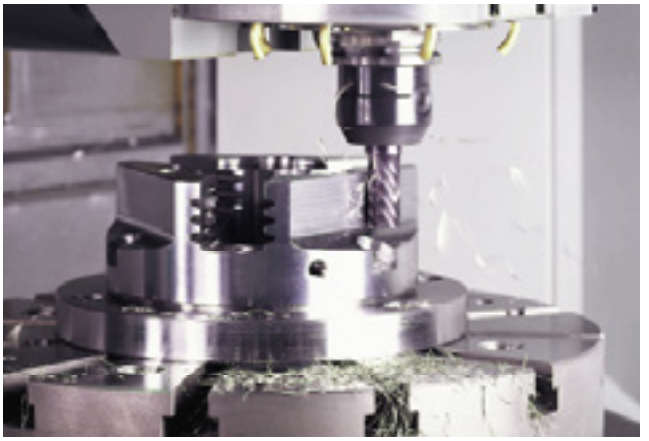
# FORKARDT™

## We Solve Your Gripping Problems

Extraordinary fields of application need extraordinary solutions. Owing to their shape, size, weight or other properties, many work pieces cannot be optimally clamped and machined with standard chucks. Our engineers are constantly on the lookout for these challenges.

Many of our applied solutions become standard products. One example would be the development of the indexing chuck, which has hydraulic centrifugal force compensation that makes it ideal for fittings manufacturers. Another is the equalizing counter-centrifugal ball chuck, which is ideal for machining thin-walled parts.

By constantly innovating for the various market segments such as medical, automotive, aerospace or energy, we develop solutions that can be market-specific or utilized across all markets to our customer's benefit.



It is for these reasons that Forkardt is constantly challenged to defend its position as the premier provider of innovative workholding technology.

We are constantly striving to improve our products, the dimensions and specifications in this catalog cannot always represent the latest state of our products; they are, therefore, given as an indication only and are not binding.

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# Sliding Jaw Power Chucks

FORKARDT™

# Sliding Jaw Power Chucks

### FNC Quick Change Power Chuck

Ideal for
- Medium and small batch production
- Applications requiring frequent retooling

Key Features
- Quick change jaw system
- Light weight design
- High gripping forces

Available in sizes 175 to 630mm

### SL 2/3 Jaw Combination Power Chuck

Ideal for
- Holding round or square parts with same chuck
- Applications where roundness is a concern

Key Feautures
- Ajust-Tru® for precision mounting
- Easily repaired in-house
- 4:1 mechanical advantage

Available in multiple jaw styles in sizes 250 to 630mm

### PB 2 Jaw Pull Back Power Chuck

Ideal for
- Single or multiple spindle machines making heavy cuts on precision work

Key Features
- 100% more grip force than conventional chucks
- Pull-back positive end location
- 4:1 mechanical advantage

Available in 2 and 3 jaw designs in sizes 160 to 630mm

# Sliding Jaw Power Chucks

### BLN 2 Jaw Closed Center Power Chuck

Ideal for
- Machining of irregular shaped components such as valves or fittings
- Ball-shaped parts requiring full envelope of jaws

Key Features
- Lightweight for higher speeds
- No thru-hole
- Long stroke

Available in sizes 200 to 400 mm

### BPC Thru-Hole OEM Replacement

Ideal for
- Conventional machining on CNC lathes

Key Features
- Lightweight for higher speeds
- Direct replacement for OEM power chucks
- Available with standard or big bore

Available in 2, 3 and 4 jaw design in sizes 110 to 450 mm.

### MO Stationary Hydraulic/Pneumatic

Ideal for
- Use on machining centers
- Use as a fixture

Key Features
- Can be operated by either hydraulics or air
- Compact and lightweight
- Uses same top tooling as standard power chucks

Available in 2, 3 and 4 jaw design in sizes 110 to 450 mm

# Wedge Style Power Chuck

# QLC

The QLC line of Wedge Hook Style Power Chucks provides a combination of innovative design, high quality materials, and advanced manufacturing techniques. All Forkardt products are developed and produced in accordance with the requirements of ISO 9001-2000.

QLC power chucks utilize a wedge hook mechanism. Each of the chuck models available in the QLC power chuck line feature centrifugal force compensation, allowing for higher speeds, higher gripping forces, improved accuracy, reliability, and safety.

The QLK offers all of the features of the QLC, without the centrifugal force compensation.

Although the various chucks provided in the QLC line are geared toward specific application types, any of these chucks can be used in practically any turning application.

The QLC/QLK family consists of chucks specially suited for large bore machining, long stroke, shaft balancing, and much more. Each chuck in the QLC/QLK group is available with optional Quick Change Jaw solutions.

**The Original**
**QLC/QLK**

**Closed Center**
**QLC-KT**

**Large Bore**
**QLC-KS**

**Shaft Clamping**
**QLC-AG**

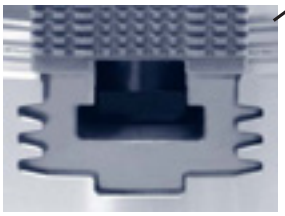
**Low Maintenance**
**QLC-LM**

**Long Stroke**
**QLC-LS**

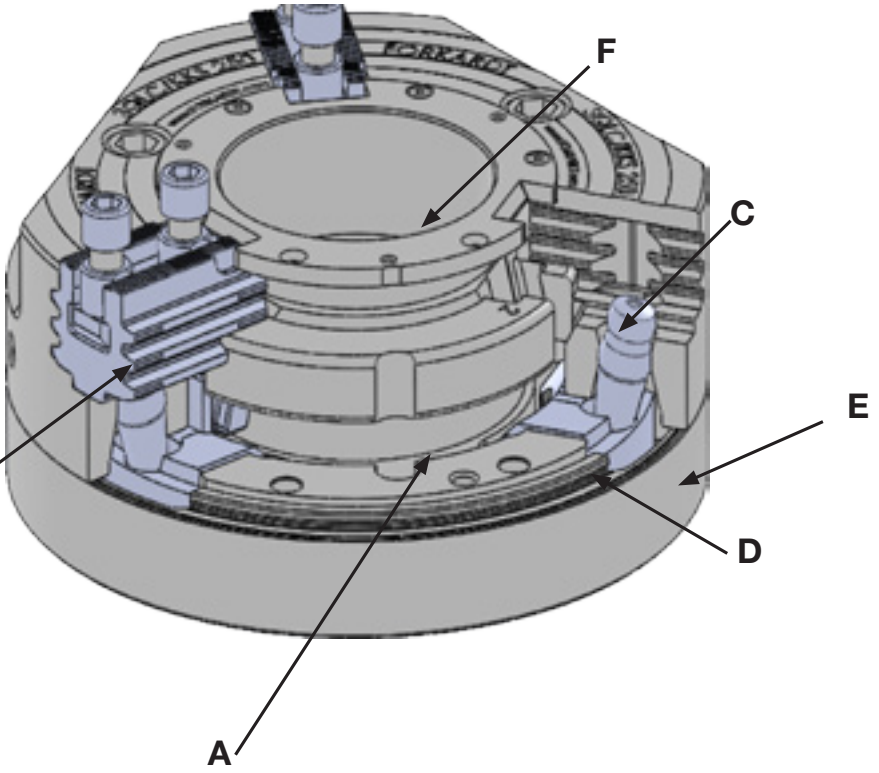
## Structure & Function

A. **Patented Wedge Hook Design**- backlash free for maximum clamp forces
B. **Patented Multiple Profile Base Jaw**- provides greater stability and precision
C. **Patented Integrated Force Feed Circular Lubrication**- minimal loss of lubricating grease
D. **Centrifugal Force Compensation** (QLC model) - allows for higher speeds
E. **Nitrided Chuck Bod**y- increases service life
F. **King Size Bore (KS Model)**- allows gripping of larger diameter parts

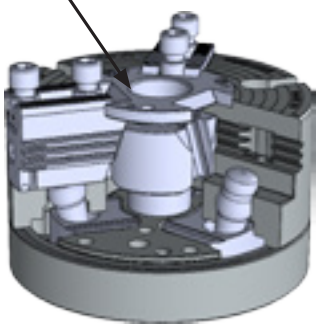
Integrated lubricant reservoir with improved forced circulation



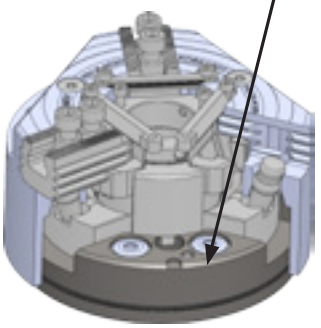
Patented multiple profile base jaw



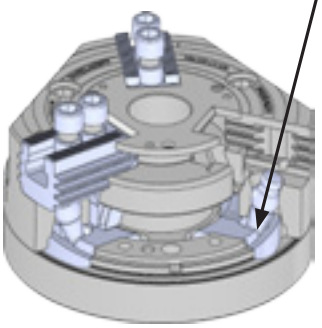

Closed Center (KT Model) - prevents chips from entering the chuck



Adjustable Pull-Back Action (AG Model)- for improved part location on center



Long Stroke (LS Model) - allows clamping on workpieces with variations in diameter

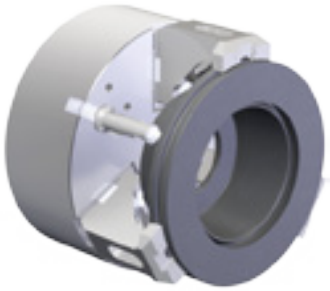


## Application Examples

With the options of closed center, large thru-hole, long stroke, counter centrifugal, shaft balancing, and low maintenance the QLC line of power chucks can be used for almost any application.

Below are some examples of applications where the QLC was used, with the addition of engineered top tooling and fixturing.

### QLC-KT with Rotor



In this example, top jaws and fixtures were designed to hold the OD of the rotor. The closed center KT chuck was used so that chips did not enter the chuck as the ID of the rotor was machined.

### QLC with Sun Gear

In this example, a QLC with a thru-hole was used with top jaws designed to hold the OD of the gear. The shaft of the gear was held in the thru-hole of the chuck.

### QLC with Planetary Gear

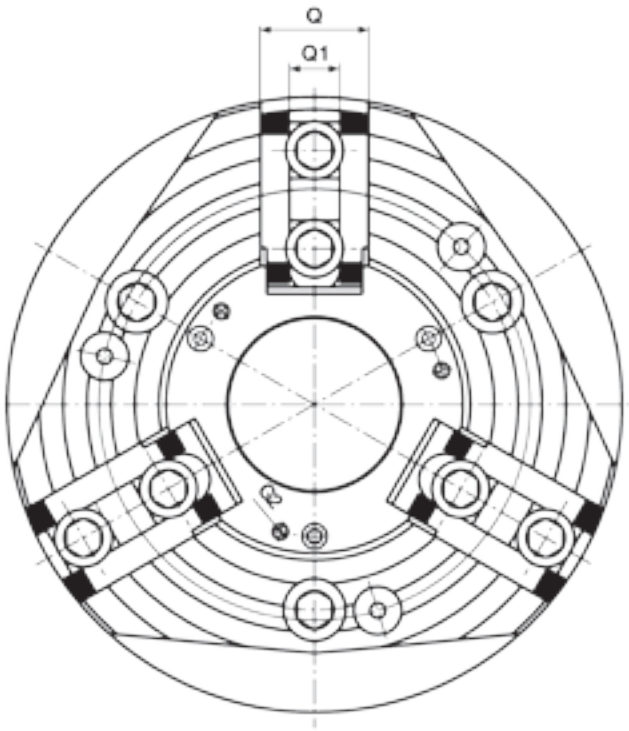
In this example, a QLC used with top jaws and fixturing designed to hold the OD of the gear.

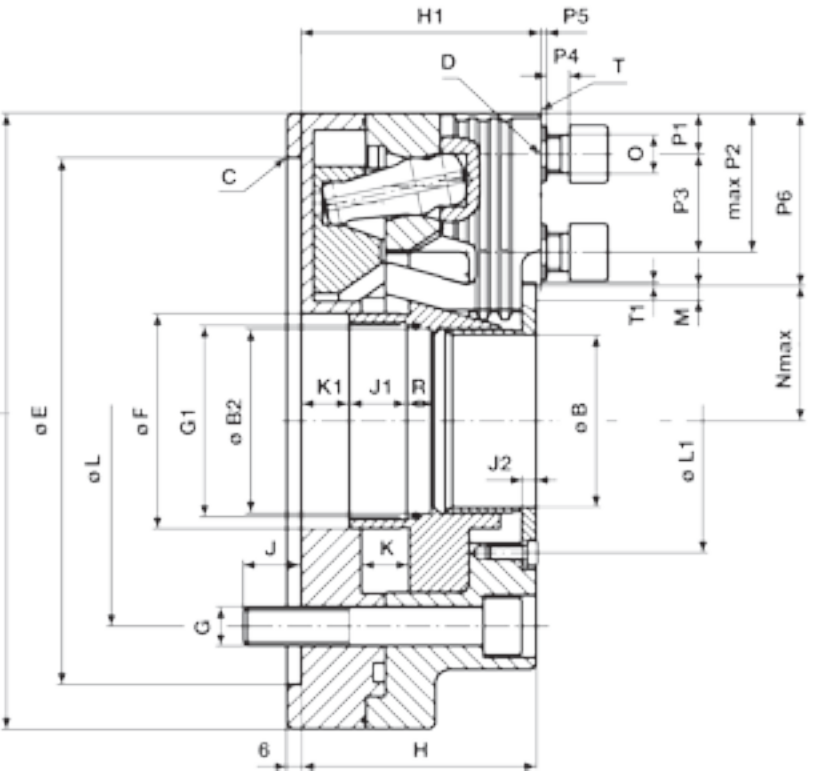
# QLC

## 3 Jaw
## QLC/QLK Model

The Forkardt QLC wedge style power chuck provides a high precision, universal application chuck that is suited for practically all turning applications. The lightweight design allows for faster speeds, which combined with the optional quick change jaw system makes the QLC an excellent choice for decreasing machine cycle times while saving energy and spindle wear.

The QLC features a higher clamping force and higher precision than a standard wedge style power chuck, making it especially suited for heavy duty machining of disk and bar components as well as high precision finish machining of easily deformed workpieces.
The jaw selections available are compatible with the industry standards in the US, Europe and Asia, making top tooling purchases simple and economical.



# 3 Jaw
# QLC/QLK Model

# QLC

| | | | 110-26* | 140-35* | 160-38 | 175-42 | 200-54 | 250-72 | 315-88 | 315-88 | 400-126 | 400-126 | 400-126 | 400-126 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Outer Diameter | A | mm | 110 | 140 | 162 | 175 | 210 | 257 | 320 | 320 | 400 | 400 | 400 | 400 |
| Thru Bore | B | mm | 26 | 35 | 38 | 42 | 54 | 72 | 88 | 88 | 126 | 126 | 126 | 126 |
| Chuck Mounting | C | mm | Z4 | 120 | Z5 | Z5 | Z6 | Z8 | Z8 | Z11 | Z11 | Z15 | Z11 | Z15 |
| Jaw Mounting | D | | S8 | S9 | S11 | S11 | S11 | S12 | S12 | S12 | S12 | S12 | S23 | S23 |
| Mounting Recess | $E^{H6}$ | mm | 100 | 120 | 140 | 140 | 170 | 220 | 220 | 300 | 300 | 300 | 380 | 380 |
| Actuator Diameter | F | mm | 45 | 48 | 52 | 62 | 76 | 90 | 110 | 110 | 150 | 150 | 150 | 150 |
| Mounting Bolts | G | | M10x80 | M10x90 | M10x95 | M10x95 | M12x90 | M16x100 | M16x100 | M20x80 | M20x130 | M24x110 | M24x110 | M24x110 |
| Draw Bushing Thread | G1 | | M36x1.5 | M42x1.5 | M45x2 | M55x2 | M68x2 | M82x2 | M100x2 | M100x2 | M100x2 | M100x2 | M100x2 | M100x2 |
| Chuck Height | H | mm | 80 | 86 | 90 | 90 | 90 | 98 | 98 | 98 | 128 | 128 | 128 | 128 |
| Base Jaw Over Face | J | mm | 6 | 6 | 5 | 5 | 5 | 6 | 6 | 6 | 8 | 8 | 8 | 8 |
| Actuator Thread Length | J1 | mm | 19 | 23 | 18 | 18 | 24 | 24 | 24 | 26 | 26 | 26 | 26 | 26 |
| Actuator Stroke | K | mm | 12 | 13 | 17 | 18.5 | 20 | 20 | 20 | 20 | 30 | 30 | 30 | 30 |
| Actuator Position | K1 | mm | 12 | 13 | 17 | 18.5 | 20 | 20 | 20 | 20 | 30 | 30 | 30 | 30 |
| Bolt Circle (PCD) | $L^{\pm 0.2}$ | mm | 82.6 | 104.8 | 104.8 | 104.8 | 133.4 | 171.4 | 171.4 | 235 | 235 | 330 | 235 | 330 |
| Jaw Stroke | M | mm | 3.2 | 3.5 | 4.5 | 5 | 5.4 | 5.4 | 5.4 | 5.4 | 8 | 8 | 8 | 8 |
| Position Of Master Jaw | N max. | mm | 22.5 | 28 | 33 | 36 | 44.5 | 56.5 | 61 | 61 | 85 | 85 | 85 | 85 |
| Jaw Mounting Bolts | O | | M8 | M10 | M12 | M12 | M12 | M16 | M16 | M16 | M16 | M16 | M20 | M20 |
| Distance Jaw Mounting Bolts | P1min | mm | 4 | 5 | 6 | 6 | 6 | 8 | 8 | 8 | 12 | 12 | 15 | 15 |
| | P1max | mm | 13 | 15 | 17.5/14.5 | 21/18 | 27.5 | 34 | 58 | 58 | 70.5 | 70.5 | 60 | 60 |
| Distance Jaw Mounting Bolts | P2min | mm | 18 | 25 | 25/28 | 25/28 | 25 | 32 | 32 | 32 | 37 | 37 | 46 | 46 |
| | P2max | mm | 27 | 34 | 36.5/36.5 | 40/40 | 46.5 | 58 | 82 | 82 | 95.5 | 95.5 | 91 | 91 |
| Minimum Distance | P3 | mm | 14 | 20 | 19/22 | 19/22 | 19 | 24 | 24 | 24 | 25 | 25 | 31 | 31 |
| Minimum Distance | P4 | mm | 6.5 | 9.5 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 15 | 15 |
| Dist. T-Nut to Serration | P5 | mm | 2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 3.5 | 3.5 |
| Length Of Serrations | P6 | mm | 32.5 | 42 | 48 | 51.5 | 60.5 | 72 | 99 | 99 | 115 | 115 | 115 | 115 |
| Jaw Width | Q | mm | 25 | 30 | 35 | 35 | 35 | 45 | 45 | 45 | 60 | 60 | 60 | 60 |
| Slot Width Imperial | $Q1^{H7}$ | mm | 10 | 12 | 17 | 17 | 17 | 21 | 21 | 21 | 21 | 21 | 25.5 | 25.5 |
| Slot Width Metric | $Q1^{H7}$ | mm | 10 | 12 | 12 | 12 | 14 | 16 | 21 | 21 | 21 | 21 | 21 | 21 |
| Width | R | mm | 7.5 | 7.6 | 6.6 | 7.5 | 6 | 10 | 10 | 10 | 13 | 13 | 13 | 13 |
| **Performance Data** | | | | | | | | | | | | | | |
| Max. Actuating Force | Fmax. | kN | 20 | 25 | 25 | 25 | 40 | 60 | 60 | 60 | 60 | 60 | 90 | 90 |
| Max. Gripping Force | Fspmax. | kN | 40 | 55 | 60 | 60 | 100 | 150 | 160 | 160 | 160 | 160 | 230 | 230 |
| Max. Speed QLC | nmax. | RPM | - | - | 8000 | 7000 | 6300 | 4500 | 4000 | 4000 | 3200 | 3200 | 3200 | 3200 |
| Max. Speed QLK | nmax. | RPM | 8000 | 7500 | 6300 | 5500 | 5000 | 4000 | 3500 | 3500 | 2500 | 2500 | 2500 | 2500 |
| Weight | | kg | 5 | 8.5 | 11.5 | 13.5 | 18 | 26 | 38 | 38 | 90 | 90 | 90 | 90 |
| Moment Of Inertia | | $kgm^2$ | - | - | 0.055 | 0.095 | 0.2 | 0.65 | 0.65 | 0.65 | 2.1 | 2.1 | 2.1 | 2.1 |
| Moment Of Inertia | | $kgm^2$ | 0.0075 | 0.02 | 0.04 | 0.055 | 0.095 | 0.2 | 0.65 | 0.65 | 2.1 | 2.1 | 2.1 | 2.1 |

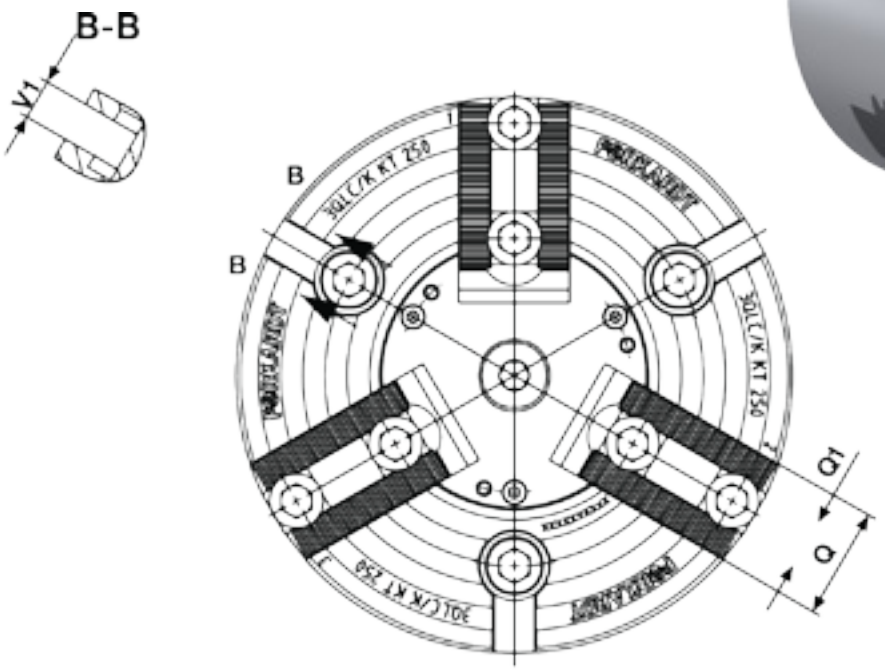
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

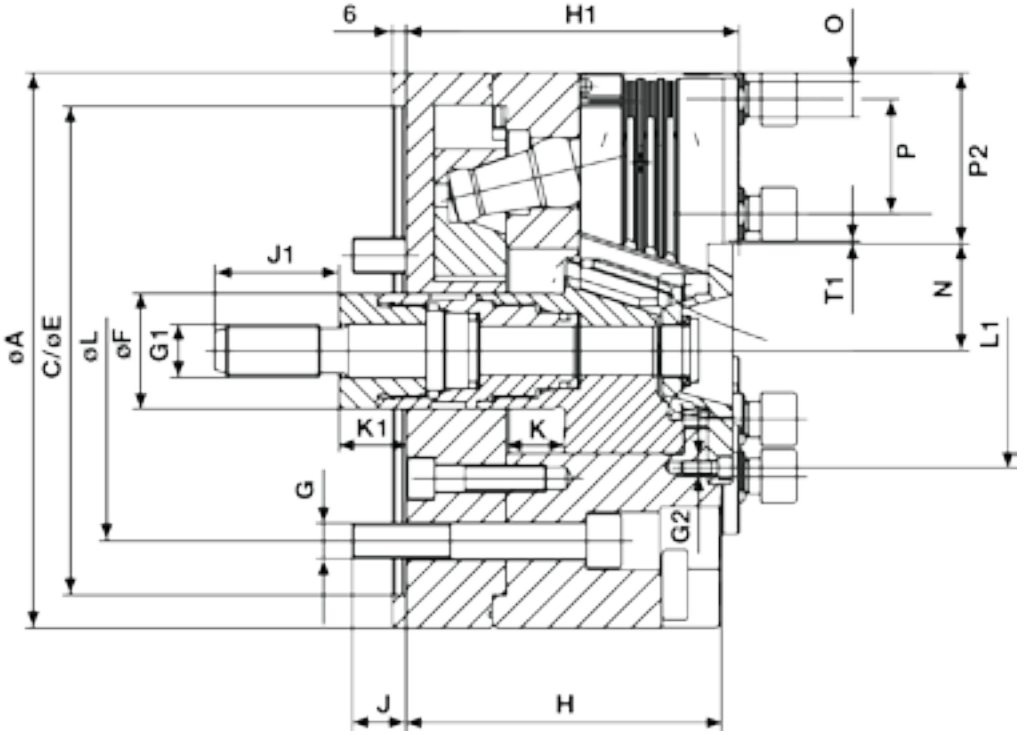
| Part Numbers | 110-26 | 140-35 | 160-38 | 200-54 | 250-72 | 315-88 Z8 | 315-88 Z11 | 400-126 Z11-S12 | 400-126 Z15-S12 | 400-126 Z11 S23 | 400-126 Z15 S23 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Imperial QLC** | - | D172001000 | D172002000 | D172004000 | D172005000 | D172006000 | D172007000 | D172008000 | D172009000 | D172010000 | D172011000 |
| **Metric QLC** | - | D172013000 | D172014000 | D172016000 | D172017000 | D172018000 | D172019000 | D172020000 | D172021000 | - | - |
| **Imperial QLK** | D172036000 | D172037000 | D172038000 | D172040000 | D172041000 | D172042000 | D172043000 | D172044000 | D172045000 | D172046000 | D172047000 |
| **Metric QLK** | D172048000 | D172049000 | D172050000 | D172052000 | D172053000 | D172054000 | D172055000 | D172056000 | D172057000 | - | - |
| **T & G QLC** | D172024000 | D172025000 | D172026000 | D172028000 | D172029000 | D172030000 | D172031000 | D172032000 | D172033000 | - | - |
| **T & G QLK** | D172060000 | D172061000 | D172062000 | D172064000 | D172065000 | D172066000 | D172067000 | D172068000 | D172069000 | - | - |

# QLC

## 3 Jaw Closed Center
## QLC-KT

The Forkardt QLC-KT three jaw closed center power chuck satisfies the need for ultimate performance. This design combines the patented QLC jaw guides with the rugged and precise elements of the previous KT design to provide a chuck designed for heavy duty machining.



# 3 Jaw Closed Center
# QLC-KT

QLC

| | | | 160 | 200 | 250 | 315 | 315 | 400 | 400 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| Outer Diameter | A | mm | 184 | 200 | 250 | 315 | 315 | 400 | 400 | 400 |
| Bore | B | mm | - | - | - | - | - | - | - | - |
| Chuck Mounting | C | | Z5 | Z6 | Z8 | Z8 | Z11 | Z11 | Z11 | Z15 |
| Jaw Mounting | D | | S11 | S11 | S12 | S12 | S12 | S12 | S23 | S23 |
| Jaw Serration | T | | (1/16"x 90°) | (1/16"x 90°) | (1/16"x 90°) | (1/16"x 90°) | (1/16"x 90°) | (1/16"x 90°) | (3/32"x 90°) | (3/32"x 90°) |
| Mounting Recess | E | mm | 140 $^{H6}$ | 170 $^{H6}$ | 220 | 220 $^{H6}$ | 300 $^{H6}$ | 300 $^{H6}$ | 300 $^{H6}$ | 380 $^{H6}$ |
| Actuator | F | mm | 34 | 50 | 52 | 52 | 52 | 68 | 68 | 68 |
| Mounting Bolts | G | | M10 | M12 | M16 | M16 | M20 | M20 | M20 | M24 |
| Thread Mounting | G1 | | M16 | M20 | M24 | M24 | M24 | M30 | M30 | M30 |
| Thread Mounting | G2 | | M6 | M6 | M6 | M6 | M6 | M10 | M10 | M10 |
| Chuck Width | H | mm | 114 | 124 | 142 | 142 | 142 | 177 | 177 | 177 |
| H + Master Jaw | H1 | mm | 120 | 130 | 150 | 150 | 150 | 185 | 185 | 185 |
| Thread Length | J | mm | 15 | 18 | 24 | 24 | 30 | 30 | 30 | 30 |
| Thread Length Of Actuator | J1 | mm | 40 | 45 | 56 | 56 | 56 | 55 | 55 | 55 |
| Actuator Stroke | K | mm | 20 | 20 | 26 | 26 | 26 | 32 | 32 | 32 |
| Actuator Position | K1 | mm | 25 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Pitch Circle Dia. | L | mm | 104.8 | 133.4 | 171.4 | 171.4 | 235 | 235 | 235 | 330.2 |
| Mounting Bolts | L1 | mm | 60 | 70 | 105 | 105 | 235 | 235 | 235 | 330.2 |
| Jaw Stroke | M | mm | 5.3 | 6.5 | 8 | 8 | 8 | 10 | 10 | 10 |
| Position Of Master Jaw | N | mm | 31.7 | 40.1 | 48 | 48 | 48 | 70 | 70 | 70 |
| Jaw Mounting Bolts | O | | M12 | M12 | M16 | M16 | M16 | M16 | M20 | M20 |
| Distance Jaw Mounting Bolt | P | mm | 50.2 | 50.3 | 55.5 | 96 | 96 | 118 | 115 | 115 |
| Length Of Serrations | P2 | mm | 60.3 | 59.9 | 77 | 109.5 | 109.5 | 130 | 130 | 130 |
| Jaw Width | Q | mm | 40 | 40 | 50 | 50 | 50 | 50 | 60 | 60 |
| Slot Width | Q1 | mm | 17 $^{H7}$ | 17 $^{H7}$ | 21$^{H7}$ | 21$^{H7}$ | 21$^{H7}$ | 21$^{H7}$ | 25.5$^{H7}$ | 25.5$^{H7}$ |
| Distance From 1st Serration | T1 | mm | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 2.5 | 2.5 |
| T-Slot Width | V1 | mm | 14 | 14 | 18 | 18 | 18 | 22 | 22 | 22 |
| **Performance Data** | | | | | | | | | | |
| Max. Actuating Force | FAX | kN | 30 | 55 | 75 | 80 | 80 | 73 | 120 | 120 |
| Max. RPM | | $min^{-1}$ | 7,000 | 6,000 | 5,000 | 4,000 | 4,000 | 3,200 | 3,200 | 3,200 |
| Max. Gripping Force | FSP | kN | 70 | 115 | 160 | 170 | 170 | 160 | 260 | 260 |
| Weight | | kg | 21 | 27 | 51 | 81 | 81 | 163 | 163 | 163 |

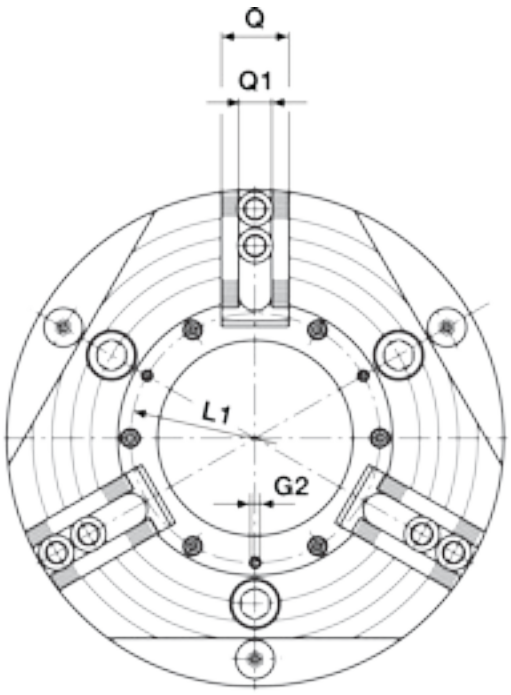
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

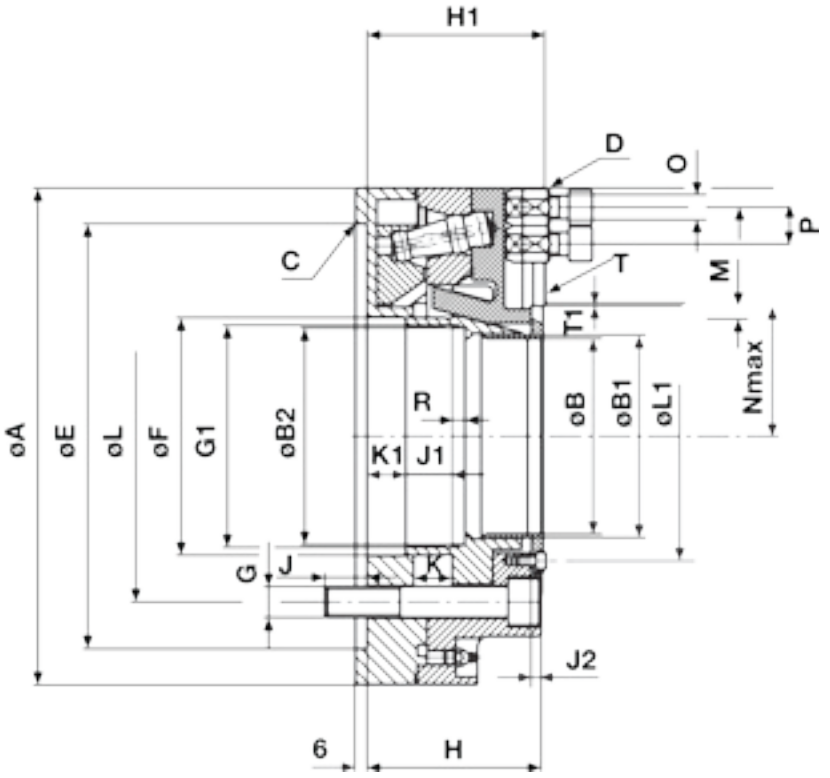
| | Chuck Mount | Jaw Mount | | | |
|---|---|---|---|---|---|
| | | S11 | S12 | S23 | Tongue & Groove |
| 160 | Z5 | D174005000 | - | - | D174007000 |
| 160 | A5 | D174010000 | - | - | D174012000 |
| 200 | Z6 | D174025000 | - | - | D174027000 |
| 200 | A6 | D174030000 | - | - | D174032000 |
| 250 | Z8 | - | D174045000 | - | D174047000 |
| 250 | A8 | - | D174050000 | - | D174052000 |
| 315 | Z8 | - | D174065000 | - | D174067000 |
| 315 | A8 | - | D174070000 | - | D174072000 |
| 315 | Z11 | - | D174832000 | - | D174834000 |
| 400 | Z11 | - | - | D174085000 | D174087000 |
| 400 | A11 | | D174090000 | D174090000 | D174092000 |
| 400 | Z15 | - | - | D174841000 | D174838000 |

# 3 Jaw King Size Bore
# QLC-KS

The Forkardt QLC-KS large bore three jaw wedge style power chuck is designed for applications requiring a larger through hole bore to handle large diameter workpieces.

The proportion  between the through hole and the outer diameter of the chuck body is engineered to provide optimal stability.  The shorter, multiple profile jaw guides allow the QLC-KS to have up to a 40% larger through hole than a standard wedge style chuck.



# 3 Jaw King Size Bore
# QLC-KS

QLC

| | | | 200-77 | 250-101 | 315-135 | 400-168 |
|---|---|---|---|---|---|---|
| Outer Diameter | A | mm | 210 | 257 | 320 | 400 |
| Bore | $B^{+0.1}$ | mm | 77 | 101 | 135 | 168 |
| Chuck Mounting | C | mm | Z6 | Z8 | Z11 | Z15 |
| Jaw Mounting/Din 6353 | D | | S11 | S11 | S12 | S12 |
| Register Ø Of Draw Tube | $B2^{H7}$ | mm | 85 | 112 | 140 | 173 |
| Mounting Recess | $E^{H6}$ | mm | 170 | 220 | 300 | 380 |
| Actuator Ø | F | mm | 97 | 123 | 153 | 190 |
| Mounting Bolts | G | | M12 x 90 | M16 x 95 | M20 x 90 | M24 x 80 |
| Thread Mounting | G1 | | M90 x 2 | M115 x 2 | M145 x 2 | M180 x 2 |
| Puller Thread Protective Sleeve | G2 | | M5 | M5 | M6 | M6 |
| Chuck Width | H | mm | 90 | 90 | 98 | 98 |
| Chuck Width | H1 | mm | 92 | 92 | 100 | 100 |
| Thread Length Of Mounting Bolts | J | mm | 20 | 22 | 22 | 30 |
| Thread Length Of Actuator | J1 | mm | 24 | 24 | 24 | 24 |
| Base Jaw Protrusion Over Chuck Face | J2 | mm | 5 | 5 | 6 | 6 |
| Actuator Stroke | K | mm | 18.5 | 20 | 20 | 20 |
| Actuator Position | K1 | mm | 18.5 | 20 | 20 | 20 |
| Pitch Circle Ø Of Mounting Bolts | $L^{\pm0.2}$ | mm | 133.4 | 171.4 | 235 | 330.2 |
| Pitch Circle Ø Of Protective Sleeve | $L1^{\pm0.2}$ | mm | 100 | 129 | 173 | 210 |
| Jaw Stroke | M | mm | 5 | 5.4 | 5.4 | 5.4 |
| Position Of Master Jaw | Nmax | mm | 52.5 | 67.5 | 85 | 100.5 |
| Jaw Mounting Bolts | O | | M12 | M12 | M16 | M16 |
| Distance | P2min | mm | 25 | 25 | 32 | 32 |
| Length Of Serrations | P6 | mm | 52.5 | 61 | 75 | 99.5 |
| Jaw Width | Q | mm | 35 | 35 | 45 | 45 |
| Slot Width Imperial | $Q1^{H7}$ | mm | 17 | 17 | 21 | 21 |
| Slot Width Metric | $Q1^{H7}$ | mm | 12 | 14 | 16 | 21 |
| Pitch Of Serration / Imperial | T | | 1/16" x 90° | 1/16" x 90° | 1/16" x 90° | 1/16" x 90° |
| Jaw Mounting Metric | D | | MS12 | MS14 | MS16 | MS21 |
| Pitch Of Serration Metric | T | | 1.5 x 60° | 1.5 x 60° | 1.5 x 60° | 1.5 x 60° |
| Distance From 1St Serration | T1 | mm | 1.5 | 1.5 | 1.5 | 1.5 |
| **Performance Data** | | | | | | |
| Max. Actuating Force | F max | kN | 25 | 40 | 60 | 60 |
| Max. Gripping Force | Fsp max | kN | 60 | 100 | 150 | 160 |
| Max. RPM | QLC KS | $min^{-1}$ | 6,300 | 5,000 | 4,000 | 3,200 |
| Max. RPM | QLK KS | $min^{-1}$ | 5,000 | 4,200 | 3,000 | 2,800 |
| Weight | | kg | 16 | 26 | 37 | 63 |
| Moment Of Inertia | QLC KS | $kgm^2$ | 0.08 | 0.18 | 0.4 | 1.04 |
| Moment Of Inertia | QLK KS | $kgm^2$ | 0.08 | 0.18 | 0.4 | 1.04 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

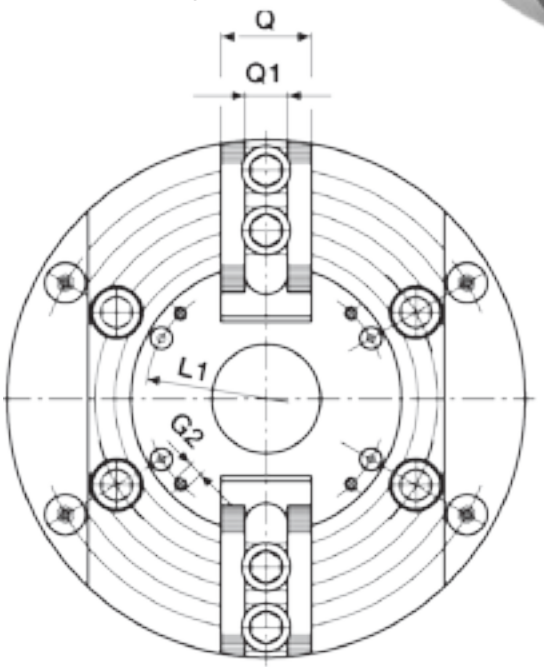
## Chuck Part Numbers

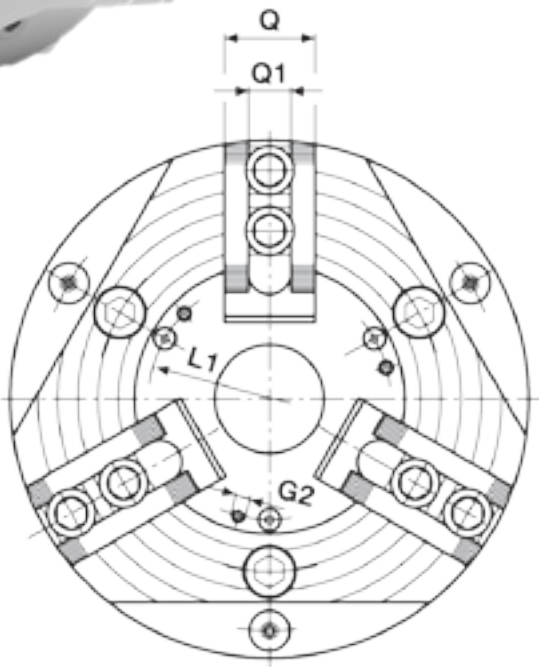
| | | 200-77 | 250-101 | 315-135 | 400-168 |
|---|---|---|---|---|---|
| Imperial serration | QLC KS | D170130000 | D172073000 | D168480000 | D168481000 |
| Metric serration | QLC KS | D168718000 | D168719000 | D168720000 | D168721000 |
| Imperial serration | QLK KS | D170131000 | D168576000 | D168577000 | D168578000 |
| Metric serration | QLK KS | D170132000 | D168538000 | D168539000 | D168540000 |

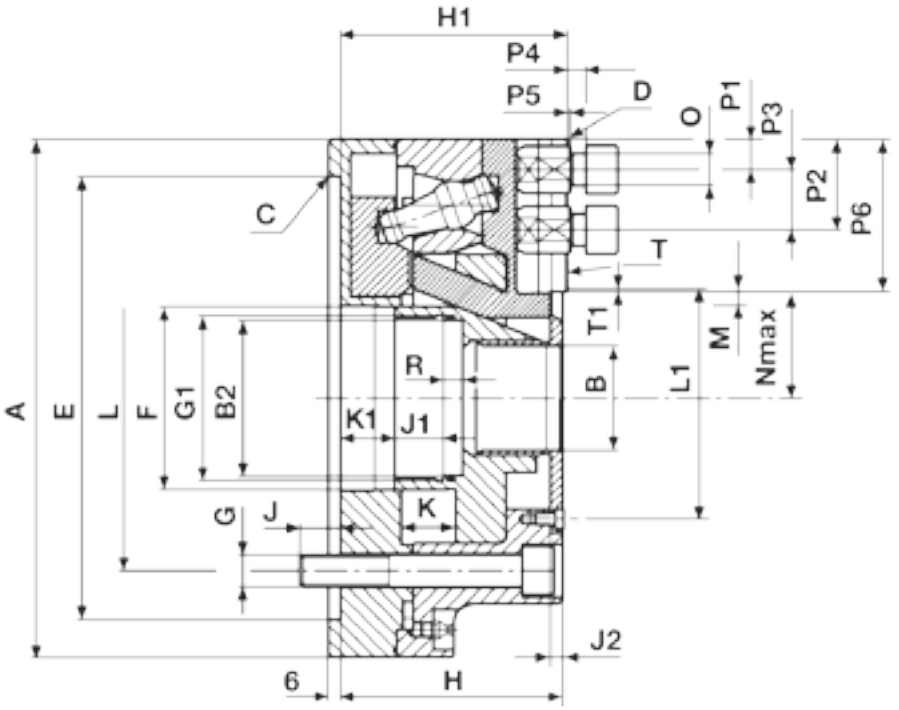
# 2 & 3 Jaw Long Stroke
# QLC-LS

The Forkardt QLC-LS long stroke power chuck is designed to provide up to 95% more clamping stroke for workpieces with variations in diameter.

The QLC-LS is especially suited for machining a large range of workpiece diameters and parts with difficult geometery, such as step over clamping.



# 2 & 3 Jaw Long Stroke
# QLC-LS

QLC

| | | | 160-30 | 200-41 | 250-52 | 315-71 |
|---|---|---|---|---|---|---|
| Outer Diameter | A | mm | 162 | 210 | 257 | 320 |
| Bore | $B^{+0.1}$ | mm | 30 | 41 | 52 | 71 |
| Chuck Mounting | ØC | mm | Z5 | Z6 | Z8 | Z11 |
| Jaw Mounting/Din 6353 | D | | S11 | S11 | S12 | S12 |
| Register Ø Of Draw Tube | $B2^{H7}$ | mm | 42 | 65 | 77 | 93 |
| Mounting Recess | $E^{H6}$ | mm | 140 | 170 | 220 | 300 |
| Actuator Ø | F | mm | 52 | 76 | 91 | 110 |
| Mounting Bolts | G | | M10 x 95 | M12 x 100 | M16 x 110 | M20 x 90 |
| Thread Mounting | G1 | | M45 x 2 | M68 x 2 | M82 x 2 | M100 x 2 |
| Puller Thread Protective Sleeve | G2 | | M4 | M5 | M6 | M6 |
| Chuck Width | H | mm | 93 | 96 | 110 | 120 |
| Chuck Width | H1 | mm | 95 | 98 | 112 | 122 |
| Thread Length Of Mounting Bolts | J | mm | 15.7 | 19 | 20 | 25 |
| Thread Length Of Actuator | J1 | mm | 23.4 | 24 | 24 | 24 |
| Base Jaw Protrusion Over Chuck Face | J2 | mm | 5 | 5 | 6 | 6 |
| Actuator Stroke | K | mm | 20 | 23 | 27 | 32 |
| Actuator Position | K1 | mm | 20 | 23 | 27 | 32 |
| Pitch Circle Ø Of Mounting Bolts | $L^{\pm0.2}$ | mm | 104.8 | 133.4 | 171.4 | 235 |
| Pitch Circle Ø Of Protective Sleeve | $L1^{\pm0.2}$ | mm | 88 | 96 | 120 | 140 |
| Jaw Stroke | M | mm | 8 | 9.3 | 10.9 | 12.9 |
| Position Of Master Jaw | N max | mm | 36 | 43.7 | 52.9 | 70.5 |
| Jaw Mounting Bolts | O | | M12 | M12 | M16 | M16 |
| Distance | P1min | mm | 6 | 6 | 8 | 8 |
| Jaw Mounting Bolts | P1max | mm | 14 | 35 | 40 | 58 |
| Distance | P2min | mm | 25 | 25 | 32 | 32 |
| Jaw Mounting Bolts | P2max | mm | 33 | 49 | 58 | 73 |
| Minimum Distance | P3 | mm | 19 | 19 | 24 | 24 |
| Minimum Distance | P4 | mm | 10 | 10 | 10 | 10 |
| Distance T-Nut And Serration | P5 | mm | 2.5 | 2.5 | 2.5 | 2.5 |
| Length Of Serrations | P6 | mm | 45 | 61 | 75.5 | 89 |
| Jaw Width | Q | mm | 35 | 35 | 45 | 45 |
| Slot Width Imperial | $Q1^{H7}$ | mm | 17 | 17 | 21 | 21 |
| Slot Width Metric | $Q1^{H7}$ | mm | 12 | 14 | 16 | 21 |
| Width | R | mm | 6.6 | 6.6 | 9.6 | 9.6 |
| Pitch Of Serration / Imperial | T | | 1/16" x 90° | 1/16" x 90° | 1/16" x 90° | 1/16" x 90° |
| Jaw Mounting Metric | D | | MS12 | MS14 | MS16 | MS21 |
| Pitch Of Serration Metric | T | | 1.5 x 60° | 1.5 x 60° | 1.5 x 60° | 1.5 x 60° |
| Distance From 1st Serration | T1 | mm | 1.5 | 1.5 | 1.5 | 1.5 |

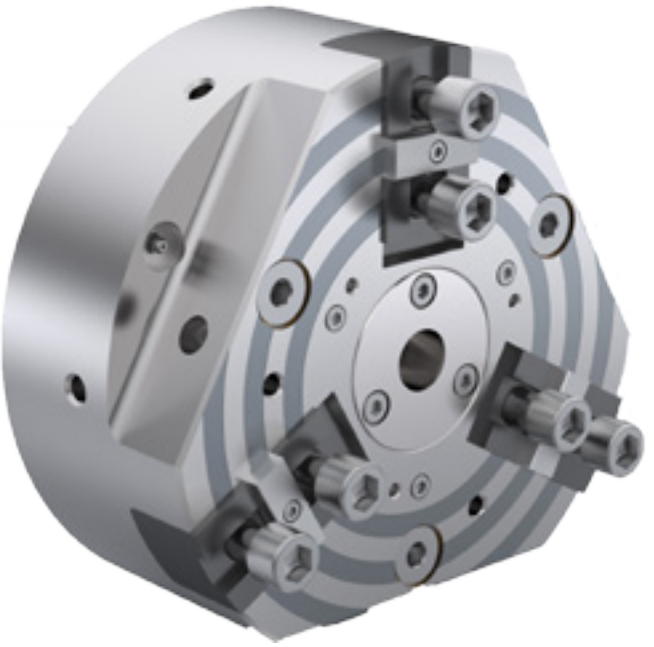
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

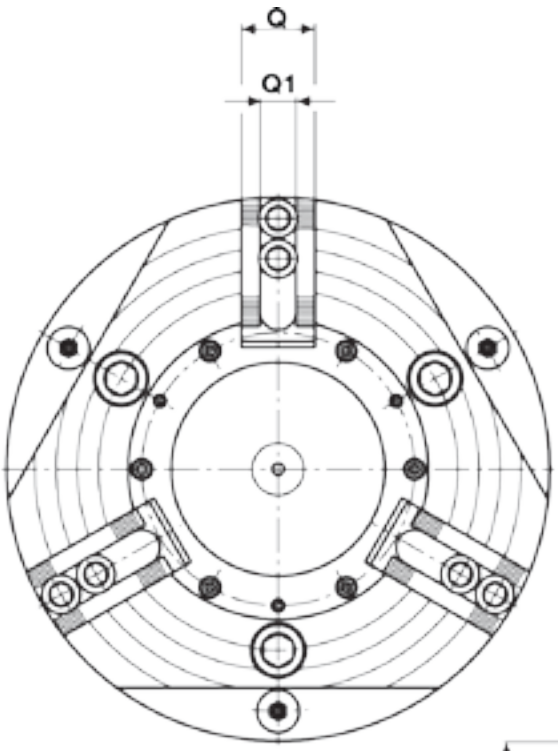
| | | | 160-30 | 200-41 | 250-52 | 315-71 |
|---|---|---|---|---|---|---|
| **Performance Data** | | | | | | |
| Max. Actuating Force | 2QLC LS | F max | kN | 24 | 37 | 46 |
| Max. Gripping Force | 2QLC LS | Fsp max | kN | 37 | 60 | 75 |
| Max. Actuating Force | 3QLC LS | F max | kN | 35 | 55 | 70 |
| Max. Gripping Force | 3QLC LS | Fsp max | kN | 55 | 90 | 11 |
| Max. RPM | | | $min^{-1}$ | 6,000 | 5,500 | 4,000 |
| Weight | | | kg | 9 | 18 | 31 |
| Moment Of Inertia | | | $kgm^2$ | 0.028 | 0.09 | 0.25 |
| **Chuck Part Nos.** | | | | | | |
| Imperial Serration | 2QLC LS | | D169619000 | D169621000 | D169622000 | D169623000 |
| Metric Serration | 2QLC LS | | D169817000 | D169818000 | D169819000 | D169820000 |
| Imperial Serration | 3QLC LS | | D169563000 | D169565000 | D169566000 | D169567000 |
| Metric Serration | 3QLC LS | | D169813000 | D1698134000 | D1698145000 | D169816000 |

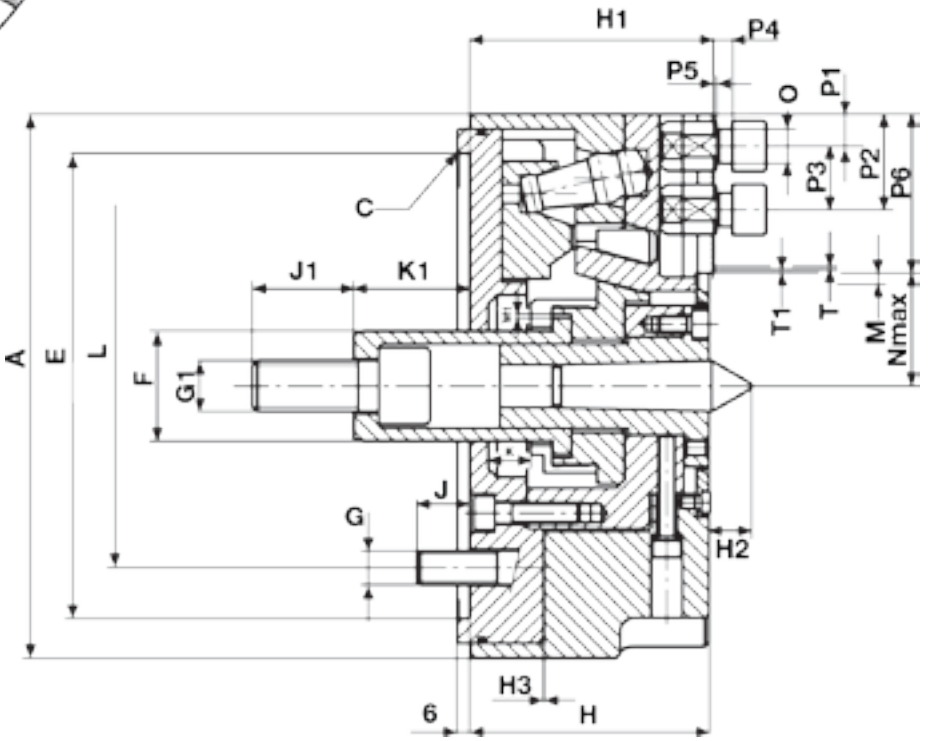
# QLC

## 3 Jaw Shaft Clamping
## QLC-AG

The Forkardt QLC-AG power chuck is specially designed for machining of shafts. The QLC-AG compensates to clamp off-center parts with high precision at high clamping force. A pull back action provides for improved part location on the center, and the centers are easily interchangeable and finely adjustable.





# 3 Jaw Shaft Clamping
# QLC-AG

QLC

| | | | 200 | 250 | 315 |
|---|---|---|---|---|---|
| Outer Diameter | ØA | mm | 210 | 257 | 315 |
| Bore | ØB | mm | 0 | 0 | 0 |
| Chuck Mounting | ØC | mm | Z6 | Z8 | Z8 |
| Jaw Mounting | D | | S11 | S12 | S12 |
| Mounting Recess | E | mm | 170 | 220 | 220 |
| Actuator Ø | F | mm | 44 | 50 | 50 |
| Mounting Bolts | G | | M12 | M16 | M16 |
| Thread Mounting | G1 | | M20 | M24 | M24 |
| Chuck Width | H | mm | 106 | 113 | 113 |
| Chuck Back To Serration | H1 | mm | 108 | 115 | 115 |
| Point Height | H2 | mm | 18 | 22 | 22 |
| Pull-Back Stroke | H3 | mm | 0.2 | 0.2 | 0.2 |
| Thread Length Of Mounting Bolts | J | mm | 18 | 24 | 24 |
| Thread Length Of Actuator | J1 | mm | 40 | 45 | 45 |
| Actuator Stroke | K | mm | 20 | 20 | 20 |
| Actuator Position | K1 | mm | 45 | 55 | 55 |
| Pitch Circle Ø Mounting Bolts | L | mm | 133.4 | 171.4 | 171.4 |
| Jaw Stroke | M | mm | 5.4 | 5.4 | 5.4 |
| Compensating Stroke | M1 | mm | 2 | 2 | 2 |
| Position Of Master Jaw | Nmax | mm | 42.9 | 53.5 | 55.5 |
| Jaw Mounting Bolts | O | | M12 | M16 | M16 |
| Distance Jaw Mounting Bolts | P1min | mm | 6 | 8 | 8 |
| | P1max | | 34 | 41 | 65 |
| Distance Jaw Mounting Bolts | P2min | mm | 25 | 32 | 32 |
| | P2max | | 53 | 65 | 89 |
| Minimum Distance | P3 | mm | 19 | 24 | 24 |
| Minimum Distance | P4 | mm | 10 | 10 | 10 |
| Distance T-Nut And Serration | P5 | mm | 2.5 | 2.5 | 2.5 |
| Length Of Serrations | P6 | mm | 61 | 75 | 99.5 |
| Jaw Width | Q | mm | 35 | 45 | 45 |
| Slot Width / Imperial | Q1 | mm | 17 | 21 | 21 |
| Pitch Of Serration / Imperial | T | | 1/16" x 90° | 1/16" x 90° | 1/16" x 90° |
| **Performance Data** | | | | | |
| Max. Actuating Force | F max | kN | 36 | 50 | 55 |
| Max. Gripping Force | Fsp max | kN | 70 | 120 | 130 |
| Max. RPM | n max | $min^{-1}$ | 4,700 | 4,500 | 4,000 |
| Weight | | kg | 21 | 32 | 44 |
| Moment Of Inertia | | $kgm^2$ | 0.11 | 0.3 | 0.8 |

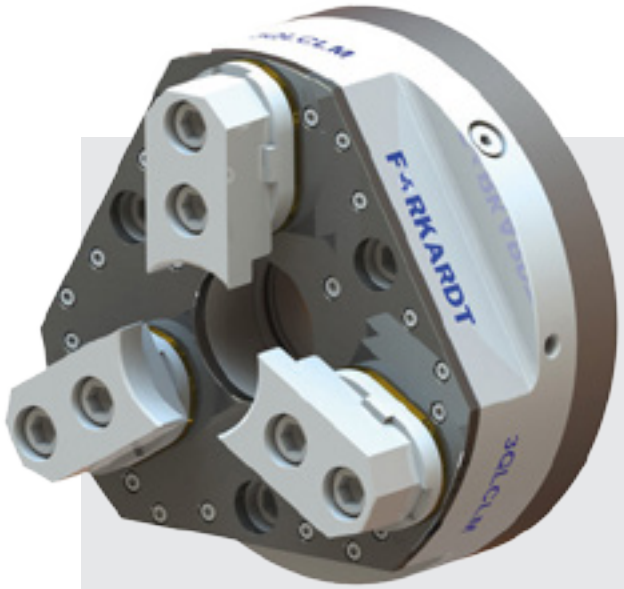
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

| Part Numbers | 200 | 250 | 315 |
|---|---|---|---|
| Imperial Serration | D170783000 | D170393000 | D169907000 |
| Metric Serration | D170788000 | D170789000 | D170790000 |

# 3 Jaw Low Maintenance
# QLC-LM

Forkardt's QLC-LM power operated three jaw through hole chuck brings a maintenance free option to the QLC series. The QLC Low Maintenance power chuck is based internally on the patented QLC principle, with special covers over the chuck body to prevent contaminants from entering.

The QLC-LM is ideal for series production, heavy duty machining, and finish machining. The jaw connection is standardized, making top tooling purchases simple and affordable. This chuck also features a constant clamping force with mechanical centrifugal force compensation.




**Features & Benefits**

- Based on patented QLC principle
- Maintenance free design
- Standardized jaw compensation for economic and simple top tooling solutions
- Mechanical centrifugal force compensation
- Constant clamping force
- High precision
- Suitable for both heavy duty machining and fine finishing
- Reduced jaw lift
- Long service life

Under the protective body cover, the QLC-LM still features the patented QLC multiple profile base jaw

## Bayonet Mount J, DIN 55022, DIN 55027

| Part Numbers | | | | | | | | Studs And Collar Nuts Purchase Separately | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Spindle Size | Chuck Size | | | | | | | FN | Part No. | Qty. |
| | 110 | 140 | 160 | 200 | 250 | 315 | 400 | | | |
| 4 | D1074085000 | - | - | - | - | - | - | 322 | D1070505000 | 3 |
| 5 | - | D1074086000 | D1074086000 | - | - | - | - | 322 | D1070505000 | 4 |
| 6 | - | - | - | D1074090000 | - | - | - | 322 | D1070506000 | 4 |
| 8 | - | - | - | - | D1074097000 | - | - | 322 | D1070507000 | 4 |
| 11 | - | - | - | - | - | D1074104000 | - | 322 | D1070508000 | 6 |
| 15 | - | - | - | - | - | - | D1074108000 | 324 | D1070517000 | 6 |

## Mount A1/A2, B, DIN 55021, DIN 55026 Including Mounting Bolts

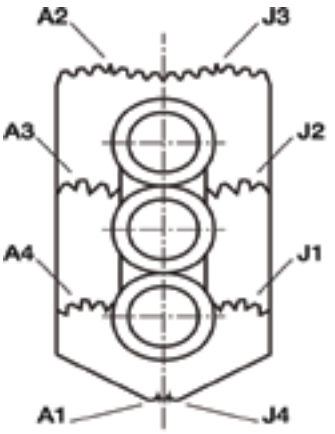
| Part Numbers | | | | | | | | Mounting Bolts |
|---|---|---|---|---|---|---|---|---|
| Spindle Size | Chuck Size | | | | | | | DIN 912 10.9 |
| | 110 | 140 | 160 | 200 | 250 | 315 | 400 | |
| 4 | D1044757000 | D1074053000 | - | - | - | - | - | 3 x M10 X 20 |
| 5 | - | - | D1074056000 | D1074056000 | - | - | - | 4 x M10 x 25 |
| 6 | - | - | - | D1074060000 | D1074060000 | - | - | 4 x M12 x 30 |
| 8 | - | - | - | - | D165568K08 | D165569K08 | - | 4 x M16 x 35 |
| 11 | - | - | - | - | - | D165570K11 | D165839K11 | 6 x M20 x 40 |

## Cam-lock Mount D1 to DIN 55029

| Part Numbers | | | | | | | | Cam-Lock Studs Purchase Separately | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Spindle Size | Chuck Size | | | | | | | FN | Part No. | Qty. |
| | 110 | 140 | 160 | 200 | 250 | 315 | 400 | | | |
| 4 | - | - | - | - | - | - | - | - | - | - |
| 5 | - | D1074119000 | D1074119000 | - | - | - | - | 287 | D1070512000 | 6 |
| 6 | - | - | - | D1074123000 | - | - | - | 288 | D1070513000 | 6 |
| 8 | - | - | - | - | D1074130000 | - | - | 289 | D1070514000 | 6 |
| 11 | - | - | - | - | - | D1074137000 | D1074137000 | 289 | D1070515000 | 6 |

Additional standard and a wide variety of special mounting styles also available.

## Clamping Ranges for QLC Model Chucks with HB Style Hard Top Jaws




### Clamping Range QLC/K with HB Style Jaws

| Chuck Size | Top Jaw | OD Clamping | | | | ID Clamping | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A1 | A2 | A3 | A4 | J1 | J2 | J3 | J4 |
| 160 | HB11/65 | 22-56 | 47-81 | 92-125 | 135-170 | 65-97 | 108-141 | 153-187 | 172-206 |
| 200 | HB11 | 32-122 | 38-126 | 89-188 | 140-230 | 80-168 | 130-219 | 179-268 | 180-270 |
| 250 | HB12 | 24-120 | 49-155 | 131-238 | 212-361 | 75-165 | 147-246 | 255-326 | 253-313 |
| 315 | HB12 | 28-182 | 64-217 | 146-300 | 227-381 | 80-226 | 155-308 | 234-388 | 268-423 |
| 400 | HB12 | 90-256 | 109-291 | 191-373 | 273-455 | 120-300 | 199-381 | 279-462 | 314-497 |
| 400 | HB23/18 | 41-208 | 89-262 | 193-365 | 294-467 | 115-281 | 213-322 | 312-484 | 369-541 |

### Clamping Range QLC/K- LS with HB Style Jaws

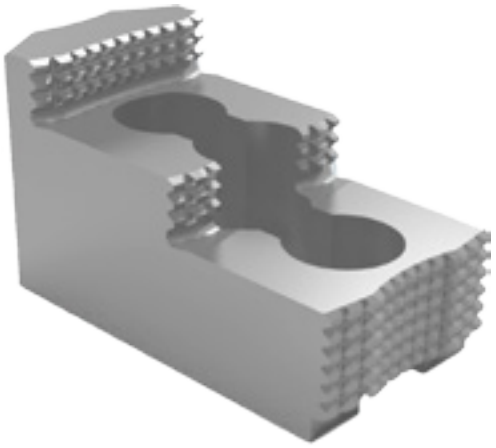
| Chuck | Top Jaw | OD Clamping | | | | ID Clamping | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A1 | A2 | A3 | A4 | J1 | J2 | J3 | J4 |
| 160 | HB11/65 | 24-55 | 49-80 | 94-125 | 138-170 | 67-97 | 110-141 | 155-186 | 174-206 |
| 200 | HB11 | 20-124 | 26-128 | 77-179 | 128-231 | 70-169 | 118-221 | 166-270 | 167-272 |
| 250 | HB12 | 20-123 | 37-158 | 119-240 | 200-322 | 68-168 | 140-248 | 218-329 | 241-363 |
| 315 | HB12 | 32-183 | 68-218 | 150-300 | 231-382 | 83-227 | 159-308 | 238-389 | 272-423 |

### Clamping Range QLC/K- KS with HB Style Jaws

| Chuck | Top Jaw | OD Clamping | | | | ID Clamping | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A1 | A2 | A3 | A4 | J1 | J2 | J3 | J4 |
| 200 | HB11/65 | 65-114 | 89-128 | 135-173 | 179-218 | 106-145 | 151-189 | 196-235 | 216-255 |
| 250 | HB11 | 75-171 | 80-175 | 131-226 | 183-278 | 121-216 | 172-268 | 221-317 | 223-319 |
| 315 | HB12 | 76-183 | 111-218 | 193-301 | 275-283 | 122-227 | 201-309 | 281-389 | 316-424 |
| 400 | HB12 | 107-254 | 142-300 | 224-382 | 306-464 | 141-308 | 232-390 | 312-471 | 347-506 |

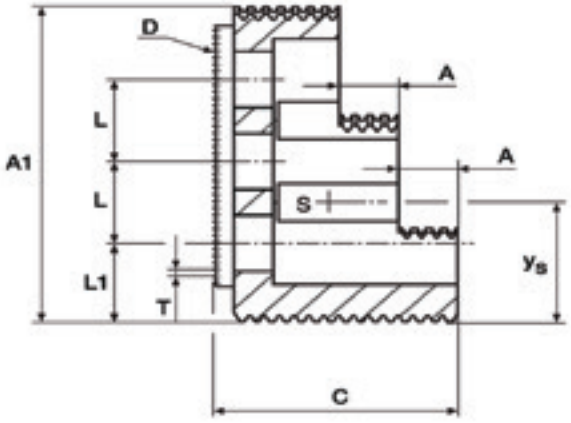
## Electronic Grip Force Meter SKM

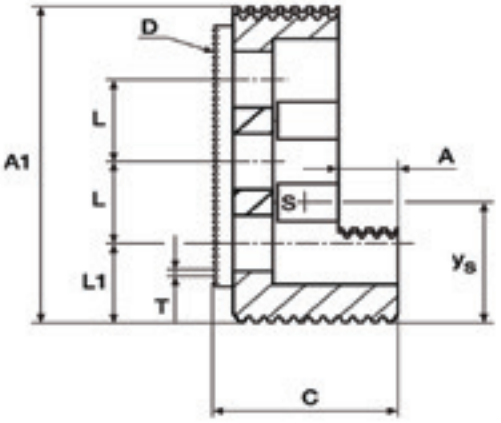
Ask about our static grip force meter!

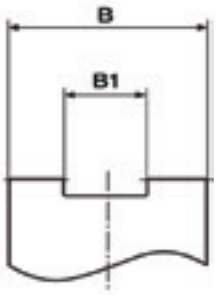


### HB Hard Top Jaws

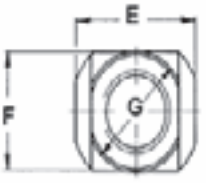
HB hard top jaws are ideal for universal applications. The diamond style serration allows for higher clamping force. When delivered with a Forkardt chuck, the jaws are ground in the chuck and ready for use.

