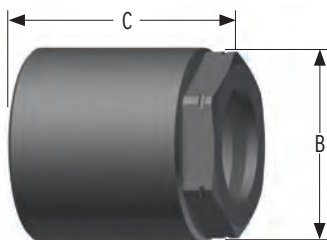
### DA 180 Collets - Metric

| 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)

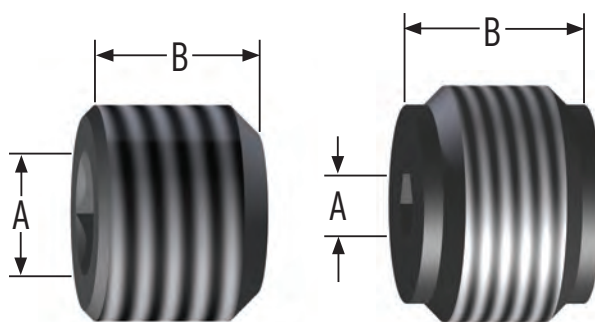
| Part #       | Size    |
|--------------|---------|
| DA180-13.5MM | 13.5 mm |
| DA180-14MM   | 14 mm   |
| DA180-14.5MM | 14.5 mm |
| DA180-15MM   | 15 mm   |
| DA180-15.5MM | 15.5 mm |
| DA180-16MM   | 16 mm   |
| DA180-16.5MM | 16.5 mm |
| DA180-17MM   | 17 mm   |
| DA180-17.5MM | 17.5 mm |
| DA180-18MM   | 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



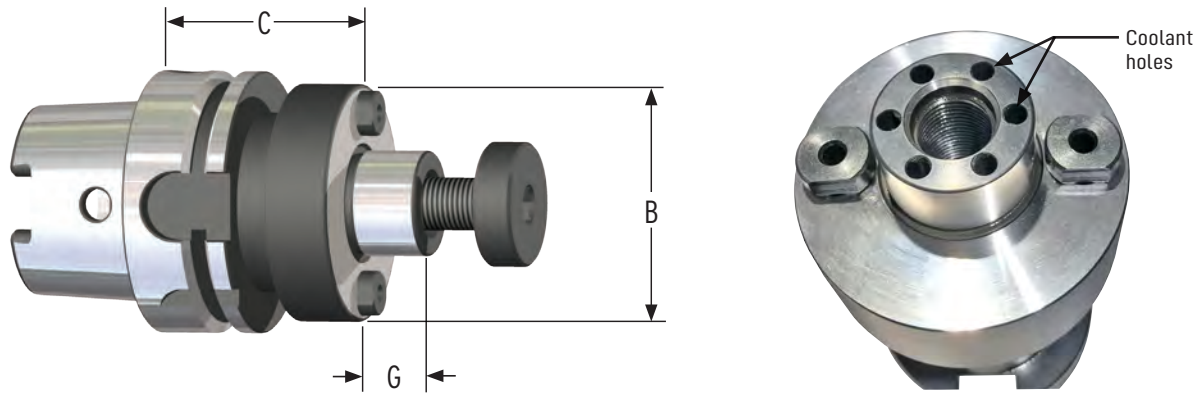
- Constructed from AISI 8620 Alloy Steel for wear resistance
- Hardened to 56-60 Rc for durability and long service life
- Pilot arbor maximum T.I.R. 0.0002"
- Extended gauge lengths up to 14"

# HVC Face Mill Holders

## HVC (High Volume Coolant) Face Mill Holders

### FEATURES

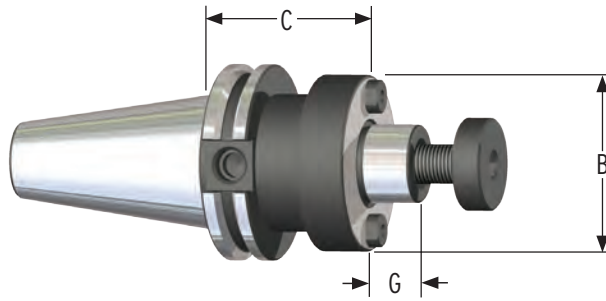
- 6 high-volume coolant ports
- Superior chip evacuation
- 500% increased coolant flow
- Perfect for high-pressure coolant delivery



### 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

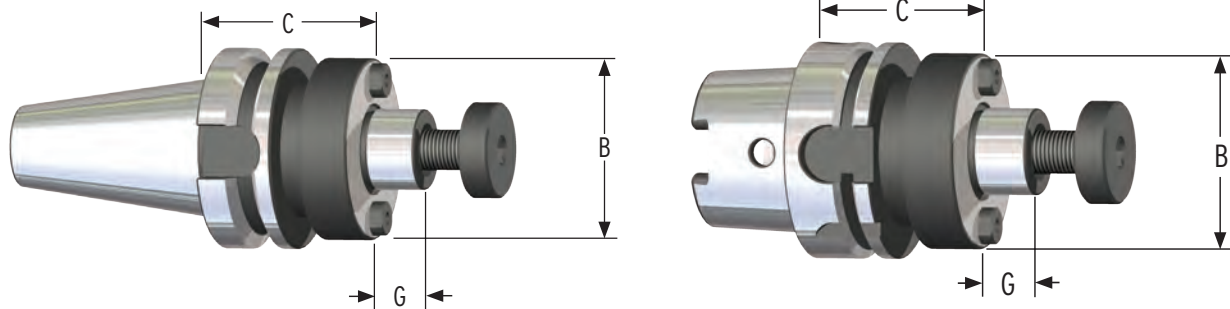
| Part #          | Description                | Arbor Size | B (Dia.) | C      | G     | Drive Key (Incl.) | Lock Screw (Incl.) | Cap Screw (Incl.) |
|-----------------|----------------------------|------------|----------|--------|-------|-------------------|--------------------|-------------------|
| 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

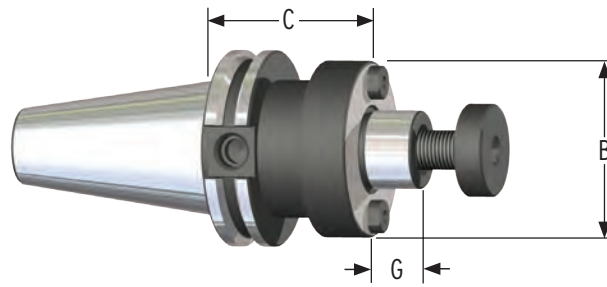
| Part #      | Description            | Arbor Size | B (Dia.) | C     | G    | Drive Key (Incl.) | Lock Screw (Incl.) | Cap Screw (Incl.) |
|-------------|------------------------|------------|----------|-------|------|-------------------|--------------------|-------------------|
| B30-75SM118 | BT30 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

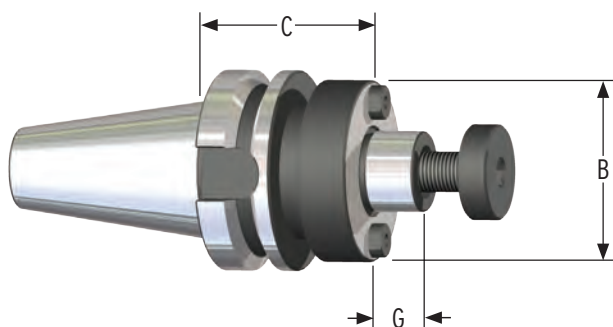
| Part #    | Description               | Arbor Size | B (Dia.) | C     | G     | Drive Key (Incl.) | Lock Screw (Incl.) | Cap Screw (Incl.) |
|-----------|---------------------------|------------|----------|-------|-------|-------------------|--------------------|-------------------|
| C50-75SM1 | CAT50 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®

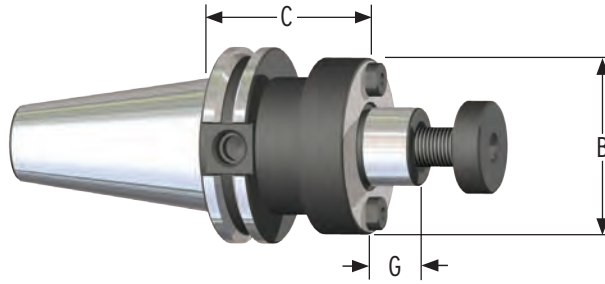
| Part #       | Description            | Arbor Size | B (Dia.) | C     | G    | Drive Key (Incl.) | Lock Screw (Incl.) | Cap Screw (Incl.) |
|--------------|------------------------|------------|----------|-------|------|-------------------|--------------------|-------------------|
| B30F-75SM118 | 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®

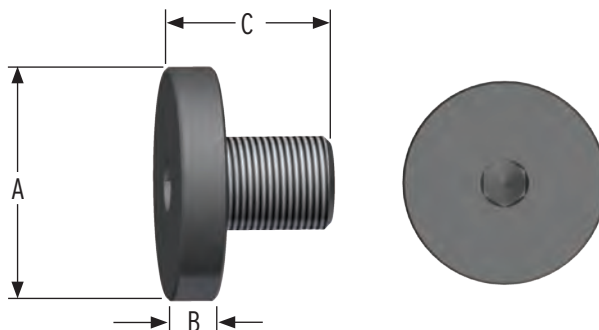
| Part #     | Description               | Arbor Size | B (Dia.) | C     | G     | Drive Key (Incl.) | Lock Screw (Incl.) | Cap Screw (Incl.) |
|------------|---------------------------|------------|----------|-------|-------|-------------------|--------------------|-------------------|
| C50F-75SM1 | 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  |

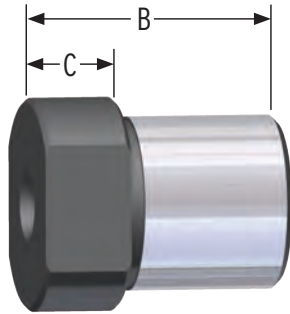
\* "C" at end of part number indicates Coolant-through Lock Screw

### 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 |

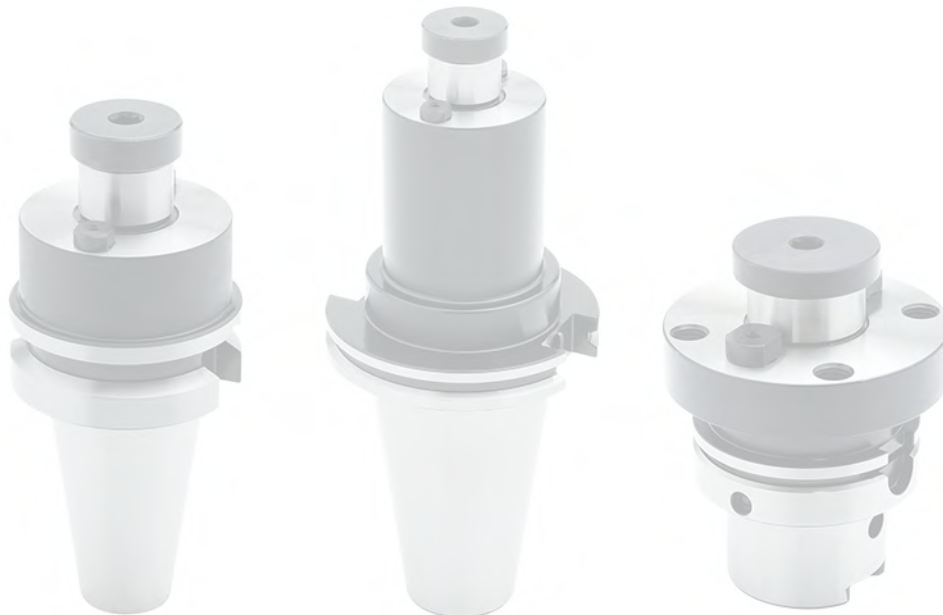
\* "C" at end of part number indicates Coolant-through Cap Screw

## 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



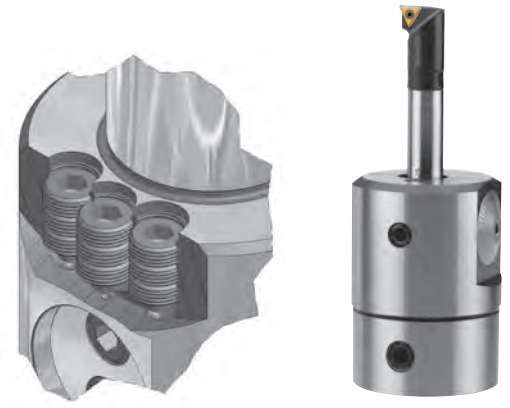
# DAVITEC

## 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

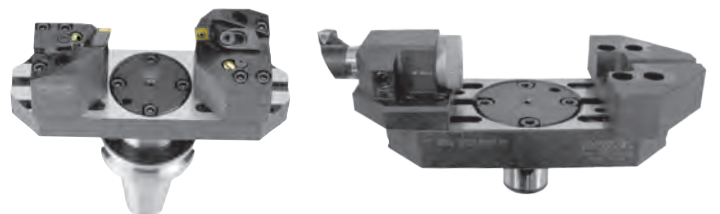
## TWIN BORE FOR HEAVY METAL REMOVAL RATES

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.



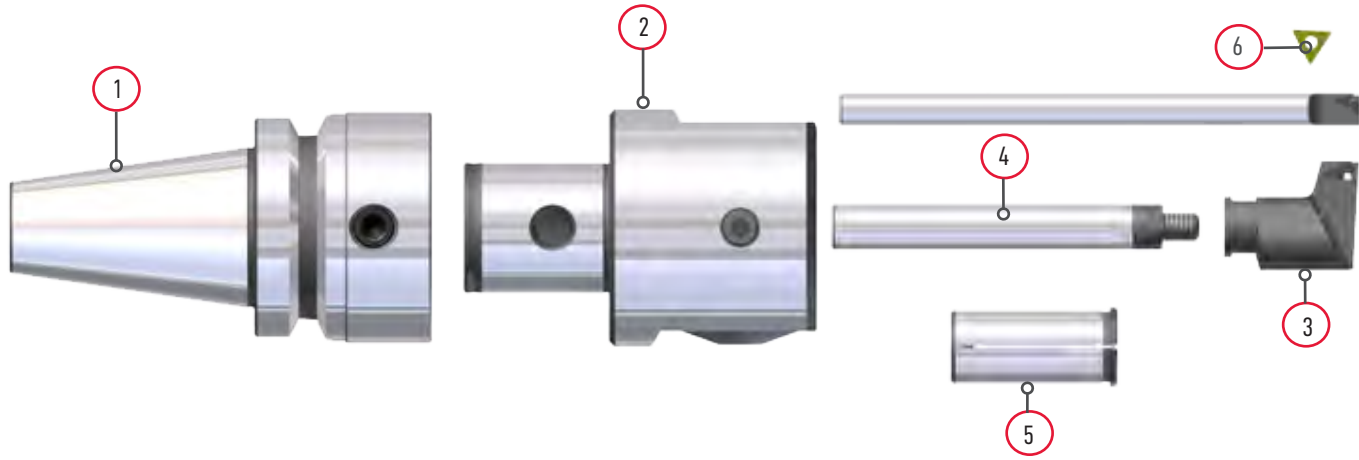
## LARGE DIAMETER BORING SYSTEM

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



# Precision Modular Boring

## Small Diameter | Product Tree

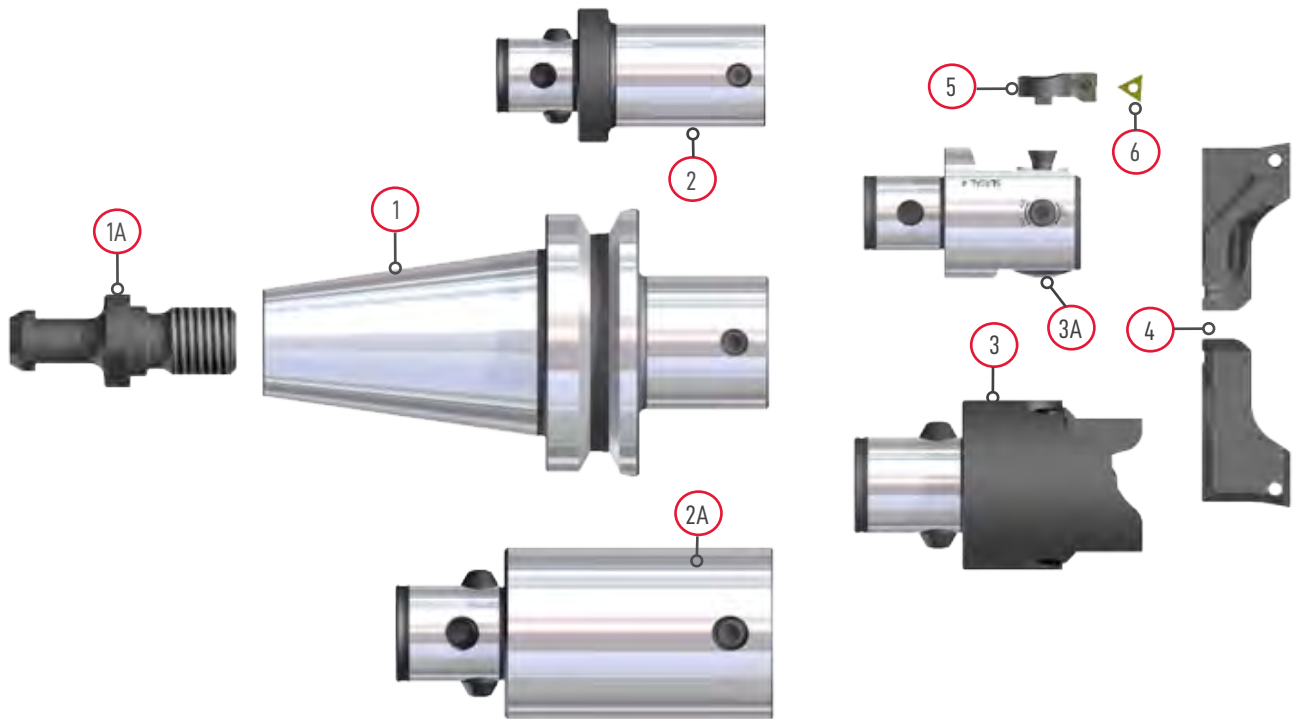


### Small Diameter Boring Range Tree: .078" - 1.89" (1.98 - 48 mm)

| 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



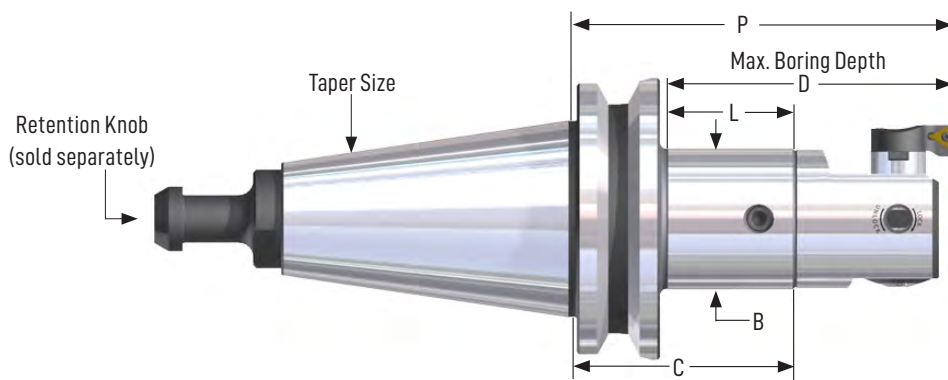
### Connection Diameter

| 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

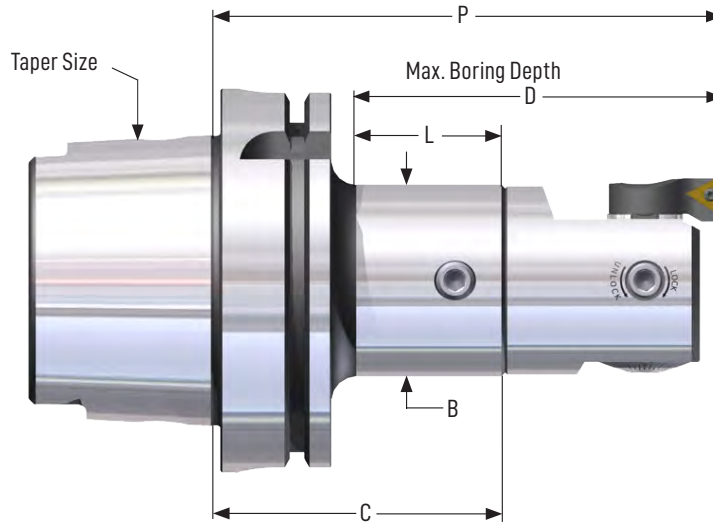
## CAT 40/50 Modular Shanks with SIMULFIT®

| 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          |

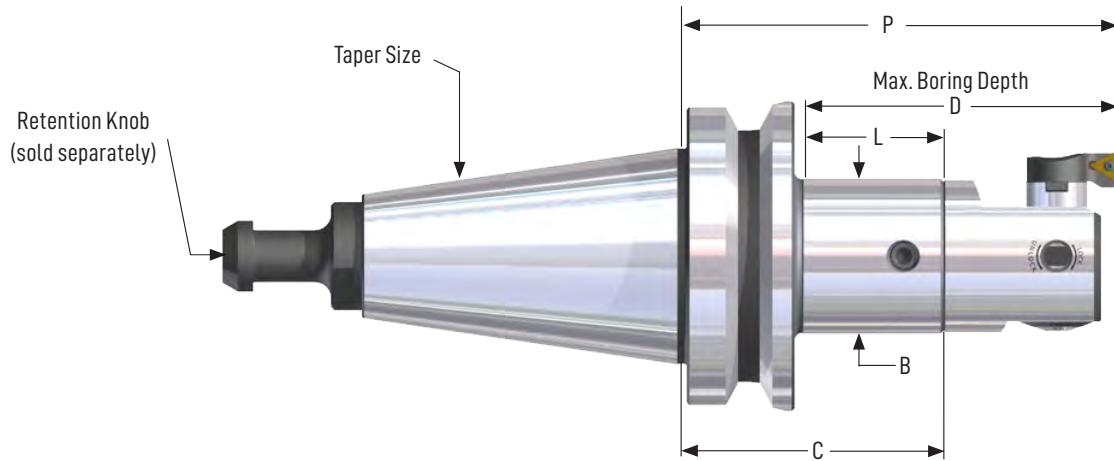
\* Compute "P" dimension by adding all "C" dimensions for all components used.  
Maximum bore depth "D" may be increased by using extension adapters.

### 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.

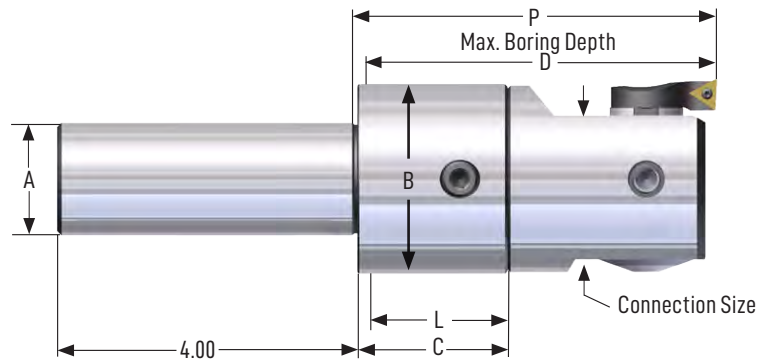
### BT 40 Modular Shanks

| 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

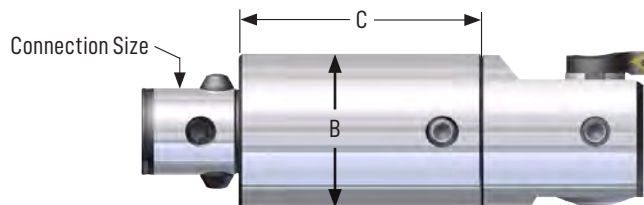
## Straight Modular Shanks



| 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          |

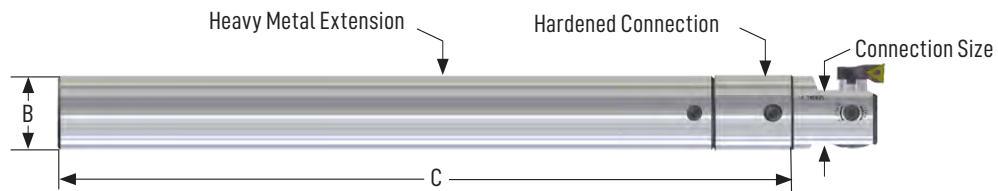
\* Compute "P" dimension by adding all "C" dimensions for all components used.  
Maximum bore depth "D" may be increased by using extension adapters.

## Extensions



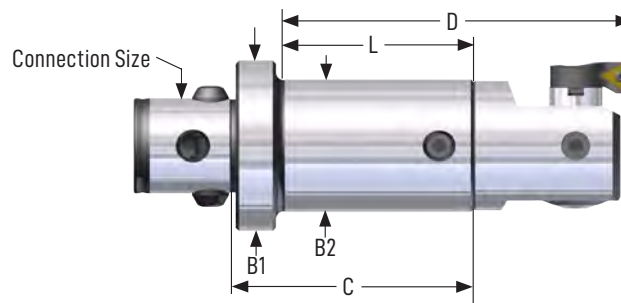
| Part #    | Connection Size | B     | C     | Weight (lbs) |
|-----------|-----------------|-------|-------|--------------|
| PC2-PC2E1 | PC2             | .94"  | 1.18" | 0.3          |
| PC2-PC2E2 | PC2             | .94"  | 1.77" | 0.4          |
| PC3-PC3E1 | PC3             | 1.22" | 1.18" | 0.4          |
| 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          |

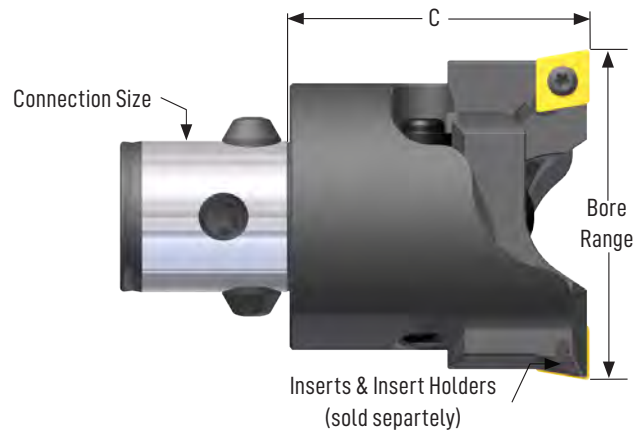
# Precision Modular Boring

## Twin Bore | Roughing System

### Twin Bore Roughing Heads

#### FEATURES

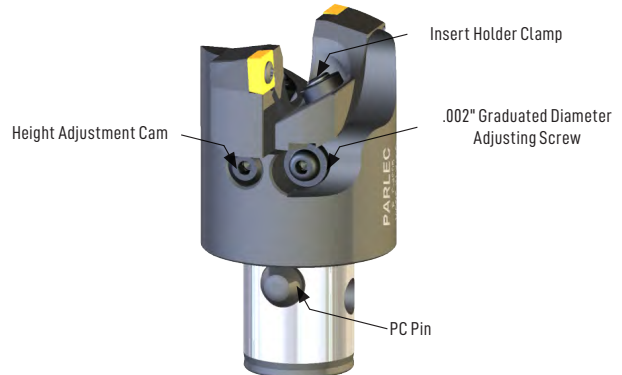
- For balanced or step cutting from .95" to over 23"
- Coolant ports direct coolant to the cutting area
- Two insert holders independently adjust for diameter and height



| 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         |



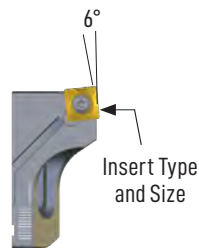
## Twin Boring Head Components



| 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 |

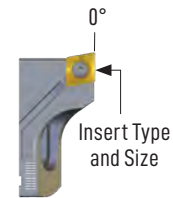
\* Included in spare kit

## 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

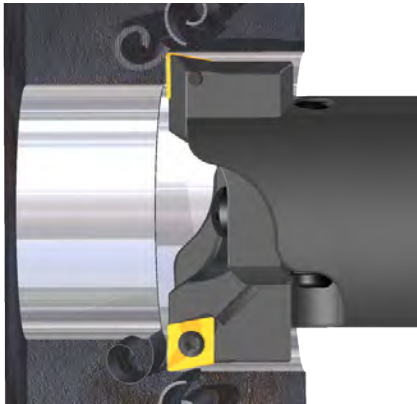
## Adjusting | Balanced Cutting



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

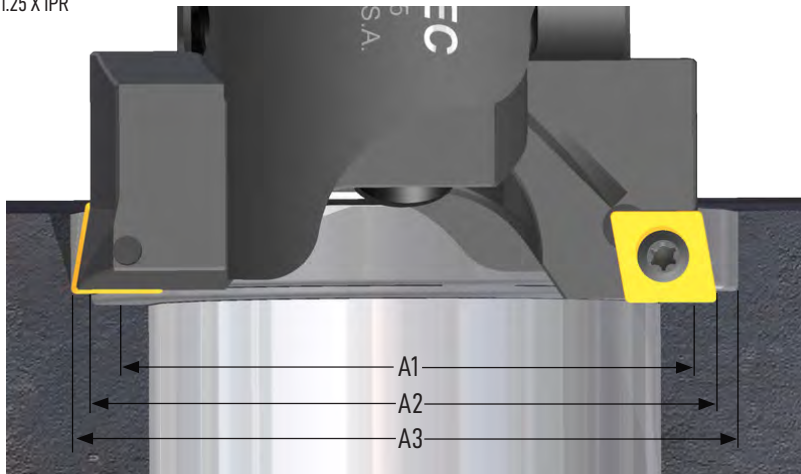
### Maximum Allowable Setting Difference - For best performance

| 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) |

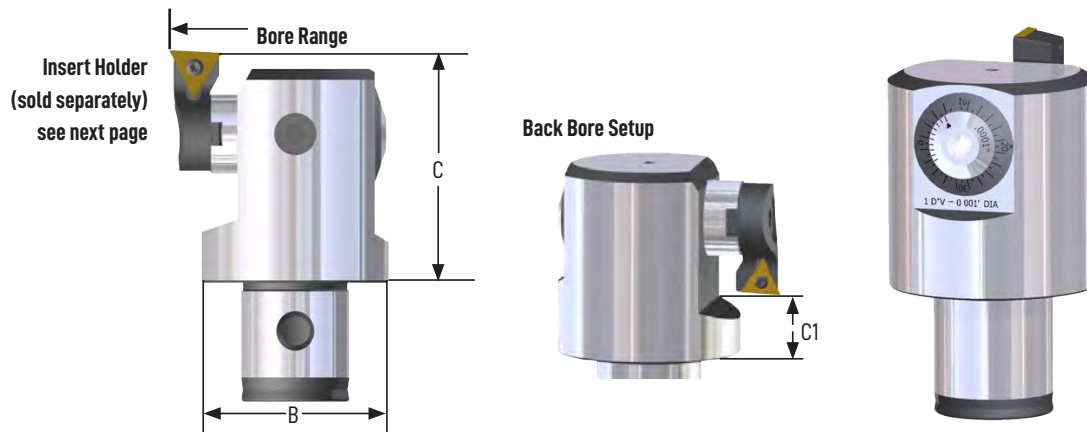
# Precision Modular Boring

## 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<br>(Sold Separately) | Bore Range<br>Minimum | Bore Range<br>Maximum | Connection<br>Size | Insert<br>Holder Size | B Diameter | C     | C1    | Insert Clamp<br>Holder | Insert Type<br>and Size | Weight<br>(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

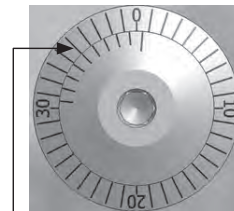


After adjustment

This Example Shows .0005" Adjustment

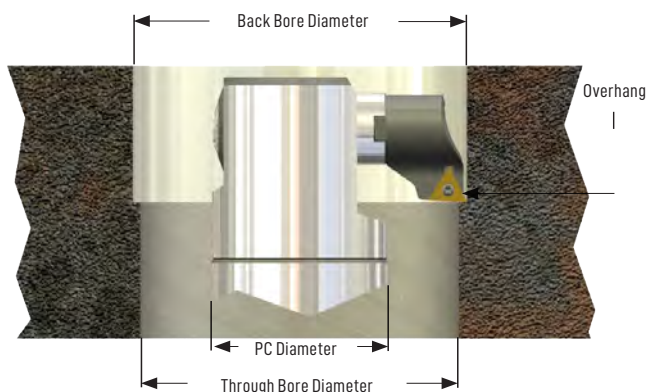


Before adjustment



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, Discalloy, 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.

