



MACHINE TOOL PERFORMANCE ACCESSORIES

2019 Master Catalog



Catalog No. 85030-19

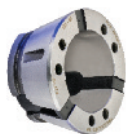
WORKHOLDING • TOOLING • AUTOMATION • MIST CONTROL

SUPERCARGE YOUR MACHINE TOOLS



CNC Collet Chucks Pages 3 – 34

- Unparalleled Quality & Accuracy
- Ten-Second Collet Changes
- In Stock for Same-Day Shipping



Quick-Grip™ Collets Pages 18 – 29

- Industry-leading 0.062" Gripping Range
- 0.0002" Ultra-Precision Accuracy
- Parallel-Grip for Full Contact



CNC Expanding Mandrels Pages 35 – 42

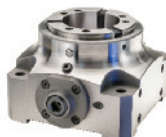
- Provides Full OD Part Access
- Completely Sealed for Long Life
- Parallel Sleeve Expansion

NEW



Hydraulic Collet Fixtures Page 44 – 45

- Great for Machining Centers
- Ten-Second Collet Changes
- Outstanding Tool Clearance



Manual Collet Fixtures Page 46

- Manual Operation
- For 4th and 5th Axis Applications
- Multiple Collet Styles

NEW



Key-Operated Collet Chucks Page 47

- Quick-Grip™ for Manual Lathes
- Ten-Second Collet Changes
- Large 2-5/8" Capacity



5C Expanding Collets Page 48

- Perfect for I.D. Gripping
- Turned to Size by User
- Repeatable Z-axis Positioning



5C Step Collets Page 48

- Designed to Hold Oversized Parts
- Head is Easily Bored to Required Size
- Full 1" Bore Depth



ER Collets Pages 49 – 52

- Standard and Sealed Models
- 0.0002" Ultra-Precision Accuracy
- Inch and Metric Sizes in Stock



Rota-Rack® Parts Accumulators Pages 53 – 62

- Collects and Protects Finished Parts
- Run Bar-Fed CNC Lathes Lights-Out
- Pays for Itself in Just a Few Months



CNC Bar Pullers Pages 63 – 70

- Easily Automate Any CNC Lathe
- Combo Model Has Built-In Cutoff Tool
- Self-Adjusting Coolant Actuated Model



Live Centers Pages 71 – 101

- Exclusive Roto-Shield™ Technology
- +/- 0.00005" TIR Guaranteed
- High Pressure Coolant Approved

SUPERCHARGE YOUR MACHINE TOOLS



Dead Centers Pages 102 – 105

- Full and Half Models for Grinding
- Carbide-Tipped Models for Long Life
- Threaded Models for Live Tailstocks



Deburring Tools Pages 107 – 112

- Unique Tools for Every Application
- Most Competitive Prices in the Industry
- Lifetime Handle Warranty



R8 Quick-Change Pages 114 – 115

- Good for Light Production on R8 Mills
- Simple One-Hand Operation
- Wide Range of Holder Styles



Machine Mounts Pages 116 – 117

- Protect Against Shock and Vibration
- Easily Level Machinery
- Impact and Non-Impact Applications



PneuVac Pump Pages 118 – 119

- Runs On Standard Shop Air
- Fills a 55-Gallon Drum in Seconds
- Great for Cleaning Coolant Sumps



PneuVac Guns Page 119

- Versatile Shop Cleanup Tool
- Two-Way Operation (Blow/Vacuum)
- Deep Hole Model for Blind Holes



Chuck Stops Page 120

- The Safe Way to Chuck Short Parts
- Fits Chuck Jaws up to 2.12" Wide
- Available in Multiple Heights



Sensitive Drill Feed Page 120

- Drill Small Holes on a Drill Press or Mill
- Precise Fingertip Control
- Protects Against Drill Breakage



Albrecht Precision Drill Chucks Pages 121 – 130

- World's Most Accurate Drill Chucks
- Keyless and Self-Tightening
- Models for All Applications



Royal Filtermist Mist Collectors Pages 131 – 159

- Low Cost and Highly Efficient
- Meet OSHA and NIOSH Requirements
- Minimal Maintenance Requirements

Why Do Top Manufacturers Insist on Royal Products?



Experience

Royal Products has been a leading American manufacturer of precision metalworking accessories for more than 70 years. The company was founded in 1946 by Bob Curran, who invented and patented the first changeable-point live center with a combination thread/taper interface. Since that time, the Royal product line has grown to include hundreds of unique metalworking accessories designed to help manufacturers squeeze every last drop of performance out of their machine tools.

Quality

Royal Products is an ISO-registered company dedicated to continuous improvement. We embrace lean manufacturing

principles and have earned an excellent reputation among metalworking professionals for outstanding product quality. Before we bring a new product to market, it must first undergo extensive testing in our own factory to ensure that it will exceed our customers' demands. Our philosophy is simple – we would rather explain price once than have to apologize for poor quality time and time again.

Support

Strong technical support is one of Royal's key strengths. From our experienced applications engineers to our large team of factory-trained field reps strategically located throughout the country, we are always available to speak with customers and prospects, review their applications, and help them choose the best tools for their needs. If we don't have the right products for your particular job, we will either design something special or recommend other companies that offer what you need.

Convenience

Royal Products metalworking performance accessories are sold through a large network of machine tool and industrial distributors located throughout the United States, Canada, and Mexico. We stock thousands of products in regional warehouses located throughout the country for fast, low-cost deliveries. For the name and telephone number of your local Royal Products distributor, please contact our customer service department at 1-800-645-4174.



Division of Curran Manufacturing Corporation

200 Oser Avenue
Hauppauge, New York 11788

Tel: 1-631-273-1010
Fax: 1-631-273-1066

Toll-Free USA and Canada
Tel: 1-800-645-4174
Fax: 1-800-424-2082

Email: info@royalproducts.com
www.royalproducts.com



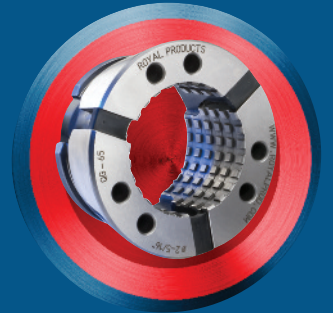
For a behind-the-scenes peek into Royal and the latest company news, be sure to visit our Facebook page:

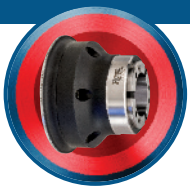
www.facebook.com/RoyalProdUSA



QUICK-GRIP™ CNC COLLET CHUCKS

- TEN-SECOND COLLET CHANGES
- 0.0002" TIR OR BETTER
- PARALLEL GRIP COLLETS WITH A 0.062" RANGE
- MOST COMPACT CHUCKS IN THE INDUSTRY
- IN-STOCK FOR SAME-DAY SHIPPING





ROYAL QUICK-GRIP™ CNC COLLET CHUCKS

The Most Advanced Collet Chucks Available for Today's CNC Lathes



- ✓ Ten-Second Collet Changes Slash Setup Times.
- ✓ Industry-Leading Gripping Range – 0.062".
- ✓ Ultra-Precision Accuracy – 0.0002" TIR Guaranteed.
- ✓ Extreme Grip Force = Most Aggressive Chip Removal Rates and Fastest Cycle Times.
- ✓ Maximum Rigidity Produces Superior Part Finishes.
- ✓ Best Tool Clearance – Critical For Live Tooling.
- ✓ Exclusive Royal Risk-Free Performance Guarantee.
- ✓ In-Stock for Same-Day Shipping.



Three Unique Models For All Applications



Accu-Length™

- Our best-selling model.
- Fixed-position collet maintains precise z-axis part positioning – critical for secondary operations.
- Usually the best choice for main spindles, and always required for sub-spindles to ensure proper part transfer.



Pull-to-a-Stop

- Pullback design, however z-axis part positioning can be controlled with an included internal stop.
- Stop is easily removed for bar work.
- Often used in robot-load applications where workpiece confirmation is required.



Pullback

- Most economical choice, but limited primarily to first operation, main-spindle applications.
- No ability to control z-axis part position.

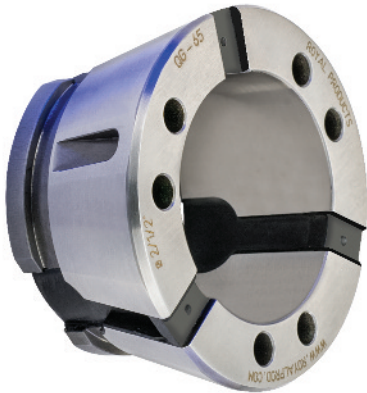
NOTE – In order to provide our customers with the best possible service, Royal maintains a huge inventory of Quick-Grip™ CNC Collet Chucks, plus more than 375 unique drawtube connector models – enabling same-day shipping on virtually all collet chuck orders.

ROYAL QUICK-GRIP™ CNC COLLET CHUCKS



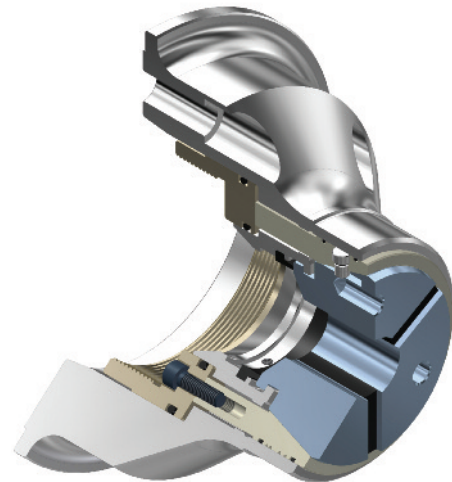
Big Benefit #1 Ten-Second Collet Changes

With the Royal Quick-Grip™ CNC Collet Chuck, collet changes take just seconds. Here's how it works:



1. The unique collets are constructed of hardened steel segments securely joined together by vulcanized rubber. Each collet contains an annular hook and groove configuration on the rear section of its outer diameter.

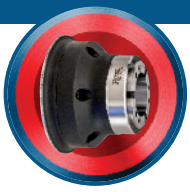
2. The installation tool incorporates steel pins that align with reamed holes on the collet face. When these pins engage the face holes and the trigger on the tool is actuated, the collet becomes temporarily compressed.



3. In its compressed state, the collet can then be inserted into the collet chuck, where the hooks on the rear of the collet segments become axially aligned with a retaining groove in the chuck.

4. Releasing the installation tool allows the collet to spring open, seating the hooks in the groove and drawing the matching ID/OD tapers into full, positive contact. The collet is now installed.

REDUCED SETUP TIME = GREATER THROUGHPUT AND HIGHER PROFITS!



ROYAL QUICK-GRIP™ CNC COLLET CHUCKS

Big Benefit #2 Ultra-Precision Accuracy – 0.0002" or Better



While many users purchase the Royal Quick-Grip™ CNC Collet Chuck for its lightning-fast collet changes and wide gripping range, another major benefit of this system is its extreme accuracy.

With CNC collet chucks, there are several factors which affect overall system accuracy. These include:

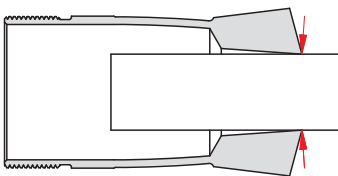
- Accuracy and tolerance of chuck mount (taper angle, gage line diameter, squareness of mounting flange, etc.)
- Tolerance and fit between chuck components (body to mounting adapter, closing sleeve to chuck bore, etc.)
- Accuracy and tolerance of collets (OD collet angle, bore sizing, concentricity of ID to OD, etc.)

The manufacturing processes for Royal CNC collet chucks and collets have all been fully optimized to achieve the absolute tightest tolerances and highest accuracies. While we guarantee our chucks at 0.0002" TIR between the A-mount taper and collet chuck closing sleeve, they often run at 0.00005" or better! Round-bore collet accuracy is also guaranteed to be within 0.0002" TIR.

This means that out of the box, with absolutely no indicating in, you can expect to achieve a **Quick-Grip™ total system accuracy of 0.0004" TIR or better.** We know of no other collet chuck manufacturer that can consistently produce such an exact level of precision.

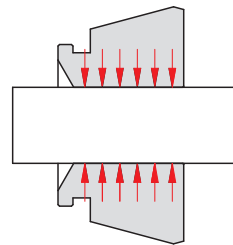
How much time do you waste boring jaws? The Royal Quick-Grip™ pays for itself in no time.

Big Benefit #3 Industry-Leading Gripping Range – 0.062"



Spring-Type Collet

With a spring-type collet, unless the bore is exactly sized to the workpiece diameter there will be reduced contact, resulting in compromised accuracy and grip force.



Quick-Grip Collet

With a Quick-Grip™ collet, the segments always remain parallel to the workpiece, helping to maintain optimum accuracy and grip force.

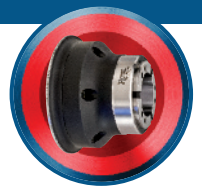
Royal Quick-Grip™ Collets have a **much wider collapse range than conventional spring collets.** A spring-type collet can only be compressed by up to 0.005" before there is a sharp drop off in both grip force and accuracy due to the changing angle of the gripping surface.

However, with the unique design of the Royal Quick-Grip™ collet, each collet segment is bonded to the adjacent segments with vulcanized rubber. This ensures that **the collet segments always remain parallel to the workpiece** as the collet is compressed, giving the Quick-Grip™ collet a full collapse range of .062" (nominal diameter +/- .031).

Advantages of this system include:

- The ability to compensate for oversized and undersized bar stock.
- Superior accuracy and grip force – by remaining parallel to the workpiece, each collet segment **makes contact over its entire length.** With old-technology spring collets, over-collapsing results in just a narrow ring of contact near the collet face.
- The wide range of the Royal Quick-Grip™ collet provides the ability to clear larger diameters in order to grip on smaller diameters. This "over the shoulder" feature offers second-op advantages over traditional spring collets.

ROYAL QUICK-GRIP™ CNC COLLET CHUCKS

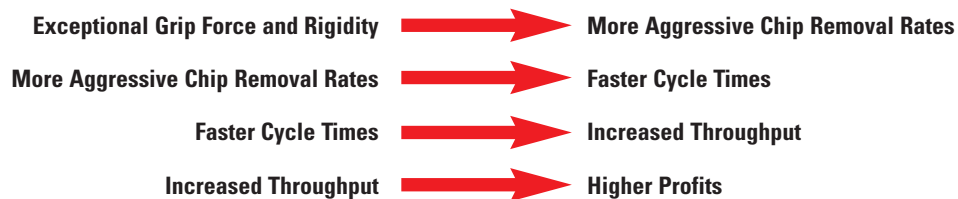


Big Benefit #4 Slash Cycle Times and Boost Throughput

Royal Quick-Grip™ Offers Unmatched Grip Force and Rigidity

The parallel-grip functionality of Royal Quick-Grip™ Collets provides extremely high grip force by maintaining workpiece contact over the entire length of each collet segment (see image on previous page). Additionally, the design and construction of all Royal Quick-Grip™ CNC Collet Chucks has been optimized for rock-solid rigidity.

This combination of tremendous grip force and outstanding rigidity results in something that every manufacturer strives for – the ability to **drastically increase speeds, feeds and depth of cut**, without sacrificing part accuracy or surface finish.

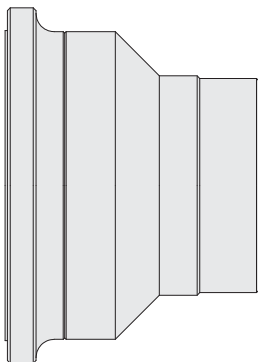


Many Royal Quick-Grip™ users have told us that they have made back their investment in just a few short weeks thanks to such a significant increase in throughput over their previous three-jaw chucks and older-style collet chucks.

Big Benefit #5 Most Compact Collet Chucks in the Industry

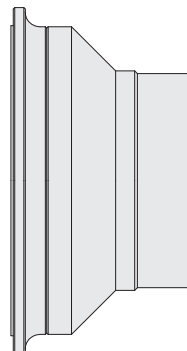
Royal Accu-Length™ CNC Collet Chucks have been optimized for tool clearance and rigidity. Short lengths **maximize the usable space inside the machining envelope**, while extremely compact nose diameters reduce tool interference and enable machining to take place closer to the spindle.

Compact
(Standard Length/Compact Nose Diameter)

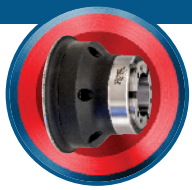


The traditional length ensures that these chucks can accommodate most machine drawtubes, while a greatly reduced nose diameter offers the **best tool clearance in the industry**.

Ultra-Compact
(Compact Length/Compact Nose Diameter)



These are the smallest collet chucks available. Often mounted on sub-spindles, Royal's Ultra-Compact CNC Collet Chucks make a great choice when maximum z-axis capacity is the primary requirement.



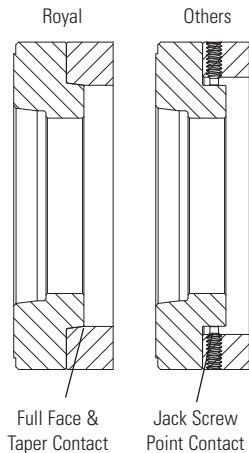
ROYAL QUICK-GRIP™ CNC COLLET CHUCKS

Big Benefit #6 Exclusive Royal Bolt and Go™ Mounting Advantage

All Royal CNC Collet Chucks mount quickly, easily, and accurately due to our exclusive Bolt & Go™ mounting interface.

Many Royal chuck models mount directly to the lathe spindle without the need for an adapter plate. However, for models that do use a plate, a precision-ground tapered fit between the plate's male pilot and chuck body's female recess **ensures a consistent, near-perfect fit without the need for any adjustment**. This precision fit also enhances overall system rigidity by providing both face and taper contact.

Other chuck manufacturers use a less precise approach. Instead of providing a near-perfect tapered interface between the chuck body and plate, they rely on a loose fit between a male cylindrical pilot on the plate and an oversized bore within the chuck body. Because there is clearance between these two components, jack screws located around the circumference must be used to radially true-up the chuck on the plate. This process of using the jack screws and an indicator to dial out the runout each time a chuck is mounted wastes valuable production time. The rigidity of this design is also significantly less due to the limited point-contact provided by the screws against the pilot as compared to the full-contact tapered fit of the Royal Bolt & Go™ interface.



Knock 30 Minutes Off Your Setup Time with Royal Bolt & Go™

Big Benefit #7 Risk-Free Performance Guarantee

- ✓ Smarter Design
- ✓ Better Quality
- ✓ Outstanding Support

**Risk-Free
PERFORMANCE
Guarantee**

- ✓ Same-Day Shipping
- ✓ No Hassles
- ✓ Risk-Free Guarantee

In addition to providing superior quality, service, support, and deliveries, Royal CNC Collet Chucks also carry an industry exclusive risk-free performance guarantee. This no-risk guarantee allows our customers to run a collet chuck on the toughest jobs in their shop for 45-days, and if they are not 100% satisfied with its performance, we will take it back and arrange for a full refund through their distributor.

When you buy a CNC collet chuck from Royal Products, you can have **complete confidence** that we will not let you down. For over 70 years, Royal has been recognized as one of the most reliable and trusted suppliers in the metalworking industry. We are here for you today, and we'll be here for you tomorrow.

ROYAL QUICK-GRIP™ CNC COLLET CHUCKS



Big Benefit #8

Precision-Made in USA

ISO 9001: 2008 Certified

- Every Royal CNC collet chuck is completely manufactured in our modern factory on state-of-the-art automated CNC equipment.
- All chucks, sleeves, adapter plates, collets, etc., come off of our gantry-loaded multi-tasking machines complete – eliminating the accuracy and quality issues often associated with multiple setups/operations.
- All grinding takes place on precision Swiss-made CNC grinders that enable multiple features to be ground in a single setup, resulting in near-perfect tolerances and **ensuring absolute consistency from part to part.**
- Royal Products is an ISO9001-2008 registered company dedicated to continuous improvement. Every process is documented and followed down to the smallest detail for consistent quality – every time.



Big Benefit #9

Outstanding Support



Royal maintains a fleet of fully-equipped mobile showrooms designed to bring solutions to our customers' doorsteps. To schedule a visit to your company, please call 1-800-645-4174.

- Royal's knowledgeable team of applications engineers makes it very easy for you to do business with us. When you call Royal, the person you speak with will be a workholding expert, and if we can't offer you the best solution for your application, we'll do our best to recommend a company that can – even if it's competitor!
- Royal CNC Collet Chucks are sold through a **select network of the country's top industrial and machine tool distributors.** We also have strong relationships with all of the major machine tool builders and importers to make sure that our products seamlessly interface with their machines.
- With over forty factory-trained account managers strategically located throughout North America, our highly-qualified field support team is always ready and willing to serve you.

Big Benefit #10

We Make it Easy

- All Royal CNC collet chucks include everything needed for installation, (even the wrenches). We strive to give our customers **"the mint on the pillow"** treatment.
- Through the past thirty years of gathering machine tool specifications and working closely with all of the major machine tool builders, Royal Products has developed a huge database of drawtube specifications, virtually eliminating the need for a customer to ever measure a machine.
- **We now stock over 375 of the most common drawtube connector models,** and non-stock connectors are made very quickly from semi-finished blanks.
- All Royal CNC collet chucks come packaged in specially designed heavy-gage boxes with form-fitting foam inserts to provide complete protection of all contents.





ROYAL QUICK-GRIP™ ACCU-LENGTH™ CNC COLLET CHUCKS

Bolt & Go™

Our exclusive Bolt & Go™ mounting feature is standard on all Royal Quick-Grip™ Collet Chuck models. **Bolt & Go™ enables chucks to be mounted very quickly and ensures maximum accuracy and rigidity.** See page 8 for additional information.

Completely Sealed

Lubricated for life, these chucks incorporate multiple O-ring seals to keep contaminants out and prevent chip pack-up on bore-thru applications.

High RPM

All Royal Quick-Grip™ Collet Chucks are balanced by design for high-speed operation, and can often be run at higher speeds than conventional 3-jaw chucks because they are less affected by centrifugal force.



Extremely Fast Collet Changes

Changing collets on a Royal Quick-Grip™ CNC Collet Chuck takes just a few seconds. A unique hook and groove design for securing collets is used instead of traditional threads.

Wide Gripping Range

Royal Quick-Grip™ Collets have a 0.062" gripping range (+/- 0.031"), enabling them to accommodate undersized and oversized bar stock.

High Accuracy

Royal Quick-Grip™ CNC Collet Chucks are very accurate – runout on the closing angle is **guaranteed to be within 0.0002" TIR.**

Low-Profile

Royal Quick-Grip™ CNC Collet Chucks have smaller nose diameters than other quick-change collet chucks for superior tool clearance.

Collet Compatibility

Royal Quick-Grip™ Collet Chucks can sometimes utilize other brands of quick-change collets. Call Royal to verify.

Heavy-Duty Construction

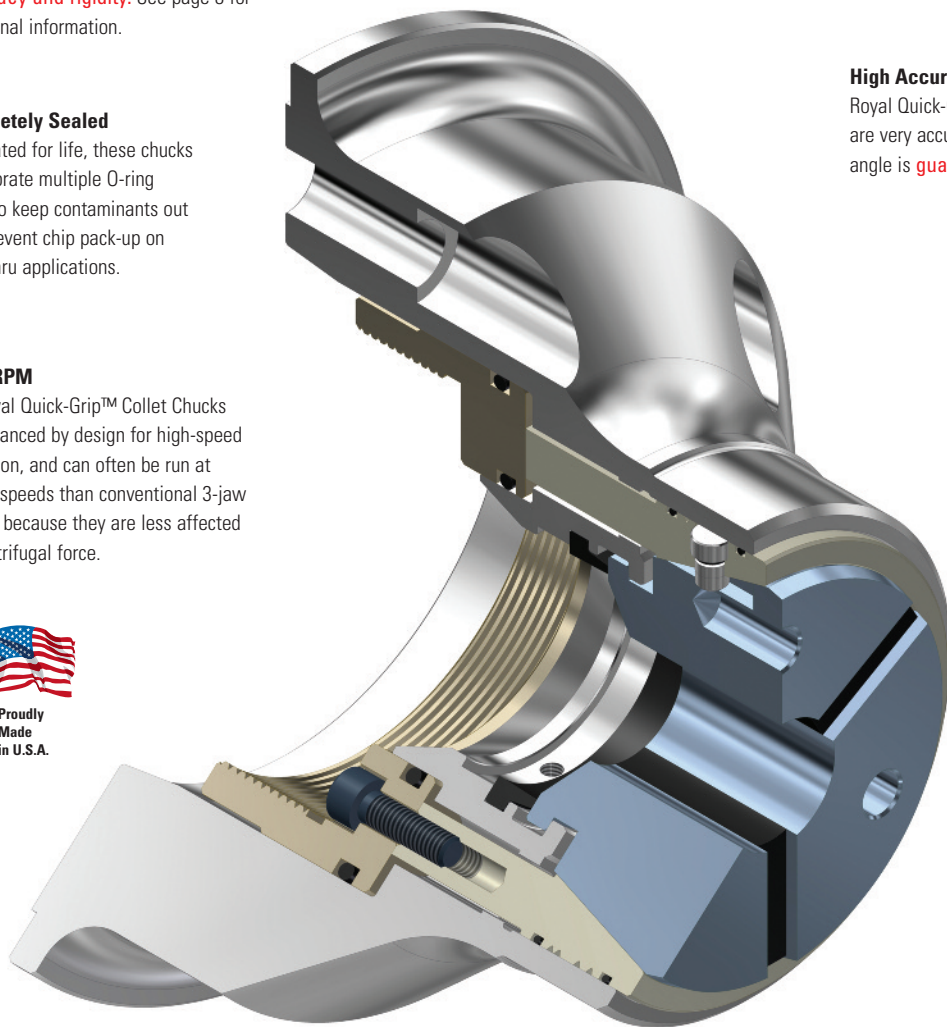
All chuck components, except for the drawtube connector, are hardened to Rc 61-63 for high rigidity and durability.

Easy Installation

Royal Quick-Grip™ Collet Chucks include all mounting hardware, mounting wrenches, and a custom-machined drawtube connector to ensure hassle-free installation.

Specials

If you have a special application that goes beyond the scope of our standard line, we will be happy to design and build a custom system to meet your needs. Please contact a Royal applications engineer to discuss your requirements.



Coolant Slinger

All bodies incorporate an oversized flange to protect the machine tool spindle bearings from coolant penetration.

Shortest Length

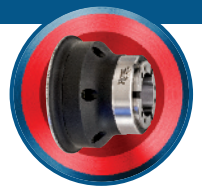
Royal Quick-Grip™ CNC Collet Chucks are among **the shortest chucks available**, providing maximum work envelope utilization. This is especially important for smaller machines with limited z-axis travel.

Dead-Length Operation

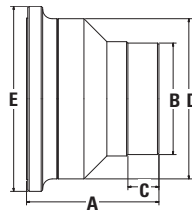
Royal Quick-Grip™ Accu-Length™ CNC Collet Chucks incorporate dead length operation to eliminate part pullback. With this design, the collet is held stationary in the chuck body and a tapered sleeve pushes forward to compress it, resulting in precise z-axis workpiece positioning.

Note – Collets sold separately

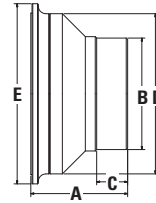
ROYAL QUICK-GRIP™ ACCU-LENGTH™ CNC COLLET CHUCKS



- ✓ 10-second collet changes.
- ✓ **Widest collet gripping range (0.062").**
- ✓ Extremely accurate – 0.0002" TIR.
- ✓ Parallel workpiece gripping.
- ✓ Compact and ultra-compact models to suit all machines and applications.
- ✓ In-stock for same-day shipping.



Compact (C)
(Standard Length/
Compact Diameter)



Ultra-Compact (UC)
(Compact Length/
Compact Diameter)



Royal Quick-Grip™ Accu-Length™ CNC Collet Chucks

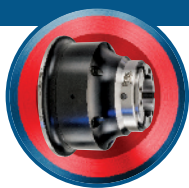
SPINDLE TYPE	COLLET TYPE	MAX CAPACITY		CHUCK STYLE	A OVERALL LENGTH	B NOSE DIAMETER	C NOSE LENGTH	D BODY DIAMETER	E FLANGE DIAMETER	CHUCK WEIGHT (lbs.)	MAX DRAWBAR FORCE (lbs.)	MAX CLAMPING FORCE (lbs.)	MAX RPM	PART NUMBER	PRICE ¹
		BAR	SLUG ³												
A2-5	QG-42	1.66	2.62	C	4.60	3.86	0.98	5.70	6.45	15	7,865	17,980	6,000	44055	\$3,400
A2-5	QG-42	1.66	2.62	UC	4.00	3.86	0.98	5.70	6.45	13	7,865	17,980	6,000	44051	3,400
A2-6	QG-42	1.66	2.62	UC	4.45	3.86	0.98	6.20	7.25	17	7,865	17,980	6,000	44053	3,400
140 MM	QG-42	1.66	2.62	UC	3.95	3.86	0.98	5.70	5.70	13	7,865	17,980	6,000	44057	3,400
A2-5	QG-65	2.66	3.40	C	4.80	4.69	1.00	6.45	7.25	19	10,115	23,600	6,000	44065	3,830
A2-5	QG-65	2.66	3.40	UC	4.50	4.69	1.00	6.45	7.25	18	10,115	23,600	6,000	44061	3,830
A2-6	QG-65	2.66	3.40	C	5.33	4.69	1.00	6.45	7.25	23	10,115	23,600	6,000	44067	3,830
A2-6	QG-65	2.66	3.40	UC	4.65	4.69	1.00	6.45	7.25	18	10,115	23,600	6,000	44063	3,830
A2-6	QG-65	2.66	3.40	EL ²	7.00	4.69	1.00	6.45	7.25	33	10,115	23,600	6,000	44049	3,830
A2-8	QG-65	2.66	3.40	C	5.50	4.69	1.00	8.00	9.45	37	10,115	23,600	6,000	44068	4,330
110 MM	QG-65	2.66	3.40	UC	4.45	4.69	1.00	6.45	6.45	17	10,115	23,600	6,000	44076	4,190
140 MM	QG-65	2.66	3.40	UC	4.80	4.69	1.00	6.45	7.45	25	10,115	23,600	6,000	44069	4,190
A2-5	QG-80	3.28	4.00	C	4.95	5.35	1.00	7.45	7.45	28	11,240	25,850	5,000	44074	4,450
A2-6	QG-80	3.28	4.00	C	4.95	5.35	1.00	7.45	7.45	28	11,240	25,850	5,000	44071	4,450
A2-6	QG-80	3.28	4.00	EL ²	7.00	5.35	1.00	7.45	7.45	33	11,240	25,850	5,000	44048	4,450
A2-8	QG-80	3.28	4.00	C	5.20	5.35	1.00	8.00	9.45	31	11,240	25,850	5,000	44093	4,450
140 MM	QG-80	3.28	4.00	C	4.75	5.35	1.00	7.45	7.45	28	11,240	25,850	5,000	44059	4,450
A2-6	QG-100	4.03	5.15	C	6.18	6.62	0.87	9.40	9.40	84	14,610	33,720	5,000	44077	5,480
A2-8	QG-100	4.03	5.15	C	6.43	6.62	0.87	9.40	10.75	86	14,610	33,720	5,000	44078	5,600
A2-11	QG-100	4.03	5.15	C	6.68	6.62	0.87	9.40	12.50	88	14,610	33,720	5,000	44079	7,100

¹ Includes drawtube connector. Collets sold separately.

² Extended-length – for use on machines where z-axis turret travel is limited.

³ Slug capacity requires counterboring of collets. See page 29 details.

C=Compact, UC=Ultra-Compact, EL=Extended-Length



ROYAL QUICK-GRIP™ PULL-TO-A-STOP CNC COLLET CHUCKS

Bolt & Go™

Our exclusive Bolt & Go™ mounting feature is standard on all Royal Quick-Grip™ Collet Chuck models. **Bolt & Go™ enables chucks to be mounted very quickly and ensures maximum accuracy and rigidity.** See page 8 for additional information.

Completely Sealed

Lubricated for life, these chucks incorporate multiple O-ring seals to keep contaminants out and prevent chip pack-up on bore-thru applications.

High RPM

All Royal Quick-Grip™ Collet Chucks are balanced by design for high-speed operation, and can often be run at higher speeds than conventional 3-jaw chucks because they are less affected by centrifugal force.



Coolant Slinger

All bodies incorporate an oversized flange to protect the machine tool spindle bearings from coolant penetration.

Shortest Length

Royal Quick-Grip™ CNC Collet Chucks are among **the shortest chucks available**, providing maximum work envelope utilization. This is especially important for smaller machines with limited z-axis travel.

Note – Collets sold separately

Extremely Fast Collet Changes

Changing collets on a Royal Quick-Grip™ CNC Collet Chuck takes just a few seconds. A unique hook and groove design for securing collets is used instead of traditional threads.

Wide Gripping Range

Royal Quick-Grip™ Collets have a 0.062" gripping range (+/- 0.031"), enabling them to accommodate undersized and oversized bar stock.

High Accuracy

Royal Quick-Grip™ CNC Collet Chucks are very accurate – runout on the closing angle is **guaranteed to be within 0.0002" TIR.**

Low-Profile

Royal Quick-Grip™ CNC Collet Chucks have smaller nose diameters than other quick-change collet chucks for superior tool clearance.

Collet Compatibility

Royal Quick-Grip™ Collet Chucks can sometimes utilize other brands of quick-change collets. Call Royal to verify.

Heavy-Duty Construction

All chuck components, except for the drawtube connector, are hardened to Rc 61-63 for high rigidity and durability.

Easy Installation

Royal Quick-Grip™ Collet Chucks include all mounting hardware, mounting wrenches, and a custom-machined drawtube connector to ensure hassle-free installation.

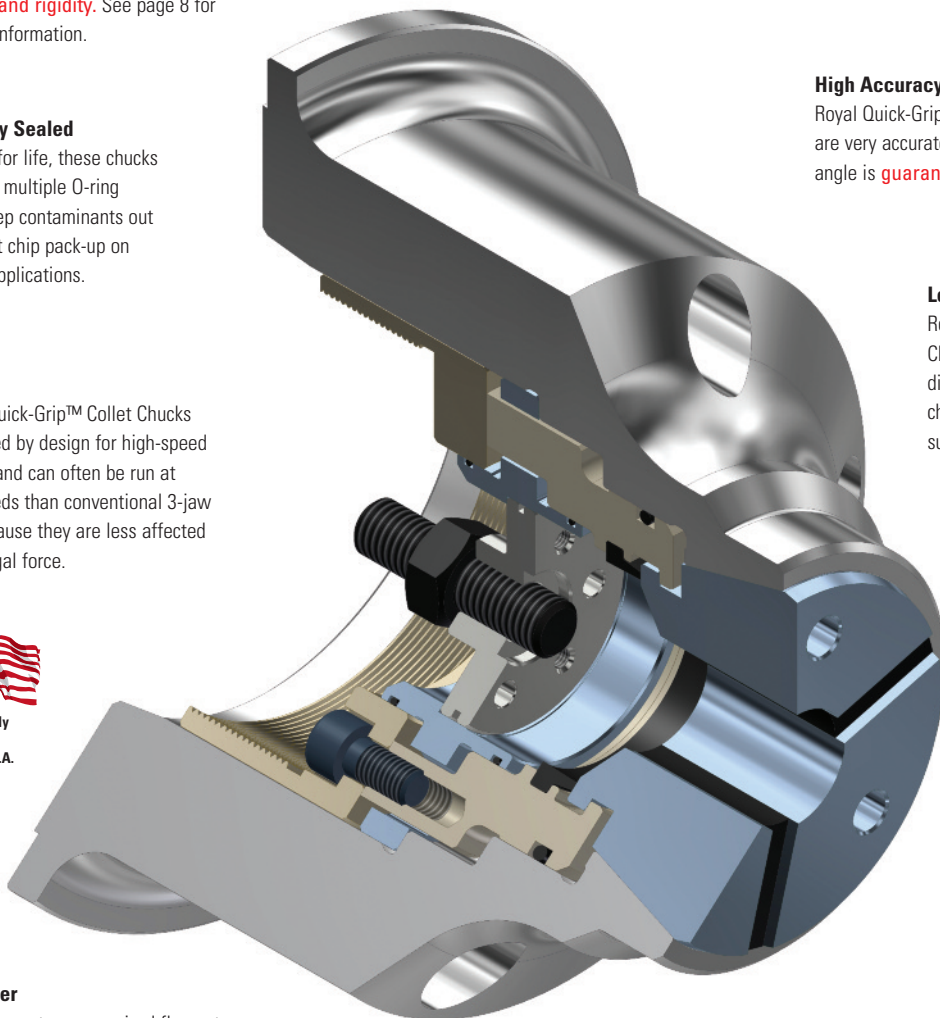
Specials

If you have a special application that goes beyond the scope of our standard line, we will be happy to design and build a custom system to meet your needs. Please contact a Royal applications engineer to discuss your requirements.

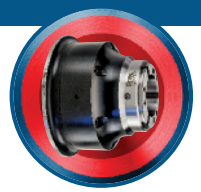
Two-Chucks In One

The Royal Quick-Grip™ Pull-to-a-Stop CNC Collet Chuck includes a removable stop for precise, consistent workpiece positioning. The pullback action of the collet draws the workpiece securely against the stop, eliminating any chance of z-axis part movement and enabling very aggressive cutting.

When thru-hole capacity is required for bar feeding applications, simply remove the stop and the chuck will function as a normal pullback-style collet chuck.



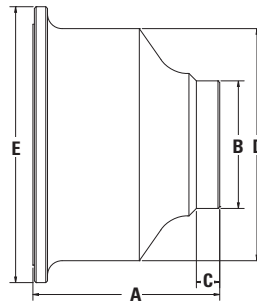
ROYAL QUICK-GRIP™ PULL-TO-A-STOP CNC COLLET CHUCKS



- ✓ Same great features as our Accu-Length™ Quick-Grip™ models, except that the collet is not fixed – it moves axially upon opening and closing.
- ✓ Adjustable stop guarantees precise, consistent z-axis part positioning and enables very aggressive cutting.
- ✓ Ideal for high-volume, robot-load applications in which the part needs to **locate against a shoulder and air-sensing / position confirmation is required.**
- ✓ Also a great choice for any CNC lathe equipped with a servo-driven bar feeder – simply remove the included stop for full thru-capacity.
- ✓ In-stock for same-day shipping.



Chuck includes removable standard stop.



Royal Quick-Grip™ Pull-to-a-Stop CNC Collet Chucks

SPINDLE TYPE	COLLET TYPE	MAX CAPACITY		A OVERALL LENGTH	B NOSE DIAMETER	C NOSE LENGTH	D BODY DIAMETER	E FLANGE DIAMETER	CHUCK WEIGHT (lbs.)	MAX DRAWBAR FORCE (lbs.)	MAX CLAMPING FORCE (lbs.)	MAX RPM	PART NUMBER	PRICE ¹
		BAR	SLUG ³											
A2-5	QG-42	1.66	2.62	5.10	3.54	0.62	6.00	6.70	21	7,865	17,980	6,000	46010	\$3,080
A2-6	QG-42	1.66	2.62	5.50	3.54	0.62	6.25	7.45	25	7,865	17,980	6,000	46012	3,080
A2-5	QG-65	2.66	3.40	5.50	4.37	0.80	6.70	7.62	28	10,115	23,600	6,000	46014	3,580
A2-6	QG-65	2.66	3.40	6.00	4.37	0.80	6.70	7.62	29	10,115	23,600	6,000	46016	3,580
A2-6	QG-65	2.66	3.40	7.00 ²	4.37	0.80	6.70	7.62	35	10,115	23,600	6,000	46017	3,580
A2-8	QG-65	2.66	3.40	6.40	4.37	0.80	7.95	9.45	45	10,115	23,600	6,000	46018	3,580
A2-6	QG-80	3.28	4.00	6.00	4.96	0.80	8.00	8.75	44	11,240	25,850	5,000	46020	3,950
A2-8	QG-80	3.28	4.00	6.40	4.96	0.80	8.00	9.45	47	11,240	25,850	5,000	46022	3,950
A2-6	QG-100	4.03	5.15	7.08	6.30	0.80	9.40	9.40	88	14,610	33,720	5,000	46023	4,240
A2-8	QG-100	4.03	5.15	7.33	6.30	0.80	9.40	10.75	95	14,610	33,720	5,000	46024	4,240
A2-11	QG-100	4.03	5.15	7.58	6.30	0.80	9.40	12.50	102	14,610	33,720	5,000	46026	4,600

¹ Includes drawtube connector. Collets sold separately.

² Extended-length – for use on machines where z-axis turret travel is limited.

³ Slug capacity requires counterboring of collets. See page 29 details.



ROYAL QUICK-GRIP™ PULLBACK CNC COLLET CHUCKS

Bolt & Go™

Our exclusive Bolt & Go™ mounting feature is standard on all Royal Quick-Grip™ Collet Chuck models. Bolt & Go™ enables chucks to be mounted very quickly and ensures maximum accuracy and rigidity. See page 8 for additional information.

Completely Sealed

Lubricated for life, these chucks incorporate **multiple O-ring seals to keep contaminants out** and prevent chip pack-up on bore-thru applications.

High RPM

All Royal Quick-Grip™ Collet Chucks are balanced by design for high-speed operation, and can often be run at higher speeds than conventional 3-jaw chucks because they are less affected by centrifugal force.

Coolant Slinger

All bodies incorporate an oversized flange to protect the machine tool spindle bearings from coolant penetration.

Shortest Length

Royal Quick-Grip™ CNC Collet Chucks are among the shortest chucks available, providing maximum work envelope utilization. This is especially important for smaller machines with limited z-axis travel.

Specials

If you have a special application that goes beyond the scope of our standard line, we will be happy to design and build a custom system to meet your needs. Please contact a Royal applications engineer to discuss your requirements.

Extremely Fast Collet Changes

Changing collets on a Royal Quick-Grip™ CNC Collet Chuck takes just a few seconds. A unique hook and groove design for securing collets is used instead of traditional threads.

Wide Gripping Range

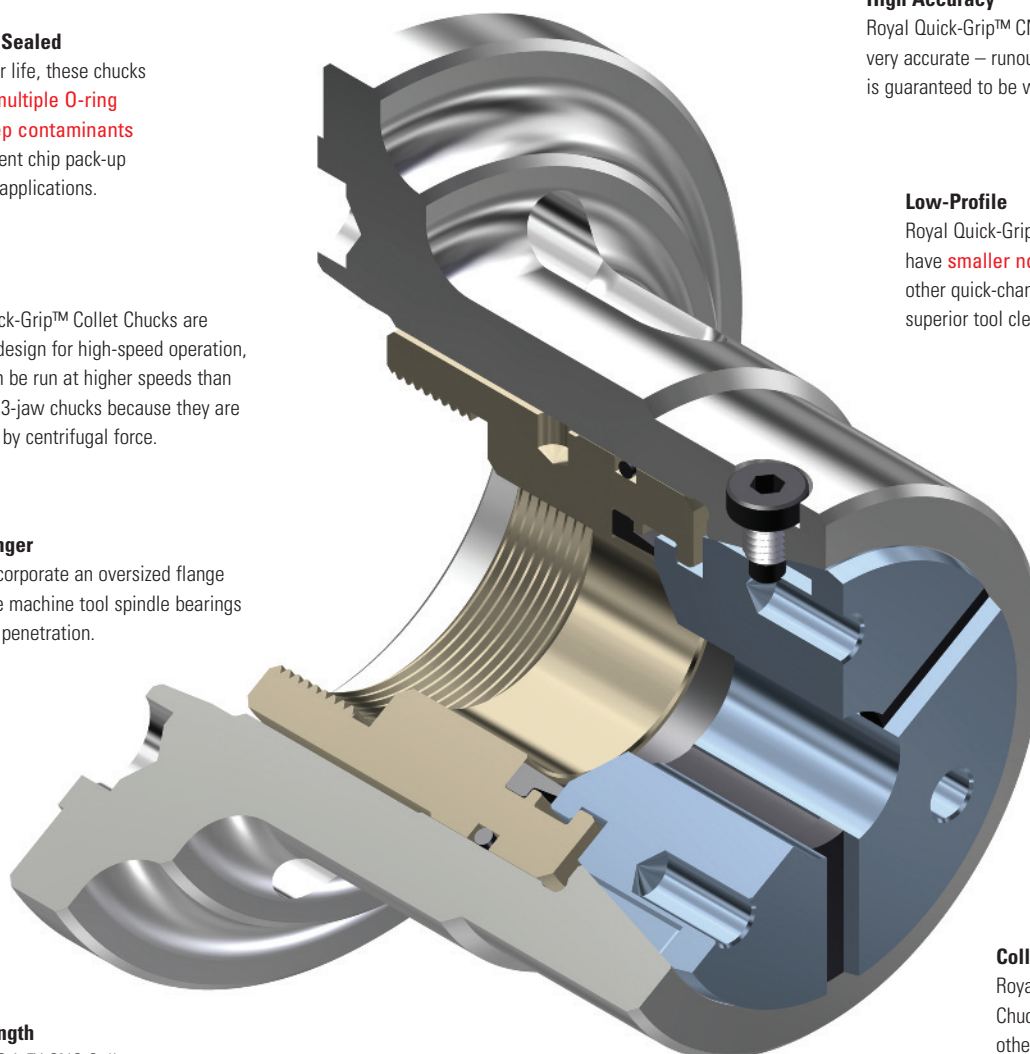
Royal Quick-Grip™ Collets have a 0.062" gripping range (+/- 0.031"), enabling them to accommodate undersized and oversized bar stock.

High Accuracy

Royal Quick-Grip™ CNC Collet Chucks are very accurate – runout on the closing angle is guaranteed to be within 0.0002" TIR.

Low-Profile

Royal Quick-Grip™ CNC Collet Chucks have **smaller nose diameters** than other quick-change collet chucks for superior tool clearance.



Collet Compatibility

Royal Quick-Grip™ Collet Chucks can sometimes utilize other brands of quick-change collets. Call Royal to verify.

Easy Installation

Royal Quick-Grip™ Collet Chucks include all mounting hardware, mounting wrenches, and a custom-machined drawtube connector to ensure hassle-free installation.

Heavy-Duty Construction

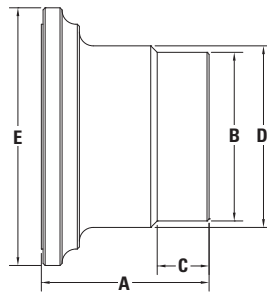
All chuck components, including the drawtube connector, are **hardened to Rc 61-63 for high rigidity and durability.**

Note – Collets sold separately

ROYAL QUICK-GRIP™ PULLBACK CNC COLLET CHUCKS



- ✓ Traditional pullback design – collet is pulled into chuck to close, pushed out to open.
- ✓ No collet stop capability, therefore this chuck style is **typically used only on jobs where holding precise axial position is not critical.**
- ✓ Includes many of the same features of our QG Accu-Length™ models, including:
 - 10-second collet changes
 - 0.0002" TIR accuracy on closing angle
 - Wide 0.062" collet range
 - Compact dimensions for superior clearance
- ✓ In-stock for same-day shipping.



Royal Quick-Grip™ Pullback CNC Collet Chucks

SPINDLE TYPE	COLLET TYPE	MAX CAPACITY		A OVERALL LENGTH	B NOSE DIAMETER	C NOSE LENGTH	D BODY DIAMETER	E FLANGE DIAMETER	CHUCK WEIGHT (lbs.)	MAX DRAWBAR FORCE (lbs.)	MAX CLAMPING FORCE (lbs.)	MAX RPM	PART NUMBER	PRICE ¹
		BAR	SLUG ²											
A2-5	QG-42	1.66	2.62	4.45	4.11	3.50	5.25	6.45	11	7,865	17,980	6,000	44020	\$2,080
A2-6	QG-42	1.66	2.62	4.35	4.11	1.50	4.38	7.45	13	7,865	17,980	6,000	44022	2,230
A2-5	QG-65	2.66	3.40	4.30	4.88	1.50	6.45	6.45	19	10,115	23,600	6,000	44028	2,370
A2-6	QG-65	2.66	3.40	4.85	4.88	1.50	5.25	7.45	17	10,115	23,600	6,000	44030	2,370
A2-8	QG-65	2.66	3.40	5.00	4.88	1.50	5.72	9.45	25	10,115	23,600	6,000	44032	2,930
A2-6	QG-80	3.28	4.00	4.85	5.47	1.25	5.68	7.45	25	11,240	25,850	5,000	44034	2,990
A2-8	QG-80	3.28	4.00	5.00	5.47	1.25	5.72	9.45	25	11,240	25,850	5,000	44036	2,990

¹ Includes drawtube connector. Collets sold separately.

² Slug capacity requires counterboring of collets. See page 29 details.



Check out the Royal Quick-Grip™ CNC Collet Chuck Video at www.colletchucks.com

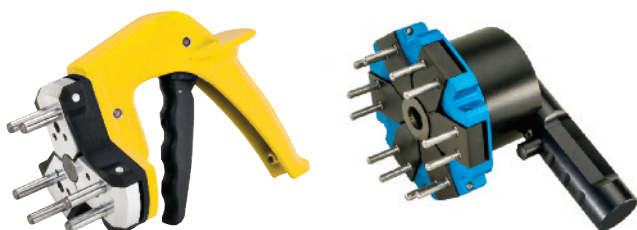


ROYAL QUICK-GRIP™ CNC COLLET CHUCK ACCESSORIES

Royal Quick-Grip™ Collet Installation Tools

- Easy to use tools enable collets to be changed in seconds.
- Simply insert the steel pins into the collet face holes and squeeze the trigger to collapse the collet.
- Available in both manual and pneumatic versions.

Note – pneumatic changing tools require an air supply line.



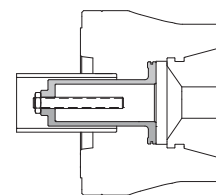
Royal Quick-Grip™ Collet Installation Tools

FITS CHUCK MODEL	TYPE	PART NUMBER	PRICE
QG-42	Manual	44097	\$550
QG-42	Pneumatic	44371	1,164
QG-65	Manual	44098	550
QG-65	Pneumatic	44372	1,164
QG-80	Manual	44099	550
QG-80	Pneumatic	44373	1,995
QG-100	Pneumatic	44374	1,995

Royal Quick-Grip™ Standard and Extra-Depth Stops

- A stop is used for accurate z-axis positioning of short workpieces within a collet.
- Rod length is easily adjusted according to workpiece parameters.
- Royal's easy-to-install stop assemblies locate against a shoulder within the chuck body and are held rigidly in-place with radially-located screws.

- Royal Quick-Grip™ Extra-Depth Stops have a greater throat depth than the standard stops, enabling **longer parts to be swallowed while minimizing protrusion beyond the collet face.**
- For use with Royal Accu-Length™ and Pull-to-a-Stop Quick-Grip™ Collet Chuck Models.



Royal Quick-Grip™ Standard Stops

FITS CHUCK MODEL	MAX THROAT DEPTH*		PART NUMBER	PRICE
	ACCU-LENGTH CHUCK MODELS	PULL-TO-A-STOP CHUCK MODELS		
QG-42	2.03	2.89	44080	\$184
QG-65	2.47	3.33	44081	209
QG-80	2.51	3.33	44084	238
QG-100	2.71	3.65	44816	270

* Measured from collet face.

Royal Quick-Grip™ Extra-Depth Stops

FITS CHUCK MODEL	MAX THROAT DEPTH*		MAX PART DIAMETER	MIN DRAWTUBE I.D.	PART NUMBER	PRICE
	ACCU-LENGTH CHUCK MODELS	PULL-TO-A-STOP CHUCK MODELS				
QG-42	5.00	5.86	1.25	1.66	44802	\$325
QG-65	6.00	6.86	1.25	1.66	44804	368
QG-65	6.00	6.86	2.25	2.73	44806	368
QG-80	6.00	6.82	2.00	2.48	44808	444
QG-80	6.00	6.82	2.75	3.23	44810	444
QG-100	6.00	6.94	2.75	3.23	44812	537
QG-100	6.00	6.94	3.50	3.91	44814	537

* Measured from collet face.

ROYAL QUICK-GRIP™ CNC COLLET CHUCK ACCESSORIES



Royal Quick-Grip™ Ejectors

- ❑ Ejectors are used in sub-spindle applications with Accu-Length™ Chucks to push finished workpieces into the part catcher upon completion.
- ❑ A hardened plunger rod and a bronze bushing work together to provide **smooth, consistent operation**.
- ❑ Design enables tip to be changed without removing ejector assembly from the chuck.
- ❑ Available in standard and compact models:
 - Standard Model – for parts ranging in size from 0.81" to 4.00" dia.
 - Compact Model – for parts ranging in size from 0.18" to 1.50" dia.
- ❑ Easily customizable as workpiece configurations require.
- ❑ Pneumatic versions also available upon request.

For an alternative solution to an ejector, check out the Royal Grippex Coolant-Actuated Bar Puller. The Grippex, when fitted with special jaws, can be used to pull finished parts from a sub-spindle, eliminating the need for an ejector and **freeing up the spindle bore to swallow longer parts**.



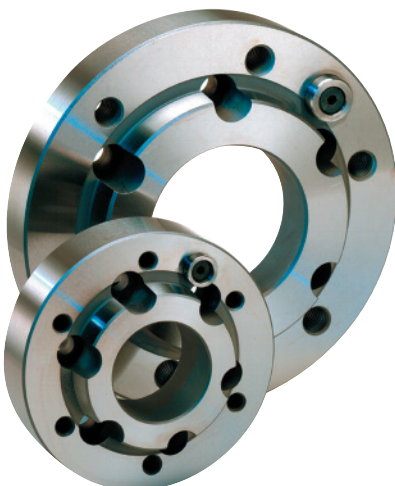
Royal Quick-Grip™ Ejectors

FITS ACCU-LENGTH™ CHUCK MODEL	EJECTOR STYLE	PART DIAMETER RANGE	PART NUMBER	PRICE
QG-42	Compact	0.18"–1.25"	44043	\$616
QG-42	Standard	0.81"–1.63"	44040	712
QG-65	Compact	0.18"–1.25"	44044	626
QG-65	Standard	0.81"–2.63"	44041	723
QG-80	Compact	0.18"–1.25"	44045	638
QG-80	Standard	0.81"–3.25"	44042	733
QG-100	Compact	0.50"–1.50"	44047	650
QG-100	Standard	1.50"–4.00"	44046	746

Royal Hardened and Ground Adapter Plates



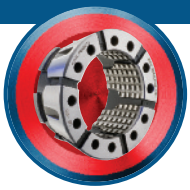
- ❑ Adapter plates offer the flexibility to mount collet chucks and 3-jaw chucks to a wider range of spindles:
 - Mount a larger chuck on a smaller spindle for increased capacity.
 - Mount a smaller chuck on a larger spindle for increased tool clearance and higher speeds.
- ❑ All Royal adapter plates are **hardened to Rc 61-63**.
- ❑ High accuracy – 0.0002" TIR guaranteed.
- ❑ Metric screws included for mounting plate to spindle.
- ❑ Drive button included on all plates.



Royal Hardened and Ground Adapter Plates

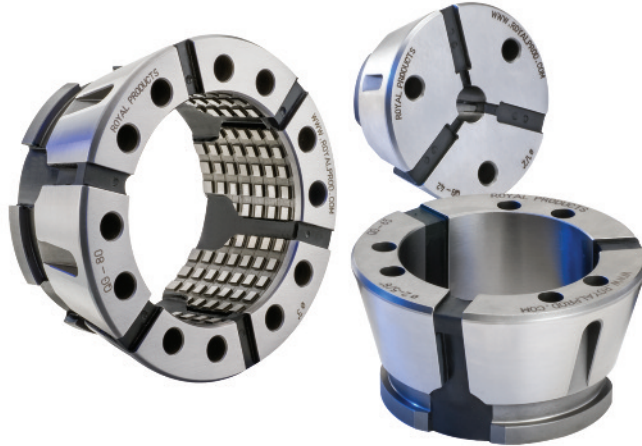
SPINDLE MOUNT	CHUCK MOUNT	PLATE DIAMETER	PLATE THICKNESS	THRU-HOLE DIA.	SPINDLE MOUNTING BOLTS	CHUCK MOUNT THREADS	PART NUMBER	PRICE
A2-5	A2-6	6.68	1.00	2.63	M-10	M-12	44000	\$1,215
A2-6	A2-6	6.68	1.25	3.56	M-12	M-12	44009	1,079
A2-6	A2-8	8.68	1.00	3.75	M-12	M-16	44004	1,404
A2-8	A2-6	8.25	1.75	3.44	M-16	M-12	44010	1,404
A2-8	A2-8	8.69	2.00	4.76	M-16	M-16	44011	1,479
A2-11	A2-8	11.00	2.00	4.76	M-20	M-16	44014	1,780
110MM	A2-5	5.31	0.75	2.00	M-10	M-10	44006	1,052
140MM	A2-6	6.68	1.00	3.00	M-10	M-12	44008	1,248

Other configurations available. Contact a Royal Products applications engineer at 1-800-645-4174 with your requirements.



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

**Full Range of Metric Sizes
Now Available from Stock**



These Extremely Advanced Collets Will Revolutionize Your Workholding

- ❑ **Industry-leading 0.062" Gripping Range** – greater than other quick-change collets on the market and more than 12X that of traditional spring collets (see page 6).
- ❑ Royal Quick-Grip Collets are precision-ground to nominal size, with a gripping range of +/- 0.31" to handle undersized/oversized stock.
 - Example** – a ½" collet is ground to 0.500" dia., and can hold any part ranging in size from 0.469" – 0.531" dia.
- ❑ **Ultra-Precision Accuracy – 0.0002" TIR** or better guaranteed on round-bores (see page 6). Total system accuracy (chuck + collet) guaranteed to 0.0004" or better.
- ❑ All Royal Quick-Grip™ Collets are designed for minimal projection beyond the chuck face (≤ 0.020") for optimum rigidity and machine work-zone utilization.
- ❑ All models have a smooth gripping surface, but round-bores are also available from stock in a double-serrated version for very aggressive first-op machining.
- ❑ Vulcanized rubber between the hardened steel collet segments provides outstanding protection against coolant and chip penetration, and **Royal's advanced vulcanization process carries a lifetime guarantee against failure.**
- ❑ Collets can be counter-bored for increased capacity (see page 29).
- ❑ S-type master collets available for QG-65 and QG-80 chuck models – see page 28.
- ❑ Royal Quick-Grip™ Collets are compatible with some other brands of quick-change chucks, but note that the QG-80 and QG-100 models have a six-slot design (for increased gripping torque) that requires the use of a Royal installation tool. Call us to verify compatibility.
- ❑ Custom sizes and shapes available as **quick-ship specials**. Collet segments can also be carbide-coated for extremely harsh applications. Contact one of our applications engineers at 1-800-645-4174 to discuss your requirements.

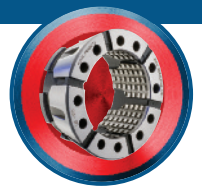
Royal Ultra-Precision Quick-Grip™ Collet Specifications

COLLET MODEL	NUMBER OF SLOTS	ROUND		HEX	SQUARE	EMERGENCY COLLETS AVAILABLE	CUSTOM SIZES AND SHAPES AVAILABLE	CARBIDE COATING AVAILABLE
		MAXIMUM THRU CAPACITY	MAXIMUM CAPACITY WHEN COUNTER-BORED**	MAXIMUM THRU CAPACITY	MAXIMUM THRU CAPACITY			
QG-42	3	1.66	2.62	1.40	1.15	Y	Y	Y
QG-65	3	2.66	3.40	2.28	1.78	Y	Y	Y
QG-80	6*	3.28	4.00	2.78	2.03	Y	Y	Y
QG-100	6*	4.03	5.15	3.28	2.78	Y	Y	Y

* The unique six-slot design of the Royal QG-80 and QG-100 Quick-Grip™ collets provides increased workpiece contact over the entire gripping range for superior gripping torque over other brands.

** Counter-boring collets is a special operation and it is important to note that the maximum counter-bore diameter varies with depth. For more information, please see page 29 or contact Royal.

ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS



Why Do Top Manufacturers Insist on Royal Quick-Grip™ Collets?