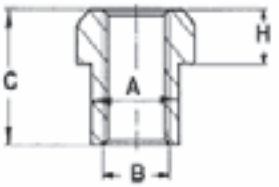



| Chuck Size | Jaw Type | Dimensions | | | | Part No. | A1 | B1 | L | L1 | T | $Y_s$ | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | | | | | | | |
| 160, 200 | HB 11/65 | 10 | 35 | 44 | S11 | D38762014 | 64.7 | 17.0 | 19.0 | 28.0 | 1/16" x 90° | 27.5 | 0.39 |
| 200, 250 | HB 11 | 12 | 40 | 49 | S11 | D1071961000 | 72.6 | 17.0 | 19.0 | 18.0 | 1/16" x 90° | 32.5 | 0.47 |
| 250, 315, 400 | HB 12 | 14 | 50 | 58 | S12 | D1071915000 | 103.5 | 21.0 | 25.0 | 33.5 | 1/16" x 90° | 42.5 | 1.12 |
| 400 S23 | HB 23/18 | 18 | 60 | 75 | S23 | D45702000 | 139.7 | 25.5 | 31.0 | 53.0 | 3/32" x 90° | 56.5 | 2.52 |

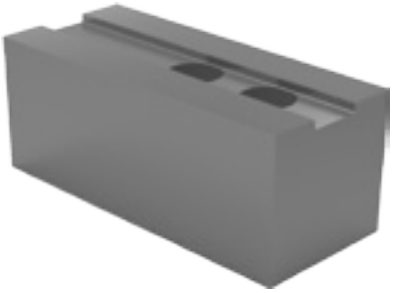


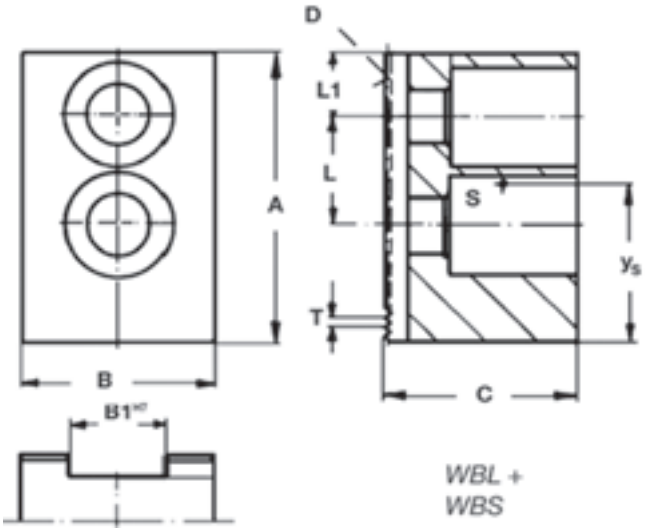




## T-Nuts for QLC Power Chucks

| T-Nut | Nominal Dimensions | | | Part No. | Main Dimensions | | | | For Jaw Style | Jaw Mounting Bolt |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | | E | F | G | H | | |
| FN231 | 17.0 | M12 | 23.0 | 71376000 | 22.5 | 19.0 | 19.0 | 9.0 | HB11, HB11/110, WBL11/80 | M12x30 |
| FN232 | 21.0 | M16 | 27.0 | 71378000 | 28.5 | 23.5 | 23.5 | 11.0 | HB12, WBL12 | M16x35 |
| FN233 | 25.5 | M20 | 29.0 | 71380000 | 36.0 | 27.5 | 27.5 | 11.0 | HB23/140, WBL23 | M20x40 |

# WBL/WBS Style Soft Blank Jaws






## WBL/WBS Soft Top Jaws

Soft jaws are used for the accurate clamping of already machined workpieces on which clamping surfaces must not be damaged.

These jaws are to be turned by the user, under clamping pressure, to the respective clamping diameter to ensure extremely high accuracy and repeatability.

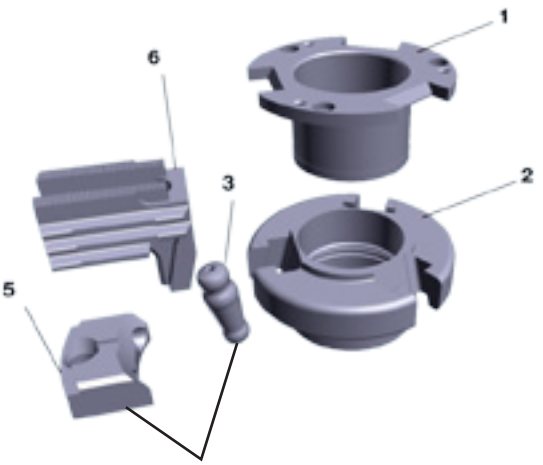
| Chuck Size | Jaw Type | Dimensions | | | | Part No. | B1 | L | L1 | T | $Y_s$ | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | | | | | | |
| 110 | WBL 08 | 47 | 25 | 22.5 | S9 | D168906000 | 10.0 | 14 | 6.5 | 1/16" x 90° | 19.5 | 0.15 |
| 140 | WBL 09 | 60 | 30 | 25 | S9 | D168907000 | 12.0 | 20 | 8.0 | 1/16" x 90° | 26.0 | 0.25 |
| 160, 200 | WBL 11 | 70 | 40 | 40 | S11 | D49302000 | 17.0 | 22 | 15 | 1/16" x 90° | 31.5 | 0.68 |
| 160, 200 | WBS 11 | 70 | 40 | 60 | S11 | D49829001 | 17.0 | 22 | 15 | 1/16" x 90° | 31.5 | 1.02 |
| 160, 200 | WBS 11 | 70 | 60 | 60 | S11 | D49830001 | 17.0 | 22 | 15 | 1/16" x 90° | 31.5 | 1.67 |
| 160, 200 | WBL 11 | 80 | 40 | 40 | S11 | D49303000 | 17.0 | 22 | 25 | 1/16" x 90° | 35.0 | 0.89 |
| 160, 200 | WBS 11 | 90 | 40 | 40 | S11 | D49831001 | 17.0 | 22 | 25 | 1/16" x 90° | 35.0 | 0.91 |
| 160, 200 | WBS 11 | 90 | 40 | 60 | S11 | D49831002 | 17.0 | 22 | 25 | 1/16" x 90° | 35.0 | 1.38 |
| 160, 200 | WBS 11 | 90 | 40 | 80 | S11 | D49831003 | 17.0 | 22 | 25 | 1/16" x 90° | 35.0 | 1.84 |
| 160, 200 | WBS 11 | 90 | 60 | 60 | S11 | D49832001 | 17.0 | 22 | 25 | 1/16" x 90° | 35.0 | 2.22 |
| 160, 200 | WBS 11 | 90 | 60 | 80 | S11 | D49832004 | 17.0 | 22 | 25 | 1/16" x 90° | 35.0 | 2.97 |
| 250, 315, 400 | WBL 12 | 110 | 50 | 50 | S 12 | D49304000 | 21.0 | 28 | 30 | 1/16" x 90° | 51.0 | 1.70 |
| 250, 315, 400 | WBS 12 | 120 | 50 | 50 | S 12 | D49834001 | 21.0 | 28 | 30 | 1/16" x 90° | 59.0 | 1.91 |
| 250, 315, 400 | WBS 12 | 120 | 50 | 80 | S 12 | D49834002 | 21.0 | 28 | 30 | 1/16" x 90° | 59.0 | 3.07 |
| 250, 315, 400 | WBS 12 | 120 | 50 | 100 | S 12 | D49834009 | 21.0 | 28 | 30 | 1/16" x 90° | 59.0 | 3.85 |
| 250, 315, 400 | WBS 12 | 120 | 60 | 60 | S 12 | D49835001 | 21.0 | 28 | 30 | 1/16" x 90° | 59.0 | 2.86 |
| 250, 315, 400 | WBS 12 | 120 | 60 | 80 | S 12 | D49835007 | 21.0 | 28 | 30 | 1/16" x 90° | 59.0 | 3.87 |
| 250, 315, 400 | WBS 12 | 120 | 60 | 90 | S 12 | D49835002 | 21.0 | 28 | 30 | 1/16" x 90° | 59.0 | 4.50 |
| 400 S23 | WBL 23 | 140 | 60 | 60 | S 23 | D49306000 | 25.5 | 35 | 30 | 3/32" x 90° | 58.0 | 3.12 |
| 400 S23 | WBS 23 | 155 | 60 | 60 | S 23 | D49839001 | 25.5 | 35 | 30 | 3/32" x 90° | 58.0 | 3.55 |
| 400 S23 | WBS 23 | 155 | 60 | 90 | S 23 | D49839002 | 25.5 | 35 | 30 | 3/32" x 90° | 58.0 | 5.34 |
| 400 S23 | WBS 23 | 155 | 60 | 120 | S 23 | D49839003 | 25.5 | 35 | 30 | 3/32" x 90° | 58.0 | 7.12 |
| 400 S23 | WBS 23 | 155 | 80 | 80 | S 23 | D49840001 | 25.5 | 35 | 30 | 3/32"x 90° | 58.0 | 6.68 |

# Replacement Components

# QLC

Although Forkardt's line of QLC power chuck is built to be robust and long-lasting, spare parts are still necessary on occasion. For safety reasons, please use only original Forkardt spare parts.

When ordering spare parts, please indicate the identification number for your chuck, the key number from the components diagram, and the quantity of each part required.




QLC Only


QLK Only

| CHUCK TYPE 3 QLC | Qty | Key | 160 – 38 168116 | 175 – 42 165566 | 200 - 54 167983 | 250 - 72 165568 | 315 – 88 | | 400 - 126 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 165569 | 165570 | 165808 | 165813 |
| Protective Bushing | 1 | 1 | 168025004 | 165566004 | 165567004 | 165568004 | 165569004 | | 165808004 | |
| Chuck Actuator | 1 | 2 | 168025002 | 165566002 | 165567002 | 165568002 | 165569002 | | 165808002 | |
| Lever | 3 | 3 | 165566010 | 165566010 | 156122010 | 165568010 | 156584010 | | 44343010 | |
| Counterweight | 3 | 5 | 168025009 | 165566009 | 167983009 | 165568009 | 165569009 | | 165808009 | |
| Master Jaw | 3 | 6 | 168116003 | 165566003 | 165567003 | 165568003 | 165569003 | | 165808003 | |

| CHUCK TYPE 3 QLK | Qty | Key | 110-26 168894 | 140-35 168895 | 160-38 168996 | 175-42 168897 | 200-54 168898 | 250-72 168899 | 315-88 | | 400-126 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 168900 | 168901 | 168902 | 168903 |
| Protective Bushing | 1 | 1 | 168894004 | 168752004 | 168025004 | 165566004 | 165567004 | 165568004 | 165569004 | | 165808004 | |
| Chuck Actuator | 1 | 2 | 168894002 | 168752002 | 168025002 | 165566002 | 165567002 | 165568002 | 165569002 | | 165808002 | |
| Master Jaw | 3 | 6 | 168894003 | 168752003 | 168166003 | 165566003 | 165567003 | 165568003 | 165569003 | | 165808003 | |
| Jaw Clamping Device | 3 | 9 | 168894007 | 168752007 | 168730009 | 168538001 | 168521001 | 168539001 | 168539001 | | 168736009 | |

| CHUCK TYPE 3 QLC-KS AND 3 QLK-KS | Qty | Key | QLC-KS 200 168478 | QLK-KS 200 168575 | QLC-KS 250 168479 | QLK-KS 250 168576 | QLC-KS 315 168480 | QLK-KS 315 168577 | QLC-KS 400 168481 | QLK-KS 400 168578 |
|---|---|---|---|---|---|---|---|---|---|---|
| Protective Bushing | 1 | 1 | 168478004 | | 168479004 | | 168480004 | | 168481004 | |
| Chuck Actuator | 1 | 2 | 168478002 | | 168479002 | | 168480002 | | 168481002 | |
| Lever | 3 | 3 | 165566010 | - | 156122010 | - | 165568010 | - | 156584010 | - |
| Counterweight | 3 | 5 | 165566009 | - | 167983009 | - | 165568009 | - | 165569009 | - |
| Master Jaw | 3 | 6 | 165566003 | | 165568003 | | 165569003 | | - | |
| Jaw Clamping Device | 3 | 9 | - | 168538001 | - | 168521001 | - | 168539001 | - | 168539001 |

Lubricating grease is supplied with your Forkardt QLC chuck, however, continued re-greasing is necessary to keep your chuck running at it's optimal level. Replacement grease can be ordered directly from Forkardt.

| Description | Type | Part No. | Size |
|---|---|---|---|
| Special Grease | PF5 | 101400084 | **1.0 kg** |
| Special Grease | PF6 | 101400088 | 1.0kg |
| Lever Action Grease Gun | HH1 | 101400121 | |

# FNC

## Quick Change Power Chuck

The FNC three jaw power chuck is a universally applicable wedge style power chuck with a quick change jaw system as a standard feature. The jaws for the FNC are European Standard Cross Tenon so the top tooling is easily interchangeable with other standard chuck models available in the industry.

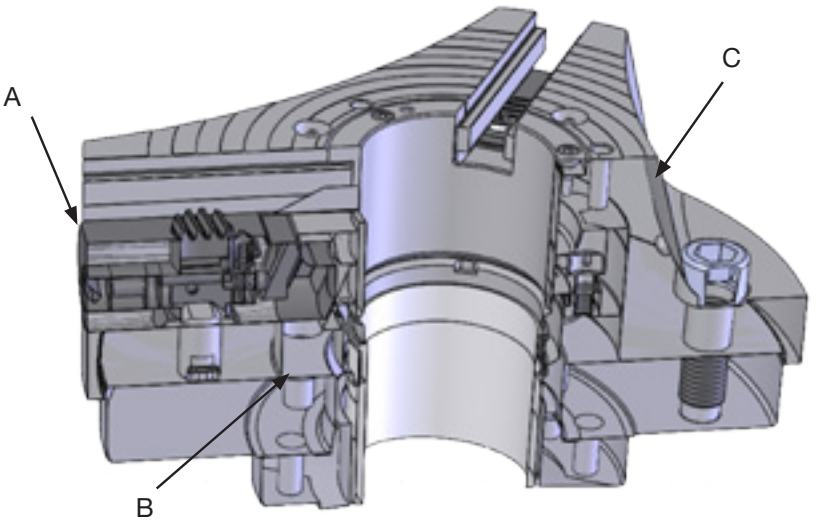
The trapezoidal wedge hook profile allows for the transfer of high gripping forces and optimum efficiency when machining at high speeds, while maintaining high accuracy. The jaw travel time for the FNC is much faster than most other quick change jaw chucks due to the shorter stroke of the central actuator.

**Features & Benefits**

- Optimum production efficiencies due to minimal jaw changeover times
- Lightweight design- 25-40% lighter than similar style chucks
- High grade specially heat treated chuck body with slim design and weight reducing cutouts
- Closely maintained concentricity and repetitive accuracy as well as long service life
- Mounting accessories available to suit any machine spindle
- Extremely high gripping forces due to patented heavy duty, trapezoidal wedge hook actuation
- Proven F jaw system is interchangeable with the Forkardt F+ , allowing jaws to be shared between chucks, reducing the cost of tooling

**Structure and Function**

A. Quick Change Jaw- proven F jaw system reduces changeover time to just a few seconds
B. Trapezoidal Wedge Hook-allows for extremely high gripping forces
C. Weight Reducing Cutouts- provides additional tool clearance and increases maximum speed



## Bayonet Mount J, DIN 55022, DIN 55027

| Part Numbers | | | | | | | | Studs And Collar Nuts Purchase Separately | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Spindle Size | Chuck Size | | | | | | | FN | Part No. | Qty. |
| | 175 | 200 | 250 | 315 | 400 | 500 | 630 | | | |
| 4 | D1074085000 | | | | | | | 322 | D1070504000 | 3 |
| 5 | D10704086000 | D1074089000 | | | | | | 322 | D1070505000 | 4 |
| 6 | | D1074090000 | D1074096000 | D1074096000 | | | | 322 | D1070506000 | 4 |
| 8 | | | D1074097000 | D1074097000 | D1074103000 | | | 322 | D1070507000 | 4 |
| 11 | | | | | D1074104000 | D1074107000 | D1074107000 | 322 | D1070508000 | 6 |
| 15 | | | | | | D1074108000 | D1074108000 | 324 | D1070517000 | 6 |

## Cam-lock Mount D1 to DIN 55029

| Part Numbers | | | | | | | | Cam-Lok Studs Purchase Separately | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Spindle Size | Chuck Size | | | | | | | FN | Part No. | Qty. |
| | 175 | 200 | 250 | 315 | 400 | 500 | 630 | | | |
| 4 | D1074118000 | - | - | - | - | - | - | 286 | D1070511000 | 3 |
| 5 | D1074119000 | D1074122000 | - | - | - | - | - | 287 | D1070512000 | 6 |
| 6 | - | D1074123000 | D1074129000 | D1074129000 | - | - | - | 288 | D1070513000 | 6 |
| 8 | - | - | D1074130000 | D1074130000 | D1074136000 | - | - | 289 | D1070514000 | 6 |
| 11 | - | - | - | - | D1074137000 | D1074140000 | D1074140000 | 290 | D1070515000 | 6 |
| 15 | - | - | - | - | - | D1074141000 | D1074141000 | 291 | D1070516000 | 6 |

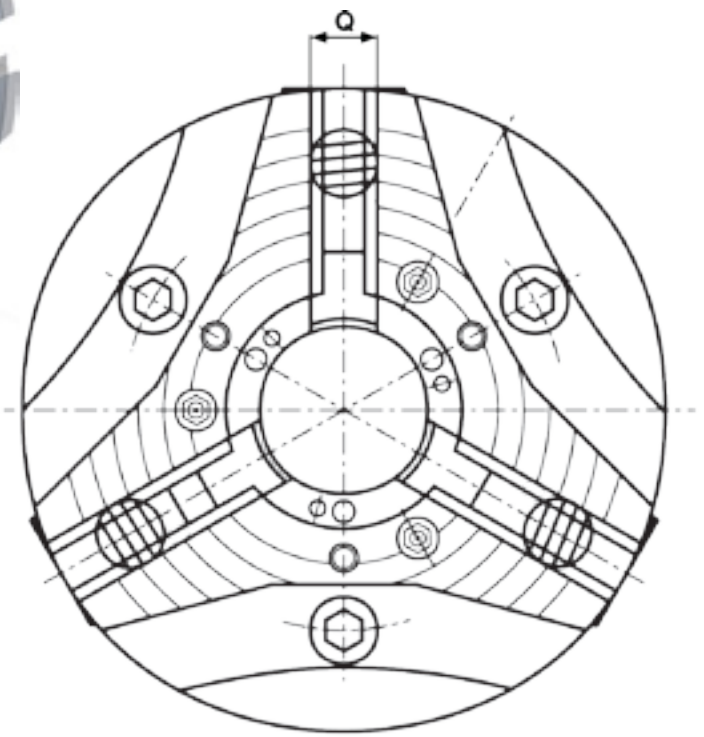
## Mount A1/A2, B, DIN 55021, DIN 55026 Including Mounting Bolts

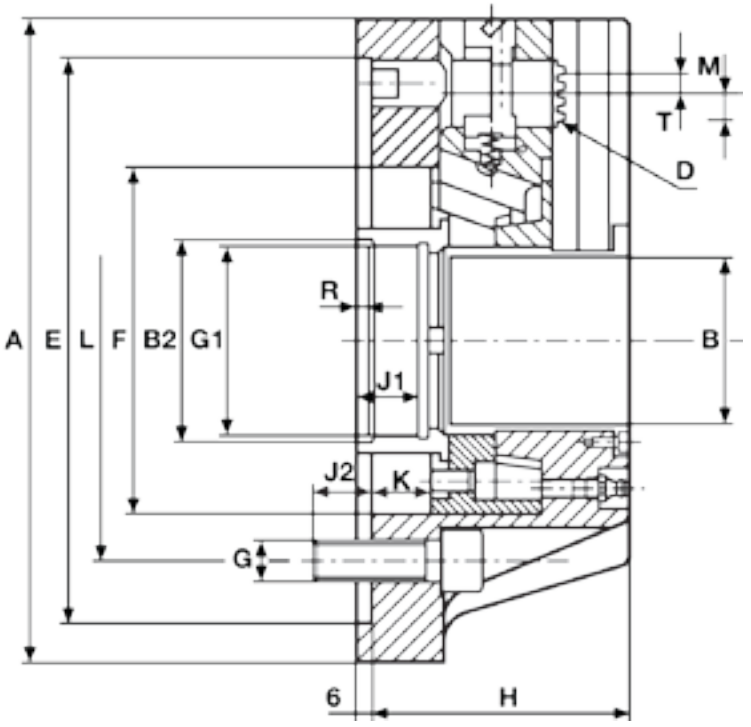
| Part Numbers | | | | | | | | Mounting Bolts |
|---|---|---|---|---|---|---|---|---|
| Spindle Size | Chuck Size | | | | | | | DIN 912 10.9 |
| | 175 | 200 | 250 | 315 | 400 | 500 | 630 | |
| 4 | D164905000 | | | | | | | 3 x M10 x 20 |
| 5 | D159570K05 | D1074056000 | | | | | | 4 x M10 x 25 |
| 6 | | D159571K06 | D162896000 | | | | | 4 x M10 x 25 |
| 8 | | | D159427K08 | D164908000 | D164908000 | | | 4 x M12 x 30 |
| 11 | | | | D159572A11 | D159572A11 | D164909000 | D164909000 | 4 x M16 x 35 |
| 15 | | | | | | D159577A15 | D159577A15 | 6 x M20 x 40 |

Additional standard and a wide variety of special mounting styles are also available

# FNC

## Quick Change Power Chuck



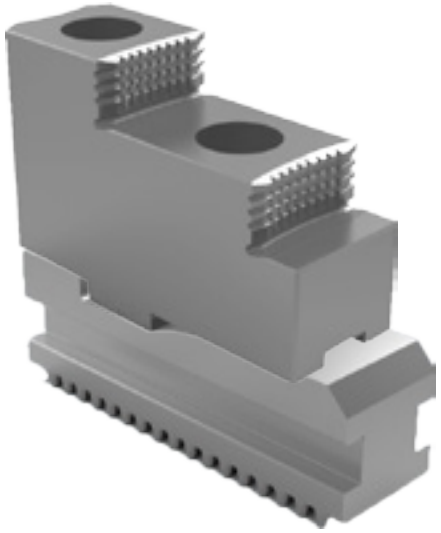



# Quick Change Power Chuck

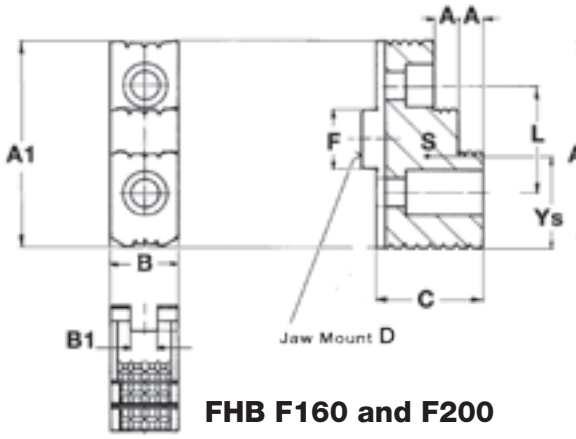
# FNC

| | | | 175-42 | 200-45 | 250-72 | 315-82 | 400-92 | 500-125 | 630-125 |
|---|---|---|---|---|---|---|---|---|---|
| Outer Diameter | A | mm | 180 | 206 | 257 | 315 | 400 | 500 | 630 |
| Bore | B | mm | 42 | 45 | 72 | 82 | 92 | 125 | 125 |
| Chuck Mounting Recess | C / E | mm | Z5 / 140 | Z6 / 170 | Z8 / 220 | Z11 / 300 | Z11 / 300 | Z15 / 380 | Z15 / 380 |
| Jaw Mounting Pitch Of Serration | D | | F 160 | F 200 | F 250 | F 250 | F 315 | F 400 | F 400 |
| Pitch Of Serration | T | | 4.8 | 4.8 | 6.0 | 6.0 | 7.0 | 8.5 | 8.5 |
| Actuator Diameter | F | mm | 90 | 106 | 140 | 150 | 192 | 230 | 230 |
| Mounting Bolts | G | | M 10 | M 12 | M 16 | M 20 | M 20 | M 24 | M 24 |
| Thread Mounting | G1 | | M 50 x 2 | M 52 x 2 | M 80 x 2 | M 92 x 2 | M 100 x 2 | M 135 x 2 | M 135 x 2 |
| Chuck Width | H | mm | 78 | 83 | 100 | 100 | 127 | 138 | 138 |
| Thread Length | J1 | mm | 22 | 22 | 28 | 28 | 28 | 28 | 28 |
| Thread Length | J2 | mm | 15 | 18 | 24 | 30 | 30 | 36 | 36 |
| Actuator Stroke | K | mm | 20 | 20 | 23 | 23 | 28 | 33 | 33 |
| Pitch Circle | L | mm | 104.8 | 133.4 | 171.4 | 235.0 | 235.0 | 330.2 | 330.2 |
| Jaw Stroke | M | mm | 7.2 | 7.2 | 8.3 | 8.3 | 10.0 | 12.0 | 12.0 |
| Jaw Width | Q | mm | 20 | 22 | 26 | 26 | 32 | 45 | 45 |
| Mounting Recess Thread Mounting | PH7 | mm | 51 | 53 | 81 | 94 | 102 | 136 | 136 |
| Width | R | mm | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| **Performance Data** | | | | | | | | | |
| Max. Actuating Force | F max | kN | 30 | 45 | 60 | 80 | 133 | 120 | 120 |
| Max. Gripping Force | Fsp max | kN | 55 | 84 | 120 | 160 | 240 | 240 | 240 |
| Max. Speed | n max | $min^{-1}$ | 7,000 | 6,300 | 4,500 | 4,000 | 3,300 | 2,200 | 1,700 |
| Max. Weight Top Jaw | ** | kg / PC. | 0.22 | 0.34 | 0.74 | 0.74 | 2.24 | 3.60 | 3.60 |
| Max. Jaw Height Top Jaw | ** | mm | 40 | 45 | 58 | 58 | 65 | 85 | 85 |
| Weight | G | kg | 11 | 15 | 24 | 37 | 68 | 115 | 200 |
| Moment Of Inertia | J | $kgm^2$ | 0.04 | 0.09 | 0.20 | 0.50 | 1.50 | 4.00 | 11.00 |
| Chuck Constant | C1 | mm | 390 | 412 | 580 | 780 | 940 | 1200 | 1760 |
| | C2 | mm | 213 | 221 | 290 | 390 | 482 | 600 | 880 |
| | C3 | kgm | 0.065 | 0.09 | 0.187 | 0.33 | 0.73 | 1.66 | 2.80 |
| Chuck Part No. | | | D159570000 | D159571000 | D159427000 | D159572000 | D159575000 | D159577000 | D159578000 |

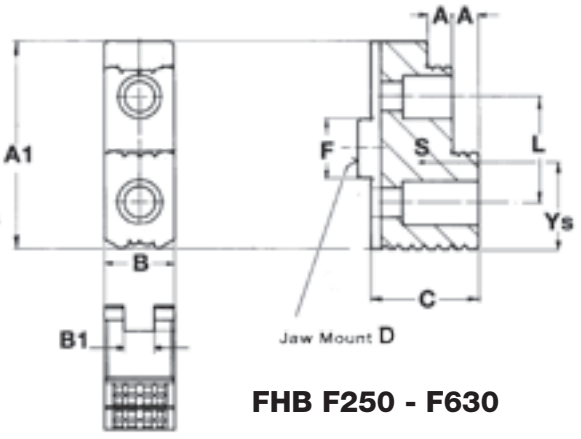
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified



The FGB-FHB jaw set is used for gripping unmachined or rough machined workpieces. The hard FHB top jaws have serrated gripping surfaces to increase the grip between the top jaws and the workpiece. The gripping surfaces are ground in the chuck under gripping force in order to increase concentricity. To maintain this concentricity, the top jaw should not be removed from the base jaw.




**FHB F160 and F200**



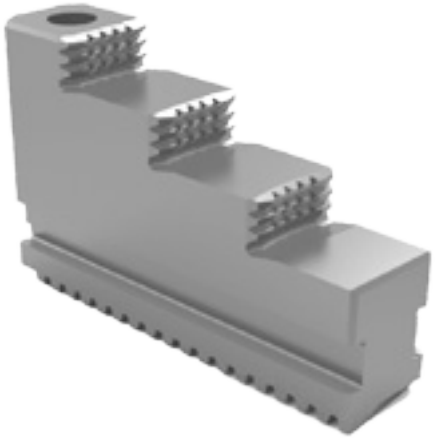

**FHB F250 - F630**

| Chuck Size | Max Swing (dia) | Jaw Style | Nominal Dimension | | | | | | Part No. | | A1 | B1 | Ys | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | F | L | Base Jaw FGB | Top Jaw FHB | | | | |
| 175 - 42 | 234 | 160 | 7.5 | 20 | 24 | F160 | 18 | 32 | D180567000 | D1070016624 | 67 | 8 | 33.9 | 0.22 |
| 200 - 45 | 273 | 200 | 10 | 22 | 35 | F200 | 20 | 40 | D180577000 | D1070021624 | 75 | 10 | 40.3 | 0.34 |
| 250 - 72 | 346 | 250 | 14 | 26 | 40 | F250 | 20 | 40 | D180588000 | D1070026524 | 90 | 12 | 48.5 | 0.74 |
| 315 - 82 | 377 | 250 | 14 | 26 | 40 | F250 | 26 | 54 | D180588000 | D1070026524 | 90 | 12 | 48.5 | 0.74 |
| 400 - 92 | 462 | 315 | 15 | 32 | 46 | F315 | 30 | 60 | D180596000 | D1070026524 | 106 | 18 | 55.3 | 2.24 |
| 500 - 125 | 586 | 400 | 20 | 45 | 52 | F400 | 40 | 76 | D180606000 | D1070038524 | 128 | 18 | 75.5 | 3.60 |
| 630 - 125 | 690 | 400 | 20 | 45 | 52 | F400 | 40 | 82 | D180606000 | D1070038524 | 145 | 24 | 75.5 | 3.60 |

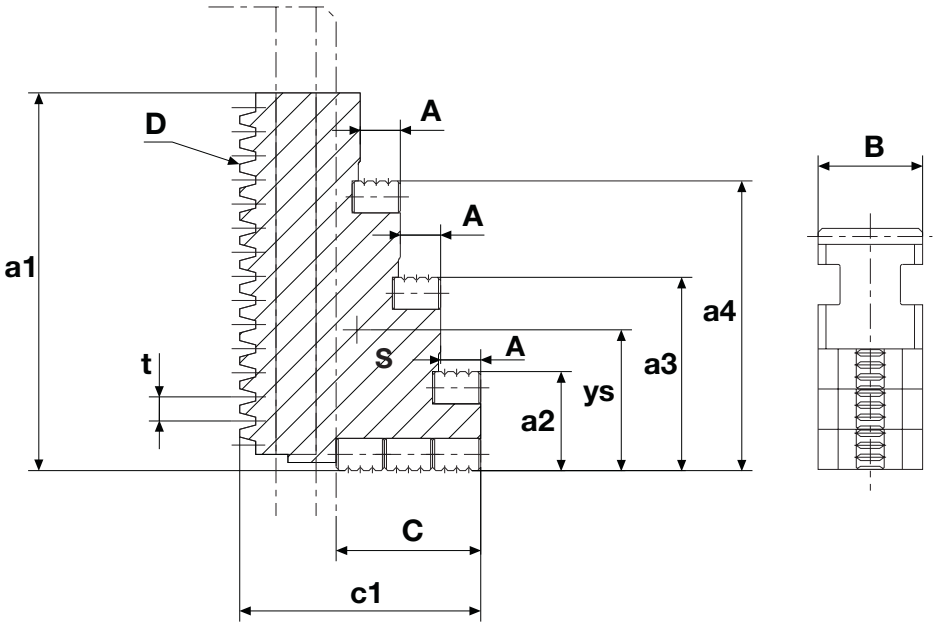
Gripping ranges for FHB jaws can be found on FSTB page.

# FSTB Style
# Hard Solid Jaws

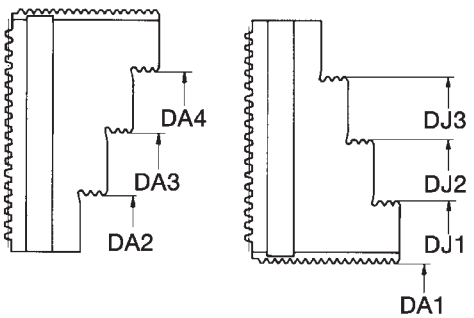
# FNC



One-piece FSTB stepped jaws are hardened jaws with serrated gripping surfaces to increase the grip between the chuck jaw and the workpiece. The gripping surfaces are ground in the chuck under gripping force. These jaws are used for gripping unmachined or rough machined workpieces requiring medium cuts.




| Chuck Size | Max Swing (dia) | Jaw Style | Nominal Dimension | | | | Part No. | a1 | a2 | a3 | a4 | c1 | Ys | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | | | | | | | | |
| 175 - 42 | 234 | 160 | 7.5 | 20 | 24 | F160 | D1070016633 | 79 | 23 | 43 | 63 | 45 | 35.5 | 0.350 |
| 200 - 45 | 273 | 200 | 10 | 22 | 35 | F200 | D1070021633 | 94 | 24 | 48 | 72 | 60 | 41.0 | 0.615 |
| 250 - 72 | 346 | 250 | 14 | 26 | 40 | F250 | D1070026533 | 115 | 39.7 | - | 79.9 | 70 | 53.0 | 1.090 |
| 315 - 82 | 377 | 250 | 14 | 26 | 40 | F250 | D1070026533 | 115 | 39.7 | - | 79.9 | 70 | 53.0 | 1.090 |
| 400 - 92 | 462 | 315 | 15 | 32 | 46 | F315 | D1070033533 | 129 | 37.5 | - | 92.8 | 81 | 59.0 | 1.770 |
| 500 - 125 | 586 | 400 | 20 | 45 | 52 | F400 | D1070038533 | 167 | 52.5 | - | 113.8 | 93 | 75.5 | 3.600 |
| 630 - 125 | 690 | 400 | 20 | 45 | 52 | F400 | D1070038533 | 167 | 52.5 | - | 113.8 | 93 | 75.5 | 3.600 |

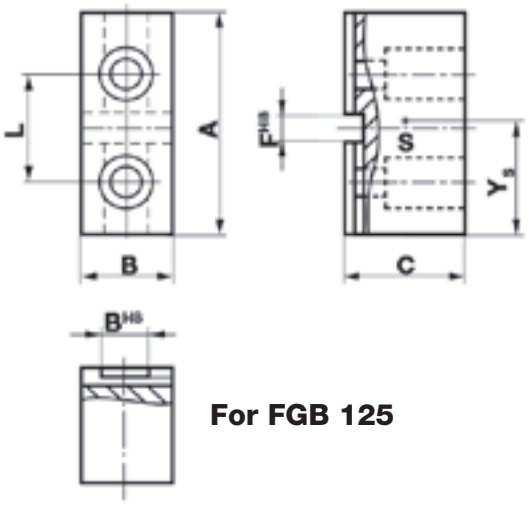



## Gripping Ranges for FSTB and FHB Jaws

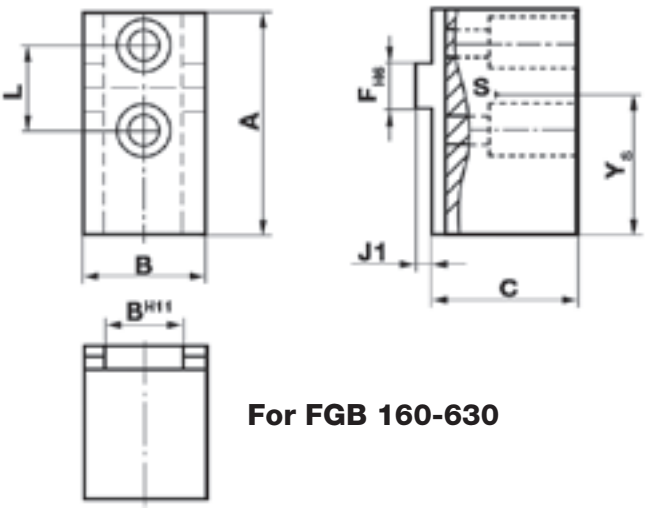
| Chuck Size | For External Chucking | | | | For Internal Chucking | | |
|---|---|---|---|---|---|---|---|
| | DA1 | DA2 | DA3 | DA4 | DJ1 | DJ2 | DJ3 |
| 175 - 42 | 8-65 | 59-108 | 99-148 | 138-188 | 63-112 | 102-152 | 142-192 |
| 200 - 45 | 8-76 | 69-128 | 116-176 | 164-224 | 65-124 | 113-173 | 160-220 |
| 250 - 72 | 10-101 | 96-181 | - | 175-261 | 96-182 | - | |
| 315 - 82 | 10-137 | 96-217 | - | 175-297 | 96-218 | - | |
| 400 - 92 | 40-202 | 106-276 | - | 216-386 | 109-278 | - | |
| 500 - 125 | 40-236 | 150-357 | - | 272-480 | 152-367 | - | 274-480 |
| 630 - 125 | 110-339 | 150-459 | - | 272-582 | 152-460 | - | 274-582 |

# FWB Style Soft Jaws

FWB soft jaws are used for precision gripping of previously machined workpieces which must not be damaged on the gripped surface. These jaws are suitable for light cutting and are turned and ground to suit the shape of the workpiece in the chuck under gripping force. Turned FWB top jaws maintain their precision as long as they are not removed from the base jaw they were ground in.




**For FGB 125**



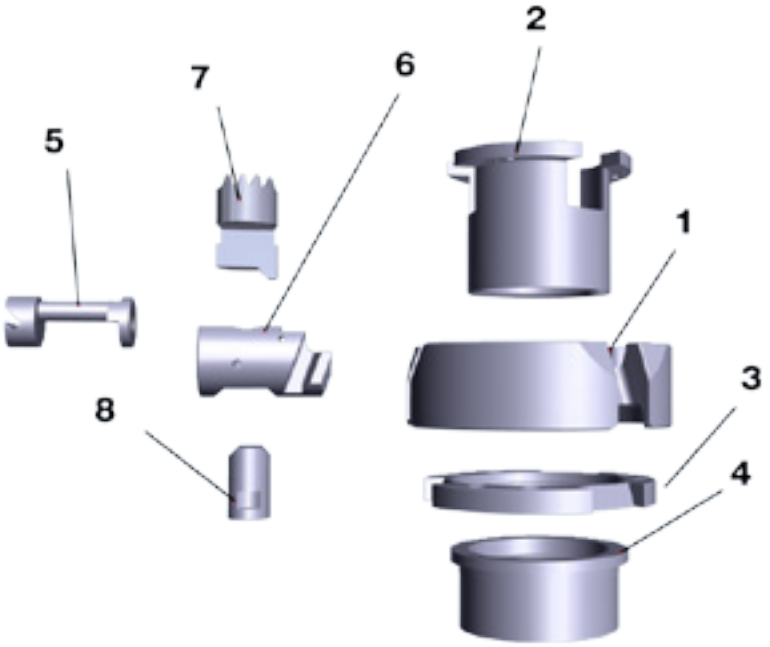

**For FGB 160-630**

| Chuck Size | Jaw Style | Nominal Dimension | | | Part No. | F | J1 | L | Ys | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | | | | | | |
| 175 | 160 | 85 | 20 | 35 | D1070016525 | 18 | 4.5 | 32 | 43 | 0.40 |
| 200 | 200 | 105 | 25 | 40 | D1070021525 | 20 | 5 | 40 | 53 | 0.66 |
| 250 | 250 | 125 | 30 | 55 | D1070026425 | 20 | 5 | 40 | 63.5 | 1.34 |
| 315 | 250 | 125 | 30 | 55 | D1070026425 | 20 | 5 | 40 | 63.5 | 1.34 |
| 400 | 315 | 145 | 50 | 54 | D1070033425 | 26 | 6 | 54 | 73.7 | 2.04 |
| 500 | 400 | 180 | 50 | 80 | D1070038425 | 30 | 7 | 60 | 86.7 | 4.16 |
| 630 | 400 | 180 | 50 | 80 | D1070038425 | 30 | 7 | 60 | 86.7 | 4.16 |

Forkardt offers a wide variety of specially machined top tooling, as well as standard style jaws such as roughing jaws. Please contact our sales office for more information.

# Replacement Components

# FNC




| | Qty | Key | 175-42 | 200-54 | 250-72 | 315-82 | 400-92 | 500-125 | 630-125 |
|---|---|---|---|---|---|---|---|---|---|
| Chuck Actuator | 1 | 1 | 159570/2 | 159571/2 | 159427/2 | 159572/2 | 159575/2 | 159577/2 | 159577/2 |
| Protective Bush | 1 | 2 | 159570/5 | 159571/5 | 159427/5 | 159572/5 | 159575/5 | 159577/5 | 159577/5 |
| Ring | 1 | 3 | 159570/7 | 159571/7 | 159427/7 | 159572/7 | 159575/7 | 159577/7 | 159577/7 |
| Draw Tube Connector | 1 | 4 | 159570/6 | 159571/6 | 159427/6 | 159572/6 | 159575/6 | 159577/6 | 159577/6 |
| Eccentric Locking Pin | 3 | 5 | 159570/9 | 159571/9 | 159427/9 | 159572/9 | 159574/9 | 159577/9 | 159578/9 |
| Transmission Jaw | 3 | 6 | 159570/3 | 159571/3 | 159424/3 | 159572/3 | 159574/3 | 159577/3 | 159578/3 |
| Engaging Plunger | 3 | 7 | 159570/8 | 159571/8 | 159424/8 | 159424/8 | 159574/8 | 159577/8 | 159577/8 |
| Safety Catch | 3 | 8 | 159570/11 | 159571/11 | 159424/11 | 159424/11 | 159574/11 | 159577/11 | 159578/11 |

When ordering spare parts, please indicate the identification number for your chuck, the key number from the components diagram, and the quantity of each part required.

## Grease

Lubricating grease is supplied with your Forkardt FNC chuck, however, continued re-greasing is necessary to keep your chuck running at it's optimal level. Replacement grease can be ordered directly from Forkardt.

| Description | Type | Part No. | Size |
|---|---|---|---|
| Special Grease | PF5 | 101400084 | **1.0 kg** |
| Special Grease | PF6 | 101400088 | 1.0kg |
| Lever Action Grease Gun | HH1 | 101400121 | - |

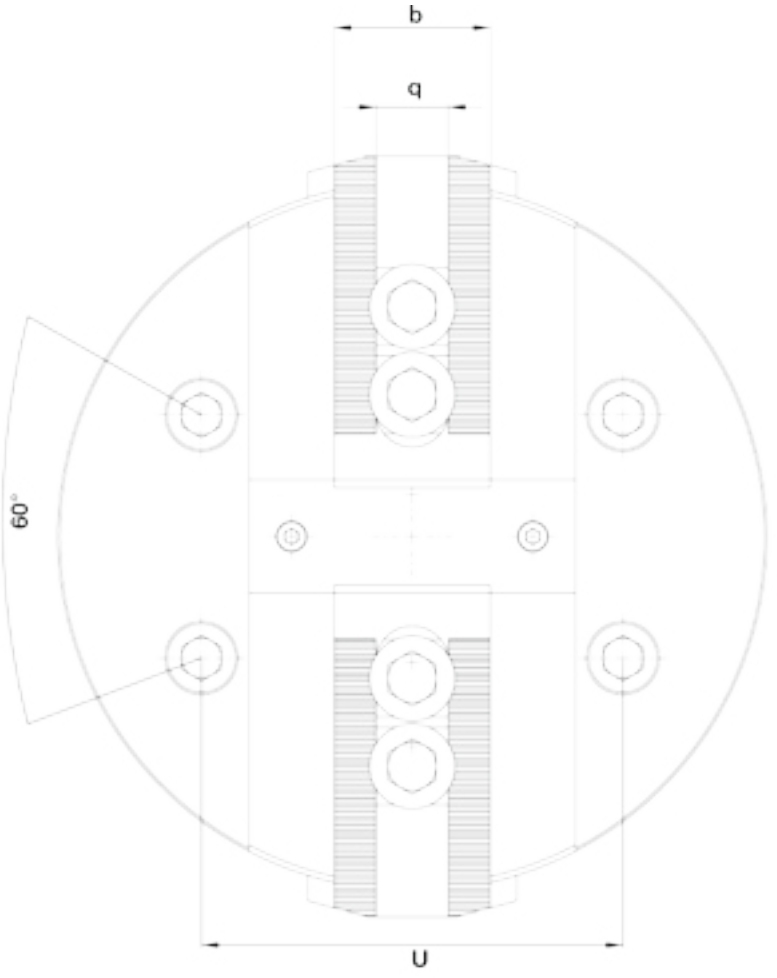
## Chuck Key

A special key for locking and unlocking of the transmission jaws for chuck actuation is supplied with your chuck. Replacement keys are available for purchase.

| Chuck Size | Key Part No. |
|---|---|
| 175 | 159570/16 |
| 200 | 159570/16 |
| 250 & 315 | 159424/16 |
| 400, 500 & 630 | 159574/16 |

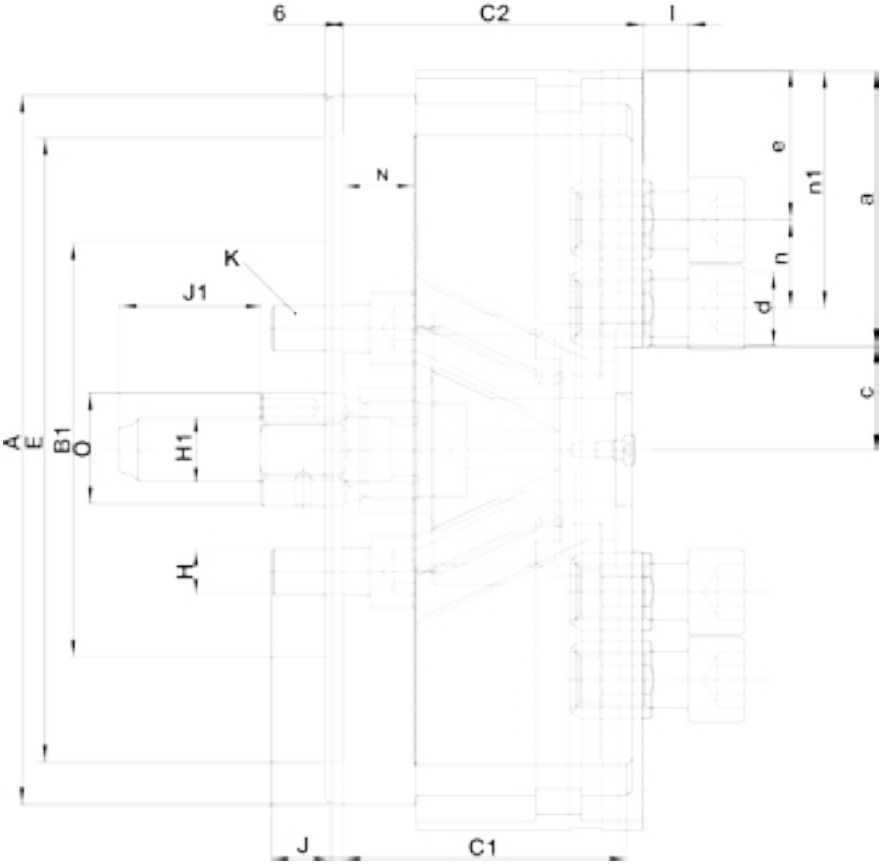
# BLN

## 2 Jaw Wedge Style Power Chuck




The Forkardt BLN two jaw wedge hook power chucks are specially designed to provide the ability to machine irregular shaped components with workpiece specific jaws.

The BLN can grip over projections when machining fittings or similar parts, and features the long jaw stroke necessary for machining ball shaped parts that must be enveloped by the jaws.



# 2 Jaw Wedge Style Power Chuck

# BLN

| SPECIFICATIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type 2BLN** | | **125** | **160** | **200** | **250** | **315** | **400** |
| Part No. | | D154890000 | D154891000 | D154892000 | D154893000 | D154894000 | D154895000 |
| A | mm | 125 | 160 | 200 | 250 | 315 | 400 |
| $B1^{H6}$ | mm | 62 | 75 | 98 | 98 | 98 | 120 |
| C1 | mm | 72 | 84 | 100 | 102 | 102 | 108 |
| $C2^{-0.1}$ | mm | 70 | 81 | 103.7 | 105.7 | 105.7 | 111.7 |
| $E^{H6}$ | mm | 115 | 140 | 185 | 220 | 220 | 300 |
| H | mm | M12 | M10 | M12 | M16 | M16 | M24 |
| H1 | mm | M16 | M16 | M22 | M22 | M22 | M24 |
| J | mm | 15 | 16 | 20 | 25 | 25 | 35 |
| J1 | mm | 40 | 40 | 50 | 50 | 50 | 50 |
| K max | mm | 50 | 60 | 60 | 60 | 60 | 55 |
| K min | mm | 28 | 33 | 30 | 29 | 29 | 25 |
| N | mm | 22 | 27 | 30 | 31 | 31 | 30 |
| O | mm | - | 35 | 44 | 44 | 44 | 52 |
| U | mm | 72 | 86 | 108 | 115 | 120 | 135 |
| Pitch Circle $LK^{\pm 0.2}$ | mm | 135 | 177 | 133.4 | 171.4 | 171.4 | 235 |
| Outer Dia. Max (SK) | mm | - | 104.8 | 220 | 270 | 334 | 420 |
| a | mm | 44 | 59 | 73 | 98 | 130 | 168 |
| b | mm | 32 | 40 | 55 | 55 | 55 | 60 |
| c max | mm | 30 | 43.5 | 36 | 36.4 | 36.4 | 40 |
| c min | mm | 21.5 | 32.5 | 22 | 22 | 22 | 26 |
| d | mm | M12 | M16 | M16 | M20 | M20 | M20 |
| e min | mm | - | - | 12 | 14 | 14 | 14 |
| j1 90° | mm | 1/16" | 1/16” | 1/16" | 1/16" | 1/16" | 1/16" |
| l min | mm | 10 | 14 | 12 | 16 | 16 | 16 |
| n | mm | 16 | 18 | 25 | 31 | 31 | 31 |
| n1max | mm | - | - | 60 | 84 | 116 | 154 |
| $q^{H7\ g6}$ | mm | 14 | 18 | 21 | 25.5 | 25.5 | 25.5 |
| Stroke Per Jaw | mm | 14.0 | 14.0 | 14.0 | 14.4 | 14.4 | 14.0 |
| Max. Actuating Force | kN | 13 | 16 | 42 | 45 | 45 | 57 |
| Max Grip Force | kN | 20 | 26 | 62 | 66 | 66 | 90 |
| Max RPM | $min^{-1}$ | 3500 | 3000 | 3000 | 2500 | 2200 | 2000 |
| Weight | kg | 5 | 9 | 17 | 25 | 36.5 | 60 |
| Moment of inertia $GD^2$ | $kpm^2$ | 0.04 | 0.16 | 0.35 | 0.7 | 1.6 | 4.5 |

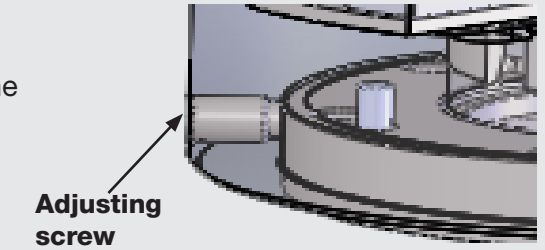
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

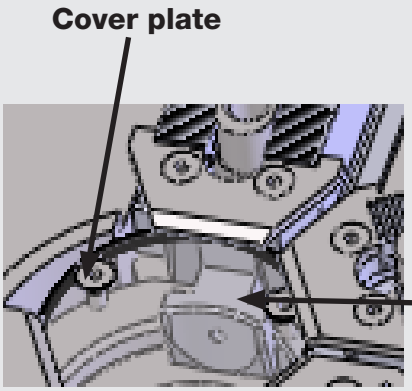
# Superlife Ajust-Tru® Power Chuck

The Superlife power chuck line was built for long life and precision. The Ajust-Tru® feature allows re-chucking precision at .001" TIR, and when reconditioning is needed, you can do it in your own plant. The Superlife power chuck line offers many sizes, number of jaws, and jaw styles, from a 2 jaw, 3 jaw, the 2/3 jaw chuck featured in this catalog to a 6 jaw version.

**Power Chucking With the Advantage of the Ajust-Tru® Principle**

Ajust-Tru® chucks have .030" clearance between the chuck body and the mounting plate OD. Opposed adjusting screws in the chuck body move the chuck and work on the mounting plate for precision adjustment within .001" TIR for re-chucking. Adjustment is made under pressure duplicating operating conditions.



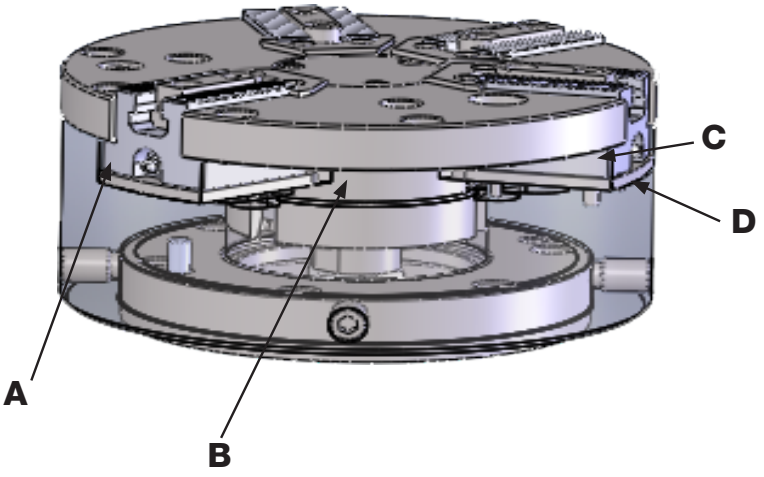




**Jaw Extensions**

This closeup with the front cover cut away shows how the Superlife jaws extend under the chuck front plate. This extra support eliminates part distortion common to conventional power chucks.

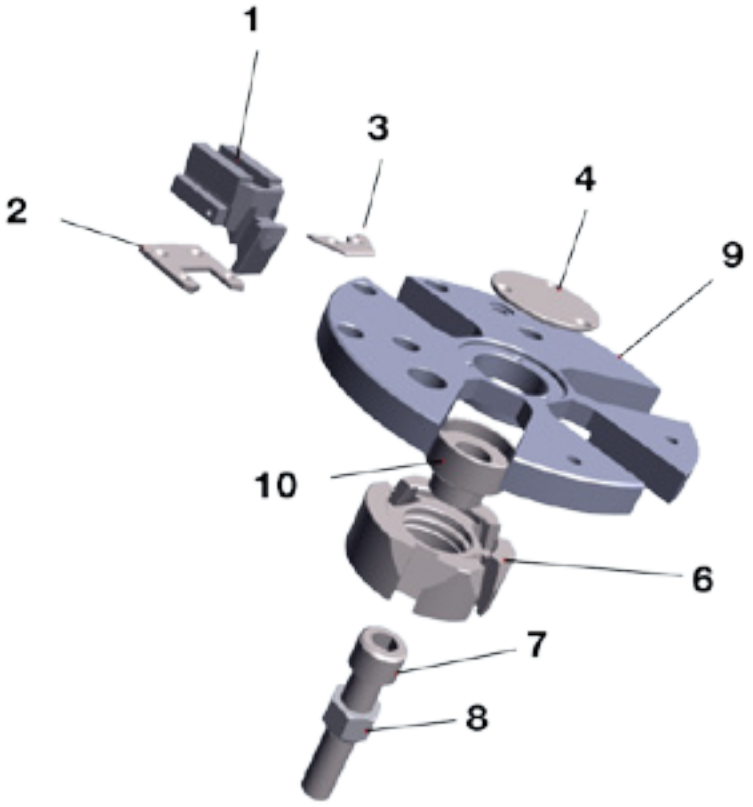
## Structure and Function

A. Master Jaw- hardened and ground and available in various styles
B. Wedge Bushing- hardened and ground and easily replaced as needed
C. Master Jaw Key ways- wider key ways increase bearing surfaces for longer wear
D. Wear Plates- plates are tamper proof to machine operators but easily shimmed or replaced in the tool room.



# 2/3 Jaw Chuck
# Replacement Components

SL




When ordering spare parts, please indicate the identification number for your chuck, the key number from the components diagram, and the quantity of each part required. Components are available for other Super-life models.

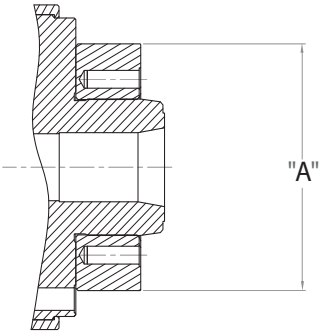
| | Qty | Key | 4610 | 4612 | 4615 | 4618 |
|---|---|---|---|---|---|---|
| Master Jaws | 4 | 1 | 13661 | 13668 | 11047 | 11143 |
| Wear Plate | 4 | 2 | 13662 | 13669 | 12691 | 12696 |
| Dust Plates | 4 | 3 | 11293 | 11086 | 11084 | 11084 |
| Front Plate Cover | 1 | 4 | 11119 | 11119 | 11083 | 11083 |
| Wedge | 1 | 6 | 13663 | 13663 | 12699 | 12699 |
| Draw Bar Bolt | 1 | 7 | 10011 | 10011 | 10011 | 10011 |
| Lock Nut | 1 | 8 | 10010 | 10010 | 10010 | 10010 |
| Front Plate | 1 | 9 | 11048 | 11061 | 11042 | 15933 |
| Wedge Plug | 1 | 10 | 13664 | 13664 | 12695 | 12695 |
| Hardware Kit | 1 | | 4610-KIT | 4612-KIT | 4615-KIT | 4618-KIT |

Part numbers shown are base numbers. Actual number may vary dependent on chuck number. Chuck number is required at time of parts order.

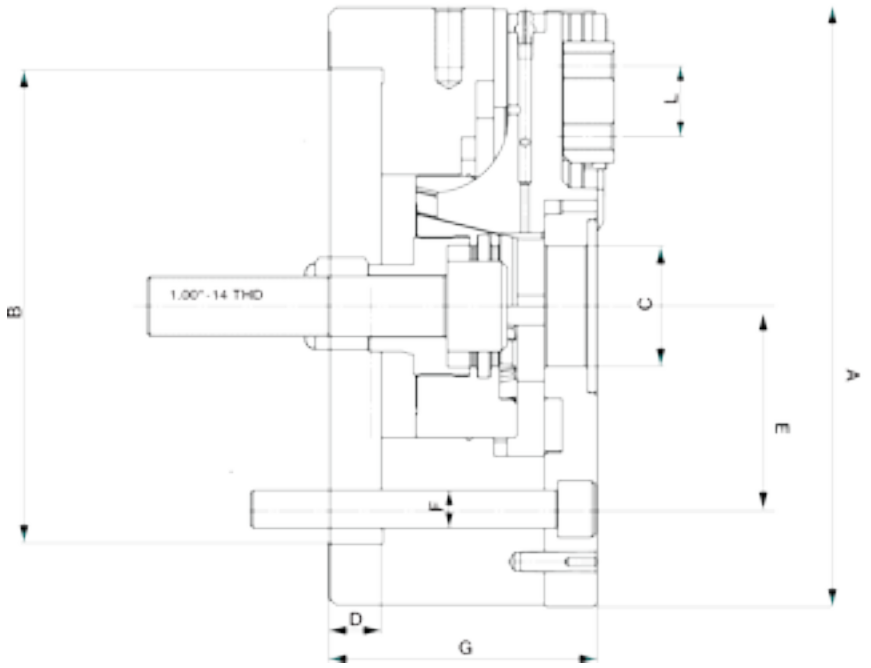
## Mounting Plates for Super Life Power Chucks to American Standard Style A1 and A2 Spindles

| Spindle | A | 175 | 200 | 250/315 | 400/450 | 500/630 |
|---|---|---|---|---|---|---|
| A3 | 2.13” | 10168 | - | - | - | - |
| A4 | 2.50” | 10438-1 | - | - | - | - |
| A5 | 3.25” | 13877 | 10266 | - | - | - |
| A6 | 4.19” | - | 13498-2 | 13339-4 | - | - |
| A8 | 5.50” | - | - | 10006-1 | 13573-7 | - |
| A11 | 7.75” | - | - | - | 10408-1 | 14140-3 |
| A15 | 11.25” | - | - | - | - | 14141-3 |

Additional standard and a wide variety of special mountings also available.



# Superlife Ajust-Tru®
# 2/3 Jaw Power Chuck




| PERFORMANCE DATA | | | | | | |
|---|---|---|---|---|---|---|
| Model | Jaw Travel | Max Drawbar Force 3 Jaw (kN) | Max Drawbar Force 2 Jaw (kN) | Wedge Travel | Max RPM | Weight (kg) |
| 4610 | 9.65 | 40.03 | 26.69 | 38.10 | 2600 | 42 |
| 4612 | 9.65 | 46.71 | 31.14 | 38.10 | 2200 | 61 |
| 4615 | 9.65 | 66.72 | 44.48 | 38.10 | 1500 | 99 |
| 4618 | 9.65 | 66.72 | 44.48 | 38.10 | 1200 | 151 |
| 4621 | 12.70 | 66.72 | 44.48 | 50.80 | 1000 | 259 |
| 4624 | 12.70 | 66.72 | 44.48 | 50.80 | 900 | 340 |

| SPECIFICATIONS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | A | B | C | D | E | F | G | H | J | K | L |
| 4610 | 254.00 | 200.91 | 50.80 | 22.35 | 85.85 | 5/8"-11 | 113.54 | 1”-14 | 19.05 | 4.83 | 53.85 |
| 4612 | 304.80 | 200.91 | 50.80 | 22.35 | 85.85 | 5/8"-11 | 113.54 | 1”-14 | 19.05 | 4.83 | 63.50 |
| 4615 | 381.00 | 299.21 | 81.03 | 23.88 | 117.60 | 3/4"-10 | 131.06 | 1”-14 | 19.05 | 4.11 | 76.20 |
| 4618 | 457.20 | 299.21 | 81.03 | 23.88 | 117.60 | 3/4"-10 | 131.06 | 1”-14 | 19.05 | 4.11 | 76.20 |
| 4621 | 411.73 | 407.16 | 95.25 | 30.23 | 165.10 | 3/4"-10 | 165.10 | 1”-14 | 19.05 | 7.87 | 76.20 |
| 4624 | 60.96 | 407.16 | 95.25 | 30.23 | 165.10 | 3/4”-10 | 165.10 | 1”-14 | 19.05 | 7.87 | 76.20 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

# Superlife Ajust-Tru®
# 2/3 Jaw Power Chuck

SL

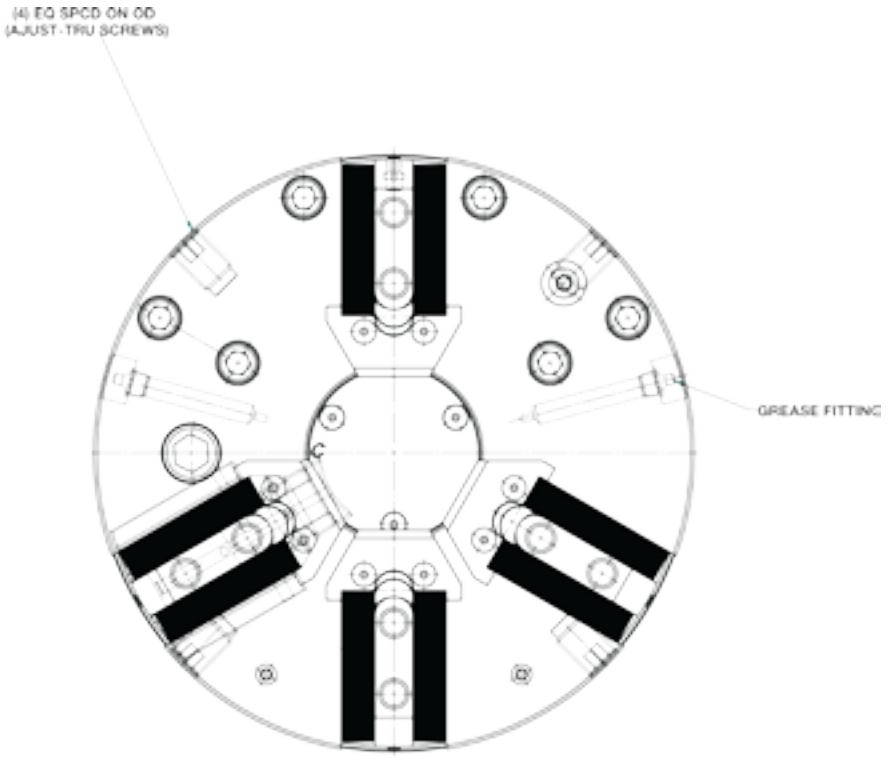
Shown with fine serrated master jaws

The 2/3 jaw combination chuck can hold either round or square parts, allowing for greater flexibility and shorter down time.

The chuck is designed to either use three jaws or 2 jaws, depending on the application.

**Features & Benefits:**

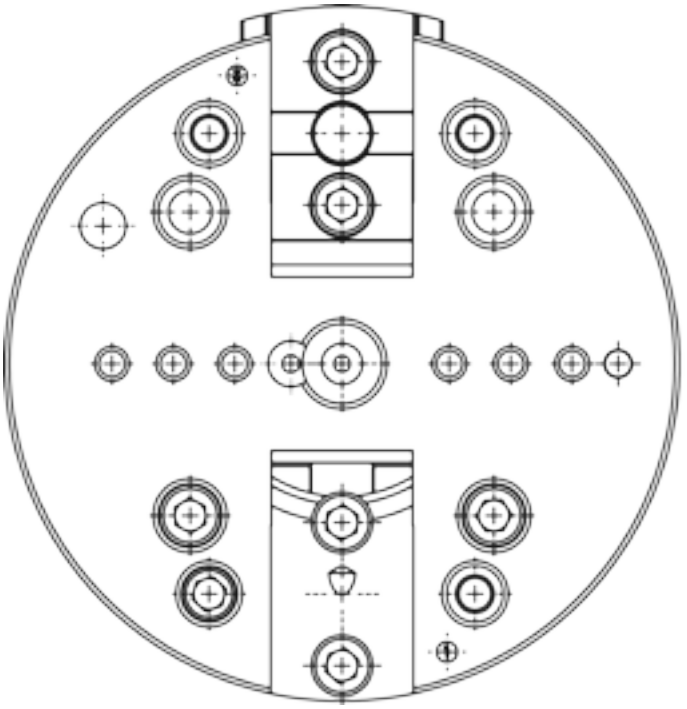
- Can be used as 2 or 3 jaw to hold round or square parts
- Extremely rugged and precise – designed for easy maintenance
- Guaranteed repeatability of .001" TIR or better on duplicate part production
- 4:1 mechanical advantage
- Various master jaw styles available
- Available with or without a Thru Hole
- 2-Jaw, 3-Jaw or 2/3-Jaw styles available
- Also available in lightweight aluminum body
- Ajust-Tru® power chuck mounting plate required

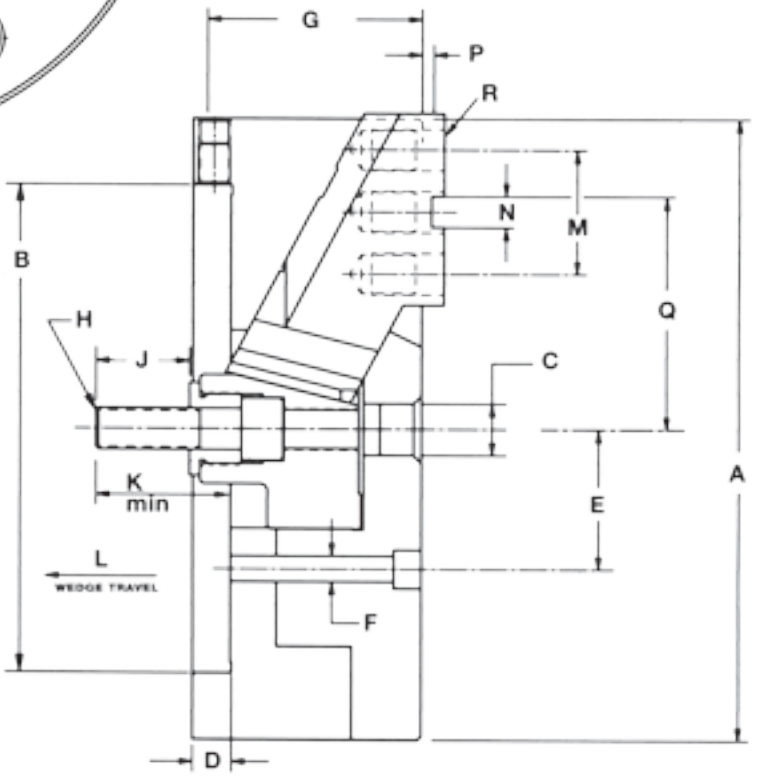


# SL

# Superlife Ajust-Tru®
# 2 Jaw Pull Back Power Chuck

The Pull-Back chuck is the perfect match for single or multiple spindle machines making heavy cuts on precision work.