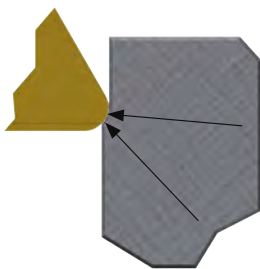
## Finish Boring | Feeds

### 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<br>Difficult to remove                                |    | 1. Increase Depth of Cut<br>2. Increase Feed Rate             |
| Moderately Low          | Long Stringy Chips<br>Difficult to remove                               |    | 1. Increase Depth of Cut<br>2. Increase Feed Rate             |
| Ideal                   | Coil Spring Chips<br>Easy to remove                                     |    | Keep Running                                                  |
| Slightly Heavy          | Slight Deformation of Chip                                              |    | If Finish is Bad,<br>Decrease Speed                           |
| Heavy                   | Deformation of Chip<br>Increased cutting forces                         |   | If Finish is Bad,<br>Decrease Speed                           |
| Very Heavy              | Severe Deformation of Chip<br>Increased cutting forces<br>Heat build up |  | If Finish is Bad,<br>Decrease Speed<br>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:

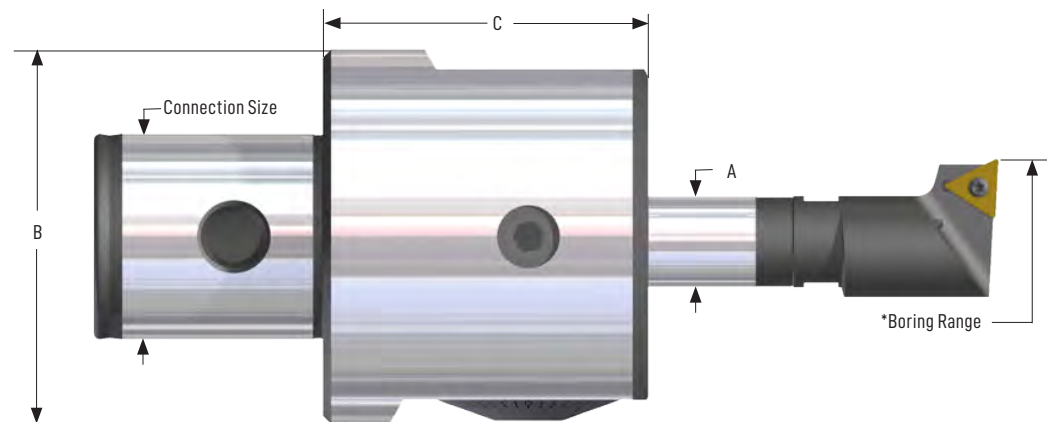
# Precision Modular Boring

## 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

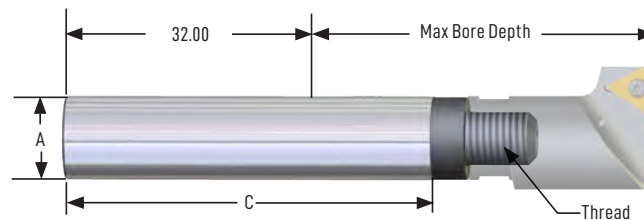
| Part #       | Bore Range Min. | Bore Range Max. | Connection Size | Adjustment Diameter | A    | B     | C      | Weight (lbs) |
|--------------|-----------------|-----------------|-----------------|---------------------|------|-------|--------|--------------|
| PC4-20SDE50B | .078"           | .790"           | 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

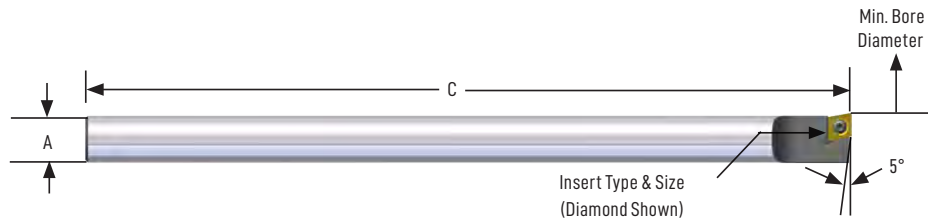
| Part #  | Min. Dia. | Max. Dia. | Extended Max. Dia. | Insert Size | Insert Screw | Insert Screw Wrench (sold separately) | Use w/ Bar Size | Wrench Size |
|---------|-----------|-----------|--------------------|-------------|--------------|---------------------------------------|-----------------|-------------|
| 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

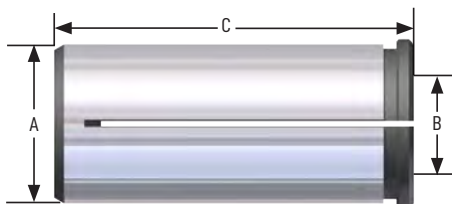


## Boring Bars - Inch Diameter

| 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 | CB15-18C056C   | .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        | TD AB 05             | 028-920      | 018-007             |
| CB18-29T054 | CB18-29T054C   | .290"          | .310"          | XXRB-187           | 2.00"           | 3/16" | 4.00" | Carbide      | TD AB 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        | TD AB 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      | TD AB 05             | 028-920      | 018-007             |
| SB31-36T054 | -              | .362"          | .430"          | XXRB-312           | 1.75"           | 5/16" | 4.00" | Steel        | TD AB 05             | 028-920      | 018-007             |
| CB31-37T056 | CB31-37T056C   | .372"          | .440"          | XXRB-312           | 3.25"           | 5/16" | 6.00" | Carbide      | TD AB 05             | 028-920      | 018-007             |
| SB37-43T105 | SB37-43T105C   | .430"          | .580"          | XXRB-375           | 2.00"           | 3/8"  | 5.00" | Steel        | TP GH 11             | 028-921      | 018-003             |
| CB37-44T107 | CB37-44T107C   | .440"          | .590"          | XXRB-375           | 4.00"           | 3/8"  | 7.00" | Carbide      | TP GH 11             | 028-921      | 018-003             |
| SB50-58T106 | SB50-58T106C   | .580"          | .717"          | XXRB-500           | 2.50"           | 1/2"  | 5.00" | Steel        | TP GH 11             | 028-921      | 018-003             |
| CB50-59T107 | CB50-59T107C   | .590"          | .717"          | XXRB-500           | 5.00"           | 1/2"  | 7.00" | Carbide      | TP GH 11             | 028-921      | 018-003             |
| SB62-71T117 | SB62-71T117C   | .717"          | 1.000"         | -                  | 3.50"           | 5/8"  | 7.00" | Steel        | TP GH 11             | 028-921      | 018-003             |
| CB62-71T118 | CB62-71T118C   | .717"          | 1.000"         | -                  | 6.00"           | 5/8"  | 8.00" | Carbide      | TP GH 11             | 028-921      | 018-003             |
| -           | SB62-83T114C   | .830"          | 1.450"         | -                  | 2.50"           | 5/8"  | 4.00" | Steel        | TP GH 11             | 028-921      | 018-003             |
| -           | CB62-83T117C   | .830"          | 1.450"         | -                  | 3.50"           | 5/8"  | 7.00" | Carbide      | TP GH 11             | 028-921      | 018-003             |
| -           | SB62-83T114C   | .830"          | 1.450"         | -                  | 2.50"           | 5/8"  | 4.00" | Steel        | TP GH 11             | 028-921      | 018-003             |

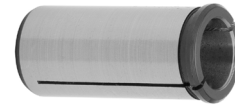
\* Replace XX with 50 for 1/2" OD bushing or 62 for 5/8" OD bushing

## 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

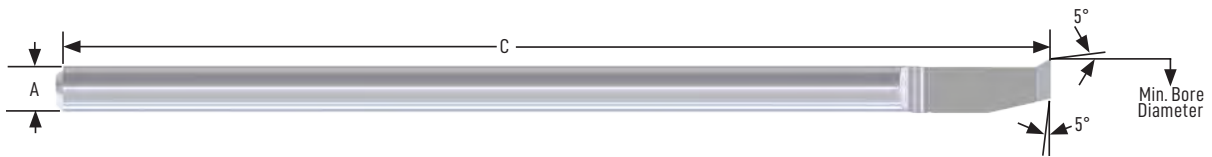


## Boring Nose Wrenches

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

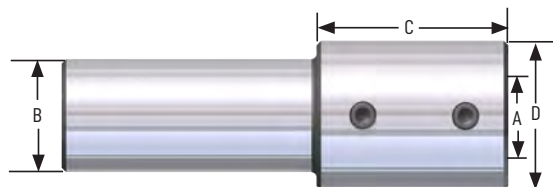
## Reduction Bushings for Modular Boring Bars

| 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 |

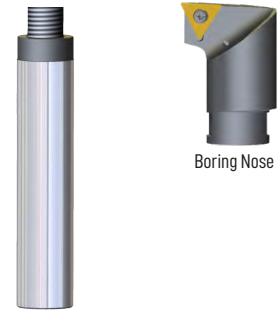
#### Shanks

Order shanks separately. See pages xxx-xxx



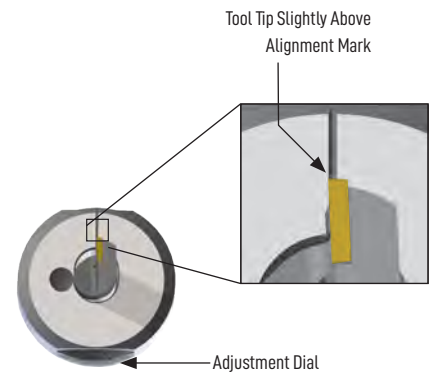
## ASSEMBLY

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)



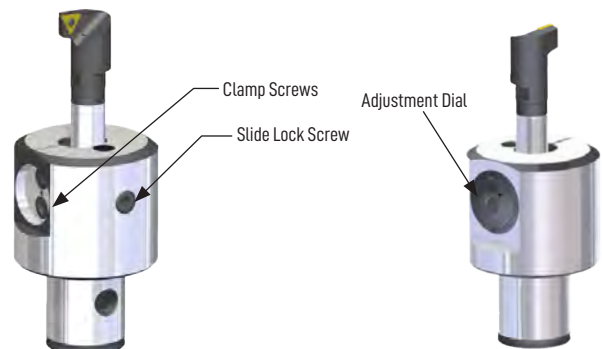
Boring Bar Shank

Boring Nose



## 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)



## 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

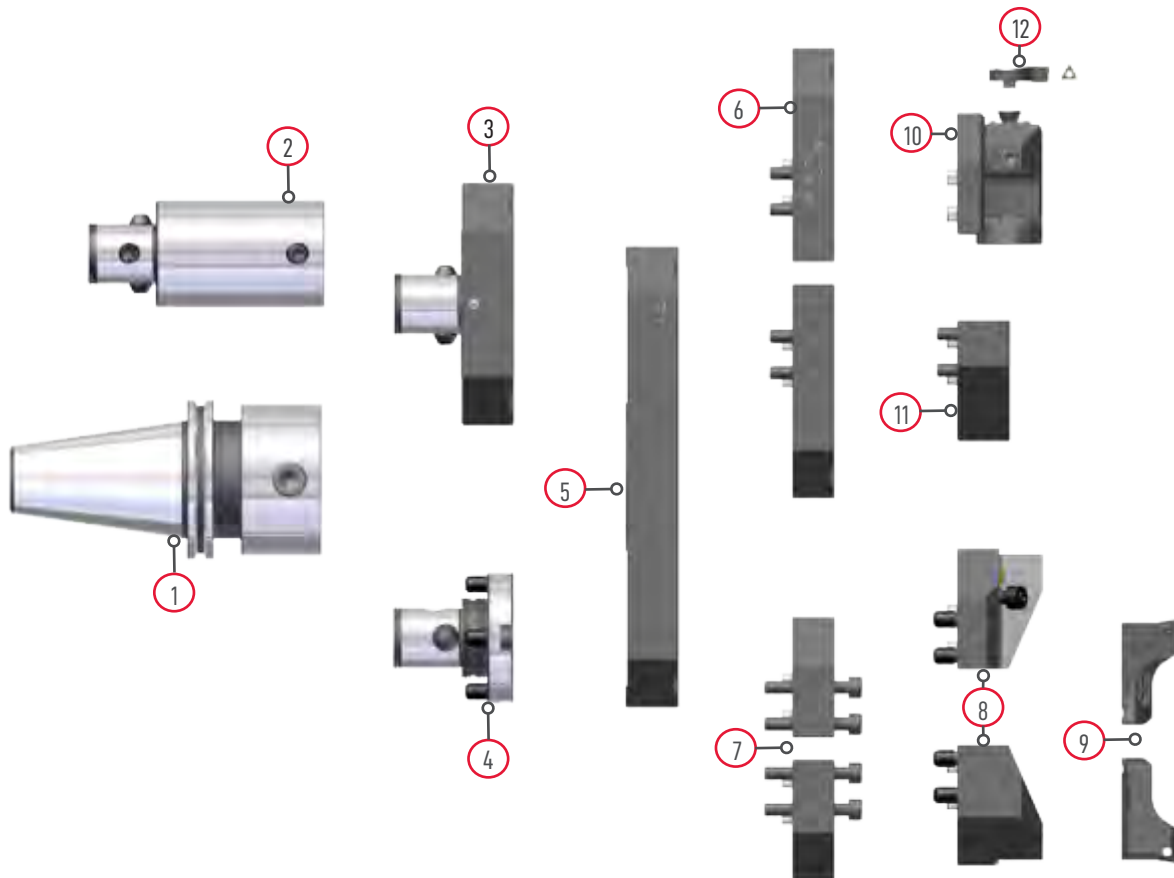
### \*\*Carbide Boring Bars

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

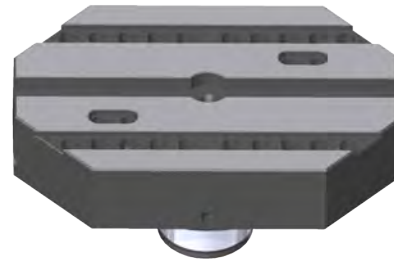
### FEATURES

- 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.) |

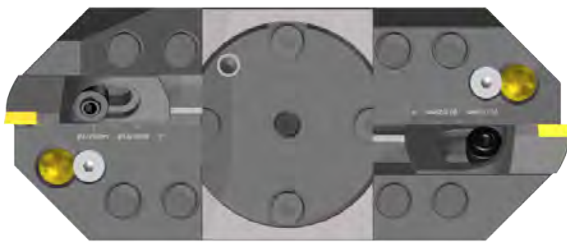


# Precision Modular Boring

## 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



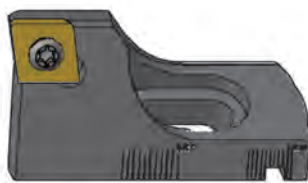
### Rough Boring Holder Base

| 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)        |



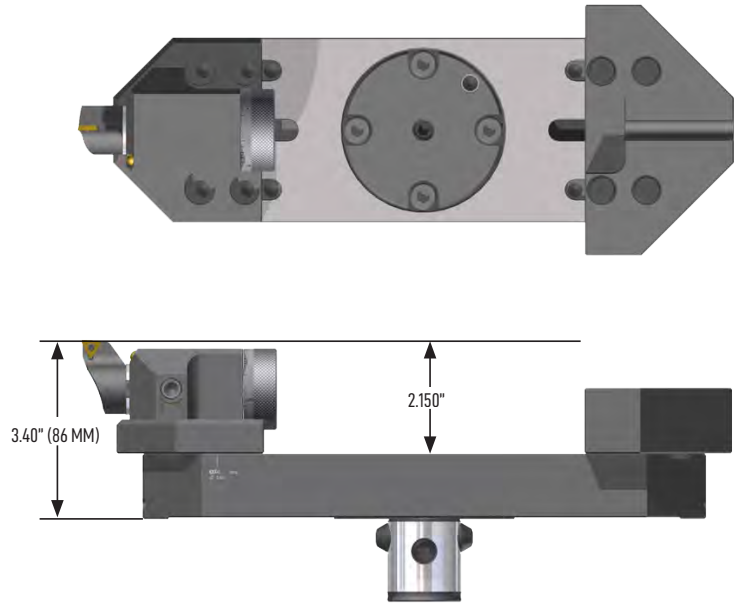
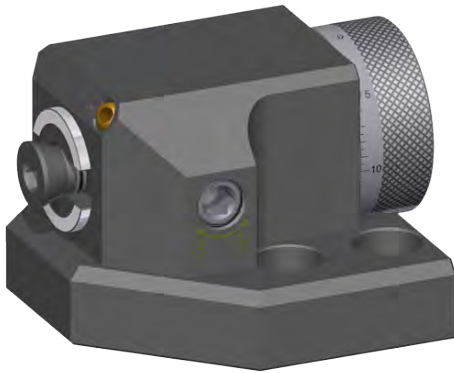
### Twin Bore Insert Holders

| 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.

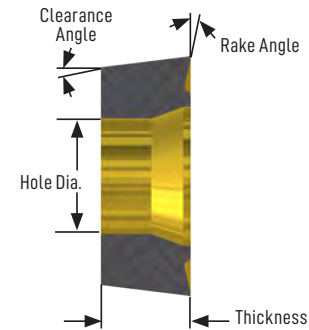
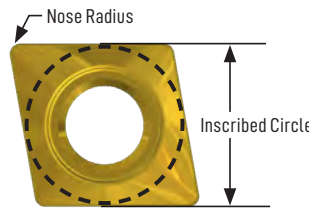
### PERIPHERY

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

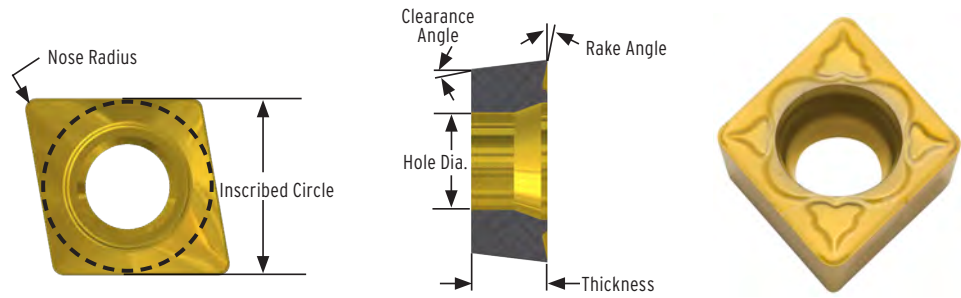
- AS** ■ Is an Al<sub>2</sub>O<sub>3</sub> coated insert. Its application is machining cast iron and steels at moderately high speeds.

### 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   |

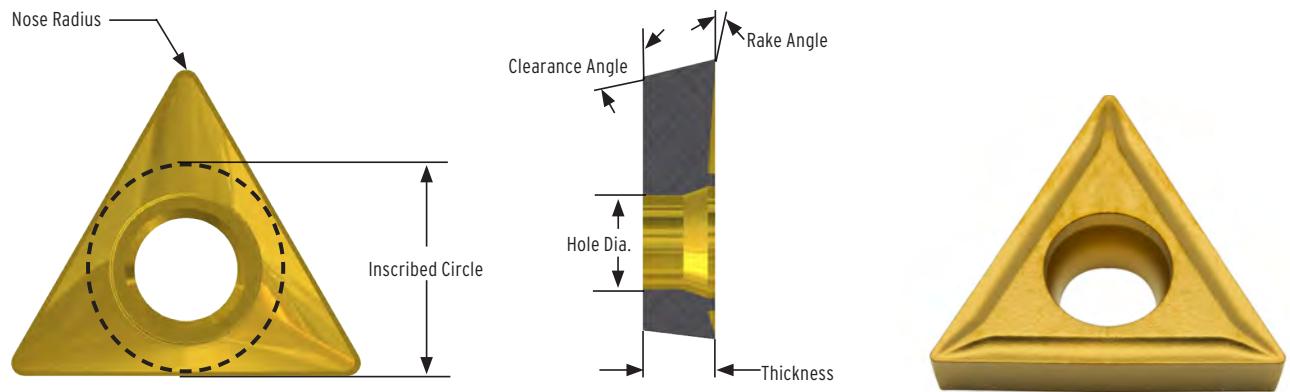
### Size: CCMT 09

| 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

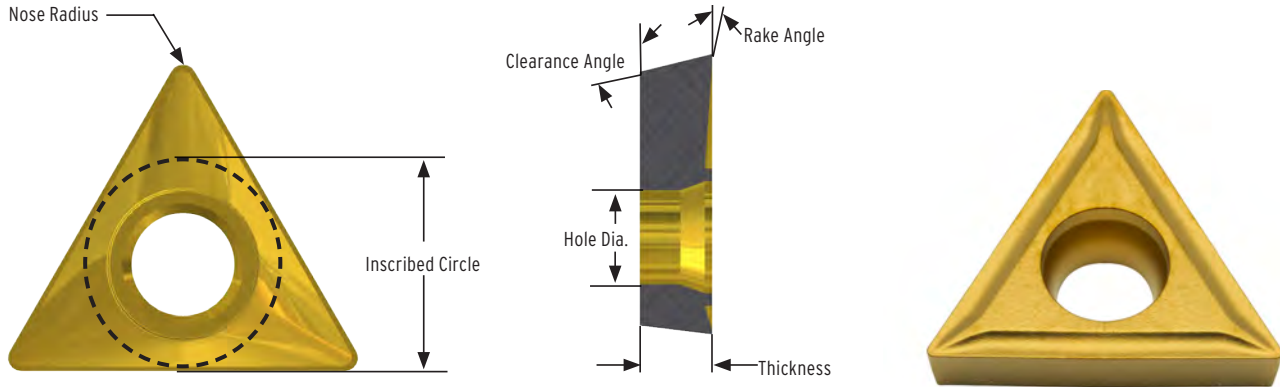
| Part #     | IC    | Clearance Angle | Nose Radius | Thickness | Rake Angle | Hole Diameter | Grade | Type     | Periphery |
|------------|-------|-----------------|-------------|-----------|------------|---------------|-------|----------|-----------|
| T050700C2G | .160" | 15°             | .007"       | .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

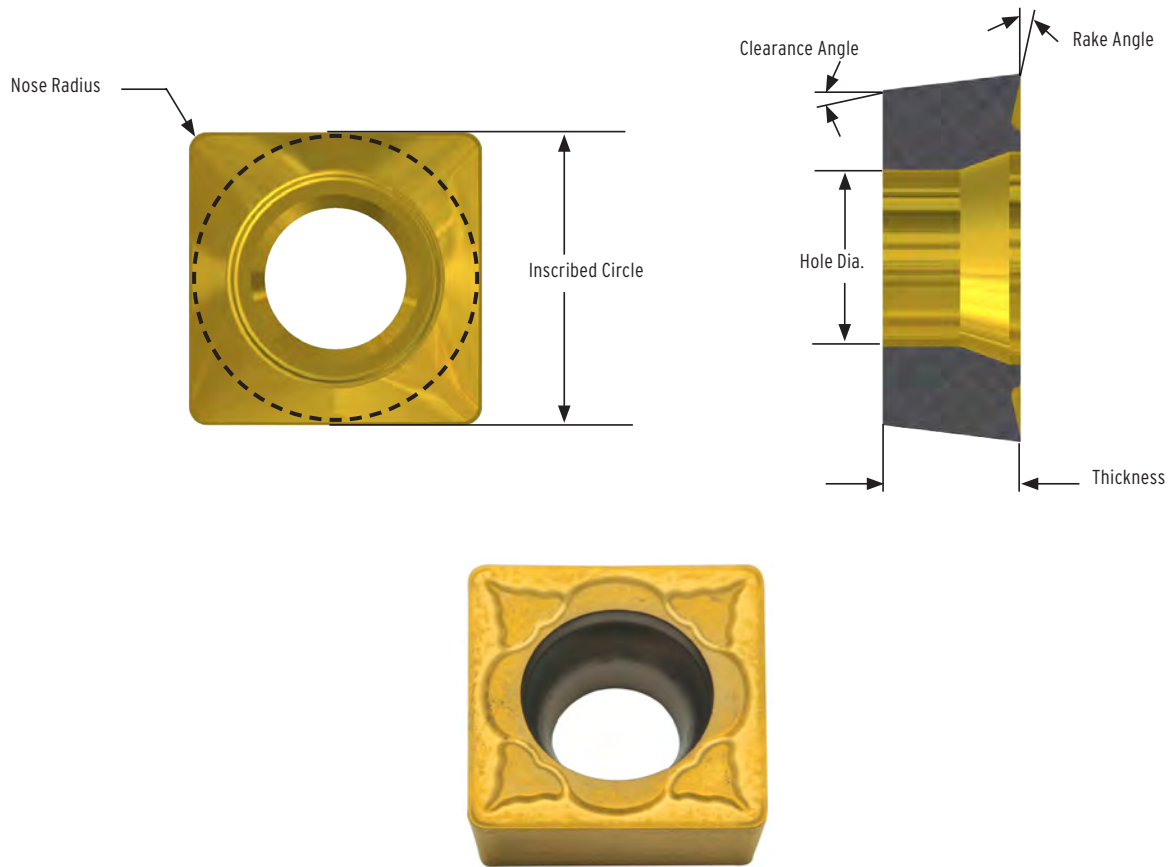
## Triangular Inserts (continued)



### 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>

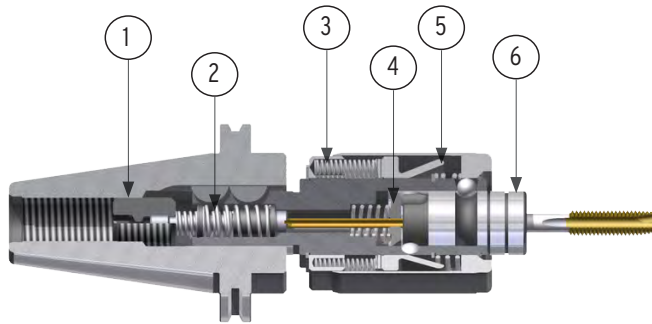
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## TAPPING SYSTEMS

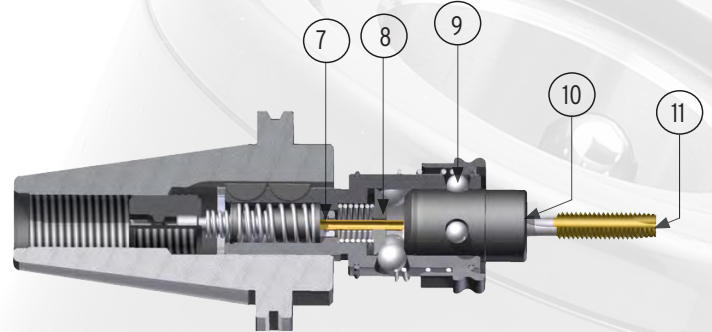




# DAVIT



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.

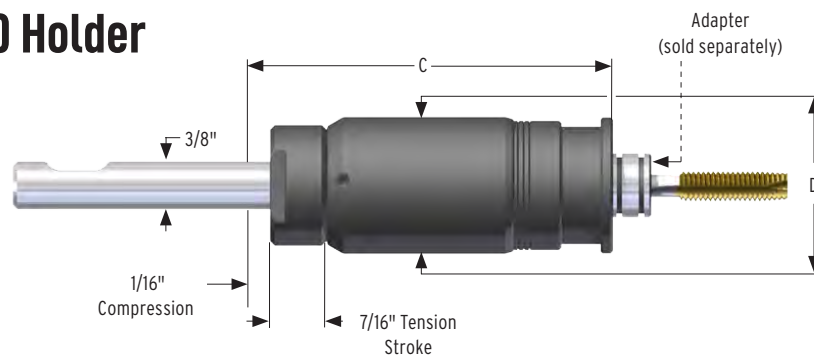
# NUMERTAP® Tapping Systems

## NUMERTAP 80 | Torque Controlled Tapping

### FEATURES

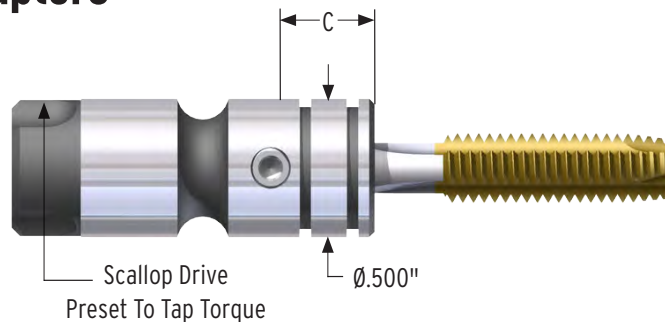
- From #4 - 1/4" (0 - 80 in./lbs.)
- Very sensitive, calibrated torque control prevents tap breakage when bottom tapping
- Free-floating ball bearing tension stroke ensures thread size and quality
- Small outside diameter allows tapping near shoulders without tap extensions
- Quick-change system allows 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



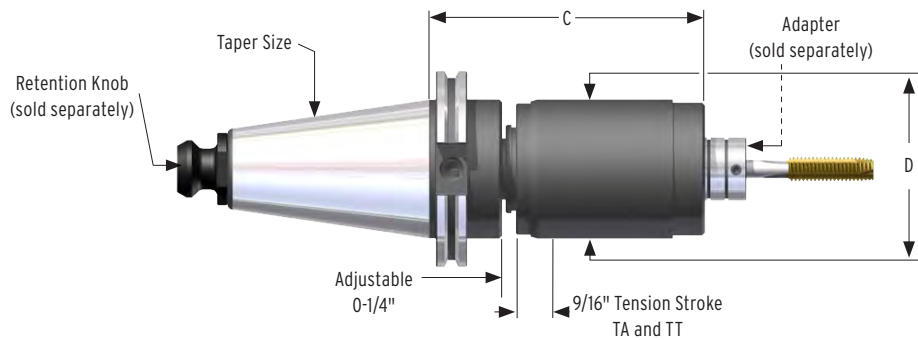
| Part #   | Tap Size | Metric Tap Size | C    |
|----------|----------|-----------------|------|
| 8401-#4  | #4       | M2.5            | .38" |
| 8401-#6  | #6       | M3.5            | .38" |
| 8401-#8  | #8       | M4              | .38" |
| 8401-#10 | #10      | M5              | .38" |
| 8401-#12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

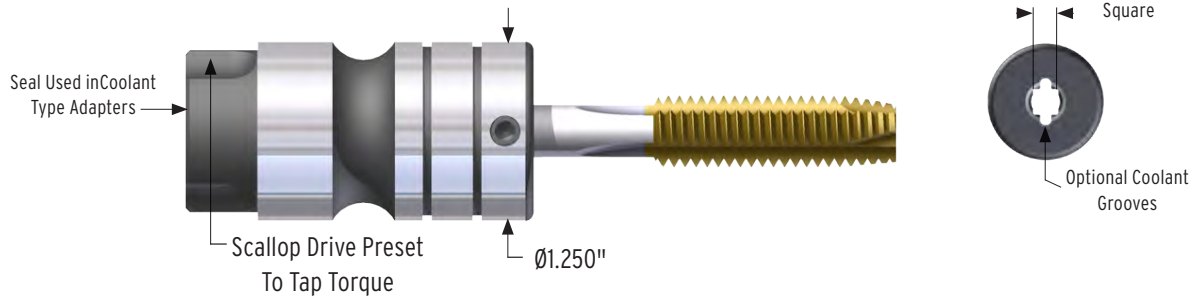
| Type           | Inch        | Metric     | NPT                |
|----------------|-------------|------------|--------------------|
| Ferrous        | #10 - 3/4"  | M5 - M20   | 1/16" - 1/2" NPT   |
| Non-Ferrous    | #10 - 1"    | M5 - M25   | 1/16" - 1/2" NPT   |
| Positive Drive | #6 - 1_5/8" |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

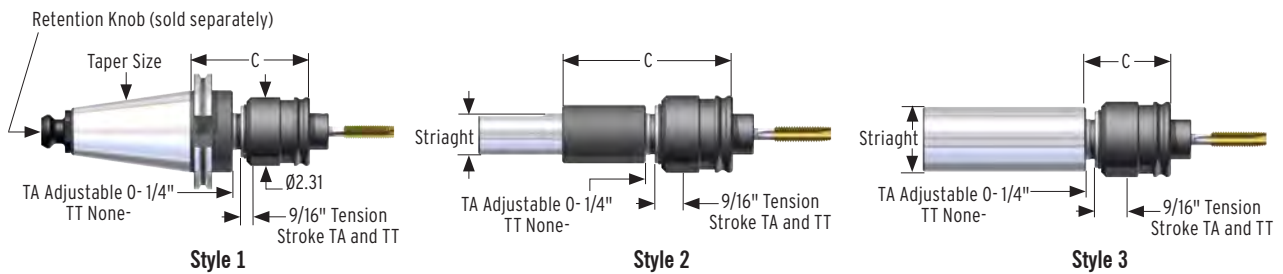
\* After 7711 or 7714 - Add "CG" for coolant groove design or "C" for coolant sealed design

## 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

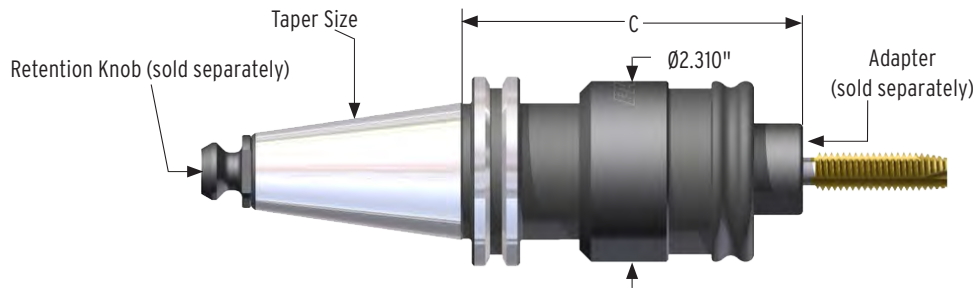
| Inch        | Metric     | NPT                |
|-------------|------------|--------------------|
| #6 - 1_5/8" | M3.5 - M36 | 1/16" - 1_1/4" NPT |

# 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)

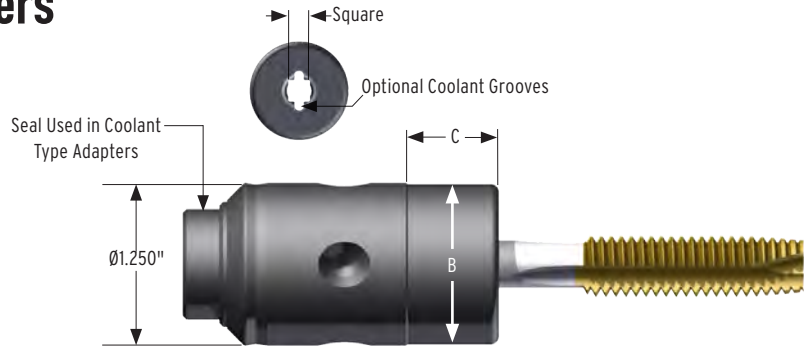
### Capacity

| 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

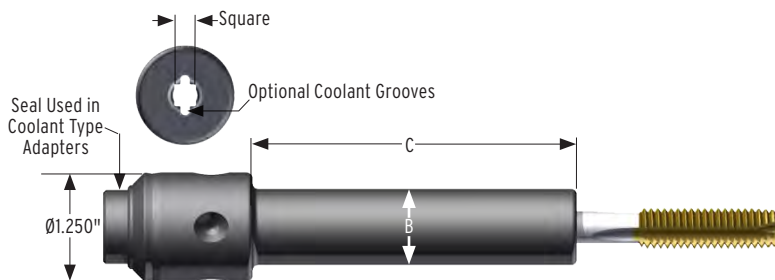


# NUMERTAP® Tapping Systems

## 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



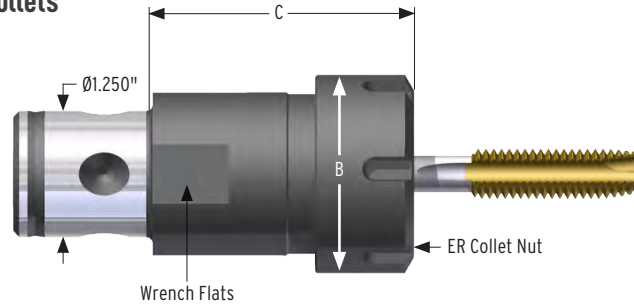
| C = 3.70" (3" Extended) |            | C = 6.70" (6" Extended) |                 |       |        |        |
|-------------------------|------------|-------------------------|-----------------|-------|--------|--------|
| Part #                  | Part #     | Tap Size                | Metric Tap Size | 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              | 7717-6-006 | 1/16" & 1/8" NPT        | -               | 1.00" | .312"  | .234"  |
| 7717-3-012              | 7717-6-012 | 1/8" NPT                | -               | 1.00" | .437"  | .328"  |
| 7717-3-025              | 7717-6-025 | 1/4" NPT                | -               | 1.00" | .562"  | .421"  |
| 7717-3-037              | 7717-6-037 | 3/8" NPT                | -               | 1.25" | .700"  | .531"  |
| 7717-3-050              | 7717-6-050 | 1/2" NPT                | -               | 1.25" | .687"  | .515"  |
| 7717-3-075              | 7717-6-075 | 3/4" NPT                | -               | 1.61" | .906"  | .679"  |
| 7717-3-100              | 7717-6-100 | 1" NPT                  | -               | 1.61" | 1.125" | .843"  |
| 7717-3-125              | 7717-6-125 | 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

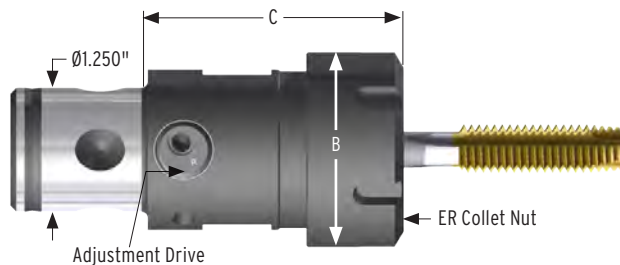


| Part #    | Part # w/ coolant | Collet Series | Tap Size Range | B     | C     | Collet Nut Wrench |
|-----------|-------------------|---------------|----------------|-------|-------|-------------------|
| 7716-ER16 | 7716C-ER16        | ER16          | #8 - 1/4"      | 1.26" | 1.54" | ECN20W            |
| 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
- Provides flexibility for any tap shank size
- Adjustable drive plug for any square size in the tap range
- 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