Industry-Leading 0.062" Gripping Range Covers More Diameters with Fewer Collets

Exceptional Grip-Force Enables Very Aggressive Cutting

Ultra-Precision Accuracy – 0.0002" TIR or Better

Exclusive Royal Risk-Free Performance Guarantee

Vulcanization Guaranteed for Life

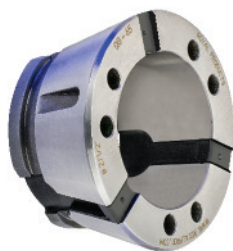
Fast Delivery on Custom Shapes and Sizes

Parallel-Grip Maintains Full-Length Part Engagement

Special Slot Relief Grinding Eliminates "Collet Popping" and Minimizes Chuck Wear



Order Today – Have it Tomorrow



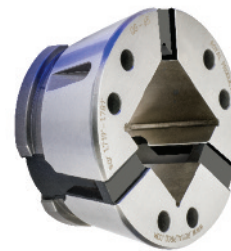
Round – Smooth



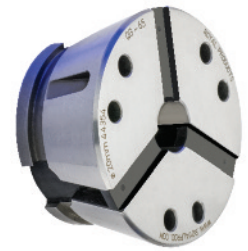
Round – Serrated



Hex



Square



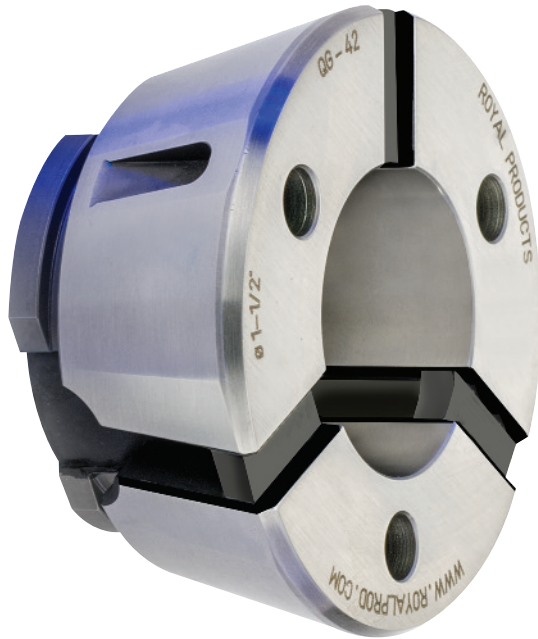
Emergency

Thousands of Round, Hex, Square and Emergency Collets
IN-STOCK for SAME-DAY SHIPPING!



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

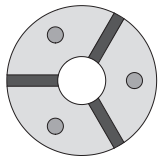
QG-42



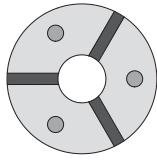
QG-42 CAPACITY	
Bar Diameter	1.66" (42.8mm)
Slug Diameter*	2.62" (66.5mm)

* See page 29 for details.

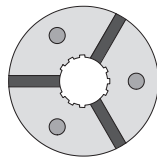
- ❑ Huge inventory of Round, Hex, Square, and Emergency styles always in stock, ready for same-day shipping.
- ❑ Smooth and serrated versions for round-bore models (all others smooth only).
- ❑ **Industry-leading 0.062" gripping range** covers a wide range of part diameters. Collets are ground to nominal size and have a range of +/- 0.031".
- ❑ Parallel-grip ensures full-length part contact for maximum grip force, rigidity, and accuracy.
- ❑ Can be counter-bored for increased part capacity up to 2.62" – see page 29 for details.
- ❑ Quick-ship specials available for custom shapes.
- ❑ Can utilize manual and pneumatic changing tools.



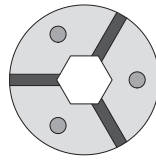
Round Inch



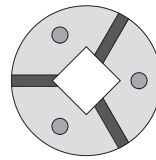
Round Metric



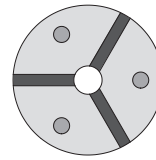
Serrated



Hex



Square



Emergency

Royal QG-42 **Round** Collets (Inch) – \$239 Each

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
3/16"	0.157–0.219	44101	N/A
7/32"	0.188–0.250	44102	N/A
1/4"	0.219–0.281	44103	N/A
9/32"	0.250–0.312	44104	N/A
5/16"	0.282–0.344	44105	N/A
11/32"	0.313–0.375	44106	44155
3/8"	0.344–0.406	44107	44156
13/32"	0.375–0.437	44108	44157
7/16"	0.407–0.469	44109	44158
15/32"	0.438–0.500	44110	44159
1/2"	0.469–0.531	44111	44160
17/32"	0.500–0.562	44112	44161
9/16"	0.532–0.594	44113	44162
19/32"	0.563–0.625	44114	44163
5/8"	0.594–0.656	44115	44164
21/32"	0.625–0.687	44116	44165

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
11/16"	0.657–0.719	44117	44166
23/32"	0.688–0.750	44118	44167
3/4"	0.719–0.781	44119	44168
29/32"	0.750–0.812	44120	44169
13/16"	0.782–0.844	44121	44170
27/32"	0.813–0.875	44122	44171
7/8"	0.844–0.906	44123	44172
29/32"	0.875–0.937	44124	44173
15/16"	0.907–0.969	44125	44174
31/32"	0.938–1.000	44126	44175
1"	0.969–1.031	44127	44176
1 1/32"	1.000–1.062	44128	Call
1 1/16"	1.032–1.094	44129	44177
1 3/32"	1.063–1.125	44130	Call
1 1/8"	1.094–1.156	44131	44178
1 5/32"	1.125–1.187	44132	Call

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
1 3/16"	1.157–1.219	44133	44179
1 7/32"	1.188–1.250	44134	Call
1 1/4"	1.219–1.281	44135	44180
1 9/32"	1.250–1.312	44136	Call
1 5/16"	1.282–1.344	44137	44181
1 11/32"	1.313–1.375	44138	Call
1 3/8"	1.344–1.406	44139	44182
1 13/32"	1.375–1.437	44140	Call
1 7/16"	1.407–1.469	44141	44183
1 15/32"	1.438–1.500	44142	Call
1 1/2"	1.469–1.531	44143	44184
1 17/32"	1.500–1.562	44144	Call
1 9/16"	1.532–1.594	44145	44185
1 19/32"	1.563–1.625	44146	Call
1 5/8"	1.594–1.656	44147	44186

ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

QG-42



Royal QG-42 Round Collets (Metric) – \$239 Each

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
4mm	3.25-4.75	62100	N/A
5mm	4.25-5.75	62102	N/A
6mm	5.25-6.75	62104	N/A
7mm	6.25-7.75	62106	N/A
8mm	7.25-8.75	62108	N/A
9mm	8.25-9.75	62110	62200
10mm	9.25-10.75	62112	62201
11mm	10.25-11.75	62114	62202
12mm	11.25-12.75	62116	62203
13mm	12.25-13.75	62118	62204
14mm	13.25-14.75	62120	62205
15mm	14.25-15.75	62122	62206
16mm	15.25-16.75	62124	62207

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
17mm	16.25-17.75	62126	62208
18mm	17.25-18.75	62128	62209
19mm	18.25-19.75	62130	62210
20mm	19.25-20.75	62132	62211
21mm	20.25-21.75	62134	62212
22mm	21.25-22.75	62136	62213
23mm	22.25-23.75	62138	62214
24mm	23.25-24.75	62140	62215
25mm	24.25-25.75	62142	62216
26mm	25.25-26.75	62144	62217
27mm	26.25-27.75	62146	62218
28mm	27.25-28.75	62148	62219
29mm	28.25-29.75	62150	62220

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
30mm	29.25-30.75	62152	62221
31mm	30.25-31.75	62154	62222
32mm	31.25-32.75	62156	62223
33mm	32.25-33.75	62158	62224
34mm	33.25-34.75	62160	62225
35mm	34.25-35.75	62162	62226
36mm	35.25-36.75	62164	62227
37mm	36.25-37.75	62166	62228
38mm	37.25-38.75	62168	62229
39mm	38.25-39.75	62170	62230
40mm	39.25-40.75	62172	62231
41mm	40.25-41.75	62174	62232
42mm	41.25-42.75	62176	62233

Royal QG-42 Hex Collets – \$329 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
¼"	0.219-0.281	44375
⅜"	0.344-0.406	44377
½"	0.469-0.531	44379
⅝"	0.594-0.656	44381

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
¾"	0.719-0.781	44383
7/8"	0.844-0.906	44385
1"	0.969-1.031	44387
1 1/8"	1.094-1.156	44389

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1 ¼"	1.219-1.281	44391
1 ⅜"	1.344-1.406	44393

Royal QG-42 Square Collets – \$329 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
¼"	0.219-0.281	44670
⅜"	0.344-0.406	44672
½"	0.469-0.531	44674

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
5/8"	0.594-0.656	44676
¾"	0.719-0.781	44678
7/8"	0.844-0.906	44680

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1"	0.969-1.031	44682
1 1/8"	1.094-1.156	44684

Royal QG-42 Emergency Collets – \$280 Each – See Page 29

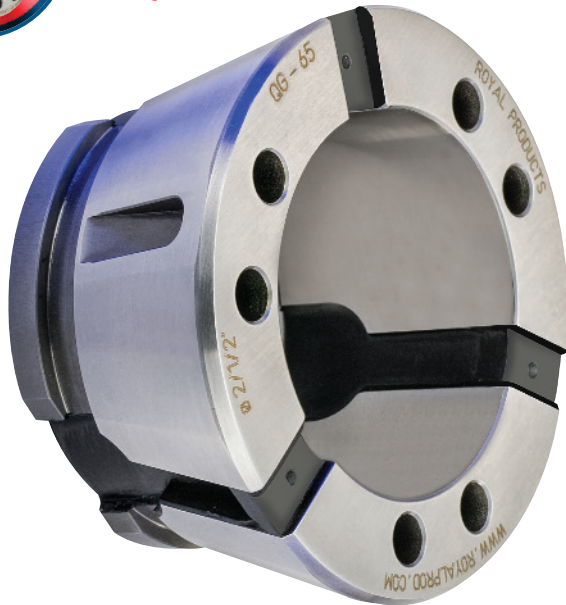


Check out the Royal Quick-Grip™ CNC Collet Chuck Video at www.colletchucks.com



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

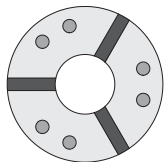
QG-65



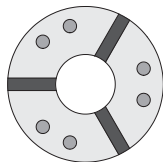
QG-65 CAPACITY	
Bar Diameter	2.66" (65.8mm)
Slug Diameter*	3.40" (86.4mm)

* See page 29 for details.

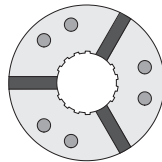
- Huge inventory of Round, Hex, Square, and Emergency styles always in stock, ready for same-day shipping.
- Industry-leading 0.062" gripping range covers a wide range of part diameters. Collets are ground to nominal size and have a range of +/- 0.031".
- Parallel-grip ensures **full-length part contact for maximum grip force, rigidity, and accuracy.**
- Can be counter-bored for increased part capacity up to 3.40" – see page 29 for details.
- Quick-ship specials available for custom shapes.
- Can utilize manual and pneumatic changing tools.



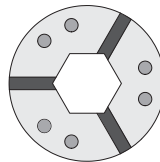
Round Inch



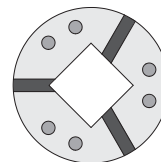
Round Metric



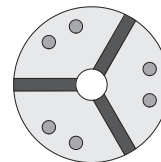
Serrated



Hex



Square



Emergency

Royal QG-65 Round Collets (Inch) – \$293 Each

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
3/16"	0.157–0.219	44201	N/A
7/32"	0.188–0.250	44202	N/A
1/4"	0.219–0.281	44203	N/A
9/32"	0.250–0.312	44204	N/A
5/16"	0.282–0.344	44205	N/A
11/32"	0.313–0.375	44206	44306
3/8"	0.344–0.406	44207	44307
13/32"	0.375–0.437	44208	44308
7/16"	0.407–0.469	44209	44309
15/32"	0.438–0.500	44210	44310
1/2"	0.469–0.531	44211	44311
17/32"	0.500–0.562	44212	44312
9/16"	0.532–0.594	44213	44313
19/32"	0.563–0.625	44214	44314
5/8"	0.594–0.656	44215	44315
21/32"	0.625–0.687	44216	44316
11/16"	0.657–0.719	44217	44317
23/32"	0.688–0.750	44218	44318
3/4"	0.719–0.781	44219	44319
25/32"	0.750–0.812	44220	44320
13/16"	0.782–0.844	44221	44321
27/32"	0.813–0.875	44222	44322
7/8"	0.844–0.906	44223	44323
29/32"	0.875–0.937	44224	44324
15/16"	0.907–0.969	44225	44325
31/32"	0.938–1.000	44226	44326
1"	0.969–1.031	44227	44327

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
1 1/32"	1.000–1.062	44228	Call
1 1/16"	1.032–1.094	44229	44328
1 1/8"	1.063–1.125	44230	Call
1 1/4"	1.094–1.156	44231	44329
1 3/8"	1.125–1.187	44232	Call
1 1/2"	1.157–1.219	44233	44330
1 5/8"	1.188–1.250	44234	Call
1 3/4"	1.219–1.281	44235	44331
1 7/8"	1.250–1.312	44236	Call
1 15/16"	1.282–1.344	44237	44332
1 1/2"	1.313–1.375	44238	Call
1 3/8"	1.344–1.406	44239	44333
1 13/16"	1.375–1.437	44240	Call
1 1/2"	1.407–1.469	44241	44334
1 15/16"	1.438–1.500	44242	Call
1 7/8"	1.469–1.531	44243	44335
1 17/16"	1.500–1.562	44244	Call
1 9/16"	1.532–1.594	44245	44336
1 19/16"	1.563–1.625	44246	Call
1 5/8"	1.594–1.656	44247	44337
1 21/16"	1.625–1.687	44248	Call
1 11/16"	1.657–1.719	44249	44338
1 23/16"	1.688–1.750	44250	Call
1 3/4"	1.719–1.781	44251	44339
1 25/16"	1.750–1.812	44252	Call
1 13/16"	1.782–1.844	44253	44340
1 27/16"	1.813–1.875	44254	Call

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
1 7/8"	1.844–1.906	44255	44341
1 29/32"	1.875–1.937	44256	Call
1 15/16"	1.907–1.969	44257	44342
1 31/32"	1.938–2.000	44279	Call
2"	1.969–2.031	44258	44343
2 1/32"	2.000–2.062	44259	Call
2 1/16"	2.032–2.094	44260	44344
2 3/32"	2.063–2.125	44261	Call
2 1/8"	2.094–2.156	44262	44345
2 5/32"	2.125–2.187	44263	Call
2 3/16"	2.157–2.219	44264	44346
2 1/4"	2.188–2.250	44265	Call
2 1/2"	2.219–2.281	44266	44347
2 5/8"	2.250–2.312	44267	Call
2 3/4"	2.282–2.344	44268	44348
2 11/16"	2.313–2.375	44269	Call
2 5/8"	2.344–2.406	44270	44349
2 13/16"	2.375–2.437	44271	Call
2 7/16"	2.407–2.469	44272	44350
2 15/16"	2.438–2.500	44273	Call
2 1/2"	2.469–2.531	44274	44351
2 17/16"	2.500–2.562	44275	Call
2 9/16"	2.532–2.594	44276	44352
2 19/16"	2.563–2.625	44277	N/A
2 5/8"	2.594–2.656	44278	N/A

ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

QG-65



Royal QG-65 Round Collets (Metric) – \$293 Each

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
4mm	3.25–4.75	62300	N/A
5mm	4.25–5.75	62302	N/A
6mm	5.25–6.75	62304	N/A
7mm	6.25–7.75	62306	N/A
8mm	7.25–8.75	62308	N/A
9mm	8.25–9.75	62310	62500
10mm	9.25–10.75	62312	62501
11mm	10.25–11.75	62314	62502
12mm	11.25–12.75	62316	62503
13mm	12.25–13.75	62318	62504
14mm	13.25–14.75	62320	62505
15mm	14.25–15.75	62322	62506
16mm	15.25–16.75	62324	62507
17mm	16.25–17.75	62326	62508
18mm	17.25–18.75	62328	62509
19mm	18.25–19.75	62330	62510
20mm	19.25–20.75	62332	62511
21mm	20.25–21.75	62334	62512
22mm	21.25–22.75	62336	62513
23mm	22.25–23.75	62338	62514
24mm	23.25–24.75	62340	62515

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
25mm	24.25–25.75	62342	62516
26mm	25.25–26.75	62344	62517
27mm	26.25–27.75	62346	62518
28mm	27.25–28.75	62348	62519
29mm	28.25–29.75	62350	62520
30mm	29.25–30.75	62352	62521
31mm	30.25–31.75	62354	62522
32mm	31.25–32.75	62356	62523
33mm	32.25–33.75	62358	62524
34mm	33.25–34.75	62360	62525
35mm	34.25–35.75	62362	62526
36mm	35.25–36.75	62364	62527
37mm	36.25–37.75	62366	62528
38mm	37.25–38.75	62368	62529
39mm	38.25–39.75	62370	62530
40mm	39.25–40.75	62372	62531
41mm	40.25–41.75	62374	62532
42mm	41.25–42.75	62376	62533
43mm	42.25–43.75	62378	62534
44mm	43.25–44.75	62380	62535
45mm	44.25–45.75	62382	62536

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
46mm	45.25–46.75	62384	62537
47mm	46.25–47.75	62386	62538
48mm	47.25–48.75	62388	62539
49mm	48.25–49.75	62390	62540
50mm	49.25–50.75	62392	62541
51mm	50.25–51.75	62394	62542
52mm	51.25–52.75	62396	62543
53mm	52.25–53.75	62398	63544
54mm	53.25–54.75	62400	63545
55mm	54.25–55.75	62402	62546
56mm	55.25–56.75	62404	62547
57mm	56.25–57.75	62406	Call
58mm	57.25–58.75	62408	62549
59mm	58.25–59.75	62410	Call
60mm	59.25–60.75	62412	N/A
61mm	60.25–61.75	62414	N/A
62mm	61.25–62.75	62416	N/A
63mm	62.25–63.75	62418	N/A
64mm	63.25–64.75	62420	N/A
65mm	64.25–65.75	62422	N/A

Royal QG-65 Hex Collets – \$439 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
5/16"	0.282–0.344	44700
3/8"	0.344–0.406	44701
7/16"	0.407–0.469	44702
1/2"	0.469–0.531	44703
9/16"	0.532–0.594	44704
5/8"	0.594–0.656	44705
11/16"	0.657–0.719	44706
3/4"	0.719–0.781	44707
13/16"	0.782–0.844	44708
7/8"	0.844–0.906	44709
15/16"	0.907–0.969	44710

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1"	0.969–1.031	44711
1 1/16"	1.032–1.094	44712
1 1/8"	1.094–1.156	44713
1 3/16"	1.156–1.219	44714
1 1/4"	1.219–1.281	44715
1 5/16"	1.281–1.344	44716
1 3/8"	1.344–1.406	44717
1 7/16"	1.406–1.469	44718
1 1/2"	1.469–1.531	44719
1 5/8"	1.531–1.594	44720
1 5/8"	1.594–1.656	44721

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1 11/16"	1.656–1.719	44722
1 3/4"	1.719–1.781	44723
1 13/16"	1.781–1.844	44724
1 7/8"	1.844–1.906	44725
1 15/16"	1.906–1.969	44726
2"	1.969–2.031	44727
2 1/16"	2.031–2.094	44728
2 1/8"	2.094–2.156	44729
2 3/16"	2.156–2.219	44730
2 1/4"	2.219–2.281	44731

Royal QG-65 Square Collets – \$439 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
3/8"	0.344–0.406	44787
1/2"	0.469–0.531	44734
5/8"	0.594–0.656	44788
3/4"	0.719–0.781	44735

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
7/8"	0.844–0.906	44789
1"	0.969–1.031	44736
1 1/8"	1.094–1.156	44790
1 1/4"	1.219–1.281	44737

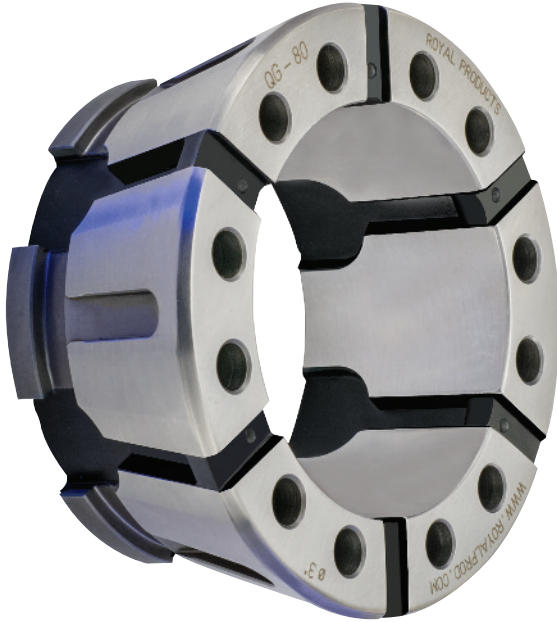
NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1 3/8"	1.344–1.406	44791
1 1/2"	1.469–1.531	44738
1 5/8"	1.594–1.656	44792
1 3/4"	1.719–1.781	44739

Royal QG-65 Emergency Collets – \$315 Each – See Page 29



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

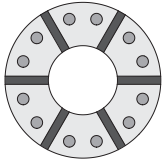
QG-80



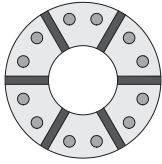
QG-80 CAPACITY	
Bar Diameter	3.28" (80.8mm)
Slug Diameter*	4.00" (101.6mm)

* See page 29 for details.

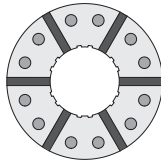
- ❑ Huge inventory of Round, Hex, Square, and Emergency styles **always in stock, ready for same-day shipping.**
- ❑ Industry-leading 0.062" gripping range covers a wide range of part diameters. Collets are ground to nominal size and have a range of +/- 0.031".
- ❑ Parallel-grip ensures full-length part contact for maximum grip force, rigidity, and accuracy.
- ❑ Six-segment design further increases gripping torque.
- ❑ Can be counter-bored for increased part capacity up to 4.00" – see page 29 for details.
- ❑ Can utilize manual and pneumatic changing tools.



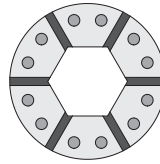
Round Inch



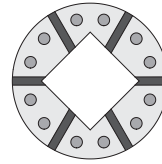
Round Metric



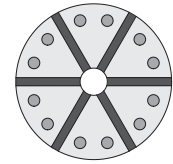
Serrated



Hex



Square



Emergency

Royal QG-80 Round Collets* (Inch) – \$458 Each

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
1/4"	0.219–0.281	44403	N/A
5/16"	0.282–0.344	44405	N/A
3/8"	0.344–0.406	44407	N/A
7/16"	0.407–0.469	44409	44509
1/2"	0.469–0.531	44411	44511
9/16"	0.532–0.594	44413	44513
5/8"	0.594–0.656	44415	44515
11/16"	0.657–0.719	44417	44517
3/4"	0.719–0.781	44419	44519
13/16"	0.782–0.844	44421	44521
7/8"	0.844–0.906	44423	44523
15/16"	0.907–0.969	44425	44525
1"	0.969–1.031	44427	44527
1 1/16"	1.032–1.094	44429	44529
1 1/8"	1.094–1.156	44431	44531
1 3/16"	1.157–1.219	44433	44533
1 1/4"	1.219–1.281	44435	44535

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
1 5/16"	1.282–1.344	44437	44537
1 3/8"	1.344–1.406	44439	44539
1 7/16"	1.407–1.469	44441	44541
1 1/2"	1.469–1.531	44443	44543
1 5/8"	1.532–1.594	44445	44545
1 5/8"	1.594–1.656	44447	44547
1 11/16"	1.657–1.719	44449	44549
1 3/4"	1.719–1.781	44451	44551
1 13/16"	1.782–1.844	44453	44553
1 7/8"	1.844–1.906	44455	44555
1 15/16"	1.907–1.969	44457	44557
2"	1.969–2.031	44459	44559
2 1/16"	2.032–2.094	44461	44561
2 1/8"	2.094–2.156	44463	44563
2 3/16"	2.157–2.219	44465	44565
2 1/4"	2.219–2.281	44467	44567
2 5/16"	2.282–2.344	44469	44569

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
2 5/8"	2.344–2.406	44471	44571
2 7/16"	2.407–2.469	44473	44573
2 1/2"	2.469–2.531	44475	44575
2 9/16"	2.532–2.594	44477	44577
2 5/8"	2.594–2.656	44479	44579
2 11/16"	2.657–2.719	44481	44581
2 3/4"	2.719–2.781	44483	44583
2 13/16"	2.782–2.844	44485	44585
2 7/8"	2.844–2.906	44487	44587
2 15/16"	2.907–2.969	44489	44589
3"	2.969–3.031	44491	44591
3 1/16"	3.032–3.094	44493	N/A
3 3/8"	3.094–3.156	44495	N/A
3 5/16"	3.157–3.219	44497	N/A
3 1/4"	3.219–3.281	44499	N/A

*Royal QG-80 collets have six segments instead of three for increased gripping torque.

ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

QG-80



Royal QG-80 Round Collets* (Metric) – \$458 Each

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
7mm	6.25–7.75	62600	N/A
8mm	7.25–8.75	62602	N/A
9mm	8.25–9.75	62604	N/A
10mm	9.25–10.75	62606	N/A
11mm	10.25–11.75	62608	62800
12mm	11.25–12.75	62610	62801
13mm	12.25–13.75	62612	62802
14mm	13.25–14.75	62614	62803
15mm	14.25–15.75	62616	62804
16mm	15.25–16.75	62618	62805
17mm	16.25–17.75	62620	62806
18mm	17.25–18.75	62622	62807
19mm	18.25–19.75	62624	62808
20mm	19.25–20.75	62626	62809
21mm	20.25–21.75	62628	62810
22mm	21.25–22.75	62630	62811
23mm	22.25–23.75	62632	61812
24mm	23.25–24.75	62634	62813
25mm	24.25–25.75	62636	62814
26mm	25.25–26.75	62638	62815
27mm	26.25–27.75	62640	62816
28mm	27.25–28.75	62642	62817
29mm	28.25–29.75	62644	62818
30mm	29.25–30.75	62646	62819
31mm	30.25–31.75	62648	62820

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
32mm	31.25–32.75	62650	62821
33mm	32.25–33.75	62652	62822
34mm	33.25–34.75	62654	62823
35mm	34.25–35.75	62656	62824
36mm	35.25–36.75	62658	62825
37mm	36.25–37.75	62660	62826
38mm	37.25–38.75	62662	62827
39mm	38.25–39.75	62664	62828
40mm	39.25–40.75	62666	62829
41mm	40.25–41.75	62668	62830
42mm	41.25–42.75	62670	62831
43mm	42.35–43.75	62672	62832
44mm	43.25–44.75	62674	62833
45mm	44.25–45.75	62676	62834
46mm	45.25–46.75	62678	62835
47mm	46.25–47.75	62680	62836
48mm	47.25–48.75	62682	62837
49mm	48.25–49.75	62684	62838
50mm	49.25–50.75	62686	62839
51mm	50.25–51.75	62688	62840
52mm	51.25–52.75	62690	62841
53mm	52.25–53.75	62692	62842
54mm	53.25–54.75	62694	62843
55mm	54.25–55.75	62696	62844
56mm	55.25–56.75	62698	62845

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
57mm	56.25–57.75	62700	Call
58mm	57.25–58.75	62702	62847
59mm	58.25–59.75	62704	Call
60mm	59.25–60.75	62706	62849
61mm	60.25–61.75	62708	Call
62mm	61.25–62.75	62710	62851
63mm	62.25–63.75	62712	62852
64mm	63.25–64.75	62714	62853
65mm	64.25–65.75	62716	62854
66mm	65.25–66.75	62718	Call
67mm	66.25–67.75	62720	Call
68mm	67.25–68.75	62722	Call
69mm	68.25–69.75	62724	Call
70mm	69.25–70.75	62726	62859
71mm	70.25–71.75	62728	Call
72mm	71.25–72.75	62730	Call
73mm	72.25–73.75	62732	Call
74mm	73.25–74.75	62734	Call
75mm	74.25–75.75	62736	62864
76mm	75.25–76.75	62738	Call
77mm	76.25–77.75	62740	Call
78mm	77.25–78.75	62742	N/A
79mm	78.25–79.75	62744	N/A
80mm	79.25–80.75	62746	N/A

*Royal QG-80 collets have six segments instead of three for increased gripping torque.

Royal QG-80 Hex Collets* – \$559 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
7/16"	0.407–0.469	44740
1/2"	0.469–0.531	44741
9/16"	0.532–0.594	44742
5/8"	0.594–0.656	44743
11/16"	0.657–0.719	44744
3/4"	0.719–0.781	44745
13/16"	0.782–0.844	44746
7/8"	0.844–0.906	44747
15/16"	0.907–0.969	44748
1"	0.969–1.031	44749
1 1/16"	1.032–1.094	44750
1 1/8"	1.094–1.156	44751
1 1/4"	1.156–1.219	44752

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1 1/2"	1.219–1.281	44753
1 5/16"	1.281–1.344	44754
1 3/8"	1.344–1.406	44755
1 7/16"	1.406–1.469	44756
1 1/2"	1.469–1.531	44757
1 9/16"	1.531–1.594	44758
1 5/8"	1.594–1.656	44759
1 11/16"	1.656–1.719	44760
1 3/4"	1.719–1.781	44761
1 13/16"	1.781–1.844	44762
1 15/16"	1.844–1.906	44763
1 7/8"	1.906–1.969	44764
2"	1.969–2.031	44765

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
2 1/16"	2.031–2.094	44766
2 1/8"	2.094–2.156	44767
2 3/16"	2.156–2.219	44768
2 1/4"	2.219–2.281	44769
2 5/16"	2.281–2.344	44770
2 3/8"	2.344–2.406	44771
2 7/16"	2.406–2.469	44772
2 1/2"	2.469–2.531	44773
2 9/16"	2.531–2.594	44774
2 5/8"	2.594–2.656	44775
2 11/16"	2.656–2.719	44776
2 3/4"	2.719–2.781	44777

*Royal QG-80 collets have six segments instead of three for increased gripping torque.

Royal QG-80 Square Collets* – \$644 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
3/8"	0.344–0.406	44793
1/2"	0.469–0.531	44780
5/8"	0.594–0.656	44794
3/4"	0.719–0.781	44781
7/8"	0.844–0.906	44795

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1"	0.969–1.031	44782
1 1/8"	1.094–1.156	44796
1 1/4"	1.219–1.281	44783
1 3/8"	1.344–1.406	44797
1 1/2"	1.469–1.531	44784

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1 5/8"	1.594–1.656	44798
1 3/4"	1.719–1.781	44785
1 7/8"	1.844–1.906	44799
2"	1.969–2.031	44786

*Royal QG-80 collets have six segments instead of three for increased gripping torque.

Royal QG-80 Emergency Collets – \$475 Each – See Page 29



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

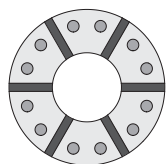
QG-100



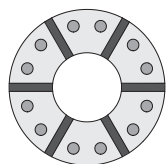
QG-100 CAPACITY	
Bar Diameter	4.03" (100.8mm)
Slug Diameter*	5.15" (130.8mm)

* See page 29 for details.

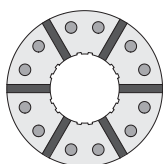
- Huge inventory of Round, Hex, Square, and Emergency styles always in stock, ready for same-day shipping.
- Smooth and serrated versions for round-bore models (all others smooth only).
- Industry-leading 0.062" gripping range covers a wide range of part diameters. Collets are ground to nominal size and have a range of +/- 0.031".
- Parallel-grip ensures full-length part contact for maximum grip force, rigidity, and accuracy.
- Six-segment design further increases gripping torque.
- Can be counter-bored for **increased part capacity up to 5.15"** – see page 29 for details.
- Quick-ship specials available for custom shapes.
- Utilizes pneumatic changing tool.



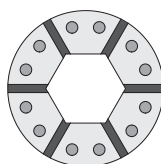
Round Inch



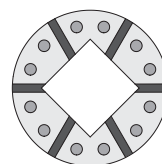
Round Metric



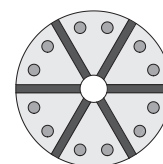
Serrated



Hex



Square



Emergency

Royal QG-100 **Round** Collets* – \$675 Each

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
5/8"	0.594–0.656	45012	N/A
11/16"	0.657–0.719	45013	N/A
3/4"	0.719–0.781	45014	N/A
13/16"	0.782–0.844	45015	N/A
7/8"	0.844–0.906	45016	N/A
15/16"	0.907–0.969	45017	N/A
1"	0.969–1.031	45018	N/A
1 1/16"	1.032–1.094	45019	N/A
1 1/8"	1.094–1.156	45020	N/A
1 3/16"	1.157–1.219	45021	N/A
1 1/4"	1.219–1.281	45022	N/A
1 5/16"	1.282–1.344	45023	N/A
1 3/8"	1.344–1.406	45024	N/A
1 7/16"	1.407–1.469	45025	N/A
1 1/2"	1.469–1.531	45026	45201
1 5/8"	1.532–1.594	45027	45202
1 3/4"	1.594–1.656	45028	45203
1 11/16"	1.657–1.719	45029	45204
1 3/4"	1.719–1.781	45030	45205

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
1 13/16"	1.782–1.844	45031	45206
1 7/8"	1.844–1.906	45032	45207
1 15/16"	1.907–1.969	45033	45208
2"	1.969–2.031	45034	45209
2 1/16"	2.032–2.094	45035	Call
2 1/8"	2.094–2.156	45036	45211
2 3/16"	2.157–2.219	45037	Call
2 1/4"	2.219–2.281	45038	45213
2 5/16"	2.282–2.344	45039	Call
2 3/8"	2.344–2.406	45040	45215
2 7/16"	2.407–2.469	45041	Call
2 1/2"	2.469–2.531	45042	45217
2 9/16"	2.532–2.594	45043	Call
2 5/8"	2.594–2.656	45044	45219
2 11/16"	2.657–2.719	45045	Call
2 3/4"	2.719–2.781	45046	45221
2 13/16"	2.782–2.844	45047	Call
2 7/8"	2.844–2.906	45048	45223
2 15/16"	2.907–2.969	45049	Call

NOMINAL SIZE	RANGE (INCHES)	SMOOTH PART NUMBER	SERRATED PART NUMBER
3"	2.969–3.031	45050	45225
3 1/16"	3.032–3.094	45051	Call
3 1/8"	3.094–3.156	45052	Call
3 3/16"	3.157–3.219	45053	Call
3 1/4"	3.219–3.281	45054	45229
3 5/16"	3.282–3.344	45055	Call
3 3/8"	3.344–3.406	45056	Call
3 7/16"	3.407–3.469	45057	Call
3 1/2"	3.469–3.531	45058	45233
3 9/16"	3.532–3.594	45059	Call
3 5/8"	3.594–3.656	45060	Call
3 11/16"	3.657–3.719	45061	Call
3 3/4"	3.719–3.781	45062	45237
3 13/16"	3.782–3.844	45063	N/A
3 7/8"	3.844–3.906	45064	N/A
3 15/16"	3.907–3.969	45065	N/A
4"	3.969–4.031	45066	N/A

*Royal QG-100 collets have six segments instead of three for increased gripping torque.

ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

QG-100



Royal QG-100 Round Collets* (Metric) – \$675 Each

NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER	NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER	NOMINAL SIZE	RANGE (mm)	SMOOTH PART NUMBER	SERRATED PART NUMBER
16mm	15.25-16.75	62900	N/A	45mm	44.25-45.75	62958	63107	74mm	73.25-74.75	63016	Call
17mm	16.25-17.75	62902	N/A	46mm	45.25-46.75	62960	63108	75mm	74.25-75.75	63018	63137
18mm	17.25-18.75	62904	N/A	47mm	46.25-47.75	62962	63109	76mm	75.25-76.75	63020	Call
19mm	18.25-19.75	62906	N/A	48mm	47.25-48.75	62964	63110	77mm	76.25-77.75	63022	Call
20mm	19.25-20.75	62908	N/A	49mm	48.25-49.75	62966	63111	78mm	77.25-78.75	63024	Call
21mm	20.25-21.75	62910	N/A	50mm	49.25-50.75	62968	63112	79mm	78.25-79.75	63026	Call
22mm	21.25-22.75	62912	N/A	51mm	50.25-51.75	62970	63113	80mm	79.25-80.75	63028	63142
23mm	22.25-23.75	62914	N/A	52mm	51.25-52.75	62972	63114	81mm	80.25-81.75	63030	Call
24mm	23.25-24.75	62916	N/A	53mm	52.25-53.75	62974	63115	82mm	81.25-82.75	63032	Call
25mm	24.25-25.75	62918	N/A	54mm	53.25-54.75	62976	63116	83mm	82.25-83.75	63034	Call
26mm	25.25-26.75	62920	N/A	55mm	54.25-55.75	62978	63117	84mm	83.25-84.75	63036	Call
27mm	26.25-27.75	62922	N/A	56mm	55.25-56.75	62980	63118	85mm	84.25-85.75	63038	63147
28mm	27.25-28.75	62924	N/A	57mm	56.25-57.75	62982	Call	86mm	85.25-86.75	63040	Call
29mm	28.25-29.75	62926	N/A	58mm	57.25-58.75	62984	63120	87mm	86.25-87.75	63042	Call
30mm	29.25-30.75	62928	N/A	59mm	58.25-59.75	62986	Call	88mm	87.25-88.75	63044	Call
31mm	30.25-31.75	62930	N/A	60mm	59.25-60.75	62988	63122	89mm	88.25-89.75	63046	Call
32mm	31.25-32.75	62932	N/A	61mm	60.25-61.75	62990	Call	90mm	89.25-90.75	63048	63152
33mm	32.25-33.75	62934	N/A	62mm	61.25-62.75	62992	63124	91mm	90.25-91.75	63050	Call
34mm	33.25-34.75	62936	N/A	63mm	62.25-63.75	62994	63125	92mm	91.25-92.75	63052	Call
35mm	34.25-35.75	62938	N/A	64mm	63.25-64.75	62996	63126	93mm	92.25-93.75	63054	Call
36mm	35.25-36.75	62940	N/A	65mm	64.25-65.75	62998	63127	94mm	93.25-94.75	63056	Call
37mm	36.25-37.75	62942	N/A	66mm	65.25-66.75	63000	Call	95mm	94.25-95.75	63058	63157
38mm	37.25-38.75	62944	63100	67mm	66.25-67.75	63002	Call	96mm	95.25-96.75	63060	Call
39mm	38.25-39.75	62946	63101	68mm	67.25-68.75	63004	Call	97mm	96.25-97.75	63062	Call
40mm	39.25-40.75	62948	63102	69mm	68.25-69.75	63006	Call	98mm	97.25-98.75	63064	Call
41mm	40.25-41.75	62950	62103	70mm	69.25-70.75	63008	63132	99mm	98.25-99.75	63066	Call
42mm	41.25-42.75	62952	63104	71mm	70.25-71.75	63010	Call	100mm	99.25-100.75	63068	63162
43mm	42.25-43.75	62954	63105	72mm	71.25-72.75	63012	Call				
44mm	43.25-44.75	62956	63106	73mm	72.25-73.75	63014	Call				

*Royal QG-100 collets have six segments instead of three for increased gripping torque.

Royal QG-100 Hex Collets* – \$875 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER	NOMINAL SIZE	RANGE (INCHES)	PART NUMBER	NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
3/4"	0.719-0.781	44904	1 5/8"	1.594-1.656	44918	2 1/2"	2.469-2.531	44932
7/8"	0.844-0.906	44906	1 3/4"	1.719-1.781	44920	2 5/8"	2.594-2.656	44934
1"	0.969-1.031	44908	1 7/8"	1.844-1.906	44922	2 3/4"	2.719-2.781	44936
1 1/8"	1.094-1.156	44910	2"	1.969-2.031	44924	2 7/8"	2.781-2.844	44938
1 1/4"	1.219-1.281	44912	2 1/8"	2.094-2.156	44926	3"	2.969-3.031	44940
1 3/8"	1.344-1.406	44914	2 1/4"	2.219-2.281	44928	3 1/8"	3.094-3.156	44942
1 1/2"	1.469-1.531	44916	2 3/8"	2.344-2.406	44930	3 1/4"	3.219-3.281	44944

*Royal QG-100 collets have six segments instead of three for increased gripping torque.

Royal QG-100 Square Collets* – \$875 Each

NOMINAL SIZE	RANGE (INCHES)	PART NUMBER	NOMINAL SIZE	RANGE (INCHES)	PART NUMBER	NOMINAL SIZE	RANGE (INCHES)	PART NUMBER
1"	0.969-1.031	44950	1 5/8"	1.594-1.656	44960	2 1/4"	2.219-2.281	44970
1 1/8"	1.094-1.156	44952	1 3/4"	1.719-1.781	44962	2 3/8"	2.344-2.406	44972
1 1/4"	1.219-1.281	44954	1 7/8"	1.844-1.906	44964	2 1/2"	2.469-2.531	44974
1 3/8"	1.344-1.406	44956	2"	1.969-2.031	44966	2 5/8"	2.594-2.656	44976
1 1/2"	1.469-1.531	44958	2 1/8"	2.094-2.156	44968	2 3/4"	2.719-2.781	44978

*Royal QG-100 collets have six segments instead of three for increased gripping torque.

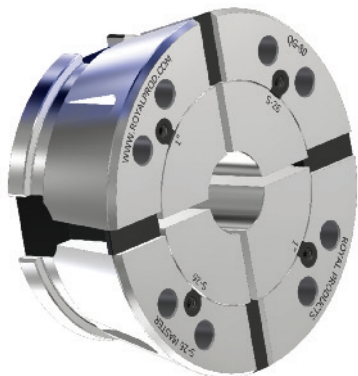
Royal QG-100 Emergency Collets* – \$795 Each – See Page 29



ROYAL QUICK-GRIP™ S-TYPE MASTER COLLETS

Occasionally, customers express interest in using S-type collet pads to grip their parts. Although this outdated technology is typically not the best choice for most workholding applications, S-type collet pads can be utilized with Royal Quick-Grip™ CNC Collet Chucks via our Quick-Grip™ S-Type Master Collets. These master collets are available for Royal QG-65 and QG-80 chuck models, and are capable of accepting S-20, S-26, and S-30 collet pads.

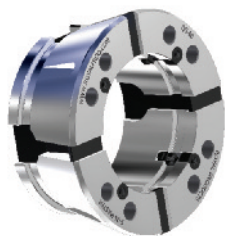
- ❑ Three master collet models to choose from:
 - QG-65 Master Collet – accepts S-20 collet pads (2" capacity)
 - QG-80 Master Collet – accepts S-26 collet pads (2-5/8" capacity)
 - QG-80 Master Collet – accepts S-30 collet pads (3" capacity)
- ❑ **It is important to note that the master collet must be installed in the chuck prior to pad installation, thereby mitigating the system's quick-change advantage.**
- ❑ Royal QG-80 master collets contain four segments instead of our traditional six, requiring the use of a special four-segment changing tool (sold separately below). The model 65 utilizes the same installation tool as our standard QG-65 collets.
- ❑ Due to the stacking of tolerances and complex geometry, **the use of S-type collet pads will result in a significant reduction in accuracy.** Most S-pad manufacturers will not guarantee their pads to run better than 0.001" – 0.0025" TIR. By contrast, Royal hardened and ground Quick-Grip™ collets are guaranteed accurate to 0.0002" TIR.
- ❑ The use of S-type pads reduces overall Quick-Grip™ chucking capacity. See chart below.



The Bottom Line

Using S-Type Collet Pads in a Royal Quick-Grip™ Collet Chuck may come in handy for some jobs, but their use will eliminate the quick-change feature and cause a reduction in both gripping capacity and overall system accuracy.

For the highest accuracy, best performance, and full Quick-Grip™ functionality, it is always best to utilize hardened and ground Royal Quick-Grip™ Collets.



Royal Quick-Grip™ S-Type Master Collets

CHUCK MODEL	S-TYPE PAD MODEL	MAXIMUM PAD CAPACITY*	MASTER COLLET PART NUMBER	PRICE**
QG-65	S-20	2.00	44196	\$439
QG-80	S-26	2.63	44197	631
QG-80	S-30	3.00	44198	631

*Please note – normal thru-capacity is reduced when using S-type master collets and pads.

**S-type pads not included with master collet. Order pads separately through your local tooling supplier.



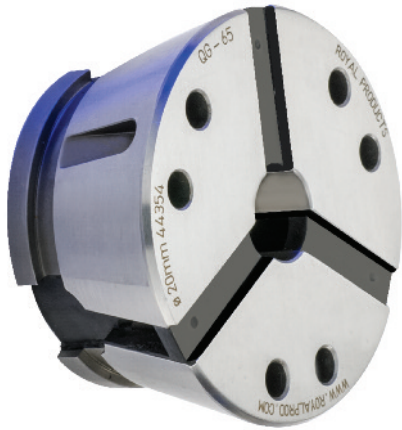
44199 shown

Royal Collet Installation Tool For Use With Quick-Grip™ S-Type Master Collets

MASTER COLLET MODEL	NUMBER OF SEGMENTS	PART NUMBER	PRICE
QG-65	3	44098	\$550
QG-80	4*	44199*	589

*Please note that the model 80 installation tool is not the same as the one offered for our regular QG-80 collets because our hardened and ground QG-80 collets have six segments while the QG-80 master collet has four segments.

ROYAL QUICK-GRIP™ EMERGENCY COLLETS



- Semi-hard Quick-Grip™ emergency collets are designed to be machined in-place by the user to **accommodate special sizes, shapes, steps, etc.**
- Available in assorted pilot hole sizes to minimize machining time.
- Collets can be counter-bored beyond standard capacity, **eliminating the need for a three-jaw chuck on many jobs.** The chart below provides some basic counter-bore guidelines, but many other diameter/depth combinations are possible. Please contact Royal for additional information.
- Boring fixture holds collet segments firmly in-place and puts collet under slight compression to ensure accuracy and roundness during machining. Order fixture separately.

Royal Quick-Grip™ Emergency Collets

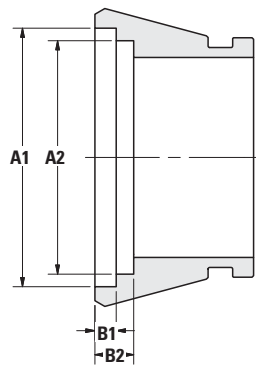
FITS CHUCK MODEL	PILOT HOLE SIZE	PART NUMBER	PRICE
QG-42	5mm (0.20")	44187	\$280
	15mm (0.59")	44188	280
QG-65	8mm (0.31")	44353	315
	20mm (0.79")	44354	315
	30mm (1.18")	44355	315
QG-80	8mm (0.31")	44360	475
	20mm (0.79")	44361	475
	40mm (1.57")	44362	475
QG-100	30mm (1.18")	44367	795
	45mm (1.77")	44368	795
	65mm (2.56")	44369	795



Royal Boring Fixtures

COLLET MODEL	PART NUMBER	PRICE
QG-42	44082	\$197
QG-65	44083	278
QG-80	44088	454
QG-100	44089	546

Royal Quick-Grip™ Collet Counter-Bore Guidelines



- The parameters shown represent a sampling of counter-bore possibilities. Other diameter/depth combinations are possible. Please contact Royal with your specific requirements.
- For precise z-axis positioning, best practice is to use a Royal stop.
- Users can counter-bore their own emergency collets, or **order to size as hardened and ground specials.**
- For a better understanding of counter-bore collets and their use, please contact one of our applications engineers at 1-800-645-4174.

COLLET MODEL	A1	B1	A2	B2
QG-42	2.62	0.28	2.53	0.39
QG-65	3.40	0.28	3.07	0.51
QG-80	4.00	0.28	3.66	0.51
QG-100	5.15	0.28	4.61	0.79



ROYAL LOW-PROFILE ACCU-LENGTH™ CNC COLLET CHUCKS

High RPM

All Royal CNC collet chucks are balanced by design for high-speed operation, and can often be run at higher speeds than conventional 3-jaw chucks because they are less prone to the negative effects of centrifugal force.

Spindle Bearing Protection

An oversized flange acts as a coolant slinger to protect lathe spindle bearings from contaminants.

Bolt & Go™

Our exclusive Bolt & Go™ mounting feature is standard on all Royal Low-Profile Collet Chuck models. Bolt & Go™ enables chucks to be mounted very quickly and ensures maximum accuracy and rigidity. See page 8 for additional information.

Completely Sealed

Lubricated for life, these chucks incorporate multiple O-ring seals to keep contaminants out and prevent chip pack-up on bore-thru applications.

Easy Installation

All Royal Low-Profile Collet Chucks include a collet wrench, lubricator, mounting hardware, mounting wrenches, and a custom-machined drawtube connector for **hassle-free installation**.

Dead-Length Operation

Royal Accu-Length™ CNC Collet Chucks incorporate **dead-length operation to eliminate part pullback**. With this design, a tapered sleeve pushes forward over the collet to compress it, resulting in precise z-axis positioning.

Outstanding Rigidity

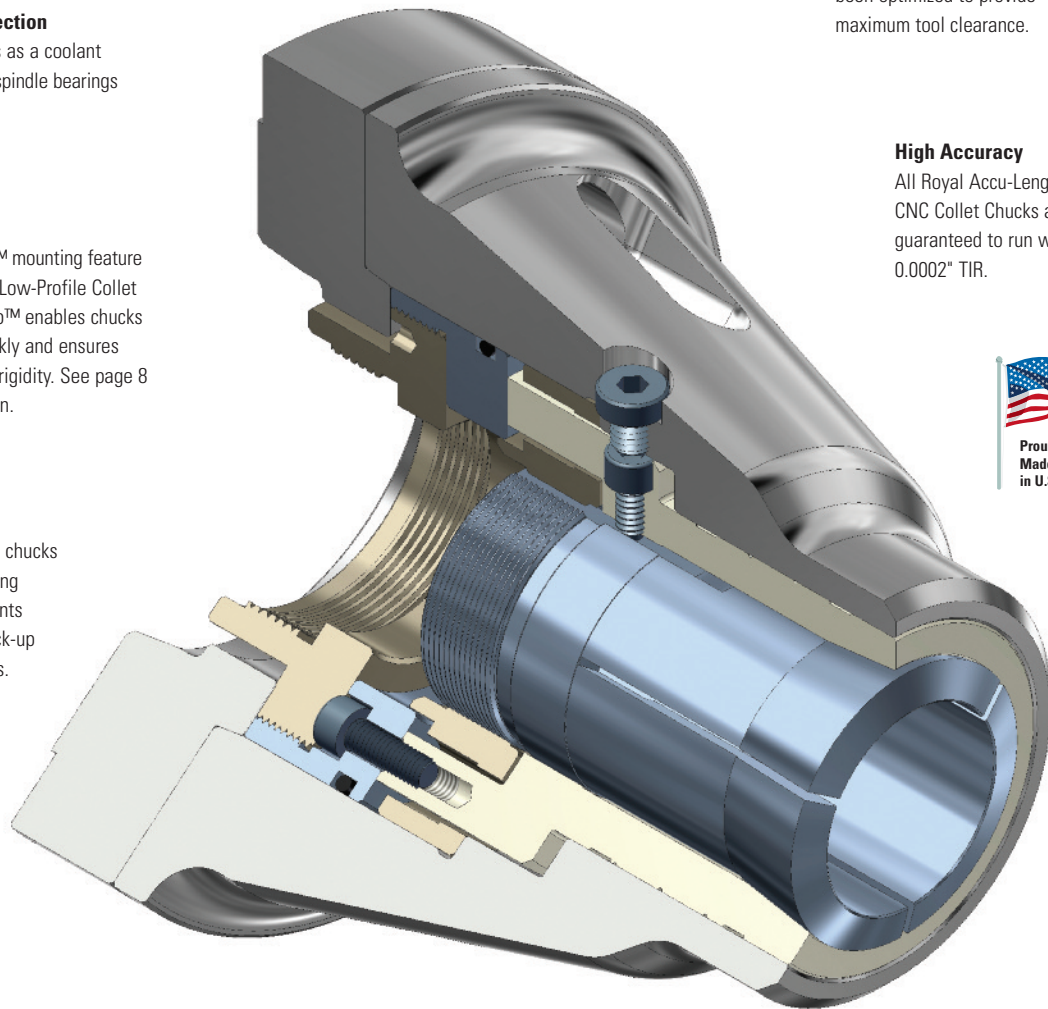
All Royal Accu-Length™ Collet Chucks have been optimized for maximum rigidity, and all components are hardened for strength and durability.

Low-Profile

All external dimensions have been optimized to provide maximum tool clearance.

High Accuracy

All Royal Accu-Length™ CNC Collet Chucks are guaranteed to run within 0.0002" TIR.



Specials

If you have a special application that goes beyond the scope of our standard line, we will be happy to design and build a custom system to meet your needs. Please contact a Royal applications engineer to discuss your requirements.

Wide Range

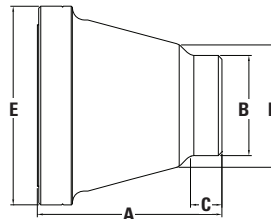
Royal manufactures a wide range of Accu-Length™ Collet Chucks to fit all popular spindle noses and collet styles.

Note – Collets sold separately

ROYAL LOW-PROFILE ACCU-LENGTH™ CNC COLLET CHUCKS



- These chucks utilize spring-type collets and therefore do not provide the parallel grip functionality or wide gripping range of our Quick-Grip™ models.
- Dead-length operation – sleeve pushes forward to compress the collet, providing precise z-axis part positioning.
- Low-profile nose offers outstanding tool clearance.
- In-stock for same-day shipping.



Royal Low-Profile Accu-Length™ CNC Collet Chucks

SPINDLE TYPE	COLLET TYPE	CAPACITY	A OVERALL LENGTH	B NOSE DIAMETER	C NOSE LENGTH	D BODY DIAMETER	E FLANGE DIAMETER	CHUCK WEIGHT (lbs.)	MAX DRAWBAR FORCE (lbs.)	MAX CLAMPING FORCE (lbs.)	MAX RPM	PART NUMBER	PRICE
A2-5	5C	1 ¹ / ₁₆ "	5.75	2.43	1.00	4.00	6.45	21	4,000	13,600	6,000	42330	\$4,240
A2-6	5C	1 ¹ / ₁₆ "	5.75	2.43	1.00	4.00	7.45	21	4,000	13,600	6,000	42332	4,440
110mm	5C	1 ¹ / ₁₆ "	5.55	2.43	1.00	4.00	6.45	21	4,000	13,600	6,000	42334	4,440
140mm	5C	1 ¹ / ₁₆ "	4.45	2.43	1.00	4.00	6.45	13	4,000	13,600	6,000	42336	4,440
A2-5	16C	1 ⁵ / ₁₆ "	6.50	3.25	1.03	3.80	6.45	25	5,400	18,300	6,000	42338	4,650
A2-6	16C	1 ⁵ / ₁₆ "	6.25	3.25	1.03	3.80	7.45	25	5,400	18,300	6,000	42340	4,810
A2-8	16C	1 ⁵ / ₁₆ "	7.25	3.25	1.03	3.67	9.45	51	5,400	18,300	4,500	42342	4,950
110mm	16C	1 ⁵ / ₁₆ "	6.30	3.25	1.03	3.80	6.45	25	5,400	18,300	6,000	42337	4,810
A2-5	3J	1 ³ / ₄ "	6.23	3.25	1.03	3.97	6.45	24	5,400	26,300	6,000	42344	4,810
A2-5 UC*	3J	1 ³ / ₄ "	5.47	3.25	1.03	4.06	5.20	16	5,400	26,300	6,000	42345	4,810
A2-6	3J	1 ³ / ₄ "	6.25	3.25	1.03	3.97	7.45	26	5,400	26,300	6,000	42346	4,950
A2-8	3J	1 ³ / ₄ "	7.00	3.25	1.03	3.97	9.45	49	5,400	26,300	4,500	42348	5,130
110mm UC*	3J	1 ³ / ₄ "	5.42	3.25	1.03	4.06	5.20	17	5,400	26,300	6,000	42351	4,810

For capacities greater than 1.75", choose the appropriate Royal Quick-Grip™ CNC Collet Chuck from the preceding pages. Quick-Grip™ CNC Collet Chucks offer many advantages over Low-Profile Collet Chucks, including superior tool clearance, parallel-grip functionality, and better price-points.

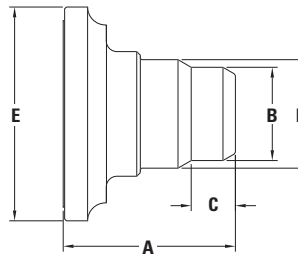
If you would like to continue utilizing older technology S-type collet pads, you can do so with the use of our Quick-Grip™ master collets – see page 28 for additional information.



ROYAL LOW-PROFILE **PULLBACK** CNC COLLET CHUCKS



- Traditional pullback design – collet is drawn into chuck for closing, pushed out for opening.
- Typically used on first-operation where holding precise axial positioning is not required.
- In-stock for same-day shipping.



Royal Low-Profile **Pullback** CNC Collet Chucks

SPINDLE TYPE	COLLET TYPE	CAPACITY	THREADED NOSE*	A OVERALL LENGTH	B NOSE DIAMETER	C NOSE LENGTH	D BODY DIAMETER	E FLANGE DIAMETER	CHUCK WEIGHT (lbs.)	MAX DRAWBAR FORCE (lbs.)	MAX CLAMPING FORCE (lbs.)	MAX RPM	PART NUMBER	PRICE
A2-5	5C	1 1/16"	N	5.00	2.63	1.05	3.14	6.45	12	4,490	15,750	6,000	42053	\$1,230
A2-5	5C	1 1/16"	Y*	5.00	2.187-10	1.22	3.14	6.45	11	4,490*	15,750	6,000*	42054	1,370
A2-6	5C	1 1/16"	N	5.00	2.63	1.05	3.14	7.45	17	4,490	15,750	6,000	42055	1,440
A2-6	5C	1 1/16"	Y*	5.00	2.187-10	1.22	3.14	7.45	15	4,490*	15,750	6,000*	42080	1,570
A2-6	5C	1 1/16"	N	6.00	2.63	1.05	3.14	7.45	19	4,490	15,750	6,000	42057	1,610
A2-6	5C	1 1/16"	Y*	6.00	2.187-10	1.22	3.14	7.45	18	4,490*	15,750	6,000*	42058	1,730
A2-8	5C	1 1/16"	N	6.00	2.63	1.05	3.14	9.45	30	4,490	15,750	4,500	42059	1,770
A2-5	16C	1 5/8"	N	6.00	3.00	1.85	3.31	6.45	13	5,390	19,800	6,000	42067	1,520
A2-6	16C	1 5/8"	N	6.00	3.25	1.54	3.78	7.45	20	5,390	19,800	6,000	42069	1,610
A2-8	16C	1 5/8"	N	6.00	3.25	1.54	3.78	9.45	30	5,390	19,800	4,500	42071	1,760
A2-5	3J	1 3/4"	N	6.00	3.08	1.16	3.33	6.45	13	5,390	26,340	6,000	42061	1,570
A2-6	3J	1 3/4"	N	6.00	3.25	1.05	3.87	7.45	20	5,390	26,340	6,000	42063	1,700
A2-8	3J	1 3/4"	N	6.00	3.25	1.05	3.87	9.45	31	5,390	26,340	4,500	42065	1,990

*Threaded-nose collet chucks are for use with 5C step collets that close on the head, not the 10-degree angle. Never exceed the manufacturer's rpm and drawbar force limits for any threaded accessories.

For capacities greater than 1.75", choose the appropriate Royal Quick-Grip™ CNC Collet Chuck from the preceding pages. Quick-Grip™ CNC Collet Chucks offer many advantages over Low-Profile Collet Chucks, including superior tool clearance, parallel-grip functionality, and better price-points.

If you would like to continue utilizing older technology S-type collet pads, you can do so with the use of our Quick-Grip™ master collets – see page 28 for additional information.

ROYAL LOW-PROFILE COLLET CHUCK ACCESSORIES



Ejectors



- Ejectors are used in sub-spindle applications to push finished workpieces into the part catcher upon completion.
- Spring is encased inside of body for protection.
- A hardened plunger rod and a bronze bearing work together to provide **smooth, consistent operation**.

Royal Ejectors for Low-Profile Collet Chucks

FITS CHUCK MODEL	PART NUMBER	PRICE
5C Accu-Length™	45145	\$382
16C Accu-Length™	45146	421
3J Accu-Length™	45147	421

For an alternative solution to an ejector, check out the Royal Grippex Coolant-Actuated Bar Puller. The Grippex, when fitted with special robot gripper jaws, can be used to pull finished parts from a sub-spindle, eliminating the need for an ejector and **freeing up the spindle bore to swallow longer parts**.

Collet Stops



- A collet stop is used for **accurate z-axis positioning** of short workpieces within a collet.
- Stop rod length is easily adjusted.
- Assembly screws directly into rear of collet.

