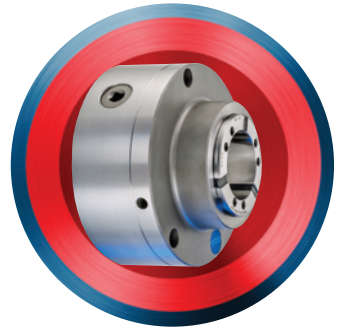
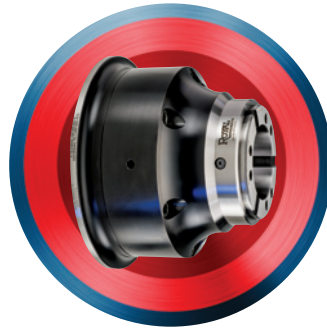
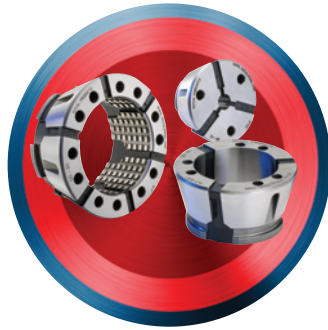
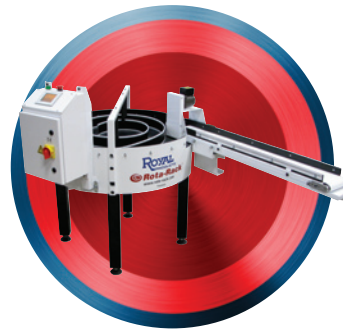
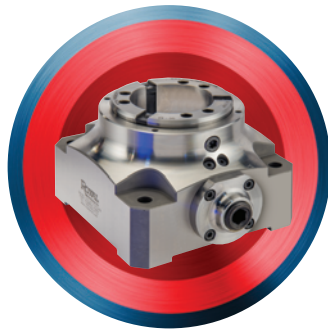
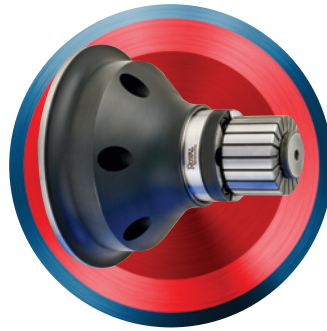


2022 Master Catalog



75 YEARS

HELPING MANUFACTURERS INCREASE MACHINE TOOL
PERFORMANCE, PRODUCTIVITY, AND PROFITS!



Royal Products has been a leading American manufacturer of metalworking performance accessories for more than 75 years. The company was founded in 1946 by Bob Curran, who had an idea for a changeable-point live center with a combination taper/thread interface that would ensure near-perfect accuracy when points were interchanged.

After being awarded a U.S. patent for his concept, Bob convinced a friend who owned a small machine shop in lower Manhattan to rent him some evening machine time so he could make his first “production run”, which only totaled enough bodies, points, and seal retainers to make ten complete live centers.

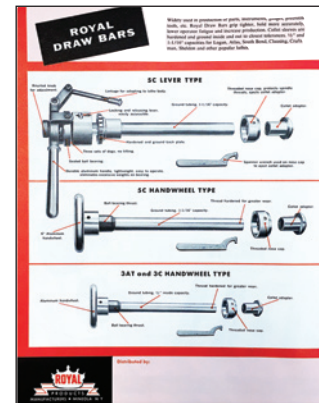
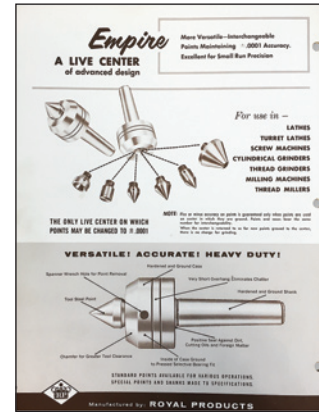
Bob assembled his first live center and drove out to Long Island to visit an industrial distributor for feedback on his design. The distributor liked what he saw and said he’d take two, so Bob left his very first center with the distributor and headed back to Manhattan to assemble the second one. Curran Manufacturing Corporation was born!

Within a few years Bob had sold enough live centers and had earned enough money to buy several used machines and rent a small shop of his own, along the way adding additional live center models to Curran Manufacturing’s offering. Having emigrated to the United States as a boy from Prince Edward Island, Canada, Bob had always had an interest in the British Monarchy. This was reflected in his early live center model names, including “The Regal” and “The Monarch”, and eventually led Bob to rebrand the company as Royal Products.

As Royal Products began to grow, Bob added a second key product line to the company’s offering – 5C collet closers for manual engine lathes. These collet closers became extremely popular for small diameter turning jobs, finding their way into virtually every machine shop in North America and cementing Royal’s position as a trusted American manufacturer of precision workholding products.

Today, more than 75 years after Bob Curran designed, built, and sold his very first live center, Royal’s modern, highly automated factory operates around the clock, producing thousands of metalworking performance accessories designed to optimize CNC machine tool performance, productivity, and profits.

While Royal Products has certainly evolved considerably from its humble beginnings, its founder’s dedication to delivering solutions and being an easy company to do business with remain core values upon which the company continues to build.



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

www.facebook.com/RoyalProdUSA

For over 75 years, leading manufacturers have trusted Royal Products to help optimize their CNC machine tool productivity. As an ISO-9001 registered company, Royal is dedicated to continuous improvement and strives to be the best supplier of CNC metalworking accessories in the industry.

One of our key advantages is that, like our customers, we own and operate our own modern factory full of the latest CNC turning, milling, and grinding equipment. Because of this, our team understands firsthand what it takes to make a shop successful, and we also have the advantage of pushing and evaluating our products every day in our own demanding production environment. Royal's philosophy is simple – **if we wouldn't use one of our products in our own shop, then we won't sell it.**

Our People



If there's one compliment that our customers give us over and over, it's that Royal Products is **one of the easiest companies they do business with.**

We don't look at ourselves as being exceptional in this area – we simply treat people the way we'd like to be treated ourselves. If a customer has a problem with one of our products, we take care of it, regardless of "whose fault it is".

This isn't rocket science – we know that if we consistently go above and beyond and always do the right thing, our customers will reward us with their loyalty.

Our Inventory

97%

Inventory can be a difficult issue for many suppliers because "sleeping money" on the warehouse shelves ties up cash that could be used for other business functions. We look at inventory differently, understanding that when our customers need one of our products, they often need it "right now" because they have a spindle down, a hot job with a tight deadline, a new machine ready to be installed, etc.

In an effort to be as responsive as possible, Royal maintains very large inventories of all products in our line, enabling us to **ship over 97% of all orders the same day we receive them.** Again, this isn't a revolutionary concept – it's simply being dedicated to having what our customers need, when they need it.

Our Quality



Everyone delivers quality, right? Well, they should anyway . . . But let's face it, not all products can be the best – many fall into the category of "good enough".

Being "good enough" doesn't sit well with the Royal team, or our First be Best, Then be First attitude.

It takes unrelenting effort to be consistently recognized as the brand leader in the products we offer, and every single member of our team understands that **if we don't deliver the absolute best machine tool performance accessories to our customers, they won't be able to make the absolute best parts for their customers.**

Our Knowledge



So now you know that Royal is super easy to do business with, has the products you need in stock for same-day shipping, and manufactures the best metalworking accessories available.

But did you also know that we employ a large team of metalworking experts strategically located throughout the country who visit dozens of shops and factories every week to evaluate processes and offer improvement recommendations? Or that one of these experts can **visit your shop in one of our fully equipped demo vans** so you and your crew can experience firsthand Royal's broad range of products right from the convenience of your own parking lot? Call us to schedule a visit today!



OPTIMIZE MACHINE TOOL PERFORMANCE, PRODUCTIVITY AND PROFITS!



Quick-Grip™ CNC Collet Chucks Pages 5-17

- The Industry-Leading CNC Collet Chuck
- Ten-Second Collet Changes
- Up to 4.04" Thru Capacity
- Tremendous Grip Force



Power-Block™ Collet Fixtures Pages 18-22

- Great for Machining Centers and 5th-Axis Applications
- Hydraulic, Pneumatic, and Manually Actuated Models



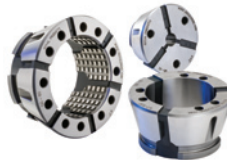
Key-Operated Quick-Grip™ Collet Chuck Page 23

- A Quick-Grip™ option for Manual Lathes, Grinders, and Welding Applications
- Large 2-5/8" Capacity
- Ten-Second Collet Changes



Quick-Grip™ Accessories Pages 24-25

- Collet Installation Tools
- Stops for Z-Axis Positioning
- Ejectors for Sub-Spindles
- Adapter Plates



Quick-Grip™ Collets Pages 26-40

- Thousands of Round, Hex, Square, and Emergency Models In-Stock for Same-Day Shipping
- Custom Shapes and Sizes Available



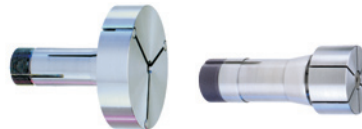
Low-Profile CNC Collet Chucks Pages 42-46

- 5C, 16C, and 3J Models
- Accu-Length™ and Pullback Models
- Includes Custom-Machined Drawtube Connector



Low-Profile Collet Fixtures Page 47

- 5C, 16C, and 3J Models
- Key-Operated
- Great for Rotary Tables



5C Step and Expanding Collets Page 48

- Grip Oversize Parts in a 5C Chuck or Fixture
- Low-Cost I.D. Workholding Option
- In-Stock for Same-Day Shipping



CNC I.D. Workholding Pages 49-56

- Great OP-2 Workholding Solution
- Provides Full-Length O.D. Workpiece Access
- Standard Sleeves up to 3.25" Diameter



Rota-Rack® Parts Accumulators Pages 57-66

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



CNC Bar Pullers Pages 67-74

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



High-Performance Live Centers Pages 75-103

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

OPTIMIZE MACHINE TOOL PERFORMANCE, PRODUCTIVITY AND PROFITS!



Precision Dead Centers Pages 104-107

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



Deburring Tools Pages 109-114

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



R8 Quick-Change Pages 116-117

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



Machine Mounts Pages 118-119

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



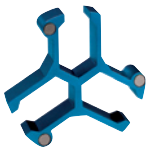
Coolant Sump Cleaner Pages 120-121

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



Pneumatic Cleaning Guns Page 121

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



Chuck Stops Page 122

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



Sensitive Drill Feed Page 122

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



Albrecht ER Micro-Chucks Pages 124-125

- Provides Improved Tool Clearance for Driven Tool Holders and Angle Heads
- Exceptional Support Over a Greater Length Keeps Small Diameter Endmills and Drills from Flexing/Wandering



Albrecht Precision Drill Chucks Pages 126-134

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



Ultra-Precision ER Collets Pages 135-138

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



Royal Filtermist Mist Collectors Pages 139-167

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



WORKHOLDING OPTIMIZED

Equipping your machines with the right workholding can have a significant impact on both throughput and profits. The guide below provides a starting point to help you narrow down which off-the-shelf solution is best suited to your particular application. If you don't see exactly what you need, give us a call to discuss a custom system designed just for you.

Collet Chucks – Turning



BEST SELLING!

Quick-Grip™

- Up to 4" Diameter
- For all CNC Lathes



Low-Profile

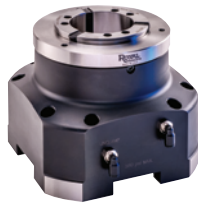
- Up to 1-3/4" Diameter
- For all CNC Lathes



Key-Operated

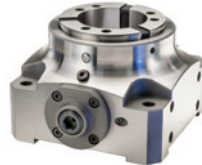
- Up to 2-5/8" Diameter
- For Manual Lathes and Rotary Tables

Collet Fixtures – Milling



Power-Block™ Hydraulic/Pneumatic

- Up to 4" Diameter
- For Stationary and 4th/5th Axis Machining Center Applications



GREAT FOR JOB SHOPS!

Power-Block™ Key-Operated

- Up to 4" Diameter
- For Stationary and 4th/5th Axis Machining Center Applications



Low-Profile Key-Operated

- Up to 1-3/4" Diameter
- For Stationary and 4th/5th Axis Machining Center Applications

ID Workholding – Turning/Milling



CNC

- Up to 3-1/4" Diameter
- For All CNC Lathes



Key-Operated

- Up to 3-1/4" Diameter
- For Manual or CNC Lathes



NEW

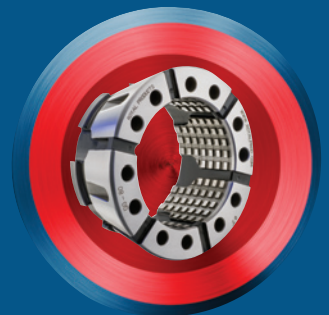
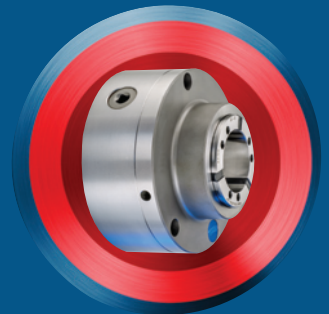
Power-Block™ Hydraulic/Pneumatic

- Up to 3-1/4" Diameter
- For Stationary and 4th/5th Axis Machining Center Applications



QUICK-GRIP™ WORKHOLDING

- TEN-SECOND COLLET CHANGES
- 0.0002" TIR OR BETTER
- PARALLEL GRIP COLLETS WITH A WIDE 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" (0.080" for QG-100).
- ✓ 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.

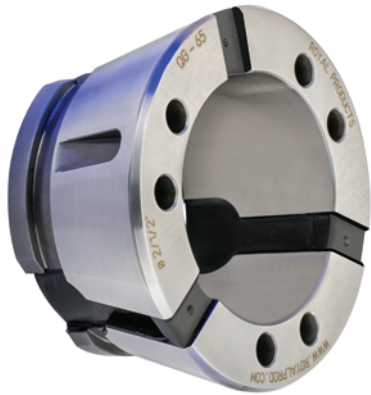
NOTE – In order to provide our customers with the best possible service, Royal maintains a huge inventory of Quick-Grip™ CNC Collet Chucks, plus more than 375 unique drawtube connector models – enabling same-day shipping on virtually all collet chuck orders.

ROYAL QUICK-GRIP™ CNC COLLET CHUCKS



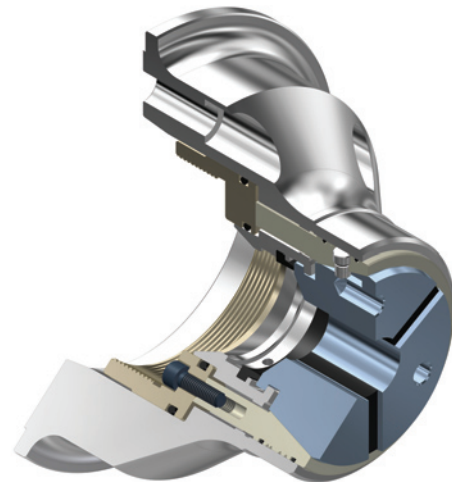
Big Benefit #1 Ten-Second Collet Changes

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.

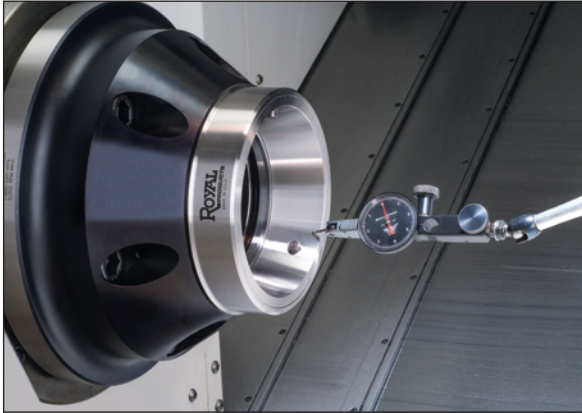
REDUCED SETUP TIME = GREATER THROUGHPUT AND HIGHER PROFITS!



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.)

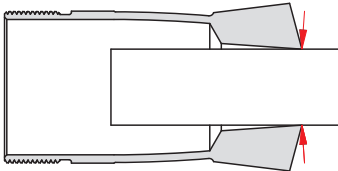
The manufacturing processes for Royal CNC collet chucks and collets have all been fully optimized to achieve the absolute tightest tolerances and highest accuracies. While we guarantee our chucks at 0.0002" TIR between the A-mount taper and collet chuck closing sleeve, they often run at 0.00005" or better!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

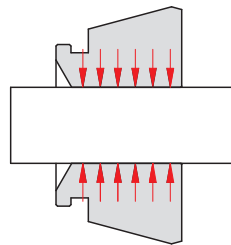
Big Benefit #3

Industry-Leading Gripping Range – 0.062"/0.080"



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). For the QG-100, this range is even greater – 0.080"!

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

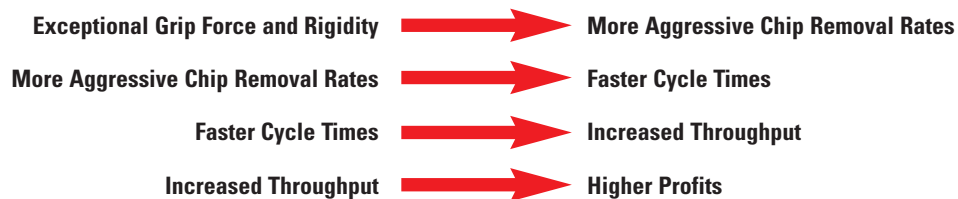


Big Benefit #4 Slash Cycle Times and Boost Throughput

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.

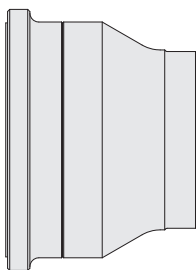


Many Royal Quick-Grip™ users have told us that they have made back their investment in just a few short weeks thanks to such a significant increase in throughput over their previous three-jaw chucks and older-style collet chucks.

Big Benefit #5 Most Compact Collet Chucks in the Industry

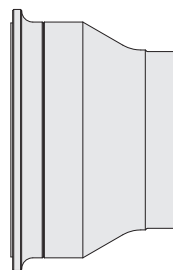
Royal Accu-Length™ CNC Collet Chucks have been optimized for tool clearance and rigidity. Short lengths **maximize the usable space inside the machining envelope**, while extremely compact nose diameters reduce tool interference and enable machining to take place closer to the spindle.

Compact
(Standard Length/Compact Nose Diameter)



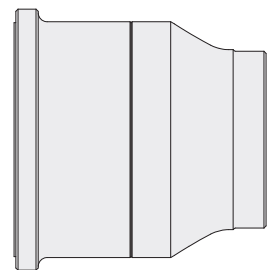
The traditional length ensures that these chucks can accommodate most machine drawtubes, while a greatly reduced nose diameter offers the **best tool clearance in the industry**.

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.

Extended-Length
(Longer Length/Compact Nose Diameter)



Royal stocks a few chuck models in extended-length versions to accommodate a handful of machines with limited z-axis travel. As a rule, it is usually best to choose the shortest chuck model possible for your machine.



ROYAL QUICK-GRIP™ CNC COLLET CHUCKS

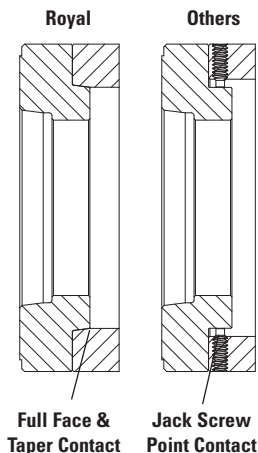
Big Benefit #6

Exclusive Royal Bolt & 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 75 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 9001:2015 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 ISO9001:2015 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 a 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 hex keys). 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 10 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. This range is even larger for the QG-100 – 0.080"

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

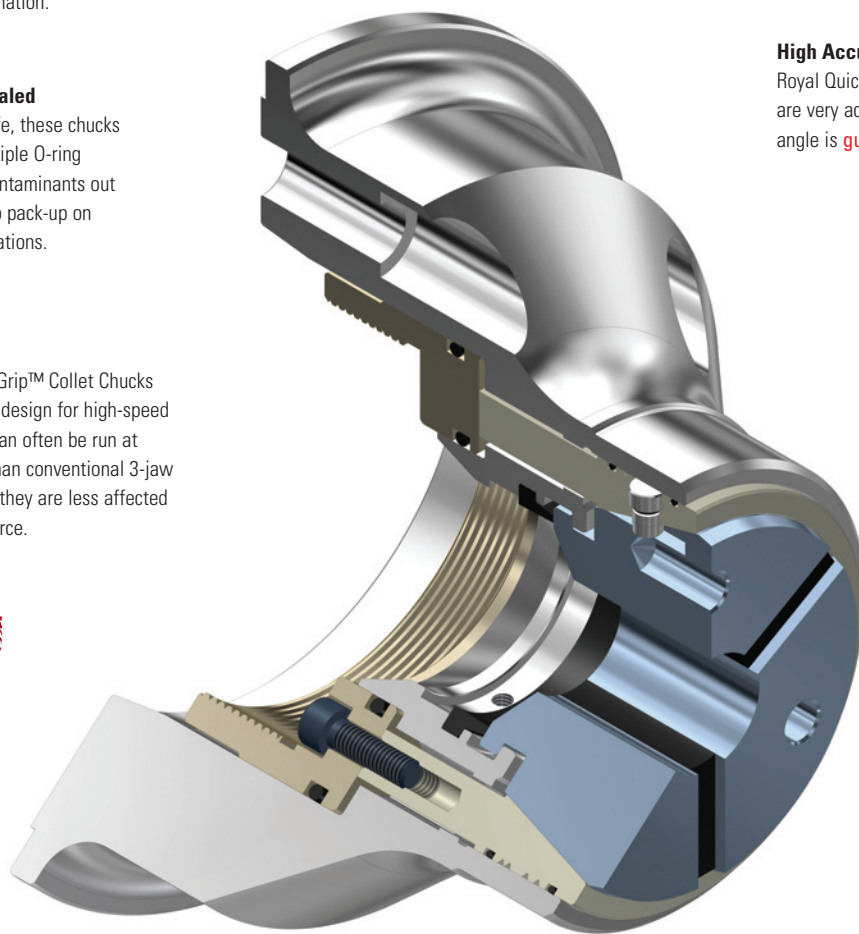
Royal Quick-Grip™ CNC Collet Chucks have smaller nose diameters than other quick-change collet chucks for superior tool clearance.

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.



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.

Easy Installation

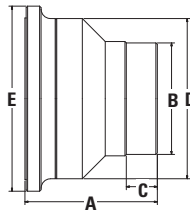
Royal Quick-Grip™ Collet Chucks include all mounting hardware, mounting wrenches, and a custom-machined drawtube connector to ensure hassle-free installation.

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.

Note – Collets and installation tool sold separately

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



- ✓ 10-second collet changes.
- ✓ Widest collet gripping range – 0.062" (0.080" for QG-100).
- ✓ 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.



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 | 4.00 | 0.75 | 5.70 | 6.45 | 19 | 7,865 | 17,980 | 6,000 | 46100 | \$3,990 |
| A2-5 | QG-42 | 1.66 | 2.62 | UC | 4.00 | 4.00 | 0.75 | 5.70 | 6.45 | 15 | 7,865 | 17,980 | 6,000 | 46105 | 3,990 |
| A2-6 | QG-42 | 1.66 | 2.62 | UC | 4.45 | 4.00 | 0.75 | 6.20 | 7.25 | 21 | 7,865 | 17,980 | 6,000 | 46110 | 3,990 |
| 140 MM | QG-42 | 1.66 | 2.62 | UC | 3.95 | 4.00 | 0.75 | 5.70 | 5.70 | 15 | 7,865 | 17,980 | 6,000 | 46115 | 3,990 |
| A2-5 | QG-52 | 2.03 | 2.57 | C | 4.80 | 4.36 | 0.75 | 6.10 | 6.85 | 24 | 7,865 | 17,980 | 6,000 | 46116 | 3,990 |
| A2-5 | QG-52 | 2.03 | 2.57 | UC | 4.20 | 4.36 | 0.75 | 6.10 | 6.10 | 18 | 7,865 | 17,980 | 6,000 | 46117 | 3,990 |
| A2-6 | QG-52 | 2.03 | 2.57 | UC | 4.60 | 4.36 | 0.75 | 6.20 | 7.25 | 23 | 7,865 | 17,980 | 6,000 | 46118 | 3,990 |
| 110 MM | QG-52 | 2.03 | 2.57 | UC | 4.20 | 4.36 | 0.75 | 6.10 | 6.10 | 17 | 7,865 | 17,980 | 6,000 | 46121 | 3,990 |
| 140 MM | QG-52 | 2.03 | 2.57 | UC | 4.20 | 4.36 | 0.75 | 6.10 | 6.10 | 19 | 7,865 | 17,980 | 6,000 | 46119 | 3,990 |
| A2-5 | QG-65 | 2.66 | 3.40 | C | 4.80 | 4.91 | 0.87 | 6.55 | 7.25 | 27 | 10,115 | 23,600 | 6,000 | 46120 | 4,510 |
| A2-5 | QG-65 | 2.66 | 3.40 | UC | 4.50 | 4.91 | 0.87 | 6.55 | 6.55 | 24 | 10,115 | 23,600 | 6,000 | 46125 | 4,510 |
| A2-6 | QG-65 | 2.66 | 3.40 | C | 5.33 | 4.91 | 0.87 | 6.55 | 7.25 | 31 | 10,115 | 23,600 | 6,000 | 46130 | 4,510 |
| A2-6 | QG-65 | 2.66 | 3.40 | UC | 4.65 | 4.91 | 0.87 | 6.55 | 7.25 | 24 | 10,115 | 23,600 | 6,000 | 46135 | 4,510 |
| A2-6 | QG-65 | 2.66 | 3.40 | EL ² | 7.00 | 4.91 | 0.87 | 6.55 | 7.25 | 45 | 10,115 | 23,600 | 6,000 | 46140 | 4,510 |
| A2-8 | QG-65 | 2.66 | 3.40 | C | 5.50 | 4.91 | 0.87 | 8.00 | 9.45 | 45 | 10,115 | 23,600 | 6,000 | 46145 | 5,090 |
| 110 MM | QG-65 | 2.66 | 3.40 | UC | 4.45 | 4.91 | 0.87 | 6.55 | 6.55 | 25 | 10,115 | 23,600 | 6,000 | 46150 | 4,930 |
| 140 MM | QG-65 | 2.66 | 3.40 | UC | 4.80 | 4.91 | 0.87 | 6.55 | 7.45 | 29 | 10,115 | 23,600 | 6,000 | 46155 | 4,930 |
| A2-5 | QG-80 | 3.28 | 4.00 | C | 4.95 | 5.63 | 0.87 | 7.45 | 7.45 | 33 | 11,240 | 25,850 | 5,000 | 46160 | 5,240 |
| A2-6 | QG-80 | 3.28 | 4.00 | C | 4.95 | 5.63 | 0.87 | 7.45 | 7.45 | 35 | 11,240 | 25,850 | 5,000 | 46165 | 5,240 |
| A2-6 | QG-80 | 3.28 | 4.00 | EL ² | 7.00 | 5.63 | 0.87 | 7.45 | 7.45 | 58 | 11,240 | 25,850 | 5,000 | 46166 | 5,240 |
| A2-8 | QG-80 | 3.28 | 4.00 | C | 5.20 | 5.63 | 0.87 | 8.00 | 9.45 | 43 | 11,240 | 25,850 | 5,000 | 46170 | 5,240 |
| 140 MM | QG-80 | 3.28 | 4.00 | C | 4.75 | 5.63 | 0.87 | 7.45 | 7.45 | 34 | 11,240 | 25,850 | 5,000 | 46175 | 5,240 |
| A2-6 | QG-100 | 4.03 | 5.15 | C | 6.18 | 7.00 | 0.87 | 9.40 | 9.40 | 76 | 14,610 | 33,720 | 5,000 | 46180 | 7,590 |
| A2-8 | QG-100 | 4.03 | 5.15 | C | 6.43 | 7.00 | 0.87 | 9.40 | 10.75 | 89 | 14,610 | 33,720 | 5,000 | 46185 | 7,690 |
| A2-11 | QG-100 | 4.03 | 5.15 | C | 6.68 | 7.00 | 0.87 | 9.40 | 12.50 | 93 | 14,610 | 33,720 | 5,000 | 46190 | 8,990 |

¹ Includes drawtube connector. Collets and installation tool 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 38 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 10 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 and installation tool 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. This range is even larger for the QG-100 – 0.080".

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.

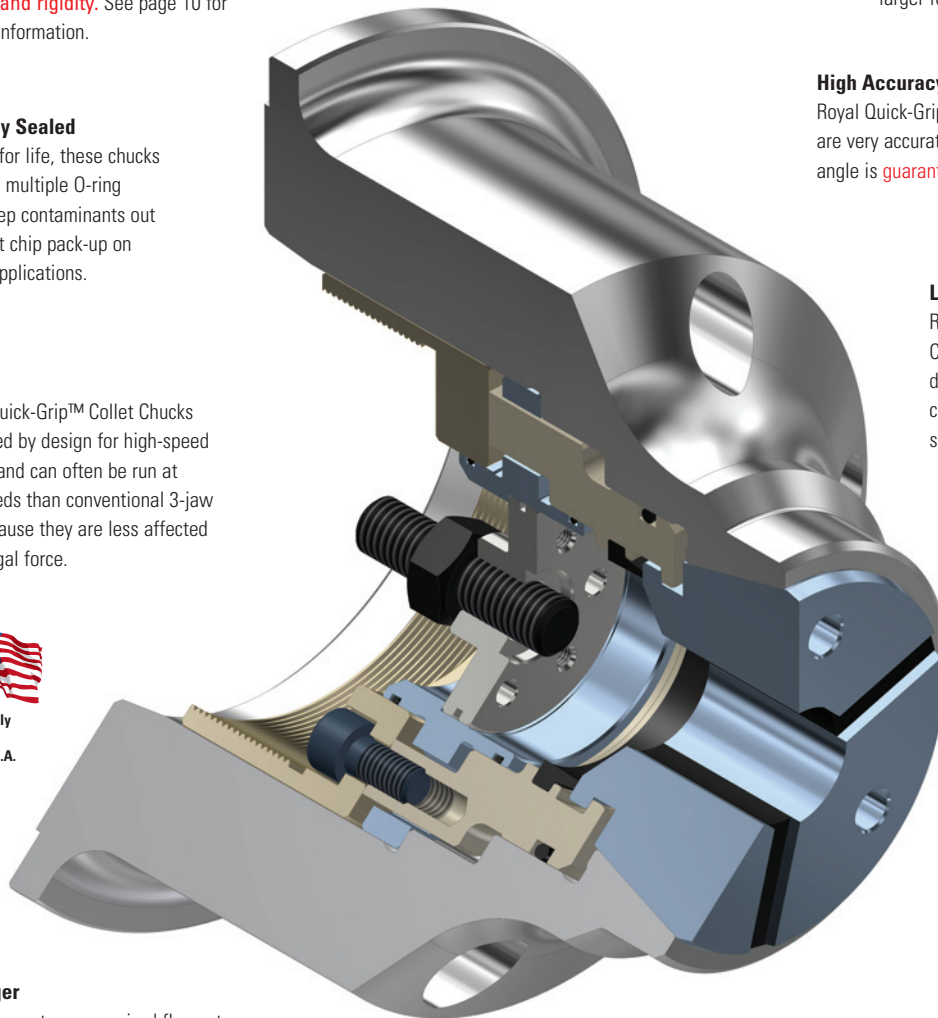
Specials

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.



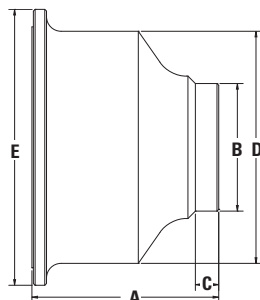
ROYAL QUICK-GRIP™ PULL-TO-A-STOP CNC COLLET CHUCKS



- ✓ 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.



Proudly Made in U.S.A.



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 | \$4,070 |
| 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 | 4,070 |
| A2-5 | QG-52 | 2.03 | 2.57 | 5.25 | 3.63 | 0.62 | 6.19 | 6.95 | 21 | 7,865 | 17,980 | 6,000 | 46028 | 4,070 |
| A2-6 | QG-52 | 2.03 | 2.57 | 5.65 | 3.63 | 0.67 | 6.19 | 7.25 | 22 | 7,865 | 17,980 | 6,000 | 46030 | 4,070 |
| 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 | 4,660 |
| 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 | 4,660 |
| 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 | 4,660 |
| 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 | 4,660 |
| 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 | 5,120 |
| 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 | 5,120 |
| 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 | 6,110 |
| 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 | 6,110 |
| 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 | 6,640 |

¹ Includes drawtube connector. Collets and installation tool 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 38 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 10 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

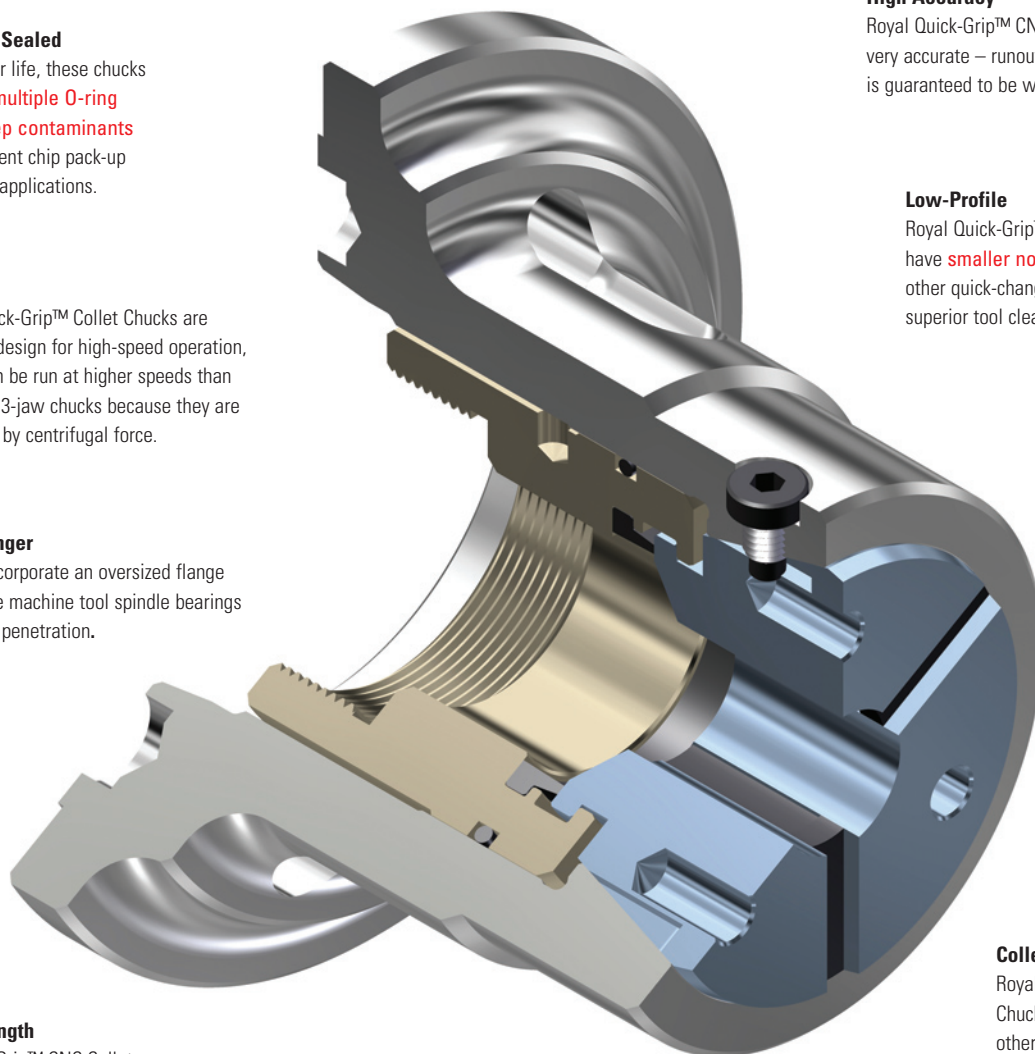
Royal Quick-Grip™ Collets have a 0.062" gripping range (+/- 0.031"), enabling them to accommodate undersized and oversized bar stock. This range is even larger for the QG-100 – 0.080".

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

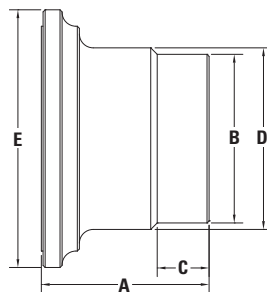
All chuck components, including the drawtube connector, are **hardened to Rc 61-63 for high rigidity and durability.**

Note – Collets and installation tool 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 (0.080" for QG-100)
 - 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 | \$2,510 |
| 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 | 2,690 |
| 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 | 2,870 |
| 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 | 2,870 |
| 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 | 3,540 |
| 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 | 3,610 |
| 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 | 3,610 |

¹ Includes drawtube connector. Collets and installation tool sold separately.

² Slug capacity requires counterboring of collets. See page 38 details.



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



ROYAL QUICK-GRIP™ POWER-BLOCK™ COLLET FIXTURES

Hydraulic or Pneumatic Actuation

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. This range is even larger for the QG-100 – 0.080".

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.

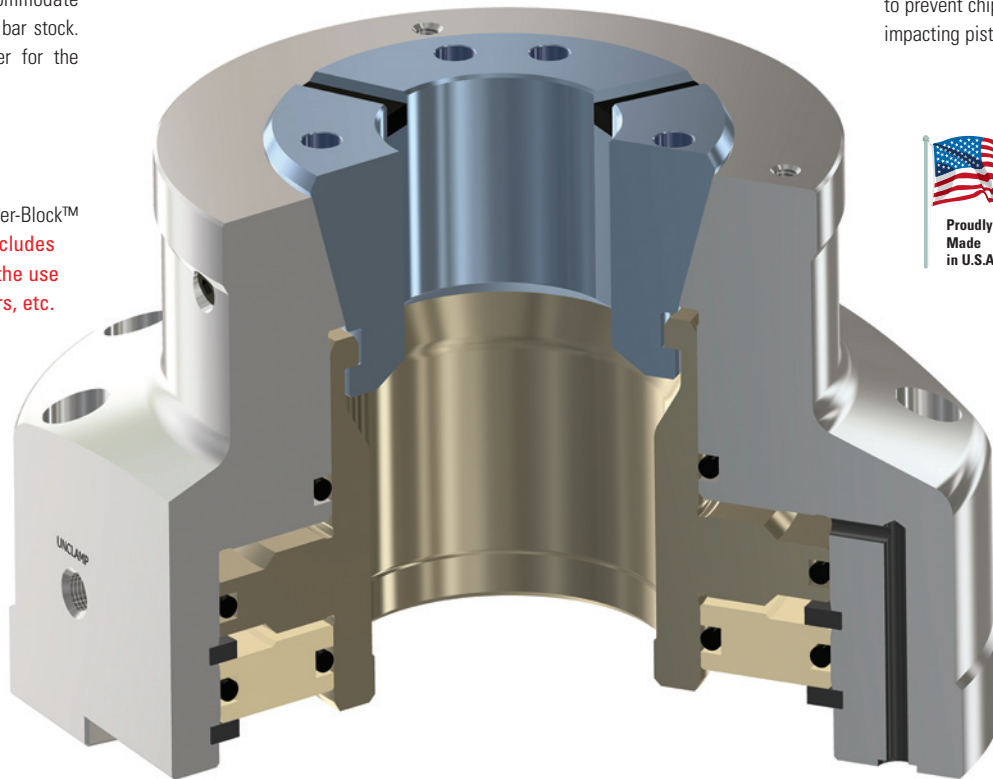
Extreme Grip Force

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.

Great for 5th-Axis Applications!



Dual-Port Actuation

All units are equipped with 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 examples on page 39.

Precision Mounting

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



Note – Collets and installation tool sold separately

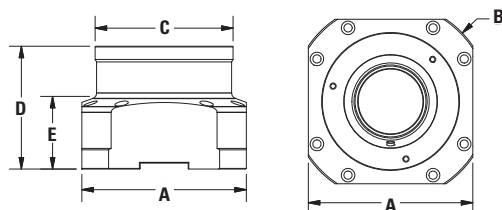
ROYAL QUICK-GRIP™ POWER-BLOCK™ COLLET FIXTURES

Hydraulic or Pneumatic Actuation



- 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 0.062" clamping range (0.080" for QG-100).
- **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 (contact Royal for details).
- 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 and installation tools (pages 24-40).

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. See page 39 for examples.



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-52 | 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 |

*Contact Royal for pneumatic actuation specifications.

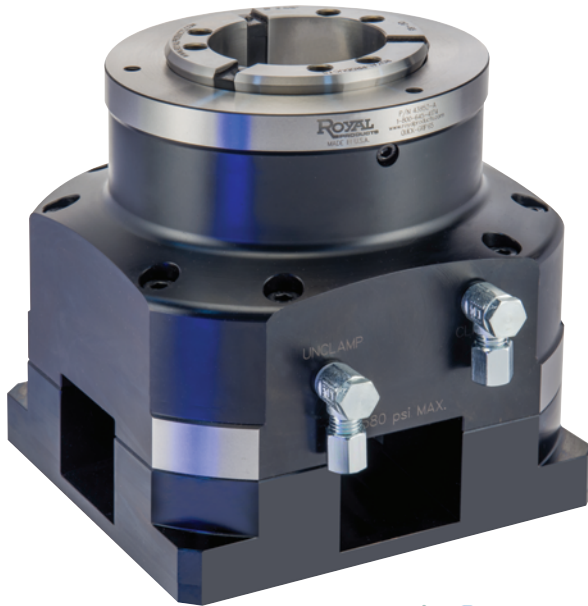
Royal Quick-Grip™ Power-Block™ Collet Fixtures

| 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 | \$2,980 |
| QG-52 | 2.00 | 1.37 | 6.06 | 6.89 | 4.13 | 4.72 | 3.56 | 43962 | 2,980 |
| QG-65 | 2.66 | 1.78 | 6.85 | 8.27 | 5.75 | 5.12 | 3.00 | 43952 | 3,210 |
| QG-80 | 3.28 | 2.03 | 7.34 | 8.46 | 6.30 | 5.12 | 3.00 | 43954 | 3,610 |
| QG-100 | 4.03 | 2.78 | 9.02 | 10.63 | 8.46 | 5.51 | 3.38 | 43956 | 4,970 |

*Collets and installation tool sold separately.



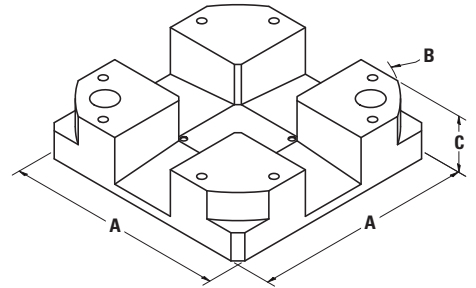
ROYAL QUICK-GRIP™ POWER-BLOCK™ RISERS



- These risers are designed specifically for Royal Power-Block™ Collet Fixtures and have multiple uses, including:
 - Raising the fixture height for **improved 5th-axis accessibility**.
 - Enhancing chip evacuation for thru-hole machining applications.
- Surface ground within 0.0002" parallelism.
- Manufactured from semi-hard 4140 steel for toughness, yet it is still easily machineable for customization.
- Thickness held within 0.0005" tolerance for accurate interchangeability.
- Tapped center hole enables easy installation of a depth stop.
- 20mm wide keyway on bottom surface provides secure engagement with machining center tables and rotary tables.
- Flexible mounting:
 - Milled flats allow for the use of hold-down clamps.
 - Bolt directly to the machine table.
 - Secure with T-nuts.
- Risers also available for Royal Key-Operated Power-Block™ Fixtures. Please contact one of our applications engineers for information.
- In stock for same-day shipping.

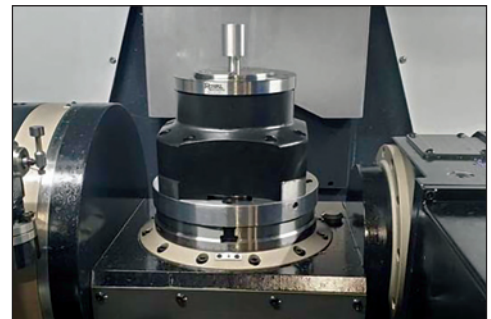
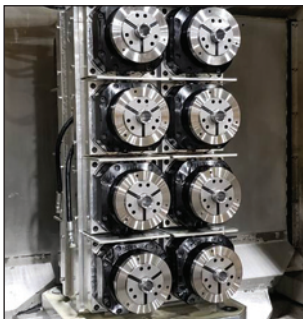
Royal Power-Block™ Risers

| FITS HYDRAULIC POWER-BLOCK™ MODEL | A | B | C | PART NUMBER | PRICE* |
|-----------------------------------|------|-------|------|-------------|----------------|
| QG-42 | 6.06 | 6.89 | 1.75 | 43970 | \$1,098 |
| QG-52 | 6.06 | 6.89 | 1.75 | 43970 | 1,098 |
| QG-65 | 6.85 | 8.27 | 1.75 | 43972 | 1,122 |
| QG-80 | 7.34 | 8.46 | 1.75 | 43974 | 1,194 |
| QG-100 | 9.02 | 10.63 | 1.75 | 43976 | 1,422 |

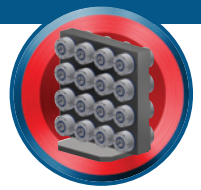


*Rise only. Order Power-Block™ and collets separately.

The Royal Power-Block™ In Action



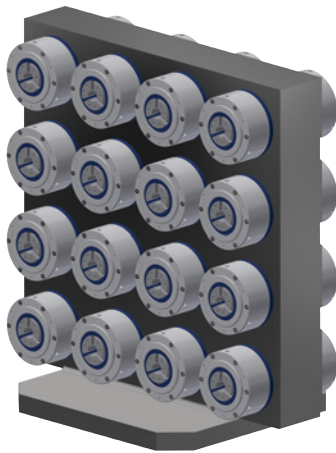
ROYAL CUSTOM POWER-BLOCK™ WORKHOLDING



The Royal Power-Block™ offers unique production-enhancing opportunities for:

- ✓ 5th-Axis Applications
- ✓ Horizontal Machining Centers
- ✓ Multi-Station Rotary-Transfer Applications

Here is a sampling of how some of our customers have greatly improved productivity with Royal Power-Blocks™.

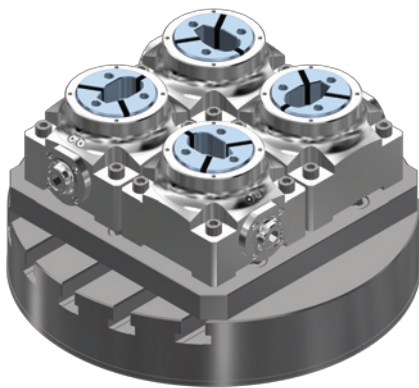


Application: Double-sided shaft-end machining on a horizontal machining center.

Capacity: 16 parts at one time.

Unique Features:

- 32 custom Small-Body Accu-Length™ Collet Fixtures mounted to a custom internally ported T-column.
- Gripping force supplied by internal die springs in each fixture.
- Pneumatically unclamped via a single intake port.
- This arrangement allows for all parts to be loaded and clamped off-line, so when the column travels into the machining center no air or hydraulic lines need to remain attached.

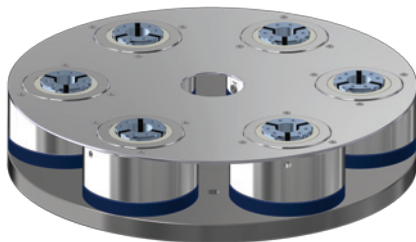


Application: “Tapered Oval” shaped part in a 5th-axis machining center.