# Superlife Ajust-Tru®
# 2 Jaw Pull Back Power Chuck

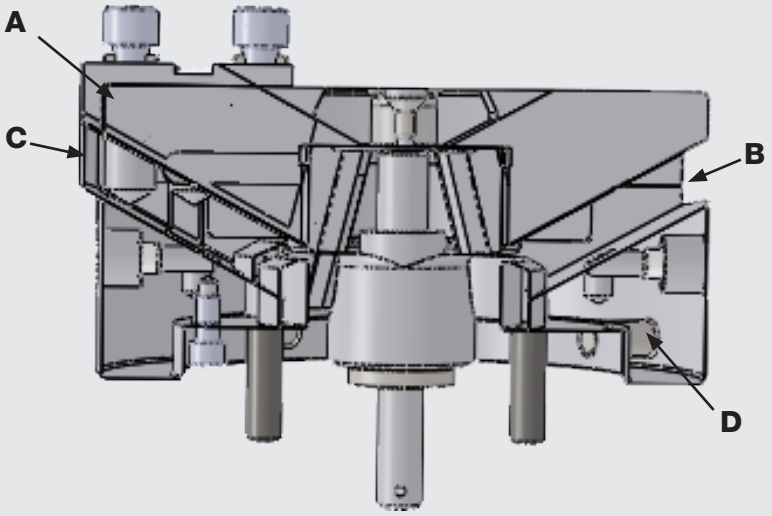
SL

**Angular Jaws Built to Deliver Increased Gripping Power**

The gripping power of the Buck Pull Back chuck is more than 100% greater than a conventional chuck. This is achieved by the large angular jaws on wider longer key ways, a wedge built to take more than twice the usual draw bar pull, and the strength and rigidity of pulling the part against stops.

**Stronger Top Jaw Connection**

In order to increase the gripping strength of the Buck Pull Back chuck, oversize tapped holes are provided for use of heavy duty top jaws. To accommodate standard top jaws, threaded inserts are also provided with the chuck.




**Structure and Function**

A. Angular Pull-Back jaw and wedge design permit doubling draw bar pull
B. Wider, longer key ways extend accuracy life with less maintenance
C. Extra key way on front plate counteracts top jaw bell-mouthing
D. Ajust-Tru feature provides .001" TIR repeatability on duplicate parts

**SPECIFICATIONS**

| Part # | A | B | C | D | E | F | G | H | J | K | L | M | N | P MIN | P MAX | Q | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3806 | 165.10 | 121.41 | 19.05 | 16.00 | 52.32 | 11.91 | 77.72 | .625"-18 | 31.75 | 57.15 | 28.70 | 38.10 | 12.70 | 7.87 | 4.06 | 61.98 | .437"-14 |
| 3808 | 209.55 | 156.46 | 22.35 | 16.76 | 66.80 | 13.46 | 95.25 | .625"-18 | 44.45 | 64.26 | 32.51 | 44.45 | 12.70 | 7.87 | 4.06 | 77.72 | .750"-16 |
| 3810 | 254.00 | 200.91 | 22.35 | 22.35 | 66.80 | 13.46 | 119.89 | 1"-14 | 67.56 | 93.73 | 42.93 | 54.10 | 12.70 | 8.64 | 4.06 | 96.77 | .875"-14 |
| 3812 | 304.80 | 200.91 | 22.35 | 22.35 | 85.85 | 16.76 | 130.30 | 1"-14 | 67.56 | 93.73 | 42.93 | 54.10 | 12.70 | 9.65 | 4.83 | 114.30 | .875"-14 |
| 3815 | 381.00 | 299.21 | 31.75 | 23.88 | 117.60 | 19.81 | 139.70 | 1"-14 | 57.15 | 81.03 | 42.93 | 76.20 | 12.70 | 14.73 | 4.83 | 143.00 | 1"-14 |
| 3818 | 457.20 | 299.21 | 31.75 | 23.88 | 117.60 | 19.81 | 152.40 | 1"-14 | 38.10 | 68.33 | 42.93 | 76.20 | 12.70 | 14.73 | 7.87 | 143.00 | 1"-14 |
| 3821 | 533.40 | 407.16 | 50.80 | 30.23 | 165.10 | 23.88 | 201.68 | 1"-14 | 44.45 | 101.60 | 57.91 | 76.20 | 12.70 | 14.73 | 7.87 | 181.10 | 1"-14 |
| 3824 | 609.60 | 407.16 | 50.80 | 30.23 | 165.10 | 23.88 | 201.68 | 1"-14 | 44.45 | 101.60 | 57.91 | 76.20 | 12.70 | 14.73 | 7.87 | 181.10 | 1"-14 |

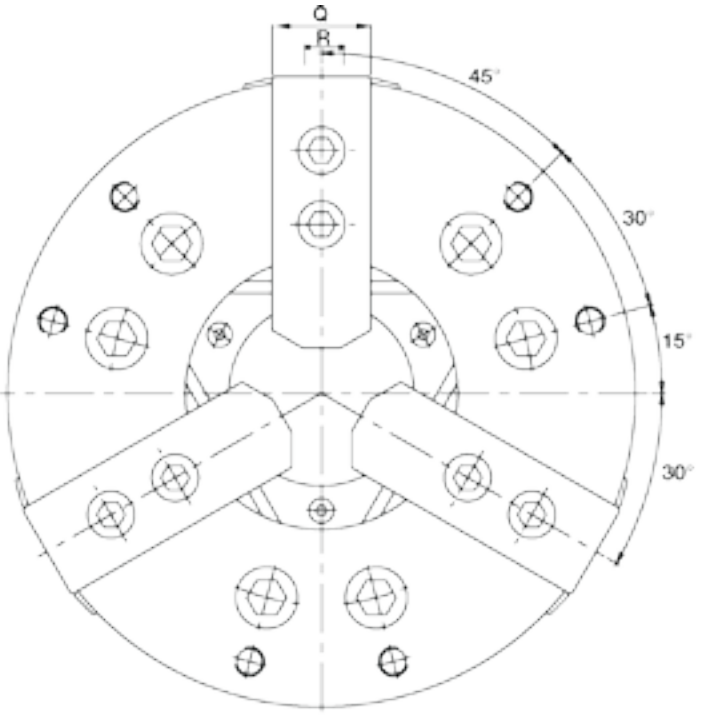
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

**PERFORMANCE DATA**

| Part # | Cross Keys | Jaw Travel | Wedge Travel | Max. Drawbar Force (kN) | Max. RPM | Weight (kg) |
|---|---|---|---|---|---|---|
| 3806 | 1 | 6.35 | 28.70 | 26.69 | 3000 | 10 |
| 3808 | 1 | 7.11 | 32.51 | 44.48 | 2500 | 21 |
| 3810 | 1 | 9.65 | 42.93 | 66.72 | 2000 | 35 |
| 3812 | 1 | 9.65 | 42.93 | 80.07 | 1700 | 50 |
| 3815 | 1 | 9.65 | 42.93 | 111.21 | 1400 | 82 |
| 3818 | 2 | 9.65 | 42.93 | 111.21 | 1100 | 124 |
| 3821 | 2 | 12.70 | 57.91 | 111.21 | 1080 | 213 |
| 3824 | 3 | 12.70 | 57.91 | 111.21 | 900 | 280 |

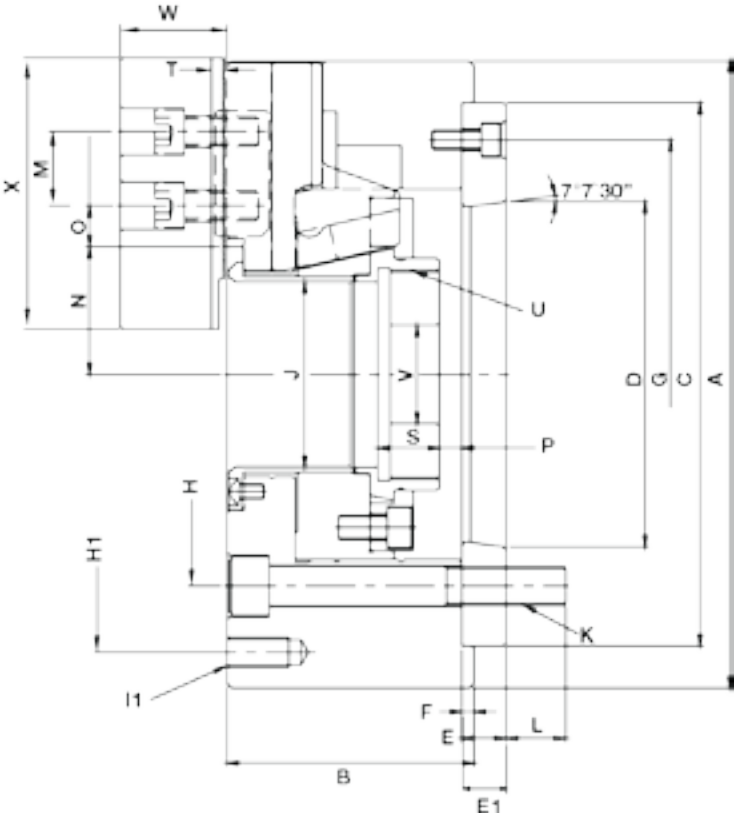
# BPC

# High Speed Thru Hole 3 Jaw Power Chuck




**Features & Benefits:**

- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Includes one set of soft top jaws (as shown)



# High Speed Thru Hole 3 Jaw Power Chuck

# BPC

| HIGH SPEED THRU HOLE 3 JAW POWER CHUCK SPECIFICATIONS A-N | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | Spindle Nose | A | B | C | D | E | E1 | F | G | H | H1 | I1 | J | K | L | M | N Max. | N Min. |
| BPC204 | — | 110 | 59 | 85 | — | — | — | 4 | — | 70.6 | — | — | 26 | M10x1.5P | — | 14 | 23 | 20.30 |
| BPC205 | A2-4 | 135 | 60 | 110 | 63.51 | 20 | — | 4 | 96 | 82.6 | 118 | M8x1.25P | 33 | M10x1.5P | 15 | 14 | 26.20 | 23.50 |
| BPC206 | A2-5 | 169 | 81 | 140 | 82.56 | 15 | — | 5 | 116 | 104.8 | 145 | M10x1.5P | 45 | M10x1.5P | 16 | 20 | 32.35 | 29.60 |
| BPC208 | A2-6 (A2-5) | 210 | 91 | 170 | 106.98 | 17 | 23 | 5 | 150 | 133.4 | 180 | M10x1.5P | 52 | M12x1.75P | 18 | 25 | 39.10 | 35.40 |
| BPC210 | A2-8 (A2-6) | 254 | 100 | 220 | 139.72 | 18 | 28 | 5 | 190 | 171.4 | 225 | M12x1.75P | 75.0 | M16x2P | 19 | 30 | 51.5 | 47.1 |
| BPC212 | A2-8 (A2-6) | 304 | 110 | 220 | 139.72 | 18 | — | 6 | 190 | 171.4 | 250 | M12x1.75P | 91.0 | M16x2P | 25 | 30 | 61.6 | 56.3 |
| BPC215 | A2-11 (A2-8) | 381 | 133 | 300 | 196.87 | 22 | 33 | 6 | 260 | 235.0 | 324 | M12x1.75P | 117.5 | M20x2.5P | 28 | 43 | 82.3 | 77.0 |
| BPC218 | A2-11 (A2-8) | 450 | 133 | 300 | 196.87 | 22 | 33 | 6 | 260 | 235.0 | 230 | M12x1.75P | 120.0 | M20x2.5P | 28 | 43 | 83.8 | 78.5 |

| HIGH SPEED THRU HOLE 3 JAW POWER CHUCK SPECIFICATIONS O-X | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | Spindle Nose | O Max. | O Min. | P Max. | P Min. | Q | R | S | T | U | V | W | X | Thru-Hole Dia. | Draw Nut Thread |
| BPC204 | — | 11.5 | 6.7 | 3.5 | -6.5 | 23 | 10 | 17.5 | 2 | M32X1.5P | 12 | 24 | 49.5 | 26 | M32X1.5P |
| BPC205 | A2-4 | 19.0 | 6.0 | 1.0 | -9.0 | 25 | 10 | 20.0 | 2 | M40x1.5P | 12 | 31.5 | 62.0 | 33.0 | M40x1.5P |
| BPC206 | A2-5 | 24.0 | 7.0 | 11.0 | -1.0 | 31 | 12 | 19.0 | 2 | M55x2P | 20 | 37.0 | 73.0 | 45.0 | M55x2P |
| BPC208 | A2-6 (A2-5) | 30.0 | 10.0 | 14.5 | -1.5 | 35 | 14 | 20.5 | 2 | M60x2P | 30 | 39.0 | 95.0 | 52.0 | M60x2P |
| BPC210 | A2-8 (A2-6) | 34.0 | 12.0 | 8.5 | -10.5 | 40 | 16 | 25.0 | 2 | M85x2P | 40 | 43 | 110 | 75.0 | M85x2P |
| BPC212 | A2-8 (A2-6) | 46.0 | 12.0 | 8.0 | -15.0 | 50 | 21 | 28.0 | 2 | M100x2P | 50 | 51 | 129 | 91.0 | M100x2P |
| BPC215 | A2-11 (A2-8) | 46.0 | 13.0 | 7.0 | -16.0 | 62 | 22 | 42.5 | 5 | M130x2P | 48 | 66 | 165 | 117.5 | M130x2P |
| BPC218 | A2-11 (A2-8) | 78.0 | 18.0 | 7.0 | -16.0 | 62 | 22 | 42.5 | 5 | M130x2P | 48 | 66 | 165 | 120.0 | M130x2P |

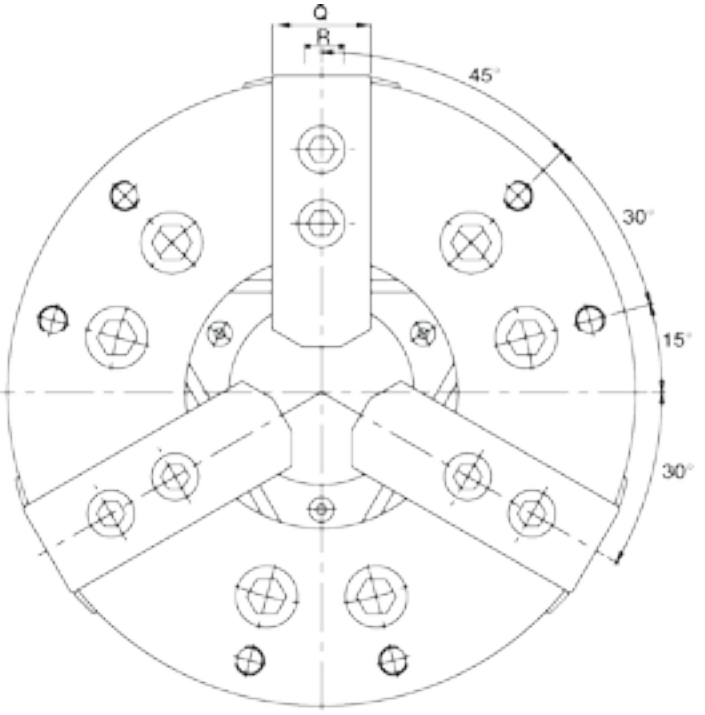
| PERFORMANCE DATA | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | Plunger Stroke | Jaw Stroke Dia. | Max. RPM | Weight (kg) | Max. Pull Force (kN) | Max. Grip Force (kN) | Max. Pressure (Mpa) | Gripping Range Min. | Gripping Range Max. | Matching Cylinder |
| BPC204 | 10 | 5.4 | 8000 | 4 | 14 | 28 | 2.30 | 7 | 110 | BC098 |
| BPC205 | 10 | 5.4 | 7000 | 7 | 17 | 35 | 2.80 | 10 | 135 | BC1036 |
| BPC206 | 12 | 5.5 | 6000 | 13 | 21 | 56 | 2.70 | 13 | 169 | BC1246 |
| BPC208 | 16 | 7.4 | 5000 | 22 | 33 | 82 | 2.50 | 13 | 210 | BC1552 |
| BPC210 | 19 | 8.8 | 4200 | 34 | 42 | 108 | 2.60 | 30 | 254 | BC1875 |
| BPC212 | 23 | 10.6 | 3300 | 55 | 54 | 141 | 2.60 | 35 | 304 | BC2091 |
| BPC215 | 23 | 10.6 | 2500 | 107 | 70 | 179 | 2.40 | 35 | 381 | BC2511 |
| BPC218 | 23 | 10.6 | 2000 | 114 | 70 | 179 | 2.40 | 40 | 450 | BC2511 |

Specially threaded or blank draw nuts available

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

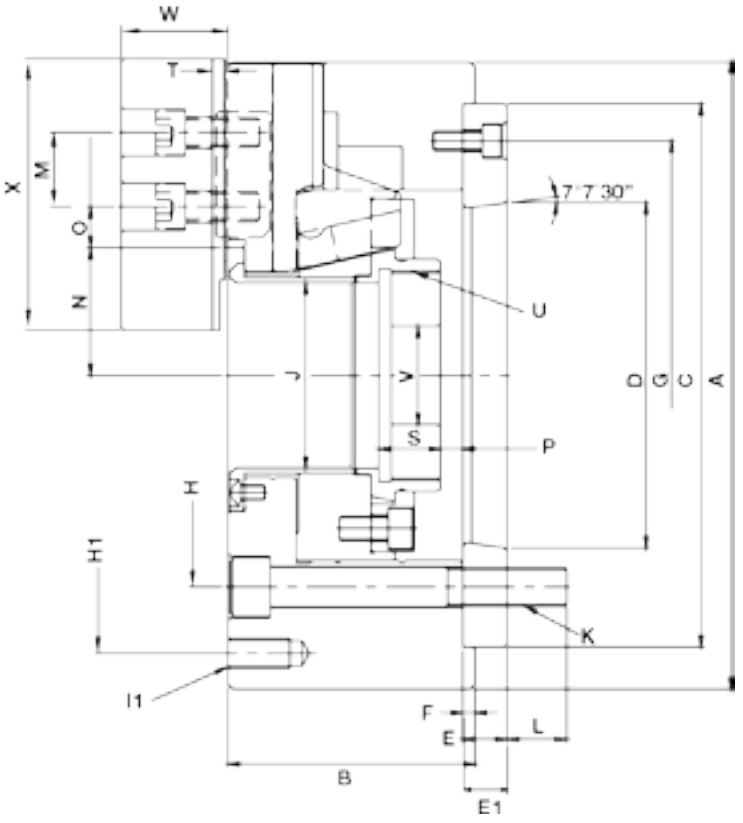
# BBC

# High Speed Large Bore 3 Jaw Power Chuck




**Features & Benefits:**

- Larger thru-hole allows for gripping of larger workpieces
- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Includes one set of soft top jaws (as shown)



# High Speed Large Bore 3 Jaw Power Chuck

BBC

| HIGH-SPEED LARGE BORE 3 JAW POWER CHUCK SPECIFICATIONS A-N | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | Spindle Nose | A | B | C | D | E | E1 | F | G | H | H1 | I1 | J | K | L | M | N Max | N Min |
| BBC206 | A2-5 | 170 | 81 | 140 | 82.6 | -- | 20 | 5 | -- | 122 | 52 | M10x1.5P | 52 | M10x1.5P | -- | 20 | 36.4 | 33.6 |
| BBC208 | A2-6 | 215 | 91 | 170 | 106.4 | -- | 22 | 5 | -- | 150 | 66 | M12x1.75P | 66 | M12x1.75P | -- | 25 | 46.6 | 42.9 |
| BBC210 | A2-8 | 256 | 100 | 220 | 139.7 | -- | 28 | 5 | -- | 180 | 81 | M16x2P | 81 | M16x2P | -- | 30 | 54.6 | 50.1 |
| BBC212 | A2-11(A2-8) | 315 | 108 | 300 | 196.9 | 22 | 33 | 5 | 260.0 | 235 | 106 | M20x2.5P | 106 | M20x2.5P | 27 | 30 | 69.7 | 64.3 |
| BBC215 | A2-15(A2-11) | 405 | 133 | 380 | 285.8 | 27 | 41 | 6 | 330.2 | 330.2 | 142 | M24x3P | 142 | M24x3P | 32 | 43 | 95.1 | 89.5 |
| BBC218 | A2-15 (A2-11) | 455 | 134 | 380 | 285.8 | 27 | 41 | 6 | 330.2 | 330.2 | 166.5 | M24x3P | 166.50 | M24x3P | 32 | 43 | 108.3 | 102.5 |

| HIGH-SPEED LARGE BORE 3 JAW POWER CHUCK SPECIFICATIONS O-Y | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | Spindle Nose | O Max. | O Min. | P Max. | P Min. | Q | R | S | T | U | V | W | X | Y | Thru-Hole Dia. | Draw Nut Thread |
| BBC206 | A2-5 | 21.1 | 9.1 | 7.0 | -5.0 | 31 | 12 | 23.0 | 2 | M60x2P | 20 | 37.5 | 73 | 104.8 | 52 | M60x2P |
| BBC208 | A2-6 | 26.6 | 11.6 | 10.0 | -6.0 | 35 | 14 | 25.0 | 2 | M75x2P | 30 | 39.5 | 80 | 133.4 | 66 | M75x2P |
| BBC210 | A2-8 | 33.1 | 13.6 | 8.5 | -10.5 | 40 | 16 | 25.0 | 2 | M90x2P | 40 | 43 | 110 | 171.4 | 81 | M90x2P |
| BBC212 | A2-11(A2-8) | 45.6 | 12.6 | 8.0 | -15.0 | 50 | 21 | 28.0 | 2 | M115x2P | 50 | 51 | 129 | 171.4 | 106 | M115x2P |
| BBC215 | A2-15(A2-11) | 43.6 | 16.6 | 8.0 | -15.0 | 62 | 22 | 42.5 | 5 | M155x2P | 80 | 66 | 165 | 235 | 142 | M155x2P |
| BBC218 | A2-15(A2-11) | 55.6 | 16.6 | 11.5 | -13.0 | 62 | 22 | 38.0 | 5 | M180x3P | 48 | 66 | 165 | 171.4 | 120.0 | M180x3P |

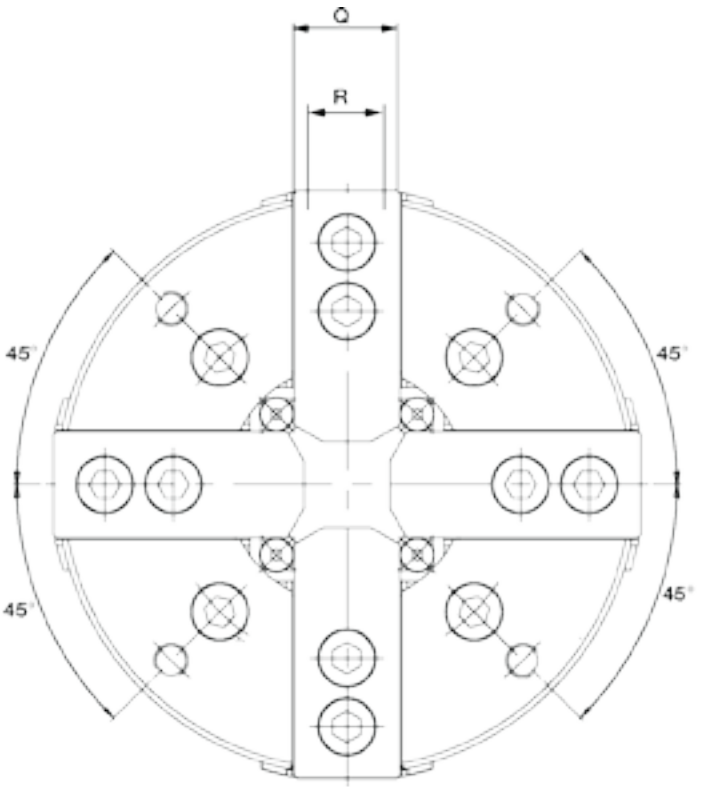
| PERFORMANCE DATA | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | Plunger Stroke | Jaw Stroke Dia. | Max RPM | Weight (kg) | Max. Pull Force (kN) | Max. Grip Force (kN) | Max. Pressure (Mpa) | Gripping Range Min | Gripping Range Max | Matching Cylinder |
| BBC206 | 12.0 | 5.5 | 6000 | 13 | 21.5 | 58 | 2.0 | 13 | 170 | BC1452S |
| BBC208 | 16.0 | 7.4 | 5000 | 22 | 33 | 86 | 2.5 | 50 | 215 | BC1666S |
| BBC210 | 19.0 | 8.8 | 4200 | 34 | 42 | 109 | 2.8 | 34 | 254 | BC1881S |
| BBC212 | 23.0 | 10.6 | 3400 | 58 | 55 | 143 | 1.8 | 50 | 315 | BC2511 |
| BBC215 | 23.0 | 10.6 | 2500 | 160 | 71 | 179 | 2.5 | 60 | 405 | BC2816 |
| BBC218 | 24.5 | 11.3 | 2000 | 165 | 71 | 179 | 2.5 | 80 | 455 | BC2816 |

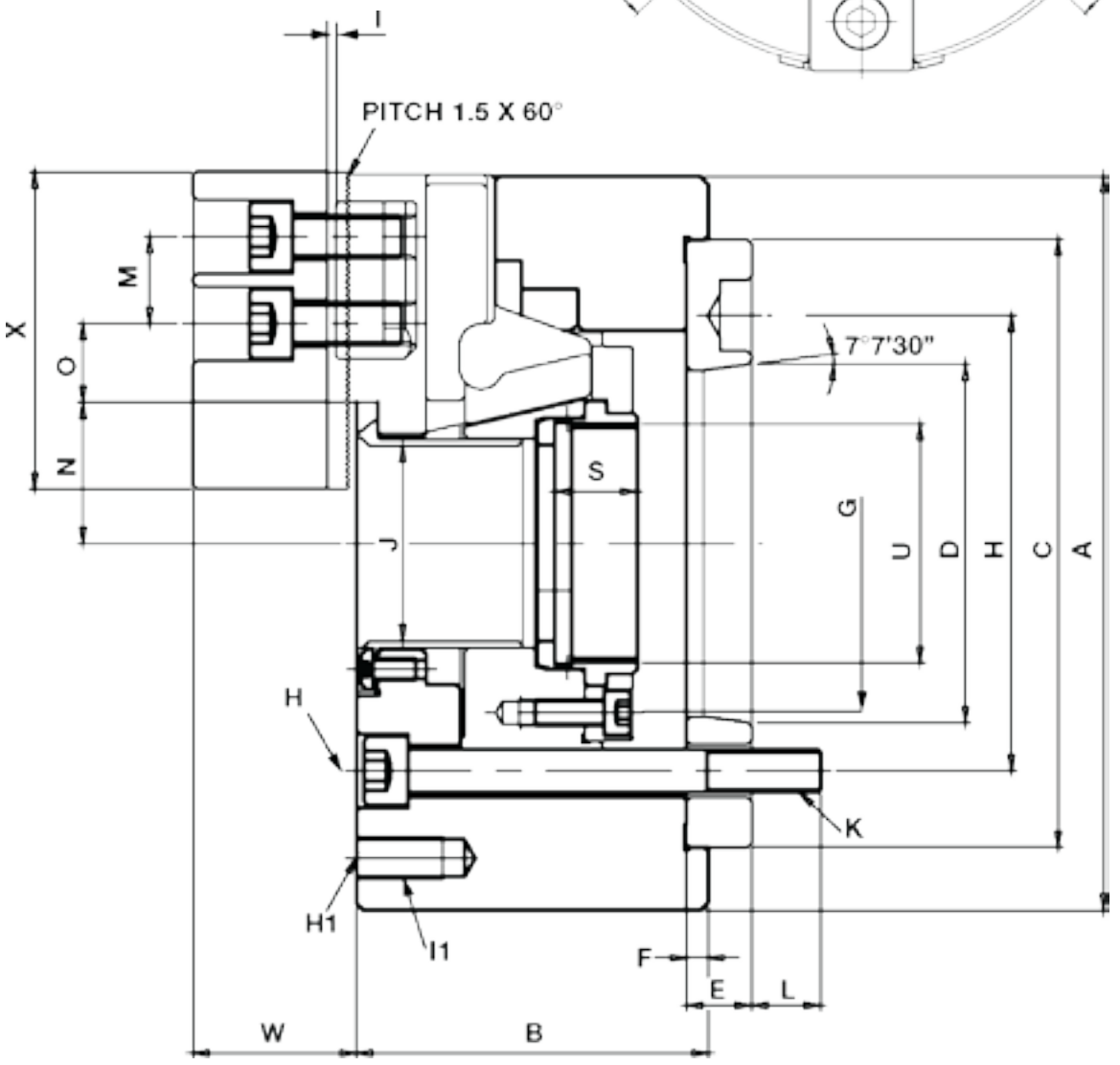
Specially threaded or blank draw nuts available

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

# OPF

## High Speed Thru Hole 4 Jaw Power Chuck



# High Speed Thru Hole 4 Jaw Power Chuck

# OPF

**Features & Benefits:**

- High-quality alloy steel body allows for higher speeds
- Sharply increased dynamic gripping force greatly improves work efficiency and safety
- Interchangeable top tooling with 1.5 mm x 60° jaw serration pitch
- Direct mounting to fit ASA B5.9 Type A spindle
- Improved lubrication system for high accuracy and endurance
- Includes one set of soft top jaws (as shown)

**HIGH SPEED THRU HOLE 4 JAW POWER CHUCK SPECIFICATIONS A-N**

| Model | Spindle Nose | A | B | C | D | E | E1 | F | G | H | H1 | I1 | J | K | L | M | N Max. | N Min. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF206 | A2-5 | 169 | 81 | 140 | 82.56 | 15 | – | 5 | 116 | 104.8 | 145 | M10x1.5P | 45 | M10x1.5P | 16 | 20 | 32.35 | 29.60 |
| OPF208 | A2-6(A2-5) | 210 | 91 | 170 | 106.38 | 17 | 23 | 5 | 150 | 133.4 | 180 | M10x1.5P | 52 | M12x1.75P | 18 | 25 | 38.70 | 35.40 |
| OPF210 | A2-8(A2-6) | 210 | 100 | 220 | 139.72 | 18 | 28 | 5 | 190 | 171.4 | 225 | M12x1.75P | 75 | M16x2P | 19 | 30 | 51.50 | 47.10 |
| OPF212 | A2-8(A2-6) | 304 | 110 | 220 | 139.72 | 18 | – | 6 | 190 | 171.4 | 250 | M12x1.75P | 91 | M16x2P | 25 | 30 | 61.60 | 56.30 |
| OPF215 | A2-11(A2-8) | 381 | 133 | 300 | 196.87 | 22 | 33 | 6 | 260 | 235 | 324 | M12x1.75P | 117.5 | M20x2.5P | 28 | 43 | 82.30 | 77.00 |
| OPF218 | A2-11(A2-8) | 450 | 133 | 300 | 196.87 | 22 | 33 | 6 | 260 | 235 | 300 | M12x1.75P | 120 | M20x2.5P | 28 | 43 | 83.80 | 78.50 |

**HIGH SPEED THRU HOLE 4 JAW POWER CHUCK SPECIFICATIONS O-Y**

| Model | Spindle Nose | O Max. | O Min. | P Max. | P Min. | Q | R | S | T | U | V | W | X | Y | Thru-Hole Dia. | Draw Tube Thread |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF206 | A2-5 | 24 | 7.0 | 11.0 | -1 | 31 | 12 | 19.0 | 2 | M55x2P | 20 | 37.5 | 73 | – | 45.0 | M55x2P |
| OPF208 | A2-6(A2-5) | 30 | 10.0 | 14.5 | -1.5 | 35 | 14 | 20.5 | 2 | M60x2P | 30 | 39.5 | 95 | 104.8 | 52.0 | M60x2P |
| OPF210 | A2-8(A2-6) | 34 | 12.0 | 8.5 | -10.5 | 40 | 16 | 25.0 | 2 | M85x2P | 45 | 43.0 | 110 | 133.4 | 75.0 | M85x2P |
| OPF212 | A2-8(A2-6) | 46 | 12.0 | 8.0 | -15 | 50 | 21 | 28.0 | 2 | M100x2P | 50 | 51.0 | 129 | – | 91.0 | M100x2P |
| OPF215 | A2-11(A2-8) | 46 | 13.0 | 7.0 | -16 | 62 | 22 | 42.5 | 5 | M130x2P | 48 | 66.5 | 165 | 171.4 | 117.5 | M130x2P |
| OPF218 | A2-11(A2-8) | 78 | 16.5 | 7.0 | -16 | 62 | 22 | 42.5 | 5 | M130x2P | 48 | 66.5 | 165 | 171.4 | 120.0 | M130x2P |

**PERFORMANCE DATA**

| Model | Plunger Stroke | Jaw Stroke Dia. | Max RPM | Weight (kg) | Max. Pull Force (kN) | Max. Grip Force (kN) | Max. Pressure (Mpa) | Gripping Range Min | Gripping Range Max | Matching Cylinder |
|---|---|---|---|---|---|---|---|---|---|---|
| OPF206 | 12 | 5.5 | 4500 | 15 | 16 | 41 | 2.1 | 22 | 169 | BC1246 |
| OPF208 | 16 | 7.4 | 3600 | 25 | 24 | 59 | 1.9 | 25 | 210 | BC1552 |
| OPF210 | 19 | 8.8 | 3200 | 38 | 31 | 79 | 2.0 | 28 | 254 | BC1875 |
| OPF212 | 23 | 10.6 | 2500 | 61 | 40 | 102 | 2.0 | 35 | 304 | BC2091 |
| OPF215 | 23 | 10.6 | 1800 | 112 | 53 | 134 | 1.9 | 63 | 381 | BC2511 |
| OPF218 | 23 | 10.6 | 1500 | 165 | 53 | 134 | 1.9 | 80 | 450 | BC2511 |

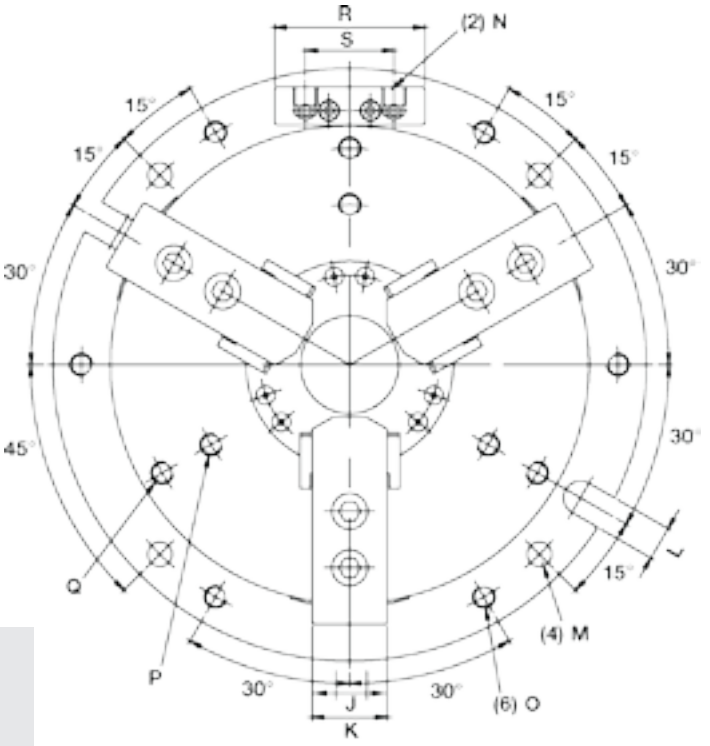
Specially threaded or blank draw nuts available

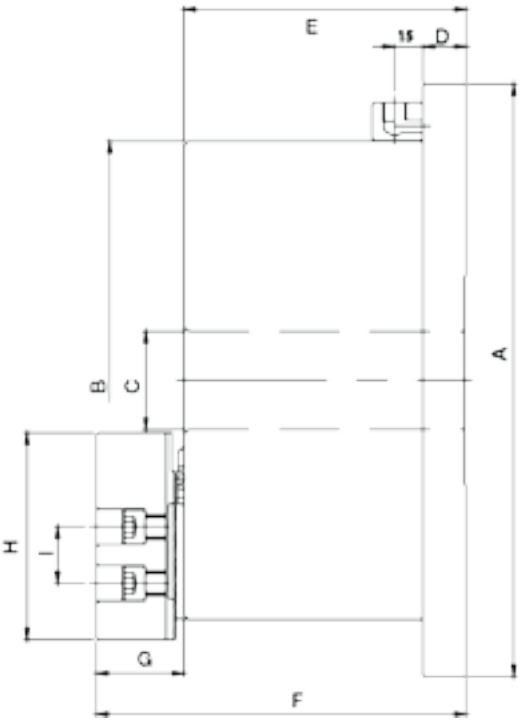
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

# MO

# Stationary 3 Jaw Hydraulic/Pneumatic Power Chuck

Also available in 2 and 4 jaw styles.




**Features And Benefits:**

- Flange bottom allows chuck to be easily fixed on a plate for quick changeovers
- Built-in cylinder allows for better stability and takes up less space, which allows for higher machining efficiency
- Chuck can be controlled by M-code for use in an auto loading system
- Master jaws with 1.5 mm X 60° pitch enables hard and soft jaw interchangeability with CNC lathe chucks, allowing reduction in cost of spare jaws
- Dust-proof and water-resistant structure increases chuck life and efficiency
- Includes one set of soft top jaws (as shown)

**Optional Accessories**

- Pneumatic Switch
- Manual switch

# Stationary 3 Jaw Hydraulic/Pneumatic Power Chuck

# M0

| SPECIFICATIONS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | A | B | C | D | E | F | G | H | I | J | K |
| M0-04 | 155 | 115 | – | 15 | 77.5 | 103.5 | 26 | 49.5 | 14 | 10 | 23 |
| M0-05 | 185 | 135 | – | 15 | 95 | 128 | 33 | 62 | 14 | 10 | 25 |
| M0-06 | 224 | 169 | 25 | 16 | 118 | 158 | 40 | 73 | 20 | 12 | 31 |
| M0-08 | 265 | 210 | 30 | 20 | 138 | 180 | 42 | 95 | 25 | 14 | 35 |
| M0-10 | 315 | 254 | 52 | 23 | 150 | 196 | 46 | 110 | 30 | 16 | 40 |
| M0-12 | 375 | 304 | 80 | 23 | 165 | 219 | 54 | 129 | 30 | 21 | 50 |

| SPECIFICATIONS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Model | L | M | N | O | P | Q | R | S |
| M0-04 | 13 | 165 | PT1/8 | M8x1.25P | – | – | 64 | 47 |
| M0-05 | 13 | 135 | PT1/4 | M8x1.25P | M8x1.25P | – | 80 | 47 |
| M0-06 | 18 | 202 | PT1/4 | M10x1.5P | M8x1.25P | – | 80 | 47 |
| M0-08 | 18 | 243 | PT1/4 | M10x1.5P | M10x1.5P | M10x1.5P | 80 | 47 |
| M0-10 | 18 | 285 | PT1/4 | M12x1.75P | M12x1.75P | M12x1.75P | 80 | 47 |
| M0-12 | 18 | 340 | PT3/8 | M16x2P | M12x1.75P | M12x1.75P | 80 | 55 |

| PERFORMANCE DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Model | Piston Area ($cm^2$) | Plunger Stroke | Jaw Stroke Dia. | Max. Grip Force (kN) | Max. Hydr. Pressure (Mpa) | Gripping Force at Air Pressure 0.7Mpa in kN | Gross Weight (kg) | Gripping Range Min | Gripping Range Max |
| M0-04 | 57 | 9 | 3.8 | 23.5 | 1.5 | 10.8 | 8 | 9 | 115 |
| M0-05 | 74 | 10 | 5.4 | 32.2 | 2.0 | 12.7 | 12 | 12 | 135 |
| M0-06 | 97 | 12 | 5.5 | 49.4 | 2.0 | 19.6 | 21 | 15 | 169 |
| M0-08 | 156 | 16 | 7.4 | 79.4 | 2.0 | 32.3 | 37 | 20 | 210 |
| M0-10 | 235 | 19 | 8.8 | 119.7 | 2.0 | 47.0 | 57 | 33 | 254 |
| M0-12 | 292 | 23 | 10.6 | 142.1 | 2.0 | 50.0 | 89 | 40 | 304 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

# BPC, BBC, OPF and MO Replacement Top Jaws

## Hard Jaws

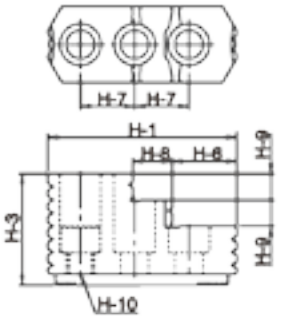
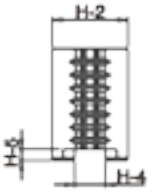



FIG. 1



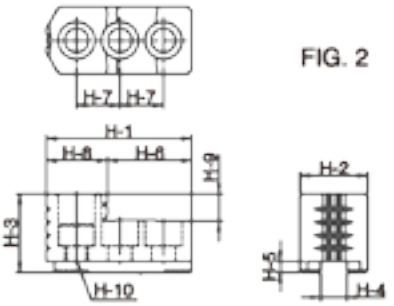
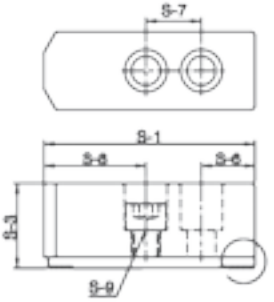



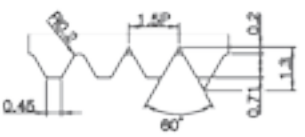

FIG. 2



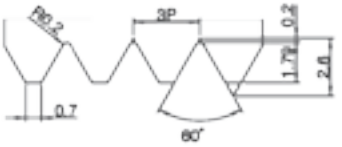

| HARD JAW SPECIFICATIONS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chuck Size | Part No. | H-1 | H-2 | H-3 | H-4 | H-5 | H-6 | H-7 | H-8 | H-9 | H-10 | Serration Pitch | Weight (kg) | Reference Drawing |
| 110 | HJ-04 | 53 | 23 | 28 | 10 | 4 | 29 | 14 | 24 | 10 | M8×1.25P | 1.5 × 60 | 1 | Fig-2 |
| 135 | HJ-05 | 53 | 23 | 28 | 10 | 4 | 29 | 14 | 24 | 10 | M8×1.25P | 1.5 × 60 | 1 | Fig-2 |
| 169 | HJ-06 | 67 | 31 | 36 | 12 | 5 | 39 | 20 | 28 | 12 | M10×1.5P | 1.5 × 60 | 1 | Fig-2 |
| 210 | HJ-08 | 87 | 35 | 51 | 14 | 5 | 29.5 | 25 | 18 | 12 | M12×1.75P | 1.5 × 60 | 2 | Fig-1 |
| 254 | HJ-10 | 101 | 40 | 54 | 16 | 5 | 45.5 | 30 | 18 | 13 | M12×1.75P | 1.5 × 60 | 3 | Fig-1 |
| 304 | HJ-12 | 108 | 50 | 67 | 21(18) | 4(5) | 49 | 30 | 20 | 16 | M16×2P(M14x2P) | 1.5 × 60 | 4 | Fig-1 |
| 381 | HJ-15 | 143 | 62 | 86 | 22(25.5) | 8(5) | 55 | 43 | 38 | 20 | M20×2.5P | 1.5 × 60 | 10 | Fig-1 |
| 450 | HJ-18 | 143 | 62 | 86 | 22(25.5) | 8(5) | 55 | 43 | 38 | 20 | M20×2.5P | 1.5 × 60 | 10 | Fig-1 |
| 530 | HJ-21 | 159.5 | 80 | 90 | 25 | 9 | 97.5 | 50 | 62 | 40 | M20x2.5P | 3.0 x 60 | 16 | Fig-2 |
| 630 | HJ-24 | 159.5 | 80 | 90 | 25 | 9 | 97.5 | 50 | 62 | 40 | M20x2.5P | 3.0 x 60 | 16 | Fig-2 |
| | HJ-32 | 159.5 | 80 | 90 | 25 | 9 | 97.5 | 50 | 62 | 40 | M20x2.5P | 3 x 60 | 16 | Fig-2 |

## Soft Jaws


Pitch 1.5




Pitch 3.0

| SOFT JAW SPECIFICATIONS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chuck Size | Part No. | S-1 | S-2 | S-3 | S-4 | S-5 | S-6 | S-7 | S-8 | S-9 | Serration Pitch | Weight (kg) |
| 110 | SJ-04 | 49.5 | 23 | 23 | 10 | 4.5 | 10 | 14 | 25.5 | M8×1.25P | 1.5 × 60 | 1 |
| 135 | SJ-05 | 62 | 25 | 30 | 10 | 4.5 | 10 | 14 | 38 | M8 ×1.25P | 1.5 × 60 | 1 |
| 169 | SJ-06 | 73 | 31 | 36 | 12 | 5 | 15 | 20 | 38 | M10 ×1.5P | 1.5 × 60 | 2 |
| 210 | SJ-08 | 95 | 35 | 38 | 14 | 5 | 24 | 25 | 46 | M12×1.75P | 1.5 × 60 | 3 |
| 254 | SJ-10 | 110 | 40 | 42 | 16 | 5 | 30 | 30 | 50 | M12×1.75P | 1.5 × 60 | 4 |
| 304 | SJ-12 | 129 | 50 | 50 | 21(18) | 6 | 39 | 30 | 60 | M16×2P(M14×2P) | 1.5 × 60 | 7 |
| 381 | SJ-15 | 165 | 62 | 62 | 22(25.5) | 8(5) | 37 | 43 | 85 | M20×2.5P | 1.5 × 60 | 13 |
| 450 | SJ-18 | 165 | 62 | 62 | 22(25.5) | 8(5) | 37 | 43 | 85 | M20×2.5P | 1.5 × 60 | 13 |
| 530 | SJ-21 | 180 | 65 | 70 | 25 | 9 | 40 | 60 | 80 | M20×2.5P | 3.0 × 60 | 13 |
| 630 | SJ-24 | 180 | 65 | 70 | 25 | 9 | 40 | 60 | 80 | M20×2.5P | 3.0 × 60 | 17 |
| 800 | SJ-32 | 180 | 65 | 70 | 25 | 9 | 40 | 60 | 80 | M20×2.5P | 3.0 × 60 | 17 |

# Manually Operated Chucks

FORKARDT™

# Manually Operated Chucks

Available in in sizes 125 to 630mm

## F+ Manual Quick Change Three Jaw Wedge Hook Chuck

Ideal for
- Bar work
- High grip force applications

Key Features
- Quick change jaw system
- High grip force
- Lightweight for high speeds

## PSA Manual Quick Change Four Jaw Independent Chuck

Ideal for
- Cylindrical work pieces
- Square or irregular shaped workpieces

Key Features
- Individually adjustable jaws
- Quick change jaw design

Available in sizes 400 to 630mm

Available in 3, 4 and 6 jaw designs in sizes 1100 to 500mm. Larger sizes available.

## Buck Manual Scroll Chuck

Ideal for
- Bar work
- General machining operations

Key Features
- Ajust-Tru ® for high precision and repeatability
- Self-centering operation

# 3 Jaw Quick Change Wedge Block Chuck

F+

## The ORIGINAL Wedge Block Chuck
## F+ Quick Change Manual Wedge Block Chuck

The F+ manual three jaw wedge block chuck is based on the wedge block principle pioneered by Forkardt. It features a true quick change jaw feature, and its standard mounting features make it suitable for all types of lathes. Internal components are easily changed by the users, making the F+ robust with a long service life.

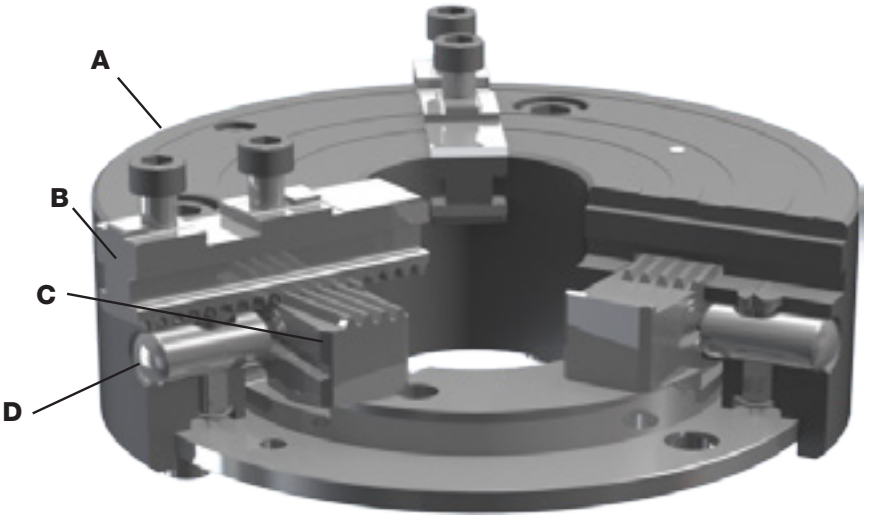
The F+ manual chuck shares the same jaw style as the FNC power chuck and offers a wide variety of jaw options. The base jaws are DIN standard and top tooling is interchangeable with other DIN style manual and power chucks. The F+ has a large thru-hole, making it ideal for bar work.

**Features & Benefits**

- Hardened chuck body for maximum precision and service life
- Internal components constructed of high quality steel to provide maximum gripping force
- Large thru-hole for bar work
- Top jaw styles available for a wide range of applications
- Quick change jaw feature reduces changeover times
- High repeatability
- High rotating speed due to light weight of jaws
- Backlash free mechanism for maximum accuracy
- Wedge hook design reduces accumulation of chips

## Structure and Function

A. Chuck body is hardened for maximum precision and service life
B. Base jaws designed with minimum weight to increase maximum rotating speed
C. Wedge blocks work at right angles to the chuck jaws to allow for quick release for fast jaw changeover
D. Jaw lock units act as buttons to release the base jaw from the wedge block for quick changeover of the jaws



## The Wedge Block Principle

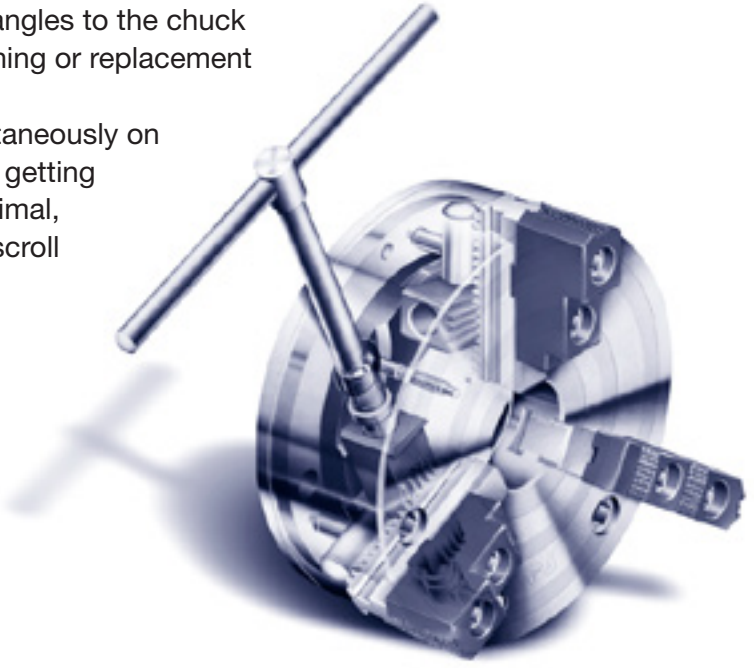
The heart of the F+ Manual three jaw chuck is the wedge block drive of the chuck jaws. In the chuck body, behind each base jaw is a wedge block which moves laterally to the jaw. It engages with an inclined module in the teeth on the end of the jaw. When the wedge blocks move, the jaws make a clamping movement inwards or outwards, depending on the direction the wedge blocks move.

The exact synchronization of the three wedge blocks is ensured by the transmission ring located under the blocks. This ring has three radial grooves in which the slide block on the journal of each wedge block engages.

One of the three wedge blocks is driven by the threaded spindle in the chuck body. To actuate the chuck, a key is placed into the spindle's square drive.

There are four major benefits to the wedge block design:

1. The mechanical elements are backlash-free, even under heavy load, thus guaranteeing the highest precision.
2. The grip force is always transmitted via generously dimensioned surfaces (no point or linear contact), guaranteeing maximum load bearing strength and resistance to wear.
3. The movement of the wedge block at right angles to the chuck jaws releases the jaws for repositioning, turning or replacement after a short disengagement stroke.
4. As each jaw is moved individually but simultaneously on their own wedge block, the chance of chips getting into the chuck and causing it to seize is minimal, offering a great advantage over a standard scroll chuck design.



# 3 Jaw Quick Change Wedge Block Chuck

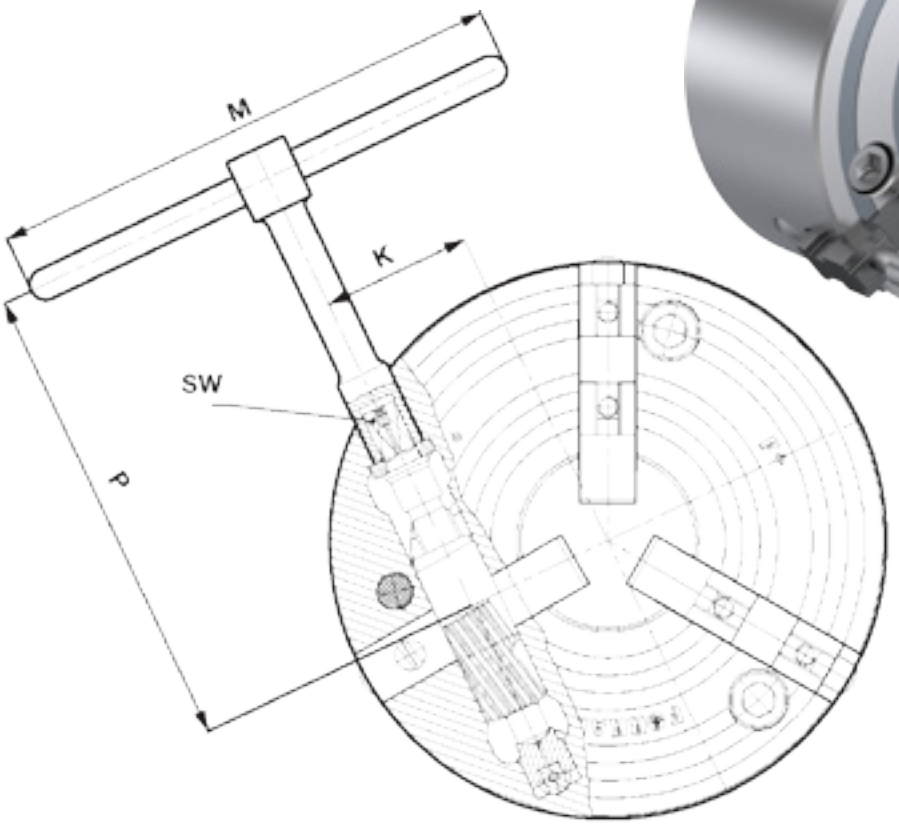
F+

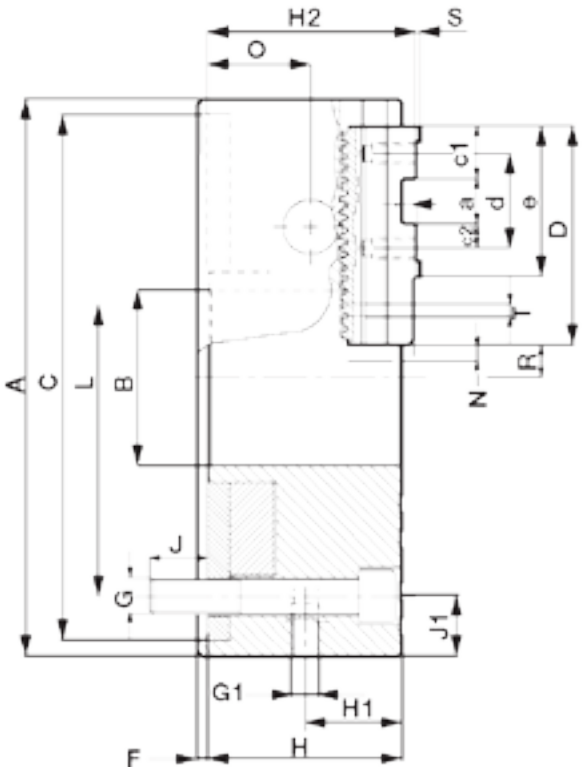
## F+ Part Numbers

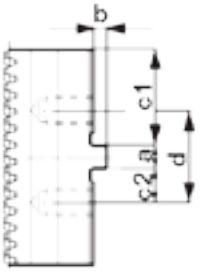
| | | Chuck with FSTB Jaws | Chuck with FMB and FHB Jaws | Chuck with FMB Jaws |
|---|---|---|---|---|
| Chuck Type | Spindle Type | Part Nos. | | |
| F+125 | Z | D164662Z00B | - | D164662Z00D |
| | J3 | D164662J03B | - | D164662J03D |
| | J4 | D164662J04B | - | D164662J04D |
| | J5 | D164662J05B | - | D164662J05D |
| | D3 | D164662D03B | - | D164662D03D |
| | D4 | D164662D04B | - | D164662D04D |
| F+160 | Z | D164663Z00B | D164663Z00E | D164663Z00D |
| | J4 | D164663J04B | D164663J04E | D164663J04D |
| | J5 | D164663J05B | D164663J05E | D164663J05D |
| | J6 | D164663J06B | D164663J06E | D164663J06D |
| | D3 | D164663D03B | D164663D03E | D164663D03D |
| | D4 | D164663D04B | D164663D04E | D164663D04D |
| | D5 | D164663D05B | D164663D05E | D164663D05D |
| | D6 | D164663D06B | D164663D06E | D164663D06D |
| | D8 | D164663D08B | D164663D08E | D164663D08D |
| F+200 | Z | D164664Z00B | D164664Z00E | D164664Z00D |
| | J4 | D164664J04B | D164664J04E | D164664J04D |
| | J5 | D164664J05B | D164664J05E | D164664J05D |
| | J6 | D164664J06B | D164664J06E | D164664J06D |
| | J8 | D164664J08B | D164664J08E | D164664J08D |
| | D4 | D164664D04B | D164664D04E | D164664D04D |
| | D5 | D164664D05B | D164664D05E | D164664D05D |
| | D6 | D164664D06B | D164664D06E | D164664D06D |
| | D8 | D164664D08B | D164664D08E | D164664D08D |
| F+250 | Z | D164665Z00B | D164665Z00E | D164665Z00D |
| | J4 | D164665J04B | D164665J04E | D164665J04D |
| | J5 | D164665J05B | D164665J05E | D164665J05D |
| | J6 | D164665J06B | D164665J06E | D164665J06D |
| | J8 | D164665J08B | D164665J08E | D164665J08D |
| | J11 | D164665J11B | D164665J11E | D164665J11D |
| | D4 | D164665D04B | D164665D04E | D164665D04D |
| | D5 | D164665D05B | D164665D05E | D164665D05D |
| | D6 | D164665D06B | D164665D06E | D164665D06D |
| | D8 | D164665D08B | D164665D08E | D164665D08D |

| | | Chuck with FSTB Jaws | Chuck with FMB and FHB Jaws | Chuck with FMB Jaws |
|---|---|---|---|---|
| Chuck Type | Spindle Type | Part Nos. | | |
| F+315 | Z | D164666Z00B | D164666Z00E | D164666Z00D |
| | J6 | D164666J06B | D164666J06E | D164666J06D |
| | J8 | D164666J08B | D164666J08E | D164666J08D |
| | J11 | D164666J11B | D164666J11E | D164666J11D |
| | D6 | D164666D06B | D164666D06E | D164666D06D |
| | D8 | D164666D08B | D164666D08E | D164666D08D |
| | D11 | D164666D11B | D164666D11E | D164666D11D |
| F+400 | Z | D164667Z00B | D164667Z00E | D164667Z00D |
| | J6 | D164667J06B | D164667J06E | D164667J06D |
| | J8 | D164667J08B | D164667J08E | D164667J08D |
| | J11 | D164667J11B | D164667J11E | D164667J11D |
| | J15 | D164667J15B | D164667J15E | D164667J15D |
| | D6 | D164667D06B | D164667D06E | D164667D06D |
| | D8 | D164667D08B | D164667D08E | D164667D08D |
| | D11 | D164667D11B | D164667D11E | D164667D11D |
| | D15 | D164667D15B | D164667D15E | D164667D15D |
| F+500 | Z | D164668Z00B | D164668Z00E | D164668Z00D |
| | J8 | D164668J08B | D164668J08E | D164668J08D |
| | J11 | D164668J11B | D164668J11E | D164668J11D |
| | J15 | D164668J15B | D164668J15E | D164668J15D |
| | D8 | D164668D08B | D164668D08E | D164668D08D |
| | D11 | D164668D11B | D164668D11E | D164668D11D |
| | D15 | D164668D15B | D164668D15E | D164668D15D |
| F+630 | Z | - | D164669Z00E | D164669Z00D |
| | J11 | - | D164669J11E | D164669J11D |
| | J15 | - | D164669J15E | D164669J15D |
| | D11 | - | D164669D11E | D164669D11D |
| | D15 | - | D164669D15E | D164669D15D |

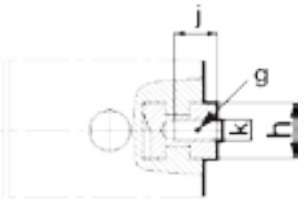
# 3 Jaw Quick Change Wedge Block Chuck


Base Jaw F+125



# 3 Jaw Quick Change Wedge Block Chuck

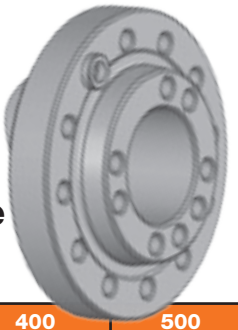
F+

## F+ Performance Data

| | Max Grip Force | Max Actuating Force | Max RPM | Weight with Jaws |
|---|---|---|---|---|
| | kN | Nm | min-1 | kg |
| F+125 | 37 | 40 | 6,000 | 3.7 |
| F+160 | 80 | 80 | 5,200 | 8.6 |
| F+200 | 120 | 120 | 4,600 | 18.5 |
| F+250 | 175 | 190 | 4,000 | 32.5 |
| F+315 | 215 | 210 | 3,200 | 62 |
| F+400 | 234 | 260 | 2,200 | 102 |
| F+500 | 234 | 260 | 1,500 | 159 |
| F+630 | 280 | 315 | 1,000 | 293 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

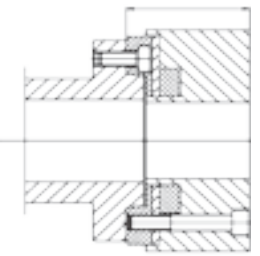
| | | | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
|---|---|---|---|---|---|---|---|---|---|---|
| Chuck Size | A | mm | 125 | 161 | 206 | 255 | 318 | 400 | 500 | 630 |
| Bore | $B^{+0.1}$ | mm | 35 | 45 | 55 | 75 | 100 | 130 | 180 | 270 |
| Mounting Recess | $C^{H6}$ | mm | 115 | 145 | 185 | 235 | 300 | 380 | 460 | 580 |
| Jaw Connection | | | F125 | F160 | F200 | F250 | F315 | F400 | F400 | F630 |
| Base Jaw Length | D | mm | 47 | 74 | 90 | 110 | 125 | 160 | 160 | 230 |
| Height of Mounting Recess | F | mm | 4 | 5 | 5 | 6 | 6 | 6 | 6 | 6 |
| Mounting Bolts | G | mm | 3xM8 | 3xM10 | 3xM12 | 3xM16 | 3xM20 | 3xM24 | 3xM24 | 3xM24 |
| Eye-Bolt Thread | G1 | mm | - | - | - | - | M16 | M16 | M16 | M20 |
| Chuck Height | H | mm | 46.5 | 63 | 81.3 | 92 | 111 | 118 | 119 | 143 |
| Clearance | H1 | mm | - | - | - | - | 55 | 55 | 55 | 70 |
| Clearance | H2 | mm | 53.1 | 69 | 88 | 99 | 119 | 129 | 130 | 155 |
| Thread Length | J | mm | 11 | 13 | 18 | 27 | 33 | 34 | 34 | 34 |
| Thread Depth | J1 | mm | - | - | - | - | 30 | 30 | 30 | 35 |
| Center Distance of Chuck Key | K | mm | 33 | 43 | 54 | 67 | 86 | 111 | 153.5 | 196 |
| Bolt Circle Diameter | L | mm | 100 | 125 | 160 | 200 | 250 | 315 | 235*/400 | 330.2*/520 |
| Lever Length | M | mm | 150 | 200 | 280 | 450 | 500 | 600 | 600 | 710 |
| Jaw Stroke | N | mm | 4.8 | 6.3 | 6.8 | 7.5 | 9.6 | 12 | 12 | 14.1 |
| Clearance | O | mm | 22.5 | 31.5 | 43 | 47 | 59 | 57.5 | 58.5 | 72 |
| Distance Of Lever | P | mm | 115 | 180 | 210 | 300 | 310 | 360 | 520 | 570 |
| Position Of Base Jaw | R min | mm | 9.2 | 12.1 | 13.2 | 14.8 | 18.7 | 24.7 | 41.6 | 33.4 |
| | R max | mm | 23.6 | 31.5 | 42.6 | 51 | 68 | 93.1 | 135.7 | 169.8 |
| Dimension | S | mm | - | 2.5 | 3 | 3 | 3 | 4 | 4 | 4 |
| Width Across Flats | SW | mm | 8 | 10 | 12 | 14 | 16 | 19 | 19 | 24 |
| Serration Pitch | T | mm | 3.6 | 4.8 | 4.8 | 6 | 7 | 8.5 | 8.5 | 8.5 |
| Angle A° | | | 6°36' | 6°36' | 3° | 4°30' | 4°30' | 4°30' | 4°30' | 4°30' |
| Angle B° | | | 21°36' | 21°36' | 18° | 19°30' | 16°30' | 19°30' | 14°30' | 69°30' |
| Sloth Width | a | mm | 5 | 18 | 20 | 20 | 26 | 30 | 30 | 40 |
| Sloth Depth | b | mm | 3 | 5 | 6 | 6 | 8 | 9 | 9 | 9 |
| Dimension | c1 | mm | 21 | 19 | 23 | 26 | 30 | 35 | 35 | 52 |
| Dimension | c2 | mm | 7.5 | 7 | 10 | 10 | 14 | 15 | 15 | 21 |
| Hole Spacing | d | mm | 20 | 32 | 40 | 40 | 54 | 60 | 60 | 82 |
| Length | e | mm | 47 | 56 | 67 | 73 | 86 | 103 | 103 | 145 |
| Thread | g | mm | M6 | M8x1 | M8x1 | M12x1.5 | M12x1.5 | M16x1.5 | M16x1.5 | M20 |
| Jaw Width | h | mm | 14 | 20 | 22 | 26 | 32 | 45 | 45 | 65 |
| Thread Depth | j | mm | 10 | 16 | 20 | 23 | 25 | 30 | 30 | 32 |
| Tongue | k | mm | 14 | 8 | 10 | 12 | 12 | 18 | 18 | 24 |
| Chuck Constant | C1 | kN | 65 | 111 | 131 | 311 | 391 | 442 | 442 | 562 |
| Chuck Constant | C2 | mm | 165 | 260 | 320 | 390 | 440 | 570 | 570 | 820 |



## Plain Back Mount Chuck with Spindle Adapter Flange for Mounting to Style A1/A2, DIN 55026

| Spindle Nose | Chuck Size | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Type | F125-A3 | - | - | - | - | - | - | - |
| | C1 | 64.5 | - | - | - | - | - | - | - |
| | Part. No | D1076104000 | - | - | - | - | - | - | - |
| 4 | Type | F125-A4 | F160-A4 | F200-A4 | - | - | - | - | - |
| | C1 | 64.5 | 81.3 | 110 | - | - | - | - | - |
| | Part. No | D1070764001 | D1070418002 | - | - | - | - | - | - |
| 5 | Type | - | F160-A5 | F200-A5 | F250-A5 | - | - | - | - |
| | C1 | - | 81.3 | 110 | 110 | - | - | - | - |
| | Part. No | - | D1070419002 | D1070417002 | D1070352002 | - | - | - | - |
| 6 | Type | - | - | F200-A6 | F250-A6 | F315-A6 | - | - | - |
| | C1 | - | - | 112 | 112 | 136 | - | - | - |
| | Part. No | - | - | D1070421002 | D1070353002 | D1070363002 | - | - | - |
| 8 | Type | - | - | - | F250-A8 | F315-A8 | F400-A8 | F500L-A8 | - |
| | C1 | - | - | - | 117 | 136 | 148 | 154 | - |
| | Part. No | - | - | - | D1070424002 | D1070376002 | D1070427102 | D1070754002 | - |
| 11 | Type | - | - | - | - | F315-A11 | F400-A11 | F500L-A11 | F630-A11 |
| | C1 | - | - | - | - | 143 | 150 | 154 | 183 |
| | Part. No | - | - | - | - | D1070375002 | D1070428002 | —— | D107043100 |
| 15 | Type | - | - | - | - | - | - | F500L-A15 | F630-J15 |
| | C1 | - | - | - | - | - | - | 159 | 167 |
| | Part. No | - | - | - | - | - | - | D1070755002 | - |

C1



## Chuck Key

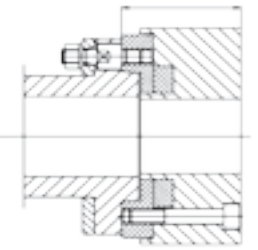
A special key for locking and unlocking of the transmission jaws for chuck actuation is supplied with your chuck. Replacement keys are available for purchase.

| Chuck Size | Key Part No. |
|---|---|
| 125 | D180412000 |
| 160 | D180413000 |
| 200 | D180414000 |
| 250 | D180415000 |
| 315 | D180416000 |
| 400 | D180417000 |
| 500 | D180418000 |
| 630 | D180419000 |

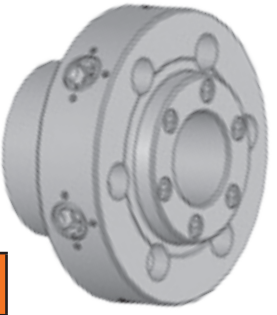
## Direct Mount Chuck Bayonet Type J, 55027

| Spindle Nose | Chuck Size | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Type | F125-J3 | - | - | - | - | - | - | - |
| | C1 | 59.5 | - | - | - | - | - | - | - |
| 4 | Type | F125-J4 | F160-J4 | F200-J4 | - | - | - | - | - |
| | C1 | 59.5 | 75.3 | 93.3 | - | - | - | - | - |
| 5 | Type | F125-J5 | F160-J5 | F200-J5 | F250-J5 | - | - | - | - |
| | C1 | 66.5 | 79.3 | 95.3 | 107 | - | - | - | - |
| 6 | Type | - | F160-J6 | F200-J6 | F250-J6 | F315-J6 | - | - | - |
| | C1 | - | 85.3 | 97.3 | 108 | 128 | - | - | - |
| 8 | Type | - | - | F200-J8 | F250-J8 | F315-J8 | F400-J8 | F500L-J8 | - |
| | C1 | - | - | 108.3 | 110 | 130 | 138 | 138 | - |
| 11 | Type | - | - | - | - | F315-J11 | F400-J11 | F500L-J11 | F630-J1 |
| | C1 | - | - | - | - | 133 | 138 | 138 | 165 |
| 15 | Type | - | - | - | - | - | - | F500L-J15 | F630-J1 |
| | C1 | - | - | - | - | - | - | 145 | 167 |

C1

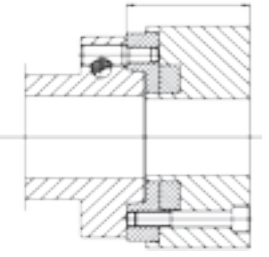


## Direct Mount Chuck Cam-Lock Type D1, DIN 55029



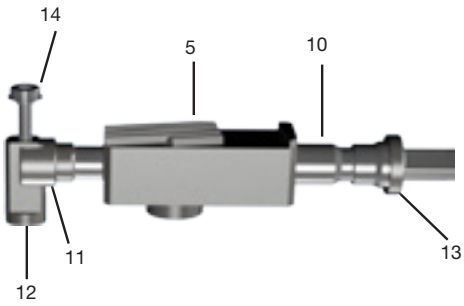
| Spindle Nose | Chuck Size | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Type | F125-D3 | - | - | - | - | - | - | - |
| | C1 | 66.5 | - | - | - | - | - | - | - |
| 4 | Type | F125-D4 | F160-D4 | F200-D4 | - | - | - | - | - |
| | C1 | 67.5 | 85.3 | 99.3 | - | - | - | - | - |
| 5 | Type | - | F160-D5 | F200-D5 | F250-D5 | - | - | - | - |
| | C1 | - | 87.3 | 101.3 | 112 | - | - | - | - |
| 6 | Type | - | F160-D6 | F200-D6 | F250-D6 | F315-D6 | - | - | - |
| | C1 | - | 103.3 | 106.3 | 117 | 146 | - | - | - |
| 8 | Type | - | - | - | F250-D8 | F315-D8 | F400-D8 | F500L-D8 | - |
| | C1 | - | - | - | 122 | 138 | 143 | 143 | - |
| 11 | Type | - | - | - | - | F315-D11 | F400-D11 | F500L-D11 | F630-D11 |
| | C1 | - | - | - | - | 143 | 148 | 148 | 170 |
| 15 | Type | - | - | - | - | - | - | F500L-D15 | F630-D15 |
| | C1 | - | - | - | - | - | - | 153 | 175 |

C1

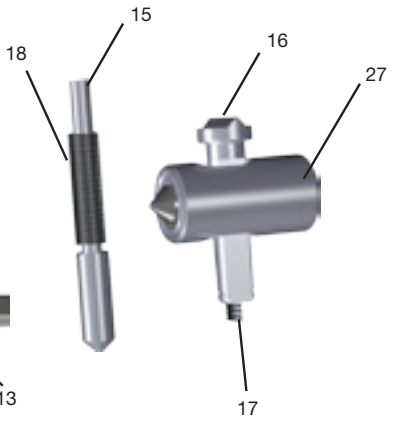


# Replacmenet Components

Forkardt F+ Chucks are built to last and designed to be maintained on the shop floor by maintenance personnel with replacement of key components.