Royal Collet Stops for Low-Profile Collet Chucks

FITS CHUCK MODEL	PART NUMBER	PRICE
5C Accu-Length™ and Pullback	20030	\$21
16C Accu-Length™ and Pullback	45151	196
3J Accu-Length™ and Pullback	45152	196

Heavy-Duty Collet Wrenches



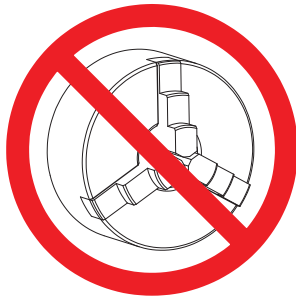
- Heavy-duty one-piece head – pins won't shear off.
- Comfortable knurled handle offers superior grip and makes collet installation a breeze.
- Cross-drilled hole in handle allows a screwdriver to be used as a lever for hard-to-remove collets.

Royal Heavy-Duty Collet Wrenches

COLLET STYLE	NUMBER OF COLLET SLOTS	PART NUMBER	PRICE
5C	3	45187	\$150
16C/3J	3	45188	150
16C/3J	4	45189	150

FREQUENTLY ASKED COLLET CHUCK QUESTIONS

When is a Collet Chuck a Better Choice than a Three-Jaw Chuck?



Bar Feeding

A collet chuck is almost always the best workholding choice for machines equipped with bar feeders. Collet chucks help minimize vibration, open and close faster than three-jaw chucks, and, most importantly, provide full 360° contact to ensure that the **bar stock remains on centerline for accurate re-gripping** after being advanced.

Small Diameter Work

Collet chucks are best suited for parts ranging in size from 1/16" to 4" in diameter because they offer much better tool clearance, can be run at higher speeds than jaw chucks, and provide superior grip force.

Short / Thin Parts

A collet chuck's low-profile design provides better tool clearance and allows machining to take place very close to the chuck face. This ability to work closer to the chuck can also help prevent thin parts from sagging or bending.

High Speed Operation

Collet chucks are much less vulnerable to the negative effects of centrifugal force, enabling them to **run at higher speeds while maintaining consistent grip force**.

Reduced Setup Times

Changing a collet is much faster than changing chuck jaws, and there is no boring required. Collet chucks keep your machines making chips – and profits!

Pipe and Tube Work

The 360° contact provided by a collet **distributes the gripping force evenly** around the entire part circumference, reducing the risk of crushing or distorting thin-walled parts.

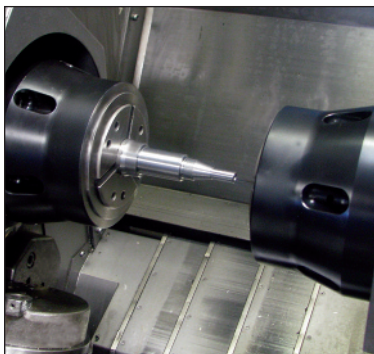
Odd Shaped Parts

Collets can be easily customized to hold odd-shaped or off-center parts. A wide selection of standard collets is readily available to handle round, square, and hex stock.

Better Tool Life

The paddlewheel-like shape of a 3-jaw chuck can deflect coolant before it reaches the cutting tool tip, shortening tool life, whereas the streamlined shape of a collet chuck enables precise coolant delivery. Collet chucks also produce significantly less mist than 3-jaw chucks.

What is the Difference Between a Pullback Chuck and an Accu-Length™ Chuck?



With a pullback collet chuck, closing the collet is accomplished by pulling it back into the chuck body, whereas with an Accu-Length™ chuck, the collet is rigidly fixed to the chuck body and a tapered sleeve pushes forward over the collet to compress it.

Using a pullback chuck will result in a slight variation in z-axis positioning of the workpiece. This happens due to the fact that as the collet draws back and closes down, it begins to grip the workpiece and pull it back too. Typically the movement is just a few thousandths of an inch, and remains consistent as long as the part diameter doesn't vary.

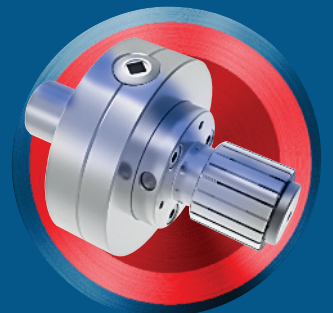
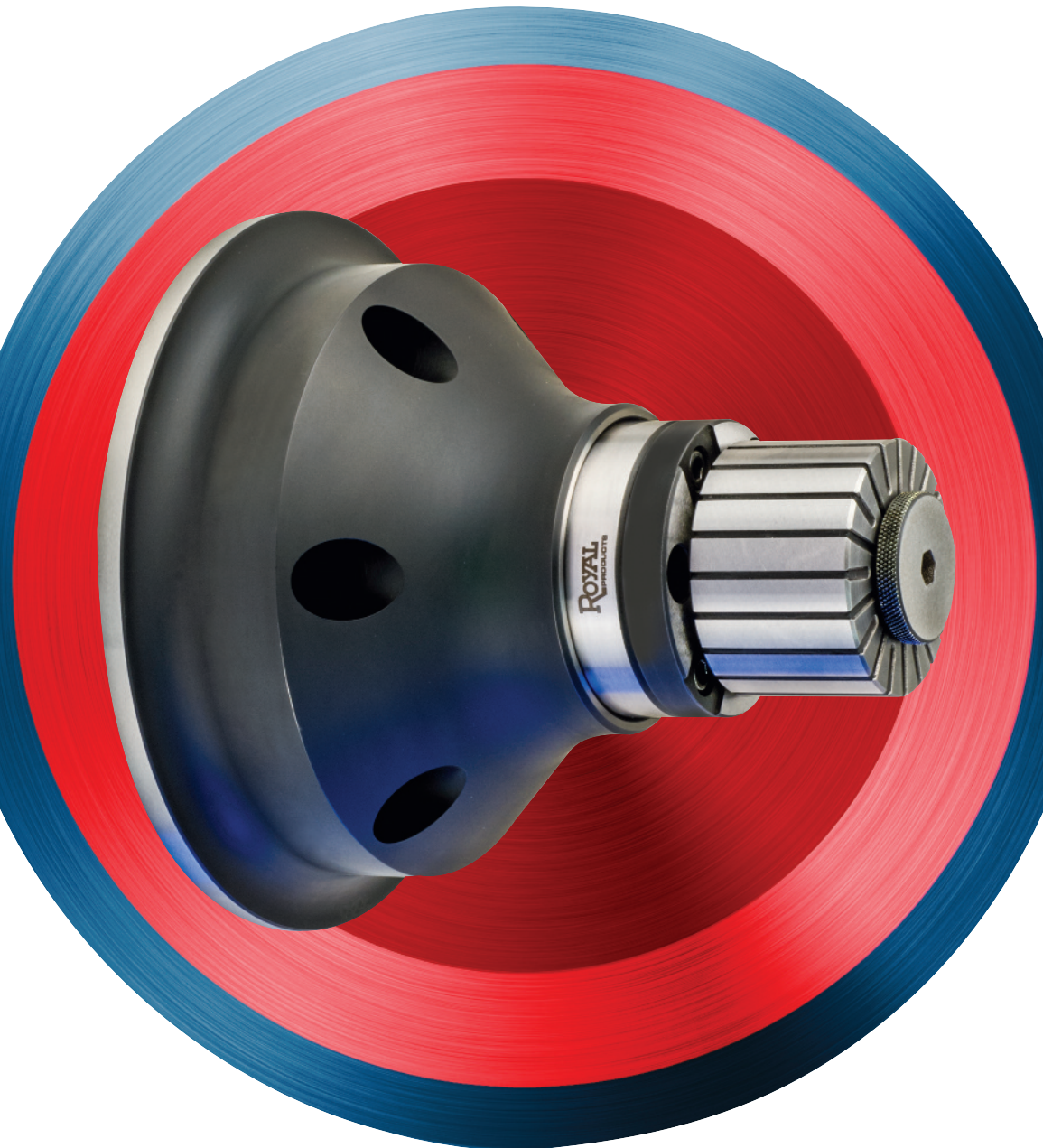
This slight z-axis movement is often acceptable for first operation work and can be easily remedied with a facing cut. However, there are several situations where z-axis movement is not desirable. In these cases, using a Royal Accu-Length™ collet chuck with **dead length operation will protect against workpiece movement**.

IMPORTANT – For machines with two spindles, it is always necessary for the secondary spindle (right-hand) to be equipped with an Accu-Length™ collet chuck, and it is strongly recommended that the main spindle (left-hand) use an Accu-Length™ chuck as well.



CNC EXPANDING MANDRELS

- ID CLAMPING OFFERS FULL OD PART ACCESS
- PARALLEL EXPANSION FOR OPTIMUM ACCURACY AND GRIP FORCE
- LARGE RANGE IN STOCK FOR IMMEDIATE SHIPMENT





ROYAL CNC EXPANDING MANDRELS

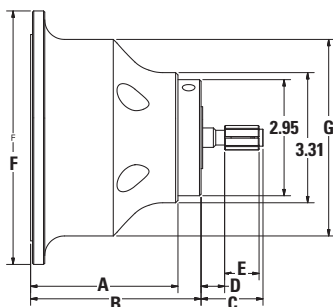
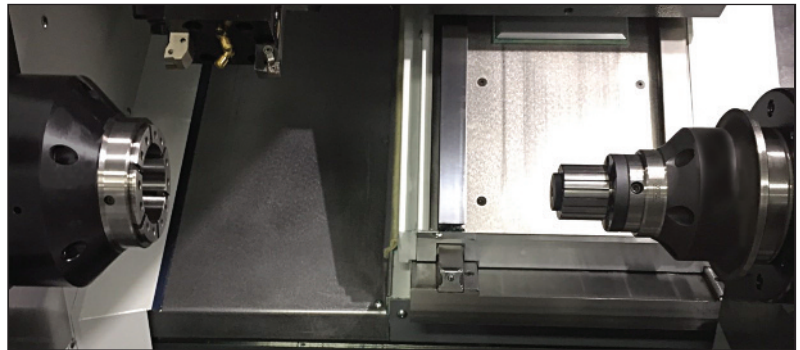
Rigid and Accurate ID Workpiece Gripping



ID gripping is often overlooked as a workholding option, yet in many situations it is the best choice:

- ✓ Allows for full access to the entire length of the workpiece so **all external diameters can be turned in a single operation**, guaranteeing perfect concentricity.
- ✓ On sub-spindle machines, ID gripping on the second spindle eliminates the risk of surface damage that can be caused by second-op OD gripping of a previously-turned diameter.
- ✓ For many parts, the engagement-length of an ID bore can be greater than what is available for OD gripping, resulting in **superior rigidity and torque transmission**.
- ✓ ID systems tend to be more streamlined than OD systems, enabling better part access – especially important for use on machines with live tooling.

Perfect Combination – A Royal Quick-Grip™ CNC Collet Chuck on the main spindle and a Royal CNC Expanding Mandrel System on the sub.



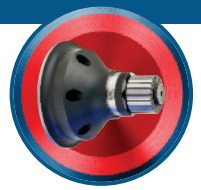
Dimensions

Note – dimensions shown without optional part locator.

SPINDLE MOUNT	A	B	C	D	E	F	G
A2-5	3.75	4.34	See Mandrel Chart on Page 38			6.45	5.00
A2-6	4.00	4.59				7.45	6.25
140mm	3.90	4.49				7.45	6.25
A2-8	5.00	5.59				9.45	8.00

ROYAL CNC EXPANDING MANDRELS

Rigid and Accurate ID Workpiece Gripping



Bolt & Go™

Royal's exclusive Bolt & Go™ mounting feature **ensures maximum accuracy and rigidity** with no adjusting required. Other systems require the mandrel to be trammed in – a hassle that wastes valuable machining time.

Oversized Flange

Borrowing from the winning design of our CNC Collet Chucks, all bodies feature an oversized flange to protect the machine tool spindle bearings from coolant penetration.

Z-Axis Repeatability

Pullback action draws the workpiece securely against a ground locating plate for maximum **"dual-contact" rigidity** and consistent z-axis repeatability.

Easy Installation

Royal CNC Expanding Mandrel Systems include all mounting hardware, wrenches, and a custom-machined drawtube connector to ensure **hassle-free installation**.

Heavy-Duty Construction

Royal consistently builds products that outlast the competition, especially in the most demanding environments. Bodies, mandrels, and expanding rods are all hardened to Rc 61-63 for maximum durability.

Same-Day Shipping

Royal maintains a huge inventory of standard bodies, mandrels, and sleeves to help us achieve our goal of same-day shipping on all orders.

Ultra-Precision Accuracy

System runout guaranteed to be **0.0005" TIR or better**.

Modular Design

Mandrel models A-E all have a common mounting interface with the body so the system can grow with your needs.

Wide Gripping Range

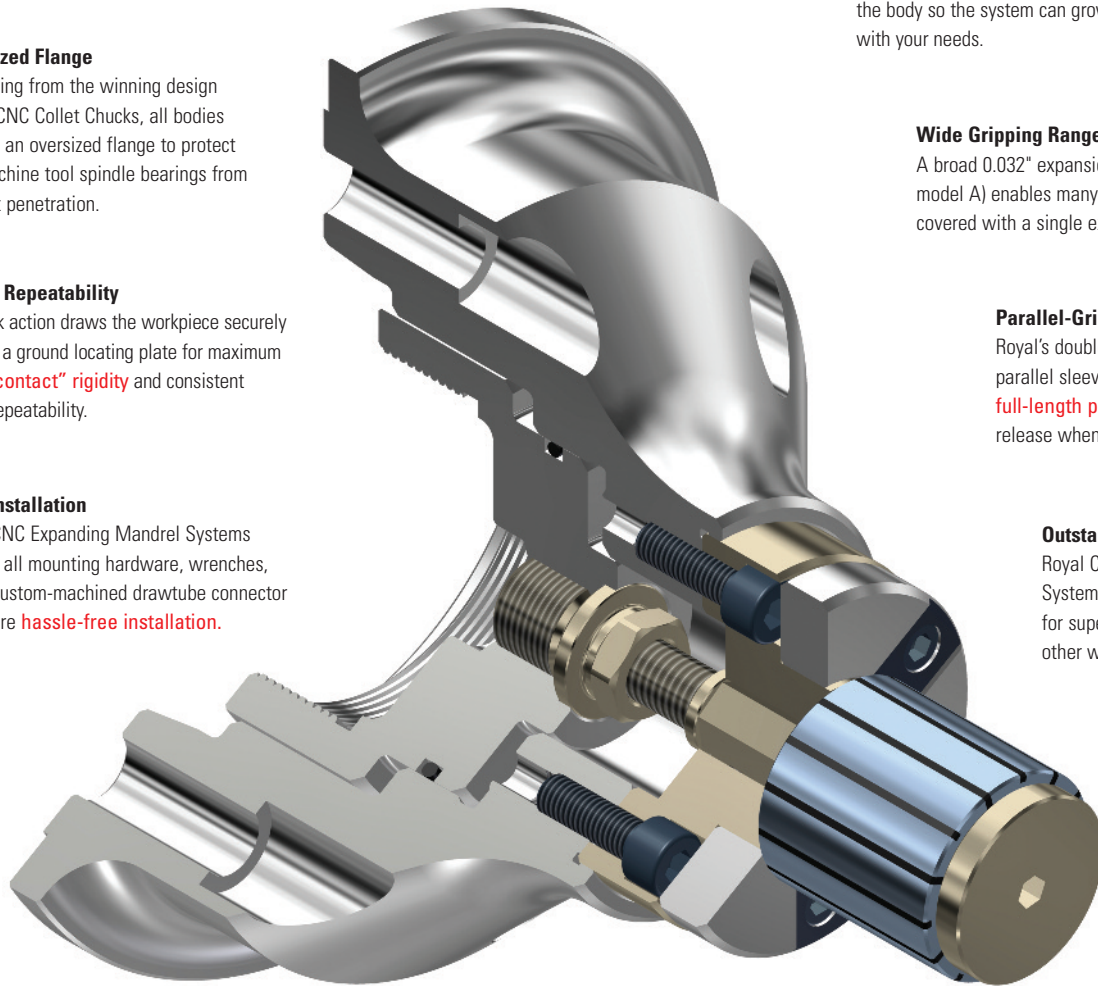
A broad 0.032" expansion range (0.020" for model A) enables many bore sizes to be covered with a single expanding sleeve.

Parallel-Grip

Royal's double-angle design provides parallel sleeve expansion, ensuring **full-length part contact** and positive release when the part is unclamped.

Outstanding Tool Clearance

Royal CNC Expanding Mandrel Systems have been optimized for superior tool clearance over other workholding systems.



Custom Systems

If our standard line doesn't meet your needs, give us a call to discuss your special requirements.

Capabilities include:

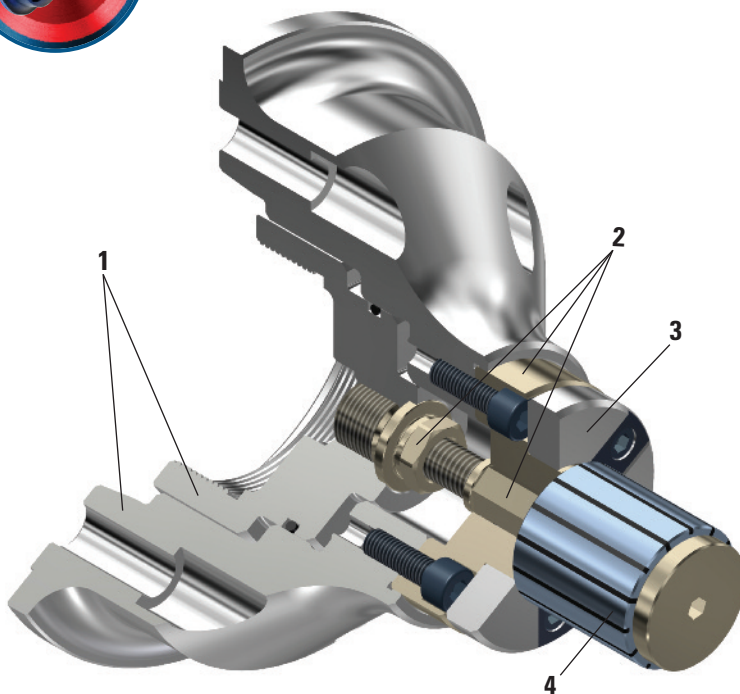
- Larger sizes – up to 25" diameter
- Extended-length systems
- Multi-step systems for locating on multiple bore diameters
- Automation enhancements such as ejector rings, part confirmation, etc.

Completely Sealed

All expanding sleeve slots are sealed to prevent contaminants from accumulating on the mandrel surface – **ensuring years of trouble-free service**. An internal O-ring on the drawtube connector offers additional protection.



ROYAL CNC EXPANDING MANDRELS



How to Order:

- 1. Choose the appropriate body assembly** based upon the lathe spindle it will be mounted to. Just like with Royal CNC Collet Chucks, each ID gripping system includes a custom-machined drawtube connector to ensure **hassle-free installation**.
- 2. Choose the appropriate mandrel** based upon the diameter you plan to grip. All mandrels and bodies share a common mounting interface for full interchangeability. Each mandrel includes the expanding rod and an expanding rod adapter.
- If required, **choose part locator** to provide a banking surface for the workpiece.
- 4. Choose the appropriate expanding sleeve** based upon the diameter you plan to grip.

1. Choose the appropriate body assembly.

- The body provides a **precision interface** for connecting the mandrel to the lathe spindle.
- Assembly includes body, custom-machined drawtube connector, and mounting hardware.
- Order mandrels, sleeves, and part locators separately.

Royal Body Assemblies

SPINDLE TYPE*	PART NUMBER	PRICE
A2-5	47060	\$1,038
A2-6	47064	1,256
140mm	47068	1,342
A2-8	47072	1,698

*Bodies with other spindle mounts available. Contact Royal for additional information.

2. Choose the appropriate mandrel.

- Mandrel models are defined by their gripping range.
- Expanding rod, expanding rod adapter, and mounting hardware included with each mandrel.
- Order expanding sleeves separately.

Royal Mandrels

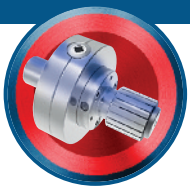
MANDREL MODEL	GRIPPING RANGE	C	D	E	PART NUMBER	PRICE
A	0.479–0.640	1.57	0.57	0.87	47100	\$1,262
B	0.620–0.901	1.81	0.59	1.06	47101	1,262
C	0.870–1.151	2.05	0.61	1.26	47102	1,262
D	1.120–1.651	2.32	0.60	1.50	47103	1,262
E	1.620–3.276	2.52	0.58	1.69	47104	1,262

3. Choose part locator.

- Part locators are an optional accessory.
- Locator bolts to the front of the mandrel and provides a square surface for the workpiece to locate against.
- Wider locators available to accommodate short parts.

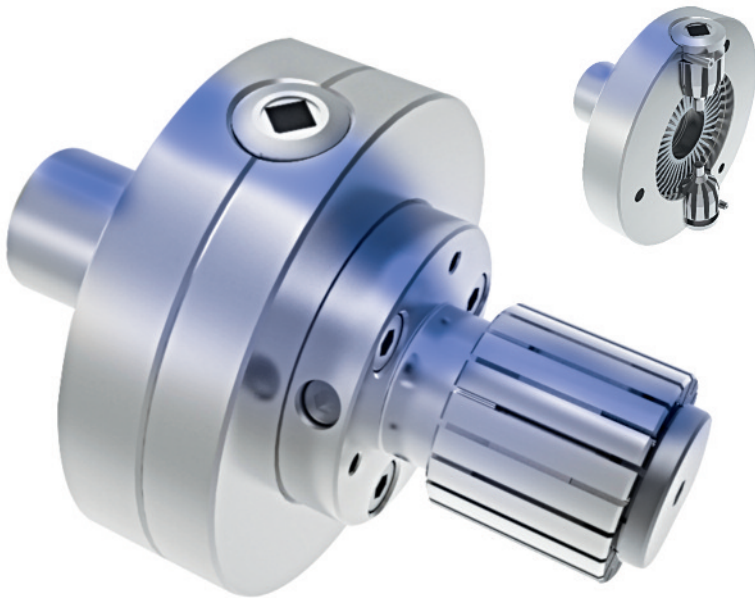
Royal Part Locators

FITS MANDREL MODEL	WIDTH	OUTER DIAMETER	PART NUMBER	PRICE
A	0.47	1.57	47110	\$195
B	0.47	1.57	47111	195
C	0.47	2.95	47112	226
D	0.47	2.95	47113	226
E	0.47	2.95	47114	226



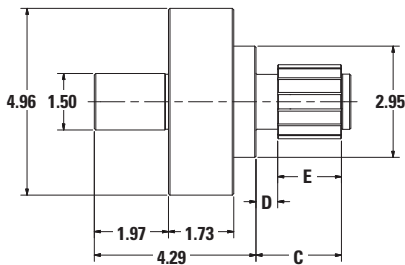
ROYAL MANUALLY-OPERATED EXPANDING MANDREL ACTUATOR

Manual Operation, Universal Mounting



Royal's manually-operated mandrel actuator has a 1.5" diameter straight shank, enabling it to be quickly and easily moved from machine to machine as jobs require. In this application the unit is gripped in a Royal QG-80 CNC collet chuck.

- Royal's Manually-Operated Expanding Mandrel Actuator incorporates a precision-ground 1-1/2" diameter straight shank that **enables the unit to be held in any collet or jaw chuck**, reducing setup times by eliminating the need to change out the machine's workholding device.
- These models utilize the same precision mandrels, expanding sleeves and locators as our CNC Expanding Mandrels (sold separately – see previous pages).
- Side-actuated with an included square-drive key means that this unit can accommodate parts with blind bores as well as those with thru-holes.
- Precision-ground square and concentric within 0.0005". If higher accuracy is needed the mandrel can be clocked-in once the unit is gripped in a chuck.
- Universal straight shank mount enables this ID workholding system to be **easily moved from machine to machine as jobs require**.
- A great option for low/medium-volume production. For high-production environments, Royal's line of CNC Expanding Mandrels featured on the previous pages is recommended.
- When ordering, be sure to also order the appropriate threaded expanding rod adapter(s) sold separately.



See page 36 for dims C, D, & E

Royal Manually-Operated Expanding Mandrel Actuator

DESCRIPTION	PART NUMBER*	PRICE
Manually Operated Expanding Mandrel Actuator	47300	\$2,990
Expanding Rod Adapter – Fits Model A Mandrels	47310	226
Expanding Rod Adapter – Fits Model B Mandrels	47315	226
Expanding Rod Adapter – Fits Model C Mandrels	47320	226
Expanding Rod Adapter – Fits Model D Mandrels	47325	226
Expanding Rod Adapter – Fits Model E Mandrels	47330	226

*Order mandrels, locators, and expanding sleeves separately.

Note – mounting plates also available for stationary applications.

ROYAL CUSTOM ID WORKHOLDING



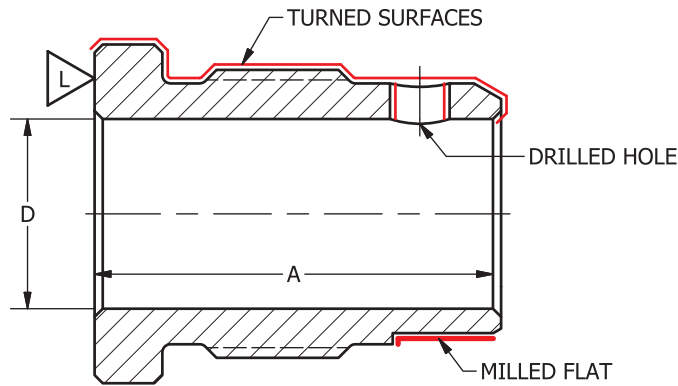
Many common ID workholding applications are easily handled by Royal's large inventory of off-the-shelf expanding mandrels and sleeves. However, **sometimes the parameters of the workpiece and/or process are such that a custom ID workholding system is a better choice.**

In order for Royal's engineering team to make the best recommendation for your specific application, a number of parameters must be considered. If you would like our input on an **ID workholding system that is optimized for your needs**, please take a minute to consider the information outlined below and provide a solid model or drawing of your part that visually identifies these parameters.

Company Name _____	Contact Name _____
Contact Email _____	Contact Phone _____
Description or Ref Number of Part to be Gripped _____	Typical Run Size _____
Workpiece Material _____	How is part Loaded? _____
Machine Make and Model _____	Orientation – vertical or horizontal? _____

**Be sure that your drawing includes the parameters listed below.
The more info you supply – the better we will be able to help you.**

Example:



Note that in this example, a cross-drilled hole breaks into the gripping area. Some might assume that this would require the use of a short sleeve. However, an alternative solution could be a full-length sleeve with a clearance hole or slot machined into it.

We've seen it all – give us a call!

_____ Diameter to be gripped, including tolerance (D).	Description of machining processes to be performed, tooling clearance requirements, etc.:
_____ Max bore length available to grip (A).	_____
_____ Blind bore (Y/N)?	_____
_____ Locating surface (L) - if applicable.	_____
_____ Max diameter of machined surfaces.	_____
_____ Max depth of cut.	_____
_____ Max rpm.	_____

Email this form and your part drawing to orders@royalproducts.com



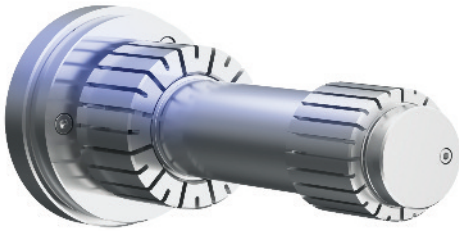
ROYAL CUSTOM ID WORKHOLDING

When a standard off-the-shelf ID workholding system won't quite work for your application, Royal has the expertise to design and build **custom systems that are optimized for your requirements.**

Below are some examples of some of the more common custom systems that we regularly supply.

Dual-Sleeve

Systems typically starting at \$8,700

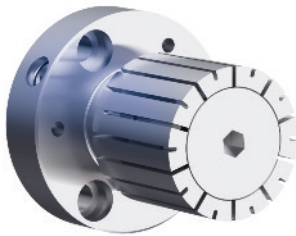


Commonly used for:

- Applications that require gripping on multiple bore diameters.
- Long parts that need extra support.
- Very aggressive machining – sometimes incorporates knurled sleeves for castings and forgings.
- Large diameter-to-length ratios.

“Pressure Angle” Design

Systems typically starting at \$3,200

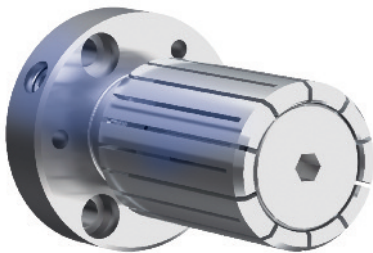


Commonly used for:

- Parts with short or blind bores.
- Very aggressive machining.
- Note that with this design, the head of expanding rod is recessed behind sleeve face to maximize grip-length.
- This design applies extra gripping torque along its length to keep the workpiece firmly seated.

Extended Sleeve

Systems typically starting at \$3,500



Commonly used for:

- Long parts that need extra support.
- Large diameter-to-length ratios.
- Great for thin-wall cylinder applications - load is distributed over a larger area to reduce risk of distortion.

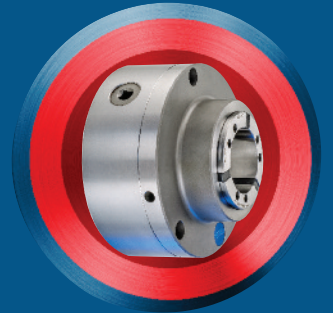
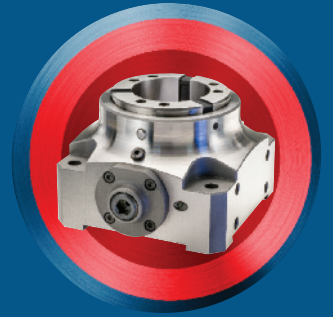
Please keep in mind that in addition to the above systems, many other custom solutions/features are also available, including:

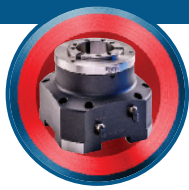
- Part ejectors
- Part confirmation
- Non-round bores
- Splined sleeves
- Radial orientation
- Positive-drive pins
- Center hole for tailstock support
- Custom locators
- Large diameters – up to 24”
- Surface-treated sleeves
- Knurled sleeves for castings and forgings
- Wide-range sleeves – to clear a small bore and expand into a larger bore



COLLET FIXTURES, CHUCKS AND COLLETS FOR

- MACHINING CENTERS
- ROTARY TABLES
- MANUAL LATHES
- GRINDERS





ROYAL QUICK-GRIP™ POWER-BLOCK™ HYDRAULIC COLLET FIXTURES

Extremely Fast Collet Changes

Changing collets on a Royal Quick-Grip™ Power-Block™ takes just a few seconds. A unique hook and groove design for securing collets is used instead of traditional threads.

Wide Gripping Range

Royal Quick-Grip™ Collets have a 0.062" gripping range (+/- 0.031"), enabling them to accommodate undersized and oversized bar stock.

Flexible

The face of the Royal Power-Block™ is precision-ground and includes tapped holes, enabling the use of custom stops, locators, etc.

Heavy-Duty Construction

Body and piston are hardened to Rc 61-63 for maximum rigidity and durability.

Low Maintenance

Oversized evacuation slots on all four sides enable chips to be easily flushed clear on bore-thru applications.

Tool Clearance Optimized

Slim nose diameter offers **better tool clearance compared to vises and other prismatic workholding devices.**

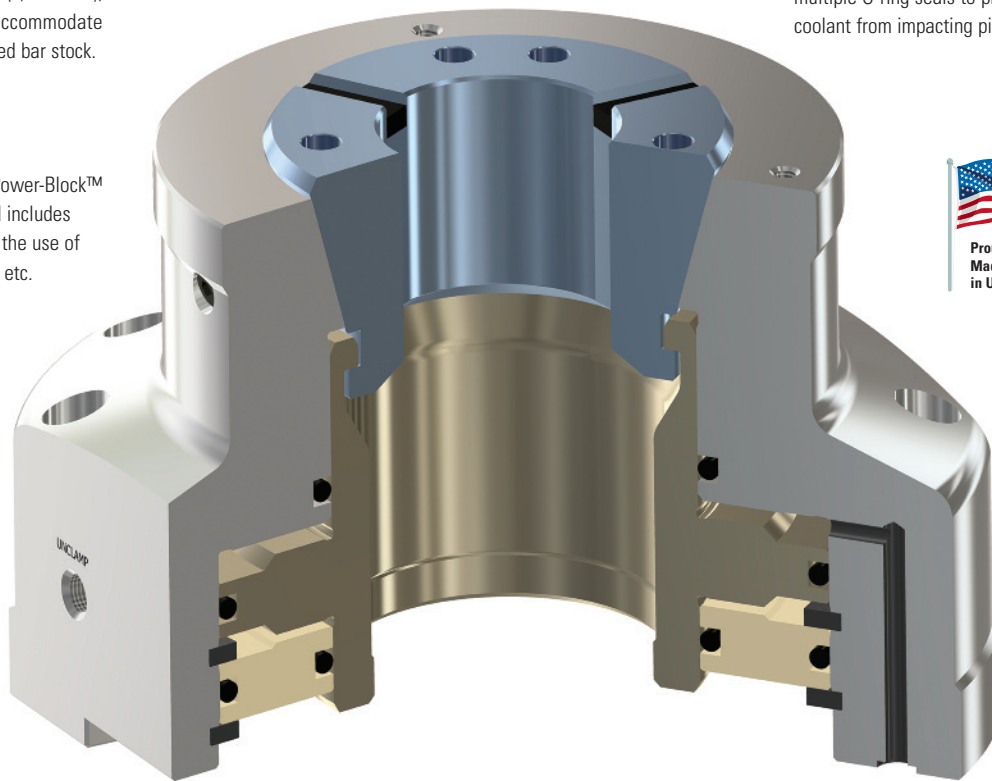
Extreme Grip Force

The gripping segments of Royal Quick-Grip™ collets always remain parallel to the workpiece over their full length, ensuring grip force is evenly distributed. This is a **significant advantage for thin-walled parts that are susceptible to crushing.**

Completely Sealed

Lubricated for life, these fixtures incorporate multiple O-ring seals to prevent chips and coolant from impacting piston movement.

NEW



Dual-Port Actuation

All units are equipped with hydraulic ports on both the side and bottom surface of the fixture, offering **actuation flexibility for both fixed and rotary table applications.**

Custom Collet Profiles

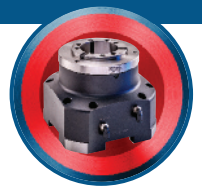
One of the greatest advantages of this workholding system is in Royal's ability to supply custom collet profiles for odd-shaped second-op gripping. See example on adjacent page.

Precision Mounting

Internal bore and external OD are both precision-ground, offering flexibility while **ensuring accurate, repeatable mounting to plates, tombstones, etc.**

Note – Collets sold separately

ROYAL QUICK-GRIP™ POWER-BLOCK™ HYDRAULIC COLLET FIXTURES



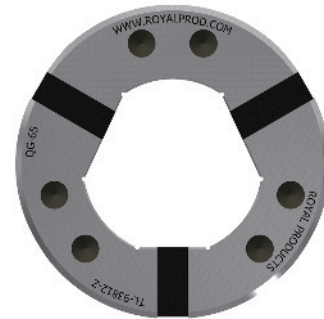
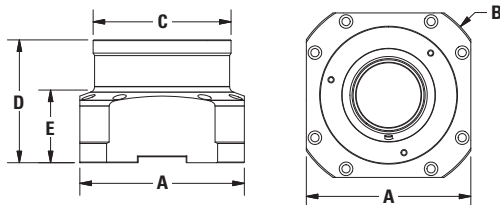
NEW



- ❑ Royal Power-Block™ Collet Fixtures bring the full functionality of our Quick-Grip™ CNC Collet Chucks to your vertical and horizontal machining centers.
- ❑ These fixtures incorporate many of the same great features as our Quick-Grip™ CNC Collet Chucks, including ten-second collet changes and the use of parallel-grip collets with a full .062" clamping range.
- ❑ **A great alternative to traditional vises and fixtures** – especially for long, thin parts, or those with asymmetrical external features.
- ❑ Units are designed to be actuated via hydraulic pressure, and may also be actuated pneumatically for lighter-duty applications.
- ❑ Engineered for use in both stationary and rotary-table applications.
Caution – not for use on lathes or grinders above 60 rpm!
- ❑ Heavy-duty all steel construction with a large double-acting piston for high clamping force.
- ❑ Configured with both side and bottom ports for plumbing flexibility.
- ❑ Multiple units can be plumbed in series for single-source actuation.
- ❑ Mounting face is precision-ground for perpendicularity to centerline.
- ❑ **Ideal for high-production vertical and horizontal milling applications.**
- ❑ For use with Royal Quick-Grip™ collets (pages 18-29).

Power-Block™ Grip Force Specifications

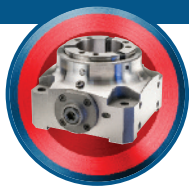
MODEL	MAX INPUT HYDRAULIC PRESSURE (psi.)	MAX AXIAL FORCE (lbs.)	MAX CLAMPING FORCE (lbs.)
QG-42	580	7,865	17,980
QG-65	580	10,115	23,600
QG-80	580	11,240	25,850
QG-100	580	14,610	33,720



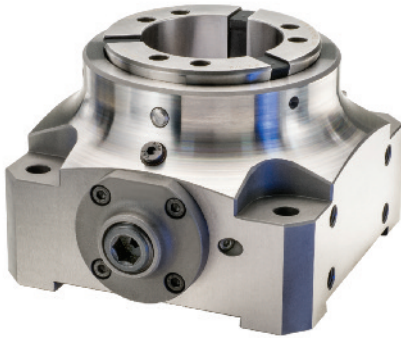
When paired with a custom-profile Quick-Grip™ collet, the Royal Power-Block™ can help you optimize your workholding for parts that aren't well-suited to traditional vises or prismatic fixtures.

Royal Quick-Grip™ Power-Block™ Hydraulic Collet Fixtures

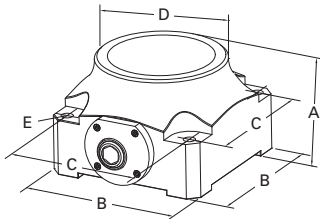
MODEL	CAPACITY		A (SQUARE)	B (OUTER DIA.)	C	D	E	PART NUMBER	PRICE
	(ROUND)	(SQUARE)							
QG-42	1.66	1.16	6.06	6.89	4.92	4.72	3.18	43950	\$2,520
QG-65	2.66	1.78	6.85	8.27	5.75	5.12	3.00	43952	2,705
QG-80	3.28	2.03	7.34	8.46	6.30	5.12	3.00	43954	3,045
QG-100	4.03	2.78	9.02	10.63	8.46	5.51	3.38	43956	4,195



ROYAL QUICK-GRIP™ MANUAL COLLET FIXTURES FOR 4TH AND 5TH AXIS APPLICATIONS



- Unit is actuated via a hybrid mechanical/hydraulic mechanism.
- Can be used in both stationary and rotary table applications. **Caution – not for use on lathes or grinders above 5 rpm!**
- Many of the same great features as our Quick-Grip™ CNC Collet Chucks, including ten-second collet changes and parallel-grip collets with a full .062" clamping range.
- Pullback design with an internally threaded back plate enables the use of a stop rod.
- Bottom and all four sides are ground for both vertical and horizontal mounting.
- Ideal for high production 4th and 5th axis applications.**
- For use with Royal Quick-Grip™ collets (pages 18-29).



Royal Quick-Grip™ Manual Collet Fixtures

MODEL	CAPACITY	A	B	C	D	E	PART NUMBER	PRICE*
QG-42	1.66"	3.94	5.12	3.94	3.94	0.43	43900	\$2,876
QG-65	2.66"	3.94	5.91	4.72	4.72	0.43	43904	3,049
QG-80	3.28"	4.33	6.50	5.31	5.31	0.51	43908	4,193
QG-100	4.03"	4.33	7.87	6.69	6.50	0.51	43912	4,528

*Collet not included – order separately.



ROYAL 5C, 16C, & 3J MANUAL COLLET FIXTURES

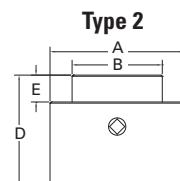
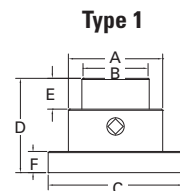


- Opened and closed via an internal cam mechanism.
- Accu-Length™ operation – collet and workpiece position remains fixed for precise length control.
- Can be used in both **stationary and rotary table applications**. **Caution – not for use on lathes or grinders above 5 rpm!**
- Special model 62004 bolts directly to Haas HRT-110* and other small indexers. **Note** – cam bolt is recessed on this model.
- All other models configured for both four and six-slot mounting – 4.125" bolt circle diameter.
- All models include cam wrench.

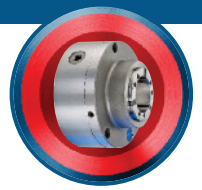
Royal 5C, 16C and 3J Manual Collet Fixtures

MODEL	CAPACITY	TYPE	A	B	C	D	E	F	PART NUMBER	PRICE
5C	1 ¹ / ₁₆ "	Type 1	3.37	2.50	4.95	3.50	1.15	0.75	62002	\$762
5C (for HRT-110)*	1 ¹ / ₁₆ "	Type 2	4.20	2.50	-	3.50	1.15	-	62004	798
16C	1 ⁵ / ₈ "	Type 2	4.95	3.35	-	4.63	1.50	-	62006	1,150
3J	1 ³ / ₄ "	Type 2	4.95	3.35	-	4.13	1.00	-	62008	1,150

*Haas and HRT-110 are registered trademarks of Haas Automation, Inc.



ROYAL KEY-OPERATED QUICK-GRIP™ COLLET CHUCK FOR MANUAL LATHES

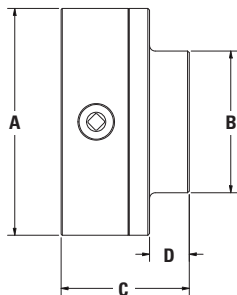


NEW



Note – Collets sold separately

- Now you can **enjoy the same great features of the Royal Quick-Grip™ CNC Collet Chuck on your manual engine lathes**, including ten-second collet changes and parallel-grip collets with a full .062" clamping range.
- No hydraulic actuator needed – chuck is operated with a traditional square-drive chuck key (included) via a side-access screw.
- In addition to manual lathe applications, this chuck can also be utilized on grinders, indexers, rotary tables, etc.
- By eliminating the drawtube and offering a full 2-5/8" thru capacity (compared to 1-1/16" of a 5C collet closer), users can **make much better use of their lathe's spindle capacity**.
- Very accurate – 0.0005" TIR guaranteed!
- Balanced to 4,000 rpm.
- Superior gripping force – approximately 300% greater than our 5C pneumatic collet closer.
- Order backplate separately. Other backplate styles available as custom order.
- For use with Royal QG-65 collets (pages 22-23).
- Note – this product is **specifically designed for use on manual equipment not equipped with a hydraulic actuator**. For CNC lathes, better performance will be achieved through the use of Royal CNC Collet Chucks.



Royal Key-Operated Quick-Grip™ Collet Chuck for Manual Lathes*

MODEL	CAPACITY	A	B	C	D	PART NUMBER	PRICE
QG-65	2.66	7.87	4.92	4.45	1.38	43920	\$3,785

*Order backplate and collets separately.

Backplates for Key-Operated QG Lathe Chuck

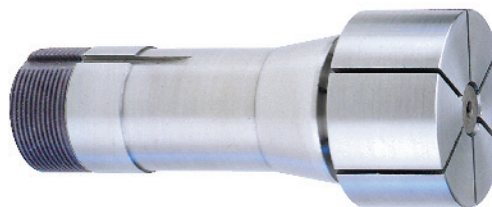
MODEL	PLATE DIAMETER	PLATE THICKNESS	PART NUMBER	PRICE
A2-5	7.87	1.10	43930	\$693
A2-6	7.87	1.18	43932	761
D1-5	7.87	1.60	43934	883
D1-6	7.87	1.85	43936	1,059

- Hardened and precision ground.
- Backplates accept Royal Quick-Grip™ stops featured on page 16.



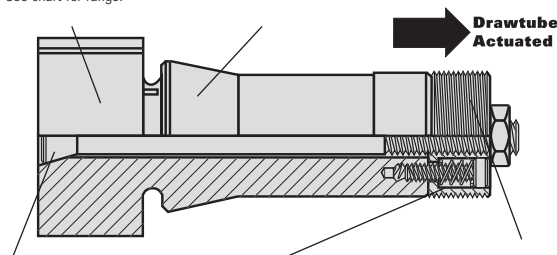
ROYAL 5C EXPANDING COLLETS

- Unlike chucks and most collets that grip the OD of a workpiece, 5C expanding collets are designed to grip on the ID of a part.
- Accu-length design ensures **precise workpiece positioning** – no z-axis movement.
- Collet head is easily machined to required size. Can be re-machined as necessary.
- Concentricities of ± 0.0002 " can typically be achieved using Royal 5C expanding collets.
- Made from 1144 steel that can be hardened after machining for wear resistance.
- Additional head lengths and diameters available. Contact us for information.



Head is easily machined to required size by customer. See chart for range.

Precision ground body for excellent workpiece concentricity.



Expanding rod is hardened and ground for strength and durability.

Internal spring provides positive release.

Rear threaded section is separate from collet body. When this section is pulled back by the drawtube, it pulls the tapered expanding rod back, causing the head to expand.

Royal 5C Internal Expanding Collets

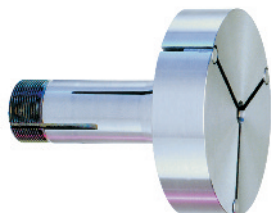
NOMINAL HEAD DIAMETER	HEAD LENGTH	MACHINABLE RANGE MIN-MAX	PART NUMBER	PRICE
3/4"	1"	1/4"–1 1/16"	20100	\$198
1"	1"	7/16"–1 5/16"	20101	198
1 1/2"	1"	3/4"–1 7/16"	20102	188
1 1/2"	1 1/2"	3/4"–1 7/16"	20103	207
1 1/2"	2"	3/4"–1 7/16"	20104	208
2"	1"	3/4"–1 15/16"	20107	217
2"	1 1/2"	3/4"–1 15/16"	20108	230
2"	2"	3/4"–1 15/16"	20109	263
2 1/2"	1"	3/4"–2 7/16"	20112	266
3"	1"	3/4"–2 15/16"	20117	292
5"	2"	3/4"–4 15/16"	20127	561

Replacement Expanding Rods

HEAD DIA.	HEAD LENGTH	PART NUMBER	PRICE
3/4"	1"	20135	\$58
1"	1"	20136	53
1 1/2"–5"	1"	20130	41
1 1/2"–5"	1 1/2"	20131	43
1 1/2"–5"	2"	20132	44



ROYAL 5C STEP COLLETS



- Royal step collets allow large diameter parts to be held in a 5C collet.
- Head can be easily bored out by customer to required size.
- Three dowel pins are supplied to **ensure accurate machining**.
- 1/4" thick head allows for 1" bore depth.
- Collets are made from 1144 steel and can be hardened for wear resistance.

Royal 5C Step Collets

HEAD DIA.*	PILOT HOLE	PIN DIA.	PART NUMBER	PRICE
2"	1/4"	1/8"	20020	\$179
3"	5/16"	1/4"	20022	237
4"	5/16"	1/4"	20024	370
5"	5/16"	1/4"	20025	479

*We recommend ordering a collet with a head diameter at least 1/2" larger than workpiece diameter.

Note — these step collets close on the 10° angle, not the head OD. When using, be sure part is sufficiently clamped.

ROYAL ULTRA-PRECISION ER COLLETS – 0.0002" TIR



Inch and Metric Sizes

Royal ER Collets are available in both **inch and metric sizes**. This optimizes the surface contact between the collet and cutting tool and results in higher accuracies, stronger grip force, better part finishes, and longer cutting tool life.

Extremely Accurate

Runout is guaranteed to be 6 microns (**0.0002" TIR**), or better. Each collet is inspected to this standard prior to shipping.

Heavy Duty Construction

Royal ER Collets are made from high-grade steels imported from Germany and are hardened for long life.



Sealed Models Available

For precise coolant delivery to the tip of the cutting tool.

Large Inventory

All sizes are **in-stock**, ready for immediate shipment.

Wide Gripping Range

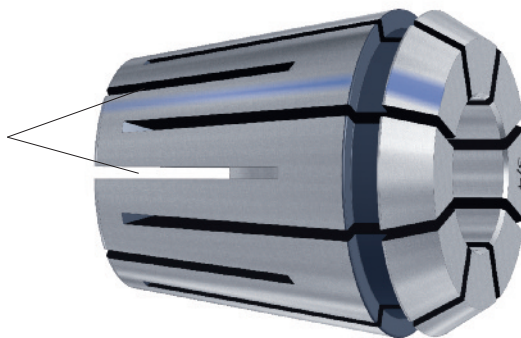
Royal standard ER Collets contain 16 slots, providing a larger gripping range than other brands.

Great Value

Very **competitive prices** make these high-quality ER Collets the best value in the industry.

ROYAL **SEALED** ULTRA-PRECISION ER COLLETS

Short slots block flow, ensuring that all coolant is delivered thru the cutting tool.

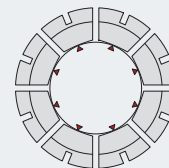


- Ultra-Precision Accuracy – 0.0002" TIR guaranteed.
- **High-pressure approved to 1400 psi.**
- Unique design is mechanically sealed by virtue of the rear slots terminating prior to the annular groove, completely blocking the path of coolant flow to the front of the collet.
- When using thru-coolant cutting tools, these collets ensure **100% coolant delivery** to the tip of the cutting tool.
- Superior to collets sealed with silicone/rubber plugs because plugs are limited to lower operating pressures and are subject to wear.
- Unlike standard ER collets, sealed models do not have a wide collapsibility range, requiring the collet bore to be matched to the cutting tool shank diameter.

A Perfect Match to Your Cutting Tool Diameter

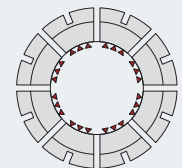
All Royal ER Collets are available from stock in both inch and metric sizes. This is very important because it enables you to select a collet that has been ground to your precise cutting tool size.

Using a collet that is **perfectly matched to the cutting tool diameter** ensures that full surface contact is achieved, resulting in higher gripping force, better accuracy, less vibration, better surface finishes, and longer tool life.



Other Brands

Single Point Contact when Using Metric Collets to Hold Inch-Sized Tooling, or Vice Versa



Royal Brand

Full Surface Contact Because Royal ER Collets are Ground to Exact Inch and Metric Sizes



ULTRA-PRECISION ER COLLETS – 0.0002" TIR

Standard and Sealed

Inch Sizes



ER-11
\$29 / \$32



ER-16
\$29 / \$32



ER-20
\$32 / \$37



ER-25
\$34 / \$39



ER-32
\$36 / \$43



ER-40
\$39 / \$49

Royal Ultra-Precision ER Collets (Inch)

DRILL/ENDMILL DIAMETER	STANDARD COLLET GRIP RANGE*	ER-11*		ER-16		ER-20		ER-25		ER-32		ER-40	
		Standard \$29	Sealed \$32	Standard \$29	Sealed \$32	Standard \$32	Sealed \$37	Standard \$34	Sealed \$39	Standard \$36	Sealed \$43	Standard \$39	Sealed \$49
1/16"	.062 – .043	53002		53020		53050		53090					
3/32"	.093 – .054	53004		53022		53052		53092		53140			
1/8"	.125 – .086	53006	56006	53024	56024	53054	56054	53094	56094	53142		53200	
5/32"	.156 – .117	53008	56008	53026	56026	53056	56056	53096	56096	53144	56144	53202	56202
3/16"	.187 – .148	53010	56010	53028	56028	53058	56058	53098	56098	53146	56146	53204	56204
7/32"	.218 – .179	53012	56012	53030	56030	53060	56060	53100	56100	53148	56148	53206	56206
1/4"	.250 – .211	53014	56014	53032	56032	53062	56062	53102	56102	53150	56150	53208	56208
9/32"	.281 – .242			53034	56034	53064	56064	53104	56104	53152	56152	53210	56210
5/16"	.312 – .273			53036	56036	53066	56066	53106	56106	53154	56154	53212	56212
11/32"	.343 – .304			53038	56038	53068	56068	53108	56108	53156	56156	53214	56214
3/8"	.375 – .336			53040	56040	53070	56070	53110	56110	53158	56158	53216	56216
13/32"	.406 – .367			53042	56042	53072	56072	53112	56112	53160	56160	53218	56218
7/16"	.437 – .398					53074	56074	53114	56114	53162	56162	53220	56220
15/32"	.468 – .429					53076	56076	53116	56116	53164	56164	53222	56222
1/2"	.500 – .461					53078	56078	53118	56118	53166	56166	53224	56224
17/32"	.531 – .492							53120	56120	53168	56168	53226	56226
9/16"	.562 – .523							53122	56122	53170	56170	53228	56228
19/32"	.593 – .554							53124	56124	53172	56172	53230	56230
5/8"	.625 – .586							53126	56126	53174	56174	53232	56232
21/32"	.656 – .617									53176	56176	53234	56234
11/16"	.687 – .648									53178	56178	53236	56236
23/32"	.718 – .679									53180	56180	53238	56238
3/4"	.750 – .711									53182	56182	53240	56240
25/32"	.781 – .742									53184	56184	53242	56242
13/16"	.812 – .773									53186	56186	53244	56244
27/32"	.843 – .804											53246	56246
7/8"	.875 – .836											53248	56248
29/32"	.906 – .867											53250	56250
15/16"	.937 – .898											53252	56252
31/32"	.969 – .930											53254	56254
1"	1.000 – .961											53256	56256

* Gripping range for ER-11 is 1/64". Sealed collets have no range – must be sized exactly.

ULTRA-PRECISION ER COLLETS – 0.0002" TIR

Standard and Sealed



Metric Sizes



ER-11
\$29 / \$32

ER-16
\$29 / \$32

ER-20
\$32 / \$37

ER-25
\$34 / \$39

ER-32
\$36 / \$43

ER-40
\$39 / \$49

Royal Ultra-Precision ER Collets (Metric)

DRILL/ENDMILL DIAMETER	STANDARD COLLET GRIP RANGE*	ER-11*		ER-16		ER-20		ER-25		ER-32		ER-40	
		Standard \$29	Sealed \$32	Standard \$29	Sealed \$32	Standard \$32	Sealed \$37	Standard \$34	Sealed \$39	Standard \$36	Sealed \$43	Standard \$39	Sealed \$49
1 mm	1 – 0.5	53402		53430									
2 mm	2 – 1	53404		53432		53460		53502					
3 mm	3 – 2	53406	56406	53434	56434	53462	56462	53504	56504	53550			
4 mm	4 – 3	53408	56408	53436	56436	53464	56464	53506	56506	53552	56552	53602	56602
5 mm	5 – 4	53410	56410	53438	56438	53466	56466	53508	56508	53554	56554	53604	56604
6 mm	6 – 5	53412	56412	53440	56440	53468	56468	53510	56510	53556	56556	53606	56606
7 mm	7 – 6	53414	56414	53442	56442	53470	56470	53512	56512	53558	56558	53608	56608
8 mm	8 – 7			53444	56444	53472	56472	53514	56514	53560	56560	53610	56610
9 mm	9 – 8			53446	56446	53474	56474	53516	56516	53562	56562	53612	56612
10 mm	10 – 9			53448	56448	53476	56476	53518	56518	53564	56564	53614	56614
11 mm	11 – 10					53478	56478	53520	56520	53566	56566	53616	56616
12 mm	12 – 11					53480	56480	53522	56522	53568	56568	53618	56618
13 mm	13 – 12					53482	56482	53524	56524	53570	56570	53620	56620
14 mm	14 – 13							53526	56526	53572	56572	53622	56622
15 mm	15 – 14							53528	56528	53574	56574	53624	56624
16 mm	16 – 15							53530	56530	53576	56576	53626	56626
17 mm	17 – 16									53578	56578	53628	56628
18 mm	18 – 17									53580	56580	53630	56630
19 mm	19 – 18									53582	56582	53632	56632
20 mm	20 – 19									53584	56584	53634	56634
21 mm	21 – 20											53636	56636
22 mm	22 – 21											53638	56638
23 mm	23 – 22											53640	56640
24 mm	24 – 23											53642	56642
25 mm	25 – 24											53644	56644
26 mm	26 – 25											53646	56646

* Gripping range for ER-11 is 0.5 mm. Sealed collets have no range – must be sized exactly.



ROYAL ULTRA-PRECISION ER COLLET SETS

Standard and Sealed



- 0.0002" TIR guaranteed.
- Convenient sets include all popular sizes.
- Available in inch, metric, standard, and sealed models.

Royal ER Collet Sets (Inch – Standard)

COLLET SERIES	RANGE	NUMBER OF COLLETS IN SET	PART NUMBER	PRICE
ER-11	1/16"–1/4" x 32nds	7	53300	\$203
ER-16	1/16"–3/8" x 32nds	11	53302	319
ER-20	5/32"–1/2" x 32nds	12	53304	384
ER-25	5/32"–5/8" x 32nds	16	53306	544
ER-32	7/32"–3/4" x 32nds	18	53308	648
ER-40	1/8"–1" x 16ths	15	53310	585

Royal ER Collet Sets (Metric – Standard)

COLLET SERIES	RANGE	NUMBER OF COLLETS IN SET	PART NUMBER	PRICE
ER-11	1–7 mm x 1 mm	7	53700	\$203
ER-16	1–10 mm x 1 mm	10	53702	290
ER-20	2–13 mm x 1 mm	12	53704	384
ER-25	2–16 mm x 1 mm	15	53706	510
ER-32	3–20 mm x 1 mm	18	53708	648
ER-40	4–26 mm x 1 mm	23	53710	897

Royal ER Collet Sets (Inch – Sealed*)

COLLET SERIES	RANGE	NUMBER OF COLLETS IN SET	PART NUMBER	PRICE
ER-16	1/8"–3/8" x 32nds	9	56302	\$288
ER-20	5/32"–1/2" x 32nds	12	56304	444
ER-25	5/32"–5/8" x 32nds	16	56306	624
ER-32	7/32"–3/4" x 32nds	18	56308	774
ER-40	3/16"–1" x 16ths	14	56310	686

* Unlike standard ER collets, sealed models do not have a wide collapsibility range and therefore must be sized to the cutting tool diameter.

Royal ER Collet Sets (Metric – Sealed*)

COLLET SERIES	RANGE	NUMBER OF COLLETS IN SET	PART NUMBER	PRICE
ER-16	3–10 mm x 1 mm	8	56702	\$256
ER-20	3–13 mm x 1 mm	11	56704	407
ER-25	3–16 mm x 1 mm	14	56706	546
ER-32	4–20 mm x 1 mm	17	56708	731
ER-40	4–26 mm x 1 mm	23	56710	1,127

* Unlike standard ER collets, sealed models do not have a wide collapsibility range and therefore must be sized to the cutting tool diameter.



ROTA-RACK®

SIMPLE OFF-THE-SHELF AUTOMATION
INCREASES THROUGHPUT AND PROFITS





WHAT IS A ROTA-RACK®?

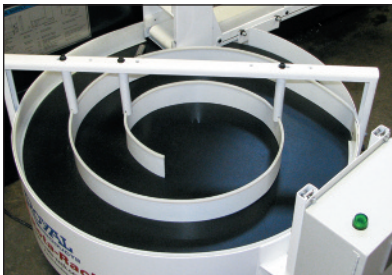


The patented Royal Rota-Rack® is an automatic accumulator that can be used with any bar-fed CNC lathe to safely collect finished parts, providing **hours of highly profitable, unmanned production.**

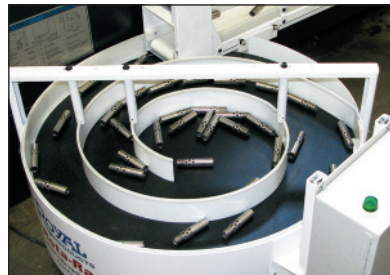
Do you know....

- There are 168 production hours in a week.
- You are probably only using 40 of them.
- Your machines are worth \$100 per hour.
- You could be **making an extra \$12,800 per week** on each machine with a Rota-Rack®.
- You already invested in the bar feeder – how can you not complete the automation package?
- **A one-week payback – Incredible!**
- What are you waiting for?

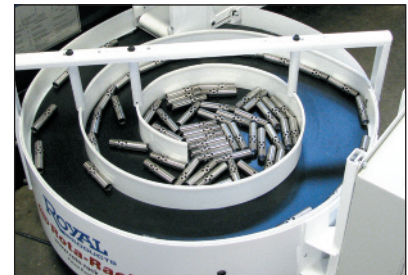
Overnight Production = Pure Profit



5 PM – Tuesday



11 PM – Tuesday



6 AM – Wednesday

*Some machine tool builders charge almost as much for a conveyor only.

WHAT WILL THE ROYAL ROTA-RACK® DO FOR YOU?