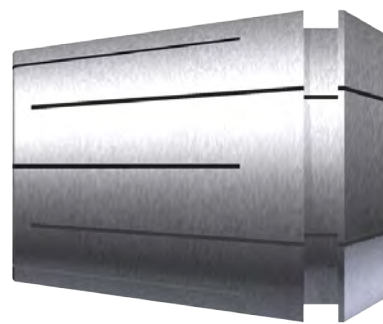
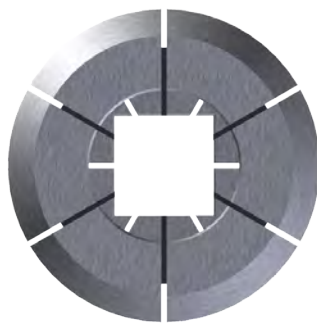
| Part #     | Inch Size | ANSI Metric |
|------------|-----------|-------------|
| ERT32-#0-6 | #0 - #6   | -           |
| ERT32-#8   | #8 - ##8  | M4          |
| ERT32-#10  | #10       | M4.5, M5    |
| ERT32-#12  | #12       | -           |
| ERT32-012N | 1/8" NPT  | -           |
| ERT32-025  | 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         |



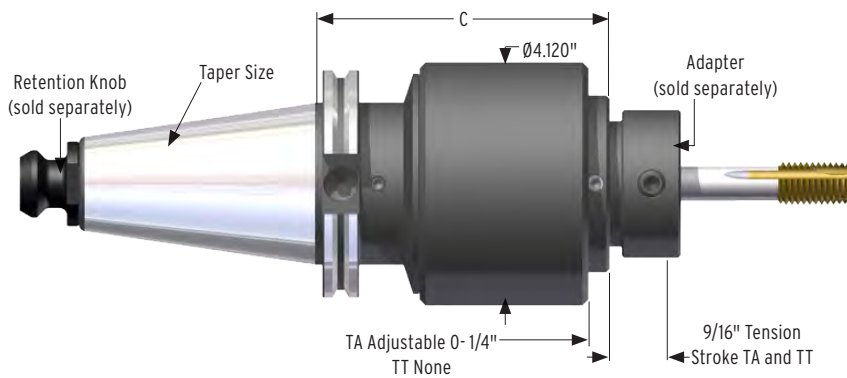
# NUMERTAP® Tapping Systems

## 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

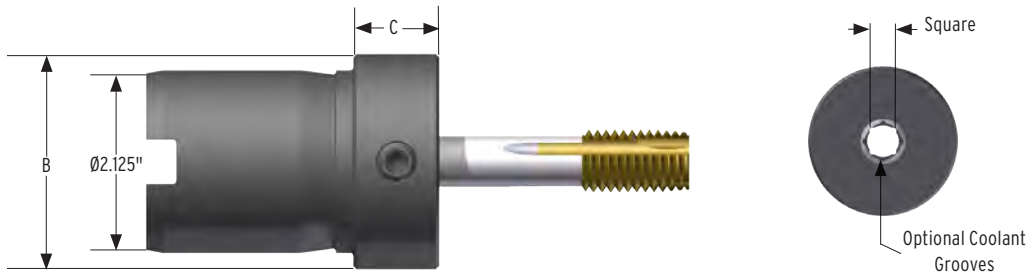
Synchronous / Tension & Compression

| 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

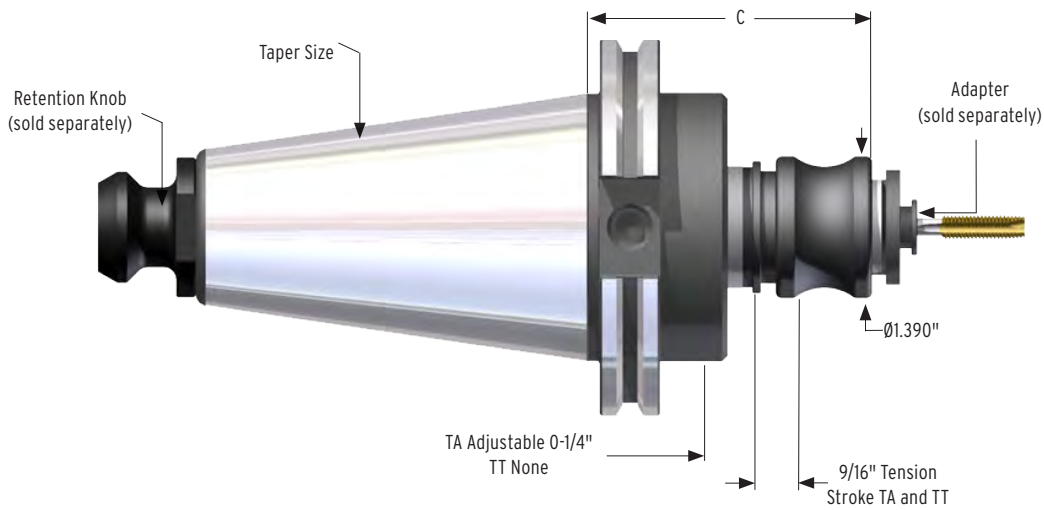
Coolant-through adapters available upon request

# 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 |

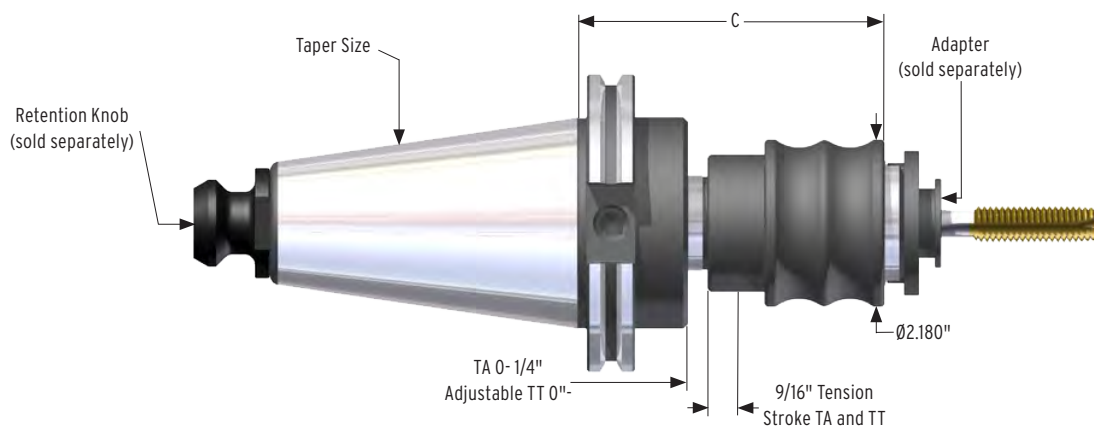


# NUMERTAP® Tapping Systems

## 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

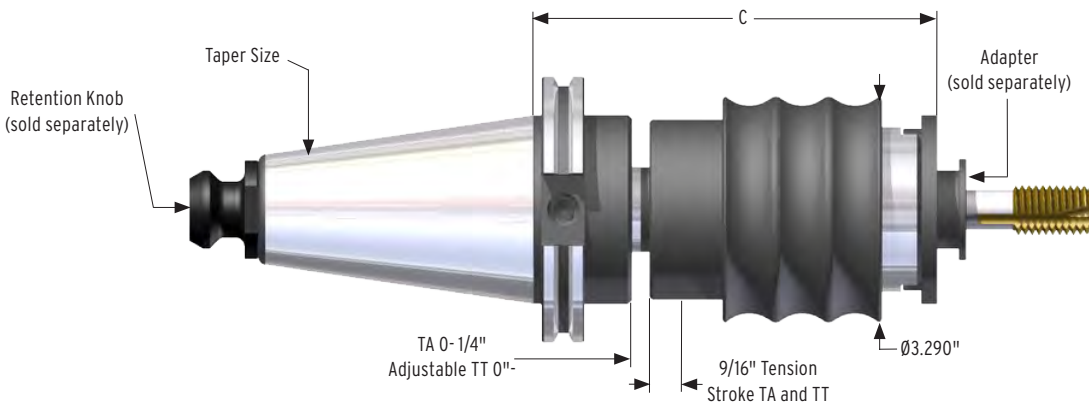
| Inch              | NPT             |
|-------------------|-----------------|
| 5/16" - 7/8" Hand | 1/4" - 1/2" NPT |

# 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

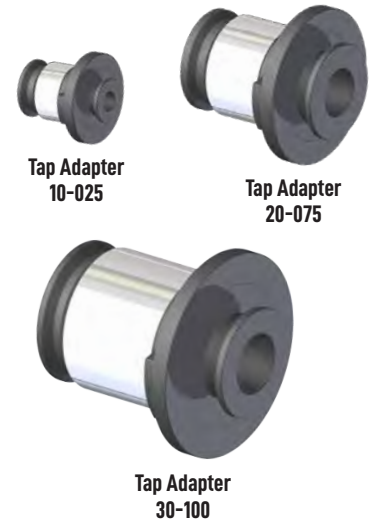
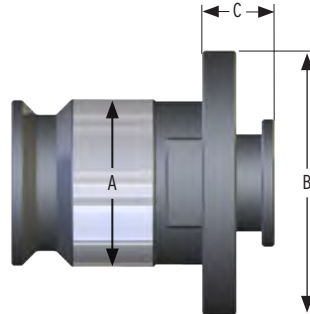
| Inch                | NPT           |
|---------------------|---------------|
| 3/16" - 1_3/8" Hand | 3/4" - 1" NPT |

## 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/<br>Coolant Groove | Part #<br>Torque Controlled | Part #               | Part # w/<br>Coolant Groove | Part #<br>Torque Controlled | Part #               | Part # w/<br>Coolant Groove | Part #<br>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



# DAVRI 30



## 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



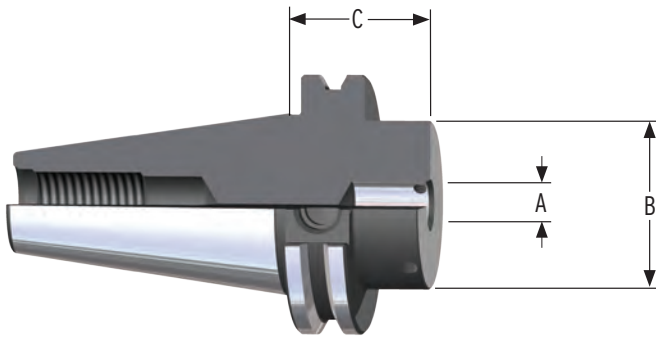
## Stub Arbors

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



# Production Holders

## Probe Holders



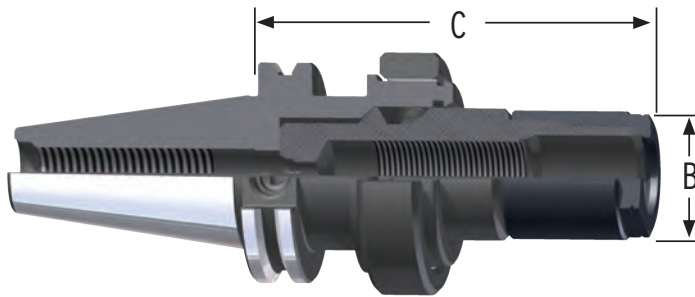
### FEATURES

- 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   |
| B40-M11PH1 | BT 40  | .44" | 1.63" | 1.70" | 029-092   |



## Floating Reamer Holders



### FEATURES

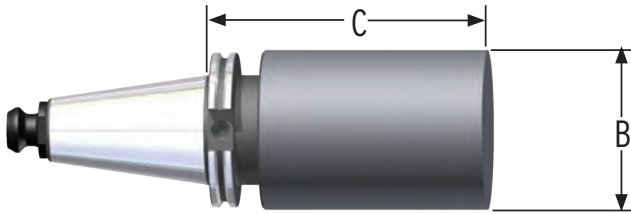
- For use with reamers and porting tools
- 0.015" radial float and 1 deg. of angular float to following existing drilled hole
- Constructed of alloy steel for long, durable service life

| 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  |
| C50-15FH6C | 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



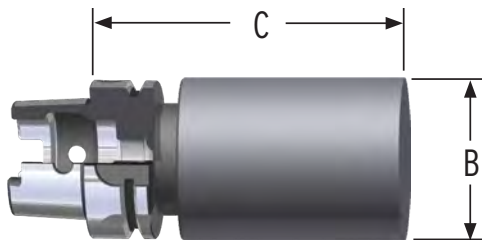
### FEATURES

- 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

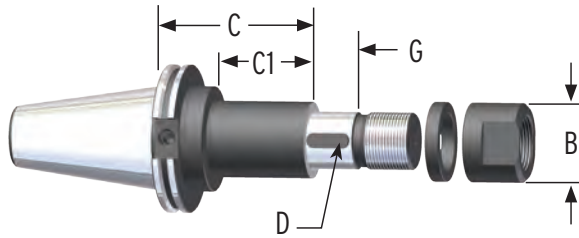
Constructed of 5115 steel preferred for superior fatigue strength and cracking resistance of HSK tooling

| 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"  |

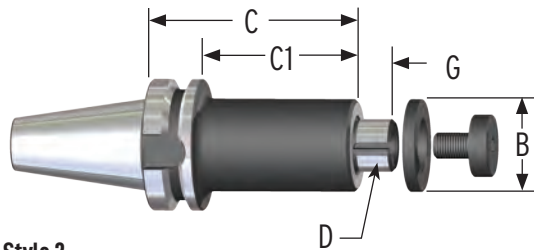


# Production Holders

## 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)



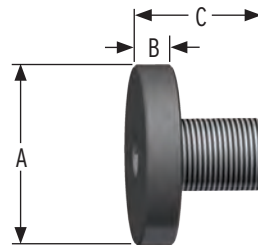
| Part #  | Thread      | Length |
|---------|-------------|--------|
| 013-502 | 1" - 14     | 1.00"  |
| 013-503 | 1-1/4" - 12 | 1.25"  |
| 013-501 | 1-1/2" - 12 | 1.50"  |
| 013-500 | 2" - 12     | 1.75"  |

### 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

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# RAV 430

## DESIGN

The Compact design, along with mentioned specifications, allows for high performance speeds, and long tool life.

## STOP BLOCK

with case hardened bushing and gasket



Case hardened and ground shank and shaft

Positioning pin with automatic release

Modular antirotation group

Standard 150Psi (10 bar) coolant through the pin

Graduated retaining ring

## 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

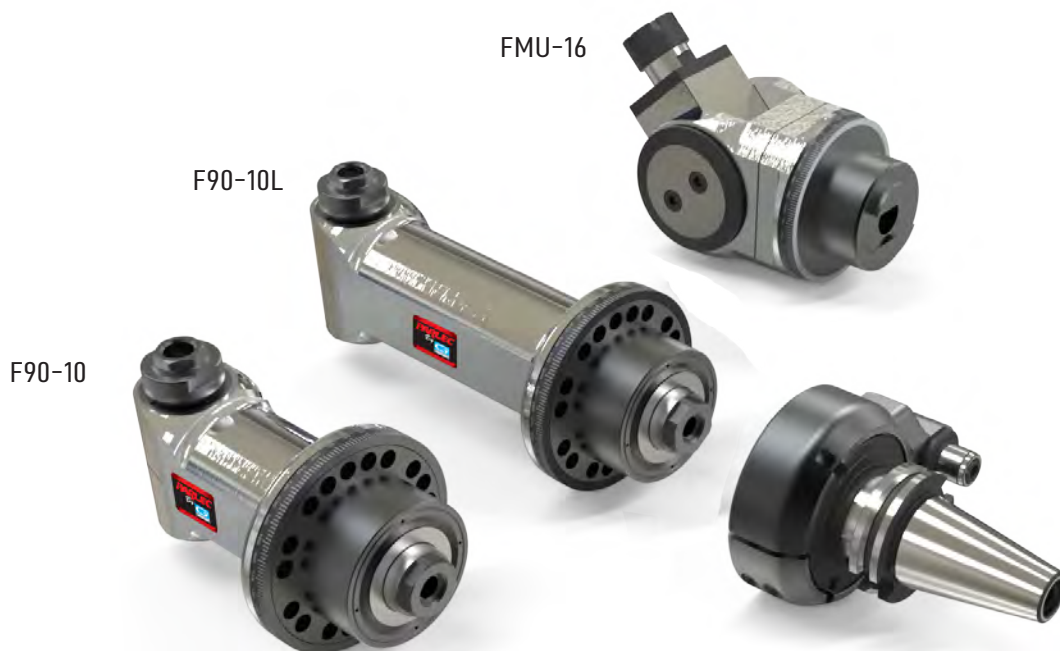


# Angle Heads

**One Head for Many Machines** - Interchangeable drive tapers

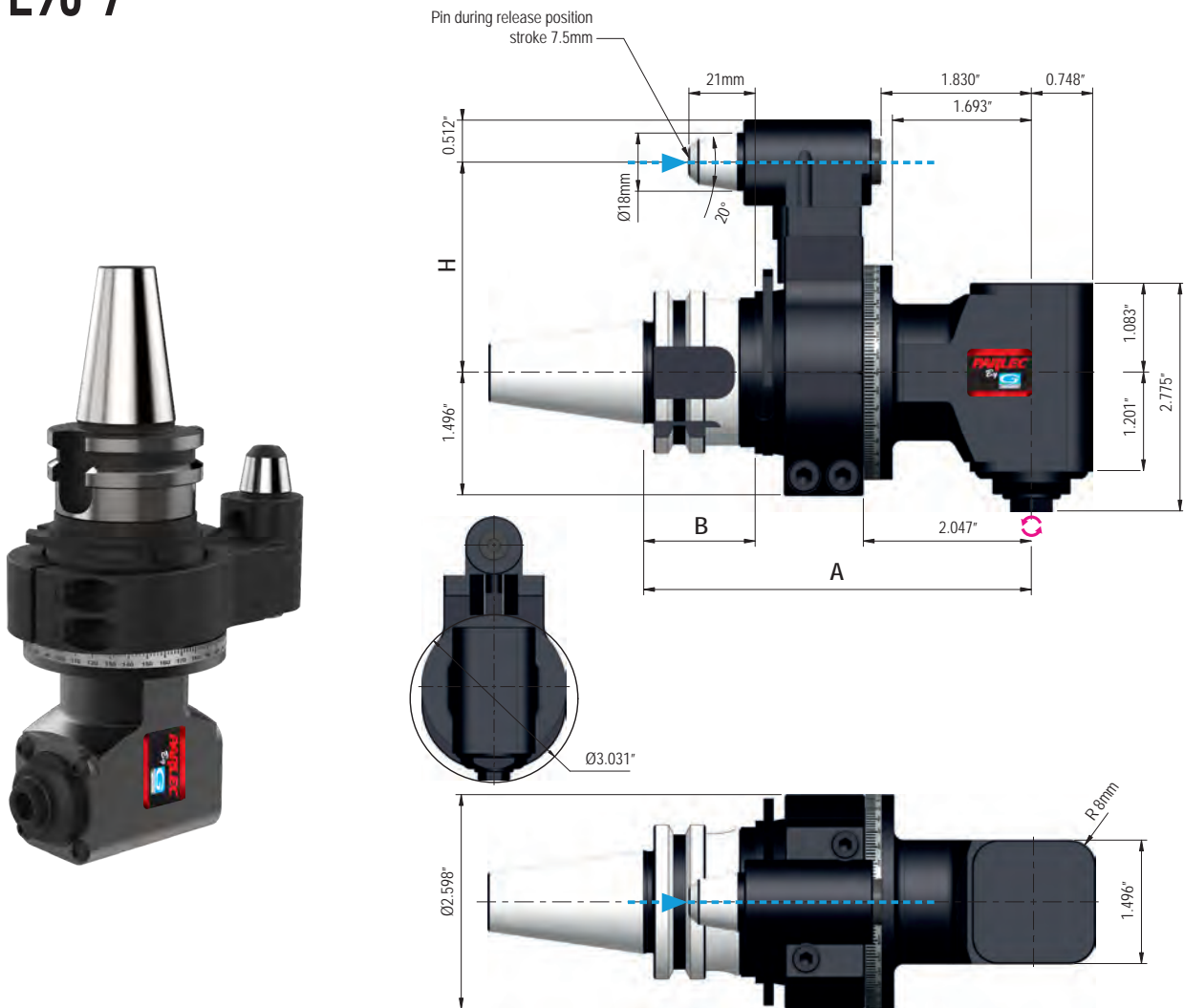


**One Machine with Many Heads** - System reduces cost





## FL90-7



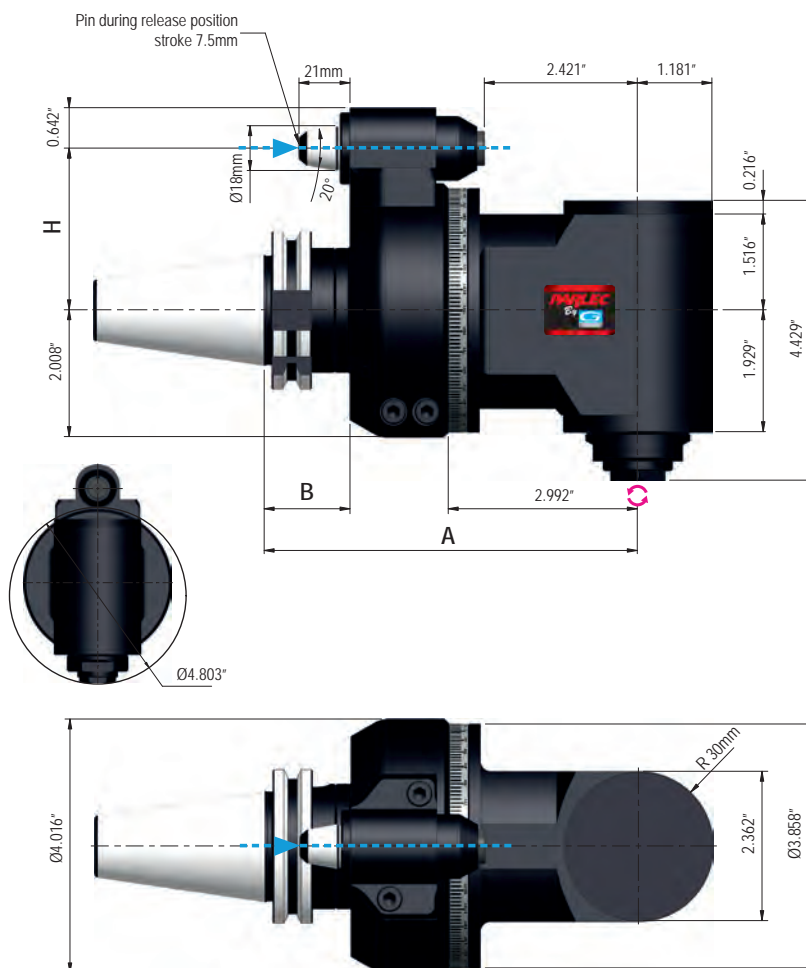
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|--------|
| ER11   | 1/4"       | 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

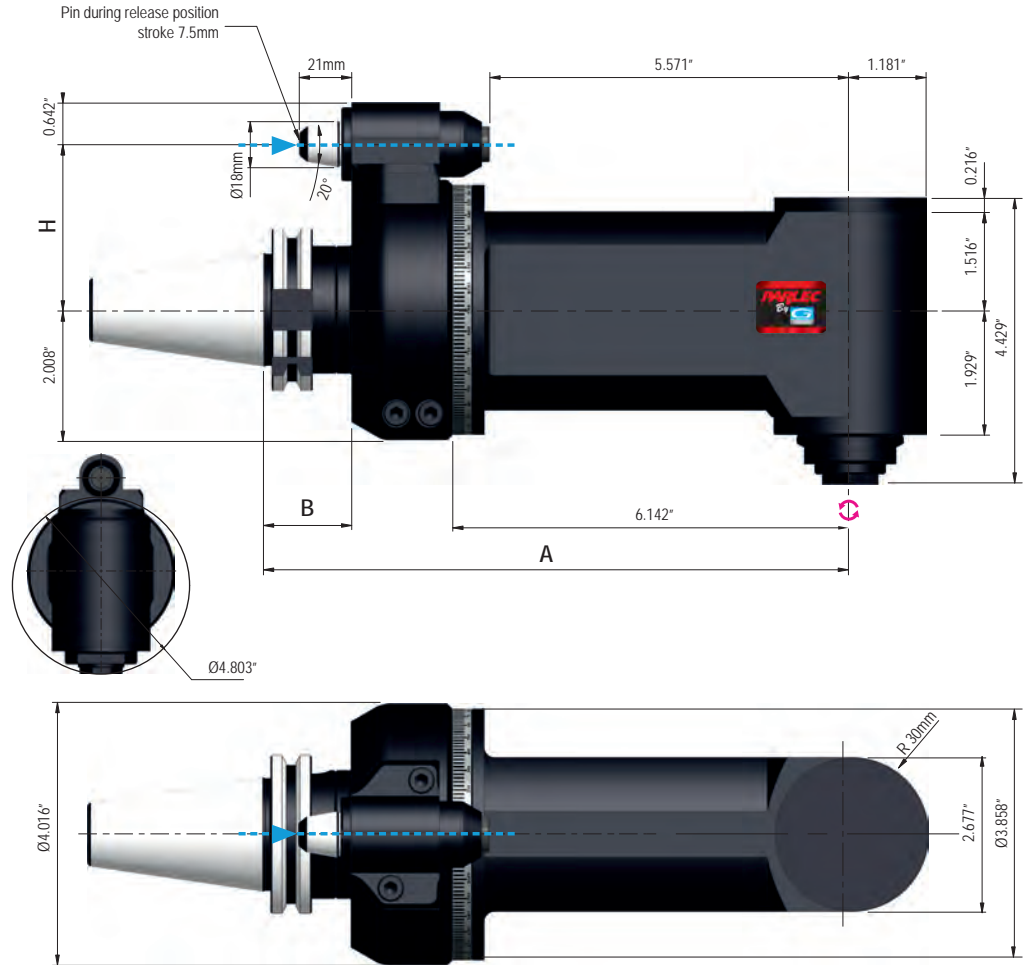


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|--------|
| ER20   | 1/2"       | 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  |

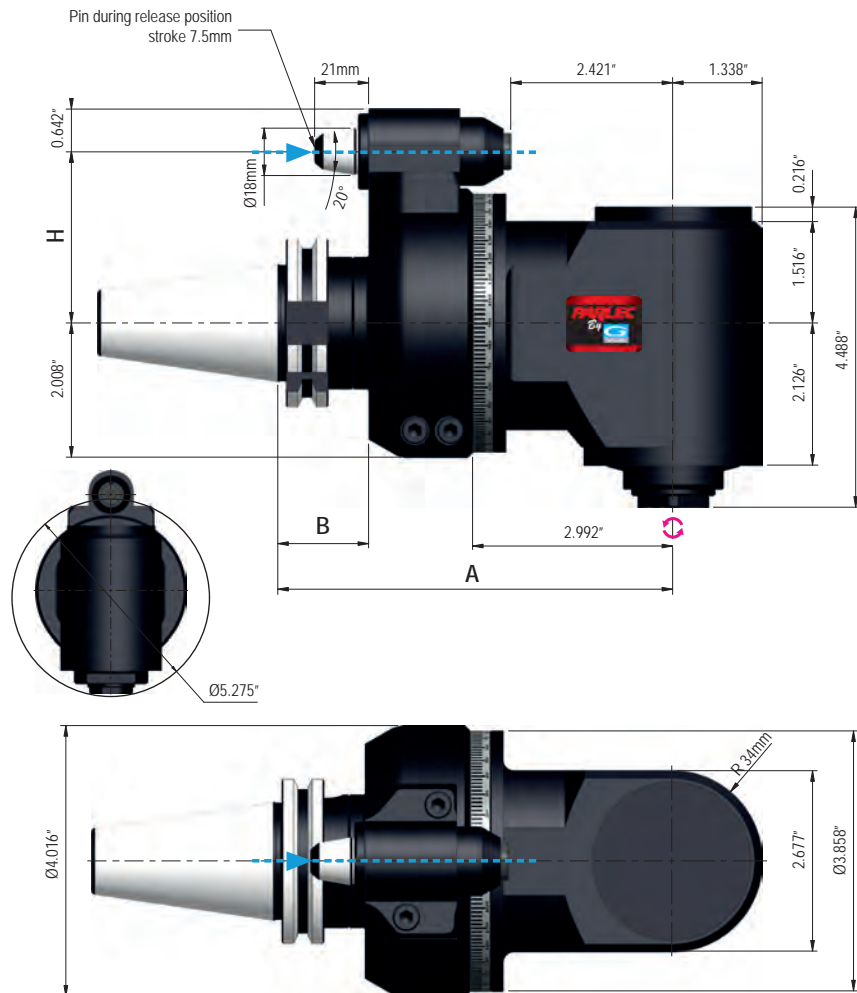
| Spindle Connection | A     | B      | H (mm)     | H Option (mm)          | Weight   |
|--------------------|-------|--------|------------|------------------------|----------|
| CAT 40             | 9.06" | 1.378" | 2.56" (65) | 3.15" / 4.33" (80/110) | 12.6 lbs |
| BT 40              | 9.06" | 1.378" | 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

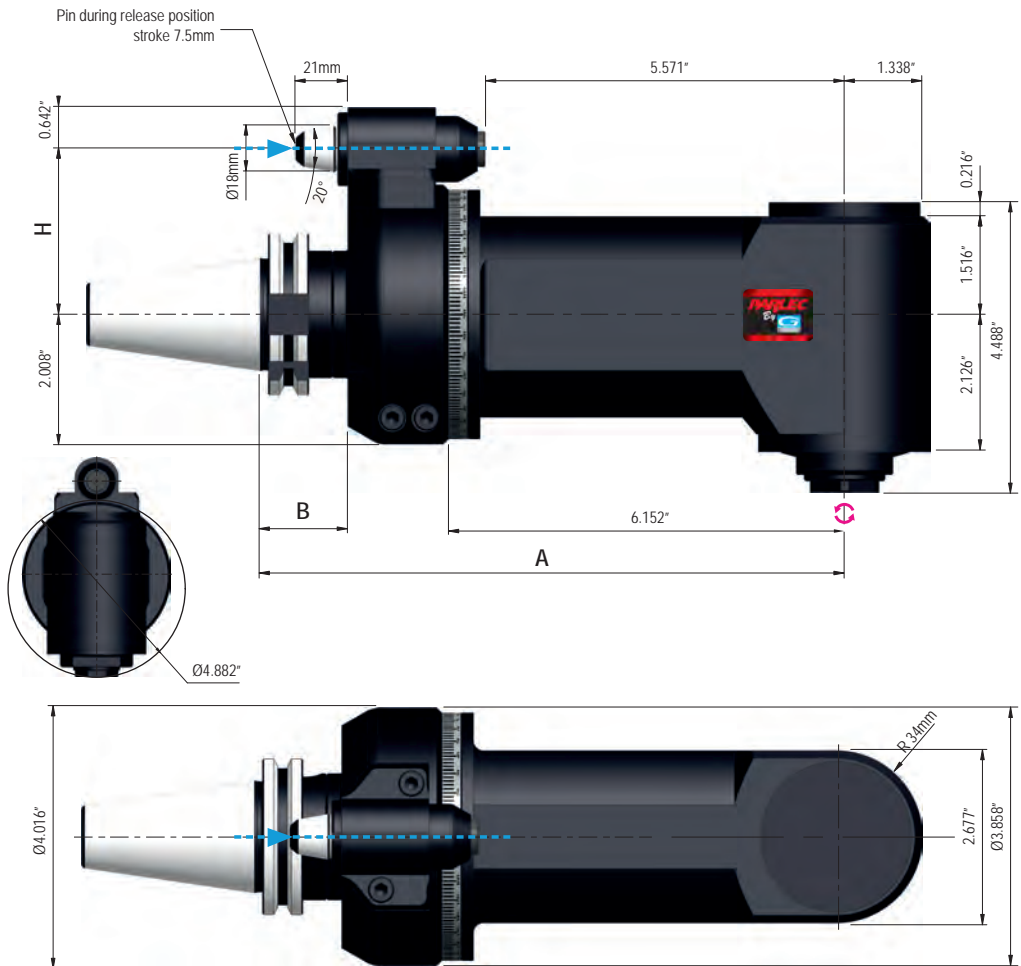


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|--------|
| ER25   | 5/8"       | 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



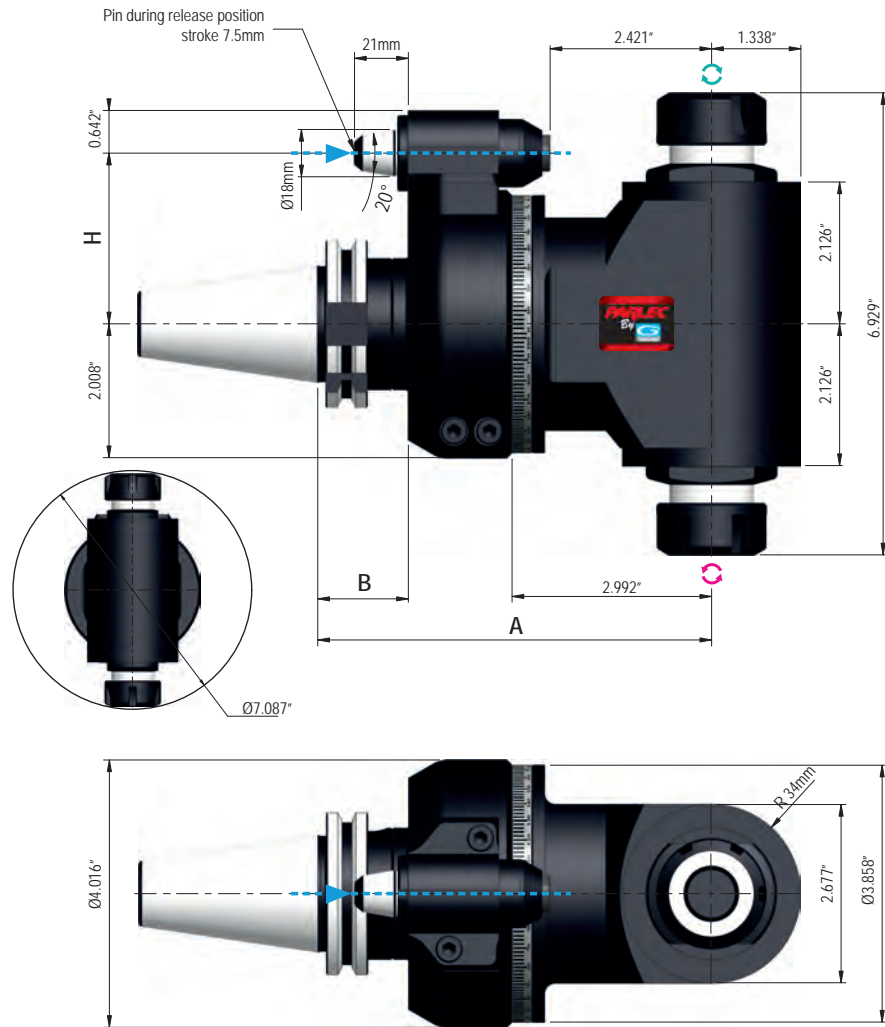
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|--------|
| ER25   | 5/8"       | 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