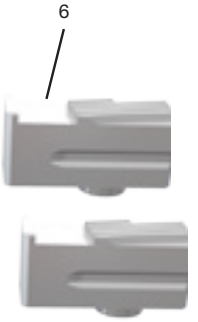



Spindle Set




Safety Set


Transmission Ring Set




Wedge Block Set

| Spindle Set | | | Kit Number by Chuck Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
| 5 | Threaded Wedge Block | 1 | D164662600 Does not contain Keys 39 or 41 | D164663600 Does not Contain Key 41 | D164664600 | D164665600 | D164666600 | D164667600 | D1646676000 | D1646696000 |
| 10 | Operating Screw | 1 | | | | | | | | |
| 11 | Thrust Bolt | 1 | | | | | | | | |
| 12 | Stop Screw | 1 | | | | | | | | |
| 13 | Thrust Ring | 1 | | | | | | | | |
| 14 | Retaining Stud | 1 | | | | | | | | |
| 39 | Grease Nipple (not shown) | 1 | | | | | | | | |
| 41 | Toothed Washer (not shown) | 1 | | | | | | | | |

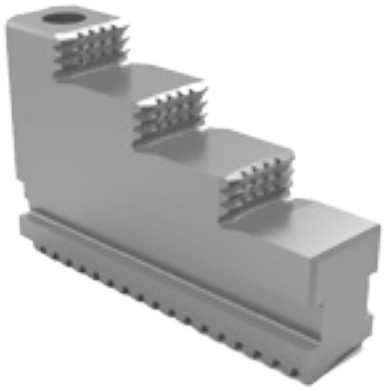
| Safety Set | | | Kit Number by Chuck Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
| 15 | Indicator Pin | 1 | D164662601 Does not contain Keys 27 or 40 | D164663601 | D164664601 | D164665601 | D164666601 | D164667601 | D164668601 | D164669601 |
| 16 | Jaw Holder | 1 | | | | | | | | |
| 17 | Pressure Spring | 1 | | | | | | | | |
| 18 | Indicator Spring | 1 | | | | | | | | |
| 27 | Jaw Lock Unit | 1 | | | | | | | | |
| 40 | Circlip (not shown) | 1 | | | | | | | | |

| Transmission Ring Set | | | Kit Number by Chuck Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
| 3 | Transmission Ring | 1 | D164662603 | D164663603 | D164664603 | D164665603 | D164666603 | D164667603 | D164667603 | D164669603 |
| 9 | Pivot Block | 3 | | | | | | | | |

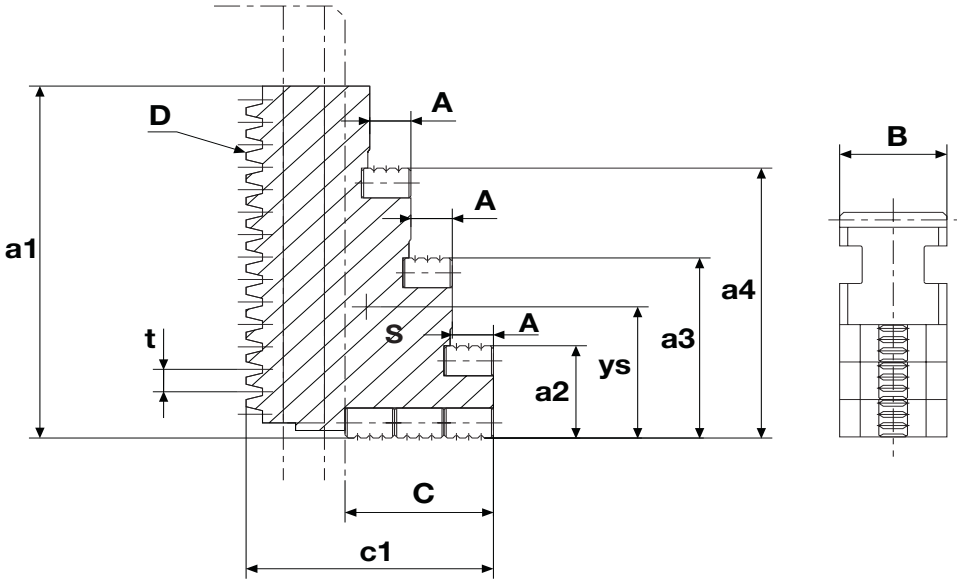
| Wedge Block Set | | | Part Number by Chuck Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 |
| 6 | Unthreaded Wedge Block | 2 | D164662602 | D164663602 | D164664602 | D164665602 | D164665602 | D164667602 | D164667602 | D164669602 |

# FSTB Hardened Solid One Piece Jaws

F+

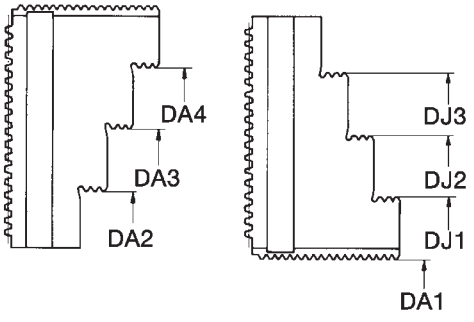


One-piece FSTB stepped jaws are hardened jaws with serrated gripping surfaces to increase the grip between the chuck jaw and the workpiece. The gripping surfaces are ground in the chuck under gripping force. These jaws are used for gripping unmachined or rough machined workpieces requiring medium cuts.




| Chuck Size | Max Swing (dia) | Jaw Style | Nominal Dimension | | | | Part No. | a1 | a2 | a3 | a4 | c1 | Ys | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | | | | | | | | |
| 175 - 42 | 234 | 160 | 7.5 | 20 | 24 | F160 | D1070016633 | 79 | 23 | 43 | 63 | 45 | 35.5 | 0.350 |
| 200 - 45 | 273 | 200 | 10 | 22 | 35 | F200 | D1070021633 | 94 | 24 | 48 | 72 | 60 | 41.0 | 0.615 |
| 250 - 72 | 346 | 250 | 14 | 26 | 40 | F250 | D1070026533 | 115 | 39.7 | - | 79.9 | 70 | 53.0 | 1.090 |
| 315 - 82 | 377 | 250 | 14 | 26 | 40 | F250 | D1070026533 | 115 | 39.7 | - | 79.9 | 70 | 53.0 | 1.090 |
| 400 - 92 | 462 | 315 | 15 | 32 | 46 | F315 | D1070033533 | 129 | 37.5 | - | 92.8 | 81 | 59.0 | 1.770 |
| 500 - 125 | 586 | 400 | 20 | 45 | 52 | F400 | D1070038533 | 167 | 52.5 | - | 113.8 | 93 | 75.5 | 3.600 |
| 630 - 125 | 690 | 400 | 20 | 45 | 52 | F400 | D1070038533 | 167 | 52.5 | - | 113.8 | 93 | 75.5 | 3.600 |

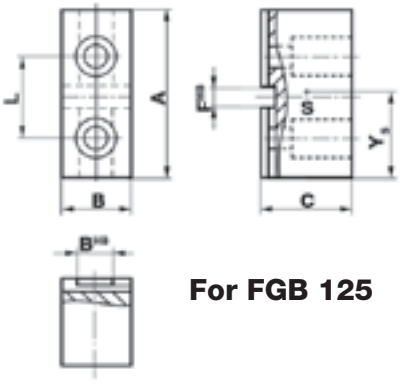
## Gripping Ranges for FSTB and FHB Jaws



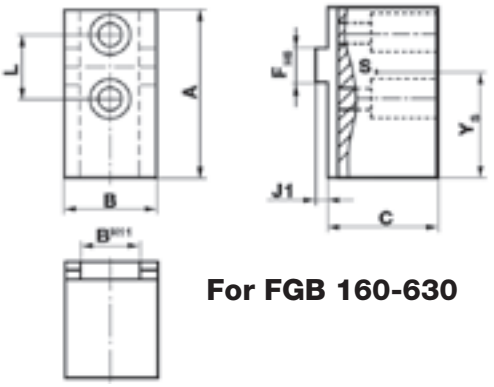

| Chuck Size | For External Chucking | | | | For Internal Chucking | | |
|---|---|---|---|---|---|---|---|
| | DA1 | DA2 | DA3 | DA4 | DJ1 | DJ2 | DJ3 |
| 175 - 42 | 8-65 | 59-108 | 99-148 | 138-188 | 63-112 | 102-152 | 142-192 |
| 200 - 45 | 8-76 | 69-128 | 116-176 | 164-224 | 65-124 | 113-173 | 160-220 |
| 250 - 72 | 10-101 | 96-181 | - | 175-261 | 96-182 | - | |
| 315 - 82 | 10-137 | 96-217 | - | 175-297 | 96-218 | - | |
| 400 - 92 | 40-202 | 106-276 | - | 216-386 | 109-278 | - | |
| 500 - 125 | 40-236 | 150-357 | - | 272-480 | 152-367 | - | 274-480 |
| 630 - 125 | 110-339 | 150-459 | - | 272-582 | 152-460 | - | 274-582 |

# FWB Style Soft Jaws

FWB soft jaws are used for precision gripping of previously machined workpieces which must not be damaged on the gripped surface. These jaws are suitable for light cutting and are turned and ground to suit the shape of the workpiece in the chuck under gripping force. Turned FWB top jaws maintain their precision as long as they are not removed from the base jaw they were ground in.




For FGB 125



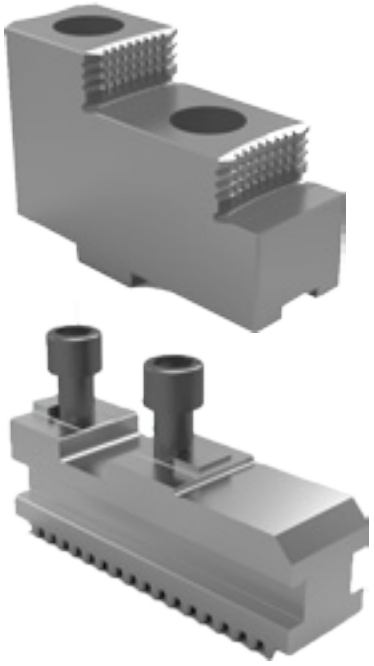

For FGB 160-630

| Chuck Size | Jaw Style | Nominal Dimension | | | Part No. | F | J1 | L | Ys | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | | | | | | |
| 175 | 160 | 85 | 20 | 35 | D1070016525 | 18 | 4.5 | 32 | 43 | 0.40 |
| 200 | 200 | 105 | 25 | 40 | D1070021525 | 20 | 5 | 40 | 53 | 0.66 |
| 250 | 250 | 125 | 30 | 55 | D1070026425 | 20 | 5 | 40 | 63.5 | 1.34 |
| 315 | 250 | 125 | 30 | 55 | D1070026425 | 20 | 5 | 40 | 63.5 | 1.34 |
| 400 | 315 | 145 | 50 | 54 | D1070033425 | 26 | 6 | 54 | 73.7 | 2.04 |
| 500 | 400 | 180 | 50 | 80 | D1070038425 | 30 | 7 | 60 | 86.7 | 4.16 |
| 630 | 400 | 180 | 50 | 80 | D1070038425 | 30 | 7 | 60 | 86.7 | 4.16 |

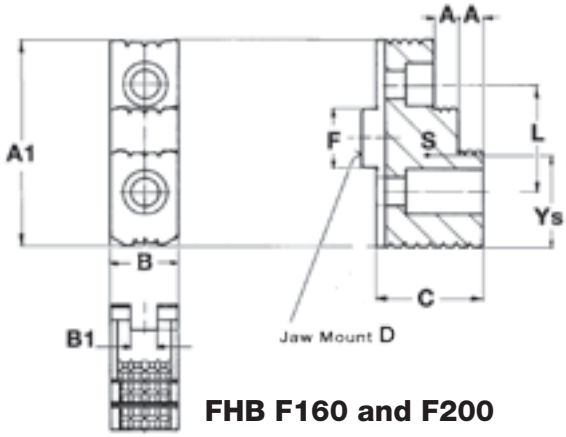
Forkardt offers a wide variety of specially machined top tooling, as well as standard style jaws such as roughing jaws. Please contact our sales office for more information.

# FGB Base Jaws with FHB Hard Jaws

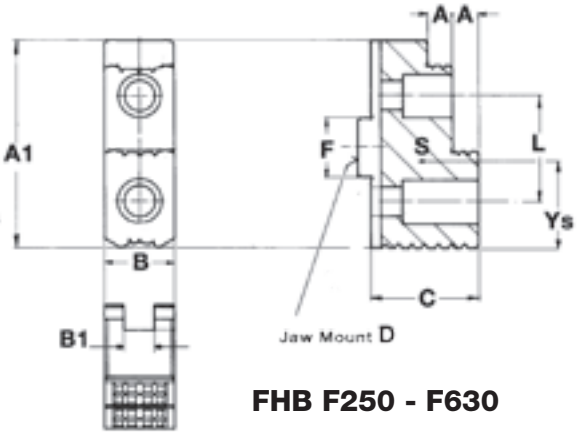




The FGB-FHB jaw set is used for gripping unmachined or rough machined workpieces. The hard FHB top jaws have serrated gripping surfaces to increase the grip between the top jaws and the workpiece. The gripping surfaces are ground in the chuck under gripping force in order to increase concentricity. To maintain this concentricity, the top jaw should not be removed from the base jaw.




**FHB F160 and F200**




**FHB F250 - F630**

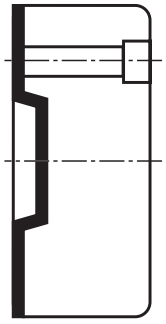
| Chuck Size | Max Swing (dia) | Jaw Style | Nominal Dimension | | | | | | Part No. | | A1 | B1 | Ys | Weight Per Jaw (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | F | L | Base Jaw FGB | Top Jaw FHB | | | | |
| 175 - 42 | 234 | 160 | 7.5 | 20 | 24 | F160 | 18 | 32 | D180567000 | D1070016624 | 67 | 8 | 33.9 | 0.217 |
| 200 - 45 | 273 | 200 | 10 | 22 | 35 | F200 | 20 | 40 | D180577000 | D1070021624 | 75 | 10 | 40.3 | 0.340 |
| 250 - 72 | 346 | 250 | 14 | 26 | 40 | F250 | 20 | 40 | D180588000 | D1070026524 | 90 | 12 | 48.5 | 0.740 |
| 315 - 82 | 377 | 250 | 14 | 26 | 40 | F250 | 26 | 54 | D180588000 | D1070026524 | 90 | 12 | 48.5 | 0.740 |
| 400 - 92 | 462 | 315 | 15 | 32 | 46 | F315 | 30 | 60 | D180596000 | D1070026524 | 106 | 18 | 55.3 | 2.240 |
| 500 - 125 | 586 | 400 | 20 | 45 | 52 | F400 | 40 | 76 | D180606000 | D1070038524 | 128 | 18 | 75.5 | 3.600 |
| 630 - 125 | 690 | 400 | 20 | 45 | 52 | F400 | 40 | 82 | D180606000 | D1070038524 | 145 | 24 | 75.5 | 3.600 |

Gripping ranges for FHB jaws can be found on FSTB page.

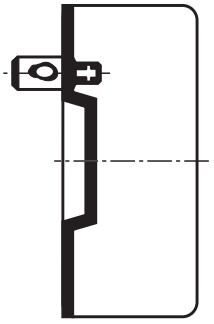
# PSA

# Direct Mount 4 Jaw Independent Chucks

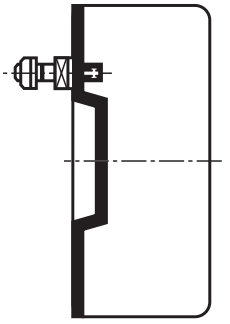
**Front Mount ASA A1/2 and DIN 55026**



**Rear Mount Bayonet Style and DIN 55027**



**Rear Mount ASA D1 Cam-lock and DIN 55029**



| DIN 55026 and ASA A1/2 | | | DIN 55027 Bayonet Style | | | DIN 55029 and ASA D1 | | |
|---|---|---|---|---|---|---|---|---|
| Chuck Size | Spindle Size | Part No. | Chuck Size | Spindle Size | Part No. | Chuck Size | Spindle Size | Part No. |
| 400 | 6 | DP 254033120 | 400 | 6 | DP 254023120 | 400 | 6 | DP 254013120 |
| 400 | 8 | DP 254034120 | 400 | 8 | DP 254024120 | 400 | 8 | DP 254014120 |
| 400 | 11 | DP 254035120* | 400 | 11 | DP 254025120* | 400 | 11 | DP 254015120* |
| 450 | 6 | DP 254533120 | 450 | 6 | DP 254523120 | 450 | 6 | DP 254513120 |
| 450 | 8 | DP 254534120 | 450 | 8 | DP 254524120 | 450 | 8 | DP 254514120 |
| 450 | 11 | DP 254535120* | 450 | 11 | DP 254525120* | 450 | 11 | DP 254515120* |
| 500 | 6 | DP 255033120 | 500 | 6 | DP 255023120 | 500 | 6 | DP 255013120 |
| 500 | 8 | DP 255034120 | 500 | 8 | DP 255024120 | 500 | 8 | DP 255014120 |
| 500 | 11 | DP 255035120* | 500 | 11 | DP 255025120* | 500 | 11 | DP 255015120* |
| 560 | 6 | DP 255633120 | 560 | 6 | DP 255623120 | 560 | 6 | DP 255613120 |
| 560 | 8 | DP 255634120 | 560 | 8 | DP 255624120 | 560 | 8 | DP 255614120 |
| 560 | 11 | DP 255635120 | 560 | 11 | DP 255625120 | 560 | 11 | DP 255615120 |
| 610 | 8 | DP 256134120 | 610 | 8 | DP 256124120 | 610 | 8 | DP 256114120 |
| 610 | 11 | DP 256135120 | 610 | 11 | DP 256125120 | 610 | 11 | DP 256115120 |
| 630 | 8 | DP 256334120 | 630 | 8 | DP 256324120 | 630 | 8 | DP 256314120 |
| 630 | 11 | DP 256335120 | 630 | 11 | DP 256325120 | 630 | 11 | DP 256315120 |
| 710 | 8 | DP 257134120 | 710 | 8 | DP 257124120 | 710 | 8 | DP 257114120 |
| 710 | 11 | DP 257135120 | 710 | 11 | DP 257125120 | 710 | 11 | DP 257115120 |
| 800 | 8 | DP 258034120 | 800 | 8 | DP 258024120 | 800 | 8 | DP 258014120 |
| 800 | 11 | DP 258035120 | 800 | 11 | DP 258025120 | 800 | 11 | DP 258015120 |
| 800 | 15 | DP 258036120 | 800 | 15 | DP 258026120 | 800 | 15 | DP 258016120 |
| 800 | 20 | DP 258037120* | 800 | 20 | DP 258027120* | 800 | 20 | DP 258017120* |
| 900 | 11 | DP 259035120 | 900 | 11 | DP 259025120 | 900 | 11 | DP 259015120 |
| 900 | 15 | DP 259036120 | 900 | 15 | DP 259026120 | 900 | 15 | DP 259016120 |
| 1000 | 11 | DP 250035120 | 1000 | 11 | DP 250025120 | 1000 | 11 | DP 250015120 |
| 1000 | 15 | DP 250036120 | 1000 | 15 | DP 250026120 | 1000 | 15 | DP 250016120 |
| 1000 | 20 | DP 250037120* | 1000 | 20 | DP 250027120* | 1000 | 20 | DP 250017120* |
| 1200 | 11 | DP 250235120 | 1200 | 11 | DP 250225120 | 1200 | 11 | DP 250215120 |
| 1200 | 15 | DP 250236120 | 1200 | 15 | DP 250226120 | 1200 | 15 | DP 250216120 |
| 1200 | 20 | DP 250237120 | 1200 | 20 | DP 250227120 | 1200 | 20 | DP250217120 |

# Quick Change 4 Jaw Independent Chucks

# PSA

The Forkardt Model PSA four jaw independent chucks provide rugged versatility and a quick change jaw system. The four independent jaws can be adjusted individually, making the PSA ideal for both cylindrical and irregular shaped workpieces. The spindle housing and jaws are made from hardened steel, guaranteeing a long service life and high precision.

The jaws are made according to American Standard Tongue and Groove and are equipped with a quick change jaw system. The base jaws are divided with a thread for the adjustable spindle and stepped reversible top jaws. To turn the top jaw on the base jaw, simply release the jaw mounting bolt.

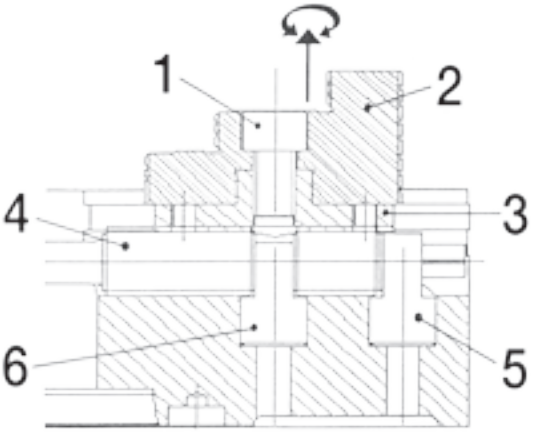
**Features & Benefits:**

- Individually adjustable jaws allow for high precision
- American Standard Tongue & Groove master jaws allow for a variety of readily available top tooling
- Quick change jaw design allows for faster changeover from ID to OD gripping
- Internal components made from case hardened steel, increasing service life, precision and load bearing capacity

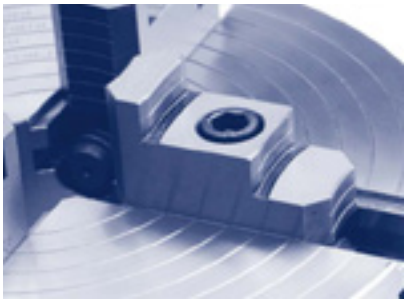
**The Quick Change System**

The clamping jaws are set into guide slots and are fitted with a split master jaw.

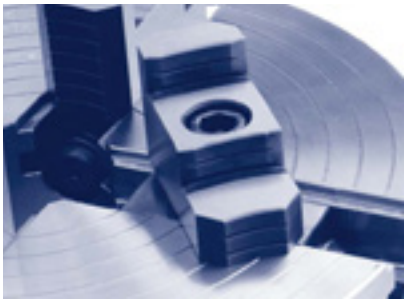
Each jaw consists of a section (3) with cut thread for the operating screw (4) and the three stage top jaw (2). To turn the top jaw (2) on the master jaw (3) you need only to loosen the jaw bolt (1).




**Jaw at Starting Position**



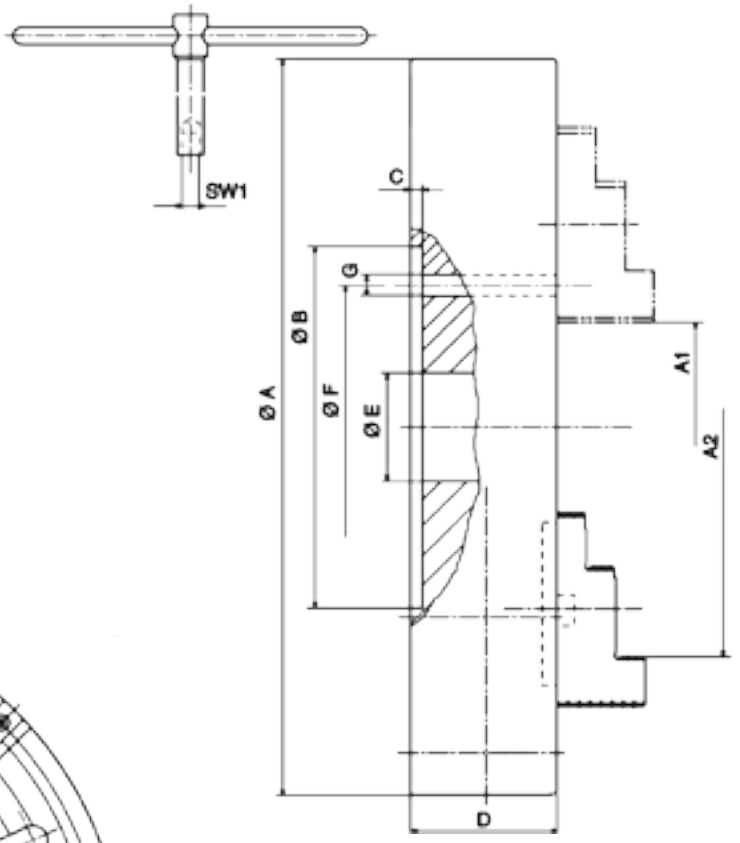
**Jaw Being Turned**

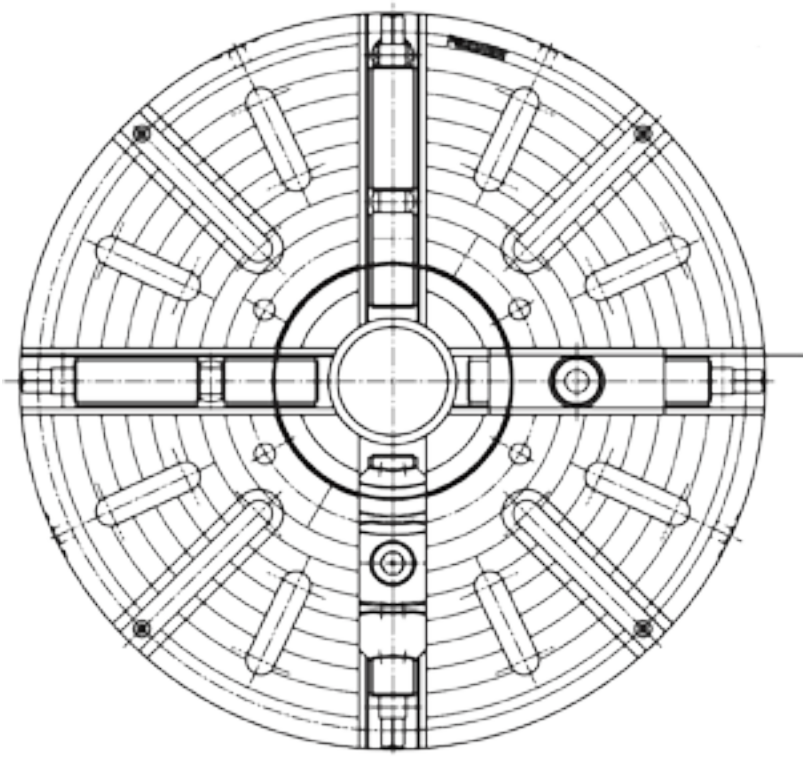


**Jaw at New Position**

# PSA

## Quick Change 4 Jaw Independent Chucks



# Quick Change 4 Jaw Independent Chucks

# PSA

| | Dimensions and Performance Specifications | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chuck Diameter | A | mm | 400 | 450 | 500 | 560 | 610 | 630 | 710 | 710 |
| Mounting Recess Diameter | B | mm | 200 | 200 | 260 | 260 | 260 | 260 | 260 | 370 |
| Mounting Recess Thickness | C | mm | 10 | 10 | 13 | 13 | 13 | 13 | 13 | 13 |
| Chuck Height | D | mm | 100 | 100 | 110 | 110 | 120 | 120 | 135 | 135 |
| Through Hole | E | mm | 90 | 90 | 90 | 90 | 90 | 90 | 110 | 110 |
| Mounting Bolt PCD | F | mm | 172 | 172 | 220 | 220 | 220 | 220 | 220 | 330 |
| Mounting Bolt Size | G | | M16 | M16 | M20 | M20 | M20 | M20 | M20 | M20 |
| Minimum Clamping OD | A1 | mm | 40 | 40 | 40 | 40 | 45 | 45 | 50 | 50 |
| Maximum Clamping ID | A2 | mm | 400 | 450 | 500 | 560 | 610 | 630 | 710 | 710 |
| Max Swing Diameter | | mm | 465 | 515 | 580 | 540 | 695 | 715 | 800 | 800 |
| Max Torque of Operating Screw | | Nm | 180 | 180 | 250 | 250 | 350 | 350 | 350 | 350 |
| Max Clamp Force | | kN | 126 | 126 | 160 | 160 | 196 | 196 | 196 | 196 |
| Max RPM | | $min^{-1}$ | 1,530 | 1,360 | 1,220 | 1,100 | 1,020 | 980 | 875 | 875 |
| Weight | | kg | 58 | 71 | 106 | 111 | 140 | 155 | 187 | 187 |
| Part Number | | | DP169250000 | DP169250000 | DP169254000 | DP169920000 | DP169930000 | DP169937000 | DP169944000 | DP169945000 |

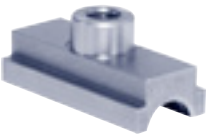
| | Dimensions and Performance Specifications | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Chuck Diameter | A | mm | 800 | 800 | 900 | 900 | 1000 | 1000 | 1200 |
| Mounting Recess Diameter | B | mm | 260 | 370 | 260 | 370 | 260 | 370 | 370 |
| Mounting Recess Thickness | C | mm | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| Chuck Height | D | mm | 135 | 145 | 150 | 150 | 150 | 150 | 160 |
| Through Hole | E | mm | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| Mounting Bolt PCD | F | mm | 220 | 330 | 220 | 330 | 220 | 330 | 330 |
| Mounting Bolt Size | G | | M20 | M20 | M20 | M20 | M20 | M20 | M20 |
| Minimum Clamping OD | A1 | mm | 60 | 60 | 60 | 60 | 60 | 60 | 100 |
| Maximum Clamping ID | A2 | mm | 800 | 800 | 900 | 900 | 1000 | 1000 | 1200 |
| Max Swing Diameter | | mm | 910 | 910 | 1010 | 1010 | 1130 | 1130 | 1330 |
| Max Torque of Operating Screw | | Nm | 550 | 550 | 550 | 550 | 550 | 550 | 550 |
| Max Clamp Force | | kN | 286 | 286 | 286 | 286 | 286 | 286 | 286 |
| Max RPM | | $min^{-1}$ | 765 | 765 | 680 | 680 | 610 | 610 | 510 |
| Weight | | kg | 298 | 298 | 380 | 380 | 475 | 475 | 715 |
| Part Number | | | DP169955000 | DP169956000 | DP169966000 | DP169967000 | DP169974000 | DP169975000 | DP169982000 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

# Replacement Jaws and Components

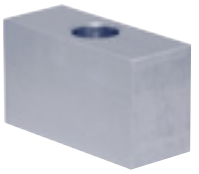
Forkardt offers replacement jaws and spare parts to help extend the life of your chuck. Please provide chuck model number when ordering spare parts.

**Master Jaw**



**Hard Top Jaw**

**Soft Top Jaw**



| Chuck Size | Part No. | Part No. | Part No. |
|---|---|---|---|
| 400 | DP 169240015 | DP 169247016 | DP 240170000 |
| 450 | DP 169247015 | DP 169247016 | DP 240170000 |
| 500 | DP 169586015 | DP 169586016 | DP 250170000 |
| 560 | DP 169586015 | DP 169586016 | DP 250170000 |
| 610 | DP 169930015 | DP 169930016 | DP 261170000 |
| 630 | DP 169930015 | DP 169930016 | DP 261170000 |
| 710 | DP 169944015 | DP 169944016 | DP 271170000 |
| 800 | DP 169955015 | DP 169955016 | DP 280170000 |
| 900 | DP 169955015 | DP 169955016 | DP 280170000 |
| 1000 | DP 169974015 | DP 169974016 | DP 200170000 |
| 1200 | DP 169974015 | DP 169974016 | DP 200170000 |

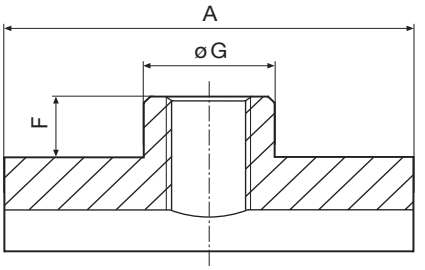
**Operating Screw**

**Open Thrust Bearing**

**Closed Thrust Bearing**

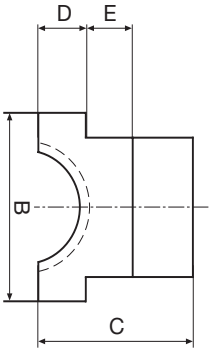
**Chuck Key**

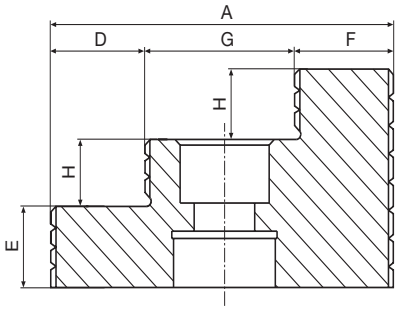
| Chuck Size | Part No. | Part No. | Part No. | Part No. |
|---|---|---|---|---|
| 400 | DP 169247002 | DP 169247004 | DP 169247003 | DP 169286000 |
| 450 | DP 169247002 | DP 169247004 | DP 169247003 | DP 169286000 |
| 500 | DP 169586002 | DP 169586004 | DP 169247003 | DP 169287000 |
| 560 | DP 169586002 | DP 169586004 | DP 169586003 | DP 169287000 |
| 610 | DP 169930002 | DP 169930004 | DP 169586003 | DP 169288000 |
| 630 | DP 169930002 | DP 169930004 | DP 169930003 | DP 169288000 |
| 710 | DP 169944002 | DP 169930004 | DP 169930003 | DP 169288000 |
| 800 | DP 169955002 | DP 169955004 | DP 169930003 | DP 169289000 |
| 900 | DP 169955002 | DP 169955004 | DP 169955003 | DP 169289000 |
| 1000 | DP 169974002 | DP 169974004 | DP 169974003 | DP 169289000 |
| 1200 | DP 169974002 | DP 169974004 | DP 169974003 | DP 169289000 |

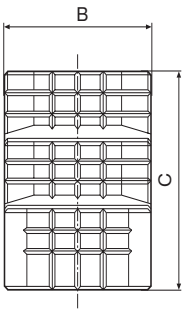



## Master Jaws

| Size (mm) | 400 | 450 | 500 | 560 | 610 | 630 | 710 | 770 | 800 | 900 | 1000 | 1100 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 100 | 100 | 120 | 120 | 144 | 144 | 165 | 165 | 204 | 204 | 210 | 210 | 210 |
| B | 46 | 46 | 50 | 50 | 55 | 55 | 60 | 60 | 70 | 70 | 75 | 75 | 75 |
| C | 39.5 | 39.5 | 45 | 45 | 47.5 | 47.5 | 51 | 51 | 60 | 60 | 62 | 62 | 62 |
| D | 12 | 12 | 14 | 14 | 16 | 16 | 16 | 16 | 16 | 16 | 18 | 18 | 18 |
| E | 12 | 12 | 14 | 14 | 14 | 14 | 16 | 16 | 20 | 20 | 20 | 20 | 20 |
| F | 15.5 | 15.5 | 17 | 17 | 17.5 | 17.5 | 19 | 19 | 24 | 24 | 24 | 24 | 24 |
| G | 32 | 32 | 37 | 37 | 40 | 40 | 44 | 44 | 54 | 54 | 54 | 54 | 54 |

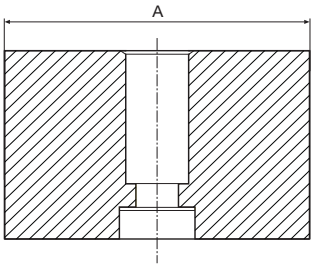


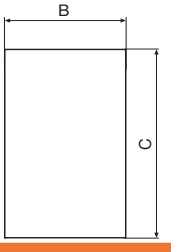




## Quick Change Top Jaws

| Size (mm) | 400 | 450 | 500 | 560 | 610 | 630 | 710 | 770 | 800 | 900 | 1000 | 1100 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 107.5 | 107.5 | 142 | 142 | 161 | 161 | 180 | 180 | 214 | 214 | 224 | 224 | 224 |
| B | 46 | 46 | 50 | 50 | 55 | 55 | 60 | 60 | 70 | 70 | 75 | 75 | 75 |
| C | 62 | 62 | 70 | 70 | 78 | 78 | 84 | 84 | 95 | 95 | 113 | 113 | 113 |
| D | 29.5 | 29.5 | 42 | 42 | 45 | 45 | 50 | 50 | 60 | 60 | 64 | 64 | 64 |
| E | 24 | 24 | 26 | 26 | 30 | 30 | 32 | 32 | 35 | 35 | 43 | 43 | 43 |
| F | 31 | 31 | 40 | 40 | 41 | 41 | 44 | 44 | 54 | 54 | 59 | 59 | 59 |
| G | 47 | 47 | 60 | 60 | 75 | 75 | 86 | 86 | 100 | 100 | 101 | 101 | 101 |
| H | 19 | 19 | 22 | 22 | 24 | 24 | 26 | 26 | 30 | 30 | 35 | 35 | 35 |




## Unstepped Top Jaws

| Size (mm) | 400 | 450 | 500 | 560 | 610 | 630 | 710 | 770 | 800 | 900 | 1000 | 1100 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16 | 18 | 20 | 22 | 24 | 25 | 28 | 30 | 31 | 35 | 39 | 43 | 48 |
| A | 107 | 107 | 142 | 142 | 161 | 161 | 180 | 180 | 215 | 215 | 224 | 224 | 224 |
| B | 46 | 46 | 50 | 50 | 55 | 55 | 60 | 60 | 70 | 70 | 75 | 75 | 75 |
| C | 62 | 62 | 70 | 70 | 78 | 78 | 84 | 84 | 95 | 95 | 113 | 113 | 113 |

# BUCK

# Manual Ajust-Tru® Scroll Chucks

**The ORIGINAL adjustable scroll chuck that offers dead true precision and longer chuck life!**


PINION C moves chuck jaws to grip work.

ADJUSTING SCREWS G are used to move the chuck on its mounting plate.

BUCK Ajust-Tru® Chucks offer dead true precision and guarantee .0005” repeatability on duplicate parts. This precision comes from a built-in .020” clearance between the chuck body cavity and the mounting plate hub. This allows opposing screws ample movement to adjust work accurately.

This adjustment takes less than a minute, and no further adjustment is needed to get precision within .0005” TIR on duplicate parts.

Since the key to Buck Ajust-Tru® Precision is in the way mounting plate clearance is used, it is essential to have the proper mounting plate for your BUCK Chuck. Mountings are available for all standard spindles, and our engineering department can design a plate to fit almost any mounting surface.

Scroll Chucks are available in 3, 4 and 6 jaw styles with either solid one piece or reversible two piece jaws. DIN Mount options are also available.

# Pneumatic Operated Chucks

FORKARDT™

# Pneumatic Operated Chucks

Forkardt offers a variety of pneumatic  chucks and can customize them to suit the application. These air chucks are made with high quality materials and offer high precision and accuracy.

Available in 2 and 3 jaw in sizes from 84 to 250mm

### High Precision Turning Air Chuck

Ideal for
- Conventional turning machines

Key Features
- 0.002 mmm TIR repeatability

### High Precision Grinding Air Chuck

Ideal for
- Use on grinding machines
- Machining of abrasive materials

Key Features
- 0.002 mmm TIR repeatability
- Hermetically sealed

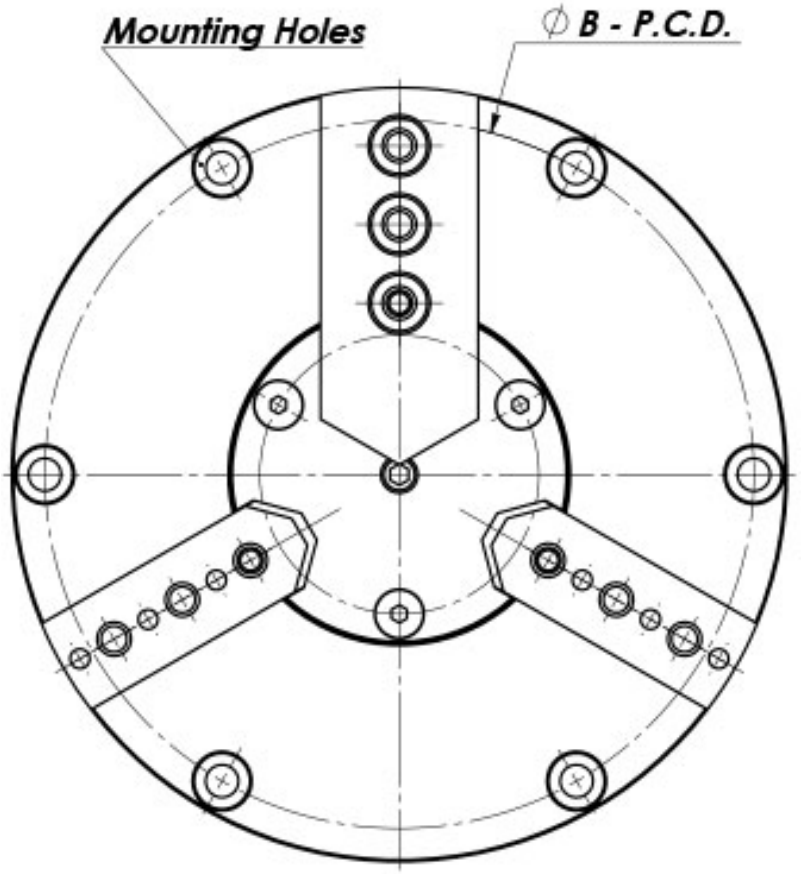
Available in 2 and 3 jaw in sizes from 84 to 250mm

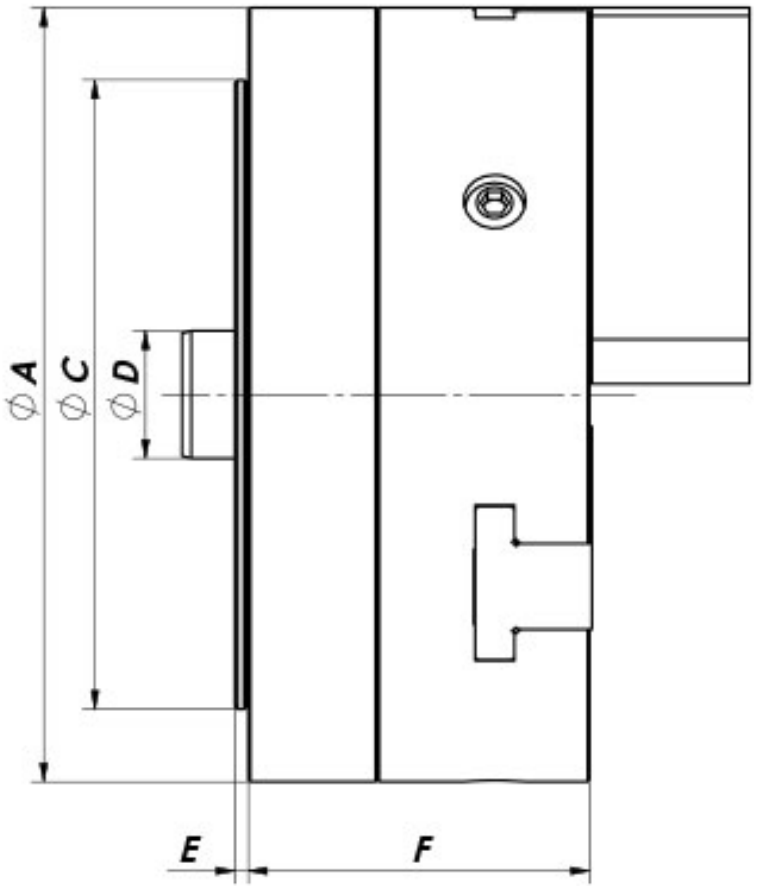
Available in 2 and 3 jaw in sizes from 140 to 250mm

### Rotary Table Air Chuck

Ideal for
- Rotary tables
- 4th axis machines

Key Features
- Dustproof & waterproof cover
- Chuck rotates with spindle and air collar remains stationary


Mounting Holes
∅ B - P.C.D.


∅ A
∅ C
∅ D
E
F

# BC

# High Precision Turning Air Chuck

## Features & Benefits

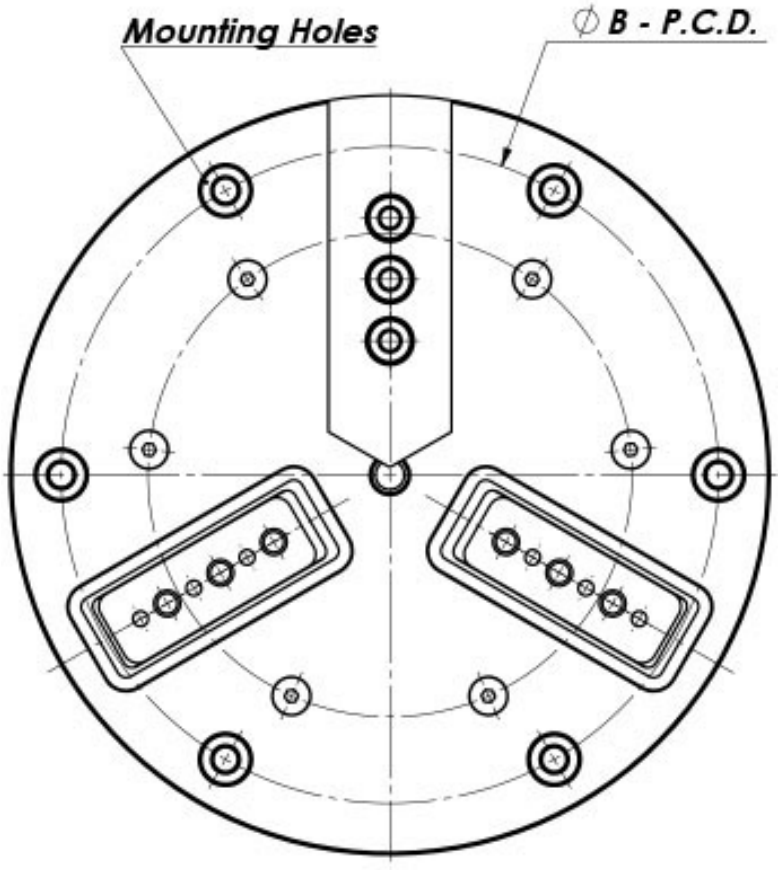
- Designed to be used on any conventional turning machine
- Air pressure monitored which is ideal for fragile and thin walled parts
- 0.002 mm TIR repeatability
- Air supplied via air feed tube to the back of the chuck

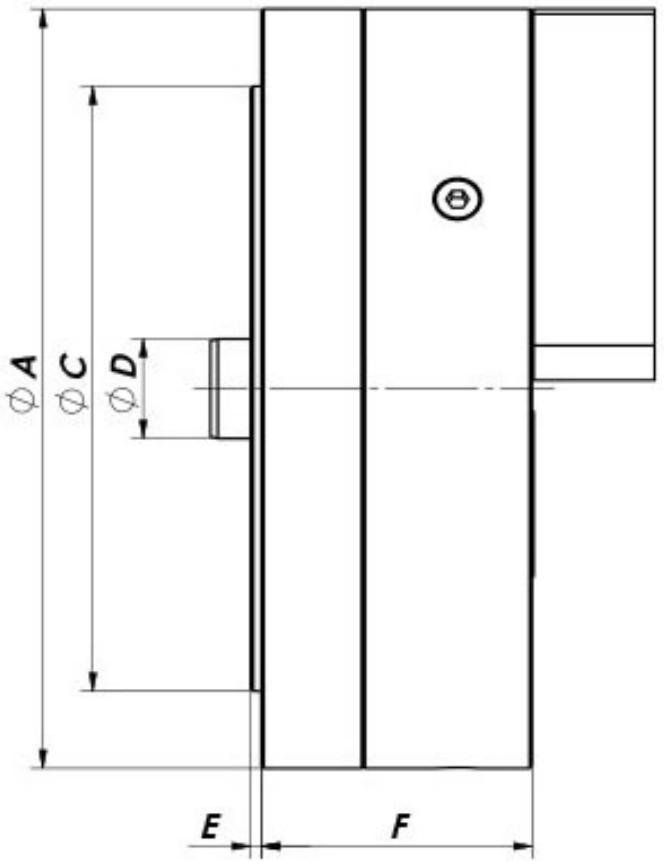
| Model | A | B | C | D | E | F | No. of Jaws | Stroke (Dia) mm | Max RPM $min^{-1}$ | Total Grip Force kN |
|---|---|---|---|---|---|---|---|---|---|---|
| 64-3-2 BC & NBC | 63.5 | 52 | 50 | 21 | 2 | 42 | 2,3 | 2 | 3500 | 0.81 |
| 82-3-2 BC & NBC | 82 | 70 | 60 | 21 | 2 | 50 | 2,3 | 2 | 3000 | 1.8 |
| 83-3-2.5 BC & NBC | 83 | 70 | 60 | 21 | 2 | 55 | 2,3 | 2.5 | 3500 | 2.58 |
| 100-3-2.5 BC & NBC | 100 | 88.9 | 82.6 | 21 | 2 | 56 | 2,3,4 | 2.5 | 3500 | 4.76 |
| 115-3-3-NBC-K | 115 | 104 | 93.5 | 25 | 2 | 55 | 3 | 3 | 4000 | 7.65 |
| 125-3-2.5 BC & NBC | 125 | 114.3 | 102 | 21 | 2 | 55 | 2,3,4 | 2.5 | 4000 | 9.51, 6.67* |
| 150-3-2.5 BC & NBC | 150 | 135.8 | 125 | 21 | 2 | 55 | 2,3,4* | 2.5 | 4000 | 12.16 |
| 150-3-2.5 BC & NBC-S | 150 | 135.8 | 125 | 21 | 2 | 60 | 2,3 | 2.5 | 4500 | 14.71 |
| 200-3-2.5 BC & NBC | 203 | 183 | 168 | 21 | 7 | 81 | 2,3 | 2.5 | 2000 | 17.36 |
| 250-3-2.5 BC & NBC | 254 | 233.7 | 215.8 | 21 | 7 | 73.5 | 2,3 | 2.5 | 2000 | 27.46 |
| | | | | | | | | | | 30.89 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

# High Precision Grinding Air Chuck

# BCG



# BCG

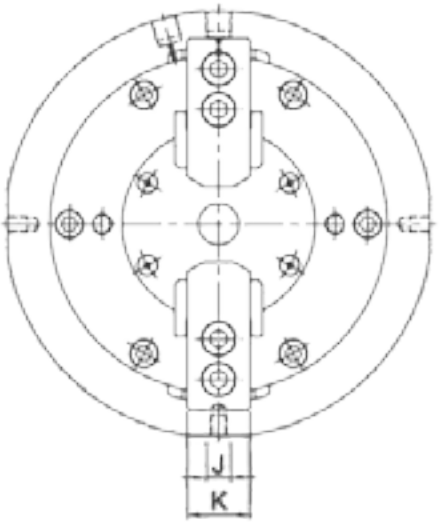
# High Precision Grinding Air Chuck

## Features & Benefits

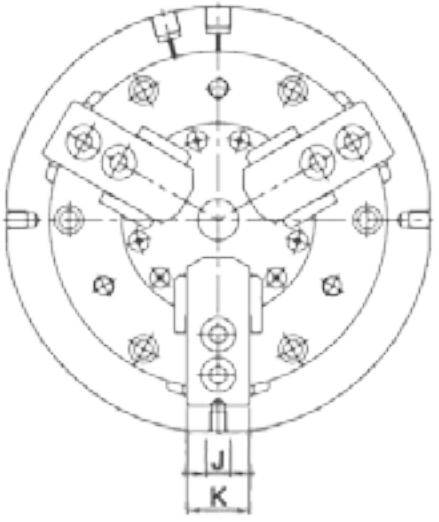
- Hermetically sealed to prevent contaminants from entering the chuck, minimizing maintenance and down time
- Designed for use on CNC grinding machines or any conventional machine and is ideal for machining abrasive materials
- 0.002 mm TIR Repeatability
- Air supplied via air feed tube to the back of the chuck

| Model | A | B | C | D | E | F | No. of Jaws | Stroke (Dia) mm | Max RPM $min^{-1}$ | Total Grip Force kN |
|---|---|---|---|---|---|---|---|---|---|---|
| 87-3-2.5 BCG | 87 | 70 | 60 | 21 | 2 | 53 | 2,3 | 2.5 | 3000 | 2.55 |
| 107-3-2.5 BCG | 107 | 88.9 | 82.6 | 21 | 2 | 56 | 2,3 | 2.5 | 4000 | 4.81 |
| 135-3-2.5 BCG | 135 | 101.6 | 114 | 21 | 2 | 60 | 2,3 | 2.5 | 4000 | 9.32 |
| 157-3-2.5 BCG | 157 | 135.75 | 125 | 21 | 2 | 56 | 2,3 | 2.5 | 3500 | 10.35 |
| 214-3-2.5 BCG | 214 | 183 | 168 | 21 | 7 | 81 | 3 | 2.5 | 2000 | 27.46 |
| 265-3-2.5 BCG | 365 | 233.7 | 216 | 21 | 7 | 74 | 3 | 2.5 | 2000 | 30.89 |

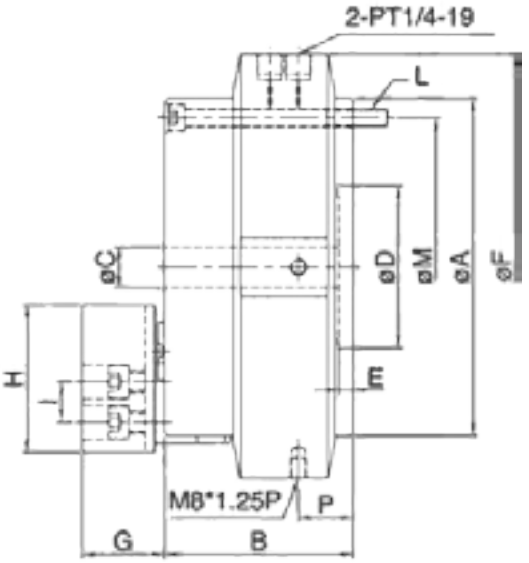
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified




RT-T




RT



# RT

# Rotary Table Air Chuck

## Features & Benefits

- Chuck rotates with the spindle while the air collar remains stationary
- Rustproof treated cylinder for high moisture environments
- Dust-proof and waterproof cover prevent contaminants from entering the chuck allowing accuracy to be maintained and prolonging service life
- Integral pneumatic cylinder offers better operation stability and convenient operation
- Available in 2 or 3 jaw

| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RT-05 | 140 | 85 | 16 | 60 | 6 | 180 | 33 | 62 | 14 | 10 | 25 | 6- M8×1.25P | Ø118 | 27 |
| RT-06 | 170 | 93 | 20 | 80 | 7 | 210 | 40 | 73 | 20 | 12 | 31 | 6- M8×1.25P | Ø147 | 27 |
| RT-08 | 215 | 112 | 30 | 110 | 8 | 250 | 42 | 95 | 25 | 14 | 35 | 6- M10×1.5P | Ø185 | 28 |
| RT-10 | 255 | 120 | 43 | 140 | 8 | 290 | 46 | 110 | 30 | 16 | 40 | 6- M10×1.5P | Ø220 | 30.5 |
| RT-05T | 140 | 85 | 16 | 60 | 6 | 180 | 33 | 62 | 14 | 10 | 25 | 6- M8×1.25P | Ø118 | 27 |
| RT-06T | 170 | 93 | 20 | 80 | 7 | 210 | 40 | 73 | 20 | 12 | 31 | 6- M8×1.25P | Ø147 | 27 |

| Model | Thru Hole | Piston Area $cm^2$ | Plunger Stroke | Jaw Stroke (Dia.) | Max RPM $min^{-1}$ | Max Pressure MPa | Gripping Force at .69 MPa kN | Gripping Range | Weight kg |
|---|---|---|---|---|---|---|---|---|---|
| RT-05 | 16 | 74 | 10 | 4.6 | 51 | .69 | 13.14 | 4 - 136 | 10 |
| RT-06 | 20 | 120 | 13 | 5.5 | 41 | .69 | 22.85 | 25 - 166 | 16 |
| RT-08 | 30 | 190 | 16 | 6.8 | 33 | .69 | 36.58 | 33 - 215 | 29 |
| RT-10 | 43 | 280 | 19 | 8 | 26 | .69 | 53.74 | 43 - 255 | 43 |
| RT-05T | 16 | 74 | 10 | 4.6 | 51 | .69 | 13.14 | 4 - 136 | 9 |
| RT-06T | 20 | 120 | 13 | 5.5 | 41 | .69 | 22.85 | 25 - 166 | 15 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise specified

# Ball Lok Chucks

FORKARDT™

# Ball-Lok Chucks

Forkardt offers an impressive line-up of ball-lok chucks, from the ORIGINAL Universal Ball Lok Chuck (UBL), the LS Long Stroke Chuck, to the ECC Counter centrifugal Chuck to the newest addition, the Advance Ball Lok Chuck (ABL).

The N.A. Woodworth UBL set the standard for all other power chucks in the industry with its unique design that allows both centralizing and compensating. Forkardt has taken this design to a new level with the development of the ECC and the ABL.

## Universal Ball Lok - UBL Pull Down Chuck

Ideal for
- Automotive components such as compressors, rotors, yokes and housings
- Gears
- Bearings
- Large diesel engine components
- Irregular shaped parts

Key Features
- Positive pull-back
- Available as compensating or centralizing
- Jaw homing

## Advanced Ball Lok - ABL Pull Down Chuck

Ideal for
- Tapered workpieces
- Bearing races
- Bevel gears

Key Features
- NEW post style arm
- Composite core
- Quick change jaw mount

## Equalizing Counter Centrifugal- ECC Pull Down Chuck

Ideal for
- Thin walled parts
- High speed applications
- Brake drums
- Impellers

Key Features
- 12 points of equalized force
- Post style jaw mount
- Differential chucking capability

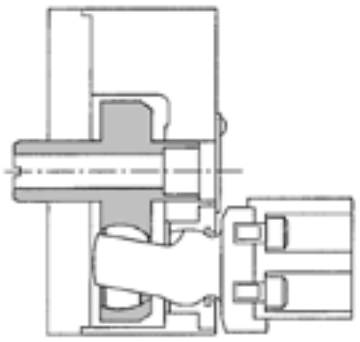
## High Capacity - LS Pull Down Lever Chuck

Ideal for
- Mass production
- Turning operations for roughing and finishing

Key Features
- Hermetically sealed
- Long stroke
- Quick change jaws available

# Ball-Lok Chucks Features

## Centralizing Type



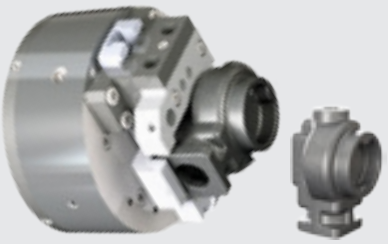
Centralizing Ball-Lok chucks work by utilizing a one-piece actuator device which allows the chuck jaws to establish the axis of rotation. The diameters being turned will then be concentric to the chucking diameter. The pull back feature insures the work piece is against an axial locator which guarantees perpendicularity and parallelism.

The centralizing feature makes the Forkardt Ball-Lok Chucks ideal for gripping:

- Rotors
- Gears
- Tapered Workpieces
- Extended Workpieces

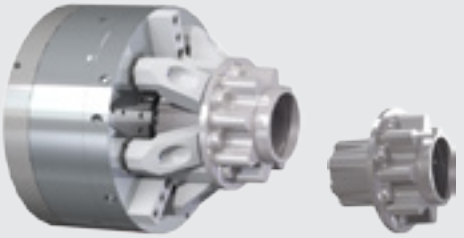
**Practical Examples**

**UBL**



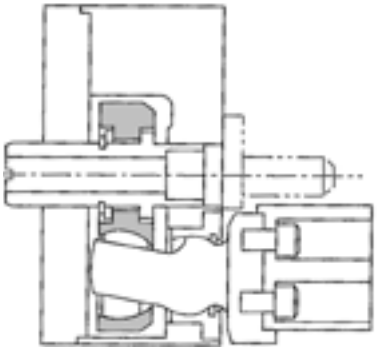
**Oil Pump Housing**

**ECC**



**Hub**

## Compensating Type

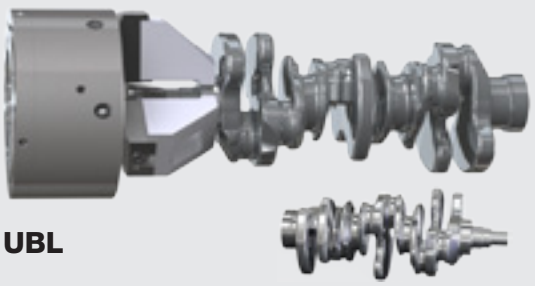


Compensating Ball Lok chucks work by utilizing a two piece actuator device which allows the chuck jaws to compensate for any eccentricity between the chucking diameter and the datum diameter. The centralizing device is generally an arbor, plug or center mounted on the face of the chuck. The centralizing device establishes the axis of rotation from the datum diameter in the work piece. The diameters being turned will then be concentric to the datum diameter.

The compensating feature makes these chucks ideal for the clamping of cast surfaces while locating the part with a fixture device like a Tork-Lok Arbor, a plug, or held between two centers.