Big Benefit #1 Increases Capacity, Throughput, and Profits

Adding a Royal Rota-Rack® to a bar-fed CNC lathe greatly increases machine utilization and throughput.

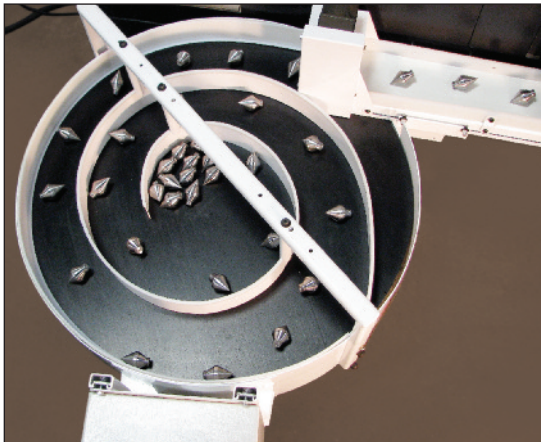
- ❑ Run existing machines extra hours: nights, weekends, lunch breaks, etc.
- ❑ Faster cycle times – no waiting for an operator to unload parts / empty collection boxes.
- ❑ Higher efficiency – **produce more parts per shift.**
- ❑ Better employee utilization – why have a person do a job that can be handled with simple automation?
- ❑ Increased profitability.



Note: Collection box removed for clarity.

Big Benefit #2 Eliminates Part Damage

The Royal Rota-Rack® has been designed to provide maximum part protection, a feature that is important for all parts but one that is especially useful for parts with delicate external features like threads, edges, and corners.



- ❑ Each time the Rota-Rack® collects a finished part, the turntable smoothly rotates to the next position to ensure that the following part will not forcefully collide with any of the previously-collected parts.
- ❑ All contact surfaces of the Royal Rota-Rack® and conveyor are covered with a high-lubricity UHMW plastic material to minimize friction and protect surface finishes.
- ❑ **Reducing scrap and rework costs directly improves profitability.**
- ❑ The Rota-Rack's® unique spiral helps keep finished parts in sequential order, aiding in quality control/inspection.

Big Benefit #3 Provides Complete Reliability

The Royal Rota-Rack® won't show up late, doesn't get sick, and **keeps working long after your last employee leaves for the night or weekend.**

First day of hunting season? Big snow storm? Cousin's wedding? The Rota-Rack® doesn't care. How many of your competitors will be turning out parts on Super Bowl Sunday?



**Check out the Royal Rota-Rack®
Video at www.rotarack.com**



THE PROFIT MAKER

Case Study – Royal Rota-Rack® Increased Profits at a Small Job Shop by Over \$50,000!

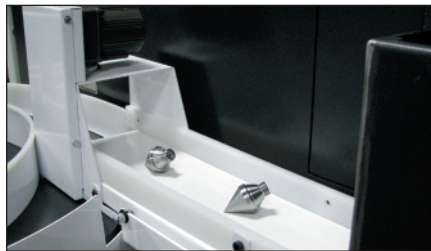
- ❑ The owner of a small job shop installed a Royal Rota-Rack® with the intention of running one of his CNC lathes for a few extra hours in the evenings after his employees left for the day.
- ❑ For costing purposes, he continued to base all of his overheads on the first shift, figuring that any extra production hours achieved with the Rota-Rack® would be virtually all profit.
- ❑ The shop rate on his CNC Lathe = \$70 per hour.
- ❑ The owner started out conservatively, using Rota-Rack® to deliver just three hours of extra production per night.
- ❑ 3 hours x 5 days = 15 hours per week of extra production.
- ❑ 15 x \$70 = \$1,050 in extra profits per week.
- ❑ \$1050 x 52 weeks = \$54,600!

In this real-life example, the lathe only ran an average of three extra hours per night, and still **generated more than \$50,000 in extra profit in the first year** alone. In reality, many shops use the Royal Rota-Rack® to run an extra six to eight hours per night, plus weekends.

How Does The Royal Rota-Rack® Work?



1. User enters the part cycle time and degree of turntable rotation via a simple PLC controller. A counter can also be set to shut the Rota-Rack® down after a specified number of parts have been collected.



2. As a finished part comes out of the lathe, it drops onto the conveyor and is moved towards the Rota-Rack's® rotating turntable.

The Royal Rota-Rack® is very simple to set up and operate. Most users are up and running within an hour or two of removing it from its shipping crate.



3. Each time a part comes out of the machine, the Rota-Rack® indexes to the next position. The degree of turntable rotation is easily adjusted according to part size.



4. As the turntable indexes, the parts are gently guided towards the center via the spiral.



5. After several hours of unmanned production, finished parts are manually removed from the center of the Rota-Rack®.

COMMON CONCERNS ABOUT LIGHTS-OUT PRODUCTION



Crossing over from manned production to unmanned production is a big step for any shop. It isn't easy – but for those who commit to it, the benefits are enormous. Here are few of the most common objections that we hear, and some input on how we addressed some of the same issues in our own shop:

“My machine might crash.”

That's true - it might. However, today's CNC's are equipped with all kinds of sensors that immediately shut everything down upon any signs that something has gone wrong. If your machine crashes, you might have to deal with an expensive repair. But what you also must accept is that no operator is a psychic – when was the last time one of your people shut a machine down just before it crashed?

“I might come in the next day to find out that we made a full run of bad parts.”

Again, that may happen, but it won't happen every time. In fact, you'll soon realize that this hardly ever happens, and when it does, the value of the scrapped material is so low in relation to the value of the finished parts that it doesn't matter. One of our customers said it best – “\$300 worth of aluminum is nothing compared to \$3,500 worth of finished parts!”

“I want to keep my people employed - machines are taking over the world...”

Like it or not, automation is here to stay. Look at the agricultural industry – it is estimated that 100 years ago 30-40% of the American population made its living from agriculture. Today that number is about 3%, yet we produce much more food, and of much higher quality, than ever before. That would never have been possible without automation advancements such as the combine.

Automation can actually improve life for your employees by freeing them from repetitive, mundane tasks so they can tackle more complex jobs within your company, and potentially earn more money because they are doing jobs with a higher value. For example, as we became more automated here at Royal, many machine loaders/unloaders advanced into the assembly department. This was a higher-paying position, and we had a need for increased personnel because we were making more parts each week.

Sure, over time your need to increase headcount will be reduced and **you will become a much leaner company**. However, our experience is that this almost always occurs through natural attrition, and rarely does simple automation result in an immediate need to cut staffing levels.



Utilized to its fullest extent, it is entirely possible to generate an **additional profit of \$150,000 – \$200,000 per lathe, per year, with the Royal Rota-Rack®.**



FIVE TIPS FOR SUCCESSFUL LIGHTS-OUT PRODUCTION



1. Reduce the Risk of Tool Breakage

For roughing tools and large drills, use load detection (standard on many machines) to sense tool breakage. If you don't have load detection, utilize tool management.

Example – if you know a certain tool typically lasts for at least 50 parts, switch it out after 40. If you don't have load detection or tool management capabilities, figure out your weak link and adjust your run-size according to what that tool can safely handle. **Whatever you do, don't decrease speeds and feeds in the hopes of extending the life of a \$9 insert!**

2. Control the Chip

Produce chips - not stringers. Leverage the expertise of your cutting tooling suppliers – they can offer you suggestions for optimizing speeds and feeds, let you test various cutting tool geometries, etc. In our own shop, we had an application where we had to try several different approaches for a troublesome grooving operation until we found the optimal one.

Another important aspect of chip control, especially on sub-spindles, is cleaning your workholding between parts with an air blast to ensure that the next part is correctly seated. If you don't have air blast on your machine, use a large diameter thru-coolant drill and blast the chuck with coolant while it is spinning.

3. Coolant Management

Coolant quality and consistency must be regularly monitored – poor coolant shortens tool life, damages machine seals, and hurts part finishes. In addition to regular coolant maintenance, all coolant sumps should be equipped with a tramp oil skimmer.

It is also important to **keep the coolant inside the machine instead of dumping it out with each finished workpiece**. Techniques include air-blasting the part before unloading, adding drain holes to the part collection basket, refraining from positioning the part collection basket under the part until just before the cut-off tool breaks thru, reducing or shutting off coolant flow during part-off, etc.

4. Thermal Stability/Scheduling

Learn how each of your machines is affected by heat. One of our large Rota-Rack® customers discovered that not all of his machines are stable enough to handle certain high-tolerance jobs over the course of an unmanned shift, so he simply schedules his jobs accordingly.

5. Make it Part of Your Company Culture

Your employees must embrace lights-out manufacturing, and realize that it doesn't make their jobs less secure – it makes them more secure because it better positions your company against domestic and foreign competition. They need to change their thinking from “Can this job run lights-out?” to “How long can I run this job lights-out?”

Ask yourself **“How many shops that thought CNC was a passing fad are still around today?”** If you don't invest in the latest available technology to make your shop as competitive as possible, how can you expect to remain competitive against those who do? The Royal Rota-Rack® is one of the simplest, least-expensive automation devices you can employ, and the payback is both immediate and ongoing.



Want to see a Rota-Rack in person? Give us a call and we'll arrange for one of our fully-equipped demo vans to visit your company. You can even drop some of your parts onto it so see how they are handled.



**Check out the Royal Rota-Rack®
Video at www.rotarack.com**



HEAVY-DUTY DESIGN – BUILT TO LAST

Large Capacity

With over 850 square inches of surface area, the Royal Rota-Rack® can hold **hundreds of parts*** and provide hours of unmanned operation.

Unique Rotary Spiral

Gently guides finished parts to the center as the turntable rotates.

Coolant Management

Integral drip tray with drain collects excess coolant.

Totally Self-Contained – No Machine Tool Contact

The Royal Rota-Rack® is a complete stand-alone unit – there are no electrical or physical connections of any type with the machine tool. This provides hassle-free installation and ensures that all machine warranties remain intact.



Very Heavy-Duty Construction

Weighing in at 450 lbs., the Royal Rota-Rack® is a serious piece of equipment that is **built to withstand years of abuse** in the harshest production environments. A heavy gage welded steel frame provides outstanding rigidity, enabling the Rota-Rack® to easily support up to 700 lbs. of finished parts.

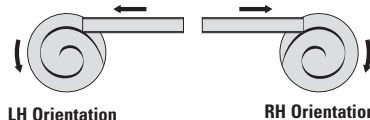
Excellent Part Protection

Low-friction UHMW coating on all contact surfaces protects finished parts from scuffs and dents. This durable plastic is the same material used in the manufacture of motorcycle chain guides.

Universal Design

The Royal Rota-Rack® **adapts to any CNC lathe** that is equipped with a part catcher:

- Turntable can rotate either clockwise or counter-clockwise, and can be positioned to either the left side or right side of the lathe.



- Height range 10.5 – 53 inches. Other height requirements can be accommodated upon special request.
- Rota-Rack® is completely free standing – no bolting to the machine or floor is required.
- Control box can be positioned anywhere on circumference for optimal clearance.
- Easily adapts to machines with existing conveyors.

The Royal Rota-Rack® is reliable, doesn't take sick days, and **pays for itself within a few months of use. Order yours today and get a jump on your competition!**

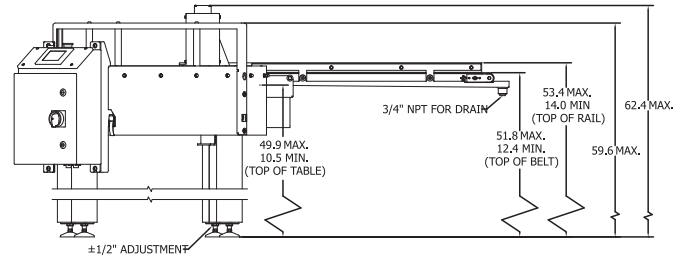
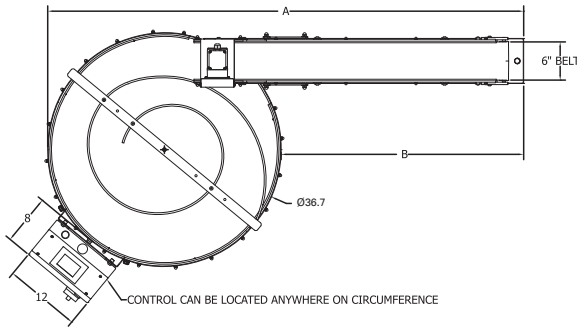
*Actual number of parts depends upon individual part size.



ROYAL ROTA-RACK® SPECIFICATIONS

Large Enough to Hold Lots of Parts, Small Enough to Fit Almost Anywhere

The diameter of the Rota-Rack's turntable is 36", making it large enough to hold a significant number of parts, yet small enough to fit into tight spaces. When considering space utilization, it is very important to note that the Rota-Rack® can **double or triple capacity**, yet its footprint is only about 10% that of a new lathe and bar feeder.



General Specifications

Usable Surface Area	850 in ² / 5480 cm ²
Max. Part Length*	10" / 25 cm
Min. Part Diameter	0.25" / 0.6 cm
Max. Part Diameter*	3" / 8 cm
Payload Capacity	700 lbs. / 318 kg
Height Range	See drawing
Power Supply	110V, 50/60Hz
Unit Weight	450 lbs. / 205kg (including conveyor)

*It is sometimes possible to exceed these parameters. Contact Royal for info.

Conveyor Dimensions

DESCRIPTION	A	B
Short	53"	16"
Standard	75"	38"
Long	94"	57"

Note – unit shown is configured for left-hand positioning. Changing to right-hand configuration simply requires flipping the spiral and conveyor bracket.

Easy Installation

We often refer to the Rota-Rack® as "Off the Shelf Automation" because it is such a breeze to install. In fact, most users report having it up and running within an hour of unpacking it from its shipping crate.

Each Rota-Rack® normally ships with its height and orientation preconfigured according to customer specifications. And because **the unit does not need to connect to the lathe either physically or electrically**, installation is simply a matter of attaching the legs, sliding it into place in front of the machine, and plugging it into a standard 110v outlet.

The one additional step that may be required for some installations is the modification of the lathe's part collection box, usually located on the door of the machine. In order for parts to reach the Rota-Rack® or its conveyor, the bottom and/or side of the box may have to be opened up as shown in the photo.



Note – see page 58 for important information regarding coolant management.

HOW TO ORDER THE ROYAL ROTA-RACK®



The Heavy-Duty Royal Rota-Rack® is Available with Two Control Options and Three Conveyor Options:

Deluxe Control

- ❑ The deluxe control enables the Rota-Rack's® operation to be matched to the machining cycle time.
- ❑ Three inputs are entered by the user: part cycle time, amount of rotation, and auto-shutoff quantity.
- ❑ With this control, each time a part drops out of the machine, the Rota-Rack® will energize and index.
- ❑ The deluxe control is useful for applications where accurate spacing is required to **prevent delicate parts from coming into contact with each other.**

Basic Control

- ❑ The basic control eliminates operator input of the timing/rotation functions.
- ❑ With the basic control, the conveyor and turntable maintain a continuous low-rpm motion.
- ❑ No auto shut-off feature is available with the basic control.

Conveyors

- ❑ There are three conveyor options to handle all clearance needs.
- ❑ The conveyor bolts to the Rota-Rack and plugs directly into the control.
- ❑ Long conveyor includes a support leg.



In-Stock For Immediate Shipping

Royal Heavy-Duty Rota-Rack®

DESCRIPTION	PART NUMBER	PRICE
Heavy-Duty Rota-Rack® with Deluxe Control	51002*	\$9,840
Heavy-Duty Rota-Rack® with Basic Control	51003*	7,995

*Order conveyor separately.

Conveyor Options

DESCRIPTION*	PART NUMBER	PRICE
Short	51021	\$2,655
Standard	51022	2,655
Long	51023	3,640

*See dimensions on previous page.

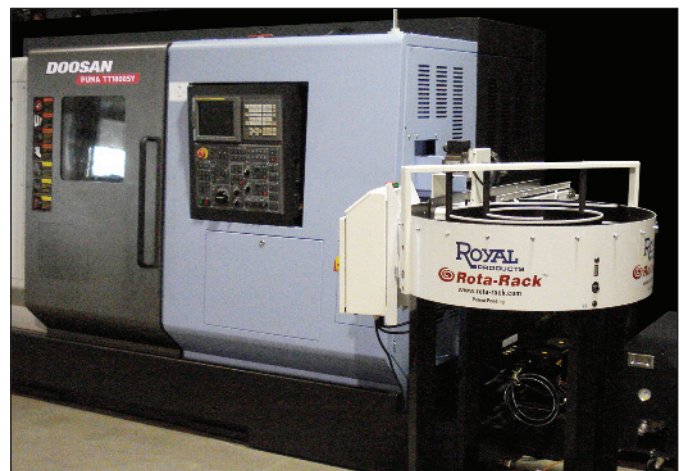
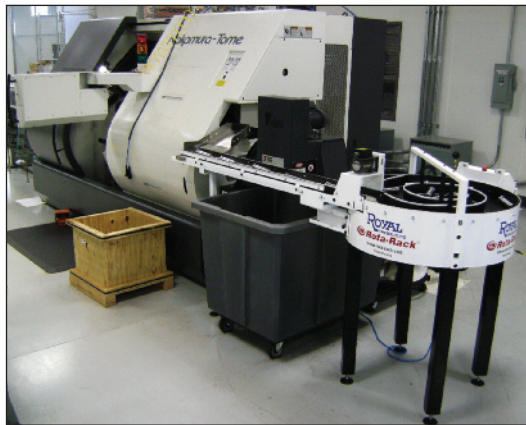


**Check out the Royal Rota-Rack®
Video at www.rotarack.com**



ROYAL ROTA-RACK® INSTALLATIONS

Works With Any CNC Lathe

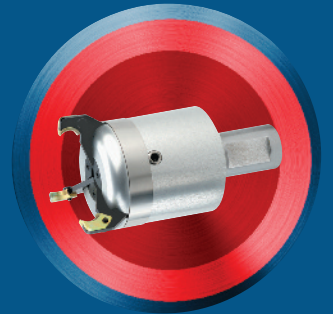
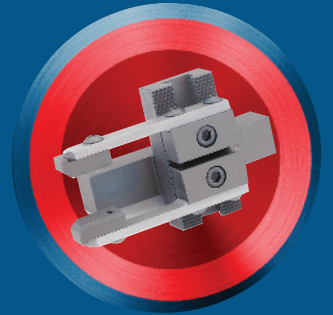
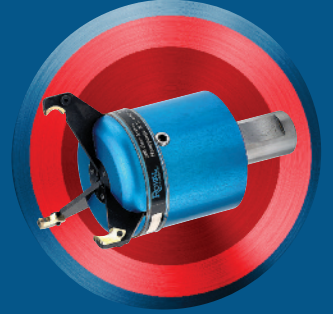
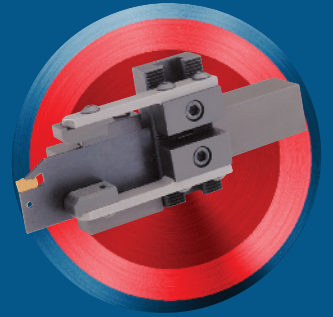


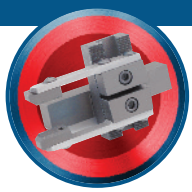
Check out the Royal Rota-Rack®
Video at www.rotarack.com



CNC BAR PULLERS

EASILY AUTOMATE ANY CNC LATHE
FOR LIGHTS-OUT PRODUCTION





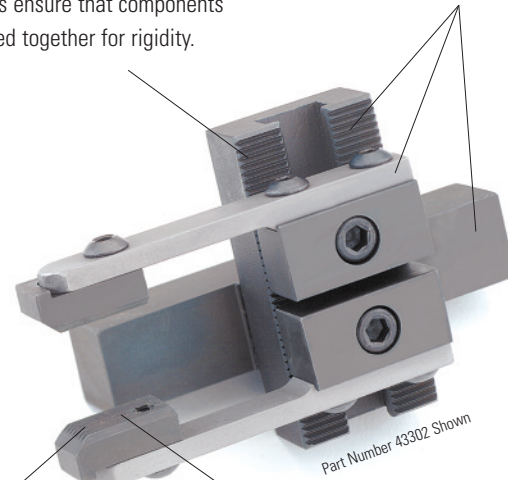
ROYAL COMPACT CNC BAR PULLERS

Automate Any CNC Lathe

- Great for use with small CNC lathes – compact design **minimizes tool interference**.
- Very easy to setup and use.
- Unit can pull round, square, and hex stock.
- Flexible heat-treated steel fingers provide strong gripping force.
- Each compact bar puller includes one set of serrated jaws and one blank spindle bushing.
- Additional sizes and shank styles are available. Please contact Royal for information.

All parts subject to wear are hardened for strength and durability.

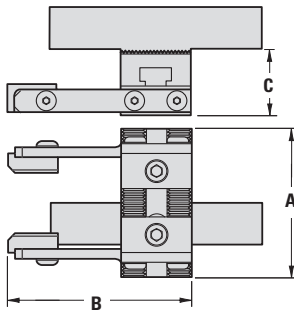
Serrations ensure that components stay locked together for rigidity.



Part Number 43302 Shown

Unit is very easy to use – simply set gap between jaws 1/8" smaller than stock size. As the bar puller slides over the bar along the x-axis, the fingers flex to provide the gripping force. The turret then retracts along the z-axis, pulling the bar out to the desired position.

Serrated jaws provide positive grip. Smooth jaws are available for softer materials.



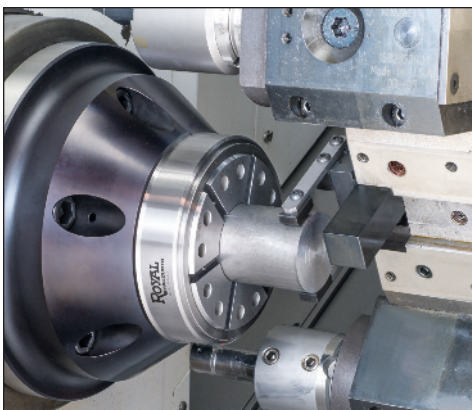
Royal Compact CNC Bar Pullers

SHANK SIZE	GRIPPING RANGE	A	B	C	PART NUMBER	PRICE ¹
3/4" SQ	1/8"–2 1/4"	2 5/8"	3 1/4"	1 3/16"	43302	\$824
1" SQ	1/8"–2 1/4"	2 5/8"	3 1/4"	1 3/16"	43304	824
1" SQ	1/8"–3"	3 5/8"	3 1/4"	1 3/16"	43306	878

Royal Compact CNC Bar Pullers (Metric)

SHANK SIZE	GRIPPING RANGE	A	B	C	PART NUMBER	PRICE ¹
20mm	3–57mm	67mm	83mm	30mm	43680	\$986
25mm	3–57mm	67mm	83mm	30mm	43684	986
25mm	3–76mm	92mm	83mm	30mm	43688	1,019

¹Includes bar puller, one set of standard jaws and one blank spindle bushing.

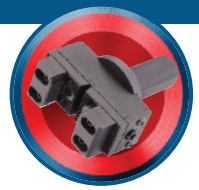


Replacement Parts

DESCRIPTION	PART NUMBER	PRICE/SET
Spring Finger Set	43505	\$103
Serrated Jaw Set	43500	148
Smooth Jaw Set	43502	181

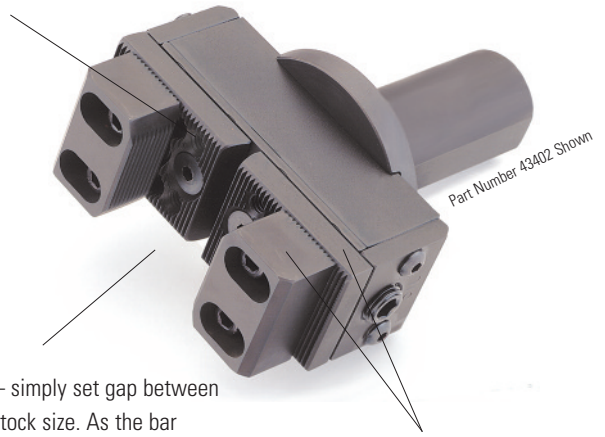
ROYAL HEAVY-DUTY CNC BAR PULLERS

Automate Any CNC Lathe



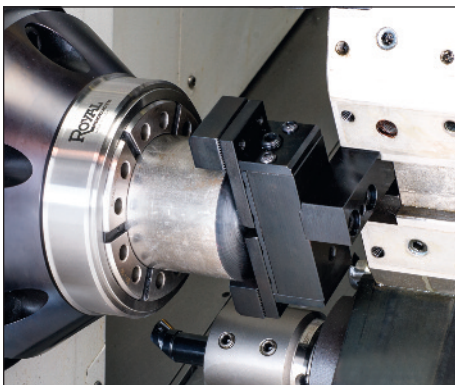
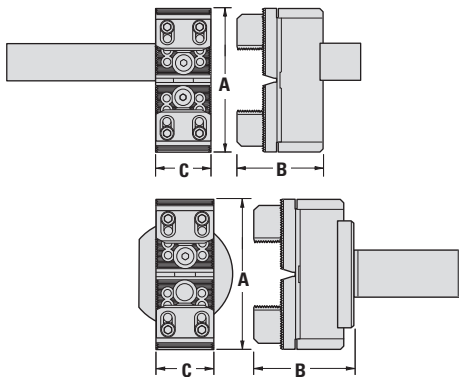
- ❑ Rugged, heavy-duty design withstands the toughest manufacturing environments.
- ❑ Very easy to setup and use.
- ❑ Unit can pull round, square, and hex stock.
- ❑ Large internal die springs provide **very strong gripping force**.
- ❑ Each bar puller includes one set of standard jaws and one blank spindle bushing. Extra capacity jaws sold separately.
- ❑ Additional sizes and shank styles available. Please contact Royal for information.

Serrations ensure that components stay locked together for rigidity.



Unit is very easy to use – simply set gap between jaws 1/8" smaller than stock size. As the bar puller slides over the bar along the x-axis, the jaws compress heavy-duty internal die springs to provide high gripping force. The turret then retracts along the z-axis, pulling the bar out to the desired position.

All parts subject to wear are hardened for strength and durability.



Replacement Parts

DESCRIPTION	PART NUMBER	PRICE/SET
Standard Jaw Set	43510	\$193
Extra-Capacity Jaw Set	43512	224

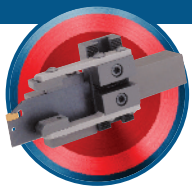
Royal Heavy-Duty CNC Bar Pullers – Square Shank

SHANK SIZE	GRIPPING RANGE		A	B	C	PART NUMBER RIGHT HAND MODEL*	PRICE
	STANDARD JAWS	EXTRA-CAPACITY JAWS					
3/4" SQ	1/8"–2 1/4"	1 7/8"–3 3/4"	3 7/8"	2 9/16"	1 1/2"	43360	\$1,293
1" SQ	1/8"–2 1/4"	1 7/8"–3 3/4"	3 7/8"	2 9/16"	1 1/2"	43366	1,374
1" SQ	1/8"–3 1/2"	1 7/8"–5 3/8"	4 3/4"	2 9/16"	1 1/2"	43370	1,434
1" SQ	1/8"–3 5/8"	1 7/8"–5 1/2"	5"	2 3/4"	1 3/4"	43372	1,480
1" SQ	1/8"–4 7/8"	1 7/8"–6 1/2"	6 3/4"	2 3/4"	1 3/4"	43376	1,656

* Most machines require a right-hand unit. If you need a left-hand unit please contact one of our engineers at 1-800-645-4174.

Royal Heavy-Duty CNC Bar Pullers – Round Shank

SHANK SIZE	GRIPPING RANGE		A	B	C	PART NUMBER	PRICE
	STANDARD JAWS	EXTRA-CAPACITY JAWS					
1" Dia.	1/8"–2 1/4"	1 7/8"–3 3/4"	3 7/8"	2 15/16"	1 1/2"	43400	\$1,640
1 1/4" Dia.	1/8"–2 1/4"	1 7/8"–3 3/4"	3 7/8"	2 15/16"	1 1/2"	43402	1,640
1 1/4" Dia.	1/8"–3 1/2"	1 7/8"–5 3/8"	5 3/8"	2 15/16"	1 1/2"	43404	1,714



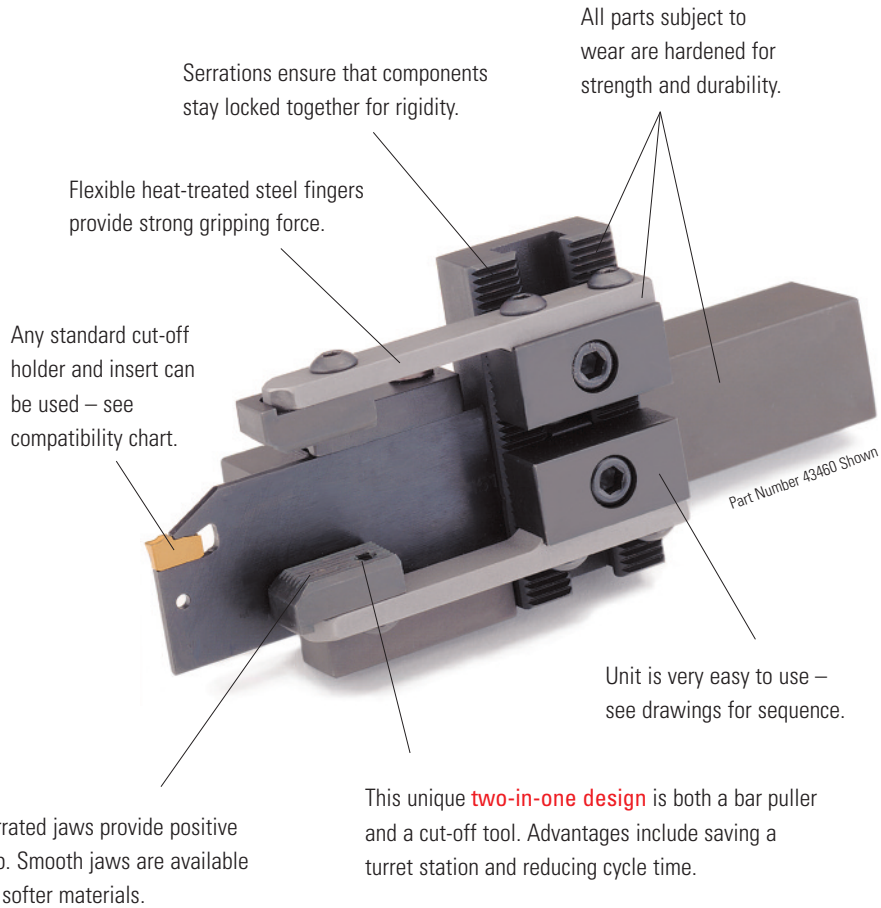
ROYAL COMBO CNC BAR PULLERS

Automate Any CNC Lathe

□ The Royal Combo CNC Bar Puller is both a bar puller and a cut-off tool in one unit. Benefits of this design include:

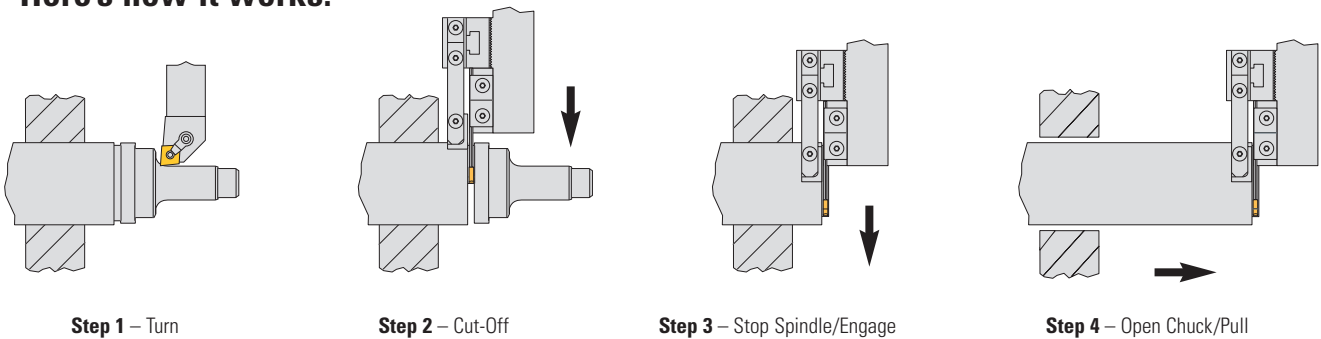
- **Saving a turret station.**
- Reduced cycle time because the turret does not need to index between the cut-off and pulling operations.

- Very easy to setup and use.
- Unit can pull round, square, and hex stock.
- Compact design enables it to be used on most CNC lathes.
- Each Combo Bar Puller includes one set of standard jaws and one blank spindle bushing. Order cut-off insert and holder separately.



This unique **two-in-one design** is both a bar puller and a cut-off tool. Advantages include saving a turret station and reducing cycle time.

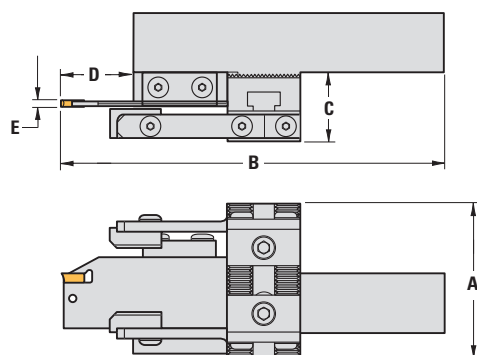
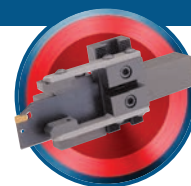
Here's how it works:



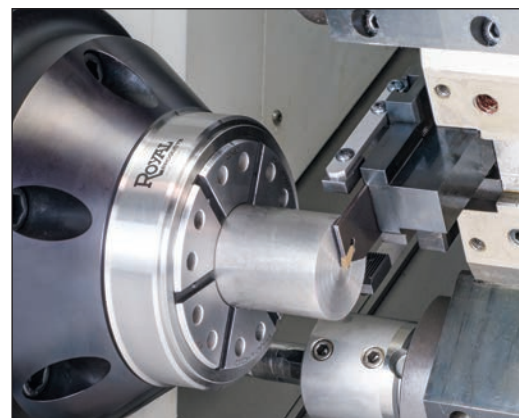
Check out the Royal Bar Puller Video at www.barpullers.com

ROYAL COMBO CNC BAR PULLERS

Automate Any CNC Lathe



Please note dimension D (maximum depth of cut). If a greater depth of cut is required, we suggest using a separate cut-off tool and only using the bar puller for the pulling operation.



Cycle times are reduced because the turret does not need to index between cut-off and pulling operations.

Part Number 43460 Shown.

Royal Combo CNC Bar Pullers

SHANK SIZE	GRIPPING RANGE	A	B	C	MAX DEPTH OF CUT D ¹	E	PART NUMBER RIGHT HAND ² MODEL	PRICE ³
3/4" SQ	1/8" - 2 1/4"	2 5/8"	4 3/4"	1 3/16"	7/8"	0.125"	43456	\$1,100
1" SQ	1/8" - 2 1/4"	2 5/8"	6 3/8"	1 3/16"	1 1/4"	0.125"	43460	1,117
1" SQ	1/8" - 3"	3 5/8"	6 3/8"	1 3/16"	1 1/4"	0.125"	43464	1,155
1" SQ	1/8" - 4"	3 5/8"	6 3/8"	1 3/16"	1 1/4"	0.125"	43468	1,314

- Cut-off holder and insert can be purchased separately from Royal Products or through your tooling supplier.
- Bar puller accepts many popular brands of holders and inserts (see chart).
- Cut-off holders not purchased from Royal must be slightly modified before being used with bar puller.

Royal Combo CNC Bar Pullers (Metric)

SHANK SIZE	GRIPPING RANGE	A	B	C	MAX DEPTH OF CUT D ¹	E	PART NUMBER RIGHT HAND ² MODEL	PRICE ³
20mm	3-57mm	67mm	121mm	30mm	22mm	3mm	43615	\$1,281
25mm	3-57mm	67mm	162mm	30mm	32mm	3mm	43625	1,294
25mm	3-76mm	92mm	162mm	30mm	32mm	3mm	43635	1,347

¹Maximum depth of cut.

²Most machines require a right-hand unit. If you need a left hand unit please contact one of our engineers at 1-800-645-4174.

³Includes bar puller, one set of standard jaws and one blank spindle bushing. Order insert holder and insert separately.

Holder with Insert

BAR PULLER SHANK SIZE	PART NUMBER	PRICE*
1/2" or 3/4"	43520	\$200
1"	43522	217



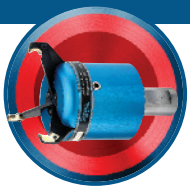
*Includes one modified holder, one neutral cut-off insert, and one installation/removal tool.

Replacement Parts — Combo Model

DESCRIPTION	PART NUMBER	PRICE/SET
Spring Finger Set	43505	103
Serrated Jaw Set	43500	148
Smooth Jaw Set	43502	181

Compatibility Chart

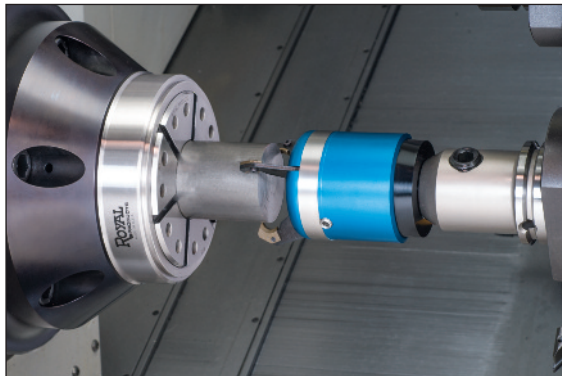
BRAND	1/2", 3/4" AND 20mm SHANK	1" AND 25mm SHANK
Carboly	150.10-20-3	150.10-25-3
Iscar	SGFH26-3	SGFH32-3
Kennametal	EVBSN26M0340	EVBSN32M0350
Manchester	340-105	340-110
Sandvik	151.2-21-30	151.2-25-30
Valenite	VH101 26 3	VH101 32 3



ROYAL GRIPPEX 20L **COOLANT-ACTUATED** CNC BAR PULLERS — Automate Any CNC Lathe



U.S. Patent
#6,530,578

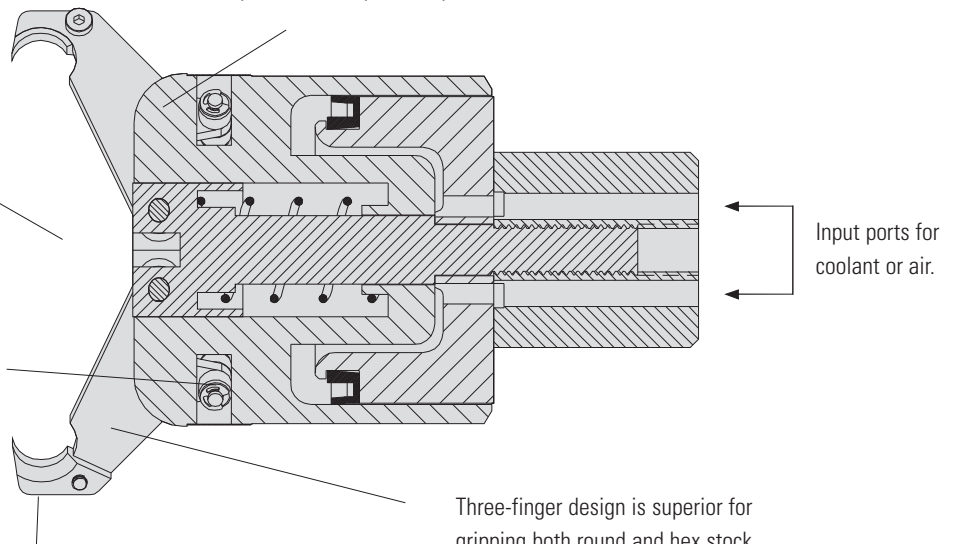


- ❑ The patented Grippex 20L bar puller is actuated by a CNC lathe's coolant system. As coolant is fed through the unit, it pushes a piston forward which causes the fingers to close around the bar stock. When the coolant is turned off, the fingers automatically spring open.
- ❑ Self-adjusting mechanism – fingers will close down until they contact the bar stock so no presetting is necessary. This feature allows the Grippex to **make multiple pulls on the same workpiece**, even after the OD has been turned.
- ❑ Unit can also be operated by air pressure.
- ❑ When fitted with robot gripper jaws, the Grippex can:
 - Remove a bar remnant from a bar-fed lathe and drop it into the parts catcher. This eliminates the risk of the remnant falling into the chip conveyor where it can become jammed and cause damage.
 - Remove a finished workpiece from a sub-spindle and place it into the parts catcher. This eliminates the need for ejectors and also **allows the sub-spindle to swallow longer parts**.

Thick-walled heavy-duty construction helps to protect unit and allows it to be used at coolant pressures of up to 280 psi.

The Grippex has a wide gripping range of $\frac{1}{8}$ " – $3\frac{1}{8}$ ". Higher capacity gripping fingers are also available.

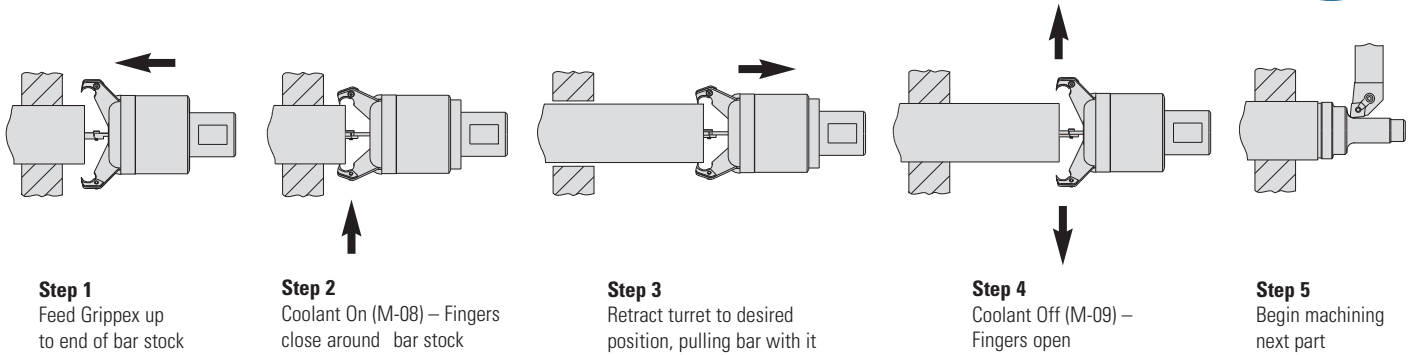
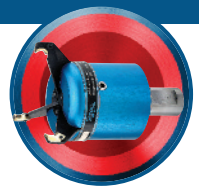
Very high gripping force and smooth operation is achieved through a **patented mechanism** where each finger pivots on two roller bearings. As little as 15 psi of coolant pressure is enough to enable the Grippex to pull a 210 lb. bar!



Hardened finger inserts reduce wear and help the Grippex penetrate hard materials like stainless steel.

Three-finger design is superior for gripping both round and hex stock. Special two-finger model also available. Contact Royal for information.

ROYAL GRIPPEX 20L COOLANT-ACTUATED CNC BAR PULLERS – Automate Any CNC Lathe



Step 1

Feed Grippex up to end of bar stock

Step 2

Coolant On (M-08) – Fingers close around bar stock

Step 3

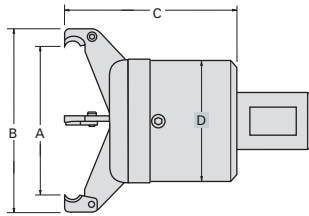
Retract turret to desired position, pulling bar with it

Step 4

Coolant Off (M-09) – Fingers open

Step 5

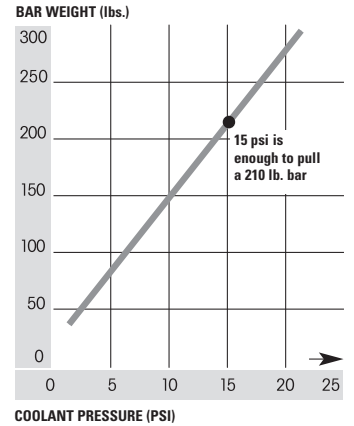
Begin machining next part



20L Clearance Dimensions

GRIPPING RANGE	FINGER PART NUMBER	A	B	C	D
1/8" – 2 3/8"	43170	2 3/8"	3 1/4"	3 1/2"	2 11/16"
1/8" – 3 1/8"	43175	3 1/8"	4"	3 11/16"	2 11/16"
5/16" – 4 1/8"	43180	4 1/8"	5 1/16"	4 1/4"	2 11/16"

Grippex 20L Pulling Force Graph



Royal Grippex 20L Bar Pullers

SHANK	PART NUMBER	PRICE*
1" Round	43140	\$1,529
1 1/4" Round	43145	1,529
1 1/2" Round	43150	1,529

*Includes one set of standard fingers (3 3/8" cap), and one set of inserts.



Replacement Finger Sets

CAPACITY	PART NUMBER	PRICE/SET
1/8" – 2 3/8"	43170	\$170
1/8" – 3 1/8" (Std.)	43175	186
5/16" – 4 1/8"	43180	347

Contact us if you need fingers for an older model Grippex unit.



Replacement Insert Sets

DESCRIPTION	PART NUMBER	PRICE/SET
20L Insert Set	43185	\$125

Coolant Adapter

Provides an easy method for feeding coolant or air to unit. Not necessary for most applications.



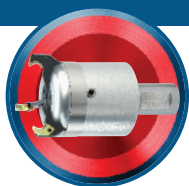
DESCRIPTION	PART NUMBER	PRICE/SET
Coolant Adapter	43190	\$125



Robot Gripper Jaw Sets

For removing finished parts from a subspindle or removing bar remnants from main spindle.

DESCRIPTION	PART NUMBER	PRICE/SET
20L Robot Gripper Jaw Set	43106	\$219

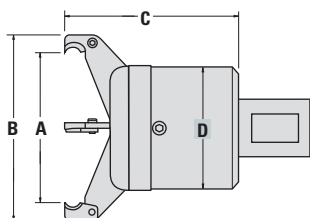


ROYAL GRIPPEX 20S **COOLANT-ACTUATED** CNC BAR PULLERS – Automate Any CNC Lathe

- Same great features as Model 20L featured on previous pages.
- **Smaller body diameter** enables 20S units to be used on machines with less tool clearance and smaller turrets.
- Gripping force for the 20S is quite high, but not as high as the 20L models (see chart).
- 140 psi maximum coolant pressure.



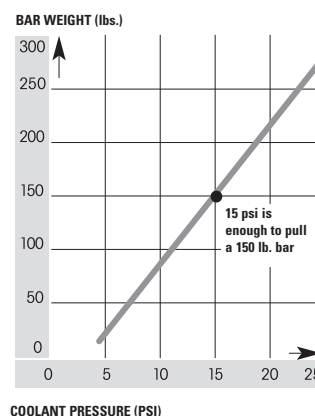
U.S. Patent
#6,530,578



20S Clearance Dimensions

GRIPPING RANGE	A	B	C	D
1/8" - 2 1/16"	2 1/16"	2 15/16"	3 3/8"	2 3/8"

Grippex 20S Pulling Force Graph



Royal Grippex 20S Bar Pullers

SHANK	PART NUMBER	PRICE
1"	43340	\$1,425
1 1/4"	43345	1,425



Grippex 20S Replacement Finger Sets

CAPACITY	PART NUMBER	PRICE/SET
1/8" - 2 1/16"	43339	\$170

Coolant Adapter

Provides an easy method for feeding coolant or air to unit. Not necessary for most applications.



DESCRIPTION	PART NUMBER	PRICE/SET
Coolant Adapter	43190	\$125



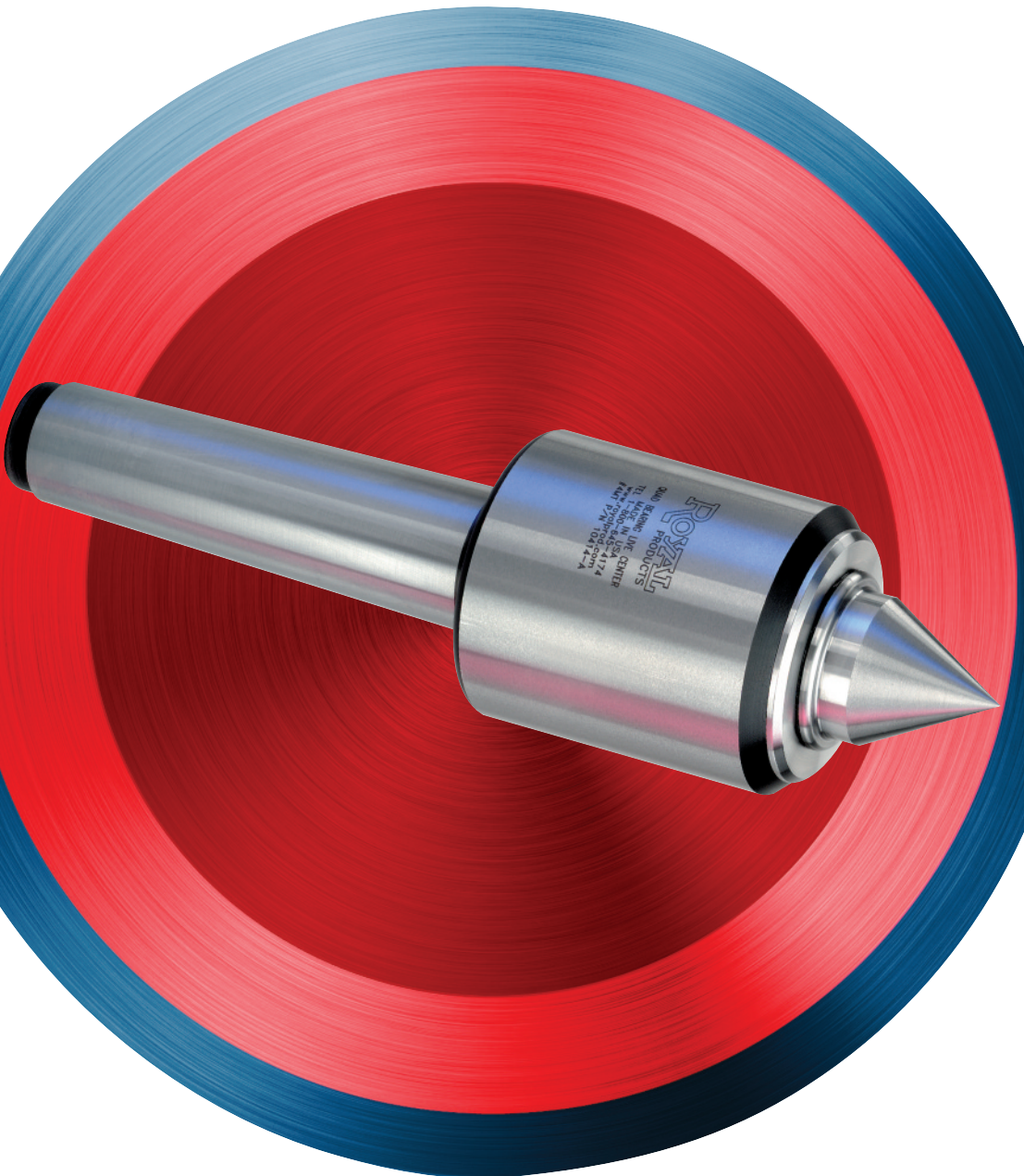
Grippex 20S Replacement Insert Sets

CAPACITY	PART NUMBER	PRICE/SET
20S Insert Set	43185	\$125



HIGH PERFORMANCE LIVE & DEAD CENTERS

ROYAL MAKES THE BEST LIVE CENTERS ON EARTH



WHY DO TOP MANUFACTURERS INSIST ON ROYAL LIVE CENTERS?

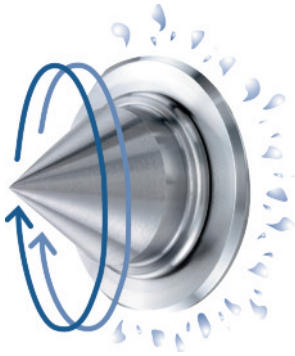


Royal live centers are widely regarded by top metalworking professionals as the best live centers available anywhere in the world. Each Royal live center is a finely crafted tool, incorporating the highest quality steels, bearings, lubricants and seals. Manufactured to exacting tolerances, Royal live centers are guaranteed accurate to $\pm 0.00005"$ TIR or better.

Royal Products offers a broad range of standard live center models to suit virtually all turning applications. We also design and build hundreds of custom centers each year to meet special customer requirements. Custom live centers from Royal Products are competitively priced and are held to the same high manufacturing tolerances as our standard models.

EXCLUSIVE ROTO-SHIELD™ TECHNOLOGY

Only Available on Royal Live Centers



ROYAL ROTO-SHIELD™ TECHNOLOGY

The new exclusive Royal Roto-Shield™ represents a **breakthrough in live center technology**, significantly increasing the effective operating life.

Royal Roto-Shield™ Technology consists of two main components:

- A live center point machined from a solid bar which incorporates a specially-shaped steel coolant slinger.
- A long-life, spring-loaded seal that is resistant to abrasion, high temperatures, and virtually all metalworking fluids.

A **dramatic increase in operating life** is achieved through the following effects:

- Coolant is deflected, keeping it from penetrating the center.
- Bearings are protected from harmful fines and dust.
- Seal wear is minimized.
- Lubricating grease lasts longer and retains consistency.

The Royal Roto-Shield™ is a standard feature on the following Royal Live Center models:



- High Precision Quad Bearing
- High Precision CNC Quad Bearing
- Heavy-Duty Spindle Type
- Heavy-Duty CNC Spindle Type
- The Ultimate™ Multi-Tasking Center
- High-Speed Precision
- Super Quad Extra Heavy-Duty



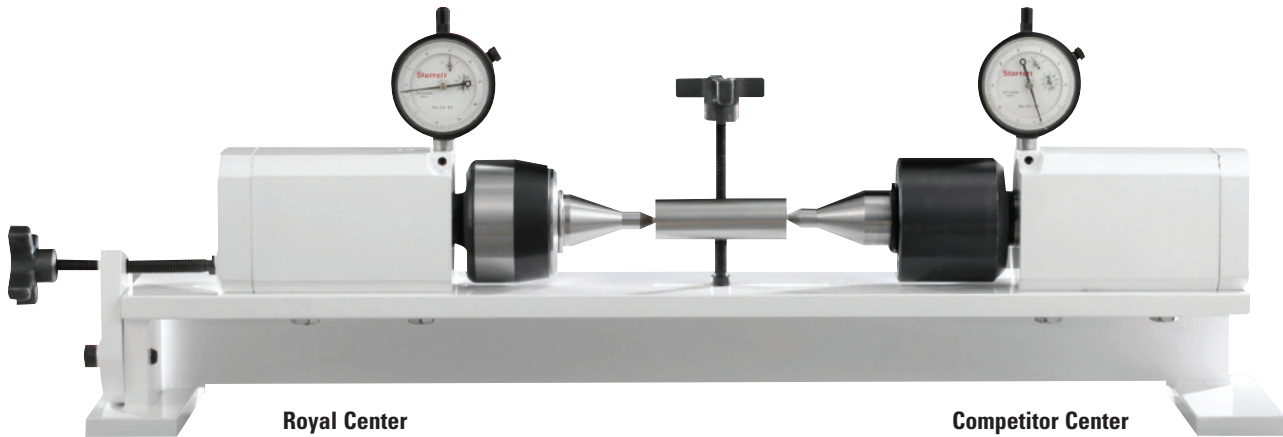
**✓ High-Pressure
Coolant Approved**

Insist on Roto-Shield™ Technology – Only Available on Royal Live Centers



**Check out the Royal Live Center
Video at www.livecenters.com**

WHAT MAKES ROYAL LIVE CENTERS THE MOST RIGID?



One of the most common misconceptions regarding live centers relates to the internal length of the rotating point.

Some manufacturers believe that a long, thin point provides more rigidity than a short, thick point. But in fact, the opposite is true.

In order to verify that Royal's short, thick point provides superior rigidity over a long, thin point, we built the test fixture pictured above.

Here's how it works:

- Both live centers have holes drilled in their shanks corresponding to the indicator locations.
- As radial force is applied evenly to the point tips by turning a centrally-located screw, the indicators are able to measure the internal deflection of each point.
- Almost immediately upon application of the load, the indicators show that **the competitor's point flexes 600% more than the Royal point!**

Point Analysis of 4MT Spindle Type Live Centers



D1 = Diameter of Royal Point = .603"

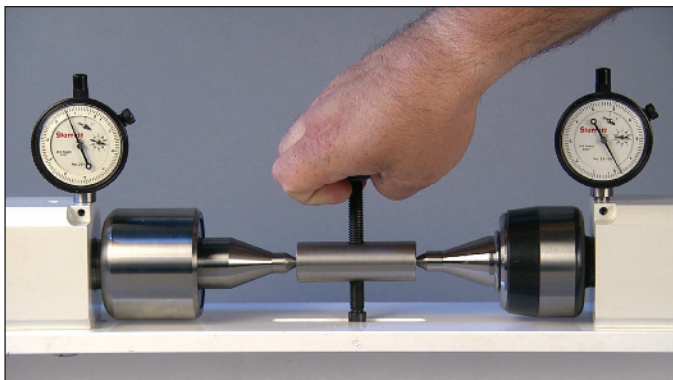
D2 = Diameter of Other Brand Point = .465"

Cross-Sectional Area of Royal Point = .285 sq. in.

Cross-Sectional Area of Other Brand Point = .170 sq. in.

The cross-sectional area of the point on the Royal Center is 68% larger than that of the other brand, making the Royal point much more rigid and less likely to deflect under load.

Royal's thick, beefy point offers superior rigidity, resulting in tighter part tolerances and chatter-free surface-finishes.



See the test in action at
www.livecenters.com

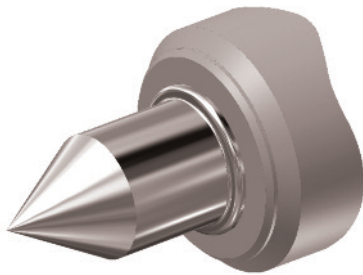


One Size Does Not Fit All – So We Turned Special Centers Into Standards!

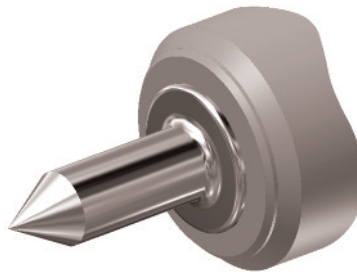
One of Royal's strengths as a leading live center manufacturer is our ability to design and build custom centers to address non-standard applications. However, there are two major **drawbacks that are almost always associated with custom-made centers: longer lead times and higher prices.**

As an ISO company dedicated to continuous improvement, we decided to see if it might be possible to categorize special centers according to their similarities, and then offer a few new standard models that could handle most jobs.

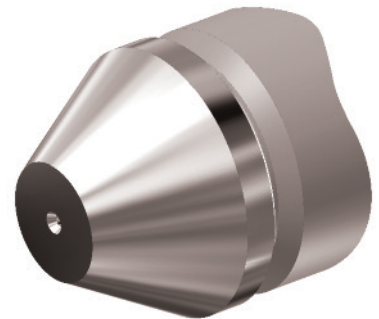
Our engineers analyzed the prints of hundreds of special centers that we had manufactured over several years, and the results were shocking – **over 90% of our customers' special needs could be covered with just five new point styles.** These are:



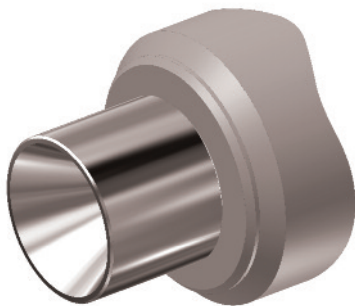
Full-diameter long point for shaft work and parts with large center holes.



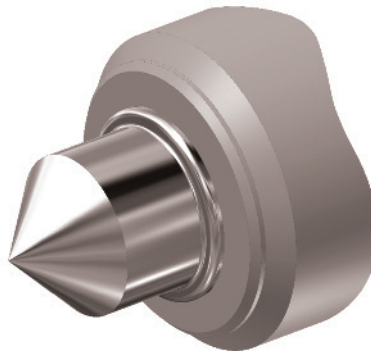
A reduced-diameter long point for use when greater clearance is needed.



A small bull-nose point for use with tubes or parts with large center holes.



A female point with a 90° included angle for locating on OD part chamfers.



A male point with a 90° included angle for locating on internal part chamfers.