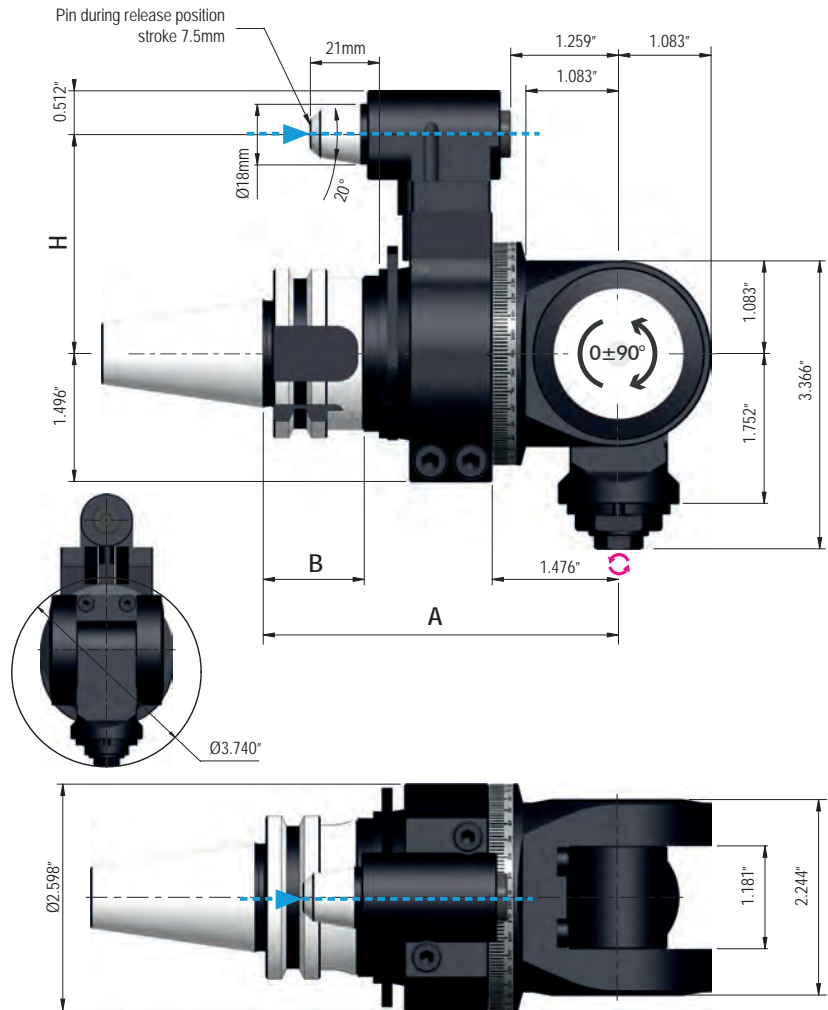


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction            | Series |
|--------|------------|------------|----------|-----------------|------------|-------------------------|------------------------------------|--------|
| ER25   | 5/8"       | 1:1        | 4,000    | 191 ft/lbs      | 230 in/lbs | Through Positioning Pin | One side same/<br>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



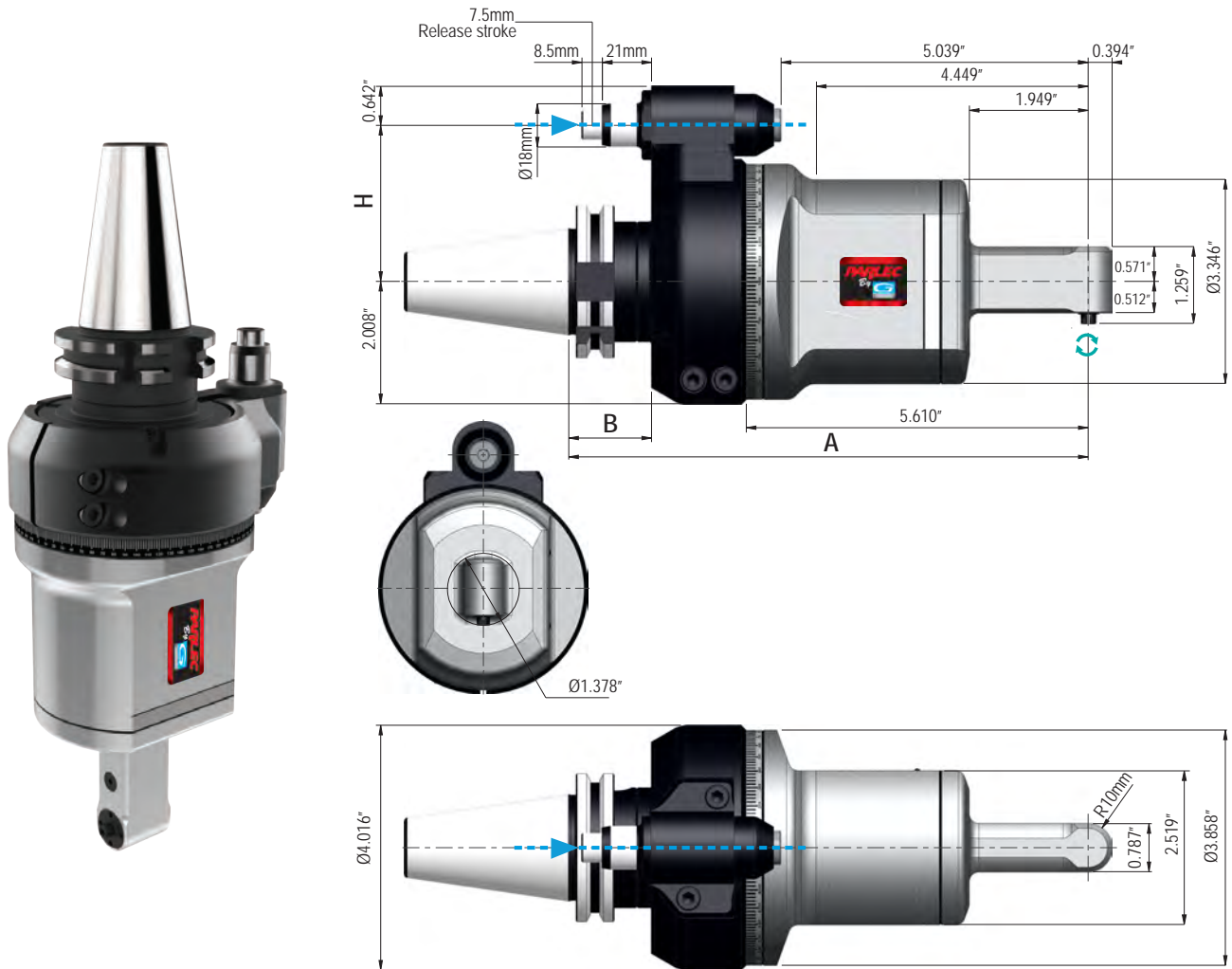
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series            |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|-------------------|
| 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

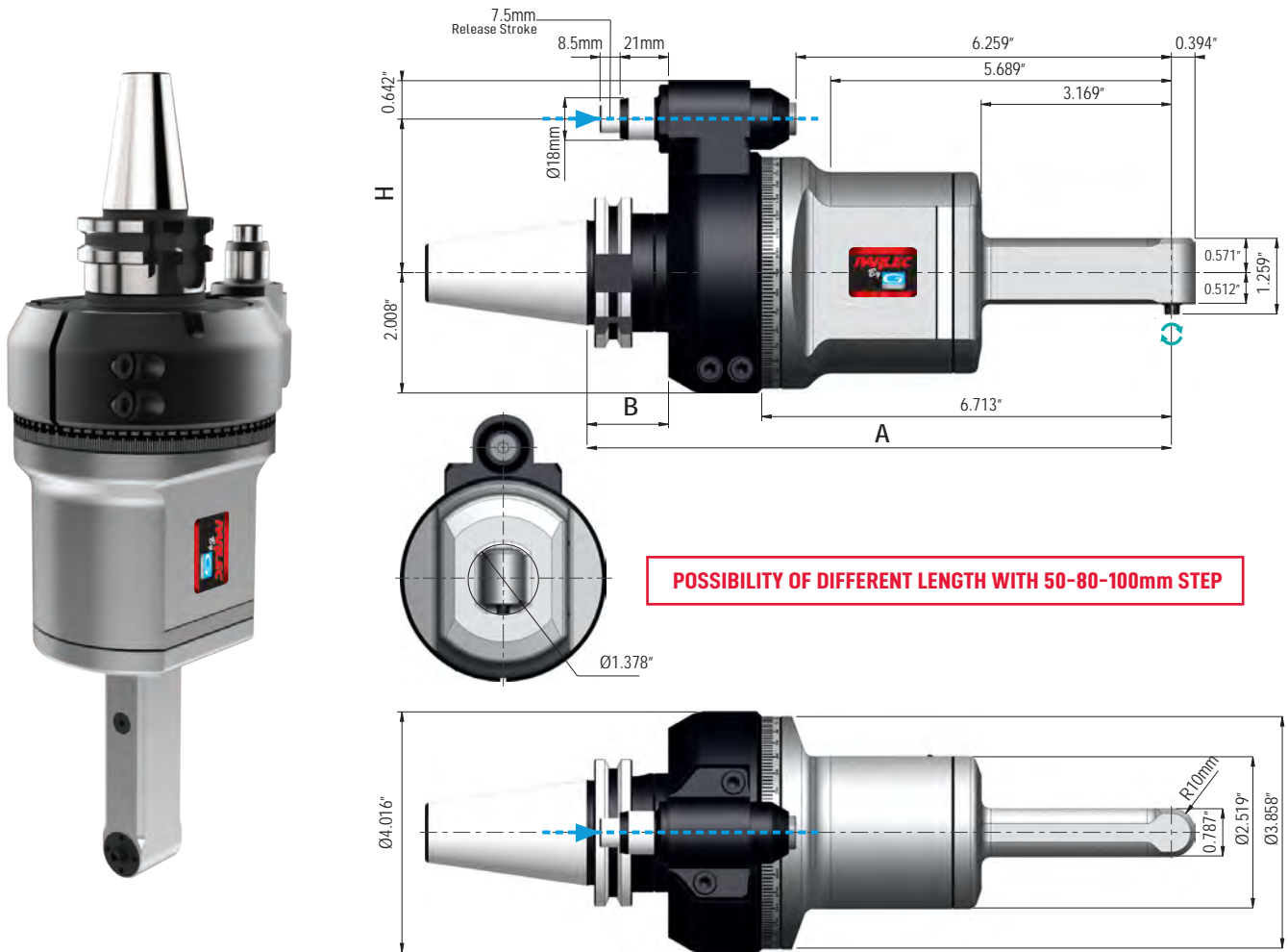


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|--------|
| 6023E  | 3 mm       | 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 |

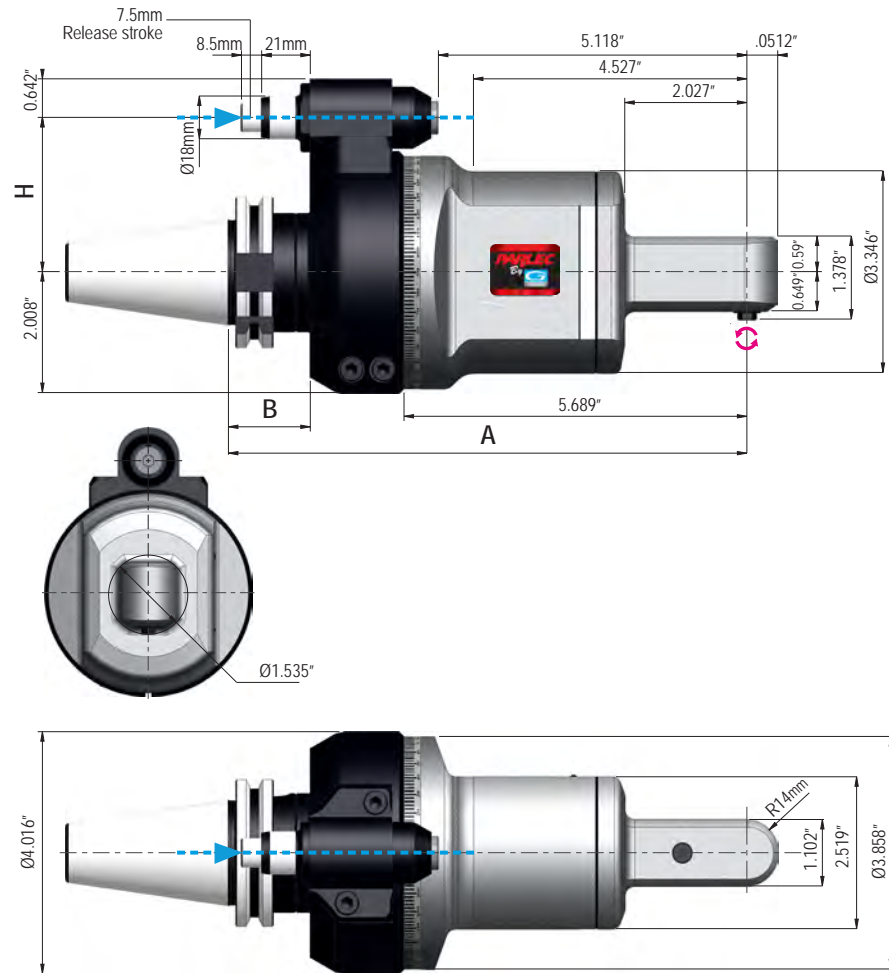
| Spindle Connection | A     | B      | H (mm)     | H Option (mm)          | Weight   |
|--------------------|-------|--------|------------|------------------------|----------|
| CAT 40             | 9.74" | 1.378" | 2.56" (65) | 3.15" / 4.33" (80/110) | 14.1 lbs |
| BT 40              | 9.74" | 1.378" | 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



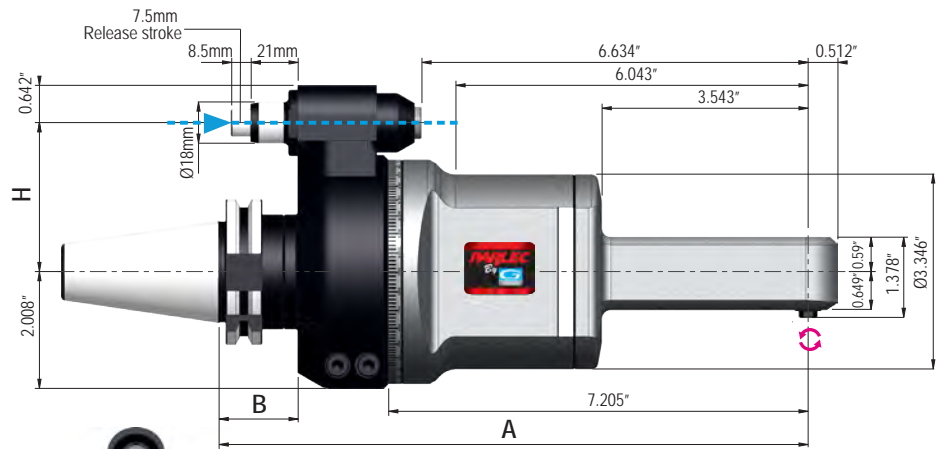
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|--------|
| 600E   | 4 mm       | 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 |

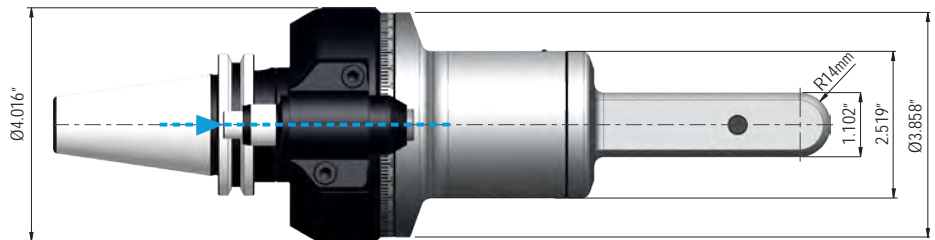
\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93..



## FS90-4L



**POSSIBILITY OF DIFFERENT LENGTH WITH 50-80-100mm STEP**



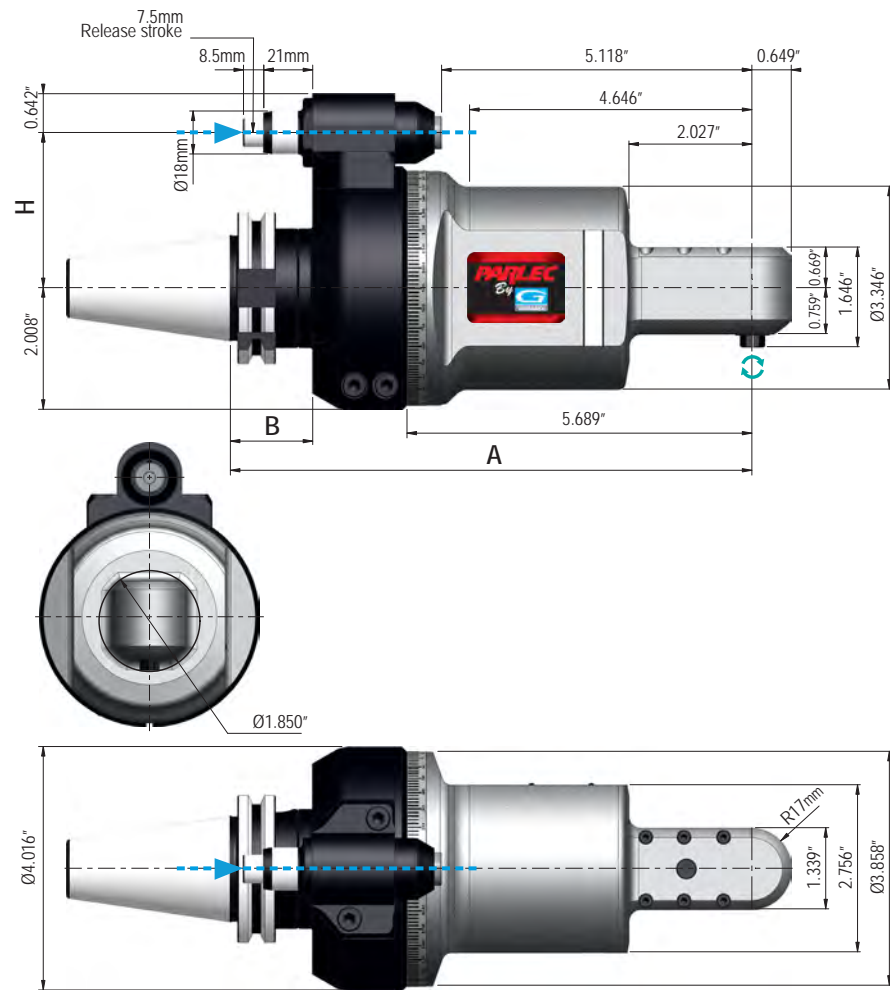
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series            |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|-------------------|
| 600E   | 4 mm       | 1:1        | 8,000    | 27 ft/lbs       | 31 in/lbs | Through Positioning Pin | Opposite Spindle        | Slim,<br>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

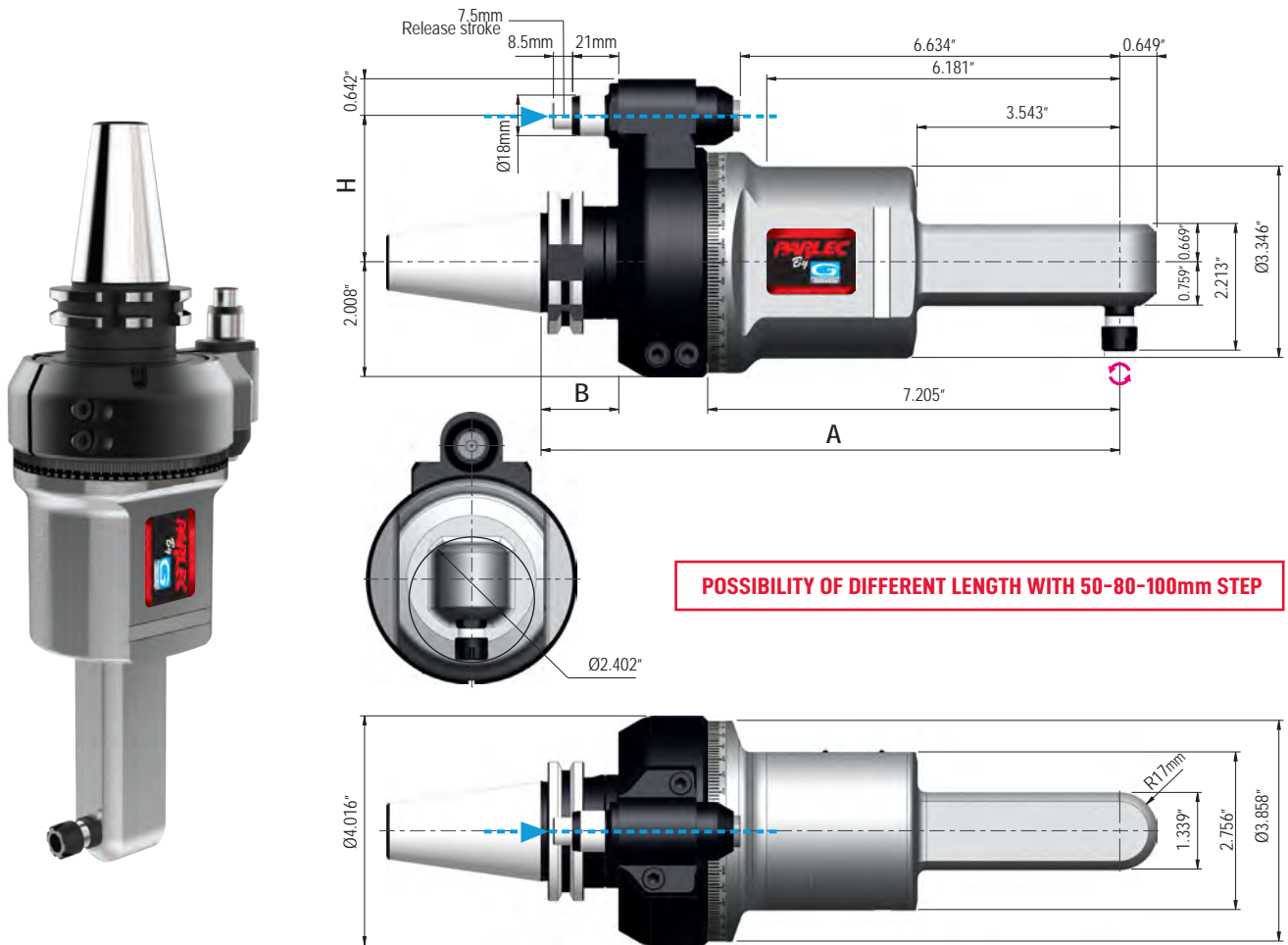


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|--------|
| 601E   | 6 mm       | 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



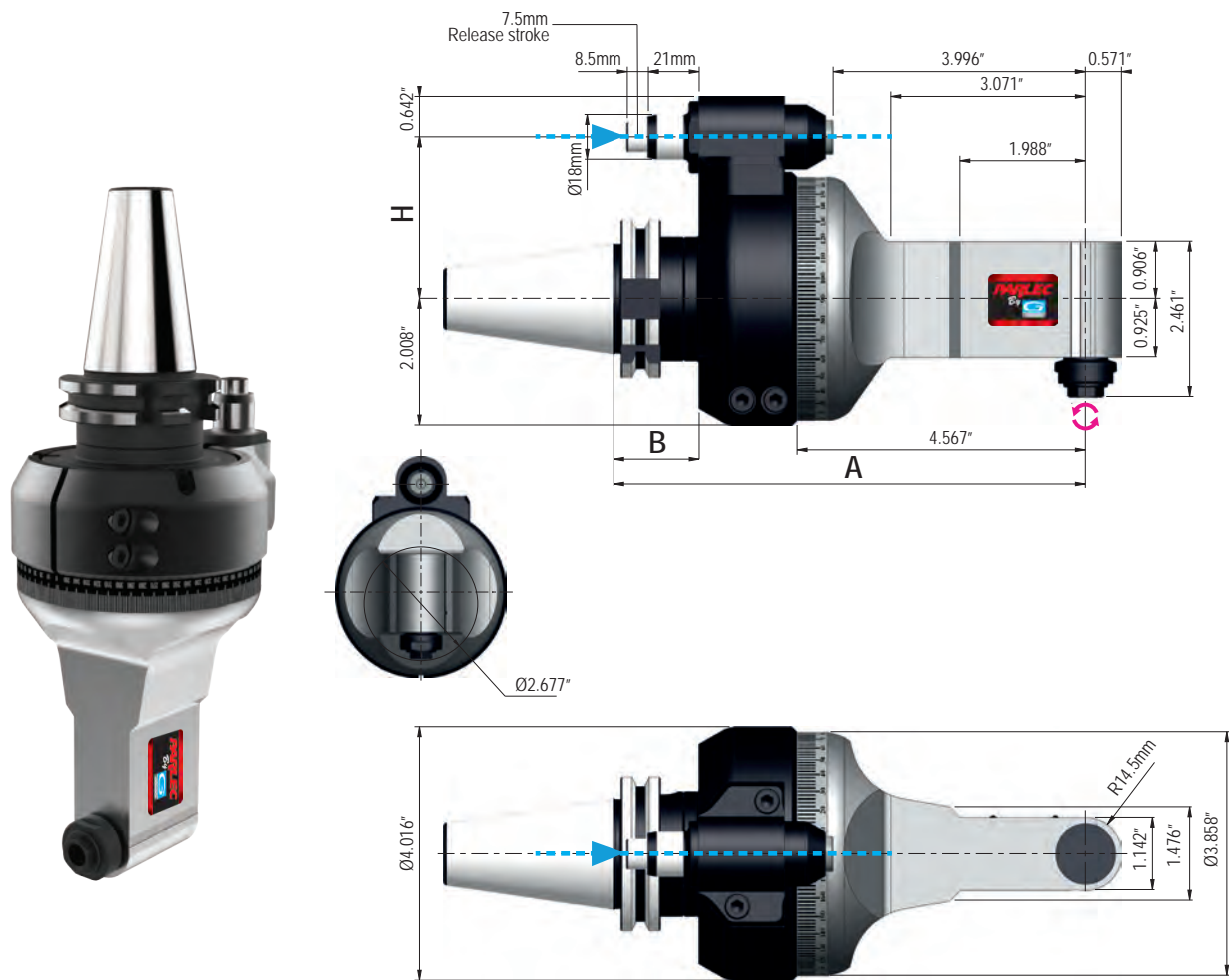
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series            |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|-------------------|
| ER11   | 1/4"       | 1:1        | 8,000    | 34 ft/lbs       | 35 in/lbs | Through Positioning Pin | Opposite Spindle        | Slim,<br>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

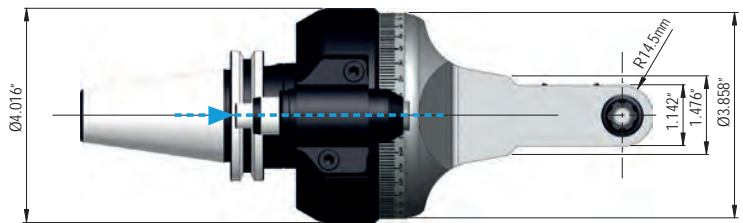
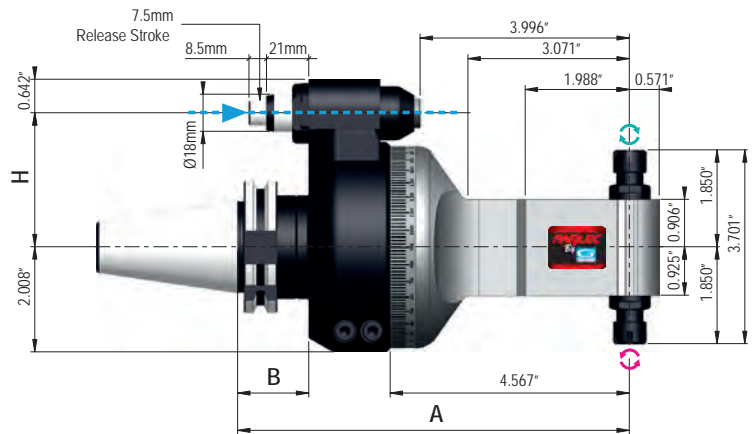
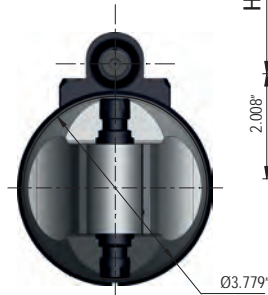


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series   |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|----------|
| ER11   | 1/4"       | 1:1        | 10,000   | 29 ft/lbs       | 53 in/lbs | Through Positioning Pin | Opposite Spindle        | Standard |

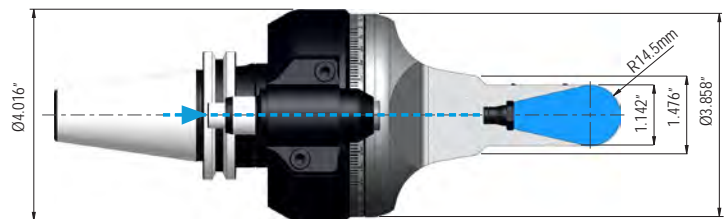
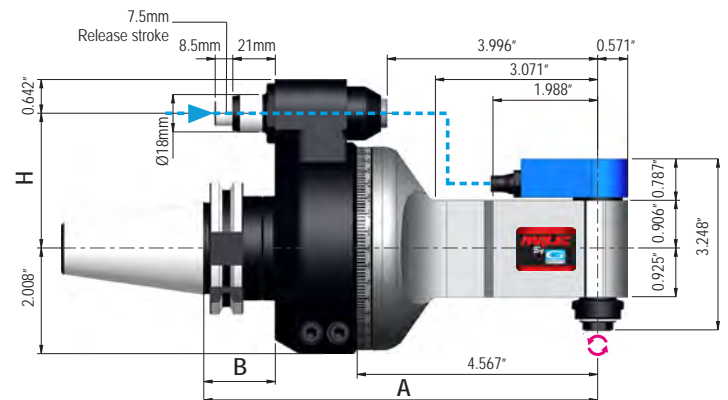
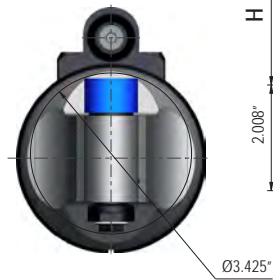
| Spindle Connection | A     | B      | H (mm)     | H Option (mm)          | Weight   |
|--------------------|-------|--------|------------|------------------------|----------|
| CAT 40             | 7.48" | 1.378" | 2.56" (65) | 3.15" / 4.33" (80/110) | 11.0 lbs |
| BT 40              | 7.48" | 1.378" | 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

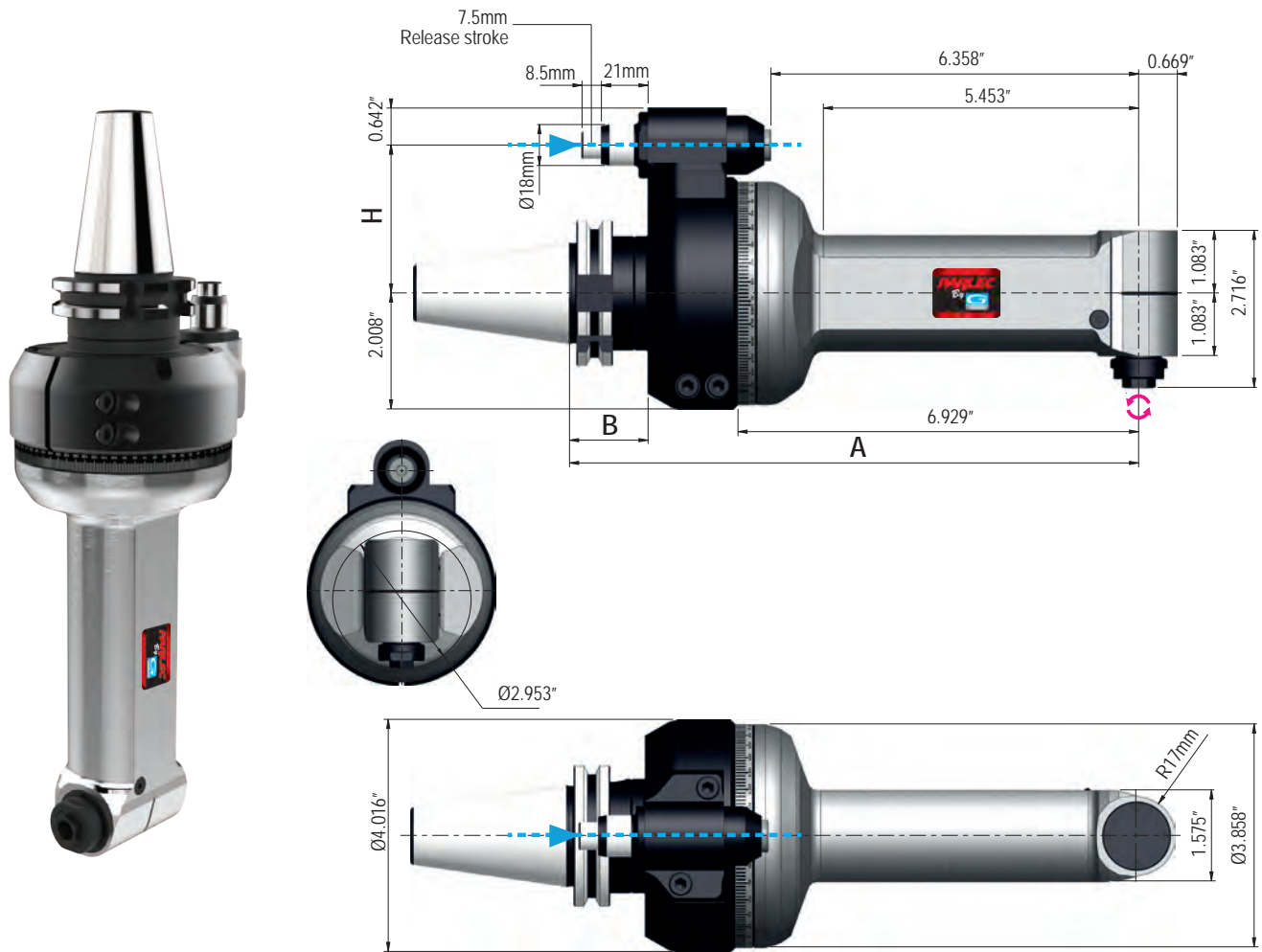


## F90-7C



# Angle Heads

## F90-7L



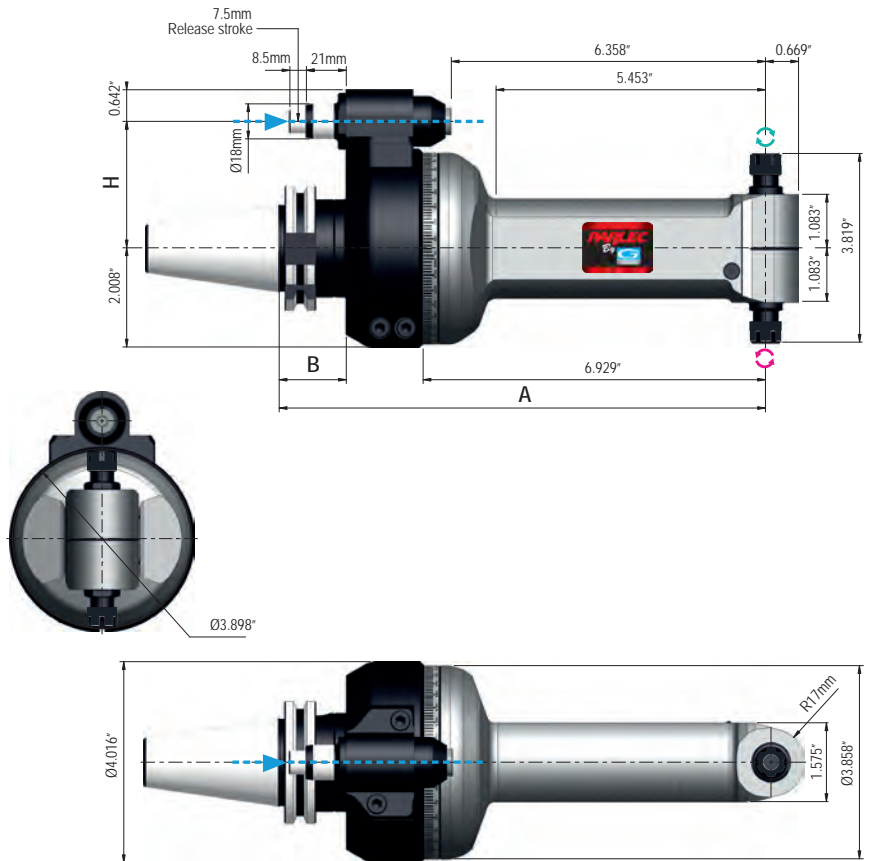
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series             |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|--------------------|
| 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 |

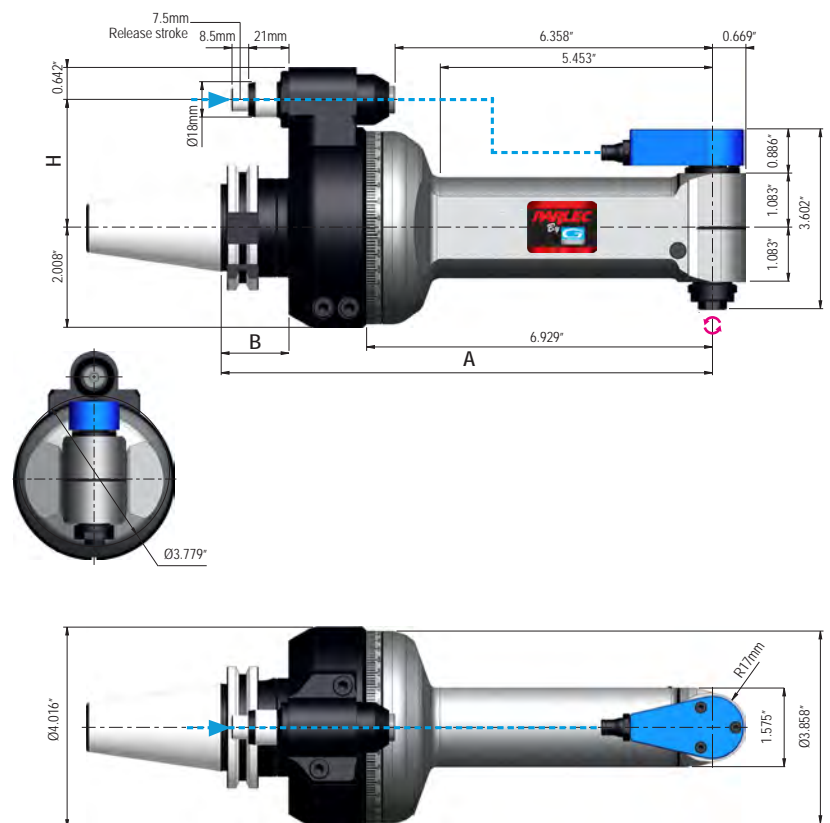
\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.