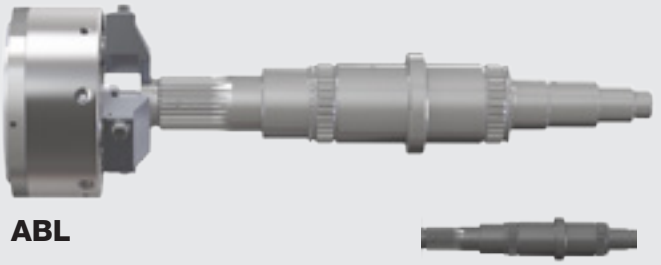
**Practical Examples**

**UBL**



**Crankshaft**

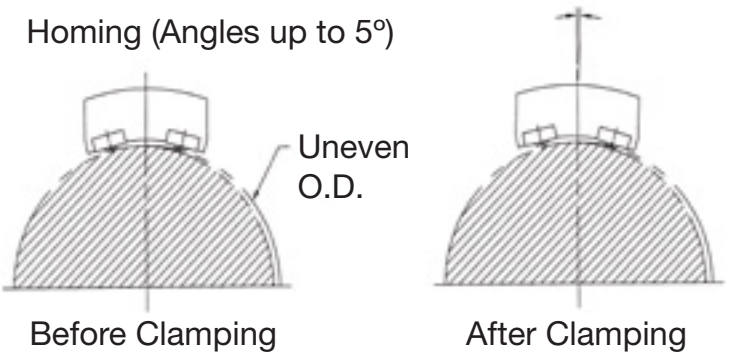
**ABL**



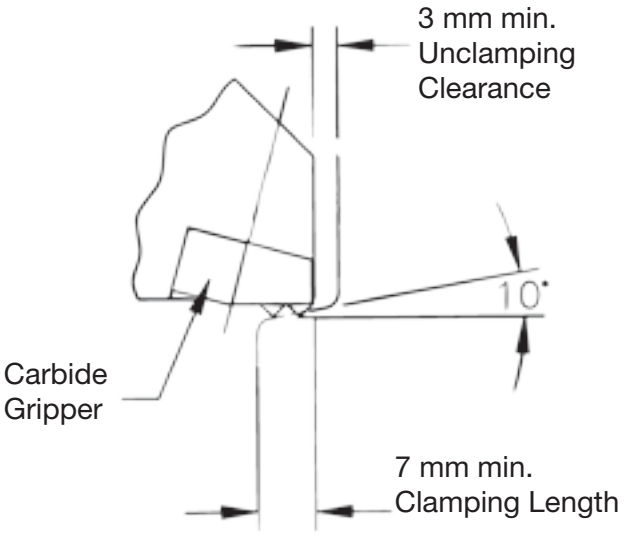
**Driveshaft**

## Homing Function of Jaws

"Homing" is the ability of the jaws to rotate up to 5 degrees in either direction. "Homing" allows the jaws to compensate for castings and forgings that are not perfectly round and ensures secure and equalized gripping force at all chucking points. The homing feature still allows for best possible centralizing.

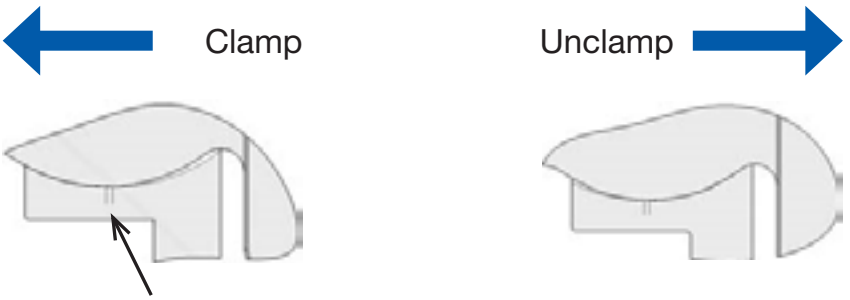



## Grip Shorter Lengths and Tapered Diameters




Ball-Lok chucks can grip work-pieces having up to a 7° taper with standard jaw design and up to 12° with minor modifications

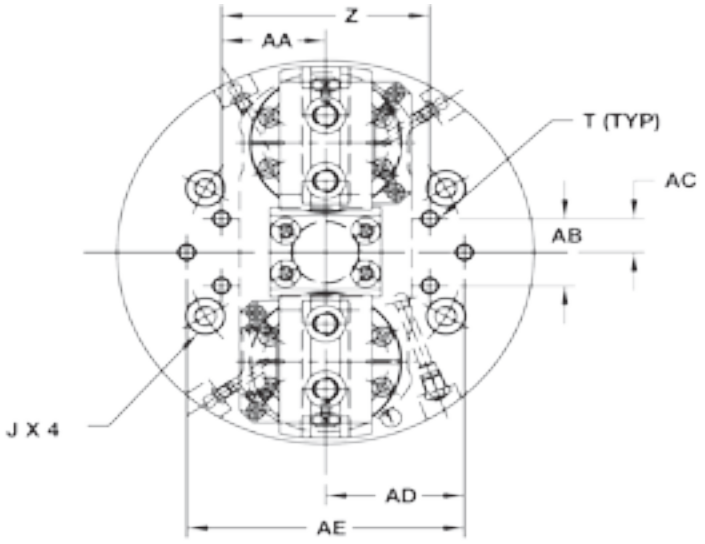
## Positive Pull-Back Action

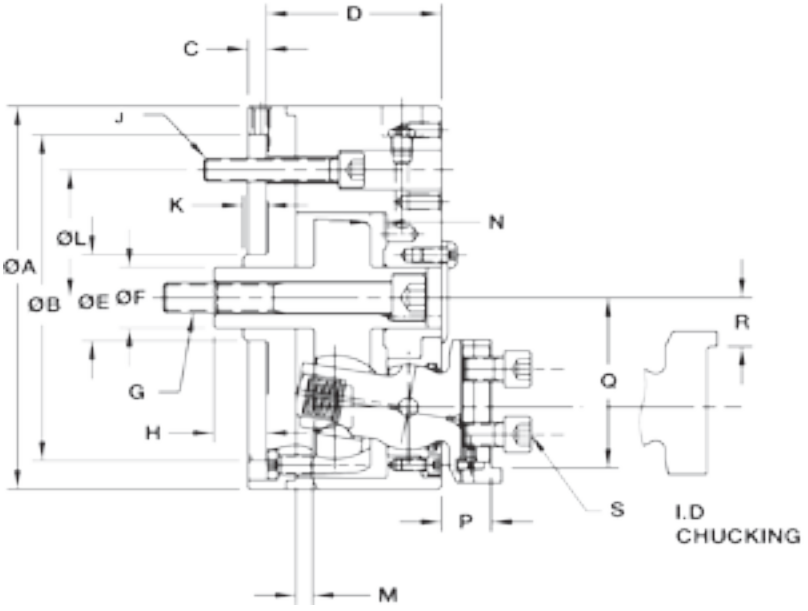



A flat is provided at the center of the spherical diameter. This flat is what enables the pull-back feature. The flat is standard in Forkardt UBL bearings, or can be customized for specific needs. Limited pull back option is available when axial load is required.

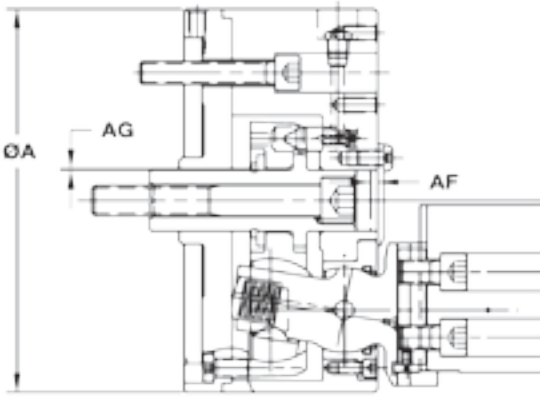
# UBL

## 2 Jaw Universal Ball-Lok Chuck




I.D CHUCKING




COMPENSATING STYLE

# 2 Jaw Universal Ball-Lok Chuck

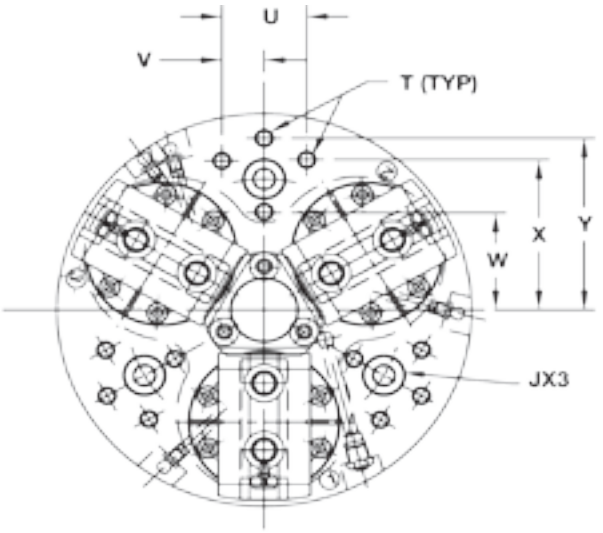
# UBL

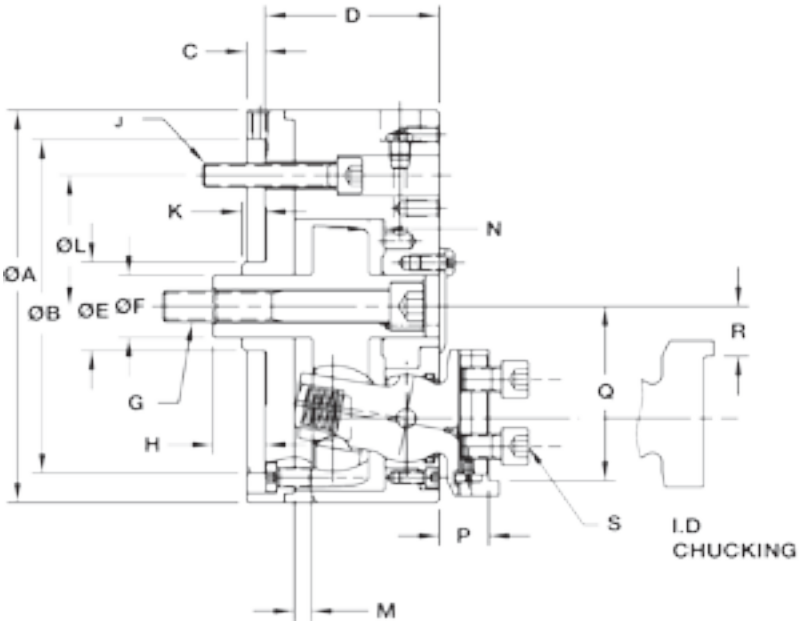
| | | Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|
| | | 160 | 200 | 250 | 300 | 380 | 460 |
| Centralizing Model Number | | UBL160010 | UBL200010 | UBL250010 | UBL300010 | UBL380010 | UBL460010 |
| Compensating Model Number | | UBL160012 | UBL200012 | UBL250012 | UBL300012 | UBL380012 | UBL460012 |
| **Dimensions (mm)** | | | | | | | |
| Chuck Diameter | A | 160 | 200 | 254.1 | 298.6 | 381 | 457.3 |
| Mounting Recess Dia. | B | 140 | 170 | 220 | 220 | 300 | 380 |
| Depth of Recess | C | 8.7 | 8.7 | 8.7 | 8.7 | 14.3 | 13.5 |
| Chuck Height | D | 72.2 | 84.2 | 103.2 | 103.2 | 116.7 | 116.7 |
| Back Plate Boss Dia. | E | 42 | 45 | 57.2 | 60 | 85 | 120.7 |
| Actuator Dia. | F | 30.2 | 31.8 | 41.3 | 41.3 | 57.15 | 88.9 |
| Draw Bar Thread | G | M16 x 2 | M16 x 2 | M20 x 2.5 | M20 x 2.5 | M24 x 3 | M24 x 3 |
| Actuator Position | H | 23.5 | 25.1 | 28 | 28 | 38.7 | 28 |
| Chuck Mounting Bolt Size | J | M10 x 1.5 | M12 x 1.75 | M16 x 2 | M20 x 2.5 | M20 x 2.5 | M24 x 3 |
| Length of Boss | K | 6.8 | 11.1 | 8.7 | 8.7 | 16 | 8.7 |
| Mounting Bolt Circle Dia. | L | 104.8 | 133.4 | 171.4 | 171.4 | 235 | 330.2 |
| Actuator Stroke to Full Close | M | 5.2 | 8 | 7.9 | 7.9 | 10.4 | 10.4 |
| Actuator Stroke to Full Open | N | 6.4 | 6.3 | 9.7 | 9.8 | 11.9 | 11.9 |
| Total Actuator Stroke | M+N | 11.6 | 14.3 | 17.6 | 17.7 | 22.3 | 22.3 |
| Jaw Mounting Platform | P | 19.4 | 23.7 | 29.2 | 29.2 | 32.5 | 32.5 |
| Jaw Ledge (External Grip) | Q | 73.0 | 88.9 | 112.7 | 133.35 | 171.5 | 209.6 |
| Jaw Ledge (Internal Grip) | R | 22.2 | 25.4 | 30.14 | 50.81 | 69.9 | 104.0 |
| Jaw Mounting Screw Size | S | M10 x 1.5 | M12 x 1.75 | M16 x 2 | M16 x 2 | M20 x 2.5 | M20 x 2.5 |
| Tooling Mounting Screw Size | T | M8 x 1.25 | M8 x 1.25 | M10 x 1.5 | M10 x 1.5 | M12 x 1.75 | M16 x 2 |
| Position of "T" (2)Jaw | Z | 80 | 100 | 125 | 210 | 150 | 200 |
| Position of "T" (2)Jaw | AA | 40 | 50 | 62.5 | 105 | 75 | 100 |
| Position of "T" (2)Jaw | AB | N/A | 35 | 45 | 90 | 100 | 200 |
| Position of "T" (2)Jaw | AC | N/A | 17.5 | 22.5 | 45 | 50 | 100 |
| Position of "T" (2)Jaw | AD | 85 | N/A | N/A | 65 | N/A | N/A |
| Position of "T" (2)Jaw | AE | 170 | N/A | N/A | 130 | N/A | N/A |
| Maximum drawbar force (2)Jaw (kN) | | 42 | 64 | 75 | 86 | 107 | 107 |
| Maximum gripping force (3)Jaw (kN) | | 25 | 39 | 45 | 54 | 66 | 66 |
| Maximum RPM | | 4800 | 3900 | 3000 | 2400 | 2000 | 1600 |
| Jaw Weight (kg) | | 1 | 2 | 3 | 4 | 6 | 8 |
| Chuck Weight (kg) | | 12 | 25 | 39 | 55 | 118 | 146 |

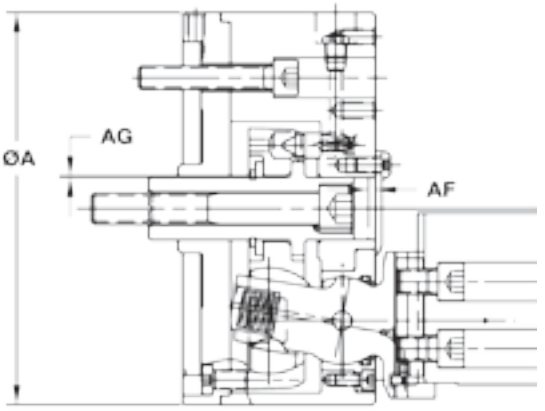
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise noted

# UBL

## 3 Jaw Universal Ball-Lok Chuck



# 3 Jaw Universal Ball-Lok Chuck

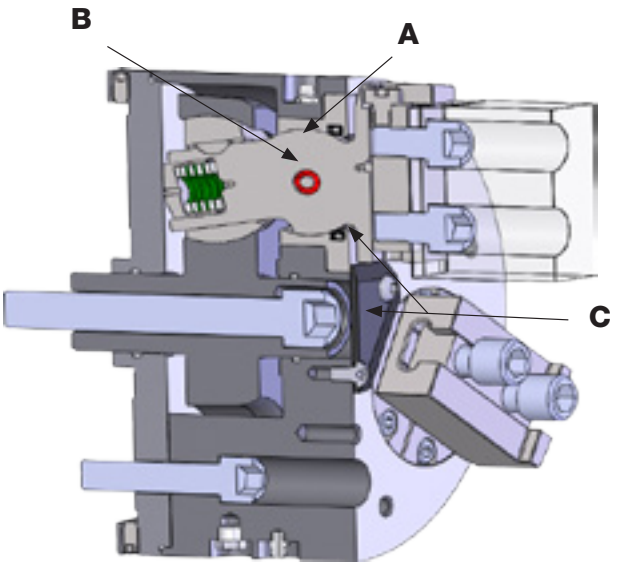
# UBL

| | | Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|
| | | 160 | 200 | 250 | 300 | 380 | 460 |
| Centralizing Model Number | | UBL160000 | UBL200000 | UBL250000 | UBL300000 | UBL380000 | UBL460000 |
| Compensating Model Number | | UBL160002 | UBL200002 | UBL250002 | UBL300002 | UBL380002 | UBL460002 |
| **Dimensions (mm)** | | | | | | | |
| Chuck Diameter | A | 162 | 200 | 254.1 | 298.6 | 381 | 457.3 |
| Mounting Recess Dia. | B | 140.7 | 170.7 | 220.7 | 220.7 | 300.7 | 380.7 |
| Depth of Recess | C | 8.7 | 8.7 | 8.7 | 8.7 | 14.3 | 13.5 |
| Chuck Height | D | 72.2 | 84.2 | 103.2 | 103.2 | 116.7 | 116.7 |
| Back Plate Boss Dia. | E | 42 | 45 | 57.2 | 60 | 85 | 120.65 |
| Actuator Dia. | F | 30.2 | 31.8 | 41.3 | 41.3 | 57.15 | 88.9 |
| Draw Bar Thread | G | M16 x 2 | M16 x 2 | M20 x 2.5 | M20 x 2.5 | M24 x 3 | M24 x 3 |
| Actuator Position | H | 23.5 | 25.1 | 28 | 28 | 38 | 38 |
| Chuck Mounting Bolt Size | J | M10 x 1.5 | M12 x 1.75 | M16 x 2 | M16 x 2 | M20 x 2.5 | M24 x 3 |
| Length of Boss | K | 6.8 | 11.1 | 8.7 | 8.7 | 16 | 16 |
| Mounting Bolt Circle Dia. | L | 104.8 | 133.4 | 171.4 | 171.4 | 235 | 330.2 |
| Actuator Stroke to Full Close | M | 5.2 | 8 | 7.9 | 7.9 | 10.4 | 10.4 |
| Actuator Stroke to Full Open | N | 6.4 | 6.3 | 9.7 | 9.8 | 11.9 | 11.9 |
| Total Actuator Stroke | M+N | 11.6 | 14.3 | 17.6 | 17.7 | 22.3 | 22.3 |
| Jaw Mounting Platform | P | 19.4 | 23.7 | 29.2 | 29.2 | 32.5 | 32.5 |
| Jaw Ledge (External Grip) | Q | 73.0 | 88.9 | 112.7 | 133.4 | 171.5 | 209.6 |
| Jaw Ledge (Internal Grip) | R | 22.2 | 25.4 | 30.2 | 50.8 | 69.85 | 108.0 |
| Jaw Mounting Screw Size | S | M10 x 1.5 | M12 x 1.75 | M16 x 2 | M16 x 2 | M20 x 2.5 | M20 x 2.5 |
| Tooling Mounting Screw Size | T | M8 x 1.25 | M8 x 1.25 | M10 x 1.5 | M10 x 1.5 | M12 x 1.75 | M16 x 2 |
| Position of "T" (3)Jaw | U | N/A | N/A | 50 | 50 | N/A | N/A |
| Position of "T" (3)Jaw | V | N/A | N/A | 25 | 25 | N/A | N/A |
| Position of "T" (3)Jaw | W | 35 | 50 | 60 | 60 | 82.5 | 110 |
| Position of "T" (3)Jaw | X | N/A | N/A | 97.5 | 100 | N/A | N/A |
| Position of "T" (3)Jaw | Y | 70 | 87.5 | NA | NA | 152.5 | 200 |
| Maximum drawbar force (3)Jaw (kN) | | 26 | 35 | 44.5 | 53 | 66 | 66 |
| Maximum gripping force (3)Jaw (kN) | | 64 | 85 | 108 | 130 | 160 | 160 |
| Maximum RPM | | 5500 | 4200 | 3600 | 3200 | 2600 | 2100 |
| Jaw Weight (kg) | | 1 | 2 | 3 | 4 | 6 | 8 |
| Chuck Weight (kg) | | 12 | 25 | 39 | 55 | 118 | 146 |

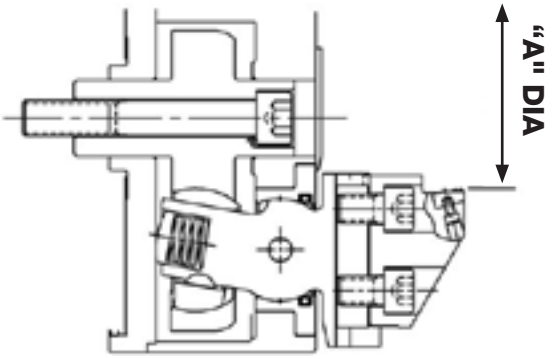
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Dimensions in mm unless otherwise noted

## Structure and Function

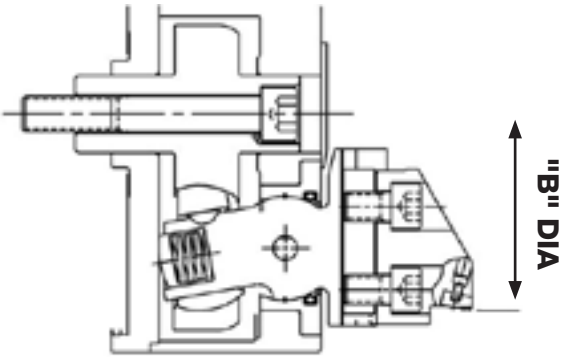
A. Bearing Land- allows for pull-back
B. Equalizing Unit- allows for the jaws' swing motion
C. Cover & Arm Seal- protect against contamination




## Recommended Chucking Ranges UBL




External Mode




Internal Mode

| Chuck Size | "A" Diameter External Chucking Range (Recommended) Maximum / minimum | "B" Diameter Internal Chucking Range (Recommended) Maximum / minimum |
|---|---|---|
| 160 | 120 / 14 | 150 / 70 |
| 200 | 150 / 16 | 200 / 80 |
| 250 | 200 / 50 | 230 / 85 |
| 300 | 240 / 65 | 300 / 130 |
| 380 | 315 / 80 | 380 / 165 |
| 460 | 390 / 90 | 455 / 245 |

# Advanced Arm Design

# UBL

The UBL utilizes a spherical ball and bearing design which reduces wear, thus extending the life of the chuck.

Forkardt offers two arm styles:  The traditional, two piece bearing style with jaw mounting base, and the new post style with one piece bearing and "Quick-Lok" jaw mount.

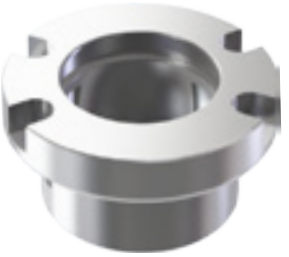
**Traditional Style Arm**
**Two-Piece Bearing**

**New Post Style Arm**
**One-Piece Bearing**

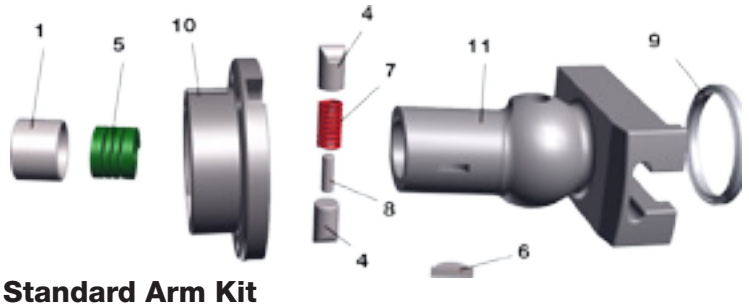
**NEW "Quick-Lok"**
**Jaw Mount**

The new Quick-Lok jaw mount, available with the post style arm, provides a no loose screw design, easy changeover and a reduction in mass.  Changeover can be done in less than 60 seconds.

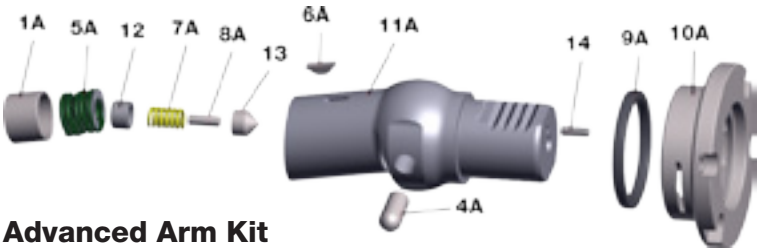
**NEW One-Piece**
**Bearing**



The new one-piece bearing design improves grease retention and provides for easier in-house maintenance.




**Standard Arm Kit**




**Advanced Arm Kit**

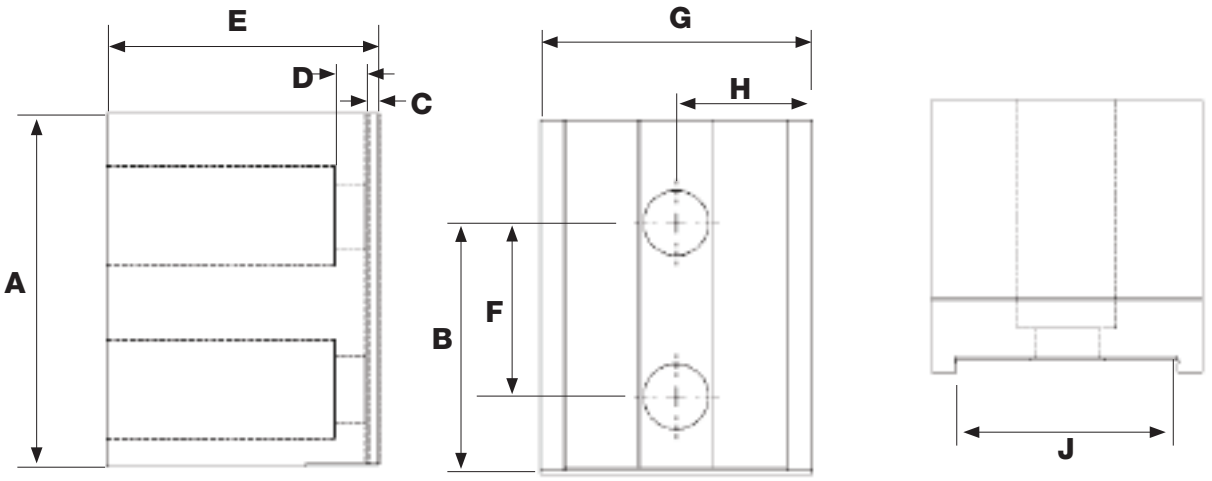

**Front Bearing Kit**

| Front Bearing Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 9 | Arm Seal | 1 | UBL1602BK | UBL2002BK | UBL2502BK | UBL2502BK | UBL3802BK | UBL3802BK |
| 10 | Front Bearing | 1 | | | | | | |

| Standard Arm Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 1 | Spring Cap | 1 | UBL1602AK | UBL2002AK | UBL2502AK | UBL2502AK | UBL3802AK | UBL3802AK |
| 4 | Homing Pin | 2 | | | | | | |
| 5 | Arm Spring | 1 | | | | | | |
| 6 | Arm Key | 1 | | | | | | |
| 7 | Homing Spring | 1 | | | | | | |
| 8 | Homing Pin | 1 | | | | | | |
| 9 | Arm Seal | 1 | | | | | | |
| 10 | Front Bearing | 1 | | | | | | |
| 11 | Arm | 1 | | | | | | |

| Advanced Arm Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 1A | Spring Cap | 1 | ABL602AK | ABL802UK | ABL1002UK | ABL1002UK | ABL1502UK | ABL1502UK |
| 4A | Homing Pin | 2 | | | | | | |
| 5A | Arm Spring | 1 | | | | | | |
| 6A | Arm Key | 1 | | | | | | |
| 7A | Homing Spring | 1 | | | | | | |
| 8A | Homing Pin | 1 | | | | | | |
| 9A | Arm Seal | 1 | | | | | | |
| 10A | Front Bearing | 1 | | | | | | |
| 11A | Arm | 1 | | | | | | |
| 12 | Special Screw | 1 | | | | | | |
| 13 | Homing Cap | 1 | | | | | | |
| 14 | Roll Pin | 1 | | | | | | |

## Soft Blank Jaws

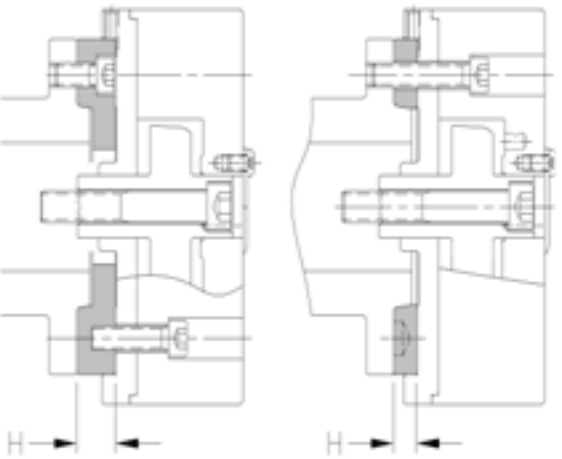



| Chuck Model | Jaw No. | A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|---|---|
| UBL160 | UBL6801 | 67.56 | 43.94 | 3.30 | 5.33 | 50.80 | 29.46 | 50.80 | 25.40 | 38.10 |
| UBL200 | UBL8801A | 85.85 | 51.56 | 3.30 | 6.35 | 57.15 | 34.04 | 57.15 | 28.45 | 44.45 |
| UBL250 | UBL10801A | 88.90 | 63.50 | 3.30 | 7.87 | 69.85 | 44.45 | 69.85 | 35.05 | 57.15 |
| UBL300 | UBL12801A | 107.95 | 63.50 | 3.30 | 7.87 | 69.85 | 44.45 | 69.85 | 35.05 | 57.15 |
| UBL380 | UBL15801A | 139.70 | 77.72 | 3.30 | 7.87 | 76.20 | 54.10 | 76.20 | 38.10 | 66.68 |
| UBL460 | UBL18801A | 171.45 | 77.72 | 3.30 | 7.87 | 76.20 | 54.10 | 76.20 | 38.10 | 66.68 |

* Measurements in millimeters unless otherwise noted

## Spindle Adapters UBL

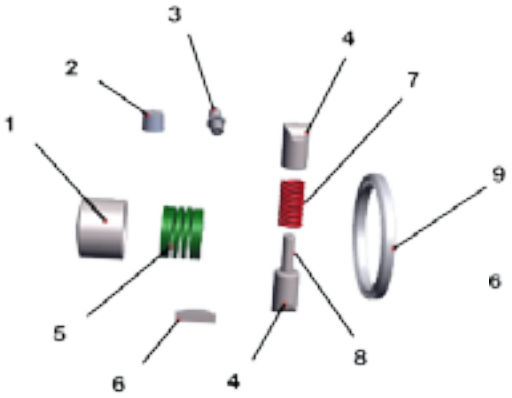
| Chuck Size | Spindle Nose | H | Type | Indirect | Direct | L* |
|---|---|---|---|---|---|---|
| 160 | 4 | 18 | 140-A4 | D1074053000 | - | - |
| | 5 | 14 | 140-A5 | - | D1074035000 | 15 |
| 200 | 5 | 24 | 170-A5 | D1074056000 | - | - |
| | 6 | 15 | 170-A6 | - | D1074036000 | 15 |
| 250 | 6 | 28 | 220-A6 | D1074060000 | - | - |
| | 8 | 17 | 220-A8 | - | D1074038000 | 15 |
| 300 | 6 | 28 | 220-A6 | D1074060000 | - | - |
| | 8 | 17 | 220-A8 | - | D1074038000 | 15 |
| 380 | 8 | 32 | 300-A8 | D1074065000 | - | - |
| | 11 | 19 | 300-A11 | - | D1074040000 | 20 |
| 460 | 11 | 35 | 380-A11 | D1074068000 | - | - |
| | 15 | 21 | 380-A15 | - | D1074042000 | 20 |



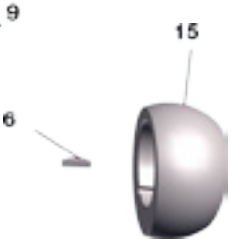

Additional standard and a wide variety of special mountings are also available

# UBL

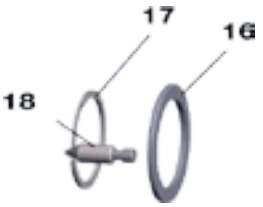
# Replacement Components




Hardware Kit




Eccentric Bearing Kit




Compensating Kit


T-Nut Kit

| Hardware Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 1 | Spring Cap | 3 | UBL160HK | UBL200HK | UBL250HK | UBL250HK | UBL380HK | UBL380HK |
| 2 | Pipe Plug | 1 | | | | | | |
| 3 | Grease Fitting | 4 | | | | | | |
| 4 | Homing Pin | 6 | | | | | | |
| 5 | Arm Spring | 3 | | | | | | |
| 6 | Arm Key | 3 | | | | | | |
| 7 | Homing Spring | 3 | | | | | | |
| 8 | Restrictor Pin | 3 | | | | | | |
| 9 | Arm Seal | 3 | | | | | | |

| Eccentric Bearing Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 6 | Arm Key | 3 | UBL06BK | UBL08BK | UBL10BK | UBL10BK | UBL15BK | UBL156BK |
| 15 | Eccentric Bearing | 3 | | | | | | |

| Compensating Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 16 | Retaining Spacer | 1 | UBL06CK | UBL200CK | UBL250CK | UBL250CK | UBL380CK | UBL380CK |
| 17 | Retaining Ring | 1 | | | | | | |
| 18 | Centralizing Pin | 3 | | | | | | |

| T-Nut Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 19 | T-Nut | 3 | UBL160TN | UBL200TN | UBL250TN | UBL250TN | UBL380TN | UBL380TN |
| 20 | Jaw Bolts | 6 | | | | | | |
| 21 | Safety Screw | 3 | | | | | | |

The items shown below are purchased separately. Please contact our office for part number and pricing.

**Compensating Actuator**

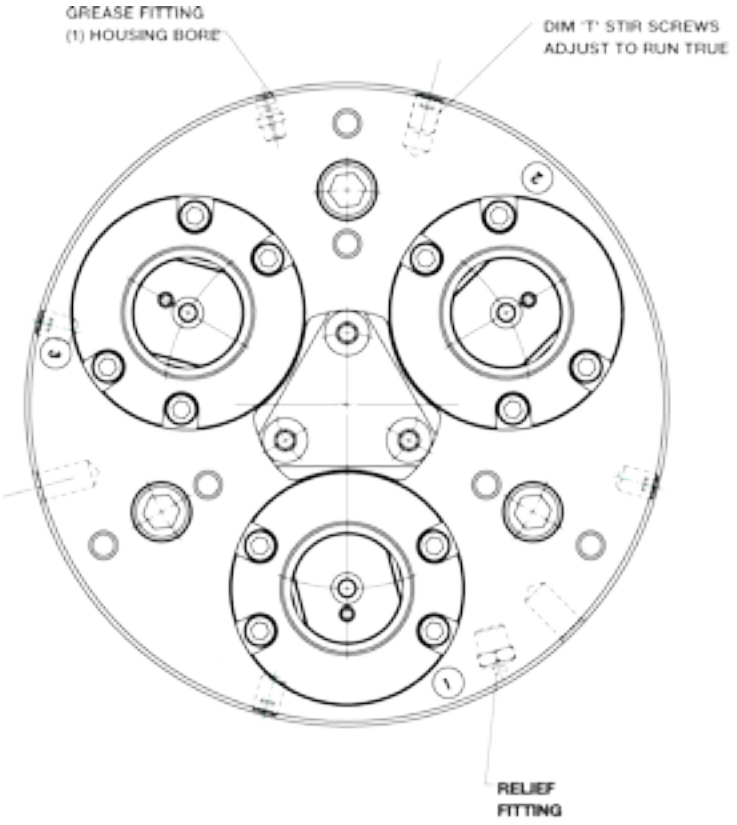
**Actuator Support**

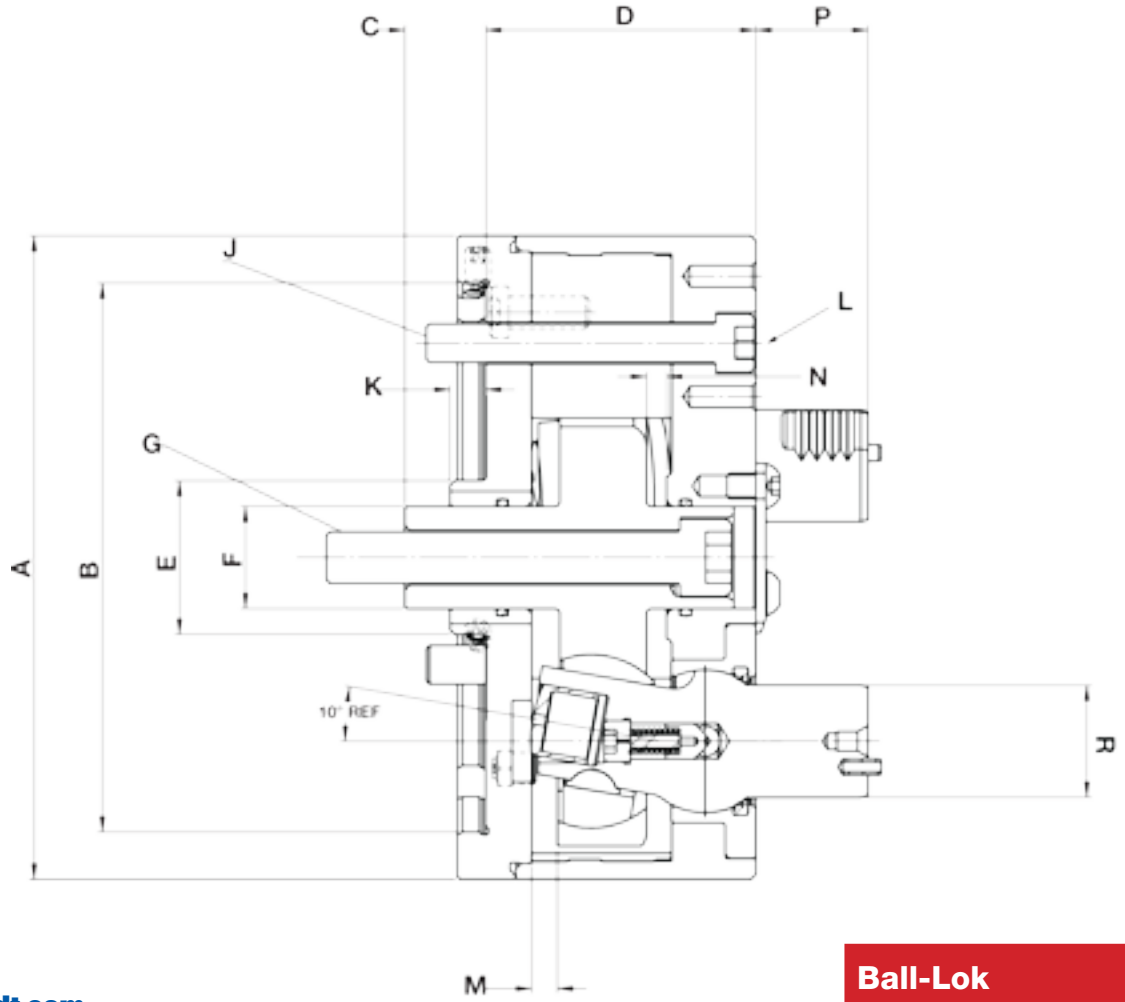
**Centralizing Actuator**

**Dust Plate**

# 3 Jaw Advanced Ball-Lok Chuck

# ABL



# ABL

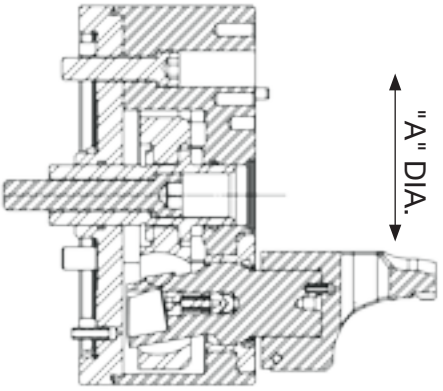
# 3 Jaw Advanced Ball-Lok Chuck

| | | Chuck Size | | |
|---|---|---|---|---|
| | | 200 | 250 | 300 |
| Centralizing Model Number | | ABL200000 | ABL250000 | ABL300000 |
| Compensating Model Number | | ABL200002 | ABL250002 | ABL300002 |
| **Dimensions (mm)** | | | | |
| Chuck Diameter | A | 200 | 254.10 | 298.60 |
| Mounting Recess Dia. | B | 170.7 | 220.7 | 220.7 |
| Actuator Position | C | 25.2 | 27.6 | 27.4 |
| Chuck Height | D | 84.1 | 103.1 | 103.2 |
| Back Plate Boss Diameter | E | 47.8 | 57.1 | 60.0 |
| Actuator Dia. | F | 31.8 | 41.3 | 41.3 |
| Draw Bar Thread | G | M16 X 2.00 | M20 X 2.50 | M20 X 2.50 |
| Chuck Mounting Bolt Size | J | M12 X 1.75 | M16 X 2.00 | M16 X 2.00 |
| Length of Boss | K | 11.10 | 8.8 | 8.8 |
| Mounting Bolt Circle | L | 133.4 | 171.4 | 171.4 |
| Actuator Stroke to Full Close | M | 8.0 | 8.5 | 8.7 |
| Actuator Stroke to Full Open | N | 6.3 | 9.0 | 10.4 |
| Total Actuator Stroke | M+N | 14.3 | 17.5 | 19.1 |
| Jaw Height (Reference | P | 53.1 | 65.7 | 65.7 |
| Post Diameter | R | 35.0 | 44.5 | 44.5 |
| Maximum drawbar force Jaw | kN | 35.6 | 44.5 | 53.0 |
| Maximum RPM | | 4200 | 3600 | 3200 |
| Chuck Weight Less Top Tooling | kg | 14 | 27 | 36 |

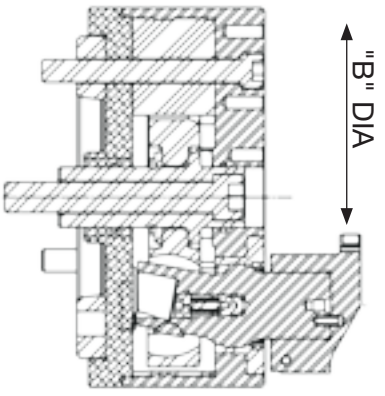
1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)

## Recommended Chucking Ranges ABL

Internal Mode

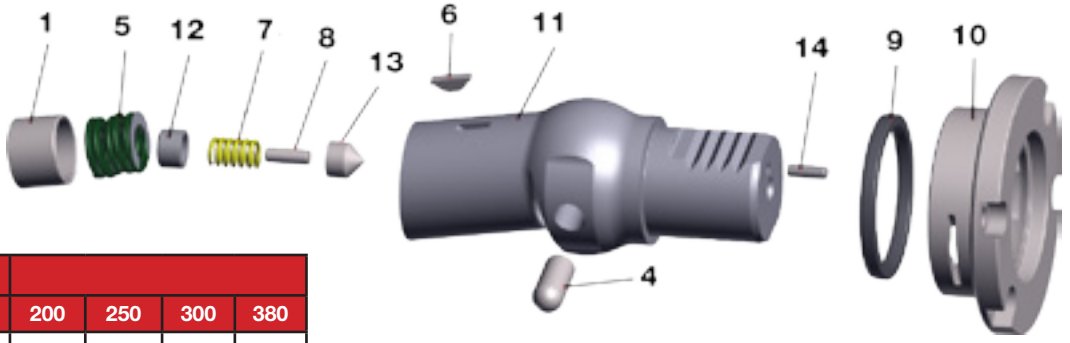



External Mode



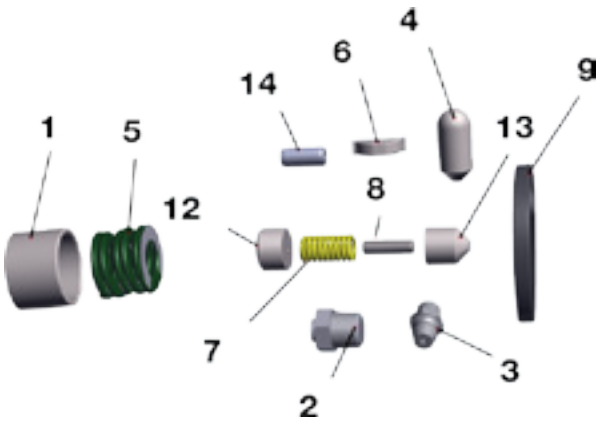

| Chuck Size | "A" Diameter External Chucking Range (Recommended) Maximum / minimum | "B" Diameter Internal Chucking Range (Recommended) Maximum / minimum |
|---|---|---|
| 160 | 120 / 14 | 150 / 70 |
| 200 | 150 / 16 | 200 / 80 |
| 250 | 200 / 50 | 230 / 85 |
| 300 | 240 / 65 | 300 / 130 |
| 380 | 315 / 80 | 380 / 165 |
| 460 | 390 / 90 | 455 / 245 |

| Front Bearing Kit | | | | | | |
|---|---|---|---|---|---|---|
| Key | Description | Qty | 200 | 250 | 300 | 380 |
| 9 | Arm Seal | 1 | ABL2002BKP | ABL2502BKP | ABL2502BKP | ABL3802BKP |
| 10 | Front Bearing | 1 | | | | |

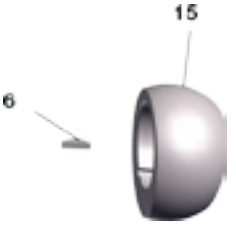




| Arm Kit | | | | | | |
|---|---|---|---|---|---|---|
| Key | Description | Qty | 200 | 250 | 300 | 380 |
| 1 | Spring Cap | 1 | ABL2002AKP | ABL2502AKP | ABL2502AKP | ABL3802AKP |
| 4 | Homing Pin | 2 | | | | |
| 5 | Arm Spring | 1 | | | | |
| 6 | Arm Key | 1 | | | | |
| 7 | Homing Spring | 1 | | | | |
| 8 | Homing Pin | 1 | | | | |
| 9 | Arm Seal | 1 | | | | |
| 10 | Front Bearing | 1 | | | | |
| 11 | Arm | 1 | | | | |
| 12 | Special Screw | 1 | | | | |
| 13 | Homing Cap | 1 | | | | |
| 14 | Roll Pin | 1 | | | | |

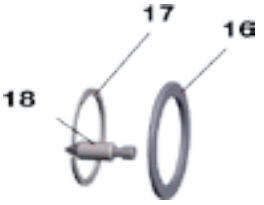
| Hardware Kit | | | | | | |
|---|---|---|---|---|---|---|
| Key | Description | Qty | 200 | 250 | 300 | 380 |
| 1 | Spring Cap | 3 | ABL2002HK | ABL2502HK | ABL2502HK | ABL3802HK |
| 2 | Pipe Plug | 1 | | | | |
| 3 | Grease Fitting | 4 | | | | |
| 4 | Homing Pin | 6 | | | | |
| 5 | Arm Spring | 3 | | | | |
| 6 | Arm Key | 3 | | | | |
| 7 | Homing Spring | 3 | | | | |
| 8 | Restrictor Pin | 3 | | | | |
| 9 | Arm Seal | 3 | | | | |



| Eccentric Bearing Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 6 | Arm Key | 3 | UBL06BK | UBL08BK | UBL10BK | UBL10BK | UBL15BK | UBL156BK |
| 15 | Eccentric Bearing | 3 | | | | | | |




| Compensating Kit | | | Kit Number by Chuck Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Description | Qty | 160 | 200 | 250 | 300 | 380 | 460 |
| 16 | Retaining Spacer | 1 | UBL06CK | UBL200CK | UBL250CK | UBL250CK | UBL380CK | UBL380CK |
| 17 | Retaining Ring | 1 | | | | | | |
| 18 | Centralizing Pin | 3 | | | | | | |

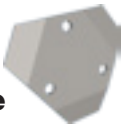



The items shown below are purchased separately. Please contact our office for part number and pricing.

**Compensating Actuator**

**Actuator Support**

**Dust Plate**

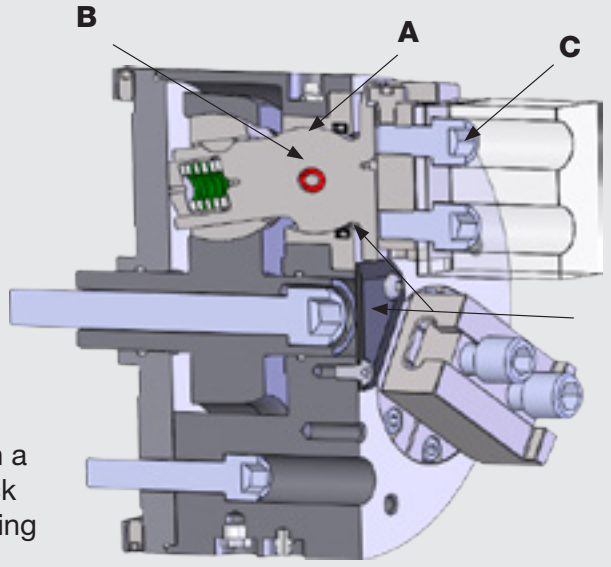


**Centralizing Actuator**

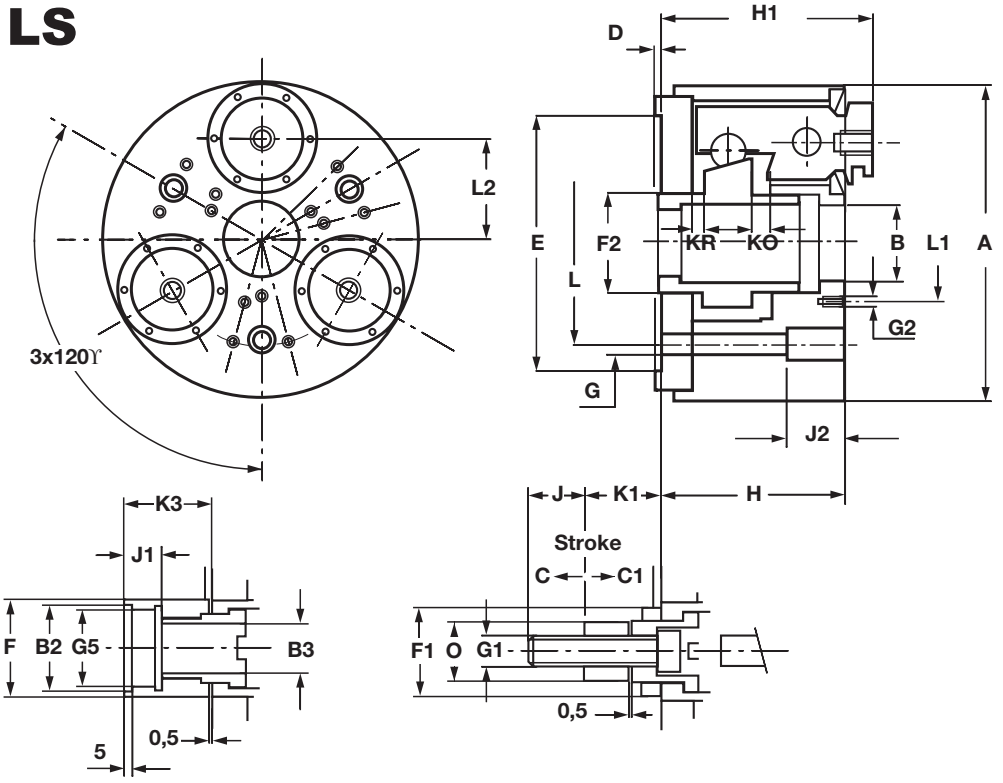
## Structure and Function

A. Bearing Land- allows for pull-back
B. Equalizing Unit- allows for the jaws' swing motion
C. Carbide Insert- allows for better surface penetration, greater clamping torque, and excellent interchangeability.
D. Cover & Arm Seal- protect against contamination

The ABL design removes a portion of the steel from the standard UBL body and replaces it with a composite core, reducing the weight of the chuck and providing a dampening effect when performing turning operations.

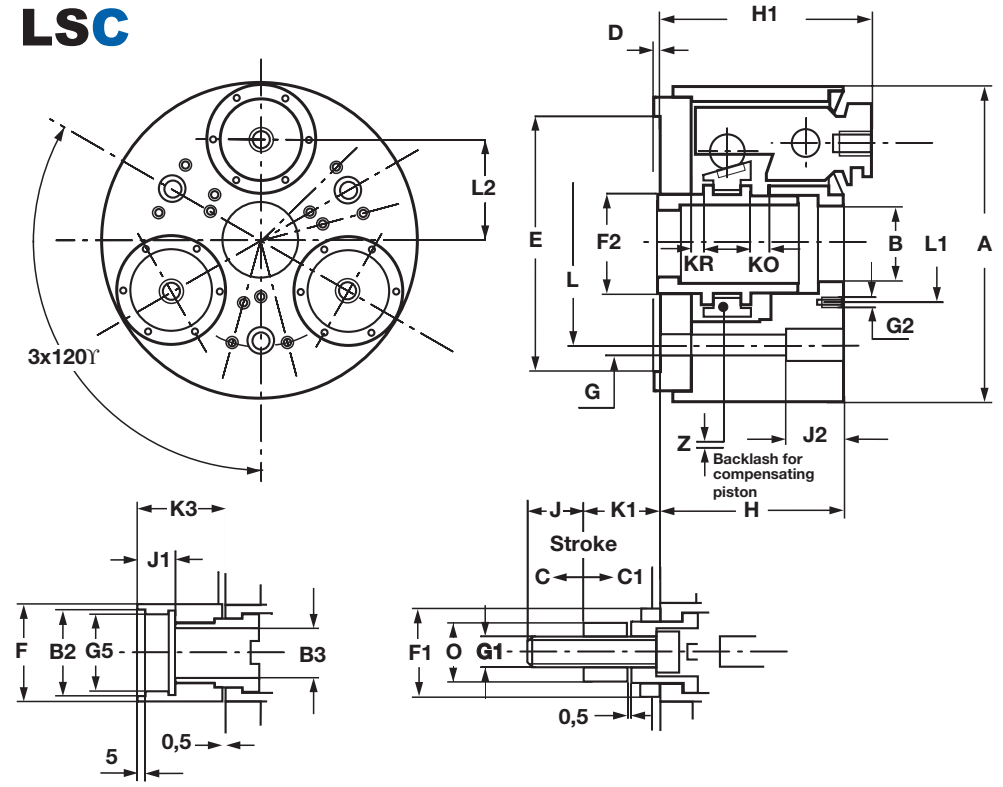


## LS




Connection Type B  Connection Type A

## LSC




Connection Type B  Connection Type A

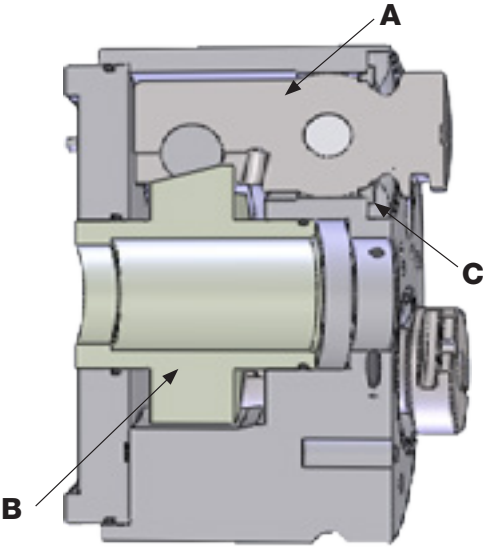
# LS

# 3 Jaw Long Stroke Chuck

| | | | Chuck Size | | | | |
|---|---|---|---|---|---|---|---|
| | | | 160 | 180 | 210 | 260 | 320 |
| **Model No.** | | | **F32424** | **F32440** | **F32400** | **F32444** | **F32427** |
| **Chuck Diameter** | A | | 160 | 180 | 210 | 260 | 320 |
| **Bore** | B | H6 | 40 | 43 | 50 | 65 | 115 |
| **Mounting Recess** | B2 | H7 | 44 | 49 | 60 | 75 | 82 |
| **Through Hole** | B3 | 0.2 | 25 | 28 | 35 | 50 | 55 |
| **Max Grip Diameter** | | | 103 | 128 | 147 | 187 | 253 |
| **Stroke** | C | | 4 | 6 | 8 | 10 | 10 |
| | C1 | | 7 | 8 | 12 | 15 | 15 |
| **Mounting Recess** | D | | 13.5 | 5 | 5 | 5 | 6 |
| **Flange Mounting** | E | 0.01 | 140 | 140 | 170 | 220 | 220 |
| | F | | 49.5 | 55 | 64.5 | 79.5 | 94.5 |
| | F1 | | 46 | 50 | 56 | 75 | 85 |
| | F2 | | 50 | 55 | 65 | 80 | 135 |
| **Mounting Bolt Diameter** | G | 3X | 11 / M10 | 11 / M10 | 13 / M12 | 17 / M16 | 17 / M16 |
| | G1 | | M 14 | M 16 | M 20 | M 22 | M 24 |
| | G2 | 3X | M 6 | M 6 | M 6 | M 8 | M 10 |
| | G5 | | M 42 x 2 | M 48 x 2 | M 56 x 2 | M 75 x 2 | M 80 x 2 |
| **Chuck Width** | H | ±0.05 | 71.5 | 103 | 120 | 150 | 157.5 |
| | H1 | | 87.5 | 121 | 140 | 173 | 180.5 |
| | J | | 32 | 40.5 | 40 | 51.5 | 55 |
| | J1 | | 22 | 21.5 | 25 | 30 | 40 |
| | J2 | | 20.5 | 13 | 34 | 36 | 37 |
| **Clamping Stroke** | | | 5.5 | 8 | 12 | 15 | 17 |
| | | | 4.5 | 6 | 8 | 10 | 12 |
| | K1 | | 38 | 42 | 50.5 | 54.5 | 60.5 |
| | K3 | | 47.5 | 47.5 | 56.5 | 65 | 88 |
| **Mounting Bolt Circle** | L | PCD | 104.8 | 104.8 | 133.4 | 171.4 | 171.4 |
| | L1 | 3X | 59 | 65 | 75 | 93 | 171.4 |
| | L2 | | 51.5 | 57 | 67 | 85 | 115 |
| Max. Angle of the lever | T6 | | 2° 15' | 2° 51' | 2° 52' | 2° 40' | 2° 39' |
| | T7 | | 1° 43' | 2° 6' | 2° 17' | 2° 27' | 2° 26' |

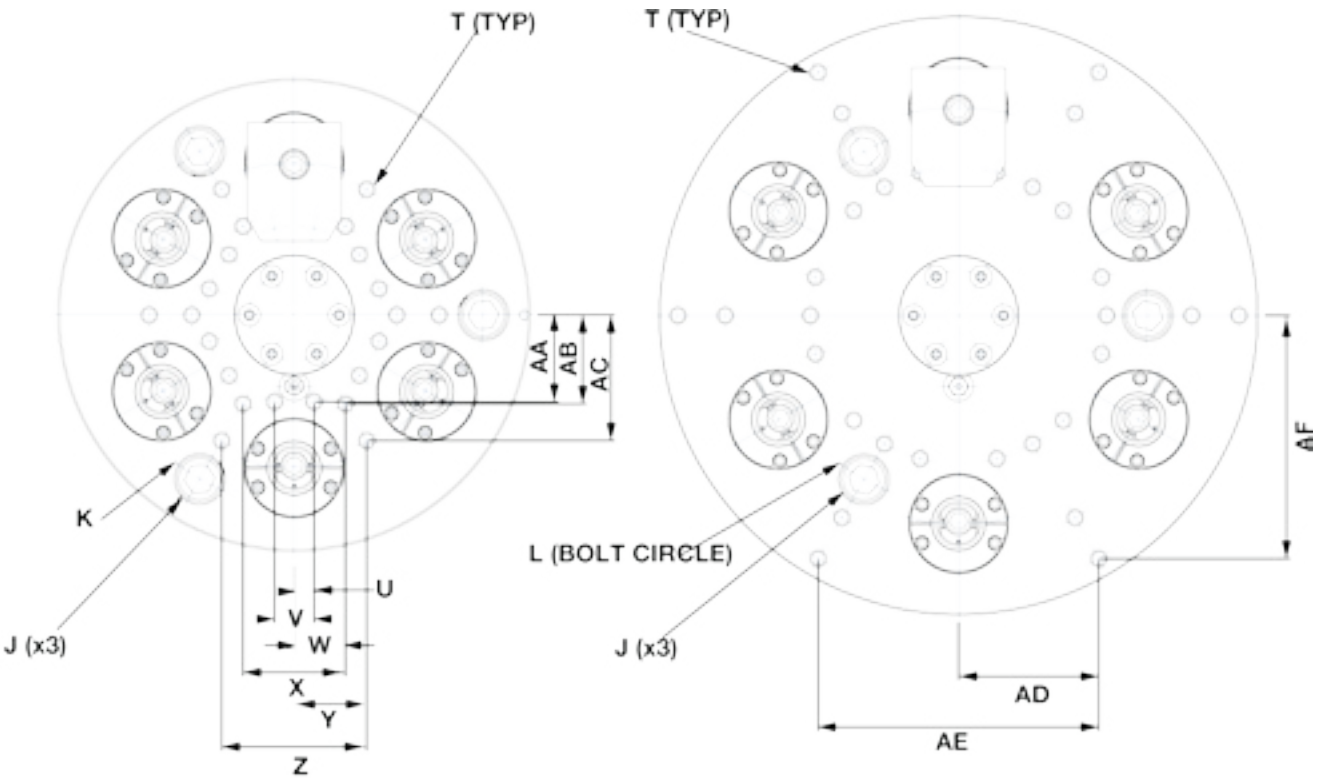
## LS and LSC
### Structure and Function

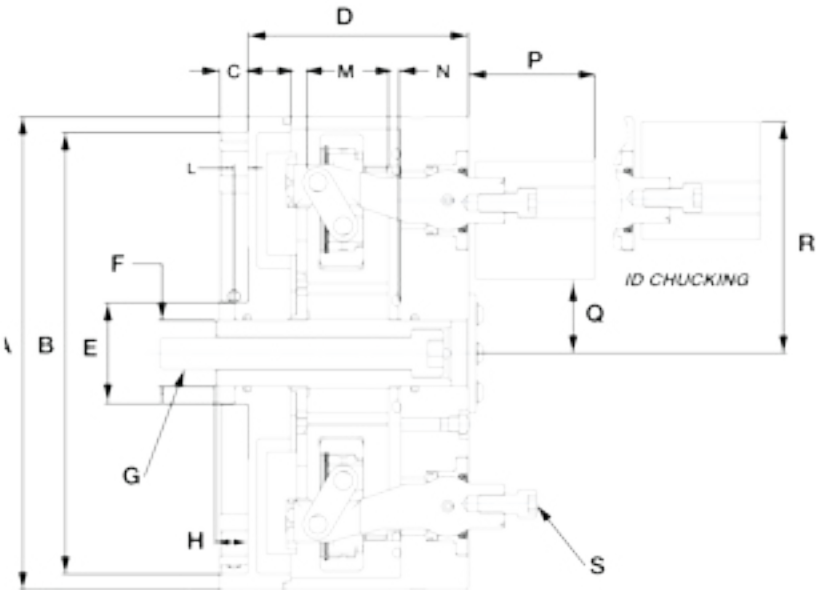
A. Bearing Land- allows for pull-back
B. Piston- One piece piston in LS for better concentricity. Floating piston in LSC for compensating clamping
C. Cover & Arm Seal-protect against contamination



# 6 Jaw Equalizing Counter-Centrifugal Chuck

# ECC



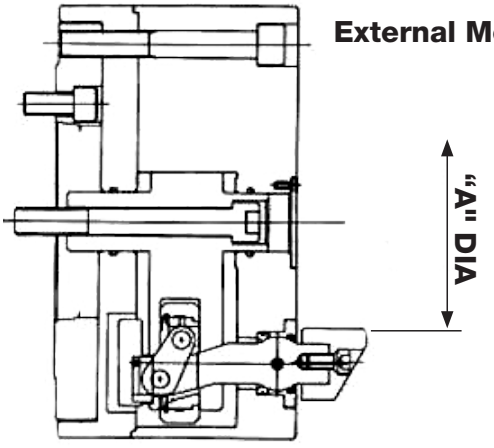
# ECC

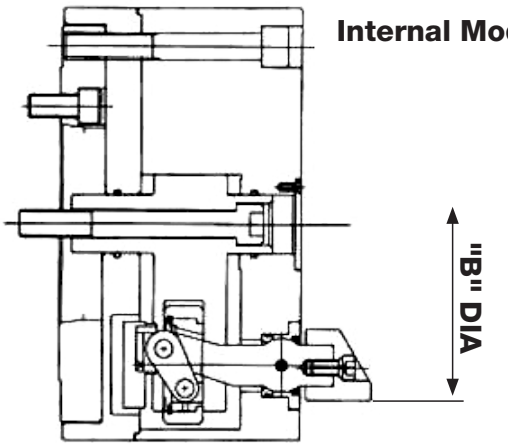
# 6 Jaw Equalizing Counter-Centrifugal Chuck

| Dimensions | | ECC300000C | ECC380000C |
|---|---|---|---|
| Chuck Diameter | A | 300 | 380 |
| Mounting Recess Dia. | B | 280 | 280 |
| Depth of Recess | C | 17.7 | 17.7 |
| Chuck Height | D | 140 | 140 |
| Back Plate Boss Dia. | E | 64 | 64 |
| Actuator Dia. | F | 42 | 42 |
| Draw Bar Thread | G | M20 x 2.5 | M20 x 2.5 |
| Actuator Position | H | 20.7 | 21.6 |
| Chuck Mounting Bolt Size | J | M20 x 2.5 | M20 x 2.5 |
| Mounting Bolt Circle Dia. | K | 240 | 240 |
| Length of Boss | L | 8.7 | 8.7 |
| Actuator Stroke to Full Close | M | 10.4 | 9.5 |
| Actuator Stroke to Full Open | N | 6.6 | 7.5 |
| Total Actuator Stroke | M+N | 17 | 17.04 |
| Jaw Mounting Platform | P | 80.0 | 80.0 |
| Jaw Ledge (External Grip) | Q | 47 | 82 |
| Jaw Ledge (Internal Grip) | R | 147 | 182 |
| Jaw Mounting Screw Size | S | M12 x 1.75 | M12 x 1.75 |
| Tooling Mounting Screw Size | T | M10 x 1.5 | M10 x 1.5 |
| Maximum drawbar force (kN) | | 44.5 | 44.5 |
| Chuck Weight (kg) | | 58 | 104 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)

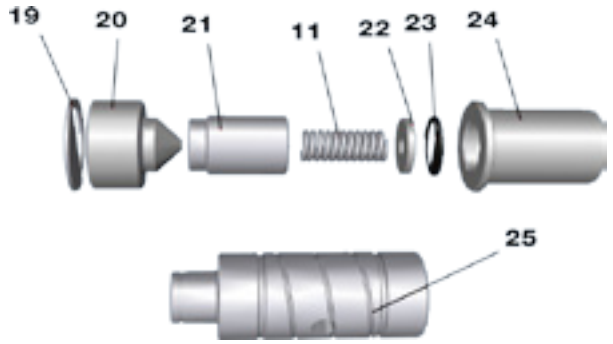
## Recommended Chucking Ranges ECC

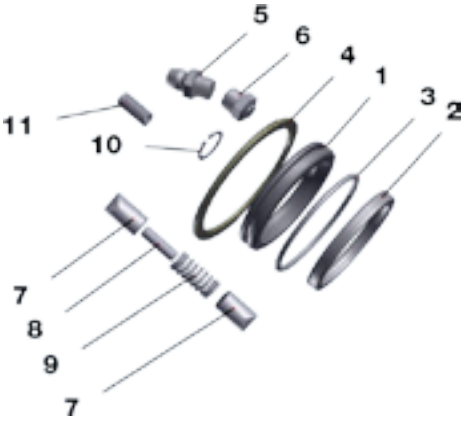



| Chuck Size | "A" Diameter mm External Chucking Range (Recommended) | "B" Diameter mm Internal Chucking Range (Recommended) |
|---|---|---|
| | Maximum / minimum | Maximum / minimum |
| 300 | 228 / 76 | 330 / 152 |
| 380 | 304 / 152 | 406 / 228 |
| 450 | 381 / 228 | 558 / 304 |

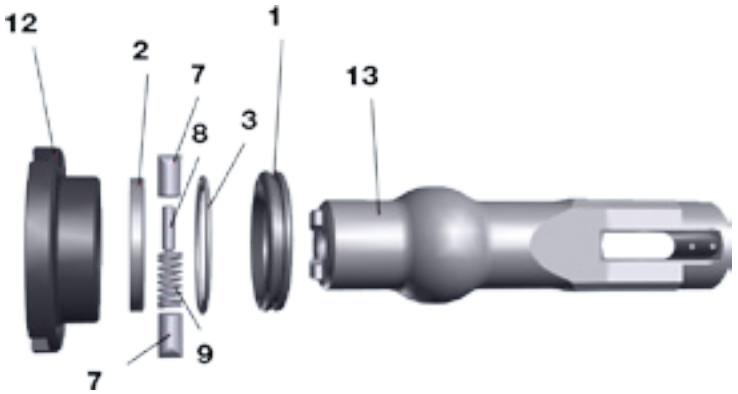
All sizes are in millimeters. The above recommended chucking ranges are for general applications. If an application has a part size that exceeds the above maximum or minimum, contact our proposal department for review.




| Equalizer Kit | | | Kit Number by Chuck Size | |
|---|---|---|---|---|
| Key | Description | Qty | 300 | 380 |
| 11 | Plunger Spring | 1 | ECC300EK | ECC380EK |
| 19 | Spiro-lox Ring | 2 | | |
| 20 | Centralizing Plug | 1 | | |
| 21 | Plunger | 1 | | |
| 22 | Spacer | 1 | | |
| 23 | Tru Arc Ring | 1 | | |
| 24 | Centralizing Housing | 1 | | |
| 25 | Pivot Pin | 1 | | |

| Hardware Kit | | | Kit Number by Chuck Size | |
|---|---|---|---|---|
| Key | Description | Qty | 300 | 380 |
| 1 | Slotted Ring | 6 | ECC300HK | ECC380HK |
| 2 | Arm Seal | 6 | | |
| 3 | Ring Seal | 6 | | |
| 4 | Retaining Ring | 6 | | |
| 5 | Grease Fitting | 6 | | |
| 6 | Relief Valve | 1 | | |
| 7 | Homing Pin | 12 | | |
| 8 | Restrictor Pin | 6 | | |
| 9 | Homing Spring | 6 | | |
| 10 | Retaining Ring | 3 | | |
| 11 | Plunger Spring | 3 | | |

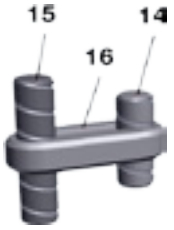




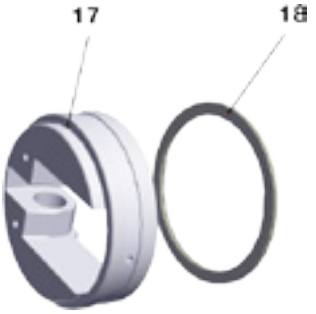
| Arm Kit | | | Kit Number by Chuck Size | |
|---|---|---|---|---|
| Key | Description | Qty | 300 | 380 |
| 1 | Slotted Ring | 1 | ECC300AK | ECC380AK |
| 2 | Arm Seal | 1 | | |
| 3 | Ring Seal | 1 | | |
| 7 | Homing Pin | 2 | | |
| 8 | Restrictor Pin | 1 | | |
| 9 | Homing Spring | 1 | | |
| 12 | Front Bearing | 1 | | |
| 13 | Arm | 1 | | |

| Front Bearing Kit | | | Kit Number by Chuck Size | |
|---|---|---|---|---|
| Key | Description | Qty | 300 | 380 |
| 1 | Slotted Ring | 6 | ECC300BK | ECC380BK |
| 2 | Arm Seal | 6 | | |
| 3 | Ring Seal | 6 | | |
| 12 | Front Bearing | 6 | | |

| Toggle Kit | | | Kit Number by Chuck Size | |
|---|---|---|---|---|
| Key | Description | Qty | 300 | 380 |
| 14 | Clevis Pin | 6 | ECC300TK | ECC380TK |
| 15 | Toggle Pin | 6 | | |
| 16 | Toggle | 6 | | |



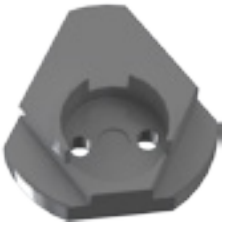

| Lower Bearing Kit | | | Kit Number by Chuck Size | |
|---|---|---|---|---|
| Key | Description | Qty | 300 | 380 |
| 17 | Lower Bearing | 6 | ECC300LBK | ECC380LBK |
| 18 | Spiro-lox Ring | 6 | | |




The items shown below are purchased separately. Please contact our office for part number and pricing.