Capacity: Four parts at one time.

Unique Features:

- Four standard Key-Operated Power-Blocks™ mounted to the machine tool rotary table via a custom adapter plate.
- Four hardened and ground collets custom-machined according to the exact part profile.
- Customer experienced an increase in throughput of 236% over the multi-station vise that was previously being used.

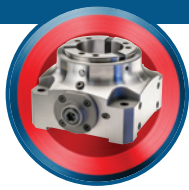


Application: Six-station rotary-transfer machine.

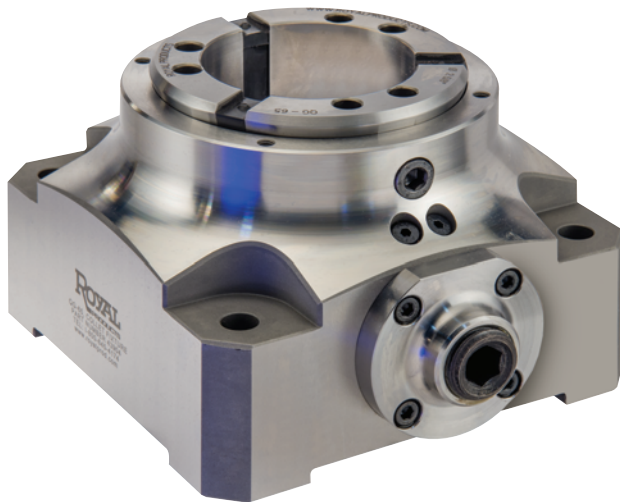
Capacity: Five parts in process at one time. Sixth station used for load/unload.

Unique Features:

- Six custom Small-Body Accu-Length™ Hydraulic Power-Block™ Fixtures mounted to a custom plate.
- Six custom counter-bored collets for precise z-axis positioning.
- Custom chip-shield.
- Clamp/unclamp provided via a centrally located indexing hydraulic manifold (not shown).

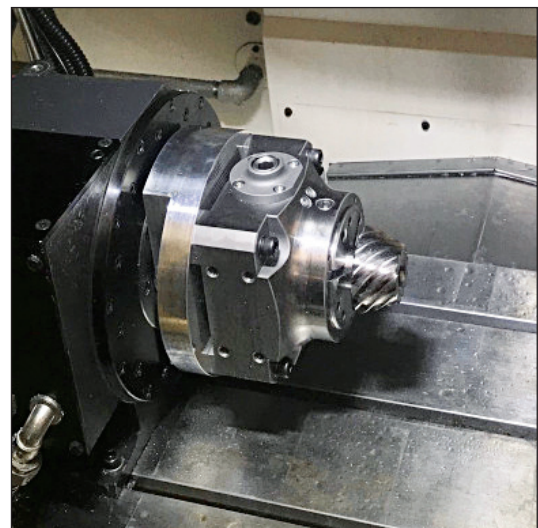
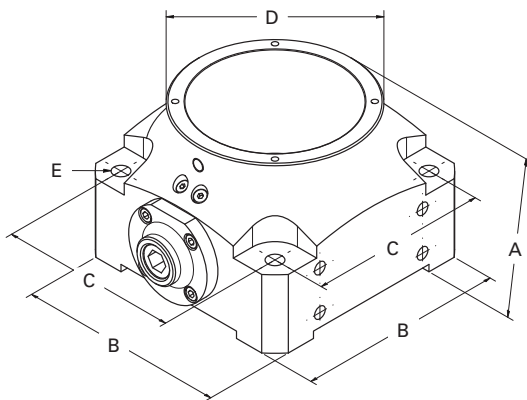


ROYAL QUICK-GRIP™ POWER-BLOCK KEY-OPERATED COLLET FIXTURES



- ❑ Unit is mechanically actuated via an included hex key.
- ❑ 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 0.062" clamping range (0.080" for QG-100).
- ❑ Pullback design with an internally threaded back plate enables the use of a stop rod.
- ❑ Fixture face is precision ground and includes tapped holes, enabling the use of custom stops, locators, etc.
- ❑ 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 and installation tools (pages 24-40).

Great for Job Shops!

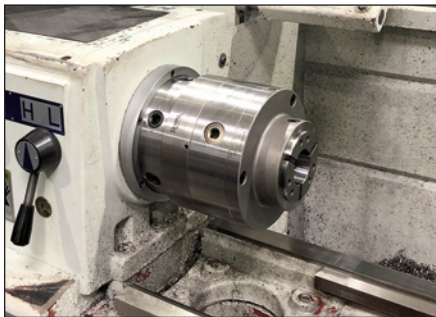
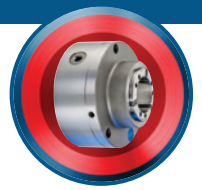


Royal Quick-Grip™ Power-Block Key-Operated Collet Fixtures

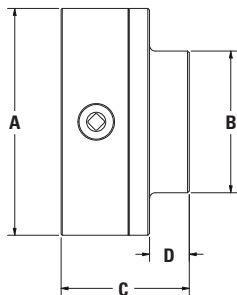
| MODEL | CAPACITY | | A | B | C | D | E | MAX TIGHTENING TORQUE (ft.-lbs.) | MAX CLAMPING FORCE (lbs.) | PART NUMBER | PRICE* |
|--------|----------|--------|------|------|------|------|------|----------------------------------|---------------------------|-------------|----------------|
| | ROUND | SQUARE | | | | | | | | | |
| QG-42 | 1.66" | 1.16" | 3.94 | 5.12 | 3.94 | 3.94 | 0.43 | 42 | 5,125 | 43900 | \$3,510 |
| QG-52 | 2.03" | 1.41" | 3.94 | 5.12 | 3.94 | 3.94 | 0.43 | 42 | 5,125 | 43902 | 3,510 |
| QG-65 | 2.66" | 1.78" | 3.94 | 5.91 | 4.72 | 4.72 | 0.43 | 42 | 6,430 | 43904 | 3,710 |
| QG-80 | 3.28" | 2.03" | 4.33 | 6.50 | 5.31 | 5.31 | 0.51 | 57 | 7,420 | 43908 | 5,120 |
| QG-100 | 4.03" | 2.78" | 4.33 | 7.87 | 6.69 | 6.50 | 0.51 | 57 | 9,375 | 43912 | 5,520 |

*Collets and installation tool sold separately

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



- ❑ 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 0.062" 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 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 – up to 16,860 lbs.
- ❑ Order backplate separately. Other backplate styles available as custom order.
- ❑ For use with Royal QG-65 collets and installation tools (pages 24-40).
- ❑ 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 | MAX TIGHTENING TORQUE (ft.-lbs.) | MAX CLAMPING FORCE (lbs.) | PART NUMBER | PRICE |
|-------|----------|------|------|------|------|----------------------------------|---------------------------|-------------|----------------|
| QG-65 | 2.66 | 7.87 | 4.92 | 4.45 | 1.38 | 118 | 16,860 | 43920 | \$4,910 |

*Order backplate, collets, and installation tool separately.

Backplates for Key-Operated QG Collet Chuck

| MODEL | PLATE DIAMETER | PLATE THICKNESS | PART NUMBER | PRICE |
|-------|----------------|-----------------|-------------|--------------|
| A2-5 | 7.87 | 1.10 | 43930 | \$990 |
| A2-6 | 7.87 | 1.18 | 43932 | 1,080 |
| D1-5 | 7.87 | 1.60 | 43934 | 1,250 |
| D1-6 | 7.87 | 1.85 | 43936 | 1,510 |

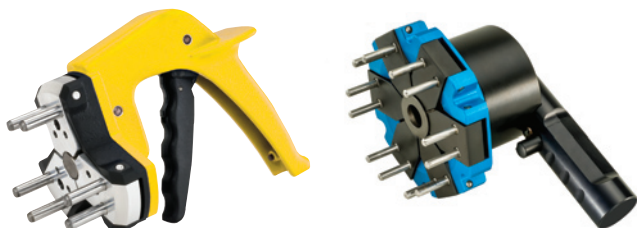
- ❑ Hardened and precision ground.
- ❑ Backplates accept Royal Quick-Grip™ stops featured on page 24.



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.

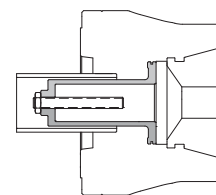


Royal Quick-Grip™ Collet Installation Tools

| FITS CHUCK MODEL | TYPE | PART NUMBER | PRICE |
|------------------|-----------|-------------|--------------|
| QG-42 | Manual | 44097 | \$598 |
| QG-42 | Pneumatic | 44371 | 1,365 |
| QG-52 | Manual | 44095 | 598 |
| QG-52 | Pneumatic | 44359 | 1,365 |
| QG-65 | Manual | 44098 | 598 |
| QG-65 | Pneumatic | 44372 | 1,365 |
| QG-80 | Manual | 44099 | 598 |
| QG-80 | Pneumatic | 44373 | 2,340 |
| QG-100 | Pneumatic | 44374 | 2,340 |

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™ CNC 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 | \$209 |
| QG-52 | 2.17 | 3.04 | 44818 | 209 |
| QG-65 | 2.47 | 3.33 | 44081 | 237 |
| QG-80 | 2.46 | 3.33 | 44084 | 270 |
| QG-100 | 2.71 | 3.65 | 44816 | 306 |

* 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 | \$369 |
| QG-52 | 5.00 | 5.87 | 1.38 | 1.78 | 44803 | 369 |
| QG-65 | 6.00 | 6.86 | 1.25 | 1.66 | 44804 | 417 |
| QG-65 | 6.00 | 6.86 | 2.25 | 2.73 | 44806 | 417 |
| QG-80 | 5.95 | 6.82 | 2.00 | 2.48 | 44808 | 503 |
| QG-80 | 5.95 | 6.82 | 2.75 | 3.23 | 44810 | 503 |
| QG-100 | 6.00 | 6.94 | 2.75 | 3.23 | 44812 | 608 |
| QG-100 | 6.00 | 6.94 | 3.50 | 3.91 | 44814 | 608 |

* Measured from collet face.

ROYAL QUICK-GRIP™ CNC COLLET CHUCK ACCESSORIES



Royal Quick-Grip™ Ejectors

- Ejectors are used in sub-spindle applications with Royal Quick-Grip™ Accu-Length™ CNC Collet 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**.



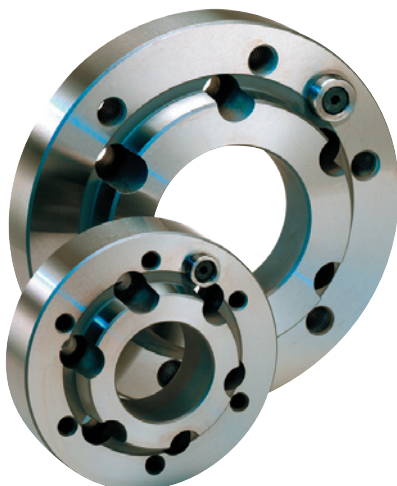
Royal Quick-Grip™ Ejectors

| FITS ACCU-LENGTH™ CHUCK MODEL | EJECTOR STYLE | PART DIAMETER RANGE | PART NUMBER | PRICE |
|-------------------------------|---------------|---------------------|-------------|--------------|
| QG-42 | Compact | 0.18–1.25 | 44043 | \$858 |
| QG-42 | Standard | 0.81–1.63 | 44040 | 990 |
| QG-52 | Compact | 0.18–1.25 | 44037 | 858 |
| QG-52 | Standard | 0.81–2.03 | 44035 | 990 |
| QG-65 | Compact | 0.18–1.25 | 44044 | 872 |
| QG-65 | Standard | 0.81–2.63 | 44041 | 1,006 |
| QG-80 | Compact | 0.18–1.25 | 44045 | 888 |
| QG-80 | Standard | 0.81–3.25 | 44042 | 1,020 |
| QG-100 | Compact | 0.50–1.50 | 44047 | 905 |
| QG-100 | Standard | 1.50–4.00 | 44046 | 1,038 |

Royal Hardened and Ground Adapter Plates



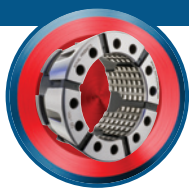
- Adapter plates offer the flexibility to mount collet chucks and 3-jaw chucks to a wider range of spindles:
 - Mount a larger chuck on a smaller spindle for increased capacity.
 - Mount a smaller chuck on a larger spindle for increased tool clearance and higher speeds.
- All Royal adapter plates are **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

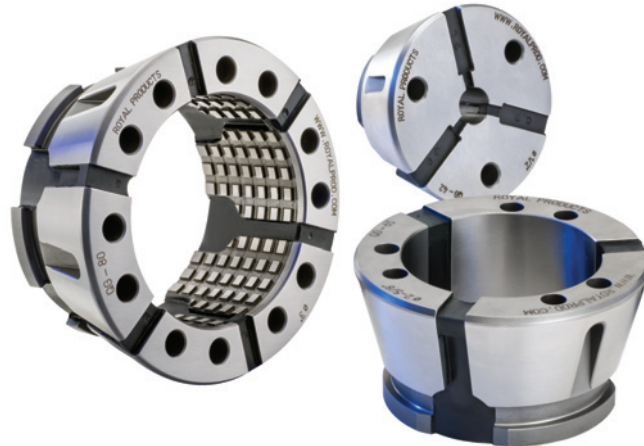
| SPINDLE MOUNT | CHUCK MOUNT | PLATE DIAMETER | PLATE THICKNESS | THRU-HOLE DIA. | SPINDLE MOUNTING BOLTS | CHUCK MOUNT THREADS | PART NUMBER | PRICE |
|---------------|-------------|----------------|-----------------|----------------|------------------------|---------------------|-------------|----------------|
| A2-5 | A2-6 | 6.68 | 1.00 | 2.63 | M-10 | M-12 | 44000 | \$1,510 |
| A2-6 | A2-6 | 6.68 | 1.25 | 3.56 | M-12 | M-12 | 44009 | 1,350 |
| A2-6 | A2-8 | 8.68 | 1.00 | 3.75 | M-12 | M-16 | 44004 | 1,750 |
| A2-8 | A2-6 | 8.25 | 1.75 | 3.44 | M-16 | M-12 | 44010 | 1,750 |
| A2-8 | A2-8 | 8.69 | 2.00 | 4.76 | M-16 | M-16 | 44011 | 1,840 |
| A2-11 | A2-8 | 11.00 | 2.00 | 4.76 | M-20 | M-16 | 44014 | 2,220 |
| 110MM | A2-5 | 5.31 | 0.75 | 2.00 | M-10 | M-10 | 44006 | 1,310 |
| 140MM | A2-6 | 6.68 | 1.00 | 3.00 | M-10 | M-12 | 44008 | 1,560 |

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 Inch and Metric Sizes Available from Stock



These Extremely Advanced Collets Will Revolutionize Your Workholding

- **Industry-leading 0.062" Gripping Range (0.080" for QG-100)** – greater than other quick-change collets on the market and more than 12X that of traditional spring collets (see page 8).
- Royal Quick-Grip Collets are precision-ground to nominal size, with a gripping range of +/- 0.31" to handle undersized/oversized stock (+/- 0.40" for QG-100).
 - Example** – a ½" QG-65 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 8). 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 38).
- S-type master collets available for QG-65 and QG-80 chuck models – see page 40.
- 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.

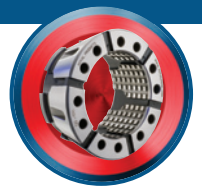
Royal Ultra-Precision Quick-Grip™ Collet Specifications

| COLLET MODEL | COLLET RANGE | 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 | 0.062 | 3 | 1.66 | 2.62 | 1.40 | 1.15 | Y | Y | Y |
| QG-52 | 0.062 | 3 | 2.03 | 2.57 | 1.78 | 1.41 | Y | Y | Y |
| QG-65 | 0.062 | 3 | 2.66 | 3.40 | 2.28 | 1.78 | Y | Y | Y |
| QG-80 | 0.062 | 6* | 3.28 | 4.00 | 2.78 | 2.03 | Y | Y | Y |
| QG-100 | 0.080 | 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 38 or contact Royal.

ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS



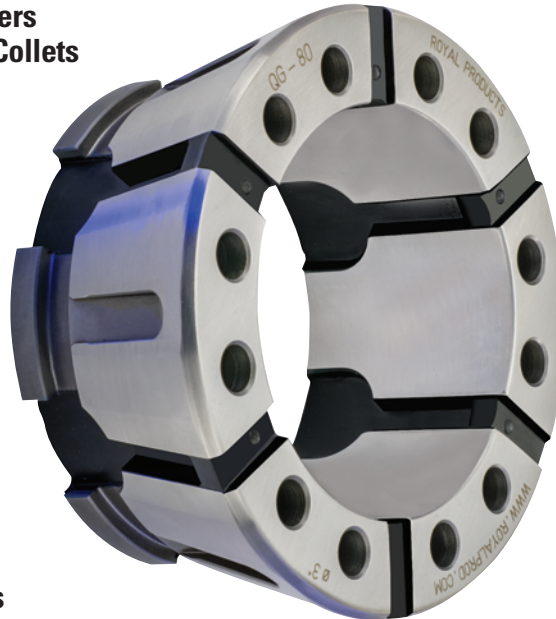
Why Do Top Manufacturers Insist on Royal Quick-Grip™ Collets?

Industry-Leading 0.062" Gripping Range (0.080" for QG-100) Covers More Diameters with Fewer Collets

Ultra-Precision Accuracy – 0.0002" TIR or Better

Vulcanization Guaranteed for Life

Parallel-Grip Maintains Full-Length Part Engagement



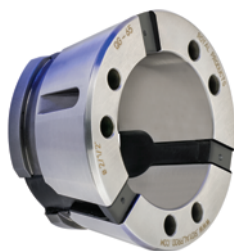
Exceptional Grip-Force Enables Very Aggressive Cutting

Exclusive Royal Risk-Free Performance Guarantee

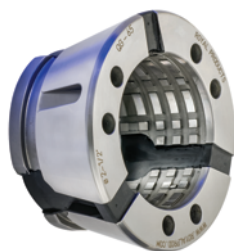
Fast Delivery on Custom Shapes and Sizes – See Page 39

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

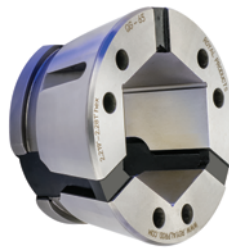
Order Today – Have it Tomorrow



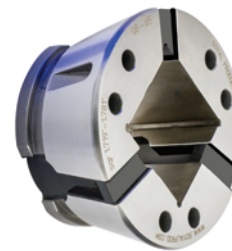
Round – Smooth



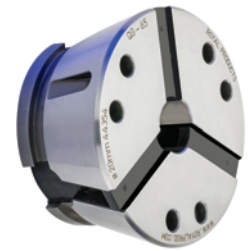
Round – Serrated



Hex



Square



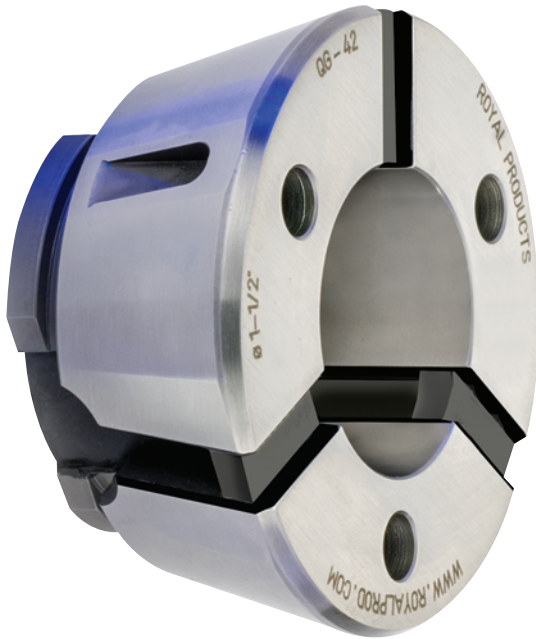
Emergency

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



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

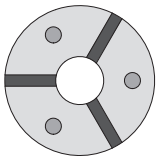
QG-42



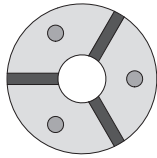
| QG-42 CAPACITY | |
|----------------|----------------|
| Bar Diameter | 1.66" (42.8mm) |
| Slug Diameter* | 2.62" (66.5mm) |

* See page 38 for details.

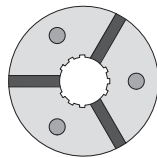
- ❑ Huge inventory of Round, Hex, Square, and Emergency styles always in stock, ready for same-day shipping.
- ❑ Smooth and serrated versions for round-bore models (all others smooth only).
- ❑ **Industry-leading 0.062" gripping range** covers a wide range of part diameters. Collets are ground to nominal 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 38 for details.
- ❑ Quick-ship specials available for custom shapes.
- ❑ Can utilize manual and pneumatic changing tools.



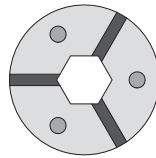
Round Inch



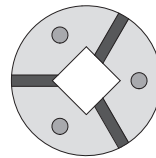
Round Metric



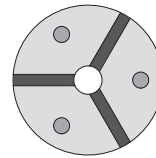
Serrated



Hex



Square



Emergency

Royal QG-42 **Round** Collets (Inch) – \$275 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) – \$275 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 – \$395 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 – \$395 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 – \$322 Each – See Page 38

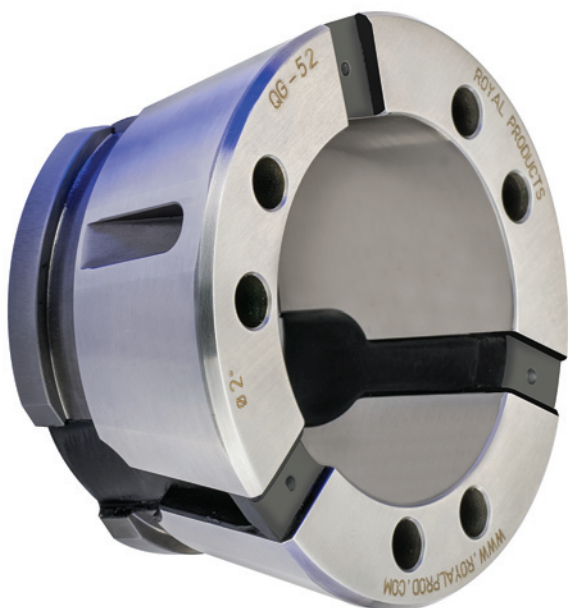


Check out the Royal Quick-Grip™ CNC Collet Chuck Video at www.colletchucks.com



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

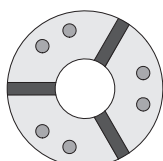
QG-52



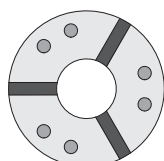
| QG-52 CAPACITY | |
|----------------|----------------|
| Bar Diameter | 2.03" (51.6mm) |
| Slug Diameter* | 2.57" (64.3mm) |

* See page 38 for details.

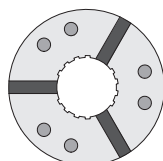
- ❑ Huge inventory of Round, Hex, Square, and Emergency styles always in stock, ready for same-day shipping.
- ❑ Smooth and serrated versions for round-bore models (all others smooth only).
- ❑ **Industry-leading 0.062" gripping range** covers a wide range of part diameters. Collets are ground to nominal 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 2.57" – see page 38 for details.
- ❑ Quick-ship specials available for custom shapes.
- ❑ Can utilize manual and pneumatic changing tools.



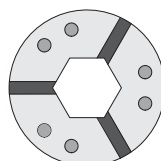
Round Inch



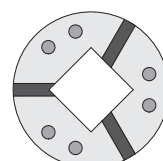
Round Metric



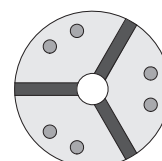
Serrated



Hex



Square



Emergency

Royal QG-52 Round Collets (Inch) – \$275 Each

| NOMINAL SIZE | RANGE (INCHES) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|----------------|--------------------|----------------------|
| 3/16" | 0.157–0.219 | 45600 | N/A |
| 7/32" | 0.188–0.250 | 45601 | N/A |
| 1/4" | 0.219–0.281 | 45602 | N/A |
| 9/32" | 0.250–0.312 | 45603 | N/A |
| 5/16" | 0.282–0.344 | 45604 | N/A |
| 11/32" | 0.313–0.375 | 45605 | 45665 |
| 3/8" | 0.344–0.406 | 45606 | 45666 |
| 13/32" | 0.375–0.437 | 45607 | 45667 |
| 7/16" | 0.407–0.469 | 45608 | 45668 |
| 15/32" | 0.438–0.500 | 45609 | 45669 |
| 1/2" | 0.469–0.531 | 45610 | 45670 |
| 17/32" | 0.500–0.562 | 45611 | 45671 |
| 9/16" | 0.532–0.594 | 45612 | 45672 |
| 19/32" | 0.563–0.625 | 45613 | 45673 |
| 5/8" | 0.594–0.656 | 45614 | 45674 |
| 21/32" | 0.625–0.687 | 45615 | 45675 |
| 11/16" | 0.657–0.719 | 45616 | 45676 |
| 23/32" | 0.688–0.750 | 45617 | 45677 |
| 3/4" | 0.719–0.781 | 45618 | 45678 |
| 25/32" | 0.750–0.812 | 45619 | 45679 |

| NOMINAL SIZE | RANGE (INCHES) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|----------------|--------------------|----------------------|
| 13/16" | 0.782–0.844 | 45620 | 45680 |
| 27/32" | 0.813–0.875 | 45621 | 45681 |
| 7/8" | 0.844–0.906 | 45622 | 45682 |
| 29/32" | 0.875–0.937 | 45623 | 45683 |
| 15/16" | 0.907–0.969 | 45624 | 45684 |
| 31/32" | 0.938–1.000 | 45625 | 45685 |
| 1" | 0.969–1.031 | 45626 | 45686 |
| 1 1/32" | 1.000–1.062 | 45627 | N/A |
| 1 1/16" | 1.032–1.094 | 45628 | 45687 |
| 1 1/8" | 1.063–1.125 | 45629 | N/A |
| 1 1/4" | 1.094–1.156 | 45630 | 45688 |
| 1 3/8" | 1.125–1.187 | 45631 | N/A |
| 1 1/2" | 1.157–1.219 | 45632 | 45689 |
| 1 5/8" | 1.188–1.250 | 45633 | N/A |
| 1 3/4" | 1.219–1.281 | 45634 | 45690 |
| 1 7/8" | 1.250–1.312 | 45635 | N/A |
| 1 15/16" | 1.282–1.344 | 45636 | 45691 |
| 1 1/2" | 1.313–1.375 | 45637 | N/A |
| 1 5/8" | 1.344–1.406 | 45638 | 45692 |
| 1 13/16" | 1.375–1.437 | 45639 | N/A |

| NOMINAL SIZE | RANGE (INCHES) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|----------------|--------------------|----------------------|
| 1 7/16" | 1.407–1.469 | 45640 | 45693 |
| 1 15/32" | 1.438–1.500 | 45641 | N/A |
| 1 1/2" | 1.469–1.531 | 45642 | 45694 |
| 1 17/32" | 1.500–1.562 | 45643 | N/A |
| 1 9/16" | 1.532–1.594 | 45644 | 45695 |
| 1 19/32" | 1.563–1.625 | 45645 | N/A |
| 1 5/8" | 1.594–1.656 | 45646 | 45696 |
| 1 21/32" | 1.625–1.687 | 45647 | N/A |
| 1 11/16" | 1.657–1.719 | 45648 | 45697 |
| 1 23/32" | 1.688–1.750 | 45649 | N/A |
| 1 3/4" | 1.719–1.781 | 45650 | 45698 |
| 1 25/32" | 1.750–1.812 | 45651 | N/A |
| 1 13/16" | 1.782–1.844 | 45652 | 45699 |
| 1 27/32" | 1.813–1.875 | 45653 | N/A |
| 1 5/8" | 1.844–1.906 | 45654 | 45700 |
| 1 29/32" | 1.875–1.937 | 45655 | N/A |
| 1 15/16" | 1.907–1.969 | 45656 | 45701 |
| 1 31/32" | 1.938–2.000 | 45657 | N/A |
| 2" | 1.969–2.031 | 45658 | 45702 |

ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

QG-52



Royal QG-52 Round Collets (Metric) – \$275 Each

| NOMINAL SIZE | RANGE (mm) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|-------------|--------------------|----------------------|
| 4mm | 3.25–4.75 | 63200 | N/A |
| 5mm | 4.25–5.75 | 63201 | N/A |
| 6mm | 5.25–6.75 | 63202 | N/A |
| 7mm | 6.25–7.75 | 63203 | N/A |
| 8mm | 7.25–8.75 | 63204 | N/A |
| 9mm | 8.25–9.75 | 63205 | 63250 |
| 10mm | 9.25–10.75 | 63206 | 63251 |
| 11mm | 10.25–11.75 | 63207 | 63252 |
| 12mm | 11.25–12.75 | 63208 | 63253 |
| 13mm | 12.25–13.75 | 63209 | 63254 |
| 14mm | 13.25–14.75 | 63210 | 63255 |
| 15mm | 14.25–15.75 | 63211 | 63256 |
| 16mm | 15.25–16.75 | 63212 | 63257 |
| 17mm | 16.25–17.75 | 63213 | 63258 |
| 18mm | 17.25–18.75 | 63214 | 63259 |
| 19mm | 18.25–19.75 | 63215 | 63260 |
| 20mm | 19.25–20.75 | 63216 | 63261 |

| NOMINAL SIZE | RANGE (mm) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|-------------|--------------------|----------------------|
| 21mm | 20.25–21.75 | 63217 | 63262 |
| 22mm | 21.25–22.75 | 63218 | 63263 |
| 23mm | 22.25–23.75 | 63219 | 63264 |
| 24mm | 23.25–24.75 | 63220 | 63265 |
| 25mm | 24.25–25.75 | 63221 | 63266 |
| 26mm | 25.25–26.75 | 63222 | 63267 |
| 27mm | 26.25–27.75 | 63223 | 63268 |
| 28mm | 27.25–28.75 | 63224 | 63269 |
| 29mm | 28.25–29.75 | 63225 | 63270 |
| 30mm | 29.25–30.75 | 63226 | 63271 |
| 31mm | 30.25–31.75 | 63227 | 63272 |
| 32mm | 31.25–32.75 | 63228 | 63273 |
| 33mm | 32.25–33.75 | 63229 | 63274 |
| 34mm | 33.25–34.75 | 63230 | 63275 |
| 35mm | 34.25–35.75 | 63231 | 63276 |
| 36mm | 35.25–36.75 | 63232 | 63277 |
| 37mm | 36.25–37.75 | 63233 | 63278 |

| NOMINAL SIZE | RANGE (mm) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|-------------|--------------------|----------------------|
| 38mm | 37.25–38.75 | 63234 | 63279 |
| 39mm | 38.25–39.75 | 63235 | 63280 |
| 40mm | 39.25–40.75 | 63236 | 63281 |
| 41mm | 40.25–41.75 | 63237 | 63282 |
| 42mm | 41.25–42.75 | 63238 | 63283 |
| 43mm | 42.25–43.75 | 63239 | 63284 |
| 44mm | 43.25–44.75 | 63240 | 63285 |
| 45mm | 44.25–45.75 | 63241 | 63286 |
| 46mm | 45.25–46.75 | 63242 | 63287 |
| 47mm | 46.25–47.75 | 63243 | 63288 |
| 48mm | 47.25–48.75 | 63244 | 63289 |
| 49mm | 48.25–49.75 | 63245 | 63290 |
| 50mm | 49.25–50.75 | 63246 | 63291 |
| 51mm | 50.25–51.75 | 63247 | 63292 |
| 52mm | 51.25–52.75 | 63248 | 63293 |

Royal QG-52 Hex Collets – \$395 Each

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|
| 1/4" | 0.219–0.281 | 45710 |
| 5/16" | 0.282–0.344 | 45711 |
| 3/8" | 0.344–0.406 | 45712 |
| 7/16" | 0.407–0.469 | 45713 |
| 1/2" | 0.469–0.531 | 45714 |
| 9/16" | 0.532–0.594 | 45715 |
| 5/8" | 0.594–0.656 | 45716 |
| 11/16" | 0.657–0.719 | 45717 |
| 3/4" | 0.719–0.781 | 45718 |

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|
| 13/16" | 0.782–0.844 | 45719 |
| 7/8" | 0.844–0.906 | 45720 |
| 15/16" | 0.907–0.969 | 45721 |
| 1" | 0.969–1.031 | 45722 |
| 1 1/16" | 1.032–1.094 | 45723 |
| 1 1/8" | 1.094–1.156 | 45724 |
| 1 1/4" | 1.156–1.219 | 45725 |
| 1 1/2" | 1.219–1.281 | 45726 |
| 1 5/8" | 1.281–1.344 | 45727 |

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|
| 1 3/8" | 1.344–1.406 | 45728 |
| 1 1/2" | 1.406–1.469 | 45729 |
| 1 5/8" | 1.469–1.531 | 45730 |
| 1 3/4" | 1.531–1.594 | 45731 |
| 1 7/8" | 1.594–1.656 | 45732 |
| 1 15/16" | 1.656–1.719 | 45733 |
| 1 3/4" | 1.719–1.781 | 45734 |

Royal QG-52 Square Collets – \$395 Each

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|
| 1/4" | 0.219–0.281 | 45740 |
| 3/8" | 0.344–0.406 | 45742 |
| 1/2" | 0.469–0.531 | 45744 |
| 5/8" | 0.594–0.656 | 45746 |

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|
| 3/4" | 0.719–0.781 | 45748 |
| 7/8" | 0.844–0.906 | 45750 |
| 1" | 0.969–1.031 | 45752 |
| 1 1/8" | 1.094–1.156 | 45754 |

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|
| 1 1/4" | 1.219–1.281 | 45756 |
| 1 3/8" | 1.344–1.406 | 45758 |

Royal QG-52 Emergency Collets – \$322 Each – See Page 38

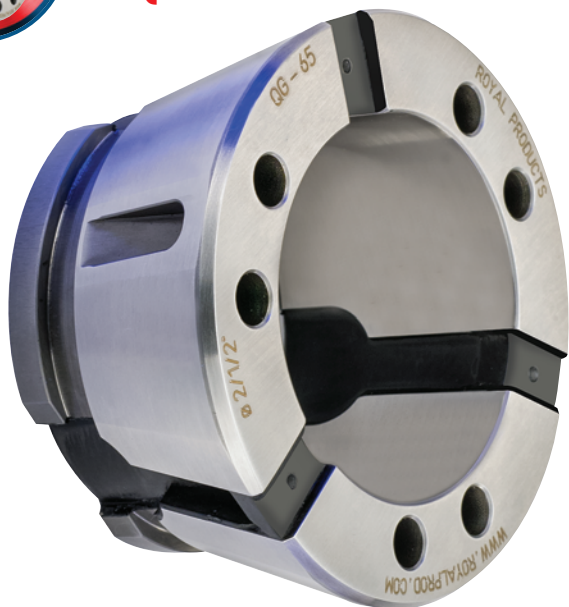


Check out the Royal Quick-Grip™ CNC Collet Chuck Video at www.colletchucks.com



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

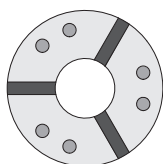
QG-65



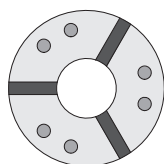
| QG-65 CAPACITY | |
|----------------|----------------|
| Bar Diameter | 2.66" (65.8mm) |
| Slug Diameter* | 3.40" (86.4mm) |

* See page 38 for details.

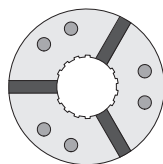
- Huge inventory of Round, Hex, Square, and Emergency styles always in stock, ready for same-day shipping.
- Industry-leading 0.062" gripping range covers a wide range of part diameters. Collets are ground to nominal size and have a range of +/- 0.031".
- Parallel-grip ensures **full-length part contact for maximum grip force, rigidity, and accuracy.**
- Can be counter-bored for increased part capacity up to 3.40" – see page 38 for details.
- Quick-ship specials available for custom shapes.
- Can utilize manual and pneumatic changing tools.



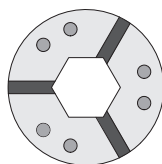
Round Inch



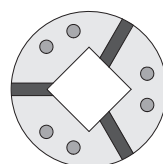
Round Metric



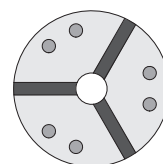
Serrated



Hex



Square



Emergency

Royal QG-65 Round Collets (Inch) – \$322 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 1/32" | 1.063–1.125 | 44230 | Call |
| 1 1/8" | 1.094–1.156 | 44231 | 44329 |
| 1 1/32" | 1.125–1.187 | 44232 | Call |
| 1 1/16" | 1.157–1.219 | 44233 | 44330 |
| 1 1/32" | 1.188–1.250 | 44234 | Call |
| 1 1/4" | 1.219–1.281 | 44235 | 44331 |
| 1 1/32" | 1.250–1.312 | 44236 | Call |
| 1 1/16" | 1.282–1.344 | 44237 | 44332 |
| 1 11/32" | 1.313–1.375 | 44238 | Call |
| 1 3/8" | 1.344–1.406 | 44239 | 44333 |
| 1 13/32" | 1.375–1.437 | 44240 | Call |
| 1 1/2" | 1.407–1.469 | 44241 | 44334 |
| 1 15/32" | 1.438–1.500 | 44242 | Call |
| 1 1/2" | 1.469–1.531 | 44243 | 44335 |
| 1 17/32" | 1.500–1.562 | 44244 | Call |
| 1 9/16" | 1.532–1.594 | 44245 | 44336 |
| 1 19/32" | 1.563–1.625 | 44246 | Call |
| 1 5/8" | 1.594–1.656 | 44247 | 44337 |
| 1 21/32" | 1.625–1.687 | 44248 | Call |
| 1 11/16" | 1.657–1.719 | 44249 | 44338 |
| 1 23/32" | 1.688–1.750 | 44250 | Call |
| 1 3/4" | 1.719–1.781 | 44251 | 44339 |
| 1 25/32" | 1.750–1.812 | 44252 | Call |
| 1 13/16" | 1.782–1.844 | 44253 | 44340 |
| 1 27/32" | 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 1/2" | 2.188–2.250 | 44265 | Call |
| 2 7/16" | 2.219–2.281 | 44266 | 44347 |
| 2 9/32" | 2.250–2.312 | 44267 | Call |
| 2 5/16" | 2.282–2.344 | 44268 | 44348 |
| 2 11/32" | 2.313–2.375 | 44269 | Call |
| 2 3/8" | 2.344–2.406 | 44270 | 44349 |
| 2 13/32" | 2.375–2.437 | 44271 | Call |
| 2 7/16" | 2.407–2.469 | 44272 | 44350 |
| 2 15/32" | 2.438–2.500 | 44273 | Call |
| 2 1/2" | 2.469–2.531 | 44274 | 44351 |
| 2 17/32" | 2.500–2.562 | 44275 | Call |
| 2 9/16" | 2.532–2.594 | 44276 | 44352 |
| 2 19/32" | 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) – \$322 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 | 62544 |
| 54mm | 53.25–54.75 | 62400 | 62545 |
| 55mm | 54.25–55.75 | 62402 | 62546 |
| 56mm | 55.25–56.75 | 62404 | 62547 |
| 57mm | 56.25–57.75 | 62406 | 62548 |
| 58mm | 57.25–58.75 | 62408 | 62549 |
| 59mm | 58.25–59.75 | 62410 | 62550 |
| 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 – \$498 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 – \$498 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 |

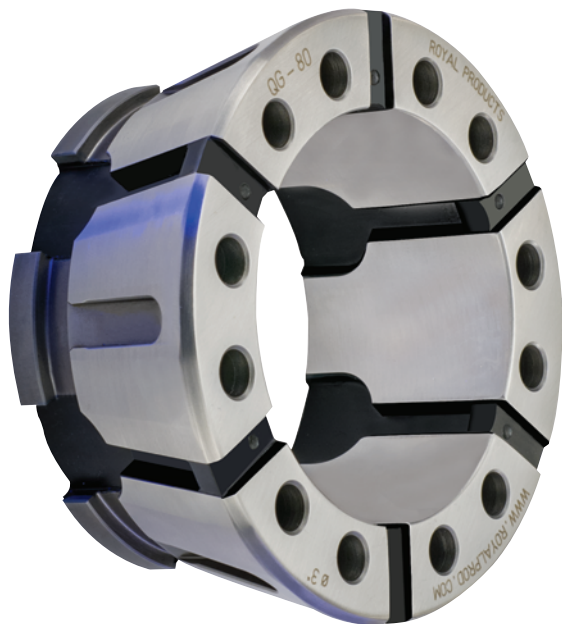
| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|
| 1 3/8" | 1.344–1.406 | 44791 |
| 1 1/2" | 1.469–1.531 | 44738 |
| 1 5/8" | 1.594–1.656 | 44792 |
| 1 3/4" | 1.719–1.781 | 44739 |

Royal QG-65 Emergency Collets – \$362 Each – See Page 38



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

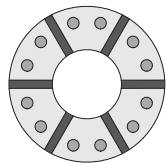
QG-80



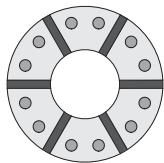
| QG-80 CAPACITY | |
|----------------|-----------------|
| Bar Diameter | 3.28" (80.8mm) |
| Slug Diameter* | 4.00" (101.6mm) |

* See page 38 for details.

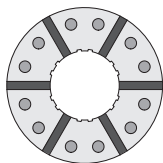
- ❑ Huge inventory of Round, Hex, Square, and Emergency styles **always in stock, ready for same-day shipping.**
- ❑ **Industry-leading 0.062" gripping range** covers a wide range of part diameters. Collets are ground to nominal size and have a range of +/- 0.031".
- ❑ Parallel-grip ensures full-length 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 38 for details.
- ❑ Can utilize manual and pneumatic changing tools.



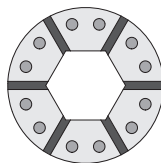
Round Inch



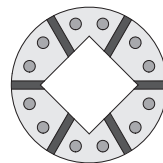
Round Metric



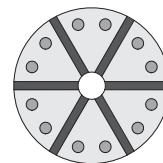
Serrated



Hex



Square



Emergency

Royal QG-80 Round Collets* (Inch) – \$498 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 1/4" | 1.157–1.219 | 44433 | 44533 |
| 1 1/2" | 1.219–1.281 | 44435 | 44535 |

| NOMINAL SIZE | RANGE (INCHES) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|----------------|--------------------|----------------------|
| 1 3/8" | 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 1/8" | 3.094–3.156 | 44495 | N/A |
| 3 3/16" | 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) – \$498 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 |
|--------------|-------------|--------------------|----------------------|--------------|-------------|--------------------|----------------------|--------------|-------------|--------------------|----------------------|
| 7mm | 6.25-7.75 | 62600 | N/A | 32mm | 31.25-32.75 | 62650 | 62821 | 57mm | 56.25-57.75 | 62700 | 62846 |
| 8mm | 7.25-8.75 | 62602 | N/A | 33mm | 32.25-33.75 | 62652 | 62822 | 58mm | 57.25-58.75 | 62702 | 62847 |
| 9mm | 8.25-9.75 | 62604 | N/A | 34mm | 33.25-34.75 | 62654 | 62823 | 59mm | 58.25-59.75 | 62704 | 62848 |
| 10mm | 9.25-10.75 | 62606 | N/A | 35mm | 34.25-35.75 | 62656 | 62824 | 60mm | 59.25-60.75 | 62706 | 62849 |
| 11mm | 10.25-11.75 | 62608 | 62800 | 36mm | 35.25-36.75 | 62658 | 62825 | 61mm | 60.25-61.75 | 62708 | 62850 |
| 12mm | 11.25-12.75 | 62610 | 62801 | 37mm | 36.25-37.75 | 62660 | 62826 | 62mm | 61.25-62.75 | 62710 | 62851 |
| 13mm | 12.25-13.75 | 62612 | 62802 | 38mm | 37.25-38.75 | 62662 | 62827 | 63mm | 62.25-63.75 | 62712 | 62852 |
| 14mm | 13.25-14.75 | 62614 | 62803 | 39mm | 38.25-39.75 | 62664 | 62828 | 64mm | 63.25-64.75 | 62714 | 62853 |
| 15mm | 14.25-15.75 | 62616 | 62804 | 40mm | 39.25-40.75 | 62666 | 62829 | 65mm | 64.25-65.75 | 62716 | 62854 |
| 16mm | 15.25-16.75 | 62618 | 62805 | 41mm | 40.25-41.75 | 62668 | 62830 | 66mm | 65.25-66.75 | 62718 | 62855 |
| 17mm | 16.25-17.75 | 62620 | 62806 | 42mm | 41.25-42.75 | 62670 | 62831 | 67mm | 66.25-67.75 | 62720 | 62856 |
| 18mm | 17.25-18.75 | 62622 | 62807 | 43mm | 42.25-43.75 | 62672 | 62832 | 68mm | 67.25-68.75 | 62722 | 62857 |
| 19mm | 18.25-19.75 | 62624 | 62808 | 44mm | 43.25-44.75 | 62674 | 62833 | 69mm | 68.25-69.75 | 62724 | 62858 |
| 20mm | 19.25-20.75 | 62626 | 62809 | 45mm | 44.25-45.75 | 62676 | 62834 | 70mm | 69.25-70.75 | 62726 | 62859 |
| 21mm | 20.25-21.75 | 62628 | 62810 | 46mm | 45.25-46.75 | 62678 | 62835 | 71mm | 70.25-71.75 | 62728 | 62860 |
| 22mm | 21.25-22.75 | 62630 | 62811 | 47mm | 46.25-47.75 | 62680 | 62836 | 72mm | 71.25-72.75 | 62730 | 62861 |
| 23mm | 22.25-23.75 | 62632 | 61812 | 48mm | 47.25-48.75 | 62682 | 62837 | 73mm | 72.25-73.75 | 62732 | 62862 |
| 24mm | 23.25-24.75 | 62634 | 62813 | 49mm | 48.25-49.75 | 62684 | 62838 | 74mm | 73.25-74.75 | 62734 | 62863 |
| 25mm | 24.25-25.75 | 62636 | 62814 | 50mm | 49.25-50.75 | 62686 | 62839 | 75mm | 74.25-75.75 | 62736 | 62864 |
| 26mm | 25.25-26.75 | 62638 | 62815 | 51mm | 50.25-51.75 | 62688 | 62840 | 76mm | 75.25-76.75 | 62738 | 62865 |
| 27mm | 26.25-27.75 | 62640 | 62816 | 52mm | 51.25-52.75 | 62690 | 62841 | 77mm | 76.25-77.75 | 62740 | 62866 |
| 28mm | 27.25-28.75 | 62642 | 62817 | 53mm | 52.25-53.75 | 62692 | 62842 | 78mm | 77.25-78.75 | 62742 | N/A |
| 29mm | 28.25-29.75 | 62644 | 62818 | 54mm | 53.25-54.75 | 62694 | 62843 | 79mm | 78.25-79.75 | 62744 | N/A |
| 30mm | 29.25-30.75 | 62646 | 62819 | 55mm | 54.25-55.75 | 62696 | 62844 | 80mm | 79.25-80.75 | 62746 | N/A |
| 31mm | 30.25-31.75 | 62648 | 62820 | 56mm | 55.25-56.75 | 62698 | 62845 | | | | |

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

Royal QG-80 Hex Collets* – \$741 Each

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|--------------|----------------|-------------|--------------|----------------|-------------|
| 3/8" | 0.344-0.406 | 44778 | 1 3/16" | 1.156-1.219 | 44752 | 2" | 1.969-2.031 | 44765 |
| 7/16" | 0.407-0.469 | 44740 | 1 1/4" | 1.219-1.281 | 44753 | 2 1/16" | 2.031-2.094 | 44766 |
| 1/2" | 0.469-0.531 | 44741 | 1 5/16" | 1.281-1.344 | 44754 | 2 1/8" | 2.094-2.156 | 44767 |
| 9/16" | 0.532-0.594 | 44742 | 1 3/8" | 1.344-1.406 | 44755 | 2 3/16" | 2.156-2.219 | 44768 |
| 5/8" | 0.594-0.656 | 44743 | 1 7/16" | 1.406-1.469 | 44756 | 2 1/4" | 2.219-2.281 | 44769 |
| 1 1/16" | 0.657-0.719 | 44744 | 1 1/2" | 1.469-1.531 | 44757 | 2 5/16" | 2.281-2.344 | 44770 |
| 3/4" | 0.719-0.781 | 44745 | 1 9/16" | 1.531-1.594 | 44758 | 2 3/8" | 2.344-2.406 | 44771 |
| 13/16" | 0.782-0.844 | 44746 | 1 5/8" | 1.594-1.656 | 44759 | 2 7/16" | 2.406-2.469 | 44772 |
| 7/8" | 0.844-0.906 | 44747 | 1 11/16" | 1.656-1.719 | 44760 | 2 1/2" | 2.469-2.531 | 44773 |
| 15/16" | 0.907-0.969 | 44748 | 1 3/4" | 1.719-1.781 | 44761 | 2 9/16" | 2.531-2.594 | 44774 |
| 1" | 0.969-1.031 | 44749 | 1 13/16" | 1.781-1.844 | 44762 | 2 5/8" | 2.594-2.656 | 44775 |
| 1 1/16" | 1.032-1.094 | 44750 | 1 7/8" | 1.844-1.906 | 44763 | 2 11/16" | 2.656-2.719 | 44776 |
| 1 1/8" | 1.094-1.156 | 44751 | 1 15/16" | 1.906-1.969 | 44764 | 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* – \$741 Each

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|--------------|----------------|-------------|--------------|----------------|-------------|
| 3/8" | 0.344-0.406 | 44793 | 1" | 0.969-1.031 | 44782 | 1 5/8" | 1.594-1.656 | 44798 |
| 1/2" | 0.469-0.531 | 44780 | 1 1/8" | 1.094-1.156 | 44796 | 1 3/4" | 1.719-1.781 | 44785 |
| 5/8" | 0.594-0.656 | 44794 | 1 1/4" | 1.219-1.281 | 44783 | 1 7/8" | 1.844-1.906 | 44799 |
| 3/4" | 0.719-0.781 | 44781 | 1 3/8" | 1.344-1.406 | 44797 | 2" | 1.969-2.031 | 44786 |
| 7/8" | 0.844-0.906 | 44795 | 1 1/2" | 1.469-1.531 | 44784 | | | |

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

Royal QG-80 Emergency Collets – \$546 Each – See Page 38



ROYAL ULTRA-PRECISION QUICK-GRIP™ COLLETS

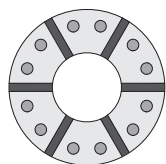
QG-100



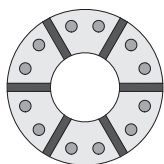
| QG-100 CAPACITY | |
|-----------------|-----------------|
| Bar Diameter | 4.03" (100.8mm) |
| Slug Diameter* | 5.15" (130.8mm) |

* See page 38 for details.