## F90-7LD



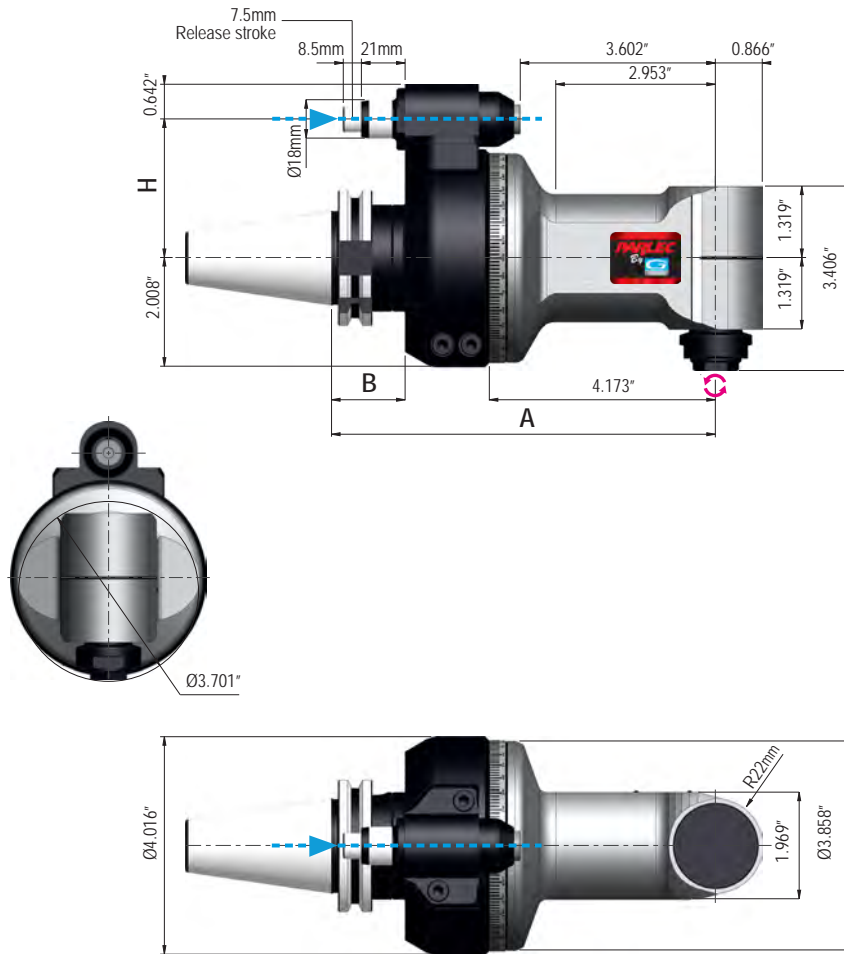
## F90-7LC





# Angle Heads

## F90-10

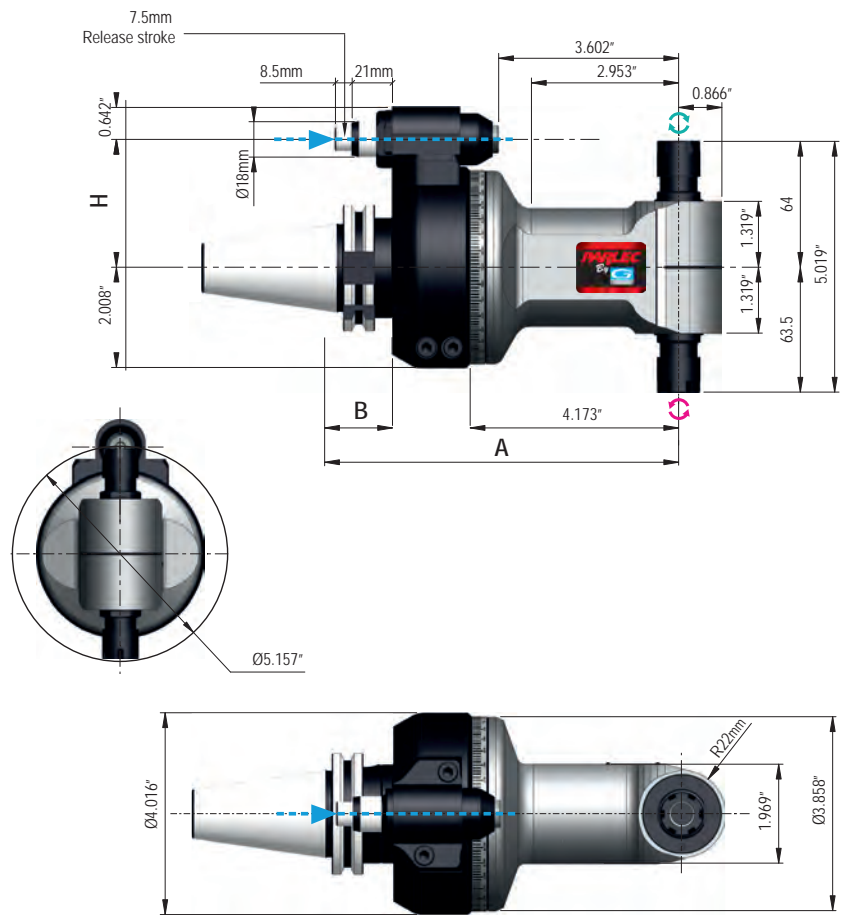


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series   |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|----------|
| ER16   | 3/8"       | 1:1        | 10,000   | 90 ft/lbs       | 97 in/lbs | Through Positioning Pin | Opposite Spindle        | Standard |

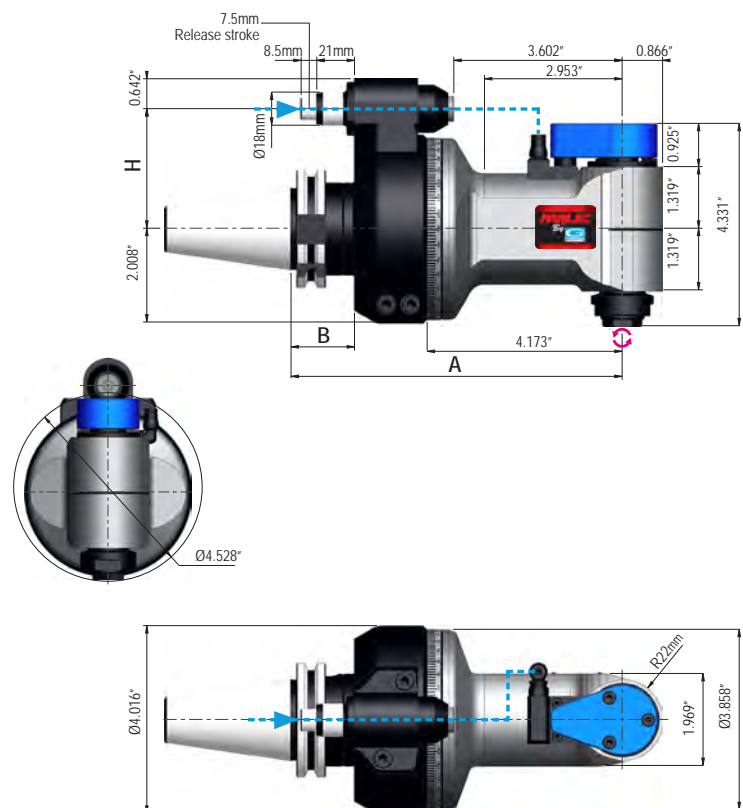
| Spindle Connection | A     | B      | H (mm)     | H Option (mm)          | Weight   |
|--------------------|-------|--------|------------|------------------------|----------|
| CAT 40             | 7.09" | 1.378" | 2.56" (65) | 3.15" / 4.33" (80/110) | 11.6 lbs |
| BT 40              | 7.09" | 1.378" | 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

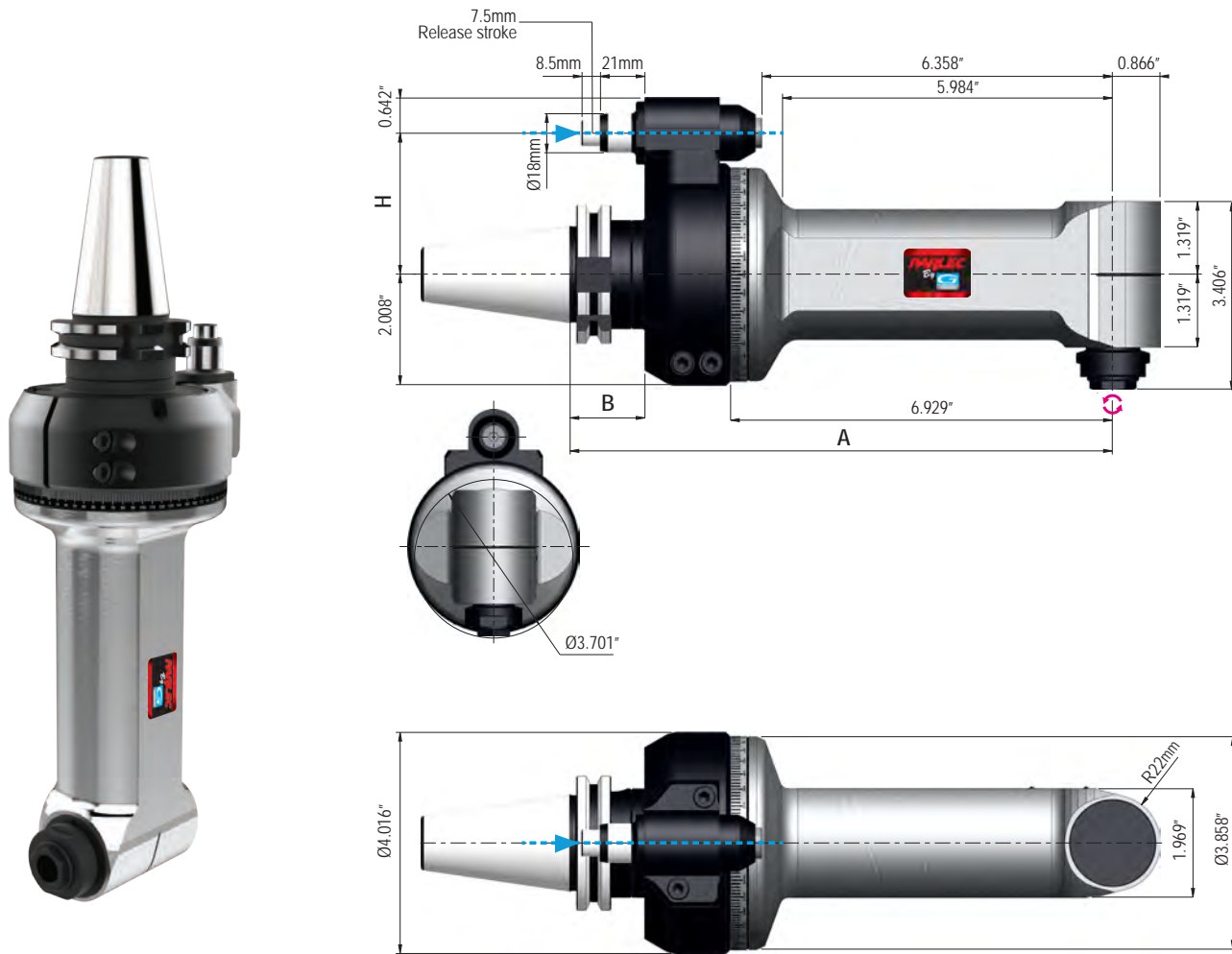


## F90-10C



# Angle Heads

## F90-10L

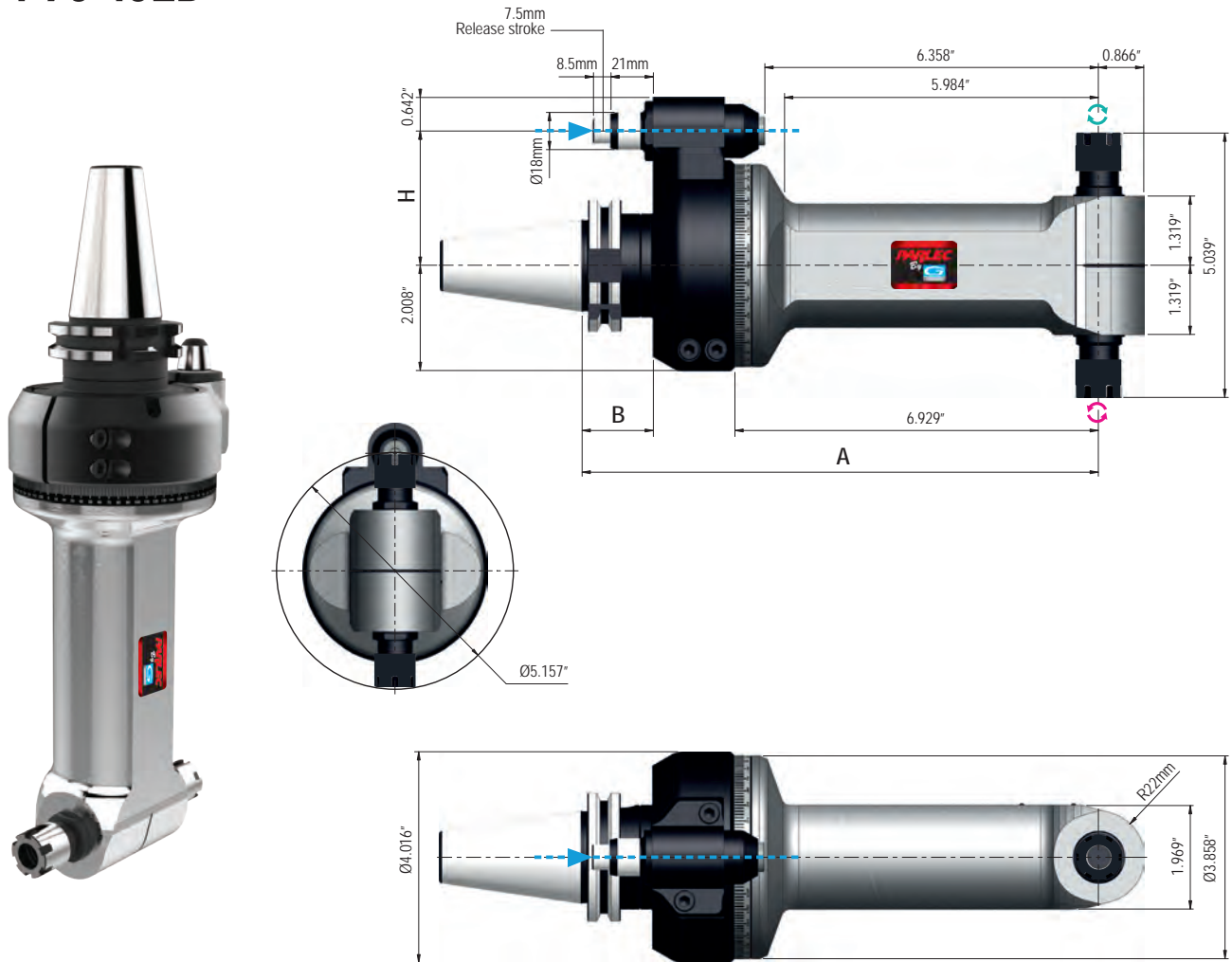


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series             |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|--------------------|
| 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



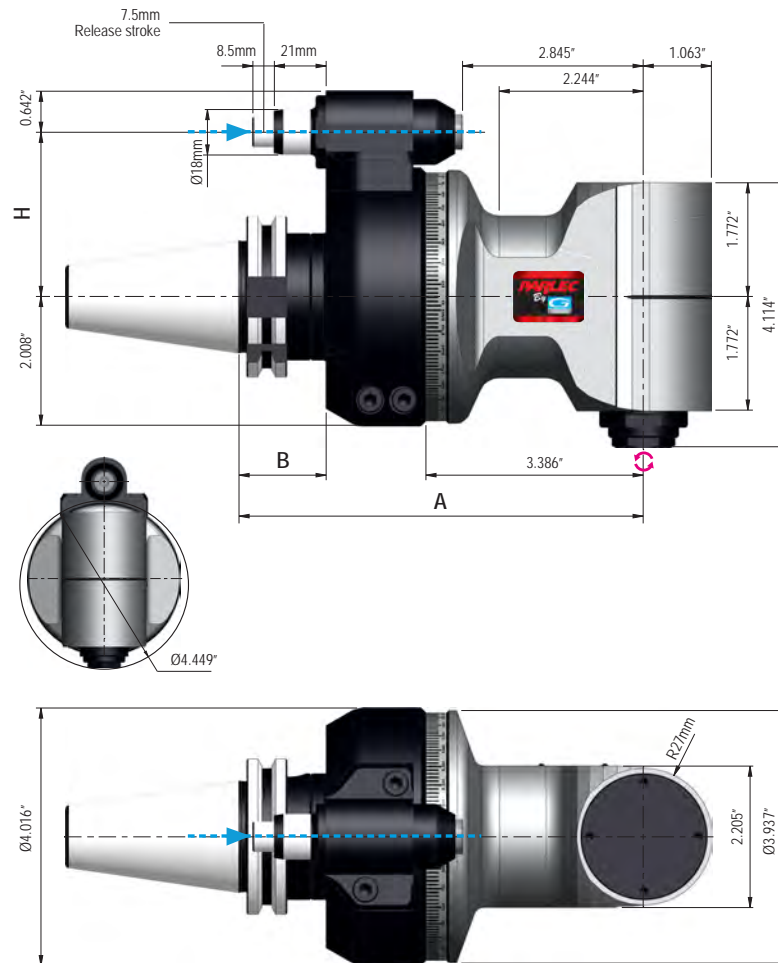
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction         | Series                  |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|---------------------------------|-------------------------|
| 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



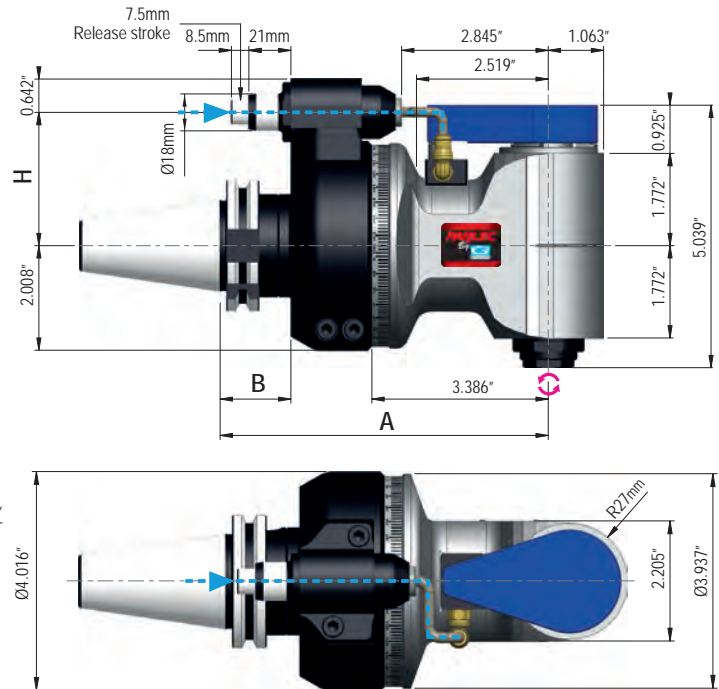
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series   |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|----------|
| ER20   | 1/2"       | 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 |

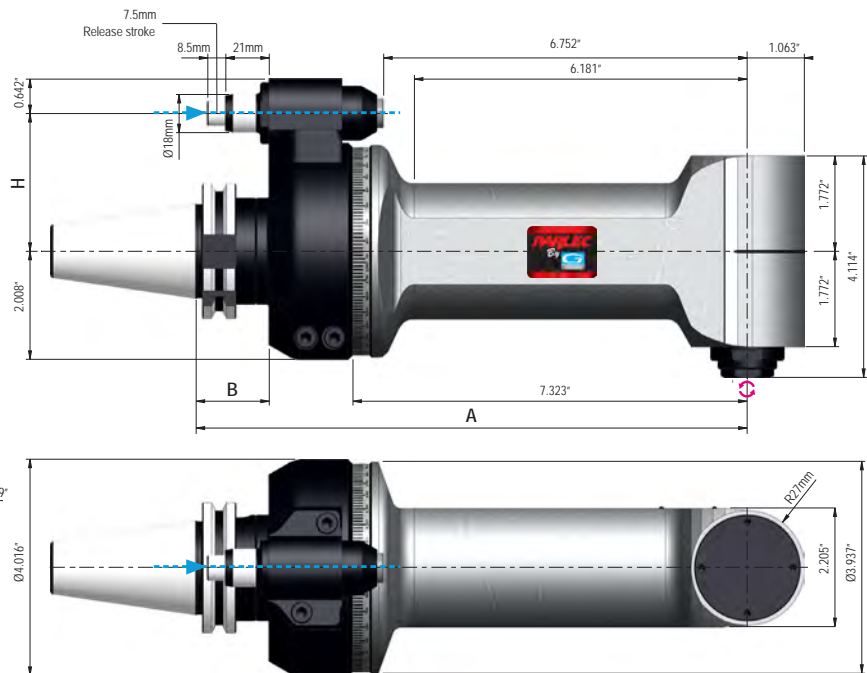
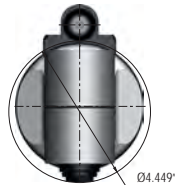
\* Other spindle connections available: BT50, HSK80A, C5/6/8, and KM63/80/100. Collets sold separately. See pages 76-93.



## F90-13C



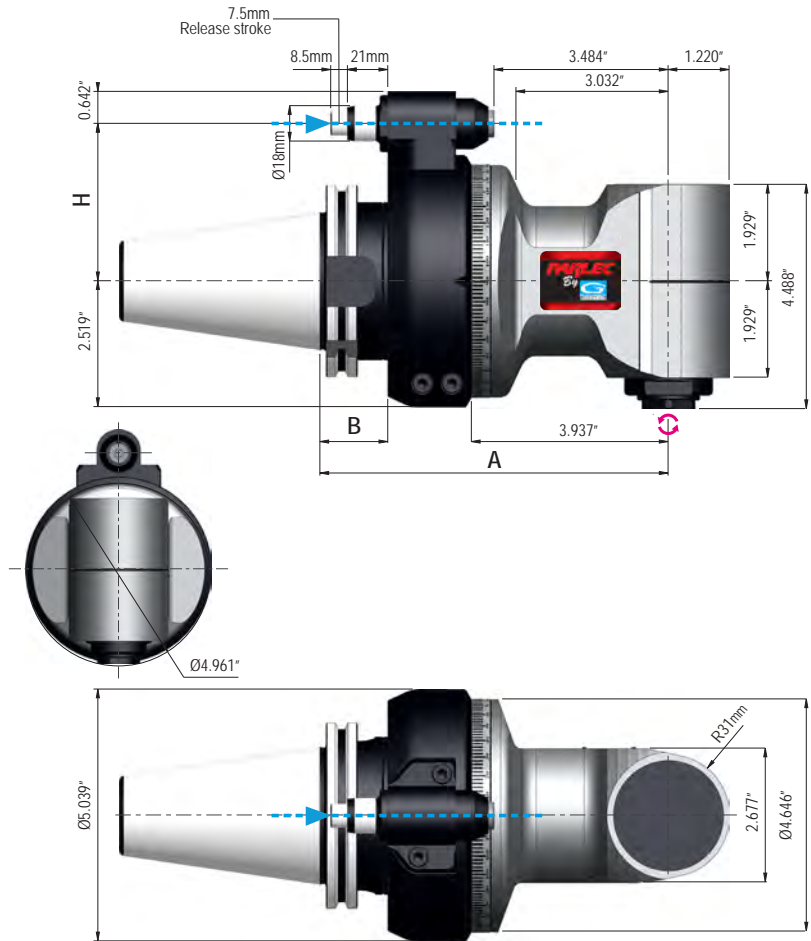
## F90-13L



| 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 |

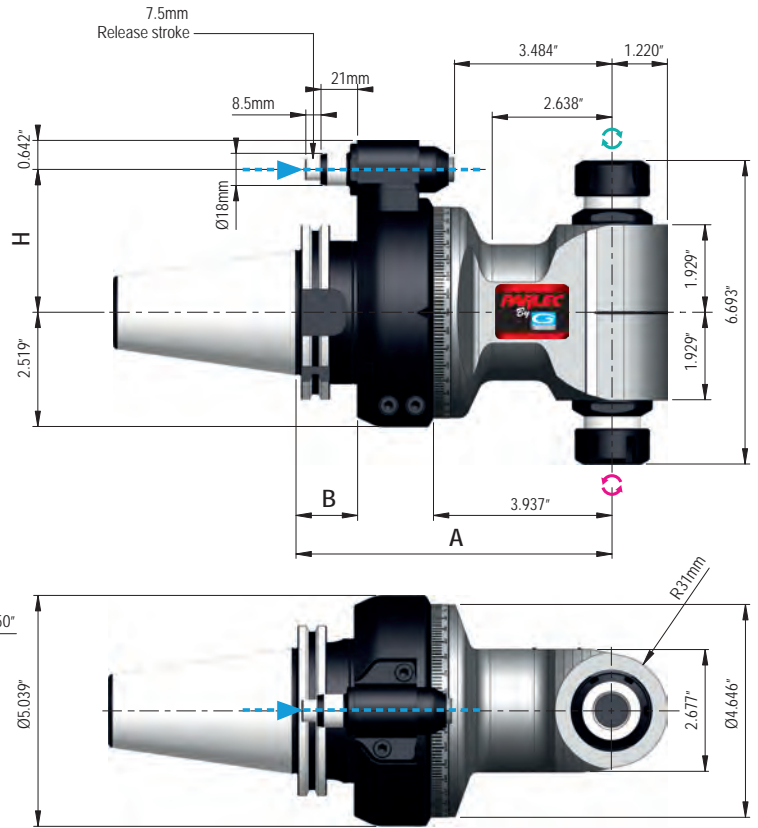
\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.



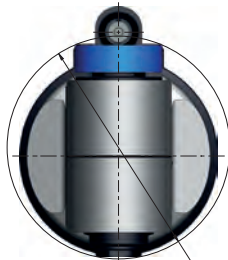
## F90-16D



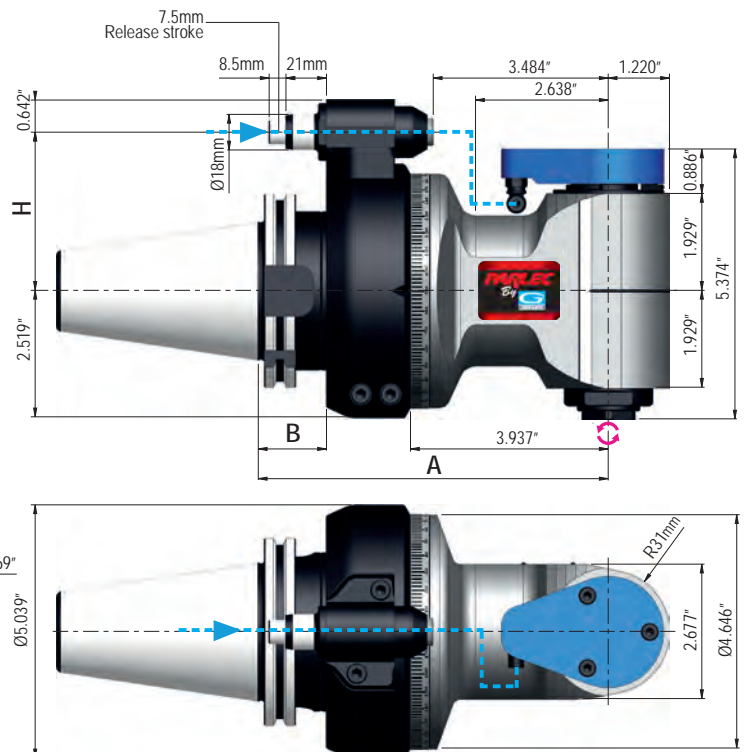
Ø6.850"



## F90-16C

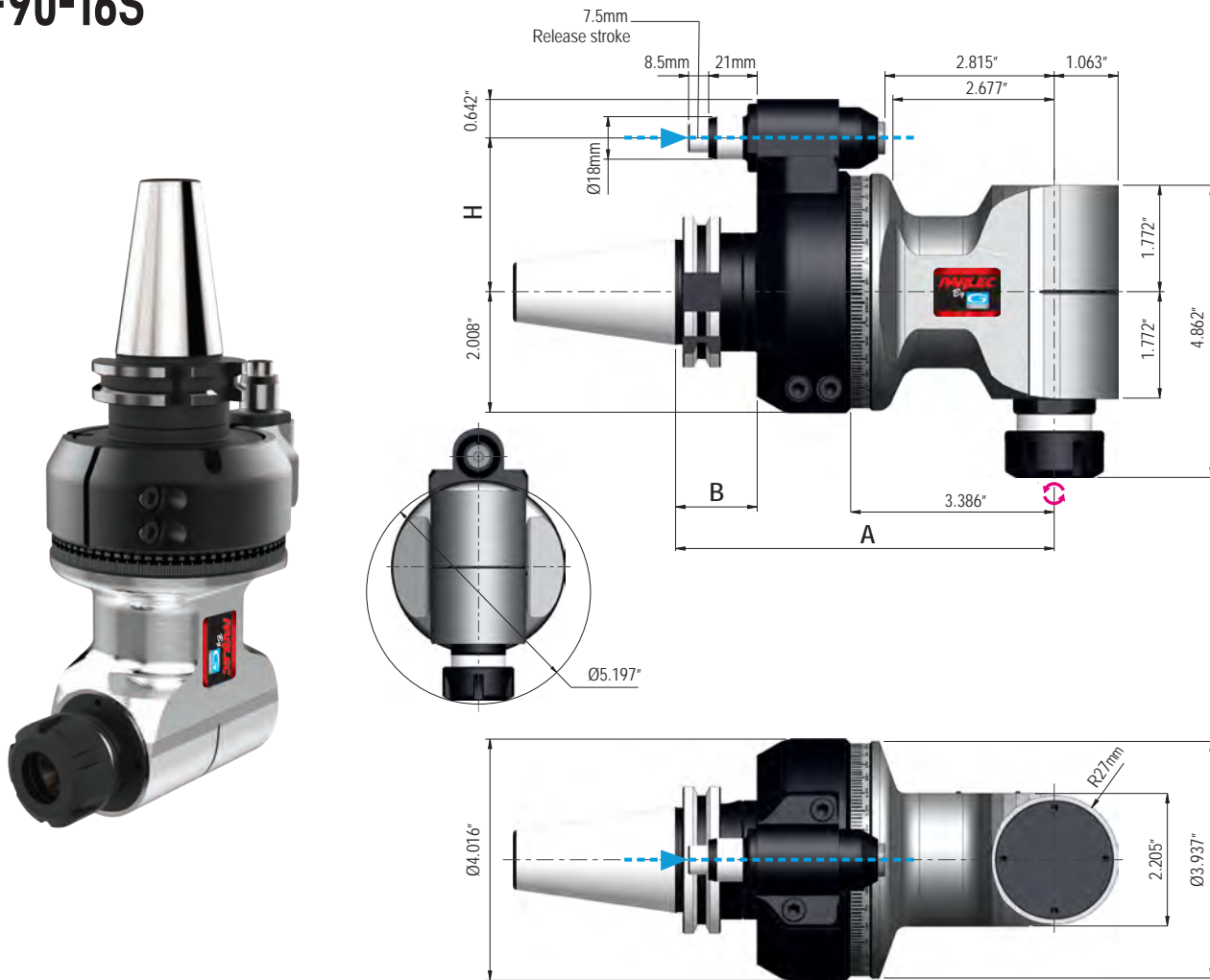


Ø5.669"