**Equalizer**

**Actuator**

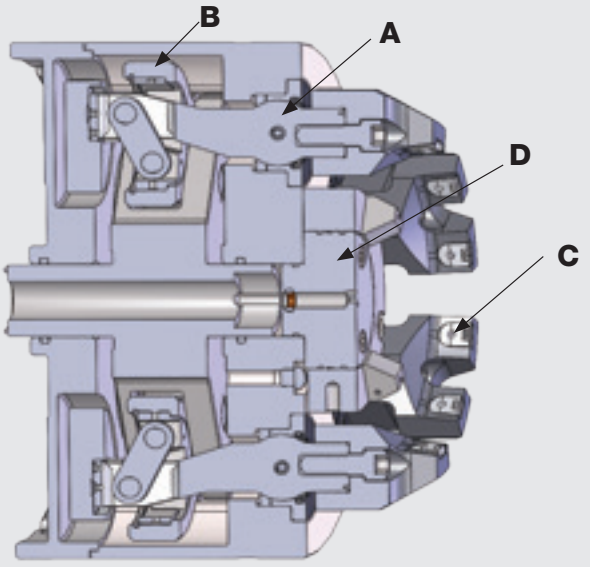


**Counterweight**

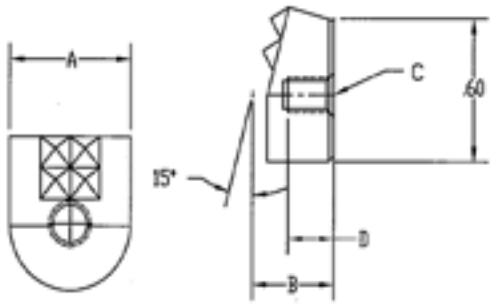
**Dust Plate**

## Structure and Function

A. Bearing Land- allows for pull-back
B. Equalizer- allows chuck to grip out of round workpieces
C. Carbide Insert-allows for better surface penetration, greater clamping torque, and excellent interchangeability.
D. Cover & Arm Seal- protect against contamination



## Angle Lok Style




- Resistant to high abrasion
- Non-adjustable
- Gripping points at top of jaw
- Ideal for castings, forgings, draft angles to 7” and bar stock

### Angle Lok Style General Dimensions

| Kit Number | A | B | C | D |
|---|---|---|---|---|
| PC1274SCK | .561” wide | 0.375 | #10-32 | 0.22 |
| PC1274SCSK | .391” wide | 0.375 | #10-32 | 0.25 |
| PC12710SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1278SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1284SCK | .750” wide | 0.500 | 1/4-28 | 0.25 |
| PC1302SCSK | .396” wide | 0.375 | #10-32 | 0.25 |
| PC1304SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1322SCSK | .396” wide | 0.375 | #10-32 | 0.25 |
| PC1324SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1455SCK | .561” wide | 0.375 | #10-32 | 0.25 |

### General Use Angle Lok

#### PC-127-4SC
4 Points / .561” Wide

- 4 points
- Heavy duty
- Maximum tooth penetration

#### PC-128-4SC
4 Points / .750” Wide

- 4 points
- Heavy duty
- Maximum tooth penetration

#### PC-127-4SCS
4 Points / .391” Wide

- 4 points
- Heavy duty
- Maximum tooth penetration

#### PC-127-8SC
8 Points / .561” Wide

- 8 points
- Medium duty
- Medium tooth penetration

#### PC-127-10SC
10 Points / .561” Wide

- 10 points
- Medium duty
- Medium tooth penetration

### Application Specific Angle Lok

#### PC-130-2SCS
2 teeth / .396” Wide

- 2 straight tooth
- Medium duty
- Medium tooth penetration

#### PC-132-4SC
4 teeth / .561” Wide

- 4 spherical tooth
- Medium duty
- Medium tooth penetration

#### PC-132-2SCS
2 teeth / .396” Wide

- 2 spherical tooth
- Medium duty
- Medium tooth penetration

#### PC-145-5SC
5 teeth / .561” Wide

- 45 ° angle tooth
- Medium duty
- Medium tooth penetration

#### PC-130-4SC
4 teeth / .561” Wide

- 4 straight tooth
- Medium duty
- Medium tooth penetration

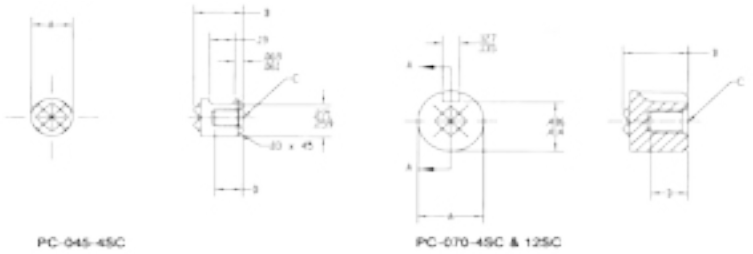
#### PC-110
Spherical / .561” Wide

- Spherical
- No tooth penetration

## Replaceable Solid Carbide Inserts

Forkardt's solid carbide inserts are available in various diameters, heights, and tooth patterns. Sold in kits of 10, with hardware included.

## Multipurpose Round Style




| Kit Number | A | B | C | D |
|---|---|---|---|---|
| PC0454SCK | .312” dia. | 0.375 | #10-32 | 0.19 |
| PC0704SCK | .500” dia. | 0.500 | #10-32 | 0.19 |
| PC07012SCK | .500” dia. | 0.500 | #10-32 | 0.25 |

### PC-045-4SC

4 Points / .312” Wide

- Light Duty
- Non-adjustable

### PC-070-4SC

4 Points / .500” Wide

- 4 points
- Heavy duty
- Adjustable and non-adjustable

### PC-070-12SC

4 Points / .500” Wide

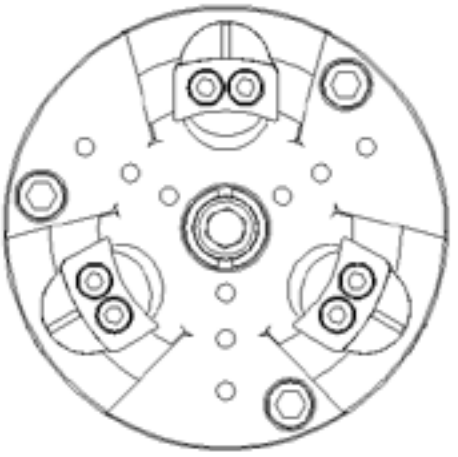
- 8 points
- Medium duty
- Adjustable and non-adjustable

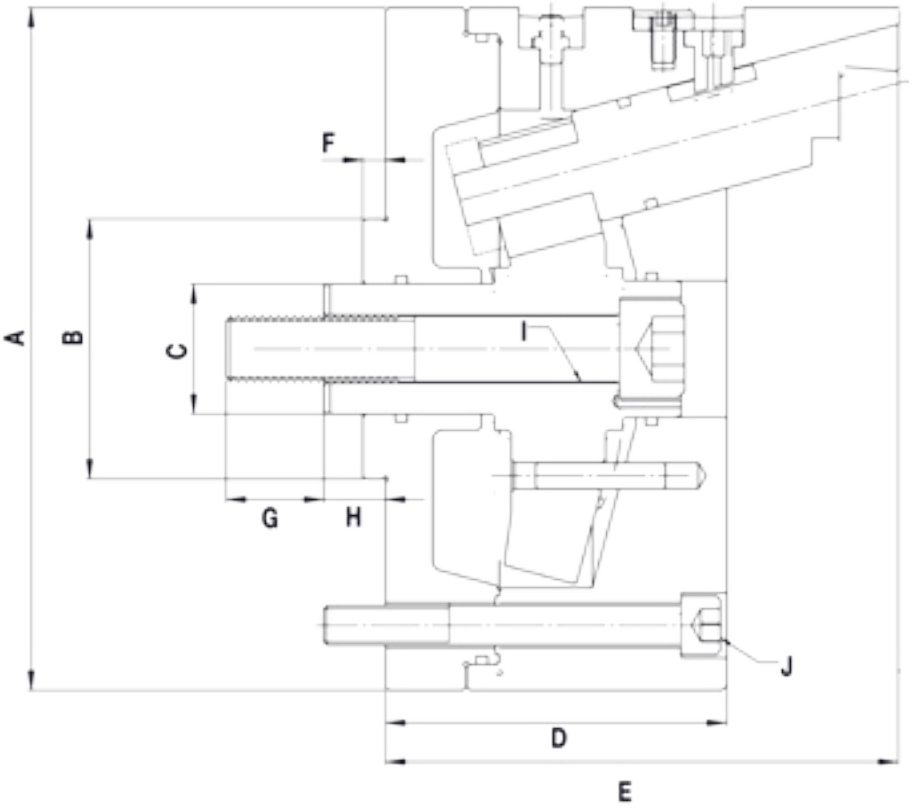
# OD Clamping Pin Arbor Chuck

FORKARDT™

# FPC

## OD Clamping Pin Arbor Chuck





# OD Clamping Pin Arbor Chuck

# FPC

| Chuck Model | Max Clamp Force (kN) | Max Pull Force (kN) | Weight (kg) | Grip Range | |
|---|---|---|---|---|---|
| | | | | Min | Max |
| FPC160 | 36.8 | 19.6 | 16 | 20 | 90 |
| FPC200 | 46.1 | 24.5 | 25 | 60 | 130 |
| FPC250 | 55.3 | 29.4 | 45 | 100 | 165 |
| FPC300 | 73.7 | 39.2 | 70 | 120 | 220 |

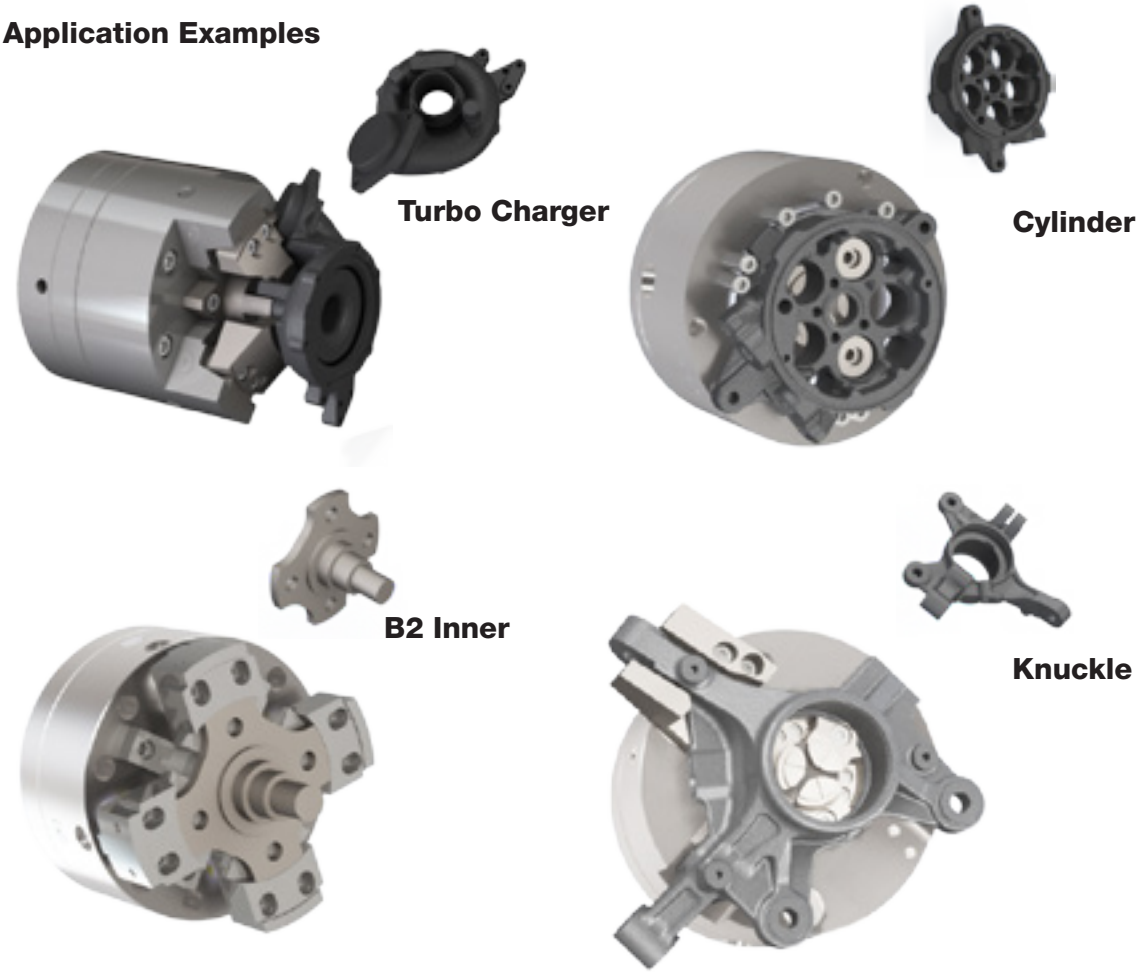
## Features & Benefits

- High accuracy and concentricity
- Excellent squareness and parallelism to standard end surface after machining
- High gripping force
- Chucking pins easily changed
- Available in sizes 170 to 320mm

| Chuck Model | A | B | C | D | E | F | G | H | | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Max | Min | | |
| FPC160 | 170 | 80 | 30 | 90 | 137 | 7 | 30 | 17 | 10 | M16x2P | (3) M12 PCD 144 |
| FPC200 | 210 | 80 | 40 | 105 | 158 | 7 | 30 | 23 | 15 | M20x2.5P | (6) M12 PCD 170 |
| FPC250 | 254 | 85 | 50 | 115 | 193 | 7 | 30 | 25 | 15 | M20x2.5P | (6) M16 PCD 214 |
| FPC300 | 320 | 85 | 60 | 120 | 213 | 7 | 40 | 30 | 20 | M20x2.5P | (6) M16 PCD 275 |

1 kN = 224.81 lbs. (Force)
1 kg = 2.20 lbs. (Weight)
Measurements in millimeters unless otherwise noted

## Application Examples



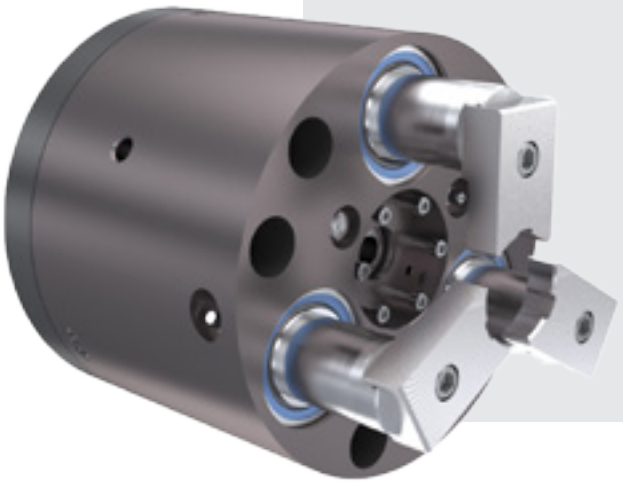
# Retractable Work Driving Chuck

FORKARDT™

# Retractable Work Driving Chuck

# RWD

Forkardt's Retractable Work Driver Power Chuck (RWD) extends and retract to cut shaft turning operations in half. The retractable jaw chuck allows for one continuously run turning operation; a major improvement over conventional chucking which requires two operations and two machines for shaft turning.



**Features & Benefits:**

- Up to 32,000 lbs of freely compensating chucking pressure
- Total turning without interruption
- Improved concentricity and end location
- Accuracies of 0.001" TIR
- Speeds up to 4000 RPM
- Minimal centrifugal force loss
- Positive end driving
- Pre-loaded center

**Total Turning Without Interruption**

Forkardt's RWD chucks allow machining of workpieces between centers over the entire length, eliminating unnecessary part handling

**Improved Concentricity and End Location**

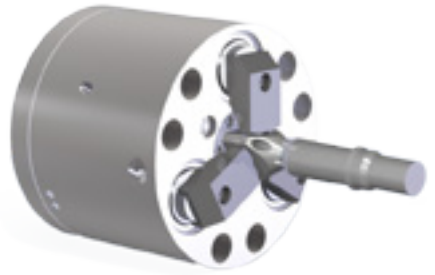
Drive Centers provide true between centers machining for greater accuracy, eliminating part turnaround

**Positive End Driving**

The RWD utilizes a self-contained equalizing drive pin mechanism. Each pin adjusts to the end of the workpiece, even if there is a slight out-of-squareness from part to part, ensuring evenly distributed driving force.

**Pre-loaded Center**

The RWD is provided with a long, guided spring loaded center to accommodate locating center tolerance variation

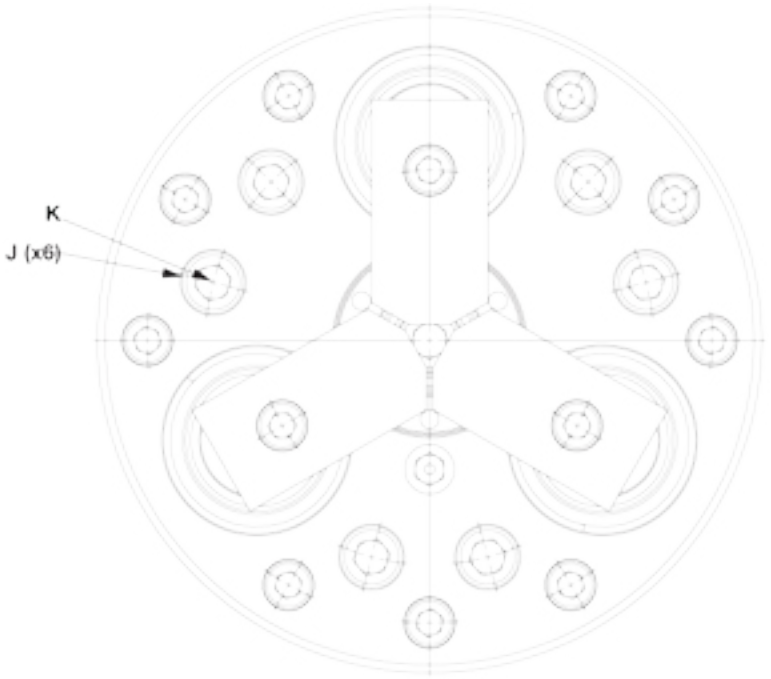


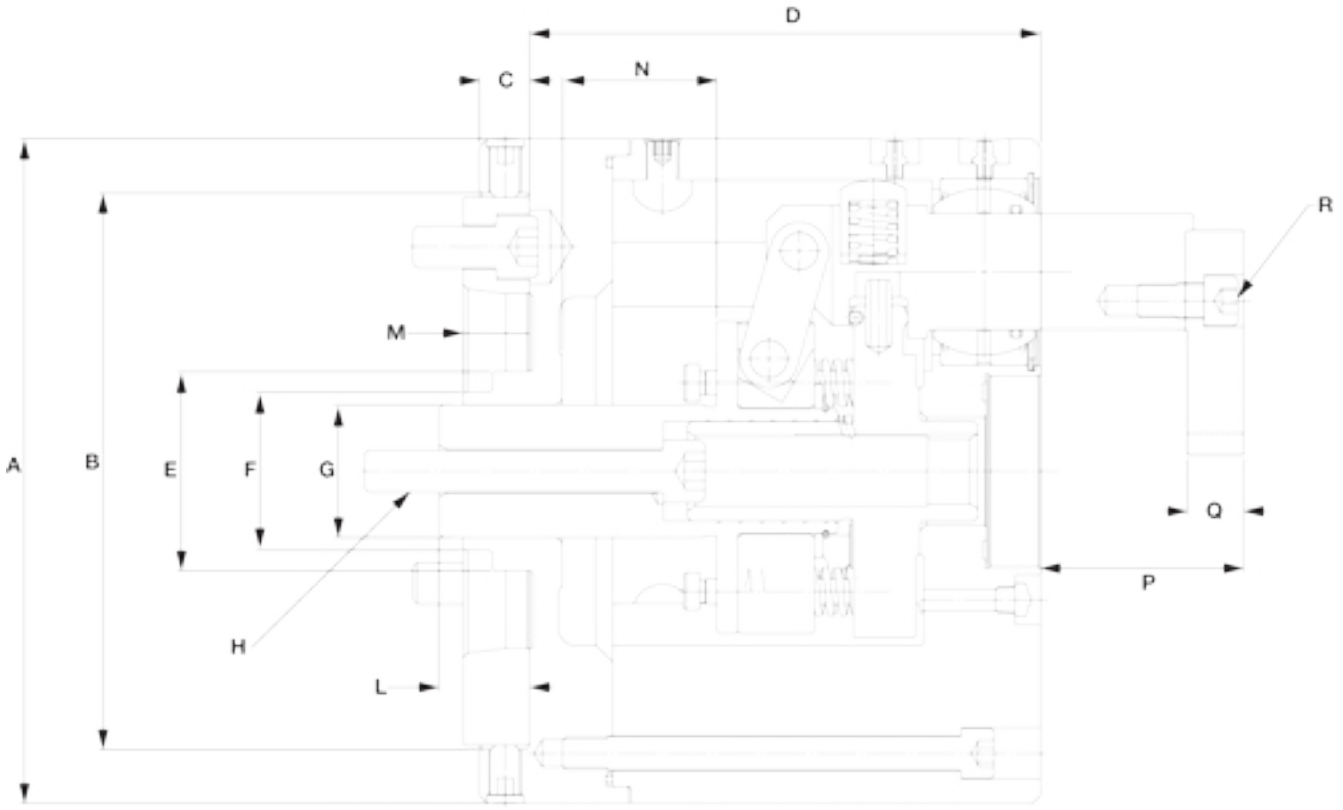
Ideal for a wide variety of shaft applications including:

- Camshafts
- Drive Shafts
- Crankshafts
- Motor Shafts
- Transmission Shafts
- Axle Shafts

# RWD

## Retractable Work Driving Chuck



# Retractable Work Driving Chuck

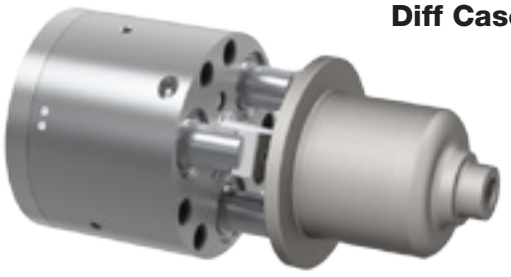
# RWD

| | | RWD8000A | RWD10000D | RWD12000D |
|---|---|---|---|---|
| Chuck Diameter | A | 196 | 245 | 294 |
| Mounting Recess Dia. | B | - | 205.56 | 254.31 |
| Depth of Recess | C | - | 18.38 | 18.38 |
| Chuck Height | D | 160.97 | 188.41 | 188.41 |
| Back Plate Boss dia. | E | 129.36 | 73.50 | 79.63 |
| Back Plate Boss Step dia. | F | 55.13 | 58.31 | 64.44 |
| Actuator Dia. | G | 36.75 | 49.00 | 55.13 |
| Draw Bar Thread | H | 5/8”-11 | 5/8”-11 | 3/4”-10 |
| Chuck Mounting Bolt Size | J | 5/8”-11 | 5/8”-11 | 5/8”-11 |
| Mounting Bolt Circle Dia | K | 162.44 | 165.38 | 214.38 |
| Actuator Position | L | 35.28 | 33.57 | 27.56 |
| Length of Boss | M | 28.42 | 24.50 | 24.50 |
| Actuator Stroke to Full Retract | N | 49.00 | 56.84 | 62.97 |
| Jaw Mounting Platform | P | 62.72 | 74.97 | 81.10 |
| Jaw Height | Q | 14.70 | 20.83 | 20.83 |
| Jaw Mounting Screw Size | R | 3/8”-16 | 1/2”-20 | 1/2”-20 |
| Maximum drawbar force (kN) | | 35.59 | 44.48 | 44.48 |
| Maximum RPM | | 4000 | 3500 | 3000 |
| Jaw Blank Weight (kg) | | 0.69 | 1.30 | 1.68 |
| Chuck Weight (kg) | | 78 | 142 | 224 |

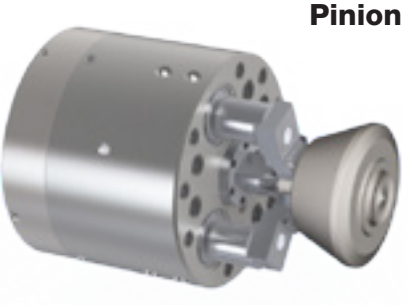
Dimensions in mm unless otherwise noted

## Application Examples

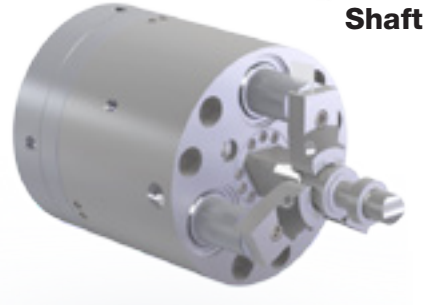
Diff Case



Pinion



Shaft



# Diaphragm Chucks

FORKARDT™

# Diaphragm Chucks

The Forkardt diaphragm chuck is based on the original N.A. Woodworth design principle of simplicity. There are no sliding parts, no friction, and no wear. It operates similar to an oil can bottom with a simple flexing action, assuring consistently controlled concentricity and may be actuated by a built in cylinder or machine drawbar. With the standard Dovetail or Master Jaw style, the Universal Gear, and the Pitch Line Diaphragm chuck options, Forkardt has the solution you need for any application.

## Standard Design
**Dovetail or Master Jaw Style**

Ideal for:
- Secondary operations such as grinding, boring, facing and light turning

Key Features:
- No sliding parts
- Consistently controlled concentricity

Available in 3, 4 and 6 jaw design standard sizes 130 to 330mm. Larger sizes available

## Universal Gear- UG
**Pull Back Gear Diaphragm**

Ideal for:
- Gear turning
- Hard turning and grinding applications

Key Features:
- Pull-back action
- Fast gear changeover

Available in standard sizes from 130 to 330mm. Larger sizes available.

## Pitch Line Diaphragm - PLD
**Counter Centrifugal Diaphragm**

Ideal for:
- Gear turning
- Hard turning and grinding applications

Key Features:
- Centrifugal force compensation
- Quick jaw changeover

Available in 3, 4 and 6 jaw design standard sizes 130 to 330 mm. Larger sizes available

# Diaphragm Chucks

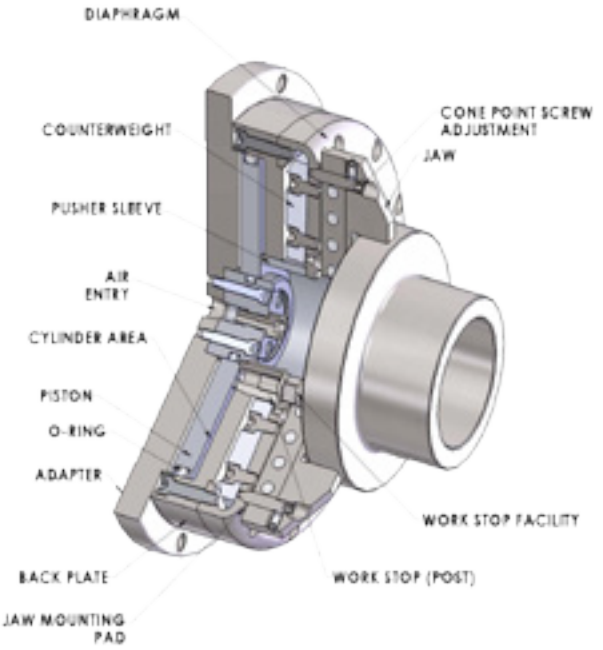
## Diaphragm Chuck Principle: Simplicity

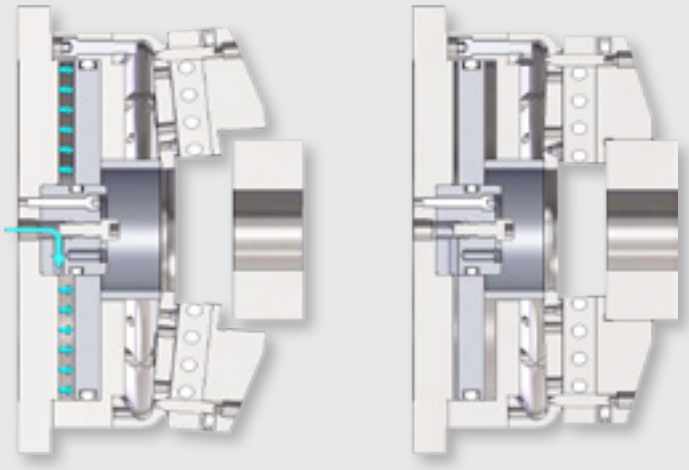
The diaphragm principle as applied to chucking utilizes the inherent strength and accuracy of spring steel to achieve chucking pressure on internal or external surfaces. Safe clamping of the workpiece is achieved through positive clamping force of the diaphragm. Drawbar force is only required for declamping.

Diaphragm chucks are primarily for secondary operations such as grinding, boring, facing, and light turning. Locating surfaces should be pre-machined or precision cast surface. Locating grip tolerances should be held to a total of .15” on the smaller chucks to .40” on the larger sizes.

Applications of this principle have been production proven in plain diameter and pitch line chucks in sizes ranging from 2" to 54".

**Standardization of components assures interchangeability of parts**



Flexing Action Exaggerated

### How a Diaphragm Works

Air is introduced through the spindle adapter plate by means of a pipe. When air pressure is applied, the piston moves forward and the movement is transmitted to the diaphragm by a push sleeve. As the diaphragm is flexed the jaws open and the workpiece is loaded. To chuck, the air is turned OFF and the jaws move toward the relaxed position until they contact the part. The part is located on centerline of the chuck.

***No Sliding Parts... No Friction... No Wear...Just Consistent, Controlled Concentricity!***

# Pitch Line Diaphragm Chuck

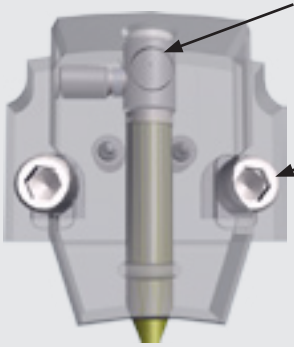
# PLD

The Forkardt PLD chuck is aimed primarily at gear families. This diaphragm chuck offers solutions in hard turning and grinding operations where repeatability, interchangeability, and roundness are a concern.

The key to the design of the PLD is the simplicity of the quick change system. Two designs are available; the more traditional face access design, and the NEW MIR OD access design.

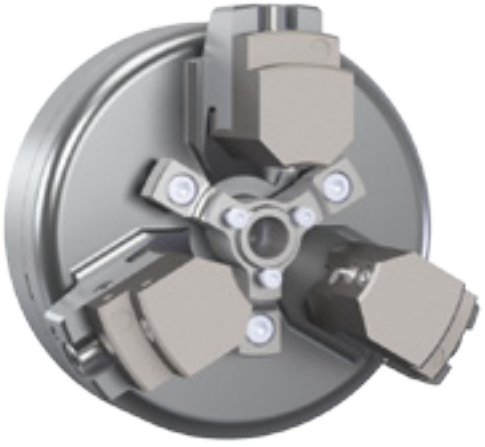
A coolant-thru provision and workpiece air sensing arrangements can be provided as part of the chuck design at specific request.

### Traditional Design- Face Access

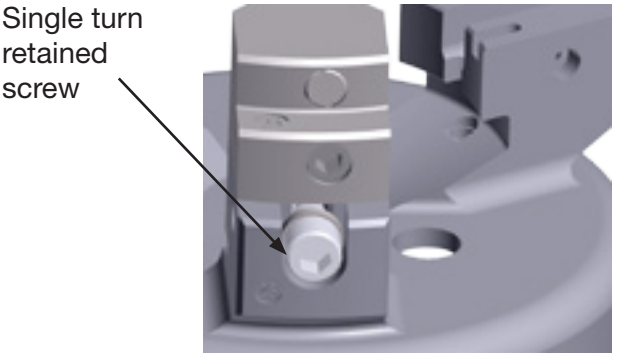


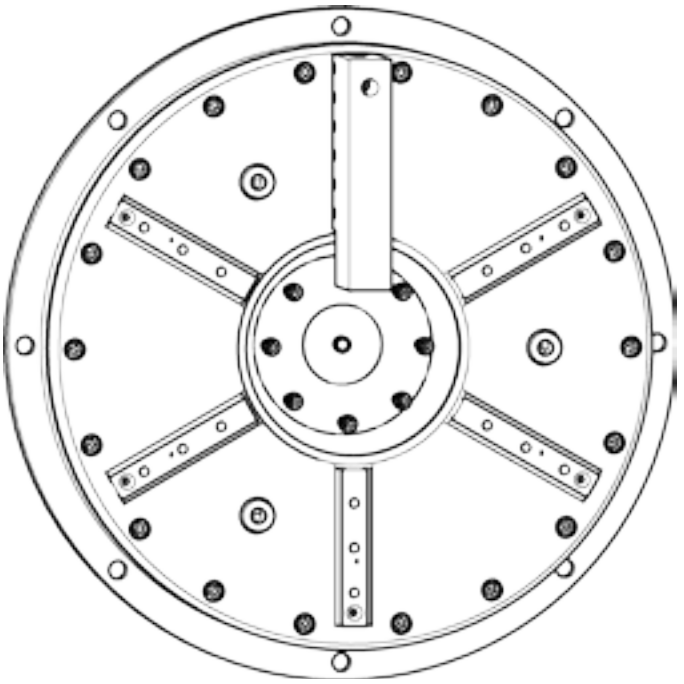

**Features & Benefits**

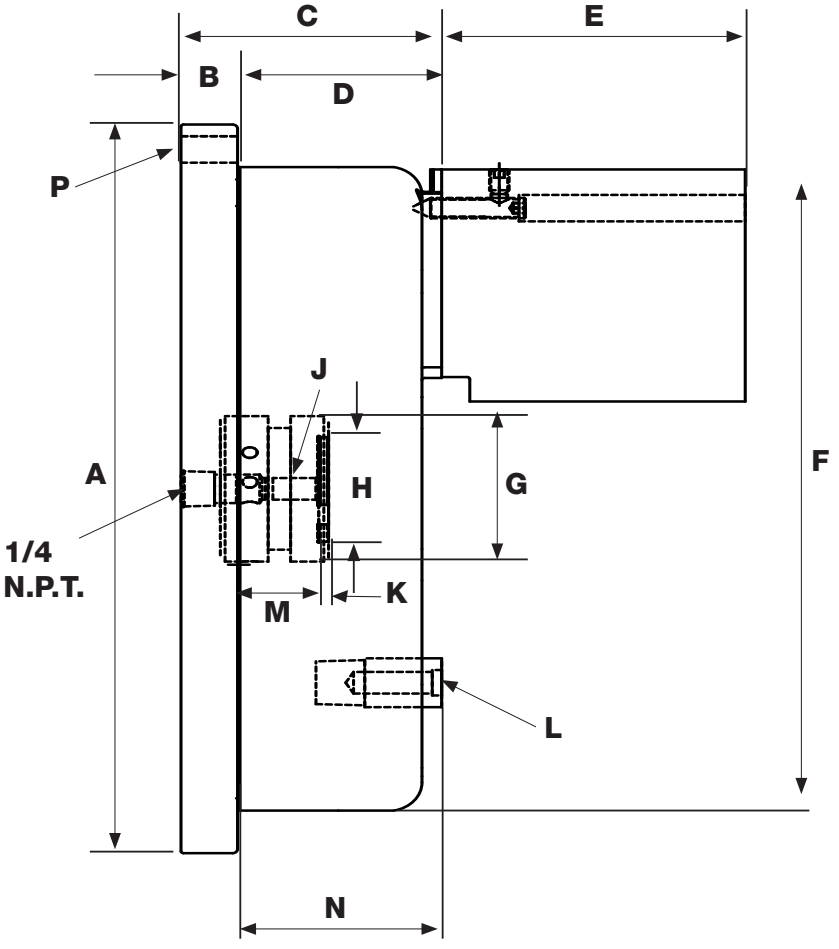
- Jaw change in 60 seconds
- Accommodates any number of gear teeth
- Compliance for tooth space variation
- Standard pull-back action
- Centrifugal force compensation for higher speeds
- Minimal maintenance- no sliding parts



### MIR Design- OD Access



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# Dovetail Jaw Design

# SC

| Item | Weight (kg) | No. of Jaws | Jaw Stroke (mm) | Gripping Range (mm) | Max Clamping Force (kN) | |
|---|---|---|---|---|---|---|
| | | | | | Single | Double |
| SC401 | 3 | 3 | 0.15 | 3.18 - 76.20 | 3.89 | 7.78 |
| SC500 | 6 | 3 | 0.23 | 9.53 - 76.20 | 4.67 | 9.34 |
| SC501 | 6 | 3 | 0.23 | 9.53 - 76.20 | 4.67 | 9.34 |
| SC700 | 9 | 4 | 0.23 | 12.70 - 101.60 | 8.00 | 16.00 |
| SC701 | 9 | 4 | 0.23 | 12.70 - 101.60 | 8.00 | 16.00 |
| SC708 | 9 | 3 | 0.23 | 12.70 - 101.60 | 8.00 | 16.00 |
| SC801 | 15 | 6 | 0.25 | 53.98 - 139.70 | 10.68 | 21.35 |
| SC100 | 19 | 6 | 0.25 | 50.80 - 177.80 | 16.90 | 33.81 |
| SC101 | 19 | 6 | 0.25 | 50.80 - 177.80 | 16.90 | 33.81 |
| SC1300 | 36 | 6 | 0.36 | 88.90 - 254.00 | 30.25 | 60.50 |
| SC1701 | 74 | 6 | 0.41 | 127.00 - 355.60 | 54.71 | 109.43 |

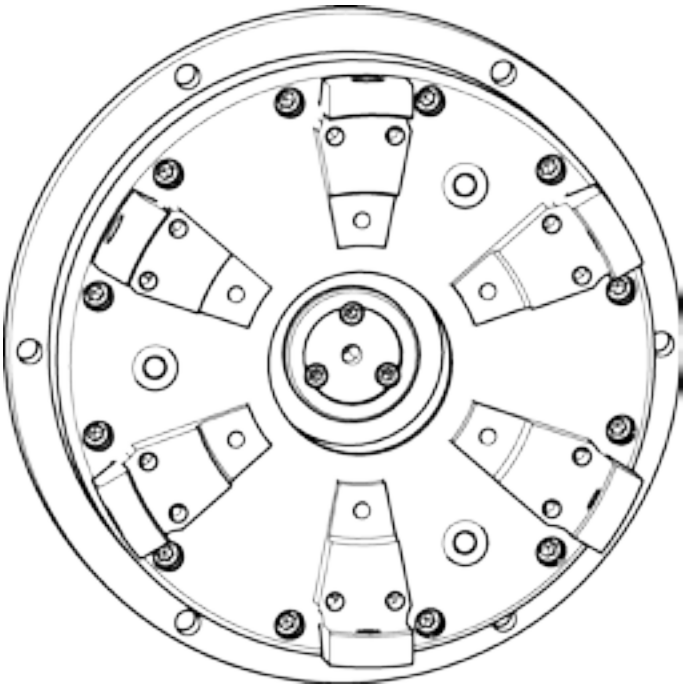
* All "01" series chucks have stop facilities for both center post stops except SC1301 and SC1701, which have post work stops only.

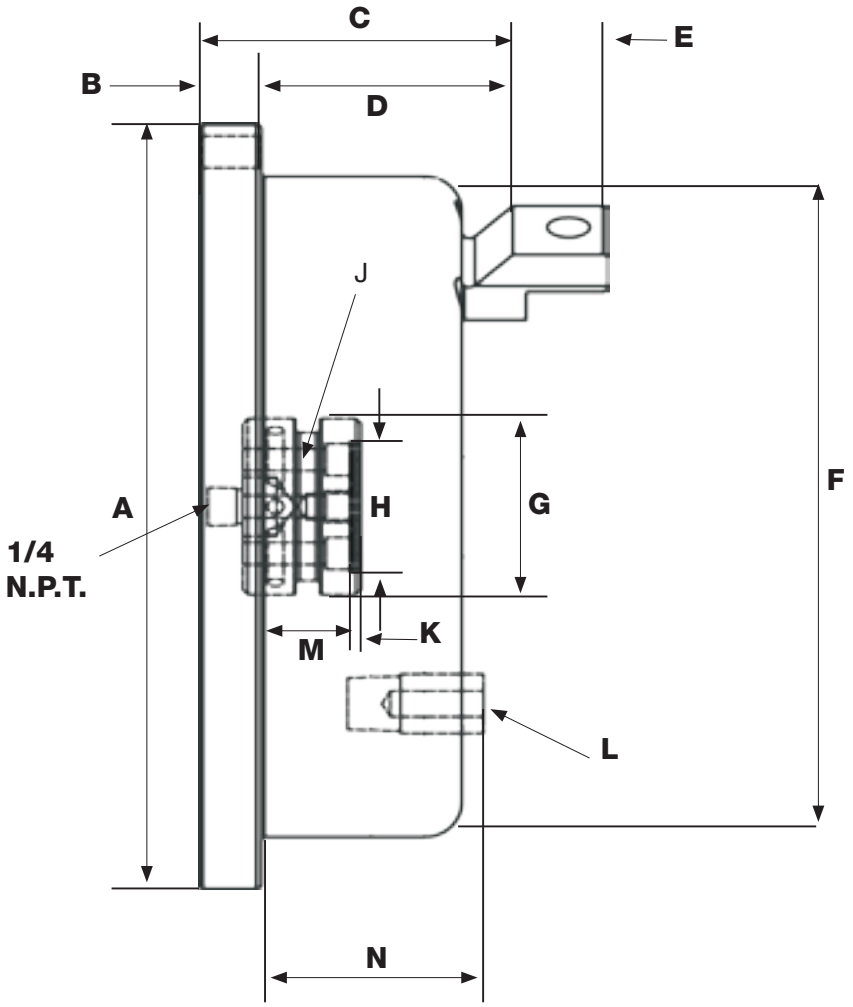
The dovetail design diaphragm chuck features a unitized diaphragm assembly, self-contained air cylinder, face plate adapter, and optional rotary slip coupling. Custom spindle adapters and drawbar operated configurations available.

For applications requiring additional chucking pressure, air is introduced ahead of the cylinder by utilizing a double rotary coupling to increase the clamping pressure.

| Item | Dimensions | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | F | G | H | J | K | L | M | N | P |
| SC401 | 155.49 | 11.68 | 50.8 | 39.62 | 123.44 | 21.34 | 14.29 | 3/8”-24 | 3.05 | (3) 1/4”-28 on 2.12” BC | 26.92 | 34.04 | (4) 13/32 Holes on 5.50” B.C. |
| SC500 | 171.45 | 19.05 | 79.25 | 60.45 | 138.43 | 22.90 | - | - | - | - | - | - | (4) 13/32 Holes on 6.12” B.C. |
| SC501 | 171.45 | 19.05 | 79.25 | 60.45 | 138.43 | 22.90 | 14.29 | 3/8”-24 | 3.05 | (3) 5/16”-28 on 2.62” BC | 25.40 | 55.37 | (6) 13/32 Holes on 7.50” BC |
| SC700 | 207.77 | 19.05 | 79.25 | 60.45 | 175.00 | 26.16 | - | - | - | - | - | - | (6) 13/32 Holes on 7.50” BC |
| SC701 | 207.77 | 19.05 | 79.25 | 60.45 | 175.00 | 26.16 | 14.29 | 3/8”-24 | 3.05 | (4) 5/16”-24 on 3.88” BC | 25.40 | 60.45 | (6) 13/32 Holes on 7.50” BC |
| SC708 | 207.77 | 19.05 | 79.25 | 60.45 | 175.00 | 26.16 | 14.29 | 3/8”-24 | 3.05 | (3) 5/16”-24 on 3.88” BC | 25.40 | 60.45 | (6) 13/32 Holes on 7.50” BC |
| SC801 | 245.87 | 19.05 | 84.07 | 65.02 | 213.11 | 64.26 | 41.28 | 3/8”-24 | 3.05 | (3) 3/8”-24 on 5.00” BC | 25.40 | 65.02 | (6) 13/32 Holes on 9.00” BC |
| SC100 | 283.97 | 19.05 | 87.07 | 65.02 | 251.21 | 76.96 | - | - | - | - | - | - | (6) 13/32 Holes on 10.50” BC |
| SC101 | 283.97 | 19.05 | 87.07 | 65.02 | 251.21 | 76.96 | 41.28 | 3/8”-24 | 3.05 | (3) 3/8”-24 on 6.87” BC | 25.40 | 65.02 | (6) 13/32 Holes on 10.50” BC |
| SC1300 | 275.92 | 18.29 | 87.38 | 68.07 | 327.41 | 115.06 | - | 3/8”-24 | - | (3) 7/16”-20 on 8.00” BC | - | 68.07 | (6) 13/32 Holes on 13.50” BC |
| SC1701 | 476.25 | 22.35 | 91.95 | 69.85 | 429.00 | 152.40 | - | 3/8”-24 | - | (3) 7/16”-20 on 10.75” BC | - | 75.18 | (6) 13/32 Holes on 17.75” BC |

* Measurements in millimeters unless otherwise noted

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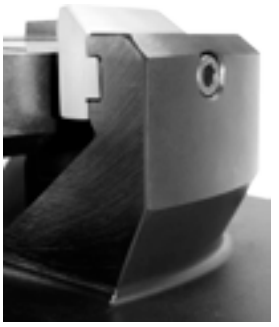
# Master Jaw Design

SC

The master jaw design diaphragm chuck includes a unitized diaphragm assembly, self contained air cylinder, face plate adapter, optional rotary slip coupling and installation instructions. Custom spindle adapters and drawbar operated configurations are available.

All chucks have stop facilities for both center and post stops with the exception of the 13" and 17" sizes, which have post work stops only.

| Item | Weight (kg) | No. of Jaws | Jaw Stroke (mm) | Gripping Range (mm) | Max Clamping Force (KN) | |
|---|---|---|---|---|---|---|
| | | | | | Single | Double |
| SC5012 | 8 | 3 | 0.23 | 6.35 - 76.20 | 4.67 | 9.34 |
| SC7012 | 12 | 4 | 0.23 | 44.45 -107.95 | 8.00 | 16.00 |
| SC8012 | 21 | 6 | 0.25 | 76.20 - 142.75 | 10.68 | 21.35 |
| SC10012 | 27 | 6 | 0.25 | 114.30 - 180.85 | 16.90 | 33.81 |
| SC13012 | 45 | 6 | 0.36 | 152.40 - 247.65 | 30.25 | 60.50 |
| SC17012 | 90 | 6 | 0.41 | 203.20 - 349.25 | 54.71 | 109.43 |



Master jaw inserts are available as soft blanks or hardened and finished to part requirements. Inserts are easily accessed from the OD of the chuck.

Both N.A. Woodworth flat and Sheffer shell designs are available.

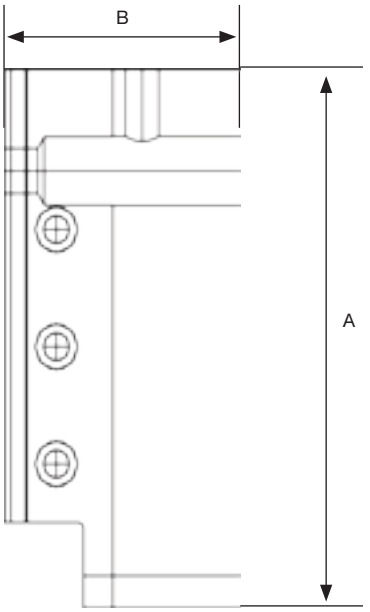
| Item | Dimensions | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | F | G | H | J | K | L | M | N | P |
| SC5012 | 171.45 | 19.05 | 90.42 | 71.37 | 138.38 | 22.86 | 14.29 | 5/16”-24 | 3.05 | (3) 5/16”-24 on 2.62” BC | 25.40 | 55.37 | (4) 13/32 Holes on 6.12” BC |
| SC7012 | 207.77 | 19.05 | 91.95 | 72.90 | 174.88 | 26.16 | 14.29 | 5/16”-24 | 3.05 | (4) 5/16”-24 on 3.88” BC | 25.40 | 60.45 | (6) 13/32 Holes on 7.50” BC |
| SC8012 | 245.87 | 19.05 | 96.77 | 77.72 | 212.98 | 64.26 | 41.28 | 3/8”-24 | 3.05 | (3) 3/8”-24 on 5.00” BC | 25.40 | 65.02 | (6) 13/32 Holes on 9.00” BC |
| SC10012 | 279.91 | 19.05 | 96.77 | 77.72 | 251.08 | 76.96 | 41.28 | 3/8”-24 | 3.05 | (3) 3/8”-24 on 6.87” BC | 25.40 | 65.02 | (6) 13/32 Holes on 10.50” BC |
| SC13012 | 360.43 | 19.05 | 96.77 | 77.72 | 327.41 | 115.06 | - | - | - | (3) 7/16”-20 on 8.00” BC | - | 73.91 | (6) 13/32 Holes on 13.50” BC |
| SC17012 | 476.25 | 22.35 | 112.78 | 90.424 | 428.88 | 152.40 | - | - | - | (3) 7/16”-20 on 10.75” BC | - | 75.44 | (6) 17/32 Holes on 17.75” BC |

Measurements are in mm unless otherwise noted.

## Jaw Blanks Dovetail Design
### Cone Point Screw Adjustment

All Forkardt Dovetail Jaws with cone point adjustment are made of high quality SAE-1045 steel. Jaws are easily adjusted and easily changed.

**Machined Jaws** from standard blanks. Engineered and machined to suit specific parts.



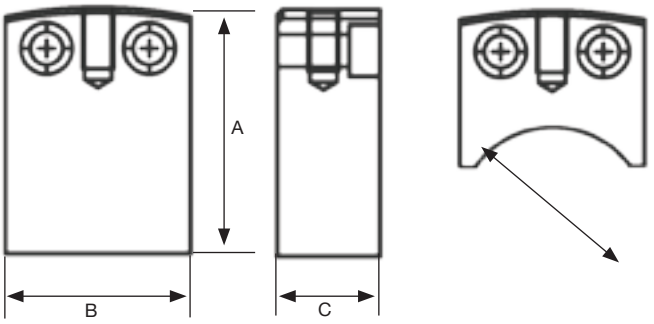

| For Use On | Item No. | Dimensions | |
|---|---|---|---|
| | | A | B |
| SC500 | DC588 | 62.48 | 21.84 |
| SC501 | DC589 | 62.48 | 34.54 |
| SC700 | DC781A | 80.26 | 21.84 |
| SC701 | DC782A | 80.26 | 34.54 |
| SC708 | DC783A | 80.26 | 47.24 |
| SC801 | DC784A | 80.26 | 59.94 |
| SC100 | DC180A | 90.42 | 47.24 |
| SC101 | DC182A | 90.42 | 98.04 |
| SC1301 | DC1381 | 97.74 | 76.20 |
| SC1301 | DC1382 | 122.17 | 101.60 |
| SC1301 | DC1383 | 122.17 | 127.00 |
| SC1301 | DC1384 | 122.17 | 152.40 |
| SC1701 | DC1781 | 163.58 | 76.20 |
| SC1701 | DC1782 | 163.58 | 101.60 |
| SC1701 | DC1783 | 163.58 | 127.00 |
| SC1701 | DC1784 | 163.58 | 152.40 |

## Jaw Inserts Master Jaw Design

Changing from one set of pre-numbered hard inserts to another when re-running a job is accomplished in minutes. It is not necessary to grind before use as inserts are finished to your design.

### Soft Blank Jaws
Soft blanks are provided with locating radius and bottom face finish ground

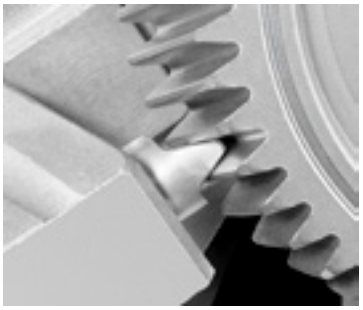
### Hard Finished Jaws
For finished inserts send part print showing locating diameter and stop face




Machined per customer specifications.

| For Use On | Item No. | Dimensions | | |
|---|---|---|---|---|
| | | A | B | C |
| SC5012 | DC50121 | 25.40 | 38.10 | 53.85 |
| SC5012 | DC50122 | 38.10 | 38.10 | 53.85 |
| SC7012 | DC70121 | 25.40 | 50.80 | 65.02 |
| SC7012 | DC70122 | 44.45 | 50.80 | 65.02 |
| SC8012 | DC80121 | 28.45 | 50.80 | 55.37 |
| SC8012 | DC80122 | 50.80 | 50.80 | 55.37 |
| SC10012 | DC100121 | 28.45 | 50.80 | 58.67 |
| SC10012 | DC100122 | 50.80 | 50.80 | 58.67 |
| SC13012 | DC130121 | 31.75 | 57.15 | 76.20 |
| SC13012 | DC130122 | 50.80 | 57.15 | 76.20 |
| SC17012 | DC170121 | 31.75 | 57.15 | 101.60 |
| SC17012 | DC170122 | 63.50 | 63.50 | 101.60 |

# Gear Diaphragm Chucks

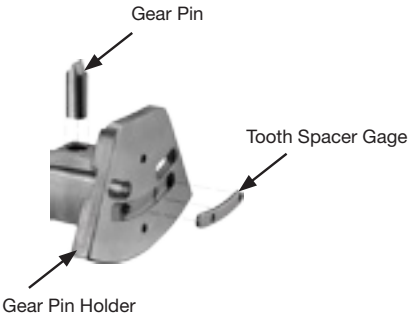


## First In Pitch-Line Gear Chucking

Forkardt offers a range of pitch-line chucking products to suit any given gear application.

## Universal Gear Chuck (UG)

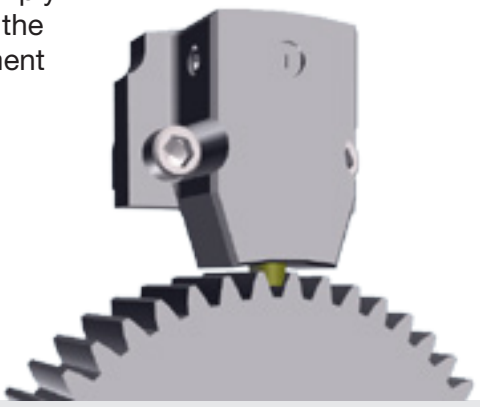
Interchangeable gear pin holders, tooth spacer gage, and gear pins provide fast and simple gear changeover for maximum versatility

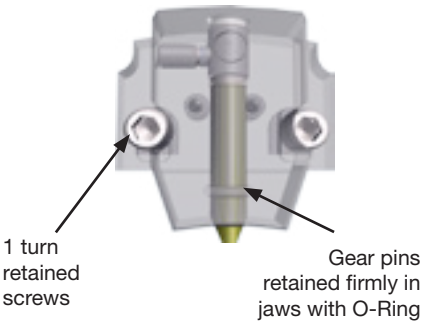


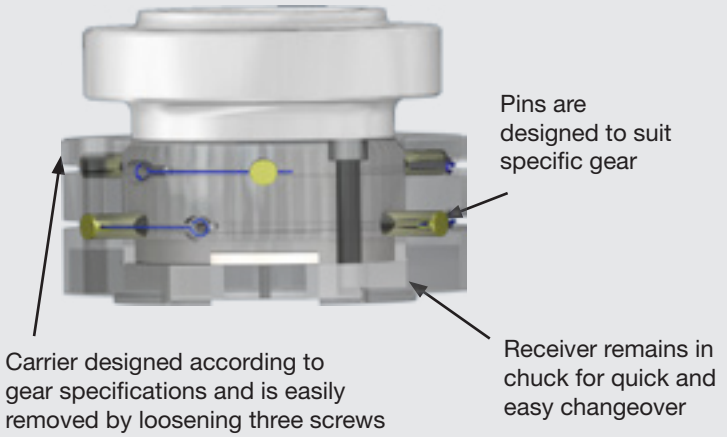

## Pitch Line Diaphragm Chuck (PLD)

**NEW MIRV Quick Change Jaw Mount**

Gear pins are easily replaced by simply pulling the old pins out and sliding the new pins into the jaws. No adjustment is required.

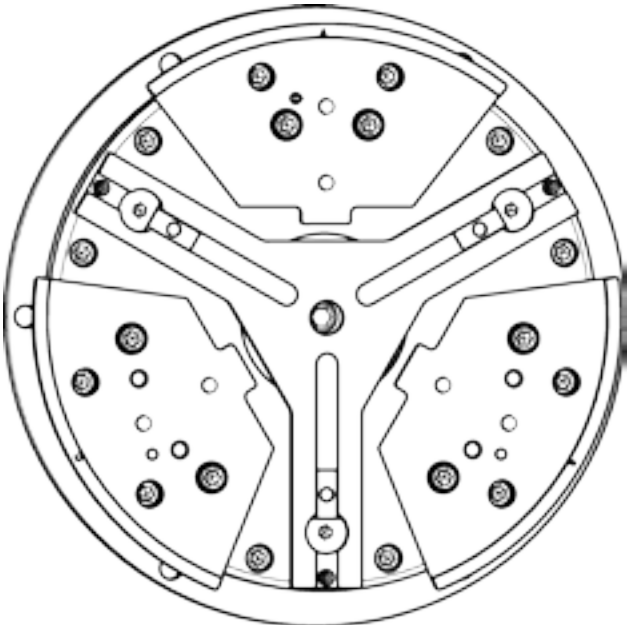


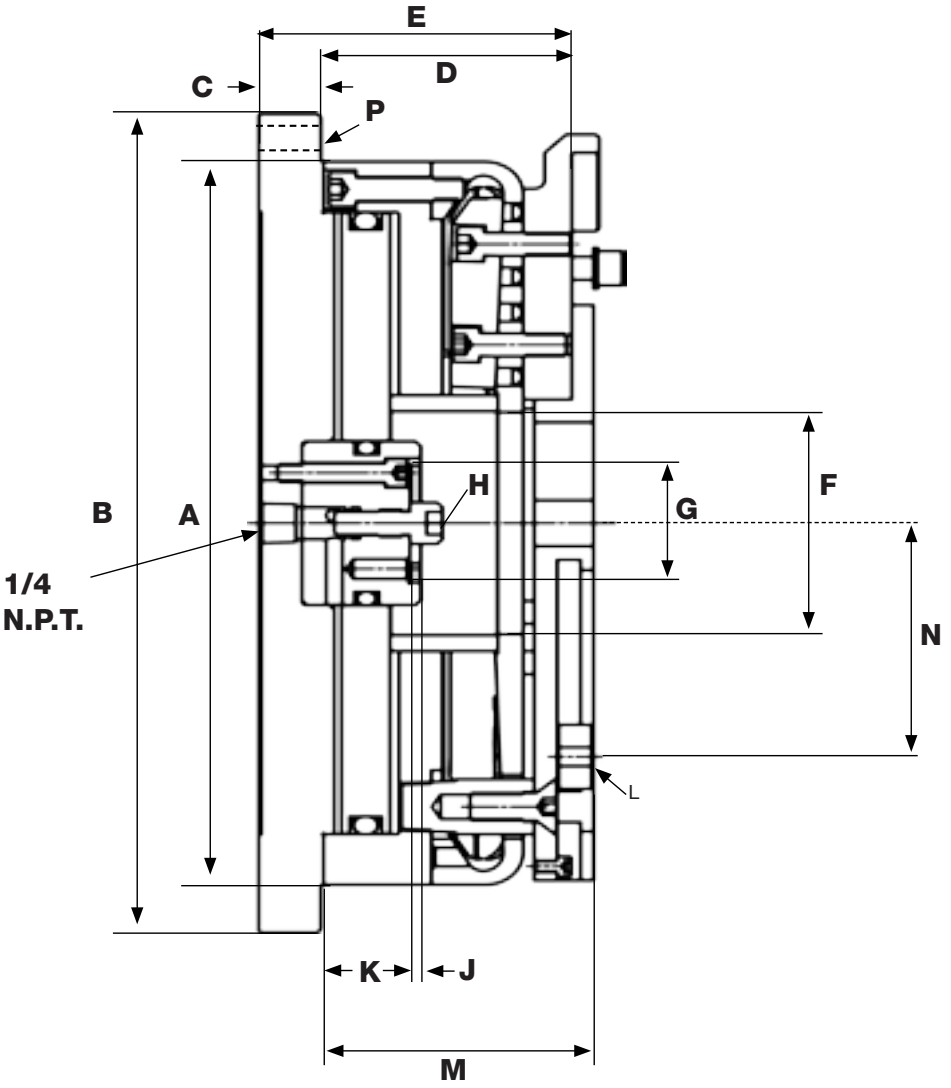



## Cage Style Gear Chuck

Cage style gear chucks utilize interchangeable cages for each gear work piece within the range of the chuck. The cages carry three gear pins matching the pitch and helical alignments required for a specific gear. Changeover is fast and simple- loosen three screws, install new cage and start production.

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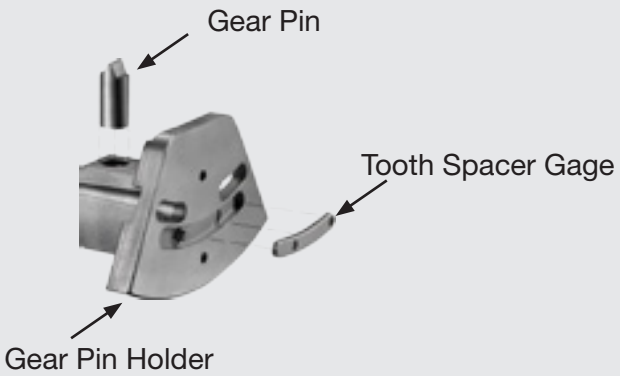
# Universal Gear Diaphragm Chuck

# UG

The UG chucks are ideal for longer run applications with infrequent changovers. The UG diaphragm chucking system adapts to many different gear configurations, requiring minimal top tooling. Changeover from one gear to another is simple and can be accomplished in minutes.

The UG chuck provides consistent and controlled accuracy on every run and features pull back action against fixed stops for positive location.




**Features & Benefits**

- No sliding parts reduces maintenance costs and down times
- Pull-back action against fixed stops for positive location
- Simple gear changeover reduces set up time
- Inherent strength of spring steel is used to acheive chucking pressure, ensuring consistently controlled concentricity

| Item | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UG703 | 174.75 | 208.03 | 19.05 | 65.02 | 84.07 | 26.92 | 14.22 | 5/16 | 78.74 | 25.40 | 1/4”-28 | 74.68 | 19.00-79.40 | 3/8 | 15 |
| UG103 | 250.95 | 284.23 | 19.05 | 73.00 | 92.10 | 77.10 | 41.40 | 3/8 | 78.84 | 25.40 | 5/16”-18 | 79.40 | 30.18 - 104.39 | 3/8 | 28 |
| UG1303 | 327.15 | 360.43 | 50.80 | 50.80 | 101.60 | 116.59 | N/A | N/A | N/A | N/A | 5/16”-18 | 56.64 | 55.63 - 151.64 | 3/8 | 32 |
| UG1703 | 428.75 | 476.25 | 50.80 | 54.10 | 104.90 | 153.16 | N/A | N/A | N/A | N/A | 5/16”-18 | 62.99 | 55.88 - 199.64 | 1/2 | 82 |

Dimensions in mm unless otherwise noted

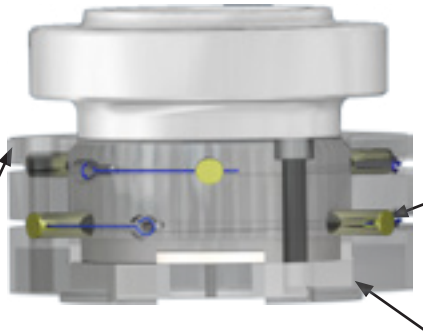
# CG

# Cage Style Gear Diaphragm Chuck

Cage style gear chucks utilize interchangeable cages for each gear work piece within the range of the chuck. The cages carry three gear pins matching the pitch and helical alignments required for a specific gear. Changeover is fast and simple- loosen three screws, install new cage and start production.