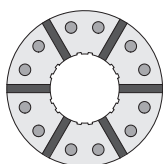
- Huge inventory of Round, Hex, Square, and Emergency styles always in stock, ready for same-day shipping.
- Smooth and serrated versions for round-bore models (all others smooth only).
- **Industry-leading 0.080" gripping range** covers a wide range of part diameters. Collets are ground to nominal size and have a range of +/- 0.040".
- 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 38 for details.
- Quick-ship specials available for custom shapes.
- Utilizes pneumatic changing tool.



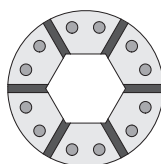
Round Inch



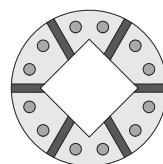
Round Metric



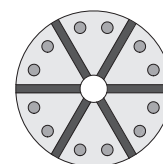
Serrated



Hex



Square



Emergency

Royal QG-100 **Round Collets*** (Inch) – \$743 Each

| NOMINAL SIZE | RANGE (INCHES) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|----------------|--------------------|----------------------|
| 5/8" | 0.585–0.665 | 45012 | N/A |
| 11/16" | 0.648–0.728 | 45013 | N/A |
| 3/4" | 0.710–0.790 | 45014 | N/A |
| 13/16" | 0.773–0.853 | 45015 | N/A |
| 7/8" | 0.835–0.915 | 45016 | N/A |
| 15/16" | 0.898–0.978 | 45017 | N/A |
| 1" | 0.960–1.040 | 45018 | N/A |
| 1 1/16" | 1.023–1.103 | 45019 | N/A |
| 1 1/8" | 1.085–1.165 | 45020 | N/A |
| 1 1/16" | 1.148–1.228 | 45021 | N/A |
| 1 1/4" | 1.210–1.290 | 45022 | N/A |
| 1 3/16" | 1.273–1.353 | 45023 | N/A |
| 1 3/8" | 1.335–1.415 | 45024 | N/A |
| 1 7/16" | 1.398–1.478 | 45025 | N/A |
| 1 1/2" | 1.460–1.540 | 45026 | 45201 |
| 1 9/16" | 1.523–1.603 | 45027 | 45202 |
| 1 5/8" | 1.585–1.665 | 45028 | 45203 |
| 1 11/16" | 1.648–1.728 | 45029 | 45204 |
| 1 3/4" | 1.710–1.790 | 45030 | 45205 |

| NOMINAL SIZE | RANGE (INCHES) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|----------------|--------------------|----------------------|
| 1 13/16" | 1.773–1.853 | 45031 | 45206 |
| 1 7/8" | 1.835–1.915 | 45032 | 45207 |
| 1 15/16" | 1.898–1.978 | 45033 | 45208 |
| 2" | 1.960–2.040 | 45034 | 45209 |
| 2 1/16" | 2.023–2.103 | 45035 | 45210 |
| 2 1/8" | 2.085–2.165 | 45036 | 45211 |
| 2 3/16" | 2.148–2.228 | 45037 | 45212 |
| 2 1/4" | 2.210–2.290 | 45038 | 45213 |
| 2 5/16" | 2.273–2.353 | 45039 | 45214 |
| 2 3/8" | 2.335–2.415 | 45040 | 45215 |
| 2 7/16" | 2.398–2.478 | 45041 | 45216 |
| 2 1/2" | 2.460–2.540 | 45042 | 45217 |
| 2 9/16" | 2.523–2.603 | 45043 | 45218 |
| 2 5/8" | 2.585–2.665 | 45044 | 45219 |
| 2 11/16" | 2.648–2.728 | 45045 | 45220 |
| 2 3/4" | 2.710–2.790 | 45046 | 45221 |
| 2 13/16" | 2.773–2.853 | 45047 | 45222 |
| 2 7/8" | 2.835–2.915 | 45048 | 45223 |
| 2 15/16" | 2.898–2.978 | 45049 | 45224 |

| NOMINAL SIZE | RANGE (INCHES) | SMOOTH PART NUMBER | SERRATED PART NUMBER |
|--------------|----------------|--------------------|----------------------|
| 3" | 2.960–3.040 | 45050 | 45225 |
| 3 1/16" | 3.023–3.103 | 45051 | 45226 |
| 3 1/8" | 3.085–3.165 | 45052 | 45227 |
| 3 3/16" | 3.148–3.228 | 45053 | 45228 |
| 3 1/4" | 3.210–3.290 | 45054 | 45229 |
| 3 5/16" | 3.273–3.353 | 45055 | 45230 |
| 3 3/8" | 3.335–3.415 | 45056 | 45231 |
| 3 7/16" | 3.398–3.478 | 45057 | 45232 |
| 3 1/2" | 3.460–3.540 | 45058 | 45233 |
| 3 9/16" | 3.523–3.603 | 45059 | 45234 |
| 3 5/8" | 3.585–3.665 | 45060 | 45235 |
| 3 11/16" | 3.648–3.728 | 45061 | 45236 |
| 3 3/4" | 3.710–3.790 | 45062 | 45237 |
| 3 13/16" | 3.773–3.853 | 45063 | N/A |
| 3 7/8" | 3.835–3.915 | 45064 | N/A |
| 3 15/16" | 3.898–3.978 | 45065 | N/A |
| 4" | 3.960–4.040 | 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) – \$743 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 | 15.0–17.0 | 62900 | N/A | 45mm | 44.0–46.0 | 62958 | 63107 | 74mm | 73.0–75.0 | 63016 | 63136 |
| 17mm | 16.0–18.0 | 62902 | N/A | 46mm | 45.0–47.0 | 62960 | 63108 | 75mm | 74.0–76.0 | 63018 | 63137 |
| 18mm | 17.0–19.0 | 62904 | N/A | 47mm | 46.0–48.0 | 62962 | 63109 | 76mm | 75.0–77.0 | 63020 | 63138 |
| 19mm | 18.0–20.0 | 62906 | N/A | 48mm | 47.0–49.0 | 62964 | 63110 | 77mm | 76.0–78.0 | 63022 | 63139 |
| 20mm | 19.0–21.0 | 62908 | N/A | 49mm | 48.0–50.0 | 62966 | 63111 | 78mm | 77.0–79.0 | 63024 | 63140 |
| 21mm | 20.0–22.0 | 62910 | N/A | 50mm | 49.0–51.0 | 62968 | 63112 | 79mm | 78.0–80.0 | 63026 | 63141 |
| 22mm | 21.0–23.0 | 62912 | N/A | 51mm | 50.0–52.0 | 62970 | 63113 | 80mm | 79.0–81.0 | 63028 | 63142 |
| 23mm | 22.0–24.0 | 62914 | N/A | 52mm | 51.0–53.0 | 62972 | 63114 | 81mm | 80.0–82.0 | 63030 | 63143 |
| 24mm | 23.0–25.0 | 62916 | N/A | 53mm | 52.0–54.0 | 62974 | 63115 | 82mm | 81.0–83.0 | 63032 | 63144 |
| 25mm | 24.0–26.0 | 62918 | N/A | 54mm | 53.0–55.0 | 62976 | 63116 | 83mm | 82.0–84.0 | 63034 | 63145 |
| 26mm | 25.0–27.0 | 62920 | N/A | 55mm | 54.0–56.0 | 62978 | 63117 | 84mm | 83.0–85.0 | 63036 | 63146 |
| 27mm | 26.0–28.0 | 62922 | N/A | 56mm | 55.0–57.0 | 62980 | 63118 | 85mm | 84.0–86.0 | 63038 | 63147 |
| 28mm | 27.0–29.0 | 62924 | N/A | 57mm | 56.0–58.0 | 62982 | 63119 | 86mm | 85.0–87.0 | 63040 | 63148 |
| 29mm | 28.0–30.0 | 62926 | N/A | 58mm | 57.0–59.0 | 62984 | 63120 | 87mm | 86.0–88.0 | 63042 | 63149 |
| 30mm | 29.0–31.0 | 62928 | N/A | 59mm | 58.0–60.0 | 62986 | 63121 | 88mm | 87.0–89.0 | 63044 | 63150 |
| 31mm | 30.0–32.0 | 62930 | N/A | 60mm | 59.0–61.0 | 62988 | 63122 | 89mm | 88.0–90.0 | 63046 | 63151 |
| 32mm | 31.0–33.0 | 62932 | N/A | 61mm | 60.0–62.0 | 62990 | 63123 | 90mm | 89.0–91.0 | 63048 | 63152 |
| 33mm | 32.0–34.0 | 62934 | N/A | 62mm | 61.0–63.0 | 62992 | 63124 | 91mm | 90.0–92.0 | 63050 | 63153 |
| 34mm | 33.0–35.0 | 62936 | N/A | 63mm | 62.0–64.0 | 62994 | 63125 | 92mm | 91.0–93.0 | 63052 | 63154 |
| 35mm | 34.0–36.0 | 62938 | N/A | 64mm | 63.0–65.0 | 62996 | 63126 | 93mm | 92.0–94.0 | 63054 | 63155 |
| 36mm | 35.0–37.0 | 62940 | N/A | 65mm | 64.0–66.0 | 62998 | 63127 | 94mm | 93.0–95.0 | 63056 | 63156 |
| 37mm | 36.0–38.0 | 62942 | N/A | 66mm | 65.0–67.0 | 63000 | 63128 | 95mm | 94.0–96.0 | 63058 | 63157 |
| 38mm | 37.0–39.0 | 62944 | 63100 | 67mm | 66.0–68.0 | 63002 | 63129 | 96mm | 95.0–97.0 | 63060 | 63158 |
| 39mm | 38.0–40.0 | 62946 | 63101 | 68mm | 67.0–69.0 | 63004 | 63130 | 97mm | 96.0–98.0 | 63062 | 63159 |
| 40mm | 39.0–41.0 | 62948 | 63102 | 69mm | 68.0–70.0 | 63006 | 63131 | 98mm | 97.0–99.0 | 63064 | 63160 |
| 41mm | 40.0–42.0 | 62950 | 63103 | 70mm | 69.0–71.0 | 63008 | 63132 | 99mm | 98.0–100.0 | 63066 | 63161 |
| 42mm | 41.0–43.0 | 62952 | 63104 | 71mm | 70.0–72.0 | 63010 | 63133 | 100mm | 99.0–101.0 | 63068 | 63162 |
| 43mm | 42.0–44.0 | 62954 | 63105 | 72mm | 71.0–73.0 | 63012 | 63134 | | | | |
| 44mm | 43.0–45.0 | 62956 | 63106 | 73mm | 72.0–74.0 | 63014 | 63135 | | | | |

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

Royal QG-100 Hex Collets* – \$998 Each

| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|--------------|----------------|-------------|--------------|----------------|-------------|
| 3/4" | 0.710–0.790 | 44904 | 1 5/8" | 1.585–1.665 | 44918 | 2 1/2" | 2.460–2.540 | 44932 |
| 7/8" | 0.835–0.915 | 44906 | 1 3/4" | 1.710–1.790 | 44920 | 2 5/8" | 2.585–2.665 | 44934 |
| 1" | 0.960–1.040 | 44908 | 1 7/8" | 1.835–1.915 | 44922 | 2 3/4" | 2.710–2.790 | 44936 |
| 1 1/8" | 1.085–1.165 | 44910 | 2" | 1.960–2.040 | 44924 | 2 7/8" | 2.835–2.915 | 44938 |
| 1 1/4" | 1.210–1.290 | 44912 | 2 1/8" | 2.085–2.165 | 44926 | 3" | 2.960–3.040 | 44940 |
| 1 3/8" | 1.335–1.415 | 44914 | 2 1/4" | 2.210–2.290 | 44928 | 3 1/8" | 3.085–3.165 | 44942 |
| 1 1/2" | 1.460–1.540 | 44916 | 2 3/8" | 2.335–2.415 | 44930 | 3 1/4" | 3.210–3.290 | 44944 |

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

Royal QG-100 Square Collets* – \$998 Each

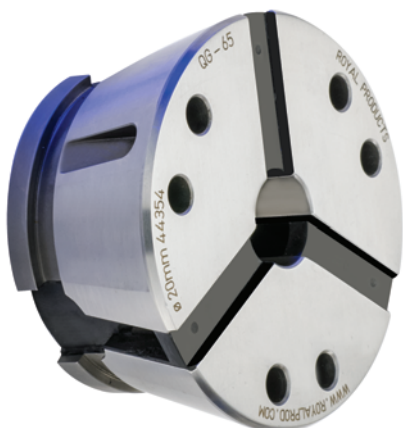
| NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER | NOMINAL SIZE | RANGE (INCHES) | PART NUMBER |
|--------------|----------------|-------------|--------------|----------------|-------------|--------------|----------------|-------------|
| 1" | 0.960–1.040 | 44950 | 1 5/8" | 1.585–1.665 | 44960 | 2 1/4" | 2.210–2.290 | 44970 |
| 1 1/8" | 1.085–1.165 | 44952 | 1 3/4" | 1.710–1.790 | 44962 | 2 3/8" | 2.335–2.415 | 44972 |
| 1 1/4" | 1.210–1.290 | 44954 | 1 7/8" | 1.835–1.915 | 44964 | 2 1/2" | 2.460–2.540 | 44974 |
| 1 3/8" | 1.335–1.415 | 44956 | 2" | 1.960–2.040 | 44966 | 2 5/8" | 2.585–2.665 | 44976 |
| 1 1/2" | 1.460–1.540 | 44958 | 2 1/8" | 2.085–2.165 | 44968 | 2 3/4" | 2.710–2.790 | 44978 |

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

Royal QG-100 Emergency Collets* – \$898 Each – See Page 38



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

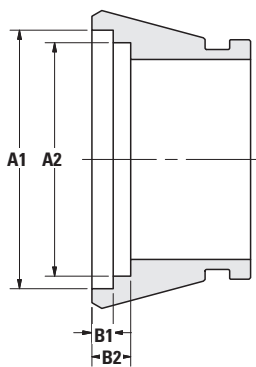
| FITS CHUCK MODEL | PILOT HOLE SIZE | PART NUMBER | PRICE |
|------------------|-----------------|-------------|-------|
| QG-42 | 5mm (0.20") | 44187 | \$322 |
| | 15mm (0.59") | 44188 | 322 |
| QG-52 | 8mm (0.31") | 44395 | 322 |
| | 15mm (0.59") | 44396 | 322 |
| QG-65 | 8mm (0.31") | 44353 | 362 |
| | 20mm (0.79") | 44354 | 362 |
| | 30mm (1.18") | 44355 | 362 |
| QG-80 | 8mm (0.31") | 44360 | 546 |
| | 20mm (0.79") | 44361 | 546 |
| | 40mm (1.57") | 44362 | 546 |
| QG-100 | 30mm (1.18") | 44367 | 898 |
| | 45mm (1.77") | 44368 | 898 |
| | 65mm (2.56") | 44369 | 898 |



Royal Boring Fixtures

| COLLET MODEL | PART NUMBER | PRICE |
|--------------|-------------|-------|
| QG-42 | 44082 | \$213 |
| QG-52 | 44094 | 213 |
| QG-65 | 44083 | 298 |
| QG-80 | 44088 | 491 |
| QG-100 | 44089 | 590 |

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-52 | 2.57 | 0.28 | 2.49 | 0.50 |
| 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 |

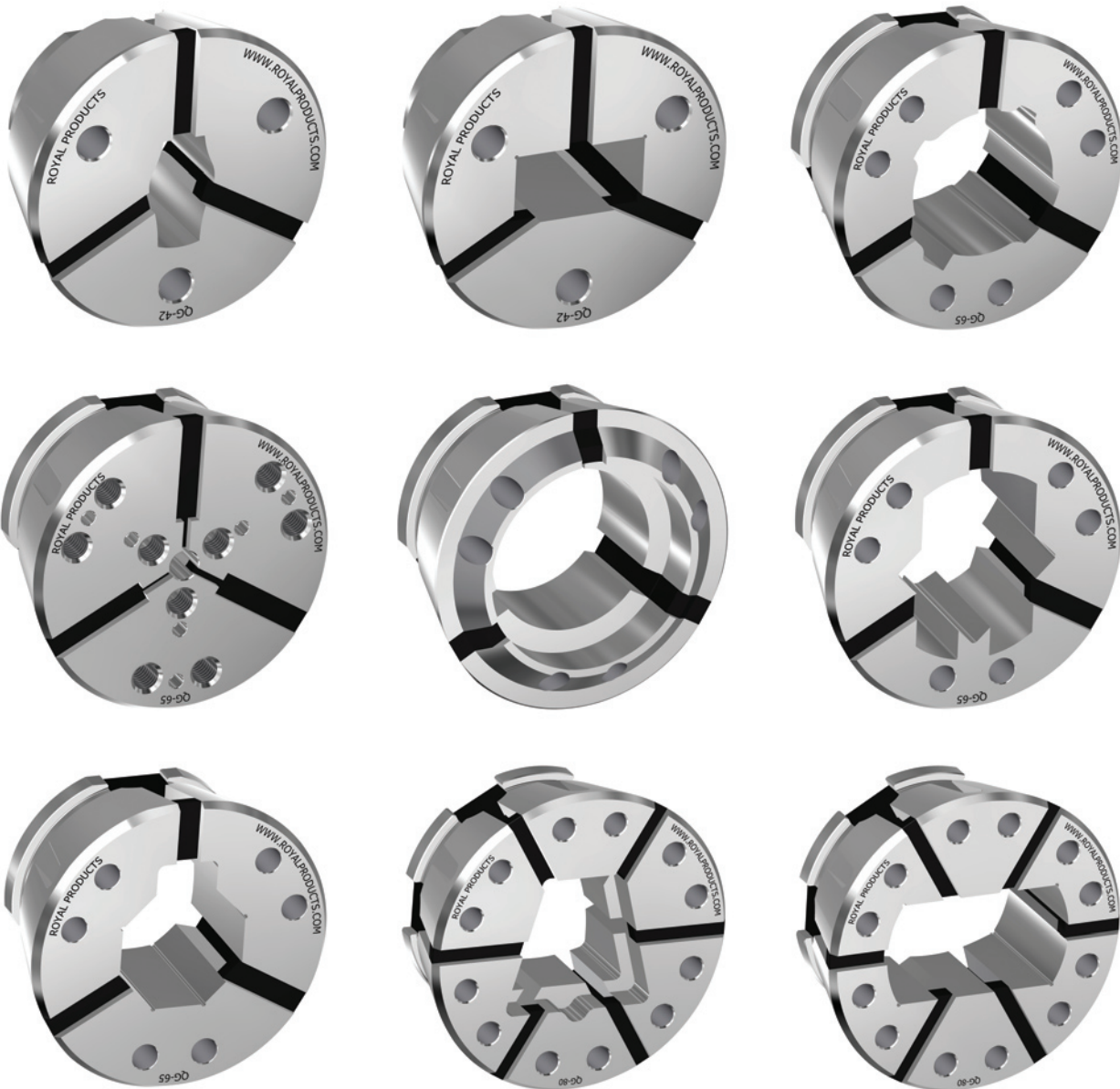
ROYAL CUSTOM QUICK-GRIP™ COLLETS



In addition to the thousands of standard Quick-Grip™ Collets we stock for same-day shipping, Royal also offers extensive design and manufacturing services for **custom collets to suit unique workpiece shapes**. The two main applications for custom collets are:

- Second-op turning where the gripping surface is not cylindrical.
- Milling applications where a Royal Power-Block™ Collet Fixture provides a superior workholding solution over conventional vises and prismatic fixtures.

Shown below are a few examples to highlight some of our capabilities. Please give one of our applications engineers a call today to discuss how **custom Quick-Grip™ Collets can help optimize your manufacturing processes**.



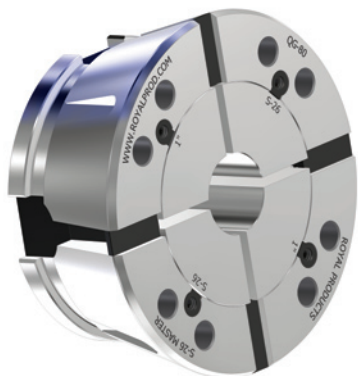
Have a Question? Give One of Our Engineers a Call at 1-800-645-4174



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.

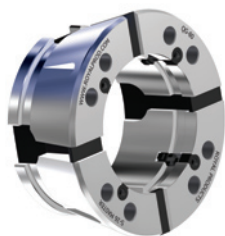
- Three master collet models to choose from:
 - QG-65 Master Collet – accepts S-20 collet pads (2" capacity)
 - QG-80 Master Collet – accepts S-26 collet pads (2-5/8" capacity)
 - QG-80 Master Collet – accepts S-30 collet pads (3" capacity)
- **It is important to note that the master collet must be installed 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 | \$527 |
| QG-80 | S-26 | 2.63 | 44197 | 757 |
| QG-80 | S-30 | 3.00 | 44198 | 757 |

*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 | \$598 |
| QG-80 | 4* | 44199* | 677 |

*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.



LOW-PROFILE 5C, 16C & 3J WORKHOLDING LINEUP

- CNC COLLET CHUCKS AND KEY-OPERATED MILLING FIXTURES
- USE TRADITIONAL SPRING-TYPE COLLETS
- 5C STEP AND EXPANDING COLLETS





ROYAL LOW-PROFILE 5C, 16C AND 3J 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 10 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, mounting hardware, mounting wrenches, and a custom-machined drawtube connector for **hassle-free installation**.

Note – Collets sold separately

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

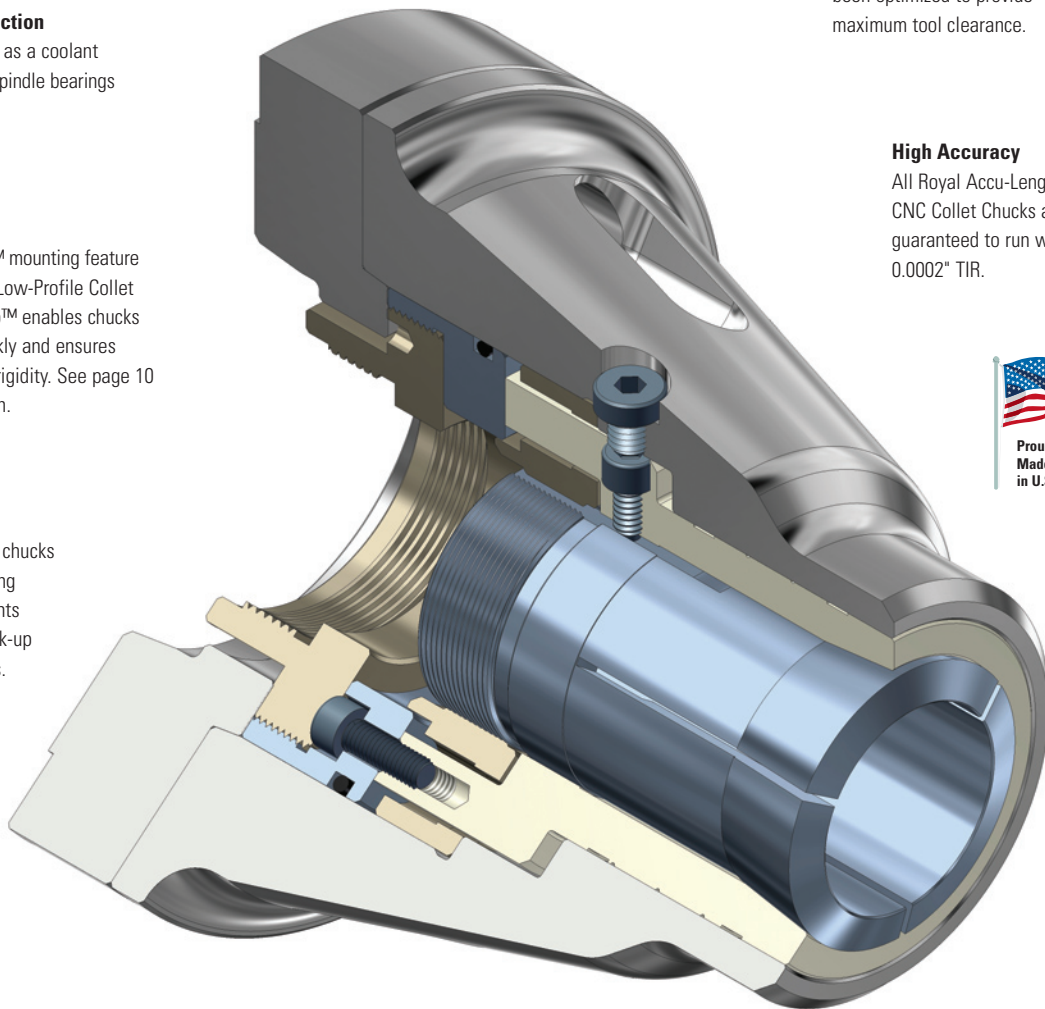
All Royal Accu-Length™ Collet Chucks have been optimized for maximum rigidity, and all components are hardened for strength and durability.

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.

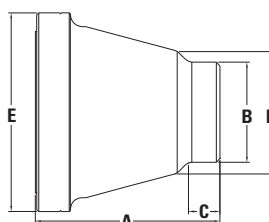
Wide Range

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

ROYAL LOW-PROFILE 5C, 16C AND 3J 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 | 1/16" | 5.75 | 2.43 | 1.00 | 4.00 | 6.45 | 21 | 4,000 | 13,600 | 6,000 | 42330 | \$5,370 |
| A2-6 | 5C | 1/16" | 5.75 | 2.43 | 1.00 | 4.00 | 7.45 | 21 | 4,000 | 13,600 | 6,000 | 42332 | 5,620 |
| 110mm | 5C | 1/16" | 5.55 | 2.43 | 1.00 | 4.00 | 6.45 | 21 | 4,000 | 13,600 | 6,000 | 42334 | 5,620 |
| 140mm | 5C | 1/16" | 4.45 | 2.43 | 1.00 | 4.00 | 6.45 | 13 | 4,000 | 13,600 | 6,000 | 42336 | 5,620 |
| A2-5 | 16C | 1/8" | 6.50 | 3.25 | 1.03 | 3.80 | 6.45 | 25 | 5,400 | 18,300 | 6,000 | 42338 | 5,890 |
| A2-6 | 16C | 1/8" | 6.25 | 3.25 | 1.03 | 3.80 | 7.45 | 25 | 5,400 | 18,300 | 6,000 | 42340 | 6,090 |
| A2-8 | 16C | 1/8" | 7.25 | 3.25 | 1.03 | 3.67 | 9.45 | 51 | 5,400 | 18,300 | 4,500 | 42342 | 6,280 |
| 110mm | 16C | 1/8" | 6.30 | 3.25 | 1.03 | 3.80 | 6.45 | 25 | 5,400 | 18,300 | 6,000 | 42337 | 6,090 |
| 140mm | 16C | 1/8" | 6.30 | 3.25 | 1.03 | 3.80 | 6.45 | 25 | 5,400 | 18,300 | 6,000 | 42343 | 6,220 |
| A2-5 | 3J | 1/4" | 6.23 | 3.25 | 1.03 | 3.97 | 6.45 | 24 | 5,400 | 26,300 | 6,000 | 42344 | 6,090 |
| A2-5 UC* | 3J | 1/4" | 5.47 | 3.25 | 1.03 | 4.06 | 5.20 | 16 | 5,400 | 26,300 | 6,000 | 42345 | 6,090 |
| A2-6 | 3J | 1/4" | 6.25 | 3.25 | 1.03 | 3.97 | 7.45 | 26 | 5,400 | 26,300 | 6,000 | 42346 | 6,280 |
| A2-8 | 3J | 1/4" | 7.00 | 3.25 | 1.03 | 3.97 | 9.45 | 49 | 5,400 | 26,300 | 4,500 | 42348 | 6,510 |
| 110mm UC* | 3J | 1/4" | 5.42 | 3.25 | 1.03 | 4.06 | 5.20 | 17 | 5,400 | 26,300 | 6,000 | 42351 | 6,090 |
| 140mm | 3J | 1/4" | 6.03 | 3.25 | 1.03 | 3.97 | 6.45 | 23 | 5,400 | 26,300 | 6,000 | 42354 | 6,410 |

*Ultra-compact length.

For capacities greater than 1.75", choose the appropriate Royal Quick-Grip™ CNC Collet Chuck from pages 12-17. 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 40 for additional information.



ROYAL LOW-PROFILE 5C, 16C & 3J PULLBACK CNC COLLET CHUCKS

Simple Design

Royal Low-Profile Pullback CNC Collet Chucks provide a simple, low-cost method for utilizing collets on all CNC lathes and turning centers.

Spindle Bearing Protection

An oversized flange acts as a coolant slinger to protect lathe spindle bearings from contaminants. An internal O-ring protects sliding components from coolant and fines.

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.



Proudly
Made
in U.S.A.

Wide Range

Royal manufactures a wide range of chucks to fit all popular spindle noses and collet styles. Gripping capacities range from 1/64" to 1-3/4" diameter.

High Accuracy

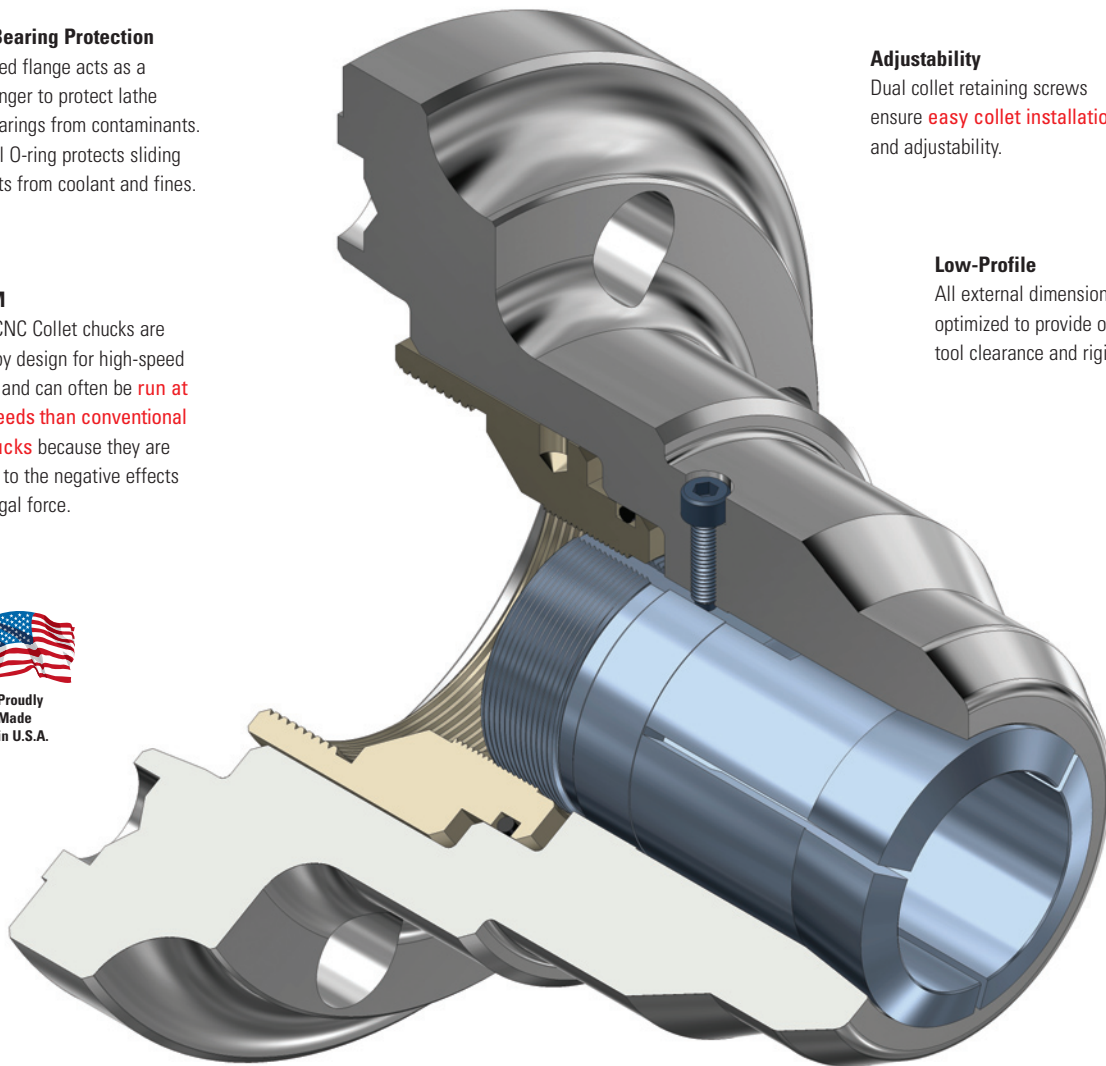
All Royal Low-Profile Pullback CNC Collet Chucks are guaranteed to run within 0.0002" TIR.

Adjustability

Dual collet retaining screws ensure **easy collet installation** and adjustability.

Low-Profile

All external dimensions have been optimized to provide outstanding tool clearance and rigidity.



Easy Installation

All Royal Low-Profile Pullback Chucks include a collet wrench, mounting hardware, mounting wrenches, and a custom-machined drawtube connector to ensure hassle-free installation.

Heavy-Duty Construction

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

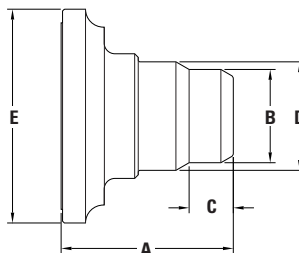
Specials

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.

ROYAL LOW-PROFILE 5C, 16C & 3J PULLBACK CNC COLLET CHUCKS



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



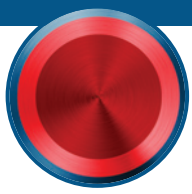
Royal Low-Profile Pullback CNC Collet Chucks

| 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 | \$1,630 |
| 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 | 1,810 |
| 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 | 1,910 |
| 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 | 2,080 |
| 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 | 2,140 |
| 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 | 2,290 |
| 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 | 2,460 |
| 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 | 2,090 |
| 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 | 2,230 |
| 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 | 2,450 |
| 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 | 2,180 |
| 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 | 2,350 |
| 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 | 2,890 |

*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 pages 12-17. 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 40 for additional information.



ROYAL LOW-PROFILE 5C, 16C & 3J 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 | \$606 |
| 16C Accu-Length™ | 45146 | 668 |
| 3J Accu-Length™ | 45147 | 668 |

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 | \$28 |
| 16C Accu-Length™ and Pullback | 45151 | 278 |
| 3J Accu-Length™ and Pullback | 45152 | 278 |

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

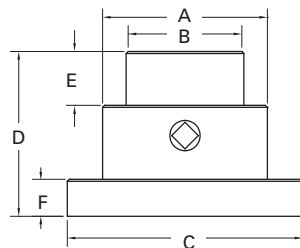
| COLLET STYLE | NUMBER OF COLLET SLOTS | PART NUMBER | PRICE |
|--------------|------------------------|-------------|--------------|
| 5C | 3 | 45187 | \$165 |
| 16C/3J | 3 | 45188 | 165 |
| 16C/3J | 4 | 45189 | 165 |

ROYAL 5C, 16C, & 3J KEY-OPERATED COLLET FIXTURES

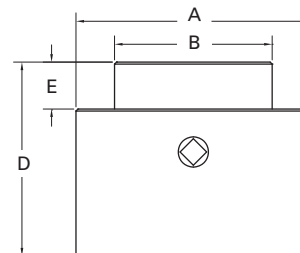


- Opened and closed via an internal cam mechanism.
- Accu-Length™ operation – collet and workpiece position remains fixed for precise length control.
- Can be used in both **stationary and rotary table applications.**
Caution – not for use on lathes or grinders above 5 rpm!
- Special model 62004 bolts directly to Haas HRT-100 and 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.

Type 1



Type 2



Royal 5C, 16C and 3J Key-Operated 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 | \$950 |
| 5C (for HRT-100 & 110)* | 1 ¹ / ₁₆ " | Type 2 | 4.20 | 2.50 | - | 3.50 | 1.15 | - | 62004 | 990 |
| 16C | 1 ⁵ / ₈ " | Type 2 | 4.95 | 3.35 | - | 4.63 | 1.50 | - | 62006 | 1,430 |
| 3J | 1 ³ / ₄ " | Type 2 | 4.95 | 3.35 | - | 4.13 | 1.00 | - | 62008 | 1,430 |

*Haas, HRT-100 and HRT-110 are registered trademarks of Haas Automation, Inc.



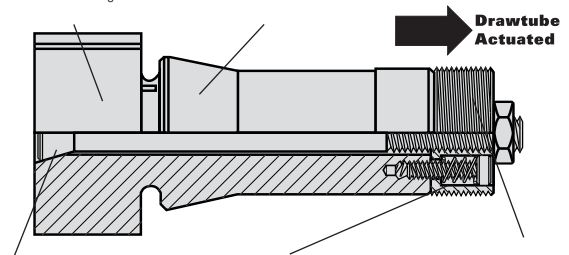
ROYAL 5C EXPANDING COLLETS

- 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 | \$235 |
| 1" | 1" | 7/16"–1 5/16" | 20101 | 235 |
| 1 1/2" | 1" | 3/4"–1 7/16" | 20102 | 223 |
| 1 1/2" | 1 1/2" | 3/4"–1 7/16" | 20103 | 245 |
| 1 1/2" | 2" | 3/4"–1 7/16" | 20104 | 246 |
| 2" | 1" | 3/4"–1 15/16" | 20107 | 258 |
| 2" | 1 1/2" | 3/4"–1 15/16" | 20108 | 273 |
| 2" | 2" | 3/4"–1 15/16" | 20109 | 312 |
| 2 1/2" | 1" | 3/4"–2 7/16" | 20112 | 315 |
| 3" | 1" | 3/4"–2 15/16" | 20117 | 346 |
| 5" | 2" | 3/4"–4 15/16" | 20127 | 665 |

Replacement Expanding Rods

| HEAD DIA. | HEAD LENGTH | PART NUMBER | PRICE |
|-----------|-------------|-------------|-------------|
| 3/4" | 1" | 20135 | \$69 |
| 1" | 1" | 20136 | 63 |
| 1 1/2"–5" | 1" | 20130 | 48 |
| 1 1/2"–5" | 1 1/2" | 20131 | 51 |
| 1 1/2"–5" | 2" | 20132 | 52 |



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

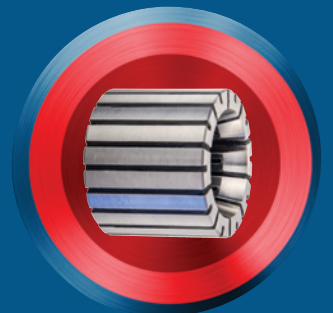
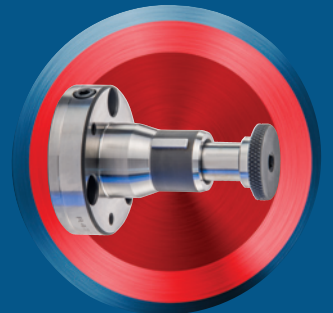
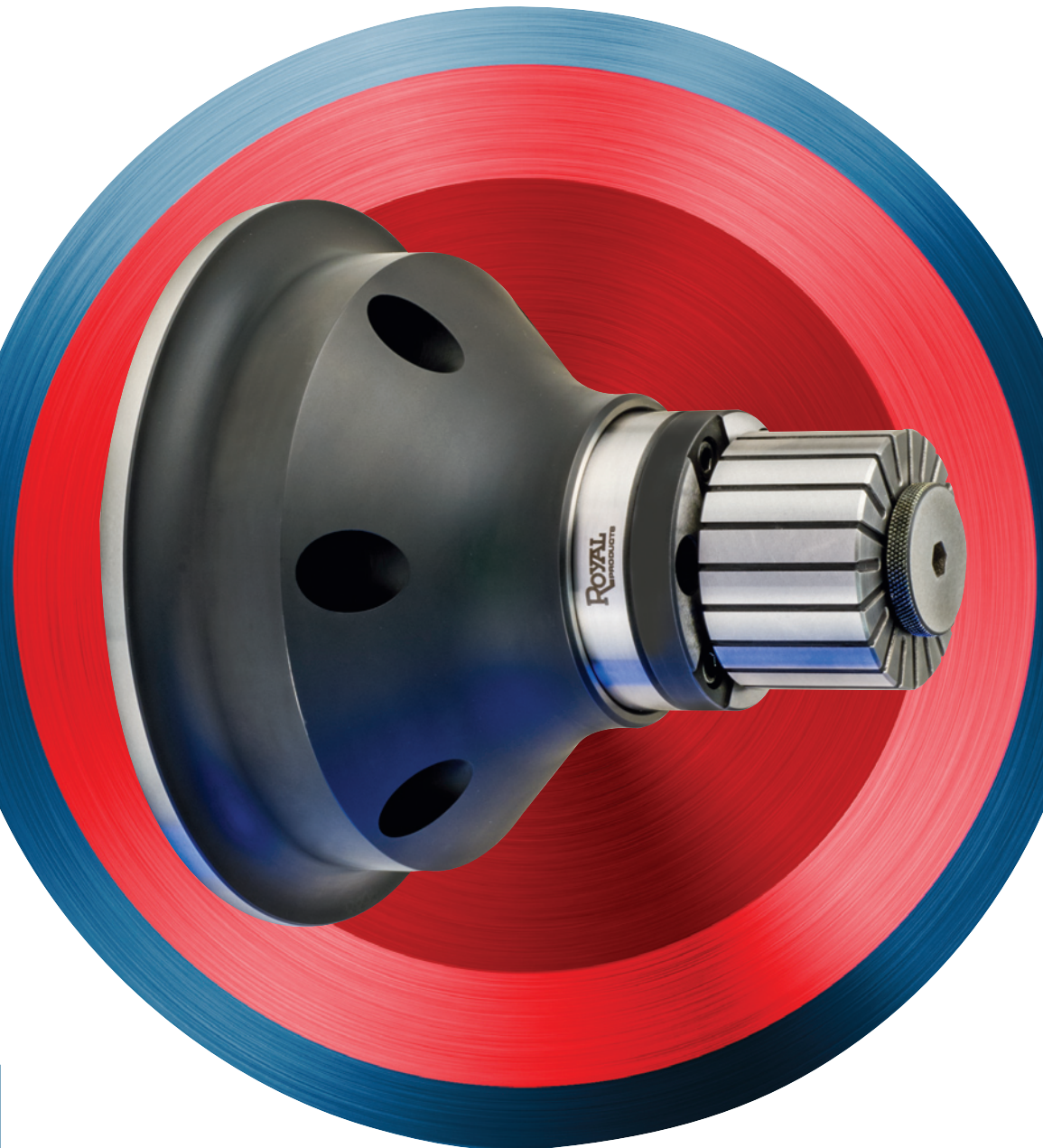
| HEAD DIA.* | PILOT HOLE | PIN DIA. | PART NUMBER | PRICE |
|------------|------------|----------|-------------|--------------|
| 2" | 1/4" | 1/8" | 20020 | \$212 |
| 3" | 5/16" | 1/4" | 20022 | 281 |
| 4" | 5/16" | 1/4" | 20024 | 438 |
| 5" | 5/16" | 1/4" | 20025 | 567 |

*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.

I.D. WORKHOLDING

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





ROYAL I.D. WORKHOLDING SYSTEMS

Royal Offers Three Standard Off-the-Shelf I.D. Workholding Systems Designed to Suit a Wide Range of Applications:



CNC

- For use on all CNC Lathes.
- Actuated via machine's drawtube.
- Accu-Length™ design makes this system a great sub-spindle workholding option.
- Includes a custom-machined drawtube connector to fit your specific lathe.

NEW



Power-Block™

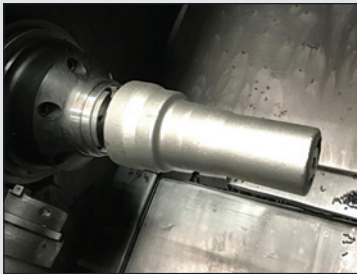
- For use on all Machining Centers.
- Can be used in both stationary and 4th/5th -axis applications.
- Hydraulic or pneumatic actuation.
- Well suited to auto-load applications.



Key-Operated

- Universal – can be used in virtually any turning, milling, or grinding application.
- 1-1/2" dia. shank is quickly and easily gripped in a chuck or collet.
- Manual actuation makes this model best suited to non-production applications.