# Angle Heads

## F90-16S

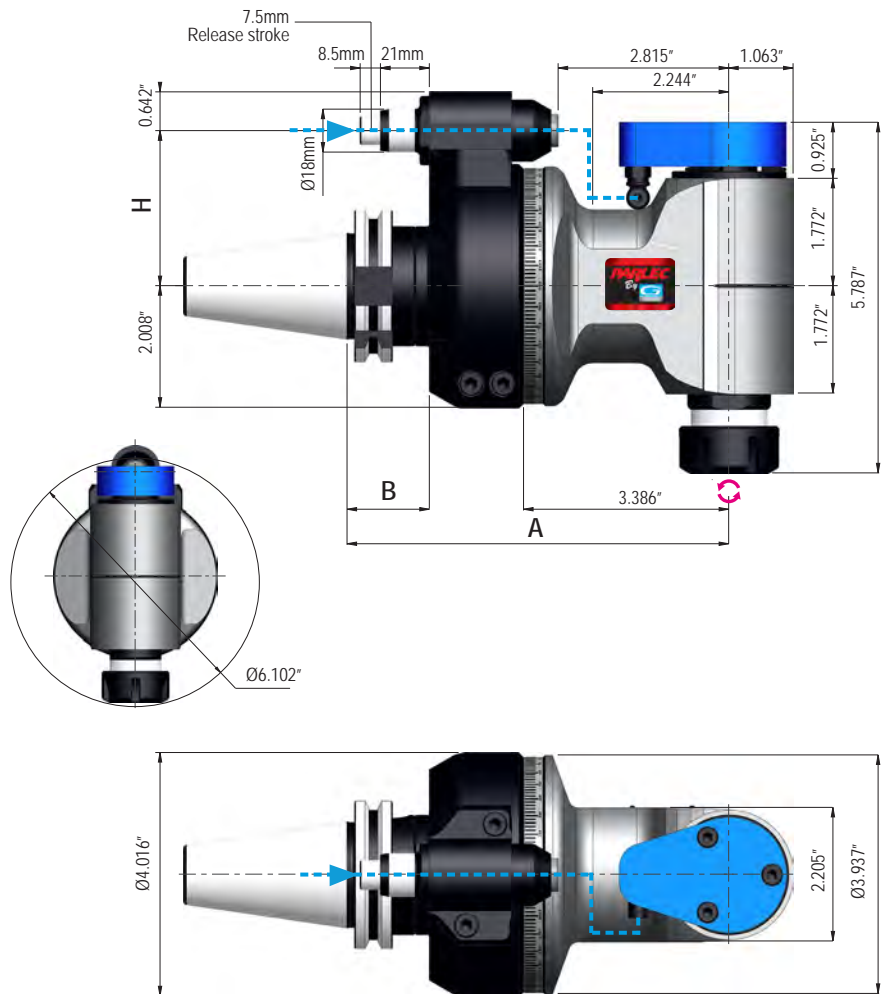


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series   |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|----------|
| ER25   | 5/8"       | 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



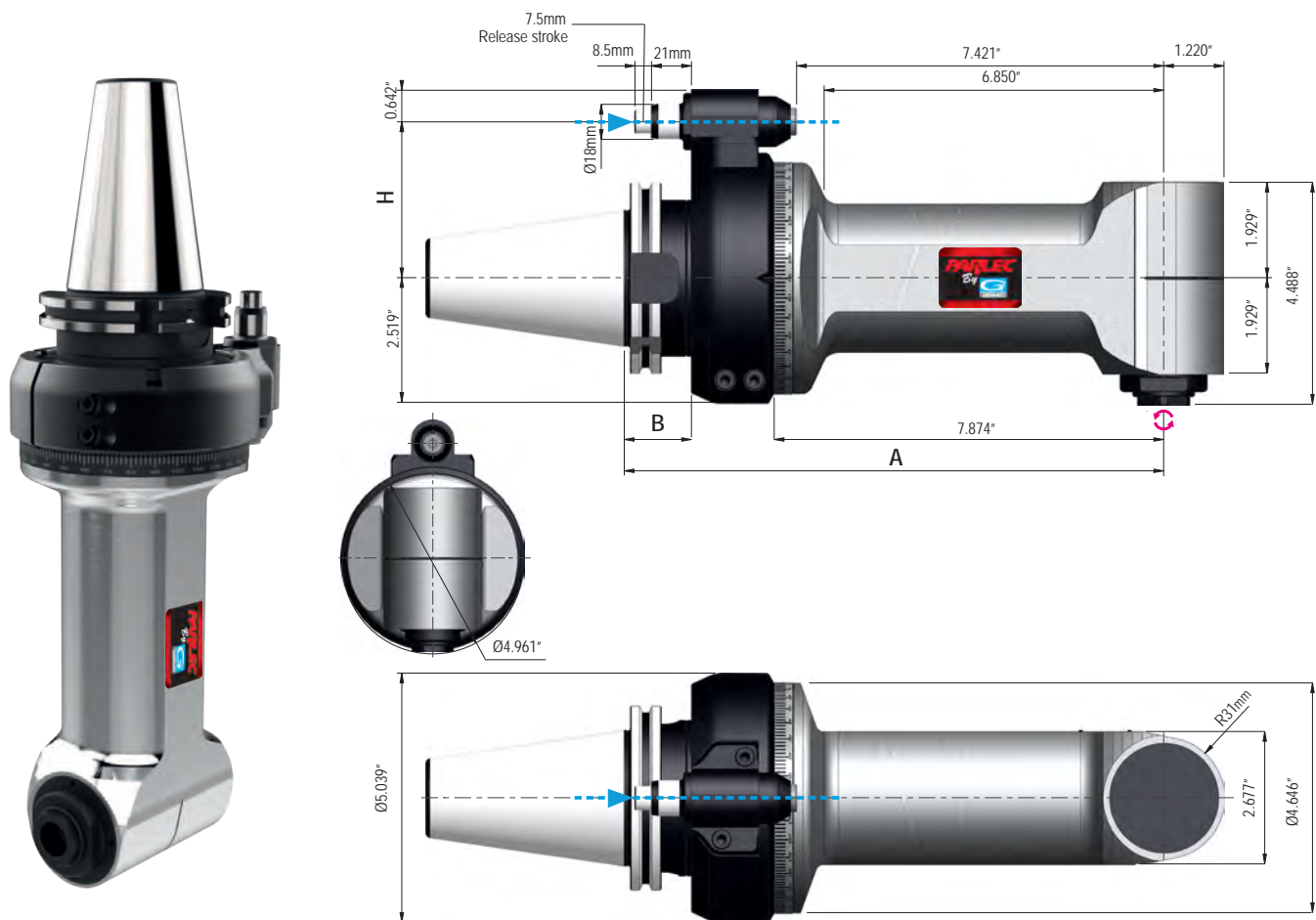
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series            |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|-------------------|
| 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

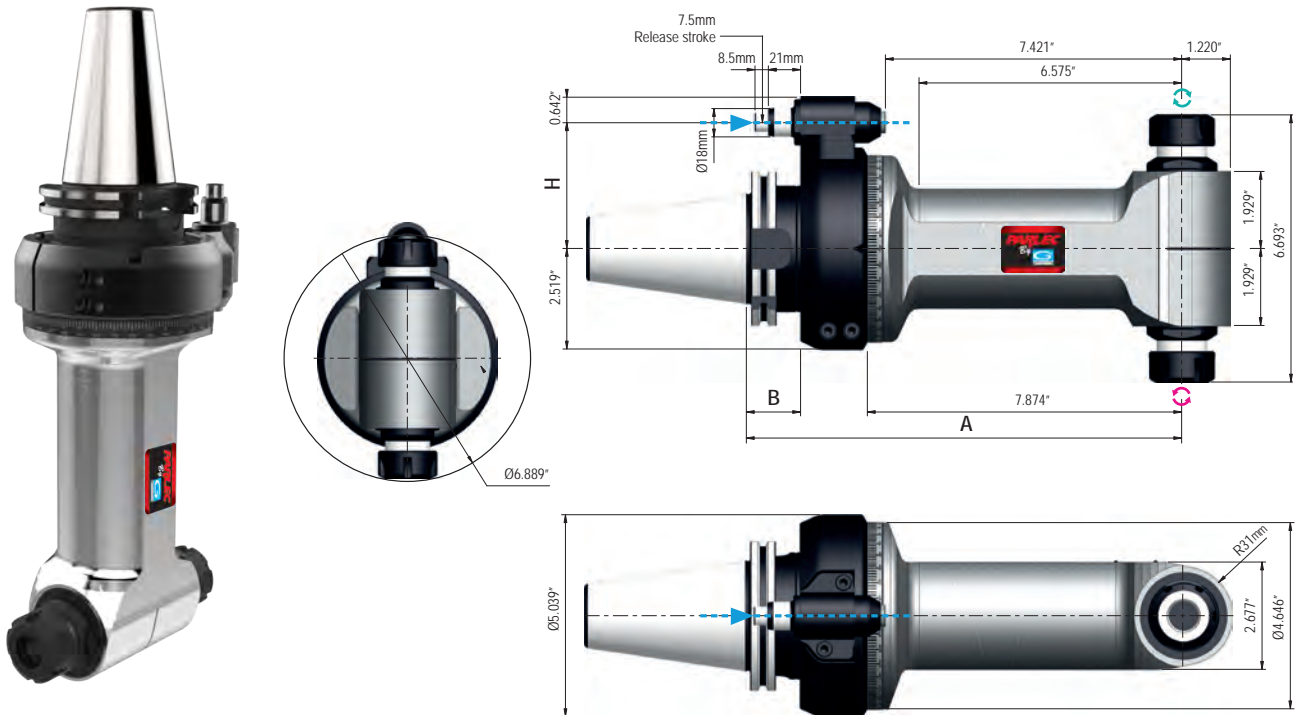


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series                |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|-----------------------|
| ER25   | 5/8"       | 1:1        | 5,000    | 234 ft/lbs lbs  | 407 in/lbs | Through Positioning Pin | Opposite Spindle        | Standard.<br>Extended |

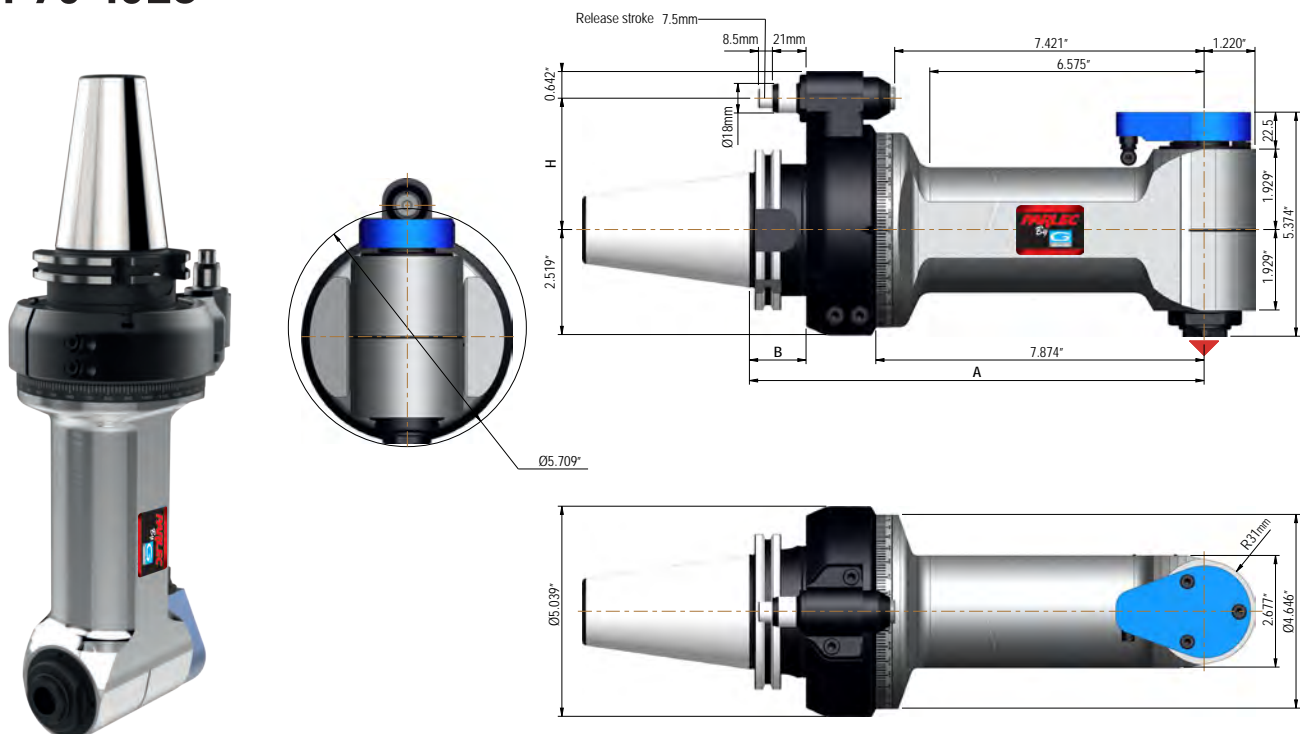
| Spindle Connection | A      | B      | H (mm)     | H Option (mm) | Weight |
|--------------------|--------|--------|------------|---------------|--------|
| CAT 50             | 10.91" | 1.378" | 3.15" (80) | 4.33" (110)   | 28 lbs |
| HSK100A            | 11.26" | 1.811" | 3.15" (80) | 4.33" (110)   | 28 lbs |

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

## F90-16LD



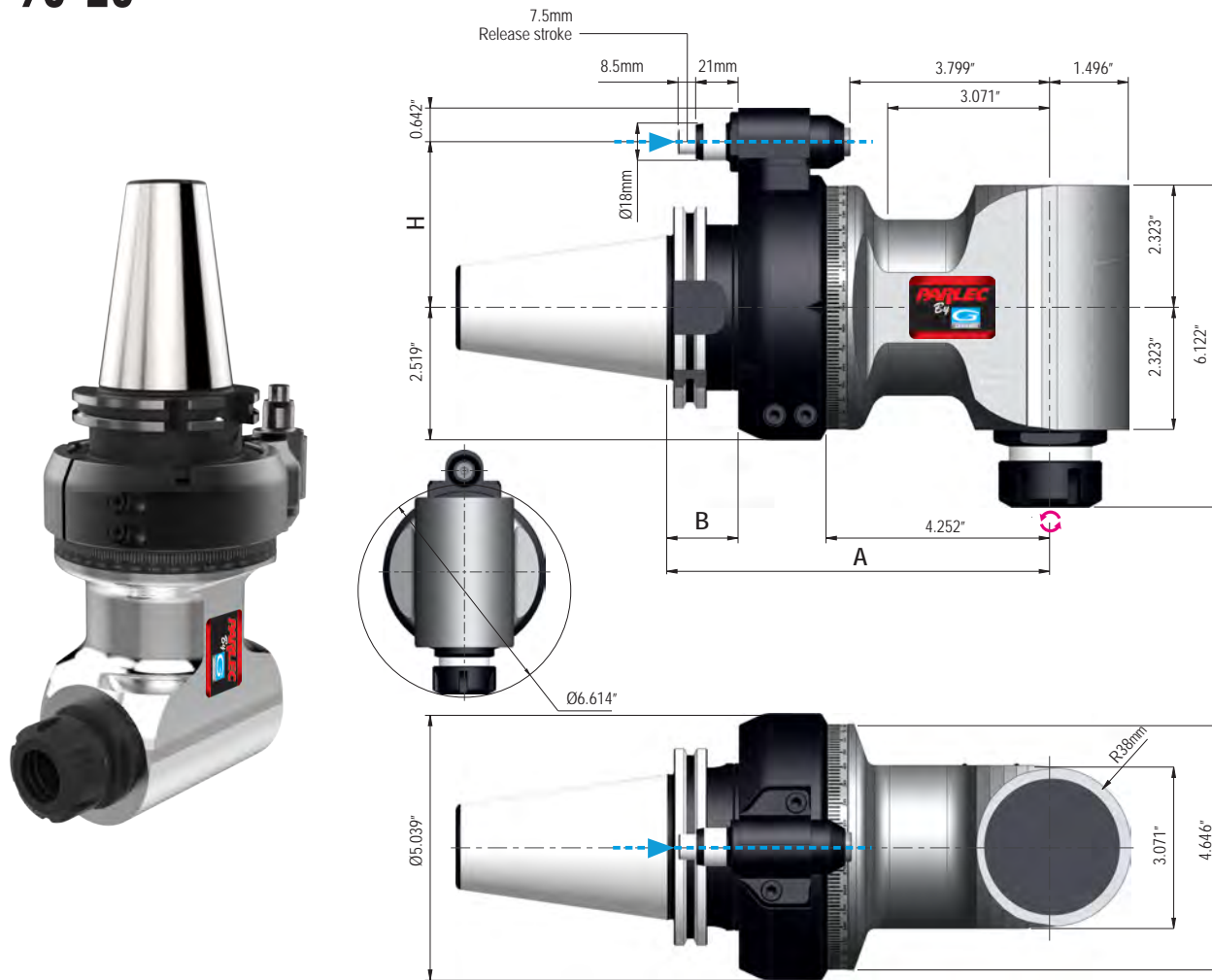
## F90-16LC





# Angle Heads

## F90-20

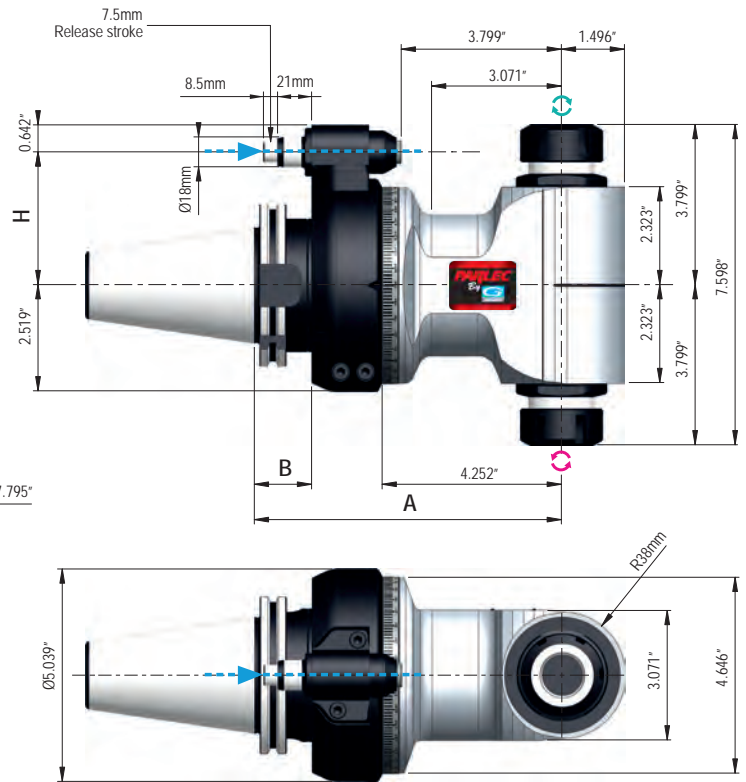
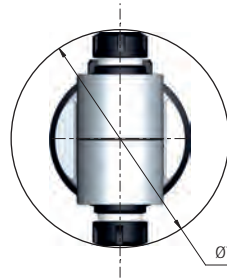


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series   |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|----------|
| ER32   | 3/4"       | 1:1        | 3,500    | 328 ft/lbs      | 752 in/lbs | Through Positioning Pin | Opposite Spindle        | Standard |

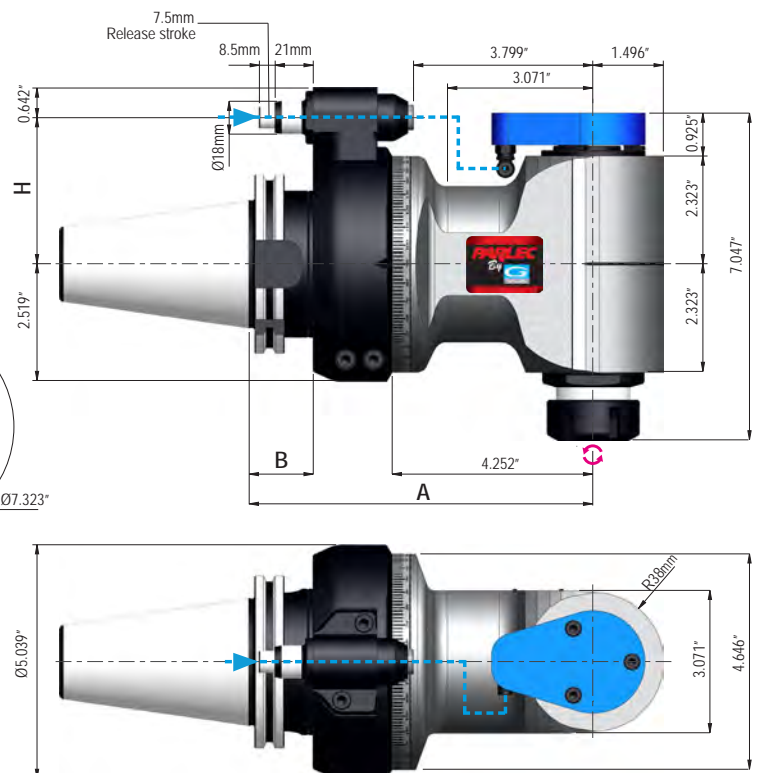
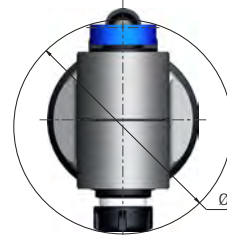
| Spindle Connection | A     | B      | H (mm)     | H Option (mm) | Weight   |
|--------------------|-------|--------|------------|---------------|----------|
| CAT 50             | 7.09" | 1.378" | 3.15" (80) | 4.33" (110)   | 27.7 lbs |
| HSK100A            | 7.64" | 1.811" | 3.15" (80) | 4.33" (110)   | 27.7 lbs |

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

## F90-20D



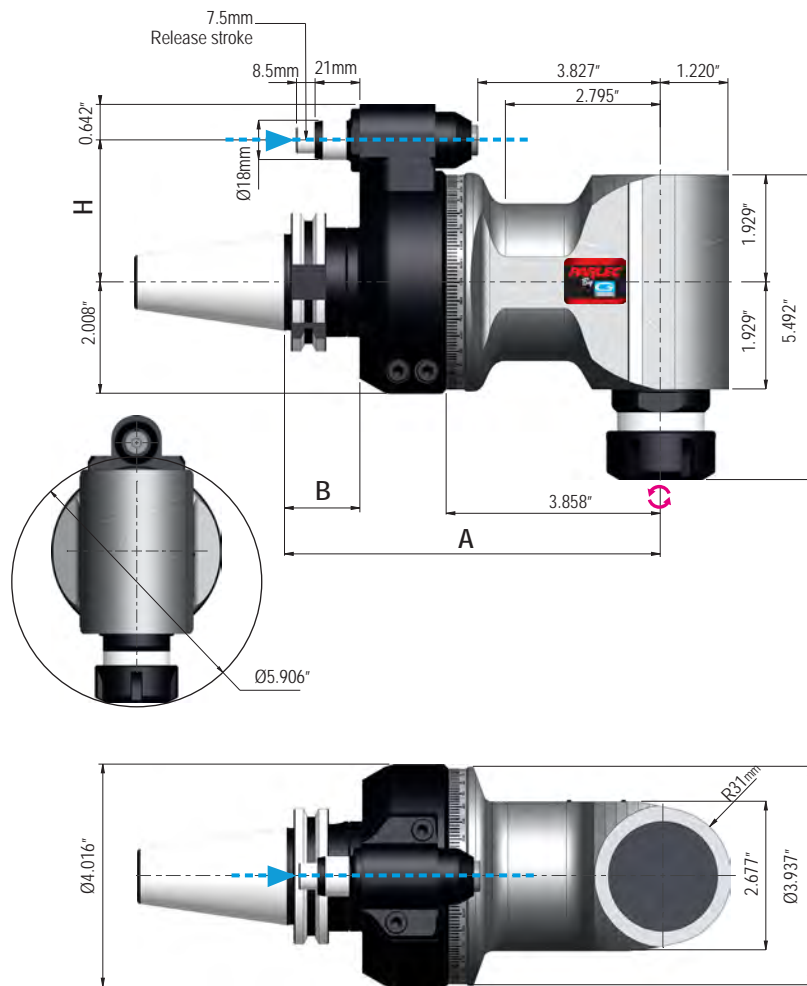
## F90-20C





# Angle Heads

## F90-20S

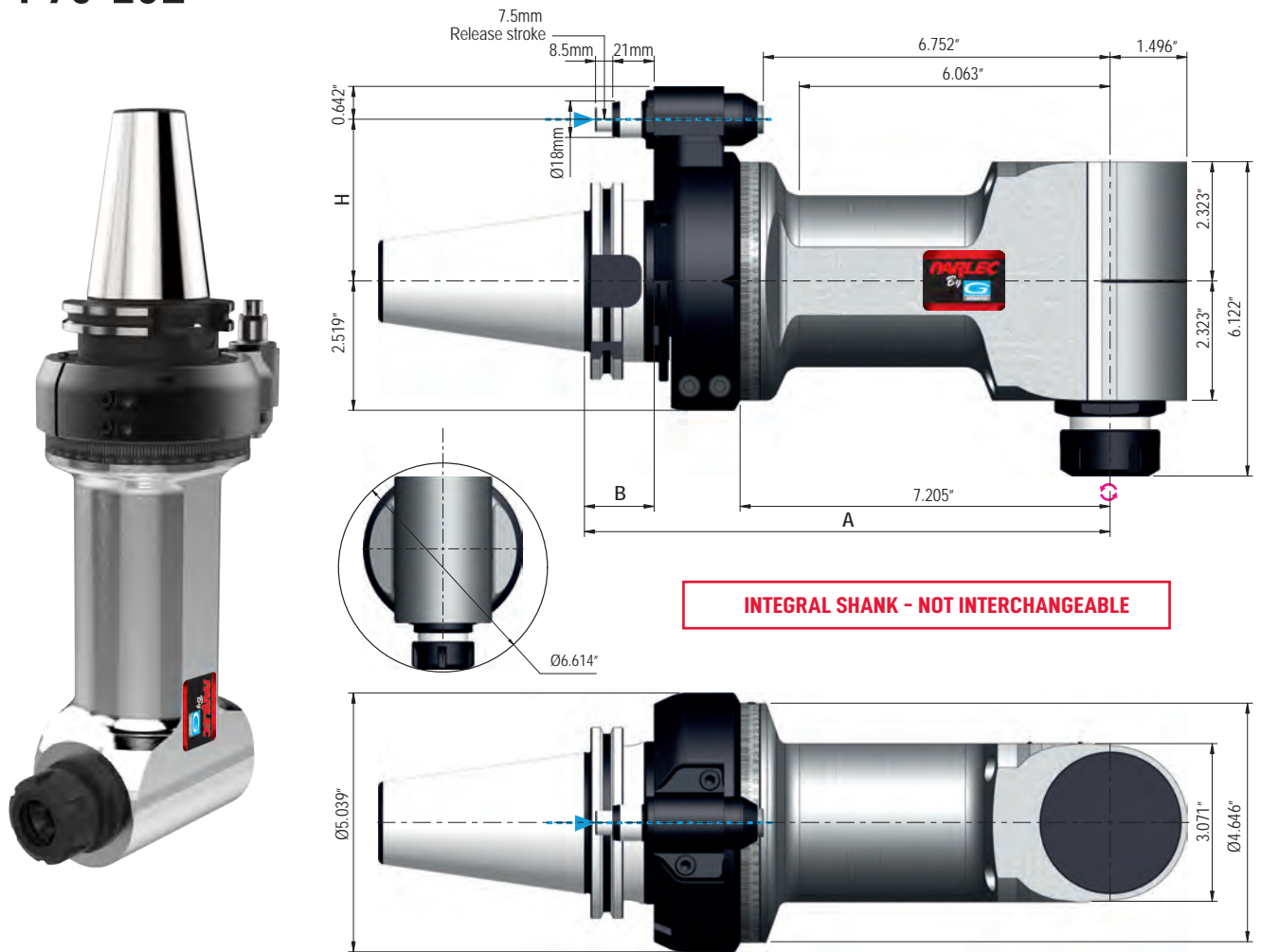


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series   |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|----------|
| ER32   | 3/4"       | 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



**INTEGRAL SHANK - NOT INTERCHANGEABLE**

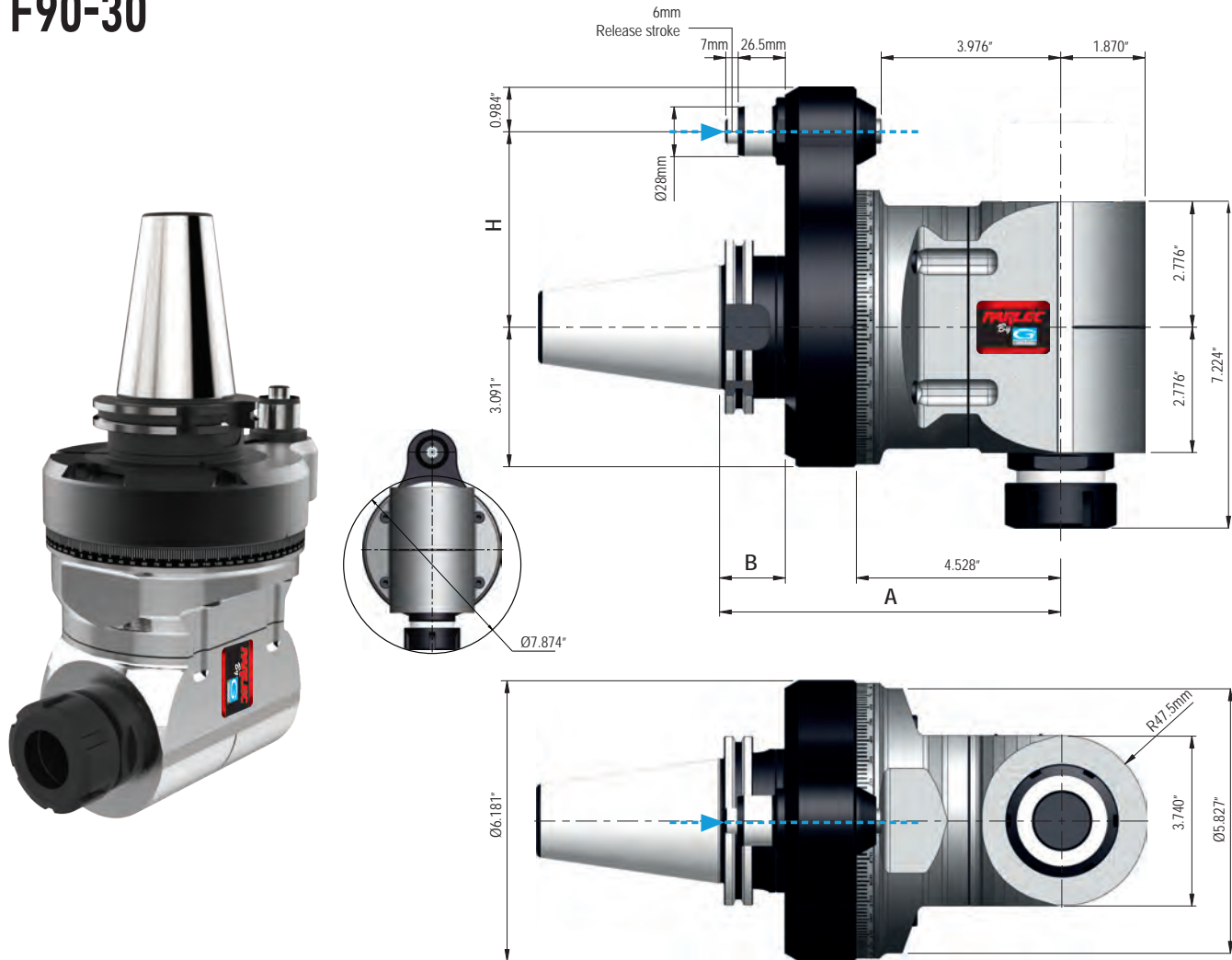
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery        | Tool Rotation Direction | Series             |
|--------|------------|------------|----------|-----------------|------------|-------------------------|-------------------------|--------------------|
| 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

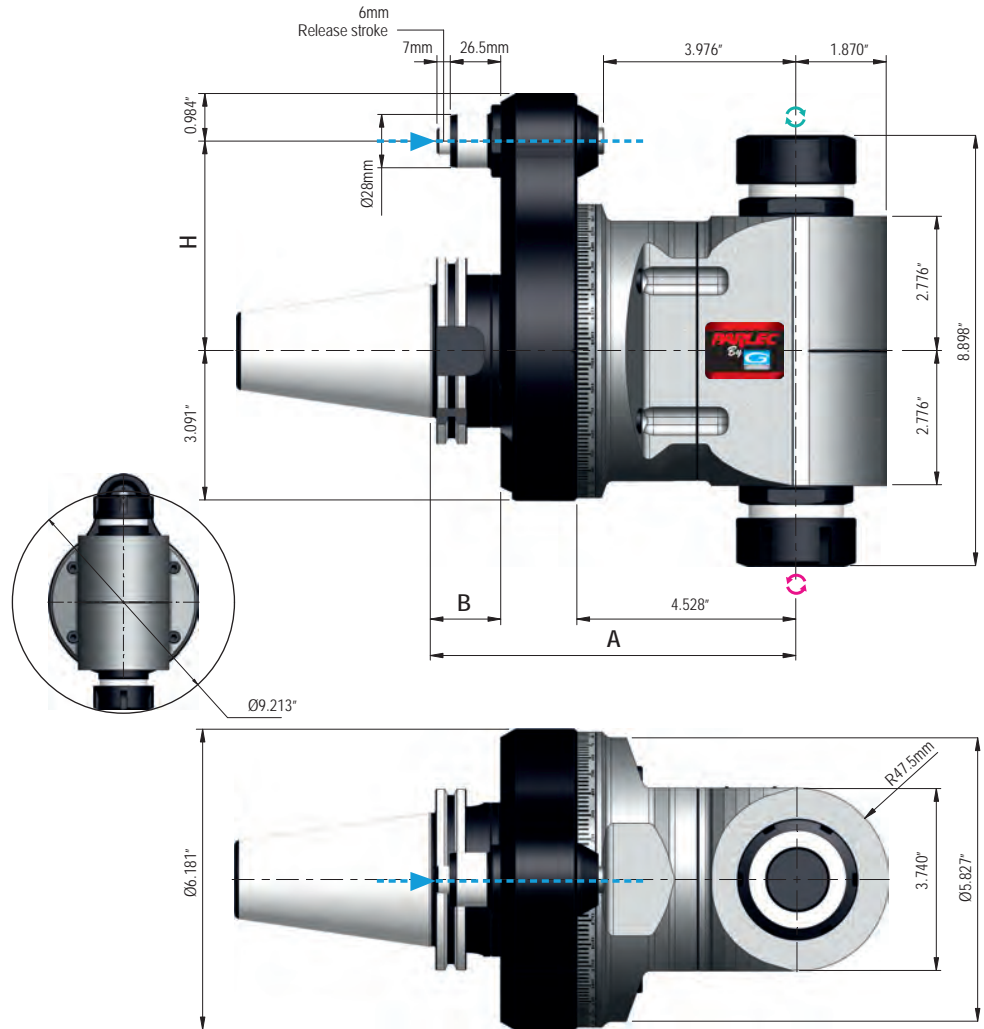


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque       | Coolant Delivery        | Tool Rotation Direction | Series   |
|--------|------------|------------|----------|-----------------|--------------|-------------------------|-------------------------|----------|
| ER40   | 1"         | 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