**See pages 76-77 for
ordering information**

Royal maintains a full inventory of each model to ensure **same-day delivery, and because we manufacture them in quantity, they are **very aggressively-priced.****

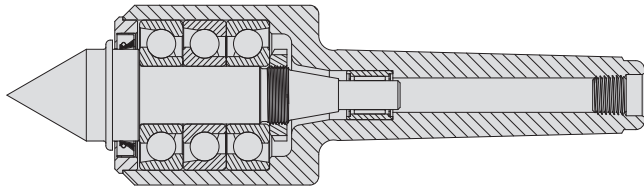


ROYAL OFF-THE-SHELF "SPECIALS"

Deciding which live center model to use as a platform for Royal's new off-the-shelf "special" program was easy. We chose the High-Precision Quad-Bearing model for the following reasons:

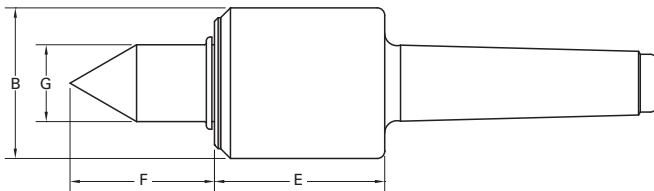
- 1- Very Rigid Bearing Arrangement
- 2- Exclusive Roto-Shield™ Technology
- 3- Low-Profile Head

All Models In Stock for Immediate Delivery



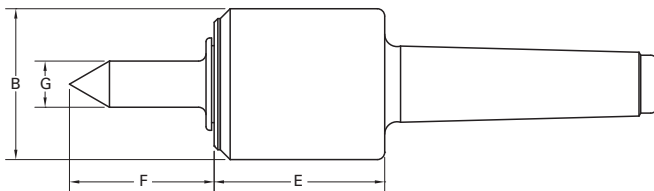
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TECHNOLOGY**

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Royal High-Precision Quad-Bearing Live Centers – Full Diameter Long Point

TAPER	B	E	F	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.70	2.12	1.75	0.88	6,000	465	1,270	10478	\$728
3 MT	1.70	2.12	1.75	0.88	6,000	465	1,270	10479	752
4 MT	2.45	2.78	2.35	1.25	5,000	1,230	2,150	10480	933
5 MT	2.45	2.78	2.35	1.25	5,000	1,230	2,150	10481	979

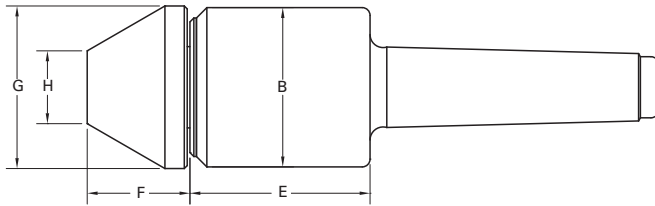


Royal High-Precision Quad-Bearing Live Centers – Small Diameter Long Point

TAPER	B	E	F	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.70	2.12	1.75	0.50	6,000	350	1,270	10482	\$728
3 MT	1.70	2.12	1.75	0.50	6,000	350	1,270	10483	752
4 MT	2.45	2.78	2.35	0.75	5,000	925	2,150	10484	933
5 MT	2.45	2.78	2.35	0.75	5,000	925	2,150	10485	979

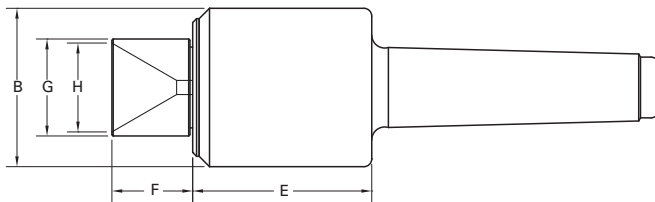
* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

ROYAL OFF-THE-SHELF "SPECIALS"



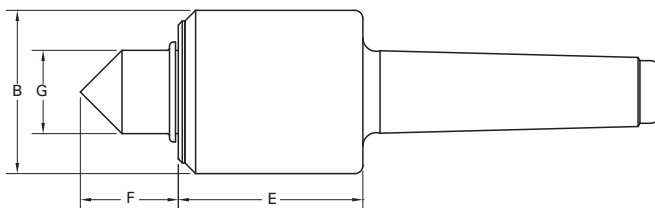
Royal High-Precision Quad-Bearing Live Centers – Bull Nose Point

TAPER	B	E	F	G	H	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.70	2.12	1.25	1.75	0.75	6,000	750	1,270	10490	\$745
3 MT	1.70	2.12	1.25	1.75	0.75	6,000	750	1,270	10491	769
4 MT	2.45	2.78	1.58	2.50	1.12	5,000	1,905	2,150	10492	979
5 MT	2.45	2.78	1.58	2.50	1.12	5,000	1,905	2,150	10493	1,030



Royal High-Precision Quad-Bearing Live Centers – 90° Female Point

TAPER	B	E	F	G	H	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.70	2.12	1.00	1.12	0.15–1.00	6,000	885	1,270	10494	\$728
3 MT	1.70	2.12	1.00	1.12	0.15–1.00	6,000	885	1,270	10495	752
4 MT	2.45	2.78	1.25	1.50	0.21–1.38	5,000	2,240	2,150	10496	933
5 MT	2.45	2.78	1.25	1.50	0.21–1.38	5,000	2,240	2,150	10497	979



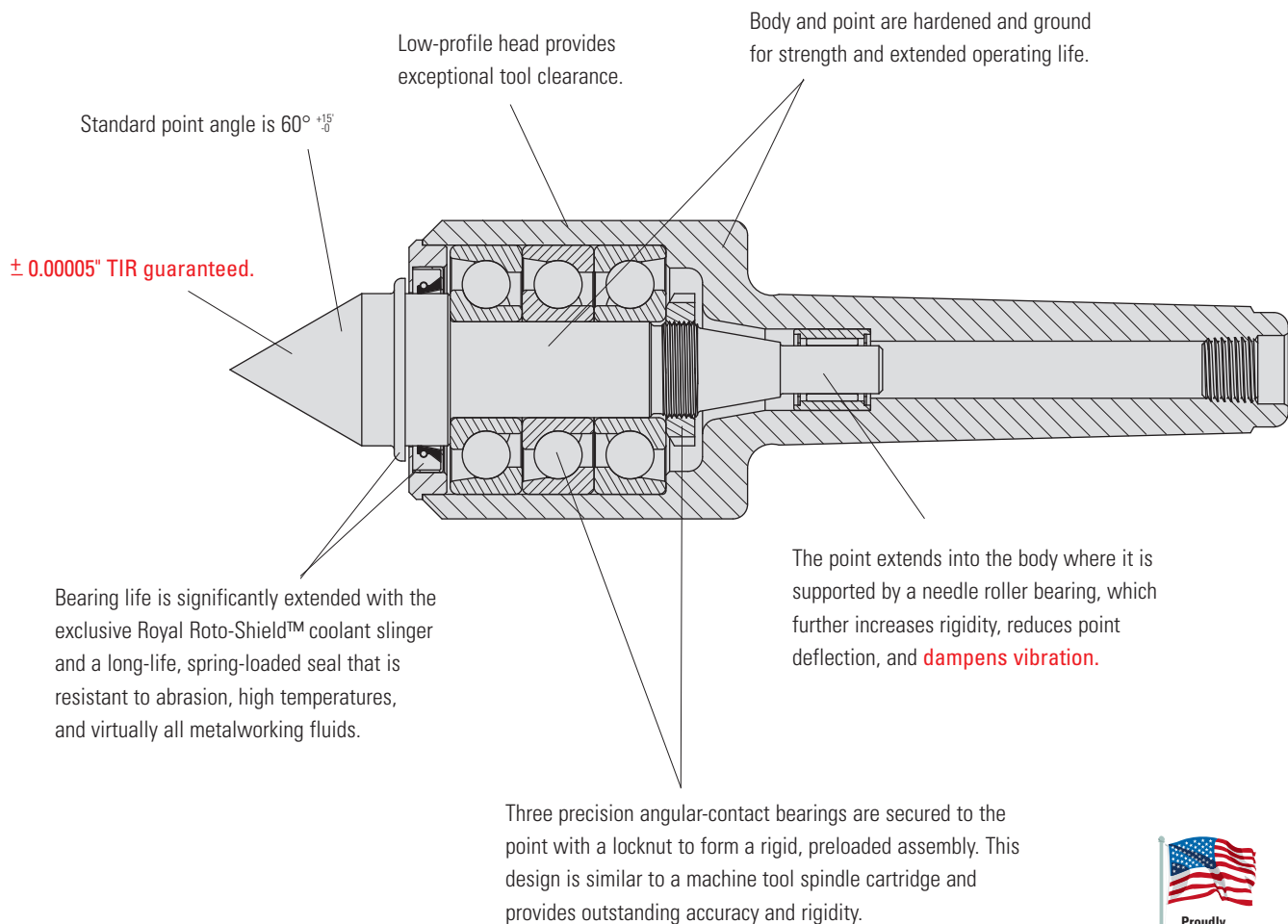
Royal High-Precision Quad-Bearing Live Centers – 90° Male Point

TAPER	B	E	F	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.70	2.12	1.07	0.88	6,000	885	1,270	10486	\$717
3 MT	1.70	2.12	1.07	0.88	6,000	885	1,270	10487	745
4 MT	2.45	2.78	1.47	1.25	5,000	2,240	2,150	10488	924
5 MT	2.45	2.78	1.47	1.25	5,000	2,240	2,150	10489	976

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.



ROYAL HIGH-PRECISION QUAD-BEARING LIVE CENTERS



- ❑ An excellent choice for precision turning, grinding, and hard-turning.
- ❑ Precision, preloaded bearing assembly provides exceptional rigidity and accuracy.
- ❑ Low-profile head offers superior tool clearance.
- ❑ Exclusive Roto-Shield™ coolant slinger and upgraded seal provide outstanding bearing protection for extended operating life.
- ❑ Body and point are hardened and ground for strength and long life.

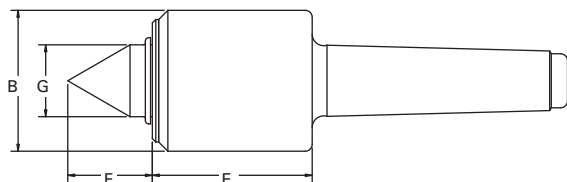


Check out the Royal Live Center Video at www.livecenters.com

ROYAL HIGH-PRECISION QUAD-BEARING LIVE CENTERS



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Royal High-Precision Quad-Bearing Live Centers - Standard Point

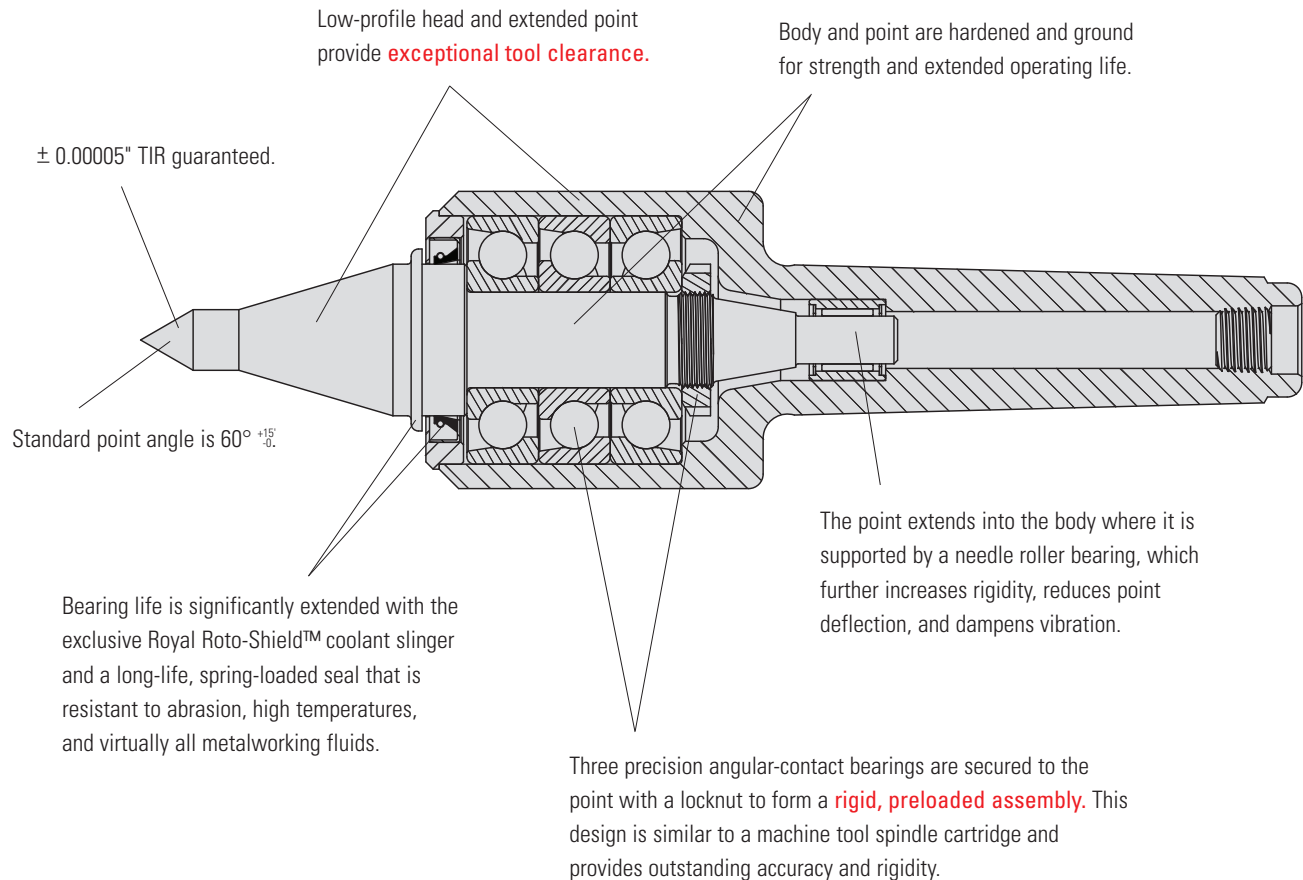
TAPER	B	E	F	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.70	2.12	1.07	0.88	6,000	885	1,270	10412	\$648
3 MT	1.70	2.12	1.07	0.88	6,000	885	1,270	10413	669
4 MT	2.45	2.78	1.47	1.25	5,000	2,240	2,150	10414	834
5 MT	2.45	2.78	1.47	1.25	5,000	2,240	2,150	10415	879
5 MT HD	3.82	3.89	2.31	2.00	3,000	5,240	5,300	10445	1,763
6 MT HD	3.82	3.89	2.31	2.00	3,000	5,240	5,300	10446	2,167

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

Insist on Roto-Shield™ Technology – Only Available on Royal Live Centers



ROYAL HIGH-PRECISION CNC QUAD-BEARING LIVE CENTERS



- ❑ An excellent choice for precision turning, grinding, and hard-turning.
- ❑ Precision, preloaded bearing assembly provides exceptional rigidity and accuracy.
- ❑ Low-profile head and extended point combine to offer superior tool clearance.
- ❑ Exclusive Roto-Shield™ coolant slinger and upgraded seal provide **outstanding bearing protection** for extended operating life.
- ❑ Body and point are hardened and ground for strength and long life.

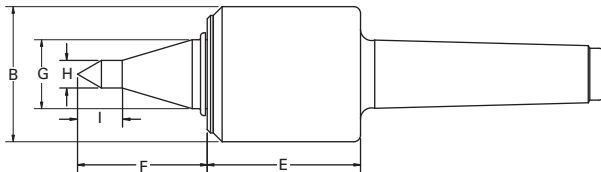


Check out the Royal Live Center Video at www.livecenters.com

ROYAL HIGH-PRECISION CNC QUAD-BEARING LIVE CENTERS



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Royal High-Precision Quad-Bearing Live Centers – CNC Point

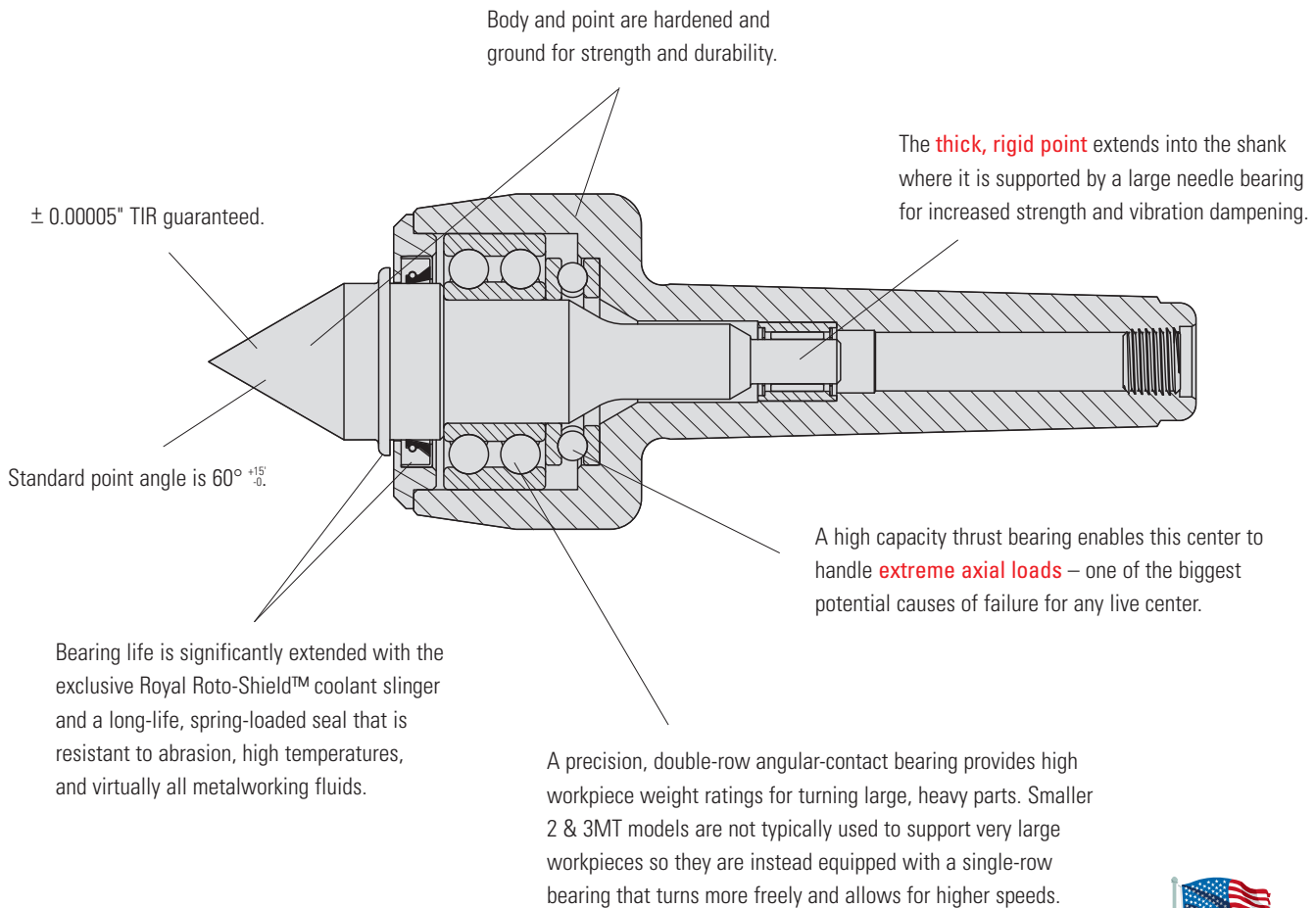
TAPER	B	E	F	G	H	I	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.70	2.12	1.75	0.88	0.38	0.63	6,000	465	1,270	10662	\$648
3 MT	1.70	2.12	1.75	0.88	0.38	0.63	6,000	465	1,270	10663	669
4 MT	2.45	2.78	2.35	1.25	0.50	0.81	5,000	1,230	2,150	10664	834
5 MT	2.45	2.78	2.35	1.25	0.50	0.81	5,000	1,230	2,150	10665	879
5 MT HD	3.82	3.89	3.34	2.00	0.75	1.28	3,000	2,210	5,300	10475	1,763
6 MT HD	3.82	3.89	3.34	2.00	0.75	1.28	3,000	2,210	5,300	10476	2,167

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

Insist on Roto-Shield™ Technology – Only Available on Royal Live Centers



ROYAL HEAVY-DUTY SPINDLE TYPE LIVE CENTERS

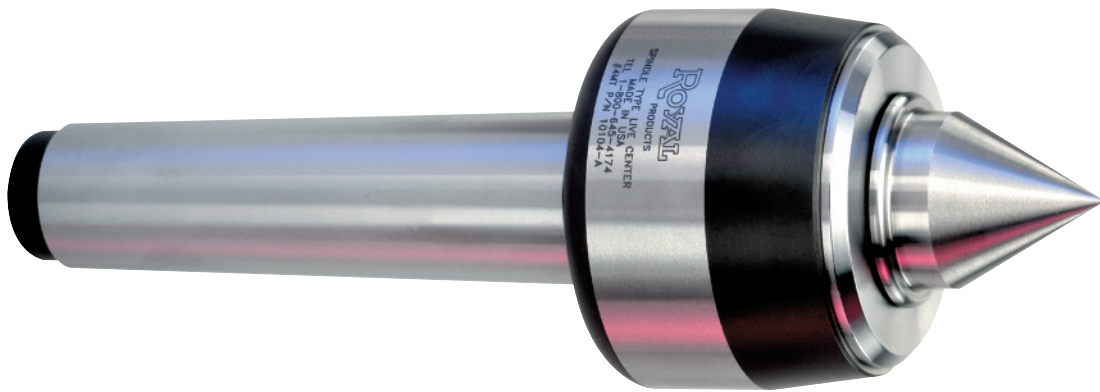


- ❑ One of our most popular models – an excellent **heavy-duty live center** designed to handle almost all CNC and manual turning jobs.
- ❑ Heavy-duty precision bearings provide exceptional radial and thrust load capacities.
- ❑ The thick, rigid point extends into the shank where it is supported by a large needle bearing for increased strength and vibration dampening.
- ❑ Exclusive Roto-Shield™ coolant slinger and upgraded seal provide outstanding bearing protection for extended operating life.
- ❑ Body and point are hardened and ground for accuracy and durability.

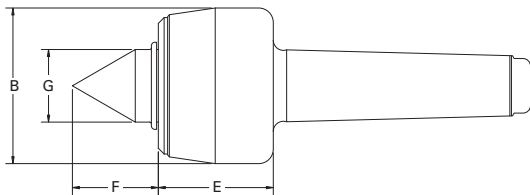
ROYAL HEAVY-DUTY SPINDLE TYPE LIVE CENTERS



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TECHNOLOGY**



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Royal Heavy-Duty Spindle Type Live Centers

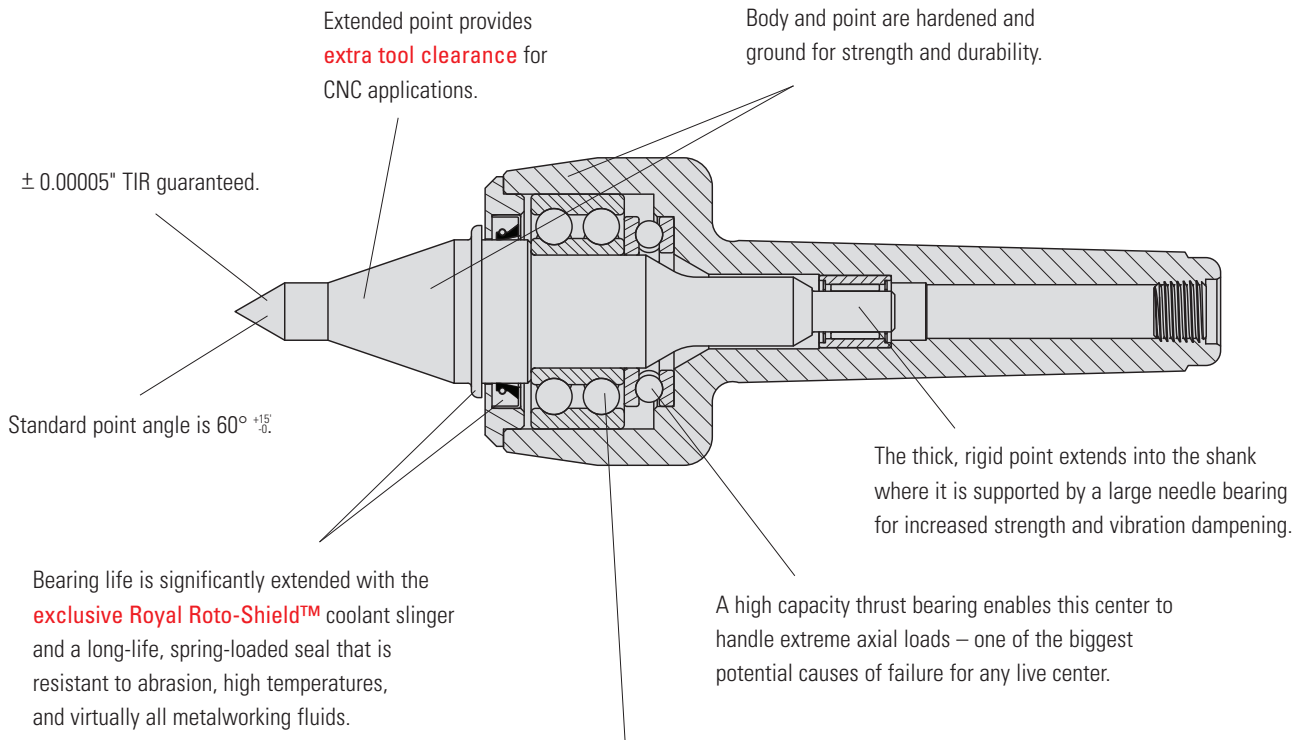
TAPER	B	E	F	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.75	1.47	1.01	0.88	6,000	725	2,360	10102	\$599
3 MT	2.33	1.75	1.22	1.00	5,000	970	3,900	10103	599
4 MT	2.68	1.98	1.48	1.25	4,500	1,720	4,050	10104	780
5 MT	3.45	2.81	1.84	1.50	3,500	3,260	5,700	10105	1,075
6 MT	4.00	3.15	2.31	2.00	3,500	4,080	6,000	10106	2,010

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

Insist on Roto-Shield™ Technology – Only Available on Royal Live Centers



ROYAL HEAVY-DUTY CNC SPINDLE TYPE LIVE CENTERS



A precision, double-row angular-contact bearing provides high workpiece weight ratings for turning large, heavy parts. Smaller 2 & 3MT models are not typically used to support very large workpieces so they are instead equipped with a single-row bearing that turns more freely and allows for higher speeds.

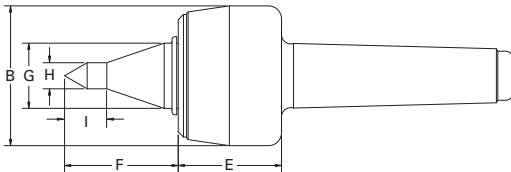


- ❑ One of our most popular models – an excellent heavy-duty live center designed to handle almost all manual and CNC turning jobs.
- ❑ Heavy-duty precision bearings provide exceptional radial and thrust load capacities.
- ❑ The thick, rigid point extends into the shank where it is supported by a large needle bearing for **increased strength and vibration dampening**.
- ❑ Exclusive Roto-Shield™ coolant slinger and upgraded seal provide outstanding bearing protection for extended operating life.
- ❑ Body and point are hardened and ground for accuracy and durability.

ROYAL HEAVY-DUTY CNC SPINDLE TYPE LIVE CENTERS



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Royal Heavy-Duty CNC Spindle Type Live Centers

TAPER	B	E	F	G	H	I	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.75	1.47	1.35	0.88	0.38	0.63	6,000	375	2,360	10212	\$630
3 MT	2.33	1.75	1.86	1.00	0.38	0.63	5,000	740	3,900	10213	630
4 MT	2.68	1.98	2.18	1.25	0.50	0.81	4,500	1,120	4,050	10214	792
5 MT	3.45	2.81	2.58	1.50	0.50	0.81	3,500	1,930	5,700	10215	1,075
6 MT	4.00	3.15	3.00	2.00	0.75	1.28	3,500	2,420	6,000	10216	2,077

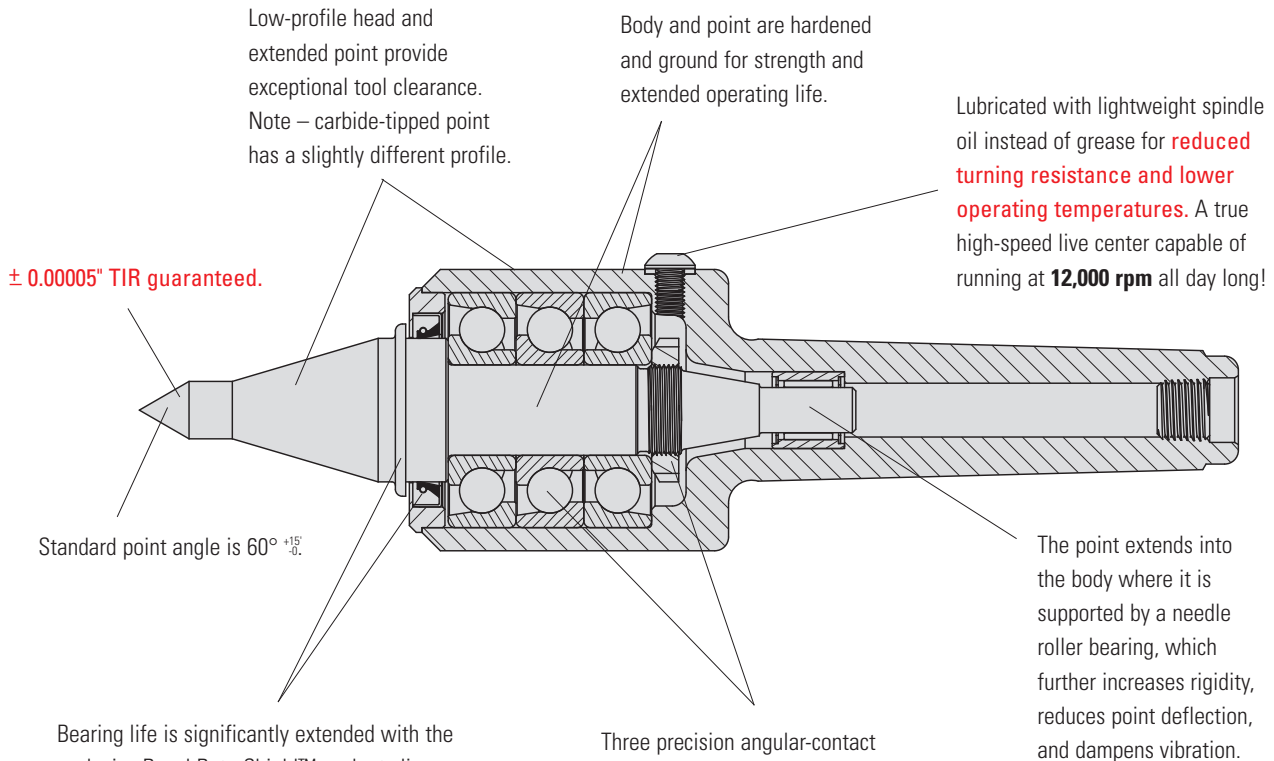
* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

Insist on Roto-Shield™ Technology – Only Available on Royal Live Centers



ROYAL HIGH-SPEED PRECISION LIVE CENTERS

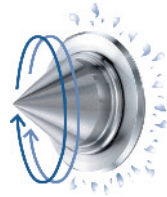
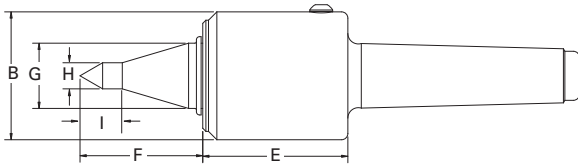
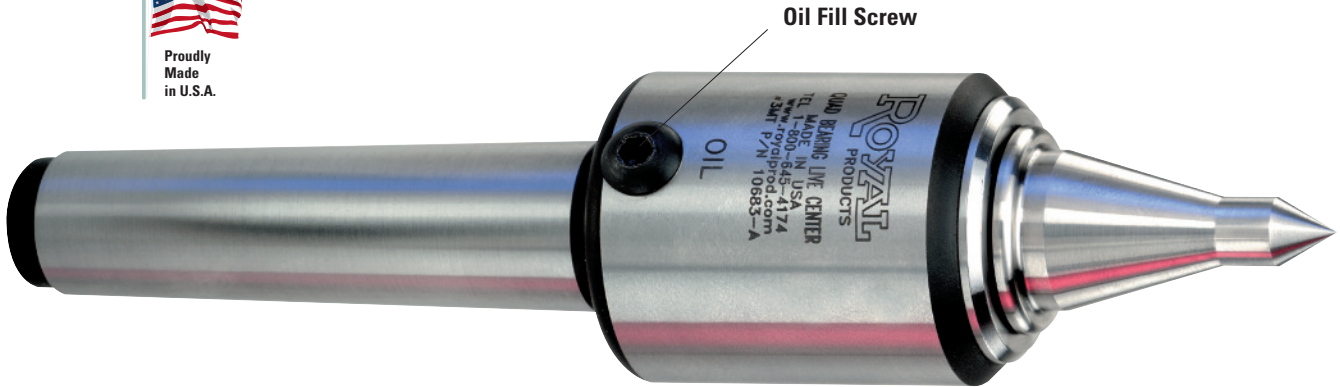
Up to 12,000 RPM!



- ❑ A true high-speed live center – **up to 12,000 rpm**.
- ❑ Lubricated with lightweight spindle oil instead of grease for reduced turning resistance and lower operating temperatures.
- ❑ Precision, preloaded bearing assembly provides exceptional rigidity and accuracy.
- ❑ **Low-profile head** and extended point combine to offer superior tool clearance.
- ❑ Exclusive Roto-Shield™ coolant slinger and upgraded seal provide outstanding bearing protection for extended operating life.
- ❑ Body and point are hardened and ground for strength and long life.
- ❑ Available in both steel and carbide-tipped point models.

ROYAL HIGH-SPEED PRECISION LIVE CENTERS

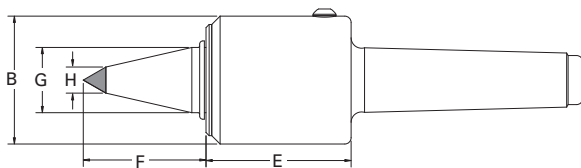
Up to 12,000 RPM!



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Royal High-Speed Precision Live Centers (Steel-Tipped)

TAPER	B	E	F	G	H	I	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
3 MT	1.70	2.12	1.75	0.88	0.38	0.63	12,000	180	650	10683	\$925
4 MT	2.45	2.78	2.35	1.25	0.50	0.81	12,000	525	1,380	10684	1,101
5 MT	2.45	2.78	2.35	1.25	0.50	0.81	12,000	525	1,380	10685	1,147



**✓ High-Pressure
Coolant Approved**

Royal High-Speed Precision Live Centers (Carbide-Tipped)

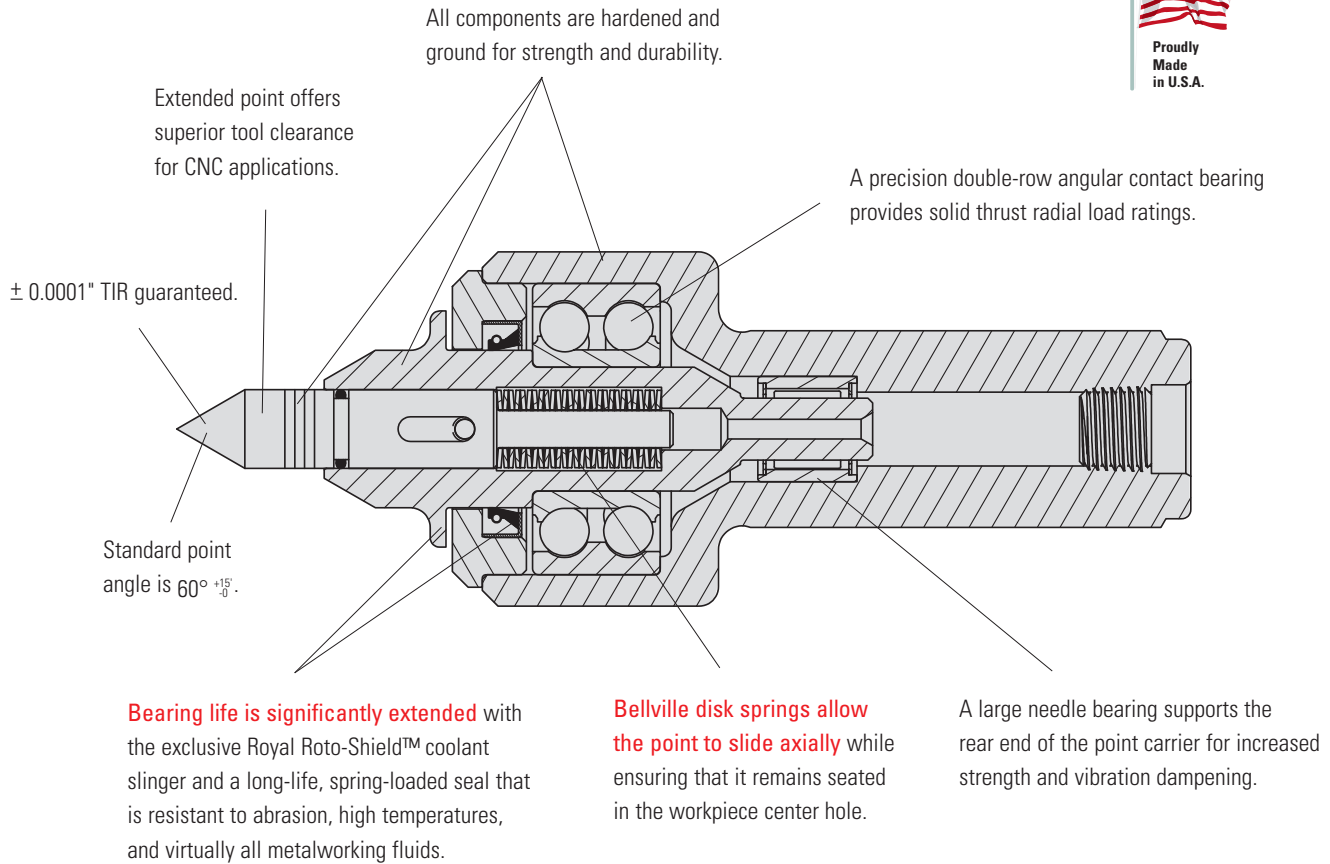
TAPER	B	E	F	G	H	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
3 MT	1.70	2.12	1.75	0.88	0.38	12,000	180	650	10693	\$1,032
4 MT	2.45	2.78	2.35	1.25	0.50	12,000	525	1,380	10694	1,255
5 MT	2.45	2.78	2.35	1.25	0.50	12,000	525	1,380	10695	1,301

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

Insist on Roto-Shield™ Technology – Only Available on Royal Live Centers



ROYAL ULTIMATE™ MULTI-TASKING LIVE CENTER



Spring-Loaded Point for Lower Turret and Sub-Spindle Applications

- ❑ Designed specifically for use on the latest multi-tasking **CNC machines with lower turrets and/or sub-spindles.**
- ❑ Spring-loaded point overcomes the lack of hydraulic compensation found on tailstocks, protecting lower turrets and sub-spindles from overloading and/or crashes.
- ❑ Much longer operating life than other spring-type live centers due to the outstanding sealing characteristics of the exclusive Royal Roto-Shield™ coupled with a long-life spring-loaded neoprene seal.
- ❑ Heavy-duty bearing configuration and **optimized spring-pak** make the Royal Ultimate™ the perfect choice for all multi-tasking machines.

ROYAL ULTIMATE™ MULTI-TASKING LIVE CENTER



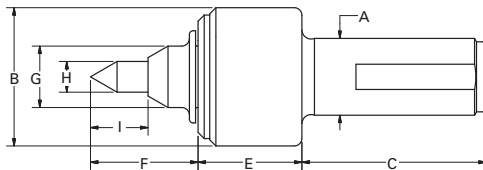
Spring-Loaded Point for Lower Turret and Sub-Spindle Applications



**EXCLUSIVE ROYAL
ROTO-SHIELD™
TECHNOLOGY**

**✓ High-Pressure
Coolant Approved**

A graphical representation laser-marked onto the body of each Ultimate™ Multi-Tasking Live Center takes the guesswork out of the setup process by clearly identifying optimal working parameters.



	SPRING PRESSURE	MAX WORKPIECE WEIGHT
	lbs (kgs)	lbs (kgs)
	206 (93)	355 (161)
	159 (72)	275 (125)
	110 (50)	190 (86)
	58 (26)	100 (45)

The Royal Ultimate™ Multi-Tasking Live Center

A SHANK STYLE	B	C	E	F	G	H	I	SPRING TRAVEL	MAX. SUGGESTED RPM ¹	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.) ²	PART NUMBER	PRICE
1 1/4 SS	2.25	3.00	1.69	1.75	1.00	0.50	0.94	0.25	5,000	350	200	10590	\$1,065

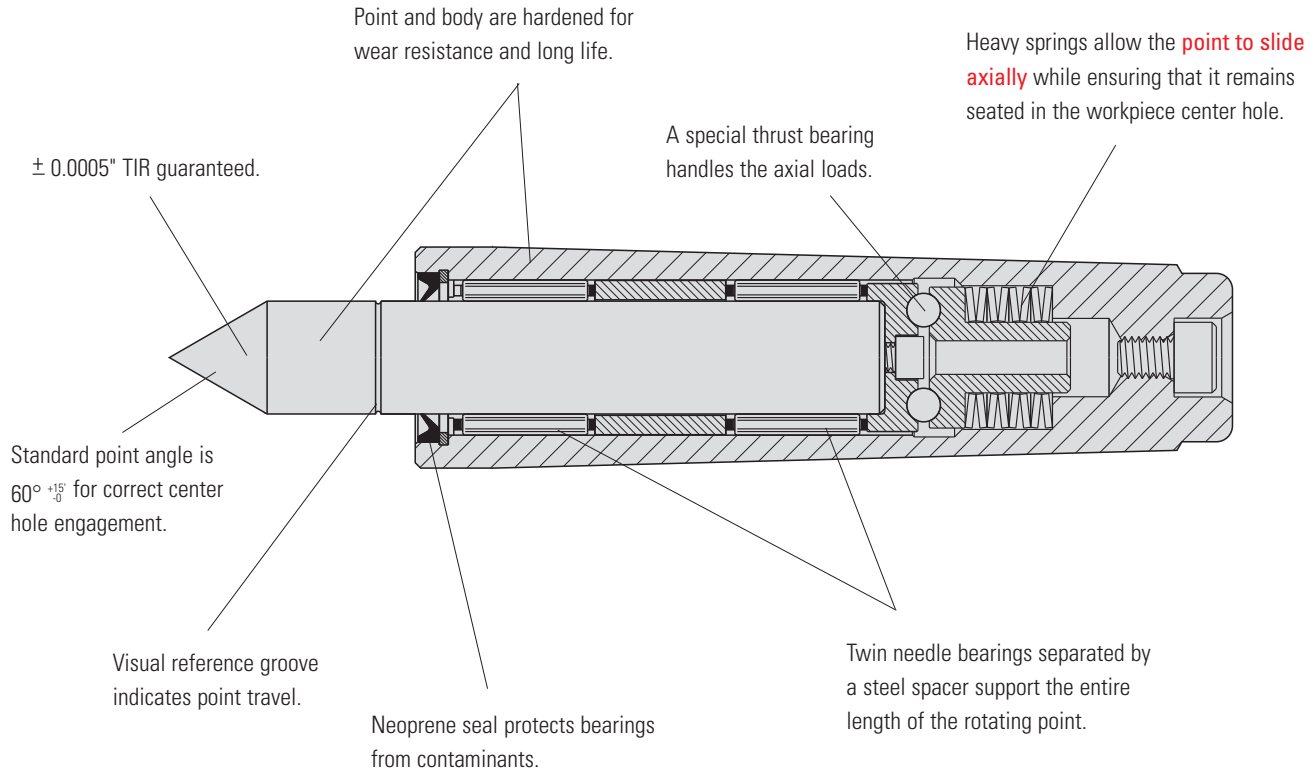
¹ Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

² Exceeding this value will bottom-out springs.

Insist on Roto-Shield™ Technology – Only Available on Royal Live Centers



ROYAL SPRING TYPE LIVE CENTERS

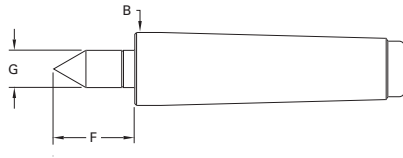


- Unique spring-loaded point compensates for workpiece thermal expansion.
- Low-profile design provides **outstanding tool clearance**.
- Available with standard and extended points.
- Can be used in the turret **of sub-spindle machines** to overcome a lack of hydraulic compensation.



Check out the Royal Live Center Video at www.livecenters.com

ROYAL SPRING TYPE LIVE CENTERS



Royal Spring Type Live Centers — Standard Point

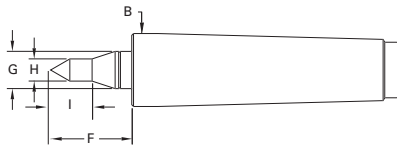
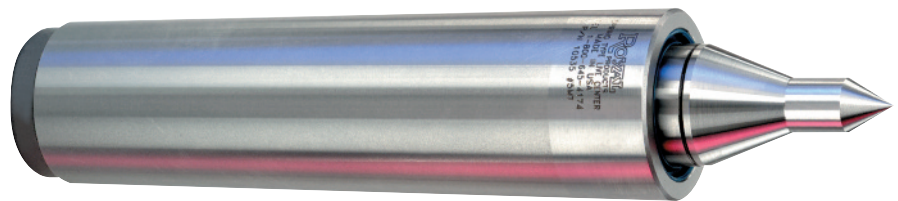
TAPER	B	F	G	SPRING TRAVEL	MAX. SUGGESTED RPM ¹	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.) ²	PART NUMBER	PRICE
2 MT	0.700	0.88	0.39	0.11	5,000	540	150	10522	\$595
3 MT	0.938	1.16	0.55	0.14	5,000	940	315	10523	595
4 MT	1.231	1.38	0.63	0.18	4,500	1,400	435	10524	704
5 MT	1.748	2.00	1.10	0.19	4,500	2,340	785	10525	1,043

Straight Shank Models

1" Dia.	1.00	1.16	0.55	0.14	5,000	940	315	10526	\$595
1 1/4" Dia.	1.25	1.38	0.63	0.18	4,500	1,400	435	10527	704

¹ Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

² Exceeding this value will bottom-out springs.



Royal Spring Type Live Centers — CNC Point

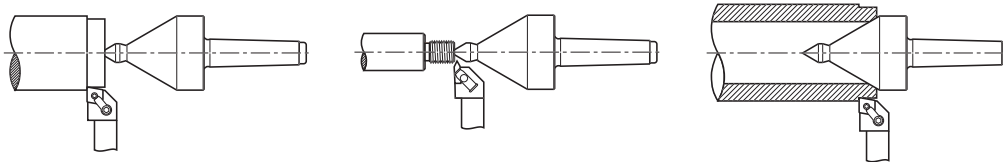
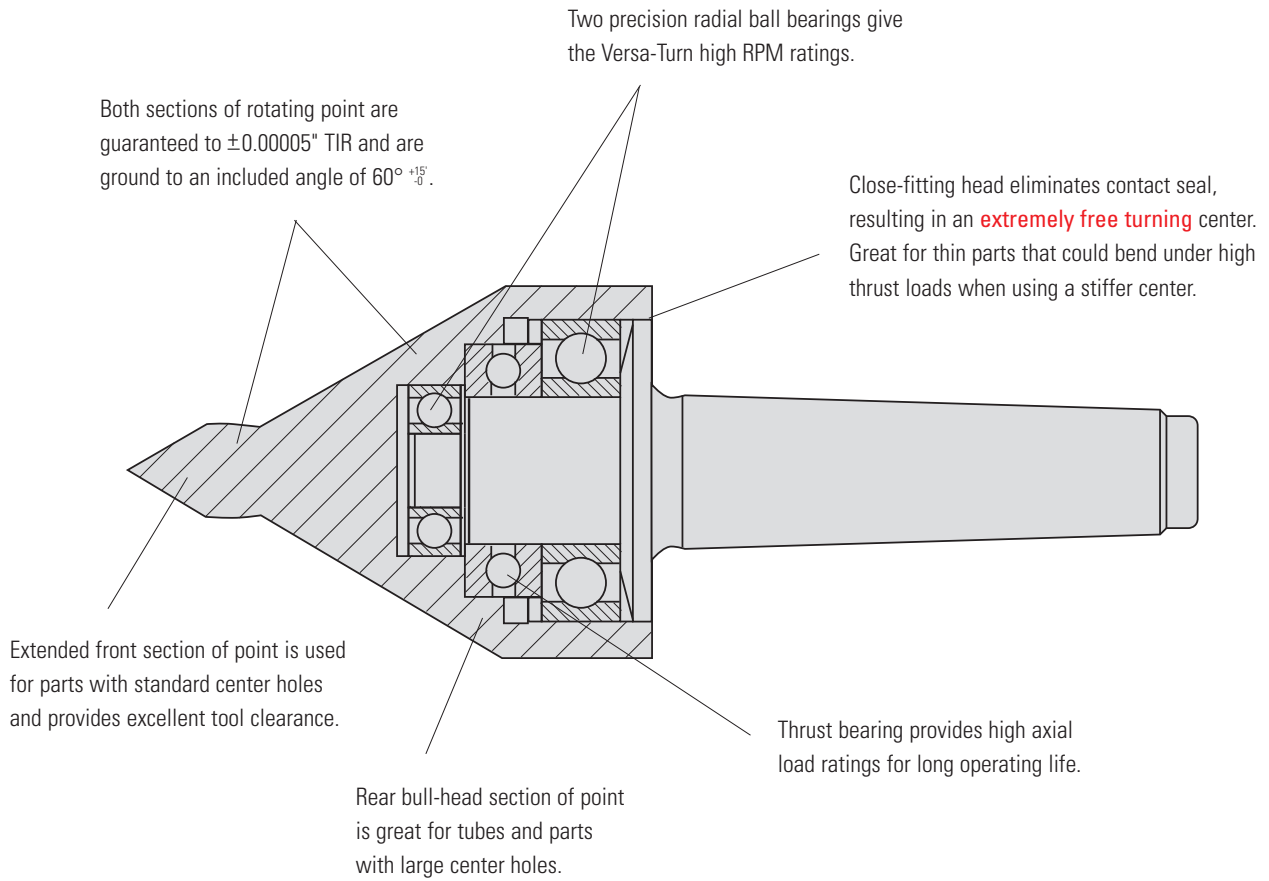
TAPER	B	F	G	H	I	SPRING TRAVEL	MAX. SUGGESTED RPM ¹	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.) ²	PART NUMBER	PRICE
2 MT	0.700	0.88	0.39	0.19	0.35	0.11	5,000	150	150	10532	\$628
3 MT	0.938	1.16	0.55	0.25	0.47	0.14	5,000	260	315	10533	628
4 MT	1.231	1.38	0.63	0.38	0.70	0.18	4,500	580	435	10534	746
5 MT	1.748	2.00	1.10	0.50	0.93	0.19	4,500	1,050	785	10535	1,043

¹ Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

² Exceeding this value will bottom-out springs.



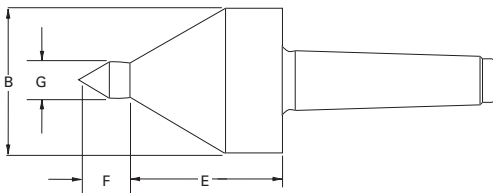
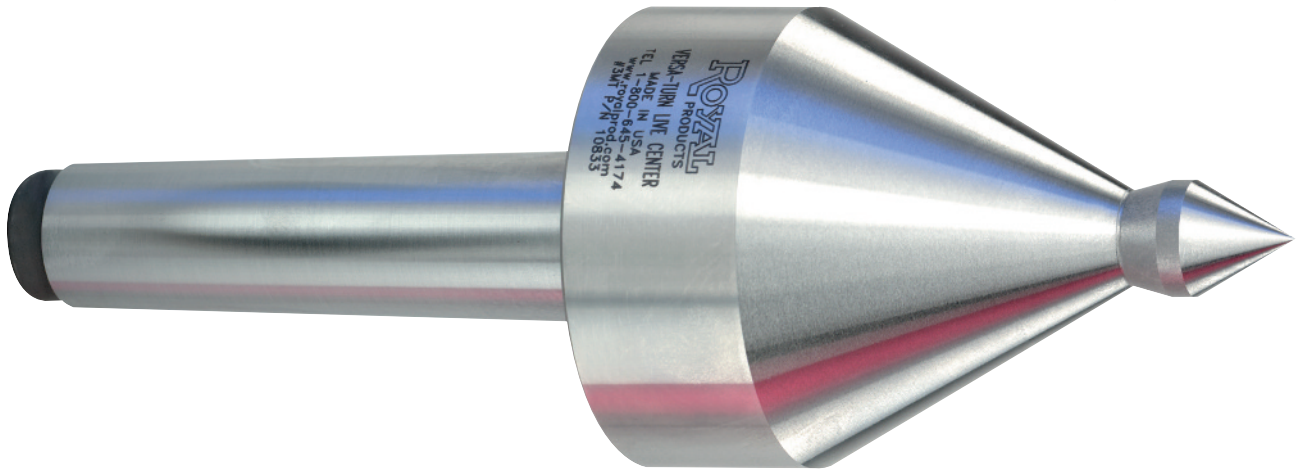
ROYAL VERSA-TURN LIVE CENTERS



- ❑ An excellent **multi-purpose live center** designed to handle most common turning jobs.
- ❑ The Royal Versa-Turn™ is extremely free turning, making it an **ideal choice for thin parts** that could bend when subjected to high thrust loads.
- ❑ The unique design is really two centers in one, providing great value for cost-conscious manufacturers.



ROYAL VERSA-TURN LIVE CENTERS



**Extremely Free Turning –
Great for Thin Parts**

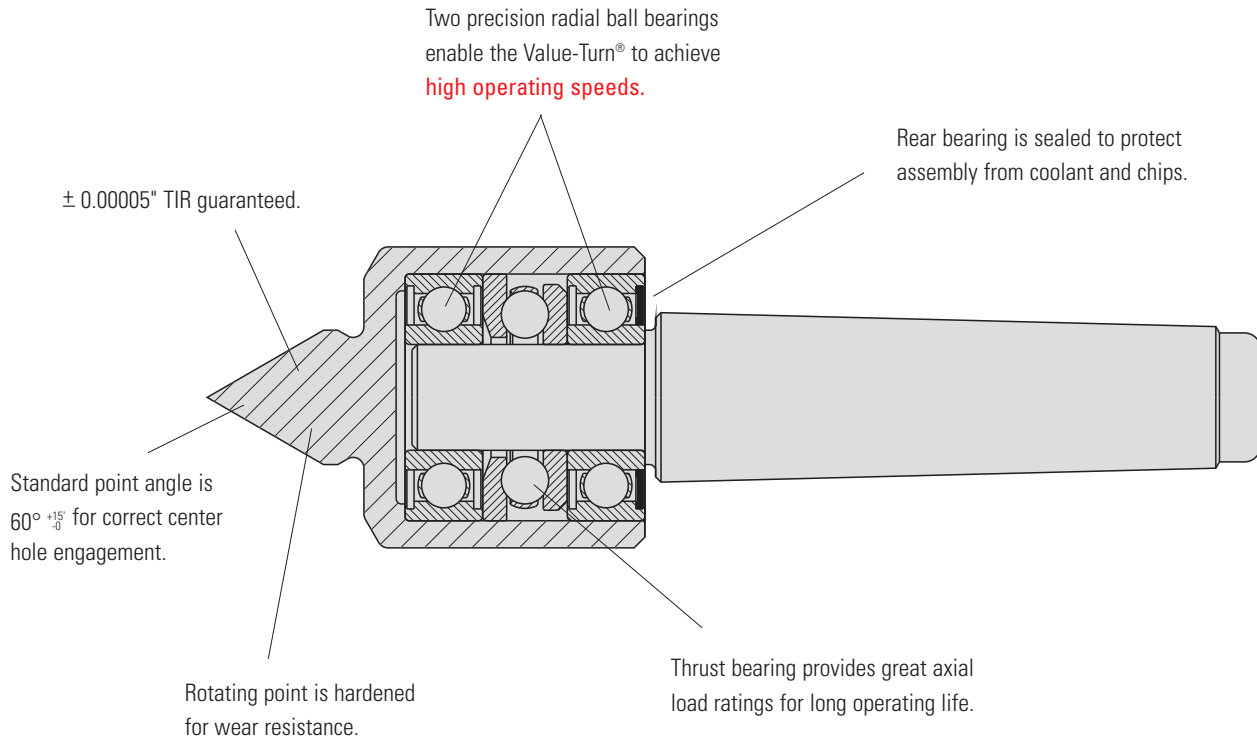
Royal Versa-Turn Live Centers

TAPER	B	E	F	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
3 MT	2.13	2.22	0.74	0.50	5,000	330	2,160	10832	\$470
3 MT HD	2.50	2.60	0.93	0.63	4,000	685	5,000	10833	530
4 MT	2.50	2.60	0.93	0.63	4,000	685	5,000	10834	546
4 MT HD	3.38	3.15	1.12	0.75	3,500	1,165	5,700	10835	741
5 MT	3.38	3.15	1.12	0.75	3,500	1,165	5,700	10836	780

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.



ROYAL VALUE-TURN® LIVE CENTERS

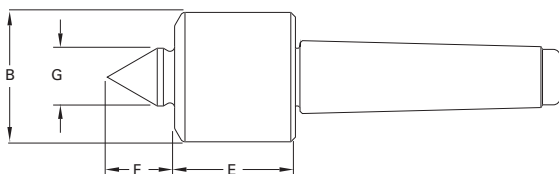


- ❑ A **sturdy, low-cost center** designed for light/medium-duty turning applications.
- ❑ Precision three-bearing design enables the Royal Value-Turn® to achieve both high RPM's and good load ratings.
- ❑ A great American-made alternative to low quality imports.



Check out the Royal Live Center Video at www.livecenters.com

ROYAL VALUE-TURN® LIVE CENTERS



Royal Value-Turn® Live Centers

TAPER	B	E	F	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	1.68	1.56	0.88	0.75	5,000	390	3,730	10852	\$289
3 MT	1.68	1.56	0.88	0.75	5,000	390	3,730	10853	311
4 MT	2.45	2.03	1.20	1.13	4,500	750	4,990	10854	377
5 MT	2.45	2.03	1.20	1.13	4,500	750	4,990	10855	424

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.



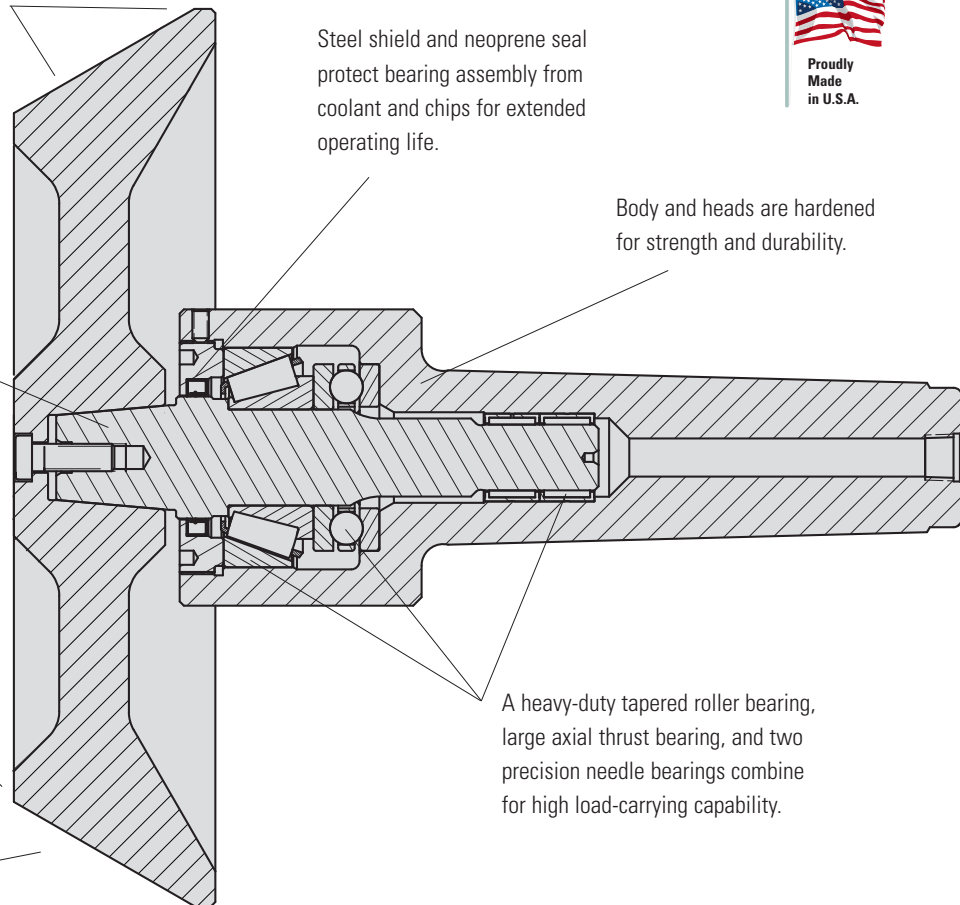
ROYAL “OIL COUNTRY” BIG-BORE BULL HEAD LIVE CENTERS

The major and minor diameters of each head extend above and below nominal sizing – enabling each head to **cover a wider range of workpieces.**

Large capacity modular heads securely locate on a precision tapered shaft for maximum accuracy and rigidity.