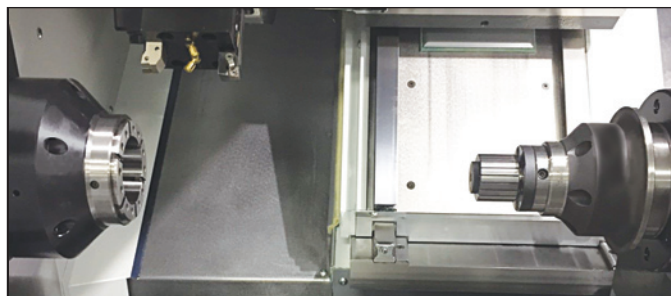
I.D. Gripping is Often Overlooked as a Workholding Option, Yet in Many Situations it is the Best Choice



Shown here, a long casting is gripped via the I.D. bore so the full O.D. can be machined in a single operation.

- ✓ A part's full length can be turned in a single operation, guaranteeing perfect concentricity of all O.D. features.
- ✓ I.D. gripping offers an alternative to gripping on a finished O.D. surface, reducing the risk of part damage.
- ✓ For many parts, the engagement-length of an internal bore can be greater than what is available for external gripping, resulting in superior rigidity and torque transmission.
- ✓ I.D. systems provide optimal tool clearance, making them a great option for lathes with live tooling.

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



ROYAL CNC I.D. WORKHOLDING

For Turning Applications



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 I.D. Workholding 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

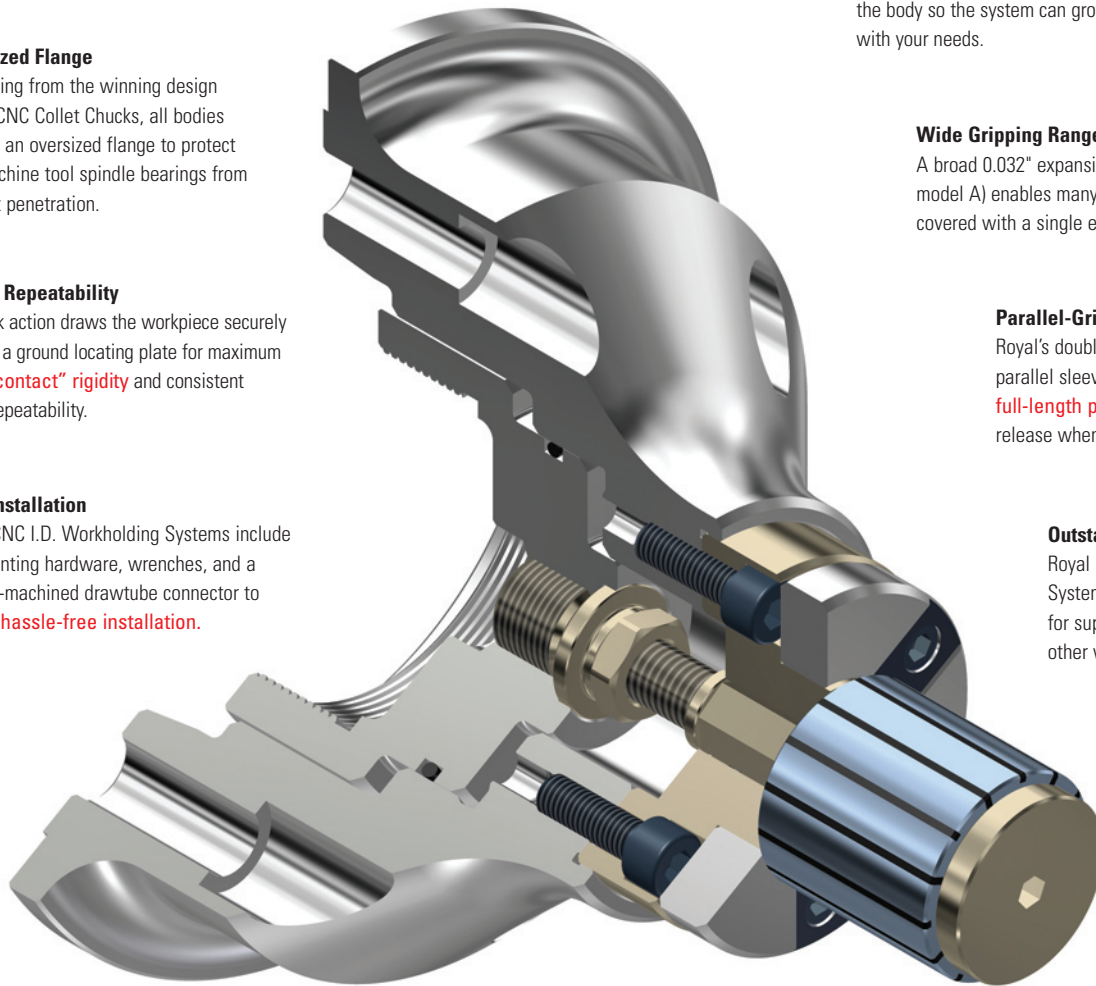
A broad 0.032" expansion range (0.020" for model A) enables many bore sizes to be covered with a single expanding sleeve.

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 I.D. Workholding 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.



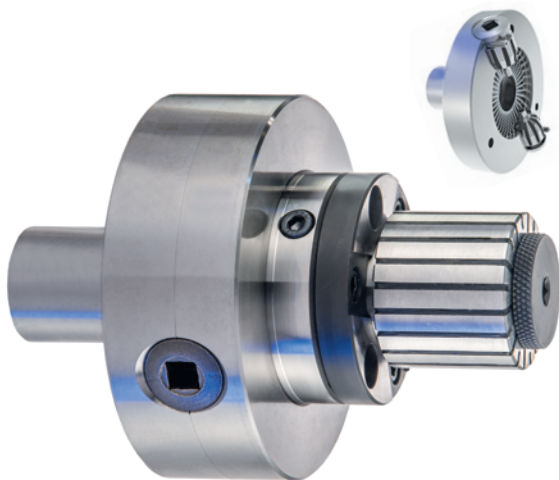
ROYAL POWER-BLOCK™ I.D. WORKHOLDING For Milling Applications



- The Royal Power-Block™ I.D. Workholding System enables secure gripping on the internal bore of a workpiece for full external machining access.
- Pullback action draws workpiece securely against a ground locator for precise, consistent z-axis positioning.
- Unit can be mounted to a traditional machining center table and can also be used in 4th and 5th -axis applications.
- Fixture is designed to be actuated via hydraulic pressure and may also be actuated pneumatically for lighter-duty applications (contact Royal for details).
- For use with all Royal precision mandrels, stops, and sleeves. These items are sold separately – please see pages 54-55.
- Heavy-duty all steel construction with a large double-acting piston provides high clamping force.
- Configured with both side and bottom ports for plumbing flexibility.
- Multiple units can be plumbed in series for single-source actuation.
- Ideal for high-production applications on vertical, horizontal, and five-axis machining centers.
- Tombstone and angle plate compatible.



ROYAL KEY-OPERATED I.D. WORKHOLDING For Turning, Milling and Grinding Applications



- Royal's Key-Operated I.D. Workholding System 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.
- For use with all Royal precision mandrels, stops, and sleeves. These items are sold separately – please see pages 54-55.
- Side-actuated with an included square-drive key means that this unit can accommodate parts with blind bores.
- 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-volume ID gripping.
- When ordering, be sure to also order the appropriate threaded expanding rod adapters sold separately.

ROYAL I.D. WORKHOLDING SYSTEMS

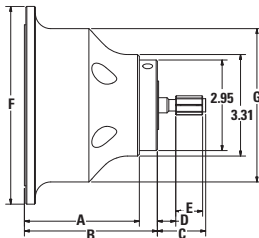
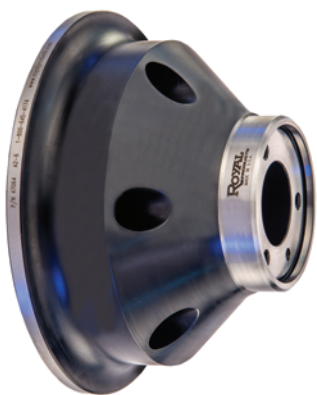


How to Order:

1. Choose the appropriate body assembly based upon your application.
2. Choose the appropriate mandrel (models A-E) based upon the diameter you need to grip. All mandrels and bodies share a common mounting interface for full interchangeability.
3. If required, choose the appropriate part locator to provide a ground banking surface for the workpiece.
4. Choose the appropriate expanding sleeve based upon the mandrel and diameter you need to grip.

Step 1 - Choose Body Assembly

CNC BODY – For CNC Lathes



Dimensions

Note – dimensions shown without optional part locator.

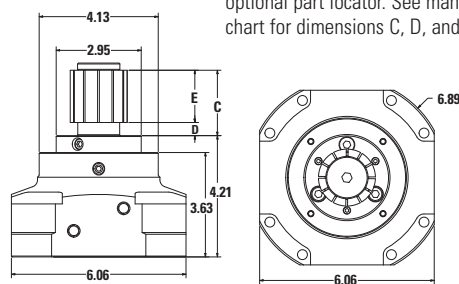
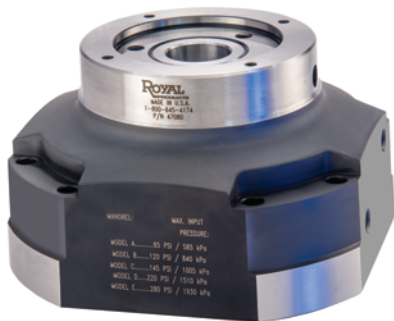
| SPINDLE MOUNT | A | B | C | D | E | F | G |
|---------------|------|------|-------------------------|---|---|------|------|
| A2-5 | 3.75 | 4.34 | See Mandrel Chart | | | 6.45 | 5.00 |
| A2-6 | 4.00 | 4.59 | | | | 7.45 | 6.25 |
| 140mm | 3.90 | 4.49 | | | | 7.45 | 6.25 |
| A2-8 | 5.00 | 5.59 | | |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

- ❑ This body provides a precision interface for mounting the system to a CNC lathe spindle.
- ❑ CNC body assembly includes the hardened steel body, a **custom-machined drawtube connector for hassle-free installation**, and all mounting hardware.
- ❑ Order mandrels, locators, and sleeves separately.

Royal CNC I.D. Body Assemblies

| SPINDLE TYPE | PART NUMBER | PRICE |
|--------------|-------------|----------------|
| A2-5 | 47060 | \$1,380 |
| A2-6 | 47064 | 1,670 |
| 140mm | 47068 | 1,790 |
| A2-8 | 47072 | 2,260 |

POWER-BLOCK™ BODY – For Machining Centers



Note – dimensions shown without optional part locator. See mandrel chart for dimensions C, D, and E.

- ❑ This body can be **mounted to any machining center table, 4th/5th-axis rotary tables, angle plates, tombstones, etc.**
- ❑ Order mandrels, locators, and sleeves separately.

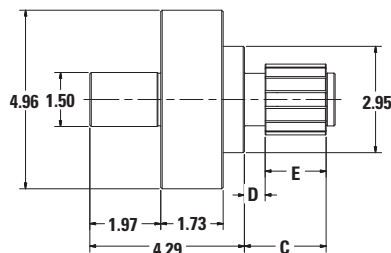
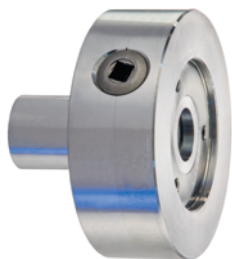
Royal Power-Block™ I.D. Assembly

| DESCRIPTION | PART NUMBER | PRICE |
|---------------------------------|-------------|----------------|
| Power-Block™ I.D. Body Assembly | 47080 | \$2,980 |



ROYAL I.D. WORKHOLDING SYSTEMS

KEY-OPERATED BODY – Universal



Note – dimensions shown without optional part locator. See mandrel chart for dimensions C, D, and E.

- This unit has a precision-ground shaft that can be held in any jaw chuck or 1.5” dia. collet, eliminating the need to change out the workholding and **enabling the system to be moved from machine to machine as jobs require.**
- Order mandrels, expanding rod adapters, locators, and sleeves separately.

Royal Key-Operated I.D. Body Assemblies

| DESCRIPTION | PART NUMBER | PRICE |
|--|-------------|----------------|
| Key-Operated I.D. Body Assembly | 47300 | \$4,140 |
| Expanding Rod Adapter – Fits Model A Mandrels | 47310 | 293 |
| Expanding Rod Adapter – Fits Models B&C Mandrels | 47315 | 293 |
| Expanding Rod Adapter – Fits Model D Mandrels | 47325 | 293 |
| Expanding Rod Adapter – Fits Model E Mandrels | 47330 | 293 |

Step 2 - Choose Mandrel

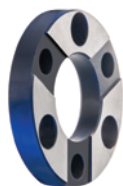


- Choose appropriate mandrel model according to gripping range.
- All Royal mandrels have a common precision ground interface for **complete compatibility with all Royal I.D. body assemblies.**
- Order body assembly, locators, and sleeves separately.

Royal Mandrels

| MANDREL MODEL | GRIPPING RANGE | C | D | E | PART NUMBER | PRICE |
|---------------|----------------|------|------|------|-------------|----------------|
| A | 0.479–0.640 | 1.57 | 0.57 | 0.87 | 47100 | \$1,420 |
| B | 0.620 –0.901 | 1.81 | 0.59 | 1.06 | 47101 | 1,420 |
| C | 0.870 –1.151 | 2.05 | 0.61 | 1.26 | 47102 | 1,420 |
| D | 1.120 –1.651 | 2.32 | 0.60 | 1.50 | 47103 | 1,420 |
| E | 1.620 –3.276 | 2.52 | 0.58 | 1.69 | 47104 | 1,420 |

Step 3 - Choose Part Locator



- Optional part locator bolts to the front of the mandrel and provides a **precision banking surface** for the workpiece to locate against.
- Order body assembly, mandrels, and sleeves separately.

Royal Part Locators

| FITS MANDREL MODEL | WIDTH | OUTER DIAMETER | PART NUMBER | PRICE |
|--------------------|-------|----------------|-------------|--------------|
| A | 0.47 | 1.57 | 47110 | \$283 |
| B | 0.47 | 1.57 | 47111 | 283 |
| C | 0.47 | 2.95 | 47112 | 327 |
| D | 0.47 | 2.95 | 47113 | 327 |
| E | 0.47 | 2.95 | 47114 | 327 |



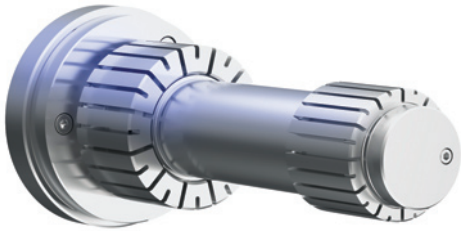
ROYAL CUSTOM I.D. WORKHOLDING

When a standard off-the-shelf I.D. 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

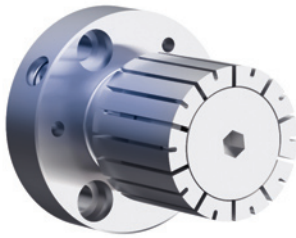


Commonly used for:

- ❑ 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

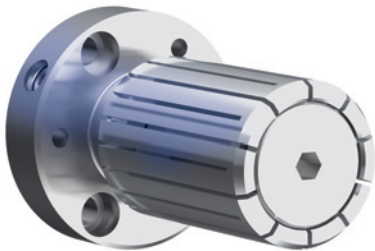


Commonly used for:

- ❑ 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



ROTA-RACK®

**SIMPLE, OFF-THE-SHELF CNC LATHE AUTOMATION
INCREASES THROUGHPUT AND PROFITS**





WHAT IS A ROTA-RACK®?

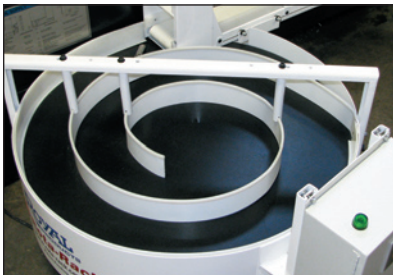


The patented Royal Rota-Rack® is an automatic accumulator that can be used with any bar-fed CNC lathe to safely collect finished parts, providing **hours of highly profitable, unmanned production.**

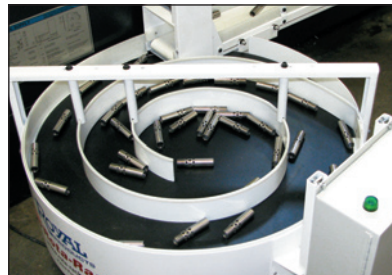
Do you know....

- 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 nine-day payback – Incredible!**
- What are you waiting for?

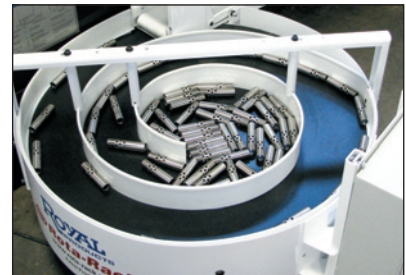
Overnight Production = Pure Profit



5 PM – Tuesday



11 PM – Tuesday



6 AM – Wednesday

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.

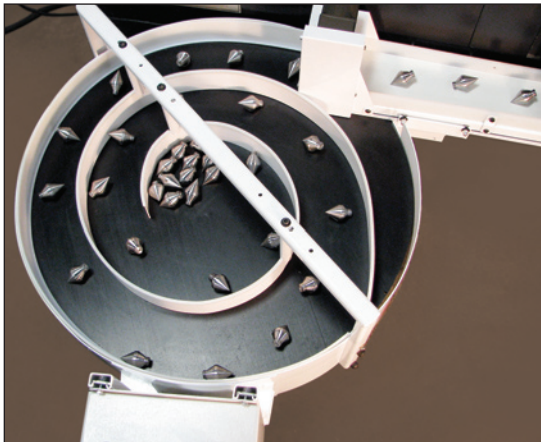
- ❑ Run existing machines extra hours: nights, weekends, lunch breaks, etc.
- ❑ Faster cycle times – no waiting for an operator to unload parts / empty collection boxes.
- ❑ Higher efficiency – **produce more parts per shift.**
- ❑ Better employee utilization – why have a person do a job that can be 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 \$60,000!

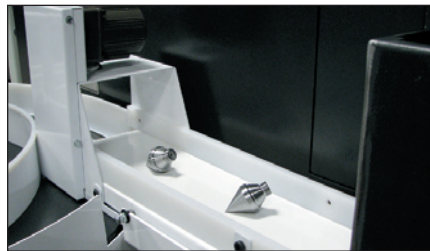
- ❑ The owner of a small job shop installed a Royal Rota-Rack® with the intention of running one of his CNC lathes for a few extra hours in the evenings after his employees left for the day.
- ❑ For costing purposes, he continued to base all of his overheads on the first shift, figuring that any extra production hours achieved with the Rota-Rack® would be virtually all profit.
- ❑ The shop rate on his CNC Lathe = \$80 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 \$80 = \$1,200 in extra profits per week.
- ❑ \$1200 x 52 weeks = \$62,400!

In this real-life example, the lathe only ran an average of three extra hours per night, and still **generated more than \$60,000 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.

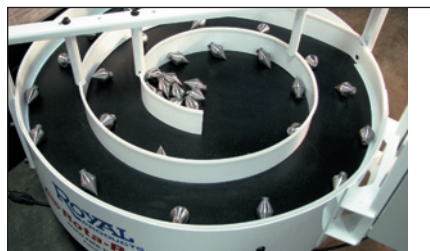


2. As a finished part comes out of the lathe, it drops onto the conveyor and is moved towards the Rota-Rack's® rotating turntable.

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 sign 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.

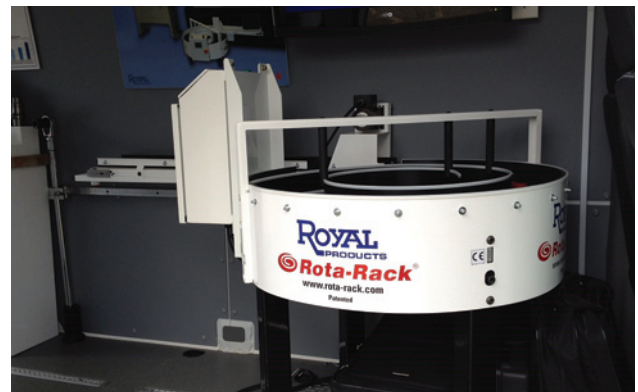
4. Thermal Stability/Scheduling

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.

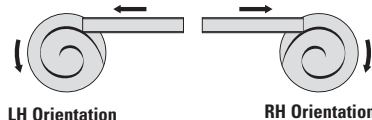
Excellent Part Protection

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!**

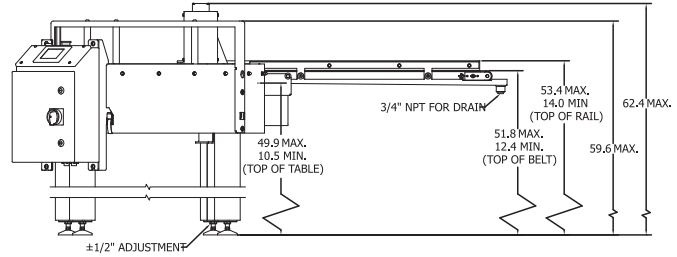
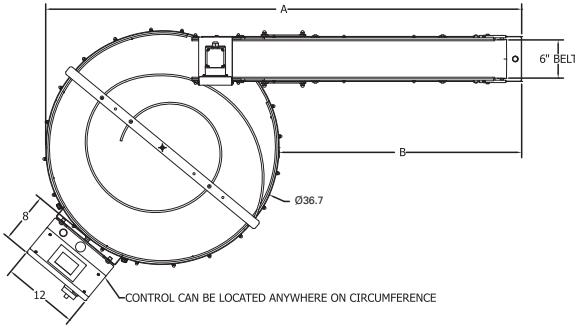
*Actual number of parts depends upon individual part size.



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 62 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.



Optional Conveyor

In-Stock For Immediate Shipping

Royal Heavy-Duty Rota-Rack®

| DESCRIPTION | PART NUMBER | PRICE |
|---|-------------|-----------------|
| Heavy-Duty Rota-Rack® with Deluxe Control | 51002* | \$13,195 |
| Heavy-Duty Rota-Rack® with Basic Control | 51003* | 11,495 |

*Order conveyor separately.

Conveyor Options

| DESCRIPTION* | PART NUMBER | PRICE |
|--------------|-------------|----------------|
| Short | 51021 | \$3,760 |
| Standard | 51022 | 3,760 |
| Long | 51023 | 5,150 |

*See dimensions on previous page.

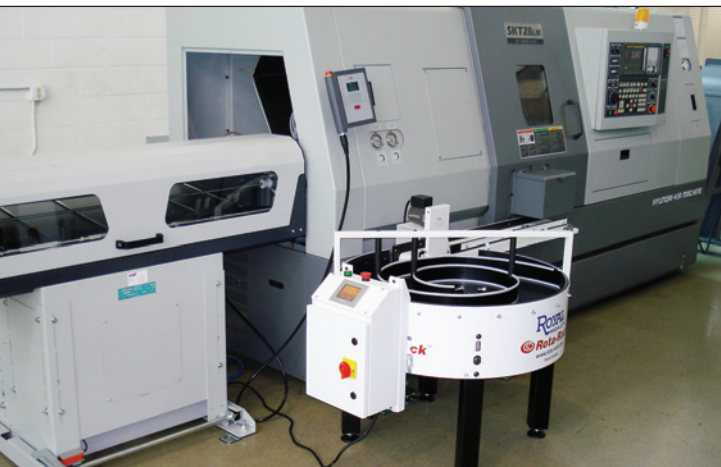
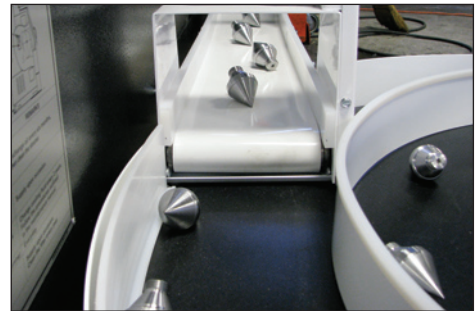
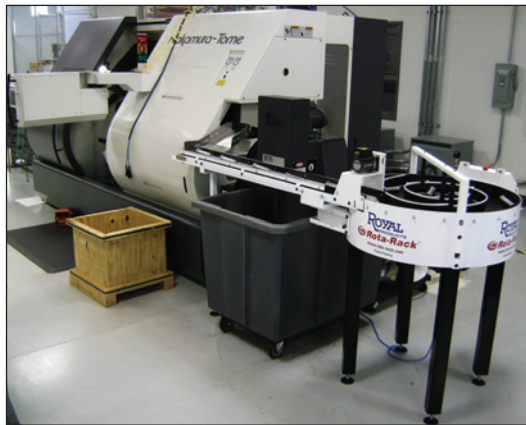


**Check out the Royal Rota-Rack®
Video at www.rotarack.com**



ROYAL ROTA-RACK® INSTALLATIONS

Works With Any CNC Lathe

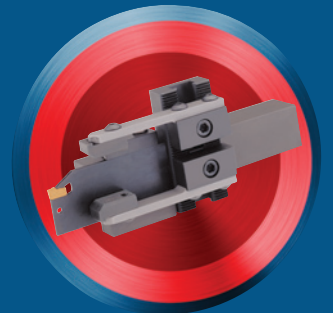
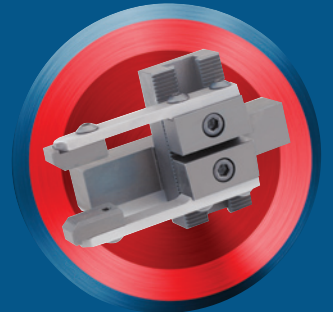
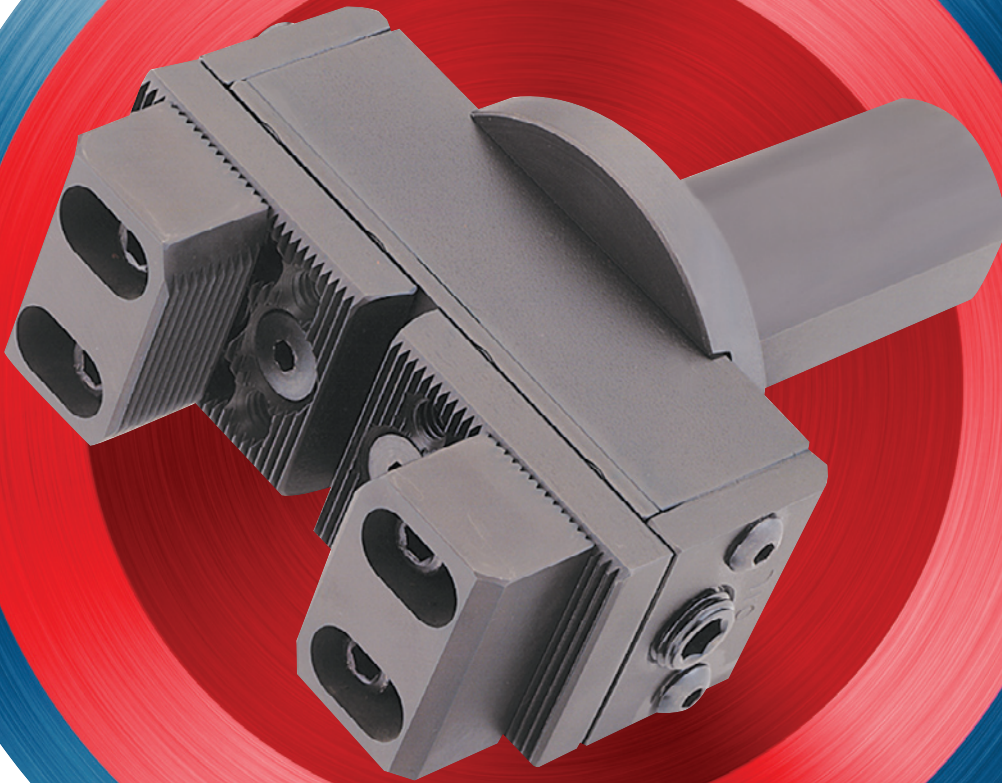


Check out the Royal Rota-Rack®
Video at www.rotarack.com



CNC BAR PULLERS

EASILY AUTOMATE ANY CNC LATHE
FOR LIGHTS-OUT PRODUCTION





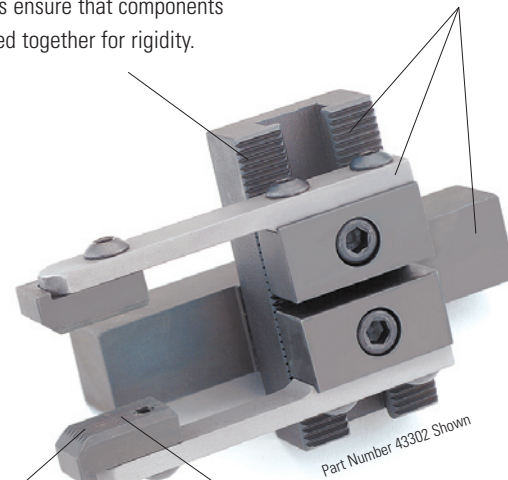
ROYAL COMPACT CNC BAR PULLERS

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.

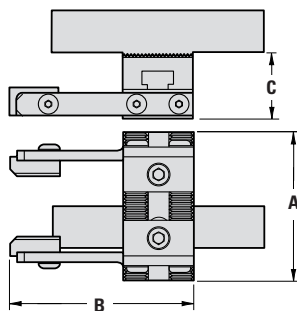
Serrations ensure that components stay locked together for rigidity.



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.



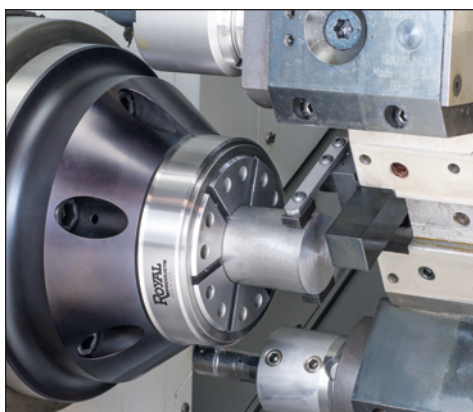
Royal Compact CNC Bar Pullers

| 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 | \$1,025 |
| 1" SQ | 1/8"–2 1/4" | 2 5/8" | 3 1/4" | 1 3/16" | 43304 | 1,025 |
| 1" SQ | 1/8"–3" | 3 5/8" | 3 1/4" | 1 3/16" | 43306 | 1,090 |

Royal Compact CNC Bar Pullers (Metric)

| SHANK SIZE | GRIPPING RANGE | A | B | C | PART NUMBER | PRICE ¹ |
|------------|----------------|------|------|------|-------------|--------------------|
| 20mm | 3–57mm | 67mm | 83mm | 30mm | 43680 | \$1,280 |
| 25mm | 3–57mm | 67mm | 83mm | 30mm | 43684 | 1,280 |
| 25mm | 3–76mm | 92mm | 83mm | 30mm | 43688 | 1,325 |

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



Replacement Parts

| DESCRIPTION | PART NUMBER | PRICE/SET |
|-------------------|-------------|--------------|
| Spring Finger Set | 43505 | \$125 |
| Serrated Jaw Set | 43500 | 181 |
| Smooth Jaw Set | 43502 | 221 |

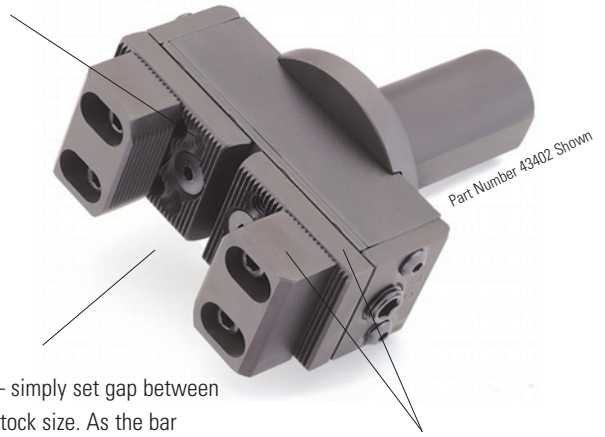
ROYAL HEAVY-DUTY CNC BAR PULLERS

Automate Any CNC Lathe



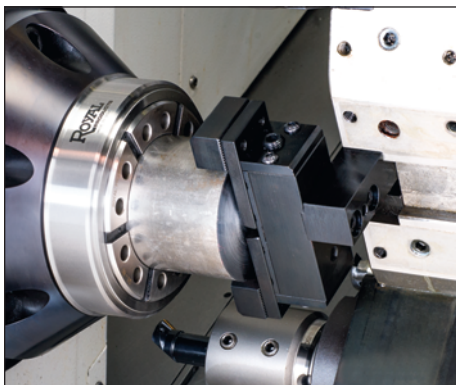
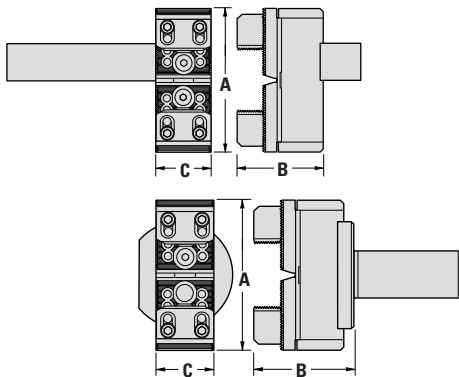
- ❑ Rugged, heavy-duty design withstands the toughest manufacturing environments.
- ❑ Very easy to setup and use.
- ❑ Unit can pull round, square, and hex stock.
- ❑ Large internal die springs provide **very strong gripping force**.
- ❑ Each bar puller includes one set of standard jaws and one blank 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 | \$247 |
| Extra-Capacity Jaw Set | 43512 | 274 |

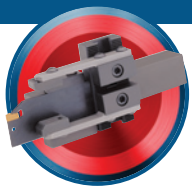
Royal Heavy-Duty CNC Bar Pullers – Square Shank

| 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 | \$1,730 |
| 1" SQ | $1/8"$ – $2 1/4"$ | $1 7/8"$ – $3 3/4"$ | $3 7/8"$ | $2 9/16"$ | $1 1/2"$ | 43366 | 1,840 |
| 1" SQ | $1/8"$ – $3 1/2"$ | $1 7/8"$ – $5 3/8"$ | $4 3/4"$ | $2 9/16"$ | $1 1/2"$ | 43370 | 1,920 |
| 1" SQ | $1/8"$ – $3 5/8"$ | $1 7/8"$ – $5 1/2"$ | 5" | $2 3/4"$ | $1 3/4"$ | 43372 | 2,075 |
| 1" SQ | $1/8"$ – $4 7/8"$ | $1 7/8"$ – $6 1/2"$ | $6 3/4"$ | $2 3/4"$ | $1 3/4"$ | 43376 | 2,320 |

* 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 | \$2,195 |
| $1 1/4"$ Dia. | $1/8"$ – $2 1/4"$ | $1 7/8"$ – $3 3/4"$ | $3 7/8"$ | $2 15/16"$ | $1 1/2"$ | 43402 | 2,195 |
| $1 1/4"$ Dia. | $1/8"$ – $3 1/2"$ | $1 7/8"$ – $5 3/8"$ | $5 3/8"$ | $2 15/16"$ | $1 1/2"$ | 43404 | 2,290 |



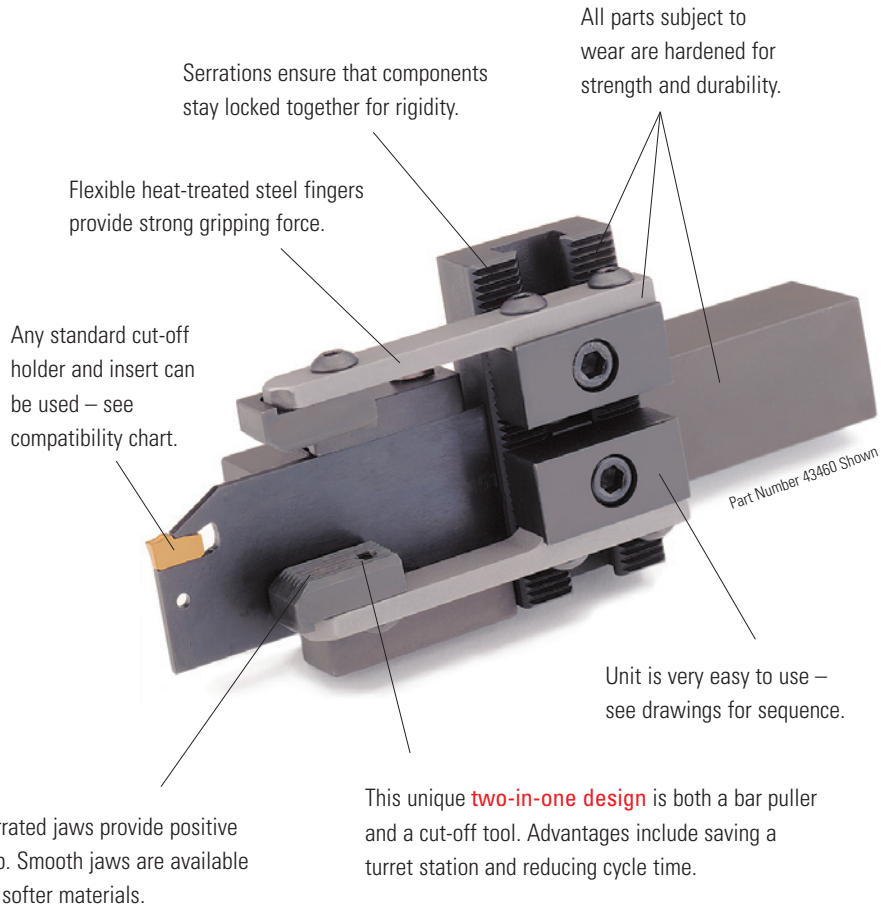
ROYAL COMBO CNC BAR PULLERS

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:

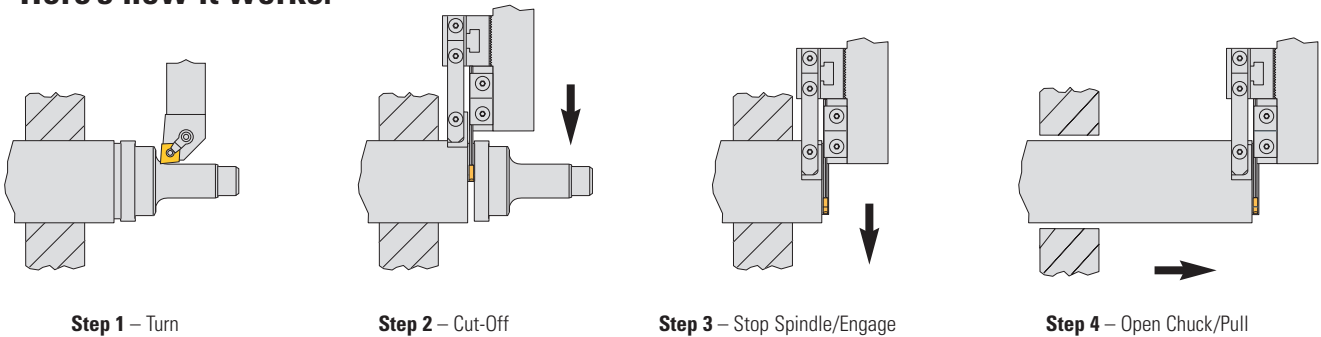
- **Saving a turret station.**
- Reduced cycle time because the turret does not need to index between the cut-off and pulling operations.

- 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.

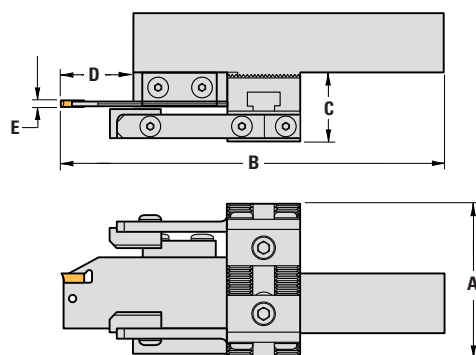
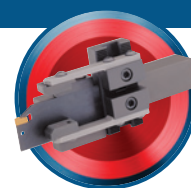
Here's how it works:



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" | 9/16" | 0.125" | 43456 | \$1,430 |
| 1" SQ | 1/8" - 2 1/4" | 2 5/8" | 6 3/8" | 1 3/16" | 1 1/4" | 0.125" | 43460 | 1,450 |
| 1" SQ | 1/8" - 3" | 3 5/8" | 6 3/8" | 1 3/16" | 1 1/4" | 0.125" | 43464 | 1,505 |
| 1" SQ | 1/8" - 4" | 3 5/8" | 6 3/8" | 1 3/16" | 1 1/4" | 0.125" | 43468 | 1,710 |

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 | 14.5mm | 3mm | 43615 | \$1,665 |
| 25mm | 3-57mm | 67mm | 162mm | 30mm | 32mm | 3mm | 43625 | 1,685 |
| 25mm | 3-76mm | 92mm | 162mm | 30mm | 32mm | 3mm | 43635 | 1,750 |

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* |
|-----------------------|-------------|--------------|
| 3/4" or 20mm | 43520 | \$244 |
| 1" or 25mm | 43522 | 266 |



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

- 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.

Replacement Parts — Combo Model

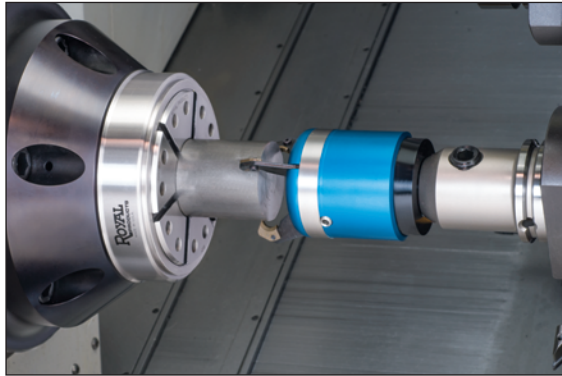
| DESCRIPTION | PART NUMBER | PRICE/SET |
|-------------------|-------------|--------------|
| Spring Finger Set | 43505 | \$125 |
| Serrated Jaw Set | 43500 | 181 |
| Smooth Jaw Set | 43502 | 221 |

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



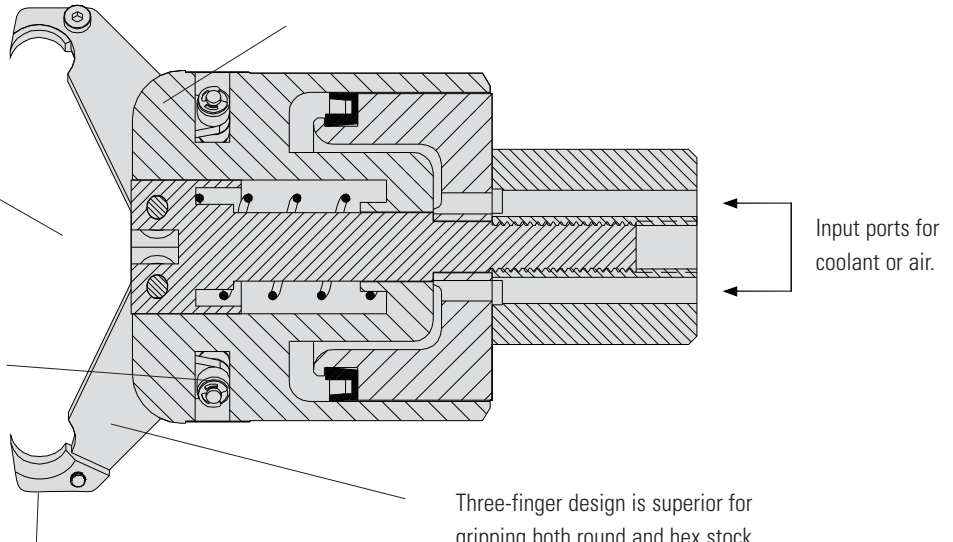
- ❑ The Royal Grippex 20L bar puller is actuated by a CNC lathe's coolant system. As coolant is fed through the unit, it pushes a piston forward which causes the fingers to close around the bar stock. When the coolant is turned off, the fingers automatically spring open.
- ❑ Self-adjusting mechanism – 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**.

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 an optimized 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!

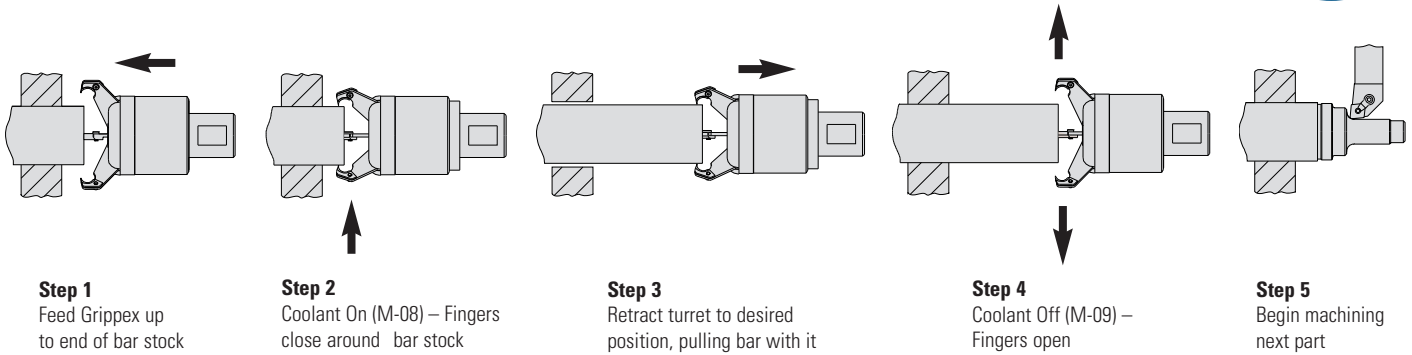
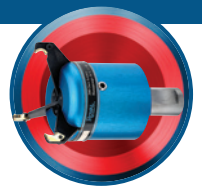
Hardened finger inserts reduce wear and help the Grippex penetrate hard materials like stainless steel.

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



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

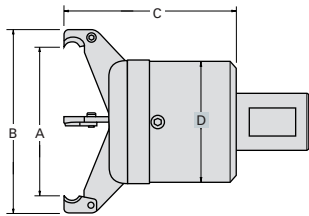
Retract turret to desired position, pulling bar with it

Step 4

Coolant Off (M-09) – Fingers open

Step 5

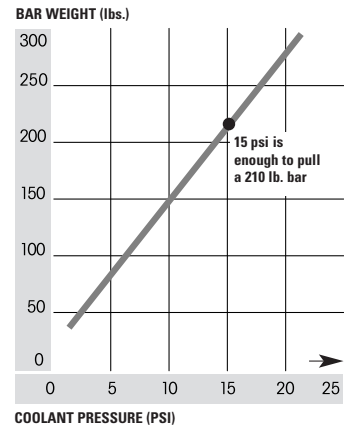
Begin machining next part



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 | \$1,865 |
| 1 1/4" Round | 43145 | 1,865 |
| 1 1/2" Round | 43150 | 1,865 |

*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 | \$212 |
| 1/8" – 3 1/8" (Std.) | 43175 | 232 |
| 5/16" – 4 1/8" | 43180 | 431 |

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



Replacement Insert Sets

| DESCRIPTION | PART NUMBER | PRICE/SET |
|----------------|-------------|--------------|
| 20L Insert Set | 43185 | \$155 |

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 | \$155 |



Robot Gripper Jaw Sets

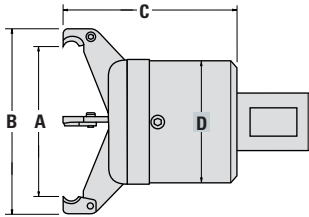
For removing finished parts from a subspindle or removing bar remnants from main spindle.

| DESCRIPTION | PART NUMBER | PRICE/SET |
|---------------------------|-------------|--------------|
| 20L Robot Gripper Jaw Set | 43106 | \$273 |



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

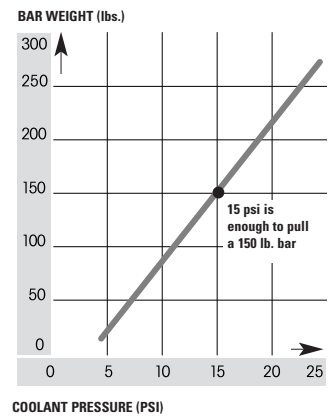
- Same great features as Model 20L featured on previous pages.
- **Smaller body diameter** enables 20S units to be used on machines with less tool clearance and smaller turrets.
- Gripping force for the 20S is quite high, but not as high as the 20L models (see chart).
- 140 psi maximum coolant pressure.