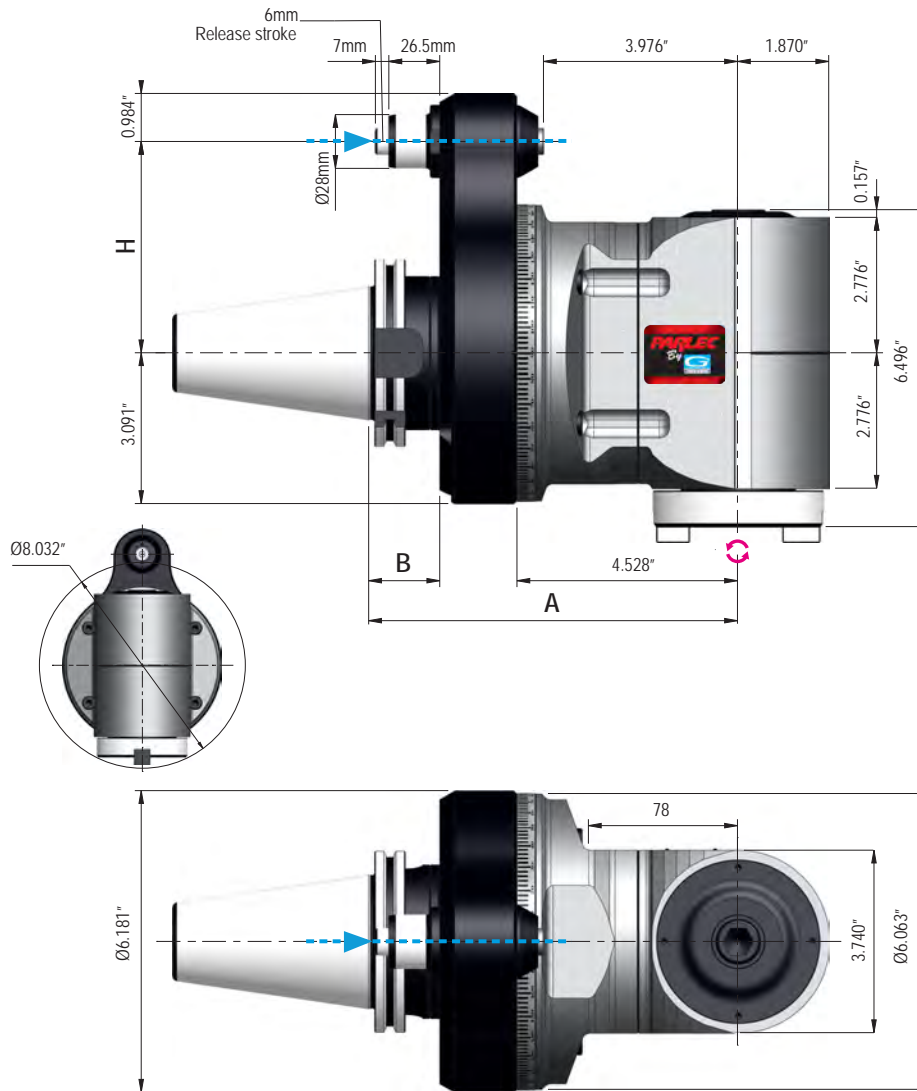
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque       | Coolant Delivery        | Tool Rotation Direction         | Series        |
|--------|------------|------------|----------|-----------------|--------------|-------------------------|---------------------------------|---------------|
| 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



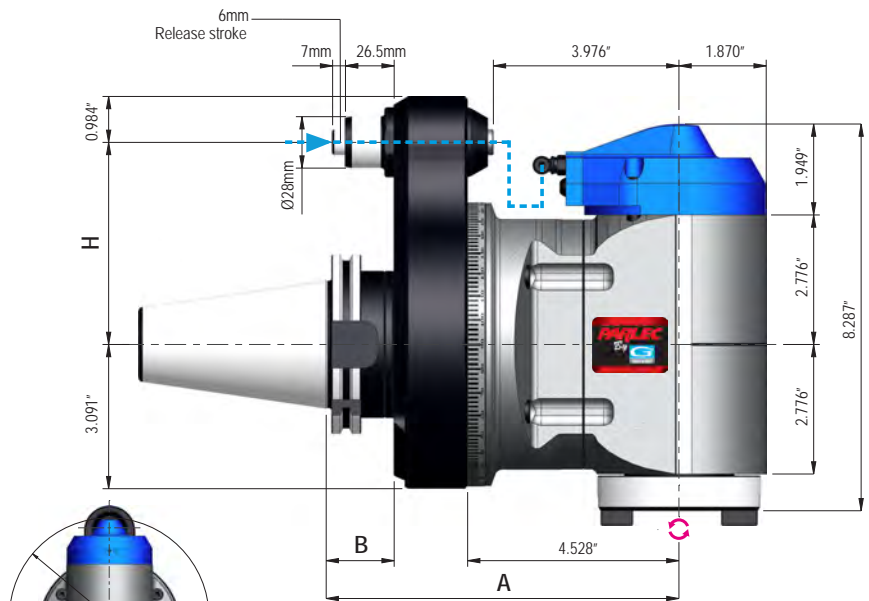
| Output    | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque       | Coolant Delivery        | Tool Rotation Direction | Series   |
|-----------|------------|------------|----------|-----------------|--------------|-------------------------|-------------------------|----------|
| CAT/BT40* | -          | 1:1        | 2,500    | 679 ft/lbs      | 1,195 in/lbs | Through Positioning Pin | Opposite Spindle        | Standard |

\* Other output options available: HSK63A and C5

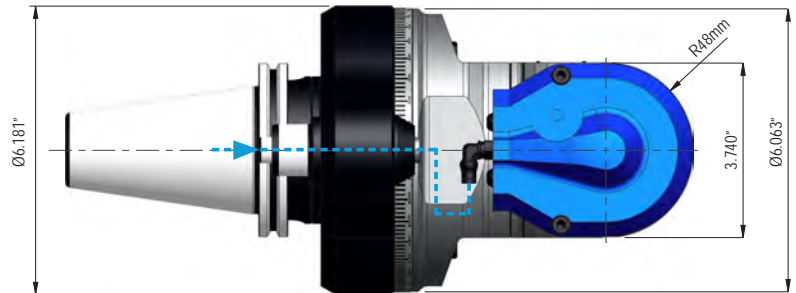
| Spindle Connection | A     | B      | H (mm)      | H Option | Weight   |
|--------------------|-------|--------|-------------|----------|----------|
| CAT 50             | 7.56" | 1.456" | 4.33" (110) | -        | 48.0 lbs |
| HSK100A            | 7.91" | 1.889" | 4.33" (110) | -        | 48.0 lbs |

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.

## F90-S40C



**COOLANT REQUIRED**



| 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

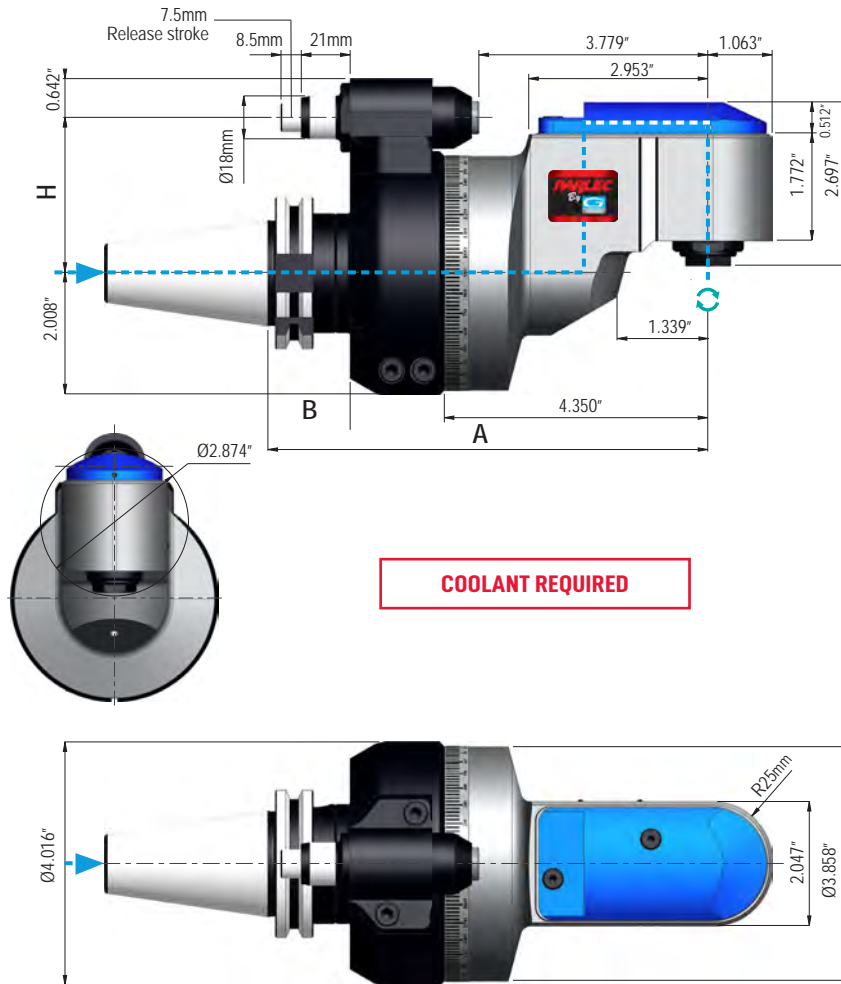
| Spindle Connection | A     | B      | H (mm)      | H Option | Weight   |
|--------------------|-------|--------|-------------|----------|----------|
| CAT 50             | 7.56" | 1.456" | 4.33" (110) | -        | 48.0 lbs |
| HSK100A            | 7.91" | 1.889" | 4.33" (110) | -        | 48.0 lbs |

\* Other spindle connections available: BT50, HSK80, C8, and KM80/100. Collets sold separately. See pages 76-93.



# Angle Heads

## FR90-10



**COOLANT REQUIRED**

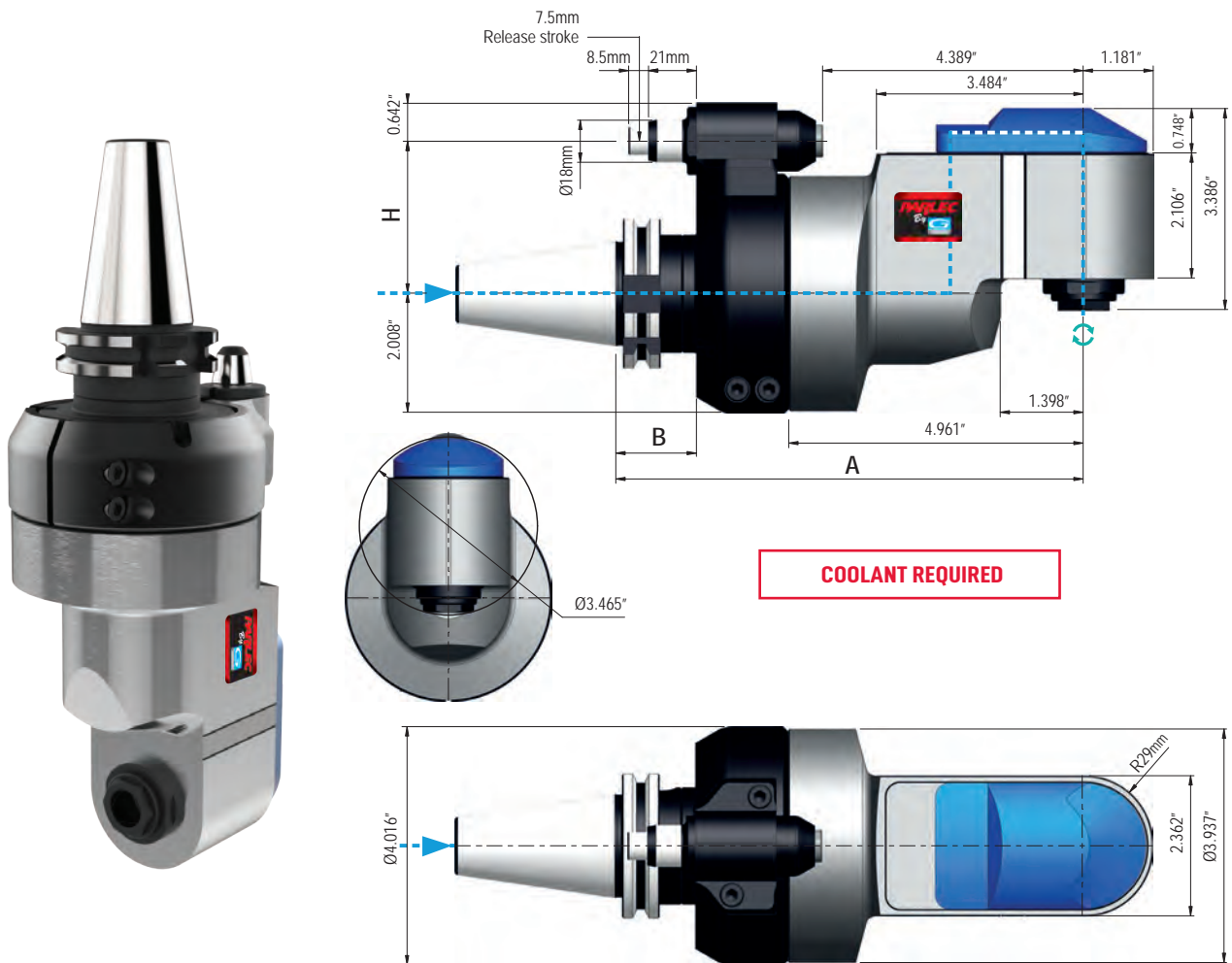
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery            | Tool Rotation Direction | Series                |
|--------|------------|------------|----------|-----------------|------------|-----------------------------|-------------------------|-----------------------|
| ER16   | 3/8"       | 1:1        | 6,000    | 112 ft/lbs      | 195 in/lbs | Through Spindle<br>1000 psi | Same as Spindle         | Set Back,<br>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



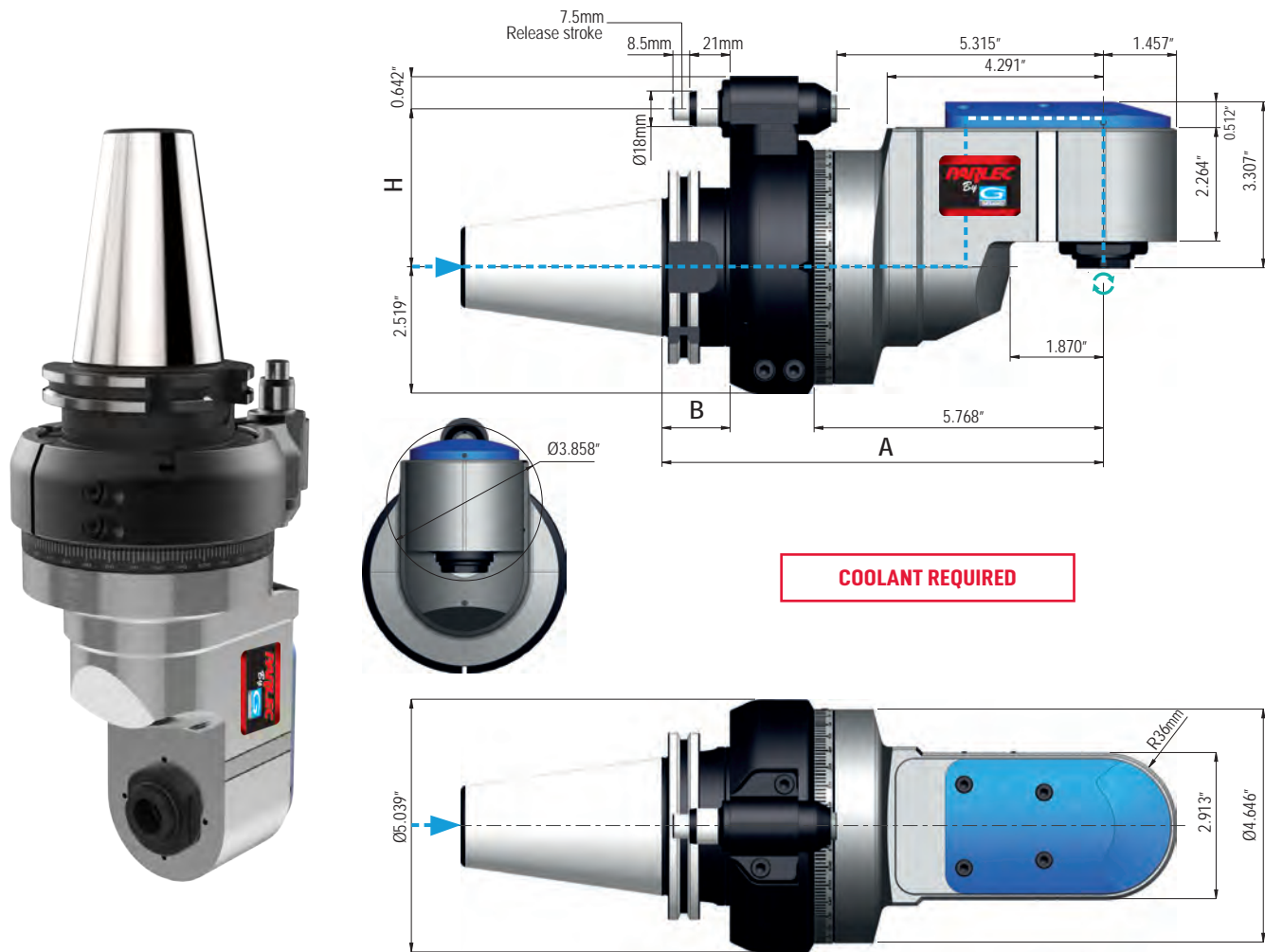
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery            | Tool Rotation Direction | Series                |
|--------|------------|------------|----------|-----------------|------------|-----------------------------|-------------------------|-----------------------|
| ER20   | 1/2"       | 1:1        | 4,500    | 128 ft/lbs      | 354 in/lbs | Through Spindle<br>1000 psi | Same as Spindle         | Set Back,<br>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

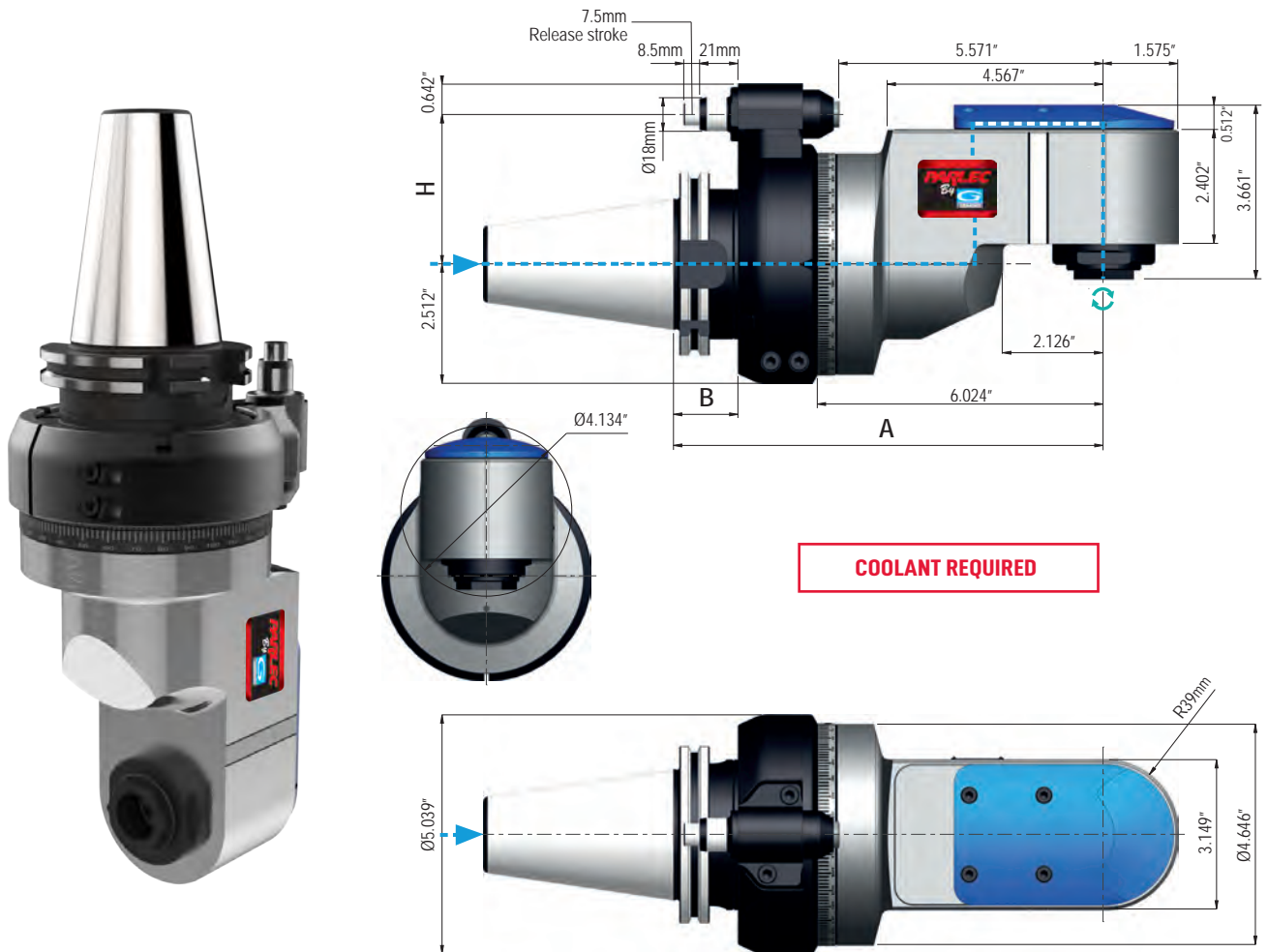


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery            | Tool Rotation Direction | Series                |
|--------|------------|------------|----------|-----------------|------------|-----------------------------|-------------------------|-----------------------|
| ER25   | 5/8"       | 1:1        | 4,000    | 182 ft/lbs      | 708 in/lbs | Through Spindle<br>1000 psi | Same as Spindle         | Set Back,<br>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**

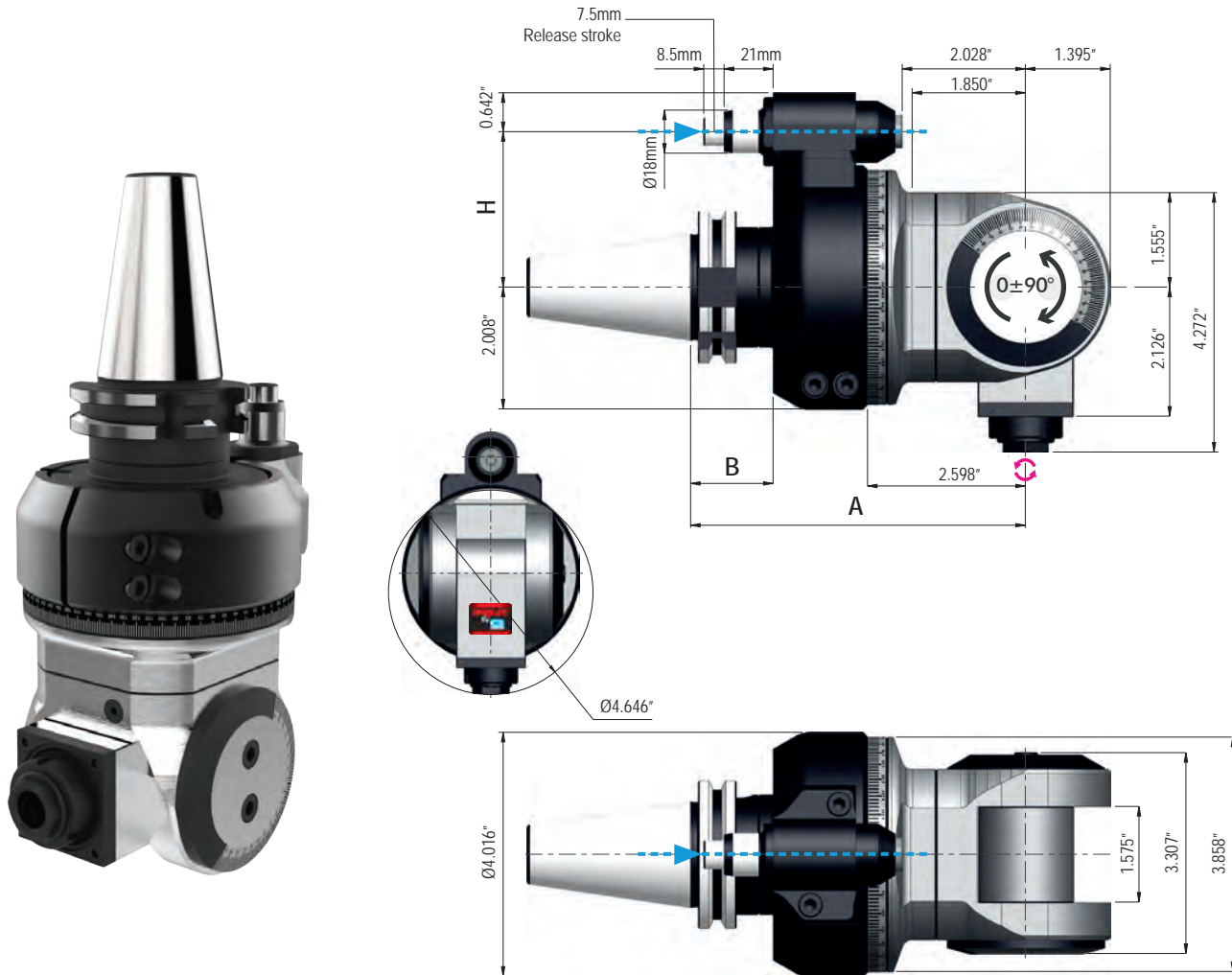
| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque     | Coolant Delivery            | Tool Rotation Direction | Series                |
|--------|------------|------------|----------|-----------------|------------|-----------------------------|-------------------------|-----------------------|
| ER32   | 3/4"       | 1:1        | 3,500    | 259 ft/lbs      | 726 in/lbs | Through Spindle<br>1000 psi | Same as Spindle         | Set Back,<br>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

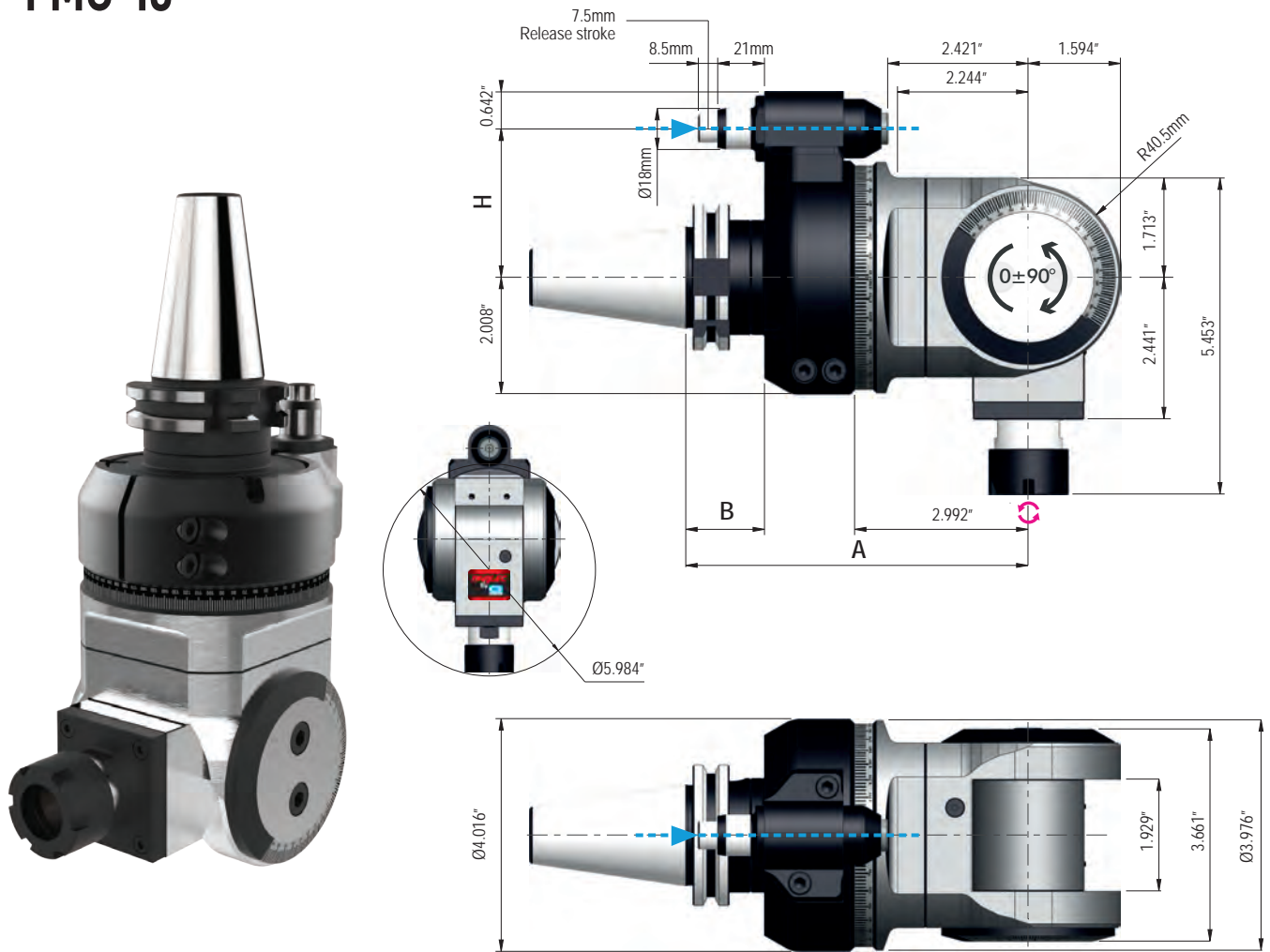


| Output | Max. Shank | Gear Ratio | Max. RPM | Max. Axial Load | Torque    | Coolant Delivery        | Tool Rotation Direction | Series     |
|--------|------------|------------|----------|-----------------|-----------|-------------------------|-------------------------|------------|
| ER16   | 3/8"       | 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 |

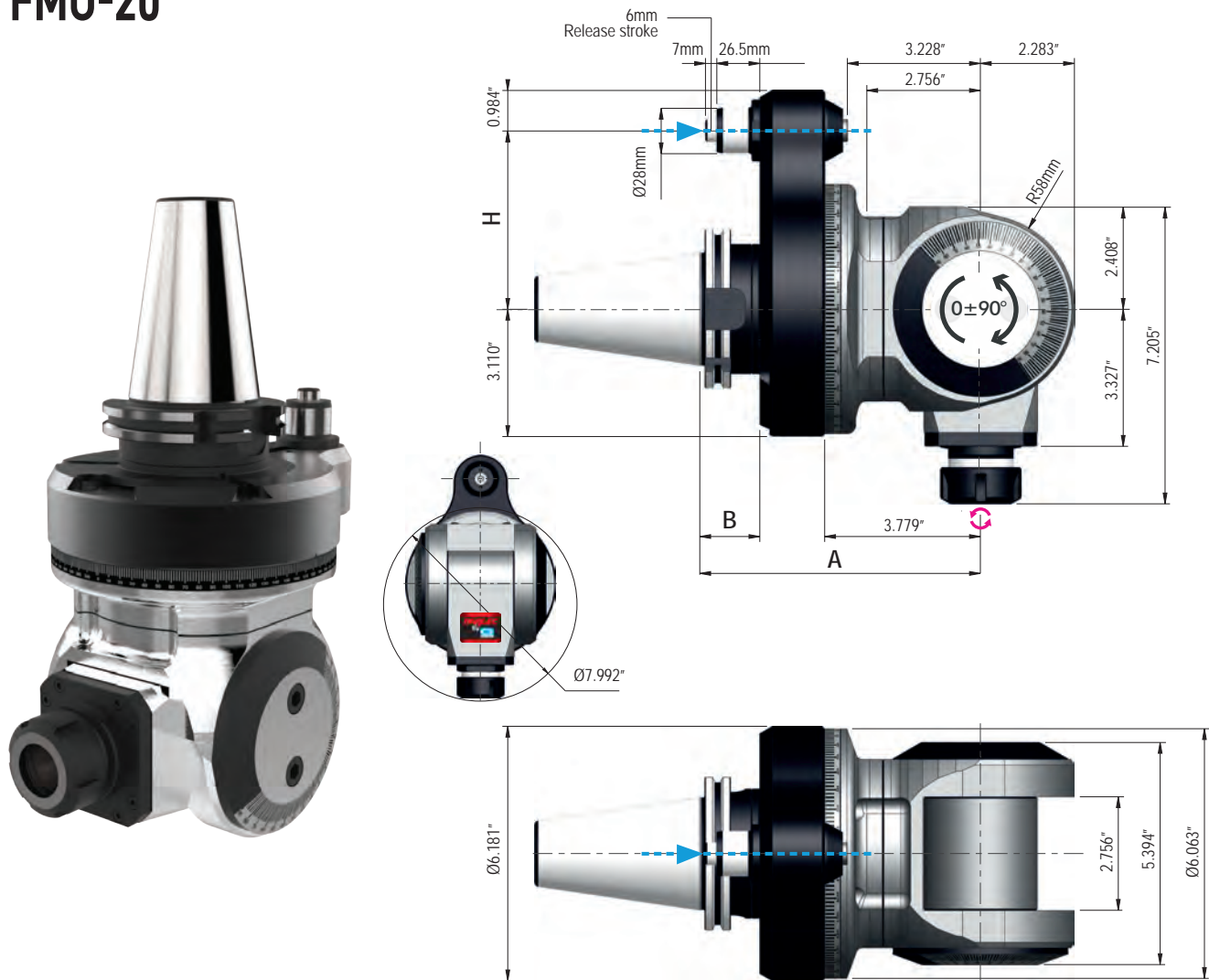
| Spindle Connection | A     | B      | H (mm)     | H Option (mm)          | Weight   |
|--------------------|-------|--------|------------|------------------------|----------|
| CAT 40             | 5.91" | 1.378" | 2.56" (65) | 3.15" / 4.33" (80/110) | 18.0 lbs |
| BT 40              | 5.91" | 1.378" | 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