### Interchangeable Gear Cages

It is not uncommon to have a single chuck with 20 to 25 cages for medium size repetitive runs. Standardization of both the chuck and the cage has resulted in an economical fixture which keeps changeover and production costs down while assuring quality.




### Gear Pins

The cage style diaphragm chuck uses either wedge type or conical type gear pins. The pins are held in place with a spring clip. Clearance is allowed in the pin hole of the cage for controlled flloat.

# Face Clamping Diaphragm Chuck

# FCD

The Forkardt face clamping diaphragm chuck is designed as a diaphragm chuck with face clamping fingers.

In this example, a PLD style diaphragm chuck is used to center the gear. The face clamps are used to hold the part so that the diaphragm pins do not need to exert as much grip force on the part, preventing deformation.

In this example, a master jaw style diaphragm chuck with inserts is used to center the bearing housing. The face clamps allow less grip force to be used, preventing deformation of the part.

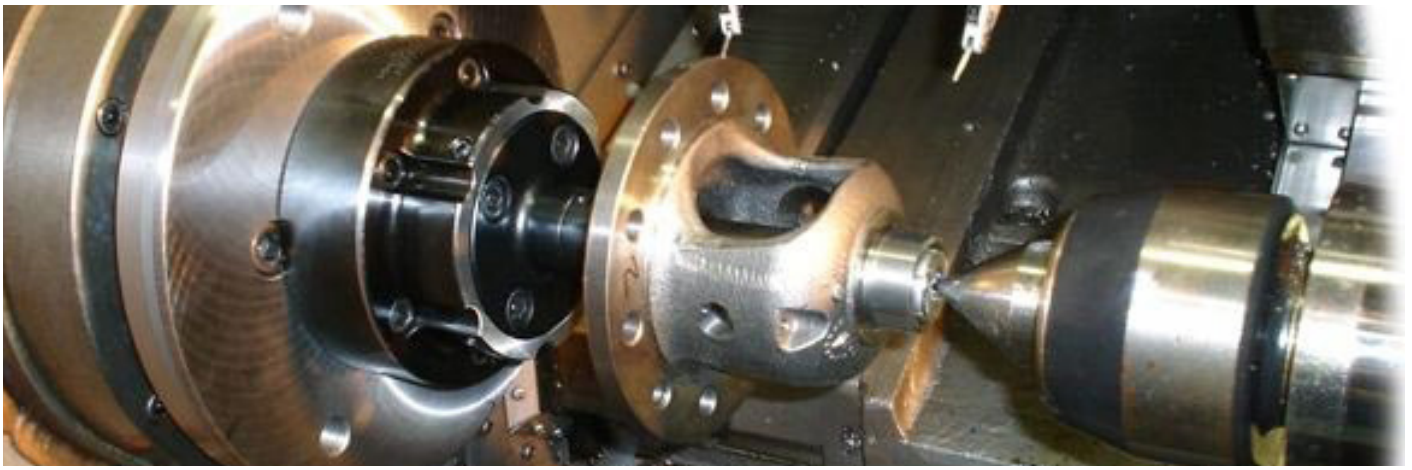
To solve high levels of technical problems that cannot be handled with single chucking method, Forkardt offers various combination designs, which allow multiple functions to be integrated in to one chuck.

Various Combination chuck designs like UBL chuck with collet location , Special Diaphragm chuck with face clamping, Special Collet chuck with face clamping, Pin Arbor chuck with fingers & etc. are available , these are designed to meet the specific application requirements.

**UBL Chuck with Collet Location**

# Collet Chucks

FORKARDT™



## When to Use A Collet Chuck

The collet chuck is a workholding device that uses mechanical force to hold the part being turned. A collet chuck offers advantages related to speed, accuracy and productivity. Several factors determine which type of chuck is needed for a given application.

### Spindle Load Capacity

In applications where there is a danger of exceeding the maximum allowable weight for a spindle, a collet chuck may be a more appropriate choice as the overall weight is generally less than a jaw chuck.

### Spindle Speed

For applications where high spindle RPM is needed, a collet chuck may be the best choice for two reasons:

1. Overall Mass - a collet chuck will accelerate up to speed faster than the jaw chuck, reducing cycle time and increasing productivity
2. Centrifugal Force - clamping force is not affected by centrifugal force, allowing for a more constant force across the speed range

### Workpiece Length and Diameter

Collet chucks are ideal for workpieces smaller than 3” in diameter. Also, due to the inherent design of a collet, the length of the workpiece is limited, so a long workpiece that requires most of the available travel of the machine would not be recommended for a collet chuck. However, special workholding designs using unique or dual collets have successfully held larger, longer, and odd shaped workpieces.

### Lot Size

Collet changeover is typically less than 1 minute, making a collet chuck ideal for small lot sizes. The collet chuck is also ideal for large lot sizes as faster open/close operation reduces cycle time between parts.

## Advantages of Collet Chucks

- Accelerates up to speed quickly, reducing cycle times and increasing productivity
- Effect of centrifugal force is not significant, allowing for more constant clamping force across range of speed
- 360° support of the part, tightening concentricity and reducing chance of part slippage
- Bar stock remains on centerline for concentric re-gripping as it is advanced by the bar feeder
- Reduction in vibration
- Faster clamping and unclamping times

# Practical Applications

## Automotive

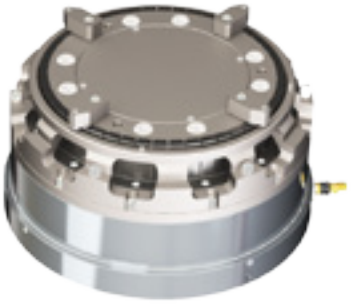
**Large Diff Case**
This OD Grip Collet Chuck is used for second operation turning of the diameters and the face. Part orientation was required. The chuck is designed with pull back to allow the part to positively locate against fixed stops. Because the part is not symmetrically shaped, it was necessary for the design to account for balance issues presented by the part.

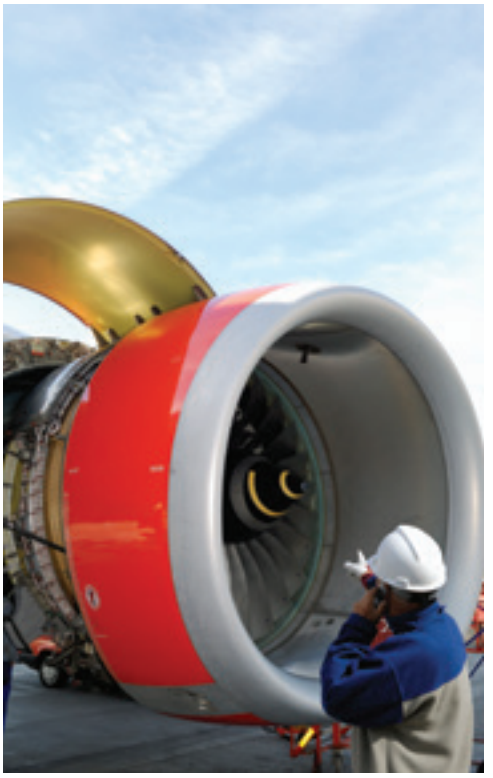
**Automotive CG Joint**
ID grip collet chuck in second operation turning application in vertical arrangement.

## Aerospace

**Aircraft Rotor**
This double collet ID grip chuck is used for second operation machining. In order to meet the stringent quality requirements necessary for the aircraft industry, the chuck also utilizes manual clamps for pull down.

**Special Aerospace Vertical Turning Operation**
This ID grip collet chuck was designed with internal finger clamps. The collet was designed with no pull back, allowing the finger clamps to pull the part down onto a fixed locater providing for minimal distortion.





## Rim-Lok ID and OD Grip Collet Chucks

Ideal for:
- Applications with increased side cutting forces
- Heavy turning or grooving on OD
- Roughing and gridning

Key Features:
- 360° support of the part
- Helps reduce deformation
- Sealed design

Available in grip ranges from 20 to 220mm. Larger sizes available

## Tork-Lok ID Grip Arbors and Collets

Ideal for:
- Milling, boring or gear cutting

Key Features:
- Precision ground flats
- Locates on true center
- Modular design for interchangeability

Available in grip ranges from 11 to 113mm.

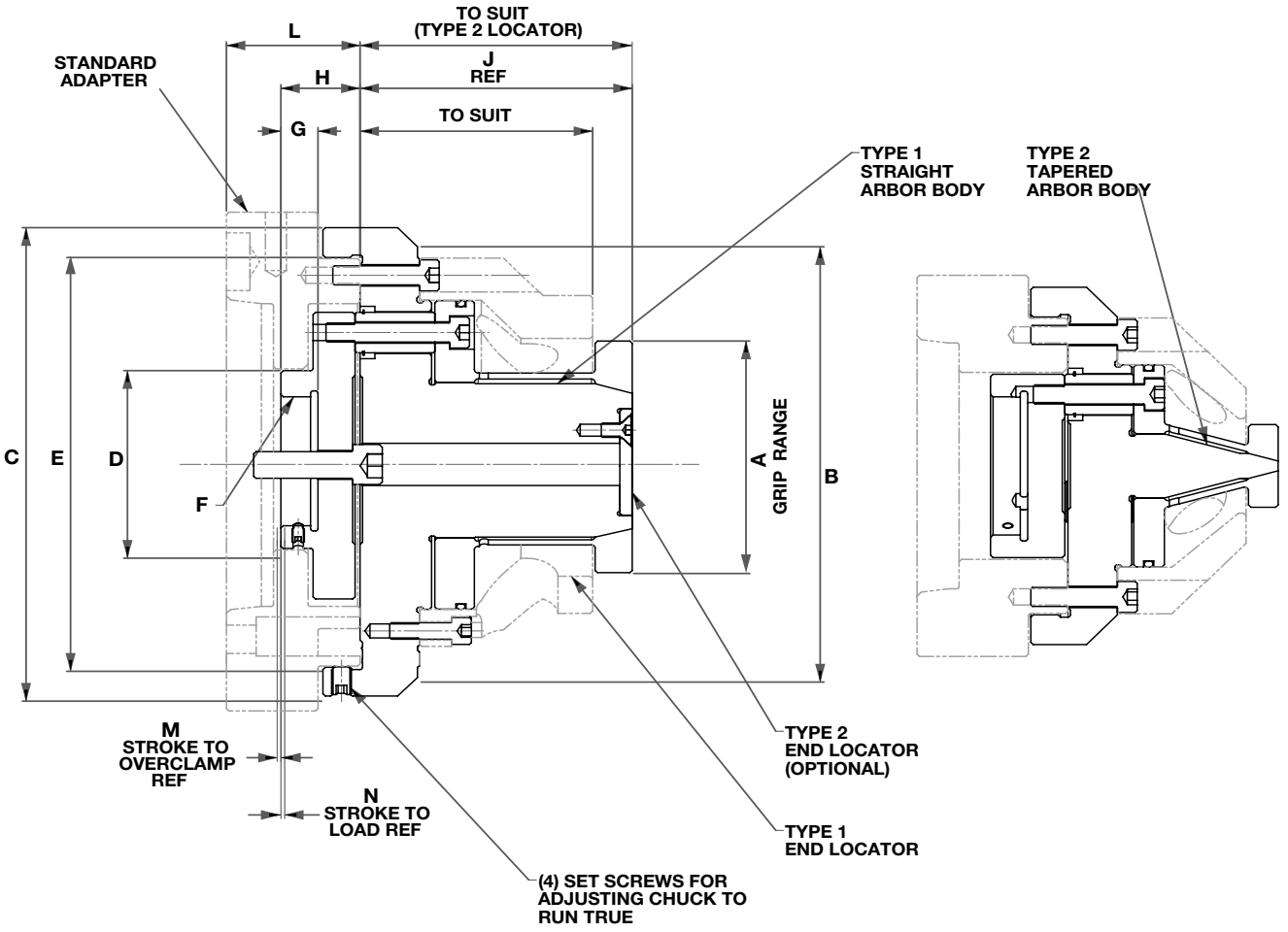
## FlexC® OD Grip Quick Change Collet System

Ideal for:
- Machining bar stock
- Small or large batch machining

Key Features:
- True parallel gripping
- Quick changeover
- Modular design for interchangeability

Available in grip ranges from 5 to 80mm.

# Rim-Lok ID Grip Collet Chuck



# Rim-Lok ID Grip Collet Chuck

# IRL

ID grip collet chucks are recommended for applications where increased side cutting forces are encountered, such as heavy turning or grooving on the OD of the part. Forkardt's ID grip collet chuck features positive pull back action and adapts very well to high speed turning applications.

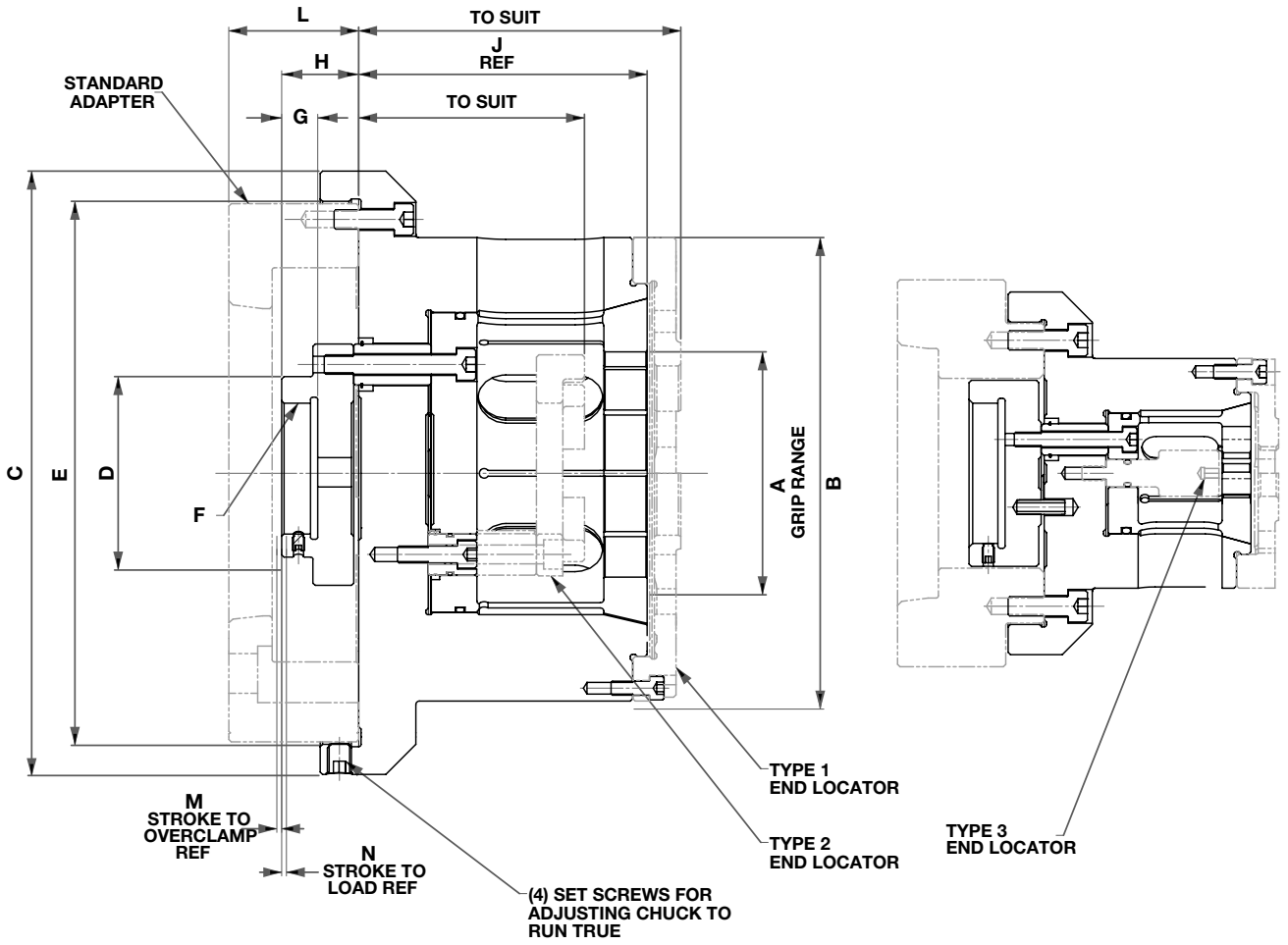
### Rim-Lok Leaf Style ID Grip Collets

Forkardt collets are manufactured to high quality standards using a proprietary process from the material used to the heat treat process. The result is high quality product with a long life, reducing collet changeover and downtime. Forkardt collets repeat within 0.0005" TIR or better, assuring that the collet will hold the part consistently throughout the machining operation.

| Item | End Locater Style | Arbor Body Type |
|---|---|---|
| IRL020A | 1 ONLY | 2 |
| IRL030A | 1 ONLY | 2 |
| IRL040A | 1 ONLY | 2 |
| IRL055A | 1ONLY | 1 |
| IRL070A | 1 OR 2 | 1 |
| IRL085A | 1 OR 2 | 1 |
| IRL100A | 1 OR 2 | 1 |
| IRL115A | 1 OR 2 | 1 |
| IRL135A | 1 OR 2 | 1 |
| IRL155A | 1 OR 2 | 1 |
| IRL175A | 1 OR 2 | 1 |
| IRL195A | 1 OR 2 | 1 |

| Item | A Grip Range | B | C | D | E | F | G | H | J | M | N | Max Drawbar Force (kN) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRL020A | 20.00 - 35.50 | 125 | 150 | 77 | 125 | M60x2.0P | 15 | 31.40 | 85.00 | 1.40 | 0.85 | 22.24 |
| IRL030A | 30.00 - 45.00 | 125 | 150 | 77 | 125 | M60x2.0P | 15 | 31.25 | 96.00 | 1.25 | 0.85 | 22.24 |
| IRL040A | 40.00 - 61.00 | 125 | 150 | 77 | 125 | M60x2.0P | 15 | 32.00 | 96.00 | 2.00 | 1.20 | 26.69 |
| IRL055A | 55.00 - 75.25 | 125 | 150 | 77 | 125 | M60x2.0P | 15 | 32.00 | 96.00 | 2.00 | 1.20 | 40.03 |
| IRL070A | 70.00 - 90.25 | 150 | 175 | 80 | 150 | M60x2.0P | 15 | 32.00 | 101.00 | 2.00 | 1.20 | 53.38 |
| IRL085A | 85.00 - 105.25 | 175 | 200 | 80 | 175 | M60x2.0P | 15 | 32.00 | 110.00 | 2.00 | 1.20 | 53.38 |
| IRL100A | 100.00 - 120.25 | 175 | 200 | 80 | 175 | M60x2.0P | 15 | 32.00 | 120.00 | 2.00 | 1.20 | 53.38 |
| IRL115A | 115.00 - 140.50 | 225 | 250 | 80 | 225 | M60x2.0P | 15 | 32.00 | 127.00 | 2.00 | 1.20 | 66.72 |
| IRL135A | 135.00 - 160.50 | 225 | 250 | 80 | 225 | M60x2.0P | 15 | 32.00 | 132.00 | 2.00 | 1.20 | 66.72 |
| IRL155A | 155.00 - 180.50 | 250 | 275 | 80 | 250 | M60x2.0P | 15 | 30.00 | 142.00 | 2.00 | 1.20 | 66.72 |
| IRL175A | 175.00 - 200.50 | 275 | 300 | 116 | 275 | M60x2.0P | 15 | 30.00 | 157.00 | 2.00 | 1.20 | 66.72 |
| IRL195A | 195.00 - 220.50 | 275 | 300 | 116 | 275 | M60x2.0P | 15 | 30.00 | 162.00 | 2.00 | 1.20 | 97.86 |

Collets are available sizes from the minimum to maximum diameter within the grip range A Please specify IRL assembly no., part grip diameter with tolerance and required load clearance when ordering.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(4) SET SCREWS FOR
ADJUSTING CHUCK TO
RUN TRUE

# Rim-Lok OD Grip Collet Chuck

# ERL

## OD GRIP COLLET CHUCK MODEL ERL

OD grip collet chucks are the most universally used of all rotating workholding devices. Forkardt can furnish collets for a nearly limitless range of machining operations from roughing to grinding. OD grip collet chucks adapt very well to high speed turning applications.

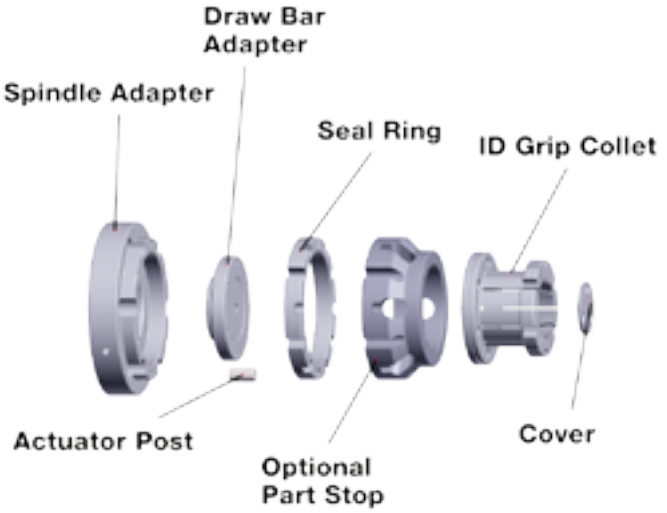
### Rim-Lok Leaf Style OD Grip Collets

Forkardt collets are manufactured to high quality standards using a proprietary process from the material used to the heat treat process. The result is high quality product with a long life, reducing collet changeover and downtime. Forkardt collets repeat within 0.0005" TIR or better, assuring that the collet will hold the part consistently throughout the machining operation.

| Item | End Locater Style | Arbor Body Type |
|---|---|---|
| ERL020A | 1 OR 3 | 2 |
| ERL030A | 1 OR 3 | 2 |
| ERL040A | 1 OR 3 | 2 |
| ERL055A | 1 OR 2 | 1 |
| ERL070A | 1 OR 2 | 1 |
| ERL085A | 1 OR 2 | 1 |
| ERL100A | 1 OR 2 | 1 |
| ERL115A | 1 OR 2 | 1 |
| ERL135A | 1 OR 2 | 1 |
| ERL155A | 1 OR 2 | 1 |

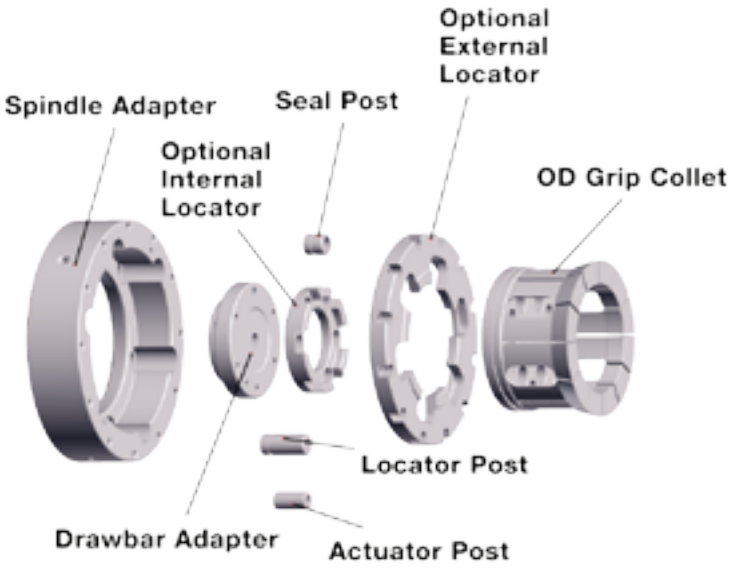
| Item | A Grip Range | B | C | D | E | F | G | H | J | M | N | Max Drawbar Force (kN) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ERL020A | 20.00 - 35.50 | 95 | 150 | 77 | 125 | M60x2.0P | 15 | 31.25 | 86 | 1.25 | 0.85 | 22.40 |
| ERL030A | 30.00 - 45.50 | 120 | 175 | 80 | 150 | M60x2.0P | 15 | 31.25 | 93 | 1.25 | 0.85 | 22.40 |
| ERL040A | 40.00 - 61.00 | 120 | 175 | 80 | 150 | M60x2.0P | 15 | 32.00 | 96 | 2.00 | 1.20 | 26.69 |
| ERL055A | 55.00 - 76.00 | 145 | 200 | 77 | 175 | M60x2.0P | 15 | 32.00 | 98 | 2.00 | 1.20 | 40.03 |
| ERL070A | 70.00 - 90.00 | 170 | 225 | 82 | 200 | M60x2.0P | 15 | 32.00 | 102 | 2.00 | 1.20 | 53.38 |
| ERL085A | 85.00 - 105.00 | 170 | 225 | 82 | 200 | M60x2.0P | 15 | 32.00 | 106 | 2.00 | 1.20 | 53.38 |
| ERL100A | 100.00 - 120.00 | 195 | 250 | 80 | 225 | M60x2.0P | 15 | 32.00 | 120 | 2.00 | 1.20 | 53.38 |
| ERL115A | 115.00 - 140.00 | 220 | 275 | 80 | 250 | M60x2.0P | 15 | 32.00 | 125 | 2.00 | 1.20 | 66.72 |
| ERL135A | 135.00 - 160.00 | 220 | 275 | 80 | 250 | M60x2.0P | 15 | 32.00 | 132 | 2.00 | 1.20 | 66.72 |
| ERL155A | 155.00 - 180.00 | 245 | 300 | 80 | 275 | M60x2.0P | 15 | 32.00 | 137 | 2.00 | 1.20 | 66.72 |

Collets are available sizes from the minimum to maximum diameter within the grip range A Please specify ERL assembly no., part grip diameter with tolerance and required load clearance when ordering.




| Chuck No. | Spindle Adapters | Collet | Drawbar Adapter | Actuator Post | Cover | Seal Ring |
|---|---|---|---|---|---|---|
| IRL020A | IRL020-A4 | IRL020-(101-130) | IRL020-21 | IRL020-32 | NONE | IRL020-65 |
| | IRL020-A5 | | | | | |
| | IRL020-A6 | | | | | |
| IRL030A | IRL020-A4 | IRL030-(101-130) | IRL020-21 | IRL020-32 | NONE | IRL030-65 |
| | IRL020-A5 | | | | | |
| | IRL020-A6 | | | | | |
| IRL040A | IRL020-A4 | IRL040-(101-127) | IRL020-21 | IRL040-32 | NONE | IRL030-65 |
| | IRL020-A5 | | | | | |
| | IRL020-A6 | | | | | |
| IRL055A | IRL020-A4 | IRL055-(101-127) | IRL055-21 | IRL040-32 | NONE | IRL030-65 |
| | IRL020-A5 | | | | | |
| | IRL020-A6 | | | | | |
| | IRL055-A8 | | | | | |
| IRL070A | IRL070-A5 | IRL070-(101-127) | IRL070-21 | IRL040-32 | IRL070-54 | IRL070-65 |
| | IRL070-A6 | | | | | |
| | IRL070-A8 | | | | | |
| IRL085A | IRL085-A6 | IRL085-(101-127) | IRL085-21 | IRL085-32 | IRL085-54 | IRL085-65 |
| | IRL085-A8 | | | | | |
| IRL100A | IRL085-A6 | IRL100-(101-127) | IRL085-21 | IRL085-32 | IRL100-54 | IRL085-65 |
| | IRL085-A8 | | | | | |
| IRL115A | IRL115-A6 | IRL115-(101-134) | IRL115-21 | IRL085-32 | IRL115-54 | IRL115-65 |
| | IRL115-A8 | | | | | |
| | IRL115-A11 | | | | | |
| IRL135A | IRL115-A6 | IRL135-(101-134) | IRL115-21 | IRL085-32 | IRL135-54 | IRL115-65 |
| | IRL115-A8 | | | | | |
| | IRL115-A11 | | | | | |
| IRL155A | IRL155-A6 | IRL155-(101-134) | IRL155-21 | IRL155-32 | IRL135-54 | IRL155-65 |
| | IRL155-A8 | | | | | |
| | IRL155-A11 | | | | | |
| IRL175A | IRL175-A6 | IRL175-(101-134) | IRL175-21 | IRL155-32 | IRL175-54 | IRL175-65 |
| | IRL175-A8 | | | | | |
| | IRL175-A11 | | | | | |
| IRL195A | IRL175-A6 | IRL195-(101-134) | IRL175-21 | IRL155-32 | IRL175-54 | IRL175-65 |
| | IRL175-A8 | | | | | |
| | IRL175-A11 | | | | | |

## Components and Spare Parts for Rim-Lok Collet Chucks Model ERL




| Chuck No. | Spindle Adapters | Collet | Drawbar Adapter | Actuator Post | Seal Post | Locater Post |
|---|---|---|---|---|---|---|
| ERL020A | IRL020-A4 | ERL020 - (101-130) | ERL020-21 | ERL020-32 | ERL020-65 | NONE |
| | IRL020-A5 | | | | | |
| | IRL020-A6 | | | | | |
| ERL030A | IRL070-A5 | ERL030 - (101-130) | ERL020-21 | ERL020-32 | ERL030-65 | ERL030-(651-655) |
| | IRL070-A6 | | | | | |
| | IRL070-A8 | | | | | |
| ERL040A | IRL070-A5 | ERL040 - (101-127) | ERL030-21 | ERL020-32 | ERL030-65 | ERL030-(651-655) |
| | IRL070-A6 | | | | | |
| | IRL070-A8 | | | | | |
| ERL055A | IRL085-A6 | ERL055 - (101-127) | IRL055-21 | IRL040-32 | ERL055-65 | ERL055-(651-655) |
| | IRL085-A8 | | | | | |
| ERL070A | ERL070-A6 | ERL070 - (101-127) | ERL070-21 | IRL040-32 | ERL055-65 | ERL055-(651-655) |
| | ERL070-A8 | | | | | |
| | ERL070-A11 | | | | | |
| ERL085A | ERL070-A6 | ERL085 - (101-127) | ERL070-21 | IRL040-32 | ERL055-65 | ERL055-(651-655) |
| | ERL070-A8 | | | | | |
| | ERL070-A11 | | | | | |
| ERL100A | IRL115-A6 | ERL100 - (101-127) | IRL70-21 | IRL085-32 | ERL100-65 | ERL100-(651-655) |
| | IRL115-A8 | | | | | |
| | IRL115-A11 | | | | | |
| ERL115A | IRL155-A6 | ERL115 - (101-134) | IRL70-21 | IRL085-32 | ERL100-65 | ERL100-(651-655) |
| | IRL155-A8 | | | | | |
| | IRL155-A11 | | | | | |
| ERL135A | IRL155-A6 | ERL135 - (101-134) | IRL70-21 | IRL085-32 | ERL100-65 | ERL100-(651-655) |
| | IRL155-A8 | | | | | |
| | IRL155-A11 | | | | | |
| ERL155A | IRL175-A6 | ERL155 - (101-134) | IRL70-21 | IRL085-32 | ERL100-65 | ERL100-(651-655) |
| | IRL175-A8 | | | | | |
| | IRL175-A11 | | | | | |

# Tork Lok
# Arbors & Collets

The Tork-Lok arbor design answers the need for a completely versatile workholding device. Precision ground flats on collets and arbors prevents slippage on the contact surface even during high-torque machining.  Standardization of components allows for interchangeability. Arbors are easily exchanged between drawbar, cylinder and fixture mounts with a simple connector change.

### Drawbar Mounted

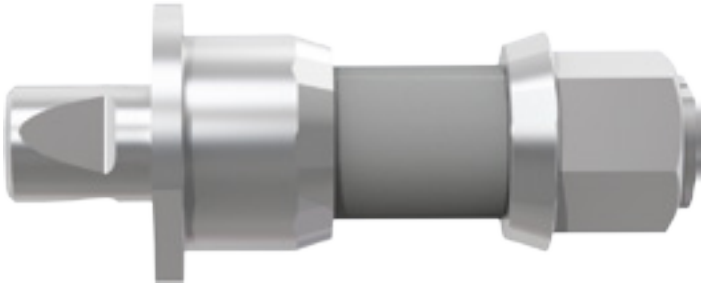
The drawbar type of arbor available in long and short series and the arbor bases are available in English or Metric design. Most standard collets are in stock, and application specific designs can be created by our engineering department.

### Air Operated Cylinder

The combination of Forkardt's compact and lightweight air cylinder assembly with Tork-Lok drawbar type arbors answers the need for a quick load/unload chucking device for many operations.

### Manual Fixture

The manual fixture combines the standard drawbar model arbors with a powerful locking mechanism that answers many machining needs such as milling, drilling, gear cutting, reaming.



**Between Centers Arbors**

The between center arbor is designed to hold the workpiece through the hole-referenced ID chucking and then to be supported between centers of the machine tool for grinding operations and inspection.

**Accuracy**- the preload feature of the design ensures the flats remain in constant contact from part load to the end of the clamping range

**High Torque**- the need for keying the collet to the arbor is eliminated due to the transmission of the drive through the precision mated flats

**Higher Operating Pressure**- inclined flats allow for increased operating pressure

**Long Collet Life**- safety stops control the expansion and contraction of the collet, reducing breakage

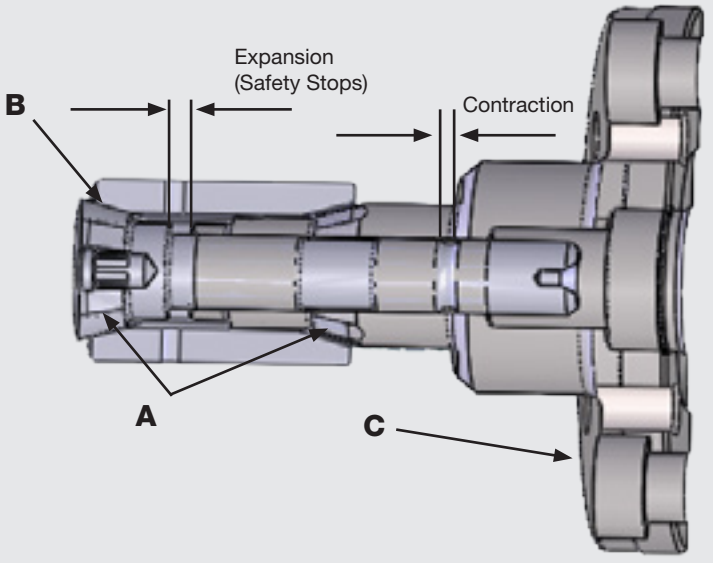
**Quick Release**- collet preloads allow for fast and easy part removal

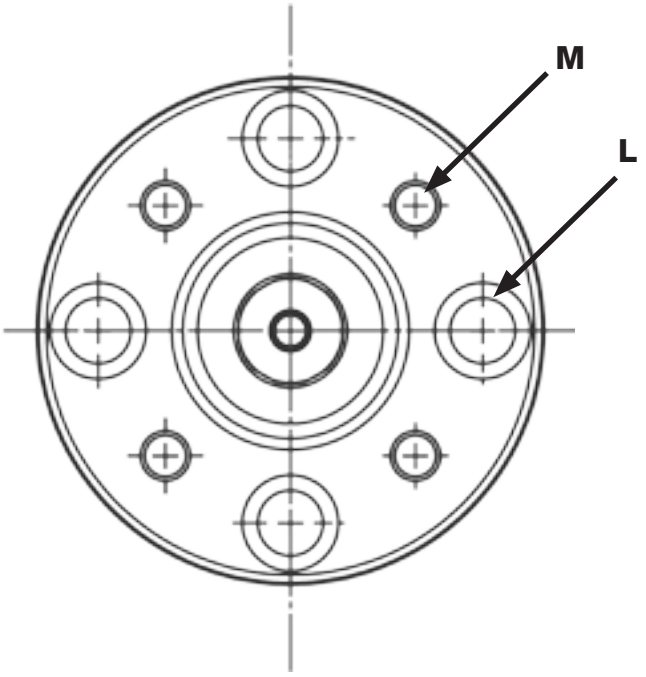
**Draw Bar Operated**

Precision ground flats on collets, arbor bodies and expanders can improve long-term accuracy and torque transmission.

**Structure and Function**

A. Precision mated flats on both expander and arbor body
B. Precision mated flats on collet
C. Metric arbor body has provisions for air sensing and tighter tolerance on size and parallelism for locater mounting

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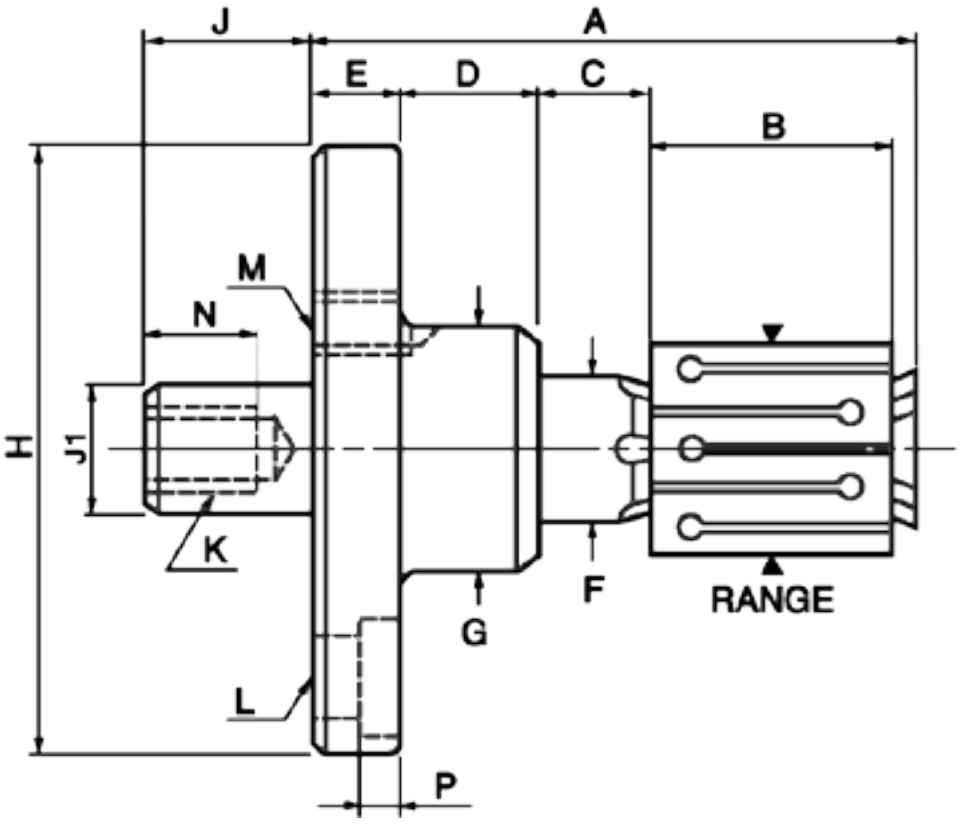
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# Long Series
# Standard Design

# TL

Collet not included

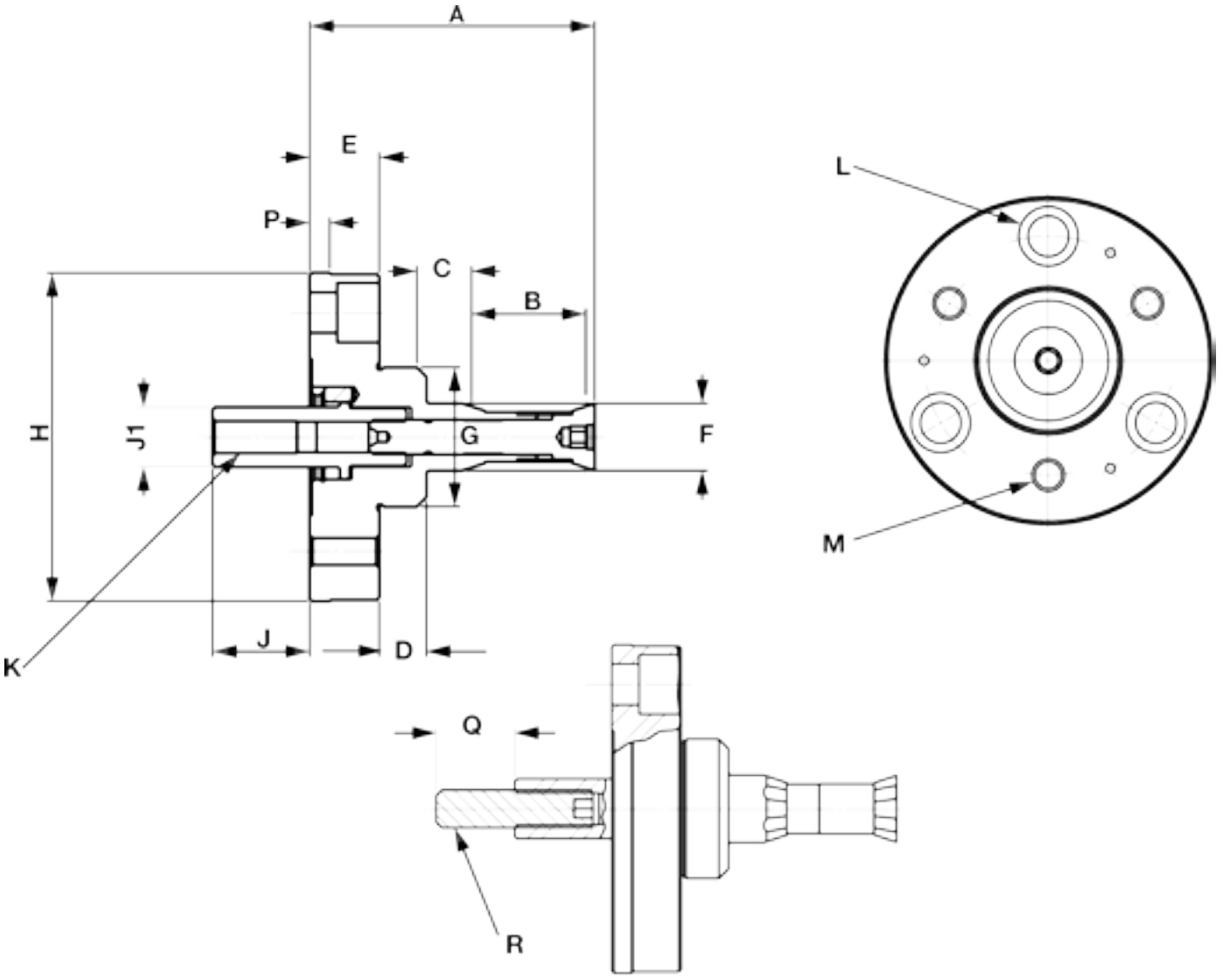
## Features & Benefits

- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005” TIR

| Item No. | Clamping Range | No. of Collets Available | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|
| AC2110 | 12.70-16.64 | 10 | 63.2 | 22.4 | 9.9 | 16.8 | 12.7 | 11.94-11.92 | 31.8 | 85.74-85.73 |
| AC2210 | 15.06-19.81 | 12 | 68.3 | 26.9 | 10.4 | 16.8 | 12.7 | 14.72-14.70 | 31.8 | 85.74-85.73 |
| AC2310 | 18.24-25.37 | 18 | 75.2 | 31.7 | 12.4 | 16.8 | 12.7 | 17.90-17.88 | 31.8 | 85.74-85.73 |
| AC2410 | 22.23-31.72 | 12 | 90.9 | 36.6 | 14.2 | 22.9 | 14.2 | 21.47-21.44 | 44.5 | 104.79-104.78 |
| AC2510 | 28.58-41.25 | 16 | 98.8 | 41.1 | 17.5 | 22.9 | 14.2 | 27.42-27.40 | 44.5 | 104.79-104.78 |
| AC2610 | 37.29-53.14 | 20 | 105.1 | 46.0 | 20.8 | 18.3 | 17.3 | 35.76-35.73 | 63.5 | 123.84-123.83 |
| AC2710 | 49.02-72.21 | 29 | 113.2 | 50.8 | 25.4 | 16.8 | 17.3 | 46.87-46.84 | 63.5 | 123.84-123.83 |
| AC2810 | 65.07-91.26 | 33 | 122.7 | 57.2 | 28.4 | 16.8 | 17.3 | 61.95-61.94 | 76.2 | 139.71-139.70 |
| AC2910 | 84.12-113.46 | 37 | 126.2 | 63.5 | 28.2 | 14.2 | 17.3 | 80.99-80.98 | 91.9 | 139.71-139.70 |

| Item No. | J (Stroke) | | J1 | K | L 4 Holes Eq. Spaced | M 4 Holes Eq. Spaced | N | P |
|---|---|---|---|---|---|---|---|---|
| | Max | Min | | | | | | |
| AC2110 | 23.02 | 18.38 | 14.3 | 3/8”-24 | 3/8” on 63.5 PCD | 5-16” on 60.3 PCD | 15.8 | 6.3 |
| AC2210 | 23.02 | 18.38 | 14.3 | 3/8”-24 | 3/8” on 63.5 PCD | 5/16” on 60.3 PCD | 15.8 | 6.3 |
| AC2310 | 23.02 | 18.38 | 14.3 | 3/8”-24 | 3/8” on 63.5 PCD | 5/16” on 60.3 PCD | 14.2 | 6.3 |
| AC2410 | 35.67 | 30.24 | 19.1 | 1/2”-20 | 1/2” on 79.2 PCD | 3/8” on 73.0 PCD | 19.0 | 7.9 |
| AC2510 | 35.67 | 30.24 | 19.1 | 1/2”-20 | 1/2” on 79.2 PCD | 3/8” on 73.0 PCD | 19.0 | 7.9 |
| AC2610 | 45.25 | 39.82 | 24.6 | 3/4”-16 | 1/2” on 95.3 PCD | 3/8” on 92.1 PCD | 19.8 | 9.5 |
| AC2710 | 45.25 | 39.82 | 24.6 | 3/4”-16 | 1/2” on 95.3 PCD | 3/8” on 92.1 PCD | 19.8 | 9.5 |
| AC2810 | 45.25 | 39.82 | 24.6 | 3/4”-16 | 1/2” on 114.3 PCD | 3/8” on 92.1 PCD | 31.7 | 9.5 |
| AC2910 | 45.25 | 39.82 | 24.6 | 3/4”-16 | 1/2” on 114.3 PCD | 3/8” on 92.1 PCD | 31.7 | 9.5 |

Measurements in millimeters unless otherwise indicated.




OPTIONAL ASS'Y WITH MALE THREAD

# Long Series
# Metric Design

# TL

Collet not included

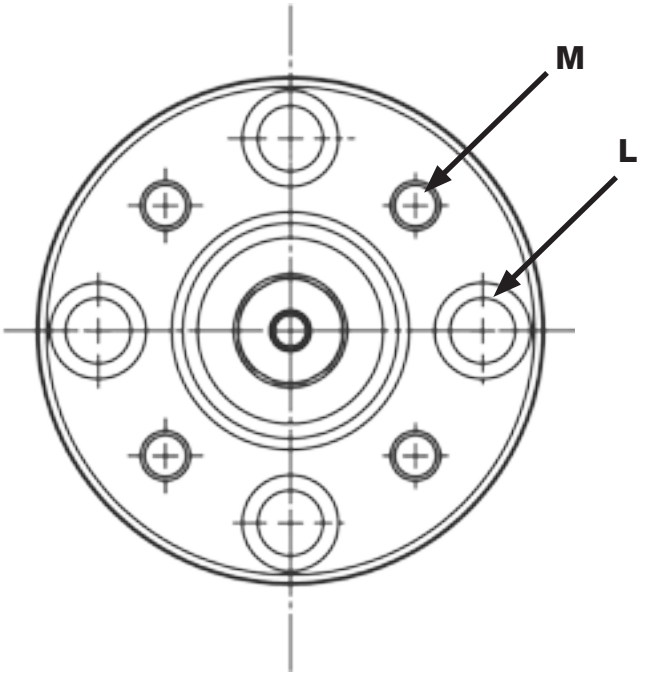
**Features & Benefits**

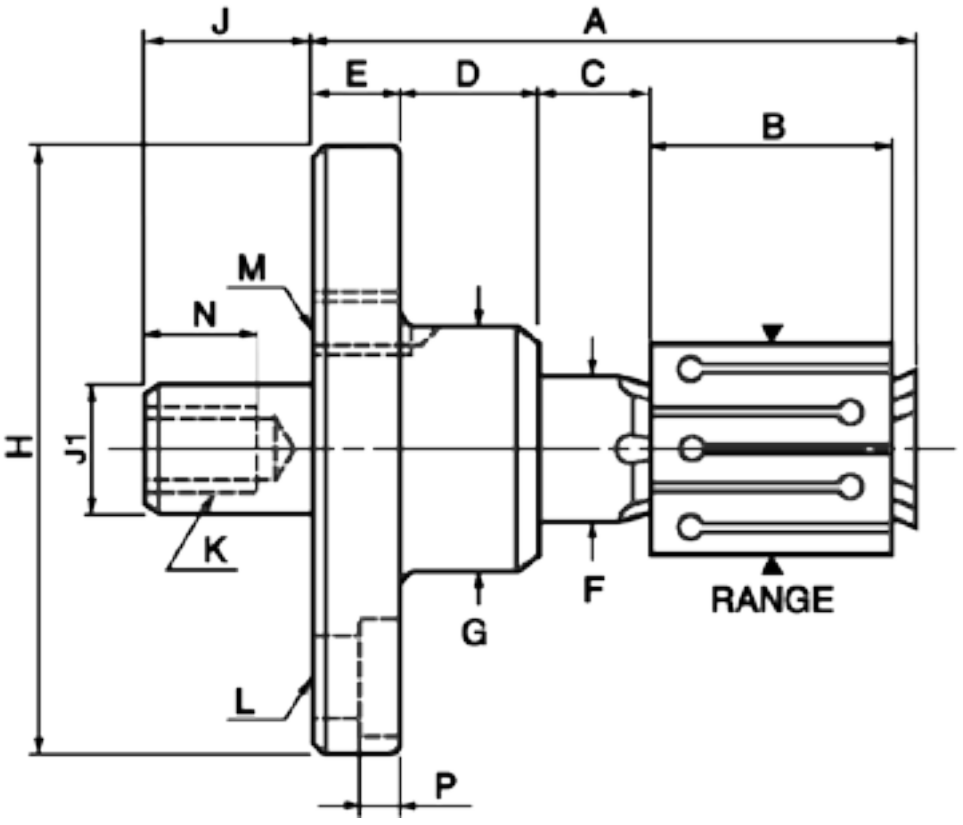
- Versatile three bolt circle pattern
- Tighter tolerance on size and parallelism for locater mounting
- Provisions for air sensing
- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005” TIR

| Item No. | Clamping Range | No. of Collets Available | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|
| AC2110M | 12.70-16.64 | 10 | 63.2 | 22.4 | 9.9 | 10.3 | 19.1 | 11.9 | 31.8 | 85.74-85.73 |
| AC2210M | 15.06-19.81 | 12 | 68.3 | 26.9 | 10.4 | 10.3 | 19.1 | 15.5 | 31.8 | 85.74-85.73 |
| AC2310M | 18.24-25.37 | 18 | 75.2 | 31.7 | 12.4 | 10.3 | 19.1 | 18.3 | 31.8 | 85.74-85.73 |
| AC2410M | 22.23-31.72 | 12 | 90.9 | 36.6 | 14.2 | 15.1 | 22.2 | 21.4 | 44.5 | 104.79-104.78 |
| AC2510M | 28.58-41.25 | 16 | 98.8 | 41.1 | 17.5 | 15.1 | 22.2 | 27.8 | 44.5 | 104.79-104.78 |
| AC2610M | 37.29-53.14 | 20 | 105.1 | 46.0 | 20.8 | 13.5 | 22.2 | 36.1 | 63.5 | 123.84-123.83 |
| AC2710M | 49.02-72.21 | 29 | 113.2 | 50.8 | 25.4 | 11.9 | 22.2 | 47.2 | 63.5 | 123.84-123.83 |
| AC2810M | 65.07-91.26 | 33 | 122.7 | 57.2 | 28.4 | 11.9 | 22.2 | 62.3 | 76.2 | 139.71-139.70 |
| AC2910M | 84.12-113.46 | 37 | 126.2 | 63.5 | 28.2 | 9.5 | 22.2 | 81.0 | 91.9 | 139.71-139.70 |

| Item No. | J (Stroke) | | J1 | K | L 3 Holes Eq. Spaced | M 3 Holes Eq. Spaced | P |
|---|---|---|---|---|---|---|---|
| | Max | Min | | | | | |
| AC2110M | 23.02 | 18.38 | 14.3 | M10x1.5P | M10 on 63.50 PCD | M8 on 60.33 BC | 12.68 |
| AC2210M | 23.02 | 18.38 | 14.3 | M10x1.5P | M10 on 63.50 PCD | M8 on 60.33 BC | 12.68 |
| AC2310M | 23.02 | 18.38 | 14.3 | M10x1.5P | M10 on 63.50 PCD | M8 on 60.33 BC | 12.68 |
| AC2410M | 35.67 | 30.24 | 19.1 | M12x1.75P | M12 on 79.38 BC | M10 on 73.03 BC | 15.83 |
| AC2510M | 35.67 | 30.24 | 19.1 | M12x1.75P | M12 on 79.38 BC | M10 on 73.03 BC | 15.83 |
| AC2610M | 45.25 | 39.82 | 24.6 | M16x2.0P | M12 on 79.38 BC | M10 on 73.03 BC | 15.83 |
| AC2710M | 45.25 | 39.82 | 24.6 | M16x2.0P | M12 on 95.25 BC | M10 on 92.08 BC | 15.83 |
| AC2810M | 45.25 | 39.82 | 24.6 | M16x2.0P | M12 on 95.25 BC | M10 on 92.08 BC | 15.83 |
| AC2910M | 45.25 | 39.82 | 24.6 | M16x2.0P | M12 on 95.25 BC | M10 on 92.08 BC | 15.83 |

Measurements in millimeters unless otherwise indicated.


M
L


J
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# Short Series
# Standard Design

# TL

Collet not included

### Features & Benefits

- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005” TIR

| Item No. | Clamping Range | No. of Collets Available | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|
| AC8100 | 12.70-16.64 | 15 | 46.0 | 15.0 | 10.7 | 6.4 | 12.7 | 11.94-11.92 | 22.4 | 85.74-85.73 |
| AC8200 | 15.06-20.24 | 20 | 50.0 | 18.3 | 11.4 | 6.4 | 12.7 | 14.72-14.70 | 25.4 | 85.74-85.73 |
| AC8300 | 18.24-25.40 | 28 | 54.6 | 21.3 | 13.0 | 6.4 | 12.7 | 17.90-17.87 | 28.4 | 85.74-85.73 |
| AC8400 | 22.23-33.00 | 20 | 59.7 | 23.9 | 15.0 | 4.6 | 14.2 | 21.47-21.44 | 35.1 | 104.79-104.78 |
| AC8500 | 28.58-41.70 | 24 | 65.8 | 28.6 | 16.5 | 4.6 | 14.2 | 27.42-27.40 | 39.6 | 104.79-104.78 |
| AC8600 | 37.28-53.44 | 30 | 74.4 | 31.0 | 21.1 | 3.0 | 17.3 | 35.76-35.73 | 47.8 | 123.84-123.83 |
| AC8700 | 49.20-71.65 | 42 | 75.7 | 33.3 | 20.1 | 3.0 | 17.3 | 46.87-46.64 | 60.5 | 123.84-123.83 |

| Item No. | J (Stroke) | | J1 | K | L 4 Holes Eq. Spaced | M 4 Holes Eq. Spaced |
|---|---|---|---|---|---|---|
| | Max | Min | | | | |
| AC8100 | 23.8 | 19.2 | 14.3 | 3/8”-24 | 3/8” on 63.5 PCD | 5/16” on 60.3 PCD |
| AC8200 | 23.8 | 19.2 | 14.3 | 3/8”-24 | 3/8” on 63.5 PCD | 5/16” on 60.3 PCD |
| AC8300 | 23.8 | 19.2 | 14.3 | 3/8”-24 | 3/8” on 63.5 PCD | 5/16” on 60.3 PCD |
| AC8400 | 36.5 | 31.1 | 19.1 | 1/2”-20 | 1/2” on 79.2 PCD | 3/8” on 73.0 PCD |
| AC8500 | 36.5 | 31.1 | 19.1 | 1/2”-20 | 1/2” on 79.2 PCD | 3/8” on 73.0 PCD |
| AC8600 | 46.0 | 40.6 | 24.6 | 3/4”-16 | 1/2” on 95.3 PCD | 3/8” on 92.1 PCD |
| AC8700 | 46.0 | 40.6 | 24.6 | 3/4”-16 | 1/2” on 95.3 PCD | 3/8” on 92.1 PCD |

Measurements in millimeters unless otherwise indicated.

# Short Series
# Metric Design

# TL

Collet not included

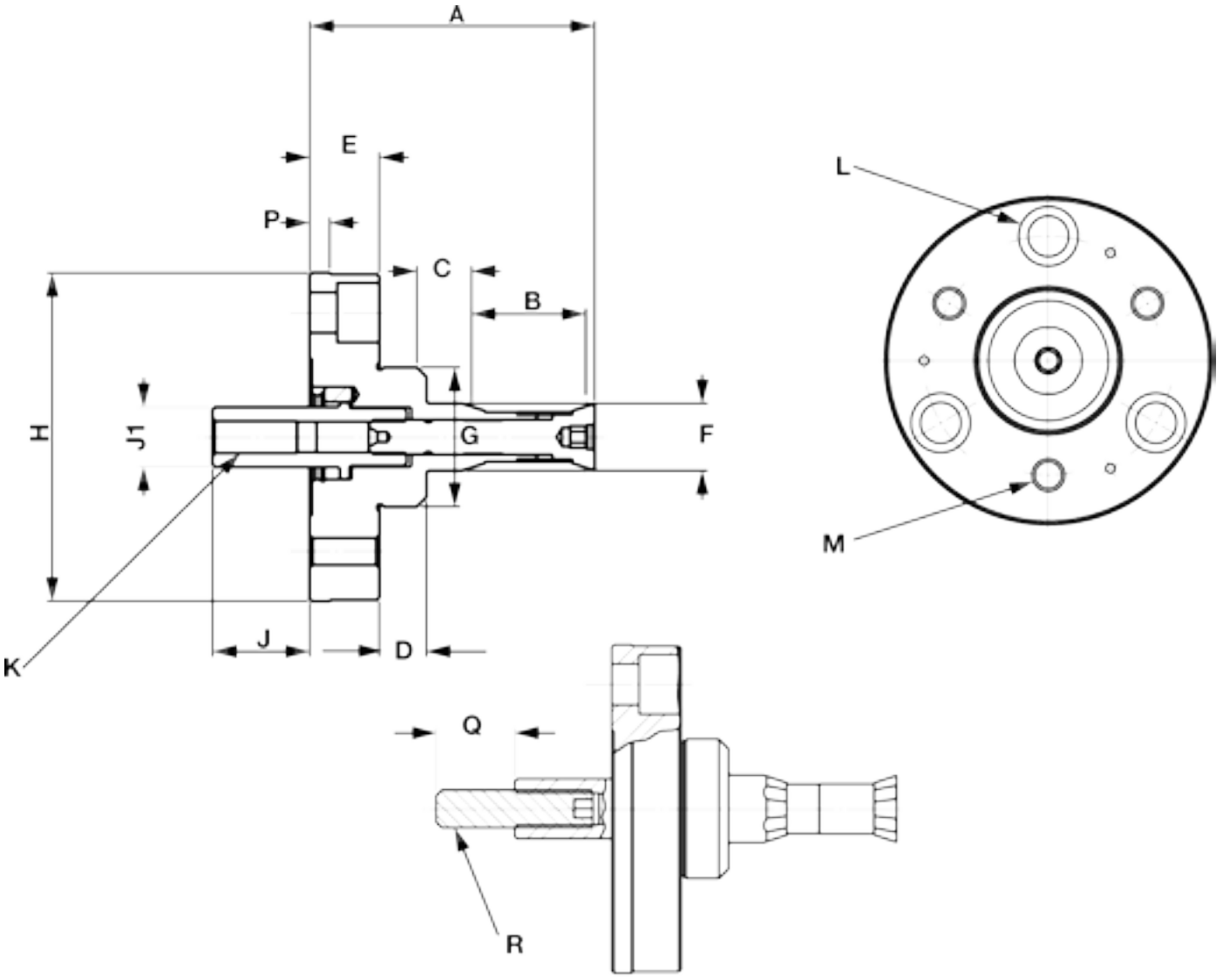
**Features & Benefits**

- Versatile three bolt circle pattern
- Tighter tolerance on size and parallelism for locater mounting
- Provisions for air sensing
- Precision ground flats improve accuracy
- Standardization permits easy interchangeability
- Locates straight or tapered holes on true center
- Can be easily mounted to spindle adapter, fixture base or air cylinder
- Requires a part stop
- Concentricity guaranteed within .0005” TIR

| Item No. | Clamping Range | No. of Collets Available | A | B | C | E | F | H |
|---|---|---|---|---|---|---|---|---|
| AC8100M | 12.70-16.64 | 15 | 46.0 | 15.0 | 10.7 | 19.08 | 11.94-11.92 | 85.74-85.73 |
| AC8200M | 15.06-20.24 | 20 | 50.0 | 18.3 | 11.4 | 19.08 | 14.72-14.70 | 85.74-85.73 |
| AC8300M | 18.24-25.40 | 28 | 54.6 | 21.3 | 13.0 | 19.08 | 17.90-17.87 | 85.74-85.73 |
| AC8400M | 22.23-33.00 | 20 | 59.7 | 23.9 | 15.0 | 19.08 | 21.47-21.44 | 104.79-104.78 |
| AC8500M | 28.58-41.70 | 24 | 65.8 | 28.6 | 16.5 | 19.08 | 27.42-27.40 | 104.79-104.78 |
| AC8600M | 37.28-53.44 | 30 | 74.4 | 31.0 | 21.1 | 19.08 | 35.76-35.73 | 123.84-123.83 |
| AC8700M | 49.20-71.65 | 42 | 75.7 | 33.3 | 20.1 | 19.08 | 46.87-46.64 | 123.84-123.83 |

| Item No. | J (Stroke) | | J1 | K | L 3 Holes Eq. Spaced | M 3 Holes Eq. Spaced | P |
|---|---|---|---|---|---|---|---|
| | Max | Min | | | | | |
| AC8100M | 23.8 | 19.2 | 14.3 | M10x1.50P | M10 on 63.50 PCD | M8 on 60.33 BC | 13.04 |
| AC8200M | 23.8 | 19.2 | 14.3 | M10x1.50P | M10 on 63.50 PCD | M8 on 60.33 BC | 13.04 |
| AC8300M | 23.8 | 19.2 | 14.3 | M10x1.50p | M10 on 63.50 PCD | M8 on 60.33 BC | 13.04 |
| AC8400M | 36.5 | 31.1 | 19.1 | M12x1.75P | M12 on 79.38 BC | M10 on 73.03 BC | 13.04 |
| AC8500M | 36.5 | 31.1 | 19.1 | M12x1.75P | M12 on 79.38 BC | M10 on 73.03 BC | 13.04 |
| AC8600M | 46.0 | 40.6 | 24.6 | M16x2.0P | M12 on 95.25 BC | M10 on 92.08 BC | 13.04 |
| AC8700M | 46.0 | 40.6 | 24.6 | M16x2.0P | M12 on 95.25 BC | M10 on 92.08 BC | 13.04 |

Measurements in millimeters unless otherwise indicated.