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 | \$1,740 |
| 1 1/4" | 43345 | 1,740 |



Grippex 20S Replacement Finger Sets

| CAPACITY | PART NUMBER | PRICE/SET |
|----------------|-------------|--------------|
| 1/8" - 2 1/16" | 43339 | \$212 |

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 | \$155 |



Grippex 20S Replacement Insert Sets

| CAPACITY | PART NUMBER | PRICE/SET |
|----------------|-------------|--------------|
| 20S Insert Set | 43185 | \$155 |



LIVE AND DEAD CENTERS

ROYAL MAKES THE BEST LIVE CENTERS ON EARTH



WHY DO TOP MANUFACTURERS INSIST ON ROYAL LIVE CENTERS?

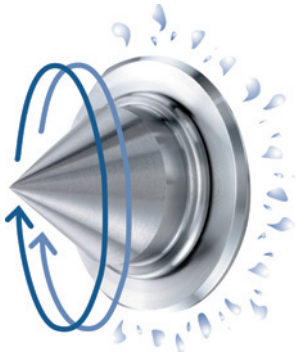


Royal live centers are widely regarded by top metalworking professionals as the best live centers available anywhere in the world. Each Royal live center is a finely crafted tool, incorporating the highest quality steels, bearings, lubricants and seals. Manufactured to exacting tolerances, Royal live 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
- All "Standard Specials"



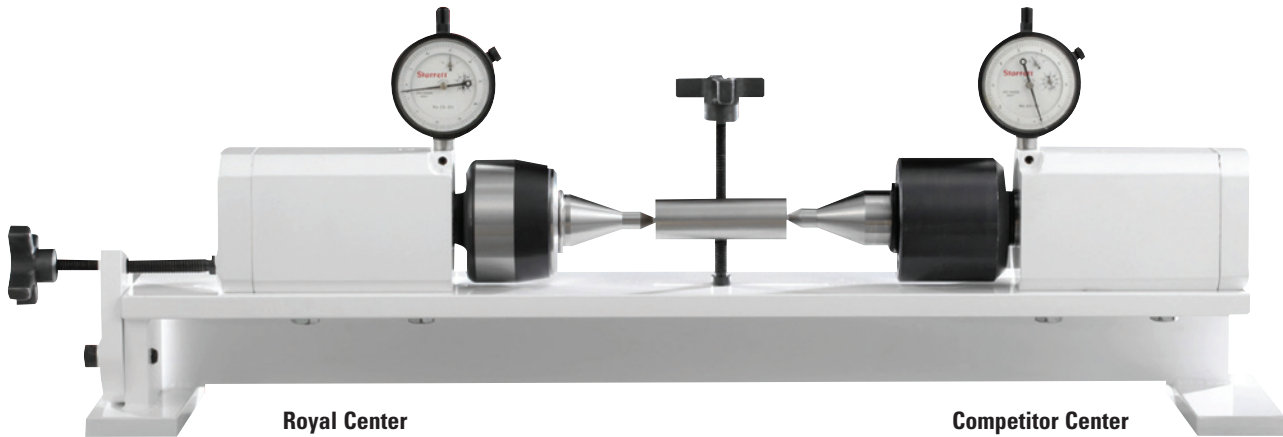
**✓ High-Pressure
Coolant Approved**

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"

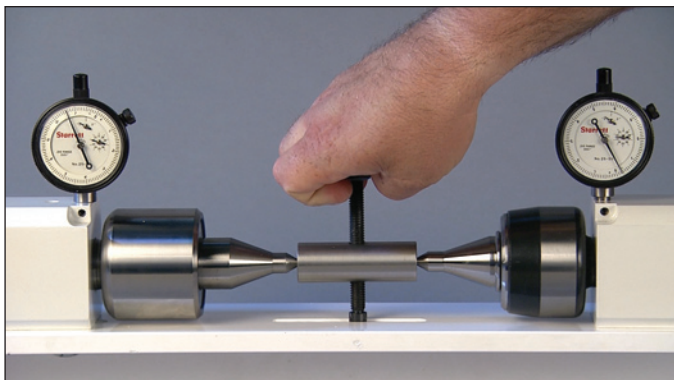
D2 = Diameter of Other Brand Point = .465"

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

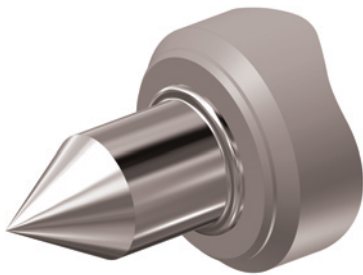


One Size Does Not Fit All – So We Turned Special Centers Into Standards!

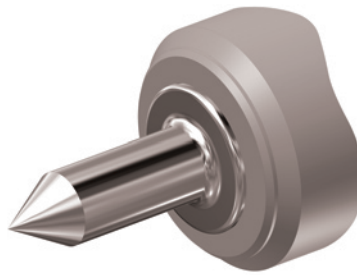
One of Royal's strengths as a leading live center manufacturer is our ability to design and build custom centers to address non-standard applications. However, there are two major **drawbacks that are almost always associated with custom-made centers: longer lead times and higher prices.**

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.

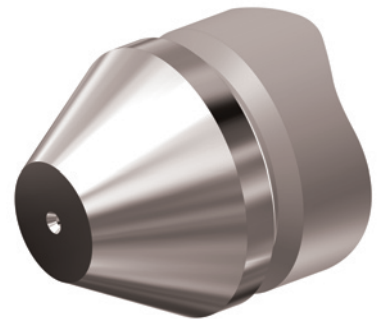
Our engineers analyzed the prints of hundreds of special centers that we had manufactured over several years, and the results were shocking – **over 90% of our customers' special needs could be covered with just five new point styles.** These are:



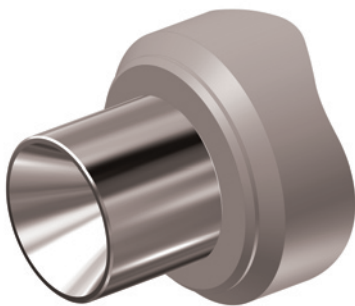
Full-diameter long point for shaft work and parts with large center holes.



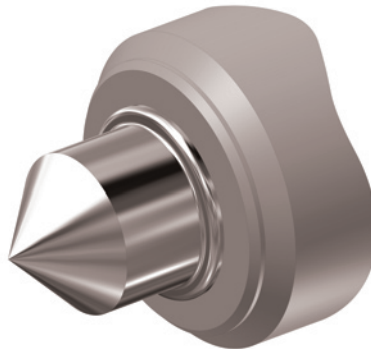
A reduced-diameter long point for use when greater clearance is needed.



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 80-81 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.****

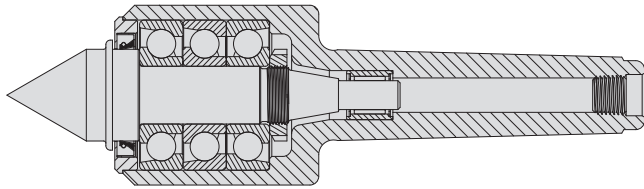


ROYAL OFF-THE-SHELF "SPECIALS"

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:

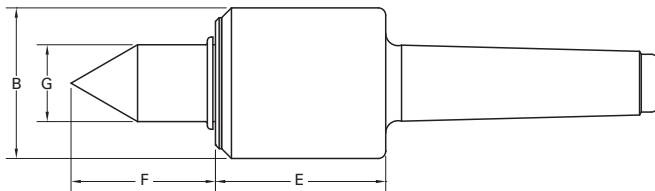
- 1- Very Rigid Bearing Arrangement
- 2- Exclusive Roto-Shield™ Technology
- 3- Low-Profile Head

All Models In Stock for Immediate Delivery



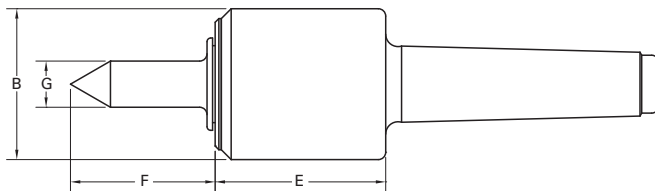
**EXCLUSIVE ROYAL
ROTO-SHIELD™
TECHNOLOGY**

**✓ High-Pressure
Coolant Approved**



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 | \$999 |
| 3 MT | 1.70 | 2.12 | 1.75 | 0.88 | 6,000 | 465 | 1,270 | 10479 | 999 |
| 4 MT | 2.45 | 2.78 | 2.35 | 1.25 | 5,000 | 1,230 | 2,150 | 10480 | 1,240 |
| 5 MT | 2.45 | 2.78 | 2.35 | 1.25 | 5,000 | 1,230 | 2,150 | 10481 | 1,299 |

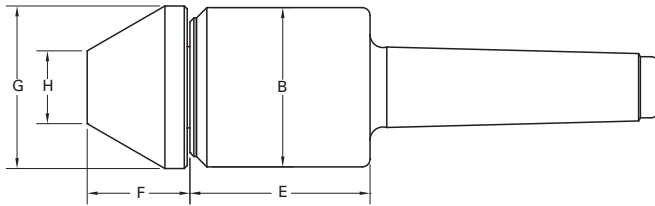


Royal High-Precision Quad-Bearing Live Centers – Small Diameter Long Point

| 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 | \$999 |
| 3 MT | 1.70 | 2.12 | 1.75 | 0.50 | 6,000 | 350 | 1,270 | 10483 | 999 |
| 4 MT | 2.45 | 2.78 | 2.35 | 0.75 | 5,000 | 925 | 2,150 | 10484 | 1,240 |
| 5 MT | 2.45 | 2.78 | 2.35 | 0.75 | 5,000 | 925 | 2,150 | 10485 | 1,299 |

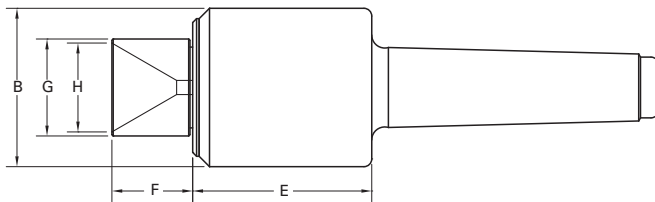
* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

ROYAL OFF-THE-SHELF "SPECIALS"



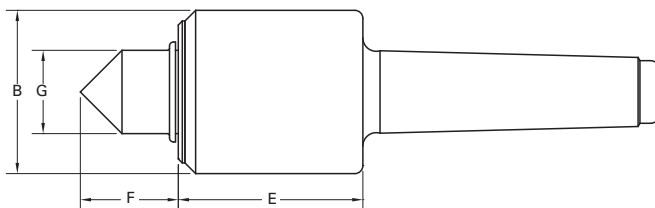
Royal High-Precision Quad-Bearing Live Centers – Bull Nose Point

| 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 | \$1,020 |
| 3 MT | 1.70 | 2.12 | 1.25 | 1.75 | 0.75 | 6,000 | 750 | 1,270 | 10491 | 1,020 |
| 4 MT | 2.45 | 2.78 | 1.58 | 2.50 | 1.12 | 5,000 | 1,905 | 2,150 | 10492 | 1,299 |
| 5 MT | 2.45 | 2.78 | 1.58 | 2.50 | 1.12 | 5,000 | 1,905 | 2,150 | 10493 | 1,369 |



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

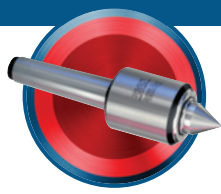
| TAPER | B | E | F | G | H | MAX. SUGGESTED RPM* | WEIGHT OF WORKPIECE (lbs.) | THRUST LOAD (lbs.) | PART NUMBER | PRICE |
|-------|------|------|------|------|-----------|---------------------|----------------------------|--------------------|-------------|--------------|
| 2 MT | 1.70 | 2.12 | 1.00 | 1.12 | 0.15–1.00 | 6,000 | 885 | 1,270 | 10494 | \$999 |
| 3 MT | 1.70 | 2.12 | 1.00 | 1.12 | 0.15–1.00 | 6,000 | 885 | 1,270 | 10495 | 999 |
| 4 MT | 2.45 | 2.78 | 1.25 | 1.50 | 0.21–1.38 | 5,000 | 2,240 | 2,150 | 10496 | 1,240 |
| 5 MT | 2.45 | 2.78 | 1.25 | 1.50 | 0.21–1.38 | 5,000 | 2,240 | 2,150 | 10497 | 1,299 |



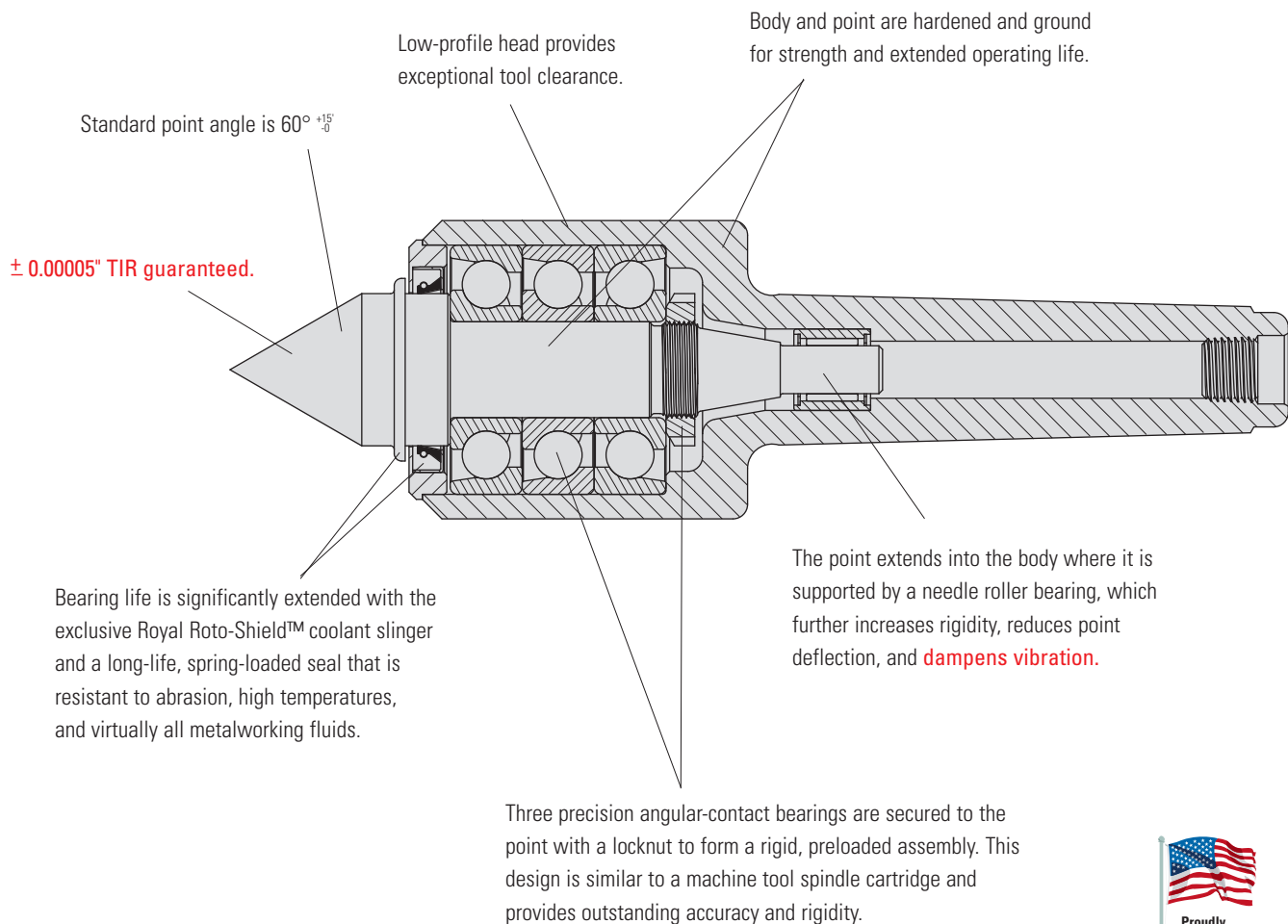
Royal High-Precision Quad-Bearing Live Centers – 90° Male Point

| 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 | \$989 |
| 3 MT | 1.70 | 2.12 | 1.07 | 0.88 | 6,000 | 885 | 1,270 | 10487 | 989 |
| 4 MT | 2.45 | 2.78 | 1.47 | 1.25 | 5,000 | 2,240 | 2,150 | 10488 | 1,227 |
| 5 MT | 2.45 | 2.78 | 1.47 | 1.25 | 5,000 | 2,240 | 2,150 | 10489 | 1,297 |

* 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

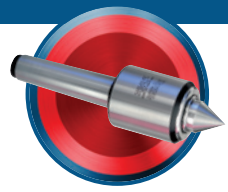


- ❑ An excellent choice for precision turning, grinding, and hard-turning.
- ❑ Precision, preloaded bearing assembly provides exceptional rigidity and accuracy.
- ❑ Low-profile head offers superior tool clearance.
- ❑ Exclusive Roto-Shield™ coolant slinger and upgraded seal provide outstanding bearing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

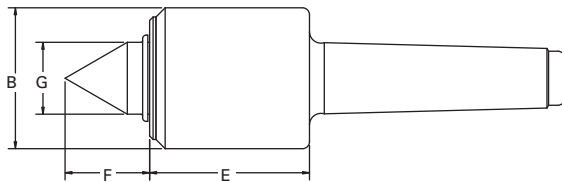


Check out the Royal Live Center Video at www.livecenters.com

ROYAL HIGH-PRECISION QUAD-BEARING LIVE CENTERS



**EXCLUSIVE ROYAL
ROTO-SHIELD™
TECHNOLOGY**



**✓ High-Pressure
Coolant Approved**

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

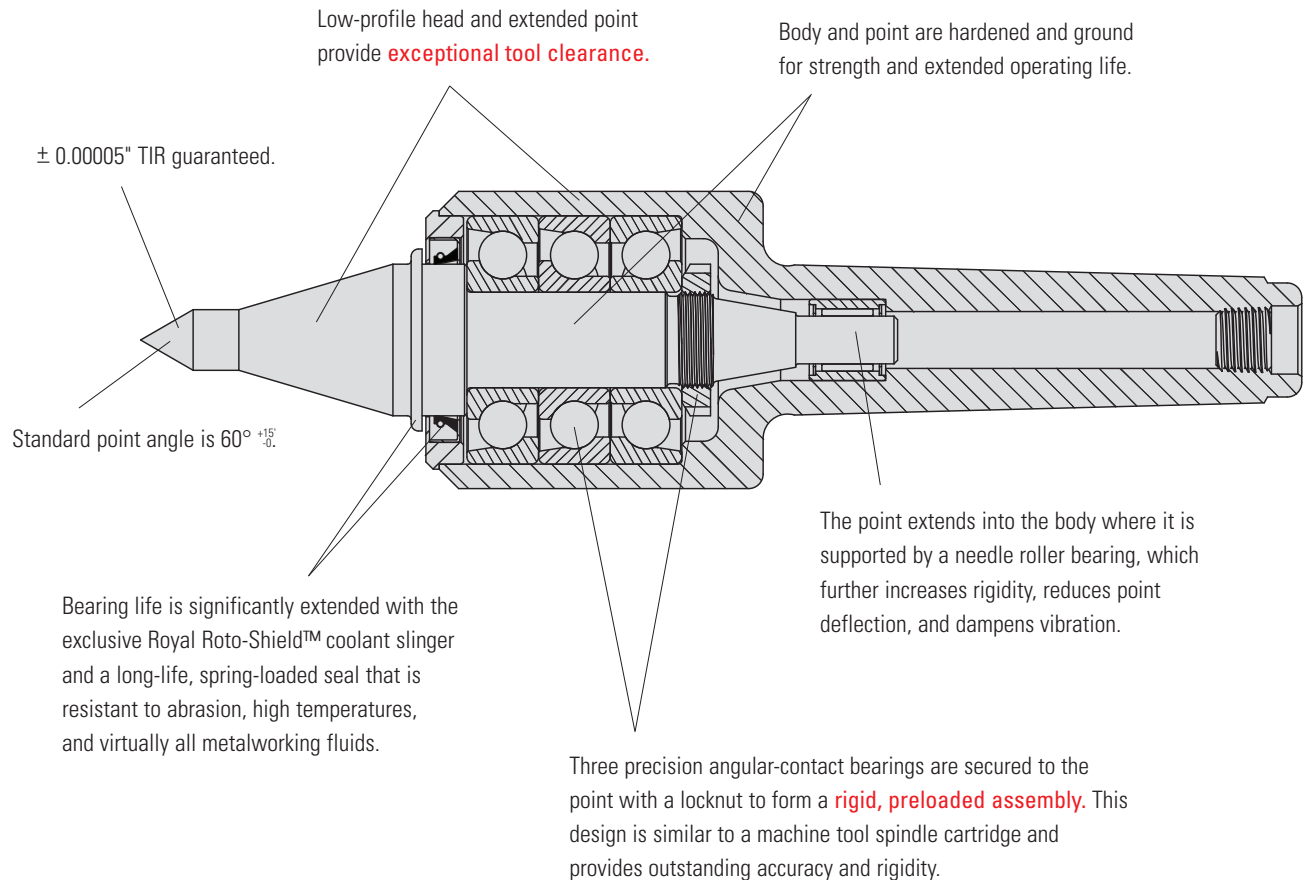
| TAPER | B | E | F | G | MAX. SUGGESTED RPM* | WEIGHT OF WORKPIECE (lbs.) | THRUST LOAD (lbs.) | PART NUMBER | PRICE |
|---------|------|------|------|------|---------------------|----------------------------|--------------------|-------------|--------------|
| 2 MT | 1.70 | 2.12 | 1.07 | 0.88 | 6,000 | 885 | 1,270 | 10412 | \$906 |
| 3 MT | 1.70 | 2.12 | 1.07 | 0.88 | 6,000 | 885 | 1,270 | 10413 | 906 |
| 4 MT | 2.45 | 2.78 | 1.47 | 1.25 | 5,000 | 2,240 | 2,150 | 10414 | 1,078 |
| 5 MT | 2.45 | 2.78 | 1.47 | 1.25 | 5,000 | 2,240 | 2,150 | 10415 | 1,136 |
| 5 MT HD | 3.82 | 3.89 | 2.31 | 2.00 | 3,000 | 5,240 | 5,300 | 10445 | 2,278 |
| 6 MT HD | 3.82 | 3.89 | 2.31 | 2.00 | 3,000 | 5,240 | 5,300 | 10446 | 2,799 |

* 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.

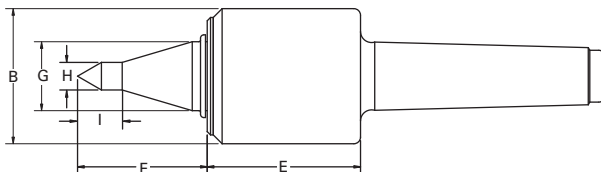


Check out the Royal Live Center Video at www.livecenters.com

ROYAL HIGH-PRECISION CNC QUAD-BEARING LIVE CENTERS



**EXCLUSIVE ROYAL
ROTO-SHIELD™
TECHNOLOGY**



**✓ High-Pressure
Coolant Approved**

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

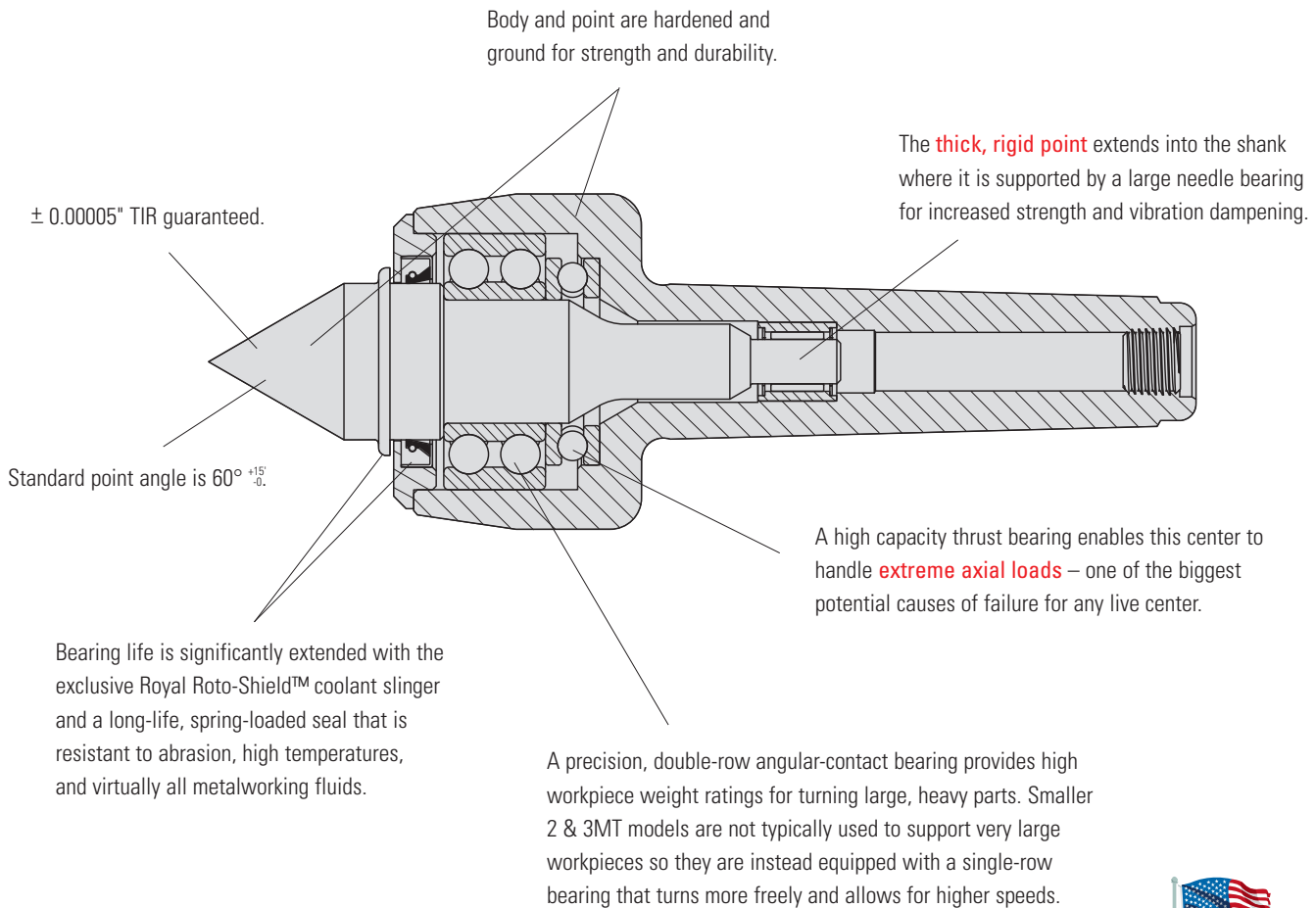
| TAPER | B | E | F | G | H | I | MAX. SUGGESTED RPM* | WEIGHT OF WORKPIECE (lbs.) | THRUST LOAD (lbs.) | PART NUMBER | PRICE |
|---------|------|------|------|------|------|------|---------------------|----------------------------|--------------------|-------------|--------------|
| 2 MT | 1.70 | 2.12 | 1.75 | 0.88 | 0.38 | 0.63 | 6,000 | 465 | 1,270 | 10662 | \$881 |
| 3 MT | 1.70 | 2.12 | 1.75 | 0.88 | 0.38 | 0.63 | 6,000 | 465 | 1,270 | 10663 | 881 |
| 4 MT | 2.45 | 2.78 | 2.35 | 1.25 | 0.50 | 0.81 | 5,000 | 1,230 | 2,150 | 10664 | 1,078 |
| 5 MT | 2.45 | 2.78 | 2.35 | 1.25 | 0.50 | 0.81 | 5,000 | 1,230 | 2,150 | 10665 | 1,136 |
| 5 MT HD | 3.82 | 3.89 | 3.34 | 2.00 | 0.75 | 1.28 | 3,000 | 2,210 | 5,300 | 10475 | 2,278 |
| 6 MT HD | 3.82 | 3.89 | 3.34 | 2.00 | 0.75 | 1.28 | 3,000 | 2,210 | 5,300 | 10476 | 2,799 |

* 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.

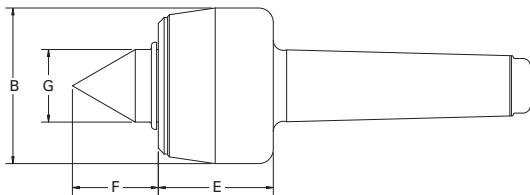
ROYAL HEAVY-DUTY SPINDLE TYPE LIVE CENTERS



**EXCLUSIVE ROYAL
ROTO-SHIELD™
TECHNOLOGY**



**✓ High-Pressure
Coolant Approved**



Royal Heavy-Duty Spindle Type Live Centers

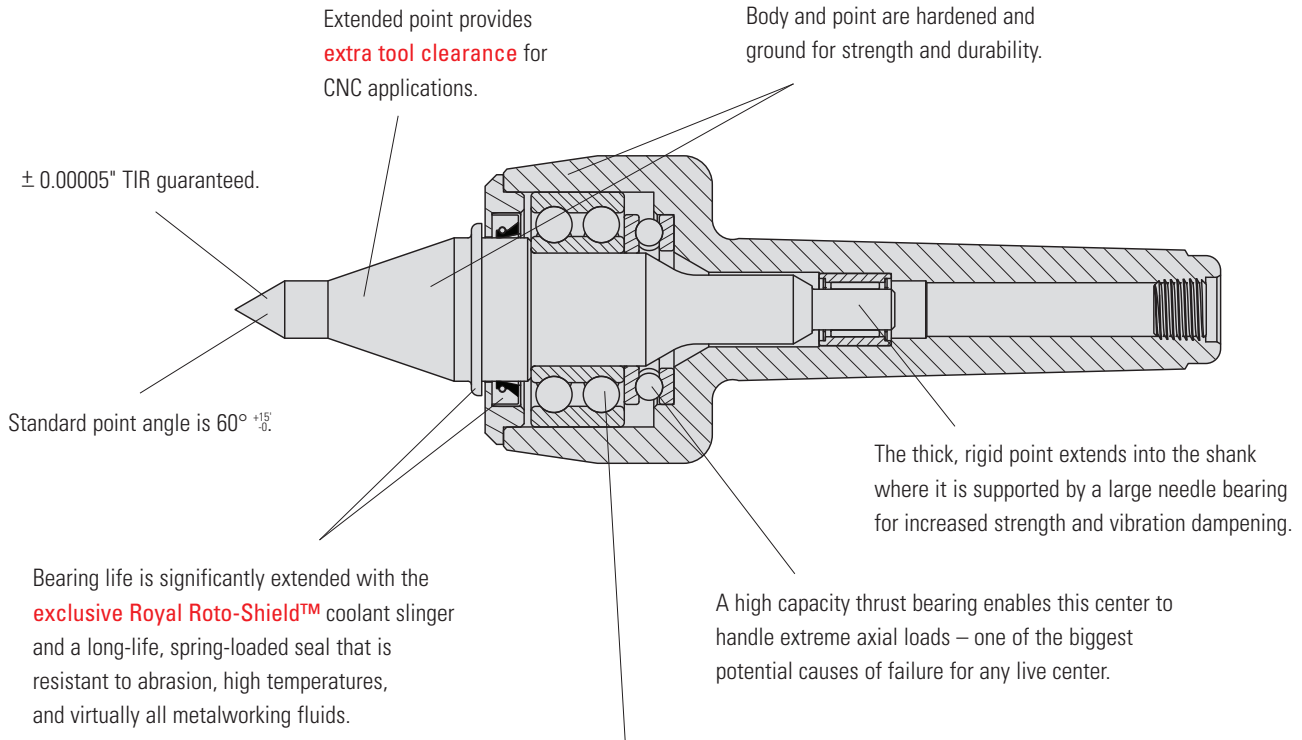
| TAPER | B | E | F | G | MAX. SUGGESTED RPM* | WEIGHT OF WORKPIECE (lbs.) | THRUST LOAD (lbs.) | PART NUMBER | PRICE |
|-------|------|------|------|------|---------------------|----------------------------|--------------------|-------------|--------------|
| 2 MT | 1.75 | 1.47 | 1.01 | 0.88 | 6,000 | 725 | 2,360 | 10102 | \$759 |
| 3 MT | 2.33 | 1.75 | 1.22 | 1.00 | 5,000 | 970 | 3,900 | 10103 | 759 |
| 4 MT | 2.68 | 1.98 | 1.48 | 1.25 | 4,500 | 1,720 | 4,050 | 10104 | 989 |
| 5 MT | 3.45 | 2.81 | 1.84 | 1.50 | 3,500 | 3,260 | 5,700 | 10105 | 1,363 |
| 6 MT | 4.00 | 3.15 | 2.31 | 2.00 | 3,500 | 4,080 | 6,000 | 10106 | 2,550 |

* 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.

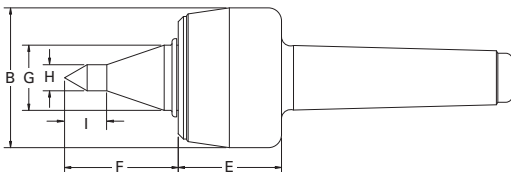


- ❑ One of our most popular models – an excellent heavy-duty live center designed to handle almost all manual and CNC turning jobs.
- ❑ Heavy-duty precision bearings provide exceptional radial and thrust load capacities.
- ❑ The thick, rigid point extends into the shank where it is supported by a large 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



**EXCLUSIVE ROYAL
ROTO-SHIELD™
TECHNOLOGY**



**✓ High-Pressure
Coolant Approved**

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 | \$799 |
| 3 MT | 2.33 | 1.75 | 1.86 | 1.00 | 0.38 | 0.63 | 5,000 | 740 | 3,900 | 10213 | 799 |
| 4 MT | 2.68 | 1.98 | 2.18 | 1.25 | 0.50 | 0.81 | 4,500 | 1,120 | 4,050 | 10214 | 1,005 |
| 5 MT | 3.45 | 2.81 | 2.58 | 1.50 | 0.50 | 0.81 | 3,500 | 1,930 | 5,700 | 10215 | 1,363 |
| 6 MT | 4.00 | 3.15 | 3.00 | 2.00 | 0.75 | 1.28 | 3,500 | 2,420 | 6,000 | 10216 | 2,634 |

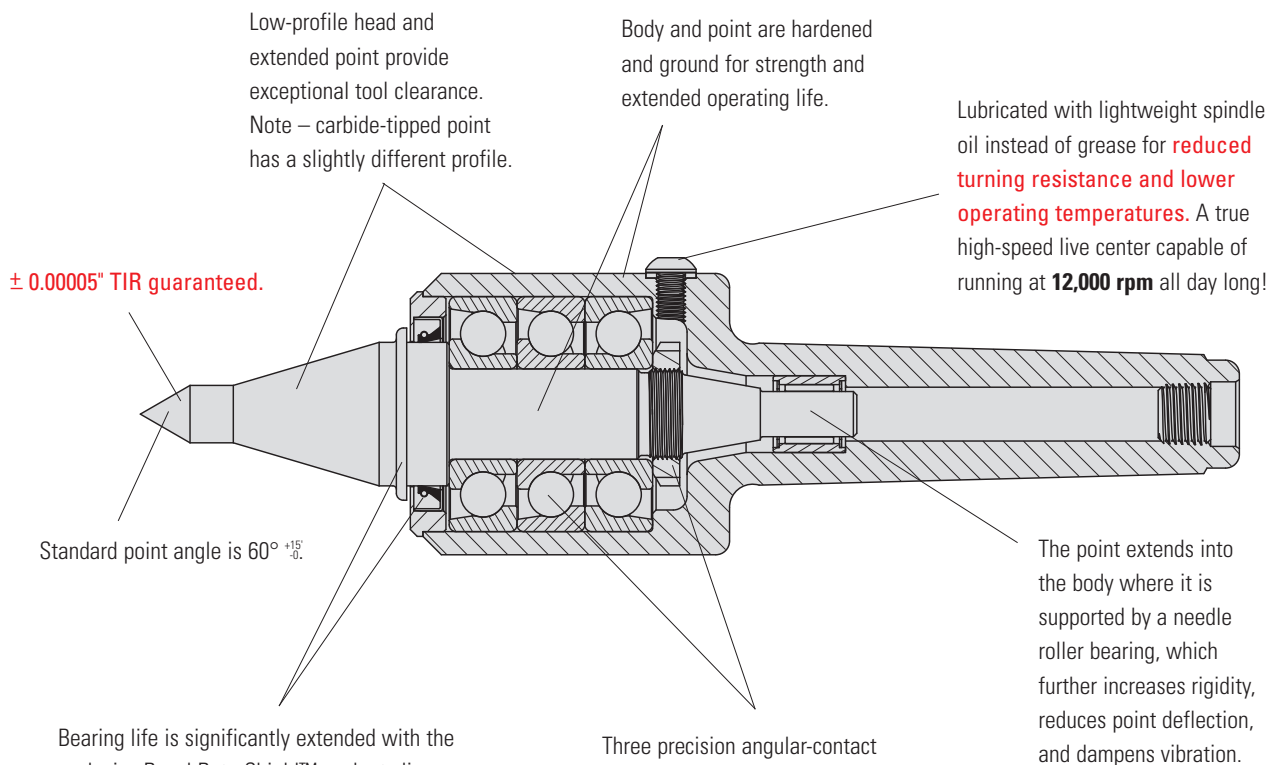
* Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

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



ROYAL HIGH-SPEED PRECISION LIVE CENTERS

Up to 12,000 RPM!



Low-profile head and extended point provide exceptional tool clearance. Note – carbide-tipped point has a slightly different profile.

Body and point are hardened and ground for strength and extended operating life.

Lubricated with lightweight spindle oil instead of grease for **reduced turning resistance and lower operating temperatures**. A true high-speed live center capable of running at **12,000 rpm** all day long!

± 0.00005" TIR guaranteed.

Standard point angle is $60^{\circ} \pm 15'$.

Bearing life is significantly extended with the exclusive Royal Roto-Shield™ coolant slinger and a long-life, spring-loaded seal that is resistant to abrasion, high temperatures, and virtually all metalworking fluids.

Three precision angular-contact bearings are secured to the point with a locknut to form a rigid, preloaded assembly. This design is similar to a machine tool spindle cartridge and provides **outstanding accuracy and rigidity**.

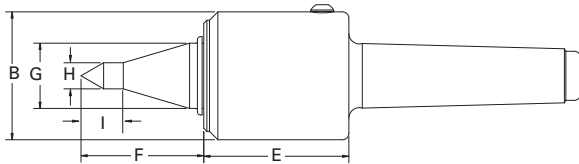
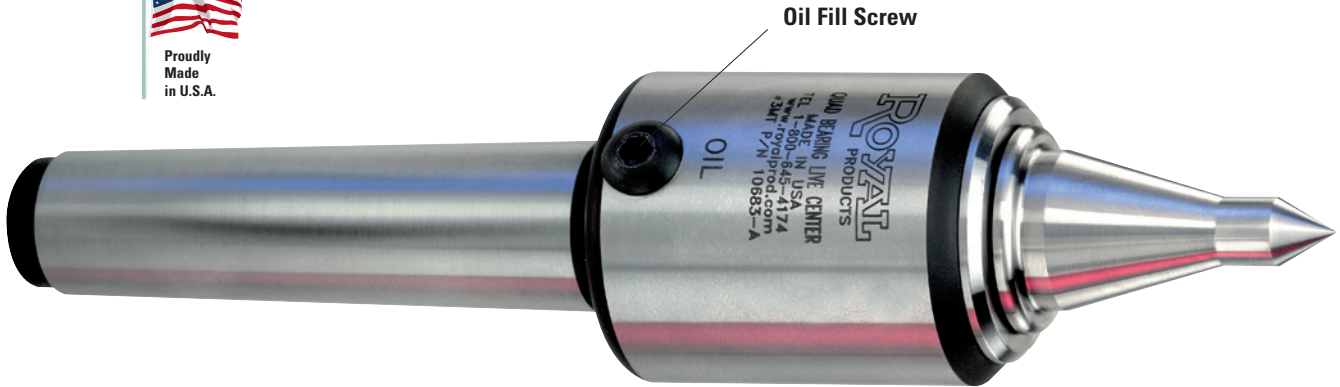
The point extends into the body where it is supported by a needle roller bearing, which further increases rigidity, reduces point deflection, and dampens vibration.



- ❑ 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

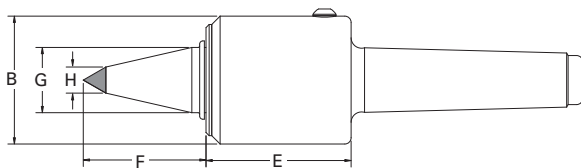
Up to 12,000 RPM!



**EXCLUSIVE ROYAL
ROTO-SHIELD™
TECHNOLOGY**

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 | \$1,173 |
| 4 MT | 2.45 | 2.78 | 2.35 | 1.25 | 0.50 | 0.81 | 12,000 | 525 | 1,380 | 10684 | 1,396 |
| 5 MT | 2.45 | 2.78 | 2.35 | 1.25 | 0.50 | 0.81 | 12,000 | 525 | 1,380 | 10685 | 1,454 |



**✓ High-Pressure
Coolant Approved**

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

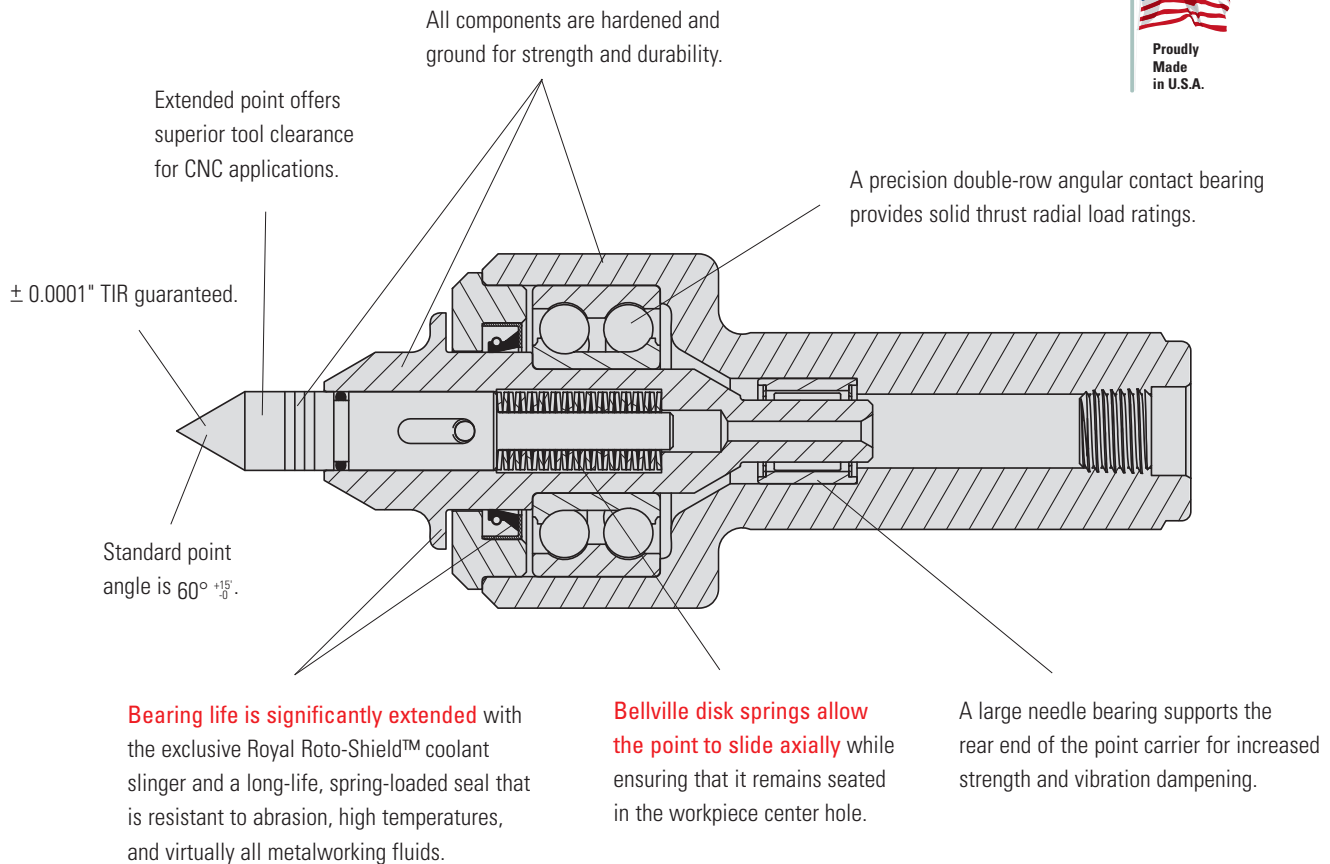
| TAPER | B | E | F | G | H | MAX. SUGGESTED RPM* | WEIGHT OF WORKPIECE (lbs.) | THRUST LOAD (lbs.) | PART NUMBER | PRICE |
|-------|------|------|------|------|------|---------------------|----------------------------|--------------------|-------------|----------------|
| 3 MT | 1.70 | 2.12 | 1.75 | 0.88 | 0.38 | 12,000 | 180 | 650 | 10693 | \$1,309 |
| 4 MT | 2.45 | 2.78 | 2.35 | 1.25 | 0.50 | 12,000 | 525 | 1,380 | 10694 | 1,592 |
| 5 MT | 2.45 | 2.78 | 2.35 | 1.25 | 0.50 | 12,000 | 525 | 1,380 | 10695 | 1,649 |

* 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



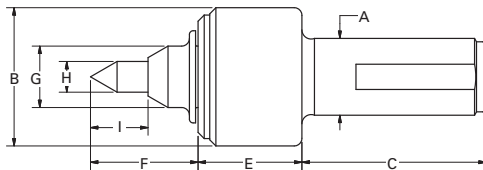
Spring-Loaded Point for Lower Turret and Sub-Spindle Applications



**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 | \$1,482 |

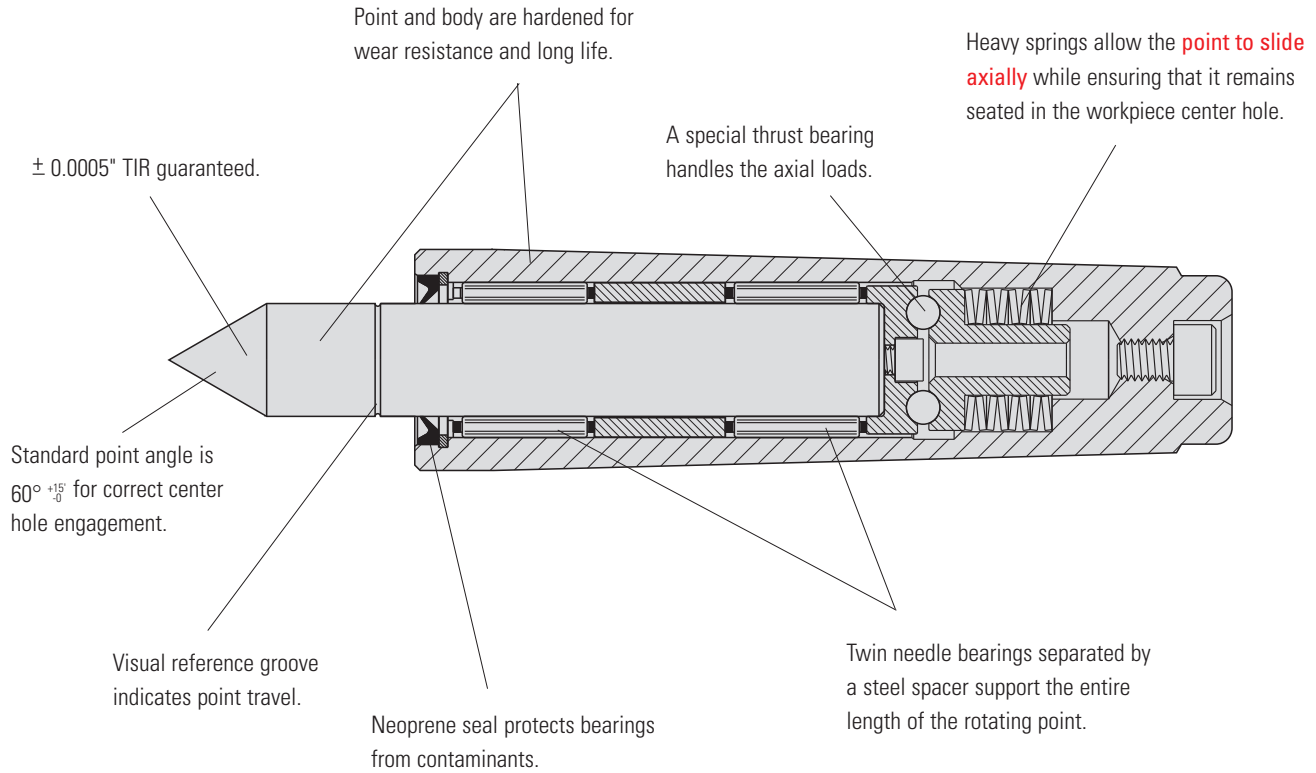
¹ Maximum recommended operating limit. Operating above this speed could result in heat build-up and accelerated bearing wear.