± 0.00025 " TIR guaranteed.

Head angle is $60^{\circ} \begin{smallmatrix} +15 \\ -0 \end{smallmatrix}$ for proper part engagement.



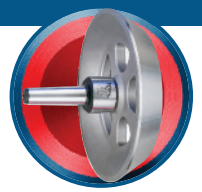
Steel shield and neoprene seal protect bearing assembly from coolant and chips for extended operating life.

Body and heads are hardened for strength and durability.

A heavy-duty tapered roller bearing, large axial thrust bearing, and two precision needle bearings combine for high load-carrying capability.



- ❑ Designed **specifically for machining large diameter pipes for the oil and gas industry**, but suitable for all large-bore applications.
- ❑ In contrast to standard bull head live centers, the modular head design of Royal “Oil Country” Big-Bore centers positions the workpiece closer to the bearing assembly for greater rigidity and longer operating life.
- ❑ Interchangeable **heads are relieved to achieve the optimal strength/mass ratio**, and are sized to cover a wider range of bore sizes with fewer models.
- ❑ Bearing configuration consisting of a heavy-duty tapered roller bearing, a large axial thrust bearing, and two precision needle bearings provides exceptional accuracy and rigidity under the most demanding production conditions.

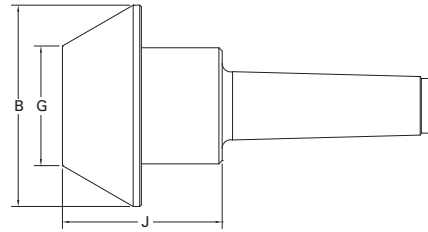


ROYAL “OIL COUNTRY” BIG-BORE BULL HEAD LIVE CENTERS

Specifications

TAPER	HEAD PART NUMBER	B	G	J	MAX SUGGESTED RPM*	WEIGHT OF WORKPIECE (LBS.)	THRUST LOAD (LBS.)
5 MT	10791	4.62	1.63	5.31	2,050	4,500	2,650
5 MT	10792	7.37	4.38	4.59	1,300	4,500	2,650
5 MT	10793	10.12	7.13	4.59	950	4,500	2,650
5 MT	10794	12.87	9.88	4.59	750	4,500	2,650
5 MT	10795	15.62	12.63	4.59	600	4,500	2,650

TAPER	HEAD PART NUMBER	B	G	J	MAX SUGGESTED RPM*	WEIGHT OF WORKPIECE (LBS.)	THRUST LOAD (LBS.)
6 MT	10791	4.62	1.63	6.57	2,050	11,000	3,500
6 MT	10792	7.37	4.38	5.85	1,300	11,000	3,500
6 MT	10793	10.12	7.13	5.85	950	11,000	3,500
6 MT	10794	12.87	9.88	5.85	750	11,000	3,500
6 MT	10795	15.62	12.63	5.85	600	11,000	3,500



Royal “Oil Country” Big-Bore Bull Head Live Centers

TAPER	PART NUMBER	PRICE*
5 MT	10782	\$1,195
6 MT	10784	1,755

* Head not included. Order Separately.

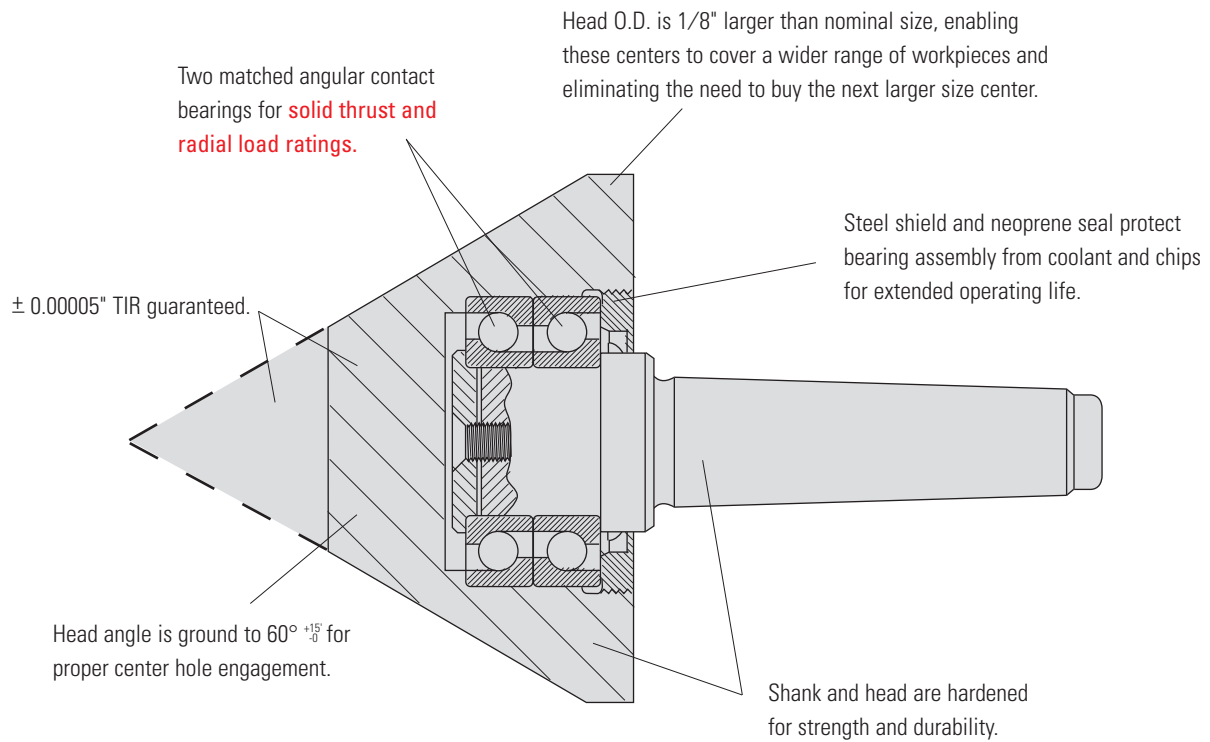
Modular Heads for Royal “Oil Country” Big-Bore Bull Head Live Centers

HEAD MODEL	B	G	HEAD WEIGHT (LBS.)	PART NUMBER	PRICE
A	4.62	1.63	7	10791	\$613
B	7.37	4.38	18	10792	946
C	10.12	7.13	33	10793	1,346
D	12.87	9.88	51	10794	1,925
E	15.62	12.63	65	10795	3,355

“Oil Country” Big-Bore Bull Head Dead Centers Also Available – See Page 103

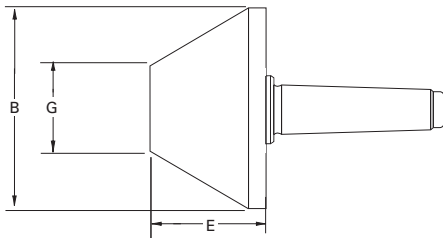
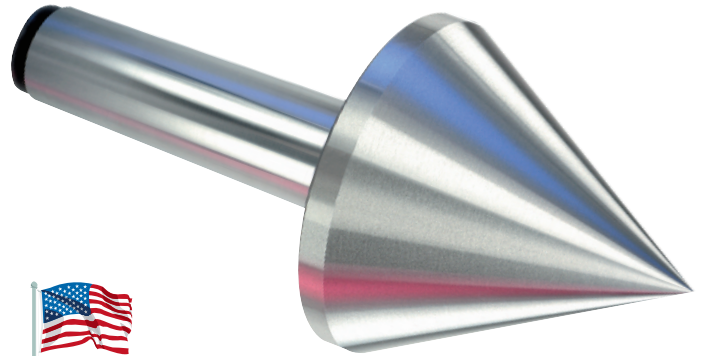
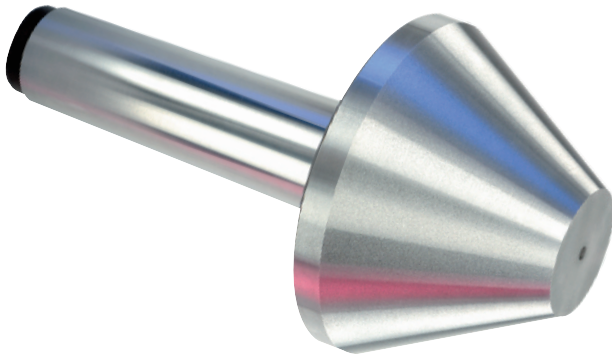


ROYAL STANDARD PIPE & BULL HEAD LIVE CENTERS



- ❑ Designed for turning pipes, tubes, and parts with extra-large center holes.
- ❑ Two matched angular contact bearings provide good thrust and radial load ratings.
- ❑ Head diameter is 1/8" over nominal size, enabling these centers to cover a wider range of workpieces.
- ❑ Bull Head design is shorter than a pipe head, reducing potential interference in blind center hole applications and ensuring that the **load is positioned over the bearings for optimum strength**.
- ❑ Extra large capacity models also available – see previous page.

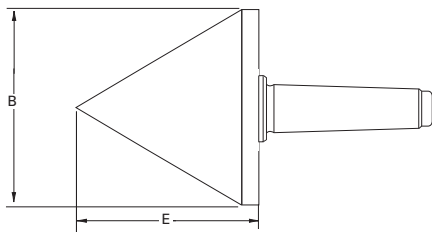
ROYAL STANDARD PIPE & BULL HEAD LIVE CENTERS



Royal Standard Bull Head Live Centers

TAPER	B	E	G	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
3 MT	3.15	2.52	1.00	5,000	615	1,780	10902	\$886
4 MT	4.15	3.01	1.25	4,500	860	2,550	10904	1,098
5 MT	4.15	3.01	1.25	4,500	860	2,550	10905	1,098
5 MT	5.15	3.17	2.00	4,000	1,145	3,450	10907	1,368
5 MT	6.15	3.60	2.50	3,500	1,450	4,500	10909	1,891

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.



Royal Standard Pipe Head Live Centers

TAPER	B	E	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
3 MT	3.15	3.39	5,000	475	1,780	10702	\$902
4 MT	4.15	4.10	4,500	630	2,550	10704	1,022
5 MT	4.15	4.10	4,500	630	2,550	10705	1,022

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

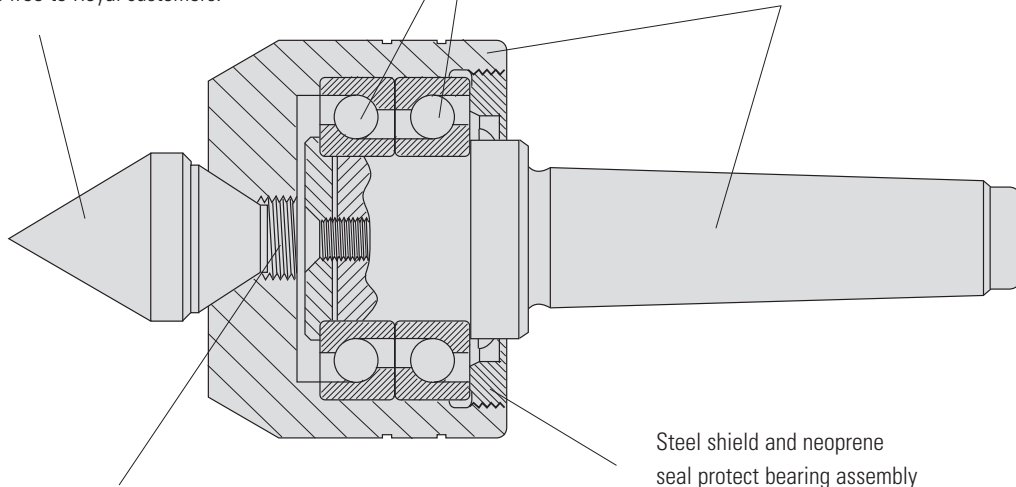


ROYAL CHANGEABLE-POINT LIVE CENTERS

*Accuracy is guaranteed to be $\pm 0.00005"$ TIR as long as the points are installed on the live center to which they have been match-ground. When a customer purchases a new point, we recommend sending the live center back to our factory so we can grind the new point to it. This service is free to Royal customers.

Two precision angular contact bearings help achieve good rpm and load ratings.

Shank, head, and points (except #4 blank point), are hardened for wear resistance and long life.



Precision ground tapers and single-lead threads ensure that **points consistently seat in the same location** when they are interchanged, providing maximum accuracy.

Steel shield and neoprene seal protect bearing assembly from coolant and chips for extended operating life.

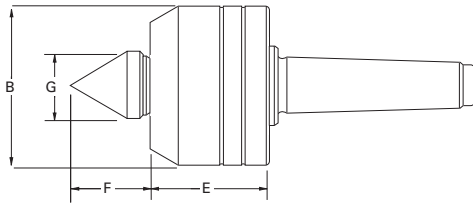


- ❑ This versatile live center uses interchangeable points to handle many common turning jobs.
- ❑ Each center includes a #3 standard 60° male point. Other points sold separately.
- ❑ $\pm 0.00005"$ TIR guaranteed.*
- ❑ Unique taper/thread design allows points to be easily interchanged and ensures accuracy.



Check out the Royal Live Center Video at www.livecenters.com

ROYAL CHANGEABLE-POINT LIVE CENTERS



Royal Changeable-Point Live Centers

TAPER	B	E	F	G	POINT THREADS	MAX. SUGGESTED RPM*	WEIGHT OF WORKPIECE (lbs.)	THRUST LOAD (lbs.)	PART NUMBER	PRICE
2 MT	2.00	1.85	1.13	0.88	5/8" - 18	6,000	390	960	10002	\$754
3 MT	2.38	2.07	1.25	1.00	5/8" - 18	5,000	500	1,140	10003	823
4 MT	3.50	2.64	1.79	1.50	3/4" - 16	3,500	1,070	1,810	10004	1,237
5 MT	3.50	2.64	1.79	1.50	3/4" - 16	3,500	1,070	1,810	10005	1,325

* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.



1



2



3



4



5

1. Pipe point for pipe and tubing work.
2. Extra-long male point for additional tool clearance.
3. Standard male point.
4. Blank point made of unhardened 4140 steel.
5. Female point for work not having a center-hole.

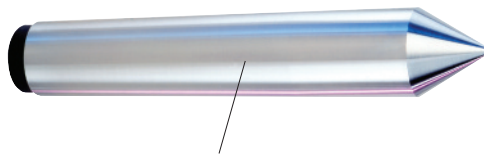
Individual Points for Changeable-Point Live Centers

POINT	2 MT				3 MT				4 & 5 MT			
	DIA.	"F" DIM.	PART NUMBER	PRICE	DIA.	"F" DIM.	PART NUMBER	PRICE	DIA.	"F" DIM.	PART NUMBER	PRICE
1	0.75-2.12	1.67	10061	\$386	0.88-2.38	1.75	10071	\$311	1.38-3.50	2.38	10091	\$486
2	0.88	1.66	10062	269	1.00	1.88	10072	268	1.38	2.34	10082	333
3	0.88	1.13	10063	248	1.00	1.25	10073	257	1.50	1.79	10083	264
4	0.88	1.13	10064	152	1.00	1.25	10074	121	1.38	1.66	10084	168
5	0.19-0.91	0.92	10065	242	0.25-1.06	1.15	10075	325	0.25-1.38	1.28	10085	305



ROYAL DEAD CENTERS

- Dead centers are typically used for **grinding** and are also sometimes used in **high-precision turning** applications.
- Royal manufactures a wide range of standard dead centers to suit most applications, including: full, half, carbide-tipped, and extended-point models.
- All solid dead centers are made from ball bearing steel and are hardened to Rc 61-63 for wear resistance and durability.
- On carbide-tipped models, the carbide blank is brazed into a **close-tolerance socket for maximum strength and rigidity**.
- All Royal dead centers are ground to an angle of $60^\circ \begin{smallmatrix} +15^\circ \\ -0 \end{smallmatrix}$ and guaranteed to $\pm 0.00005''$ TIR.



Ball bearing steel hardened and ground to Rc 61-63 for long life.

Type 1
Standard Dead Center
add "1" to part number below.



Carbide blank is brazed into a close-tolerance socket for maximum strength and rigidity.

Type 2
Standard Dead Center with carbide tip
add "2" to part number below.



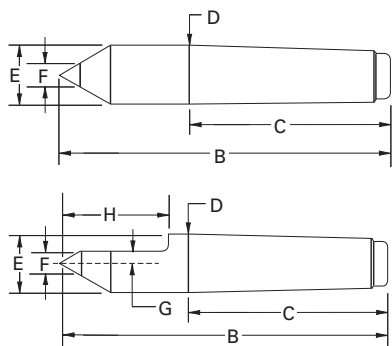
Half centers are relieved for grinding wheel clearance.

Type 3
1/2 Dead Center
add "3" to part number below.
Note – Type 3 models are being phased out. Please call for availability.



A safety groove shows the maximum allowable regrind range for carbide-tipped models.

Type 4
1/2 Dead Center with carbide tip
add "4" to part number below.



Royal Dead Centers

Example: A 2MT dead center with a carbide tip is PART NUMBER 11012.

TAPER A	B	C	D	E	F	G	H	PART NUMBER	PRICE			
									TYPE 1	TYPE 2	TYPE 3	TYPE 4
2 MT	4.19	2.56	.700	0.700	0.38	0.19	1.38	1101-	\$123	\$163	CALL	\$191
3 MT	5.25	3.19	.938	0.938	0.50	0.22	1.69	1102-	191	222	CALL	251
4 MT	6.75	4.06	1.231	1.231	0.50	0.25	2.25	1103-	274	292	CALL	320
5 MT	8.50	5.19	1.748	1.748	0.63	0.38	2.75	1104-	410	452	CALL	476

ROYAL "OIL COUNTRY" BULL HEAD DEAD CENTERS



- Designed for turning large tubes and pipes on lathes with live tailstocks.
- Can also be used in large-diameter grinding applications.
- Interchangeable heads (sold separately) offer maximum versatility.
- $\pm 0.0002"$ TIR guaranteed.
- Extraction nut (included) allows for easy removal from tailstock.
- Special extended models offered for Mazak** lathes.



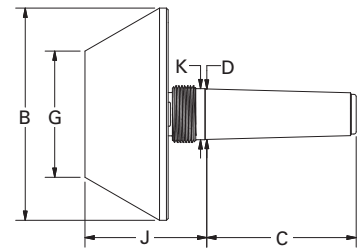
Modular Heads for Royal "Oil Country" Bull Head Dead Center

HEAD MODEL	B	G	HEAD WEIGHT (LBS.)	PART NUMBER	PRICE
A	4.62	1.63	7	10791	\$613
B	7.37	4.38	18	10792	946
C	10.12	7.13	33	10793	1,346
D	12.87	9.88	51	10794	1,925
E	15.62	12.63	65	10795	3,355



Royal "Oil Country" Bull Head Dead Center Shanks*

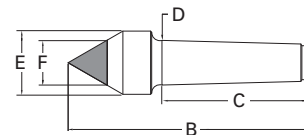
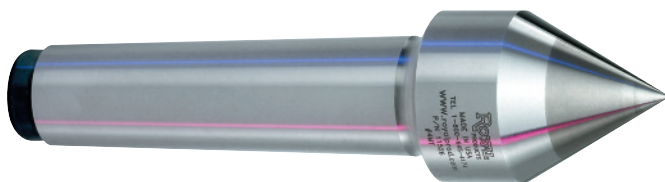
TAPER	MODEL	C	D	K	J WITH HEAD A	J WITH HEADS B-E	THREAD	PART NUMBER	PRICE
4MT	Standard	4.06	1.231	N/A	4.63	3.91	M42 x 1.5	11576*	\$370
4MT	Mazak**	4.06	1.231	1.260	4.85	4.13	M42 x 1.5	11577*	370
5 MT	Standard	5.19	1.748	N/A	4.63	3.91	M50 x 1.5	11578*	406
5 MT	Mazak**	5.19	1.748	1.772	5.06	4.34	M50 x 1.5	11579*	406
6 MT	Standard	7.25	2.494	N/A	4.69	3.97	M70 x 2	11580*	782
6 MT	Mazak**	7.25	2.494	2.500	5.29	4.57	M70 x 2	11581*	782



* Head not included – order separately

** Mazak is a registered trademark of Yamazaki Mazak Corporation

OVERSIZED CARBIDE POINT DEAD CENTERS



Royal Oversized Carbide Point Dead Centers

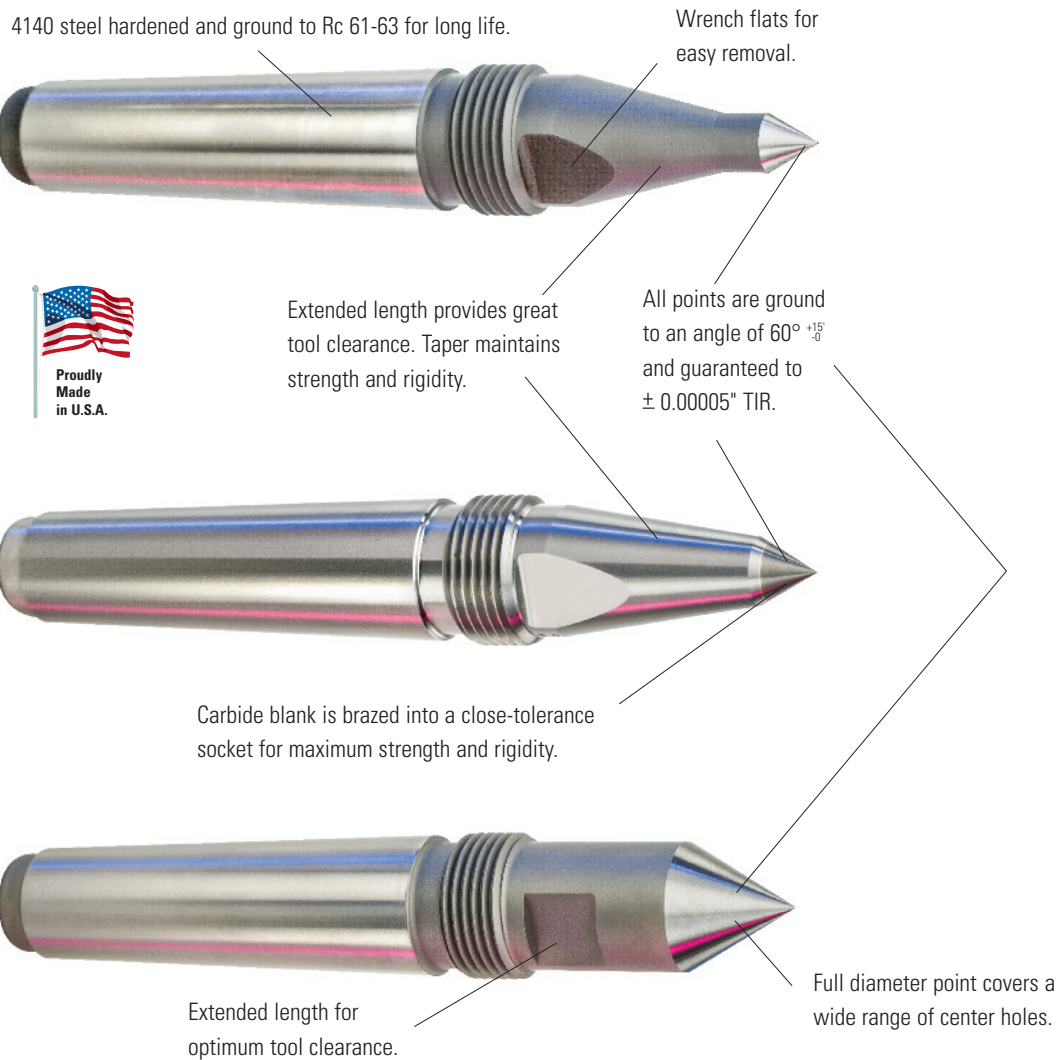
- Excellent for grinding and high precision turning applications.
- Oversized carbide point covers a wider range of center holes and provides great wear resistance.

TAPER A	B	C	D	E	CARBIDE DIAMETER F	PART NUMBER	PRICE
2 MT	4.94	2.56	0.700	1.25	1.00	11524	\$322
3 MT	5.57	3.19	0.938	1.25	1.00	11525	383
4 MT	6.75	4.06	1.231	1.75	1.25	11526	520
5 MT	8.50	5.19	1.748	1.75	1.25	11527	732

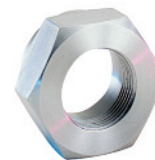


ROYAL CNC THREADED DEAD CENTERS

Great For Live Tailstocks and Precision Grinding

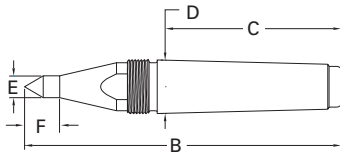


- ❑ Royal threaded dead centers are designed for use in CNC turning centers with **live tailstocks**.
- ❑ These dead centers are also widely used in precision grinding applications.
- ❑ Available in several styles to suit a wide range of applications.
 - CNC Point
 - Carbide-Tipped CNC Point
 - Full Diameter Extended Point
- ❑ Longer than normal gage length on all models provides outstanding clearance.
- ❑ Extraction nut and wrench flats enable easy removal from tailstock/spindle.



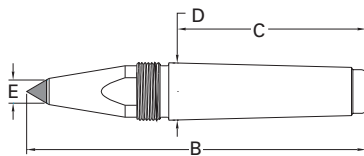
Extraction nut allows for easy removal from spindle. Order separately.

ROYAL CNC THREADED DEAD CENTERS



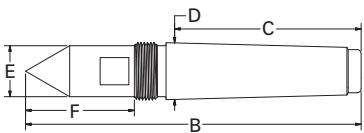
Royal CNC Threaded Dead Centers

TAPER A	B	C	D	E	F	THREAD	DEAD CENTER		EXTRACTION NUT	
							PART NUMBER	PRICE	PART NUMBER	PRICE
3 MT	5.94	3.19	0.938	0.38	0.63	1"-14	11530	\$228	11550	\$56
4 MT	7.31	4.06	1.231	0.50	0.81	1¼"-14	11531	277	11551	67
4 MT	7.31	4.06	1.231	0.75	1.18	1¼"-14	11535	277	11551	67
5 MT	8.44	5.19	1.748	0.50	0.81	1¾"-12	11532	395	11552	75
5 MT	8.44	5.19	1.748	0.75	1.18	1¾"-12	11537	395	11552	75



Royal CNC Threaded Dead Centers with Carbide-Tipped Point

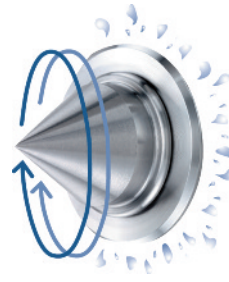
TAPER A	B	C	D	E	THREAD	DEAD CENTER		EXTRACTION NUT	
						PART NUMBER	PRICE	PART NUMBER	PRICE
3 MT	5.94	3.19	0.938	0.38	1"-14	11540	\$310	11550	\$56
4 MT	7.31	4.06	1.231	0.50	1¼"-14	11541	373	11551	67
5 MT	8.44	5.19	1.748	0.50	1¾"-12	11542	480	11552	75



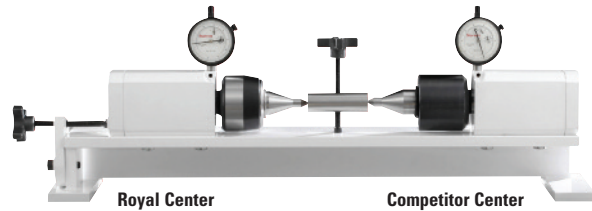
Royal Full Diameter Extended Point Threaded Dead Centers

TAPER A	B	C	D	E	F	THREAD	DEAD CENTER		EXTRACTION NUT	
							PART NUMBER	PRICE	PART NUMBER	PRICE
3 MT	5.94	3.19	0.938	0.86	1.88	1"-14	11534	\$228	11550	\$56
4 MT	7.31	4.06	1.231	1.11	2.37	1¼"-14	11536	277	11551	67
5 MT	8.44	5.19	1.748	1.25	2.36	1¾"-12	11539	395	11552	75

IN CASE YOU MISSED IT.....



**ROYAL
ROTO-SHIELD™
TECHNOLOGY**



See video at www.livecenters.com

WHY TOP MANUFACTURERS INSIST ON ROYAL LIVE CENTERS

Highest Quality

Every Royal Live Center is a finely crafted tool, incorporating the highest quality steels, bearings, seals, and lubricants. For more than 70 years Royal has been the brand that top manufacturers know and trust for their workholding needs. **For the thousands of parts that your centers will support, can you afford to go with anything less than a Royal?**

Longest Life

Royal's exclusive Roto-Shield™ coolant deflector provides unmatched bearing protection by keeping contaminants out and clean grease in. It's not uncommon for a Royal center to last up to 3x longer than the competition.

Exceptional Rigidity

Royal live centers are significantly more rigid than the competition – resulting in superior accuracy, part finish, and bearing life. Check out the test results at www.livecenters.com.

High-Pressure Coolant Approved

Our hardened steel coolant deflector is integral with the rotating point and has been optimized for high-pressure coolant applications.

A Model for Every Application

Between our broad standard line, our "off-the-shelf" specials, and complete custom center capabilities, Royal has all of your center needs covered.

Same-Day Shipping

We maintain thousands of centers in stock to meet our goal of same-day shipping on all orders. **Order it today – you'll have it tomorrow.**

Proudly Made in USA

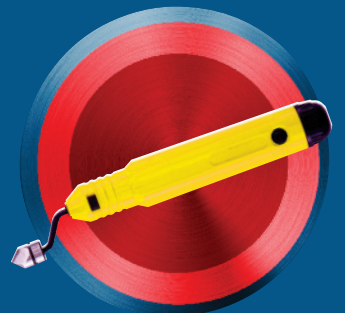
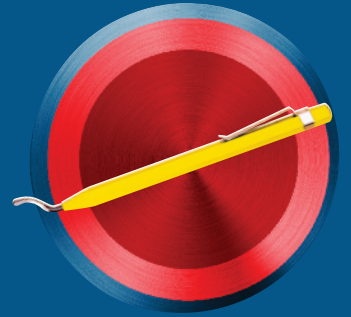
Every Royal Live Center is made in USA in our modern, highly-automated factory. **We are extremely proud to be an American manufacturer supporting American manufacturers!**

Once you try a Royal Center, you'll never settle for anything less!



DEBURRING TOOLS

THE WORLD'S BEST DEBURRING TOOLS AND BLADES



















































ROYAL DEBURRING BLADES



**Great
Low
Prices**

STANDARD-DUTY B-BLADES	BLADES PER PACKAGE	PART NUMBER	PRICE PER PACKAGE
B-10  	10	22110	\$11.75
Our most popular blade. HSS for steel and aluminum.			
B-10A  	10	22109	12.60
Similar to B-10 blade but has a thinner profile. High cobalt content for long life. Also great for plastic.			
B-10L  	10	22113	11.75
HSS counterclockwise operation in steel and aluminum; ideal for lefties.			
B-10T  	10	22112	25.95
Titanium coated HSS for longer life; for steel and aluminum.			
B-10C  	10	22117	74.10
Solid carbide for hardened material.			
B-15  	10	22118	16.55
Very fine, precise blade; great for plastic.			
B-20  	10	22120	11.75
HSS for brass and cast iron; can rotate clockwise and counterclockwise.			
B-20C  	10	22121	77.80
Solid carbide for hardened material.			
B-30  	10	22130	20.15
HSS; removes internal and external burrs simultaneously from holes drilled into tubing and sheet metal.			
B-60  	10	22135	29.85
HSS for internal deburring of hard to reach locations.			

HEAVY-DUTY E-BLADES	BLADES PER PACKAGE	PART NUMBER	PRICE PER PACKAGE
E-100  	10	22025	\$14.65
Heavy Duty HSS for steel and aluminum.			
E-100A  	10	22034	18.30
Heavy Duty M-42 steel, good for plastic and hard materials.			
E-100L  	10	22026	14.65
Heavy Duty HSS for counterclockwise operation in steel and aluminum; ideal for lefties.			
E-100T  	10	22027	30.15
Heavy Duty titanium coated HSS for steel and aluminum.			
E-200  	10	22030	14.65
Heavy Duty HSS for brass and cast iron, bi-directional.			
E-300  	10	22040	19.10
Heavy Duty HSS; removes internal and external burrs simultaneously from holes drilled into tubing & sheet metal.			
E-350  	10	22035	15.40
Heavy Duty HSS for straight edges on all materials.			
E-600  	10	22036	30.50
Heavy Duty HSS; designed to facilitate deburring in the most inaccessible locations.			
E-101  	10	22037	17.30
Heavy Duty HSS for holes as small as 7/64" dia. in steel and aluminum.			
E-102  	10	22039	17.30
Heavy Duty HSS for small holes in brass and cast iron; can rotate clockwise and counterclockwise.			
E-1500  	10	22046	16.85
Heavy Duty HSS for holes as small as 1/16" dia. in steel and aluminum.			
E-1500T  	10	22047	44.70
Heavy Duty titanium coated HSS for holes as small as 1/16" dia. in hardened materials			
E-100P  	10	22028	71.95
HSS blade with non-removable plastic safety cap protects against part scratching.			

Please contact Royal for special pricing on very large quantities.

ROYAL DEBURRING TOOLS



Royal Zip/Burr™ B-Set



- Takes all B-series blades.
- Blade can be inserted at 90° for deburring cross holes.
- Includes one B-10 blade and one B-20 blade.
- Handle has lifetime guarantee – if it breaks, return it and we will replace it at no charge.
- Holder telescopes from 1/2" to 5".
- Handle has storage compartment for spare blades.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Zip/Burr B-Set	1	22600	\$10.95
Zip/Burr Handle Only	1	22610	5.95
Zip/Burr B-Holder Only	1	22614	6.05

Royal Multi/Burr-5



- Blades can be stored in lightweight plastic handle.
- Handle has lifetime guarantee.
- Blades are easily changed by depressing locking button.
- Comes with five blades – one each of E-100, E-200, E-350, E-101 and E-102.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Multi/Burr Complete w/5 Blades	1	22022	\$12.35
Multi/Burr Handle Only	1	22570	7.40

Royal Disposable Burr



- Low-priced yet can handle almost every deburring job.
- Non-replaceable blade.
- Consists of heavy-duty E-100 blade, handle, and handy pocket clip.
- For removing burrs from steel and aluminum.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Disposable Burr	10	22050	\$45.35

Royal Zip/Burr™ E-Set



- Takes all heavy-duty E-series blades.
- Holder telescopes from 1/2" to 5".
- Includes one E-100 blade, one E-200 blade and one E-300 blade.
- Handle has lifetime guarantee – if it breaks, return it and we will replace it at no charge.
- Handle has storage compartment for spare blades.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Zip/Burr E-Set	1	22620	\$12.75
Zip/Burr Handle Only	1	22610	5.95
Zip/Burr E-Holder Only	1	22633	6.05

Royal Double-Header Versa/Burr



- Double-header can be used with both B and E blades.
- Includes one B-10 blade and one B-20 blade.
- Telescopes from 1"–4½"
- Handle has lifetime guarantee.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Complete Double-Header Versa/Burr	1	22105	\$13.95
Versa/Burr Handle Only	1	22107	5.95
B/E Holder Only	1	22108	7.45

Royal E-Blade Slim-Grip



- Comes with one replaceable E-100 blade and handle.
- Uses heavy-duty E-Blades.
- Great value.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
E-Blade Slim Grip	10	22172	\$86.30

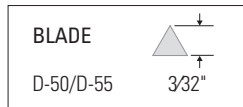


ROYAL DEBURRING TOOLS

Royal Mini-Scraper Zip/Burr™



Dimensions



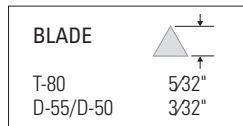
- Fine triangular scraper is ideal for moldmaking work.
- Blade is secured to D-holder with a set screw.
- Includes D-50 mini blade.
- Can also use D-50 TiN and D-55 carbide blades.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Complete Mini-Scraper Zip/Burr	1	22680	\$19.65
Zip/Burr D-Holder Only	1	22695	7.45
HSS Mini-Scraper Blade Only (D-50)	10	22276	76.95
D-55 Carbide Blade Only	10	22442	138.75

Royal Slim Grip Scraper



Dimensions



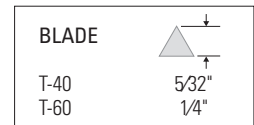
- Special Slim-Grip design for deburring in hard-to-reach locations.
- 22410 includes aluminum handle and one double-sided high speed steel T-80 blade.
- Knurled locking collar to control blade extension.
- 22420 includes aluminum handle and one single-sided solid carbide D-55 blade.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Slim-Grip Scraper w/T-80 HSS Blade	1	22410	\$20.85
Slim-Grip Scraper w/D-55 Carbide Blade	1	22420	26.40
T-80 HSS Blade Only	10	22432	97.95
D-55 Carbide Blade Only	10	22442	138.75
D-50 TiN Carbide Blade Only	10	22778	112.35

Royal Scraper Zip/Burr™



Dimensions



- Replaceable scraper blades thread into the Zip/Burr holder.
- Available with either a T-40 or T-60 blade. These blades are similar in size to the T-80 and T-120 but they are only half as long.
- Blades have a #10 NF thread and are interchangeable with other brand blades.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Standard Scraper with T-40 Blade	1	22730	\$16.80
Standard Scraper with T-60 Blade	1	22745	22.35
Zip/Burr T-Holder Only	1	22768	6.05
T-40 Blade Only	1	22760	6.95
T-60 Blade Only	1	22764	10.15

Royal Internal Scraper Zip/Burr™



- Includes special blade for deburring
- D-66 blade is held in D-holder by a cross holes.
- D-66 blade is held in D-holder by a set screw.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Complete Internal Scraper	1	22710	\$18.25
Zip/Burr D-Holder Only	1	22695	7.45
HSS Internal Scraper Blade Only (D-66)	10	22302	66.45

Royal Countersink Zip/Burr™



- Very useful for chamfering deep holes.
- Includes 3/4" countersink.

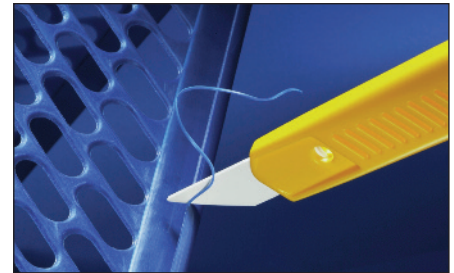
DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Complete Countersink	1	22650	\$31.65
Zip/Burr C-Holder Only	1	22665	5.75
C-12 1/2" Countersink Only	1	22155	17.85
C-20 3/4" Countersink Only	1	22160	22.35
C-20 TiN 3/4" Countersink Only	1	22162	42.90
C-30 1 1/8" Countersink Only	1	22165	32.50

ROYAL DEBURRING TOOLS



Royal Ceramic Deburring Tools

Royal ceramic deburring tools offer outstanding performance in virtually all plastic and soft metal deburring applications. These solid ceramic blades and scrapers are extremely durable, resulting in superior edge life when compared with traditional blades. Try one today!



Royal Ceramic Scraper



- Self-lubricating fixed ceramic blade.
- Interchangeable blade has a very long life.
- Great for all materials: plastics, soft metals, hard metals, etc.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Ceramic Scraper	1	22151	\$23.80
Replacement Ceramic Blade	1	22152	18.25
Ceramic Scraper Handle Only	1	22149	7.30

Royal Adjustable Mini Ceramic Scraper



- Self-lubricating ceramic blade.
- Long, thin profile provides access to difficult to reach areas
- Ideal for surface cleaning, trimming, deburring, and parting line deflashing of almost all plastics

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Adjustable Mini Ceramic Scraper	1	22146	\$28.10
Replacement Mini Ceramic Blade	1	22147	23.40
Mini Ceramic Scraper Handle Only	1	22148	6.40

Royal Compact Ceramic Scraper



- Self-lubricating ceramic blade.
- Perfect for all plastic materials and soft metals.
- Ideal for surface scraping and parting line deflashing.
- Long-life interchangeable blade.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Compact Ceramic Scraper	1	22140	\$22.90
Replacement Compact Ceramic Blade	1	22141	20.65
Compact Ceramic Scraper Handle Only	1	22145	6.35

Royal Rotating Ceramic Burr



- Interchangeable self-lubricating ceramic blade.
- Blade rotates like a traditional deburring tool.
- Will deburr holes, contours, and edges.
- Two blade styles available:
 - Model 65 – for soft abrasive plastics
 - Model 75 – for hard abrasive plastics

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Rotating Ceramic Burr – 65	1	22190	\$31.25
Rotating Ceramic Burr – 75	1	22192	31.25
Ceramic Burr Handle Only	1	22194	15.75
Ceramic Blade 65 Only	1	22196	17.30
Ceramic Blade 75 Only	1	22198	17.30



ROYAL DEBURRING TOOLS

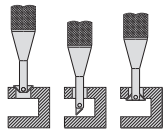
Royal Multi-Purpose 4-in-1 Deburring Tool



- ❑ Four of our most popular blades in a single innovative tool.
 - E-100 Heavy-Duty rotating deburring blade
 - B-20 bi-directional rotating deburring blade
 - 3/8" rotating countersink blade
 - D-50 mini-scraper blade
- ❑ All blades mounted to folding steel shafts that lock into place during use, and fold neatly away into the handle when not in use.
- ❑ A great all-purpose deburring tool for non-production applications in steel, aluminum, and plastic.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Multi-Purpose Deburring Tool	1	22024	\$61.65

Royal Reversible Countersink



- ❑ Deburrs both inside and outside of very small holes.
- ❑ To use, hold between fingers and rotate back and forth.
- ❑ Can be used in both clockwise and counterclockwise directions.
- ❑ To insert/withdraw blade into/from hole, push knob and release slowly.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Complete Mini Reversible Countersink	1	22455	\$27.40
Complete Standard Reversible Countersink	1	22465	28.05
Complete Large Reversible Countersink	1	22472	36.60
R-1 Mini Blade Only (1/8" - 7/32")	1	22137	13.55
R-2 Standard Blade Only (13/64" - 11/32")	1	22139	14.70
R-3 Large Blade Only (25/64" - 27/32")	1	22136	16.55

Royal Double Burr



- ❑ Simultaneously removes burrs from both sides of workpiece from 1/32" to 1/2" thick.
- ❑ Unique round cutting blades can be rotated and reversed for long life.
- ❑ Safety guard protects fingers.
- ❑ Blades made of M-2 steel, hardened to 64 Rc.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Double Burr w/Guard and Two Blades	1	22060	\$18.25
Replacement Blades of M-2 Steel	10	22065	49.90
Replacement Blades of M-42 Steel For Use On Stainless Steel	10	22067	66.75

Royal Roto-Drive Set



- ❑ Roto-Drive – the quickest way to chamfer by hand.
- ❑ Single-flute countersink provides a smoother cut than multiple-flute countersinks.
- ❑ Very little wrist force needs to be applied, reducing the risk of injury.



Chamfer difficult-to-reach holes.



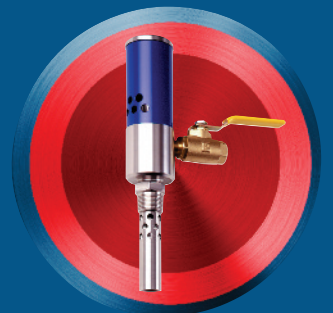
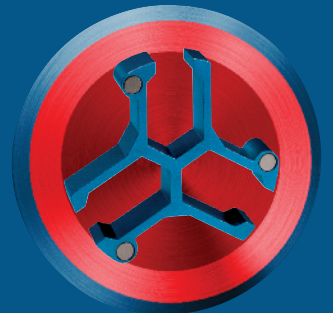
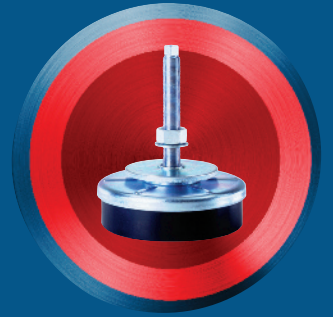
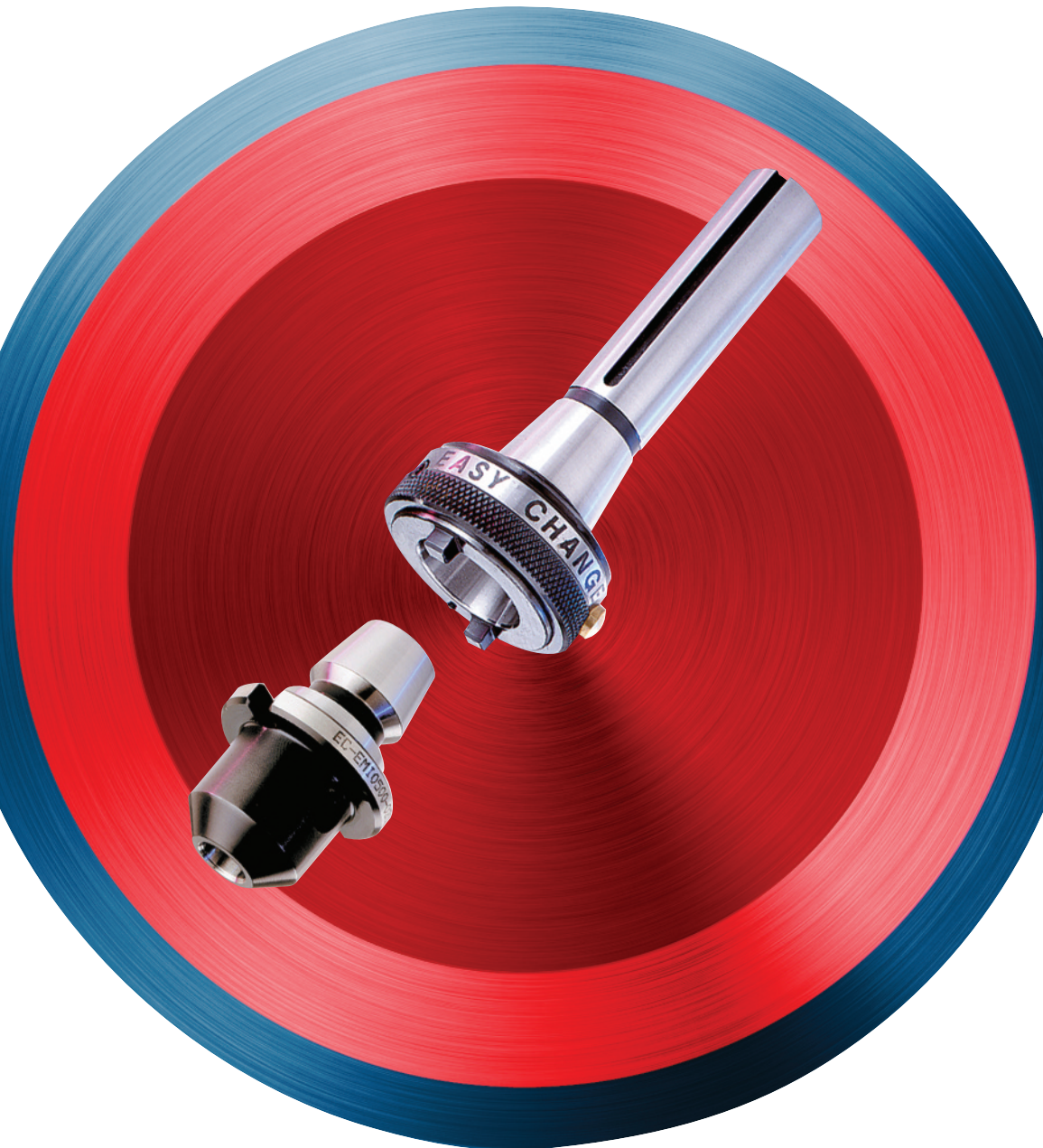
Chamfer small holes next to shoulder.

DESCRIPTION	PACKAGE OF	PART NUMBER	PRICE
Roto-Drive w/Plastic Handle and 1/8" Countersink	1	22506	\$13.95
Roto-Drive w/Plastic Handle and 1/4" Countersink	1	22508	23.10
Roto-Drive w/Plastic Handle and 5/16" Countersink	1	22510	23.60
Roto-Drive w/Plastic Handle and 3/8" Countersink	1	22512	24.65
1/8" Countersink Only	1	22520	6.95
1/4" Countersink Only	1	22530	16.60
5/16" Countersink Only	1	22540	16.85
3/8" Countersink Only	1	22550	17.85
3/8" TiN Countersink Only	1	22560	27.95
Plastic Handle Only	1	22570	7.40



MACHINE SHOP ACCESSORIES

CLEVER, TIME-SAVING PRODUCTS TO MAKE YOUR LIFE EASIER





ROYAL R8 QUICK-CHANGE TOOLING SYSTEM

Unit only protrudes 1 1/8" beyond spindle.



1. Loading the Quick-Change Body into a standard R8 spindle.



2. Loading drill chuck holder and drill into body.



3. Removing drill chuck holder with one hand.



4. Inserting endmill holder and endmill for next operation.

- ❑ The Royal Quick-Change Tool System provides a **fast method for changing tools** on a Bridgeport-style mill – once the R8 body is installed in the machine spindle, tools can be changed in seconds.
- ❑ One hand operation – simply depress the brass locking button and rotate collar to the locked-open position. When a new tool is inserted, it depresses a spring-loaded pin, snapping the collar back into the locked-closed position.
- ❑ Very accurate – total system runout can be less than 0.0005" TIR under the right circumstances.
- ❑ **Short overhang (1 1/8")** and two positive-drive keys enable many common milling and drilling operations to be easily performed.
- ❑ Please note that this tool is designed for light/medium-duty applications where the ability to change tools quickly outweighs the need for extreme rigidity. We do not recommend using this system for heavy milling or high-production applications.

ROYAL R8 QUICK-CHANGE TOOLING SYSTEM



R8 Quick-Change Body Only

– Only protrudes 1/8" from gage line.

PART NUMBER	PRICE
24100	\$897

Start-Up Milling Kit

Consisting of:

- Quick-Change Body
- One 3/8" Endmill Tool Holder
- One 1/2" Endmill Tool Holder
- One 5/8" Endmill Tool Holder
- One Stand FREE



PART NUMBER	PRICE
24330	\$1,737

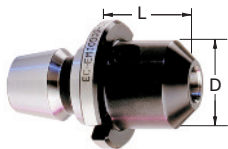
Start-Up Drill & Mill Kit

Consisting of:

- Quick-Change Body
- Three Drill Chuck Tool Holders (specify tapers)
- One 3/8" Endmill Tool Holder
- One 1/2" Endmill Tool Holder
- One 5/8" Endmill Tool Holder
- One Stand FREE



PART NUMBER	PRICE
24335	\$2,439

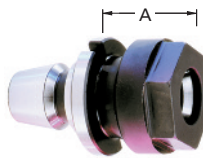


Endmill Tool Holder*

BORE SIZE	D	L	PART NUMBER	PRICE
1/8"	1/2"	1 3/8"	24200	\$280
3/16"	11/16"	1 3/8"	24205	280
1/4"	11/16"	1 3/8"	24210	280
3/8"	1 3/16"	1 3/8"	24215	280
1/2"	1 3/8"	1 3/8"	24220	280
5/8"	1 9/16"	1 5/8"	24225**	280
3/4"	1 13/16"	2 3/16"	24230**	297
1"	2"	2 15/16"	24235**	330

* Single endmills only. Designed for minimum overhang.

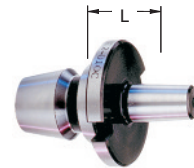
** For light milling only. For heavy milling use solid endmill holder.



Collet Chuck Tool Holder

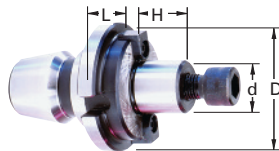
FOR ERICKSON™ COLLET MODEL	MAX. COLLET CAPACITY	A	PART NUMBER	PRICE
200 DA	3/8"	1 9/16"	24260	\$401
180 DA	3/4"	1 13/16"	24265	422
ER -16*	3/8"	1 9/16"	24266	413
ER -32*	3/4"	1 15/16"	24268	443

* Collets available on pages 40 – 44.



Drill Chuck Tool Holder

JACOBS TAPER	L	PART NUMBER	PRICE
J2	1 3/32"	24285	\$237
J3	1 3/32"	24290	237
J6	1 3/32"	24295	237
J33	1 3/32"	24300	237



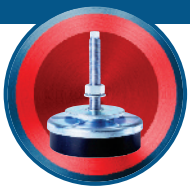
Shell Mill Tool Holder

"d" SIZE	D	L	H	PART NUMBER	PRICE
1/2"	1 1/4"	9/16"	1 9/32"	24250	\$366
3/4"	1 11/16"	9/16"	2 3/32"	24255	401



Tool Holder Stand

PART NUMBER	PRICE
24325	\$108



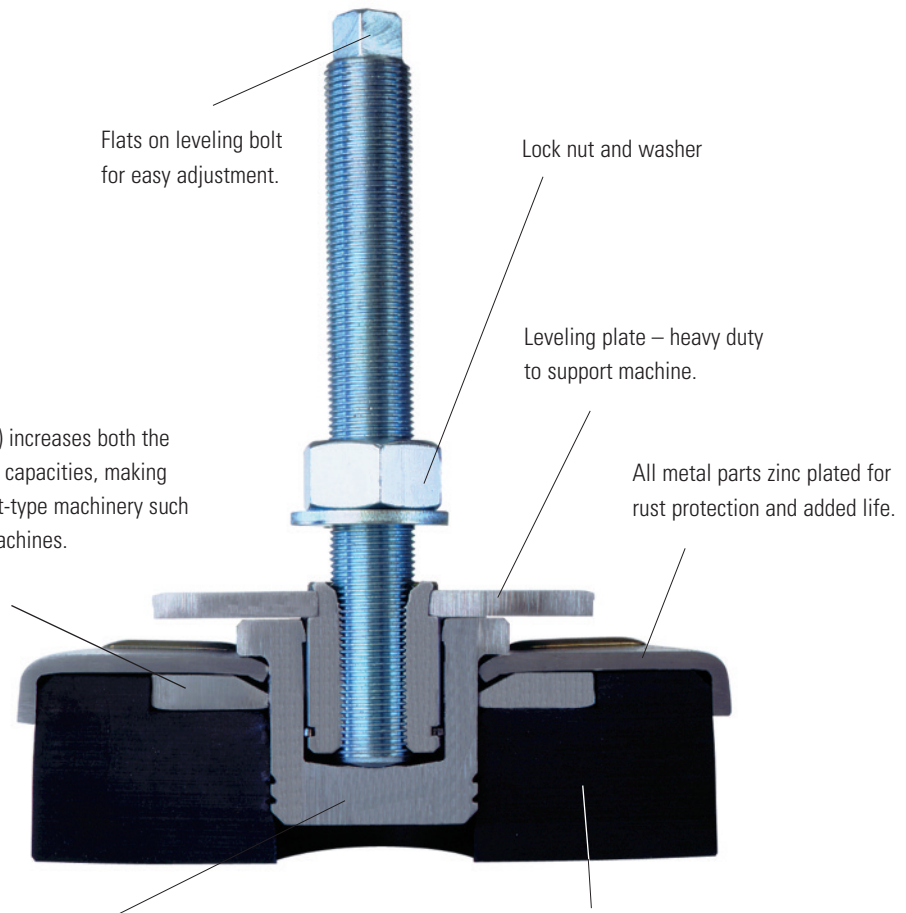
ROYAL MACHINE MOUNTS



- Royal machine mounts are built tough to level and last. All metal parts are zinc plated for rust protection and long life.
- Royal machine mounts simplify machine installation, reduce noise, and isolate vibration.
- Great for injection molding machines, presses, lathes, mills, and grinders.
- These mounts **meet OSHA requirements** by preventing machines from “walking” without the need for bolting or cementing.
- All Royal machine mounts incorporate a large, chloroprene rubber base that is resistant to oil, water, and many chemicals.
- Support cup is machined from a solid bar instead of deep drawn, resulting in increased thickness for strength and rigidity.
- Unique internal retaining clip ensures that mounts will stay together if machine is moved to a new location.
- Royal machine mounts **protect sensitive machine components**, improve performance, and reduce maintenance costs.

Royal Machine Mounts are Built Tough to Level and Last!

Shock plate (models #4 and #5 only) increases both the vertical and horizontal load carrying capacities, making these an excellent choice for impact-type machinery such as presses and injection molding machines.

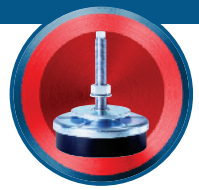


Heavy-duty support cup is machined from a solid steel bar for strength. Other brands rely on a thin drawn cup which often fails by fatigue. Note the increased thickness of the lip and bottom sections.

Thick chloroprene base is resistant to most chemicals.

IMPORTANT – Before installing mounts on any machine, make sure they are approved for use by the machine manufacturer.

ROYAL MACHINE MOUNTS



Choosing the Correct Royal Machine Mounts

1. Calculate the load on each mount by dividing the total weight of the machine by the number of mounting locations.

Note: sometimes it may be necessary to compensate for machines that do not have an evenly distributed load.

2. Find the category in the specification chart which corresponds to the type of machine being installed.

3. Match up the correct mount with the machine.

Example: Suppose you wish to mount an 18,000-lb. CNC lathe which has six mounting locations.

$$18,000/6=3,000 \text{ lbs. per mount}$$

From the chart on the next page we see that this machine falls into the range of the #3 mount for non-impact machinery.

Warning: Always use the correct mount for each machine. These mounts are not designed for machines that must be bolted to the floor to prevent tipping. If you have any questions, please contact one of our application engineers at 1-800-645-4174.

Royal Machine Mounts

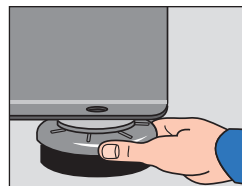
		#1	#2	#3	#4	#5
Load Range per Mount (lbs.)	General Non-Impact Machinery	100–1,100	880–2,200	1,760–5,500	3,300–8,800	6,600–12,000
	Injection Molding Machines	390 max.	790 max.	2,180 max.	5,450 max.	8,220 max.
	Presses up to 125 strokes / min	150–440	440–880	880–3,080	3,080–5,940	5,940–8,800
	up to 180 strokes / min	130–300	300–770	770–2,420	2,420–4,290	4,290–7,700
Mount Dimensions	up to 200 strokes / min	110–260	260–550	550–1,760	1,760–2,860	2,860–5,280
	Base Diameter	3.16	4.75	6.31	6.31	7.88
	Leveling Plate Diameter	2.38	3.12	3.93	3.93	3.93
	Height to Top of Leveling Plate	1.63	1.94	2.31	2.31	2.72
	Height to Top of Bolt	5.25	5.25	7.50	7.50	7.88
	Leveling Bolt Size	M12 x 1.25	M16 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5
	Standard Leveling Bolt	4.72	4.72	6.88	6.88	6.88
Ordering Info	Level Adjustment	0.88	0.88	1.00	1.00	1.00
	Part Number	27001	27002	27003	27004	27005
	Price Each	\$41	\$78	\$112	\$134	\$217

Extra-Long Leveling Bolts

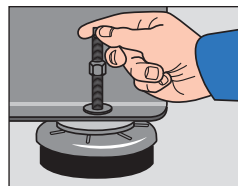
For machines with thick bases.

MOUNT TYPE	BOLT SIZE	BOLT LENGTH	PART NUMBER	PRICE
#1	M12 x 1.25	8 1/4"	27007	\$18
#2	M16 x 1.5	8 1/4"	27008	22
#3–#5	M20 x 1.5	9 3/4"	27009	32

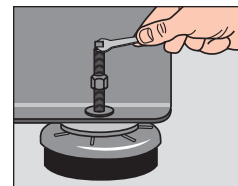
Easy Installation — No drilling or bolting to floor required



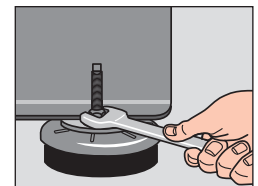
Raise machine and slide mount into place.