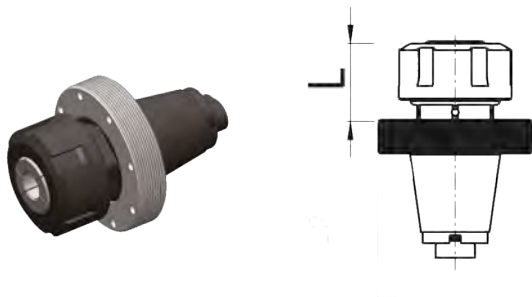


F90MTC-20L



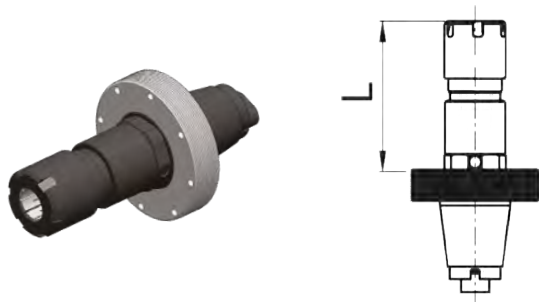
# Angle Heads

## Modular Quick Change Adapters | For Internal Nuts with External Threads



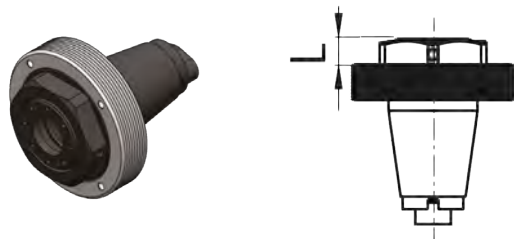
Collet Chuck Adapters with Standard Collet Nuts

| 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" |



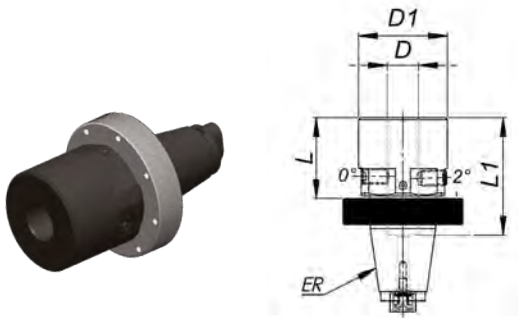
Collet Chuck Adapters with Internal Nuts

| 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

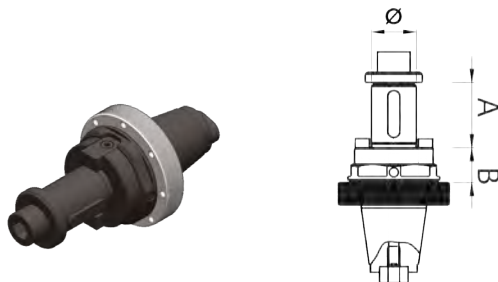
### End Mill Holder Adapters - Metric

| 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      |



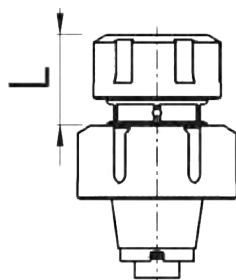
### Face Mill Holder Adapters - Metric

| 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              | -      | -      |



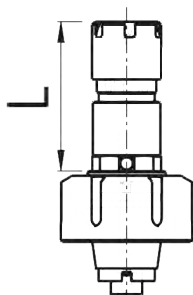
# Angle Heads

## Modular Quick Change Adapters | For External Nuts with Internal Threads



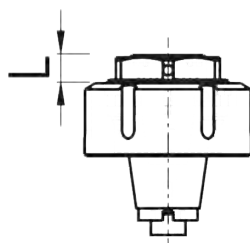
### Collet Chuck Adapters with Standard Collet Nuts

| 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" |



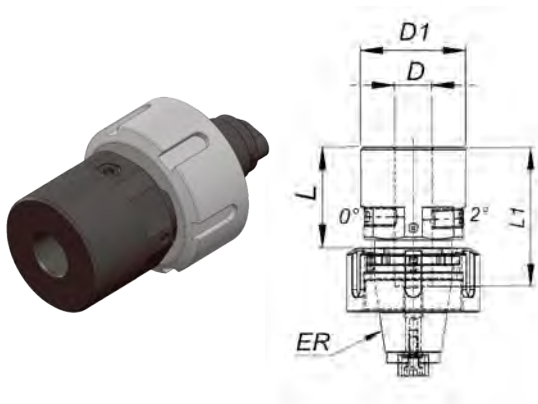
### Collet Chuck Adapters with Internal Nuts

| 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

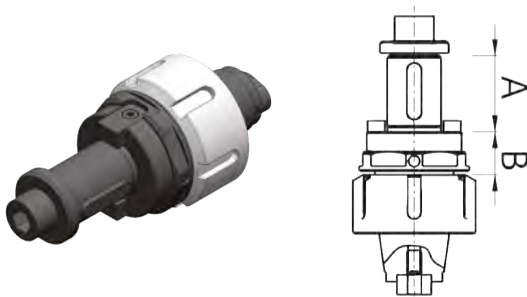
### End Mill Holder Adapters - Metric

| 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              | -      | -      |



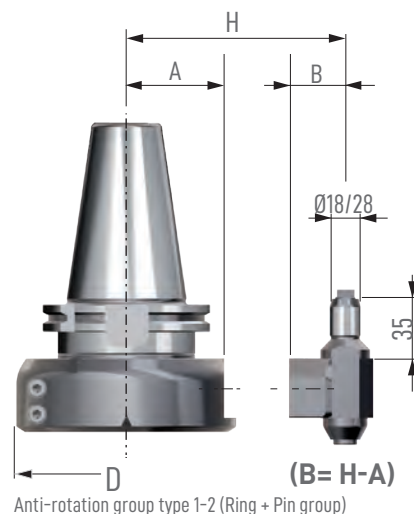
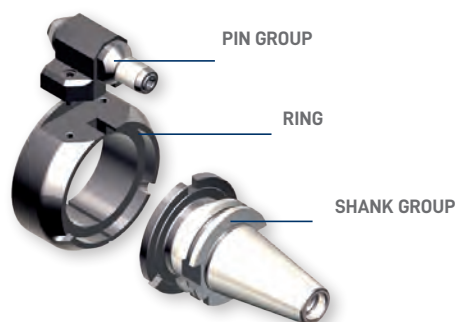
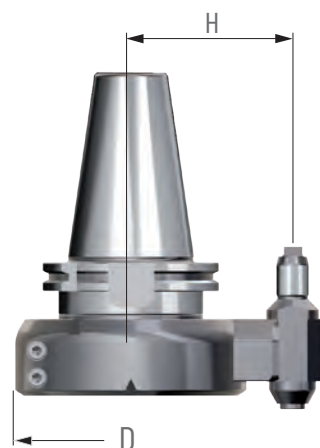
# Angle Heads

## MultiPOINT Anti-Rotation System



Made of 4 brace points for:

- Greater rigidity
- Reducing vibration
- Heavy duty machining
- Mounting on any type of machine spindle



Anti-rotation group type 1-2 (Ring + Pin group)

### 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 |           |              |
| MODELS                                                                                                                                                                                                                                               |            |            |                          | AVAILABLE SHANKS |                          |           |              |
| FL90-13 / 13L • FL90-16 / 16L / 16D • FS90-3 / 3L • FS90-4 / 4L • FS90-6 / 6L<br>F90-7 / 7D / 7C / 7L / 7LD / 7LC • F90-10 / 10D / 10C / 10L / 10LD • F90-13 / 13C / 13L<br>F90-16S / 16SC • F90-20S • F90-20D • FMU-10 • FMU-16 • FR90-10 • FR90-13 |            |            |                          | <u>CAT</u>       | <u>DIN (SK)</u>          | <u>BT</u> | <u>HSK A</u> |
|                                                                                                                                                                                                                                                      |            |            |                          | 40, 50           | 40, 50                   | 40, 50    | 63, 80, 100  |
|                                                                                                                                                                                                                                                      |            |            |                          | <u>KM</u>        | <u>ISO 26623</u>         |           |              |
|                                                                                                                                                                                                                                                      |            |            |                          | 63, 80, 100      | 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 |              |                  |
| MODELS                                                                   |            |            |             | AVAILABLE SHANKS |                          |              |                  |
| F90-16 / 16D / 16C / 16L / 16LD • F90-20 / 20C / 20L • FR90-16 • FR90-20 |            |            |             | <u>CAT</u>       | <u>BT</u>                | <u>HSK A</u> | <u>ISO 26623</u> |
|                                                                          |            |            |             | 50               | 50                       | 80, 100      | C6, C8           |
|                                                                          |            |            |             |                  |                          |              |                  |

### Type 3

| A                                      | D          | H           | Option H | Pin Size         | Optional Pin Size |              |           |                  |
|----------------------------------------|------------|-------------|----------|------------------|-------------------|--------------|-----------|------------------|
| -                                      | 6.18 (157) | 4.330 (110) | -        | 28 mm            | -                 |              |           |                  |
| MODELS                                 |            |             |          | AVAILABLE SHANKS |                   |              |           |                  |
| F90-S40 / S40C • F90-30 / 30D • FMU-20 |            |             |          | <u>CAT</u>       | <u>BT</u>         | <u>HSK A</u> | <u>KM</u> | <u>ISO 26623</u> |
|                                        |            |             |          | 50               | 50                | 80, 100      | 80, 100   | C6, C8           |
|                                        |            |             |          |                  |                   |              |           |                  |

## ReCOOL ER Nuts

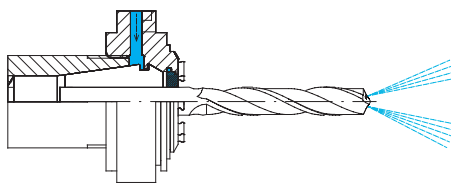


For External Nuts



For Internal Nuts

### Coolant Through

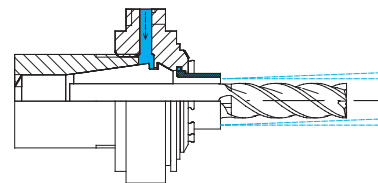


GDS



- 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

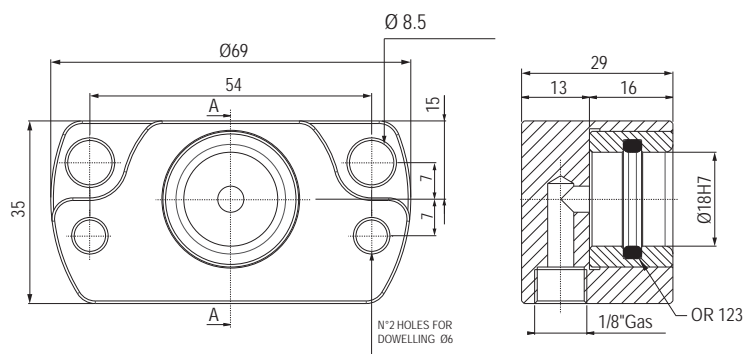
| Part #    | Collet Size | Fits Angle Head Type            | Sealing Ring for Coolant-Through Tooling* | Sealing Ring for External Coolant* | Wrench    |
|-----------|-------------|---------------------------------|-------------------------------------------|------------------------------------|-----------|
| 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)

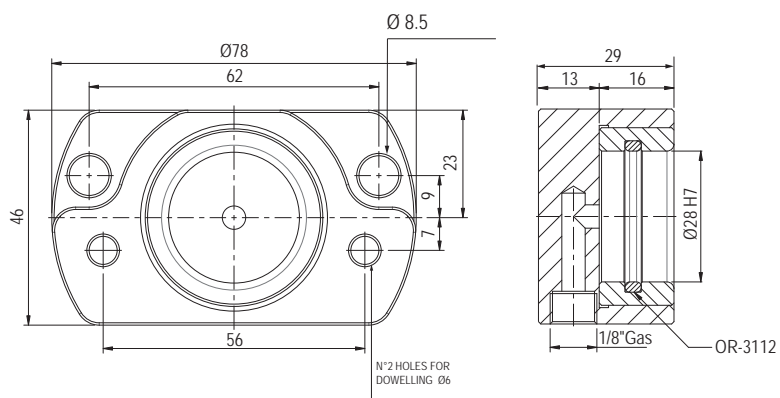
## Universal Block - Straight Pin



Ø18



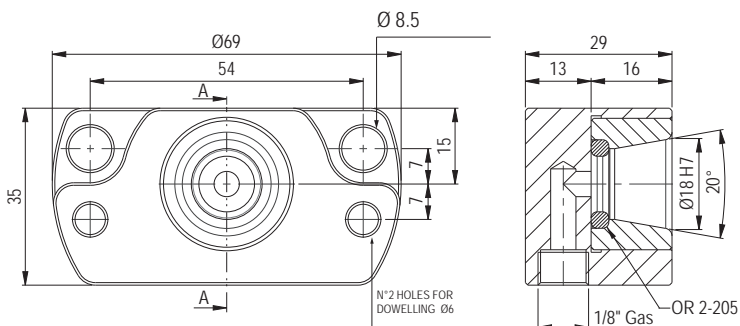
Ø28



## 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

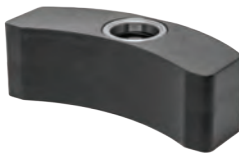
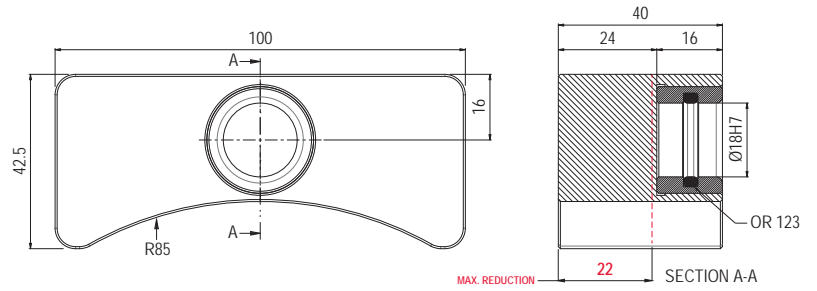
\* HAAS Blocks - Not Shown



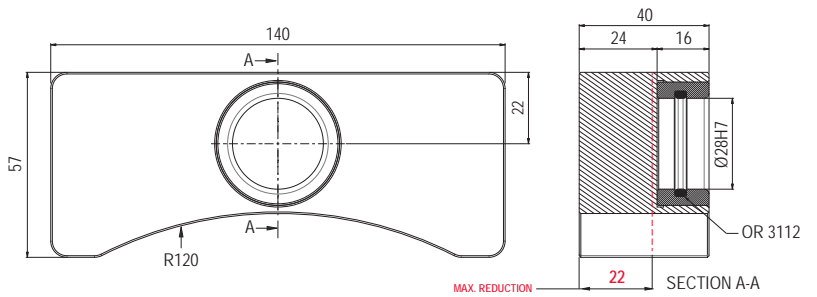
## Machinable Block - Straight Pin



Ø18



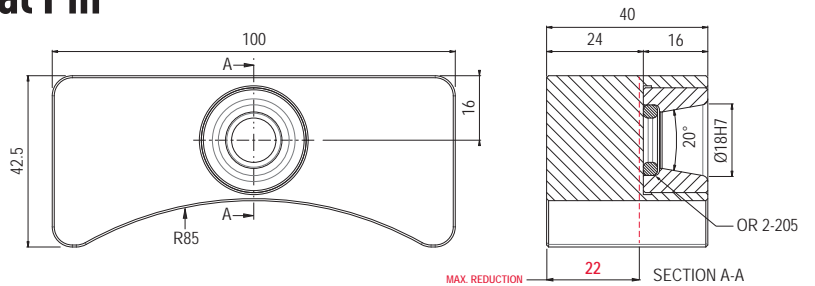
Ø28



## Machinable Block - Conical Pin



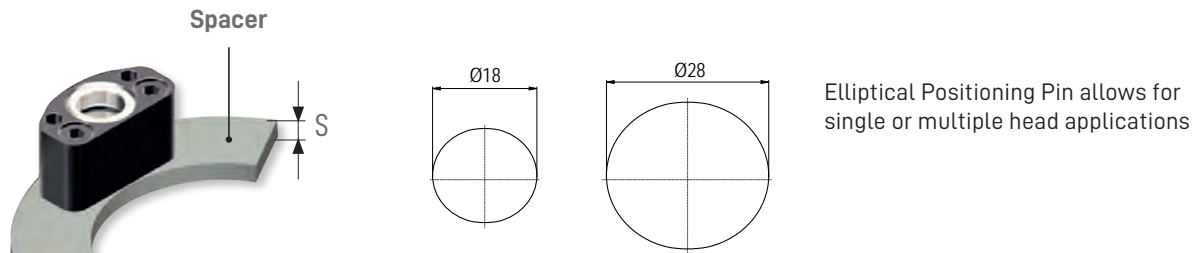
Ø18



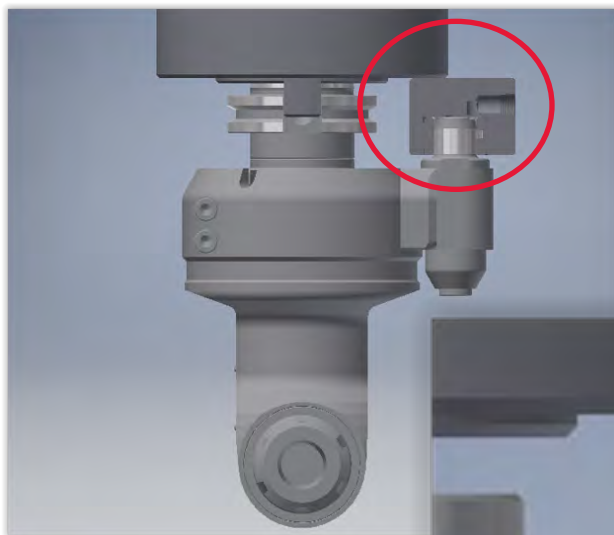
| Part #                                            | Bushing / Pin Size |
|---------------------------------------------------|--------------------|
| 9.G18.INDEX (straight pin, type 1 & 2)            | 18mm               |
| 9.G28.INDEX (straight pin, Type 3)                | 28mm               |
| 9.G18.INDEXC (conical pin, FL series, type 1 & 2) | 18mm               |

# Angle Heads

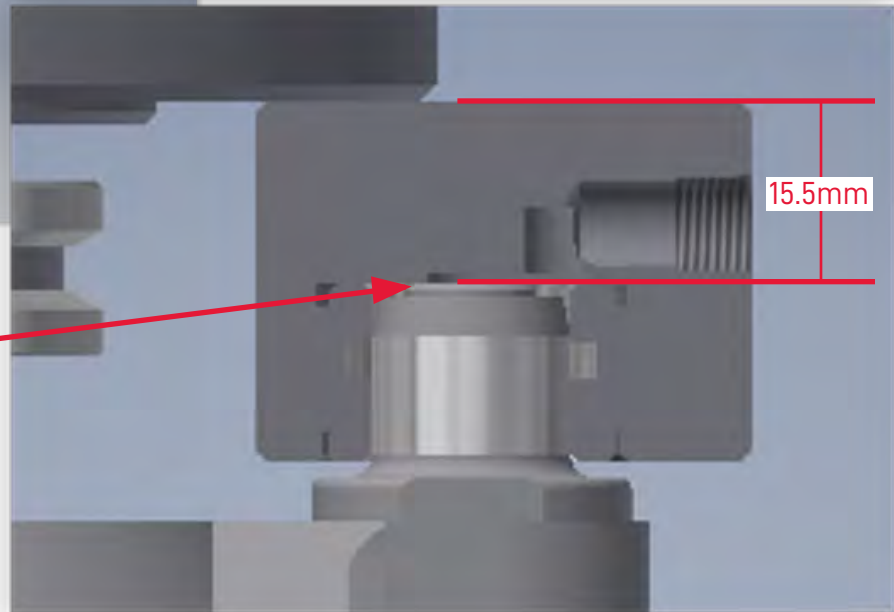
## Spacer Calculations | For Determining Need and Size of Spacer



Optional spacer is not provided. "S" thickness is for reference only. Actual thickness, and/or the need for a spacer, can be calculated below.



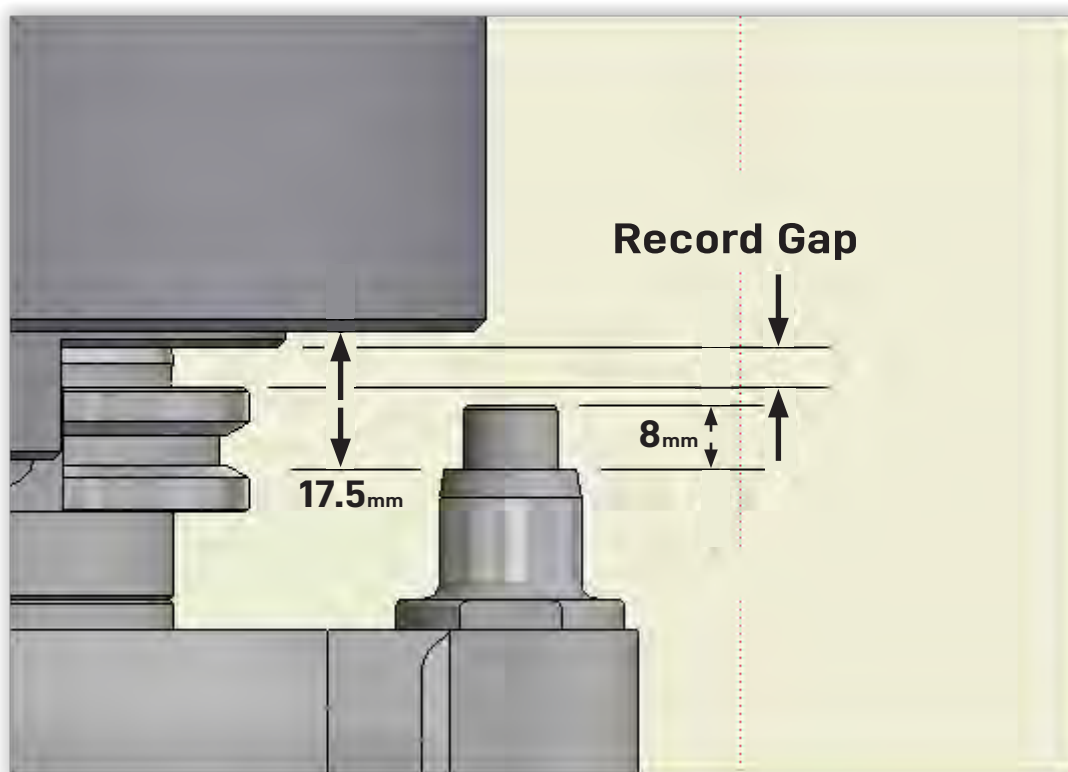
Stop Block shown with cutaway for pin length clarity. Distance from bottom of the fixed PIN plus 1mm free play is 15.5mm. Add spacer between the bottom of the stop block and face of spindle housing if needed.



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

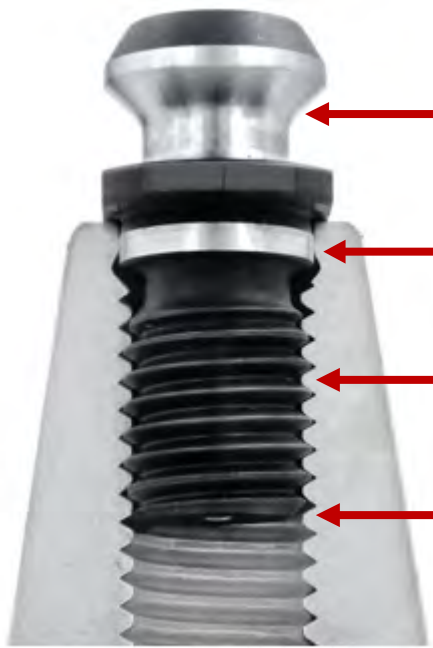
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# DAVITA

## 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

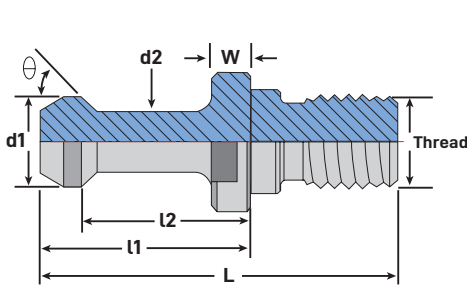


## MegaFORCE

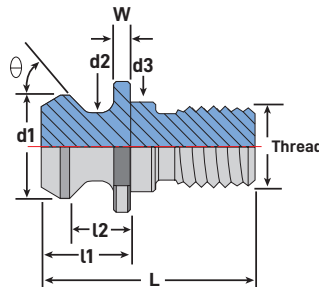
ULTIMATE PERFORMANCE RETENTION KNOBS

### FEATURES

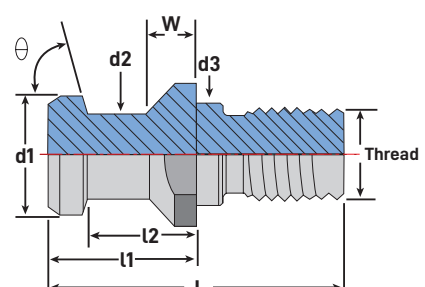
- Deeper thread engagement reduces tool holder taper swelling
- Blended radii on the neck improves strength
- Precision pilot provides greater stability
- Formed threads provide 20% greater strength vs. cut threads



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<br>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    |
| TOY050TRK-MF | CAT50 – MAS 45° Toyoda Coolant-Through | 45° | .906" | .669" | 3.354" | 1.780" | 1.386" | .394" | .236"        | 1" – 8    |



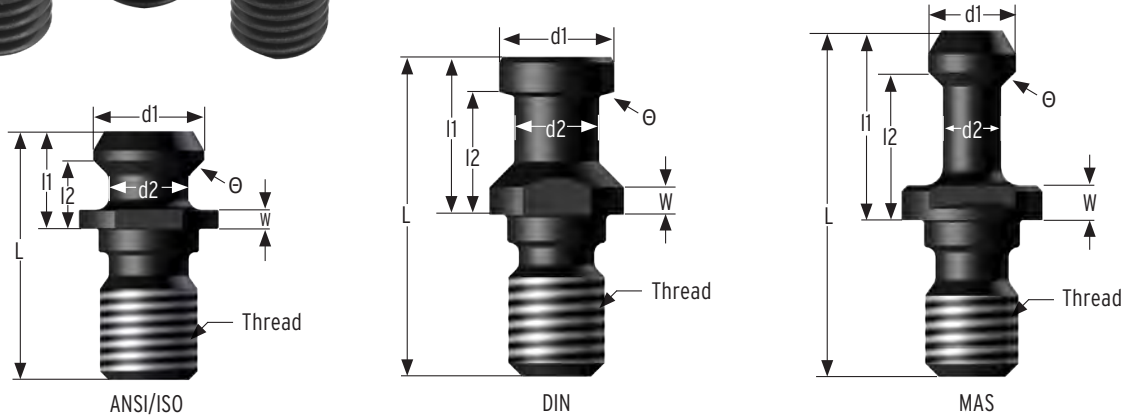
# Retention Knobs

## 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<br>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    |

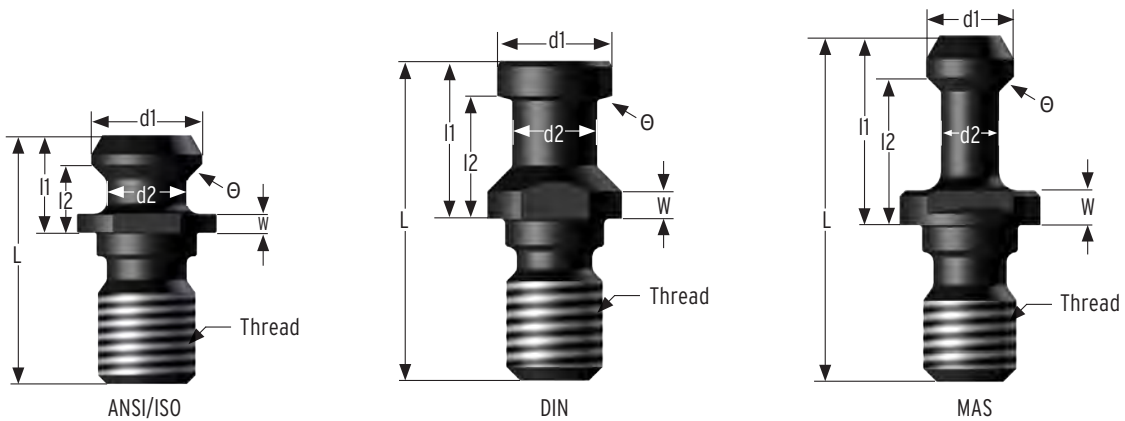
# Retention Knobs

## 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.



TWN-32ERNW



PG100

#### 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



\* 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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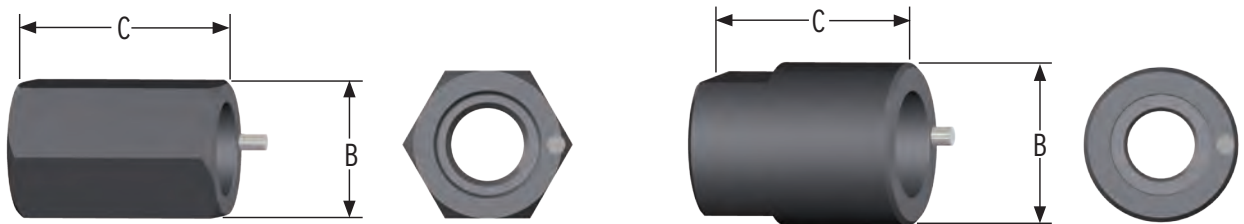
## Roller Bearing Tightening Fixture



- 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.

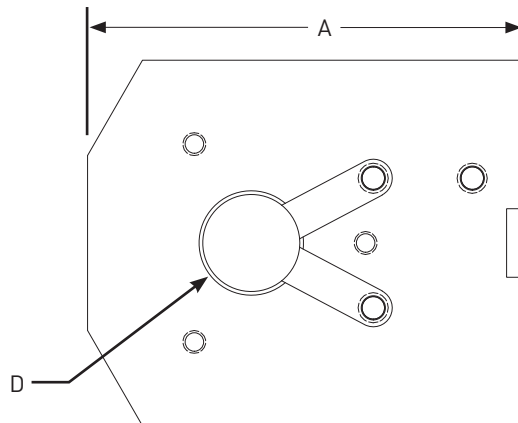
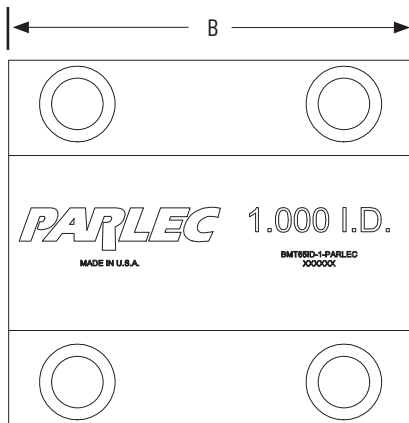


# BMT65 Tool Holders

## 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



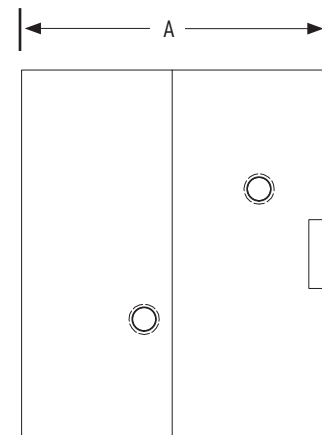
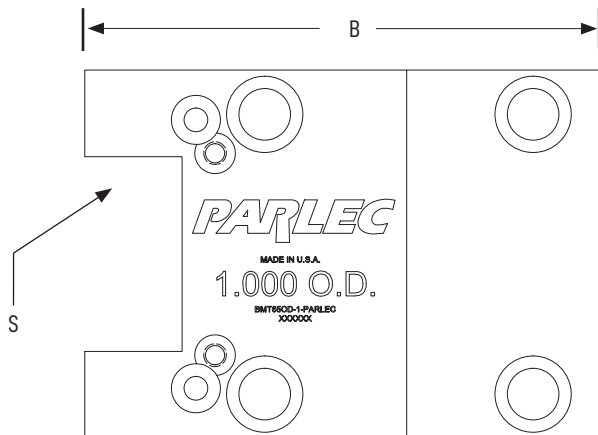
| Part #                | A      | B      | Tool Holding Diameter (D) |
|-----------------------|--------|--------|---------------------------|
| BMT65ID-1-PARLEC      | 4.528" | 4.173" | 1"                        |
| BMT65ID-1.50-PARLEC   | 4.528" | 4.173" | 1.5"                      |
| BMT65ID-1.25T-PARLEC* | 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      |
| 00600-9002     | 28      | 10KY       | 129      | 100PG-0718  | 103 | 100RPG-0687    | 106      |
| 00600-9003     | 28      | 10LS       | 128, 191 | 100PG-0734  | 103 | 100RPG-0703    | 106      |
| 00600-9004     | 28      | 10LSC      | 128      | 100PG-0750  | 103 | 100RPG-0718    | 106      |
| 00600-9005     | 28      | 10T-#0-6   | 185      | 100PG-0765  | 103 | 100RPG-0734    | 106      |
| 00600-9006     | 28      | 10T-#10    | 185      | 100PG-0781  | 103 | 100RPG-0750    | 106      |
| 013-500        | 191     | 10T-#12    | 185      | 100PG-0796  | 103 | 100RPG-0765    | 106      |
| 013-501        | 191     | 10T-#8     | 185      | 100PG-0812  | 103 | 100RPG-0781    | 106      |
| 013-502        | 191     | 10T-006N   | 185      | 100PG-0828  | 103 | 100RPG-0796    | 106      |
| 013-503        | 191     | 10T-012N   | 185      | 100PG-0843  | 103 | 100RPG-0812    | 106      |
| 014-901        | 191     | 10T-025    | 185      | 100PG-0859  | 103 | 100RPG-0828    | 106      |
| 014-902        | 191     | 10T-031    | 185      | 100PG-0875  | 103 | 100RPG-0843    | 106      |
| 014-903        | 191     | 10T-037    | 185      | 100PG-0890  | 104 | 100RPG-0859    | 106      |
| 014-904        | 191     | 10T-043    | 185      | 100PG-0906  | 104 | 100RPG-0875    | 106      |
| 014-905        | 191     | 10T-050    | 185      | 100PG-0921  | 104 | 100RPG-0890    | 106      |
| 014-906        | 191     | 10T-056    | 185      | 100PG-0937  | 104 | 100RPG-0906    | 106      |
| 014-907        | 191     | 10T-S012   | 185      | 100PG-0953  | 104 | 100RPG-0921    | 106      |
| 014-908        | 191     | 100CNW     | 261      | 100PG-0968  | 104 | 100RPG-0937    | 106      |
| 014-909        | 191     | 100HCN     | 108      | 100PG-0984  | 104 | 100RPG-0953    | 106      |
| 014-910        | 191     | 100HCNW    | 261      | 100PG-1000  | 104 | 100RPG-0968    | 106      |
| 014-911        | 191     | 100PG-0046 | 103      | 100PG-10MM  | 104 | 100RPG-0984    | 106      |
| 014-912        | 191     | 100PG-0062 | 103      | 100PG-12MM  | 104 | 100RPG-1000    | 106      |
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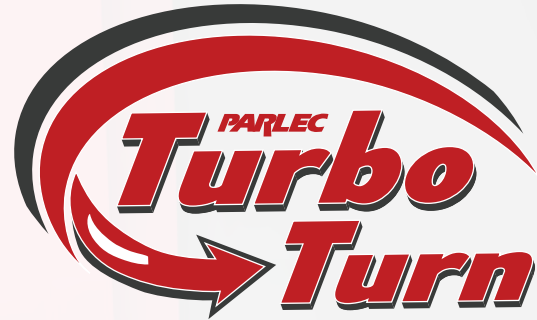
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