² Exceeding this value will bottom-out springs.

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



ROYAL SPRING TYPE LIVE CENTERS

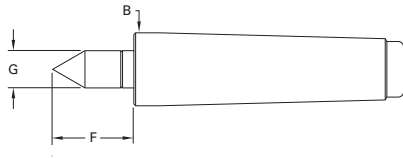


- Unique spring-loaded point compensates for workpiece thermal expansion.
- Low-profile design provides **outstanding tool clearance**.
- Available with standard and extended points.
- Can be used in the turret **of sub-spindle machines** to overcome a lack of hydraulic compensation.



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

ROYAL SPRING TYPE LIVE CENTERS



Royal Spring Type Live Centers — Standard Point

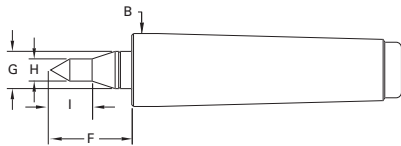
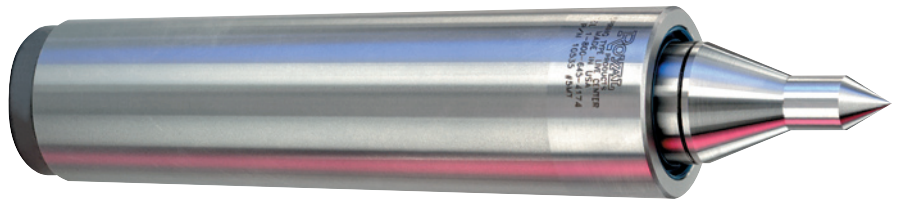
| TAPER | B | F | G | SPRING TRAVEL | MAX. SUGGESTED RPM ¹ | WEIGHT OF WORKPIECE (lbs.) | THRUST LOAD (lbs.) ² | PART NUMBER | PRICE |
|-------|-------|------|------|---------------|---------------------------------|----------------------------|---------------------------------|-------------|--------------|
| 2 MT | 0.700 | 0.88 | 0.39 | 0.11 | 5,000 | 540 | 150 | 10522 | \$829 |
| 3 MT | 0.938 | 1.16 | 0.55 | 0.14 | 5,000 | 940 | 315 | 10523 | 829 |
| 4 MT | 1.231 | 1.38 | 0.63 | 0.18 | 4,500 | 1,400 | 435 | 10524 | 979 |
| 5 MT | 1.748 | 2.00 | 1.10 | 0.19 | 4,500 | 2,340 | 785 | 10525 | 1,450 |

Straight Shank Models

| | | | | | | | | | |
|-------------|------|------|------|------|-------|-------|-----|-------|--------------|
| 1" Dia. | 1.00 | 1.16 | 0.55 | 0.14 | 5,000 | 940 | 315 | 10526 | \$829 |
| 1 1/4" Dia. | 1.25 | 1.38 | 0.63 | 0.18 | 4,500 | 1,400 | 435 | 10527 | 979 |

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

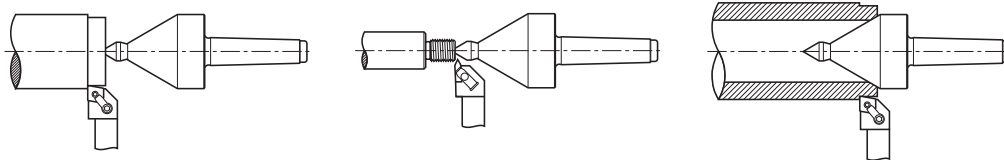
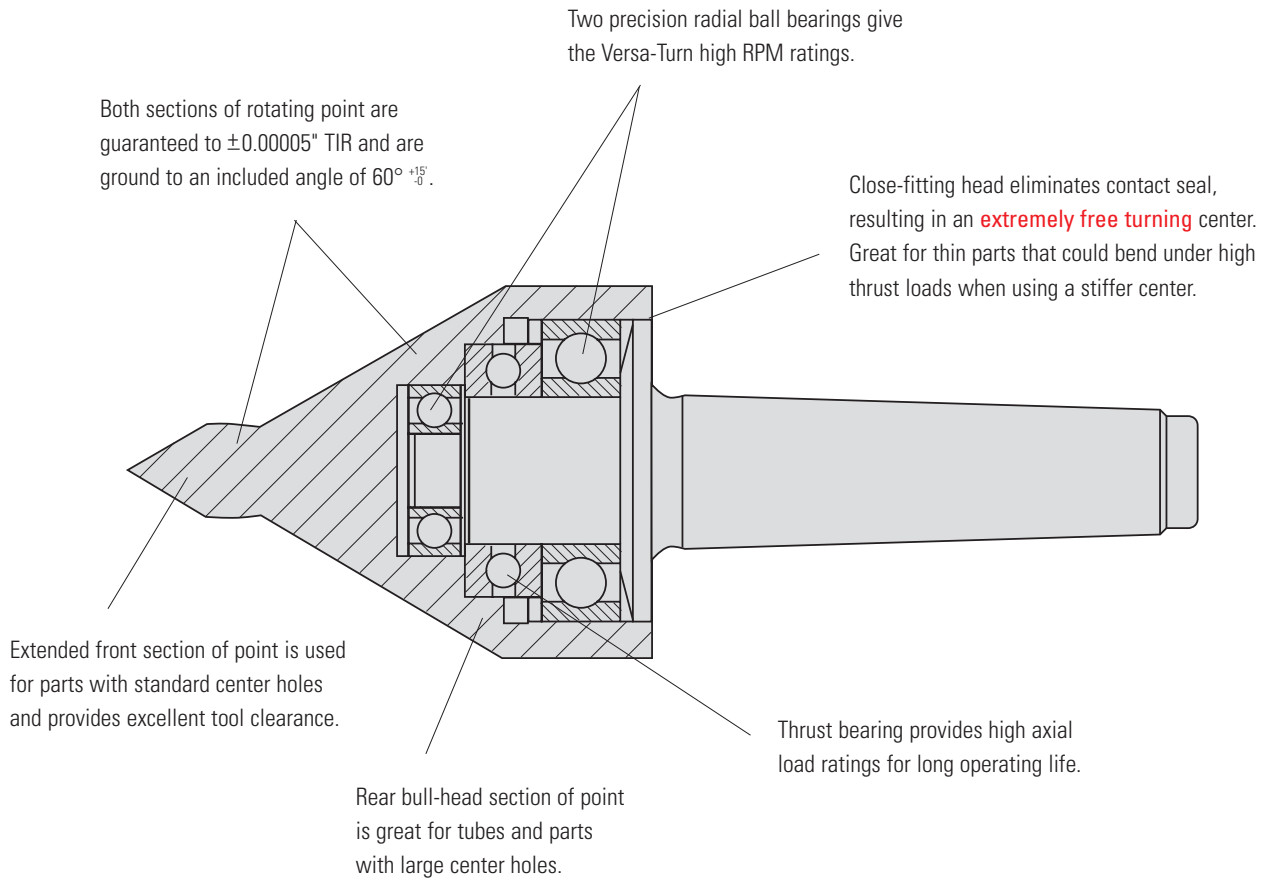
| TAPER | B | F | G | H | I | SPRING TRAVEL | MAX. SUGGESTED RPM ¹ | WEIGHT OF WORKPIECE (lbs.) | THRUST LOAD (lbs.) ² | PART NUMBER | PRICE |
|-------|-------|------|------|------|------|---------------|---------------------------------|----------------------------|---------------------------------|-------------|--------------|
| 2 MT | 0.700 | 0.88 | 0.39 | 0.19 | 0.35 | 0.11 | 5,000 | 150 | 150 | 10532 | \$874 |
| 3 MT | 0.938 | 1.16 | 0.55 | 0.25 | 0.47 | 0.14 | 5,000 | 260 | 315 | 10533 | 874 |
| 4 MT | 1.231 | 1.38 | 0.63 | 0.38 | 0.70 | 0.18 | 4,500 | 580 | 435 | 10534 | 1,038 |
| 5 MT | 1.748 | 2.00 | 1.10 | 0.50 | 0.93 | 0.19 | 4,500 | 1,050 | 785 | 10535 | 1,450 |

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.



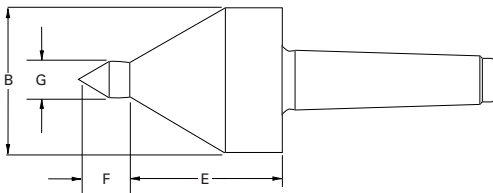
ROYAL VERSA-TURN LIVE CENTERS



- ❑ 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

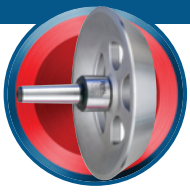


**Extremely Free Turning –
Great for Thin Parts**

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 | \$624 |
| 3 MT HD | 2.50 | 2.60 | 0.93 | 0.63 | 4,000 | 685 | 5,000 | 10833 | 705 |
| 4 MT | 2.50 | 2.60 | 0.93 | 0.63 | 4,000 | 685 | 5,000 | 10834 | 725 |
| 4 MT HD | 3.38 | 3.15 | 1.12 | 0.75 | 3,500 | 1,165 | 5,700 | 10835 | 984 |
| 5 MT | 3.38 | 3.15 | 1.12 | 0.75 | 3,500 | 1,165 | 5,700 | 10836 | 1,036 |

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



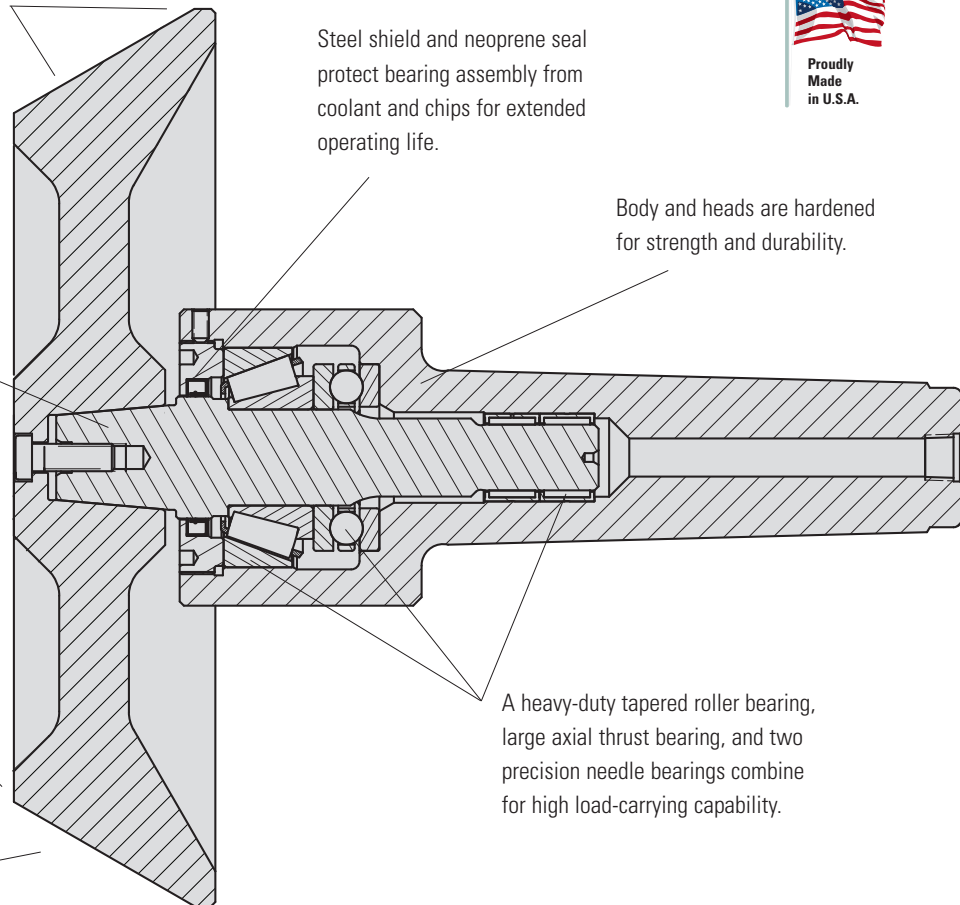
ROYAL “OIL COUNTRY” BIG-BORE BULL HEAD LIVE CENTERS

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.

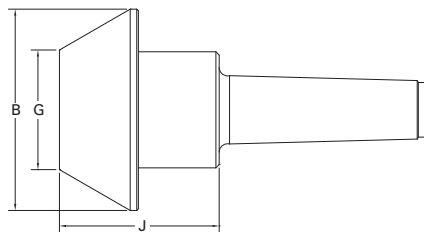
ROYAL “OIL COUNTRY” BIG-BORE BULL HEAD LIVE CENTERS



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 | \$1,764 |
| 6 MT | 10784 | 2,590 |

* Head not included. Order Separately.

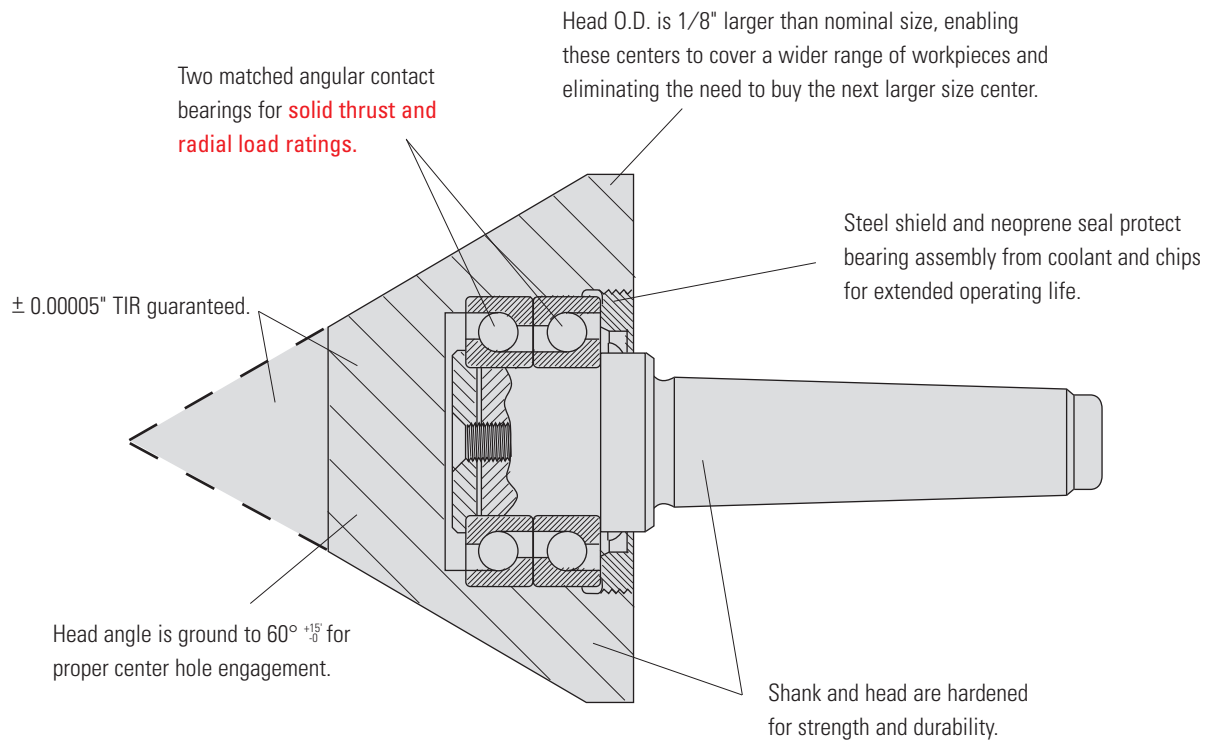
Modular Heads for Royal “Oil Country” Big-Bore Bull Head Live Centers

| HEAD MODEL | B | G | HEAD WEIGHT (LBS.) | PART NUMBER | PRICE |
|------------|-------|-------|--------------------|-------------|--------------|
| A | 4.62 | 1.63 | 7 | 10791 | \$852 |
| B | 7.37 | 4.38 | 18 | 10792 | 1,317 |
| C | 10.12 | 7.13 | 33 | 10793 | 2,044 |
| D | 12.87 | 9.88 | 51 | 10794 | 2,922 |
| E | 15.62 | 12.63 | 65 | 10795 | 5,093 |

“Oil Country” Big-Bore Bull Head Dead Centers Also Available – See Page 105

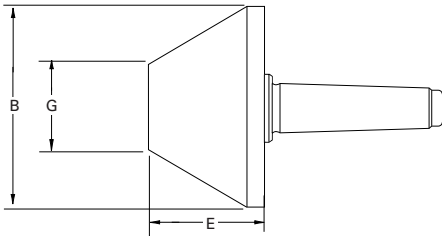
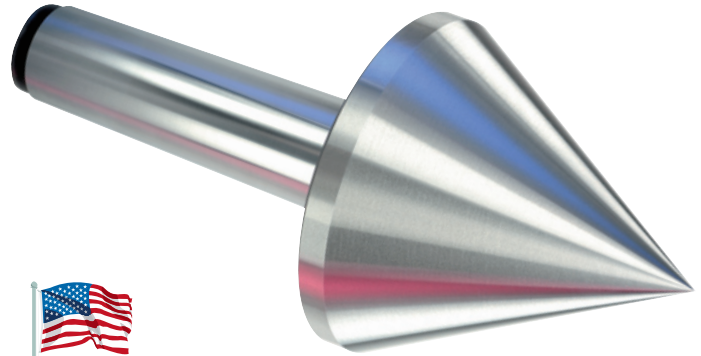
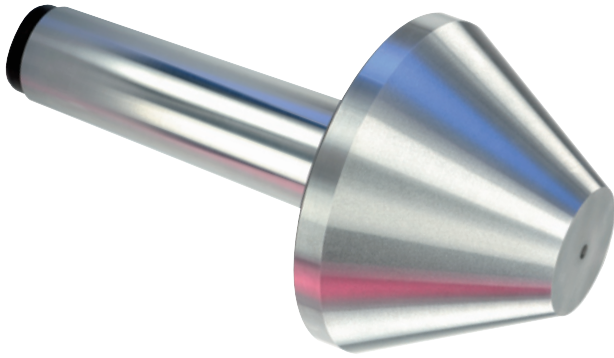


ROYAL STANDARD PIPE & BULL HEAD LIVE CENTERS



- ❑ 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.

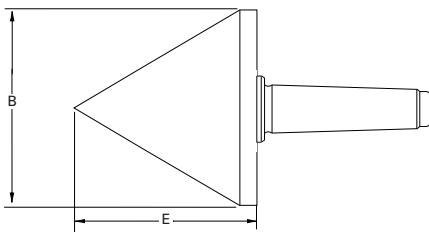
ROYAL STANDARD PIPE & BULL HEAD LIVE CENTERS



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 | \$1,124 |
| 4 MT | 4.15 | 3.01 | 1.25 | 4,500 | 860 | 2,550 | 10904 | 1,393 |
| 5 MT | 4.15 | 3.01 | 1.25 | 4,500 | 860 | 2,550 | 10905 | 1,393 |
| 5 MT | 5.15 | 3.17 | 2.00 | 4,000 | 1,145 | 3,450 | 10907 | 1,734 |
| 5 MT | 6.15 | 3.60 | 2.50 | 3,500 | 1,450 | 4,500 | 10909 | 2,398 |

* 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 | \$1,143 |
| 4 MT | 4.15 | 4.10 | 4,500 | 630 | 2,550 | 10704 | 1,296 |
| 5 MT | 4.15 | 4.10 | 4,500 | 630 | 2,550 | 10705 | 1,296 |

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

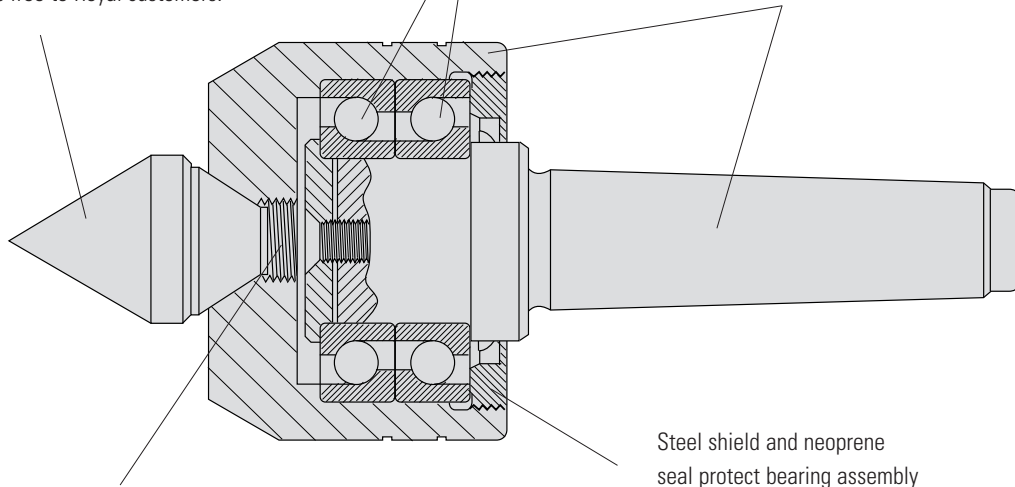


ROYAL CHANGEABLE-POINT LIVE CENTERS

*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.

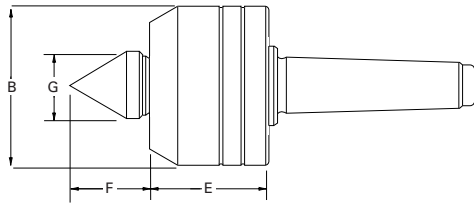


- ❑ This versatile live center uses interchangeable points to handle many common turning jobs.
- ❑ Each center includes a #3 standard 60° male point. Other points sold separately.
- ❑ $\pm 0.00005"$ TIR guaranteed.*
- ❑ Unique taper/thread design allows points to be easily interchanged and ensures accuracy.



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 | \$957 |
| 3 MT | 2.38 | 2.07 | 1.25 | 1.00 | 5/8" - 18 | 5,000 | 500 | 1,140 | 10003 | 1,043 |
| 4 MT | 3.50 | 2.64 | 1.79 | 1.50 | 3/4" - 16 | 3,500 | 1,070 | 1,810 | 10004 | 1,569 |
| 5 MT | 3.50 | 2.64 | 1.79 | 1.50 | 3/4" - 16 | 3,500 | 1,070 | 1,810 | 10005 | 1,680 |

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



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.

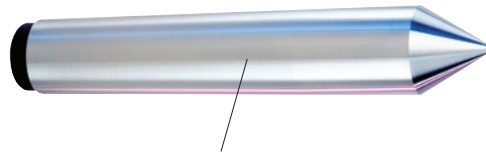
Individual Points for Changeable-Point Live Centers

| 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 | \$489 | 0.88-2.38 | 1.75 | 10071 | \$394 | 1.38-3.50 | 2.38 | 10091 | \$616 |
| 2 | 0.88 | 1.66 | 10062 | 340 | 1.00 | 1.88 | 10072 | 339 | 1.38 | 2.34 | 10082 | 423 |
| 3 | 0.88 | 1.13 | 10063 | 314 | 1.00 | 1.25 | 10073 | 327 | 1.50 | 1.79 | 10083 | 335 |
| 4 | 0.88 | 1.13 | 10064 | 193 | 1.00 | 1.25 | 10074 | 153 | 1.38 | 1.66 | 10084 | 213 |
| 5 | 0.19-0.91 | 0.92 | 10065 | 307 | 0.25-1.06 | 1.15 | 10075 | 412 | 0.25-1.38 | 1.28 | 10085 | 386 |



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 $60^\circ \pm \frac{15}{10}$ and guaranteed to $\pm 0.00005"$ TIR.



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

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



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

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



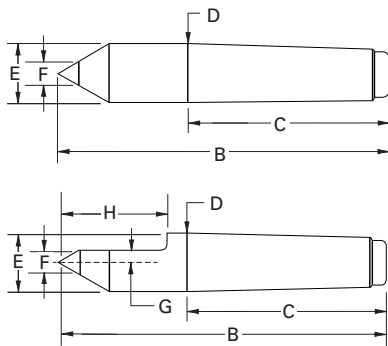
Type 3
1/2 Dead Center
add "3" to part number below.
Note – Type 3 models are being phased out. Please call for availability.

Half centers are relieved for grinding wheel clearance.



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

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



Royal Dead Centers

Example: A 2 MT 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- | \$185 | \$247 | CALL | \$288 |
| 3 MT | 5.25 | 3.19 | .938 | 0.938 | 0.50 | 0.22 | 1.69 | 1102- | 288 | 335 | CALL | 379 |
| 4 MT | 6.75 | 4.06 | 1.231 | 1.231 | 0.50 | 0.25 | 2.25 | 1103- | 414 | 442 | CALL | 484 |
| 5 MT | 8.50 | 5.19 | 1.748 | 1.748 | 0.63 | 0.38 | 2.75 | 1104- | 620 | 683 | CALL | 720 |

ROYAL "OIL COUNTRY" BULL HEAD DEAD CENTERS

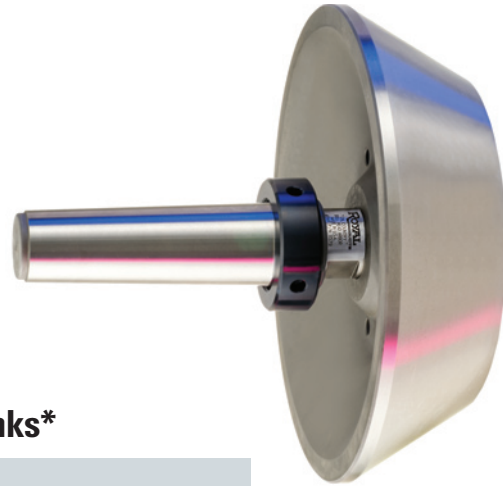


- Designed for turning large tubes and pipes on lathes with live tailstocks.
- Can also be used in large-diameter grinding applications.
- Interchangeable heads (sold separately) offer maximum versatility.
- $\pm 0.0002"$ TIR guaranteed.
- Extraction nut (included) allows for easy removal from tailstock.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



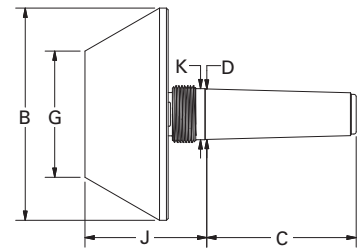
Modular Heads for Royal "Oil Country" Bull Head Dead Center

| HEAD MODEL | B | G | HEAD WEIGHT (lbs.) | PART NUMBER | PRICE |
|------------|-------|-------|--------------------|-------------|--------------|
| A | 4.62 | 1.63 | 7 | 10791 | \$852 |
| B | 7.37 | 4.38 | 18 | 10792 | 1,317 |
| C | 10.12 | 7.13 | 33 | 10793 | 2,044 |
| D | 12.87 | 9.88 | 51 | 10794 | 2,922 |
| E | 15.62 | 12.63 | 65 | 10795 | 5,093 |



Royal "Oil Country" Bull Head Dead Center Shanks*

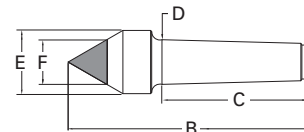
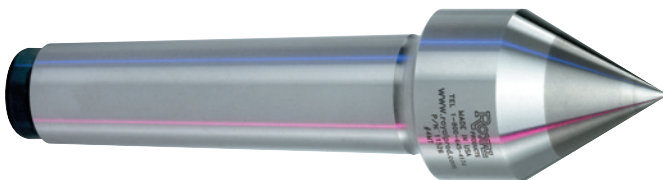
| TAPER | MODEL | C | D | K | J WITH HEAD A | J WITH HEADS B-E | THREAD | PART NUMBER | PRICE |
|-------|----------|------|-------|-------|---------------|------------------|-----------|-------------|--------------|
| 4 MT | Standard | 4.06 | 1.231 | N/A | 4.63 | 3.91 | M42 x 1.5 | 11576* | \$610 |
| 4 MT | Mazak** | 4.06 | 1.231 | 1.260 | 4.85 | 4.13 | M42 x 1.5 | 11577* | 610 |
| 5 MT | Standard | 5.19 | 1.748 | N/A | 4.63 | 3.91 | M50 x 1.5 | 11578* | 670 |
| 5 MT | Mazak** | 5.19 | 1.748 | 1.772 | 5.06 | 4.34 | M50 x 1.5 | 11579* | 670 |
| 6 MT | Standard | 7.25 | 2.494 | N/A | 4.69 | 3.97 | M70 x 2 | 11580* | 1,290 |
| 6 MT | Mazak** | 7.25 | 2.494 | 2.500 | 5.29 | 4.57 | M70 x 2 | 11581* | 1,290 |



* 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

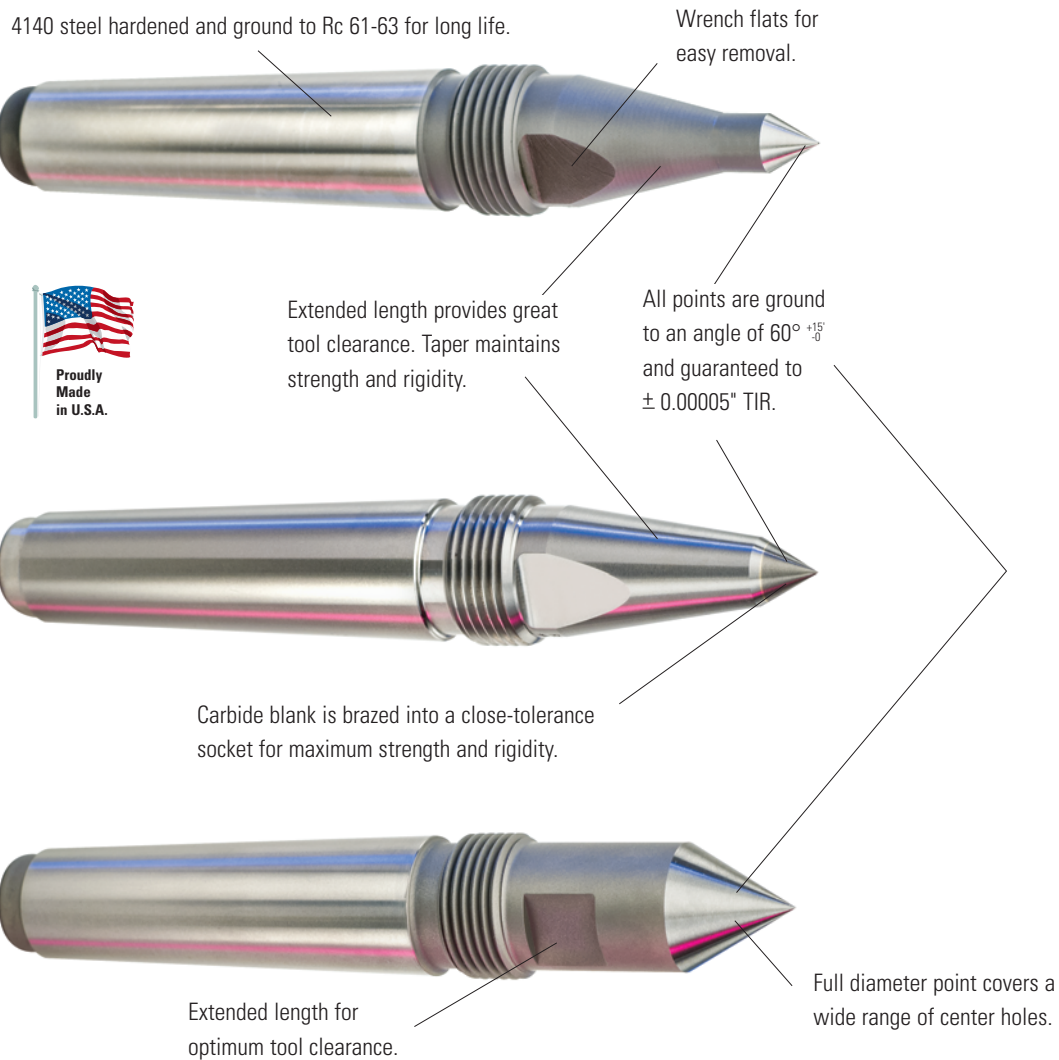
- Excellent for grinding and high precision turning applications.
- Oversized carbide point covers a wider range of center holes and provides great wear resistance.

| TAPER A | B | C | D | E | CARBIDE DIAMETER F | PART NUMBER | PRICE |
|---------|------|------|-------|------|--------------------|-------------|--------------|
| 4 MT | 6.75 | 4.06 | 1.231 | 1.75 | 1.25 | 11526 | \$755 |
| 5 MT | 8.50 | 5.19 | 1.748 | 1.75 | 1.25 | 11527 | 1,015 |

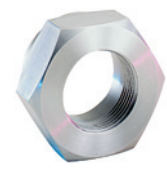


ROYAL CNC THREADED DEAD CENTERS

Great For Live Tailstocks and Precision Grinding

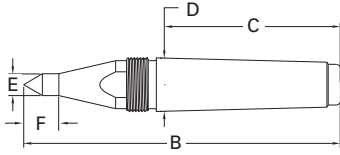


- ❑ Royal threaded dead centers are designed for use in CNC turning centers with **live tailstocks**.
- ❑ These dead centers are also widely used in precision grinding applications.
- ❑ Available in several styles to suit a wide range of applications.
 - CNC Point
 - Carbide-Tipped CNC Point
 - Full 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.



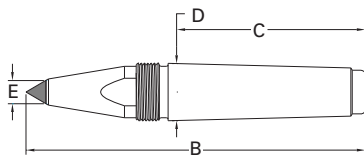
Extraction nut allows for easy removal from spindle. Order separately.

ROYAL CNC THREADED DEAD CENTERS



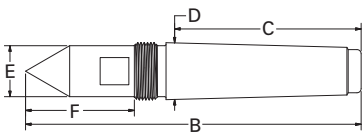
Royal CNC Threaded Dead Centers

| 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 | \$346 | 11550 | \$84 |
| 4 MT | 7.31 | 4.06 | 1.231 | 0.50 | 0.81 | 1¼"-14 | 11531 | 419 | 11551 | 100 |
| 4 MT | 7.31 | 4.06 | 1.231 | 0.75 | 1.18 | 1¼"-14 | 11535 | 419 | 11551 | 100 |
| 5 MT | 8.44 | 5.19 | 1.748 | 0.50 | 0.81 | 1¾"-12 | 11532 | 598 | 11552 | 114 |
| 5 MT | 8.44 | 5.19 | 1.748 | 0.75 | 1.18 | 1¾"-12 | 11537 | 598 | 11552 | 114 |



Royal CNC Threaded Dead Centers with Carbide-Tipped Point

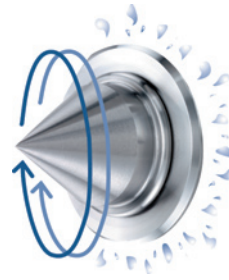
| TAPER A | B | C | D | E | THREAD | DEAD CENTER | | EXTRACTION NUT | |
|------------|------|------|-------|------|--------|-------------|--------------|----------------|-------------|
| | | | | | | PART NUMBER | PRICE | PART NUMBER | PRICE |
| 3 MT | 5.94 | 3.19 | 0.938 | 0.38 | 1"-14 | 11540 | \$469 | 11550 | \$84 |
| 4 MT | 7.31 | 4.06 | 1.231 | 0.50 | 1¼"-14 | 11541 | 564 | 11551 | 100 |
| 5 MT | 8.44 | 5.19 | 1.748 | 0.50 | 1¾"-12 | 11542 | 726 | 11552 | 114 |



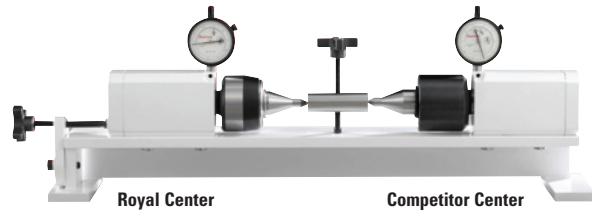
Royal Full Diameter Extended Point Threaded Dead Centers

| 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 | \$346 | 11550 | \$84 |
| 4 MT | 7.31 | 4.06 | 1.231 | 1.11 | 2.37 | 1¼"-14 | 11536 | 419 | 11551 | 100 |
| 5 MT | 8.44 | 5.19 | 1.748 | 1.25 | 2.36 | 1¾"-12 | 11539 | 598 | 11552 | 114 |

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 75 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

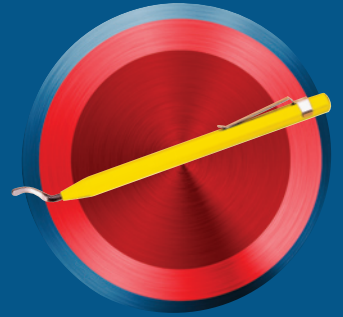
Every Royal Live Center is made in USA in our modern, highly-automated factory. **We are extremely proud to be an American manufacturer supporting American manufacturers!**

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



DEBURRING TOOLS

THE WORLD'S BEST DEBURRING
TOOLS AND BLADES

















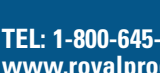































ROYAL DEBURRING BLADES



**Great
Low
Prices**

| STANDARD-DUTY B-BLADES | BLADES PER PACKAGE | PART NUMBER | PRICE PER PACKAGE |
|---|--------------------|-------------|-------------------|
| B-10   | 10 | 22110 | \$14.75 |
| Our most popular blade. HSS for steel and aluminum. | | | |
| B-10A   | 10 | 22109 | 15.75 |
| Similar to B-10 blade but has a thinner profile. High cobalt content for long life. Also great for plastic. | | | |
| B-10L   | 10 | 22113 | 14.75 |
| HSS counterclockwise operation in steel and aluminum; ideal for lefties. | | | |
| B-10T   | 10 | 22112 | 32.50 |
| Titanium coated HSS for longer life; for steel and aluminum. | | | |
| B-10C   | 10 | 22117 | 92.25 |
| Solid carbide for hardened material. | | | |
| B-15   | 10 | 22118 | 20.75 |
| Very fine, precise blade; great for plastic. | | | |
| B-20   | 10 | 22120 | 14.75 |
| HSS for brass and cast iron; can rotate clockwise and counterclockwise. | | | |
| B-20C   | 10 | 22121 | 97.00 |
| Solid carbide for hardened material. | | | |
| B-30   | 10 | 22130 | 25.25 |
| HSS; removes internal and external burrs simultaneously from holes drilled into tubing and sheet metal. | | | |
| B-60   | 10 | 22135 | 37.25 |
| 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 | \$18.25 |
| Heavy Duty HSS for steel and aluminum. | | | |
| E-100A   | 10 | 22034 | 23.00 |
| Heavy Duty M-42 steel, good for plastic and hard materials. | | | |
| E-100L   | 10 | 22026 | 18.25 |
| Heavy Duty HSS for counterclockwise operation in steel and aluminum; ideal for lefties. | | | |
| E-100T   | 10 | 22027 | 37.50 |
| Heavy Duty titanium coated HSS for steel and aluminum. | | | |
| E-200   | 10 | 22030 | 18.25 |
| Heavy Duty HSS for brass and cast iron, bi-directional. | | | |
| E-300   | 10 | 22040 | 23.75 |
| Heavy Duty HSS; removes internal and external burrs simultaneously from holes drilled into tubing & sheet metal. | | | |
| E-350   | 10 | 22035 | 19.25 |
| Heavy Duty HSS for straight edges on all materials. | | | |
| E-600   | 10 | 22036 | 38.00 |
| Heavy Duty HSS; designed to facilitate deburring in the most inaccessible locations. | | | |
| E-101   | 10 | 22037 | 21.75 |
| Heavy Duty HSS for holes as small as 7/64" dia. in steel and aluminum. | | | |
| E-102   | 10 | 22039 | 21.75 |
| Heavy Duty HSS for small holes in brass and cast iron; can rotate clockwise and counterclockwise. | | | |
| E-1500   | 10 | 22046 | 21.00 |
| Heavy Duty HSS for holes as small as 1/16" dia. in steel and aluminum. | | | |
| E-1500T   | 10 | 22047 | 55.75 |
| Heavy Duty titanium coated HSS for holes as small as 1/16" dia. in hardened materials | | | |
| E-100P   | 10 | 22028 | 89.50 |
| 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 | \$14.00 |
| Zip/Burr Handle Only | 1 | 22610 | 7.75 |
| Zip/Burr B-Holder Only | 1 | 22614 | 7.75 |

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 | \$15.75 |
| Multi/Burr Handle Only | 1 | 22570 | 9.50 |

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 | \$57.50 |

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 | \$16.25 |
| Zip/Burr Handle Only | 1 | 22610 | 7.75 |
| Zip/Burr E-Holder Only | 1 | 22633 | 7.75 |

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 | \$17.75 |
| Versa/Burr Handle Only | 1 | 22107 | 7.75 |
| B/E Holder Only | 1 | 22108 | 9.50 |

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 | \$109.50 |

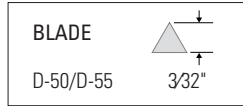


ROYAL DEBURRING TOOLS

Royal Mini-Scraper Zip/Burr™



Dimensions



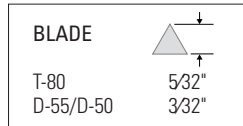
- Fine triangular scraper is ideal for tool and moldmaking work.
- Blade is secured to D-holder with a set screw.
- Includes D-50 mini blade.
- Can also use D-50 TiN and D-55 carbide blades.

| DESCRIPTION | PACKAGE OF | PART NUMBER | PRICE |
|------------------------------------|------------|-------------|----------------|
| Complete Mini-Scraper Zip/Burr | 1 | 22680 | \$25.00 |
| Zip/Burr D-Holder Only | 1 | 22695 | 9.50 |
| HSS Mini-Scraper Blade Only (D-50) | 10 | 22276 | 97.75 |
| D-55 Carbide Blade Only | 10 | 22442 | 176.00 |

Royal Slim Grip Scraper



Dimensions



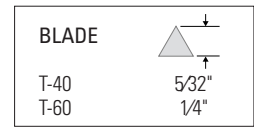
- Special Slim-Grip design for deburring in hard-to-reach locations.
- 22410 includes aluminum handle and one double-sided high speed steel T-80 blade.
- Knurled locking collar to control blade extension.
- 22420 includes aluminum handle and one single-sided solid carbide D-55 blade.

| DESCRIPTION | PACKAGE OF | PART NUMBER | PRICE |
|--|------------|-------------|----------------|
| Slim-Grip Scraper w/T-80 HSS Blade | 1 | 22410 | \$26.50 |
| Slim-Grip Scraper w/D-55 Carbide Blade | 1 | 22420 | 33.50 |
| T-80 HSS Blade Only | 10 | 22432 | 124.25 |
| D-55 Carbide Blade Only | 10 | 22442 | 176.00 |
| D-50 TiN Blade Only | 10 | 22778 | 142.50 |

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 | \$21.50 |
| Standard Scraper with T-60 Blade | 1 | 22745 | 28.50 |
| Zip/Burr T-Holder Only | 1 | 22768 | 7.75 |
| T-40 Blade Only | 1 | 22760 | 9.00 |
| T-60 Blade Only | 1 | 22764 | 13.00 |

Royal Internal Scraper Zip/Burr™



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

| DESCRIPTION | PACKAGE OF | PART NUMBER | PRICE |
|--|------------|-------------|----------------|
| Complete Internal Scraper | 1 | 22710 | \$23.25 |
| Zip/Burr D-Holder Only | 1 | 22695 | 9.50 |
| HSS Internal Scraper Blade Only (D-66) | 10 | 22302 | 84.25 |

Royal Countersink Zip/Burr™



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

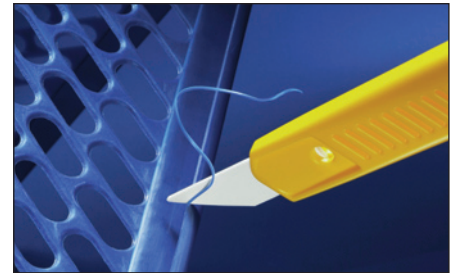
| DESCRIPTION | PACKAGE OF | PART NUMBER | PRICE |
|--------------------------------|------------|-------------|----------------|
| Complete Countersink | 1 | 22650 | \$40.25 |
| Zip/Burr C-Holder Only | 1 | 22665 | 7.50 |
| C-12 1/2" Countersink Only | 1 | 22155 | 22.75 |
| C-20 3/4" Countersink Only | 1 | 22160 | 28.50 |
| C-20 TiN 3/4" Countersink Only | 1 | 22162 | 54.50 |
| C-30 1 1/8" Countersink Only | 1 | 22165 | 41.25 |

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 | \$30.25 |
| Replacement Ceramic Blade | 1 | 22152 | 23.25 |
| Ceramic Scraper Handle Only | 1 | 22149 | 9.50 |

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 | \$35.75 |
| Replacement Mini Ceramic Blade | 1 | 22147 | 29.75 |
| Mini Ceramic Scraper Handle Only | 1 | 22148 | 8.25 |

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 | \$29.25 |
| Replacement Compact Ceramic Blade | 1 | 22141 | 26.25 |
| Compact Ceramic Scraper Handle Only | 1 | 22145 | 8.25 |

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 | \$39.75 |
| Rotating Ceramic Burr – 75 | 1 | 22192 | 39.75 |
| Ceramic Burr Handle Only | 1 | 22194 | 20.25 |
| Ceramic Blade 65 Only | 1 | 22196 | 22.00 |
| Ceramic Blade 75 Only | 1 | 22198 | 22.00 |



ROYAL DEBURRING TOOLS

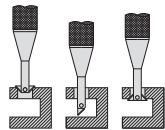
Royal Multi-Purpose 4-in-1 Deburring Tool



- ❑ 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 | \$78.25 |

Royal Reversible Countersink



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

| DESCRIPTION | PACKAGE OF | PART NUMBER | PRICE |
|---|------------|-------------|----------------|
| Complete Mini Reversible Countersink | 1 | 22455 | \$34.75 |
| Complete Standard Reversible Countersink | 1 | 22465 | 35.75 |
| Complete Large Reversible Countersink | 1 | 22472 | 46.50 |
| R-1 Mini Blade Only (1/8" - 7/32") | 1 | 22137 | 17.25 |
| R-2 Standard Blade Only (13/64" - 11/32") | 1 | 22139 | 18.75 |
| R-3 Large Blade Only (25/64" - 27/32") | 1 | 22136 | 21.00 |

Royal Double Burr



- ❑ Simultaneously removes burrs from both sides of workpiece from 1/32" to 1/2" thick.
- ❑ Safety guard protects fingers.
- ❑ Unique round cutting blades can be rotated and reversed for long life.
- ❑ 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 | \$23.25 |
| Replacement Blades of M-2 Steel | 10 | 22065 | 63.25 |
| Replacement Blades of M-42 Steel For Use On Stainless Steel | 10 | 22067 | 84.75 |

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.