Insert leveling bolt through machine base hole and thread into mount. Lower machine onto leveling plate.



Raise or lower machine by turning leveling bolt.



When machine is level, secure in place with washer and lock nut.

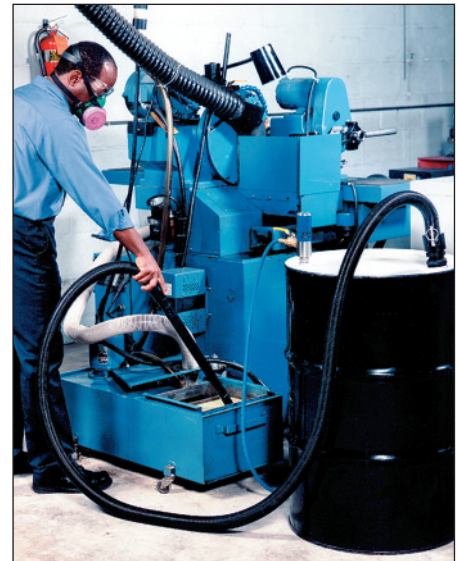


ROYAL PNEUVAC™ PUMP

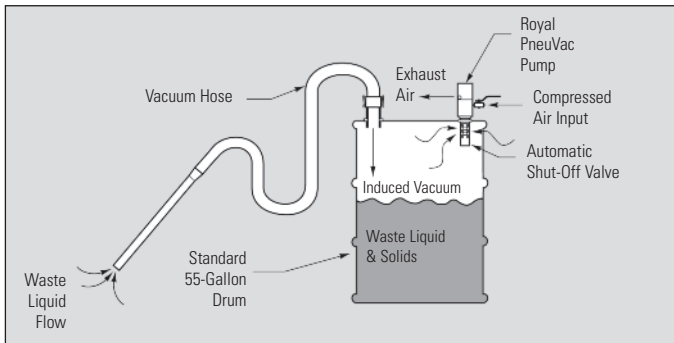
The Royal PneuVac pump is a simple device that uses a compressed air-powered venturi to create a vacuum. All you have to do to operate the unit is: attach the pump and hose to a standard 55-gallon drum, hook up your compressed air supply to the pump, insert the free end of the suction hose into the sump or storage tank, and open the air valve. The coolant and sludge is drawn through the hose and deposited into the drum — quick, clean, and hassle free!



Clean Your Coolant Sumps in Less Than Two Minutes



The Royal PneuVac pump filled this 55-gallon drum with coolant in less than two minutes.



Heavy Duty Construction – Entire pump (except ball valve, float and O-ring) is made from either stainless steel or aluminum. Other brands are made from rust-prone carbon steels and light-duty plastics.

Very Safe – The PneuVac pump is powered by compressed air. This eliminates the possibility of electric shocks often associated with motor-driven pumps. An automatic shut-off valve activates when the drum is full.

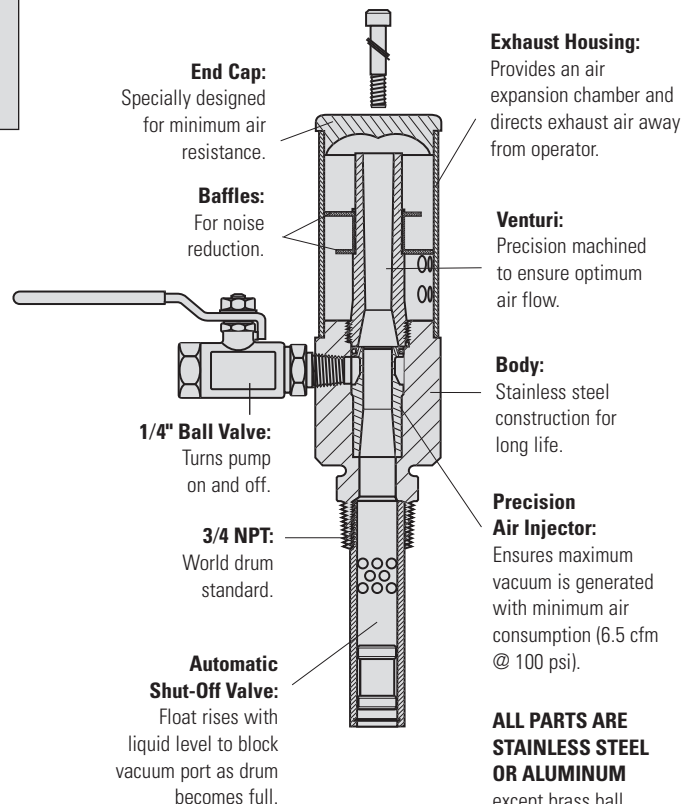
Fast – The Royal PneuVac pump can fill a 55-gallon drum in just 90 seconds. Conventional electric pumps can take up to one hour to move the same amount of liquid.

Thorough – This pump not only removes liquid but will also pick up sludge, metal chips and other debris which often clog or wear out impeller-type pumps.

Quiet – Unique baffle system limits noise level without compromising performance.

Low Maintenance – The PneuVac pump requires very little maintenance because only compressed air flows through the pump body itself.

Great Warranty – Royal Products provides a 3-year warranty against failure of this product due to manufacturing defects.



ALL PARTS ARE STAINLESS STEEL OR ALUMINUM except brass ball valve, Delrin float and Buna-N O-ring.

ROYAL PNEUVAC™ PUMP



Royal PneuVac Pump Kit

Consists of pump, 1/4" ball valve, automatic shut-off valve, 10 ft. of smooth-bore hose, quick-disconnect drum fittings, and one 18" aluminum wand.

DESCRIPTION	PART NUMBER	PRICE
Stainless Steel Pump Kit	48010	\$917
Aluminum Pump Kit	48017	778
10ft. Replacement Hose w/Cuff (1½" Dia.)	48019	81

CAUTION:

1. Do not use the PneuVac pump with flammable or volatile liquids such as gasoline, alcohol, kerosene, aviation fuel, mineral spirits or any similar liquid with a low flash point.
2. Do not modify this product to pressurize drum to pump liquids out. Pressurizing drum could cause an explosion that might result in a serious injury.

ROYAL PNEUVAC™ AIR GUNS



- The Royal PneuVac gun makes shop blow-off and cleanup tasks a breeze.
- Unique design enables unit to act as both a blow gun and a vacuum.
- The deep hole gun is a modified version of the PneuVac gun, designed for removing chips from blind holes. The thin black tube blasts high pressure air to dislodge chips while the main nozzle draws them safely away. A clear plastic shroud protects the operator from flying debris.
- High-output venturi design multiplies air flow. For example, an input air supply of 10 cfm results in an output of approximately 100 cfm.
- Changing between **blow and vacuum modes** is accomplished by simply reversing the direction of the venturi.
- Full-length trigger design reduces strain.
- High vacuum production with minimal air consumption.
- Made of rugged, anti-static nylon.

Standard PneuVac Gun

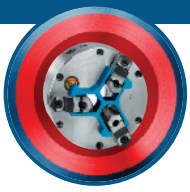


PneuVac Deep Hole Gun

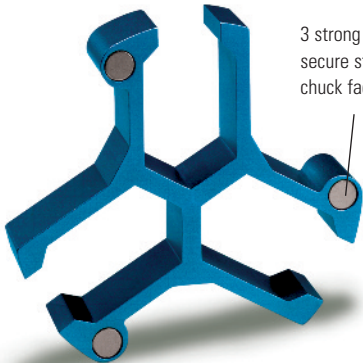


DESCRIPTION	PART NUMBER	PRICE
PneuVac Gun Only	49005	\$108
Dust Bag Kit (PneuVac Gun, Dust Bag, and Clamp)	49085	146
Hose Kit (PneuVac Gun, 10ft. Smooth-Bore Hose, and Clamp)	49080	163
Deep Hole Gun Only	49010	148
Dust Bag and Clamp Only	49020	41
10ft. Smooth Bore Hose Only (1¼" Dia.)	49090	55

Caution: Always wear safety glasses when operating these tools. Never operate in the vacuum mode unless a hose or dust bag is attached to the exhaust end of the unit.



ROYAL CHUCK STOPS



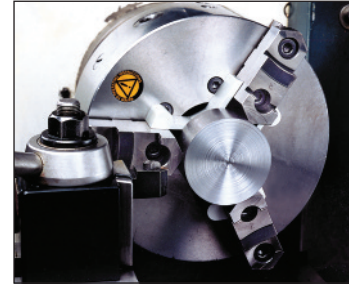
3 strong magnets secure stop to chuck face.



- ❑ The Royal Chuck Stop provides a simple, consistent method for **locating short parts** in a 3-jaw lathe chuck.
- ❑ Captive, web-shaped design eliminates the danger of using spacers or parallels that could come loose and be thrown from a spinning chuck. Three strong magnets further secure the stop to the chuck face.
- ❑ Stop allows short parts to project past the chuck jaws, providing **clearance for facing operations**.
- ❑ Setup time is greatly reduced – no need to bore soft jaws.
- ❑ The Royal Chuck Stop is very accurate – front

and back locating surfaces are parallel within +/- 0.0004".

- ❑ Accommodates chuck jaws up to 55mm (2 1/8") wide.
- ❑ Anodized finish provides good wear-resistance.



Royal Chuck Stop Sets

DESCRIPTION	PART NUMBER	PRICE
Standard Set – includes 15, 20, & 25mm stops	25200	\$295
Deluxe Set – includes 15, 20, 25, 30, & 35mm stops	25210	513



ROYAL SENSITIVE DRILL FEED



- ❑ Makes drilling of small holes easy.
- ❑ Drills small holes independent of coarser standard quill feed.
- ❑ Gives operator better **feel and control** of feed rate.
- ❑ 3/4" travel.
- ❑ Fingertip-controlled feed rate helps prevent walking and deflection.
- ❑ Eliminates the need for expensive specialized machines to drill small holes.



Royal Sensitive Drill Feed

SHANK DIA.	CHUCK MOUNT TAPER	PART NUMBER	PRICE
1/2"	Jacobs #0 (DIN B6)	25300	\$88

Price does not include drill chuck pictured.

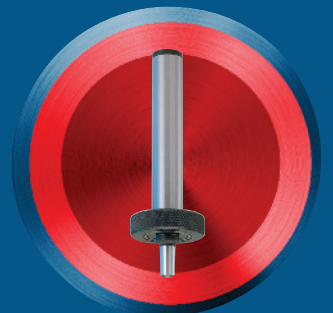
Simple to Use:

1. Grasp free-turning knurled ring and feed with gentle finger pressure.
2. Drill feed is spring-loaded and retracts automatically when ring is released.



ALBRECHT PRECISION KEYLESS DRILL CHUCKS

THE WORLD'S MOST CONSISTENTLY
ACCURATE DRILL CHUCKS





ALBRECHT

The World's Most Consistently Accurate Drill Chucks

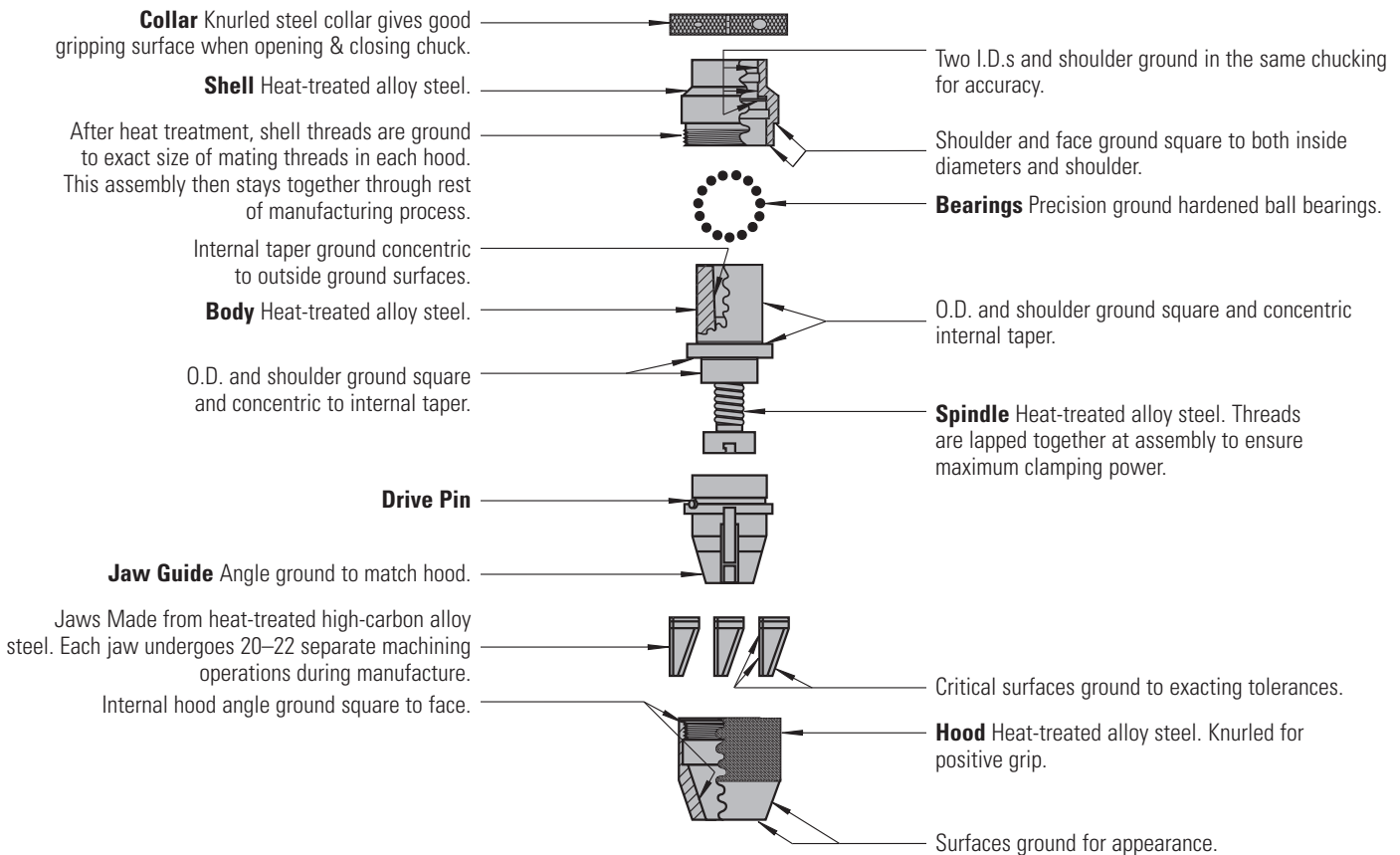


For the past 100 years, Albrecht's line of precision drill chucks has consistently earned the highest praise for **outstanding quality and accuracy**.

At the Albrecht factory, located outside of Stuttgart, Germany, in-process air gages and custom test fixtures are used to inspect all components throughout each step of the manufacturing process. Upon assembly, each chuck is qualified with 4–6 different diameter test pins at two distinct locations on each pin, and then a quality control inspector repeats the process with 4–6 different pins before approving the chuck for packaging.

Drill chuck accuracy is critical to producing accurate hole sizing and promoting longer drill life. In today's competitive environment of short lead times and slim margins, a few scrapped parts can quickly kill a job's profits. Can you afford to take a chance on anything less than an Albrecht?

WHAT DOES IT TAKE TO MAKE A CLASSIC?



ALBRECHT SELF-TIGHTENING DESIGN



The more torque that is applied to the chuck, the tighter it grips!

All Albrecht Precision Drill Chucks, except for the Key-Lock models, incorporate a unique self-tightening feature that causes them to **grip drills tighter** as more torque is applied.

This self-tightening advantage, combined with the fact that keyless chucks are easily opened by hand, is causing many industries to abandon key-type drill chucks altogether.

ALBRECHT DIAMOND-IMPREGNATED JAWS



**FOR CARBIDE
AND HARDENED-
SHANK DRILLS**

Albrecht's patented diamond-impregnated jaws eliminate the problems of drill slippage and jaw damage that often occur when using carbide or hardened-shank drills.

Because the diamond particles embedded in the jaws are harder than the drill shanks they are gripping, they are **able to penetrate for a deep, no-slip bite.**

ALBRECHT CNC DRILL CHUCKS Excellent for CNC Machining Centers

Royal offers two Albrecht drill chuck models designed specifically for CNC machining centers:



KEY-LOCK



WRENCH-LOCK

CNC Drill Chuck Advantages

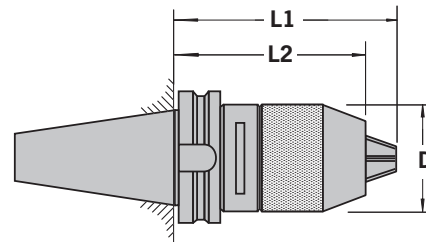
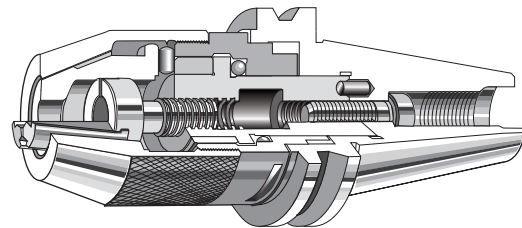
Although some manufacturers use collet chucks or toolholders for holding drills, often an Albrecht CNC Drill Chuck would be a better choice.

- A drill chuck can hold any size drill shank within its range. This is important because many tap drills have odd-sized shanks that are not compatible with conventional toolholders and collets.
- As the jaws of a drill chuck close, they always remain parallel to centerline. This results in **uniform gripping force and maximum accuracy**, regardless of the drill shank diameter.

For Best Performance, Equip Your Machining Centers with Albrecht CNC Drill Chucks from Royal



ALBRECHT WRENCH-LOCK PRECISION CNC DRILL CHUCKS



- Internal construction is very similar to Albrecht Classic Drill Chucks.
- Integral CAT and BT shanks make these chucks **shorter and more rigid** than a chuck/arbor combination, resulting in:
 - Greater accuracy
 - Greater rigidity
 - Larger work envelope
- Integral shank eliminates the possibility of a chuck slipping on its arbor.
- Chuck can be easily tightened and opened by hand.
- Extra tightening force can be achieved by using a spanner wrench (included), although this chuck also incorporates the same self-tightening feature as the Classic models (see page 123).

Albrecht Wrench-Lock CNC Drill Chucks

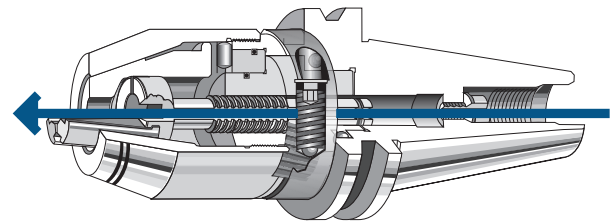
CHUCK MODEL	CAPACITY		SHANK TYPE	D	L1	L2	THREAD	MAXIMUM RPM	WEIGHT (lbs.)	PART NUMBER	PRICE
	(inches)	(millimeters)									
WL130-CAT40	1/2 – 1/2	1–13	CAT 40	2"	3 15/16"	4 7/16"	5/8–11	6,500	4.6	77100	\$579
WL160-CAT40	1/16 – 5/8	1.5–16	CAT 40	2 1/4"	4 1/32"	4 5/8"	5/8–11	6,500	5.1	77110	653
WL160-CAT50	1/16 – 5/8	1.5–16	CAT 50	2 1/4"	4 1/32"	4 5/8"	1–8	6,500	6.2	77120	760
WL130-BT40	1/32 – 1/2	1–13	BT40	2"	3 5/8"	4 3/32"	M16	6,500	4.2	77160	579

ALBRECHT KEY-LOCK PRECISION CNC DRILL CHUCKS

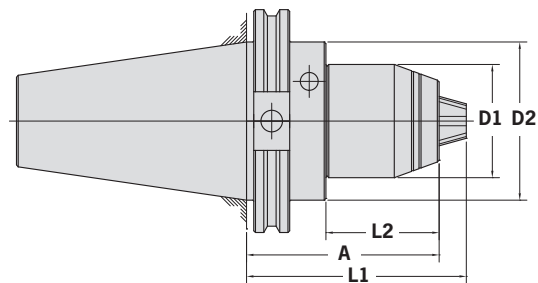
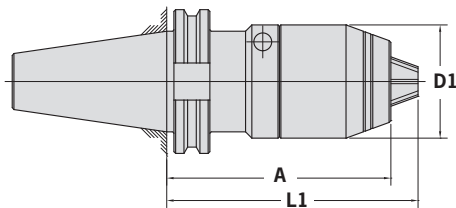


- New, compact design provides **increased capacity and better clearance.**
- Extremely accurate – Albrecht Key-Lock Drill Chucks are the most accurate drill chucks available.
- Unique worm/gear arrangement is similar to the Überchuck and transmits extremely high gripping force to the jaws.
- Short length and integral shank provide **exceptional rigidity.**
- Thru-coolant feature is standard on all Albrecht Key-Lock Drill Chucks.
- Non-rotating hood – chuck is opened and closed via a hex key inserted into the side of the body.
- Balanced to G2.5 @ 20,000 rpm for use on all CNC machines.
- Can be operated in both clockwise and counterclockwise directions.

Thru-coolant feature is standard on all Key-Lock chucks.



The key-operated worm and gear assembly generates **very high grip force** and ensures that the chuck can't loosen during operation because a worm can drive a gear, but a gear cannot drive a worm.



Albrecht Key-Lock CNC Drill Chucks

CHUCK MODEL	CAPACITY (inches)	CAPACITY (millimeters)	TAPER	A	L1	L2	D1	D2	PART NUMBER	PRICE
KL100-CAT40	1/64 – 3/8	0.5 – 10	CAT 40	2.72	3.39	1.48	1.50	1.75	75402	\$660
KL160-HSK 63 Form A	1/32 – 5/8	1 – 16	HSK 63 Form A	3.86	4.33	–	1.97	–	75403	668
KL160-HSK 63 Form F	1/32 – 5/8	1 – 16	HSK 63 Form F	3.86	4.33	–	1.97	–	75408	804
KL160-CAT40	1/32 – 5/8	1 – 16	CAT 40	3.90	4.37	–	1.97	–	75404	604
KL160-CAT50	1/32 – 5/8	1 – 16	CAT 50	3.31	3.78	1.93	1.97	2.76	75406	812

Note – Other tapers available. Please contact Royal at 1-800-645-4174.



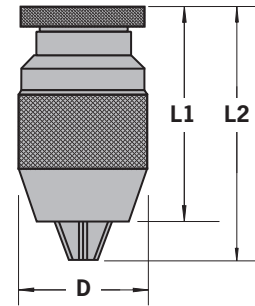
ALBRECHT CLASSIC PRECISION KEYLESS DRILL CHUCKS

The World's Most Consistently Accurate Drill Chucks

- ❑ Available in the following styles:
 - Standard
 - Thru-hole
 - Diamond-coated jaws
 - Stainless Steel
- ❑ Keyless operation.
- ❑ Self-tightening design (see page 123).
- ❑ Balanced.
- ❑ Stainless steel models with threaded mount for corrosive applications such as EDM.
- ❑ Thru-hole models are great for EDM applications and also allow the use of longer drills.
- ❑ Models with diamond-coated jaws **effectively grip carbide-shank drills** (see page 123).
- ❑ Threaded-mount models available upon request.

Dimensions

CHUCK MODEL	D	L1	L2
15	0.75	1.38	1.50
30	1.00	1.75	1.88
50	1.19	2.25	2.44
65	1.38	2.44	2.69
100	1.69	3.13	3.63
130	2.00	3.56	4.06
160	2.25	3.75	4.31



Albrecht Classic Keyless Drill Chucks

CHUCK MODEL	CAPACITY		CHUCK MOUNT	MAXIMUM RPM	WEIGHT (lbs.)	PART NUMBER	PRICE
	(inches)	(millimeters)					
15-J0	0* - 1/16	0* - 1.5	J0	50,000	0.1	70010	\$499
30-J0	0* - 1/8	0* - 3	J0	35,000	0.2	70020	376
30-J1	0* - 1/8	0* - 3	J1	35,000	0.2	70030	376
65-J1	0* - 1/4	0* - 6.5	J1	20,000	0.7	70050	360
100-J33	0* - 3/8	0* - 10	J33	12,000	1.4	70070	390
100-J2	0* - 3/8	0* - 10	J2	12,000	1.4	70080	390
130-J33	1/32* - 1/2	1* - 13	J33	7,000	2.1	70090	426
130-J2	1/32* - 1/2	1* - 13	J2	7,000	2.1	70100	426
130-J6	1/32* - 1/2	1* - 13	J6	7,000	2.1	70110	426
160-J6	1/32* - 5/8	1* - 16	J6	4,000	2.8	70120	481

* The inherent design characteristics of a keyless drill chuck may prevent the jaws from closing down to absolute zero. Albrecht guarantees a minimum gripping diameter of 0.008" for model 15 Keyless Drill Chucks, and 0.015" for Models 30 – 100 Keyless Drill Chucks. If you need to grip a smaller diameter, please contact us at 1-800-645-4174.

ALBRECHT CLASSIC PRECISION KEYLESS DRILL CHUCKS



Albrecht Classic Keyless Drill Chuck with Thru-Hole

CHUCK MODEL	CAPACITY		THRU-HOLE DIA.	CHUCK MOUNT	MAXIMUM RPM	WEIGHT (lbs.)	PART NUMBER	PRICE
	(inches)	(millimeters)						
15-J0	0* - 1/16	0* - 1.5	1.8	J0	50,000	0.1	73500	\$503
30-J0	0* - 1/8	0* - 3	3	J0	35,000	0.2	73510	365
30-J1	0* - 1/8	0* - 3	3	J1	35,000	0.2	73520	365



**FOR CARBIDE
AND HARDENED-
SHANK DRILLS**

Albrecht Classic Keyless Drill Chuck with Diamond Jaws

CHUCK MODEL	CAPACITY		CHUCK MOUNT	MAXIMUM RPM	WEIGHT (lbs.)	PART NUMBER	PRICE
	(inches)	(millimeters)					
130-33	1/32 - 1/2	1-11	J33	7,000	2.1	70290	\$624
130-J6	1/32 - 1/2	1-13	J6	7,000	2.1	70300	624



Albrecht Stainless Steel Classic Keyless Drill Chucks

CHUCK MODEL	CAPACITY		THRU-HOLE DIA.	CHUCK MOUNT	MAXIMUM RPM	WEIGHT (lbs.)	PART NUMBER	PRICE
	(inches)	(millimeters)						
30-3/8	0 - 1/8	0* - 3	3	3/8-24	7,500	0.3	73700	\$591
50-3/8	1/32 - 1/4	0.6 - 7.4	4	3/8-24	5,000	0.5	73710	634

Note - These stainless steel chucks are for industrial use only. Special Chucks available for medical/surgical applications. Please contact us at 1-800-645-4174.



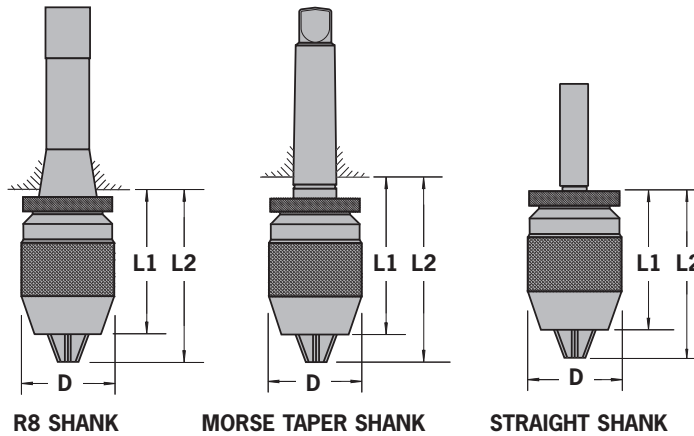
ALBRECHT CLASSIC-PLUS PRECISION DRILL CHUCKS WITH INTEGRAL SHANK

Dimensions

- Integral shank design is more compact than a combined drill chuck and arbor, resulting in:
 - Greater accuracy
 - Greater rigidity
 - Larger work envelope
- Integral shank eliminates the possibility of a chuck slipping on its arbor.
- This unit is often **less expensive than a separate chuck and arbor.**
- Keyless operation.
- Self-tightening design (see page 123).
- Balanced.
- Available with standard or diamond-coated jaws (💎 see page 123).

CHUCK MODEL	D	L1	L2
130-2MT	2"	3 ³ / ₈ "	3 ⁷ / ₈ "
130-3MT	2"	3 ³ / ₈ "	3 ⁷ / ₈ "
130-4MT	2"	3 ⁷ / ₁₆ "	3 ¹⁵ / ₁₆ "
130-R8	2"	3 ⁵ / ₁₆ "	3 ¹³ / ₁₆ "
130-5/8	2"	3 ¹ / ₈ "	3 ⁵ / ₈ "

CHUCK MODEL	D	L1	L2
160-2MT	2 ¹ / ₄ "	3 ¹ / ₂ "	4 ¹ / ₁₆ "
160-3MT	2 ¹ / ₄ "	3 ¹ / ₂ "	4 ¹ / ₁₆ "
160-4MT	2 ¹ / ₄ "	3 ⁹ / ₁₆ "	4 ¹ / ₁₆ "
160-R8	2 ¹ / ₄ "	3 ⁷ / ₁₆ "	3 ¹⁵ / ₁₆ "



Albrecht Classic-Plus Precision Keyless Drill Chucks with Integral Shank



CHUCK MODEL	CAPACITY (inches)	CAPACITY (millimeters)	SHANK TYPE	MAXIMUM RPM	WEIGHT (lbs.)	PART NUMBER	PRICE
CP130-2MT	1/32 – 1/2	1–13	2MT	7,000	2.3	73010	\$474
CP130-3MT	1/32 – 1/2	1–13	3MT	7,000	2.6	73020	476
CP130-4MT	1/32 – 1/2	1–13	4MT	7,000	3.3	73030	502
CP130-R8	1/32 – 1/2	1–13	R8	7,000	2.6	73040	521
CP130-5/8	1/32 – 1/2	1–13	5/8"SS	7,000	2.2	73050	471
CP160-2MT	1/8 – 5/8	3–16	2MT	4,000	2.9	73060	525
CP160-3MT	1/8 – 5/8	3–16	3MT	4,000	3.3	73070	529
CP160-4MT	1/8 – 5/8	3–16	4MT	4,000	4.0	73080	555
CP160-R8	1/8 – 5/8	3–16	R8	4,000	4.2	73090	572

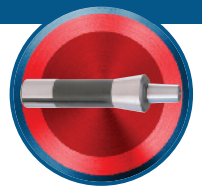
Albrecht Classic-Plus Precision Keyless Drill Chucks with Integral Shank and Diamond-Coated Jaws



FOR CARBIDE AND HARDENED-SHANK DRILLS

CHUCK MODEL	CAPACITY (inches)	CAPACITY (millimeters)	SHANK TYPE	MAXIMUM RPM	WEIGHT (lbs.)	PART NUMBER	PRICE
CPD130-2MT	1/32 – 1/2	1–13	2MT	7,000	2.3	73110	\$673
CPD130-3MT	1/32 – 1/2	1–13	3MT	7,000	2.6	73120	693
CPD130-4MT	1/32 – 1/2	1–13	4MT	7,000	3.3	73130	705
CPD130-R8	1/32 – 1/2	1–13	R8	7,000	2.6	73140	723
CPD130-5/8	1/32 – 1/2	1–13	5/8"SS	7,000	2.2	73150	672

ALBRECHT PRECISION ARBORS



- Manufactured from high-grade alloy steels.
- Hardened for long life.
- Ground concentric within 0.0001".
- Guarantee: If an Albrecht chuck ever slips on an Albrecht arbor, we **will repair or replace them at no charge.**



Straight Shank

SHANK DIAMETER	SHANK LENGTH	CHUCK TAPER	PART NUMBER	PRICE
3/8"	2 1/2"	J0	70580	\$63
3/8"	2 1/2"	J1	70583	66
1/2"	2 1/2"	J0	70586	63
1/2"	2 1/2"	J1	70589	66
1/2"	2 1/2"	J2	70592	79
1/2"	2 1/2"	J33	70595	99
1/2"	2 1/2"	J6	70598	99
5/8"	2 1/2"	J1	70601	99
5/8"	2 1/2"	J33	70607	99
5/8"	2 1/2"	J6	70610	99
3/4"	3"	J2	70616	111
3/4"	3"	J6	70619	111
1"	3"	J33	70625	111



R8 Taper

CHUCK MOUNT	PART NUMBER	PRICE
J1	70650	\$149
J2	70653	149
J6	70656	149
J33	70659	149

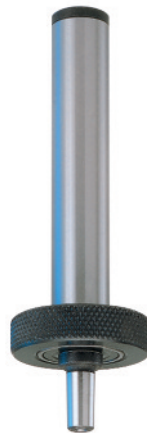
ALBRECHT ACCESSORIES

SENSITIVE DRILL FEEDS

- Makes drilling of small holes easy by giving operator fingertip feed control independent of coarser quill feed.
- Eliminates the need for special machines to drill small holes.
- **Reduces breakage and deflection of small drills.**

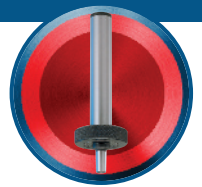
Simple to use:

1. Grasp free-turning knurled ring and feed with gentle finger pressure.
2. Spring-loaded. When ring is released, chuck retracts automatically.



Note: Spring is specifically balanced for use with model 15-J0. The use of other chucks could result in decreased accuracy and performance.

SHANK	TAPER	PART NUMBER	PRICE
1 Morse Taper	J0	70670	\$434
1/2" Diameter	J0	70675	396



CHUCK REMOVAL TOOLS

- Tapered chuck removal tool can be used to remove the chucks from their mounts.
- Simply match the Jacobs taper on the chuck to the corresponding tool.

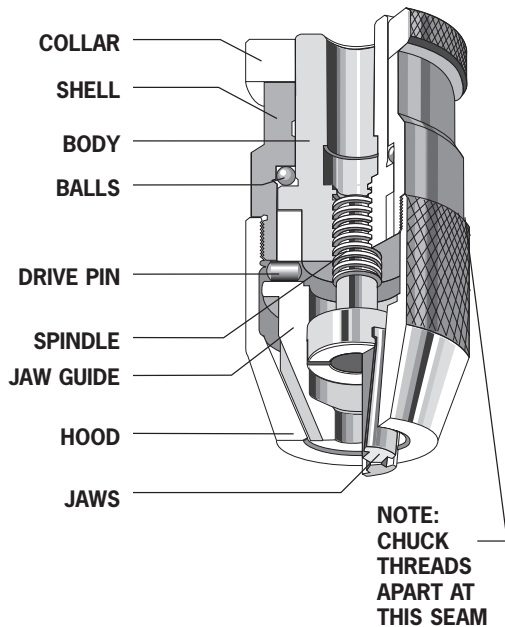
CHUCK MOUNT	PART NUMBER	PRICE
J0	70678	\$63
J1	70680	90
J2	70682	97
J33	70682	97
J6	70682	97





ALBRECHT CHUCK REFURBISHING

Send It In or Do It Yourself



Many customers refurbish their own chucks by following these simple instructions. If you have questions regarding the refurbishing process, please call one of our applications engineers at 1-800-645-4174, or visit www.royalprod.com.

- Remove collar from chuck.
- There is an invisible seam between the hood and shell. Hold chuck by the shell in a vise with soft jaws and loosen hood with a strap wrench – RH thread.
- Once the hood has been loosened, unscrew by hand to prevent distortion.
- Slide jaws out of jaw guide and remove guide.
- Remove body and spindle assembly to expose balls.
- Clean all parts with a mild solvent.
- Replace worn or damaged parts.
- Reverse steps for assembly.

Caution – do not lubricate acme thread on body/spindle assembly. Thread must be clean and dry for chuck to work correctly.

If you prefer to send your chucks back to our factory for refurbishing, please send them to the address listed in this catalog. Be sure to include your name, telephone number, and either a fax number or email address so we can send you a free, no-obligation quotation. If our technicians determine that a chuck is beyond reasonable refurbishing condition, you will be offered a brand new Albrecht chuck at a discounted price.

ALBRECHT REPLACEMENT PARTS

Classic Keyless Drill Chucks

CHUCK MODEL	BODY & SPINDLE ASSEMBLY		JAWS		HOOD		BALLS (Set)		COLLAR		SHELL		JAW GUIDE		DRIVE PIN	
	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE
C15-J0	70796	\$123	70700	\$157	70716	\$86	70732	\$16	70748	\$109	70764	\$61	70780	\$136	71002	\$7
C30-J0	70798	101	70702	141	70718	92	70734	11	70750	118	70766	48	70782	124	71004	7
C30-J1	70800	101	70702	141	70718	92	70734	11	70750	118	70766	48	70782	124	71004	7
C50-J1	70802	131	70704	258	70720	136	70736	20	70752	118	70768	91	70784	129	71006	7
C65-J1	70804	109	70706	141	70722	92	70738	11	70754	42	70770	50	70786	75	71008	7
C80-J2	70806	153	70708	219	70724	136	70740	20	70756	43	70772	101	70788	139	71010	7
C100-J33	70808	132	70710	141	70726	103	70742	11	70758	43	70774	61	70790	79	71012	7
C100-J2	70810	132	70710	141	70726	103	70742	11	70758	43	70774	61	70790	79	71012	7
C130-J33	70812	132	70712	141	70728	131	70744	16	70760	44	70776	61	70792	79	71014	7
C130-J2	70814	132	70712	141	70728	131	70744	16	70760	44	70776	61	70792	79	71014	7
C130-J6	70816	132	70712	141	70728	131	70744	16	70760	44	70776	61	70792	79	71014	7
C160-J6	70818	146	70714	141	70730	147	70746	16	70762	48	70778	71	70794	87	71016	7

Classic-Plus Keyless Drill Chucks

CHUCK MODEL	BODY & SPINDLE ASSEMBLY		JAWS		HOOD		BALLS (Set)		COLLAR		SHELL		JAW GUIDE		DRIVE PIN	
	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE
CP130-2MT	73250	\$182	70712	\$141	70728	\$131	73220	\$31	73210	\$48	73200	\$61	70792	\$79	71014	\$7
CP130-3MT	73260	196	70712	141	70728	131	73220	31	73210	48	73200	61	70792	79	71014	7
CP130-4MT	73270	217	70712	141	70728	131	73220	31	73210	48	73200	61	70792	79	71014	7
CP130-5/8	73290	178	70712	141	70728	131	73220	31	73210	48	73200	61	70792	79	71014	7
CP130-R8	74040	224	70712	141	70728	131	73220	31	73210	48	73200	61	70792	79	71014	7
CP160-2MT	74044	246	70714	141	70730	147	70747	16	70763	48	73205	71	70794	87	71016	7
CP160-3MT	74042	217	70714	141	70730	147	70747	16	70763	48	73205	71	70794	87	71016	7
CP160-4MT	74041	253	70714	141	70730	147	70747	16	70763	48	73205	71	70794	87	71016	7
CP160-R8	74043	253	70714	141	70730	147	70747	16	70763	48	73205	71	70794	87	71016	7



FILTERMIST MIST COLLECTORS

LOW-COST, HIGHLY EFFICIENT,
AND MINIMAL MAINTENANCE





THE WORLD'S LEADING MIST COLLECTOR

For over 30 years, the Royal Filtermist has been effectively collecting mist and smoke generated by all types of metalworking machinery.

There are currently **more than 150,000 units operating in over 50 countries** worldwide, making Filtermist the world leader in metalworking pollution control equipment.



Throughout its history, the Royal Filtermist has undergone continuous design advances. The Filtermist FX represents the ninth generation of Royal Filtermist, and is the result of extensive computer-aided modeling and testing. Based upon the well-established principle of centrifugal impaction, the Filtermist FX incorporates a series of improvements that have resulted in the most advanced and effective system available for the removal of mist and smoke created by metalworking machinery.



Check out the Royal Filtermist Video at www.mistcollectors.com

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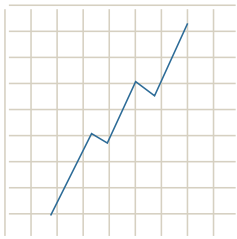
WHY CONTROL OIL MIST & SMOKE IN YOUR SHOP?



- ❑ **Reduced Health Risks**
Any form of pollution is potentially dangerous to the lungs, larynx, and skin.
- ❑ **Reduced Accident Risks**
Oil mist creates slippery surfaces which increase accident rates.
- ❑ **Reduced Fire Hazards**
Oil deposits create a serious fire risk by allowing fires to spread quickly.



- ❑ **Coolant Cost Savings**
The Royal Filtermist recycles coolant and returns it to your machine rather than venting it to the atmosphere.
- ❑ **Heating and Cooling Cost Savings**
The Royal Filtermist **returns clean air to the shop** instead of exhausting it outdoors.
- ❑ **Cleaning and Maintenance Cost Savings**
Uncontrolled airborne mist and smoke deposits result in more frequent cleaning of exposed surfaces.



INCREASED PRODUCTIVITY

- ❑ **Thermal Stability**
Filtermist aids in temperature control which can **help machines hold tighter tolerances over long-running jobs and/or during unmanned production.**
- ❑ **Improved Employee Attendance**
A contaminated shop environment often results in higher worker absenteeism and lower morale.
- ❑ **Less Machine Downtime**
Fouled contacts in electronic equipment cause expensive downtime.
- ❑ **Higher Speeds and Feeds**
Machining operations can **run at higher speeds and feeds** without the negative effects of increased mist and smoke production.
- ❑ **Better Lighting**
Haze from mist and smoke and grimy buildup on shop lighting fixtures cause even the most well-lit shops to take on a dingy appearance. Bright, cheerful environments improve employee morale and performance.



- ❑ **Fewer Workmen's Compensation Claims**
The increase in workmen's compensation rates from one large claim can cost more than an air cleaning system for an entire factory.
- ❑ **Government Regulations**
The current OSHA and NIOSH limits on airborne oil mist are 5 mg/cubic meter, and this requirement is expected to become even stricter in the future. The Royal Filtermist exceeds **both the current and new proposed limits.**



- ❑ **Attracting and Keeping Good Employees**
Your employees expect and deserve a workplace that is as hazard-free as you can make it. One customer, when asked why he wanted to control the oil mist and smoke in his plant, responded, "I wouldn't expect my office people to work with smoke pouring out of their computers, and I sure don't expect my shop workers to work on machines with oil mist pouring out of them!"

The greatest challenge facing today's manufacturers is attracting and keeping talented employees. Don't risk losing good people to the competition because of poor air quality in your shop. Call Royal today!

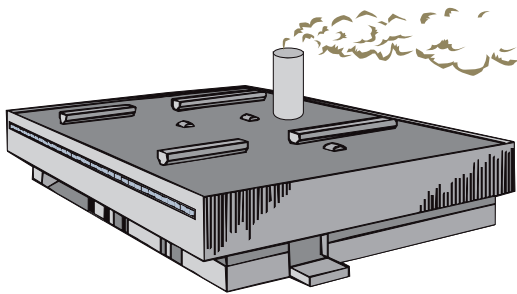


COMMON MIST COLLECTION METHODS

In order to fully understand why the Royal Filtermist is the best choice for handling oil mist and smoke produced by the metalworking industry, it is important to have some general knowledge of how other types of collection systems work. This section contains an overview of the most common methods for controlling mist and smoke. While these systems all have some positive features, their drawbacks make them unsuitable for use in most metalworking applications.

External Venting

At one time, the only method for controlling oil mist and smoke in a shop was to vent it out of the building. This was done either by opening the doors and windows or installing a ventilation system. While this method may look like an attractive low-cost solution, the potential dangers should be enough to make any shop owner reconsider this practice.



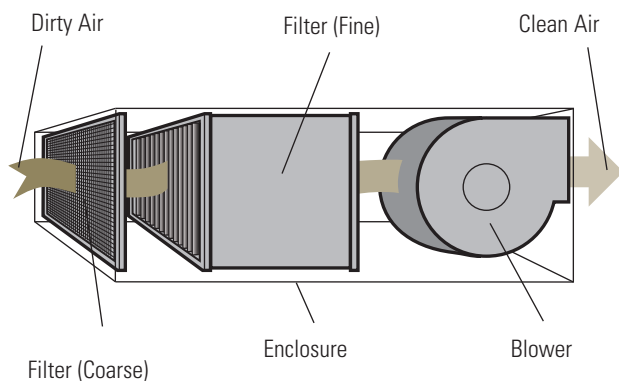
Environmental Hazards Today, it is illegal in many states to exhaust pollutants to the atmosphere. Offending companies run the risk of large fines and lawsuits.

Fire Hazards Over time, oil deposits collect in the ductwork of ventilation systems, making them prime targets for flash fires and providing pathways for fires to spread quickly.

Cleanliness Problems As mist and smoke travels through a shop to the exhaust points, it collects on exposed surfaces. Over time, a grimy buildup occurs on machines, lights, floors, and walls, resulting in dirty, unsafe conditions.

Media-Type Filtration Systems

Media-type filtration systems typically consist of a blower and several filters of varying efficiencies. The contaminated air first passes through a coarse pre-filter where the largest particles are filtered out. It then moves through one or two medium-range filters before reaching the final filter, which is usually made from a high-efficiency HEPA material. Media-type systems are good at collecting dry contaminants such as welding smoke and graphite dust. However, they are often not suitable for metalworking applications where coolant mist is the primary contaminant.



High Operating Costs The biggest drawback of media-type filtration systems is the high operating cost associated with replacement filters. These filters are designed to retain contaminants, so they will become clogged with use. Usually they are made from media that cannot be cleaned, so the only alternative is replacement. Depending upon the cost of the filters and the replacement frequency, this type of system can be quite expensive to operate over the long term.

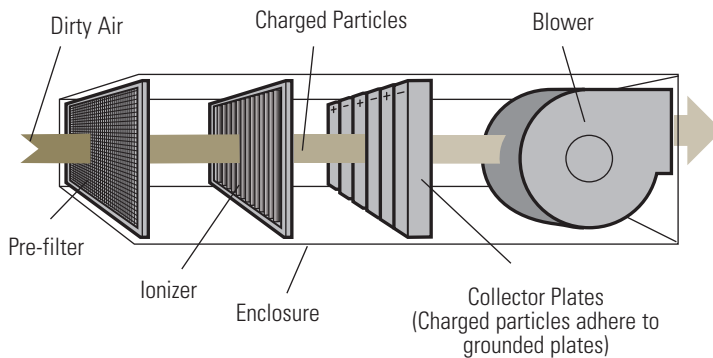
Decreased Throughput Another problem with multi-stage filter units is that the throughput of the system, measured in cfm, decreases as contaminants become trapped in the pores of the filters. It is important to maintain the correct throughput of any collection system. Reduced throughput means reduced collection, allowing contaminants to escape into the shop air.

Not for Mist Most media filters are designed to collect dry pollutants such as smoke and dust. Exposure to coolant and oil mist may damage certain types of filter media.



Electrostatic Precipitators

Electrostatic precipitators use a blower to draw mist and smoke particles past an ionizer, which imparts a positive charge to them. They then pass across a series of alternately like-charged and grounded collection plates. The particles are repelled by the like-charged plates and forced towards the grounded plates where they collect. The filtered air is returned to the shop.



Variable Efficiency Although electrostatic systems are very efficient when the collection plates are clean, the efficiency drops off drastically as the plates become covered with particles. Each time a particle deposits on a plate, it eliminates a spot for other particles to adhere to.

Maintenance Costs To maintain high efficiency, the collection plates must be cleaned often. This can be expensive because the residue is considered to be hazardous waste and must be disposed of by a certified waste handling company. Many electrostatic systems are sold with costly maintenance contracts, resulting in operating costs that greatly exceed the original unit purchase price.

Health Hazards As the collection plates become full, a phenomenon known as arcing can occur. This arcing results in the **production of ozone**, which has been found to cause a variety of health problems. This potential danger (and the fear of lawsuits) has caused many U.S. companies to remove electrostatic units from their factories.

The Dangers of Ozone

Ozone produced by electrostatic precipitators presents a significant health risk to humans. Here's what OSHA and the EPA have to say about ozone on their websites:

OSHA

Ozone is highly injurious and potentially lethal to experimental animals at concentrations as low as a few parts per million (ppm). A study in which young mice were exposed to 1 ppm ozone for 1 or 2 days reported damage to alveolar tissue. Human populations chronically exposed to lower concentrations of ozone were observed to have adverse changes in lung function. Human volunteers exposed to 0.5 ppm ozone for 3 hours per day, 6 days per week, for 12 weeks showed significant adverse changes in lung function. Another report showed a 20 percent reduction in timed vital lung capacity in persons exposed to average concentrations of ozone of 1.5 ppm for 2 hours.

<http://www.osha.gov/dts/sltc/methods/inorganic/id214/id214.html>

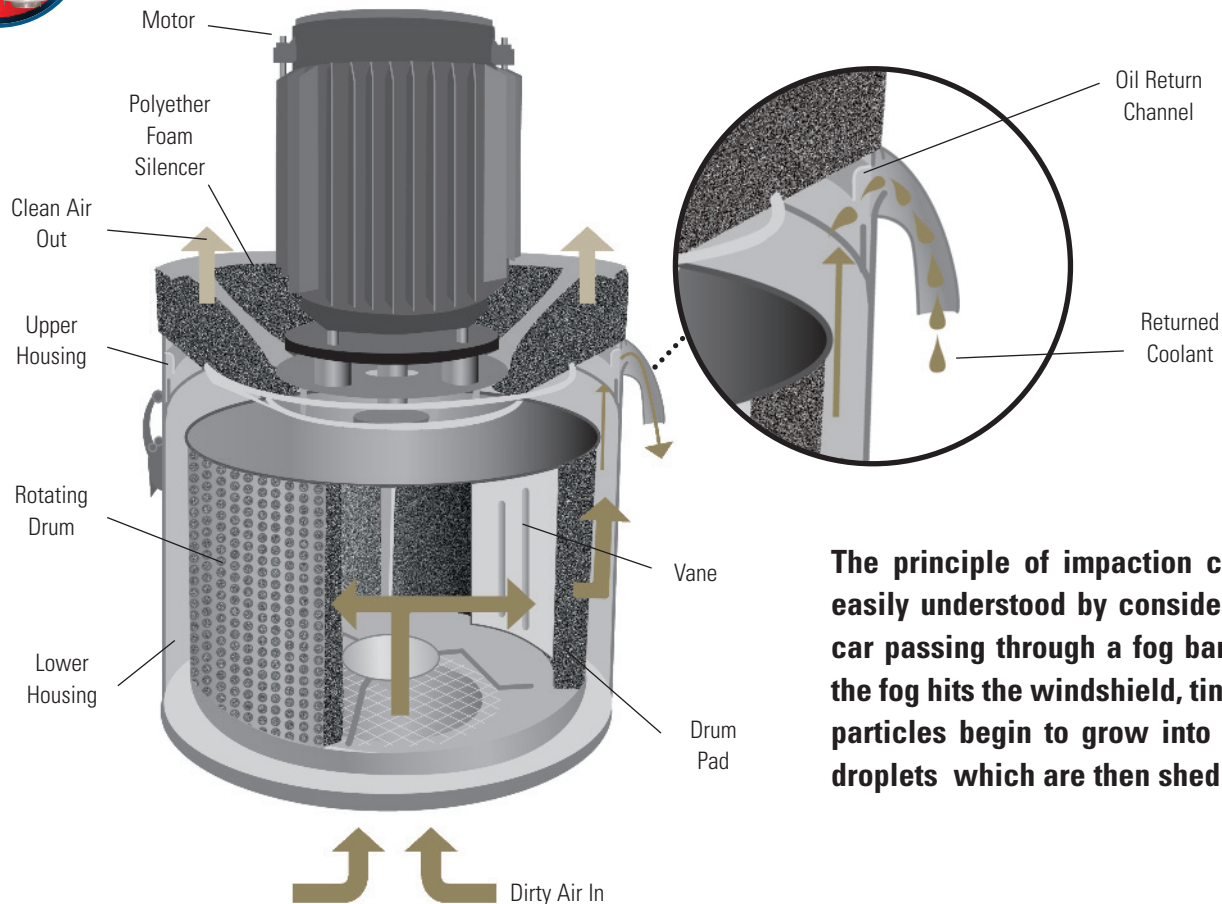
EPA

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. "Bad" ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. <http://www.epa.gov/oar/oaqps/gooduphigh/>

With these health (and potential lawsuit) risks, many companies have established policies that ban the use of electrostatic mist collectors in their facilities.



HOW DOES THE ROYAL FILTERMIST WORK?



The principle of impaction can be easily understood by considering a car passing through a fog bank. As the fog hits the windshield, tiny mist particles begin to grow into water droplets which are then shed off.

The Royal Filtermist uses the principle of centrifugal impaction to eliminate mist. With only three main components: a drum, a motor, and the housing, its operation is quite simple.

1. A three-phase motor rotates the internal drum at high speed, creating a vacuum which draws mist particles into the center of the drum.
2. The mist particles then collide with the rotating drum's vanes and are forced together with other particles, causing them to coalesce and form larger, droplet-sized particles.
3. As the particles grow into droplets, they pass through the perforations in the rotating drum and centrifugal force causes them to be thrown onto the inner wall of the housing.
4. The particles are then forced, under pressure, up the walls of the housing to the oil return channel, where they are subsequently drained back to the machine's coolant tank.
5. Clean, oil-free air blows past the motor and is returned to the shop.
6. Since this process relies on the mechanical principle of centrifugal impaction and the rotational speed remains constant, **the Royal Filtermist maintains a continuous high efficiency.**
7. For certain applications that produce smoke and/or very fine mist particles, an after filter may be required. This filter easily mounts to the top of the Filtermist unit by slipping over the motor and it is secured in place with two toggle clips. An after filter mounted to a Royal Filtermist typically enjoys a comparably long service life because most contaminants are removed by the impaction process prior to reaching the filter.

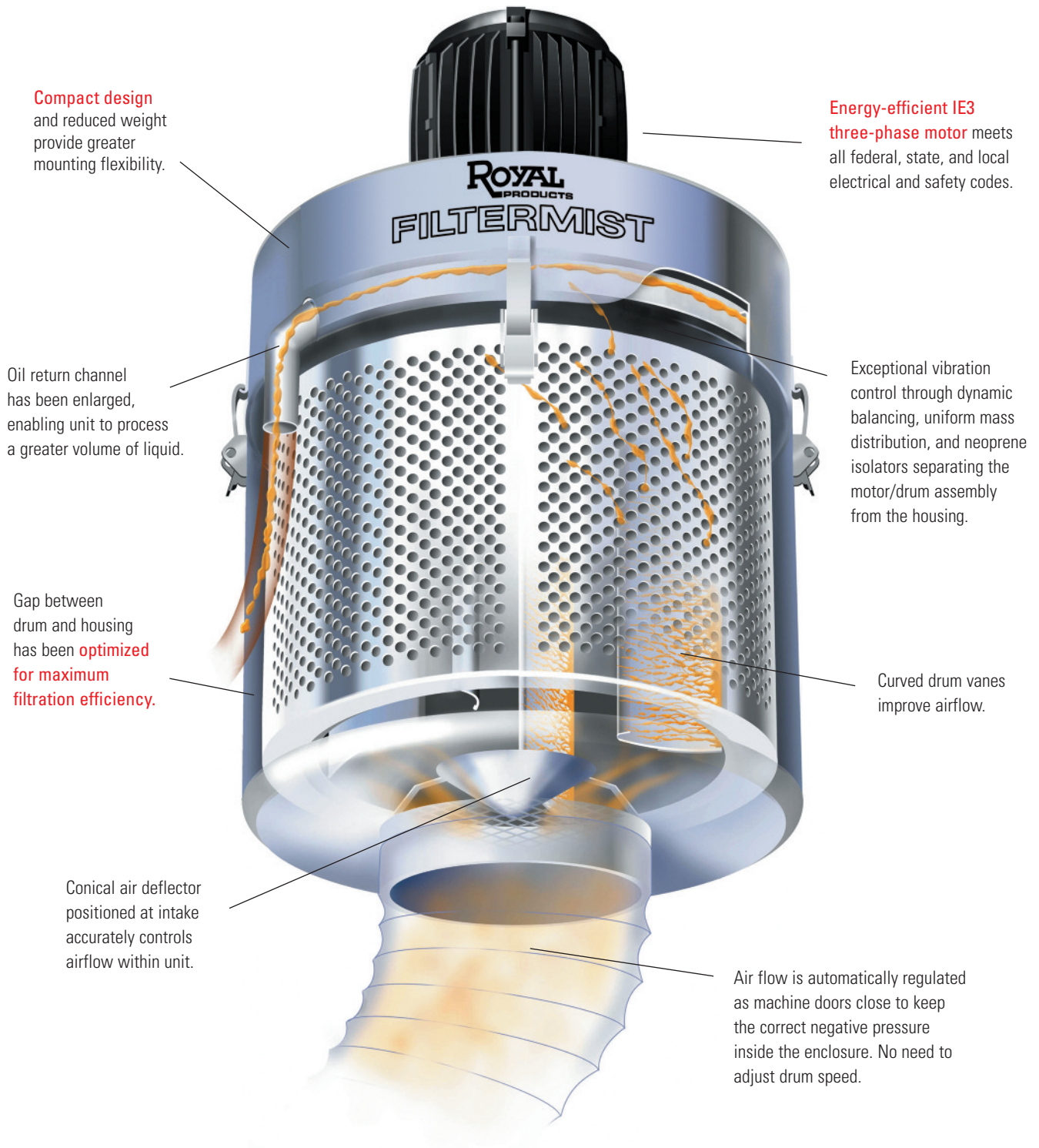
Note – it is important to understand that the pads that line the Filtermist drum are not filters. These porous pads are present to slow airflow through the unit, thereby maximizing contact with the drum vanes for greatest overall impaction efficiency.

IMPORTANT — All Filtermist units should be electrically wired to run continuously throughout a standard shift. Units should never be wired to switch on and off with the machining cycle. Please see installation manual for additional information.

ROYAL FX SERIES DESIGN FEATURES



The Royal Filtermist FX Series is the ninth generation of Filtermist. FX Models incorporate a number of design improvements over previous versions to provide the most advanced and effective system available for the removal of mist and smoke.





WHY IS THE ROYAL FILTERMIST THE BEST CHOICE FOR THE METALWORKING INDUSTRY?

High Efficiency

The Royal Filtermist maintains a continuous high efficiency through constant drum speed. Performance does not decrease with use. See page 148 for efficiency information.

Low Maintenance

Because the unit works on a mechanical principle instead of electrostatics or multi-stage filters, the Royal Filtermist **requires significantly less maintenance** than most other filtration systems on the market. The small amount of regular maintenance that is required can be easily performed by the customer. See page 156 for maintenance information.

Heavy-Duty Construction

When you purchase a Royal Filtermist, you receive a quality product. Features found on all units include:

- Heavy-duty 3-phase motors that meet all federal, state and local electrical and safety codes.
- All exposed surfaces on the drum and housing are powder coated for wear resistance and long life.
- Very tight manufacturing tolerances provide precise fits between mating parts and ensure that the unit will provide years of trouble-free service.

Vibration Control

The Royal Filtermist incorporates unique features to help it overcome vibration-related problems that are sometimes associated with other centrifugal impaction type systems:

- All drums are dynamically balanced at the factory and tested before shipping.
- Vertical drum arrangement provides **even mass distribution**.
- Motor is connected to housing with four neoprene mounts, effectively isolating vibration and controlling startup torque.

Low Operating Costs

The Royal Filtermist is cost-effective to own and operate. Other types of systems (media, electrostatic, etc.) require frequent maintenance and costly filter replacement. Companies that sell these units often push expensive maintenance contracts that can far exceed the initial purchase price. Filtermist also consumes very little electrical power compared to other systems due to the use of **energy-efficient IE3 motors**. In fact, the tighter the machine enclosure, the lower the power draw.

No Heat/AC Waste

Processed air is returned to the shop, reducing heating and cooling costs. A/C service calls are also reduced by protecting intake filters from contaminants.

Flexibility

Units are portable and typically service individual machines, allowing machines to be easily moved or replaced. Large central systems are connected to multiple machines by costly and non-flexible ductwork, making relocation difficult.

Modular Design

The Royal Filtermist is a modular system. Accessories such as after filters, dust cyclones, noise attenuators, etc. can be easily added as applications require. See pages 140 – 141 for information on performance accessories.

Easy To Install

Multiple installation configurations allow the Filtermist to overcome almost any mounting obstacle. See pages 142 – 143 for mounting details.

Wide Range of Sizes

Four sizes ranging from 300–1200 cfm are available to suit all applications.

Strong Technical Support

A large network of local distributors and factory-trained representatives are strategically located throughout the country to provide quick and accurate on-site technical support.

5-Year Warranty

Every Royal Filtermist unit carries a **5-year warranty** against failure due to manufacturing defects. Other brands are only protected for 1–2 years. Please note that our warranty does not include normal wear and tear items such as drum pads, silencers, ductwork, etc. The motor carries a one-year warranty.

Proven Worldwide

There are over 150,000 units currently operating in over 50 countries worldwide, making Filtermist the world leader in metalworking pollution control equipment.

ROYAL RISK-FREE PERFORMANCE GUARANTEE



Designed specifically to collect oil mist and smoke produced by metalworking machinery, the Royal Filtermist simply does the best job, over a longer period of time, for the lowest cost.

Still Not Convinced? Try a Unit Risk-Free!

We're so confident that the Royal Filtermist is the best solution for mist and smoke generated by metalworking machinery, we are willing to guarantee its performance. Our guarantee is simple:

Risk-Free Performance Guarantee



Royal Products will issue full credit on any Royal Filtermist unit returned within 45 days of the purchase date if the customer is not completely satisfied with its performance. The following conditions apply:

1. The unit must be sized and installed according to the recommendations of our local factory representative and/or authorized Filtermist distributor.
2. Credit will be issued for the unit, but may not be issued for ductwork, oil return hoses, etc., if they are not in resalable condition.
3. The customer must contact Royal Products for a return goods number (RGA #). This number must appear on all paperwork and packaging of the unit being returned.
4. The returned unit must be securely packaged and arrive at Royal Products in good condition.

So give us a call today at 1-800-645-4174 and let us help solve your mist and smoke problems. You'll be glad you did.



ROYAL FILTERMIST PERFORMANCE ACCESSORIES

Royal Products offers a number of optional accessories designed to enhance Filtermist performance, particularly in very demanding applications. Please contact one of our engineers at 1-800-645-4174 if you have any questions regarding the use of these performance accessories.

Royal Standard After Filter



After filters are available for all Royal Filtermist models. They can be used in any application where extreme high efficiency is required, and are especially useful for dealing with the following conditions:

- ❑ Applications where heavy, dry smoke is generated along with the mist.
- ❑ Applications that produce very fine mist particles which may sometimes bypass the impaction process, (jobs that run at very high spindle speeds, high-pressure coolant, etc.).

Important – An after filter should not be used to compensate for blow-thru that could result from improper installation. If you have questions or concerns about your installation, please contact one of our engineers at 1-800-645-4174.

Standard After Filter Advantages

Easy Installation

The Royal standard after filter simply slides over the Filtermist motor and is secured in place with two toggle clips.

High Efficiency

Adding a standard after filter to a Royal Filtermist unit will greatly **increase efficiency in the sub-micron range**. See page 146 for additional information on efficiency.

Noise Reduction

An after filter reduces the noise level of a Filtermist unit by approximately 3 dB.

Long Life

Royal standard after filters have extended service lives due to their large surface area. They also last longer because the centrifugal impaction process of the Filtermist removes most of the pollutants before they ever reach the filter. Systems that rely entirely on media filters for the filtering process tend to have much shorter service lives.

Full Range

Standard after filters are available for all size Filtermist units. Models are also available for older series units.

Royal High-Performance After Filters

For very demanding applications, Royal now offers an optimized high-performance after filter.

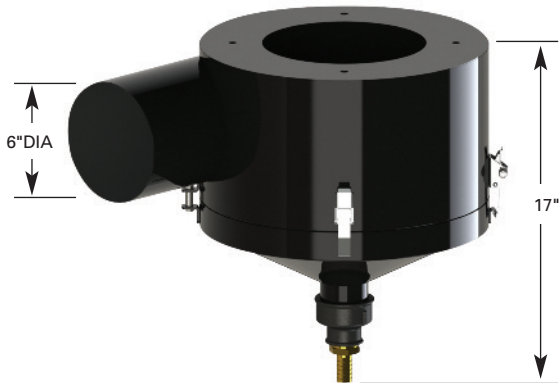
- ❑ **Great for all high-pressure oil applications – especially on Swiss machines.**
- ❑ Unique design incorporates two distinct types of filter media separated by an expansion gap.
- ❑ Integral venturi-assisted drain draws liquid away from the filter, greatly lengthening service life – testing has resulted in more than a **10x increase for certain applications**.
- ❑ Fits all FX-275/300 and FX-550/575 models.
- ❑ In stock for immediate delivery.



Before ordering, please give one of our applications engineers a call to ensure that this filter is the correct solution for your specific application.



Royal Cyclonic Swarf Separator



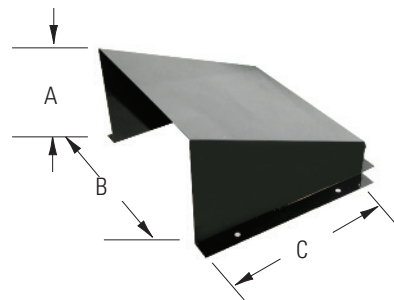
- ❑ Recommended for applications that generate solid particles, such as wet grinding dust, cast iron fines, etc.
- ❑ Also good for high-speed aluminum milling that produces light fly-away chips.

- ❑ Cyclonic action removes solid particles, ensuring that only mist is drawn into the Filtermist unit.
- ❑ Acts as a great pre-filter for high pressure coolant applications.
- ❑ **Reduces maintenance in difficult applications such as heavy grinding.**
- ❑ Easily attaches to the bottom of the Filtermist unit. Note – the separator cannot be used in direct-mount applications.
- ❑ 6" diameter intake port is located on the side of the unit.
- ❑ 5ft. of return hose is included for continuous draining.
- ❑ Two-piece design allows for easy cleaning.
- ❑ Not for use in purely dry applications.
- ❑ For models FX-900 and FX-1200 only.
- ❑ Reduces throughput of Filtermist unit by approximately 300 cfm.

Royal Chip Deflector

- ❑ Protects the Filtermist intake from chips and direct coolant splash.
- ❑ Opening is large enough to ensure that airflow and intake velocity are not negatively affected.
- ❑ **Powder coated finish** protects against rust.
- ❑ Can be used with all size Filtermist models.
- ❑ See page 143 for additional information on correct intake positioning.

MODEL	A	B	C
30220 (FX-900 & 1200)	6"	9 1/2"	10"
30222 (FX-300 & 575)	4 3/4"	8 1/2"	8 1/2"



Royal Filtermist Maintenance Monitor



The Royal Filtermist eliminates mist through centrifugal impaction, and therefore requires very minimal maintenance compared to other types of systems. However, for applications that utilize an after filter, it can sometimes be difficult to know when the filter needs to be changed.

This handy LED maintenance monitor **visually displays the status of the after filter via a green/yellow/red scale**. The unit can be retrofitted to any model Filtermist unit, and is easily mounted near the operator for optimal viewing.

In stock for immediate delivery.



ROYAL FILTERMIST MOUNTING OPTIONS

A wide variety of mounting options makes the Royal Filtermist very easy to install. If you have any questions regarding mounting, please contact one of our applications engineers at 1-800-645-4174.

	FX-300	FX-575	FX-900	FX-1200
Direct Mount	✓	✓	✓	✓
Suspended	-	-	✓	✓
Floor Stand	✓	✓	✓	✓
Machine Top Stand	✓	✓	✓	✓
Wall Mount	✓	✓	✓	✓
Machine Side Mount	✓	✓	✓ *	✓ *

* Can be accomplished using either wall bracket or modified floor stand.



Direct Mount

Typically used on enclosed machines such as CNC lathes. All Filtermist models can be mounted this way, but it is important to make sure that the mounting location is well suited to the application and does not interfere with any machine components.



Suspended Mount

Eye bolts included with the FX-900 and FX-1200 enable these units to be suspended from the factory ceiling. Suspension is a **low-cost mounting option** and is often the best choice for tall machines like large machining centers. Suspension is also a popular choice when a Filtermist unit will be servicing more than one machine.



Floor Stand

Floor stands are available for all models. The stand for models FX-300 and FX-575 is fixed at a height of 6 ft., while the stand for models FX-900 and FX-1200 can be adjusted from 6 ft. – 9 ft. Note that stands must be bolted to the factory floor to prevent tipping.



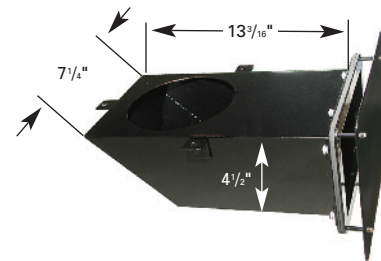
Machine Top Stand

This 3 ft. high stand enables all models to be mounted to the top of a machine, but offers advantages over direct mounting with its **small footprint** and flexible intake positioning.



Wall Mount

Wall mount brackets are available for all models. Depending upon the machine, it may be possible to use the wall mount bracket to mount a Filtermist to the side of a machine tool.



Machine Side Mount

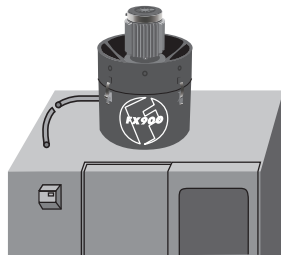
We offer a special side mount bracket for models FX-300 and FX-575 that enables a Filtermist unit to be mounted to the outside wall of a machine tool without the need for any ducting. A built-in deflector protects against chips and coolant splash.



ROYAL FILTERMIST MOUNTING OPTIONS

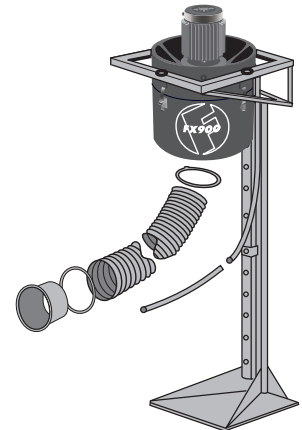
DIRECT MOUNT

- Unit
- Direct Mounting Kit
- Coolant Return Hose



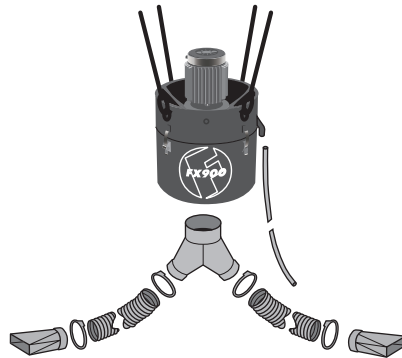
FLOOR STAND MOUNT

- Unit
- Floor Stand
- Coolant Return Hose
- Ducting
- Hose Clamps (2)
- Flange Adapter



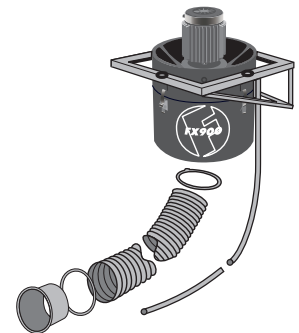
SUSPENDED MOUNT

- Unit
- Suspension Kit
- Coolant Return Hose
- Hose Clamps (4)
- Y-Junction
- Ducting
- Fishtails

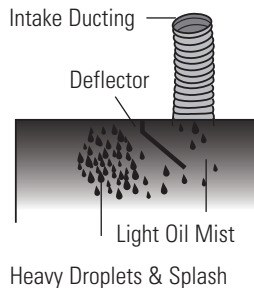


WALL MOUNT

- Unit
- Wall Bracket
- Coolant Return Hose
- Hose Clamps (2)
- Ducting
- Flange Adapter



Intake Position — Very Important



When installing a Filtermist unit, be sure to locate the intake in a position where it will collect mist – not splash. A common mistake is to locate the collection point too close to the cutting action, causing raw coolant and chips to be drawn into the unit. For example, the intake on a CNC lathe should be located near the tailstock-end of the machine, not over the chuck. Whenever possible, draw the mist across the enclosure from an area of heavy concentration to an area of lighter concentration.

For machines where the intake must be positioned near the cutting action, a deflector is often necessary (see page 141). A deflector protects the intake from chips and coolant yet allows mist and smoke to pass around it for collection.

Accessories

UNIT	INTAKE DIAMETER
FX-300	6"
FX-575	6"
FX-900	6"
FX-1200	8"

Royal Products offers a full array of mounting accessories to simplify installation, including flange adapters, reducers, fishtails, ducting, Y-junctions, etc. Please be sure to keep the correct Filtermist intake diameter in mind when ordering accessories.



CHOOSING THE CORRECT ROYAL FILTERMIST UNIT

Sizing Units

The Royal Filtermist is available in four sizes, based on throughput capacities: 300, 575, 900, and 1200 cfm. Royal Products maintains a database with specifications for many different machine tools, and we recommend you contact one of our applications engineers for your specific sizing requirements.

For those who would like a general rule of thumb, we recommend using the following formula to obtain a rough idea of your requirements:

Filtermist Size = Internal Enclosure Volume x 5

For example, suppose you have a small CNC lathe with an internal work envelope measuring 5ft. wide x 3ft. deep x 4ft. high. Multiplying 5x3x4, we see that the machine has an enclosure volume of 60 cu. ft. Multiplying 60x5 we see that 300 cfm is required, so we'd choose the model FX-300.

Although this rule is very simple, it is handy for determining the general size requirements.

If you are not sure which unit to use, please contact your local Royal Filtermist Distributor or one of our applications engineers.



Grinding



Grinding applications can sometimes be more demanding than typical turning and milling applications because grinding produces fine dust particles that become entrained in the mist stream. Over time, this dust can accumulate on the drum pads, resulting in the need for more frequent maintenance. If regular maintenance is not performed and a significant volume of solid matter builds up in the drum, balance and vibration issues may arise.

A simple way to overcome the problems associated with grinding dust is to fit the Filtermist with a cyclonic swarf separator. The separator mounts below the Filtermist unit and uses cyclonic action to separate out the solid matter, leaving the drum free to process the mist and preventing buildup on the pads. A port on the bottom of the unit facilitates drainage.

Royal Products recommends using a cyclonic swarf separator for all grinding applications.

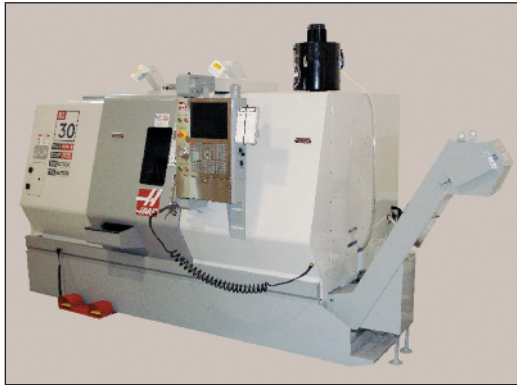


Check out the Royal Filtermist Video at www.mistcollectors.com

CHOOSING THE CORRECT ROYAL FILTERMIST UNIT



Turning



CNC lathes are relatively **easy applications to tackle** because the machines are usually well enclosed and direct mounting is often possible. On any well enclosed machine, it is recommended that the Filtermist intake point be located as far from the machining action as possible so that the mist is drawn from an area of heavy concentration to an area of lighter concentration. On CNC lathes, therefore, the ideal intake location is on the right side of the machine, near the tailstock. On subspindle lathes where the right-hand wall moves along the z-axis, it might be necessary for the Filtermist to have a more central location.

Milling



For enclosed machining centers, the Filtermist intake position should be located in an upper corner of the enclosure. Installation on open-top machines is not as clear-cut. If enclosing the machine is not possible, a successful installation can often be accomplished by **suspending the Filtermist unit above the machine** and running ducting down into the enclosure. It may be necessary to adjust the intake location so that it is close enough to the spindle to collect the mist, yet far enough away to keep chips from being drawn in. A Y-junction may be used to draw mist from both sides of the spindle, and a chip deflector may also come in handy.

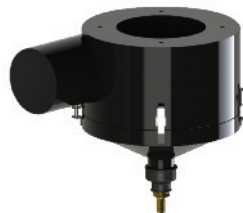
High-Pressure Coolant/Oil

More and more machine tools today are equipped with high-pressure coolant systems. Machines running either oil or coolant at high-pressure tend to create a greater volume of mist, with a smaller average particle size. For high-pressure applications, equipping your Filtermist unit with one (or both) of the performance accessories below will greatly help to optimize mist control within your shop.



High-Performance After Filter

This after filter has been specifically engineered for high-pressure coolant and oil applications. Laboratory and field performance tests have shown the service life to be as great as 10x that of a standard after filter.



Cyclonic Swarf Separator

While this accessory was originally designed to remove solid particulate entrained in the mist steam, it has also proven to be very effective as a pre-filter in high-pressure applications by removing much of the mist prior to the impaction process.

If you have any questions regarding the use of these performance accessories in your high-pressure applications, please contact Royal Products at 1-800-645-4174 to schedule a visit by one of our factory-trained mist control experts.



ROYAL FILTERMIST EFFICIENCY

When evaluating the effectiveness of any mist collection system, two major aspects must be considered:

- The unit must be capable of handling the full volume of mist produced by the application.
- The unit must be efficient at capturing particles of all sizes.

Independent testing has proven the Royal Filtermist FX Series to be very effective at handling large volumes of mist and highly efficient at dealing with the full spectrum of particle sizes found in typical metalworking mist concentrations.

While a typical metalworking mist concentration is made up of many different-sized particles, usually 80–90% of these particles are larger than one micron in size, and fewer than 10% of the particles are smaller than 0.5 micron in size.

In order to effectively eliminate mist, the Royal Filtermist incorporates a two-phase process:

1. The first phase utilizes the mechanical process of centrifugal impaction. This centrifugal impaction process is the heart of the Filtermist's operating principle and it is highly effective at handling large volumes of mist.

The centrifugal impaction process is **almost 100% efficient at handling particles larger than one micron**, which tend to make up the bulk of the mist. When considering a weighted average of the particle size in a typical metalworking mist concentration, overall efficiency of the impaction process is roughly 98%.

2. Many may consider an efficiency of 98% to be adequate for their needs. However, if additional efficiency is required, the Royal Filtermist FX Series units may be equipped with an after filter to handle the small amount of residual mist that bypasses the impaction process. Royal after filters use a carefully selected grade of media that provides an effective balance between being **fine enough to capture the smallest of particles** while still allowing the filter to enjoy a comparatively long service life. **Overall efficiency of a Royal Filtermist FX Series unit equipped with an after filter exceeds 99.5%.**

OSHA and NIOSH Standards

The OSHA and NIOSH limits on airborne mist particles are currently set at 5mg/m³. It is believed that in the coming years this level will be reduced by a factor of ten to a new level of 0.5 mg/m³. The Royal Filtermist FX is so efficient that when equipped with an after filter, it easily meets not only the current limit, but even the stricter proposed limit.

LOCATION	CONCENTRATION (mg / m ³)
Ambient Shop Air	0.75
FX-1200 Inlet	8.0 – 10.0
FX-1200 Exhaust	0.18

In a recent test carried out by an independent contractor, a Mori Seiki SL75ML was fitted with a model FX-1200 Filtermist unit and after filter. Particle counters were set up to monitor the air at three locations during machining – the ambient shop air, the Filtermist intake, and the Filtermist exhaust. The test results confirm that the Filtermist easily meets the challenge. Particle concentration levels at the Filtermist exhaust were well below 0.5 mg/m³. In fact, the air at **the Filtermist exhaust was four-times cleaner than the ambient shop air!**

IMPORTANT – The Royal Filtermist is designed to help your shop meet current and future air quality standards. It must be understood, however, that there are many variables involved in controlling shop pollution and we cannot guarantee that the Filtermist alone will prevent occupational diseases to workers. It is your responsibility to establish an effective overall industrial hygiene program designed to comply with OSHA and NIOSH standards. If you have any questions regarding this issue, please contact us at 1-800-645-4174.

COMMONLY ASKED ROYAL FILTERMIST QUESTIONS



How Do I Select the Correct Royal Filtermist for My Application?

Page 146 of this catalog contains some basic sizing information, and you are always welcome to speak to one of our engineers at 1-800-645-4174 if you have any questions. We can also arrange to have one of our local regional managers visit your factory to check out your application and make the appropriate recommendations.

How Do I Order?

The Royal Filtermist system is sold in the U.S. through an exclusive network of authorized distributors. To find out who your local Royal Filtermist distributor is, please contact our customer service department at 1-800-645-4174.

How Do Filtermist Units Ship?

All Filtermist FX Series units can be shipped via UPS. Due to dimensional limitations, the floor stand must ship by truck. When ordering multiple units, it is often more cost effective to ship by truck.



How Do I Install the Royal Filtermist In My Shop?

The Royal Filtermist is a relatively easy piece of equipment to install, and most shops handle their own installations. Detailed instructions are included with each unit.

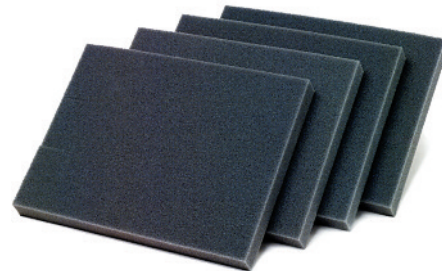
To ensure a smooth installation process, be sure you have ordered all of the necessary mounting and performance accessories. We recommend using the handy checklist featured on page 159. Please note that all accessories offered in this catalog have been tested for performance and safety. Substituting accessories with non-Royal items could void the Filtermist warranty, affect performance, and result in dangerous operating conditions.

What About Wiring?



The three-phase Filtermist motor must be wired in conjunction with a motor starter switch, which can be purchased through Royal Products. We suggest you have a licensed electrician perform the wiring of the unit. Detailed instructions can be found in the installation manual that is supplied with each unit.

How Often Do the Drum Pads Need to be Changed?



An important aspect to understand about the Royal Filtermist is that **the drum pads are not filters**. These porous pads are present to slow airflow through the unit, thereby maximizing contact with the drum vanes for greatest overall impaction efficiency.

Because the Royal Filtermist utilizes the mechanical process of centrifugal impaction to eliminate mist, maintenance requirements are minimal. As a result, some customers have reported that they have had units operating for up to five years without ever needing to change the drum pads.

For guidelines regarding Filtermist maintenance, please see page 156.

What Happens If I Have a Problem?

In addition to our large network of authorized distributors, Royal Products employs Regional Business Managers and over **50 factory-trained representatives located throughout the country**. In the event of a problem that cannot be solved over the phone, we will arrange for a local Royal Products representative to visit your factory and work with you towards a solution. We firmly believe that after-sales support is as important as the sale itself, and we are committed to this effort.



ROYAL FILTERMIST MODEL FX-300



- ❑ Used primarily on small, enclosed CNC machines with an internal volume of up to 80 cu. ft.
- ❑ Large 6" dia. intake results in a **very low intake velocity**, reducing the likelihood that chips and large droplets will be drawn into the unit.
- ❑ The model FX-300 comes complete with a collar seal, mounting hardware, and 5 ft. of coolant return hose.
- ❑ Designed primarily for direct-mounting to the top of a machine, but stands and brackets are also available for applications where direct-mounting is not possible.
- ❑ Stainless steel model (type 304) available for special applications such as food processing and aqueous parts washers.
- ❑ **A great option for Swiss machines** when used in conjunction with our high-performance after filter.

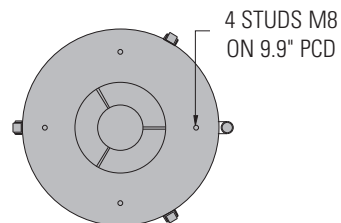
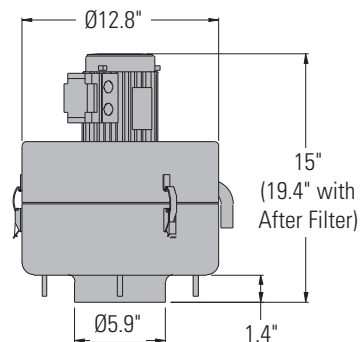


FX-300 Specifications

Airflow	295 cfm
Fits machines with enclosure volume of:	Up to 80 cubic feet
Motor	3/4 HP, 3-Phase, 50/60 Hz. Voltage & Current @ 60Hz: 208V - 2.6A 230V - 2.6A 460V - 1.4A
Weight	31 lbs.
Noise Level	65 dBA
Inlet Diameter	6"

Mounting Options — FX-300



Direct Mount	Hardware included with Filtermist Unit
Floor Stand	use 30316 — Floor Stand "A"
Machine Top Stand	use 30319 — Machine Top Stand "A"
Wall Mount	use 30328 — Wall Bracket "A"
Machine Side Mount	use 30330 — Side-Mount Bracket "A"
Suspended	N/A




ROYAL FILTERMIST MODEL FX-300





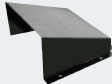

Filtermist Units

DESCRIPTION	PART NUMBER	PRICE
 FX-300 Filtermist Unit Includes collar seal and all necessary hardware to mount unit directly to the top of a machine. Also includes 5 ft. of coolant return hose.	30105	\$2,195
 FX-300 Stainless Steel Unit	30165	\$4,265











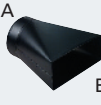
Electrical Accessories

DESCRIPTION	PART NUMBER	PRICE
 Starter Box Kit Includes NEMA 12 box, IEC motor starter, 20 ft. of input cable, 15 ft. of output cable with turn-lock connector	FX-300 & 575 Low-Voltage (208/230V)	30470 \$575
	FX-300 & 575 High-Voltage (460V)	30471 \$575

Performance Accessories

DESCRIPTION	PART NUMBER	PRICE
 Standard After Filter "A" Used for collecting dry smoke and very fine mist particles.	30200	\$345
 High-Performance After Filter "A" Designed for high pressure and Swiss applications. Extended operating life over standard after filter.	30203	\$739
 Chip Deflector "A" Protects intake from coolant splash and chips.	30222	\$65
 Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required.	30477	\$590

Mounting Accessories

DESCRIPTION	PART NUMBER	PRICE		
 Side Mounting Bracket "A" Allows unit to be mounted to the side of a machine tool. Includes hardware and chip deflector.	30330	\$355		
 Floor Stand "A" Fixed height of 6 ft. Bolts to floor for safety.	30316	\$565		
 Machine Top Stand "A" 28" tall stand bolts to the top of a machine	30319	\$365		
 Wall Bracket "A" For mounting unit to a wall or side of a machine.	30328	\$195		
 Coolant Return Hose 3/4" diameter.	30335	\$4/ft.		
 Ducting Flexible vinyl with heavy wire support.	8"	30344 \$21/ft.		
	6"	30342 16/ft.		
	4"	30340 12/ft.		
Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition.				
 Ducting Bridge Clamps For securing ducting to accessories	8"	30354 \$11		
	6"	30352 9		
	4"	30350 7		
 Y-Junctions For multiple pickup locations.	A 8"	B 6"	30368 \$345	
	8"	4"		30366 425
	6"	6"		30364 315
	6"	4"		30362 295
	4"	4"		30360 245
 Flange Adapters For securing ducting directly to an enclosed machine.	8"	30374 \$75		
	6"	30372 70		
	4"	30370 70		
 Reducers	A 8"	B 6"	30382 \$130	
	6"	4"		30380 130
 Fishtails For use on open machines.	A 8"	B 11.75" x 5"	30394 \$245	
	6"	10" x 4.5"		30392 220
	4"	8.25" x 3.5"		30390 205



Try a unit on your toughest application risk-free! See Page 139.



ROYAL FILTERMIST MODEL FX-575



- ❑ For use on enclosed machines with an internal volume between 60 cu. ft. and 120 cu. ft.
- ❑ Designed primarily for direct-mounting to the top of a machine, but stands and brackets are also available for applications where direct-mounting is not possible.
- ❑ Stainless steel model (type 304) available for special applications such as food processing and aqueous parts washers.
- ❑ **A great option for Swiss machines** when used in conjunction with our high-performance after filter.

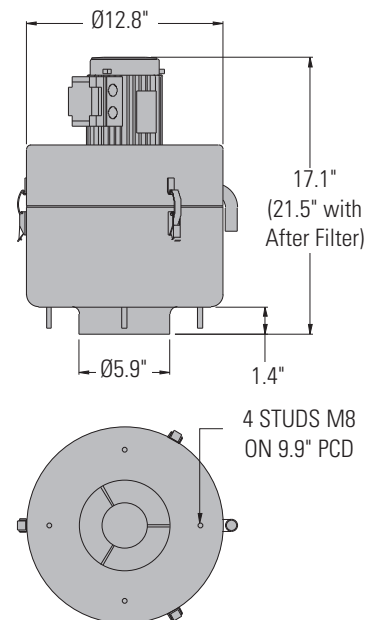


FX-575 Specifications

Airflow	560 cfm
Fits machines with enclosure volume of:	60-120 cubic feet
Motor	3/4 HP, 3-Phase, 50/60 Hz. Voltage & Current @ 60Hz. 208V - 2.6A 230V - 2.6A 460V - 1.4A
Weight	35 lbs.
Noise Level	67 dBA
Inlet Diameter	6"

Mounting Options — FX-575



Direct Mount	Hardware included with Filtermist Unit
Floor Stand	use 30316 — Floor Stand "A"
Machine Top Stand	use 30319 — Machine Top Stand "A"
Wall Mount	use 30328 — Wall Bracket "A"
Machine Side Mount	use 30330 — Side-Mount Bracket "A"
Suspended	N/A




ROYAL FILTERMIST MODEL FX-575






Filtermist Units

DESCRIPTION	PART NUMBER	PRICE
 FX-575 Filtermist Unit Includes collar seal and all necessary hardware to mount unit directly to the top of a machine. Also includes 5 ft. of coolant return hose.	30115	\$2,755
 FX-575 Stainless Steel Unit	30185	\$4,750











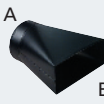
Electrical Accessories

DESCRIPTION	PART NUMBER	PRICE
 Starter Box Kit Includes NEMA 12 box, IEC motor starter, 20 ft. of input cable, 15 ft. of output cable with turn-lock connector	FX-300 & 575 Low-Voltage (208/230V)	30470 \$575
	FX-300 & 575 High-Voltage (460V)	30471 \$575

Performance Accessories

DESCRIPTION	PART NUMBER	PRICE
 Standard After Filter "A" Used for collecting dry smoke and very fine mist particles.	30200	\$345
 High-Performance After Filter "A" Designed for high pressure and Swiss applications. Extended operating life over standard after filter.	30203	\$739
 Chip Deflector "A" Protects intake from coolant splash and chips.	30222	\$65
 Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required.	30477	\$590

Mounting Accessories

DESCRIPTION	PART NUMBER	PRICE	
 Side Mounting Bracket "A" Allows unit to be mounted to the side of a machine tool. Includes hardware and chip deflector.	30330	\$355	
 Floor Stand "A" Fixed height of 6 ft. Bolts to floor for safety.	30316	\$565	
 Machine Top Stand "A" 28" tall stand bolts to the top of a machine	30319	\$365	
 Wall Bracket "A" For mounting unit to a wall or side of a machine.	30328	\$195	
 Coolant Return Hose 3/4" diameter.	30335	\$4/ft.	
 Ducting Flexible vinyl with heavy wire support.	8"	30344 \$21/ft.	
	6"	30342 16/ft.	
	4"	30340 12/ft.	
Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition.			
 Ducting Bridge Clamps For securing ducting to accessories	8"	30354 \$11	
	6"	30352 9	
	4"	30350 7	
 Y-Junctions For multiple pickup locations.	A 8"	B 6"	30368 \$345
	8"	4"	30366 425
	6"	6"	30364 315
	6"	4"	30362 295
	4"	4"	30360 245
 Flange Adapters For securing ducting directly to an enclosed machine.	8"	30374 \$75	
	6"	30372 70	
	4"	30370 70	
 Reducers	A 8"	B 6"	30382 \$130
	6"	4"	30380 130
 Fishtails For use on open machines.	A 8"	B 11.75" x 5"	30394 \$245
	6"	10" x 4.5"	30392 220
	4"	8.25" x 3.5"	30390 205



Try a unit on your toughest application risk-free! See Page 139.



ROYAL FILTERMIST MODEL FX-900



- ❑ For use on enclosed machines with an internal volume between 90 cu. ft. and 180 cu. ft.
- ❑ **Popular for open machines** requiring a Y-junction and two intake points.
- ❑ Unit can be mounted directly to the machine, on stands, on brackets, or suspended.
- ❑ Stainless steel model (type 304) available for special applications such as food processing and aqueous parts washers.

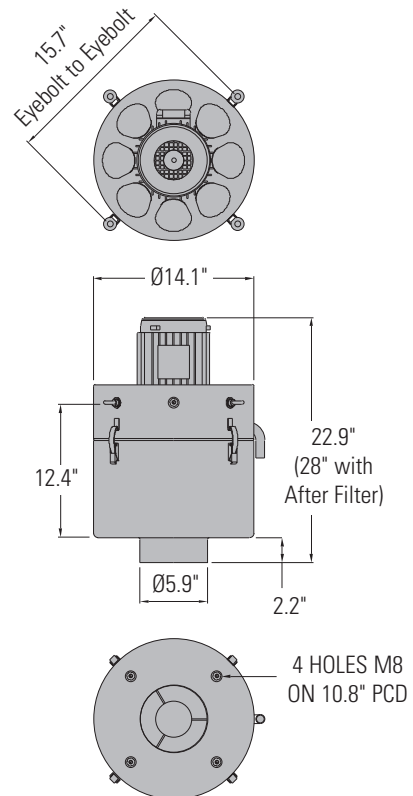


FX-900 Specifications

Airflow	900 cfm
Fits machines with enclosure volume of:	90-180 cubic feet
Motor	3 HP, 3-Phase, 50/60 Hz. Voltage & Current @ 60Hz. 208V - 9.2A 230V - 9.2A 460V - 4.6A
Weight	51 lbs.
Noise Level	70 dBA
Inlet Diameter	6"

Mounting Options — FX-900



Direct Mount	use 30302 — FX-900 Direct Mount Kit
Floor Stand	use 30315 — Floor Stand "B"
Machine Top Stand	use 30314 — Machine Stand "B"
Wall Mount	use 30320 — Wall Bracket "B"
Machine Side Mount	use 30320 — Wall Bracket "B"
Suspended	use 30310 — Suspension Kit "B"




ROYAL FILTERMIST MODEL FX-900



Filtermist Units

DESCRIPTION	PART NUMBER	PRICE
 FX-900 Filtermist Unit Order performance and mounting accessories separately.	30120	\$3,435
 FX-900 Stainless Steel Unit	30160	\$5,440







Electrical Accessories

DESCRIPTION	PART NUMBER	PRICE
 Starter Box Kit Includes NEMA 12 box, IEC motor starter, 20 ft. of input cable, 15 ft. of output cable with turn-lock connector	FX-900 & 1200 Low-Voltage (208/230V)	30472 \$575
	FX-900 & 1200 High-Voltage (460V)	30473 \$575

Performance Accessories

DESCRIPTION	PART NUMBER	PRICE
 Standard After Filter "B" Used for collecting dry smoke and very fine mist particles.	30205	\$365
 Cyclonic Swarf Separator For use on applications such as grinding and cast iron machining where very fine solid particles are entrained in the mist stream. Also acts as a great pre-filter for high pressure coolant applications. Requires 6" dia. ducting.	30210	\$925
 Chip Deflector "B" Protects intake from coolant splash and chips.	30220	\$65
 Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required.	30477	\$590

Mounting Accessories

DESCRIPTION	PART NUMBER	PRICE
 Direct Mount Kit (FX-900) Includes 6" collar seal, set of rigid mounting studs, and hardware.	30302	\$95
 Floor Stand "B" Adjusts from 6 ft. to 9 ft. Bolts to floor for safety.	30315	\$925
 Machine Top Stand "B" 3 ft. tall stand bolts to the top of a machine.	30314	\$595
 Wall Bracket "B" Can be used to mount unit to a wall or other suitable mounting surface.	30320	\$365
 Suspension Kit "B" Includes 30 ft. of chain, 4 eyebolts, 8 split links, and 1 adjustable link.	30310	\$195
 Coolant Return Hose 3/4" diameter.	30335	\$4/ft.
 Ducting Flexible vinyl with heavy wire support.	8" 30344 6" 30342 4" 30340	\$21/ft. 16/ft. 12/ft.
Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition.		
 Ducting Bridge Clamps For securing ducting to accessories.	8" 30354 6" 30352 4" 30350	11 9 7
 Y-Junctions For multiple pickup locations.	A B 8" 6" 8" 4" 6" 6" 6" 4" 4" 4"	30368 \$345 30366 425 30364 315 30362 295 30360 245
 Flange Adapters For securing ducting directly to an enclosed machine.	8" 30374 6" 30372 4" 30370	\$75 70 70
 Reducers	A B 8" 6" 6" 4"	30382 \$130 30380 130
 Fishtails For use on open machines.	A B 8" 11.75" x 5" 6" 10" x 4.5" 4" 8.25" x 3.5"	30394 \$245 30392 220 30390 205



Try a unit on your toughest application risk-free! See Page 139.



ROYAL FILTERMIST MODEL FX-1200



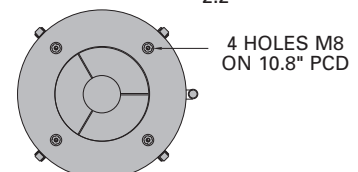
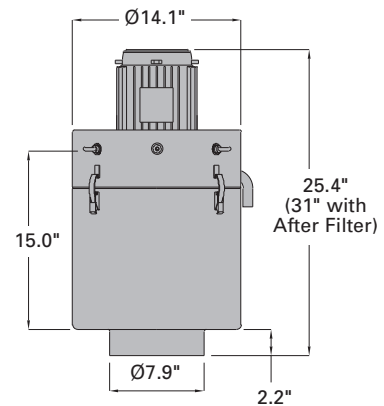
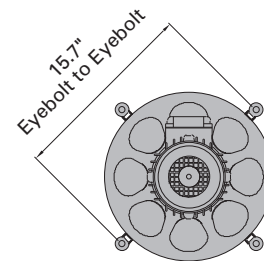
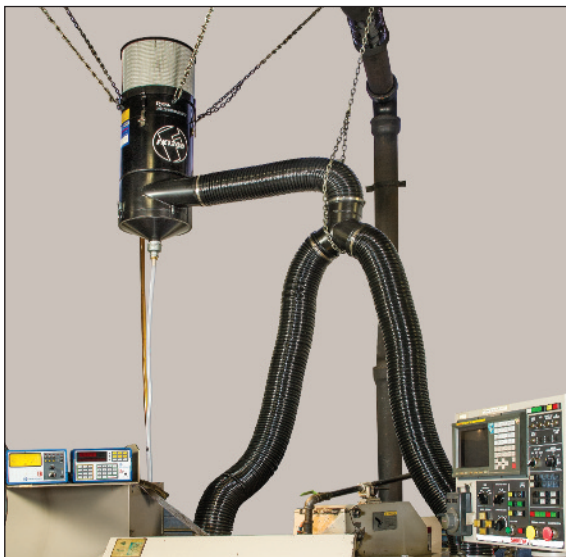
FX-1200 Specifications

Airflow	1200 cfm
Fits machines with enclosure volume of:	120 cubic feet or larger
Motor	3 HP, 3-Phase, 50/60 Hz. Voltage & Current @ 60Hz. 208V - 9.2A 230V - 9.2A 460V - 4.6A
Weight	64 lbs.
Noise Level	72 dBA
Inlet Diameter	8"

Mounting Options — FX-1200

Direct Mount	use 30304 — FX-1200 Direct Mount Kit
Floor Stand	use 30315 — Floor Stand "B"
Machine Top Stand	use 30314 — Machine Stand "B"
Wall Mount	use 30320 — Wall Bracket "B"
Machine Side Mount	N/A
Suspended	use 30310 — Suspension Kit "B"



- ❑ For use on enclosed machines with an internal volume of 120 cu. ft. or larger.
- ❑ Popular for machines requiring Y-junction and two intake points.
- ❑ **Excellent choice for large machining centers.**
- ❑ Unit can be mounted directly to the machine, on stands, on brackets, or suspended.
- ❑ Stainless steel model (type 304) available for special applications such as food processing and aqueous parts washers.




ROYAL FILTERMIST MODEL FX-1200



Filtermist Units

DESCRIPTION	PART NUMBER	PRICE
 FX-1200 Filtermist Unit Order performance and mounting accessories separately.	30130	\$3,595
 FX-1200 Stainless Steel Unit	30170	\$5,975









Electrical Accessories

DESCRIPTION	PART NUMBER	PRICE
 Starter Box Kit Includes NEMA 12 box, IEC motor starter, 20 ft. of input cable, 15 ft. of output cable with turn-lock connector	FX-900 & 1200 Low-Voltage (208/230V) 30472	\$575
	FX-900 & 1200 High-Voltage (460V) 30473	\$575

Performance Accessories

DESCRIPTION	PART NUMBER	PRICE
 Standard After Filter "B" Used for collecting dry smoke and very fine mist particles.	30205	\$365
 Cyclonic Swarf Separator For use on applications such as grinding and cast iron machining where very fine solid particles are entrained in the mist stream. Also acts as a great pre-filter for high pressure coolant applications. Requires 6" dia. ducting.	30210	\$925
 Chip Deflector "B" Protects intake from coolant splash and chips.	30220	\$65
 Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required.	30477	\$590

Mounting Accessories

DESCRIPTION	PART NUMBER	PRICE
 Direct Mount Kit (FX-1200) Includes 8" collar seal, set of rigid mounting studs, and hardware.	30304	\$95
 Floor Stand "B" Adjusts from 6 ft. to 9 ft. Bolts to floor for safety.	30315	\$925
 Machine Top Stand "B" 3 ft. tall stand bolts to the top of a machine.	30314	\$595
 Wall Bracket "B" Can be used to mount unit to a wall or other suitable mounting surface.	30320	\$365
 Suspension Kit "B" Includes 30 ft. of chain, 4 eyebolts, 8 split links, and 1 adjustable link.	30310	\$195
 Coolant Return Hose 3/4" diameter.	30335	\$4/ft.
 Ducting Flexible vinyl with heavy wire support.	8" 30344 6" 30342 4" 30340	\$21/ft. 16/ft. 12/ft.
Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition.		
 Ducting Bridge Clamps For securing ducting to accessories.	8" 30354 6" 30352 4" 30350	\$11 9 7
 Y-Junctions For multiple pickup locations.	A B 8" 6" 8" 4" 6" 6" 6" 4" 4" 4"	30368 \$345 30366 425 30364 315 30362 295 30360 245
 Flange Adapters For securing ducting directly to an enclosed machine.	8" 30374 6" 30372 4" 30370	\$75 70 70
 Reducers	A B 8" 6" 6" 4"	30382 \$130 30380 130
 Fishtails For use on open machines.	A B 8" 11.75" x 5" 6" 10" x 4.5" 4" 8.25" x 3.5"	30394 \$245 30392 220 30390 205



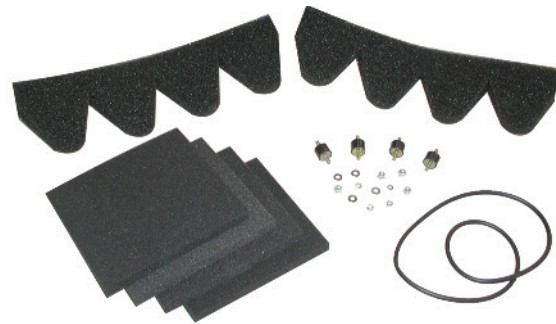
Try a unit on your toughest application risk-free! See Page 139.



ROYAL FILTERMIST MAINTENANCE

One of the most popular features of the Royal Filtermist is the fact that it requires minimal maintenance. Unlike media-type systems and electrostatic units, the Royal Filtermist **works almost as well when it is dirty as it does when it is clean.**

For safety purposes, it is necessary to periodically inspect the main components of the Royal Filtermist for wear or damage, especially if the unit is making loud noises or exhibiting vibration. Additionally, we recommend that these simple inspection/maintenance procedures be carried out every 2,000 operating hours, (every 1,000 hours for more demanding applications):



- ❑ Inspect the drum pads for wear and/or matter buildup that could affect airflow or cause vibration, and replace as necessary. It is important to understand that the pads that line the Filtermist drum are not filters. Their presence slows airflow through the unit, thereby maximizing contact with the drum vanes for greatest overall impaction efficiency. **Some customers report not having to change drum pads in certain applications for periods of up to five years.** While this may or may not be the case in your application, it is important to understand that any visible sign of vibration is often related to solid matter buildup and should be addressed immediately.
- ❑ Inspect and replace the motor mounts and torque limiting straps if worn or damaged.
- ❑ Inspect silencer and replace if worn or damaged. If the silencer is saturated with oil, it is important to investigate the reason why. This could be the result of a clogged oil return channel or incorrect drum rotation. Important – the Filtermist will create suction regardless of

which way the drum spins, but it will only properly collect and return oil mist if the drum is spinning in the proper direction as indicated by the arrow on the housing.

- ❑ Inspect the housing seal and replace if necessary. This is especially important on older series units. The redesigned housing of the Filtermist FX Series virtually eliminates the chance of leakage around the seal area.
- ❑ Check all mounting fixtures such as stands and suspension kits for damage or signs of fatigue. Repair or replace as necessary.
- ❑ Check all other accessories for wear and/or damage (ducting, flange adapters, etc.). Repair or replace as necessary.
- ❑ For your convenience, **Royal Products offers complete maintenance kits for all Filtermist units.** These value-priced kits include a drum pad set, a motor mount set, a silencer, and a housing seal. These items are also available separately.

IMPORTANT – The recommended maintenance schedule and procedures outlined above are meant to serve as a guide for most common Filtermist applications. More detailed information is provided in the Royal Filtermist Installation and Maintenance Manual. When dealing with any equipment of this type, common sense must prevail. Any unsafe conditions pertaining to the Royal Filtermist must be immediately attended to. It is also important to understand that when Royal Filtermist units are used in demanding applications such as grinding or cast iron machining, more frequent maintenance may be required. If you have any questions regarding the maintenance or operation of your Royal Filtermist units, please refer to the Royal Filtermist Installation and Maintenance Manual or contact one of our engineers at 1-800-645-4174.

Maintenance Items

DESCRIPTION	FX-300		FX-575		FX-900		FX-1200	
	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE	PART NUMBER	PRICE
Complete Maintenance Kit Complete kit provides a cost savings over individual components. Includes the following: drum pad set, silencer, housing seal, and motor mount set.	30500	\$165	30506	\$195	30402	\$235	30404	\$245
Drum Pad Set	30410	\$40	30416	\$65	30412	\$75	30414	\$80
Silencer	30520	\$85	30520	\$85	30422	\$145	30422	\$145
Housing Seal	30430	\$20	30430	\$20	30432	\$25	30432	\$25
Motor Mount Set	30440	\$65	30440	\$65	30442	\$110	30442	\$110

See page 158 for maintenance items for older series Filtermist units.

ROYAL FILTERMIST REPLACEMENT PARTS



Serial Number Label

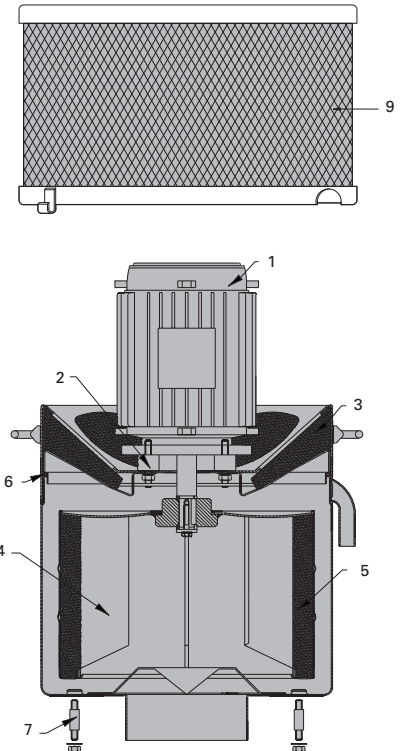
On this unit, the white label with the black text indicates a series 8 model.

Royal Products offers a full array of replacement parts for all Filtermist models. When ordering replacement parts, it is very important that you identify the correct series and model. The series is determined by the color of the serial number label, located on the upper portion of the housing near the motor. The color code is as follows:

- Series 6 — Black label, silver text.
- Series 8 — White label, black text.
- Series 7 — Yellow label, black text.
- FX Series — Blue label, white text.

FX Series Only

ITEM NUMBER	DESCRIPTION	FILTERMIST MODEL	BLUE LABEL (FX Series)
1	Motor	FX-275/300	30450
		FX-550/575	30450
		FX-600	30452
		FX-900	30454
		FX-1200	30454
2	Motor Mount Set Includes four mounts and required hardware.	FX-275/300	30440
		FX-550/575	30440
		FX-600	30442
		FX-900	30442
		FX-1200	30442
3	Silencer	FX-275/550	30420
		FX-300/575	30520
		FX-600	30422
		FX-900	30422
		FX-1200	30422
4	Drum	FX-275	30460
		FX-300	30560
		FX-550	30466
		FX-575	30566
		FX-600	30462
		FX-900	30462
		FX-1200	30464
5	Drum Pads (set of 4)	FX-275/300	30410
		FX-550/575	30416
		FX-600	30412
		FX-900	30412
		FX-1200	30414
6	Housing Seal	FX-275/300	30430
		FX-550/575	30430
		FX-600	30432
		FX-900	30432
		FX-1200	30432
7	Direct Mounting Kit Includes collar seal, mounts, and required hardware.	FX-275/300	N/A
		FX-550/575	N/A
		FX-600	30300
		FX-900	30302
		FX-1200	30304
8	Complete Maintenance Kit Includes items 2, 3, 5 and 6.	FX-275	30400
		FX-300	30500
		FX-550	30406
		FX-575	30506
		FX-600	30402
		FX-900	30402
		FX-1200	30404
9	Complete After Filter Fits over the Filtermist motor. Includes 1-pc. housing/filter element, and toggle clips.	FX-275/300	30200/30203*
		FX-550/575	30200/30203*
		FX-600	30205
		FX-900	30205
		FX-1200	30205



NOTE – The parts on this page are for Filtermist FX Series models with a blue serial number label. If you have an older model Filtermist unit with a white, yellow, or black serial number label, please see page 158.

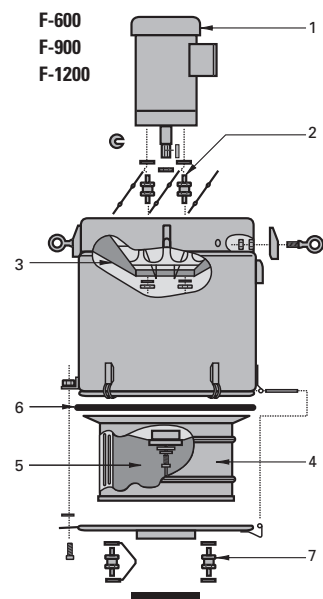
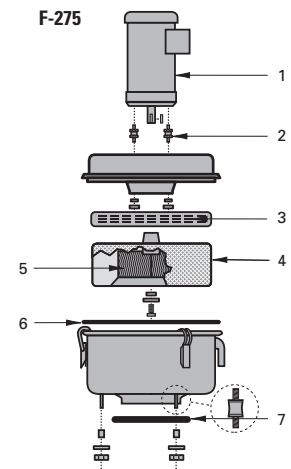
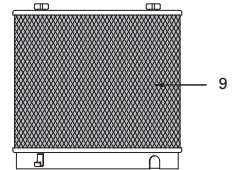
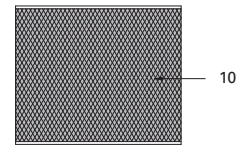
*Standard and high-performance models available.



ROYAL FILTERMIST REPLACEMENT PARTS – OLDER MODELS

Series 6, 7, and 8 (Pre-2004)

ITEM NUMBER	DESCRIPTION	FILTERMIST MODEL	WHITE LABEL (Series 8)	YELLOW LABEL (Series 7)	BLACK LABEL (Series 6)
1	Motor	F-275	30450	30450	30450
		F-600	R35L234-672	R35L234-672	R35L234-672
		F-900	R35L234-863	R35L234-863	R35L234-863
		F-1200	R35L234-863	N/A	N/A
2	Motor Mount Set Includes four mounts and required hardware.	F-275	30440	30440	30440
		F-600	30442	30442	30442
		F-900	30442	30442	30442
		F-1200	30442	N/A	N/A
3	Silencer	F-275	30420	30420	30420
		F-600	28181N	28181N	N/A
		F-900	28181N	28181N	N/A
		F-1200	28181N	N/A	N/A
4	Drum	F-275	30460	30460	30460
		F-600	28167	28167	28167
		F-900	28167	28166	28166
		F-1200	28166	N/A	N/A
5	Drum Pads (set of 4)	F-275	30410	30410	30410
		F-600	28209	28212	28212
		F-900	28209	28210	28210
		F-1200	28207	N/A	N/A
6	Housing Seal	F-275	28176	28176	N/A
		F-600	28178N	28178N	N/A
		F-900	28178N	28178N	N/A
		F-1200	28178N	N/A	N/A
7	Direct Mounting Kit Includes collar seal, mounts, and required hardware.	F-275	N/A	N/A	N/A
		F-600	28205	N/A	N/A
		F-900	N/A	N/A	N/A
		F-1200	28201	N/A	N/A
8	Complete Maintenance Kit Includes items 2, 3, 5 and 6.	F-275	28008	28008	N/A
		F-600	28015	28007	N/A
		F-900	28015	28006	N/A
		F-1200	28017	N/A	N/A
9	Complete After Filter Fits over the Filtermist motor. Includes housing, filter element, and toggle clips.	F-275	30200	30200	30200
		F-600	28164	28164	28164
		F-900	28164	28164	28164
		F-1200	28164	N/A	N/A
10	After Filter — Replacement Element Only	F-275	28159	28159	28159
		F-600	28165	28165	28165
		F-900	28165	28165	28165
		F-1200	28165	N/A	N/A
11	Drum Puller	All Units	28014	28014	28014



For all other replacement parts, please contact us at 1-800-645-4174.

NOTE — The parts on this page are for older series Filtermist units sold thru mid 2004. See page 156 for Filtermist FX Series components.

ROYAL FILTERMIST ORDERING SHEET



When placing a Filtermist order, please use this sheet to help our engineers verify that you have selected the correct Filtermist unit and accessories for your particular application.

Company: _____ Contact Name: _____

Tel: _____ Fax: _____

Machine Make and Model: _____

Internal Volume of Machine Enclosure (see page 144 for sizing information): _____

FILTERMIST UNITS	PART NUMBER	QTY.	LIST PRICE
FX-300	30105		\$2,195
FX-575	30115		\$2,755
FX-900	30120		\$3,435
FX-1200	30130		\$3,595
FX-300 Stainless Steel	30165		\$4,265
FX-575 Stainless Steel	30185		\$4,750
FX-900 Stainless Steel	30160		\$5,440
FX-1200 Stainless Steel	30170		\$5,975

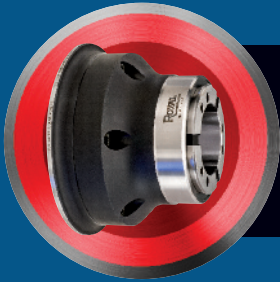
ELECTRICAL INSTALLATION PACKAGES	PART NUMBER	QTY.	LIST PRICE
Low-Voltage 208/230V (FX-300 & 575)	30470		\$575
High-Voltage 460V (FX-300 & 575)	30471		\$575
Low-Voltage 208/230V (FX-900 & 1200)	30472		\$575
High-Voltage 460V (FX-900 & 1200)	30473		\$575

PERFORMANCE ACCESSORIES	PART NUMBER	QTY.	LIST PRICE
Standard After Filter "A" (FX-300 & 575)	30200		\$345
High-Performance After Filter "A" (FX-300 & 575)	30203		\$739
Standard After Filter "B" (FX-900 & 1200)	30205		\$365
Cyclonic Swarf Separator (FX-900 & 1200)	30210		\$925
Chip Deflector "A" (FX-300 & FX-575)	30222		\$65
Chip Deflector "B" (FX-900 & 1200)	30220		\$65
Maintenance Monitor	30477		\$590

MAINTENANCE ITEMS	PART NUMBER	QTY.	LIST PRICE
Complete Maintenance Kit (FX-300)	30500		\$165
Complete Maintenance Kit (FX-575)	30506		\$195
Complete Maintenance Kit (FX-900)	30402		\$235
Complete Maintenance Kit (FX-1200)	30404		\$245

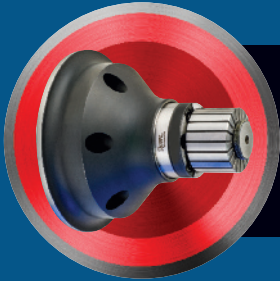
MOUNTING ACCESSORIES	PART NUMBER	QTY.	LIST PRICE
Direct Mount Kit (FX-900)	30302		\$95
Direct Mount Kit (FX-1200)	30304		\$95
Suspension Kit "B"	30310		\$195
Floor Stand "A" (FX-300 & 575)	30316		\$565
Floor Stand "B" (FX-900 & 1200)	30315		\$925
Wall Bracket "A" (FX-300 & 575)	30328		\$195
Wall Bracket "B" (FX-900 & 1200)	30320		\$365
Machine Top Stand "A" (FX-300 & 575)	30319		\$365
Machine Top Stand "B" (FX-900 & 1200)	30314		\$595
Side Mount Bracket "A" (FX-300 & 575)	30330		\$355
Coolant Return Hose	30335		\$4/ft.
Ducting (4")	30340		\$12/ft.
Ducting (6")	30342		\$16/ft.
Ducting (8")	30344		\$21/ft.
Ducting Clamp (4")	30350		\$7
Ducting Clamp (6")	30352		\$9
Ducting Clamp (8")	30354		\$11
Y-Junction (4x4x4)	30360		\$245
Y-Junction (6x4x4)	30362		\$295
Y-Junction (6x6x6)	30364		\$315
Y-Junction (8x4x4)	30366		\$425
Y-Junction (8x6x6)	30368		\$345
Flange Adapter (4")	30370		\$70
Flange Adapter (6")	30372		\$70
Flange Adapter (8")	30374		\$75
Reducer (6x4)	30380		\$130
Reducer (8x6)	30382		\$130
Fishtail (4")	30390		\$205
Fishtail (6")	30392		\$220
Fishtail (8")	30394		\$245

IN CASE YOU MISSED IT....



> QUICK-GRIP™ CNC COLLET CHUCKS

Ten-second collet changes, ultra compact dimensions, and 0.0002" TIR accuracy are just a few of the many features offered by Royal Quick-Grip™ collet chucks. Try one risk-free today.



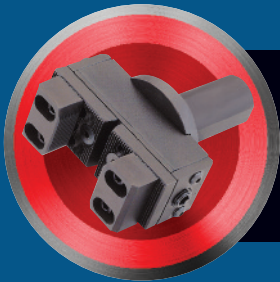
> ID WORKHOLDING – A GREAT OPTION

ID gripping provides full access to a part's entire length, enabling all external surfaces to be machined in a single operation for perfect concentricity. Royal's unique parallel sleeve expansion generates superior gripping torque for extremely aggressive machining.



> LIGHTS-OUT PRODUCTION

The patented Royal Rota-Rack™ efficiently collects and protects finished parts as they come off of your CNC lathes, providing hours of unmanned production. Heavy-duty steel construction holds up to 700 lbs. of parts.



> AUTOMATE ANY CNC LATHE FOR UNDER \$1500

Royal CNC Bar Pullers provide an easy, low-cost way to automate any CNC lathe. We offer four unique models, including a coolant-actuated version that can be adapted to unload finished parts.



> A CENTER FOR EVERY APPLICATION

For over 70 years, Royal Products has been America's leading live center manufacturer. Standard features include a +/- 0.00005" TIR guarantee and our exclusive Roto-Shield™ coolant slinger that extends bearing life by up to 300%.



> GET RID OF THE MIST

Don't let increased mist and smoke keep you from pushing your machine tools to their limits. With over 150,000 units operating in over 50 countries, the highly efficient, low-cost Royal Filtermist will keep your machines humming.

TITANS of CNC

ACADEMY

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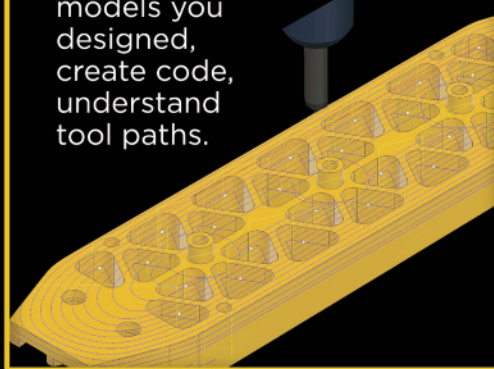
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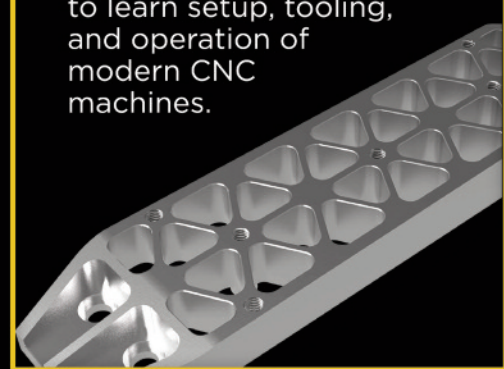
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