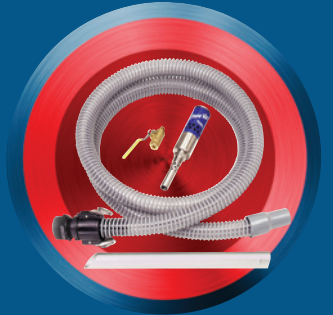
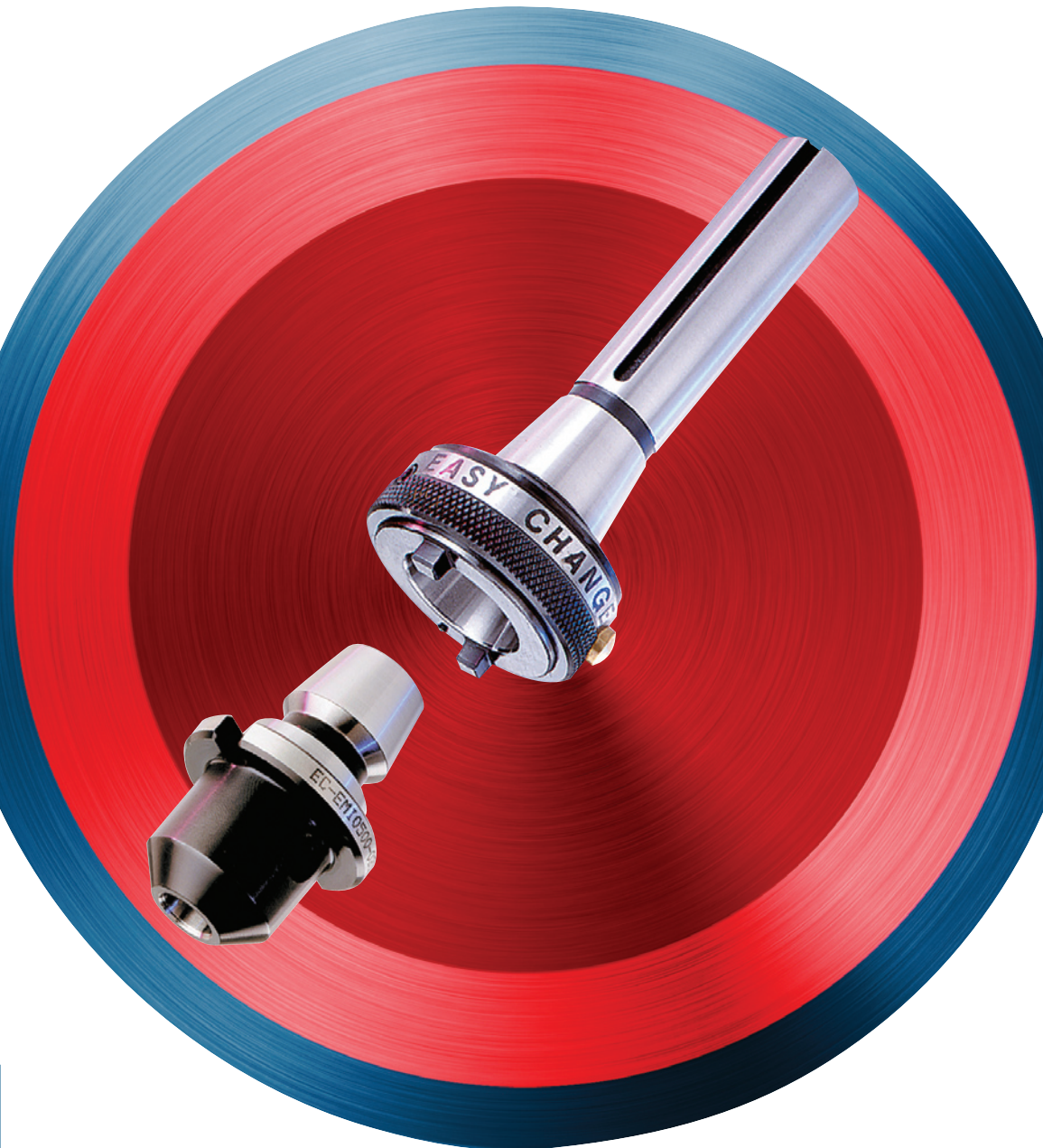
Chamfer small holes next to shoulder.

| DESCRIPTION | PACKAGE OF | PART NUMBER | PRICE |
|---|------------|-------------|----------------|
| Roto-Drive w/Plastic Handle and 1/8" Countersink | 1 | 22506 | \$17.75 |
| Roto-Drive w/Plastic Handle and 1/4" Countersink | 1 | 22508 | 29.50 |
| Roto-Drive w/Plastic Handle and 5/16" Countersink | 1 | 22510 | 30.00 |
| Roto-Drive w/Plastic Handle and 3/8" Countersink | 1 | 22512 | 31.50 |
| 1/8" Countersink Only | 1 | 22520 | 9.00 |
| 1/4" Countersink Only | 1 | 22530 | 21.25 |
| 5/16" Countersink Only | 1 | 22540 | 21.50 |
| 3/8" Countersink Only | 1 | 22550 | 22.75 |
| 3/8" TiN Countersink Only | 1 | 22560 | 35.50 |
| Plastic Handle Only | 1 | 22570 | 9.50 |



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 | \$1,095 |

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 | \$2,120 |

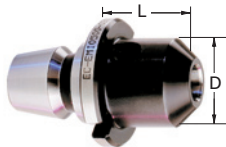
Start-Up Drill & Mill Kit

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 | \$2,975 |

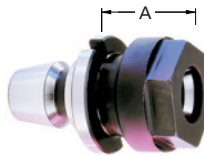


Endmill Tool Holder*

| BORE SIZE | D | L | PART NUMBER | PRICE |
|-----------|----------|----------|-------------|--------------|
| 1/8" | 1/2" | 1 3/8" | 24200 | \$342 |
| 3/16" | 11/16" | 1 3/8" | 24205 | 342 |
| 1/4" | 11/16" | 1 3/8" | 24210 | 342 |
| 3/8" | 1 3/16" | 1 3/8" | 24215 | 342 |
| 1/2" | 1 3/8" | 1 3/8" | 24220 | 342 |
| 5/8" | 1 9/16" | 1 5/8" | 24225** | 342 |
| 3/4" | 1 13/16" | 2 3/16" | 24230** | 362 |
| 1" | 2" | 2 15/16" | 24235** | 403 |

* Single endmills only. Designed for minimum overhang.

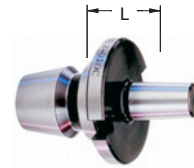
** For light milling only. For heavy milling use solid endmill holder.



Collet Chuck Tool Holder

| FOR ERICKSON™ COLLET MODEL | MAX. COLLET CAPACITY | A | PART NUMBER | PRICE |
|----------------------------|----------------------|----------|-------------|--------------|
| 200 DA | 3/8" | 1 9/16" | 24260 | \$489 |
| 180 DA | 3/4" | 1 13/16" | 24265 | 515 |
| ER -16* | 3/8" | 1 1/16" | 24266 | 504 |
| ER -32* | 3/4" | 1 15/16" | 24268 | 541 |

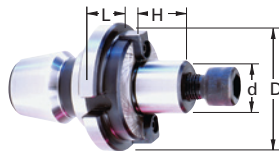
* Collets available on pages 136 – 137.



Drill Chuck Tool Holder

| JACOBS TAPER | L* | PART NUMBER | PRICE |
|--------------|--------|-------------|--------------|
| J2 | 13/32" | 24285 | \$289 |
| J3 | 13/32" | 24290 | 289 |
| J6 | 13/32" | 24295 | 289 |
| J33 | 13/32" | 24300 | 289 |

* Gage line to gage line distance.



Shell Mill Tool Holder

| "d" SIZE | D | L | H | PART NUMBER | PRICE |
|----------|----------|-------|--------|-------------|--------------|
| 1/2" | 1 1/4" | 9/16" | 19/32" | 24250 | \$446 |
| 3/4" | 1 11/16" | 9/16" | 23/32" | 24255 | 489 |



Tool Holder Stand

| PART NUMBER | PRICE |
|-------------|--------------|
| 24325 | \$131 |



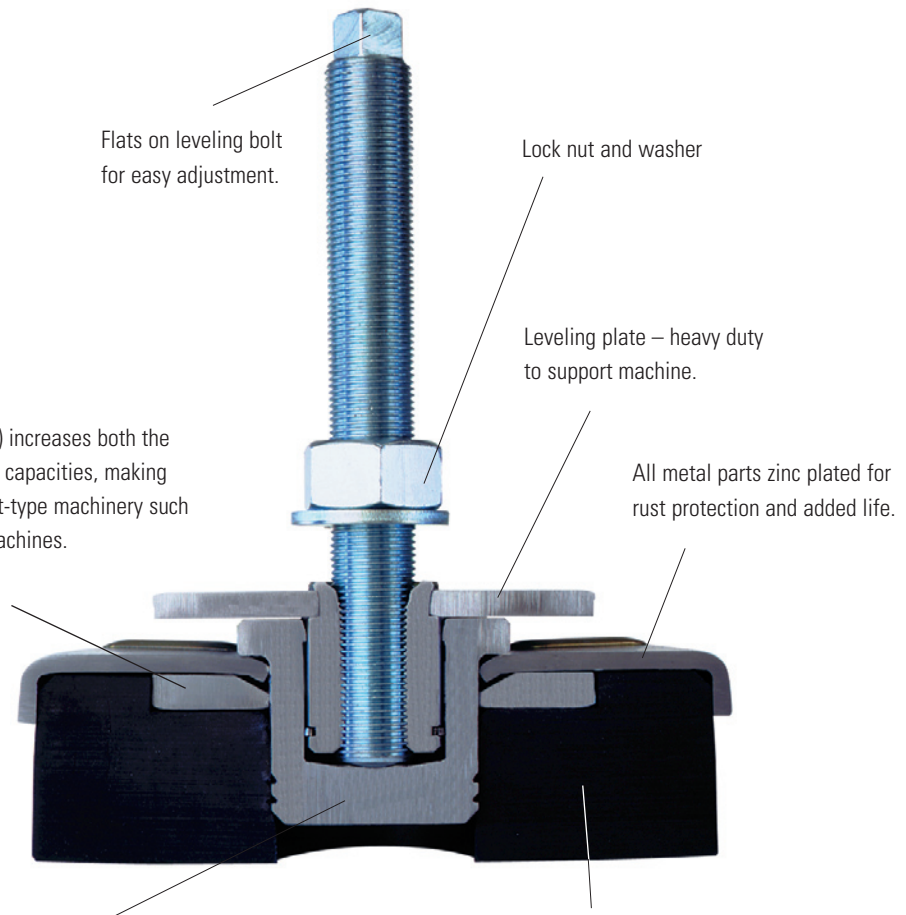
ROYAL MACHINE MOUNTS



- 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

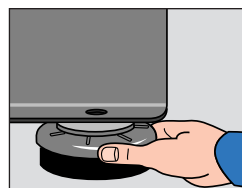
| | | #1 | #2 | #3 | #4 | #5 |
|-----------------------------|--|--------------|--------------|--------------|--------------|--------------|
| Load Range per Mount (lbs.) | General Non-Impact Machinery | 100–1,100 | 880–2,200 | 1,760–5,500 | 3,300–8,800 | 6,600–12,000 |
| | Injection Molding Machines | 390 max. | 790 max. | 2,180 max. | 5,450 max. | 8,220 max. |
| | up to 125 strokes / min | 150–440 | 440–880 | 880–3,080 | 3,080–5,940 | 5,940–8,800 |
| | Presses up to 180 strokes / min | 130–300 | 300–770 | 770–2,420 | 2,420–4,290 | 4,290–7,700 |
| | up to 200 strokes / min | 110–260 | 260–550 | 550–1,760 | 1,760–2,860 | 2,860–5,280 |
| Mount Dimensions | 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 |
| | Level Adjustment | 0.88 | 0.88 | 1.00 | 1.00 | 1.00 |
| Ordering Info | Part Number | 27001 | 27002 | 27003 | 27004 | 27005 |
| | Price Each | \$49 | \$94 | \$136 | \$163 | \$266 |

Extra-Long Leveling Bolts

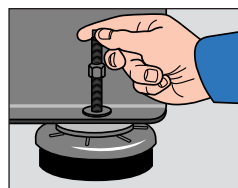
For machines with thick bases.

| MOUNT TYPE | BOLT SIZE | BOLT LENGTH | PART NUMBER | PRICE |
|------------|------------|-------------|-------------|-------------|
| #1 | M12 x 1.25 | 8¼" | 27007 | \$23 |
| #2 | M16 x 1.5 | 8¼" | 27008 | 28 |
| #3–#5 | M20 x 1.5 | 9¾" | 27009 | 39 |

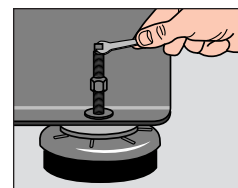
**Easy Installation —
No drilling or bolting
to floor required**



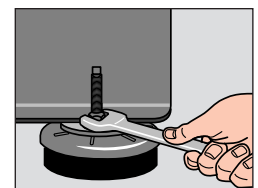
Raise machine and slide mount into place.



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

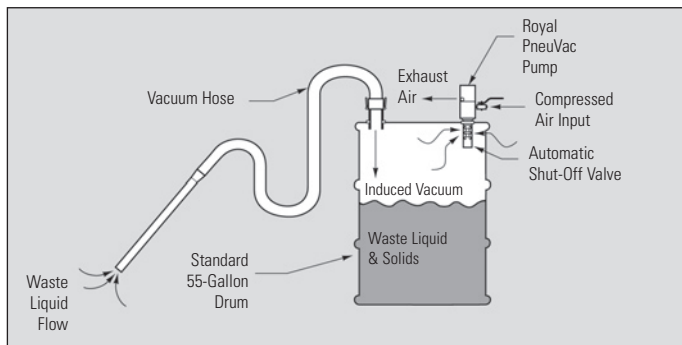
The Royal PneuVac pump is a simple device that uses a compressed air-powered venturi to create a vacuum. All you have to do to operate the unit is: attach the pump and hose to a standard 55-gallon drum, hook up your compressed air supply to the pump, insert the free end of the suction hose into the sump 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.

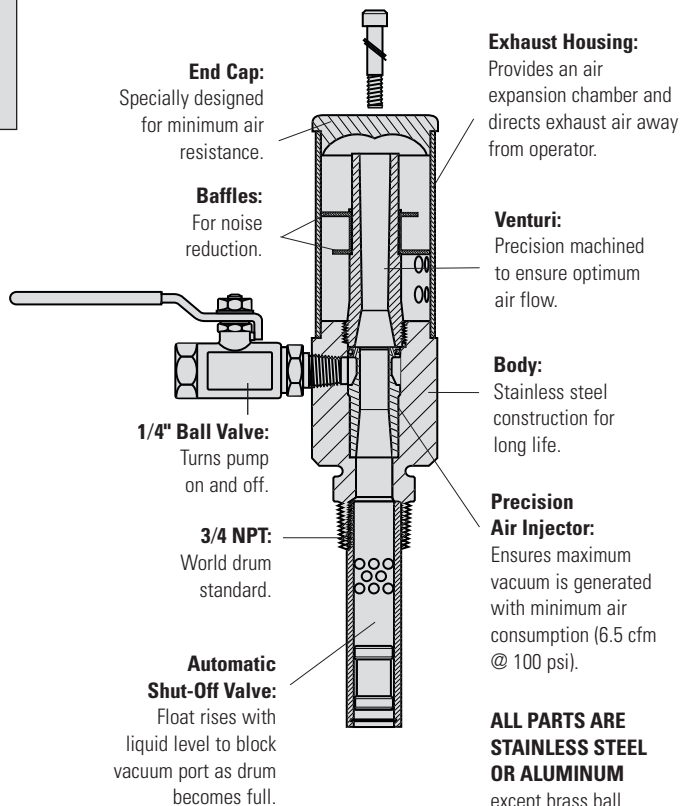
Fast – The Royal PneuVac pump can fill a 55-gallon drum in just 90 seconds. Conventional electric pumps can take up to one hour to move the same amount of liquid.

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.



Exhaust Housing: Provides an air expansion chamber and directs exhaust air away from operator.

Venturi: Precision machined to ensure optimum air flow.

Body: Stainless steel construction for long life.

Precision Air Injector: Ensures maximum vacuum is generated with minimum air consumption (6.5 cfm @ 100 psi).

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 | \$1,160 |
| Aluminum Pump Kit | 48017 | 985 |
| 10ft. Replacement Hose w/Cuff (1½" Dia.) | 48019 | 103 |

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

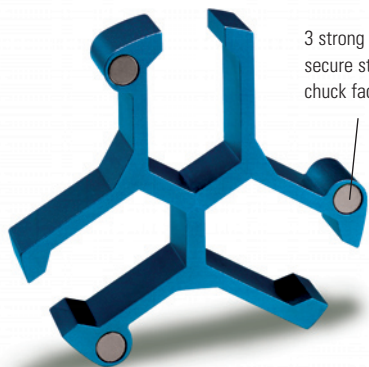


| DESCRIPTION | PART NUMBER | PRICE |
|---|-------------|--------------|
| PneuVac Gun Only | 49005 | \$131 |
| Dust Bag Kit (PneuVac Gun, Dust Bag, and Clamp) | 49085 | 178 |
| Hose Kit (PneuVac Gun, 10ft. Smooth-Bore Hose, and Clamp) | 49080 | 199 |
| Deep Hole Gun Only | 49010 | 181 |
| Dust Bag and Clamp Only | 49020 | 53 |
| 10ft. Smooth Bore Hose Only (1¼" Dia.) | 49090 | 68 |

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.



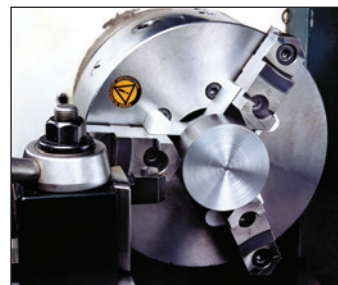
ROYAL CHUCK STOPS



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 height stops | 25200 | \$339 |
| Deluxe Set – includes 15, 20, 25, 30, & 35mm height stops | 25210 | \$590 |



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 | \$108 |

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.

MILLING AND DRILLING TOOLING SOLUTIONS

- ALBRECHT PRECISION DRILL CHUCKS
- ALBRECHT ER MICRO-CHUCKS FOR
DRIVEN TOOLING
- ULTRA-PRECISION ER COLLETS



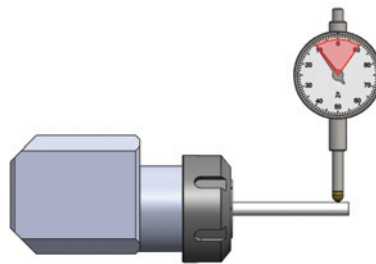
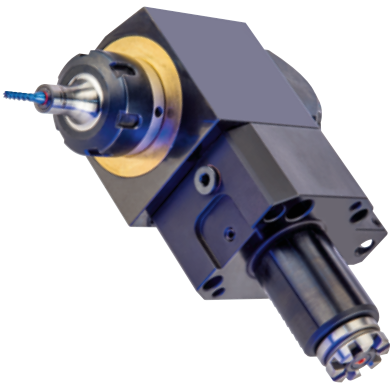


ALBRECHT ER MICRO-CHUCKS

Optimize Your Driven Tooling

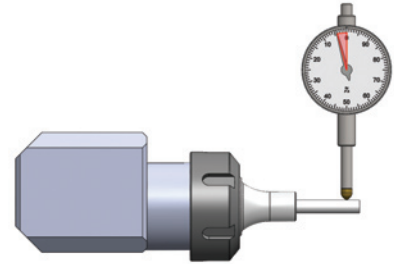


- ❑ These unique one-piece toolholders provide extra reach and support for your drills and endmills when using driven tooling.
- ❑ Exceptional accuracy and rigidity for:
 - ✓ More aggressive chip removal
 - ✓ Faster cycle times
 - ✓ Improved cutting tool life
- ❑ Integral ER body, super slim nose, and ultra-precision collets work in unison for optimized clearance and superior vibration dampening over shrink-fit holders.
- ❑ Cutting tool life significantly extended.
- ❑ Available in three popular ER configurations for compatibility with many brands of driven tools.
- ❑ Ultra-precision accuracy - 3 microns (0.00012") at 2.5 x diameter.
- ❑ High-speed balanced to G2.5@40,000 rpm.
- ❑ Collets are available from stock in both inch and metric sizes with a choice of precise coolant delivery options:
 - Standard – coolant is directed through the collet slots over the cutting tool.
 - Sealed – coolant is directed through the center of the cutting tool (for cutting tools that have central coolant ports).
- ❑ Simple axial tightening reduces setup time.



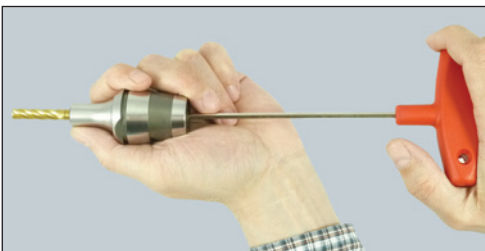
The Old Method

- Small diameter cutting tools flex under load
- Excessive vibration
- Less than optimal cycle times

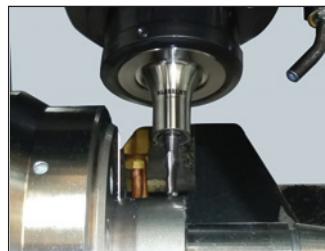


The Albrecht Method

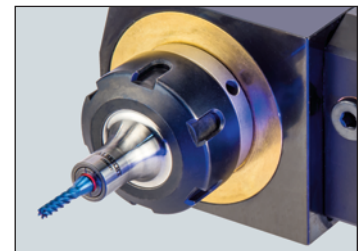
- Cutting tools supported over greater length
- Superior rigidity, accuracy, and dampening
- Faster cycle times



Simple, axial tightening of the collet keeps the tool on centerline and enables fast changeover.



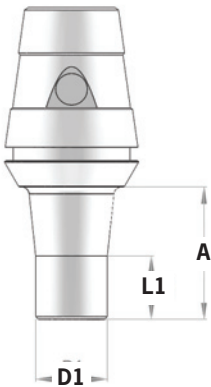
Benefit from additional cutting tool support while maintaining excellent clearance in tight areas.



Integral ER body optimizes rigidity and vibration dampening.

ALBRECHT ER MICRO-CHUCKS

Optimize Your Driven Tooling

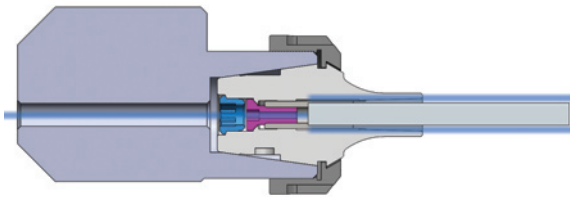


Albrecht Micro-Chuck Bodies

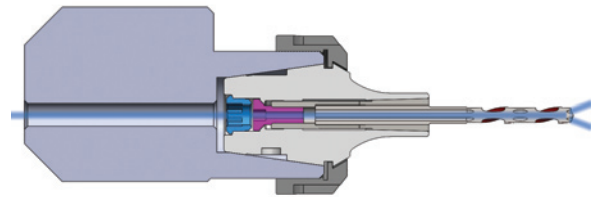
| BODY STYLE | A | L1 | D1 | PART NUMBER | PRICE |
|------------|------|------|------|-------------|--------------|
| ER-20 | 1.10 | 1.10 | 0.53 | 74660 | \$495 |
| ER-20 | 1.38 | 1.38 | 0.53 | 74662 | 523 |
| ER-25 | 0.98 | 0.47 | 0.53 | 74664 | 506 |
| ER-25 | 1.57 | 0.59 | 0.53 | 74666 | 528 |
| ER-25 | 1.97 | 0.79 | 0.53 | 74668 | 539 |
| ER-32 | 0.98 | 0.47 | 0.53 | 74670 | 523 |
| ER-32 | 1.57 | 0.59 | 0.53 | 74672 | 539 |
| ER-32 | 1.97 | 0.79 | 0.53 | 74674 | 550 |

* Order collets separately.

ALBRECHT ER MICRO-CHUCK ULTRA-PRECISION COLLETS



Standard
(Coolant Directed Through Collet Slots)



Sealed
(Coolant Directed Through Cutting Tool)



Inch Sizes

| DIAMETER | COLLET TYPE | PART NUMBER | PRICE |
|----------|-------------|-------------|--------------|
| 1/8" | Standard | 74610 | \$161 |
| 1/8" | Sealed | 74620 | 193 |
| 3/16" | Standard | 74611 | 161 |
| 3/16" | Sealed | 74621 | 193 |
| 1/4" | Standard | 74612 | 161 |
| 1/4" | Sealed | 74622 | 193 |

Metric Sizes

| DIAMETER | COLLET TYPE | PART NUMBER | PRICE |
|----------|-------------|-------------|--------------|
| 1mm | Standard | 74613 | \$298 |
| 1mm | Sealed | 74623 | 341 |
| 2mm | Standard | 74614 | 179 |
| 2mm | Sealed | 74624 | 222 |
| 3mm | Standard | 74615 | 155 |
| 3mm | Sealed | 74625 | 186 |
| 4mm | Standard | 74616 | 155 |
| 4mm | Sealed | 74626 | 186 |
| 5mm | Standard | 74617 | 155 |
| 5mm | Sealed | 74627 | 186 |
| 6mm | Standard | 74618 | 155 |
| 6mm | Sealed | 74628 | 186 |



ALBRECHT

The World's Most Consistently Accurate Drill Chucks

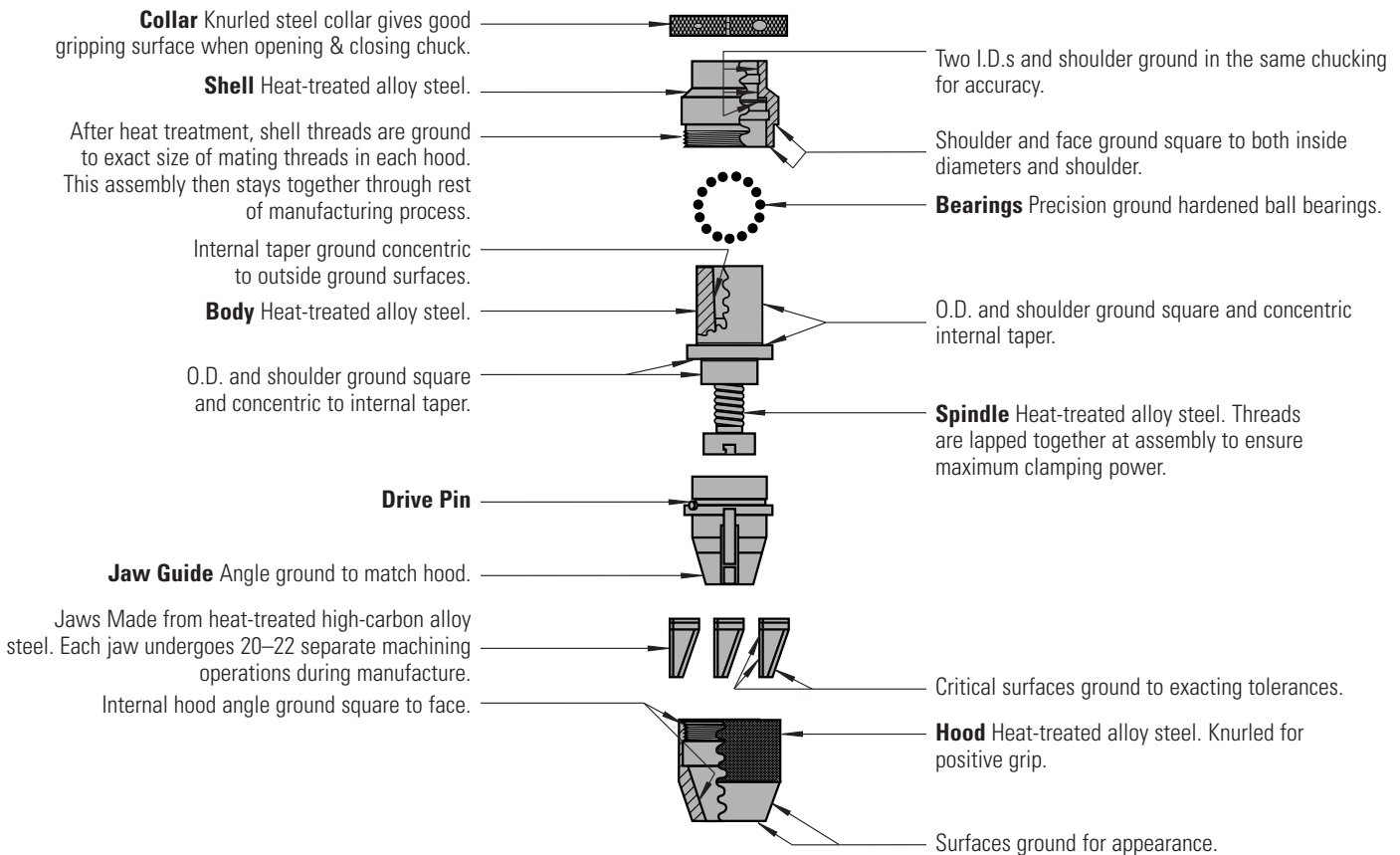


For the past 100 years, Albrecht's line of precision drill chucks has consistently earned the highest praise for **outstanding quality and accuracy**.

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

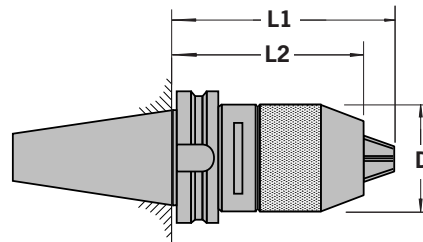
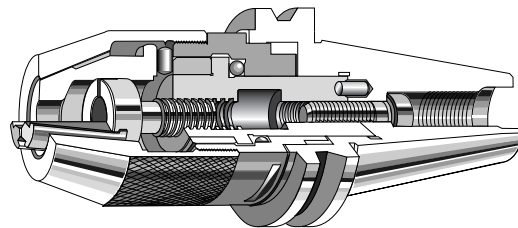
Although some manufacturers use collet chucks or toolholders for holding drills, often an Albrecht CNC Drill Chuck would be a better choice.

- 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 127).

Albrecht Wrench-Lock CNC Drill Chucks

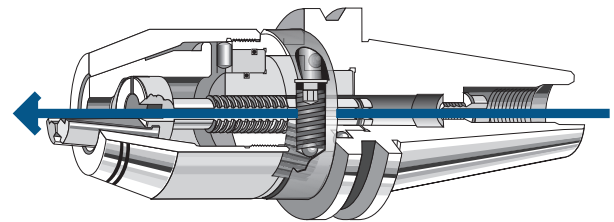
| CHUCK MODEL | CAPACITY | | SHANK TYPE | D | L1 | L2 | THREAD | MAXIMUM RPM | WEIGHT (lbs.) | PART NUMBER | PRICE |
|-------------|------------|---------------|------------|--------|----------|---------|--------|-------------|---------------|-------------|--------------|
| | (inches) | (millimeters) | | | | | | | | | |
| WL130-CAT40 | 1/2 – 1/2 | 1–13 | CAT 40 | 2" | 3 15/16" | 4 7/16" | 5/8–1 | 6,500 | 4.6 | 77100 | \$675 |
| 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 | 762 |
| 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 | 887 |
| WL130-BT40 | 1/2 – 1/2 | 1–13 | BT40 | 2" | 3 5/8" | 4 3/32" | M16 | 6,500 | 4.2 | 77160 | 675 |

ALBRECHT KEY-LOCK PRECISION CNC DRILL CHUCKS

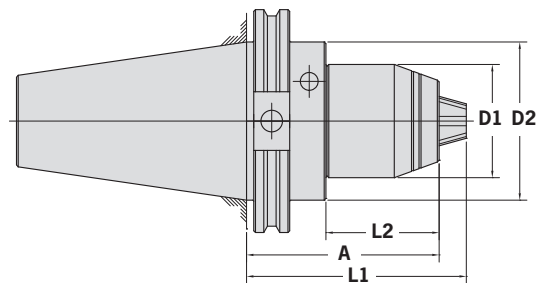
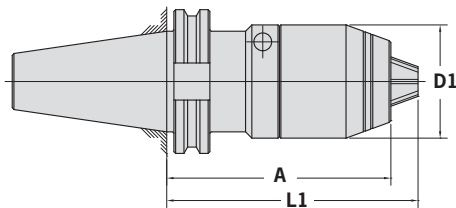


- New, compact design provides **increased capacity and better clearance.**
- Extremely accurate – Albrecht Key-Lock Drill Chucks are the most accurate drill chucks available.
- Unique worm/gear arrangement is similar to the Überchuck and transmits extremely high gripping force to the jaws.
- Short length 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 | PART D2 | WEIGHT (lbs.) | NUMBER | PRICE |
|---------------------|-------------------|------------------------|---------------|------|------|------|------|---------|---------------|--------|--------------|
| KL100-CAT40 | 1/64 – 3/8 | 0.5 – 10 | CAT 40 | 2.72 | 3.39 | 1.48 | 1.50 | 1.75 | 2.8 | 75402 | \$770 |
| KL160-HSK 63 Form A | 1/32 – 5/8 | 1 – 16 | HSK 63 Form A | 3.86 | 4.33 | – | 1.97 | – | 3.4 | 75403 | 780 |
| KL160-HSK 63 Form F | 1/32 – 5/8 | 1 – 16 | HSK 63 Form F | 3.86 | 4.33 | – | 1.97 | – | 3.5 | 75408 | 938 |
| KL160-CAT40 | 1/32 – 5/8 | 1 – 16 | CAT 40 | 3.90 | 4.37 | – | 1.97 | – | 2.7 | 75404 | 705 |
| KL160-CAT50 | 1/32 – 5/8 | 1 – 16 | CAT 50 | 3.31 | 3.78 | 1.93 | 1.97 | 2.76 | 7.9 | 75406 | 948 |

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



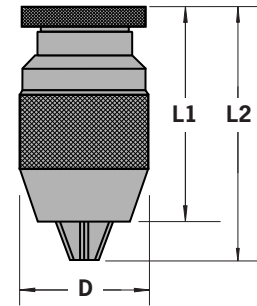
ALBRECHT CLASSIC PRECISION KEYLESS DRILL CHUCKS

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 127).
- 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 127).
- 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 | \$582 |
| 30-J0 | 0* - 1/8 | 0* - 3 | J0 | 35,000 | 0.2 | 70020 | 439 |
| 30-J1 | 0* - 1/8 | 0* - 3 | J1 | 35,000 | 0.2 | 70030 | 439 |
| 65-J1 | 0* - 1/4 | 0* - 6.5 | J1 | 20,000 | 0.7 | 70050 | 420 |
| 100-J33 | 0* - 3/8 | 0* - 10 | J33 | 12,000 | 1.4 | 70070 | 455 |
| 100-J2 | 0* - 3/8 | 0* - 10 | J2 | 12,000 | 1.4 | 70080 | 455 |
| 130-J33 | 1/32* - 1/2 | 1* - 13 | J33 | 7,000 | 2.1 | 70090 | 497 |
| 130-J2 | 1/32* - 1/2 | 1* - 13 | J2 | 7,000 | 2.1 | 70100 | 497 |
| 130-J6 | 1/32* - 1/2 | 1* - 13 | J6 | 7,000 | 2.1 | 70110 | 497 |
| 160-J6 | 1/32* - 5/8 | 1* - 16 | J6 | 4,000 | 2.8 | 70120 | 561 |

* 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 | \$598 |
| 30-J0 | 0* - 1/8 | 0* - 3 | 3 | J0 | 35,000 | 0.2 | 73510 | 433 |
| 30-J1 | 0* - 1/8 | 0* - 3 | 3 | J1 | 35,000 | 0.2 | 73520 | 433 |



**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-J33 | 1/32 - 1/2 | 1-11 | J33 | 7,000 | 2.1 | 70290 | \$728 |
| 130-J6 | 1/32 - 1/2 | 1-13 | J6 | 7,000 | 2.1 | 70300 | 728 |



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 | \$702 |
| 50-3/8 | 1/32 - 1/4 | 0.6 - 7.4 | 4 | 3/8-24 | 5,000 | 0.5 | 73710 | 754 |

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.



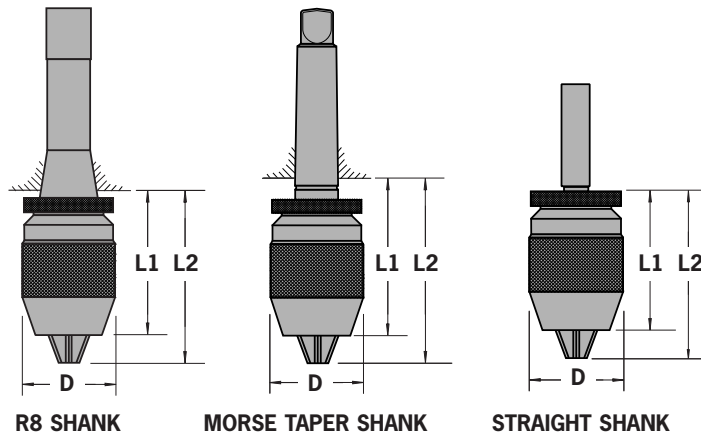
ALBRECHT CLASSIC-PLUS PRECISION DRILL CHUCKS WITH INTEGRAL SHANK

- 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 127).
- Balanced.
- Available with standard or diamond-coated jaws (see page 127).

Dimensions

| 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 | \$553 |
| CP130-3MT | 1/32 – 1/2 | 1–13 | 3MT | 7,000 | 2.6 | 73020 | 556 |
| CP130-4MT | 1/32 – 1/2 | 1–13 | 4MT | 7,000 | 3.3 | 73030 | 586 |
| CP130-R8 | 1/32 – 1/2 | 1–13 | R8 | 7,000 | 2.6 | 73040 | 608 |
| CP130-5/8 | 1/32 – 1/2 | 1–13 | 5/8"SS | 7,000 | 2.2 | 73050 | 550 |
| CP160-2MT | 1/8 – 5/8 | 3–16 | 2MT | 4,000 | 2.9 | 73060 | 613 |
| CP160-3MT | 1/8 – 5/8 | 3–16 | 3MT | 4,000 | 3.3 | 73070 | 617 |
| CP160-4MT | 1/8 – 5/8 | 3–16 | 4MT | 4,000 | 4.0 | 73080 | 648 |
| CP160-R8 | 1/8 – 5/8 | 3–16 | R8 | 4,000 | 4.2 | 73090 | 668 |

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 | \$785 |
| CPD130-3MT | 1/32 – 1/2 | 1–13 | 3MT | 7,000 | 2.6 | 73120 | 809 |
| CPD130-4MT | 1/32 – 1/2 | 1–13 | 4MT | 7,000 | 3.3 | 73130 | 823 |
| CPD130-R8 | 1/32 – 1/2 | 1–13 | R8 | 7,000 | 2.6 | 73140 | 844 |
| CPD130-5/8 | 1/32 – 1/2 | 1–13 | 5/8"SS | 7,000 | 2.2 | 73150 | 784 |

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 | \$77 |
| 3/8" | 2 1/2" | J1 | 70583 | 81 |
| 1/2" | 2 1/2" | J0 | 70586 | 77 |
| 1/2" | 2 1/2" | J1 | 70589 | 81 |
| 1/2" | 2 1/2" | J2 | 70592 | 95 |
| 1/2" | 2 1/2" | J33 | 70595 | 121 |
| 1/2" | 2 1/2" | J6 | 70598 | 121 |
| 5/8" | 2 1/2" | J1 | 70601 | 121 |
| 5/8" | 2 1/2" | J33 | 70607 | 121 |
| 5/8" | 2 1/2" | J6 | 70610 | 121 |
| 3/4" | 3" | J2 | 70616 | 135 |
| 3/4" | 3" | J6 | 70619 | 135 |
| 1" | 3" | J33 | 70625 | 135 |



R8 Taper

| CHUCK MOUNT | PART NUMBER | PRICE |
|-------------|-------------|--------------|
| J1 | 70650 | \$182 |
| J2 | 70653 | 182 |
| J6 | 70656 | 182 |
| J33 | 70659 | 182 |

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 | \$529 |
| 1/2" Diameter | J0 | 70675 | 480 |



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 | \$77 |
| J1 | 70680 | 110 |
| J2 | 70682 | 118 |
| J33 | 70682 | 118 |
| J6 | 70682 | 118 |

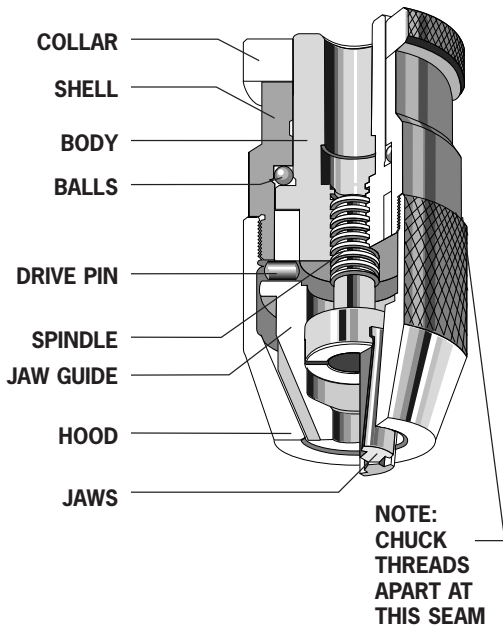




ALBRECHT CHUCK REFURBISHING

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.royalproducts.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 | \$151 | 70700 | \$192 | 70716 | \$106 | 70732 | \$18 | 70748 | \$132 | 70764 | \$75 | 70780 | \$166 | 71002 | \$8 |
| C30-J0 | 70798 | 123 | 70702 | 171 | 70718 | 113 | 70734 | 13 | 70750 | 145 | 70766 | 58 | 70782 | 152 | 71004 | 8 |
| C30-J1 | 70800 | 123 | 70702 | 171 | 70718 | 113 | 70734 | 13 | 70750 | 145 | 70766 | 58 | 70782 | 152 | 71004 | 8 |
| C50-J1 | 70802 | 160 | 70704 | 315 | 70720 | 166 | 70736 | 25 | 70752 | 145 | 70768 | 112 | 70784 | 158 | 71006 | 8 |
| C65-J1 | 70804 | 132 | 70706 | 171 | 70722 | 113 | 70738 | 13 | 70754 | 51 | 70770 | 62 | 70786 | 91 | 71008 | 8 |
| C80-J2 | 70806 | 187 | 70708 | 268 | 70724 | 166 | 70740 | 25 | 70756 | 52 | 70772 | 123 | 70788 | 169 | 71010 | 8 |
| C100-J33 | 70808 | 161 | 70710 | 171 | 70726 | 125 | 70742 | 13 | 70758 | 52 | 70774 | 75 | 70790 | 95 | 71012 | 8 |
| C100-J2 | 70810 | 161 | 70710 | 171 | 70726 | 125 | 70742 | 13 | 70758 | 52 | 70774 | 75 | 70790 | 95 | 71012 | 8 |
| C130-J33 | 70812 | 161 | 70712 | 171 | 70728 | 160 | 70744 | 18 | 70760 | 53 | 70776 | 75 | 70792 | 95 | 71014 | 8 |
| C130-J2 | 70814 | 161 | 70712 | 171 | 70728 | 160 | 70744 | 18 | 70760 | 53 | 70776 | 75 | 70792 | 95 | 71014 | 8 |
| C130-J6 | 70816 | 161 | 70712 | 171 | 70728 | 160 | 70744 | 18 | 70760 | 53 | 70776 | 75 | 70792 | 95 | 71014 | 8 |
| C160-J6 | 70818 | 178 | 70714 | 171 | 70730 | 179 | 70746 | 18 | 70762 | 58 | 70778 | 86 | 70794 | 107 | 71016 | 8 |

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 | \$222 | 70712 | \$171 | 70728 | \$160 | 73220 | \$38 | 73210 | \$58 | 73200 | \$75 | 70792 | \$95 | 71014 | \$8 |
| CP130-3MT | 73260 | 239 | 70712 | 171 | 70728 | 160 | 73220 | 38 | 73210 | 58 | 73200 | 75 | 70792 | 95 | 71014 | 8 |
| CP130-4MT | 73270 | 266 | 70712 | 171 | 70728 | 160 | 73220 | 38 | 73210 | 58 | 73200 | 75 | 70792 | 95 | 71014 | 8 |
| CP130-5/8 | 73290 | 216 | 70712 | 171 | 70728 | 160 | 73220 | 38 | 73210 | 58 | 73200 | 75 | 70792 | 95 | 71014 | 8 |
| CP130-R8 | 74040 | 274 | 70712 | 171 | 70728 | 160 | 73220 | 38 | 73210 | 58 | 73200 | 75 | 70792 | 95 | 71014 | 8 |
| CP160-2MT | 74044 | 309 | 70714 | 171 | 70730 | 179 | 70747 | 18 | 70763 | 58 | 73205 | 86 | 70794 | 107 | 71016 | 8 |
| CP160-3MT | 74042 | 266 | 70714 | 171 | 70730 | 179 | 70747 | 18 | 70763 | 58 | 73205 | 86 | 70794 | 107 | 71016 | 8 |
| CP160-4MT | 74041 | 299 | 70714 | 171 | 70730 | 179 | 70747 | 18 | 70763 | 58 | 73205 | 86 | 70794 | 107 | 71016 | 8 |
| CP160-R8 | 74043 | 309 | 70714 | 171 | 70730 | 179 | 70747 | 18 | 70763 | 58 | 73205 | 86 | 70794 | 107 | 71016 | 8 |



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

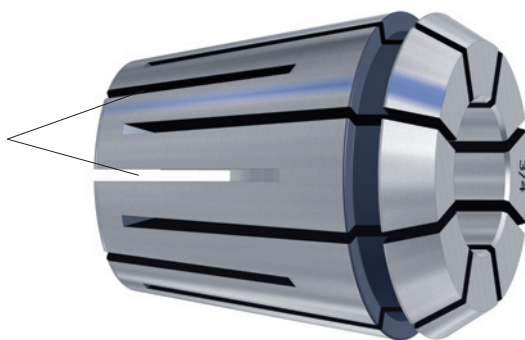
Royal standard ER Collets contain 16 slots, providing a larger gripping range than other brands.

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.

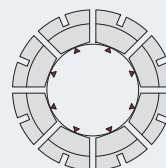


- Ultra-Precision Accuracy – 0.0002" TIR guaranteed.
- **High-pressure approved to 1400 psi.**
- Unique design is mechanically sealed by virtue of the rear slots terminating prior to the annular groove, completely blocking the path of coolant flow to the front of the collet.
- When using thru-coolant 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

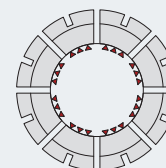
All Royal ER Collets are available from stock in both inch and metric sizes. This is very important because it enables you to select a collet that has been ground to your precise cutting tool size.

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
\$33 / \$37



ER-16
\$33 / \$37



ER-20
\$37 / \$43



ER-25
\$39 / \$45



ER-32
\$41 / \$49



ER-40
\$45 / \$56

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 \$33 | Sealed \$37 | Standard \$33 | Sealed \$37 | Standard \$37 | Sealed \$43 | Standard \$39 | Sealed \$45 | Standard \$41 | Sealed \$49 | Standard \$45 | Sealed \$56 |
| 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
\$33 / \$37



ER-16
\$33 / \$37



ER-20
\$37 / \$43



ER-25
\$39 / \$45



ER-32
\$41 / \$49



ER-40
\$45 / \$56

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 \$33 | Sealed \$37 | Standard \$33 | Sealed \$37 | Standard \$37 | Sealed \$43 | Standard \$39 | Sealed \$45 | Standard \$41 | Sealed \$49 | Standard \$45 | Sealed \$56 |
| 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 | \$231 |
| ER-16 | 1/16"–3/8" x 32nds | 11 | 53302 | 363 |
| ER-20 | 5/32"–1/2" x 32nds | 12 | 53304 | 444 |
| ER-25 | 5/32"–5/8" x 32nds | 16 | 53306 | 624 |
| ER-32 | 7/32"–3/4" x 32nds | 18 | 53308 | 738 |
| ER-40 | 1/8"–1" x 16ths | 15 | 53310 | 675 |

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 | \$231 |
| ER-16 | 1–10 mm x 1 mm | 10 | 53702 | 330 |
| ER-20 | 2–13 mm x 1 mm | 12 | 53704 | 444 |
| ER-25 | 2–16 mm x 1 mm | 15 | 53706 | 585 |
| ER-32 | 3–20 mm x 1 mm | 18 | 53708 | 738 |
| ER-40 | 4–26 mm x 1 mm | 23 | 53710 | 1,035 |

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 | \$333 |
| ER-20 | 5/32"–1/2" x 32nds | 12 | 56304 | 516 |
| ER-25 | 5/32"–5/8" x 32nds | 16 | 56306 | 720 |
| ER-32 | 7/32"–3/4" x 32nds | 18 | 56308 | 882 |
| ER-40 | 3/16"–1" x 16ths | 14 | 56310 | 784 |

* 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 | \$296 |
| ER-20 | 3–13 mm x 1 mm | 11 | 56704 | 473 |
| ER-25 | 3–16 mm x 1 mm | 14 | 56706 | 630 |
| ER-32 | 4–20 mm x 1 mm | 17 | 56708 | 833 |
| ER-40 | 4–26 mm x 1 mm | 23 | 56710 | 1,288 |

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



FILTERMIST MIST COLLECTORS

LOW-COST, HIGHLY EFFICIENT,
AND MINIMAL MAINTENANCE

See After Filter
Promotion
on Page 147





THE WORLD'S LEADING MIST COLLECTOR



For over 40 years, the Royal Filtermist has been effectively collecting mist and smoke generated by all types of metalworking machinery.

There are currently **more than 170,000 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 and Smoke in Your Shop? | Page 141 |
| Common Mist Collection Methods | Pages 142-143 |
| How Does the Royal Filtermist Work? | Page 144 |
| FX Series Design Features | Page 145 |
| Why is the Royal Filtermist the Best Choice for the Metalworking Industry? | Page 146 |
| Risk-Free Performance Guarantee | Page 147 |
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| Choosing the Correct Filtermist Unit | Pages 152-153 |
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| Filtermist Ordering Sheet | Page 167 |

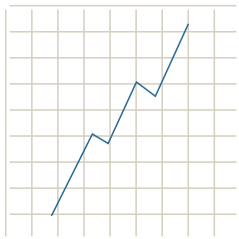
WHY CONTROL OIL MIST & SMOKE IN YOUR SHOP?



- ❑ **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!

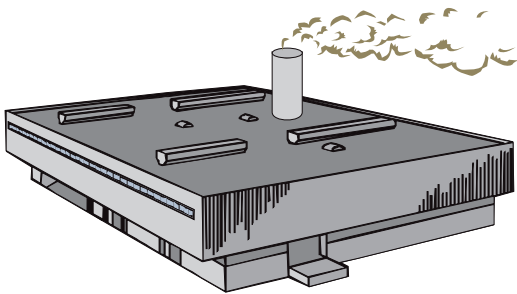


COMMON MIST COLLECTION METHODS

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.



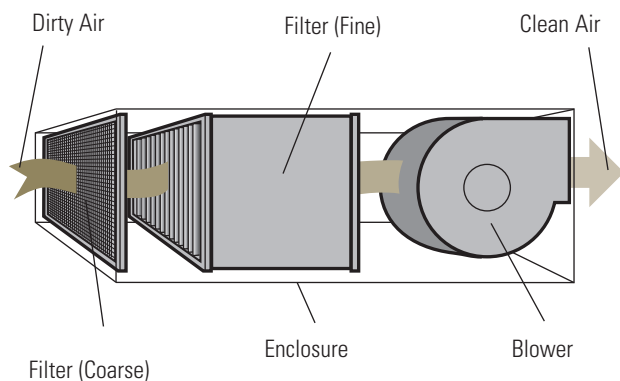
Environmental Hazards Today, it is illegal in many states to exhaust pollutants to the atmosphere. Offending companies run the risk of large fines and lawsuits.

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.

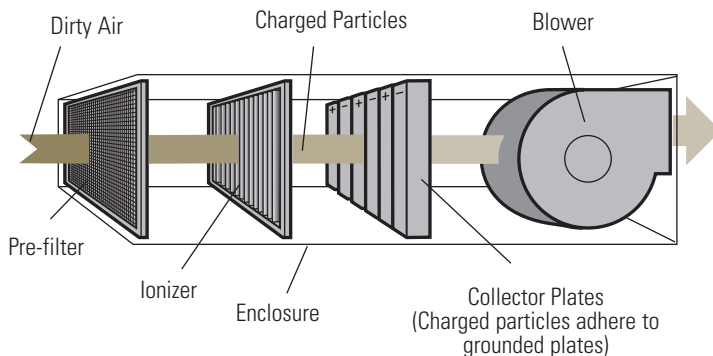
Decreased Throughput Another problem with multi-stage filter units is that the throughput of the system, measured in cfm, decreases as contaminants become trapped in the pores of the filters. It is important to maintain the correct throughput of any collection system. Reduced throughput means reduced 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>

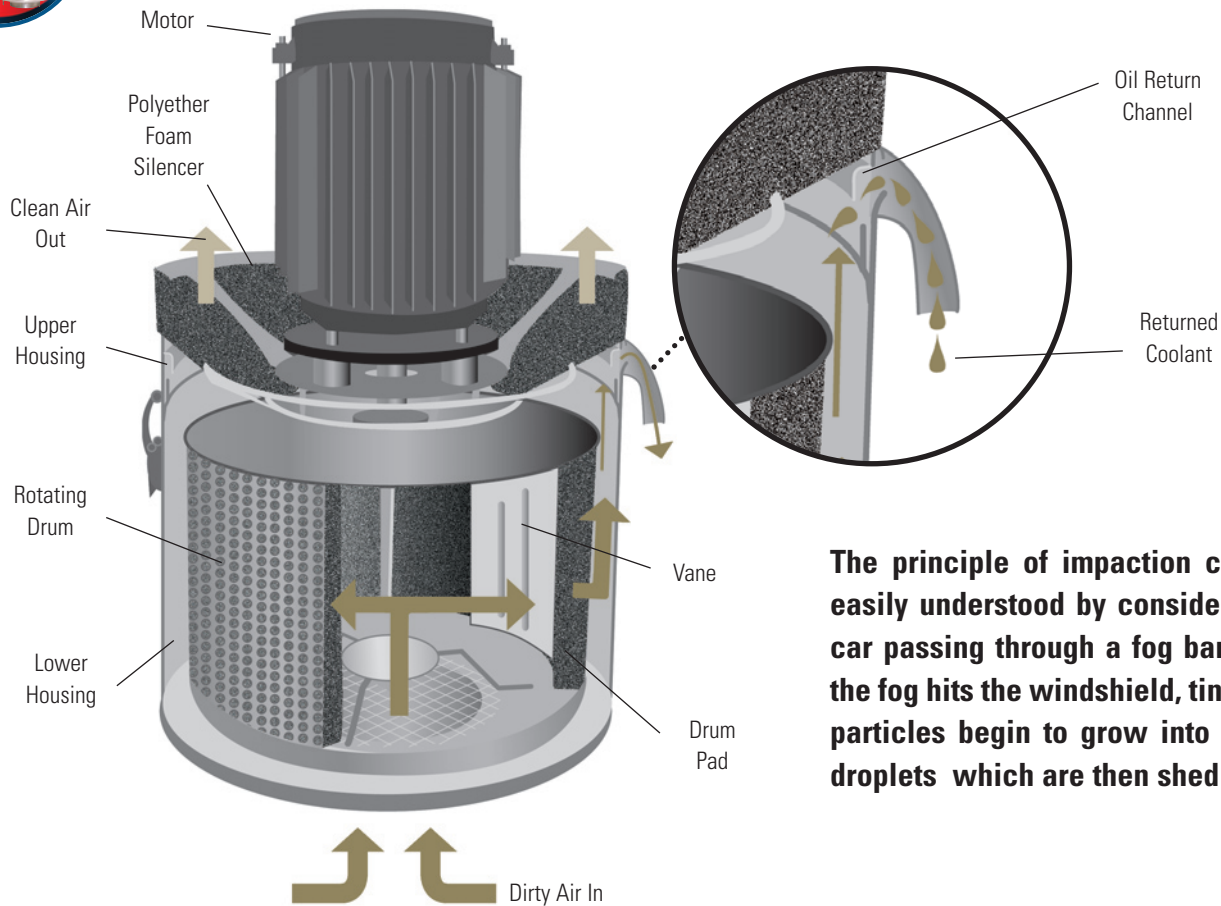
EPA

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.

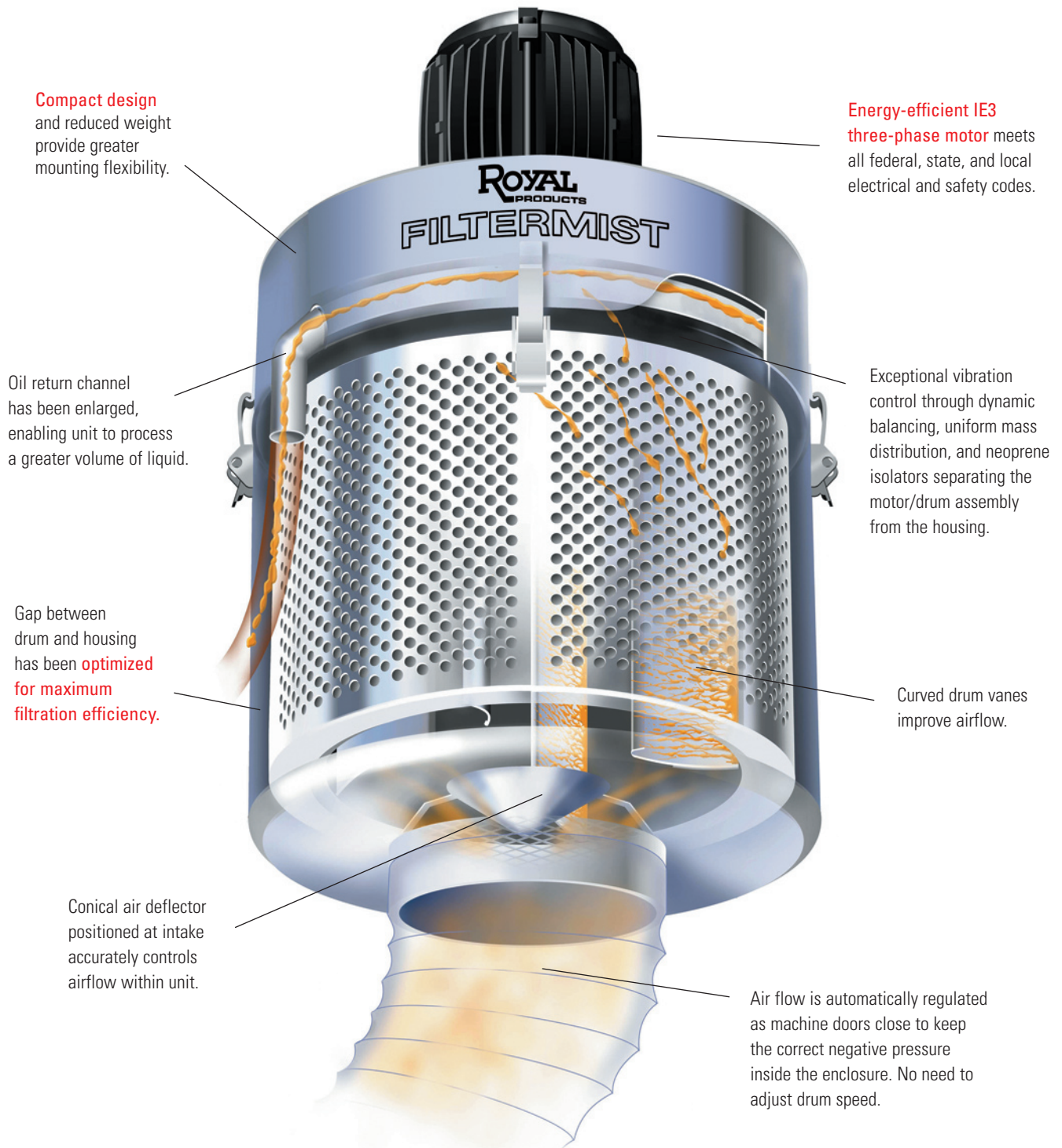
Note – it is important to understand that the pads that line the Filtermist drum are not filters. These porous pads are present to slow airflow through the unit, thereby maximizing contact with the drum vanes for greatest overall impaction efficiency.

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 154 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 164 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 148 – 149 for information on performance accessories.

Easy To Install

Multiple installation configurations allow the Filtermist to overcome almost any mounting obstacle. See pages 150-151 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 170,000 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

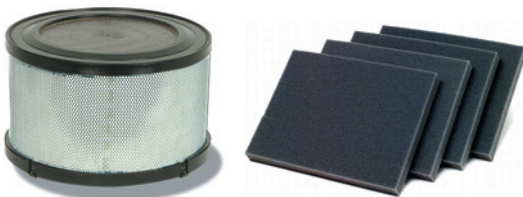
Royal Products will issue full credit on any Royal Filtermist unit returned within 45 days of the purchase date if the customer is not completely satisfied with its performance.

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.

LIMITED-TIME PROMOTION*

FREE AFTER FILTER AND DRUM PAD SET



For a limited time, Royal Products will include a FREE standard after filter and a FREE set of drum pads with each new Royal Filtermist unit purchased – a value worth up to \$390 per unit.

For most applications, this essentially means your first-year maintenance is on us.

Royal's exclusive Risk-Free Performance Guarantee coupled with this money-saving promotion means there has never been a better time to provide your employees with a safer, healthier workplace. Order today!

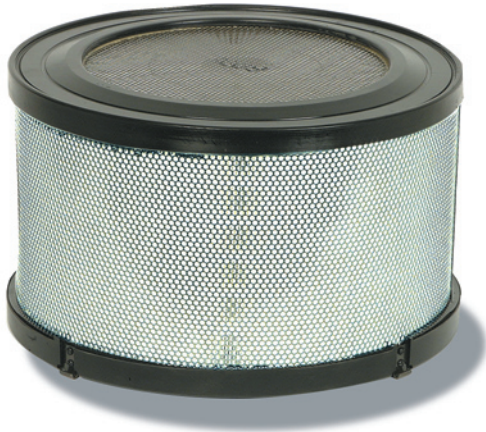
* Not subject to prior sale. Royal Products reserves the right to cancel this promotion at any time without notice.



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 154 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.

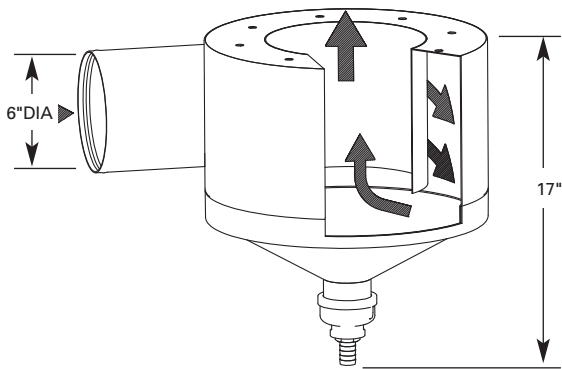
- **Great for all high-pressure oil applications – especially on Swiss machines.**
- Unique design incorporates two distinct types of filter media separated by an expansion gap.
- Integral venturi-assisted drain draws liquid away from the filter, greatly lengthening service life – testing has resulted in more than a **10x increase for certain applications**.
- Available for all Royal Filtermist FX-series units.
- 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



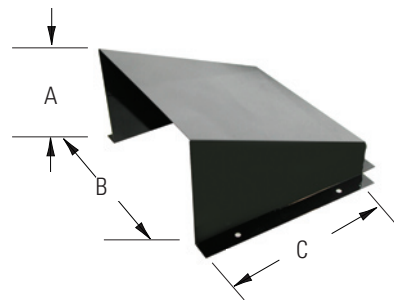
- Recommended for applications that generate solid particles, such as wet grinding dust, cast iron fines, etc.
- Also good for high-speed aluminum milling that produces light fly-away chips.

- 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 151 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 | ✓ | ✓ | ✓ | ✓ |
| 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.



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.



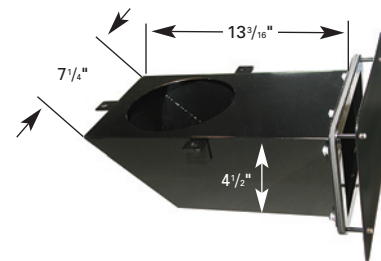
Floor Stand

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.

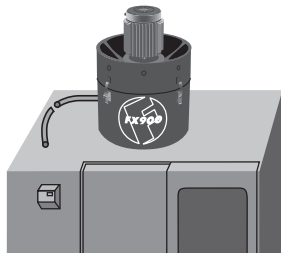


Machine Side Mount

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.

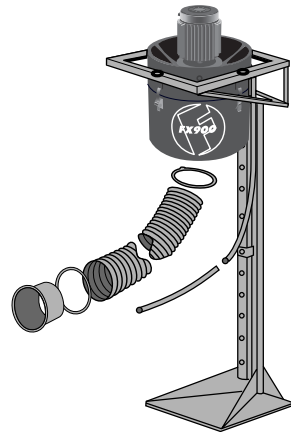


ROYAL FILTERMIST MOUNTING OPTIONS



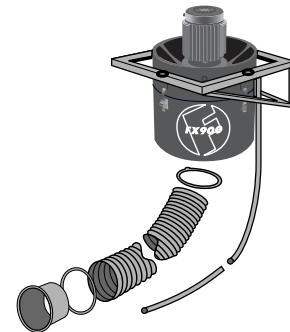
DIRECT MOUNT

- Unit
- Direct Mounting Kit
- Coolant Return Hose



FLOOR STAND MOUNT

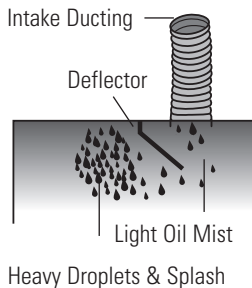
- Unit
- Floor Stand
- Coolant Return Hose
- Ducting
- Hose Clamps (2)
- Flange Adapter



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 149). A deflector protects the intake from chips and coolant yet allows mist and smoke to pass around it for collection.

Intake Sizing

| 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 **mounting 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.

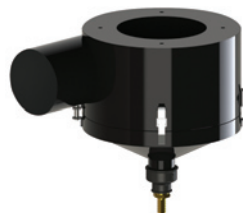
High-Pressure Coolant/Oil

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 152 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.

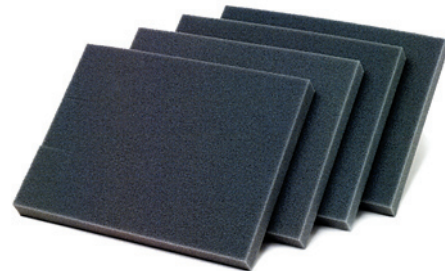
To ensure a smooth installation process, be sure you have ordered all of the necessary mounting and performance accessories. We recommend using the handy checklist featured on page 167. Please note that all accessories offered in this catalog have been tested for performance and safety. Substituting 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 164.

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



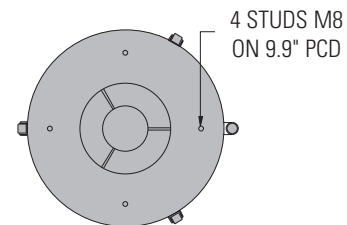
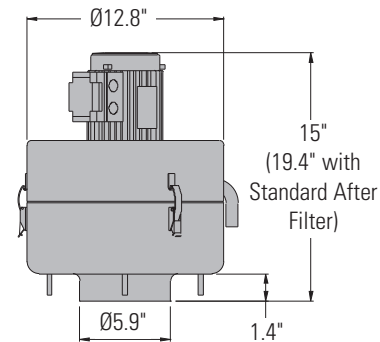
- ❑ Used primarily on small, enclosed CNC machines with an internal volume of up to 80 cu. ft.
- ❑ Large 6" dia. intake results in a **very low intake velocity**, reducing the likelihood that chips and large droplets will be drawn into the unit.
- ❑ The model FX-300 comes complete with a collar seal, 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 (0.55 kW), 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" |




ROYAL FILTERMIST MODEL FX-300




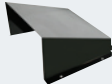

Filtermist Units

| 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 <i>See Promo on Page 147</i> | \$2,535 |
|  FX-300 Stainless Steel Unit | 30165 | \$5,420 |

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 \$595 |
| | FX-300 & 575 High-Voltage (460V) | 30471 \$595 |

Performance Accessories

| DESCRIPTION | PART NUMBER | PRICE |
|--|---|--------------|
|  Standard After Filter "A" Used for collecting dry smoke and very fine mist particles. | 30200 <i>See Promo on Page 147</i> | \$295 |
|  High-Performance After Filter "A" Designed for high pressure and Swiss applications. Extended operating life over standard after filter. | 30203 | \$785 |
|  Chip Deflector "A" Protects intake from coolant splash and chips. | 30222 | \$85 |
|  Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required. | 30477 | \$695 |

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 | \$410 | |
|  Floor Stand "A" Fixed height of 6 ft. Bolts to floor for safety. | 30316 | \$650 | |
|  Machine Top Stand "A" 28" tall stand bolts to the top of a machine | 30319 | \$410 | |
|  Wall Bracket "A" For mounting unit to a wall or side of a machine. | 30328 | \$225 | |
|  Coolant Return Hose 3/4" diameter. Note: Also included with unit. See description. | 30335 | \$5/ft. | |
|  Ducting Flexible vinyl with heavy wire support. | 8" | 30344 \$24/ft. | |
| | 6" | 30342 17/ft. | |
| | 4" | 30340 13/ft. | |
| Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition. | | | |
|  Ducting Clamps For securing ducting to accessories | 8" | 30354 \$7 | |
| | 6" | 30352 7 | |
| | 4" | 30350 6 | |
|  Y-Junctions For multiple pickup locations. | A 8" | B 6" | 30368 \$395 |
| | 8" | 4" | 30366 490 |
| | 6" | 6" | 30364 360 |
| | 6" | 4" | 30362 340 |
| | 4" | 4" | 30360 285 |
|  Flange Adapters For securing ducting directly to an enclosed machine. | 8" | 30374 \$85 | |
| | 6" | 30372 80 | |
| | 4" | 30370 80 | |
|  Reducers | A 8" | B 6" | 30382 \$155 |
| | 6" | 4" | 30380 155 |
| | A 8" | B 11.75" x 5" | 30394 \$275 |
|  Fishtails For use on open machines. | 6" | 10" x 4.5" | 30392 255 |
| | 4" | 8.25" x 3.5" | 30390 235 |



Try a unit on your toughest application risk-free! See Page 147.



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.

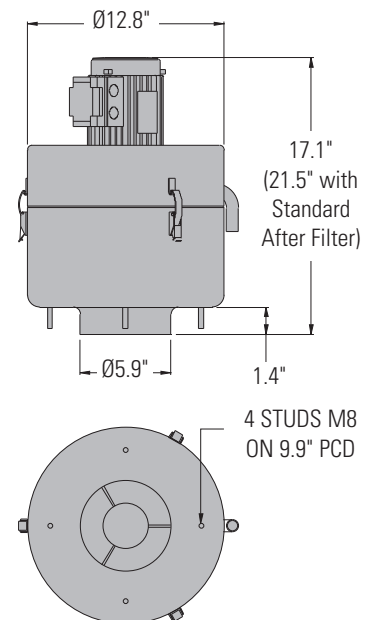


FX-575 Specifications

| | |
|---|---|
| Airflow | 560 cfm |
| Fits machines with enclosure volume of: | 60-120 cubic feet |
| Motor | 3/4 HP(0.55 kW), 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" |




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 <i>See Promo on Page 147</i> | \$3,160 |
|  FX-575 Stainless Steel Unit | 30185 | \$5,970 |

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 \$595 |
| | FX-300 & 575 High-Voltage (460V) | 30471 \$595 |

Performance Accessories

| DESCRIPTION | PART NUMBER | PRICE |
|--|---|--------------|
|  Standard After Filter "A" Used for collecting dry smoke and very fine mist particles. | 30200 <i>See Promo on Page 147</i> | \$295 |
|  High-Performance After Filter "A" Designed for high pressure and Swiss applications. Extended operating life over standard after filter. | 30203 | \$785 |
|  Chip Deflector "A" Protects intake from coolant splash and chips. | 30222 | \$85 |
|  Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required. | 30477 | \$695 |

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 | \$410 | |
|  Floor Stand "A" Fixed height of 6 ft. Bolts to floor for safety. | 30316 | \$650 | |
|  Machine Top Stand "A" 28" tall stand bolts to the top of a machine | 30319 | \$410 | |
|  Wall Bracket "A" For mounting unit to a wall or side of a machine. | 30328 | \$225 | |
|  Coolant Return Hose 3/4" diameter. Note: Also included with unit. See description. | 30335 | \$5/ft. | |
|  Ducting Flexible vinyl with heavy wire support. | 8" | 30344 \$24/ft. | |
| | 6" | 30342 17/ft. | |
| | 4" | 30340 13/ft. | |
| Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition. | | | |
|  Ducting Clamps For securing ducting to accessories | 8" | 30354 \$7 | |
| | 6" | 30352 7 | |
| | 4" | 30350 6 | |
|  Y-Junctions For multiple pickup locations. | A | B | |
| | 8" | 6" | 30368 \$395 |
| | 8" | 4" | 30366 490 |
| | 6" | 6" | 30364 360 |
| | 6" | 4" | 30362 340 |
| | 4" | 4" | 30360 285 |
|  Flange Adapters For securing ducting directly to an enclosed machine. | 8" | 30374 \$85 | |
| | 6" | 30372 80 | |
| | 4" | 30370 80 | |
|  Reducers | A | B | |
| | 8" | 6" | 30382 \$155 |
| | 6" | 4" | 30380 155 |
|  Fishtails For use on open machines. | A | B | |
| | 8" | 11.75" x 5" | 30394 \$275 |
| | 6" | 10" x 4.5" | 30392 255 |
| | 4" | 8.25" x 3.5" | 30390 235 |



Try a unit on your toughest application risk-free! See Page 147.



ROYAL FILTERMIST MODEL FX-900



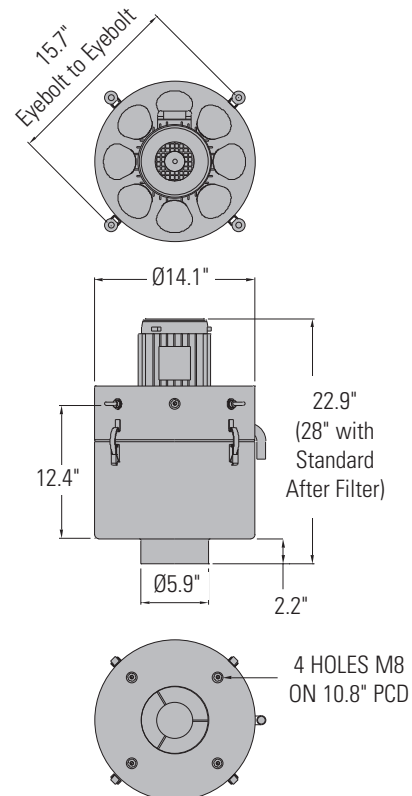
FX-900 Specifications

| | |
|---|---|
| Airflow | 900 cfm |
| Fits machines with enclosure volume of: | 90-180 cubic feet |
| Motor | 3 HP (2.2 kW), 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" |



- ❑ 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 or on brackets.
- ❑ Stainless steel model (type 304) available for special applications such as food processing and aqueous parts washers.



ROYAL FILTERMIST MODEL FX-900




Filtermist Units

| DESCRIPTION | PART NUMBER | PRICE |
|---|-------------|----------------|
|  FX-900 Filtermist Unit Includes 12 ft. of coolant return hose. Order performance and mounting accessories separately. | 30120 | \$3,910 |
|  FX-900 Stainless Steel Unit | 30160 | \$6,815 |

See Promo on Page 147












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 | \$595 |
| | FX-900 & 1200 High-Voltage (460V) 30473 | \$595 |

Performance Accessories

| DESCRIPTION | PART NUMBER | PRICE |
|---|-----------------------|----------------|
|  Standard After Filter "B" Used for collecting dry smoke and very fine mist particles. | 30205 | \$315 |
| | See Promo on Page 147 | |
|  High-Performance After Filter "B" Designed for high pressure and Swiss applications. Extended operating life over standard after filter. | 30204 | \$845 |
|  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 | \$1,055 |
|  Chip Deflector "B" Protects intake from coolant splash and chips. | 30220 | \$85 |
|  Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required. | 30477 | \$695 |

Mounting Accessories

| DESCRIPTION | PART NUMBER | PRICE |
|---|--|--|
|  Direct Mount Kit (FX-900) Includes 6" collar seal, set of rigid mounting studs, and hardware. | 30302 | \$105 |
|  Floor Stand "B" Adjusts from 6 ft. to 9 ft. Bolts to floor for safety. | 30315 | \$1,220 |
|  Machine Top Stand "B" 3 ft. tall stand bolts to the top of a machine. | 30314 | \$785 |
|  Wall Bracket "B" Can be used to mount unit to a wall or other suitable mounting surface. | 30320 | \$445 |
|  Coolant Return Hose 3/4" diameter. Note: Also included with unit. See description. | 30335 | \$5/ft. |
|  Ducting Flexible vinyl with heavy wire support. | 8" 30344 6" 30342 4" 30340 | \$24/ft. 17/ft. 13/ft. |
| Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition. | | |
|  Ducting Clamps For securing ducting to accessories. | 8" 30354 6" 30352 4" 30350 | \$7 7 6 |
|  Y-Junctions For multiple pickup locations. | A B 8" 6" 30368 8" 4" 30366 6" 6" 30364 6" 4" 30362 4" 4" 30360 | \$395 490 360 340 285 |
|  Flange Adapters For securing ducting directly to an enclosed machine. | 8" 30374 6" 30372 4" 30370 | \$85 80 80 |
|  Reducers | A B 8" 6" 30382 6" 4" 30380 | \$155 155 |
|  Fishtails For use on open machines. | A B 8" 11.75" x 5" 30394 6" 10" x 4.5" 30392 4" 8.25" x 3.5" 30390 | \$275 255 235 |



Try a unit on your toughest application risk-free! See Page 147.



ROYAL FILTERMIST MODEL FX-1200



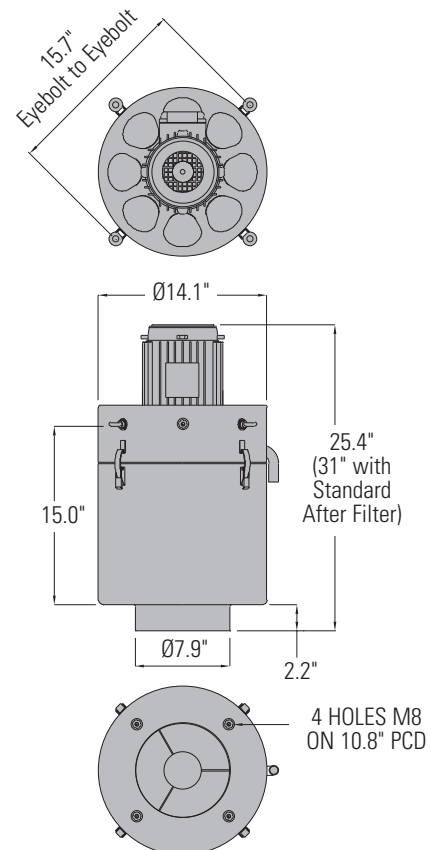
FX-1200 Specifications

| | |
|---|---|
| Airflow | 1200 cfm |
| Fits machines with enclosure volume of: | 120 cubic feet or larger |
| Motor | 3 HP (2.2 kW), 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 | use 30320 — Wall Bracket "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 or on brackets.
- ❑ 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 Includes 12 ft. of coolant return hose. Order performance and mounting accessories separately. | 30130 | \$4,090 |
|  FX-1200 Stainless Steel Unit | 30170 | \$7,395 |

See Promo on Page 147












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 | \$595 |
| | FX-900 & 1200 High-Voltage (460V) 30473 | \$595 |

Performance Accessories

| DESCRIPTION | PART NUMBER | PRICE |
|---|-----------------------|----------------|
|  Standard After Filter "B" Used for collecting dry smoke and very fine mist particles. | 30205 | \$315 |
| | See Promo on Page 147 | |
|  High-Performance After Filter "B" Designed for high pressure and Swiss applications. Extended operating life over standard after filter. | 30204 | \$845 |
|  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 | \$1,055 |
|  Chip Deflector "B" Protects intake from coolant splash and chips. | 30220 | \$85 |
|  Maintenance Monitor Bright LED status indicator monitors performance and shows when maintenance is required. | 30477 | \$695 |

Mounting Accessories

| DESCRIPTION | PART NUMBER | PRICE |
|--|--|--|
|  Direct Mount Kit (FX-1200) Includes 8" collar seal, set of rigid mounting studs, and hardware. | 30304 | \$105 |
|  Floor Stand "B" Adjusts from 6 ft. to 9 ft. Bolts to floor for safety. | 30315 | \$1,220 |
|  Machine Top Stand "B" 3 ft. tall stand bolts to the top of a machine. | 30314 | \$785 |
|  Wall Bracket "B" Can be used to mount unit to a wall or other suitable mounting surface. | 30320 | \$445 |
|  Coolant Return Hose 3/4" diameter. Note: Also included with unit. See description. | 30335 | \$5/ft. |
|  Ducting Flexible vinyl with heavy wire support. | 8" 30344 6" 30342 4" 30340 | \$24/ft. 17/ft. 13/ft. |
| Warning — never use sheetmetal ducting or any other type that could leak and cause a hazardous condition. | | |
|  Ducting Clamps For securing ducting to accessories. | 8" 30354 6" 30352 4" 30350 | \$7 7 6 |
|  Y-Junctions For multiple pickup locations. | A B 8" 8" 6" 8" 8" 4" 6" 6" 6" 6" 6" 4" 4" 4" 4" | \$395 490 360 340 285 |
|  Flange Adapters For securing ducting directly to an enclosed machine. | 8" 30374 6" 30372 4" 30370 | \$85 80 80 |
|  Reducers | A B 8" 8" 6" 6" 6" 4" | \$155 155 |
|  Fishtails For use on open machines. | A B 8" 8" 11.75" x 5" 6" 6" 10" x 4.5" 4" 4" 8.25" x 3.5" | \$275 255 235 |



Try a unit on your toughest application risk-free! See Page 147.



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 Save \$65 | 30506 | \$190 Save \$55 | 30402 | \$235 Save \$140 | 30404 | \$245 Save \$140 |
| Drum Pad Set | 30410 | \$40 | 30416 | \$55 | 30412 | \$65 | 30414 | \$75 |
| Silencer | 30520 | \$95 | 30520 | \$95 | 30422 | \$160 | 30422 | \$160 |
| Housing Seal | 30430 | \$20 | 30430 | \$20 | 30432 | \$25 | 30432 | \$25 |
| Motor Mount Set | 30440 | \$75 | 30440 | \$75 | 30442 | \$125 | 30442 | \$125 |

See page 166 for maintenance items for older series Filtermist units.

ROYAL FILTERMIST REPLACEMENT PARTS



Serial Number Label

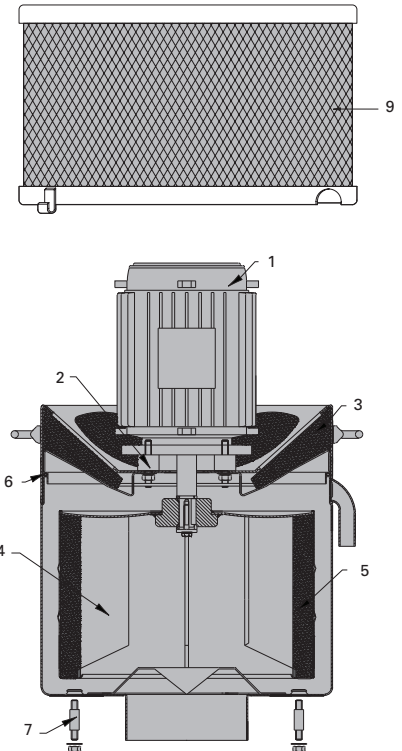
On this unit, the white label with the black text indicates a series 8 model.

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 |
| 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 | 30299 |
| | | FX-550/575 | 30299 |
| | | 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 | 30205/30204* |
| | | FX-900 | 30205/30204* |
| | | FX-1200 | 30205/30204* |



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 166.

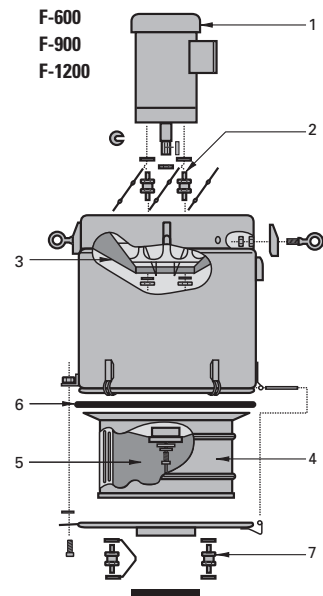
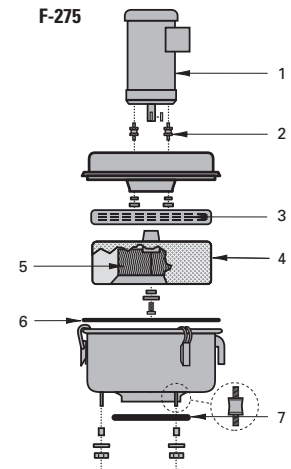
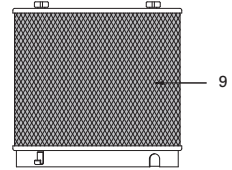
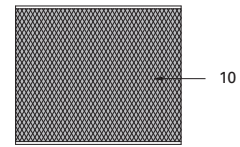
*Standard and high-performance models available.



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 | 30452 | 30452 | 30452 |
| | | F-900 | 30454 | 30454 | 30454 |
| | | F-1200 | 30454 | 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 | N/A | N/A | N/A |
| | | F-900 | N/A | N/A | N/A |
| | | F-1200 | N/A | 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 165 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 152 for sizing information): _____

| FILTERMIST UNITS | PART NUMBER | QTY. | LIST PRICE |
|-------------------------|-------------|------|----------------|
| FX-300 | 30105 | | \$2,535 |
| FX-575 | 30115 | | \$3,160 |
| FX-900 | 30120 | | \$3,910 |
| FX-1200 | 30130 | | \$4,090 |
| FX-300 Stainless Steel | 30165 | | \$5,420 |
| FX-575 Stainless Steel | 30185 | | \$5,970 |
| FX-900 Stainless Steel | 30160 | | \$6,815 |
| FX-1200 Stainless Steel | 30170 | | \$7,395 |

| ELECTRICAL INSTALLATION PACKAGES | PART NUMBER | QTY. | LIST PRICE |
|--------------------------------------|-------------|------|--------------|
| Low-Voltage 208/230V (FX-300 & 575) | 30470 | | \$595 |
| High-Voltage 460V (FX-300 & 575) | 30471 | | \$595 |
| Low-Voltage 208/230V (FX-900 & 1200) | 30472 | | \$595 |
| High-Voltage 460V (FX-900 & 1200) | 30473 | | \$595 |

| PERFORMANCE ACCESSORIES | PART NUMBER | QTY. | LIST PRICE |
|---|-------------|------|----------------|
| Standard After Filter "A" (FX-300 & 575) | 30200 | | \$295 |
| High-Performance After Filter "A" (FX-300 & 575) | 30203 | | \$785 |
| Standard After Filter "B" (FX-900 & 1200) | 30205 | | \$315 |
| High-Performance After Filter "B" (FX-900 & 1200) | 30204 | | \$845 |
| Cyclonic Swarf Separator (FX-900 & 1200) | 30210 | | \$1,055 |
| Chip Deflector "A" (FX-300 & FX-575) | 30222 | | \$85 |
| Chip Deflector "B" (FX-900 & 1200) | 30220 | | \$85 |
| Maintenance Monitor | 30477 | | \$695 |

| MAINTENANCE ITEMS | PART NUMBER | QTY. | LIST PRICE |
|------------------------------------|-------------|------|--------------|
| Complete Maintenance Kit (FX-300) | 30500 | | \$165 |
| Complete Maintenance Kit (FX-575) | 30506 | | \$190 |
| Complete Maintenance Kit (FX-900) | 30402 | | \$235 |
| Complete Maintenance Kit (FX-1200) | 30404 | | \$245 |

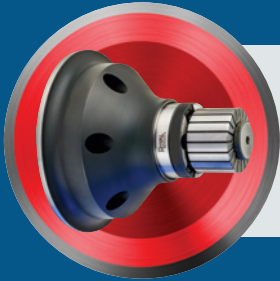
| MOUNTING ACCESSORIES | PART NUMBER | QTY. | LIST PRICE |
|--|-------------|------|-----------------|
| Direct Mount Kit (FX-900) | 30302 | | \$105 |
| Direct Mount Kit (FX-1200) | 30304 | | \$105 |
| Floor Stand "A" (FX-300 & 575) | 30316 | | \$650 |
| Floor Stand "B" (FX-900 & 1200) | 30315 | | \$1,220 |
| Wall Bracket "A" (FX-300 & 575) | 30328 | | \$225 |
| Wall Bracket "B" (FX-900 & 1200) | 30320 | | \$445 |
| Machine Top Stand "A" (FX-300 & 575) | 30319 | | \$410 |
| Machine Top Stand "B" (FX-900 & 1200) | 30314 | | \$785 |
| Side Mount Bracket "A" (FX-300 & 575) | 30330 | | \$410 |
| Coolant Return Hose | 30335 | | \$5/ft. |
| Ducting (4") | 30340 | | \$13/ft. |
| Ducting (6") | 30342 | | \$17/ft. |
| Ducting (8") | 30344 | | \$24/ft. |
| Ducting Clamp (4") | 30350 | | \$6 |
| Ducting Clamp (6") | 30352 | | \$7 |
| Ducting Clamp (8") | 30354 | | \$7 |
| Y-Junction (4x4x4) | 30360 | | \$285 |
| Y-Junction (6x4x4) | 30362 | | \$340 |
| Y-Junction (6x6x6) | 30364 | | \$360 |
| Y-Junction (8x4x4) | 30366 | | \$490 |
| Y-Junction (8x6x6) | 30368 | | \$395 |
| Flange Adapter (4") | 30370 | | \$80 |
| Flange Adapter (6") | 30372 | | \$80 |
| Flange Adapter (8") | 30374 | | \$85 |
| Reducer (6x4) | 30380 | | \$155 |
| Reducer (8x6) | 30382 | | \$155 |
| Fishtail (4") | 30390 | | \$235 |
| Fishtail (6") | 30392 | | \$255 |
| Fishtail (8") | 30394 | | \$275 |

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.



➤ I.D. WORKHOLDING – A GREAT OPTION

I.D. 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.



➤ EASILY AUTOMATE ANY CNC LATHE

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 75 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 170,000 units operating in over 50 countries, the highly efficient, low-cost Royal Filtermist will keep your machines humming.

For over 75 years, leading manufacturers have trusted Royal Products to help optimize their CNC machine tool productivity. As an ISO-9001 registered company, Royal is dedicated to continuous improvement and strives to be the best supplier of CNC metalworking accessories in the industry.

One of our key advantages is that, like our customers, we own and operate our own modern factory full of the latest CNC turning, milling, and grinding equipment. Because of this, our team understands firsthand what it takes to make a shop successful, and we also have the advantage of pushing and evaluating our products every day in our own demanding production environment. Royal's philosophy is simple – **if we wouldn't use one of our products in our own shop, then we won't sell it.**

Our People



If there's one compliment that our customers give us over and over, it's that Royal Products is **one of the easiest companies they do business with.**

We don't look at ourselves as being exceptional in this area – we simply treat people the way we'd like to be treated ourselves. If a customer has a problem with one of our products, we take care of it, regardless of "whose fault it is".

This isn't rocket science – we know that if we consistently go above and beyond and always do the right thing, our customers will reward us with their loyalty.

Our Inventory

97%

Inventory can be a difficult issue for many suppliers because "sleeping money" on the warehouse shelves ties up cash that could be used for other business functions. We look at inventory differently, understanding that when our customers need one of our products, they often need it "right now" because they have a spindle down, a hot job with a tight deadline, a new machine ready to be installed, etc.

In an effort to be as responsive as possible, Royal maintains very large inventories of all products in our line, enabling us to **ship over 97% of all orders the same day we receive them.** Again, this isn't a revolutionary concept – it's simply being dedicated to having what our customers need, when they need it.

Our Quality



Everyone delivers quality, right? Well, they should anyway . . . But let's face it, not all products can be the best – many fall into the category of "good enough".

Being "good enough" doesn't sit well with the Royal team, or our First be Best, Then be First attitude.

It takes unrelenting effort to be consistently recognized as the brand leader in the products we offer, and every single member of our team understands that **if we don't deliver the absolute best machine tool performance accessories to our customers, they won't be able to make the absolute best parts for their customers.**

Our Knowledge



So now you know that Royal is super easy to do business with, has the products you need in stock for same-day shipping, and manufactures the best metalworking accessories available.

But did you also know that we employ a large team of metalworking experts strategically located throughout the country who visit dozens of shops and factories every week to evaluate processes and offer improvement recommendations? Or that one of these experts can **visit your shop in one of our fully equipped demo vans** so you and your crew can experience firsthand Royal's broad range of products right from the convenience of your own parking lot? Call us to schedule a visit today!