OPTIONAL ASS'Y WITH MALE THREAD

## Features and Benefits

- Precision ground flats
- Collets interchangeable on all arbors within specified range
- Accuracy of arbor not affected by indexing of collet shaft
- High-grade steels, precisely heat treated
- Silicone sealing of collet slots for special jobs is available on request for additional charge
- Collets in oversize (overlap) ranges are available

| For use on AC1100 2110M, 2110, 5110 | | | |
|---|---|---|---|
| Collet # | Range (mm) | Range (in) | Length |
| AC101 | 12.70-13.08 | .500-.515 | |
| AC102 | 13.11-13.46 | .516-.530 | |
| AC103 | 13.49-13.87 | .531-.546 | |
| AC104 | 13.89-14.25 | .547-.561 | |
| AC105 | 14.28-14.66 | .562-.577 | .88 in |
| AC106 | 14.68-15.03 | .578-.592 | 22.35mm |
| AC107 | 15.06-15.44 | .593-.608 | |
| AC108 | 15.47-15.82 | .609-.623 | |
| AC109 | 15.85-16.23 | .624-.639 | |
| AC110 | 16.26-16.64 | .640-.655 | |
| **For use on AC1200, 2210M, 2210,5210** | | | |
| Collet # | Range (mm) | Range (in) | Length |
| AC201 | 15.06-15.44 | .593-.608 | |
| AC202 | 15.47-15.85 | .609-.624 | |
| AC203 | 15.88-16.23 | .625-.639 | |
| AC204 | 16.26-16.64 | .640-.655 | |
| AC205 | 16.66-17.02 | .656-.670 | |
| AC206 | 17.04-17.42 | .671-.686 | 1.06 in |
| AC207 | 17.45-17.83 | .687-.702 | 26.92 mm |
| AC208 | 17.85-18.21 | .703-.717 | |
| AC209 | 18.24-19.62 | .718-.733 | |
| AC210 | 18.64-19.03 | .734-.749 | |
| AC211 | 19.05-19.41 | .750-.764 | |
| AC212 | 19.43-19.81 | .765-.780 | |
| **For use on AC1300, 2310M, 2310,5310** | | | |
| Collet # | Range (mm) | Range (in) | Length |
| AC301 | 18.24-18.62 | .718-.733 | |
| AC302 | 18.64-19.03 | .734-.749 | |
| AC303 | 19.05-19.41 | .750-.764 | |
| AC304 | 19.43-19.81 | .765-.780 | |
| AC305 | 20.24-20.22 | .781-.796 | |
| AC306 | 20.24-20.63 | .797-.812 | |
| AC307 | 20.65-21.01 | .813-.827 | |
| AC308 | 21.03-21.41 | .828-.843 | |
| AC309 | 21.44-21.79 | .844-.858 | 1.25 in |
| AC310 | 21.82-22.20 | .859-.874 | 31.75 mm |
| AC311 | 22.23-22.61 | .875-.890 | |
| AC312 | 22.63-22.99 | .891-.905 | |
| AC313 | 23.01-23.39 | .906-.921 | |
| AC314 | 23.41-23.77 | .922-.936 | |
| AC315 | 23.80-24.18 | .937-.952 | |
| AC316 | 24.21-24.56 | .953-.967 | |
| AC317 | 24.59-24.97 | .968-.983 | |
| AC318 | 25.00-25.38 | .984-.999 | |

Oversize collets AC107-110; 209-212 and 311-318 should be used only in light turning or grinding operations.

| For use on AC1400, 2410M, 2410,5410 | | | |
|---|---|---|---|
| Collet # | Range (mm) | Range (in) | Length |
| AC401 | 22.23-22.99 | .875-.905 | |
| AC402 | 23.01-23.77 | .906-.936 | |
| AC403 | 23.80-24.56 | .937-.967 | |
| AC404 | 24.59-25.38 | .968-.999 | |
| AC405 | 25.40-26.16 | 1.000-1.030 | |
| AC406 | 26.19-26.95 | 1.031-1.061 | 1.44 in |
| AC407 | 26.98-27.73 | 1.062-1.092 | 36.57 mm |
| AC408 | 27.76-28.55 | 1.093-1.124 | |
| AC409 | 28.57-29.34 | 1.125-1.155 | |
| AC410 | 29.36-30.12 | 1.156-1.186 | |
| AC411 | 30.15-30.91 | 1.187-1.217 | |
| AC412 | 30.94-31.73 | 1.218-1.249 | |
| **For use on AC1500, 2510M, 2510,5510** | | | |
| Collet # | Range (mm) | Range (in) | Length |
| AC501 | 28.58-29.34 | 1.125-1.155 | |
| AC502 | 29.36-30.12 | 1.156-1.186 | |
| AC503 | 30.15-30.91 | 1.187-1.217 | |
| AC504 | 30.94-31.73 | 1.218-1.249 | |
| AC505 | 31.75-32.51 | 1.250-1.280 | |
| AC506 | 32.54-33.30 | 1.281-1.311 | |
| AC507 | 33.33-34.09 | 1.312-1.342 | |
| AC508 | 34.11-34.90 | 1.343-1.374 | 1.62 in |
| AC509 | 34.93-35.69 | 1.375-1.405 | 41.14 mm |
| AC510 | 35.71-36.47 | 1.406-1.436 | |
| AC511 | 36.50-37.26 | 1.437-1.467 | |
| AC512 | 37.29-38.08 | 1.468-1.499 | |
| AC513 | 38.10-38.86 | 1.500-1.530 | |
| AC514 | 38.89-39.65 | 1.531-1.561 | |
| AC515 | 39.68-40.44 | 1.562-1.592 | |
| AC516 | 40.46-41.25 | 1.593-1.624 | |
| **For use on AC1600, 2610M, 2610,5610** | | | |
| Collet # | Range (mm) | Range (in) | Length |
| AC601 | 37.29-38.08 | 1.468-1.499 | |
| AC602 | 38.10-38.86 | 1.500-1.530 | |
| AC603 | 38.89-39.65 | 1.531-1.561 | |
| AC604 | 39.68-40.44 | 1.562-1.592 | |
| AC605 | 40.46-41.25 | 1.593-1.624 | |
| AC606 | 41.28-42.04 | 1.625-1.655 | |
| AC607 | 42.06-42.82 | 1.656-1.686 | |
| AC608 | 42.85-43.61 | 1.687-1.717 | |
| AC609 | 43.64-44.43 | 1.718-1.749 | |
| AC610 | 44.45-45.21 | 1.750-1.780 | 1.82 in |
| AC611 | 45.24-46.00 | 1.781-1.811 | 46.22 mm |
| AC612 | 46.03-46.78 | 1.812-1.842 | |
| AC613 | 46.79-47.60 | 1.843-1.874 | |
| AC614 | 47.63-48.39 | 1.875-1.905 | |
| AC615 | 48.41-49.17 | 1.906-1.936 | |
| AC616 | 49.20-49.96 | 1.937-1.967 | |
| AC617 | 49.98-50.77 | 1.968-1.999 | |
| AC618 | 50.80-51.56 | 2.000-2.030 | |
| AC619 | 51.59-52.35 | 2.031-2.061 | |
| AC620 | 52.38-53.14 | 2.062-2.092 | |

| For use on AC1700, 2710M, 2710,5710 | | | |
|---|---|---|---|
| Collet # | Range (mm) | Range (in) | Length |
| AC701 | 49.20-49.96 | 1.937-1.967 | |
| AC702 | 49.99-50.78 | 1.968-1.999 | |
| AC703 | 50.80-51.56 | 2.000-2.030 | |
| AC704 | 51.59-52.35 | 2.031-2.061 | |
| AC705 | 52.38-53.14 | 2.062-2.092 | |
| AC706 | 53.16-53.95 | 2.093-2.124 | |
| AC707 | 53.98-54.74 | 2.125-2.155 | |
| AC708 | 54.76-55.52 | 2.156-2.186 | |
| AC709 | 55.55-56.31 | 2.187-2.217 | |
| AC710 | 56.34-57.13 | 2.218-2.249 | |
| AC711 | 57.15-57.91 | 2.250-2.280 | |
| AC712 | 57.94-58.70 | 2.281-2.311 | |
| AC713 | 58.73-59.49 | 2.312-2.342 | |
| AC714 | 59.51-60.30 | 2.343-2.374 | |
| AC715 | 60.33-61.09 | 2.375-2.405 | 2.00 in |
| AC716 | 61.11-61.87 | 2.406-2.436 | 50.80 mm |
| AC717 | 61.90-62.66 | 2.437-2.467 | |
| AC718 | 62.69-63.48 | 2.468-2.499 | |
| AC719 | 63.50-64.26 | 2.500-2.530 | |
| AC720 | 64.29-6.08 | 2.531-2.562 | |
| AC721 | 65.10-65.86 | 2.563-2.593 | |
| AC722 | 65.89-66.65 | 2.594-2.624 | |
| AC723 | 66.68-67.44 | 2.625-2.655 | |
| AC724 | 67.46-68.22 | 2.656-2.686 | |
| AC725 | 68.25-69.04 | 2.687-2.718 | |
| AC726 | 69.06-69.83 | 2.719-2.749 | |
| AC727 | 69.85-70.61 | 2.750-2.780 | |
| AC728 | 70.64-71.40 | 2.781-2.811 | |
| AC729 | 71.43-72.21 | 2.812-2.843 | |
| **For use on AC1800, 2810M, 2810** | | | |
| Collet # | Range (mm) | Range (in) | Length |
| AC801 | 65.08-65.86 | 2.562-2.593 | |
| AC802 | 65.89-66.65 | 2.594-2.624 | |
| AC803 | 66.68-67.44 | 2.625-2.655 | |
| AC804 | 67.46-68.22 | 2.565-2.686 | |
| AC805 | 68.25-69.04 | 2.687-2.718 | |
| AC806 | 69.06-29.83 | 2.719-2.749 | |
| AC807 | 69.85-70.61 | 2.750-2.780 | |
| AC808 | 70.63-71.40 | 2.781-2.811 | |
| AC809 | 71.43-72.21 | 2.812-2.843 | |
| AC810 | 72.24-73.00 | 2.844-2.874 | |
| AC811 | 73.03-73.79 | 2.875-2.905 | 2.25 in |
| AC812 | 73.81-74.57 | 2.906-2.936 | 57.15 mm |
| AC813 | 74.60-75.39 | 2.937-2.968 | |
| AC814 | 75.41-76.18 | 2.969-2.999 | |
| AC815 | 76.20-76.96 | 3.000-3.030 | |
| AC816 | 76.99-77.75 | 3.031-3.061 | |
| AC817 | 77.78-78.56 | 3.062-3.093 | |
| AC818 | 78.59-79.35 | 3.094-3.124 | |
| AC819 | 79.38-80.14 | 3.125-3.155 | |
| AC820 | 80.16-80.92 | 3.156-3.186 | |
| AC821 | 80.95-81.74 | 3.187-3.218 | |

| For use on AC1800, 2810M, 2810 | | | |
|---|---|---|---|
| Collet # | Range (mm) | Range (in) | Length |
| AC822 | 81.76-82.53 | 3.219-3.249 | |
| AC823 | 82.55-83.31 | 3.250-3.280 | |
| AC824 | 83.34-84.10 | 3.281-3.311 | |
| AC825 | 84.13-84.91 | 3.312-3.343 | |
| AC826 | 84.94-85.70 | 3.344-3.374 | |
| AC827 | 85.73-86.49 | 3.375-3.405 | 2.25 in |
| AC828 | 86.51-87.27 | 3.406-3.436 | 57.15 mm |
| AC829 | 87.30-88.09 | 3.437-3.468 | |
| AC830 | 88.11-88.88 | 3.469-3.499 | |
| AC831 | 88.90-89.66 | 3.500-3.530 | |
| AC832 | 89.69-90.45 | 3.531-3.561 | |
| AC833 | 90.48-91.26 | 3.562-3.593 | |
| **For use on AC1900, 2910M, 2910** | | | |
| Collet # | Range (mm) | Range (in) | Length |
| AC901 | 84.13-84.91 | 3.312-3.343 | |
| AC902 | 84.94-85.70 | 3.344-3.374 | |
| AC903 | 85.73-86.49 | 3.375-3.405 | |
| AC904 | 86.51-87.27 | 3.406-3.436 | |
| AC905 | 87.30-88.09 | 3.437-3.468 | |
| AC906 | 88.11-88.88 | 3.469-3.499 | |
| AC907 | 88.90-89.66 | 3.500-3.530 | |
| AC908 | 89.69-90.45 | 3.531-3.561 | |
| AC909 | 90.48-91.26 | 3.562-3.593 | |
| AC910 | 91.29-92.05 | 3.594-3.624 | |
| AC911 | 92.08-92.84 | 3.625-3.655 | |
| AC912 | 92.86-93.62 | 3.656-3.686 | |
| AC913 | 93.65-94.44 | 3.687-3.718 | |
| AC914 | 94.46-95.23 | 3.719-3.749 | |
| AC915 | 95.25-96.01 | 3.750-3.780 | |
| AC916 | 96.04-96.80 | 3.781-3.811 | |
| AC917 | 96.83-97.61 | 3.812-3.843 | |
| AC918 | 97.64-98.40 | 3.844-3.874 | 2.50 in |
| AC919 | 98.43-99.19 | 3.875-3.905 | 63.50 mm |
| AC920 | 99.21-99.97 | 3.906-3.936 | |
| AC921 | 100.00-100.79 | 3.937-3.968 | |
| AC922 | 100.81-101.58 | 3.969-3.999 | |
| AC923 | 101.60-102.36 | 4.000-4.030 | |
| AC924 | 102.39-103.15 | 4.031-4.061 | |
| AC925 | 103.18-103.96 | 4.062-4.093 | |
| AC926 | 103.99-104.75 | 4.094-4.124 | |
| AC927 | 104.78-105.54 | 4.125-4.155 | |
| AC928 | 105.56-106.32 | 4.156-4.186 | |
| AC929 | 106.35-107.11 | 4.187-4.217 | |
| AC930 | 107.14-107.93 | 4.218-4.249 | |
| AC931 | 107.95-108.71 | 4.250-4.280 | |
| AC932 | 108.74-109.50 | 4.281-4.311 | |
| AC933 | 109.53-110.29 | 4.312-4.342 | |
| AC934 | 110.31-111.10 | 4.343-4.374 | |
| AC935 | 111.13-111.89 | 4.375-4.405 | |
| AC936 | 111.91-112.67 | 4.406-4.436 | |
| AC937 | 112.70-113.46 | 4.437-4.467 | |

## Features and Benefits

- Precision ground flats
- Collets interchangeable on all arbors within specified range
- Accuracy of arbor not affected by indexing of collet shaft
- High-grade steels, precisely heat treated
- Silicone sealing of collet slots for special jobs is available on request for additional charge
- Collets in oversize (overlap) ranges are available

**For use on AC7100A, 8100M, 8100,12100**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7101 | 12.70-12.95 | .500-.510 | |
| AC7102 | 12.98-13.21 | .511-.520 | |
| AC7103 | 13.23-13.48 | .521-.531 | |
| AC7104 | 13.51-13.74 | .532-.541 | |
| AC7105 | 13.77-14.02 | .542-.552 | |
| AC7106 | 14.05-14.28 | .553-.562 | |
| AC7107 | 14.30-14.26 | .563-.572 | |
| AC7108 | 14.55-14.78 | .573-.582 | .59 in 14.986 mm |
| AC7109 | 14.81-15.04 | .583-.592 | |
| AC7110 | 15.06-15.32 | .593-.603 | |
| AC7111 | 15.34-15.57 | .604-.613 | |
| AC7112 | 15.60-15.85 | .614-.624 | |
| AC7113 | 15.88-16.10 | .625-.634 | |
| AC7114 | 16.13-16.38 | .635-.645 | |
| AC7115 | 16.41-16.64 | .646-.655 | |

**For use on AC7200A, 8200M, 8200,12200**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7201 | 15.06-15.31 | .593-.603 | |
| AC7202 | 15.34-15.57 | .604-.613 | |
| AC7203 | 15.60-15.85 | .614-.624 | |
| AC7204 | 15.88-16.10 | .625-.634 | |
| AC7205 | 16.13-16.38 | .635-.645 | |
| AC7206 | 16.41-16.64 | .646-.655 | |
| AC7207 | 16.66-16.92 | .656-.666 | |
| AC7208 | 16.94-17.17 | .667-.676 | |
| AC7209 | 17.20-17.45 | .677-.687 | |
| AC7210 | 17.48-17.70 | .688-.697 | .72 in 18.29 mm |
| AC7211 | 17.73-17.96 | .698-.707 | |
| AC7212 | 17.98-18.21 | .708-.717 | |
| AC7213 | 18.24-18.47 | .718-.727 | |
| AC7214 | 18.49-18.72 | .728-.737 | |
| AC7215 | 18.75-18.97 | .738-.747 | |
| AC7216 | 19.00-19.23 | .748-.757 | |
| AC7217 | 19.25-19.48 | .758-.767 | |
| AC7218 | 19.51-19.74 | .768-.777 | |
| AC7219 | 19.76-19.99 | .778-.787 | |
| AC7220 | 20.06-20.24 | .788-.797 | |

**For use on AC7300A, 8300, 8300M,12300**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7301 | 18.24-18.47 | .718-.727 | |
| AC7302 | 18.49-18.72 | .728-.737 | |
| AC7303 | 18.75-18.97 | .738-.747 | |
| AC7304 | 19.00-19.23 | .748-.757 | |
| AC7305 | 19.25-19.48 | .758-.767 | |
| AC7306 | 19.51-19.74 | .768-.777 | .84 in 21.34 mm |
| AC7307 | 19.76-19.99 | .778-.787 | |
| AC7308 | 20.02-20.24 | .788-.797 | |
| AC7309 | 20.27-20.50 | .798-.807 | |
| AC7310 | 20.52-20.75 | .808-.817 | |
| AC7311 | 20.78-21.01 | .818-.827 | |

**For use on AC7300A, 8300, 8300M,12300**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7312 | 21.03-21.26 | .828-.837 | |
| AC7313 | 21.29-21.51 | .838-.847 | |
| AC7314 | 21.54-21.74 | .848-.856 | |
| AC7315 | 21.77-22.00 | .857-.866 | |
| AC7316 | 22.02-22.12 | .867-.874 | |
| AC7317 | 22.23-22.25 | .875-.884 | |
| AC7318 | 22.48-22.73 | .885-.895 | |
| AC7319 | 22.76-22.99 | .896-.905 | |
| AC7320 | 23.01-23.27 | .906-.916 | .84 in 21.34 mm |
| AC7321 | 23.29-23.52 | .917-.926 | |
| AC7322 | 23.55-23.80 | .927-.937 | |
| AC7323 | 23.83-24.05 | .938-.947 | |
| AC7324 | 24.08-24.33 | .948-.958 | |
| AC7325 | 24.36-24.59 | .959-.968 | |
| AC7326 | 24.61-24.87 | .969-.979 | |
| AC7327 | 24.89-25.12 | .980-.989 | |
| AC7328 | 25.15-25.40 | .990-1.000 | |

**For use on AC7400A, 8400, 8400M,12400**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7401 | 22.26-22.59 | .875-.895 | |
| AC7402 | 22.76-23.27 | .896-.916 | |
| AC7403 | 23.29-23.80 | .917-.937 | |
| AC7404 | 23.83-24.33 | .938-.958 | |
| AC7405 | 24.36-24.87 | .959-.979 | |
| AC7406 | 24.89-25.40 | .980-1.000 | |
| AC7407 | 25.43-25.93 | 1.001-1.021 | |
| AC7408 | 25.96-26.47 | 1.022-1.042 | |
| AC7409 | 26.49-27.00 | 1.043-1.063 | |
| AC7410 | 27.02-27.53 | 1.064-1.084 | .94 in 23.88 mm |
| AC7411 | 27.56-28.04 | 1.105-1.124 | |
| AC7413 | 28.58-29.11 | 1.125-1.146 | |
| AC7414 | 29.13-29.67 | 1.147-1.168 | |
| AC7415 | 29.69-30.27 | 1.169-1.190 | |
| AC7416 | 30.25-30.79 | 1.191-1.212 | |
| AC7417 | 30.81-31.34 | 1.213-1.234 | |
| AC7418 | 31.37-31.90 | 1.235-1.256 | |
| AC7419 | 31.93-32.46 | 1.257-1.278 | |
| AC7420 | 32.49-33.00 | 1.279-1.299 | |

Oversize collets AC7110-7115; 7213-7220 and 7317-7328 should be used only in light turning or grinding operations.

**For use on AC7500A, 8500, 8500M, 12500**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7501 | 28.58-29.11 | 1.125-1.146 | |
| AC7502 | 29.13-29.67 | 1.147-1.168 | |
| AC7503 | 29.69-30.23 | 1.169-1.190 | |
| AC7504 | 30.25-30.79 | 1.191-1.212 | |
| AC7505 | 30.81-31.34 | 1.213-1.234 | |
| AC7506 | 31.37-31.90 | 1.235-1.256 | |
| AC7507 | 31.93-32.46 | 1.257-1.278 | |
| AC7508 | 32.49-33.00 | 1.279-1.299 | |
| AC7509 | 33.02-33.53 | 1.300-1.320 | |
| AC7510 | 33.55-34.06 | 1.321-1.341 | |
| AC7511 | 34.09-34.60 | 1.342-1.362 | |
| AC7512 | 34.62-35.13 | 1.363-1.383 | 1.125 in 28.58 mm |
| AC7513 | 35.15-35.66 | 1.384-1.404 | |
| AC7514 | 35.69-36.20 | 1.405-1.425 | |
| AC7515 | 36.22-36.73 | 1.426-1.446 | |
| AC7516 | 36.75-37.26 | 1.447-1.467 | |
| AC7517 | 37.29-37.82 | 1.468-1.489 | |
| AC7518 | 37.85-38.38 | 1.490-1.511 | |
| AC7519 | 38.41-38.94 | 1.512-1.533 | |
| AC7520 | 38.96-39.50 | 1.534-1.555 | |
| AC7521 | 39.52-40.06 | 1.556-1.577 | |
| AC7522 | 40.08-40.62 | 1.578-1.599 | |
| AC7523 | 40.64-117.37 | 1.600-1.621 | |
| AC7524 | 41.20-41.71 | 1.622-1.642 | |

**For use on AC7600A, 8600, 8600M, 12600**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7601 | 37.29-37.82 | 1.468-1.489 | |
| AC7602 | 37.85-38.38 | 1.490-1.511 | |
| AC7603 | 38.41-38.94 | 1.512-1.533 | |
| AC7604 | 38.96-39.50 | 1.534-1.555 | |
| AC7605 | 39.52-40.06 | 1.556-1.577 | |
| AC7606 | 40.08-40.61 | 1.578-1.599 | |
| AC7607 | 40.64-41.17 | 1.600-1.621 | |
| AC7608 | 41.20-41.71 | 1.622-1.642 | |
| AC7609 | 41.73-42.24 | 1.643-1.663 | |
| AC7610 | 42.27-42.77 | 1.664-1.684 | |
| AC7611 | 42.80-43.31 | 1.685-1.705 | 1.22 in 30.99 mm |
| AC7612 | 43.33-43.84 | 1.706-1.726 | |
| AC7613 | 43.87-44.37 | 1.727-1.747 | |
| AC7614 | 44.40-44.91 | 1.748-1.768 | |
| AC7615 | 44.93-45.44 | 1.769-1.789 | |
| AC7616 | 45.47-45.97 | 1.790-1.810 | |
| AC7617 | 46.00-46.51 | 1.811-1.831 | |
| AC7618 | 46.53-47.04 | 1.832-1.852 | |
| AC7619 | 47.07-47.57 | 1.853-1.873 | |
| AC7620 | 47.60-48.11 | 1.874-1.894 | |
| AC7621 | 48.13-48.64 | 1.895-1.915 | |
| AC7622 | 48.67-49.17 | 1.916-1.936 | |

**For use on AC7600A, 8600, 8600M, 12600**

| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7623 | 49.20-49.71 | 1.937-1.957 | |
| AC7624 | 49.73-50.24 | 1.958-1.978 | |
| AC7625 | 50.27-50.78 | 1.979-1.999 | |
| AC7626 | 50.80-51.31 | 2.000-2.020 | 1.22 in 30.99 mm |
| AC7627 | 51.33-51.84 | 2.021-2.041 | |
| AC7628 | 51.87-52.38 | 2.042-2.062 | |
| AC7629 | 52.40-52.91 | 2.063-2.083 | |
| AC7630 | 52.93-53.44 | 2.084-2.104 | |

**For use on AC770A, 8700, 8700M, 12700**

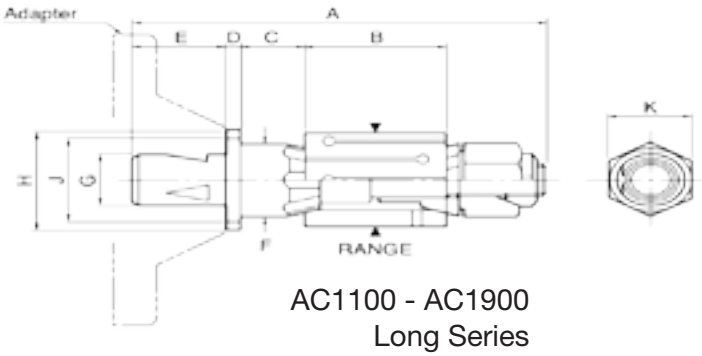
| Collet # | Range (mm) | Range (in) | Length |
|---|---|---|---|
| AC7701 | 49.20-49.71 | 1.937-1.957 | |
| AC7702 | 49.73350.24 | 1.958-1.978 | |
| AC7703 | 50.27-50.77 | 1.979-1.999 | |
| AC7704 | 50.80-51.31 | 2.000-2.020 | |
| AC7705 | 51.33-51.84 | 2.021-2.041 | |
| AC7706 | 51.87-52.38 | 2.042-2.062 | |
| AC7707 | 52.40-52.91 | 2.063-2.083 | |
| AC7708 | 52.93-53.44 | 2.084-2.104 | |
| AC7709 | 53.47-53.98 | 2.105-2.125 | |
| AC7710 | 54.00-54.51 | 2.126-2.146 | |
| AC7711 | 54.53-55.04 | 2.147-2.167 | |
| AC7712 | 55.07-55.58 | 2.168-2.188 | |
| AC7713 | 55.60-56.11 | 2.189-2.209 | |
| AC7714 | 56.13-56.64 | 2.210-2.230 | |
| AC7715 | 56.67-57.18 | 2.231-2.251 | |
| AC7716 | 57.20-57.71 | 2.252-2.272 | |
| AC7717 | 57.73-58.24 | 2.273-2.293 | |
| AC7718 | 58.27-58.78 | 2.294-2.314 | |
| AC7719 | 58.80-59.31 | 2.315-2.335 | |
| AC7720 | 59.33-59.84 | 2.336-2.356 | |
| AC7721 | 59.81-60.38 | 2.357-2.377 | 1.31 in 33.27 mm |
| AC7722 | 60.40-60.91 | 2.378-2.398 | |
| AC7723 | 60.94-61.44 | 2.399-2.419 | |
| AC7724 | 61.47-61.97 | 2.420-2.440 | |
| AC7725 | 62.00-62.51 | 2.441-2.461 | |
| AC7726 | 62.54-63.02 | 2.462-2.481 | |
| AC7727 | 63.04-63.53 | 2.482-2.501 | |
| AC7728 | 63.55-64.03 | 2.502-2.521 | |
| AC7729 | 64.06-64.54 | 2.522-2.541 | |
| AC7730 | 64.57-65.05 | 2.542-2.561 | |
| AC7731 | 65.08-65.61 | 2.562-2.583 | |
| AC7732 | 65.63-66.14 | 2.584-2.604 | |
| AC7733 | 66.17-66.68 | 2.605-2.625 | |
| AC7734 | 66.70-67.21 | 2.626-2.646 | |
| AC7735 | 67.23-67.74 | 2.647-2.667 | |
| AC7736 | 67.77-68.30 | 2.668-2.689 | |
| AC7737 | 68.33-68.86 | 2.690-2.711 | |
| AC7738 | 68.89-69.42 | 2.712-2.733 | |
| AC7739 | 69.44-69.98 | 2.734-2.755 | |
| AC7740 | 70.00-70.54 | 2.756-2.777 | |
| AC7741 | 70.56-71.10 | 2.778-2.799 | |
| AC7742 | 71.12-71.65 | 2.800-2.821 | |

# TL

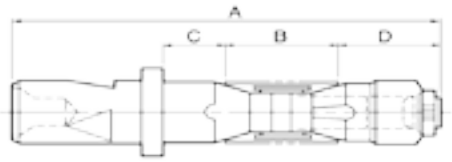
# Between Center Arbors

**Features & Benefits**

- Concentricity guaranteed to 0.0005” TIR
- Collets interchangeable within given arbor size
- Can be combined with adapter for face plate application
- Series provides gripping range from 0.500”-4.467”




AC1100 - AC1900
Long Series




AC7100 - AC7700
Short Series

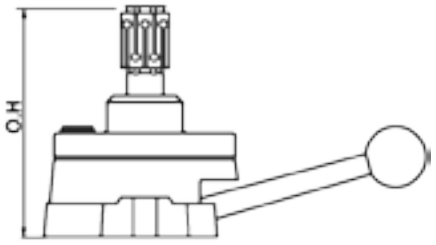
| Item No. | Clamping range | No. of Collets Available | A | B | C | D | E | F | G | H | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC1100 | 12.70- 16.64 | (10) | 66.6 | 22.4 | 9.9 | 3.1 | 19.1 | 11.95 | 12.72 | 20.9 | 17.3 | 11.2 |
| AC1200 | 15.06- 19.81 | (12) | 73.7 | 26.9 | 10.7 | 3.1 | 19.1 | 14.73 | 12.72 | 22.4 | 19.1 | 11.2 |
| AC1300 | 18.24- 25.37 | (18) | 80.8 | 31.7 | 12.7 | 3.1 | 19.1 | 17.90 | 12.72 | 25.4 | 22.4 | 14.3 |
| AC1400 | 22.23- 31.72 | (12) | 100.6 | 36.6 | 14.3 | 4.1 | 25.4 | 21.47 | 19.07 | 31.8 | 25.4 | 19.1 |
| AC1500 | 28.58- 41.25 | (16) | 113.6 | 41.1 | 17.3 | 4.6 | 25.4 | 27.43 | 19.07 | 38.1 | 31.8 | 22.4 |
| AC1600 | 37.29- 53.14 | (20) | 133.4 | 46.0 | 20.9 | 5.6 | 31.8 | 35.76 | 25.42 | 47.8 | 41.2 | 28.5 |
| AC1700 | 49.20- 72.21 | (29) | 147.9 | 50.8 | 25.4 | 6.4 | 31.8 | 46.87 | 25.42 | 60.5 | 52.4 | 35.1 |
| AC1800 | 65.07- 91.26 | (33) | 180.0 | 57.2 | 28.0 | 7.9 | 47.8 | 61.95 | 41.29 | 73.2 | 66.6 | 50.8 |
| AC1900 | 84.12-113.46 | (37) | 185.7 | 63.5 | 28.0 | 7.9 | 47.8 | 81.00 | 41.29 | 95.3 | 85.9 | 50.8 |
| AC7100A | 12.70 - 16.64 | (15) | 64.0 | 15.0 | 10.2 | 16.5 | - | - | - | - | - | - |
| AC7200A | 15.06 -20.24 | (20) | 67.6 | 18.3 | 11.2 | 16.0 | - | - | - | - | - | - |
| AC7300A | 18.24 -25.40 | (28) | 73.9 | 21.3 | 13.2 | 17.3 | - | - | - | - | - | - |
| AC7400A | 22.23 -33.00 | (20) | 90.4 | 23.9 | 14.2 | 23.1 | - | - | - | - | - | - |
| AC7500A | 28.58 -41.70 | (24) | 100.8 | 28.6 | 17.3 | 24.6 | - | - | - | - | - | - |
| AC7600A | 37.28 -53.44 | (30) | 122.2 | 31.0 | 20.6 | 33.3 | - | - | - | - | - | - |
| AC7700A | 42.20 -71.65 | (42) | 133.4 | 33.3 | 25.4 | 36.6 | - | - | - | - | - | - |

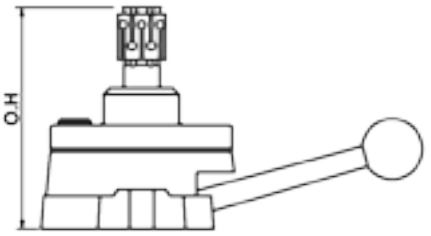
Measurements in millimeters unless otherwise indicated.

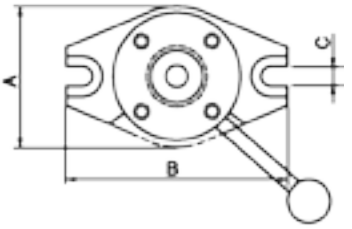
## Manual Fixture

The Tork-Lok Manual Fixture is a combines the drawbar models of Tork-Lok Arbors with a powerful locking mechanism that requires little maintenance.

The fixture assembly is ideal for milling, drilling, gear cutting and many other operations.



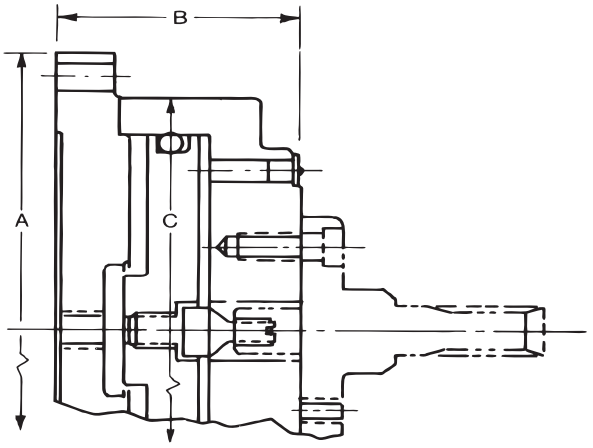

| LONG SERIES FIXTURE ASSEMBLY | | | |
|---|---|---|---|
| Item No. | Overall Height (OH) | Arbor Assy No. | Connector |
| AC5110 | 109.3 | AC2110 | AC172A |
| AC5210 | 114.3 | AC2210 | AC172A |
| AC5310 | 121.2 | AC2310 | AC174A |
| AC5410 | 136.9 | AC2410 | AC472A |
| AC5510 | 144.8 | AC2510 | AC473A |
| AC5610 | 151.2 | AC2610 | AC672A |
| AC5710 | 159.3 | AC2710 | AC672A |

| SHORT SERIES FIXTURE ASSEMBLY | | | |
|---|---|---|---|
| Item No. | Overall Height (OH) | Arbor Assy No. | Connector |
| AC12100 | 91.9 | AC8100 | AC12272 |
| AC12200 | 96.0 | AC8200 | AC12272 |
| AC12300 | 100.6 | AC8300 | AC12372 |
| AC12400 | 105.7 | AC8400 | AC12472 |
| AC12500 | 111.8 | AC8500 | AC12572 |
| AC12600 | 120.4 | AC8600 | AC12672 |
| AC12700 | 121.7 | AC8700 | AC12672 |

| FIXTURE BASE | | | |
|---|---|---|---|
| Item No. | A | B | C |
| AC-6100 | 95.3 | 162.1 | 14.3 |
| AC-6400 | 114.3 | 174.8 | 14.3 |
| AC-6600 | 133.4 | 196.9 | 14.3 |

## Pneumatic Fixture

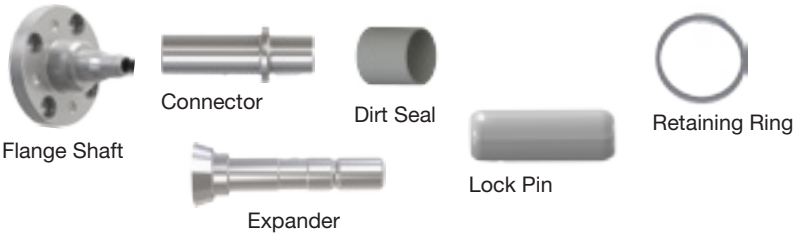
The combination of Forkardt's compact and lightweight air cylinder assembly with Tork-Lok drawbar type arbors answers the need for a quick load/unload chucking device for many operations.




| LONG SERIES FIXTURE ASSEMBLY | | | | | |
|---|---|---|---|---|---|
| Item No. | A | B | C | Connector | For Use With |
| AC3007 | 207.77 | 73.91 | 174.88 | AC135 | AC2110, 2210, 2310, 8100, 8200, 8300 |
| | | | | AC136 | AC2410, 2510, 8400, 8500 |
| AC3010 | 383.97 | 76.92 | 251.07 | AC137 | AC2110, 2210, 2310, 8100, 8200, 8300 |
| | | | | AC138 | AC2410, 2510, 8400, 8500 |
| | | | | AC139 | AC2610, 2710, 8600, 8700 |
| AC3013 | 360.17 | 78.49 | 327.28 | AC138 | AC2410, 2510, 8400, 8500 |
| | | | | AC139 | AC2610, 2710, 2910, 8600, 8700 |

## Draw Bar Style Arbors

| Component Kit No. | Flange Shaft No. (Sold Separately) | For Use With |
|---|---|---|
| AC2110K | AC159 | AC2110 |
| AC2210K | AC259 | AC2210 |
| AC2310K | AC359 | AC2310 |
| AC2410K | AC459 | AC2410 |
| AC2510K | AC559 | AC2510 |
| AC2610K | AC659 | AC2610 |
| AC2710K | AC759 | AC2710 |
| AC2810K | AC859 | AC2810 |
| AC2910K | AC959 | AC2910 |
| AC2110MK | AC159M | AC2110M |
| AC2210MK | AC259M | AC2210M |
| AC2310MK | AC359M | AC2310M |
| AC2410MK | AC459M | AC2410M |
| AC2510MK | AC559M | AC2510M |
| AC2610MK | AC659M | AC2610M |
| AC2710MK | AC759M | AC2710M |
| AC2810MK | AC859M | AC2810M |
| AC2910MK | AC959M | AC2910M |




Components kits contain one of each piece; flange shaft sold separately.

| Spindle Adapters | | |
|---|---|---|
| Item No. | Spindle Mount | For Use With |
| AC8157 | A2-5 | AC2110, 2210, 2310, 8100, 8200, 8300 |
| AC8155 | A2-6 | AC2110, 2210, 2310, 8100, 8200, 8300 |
| AC8158 | D1-5 | AC2110, 2210, 2310, 8100, 8200, 8300 |
| AC8156 | D1-6 | AC2110, 2210, 2310, 8100, 8200, 8300 |
| AC8457 | A2-5 | AC2410, 2510, 8400, 8500 |
| AC8455 | A2-6 | AC2410, 2510, 8400, 8500 |
| AC8458 | D1-5 | AC2410, 2510, 8400, 8500 |
| AC8456 | D1-6 | AC2410, 2510, 8400, 8500 |
| AC8657 | A2-5 | AC2610, 2710, 8600, A8700 |
| AC8655 | A2-6 | AC2610, 2710, 8600, A8700 |
| AC8658 | D1-5 | AC2610, 2710, 8600, A8700 |

## Between Center Arbors

| Kit No. | Shaft No. (Sold Separately) | For Use With |
|---|---|---|
| AC1100K | AC150 | AC1100 |
| AC1200K | AC250 | AC1200 |
| AC1300K | AC350 | AC1300 |
| AC1400K | AC450 | AC1400 |
| AC1500K | AC550 | AC1500 |
| AC1600K | AC650 | AC1600 |
| AC1700K | AC750 | AC1700 |
| AC1800K | AC850 | AC1800 |
| AC1900K | AC950 | AC1900 |
| AC7100K | AC7151 | AC7100A |
| AC7200K | AC7251 | AC7200A |
| AC7300K | AC7351 | AC7300A |
| AC7400K | AC7451 | AC7400A |
| AC7500K | AC7551 | AC7500A |
| AC7600K | AC7651 | AC7600A |
| AC7700K | AC7751 | AC7700A |


Components kits contain one of each piece; shaft sold separately.

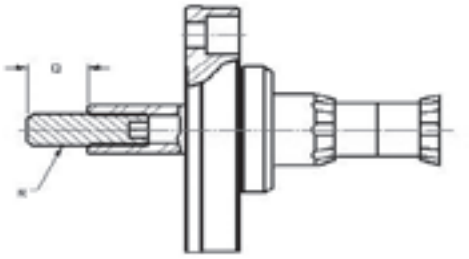
| Face Plate Adapters | |
|---|---|
| Item No. | For Use With |
| AC155 | AC1200, 1300, 7100A, 7200A, 7300A |
| AC455 | AC1400, 1500, 7400A, 7500A |
| AC655 | AC1600, 1700, 7600A, 7700A |

| Pneumatic Fixtures | | | | | |
|---|---|---|---|---|---|
| Model No. | Adapter | Cylinder | Piston | Piston Seal | Valve |
| AC3007 | DC740A | AC745 | AC730 | DC790 | AD713 |
| AC3010 | DC140A | AC145 | AC130 | DC190 | AD713 |
| AC3013 | UBG1342 | AC1345 | AC1330 | DC1390 | AD713 |

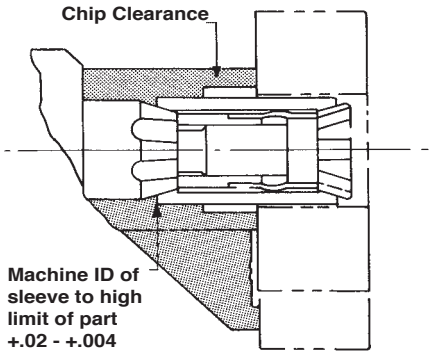
## Optional Connection Options
## Metric Drawbar Style

The Tork-Lok Metric drawbar assemblies can be adapted to connect with a male thread. See critical dimensions in table to the left

| Model No. | Q | R |
|---|---|---|
| AC2110M | 15.00 | M10 X 1.5P X 30.0 LG |
| AC2210M | 15.00 | M10 X 1.5P X 30.0 LG |
| AC2310M | 15.00 | M10 X 1.5P X 30.0 LG |
| AC2410M | 25.00 | M12 X 1.75P X 50.0 LG |
| AC2510M | 25.00 | M12 X 1.75P X 50.0 LG |
| AC2610M | 25.00 | M16 X 2.0P X 50.0 LG |
| AC2710M | 25.00 | M16 X 2.0P X 50.0 LG |
| AC2810M | 25.00 | M16 X 2.0P X 50.0 LG |
| AC2910M | 25.00 | M16 X 2.0P X 50.0 LG |
| AC8100M | 15.00 | M10 X 1.5P X 30.0 LG |
| AC8200M | 15.00 | M10 X 1.5P X 40.0 LG |
| AC8300M | 15.00 | M10 X 1.5P X 30.0 LG |
| AC8400M | 21.00 | M12 X 1.75P X 40.0 LG |
| AC8500M | 21.00 | M12 X 1.75P X 40.0 LG |
| AC8600M | 25.00 | M16 X 2.0P X 50.0 LG |
| AC8700M | 25.00 | M16 X 2.0P X 50.0 LG |

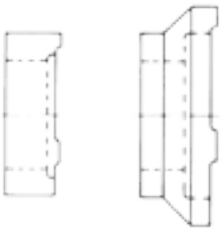


### Work Stops
All Tork-Lok arbor applications require one of the work stop styles below. Our engineering team will design for you based on your part.

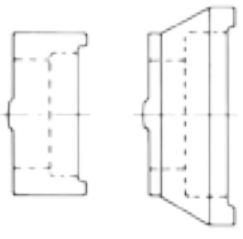



### Restrictor Type
Combination work stop and retaining sleeve. Necessary for parts with locating lengths shorter than the collet.
A restrictor expander is used to reduce the expansion safety stop, preventing collet breakage.

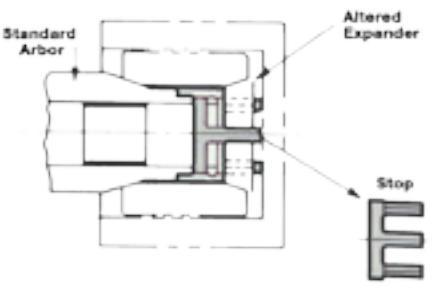
| Restrictor Expanders | |
|---|---|
| Model No. | Expander |
| AC2110, 2110M | AC167M |
| AC2210 , 210M | AC267M |
| AC2310 , 2310M | AC367M |
| AC2410 , 2410M | AC467M |
| AC2510 , 2510M | AC567M |
| AC2610 , 2610M | AC667M |
| AC2710 , 2710M | AC767M |
| AC2810 , 2810M | AC867M |
| AC2910 , 2910M | AC967M |
| AC8100, 8100M | AC8167M |
| AC8200, 8200M | AC8267M |
| AC8300, 8300M | AC8367M |
| AC8400, 8400M | AC8467M |
| AC8500, 8500M | AC8567M |
| AC8600, 8600M | AC8667M |
| AC8700, 8700M | AC8767M |



### Fixed Type
Parts having a surface square with the locating diameter.



### Rocker Type
Parts having out of square faces.




### Fixed Internal Type
Internal face location of pre-machined parts.

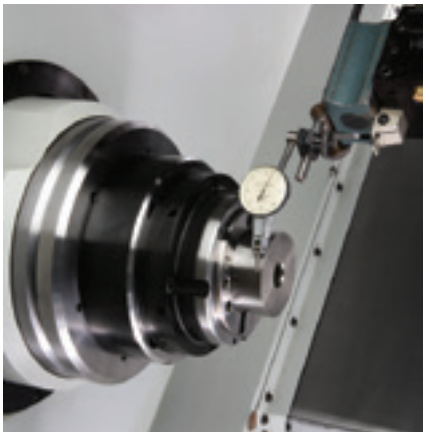

## Collet changeover in less than 10 seconds

Compare to your current changeover:

- Standard Collet Chuck: 79 seconds
- Chuck Jaws (3): 191 seconds

**Gripping Range ±.020”**
A typical FlexC® collet head has a gripping range of ±.020” (.5mm) above and below its nominal size to allow variation in bar stock without having to change out the collet.

**Productivity Replacement for 3-jaw Chucks**
When compared to a jaw chuck, the reduction in weight and the efficient design of the FlexC® Collet System allow you to increase the spindle rpm without concern for centrifugal forces. Advanced cutting tools, along with faster speeds and feeds, can now be used to boost your productivity. The interferences associated with jaw chucks are nonexistent with the clean contours of the FlexC® Collet System.



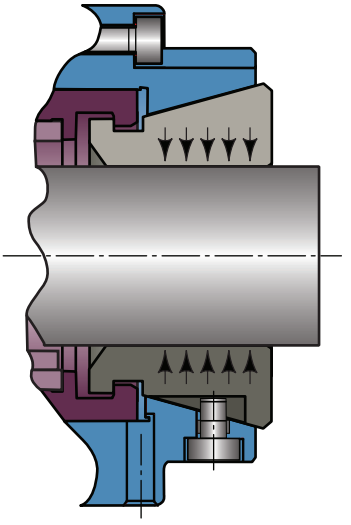
**Accuracy up to .0004” TIR**
Hardinge guarantees accuracy within .0004” (.010mm) TIR for the collet system models A and D and .0008” (.020mm) TIR for style DL.

The FlexC® system offers quick-change flexibility without compromise.

**Machine Compatibility and Flexibility**
The precision-engineered Hardinge FlexC® Collet Systems mount to A2-5, A2-6, A2-8 and select flat-back spindle noses. Pull-back thru-hole, pull-back dead-length® and push-to-close dead-length® styles are available for single and dual-spindle CNC lathes.

One spindle mount… a multitude of part diameters. Purchase one spindle mount and interchange vulcanized collet heads from job to job. Hardinge collet heads are fully interchangeable with competitor’s models.

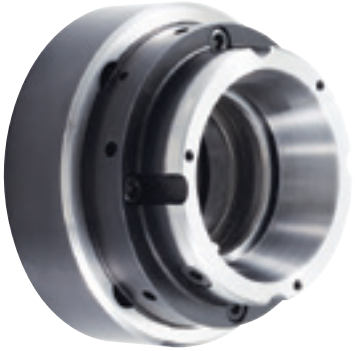
Out performs standard collet chucks and jaw chucks with faster job changeover.



**True Parallel Gripping**
There is no collet shank. The collet segments remain parallel to the stock even when there are variations in the stock size minimizing “push back”.

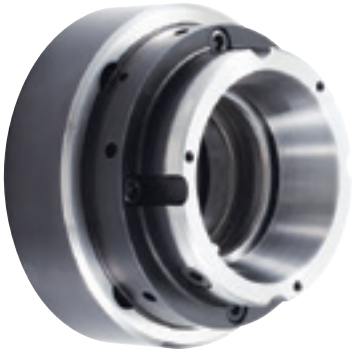
## Style D – Pull Back with Thru Hole

Style D is a pull-back design with a thru hole for bar work. Since there is no work stop in this design, this style is not recommended for chucking parts. Spindle mount, collet and wrench each sold separately. A drawbar linkup must be machined to fit the drawbar of the lathe.



| 42Mm* Style D Spindle Mount: Pull-Back Style With Thru-Hole | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | D¹ - Diameter | D - Diameter | L¹ - Length | L - Length |
| A2-5 | V42 5D00300 | 4.016" (102) | 5.512" (140) | .846" (21.5) | 3.543" (90) |
| A2-6 | V42 6D00400 | 4.016" (102) | 6.496" (165) | .846" (21.5) | 3.543" (90) |
| 140mm | V42 140D01700 | 4.016" (102) | 5.906" (150) | .846" (21.5) | 3.543" (90) |

* Limited to machine capacity. (millimeters in parentheses)

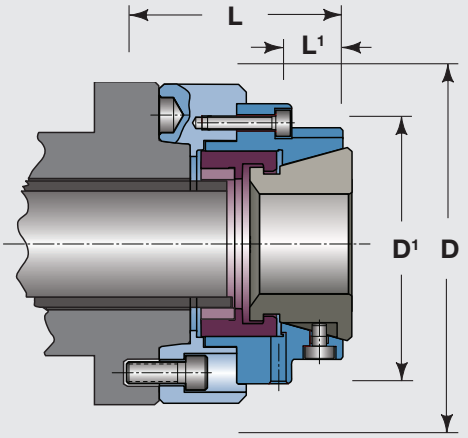


| 65Mm* Style D Spindle Mount: Pull-Back Style With Thru-Hole | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | D¹ - Diameter | D - Diameter | L¹ - Length | L - Length |
| A2-5 | V65 5D00500 | 4.736" (120.3) | 6.102" (155) | 1.043" (26.5) | 3.740" (95) |
| A2-6 | V65 6D00600 | 4.736" (120.3) | 6.496" (165) | 1.043" (26.5) | 3.740" (95) |
| A2-8 | V65 8D00700 | 4.736" (120.3) | 8.268" (210) | 1.043" (26.5) | 3.858" (98) |
| 140mm | V65 140D01900 | 4.736" (120.3) | 6.299" (160) | 1.043" (26.5) | 3.937" (100) |

* Limited to machine capacity. (millimeters in parentheses)

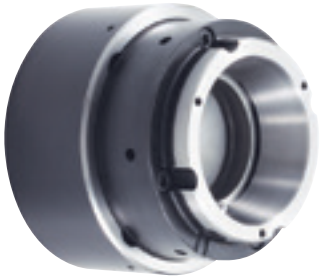
**Manufacturing process control for Hardinge FlexC Systems — made in the U.S.A.**

Hardinge spindle mounts are turned on a rugged Hardinge GS 200 turning center while the ODs and IDs are finish-ground on a high-precision Kellenberger grinding machine. A time-proven heat treat process guarantees hardness and tempering for a long life without breakage.



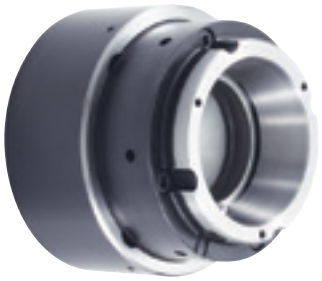
# Style A – Pull Back Design

**Style A is a pull-back design with a Dead-length® workstop.**
The collet draws in the part against a stationary workstop for part length control. You can easily "short grip" parts by machining a special work stop to the desired length.The Hardinge work stop is removable for bar work.



| 42Mm* Style A Spindle Mount: Pull-Back Style With Removable Dead-Length Work Stop | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | D¹ - Diameter | D - Diameter | L¹ - Length | L - Length |
| A2-5 | V42 5A01000 | 4.016" (102) | 5.512" (140) | .610" (15.5) | 4.764" (121) |
| A2-6 | V42 6A01100 | 4.016" (102) | 6.496" (165) | .610" (15.5) | 4.764" (121) |
| 140mm | V42 140A01600 | 4.016" (102) | 5.906" (150) | .610" (15.5) | 4.961" (126) |

* Limited to machine capacity (millimeters in parentheses)

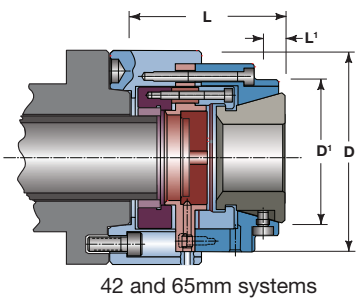


| 65mm* Style A Spindle Mount: Pull-back style with removable dead-length work stop | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | D¹ - Diameter | D - Diameter | L¹ - Length | L - Length |
| A2-5 | V65 5A01200 | 4.736" (120.3) | 6.102" (155) | .728" (18.5) | 5.118" (130) |
| A2-6 | V65 6A01300 | 4.736" (120.3) | 6.496" (165) | .728" (18.5) | 5.118" (130) |
| A2-8 | V65 8A01400 | 4.736" (120.3) | 8.268" (210) | .728" (18.5) | 5.315" (135) |
| 140mm | V65 140A02300 | 4.736" (120.3) | 6.299" (160) | .728" (18.5) | 5.248" (133) |
| 170mm | V65 170A01800 | 4.736" (120.3) | 6.299" (160) | .728" (18.5) | 5.118" (130) |

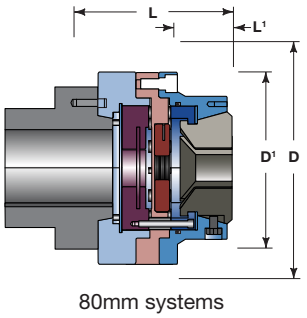
* Limited to machine capacity. (millimeters in parentheses)

| 80mm* Style A Spindle Mount: Pull-back style with removable dead-length work stop | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | D¹ - Diameter | D - Diameter | L¹ - Length | L - Length |
| A2-6 | V80 6A06400 | 5.750" (146.1) | 7.700" (195.6) | 2.000" (50.8) | 5.174" (131.4) |
| A2-8 | V80 8A06500 | 5.750" (146.1) | 8.000" (203.2) | 2.000" (50.8) | 5.174" (131.4) |

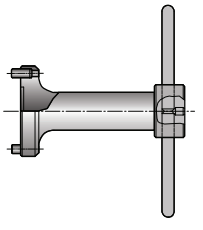
* Limited to machine capacity. (millimeters in parentheses)




42 and 65mm systems




80mm systems



Work stop wrench V65-6DL05810 (65mm) is included with the 80mm spindle mount assembly to remove or install the work stop.

## Style DL – Push-to-Close Design

**Style DL is a push-to-close design with a Dead-length® workstop.**
The collet and work stop are both stationary in the style DL Dead-Length spindle mount design to provide precise length control of the workpiece. This feature makes it possible to accurately transfer parts from one spindle to the other within .0005" (.0127mm), eliminating problems such as drive default or drag marks on the part. **Workstop is available but not included with the 80mm spindle mount.

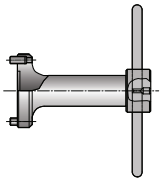
| 42mm* Style DL Spindle Mount: Push-to-Close with work stop | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | $D^1$ - Dia. | D - Dia. | $L^1$ - Length | L - Length |
| A2-5 (1) | V42 5DL05400 | — | 5.315" (135) | — | 4.724" (120) |
| A2-6 (2) | V42 6DL05500 | 5.315" (135) | 6.299" (160) | 2.953" (75) | 4.724" (120) |
| 140mm (2) | V42 140DL04400 | 5.315" (135) | 5.906 (150) | 3.944 (100) | 4.724" (120) |

* Limited to machine capacity. (millimeters in parentheses)

| 65mm* Style DL Spindle Mount: Push-to-Close with work stop | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | $D^1$ - Dia. | D - Dia. | $L^1$ - Length | L - Length |
| A2-5 (1) | V65 5DL05700 | — | 6.299" (160) | — | 4.921" (125)) |
| A2-6 (1) | V65 6DL05900 | — | 6.299" (160) | — | 4.724" (120) |
| A2-8 (2) | V65 8DL06000 | 6.299" (160) | 8.268" (210) | 2.402" (61) | 4.921" (125) |
| 140mm (1) | V65 140DL02400 | — | 6.299" (160) | — | 5.157" (131) |

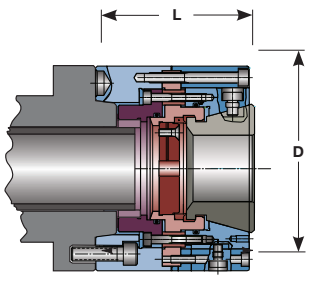
* Limited to machine capacity (millimeters in parentheses)

Work stop wrench V65-6DL05810 (65mm) or V42-5DL05410 (42mm) is included with the spindle mount assembly to remove or install the work stop.

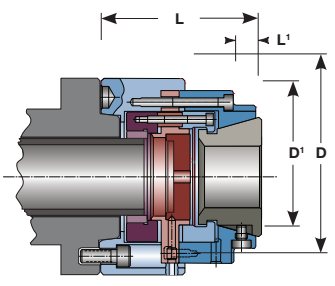


| 80mm* Style DL Spindle Mount: Push-to-Close | | | | | |
|---|---|---|---|---|---|
| Spindle Style | Part Number | $D^1$ - Dia. | D - Dia. | $L^1$ - Length | L - Length |
| A2-6 | V80 6DL06200 | 5.950" (151.2) | 7.700" (195.6) | 1.354" (34.4) | 4.957" (125.9) |
| A2-8 | V80 8DL06300 | 5.950" (151.2) | 8.250" (209.6) | 1.354" (34.4) | 5.207" (132.3) |

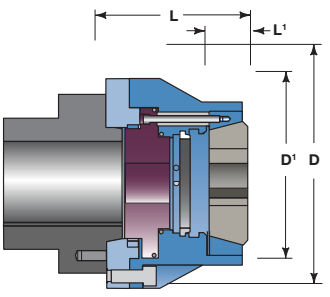
* Limited to machine capacity. (millimeters in parentheses)




Spindle Style 1




Spindle Style 2




80mm systems

# Style A
# Pull Back

# FlexC®

**Manufacturing process control in a dedicated work cell environment**
Hardinge has invested in the latest vulcanizing machines made by DESMA, a world leader in injection molding technology. The vulcanization process joins the collet segments together as a one-piece unit. Vulcanized rubber has elasticity for repeated opening and closing over the life of the collet that makes it ideal for a quick-change product. It will not become brittle and is resistant to coolant. It also prevents chips from entering the collet system. Hardinge test results from repeated cycles of collet actuation assure long life of the Hardinge vulcanization process.

Hardinge guarantees a collet head concentricity of .0002" (.005mm) TIR for round sizes after the segments are joined in the vulcanization process. Collets change in just seconds!

- Round smooth
- Round serrated
- Hexagon serrated
- Square smooth
- Emergency style
- Masters
- Industry Compatible

| FlexC Collets | Round Smooth ● | Round Serrated ● | Hexagon Serrated ⬣ | Square Smooth ■ | Manual Wrench |
|---|---|---|---|---|---|
| 42mm Inch Part Numbers | C0-4200-19 | C0-4200-59 | C0-4200-69 | C0-4200-39 | C 4200000-WREN |
| $^{1}/_{16}$" increments * | $^{7}/_{32}$ to $1^{5}/_{8}$" | $^{7}/_{32}$ to $1^{5}/_{8}$" | $^{5}/_{16}$ to $1^{3}/_{8}$" | $^{5}/_{16}$ to $1^{9}/_{64}$" | – |
| 42mm Metric Part Numbers | C0-4200-17 | C0-4200-57 | C0-4200-67 | C0-4200-37 | C 4200000-WREN |
| 1mm increments * | 5 to 42 | 5 to 42 | 8 to 36 | 8 to 29 | – |
| 65mm Inch Part Numbers | C0-6500-19 | C0-6500-59 | C0-6500-69 | C0-6500-39 | C 65000-00-WREN |
| $^{1}/_{16}$" increments* | ¼ to $2^{9}/_{16}$" | ¼ to $2^{9}/_{16}$" | $^{5}/_{16}$ to $2^{1}/_{8}$" | $^{5}/_{16}$ to $1^{13}/_{16}$" | – |
| 65mm Metric Part Numbers | C0-6500-17 | C0-6500-57 | C0-6500-67 | C0-6500-37 | C 65000-00-WREN |
| 1mm increments * | 5 to 65 | 5 to 65 | 8 to 56 | 8 to 46 | – |
| 80mm Inch Part Numbers | C0-8000-19 | C0-8000-59 | C0-8000-69 | C0-8000-39 | C 80000-00-WREN |
| $^{1}/_{16}$" increments* | $^{15}/_{32}$ to $3^{1}/_{4}$" | $^{3}/_{4}$ to $3^{1}/_{4}$" | $^{15}/_{32}$ to $2^{3}/_{4}$" | $^{15}/_{32}$ to $2^{1}/_{4}$" | – |
| 80mm Metric Part Numbers | C0-8000-17 | C0-8000-57 | C0-8000-67 | C0-8000-37 | C 80000-00-WREN |
| 1mm increments * | 12 to 82.5 | 19 to 82.5 | 12 to 69.9 | 12 to 57.2 | – |

* limited to maximum bar capacity of your machine for thru-hole bar work

| FlexC Style-S Master Collets | S16 | S20 | S22 | S26 | S30 |
|---|---|---|---|---|---|
| 65mm | C0650S16MASTER | C0650S20MASTER | C0650S22MASTER | – | – |
| 80mm | – | – | – | C0800S26MASTER | C0800S30MASTER |

| Emergency Collets Size / Pilot Hole | Emergency Collet Part Number | Manual Wrench Part Number | Boring Ring Part Number |
|---|---|---|---|
| 42mm / 5mm Pilot | C0420000000005 | C 4200000 WREN | C042000000RING |
| 42mm / 15mm Pilot | C0420000000015 | C 4200000 WREN | C042000000RING |
| 42mm / 30mm Pilot | C0420000000030 | C 4200000 WREN | C042000000RING |
| 65mm / 8mm Pilot | C0650000000008 | C 6500000 WREN | C065000000RING |
| 65mm / 20mm Pilot | C0650000000020 | C 6500000 WREN | C065000000RING |
| 65mm / 40mm Pilot | C0650000000040 | C 6500000 WREN | C065000000RING |
| 80mm / 12mm Pilot | C0800000000012 | C 8000000 WREN | C080000000RING |
| 80mm / 25mm Pilot | C0800000000025 | C 8000000 WREN | C080000000RING |
| 80mm / 40mm Pilot | C0800000000040 | C 8000000 WREN | C080000000RING |

**Custom Manufacturing**
Standard collets are stocked in round smooth, round serrated and hex shape. Square sizes are made to order. Anything between the size increments shown below can be custom manufactured. Other special applications include stepped holes, special shapes, off-center, etc. that can be made from stock blanks.

# Large Diameter Workholding

FORKARDT™

# Large Diameter Workholding

# LDW

Forkardt has many products available to handle large diameter workholding. We have supplied solutions for holding many parts used in the oilfield and large machinery sectors. Many of our existing product designs can be built in large sizes in order to accommodate large parts. We have also designed products specifically for holding large diameter parts in harsh working conditions.

### Roughneck Spring Chuck

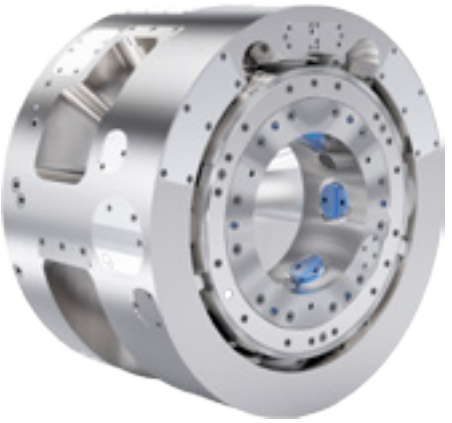
Ideal for:
- Machining large oilfield tubular goods

Key Features:
- Extra long jaw stroke
- Counter centrifugal compensation

### ZS Series Index Chuck

Ideal for:
- Machining large oilfield couplings

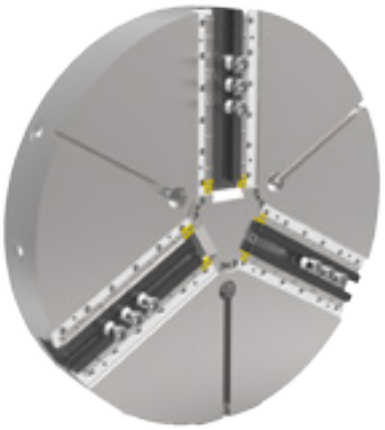
Key Features:
- 180˚ indexing
- Up to 18 clamping points



### UVE Thru Hole Air Clamp Chuck

Ideal for:
- Machining large oilfield tubular goods

Key Features
- Friction free air intake ring
- Standard 4 way valve
- Regulated clamping force



**KS Series Power Chuck**

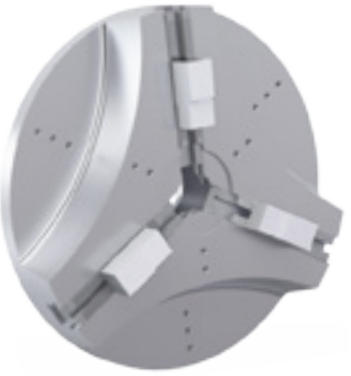
Ideal for:
- Heavy machining operations
- Oil & energy fluid components and valves

Key Features:
- Sealed against contamination
- Optional centrifugal force compensation

**KSL Light Weight Power Chuck**

Ideal for:
- High speed heavy machining

Key Features:
- Lightweight design
- Optional centrifugal force compensation



**Buck Manual Heavy Duty Large Diameter Chucks**

Ideal for:
- Machining of large diameter parts

Key Features:
- Flat back and direct mount available
- American standard and solid jaws available

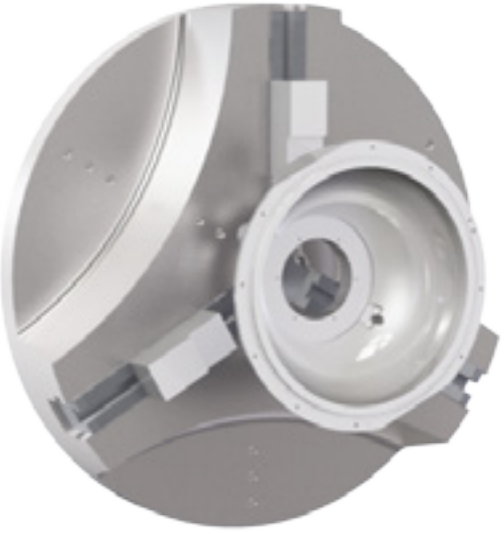
## Application Examples

Below are some examples of how Forkardt was able to take a standard chuck model, such as a UBL, Rim Lok, or ECC and build it to handle large diameter parts.

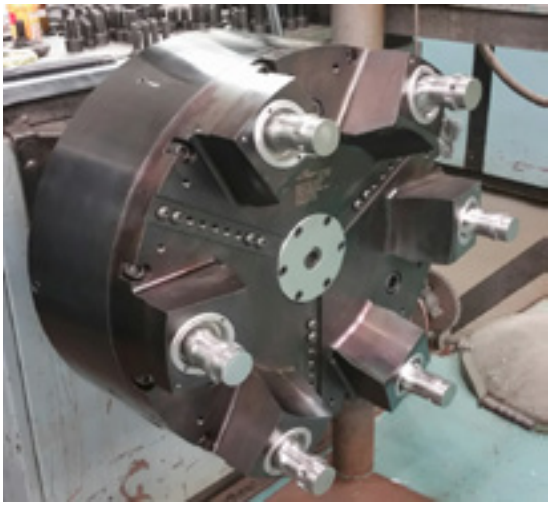
24” Hi-LO PC Chuck for Holding Locomotive Cylinder Liners

OD Grip Rim-Lok Collet Chuck for holding 14” Diameter Drum

1000mm 3-Jaw Sliding Jaw Power Chuck with Scallops to reduce weight for holding housing



24” PC Chuck used for holding semi-truck brake drums.



## Air Operated Universal Front End Chuck Model UVE

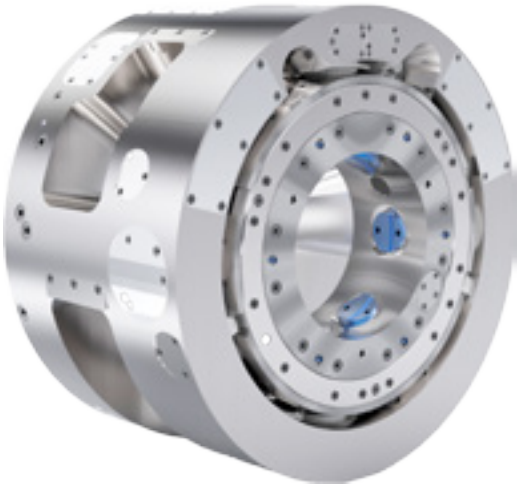
The Forkardt UVE power chuck offers a rugged and easy to use solution for machining pipes.

### Features & Benefits

- Standard 3/32 X 90˚ jaw mounts making the purchase of top tooling simple and economical
- The friction free air intake ring with diaphragm seals allows for continuous operation at high speed without noticeable heat generation
- Integrated seals allows for easy monitoring of clamping pressure using a pressure gage on the face of the chuck
- A standard 4 way valve with a neutral center position can be used to control the chuck
- The narrow air intake ring is located in an ideal position for working with the integrated air piston allowing for maximum jaw pressure
- Large air passages built into the chuck allow for rapid clamping
- The compressed air fed to the cylinder when the chuck is idle or in clamp/unclamp phase is trapped by an axially controlled non-return valve

## Centralizing Clamping Indexing Chuck Model ZS

The ZS index chuck is designed for machining of tubing and casing couplings on traditional lathes. Three jaws centralize the coupling while the other three jaws clamp in compensating mode for secure grip.



### Features & Benefits

- The chuck consists of a mounted clamping ring which can be indexed 180 degrees. The 7 tube oil feed bundle is mounted to the rear spindle face
- Clamping is achieved with 6 jaws; 3 jaws centralize and 3 jaws compensate
- Clamping inserts can be designed to reach up to 18 clamping points when part deformation is a concern

# Roughneck Oilfield Spring Chuck

# RSC

## Roughneck Oilfield Spring Chuck Model RSC

As the original creator of the Woodworth THC Spring Actuated Chuck, renowned for its longevity, reliability and strength, Forkardt is proud to introduce a new spring chuck design that will set they mark by which all other chucks for Oil, Transportation & Gas manufacturing will follow.

### Features & Benefits

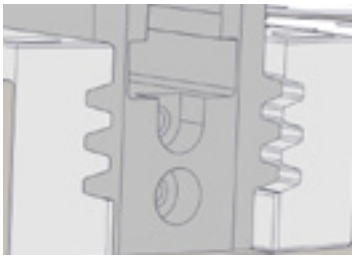
- Ruggedly designed jaw actuation mechanism provides a smooth transition between rapid and clamp stroke.
- Extra long jaw stroke allows tooling to easily clear upset pipe ends or weld on ends of drill pipe
- Longer wear life due to the advanced jaw guide system
- Counter centrifugal compensation provides uniform gripping pressure at higher speeds for higher production rates and  better part finishes
- Reduced body mass decreases spindle wear
- Large thru hole allows full use of machine spindle bore
- Standard air ring allows for easy interchangeability with competitors chucks
- Decreased cycle times due to both ports on the air ring feeding and exhausting air from the piston chamber
- Positive clamp confirmation via proximity sensor and a robust sensor ring, allowing clamp confirmation throughout the machining cycle.

### More Control of the Manufacturing Process

The unique design of the Roughneck spring chuck allows for a choice of spring pack types and operating force. The features are interchangeable and can be field retrofitted without removing the chuck from the machine spindle.

- Nitrogen Gas Springs- offer high performance for increased forces and a flatter spring curve rate throughout its stroke
- Optional Disk Spring Cartridge allows for medium spring force
- Pressure adjustment is achieved without disassembly through the ports provided on the front of the chuck

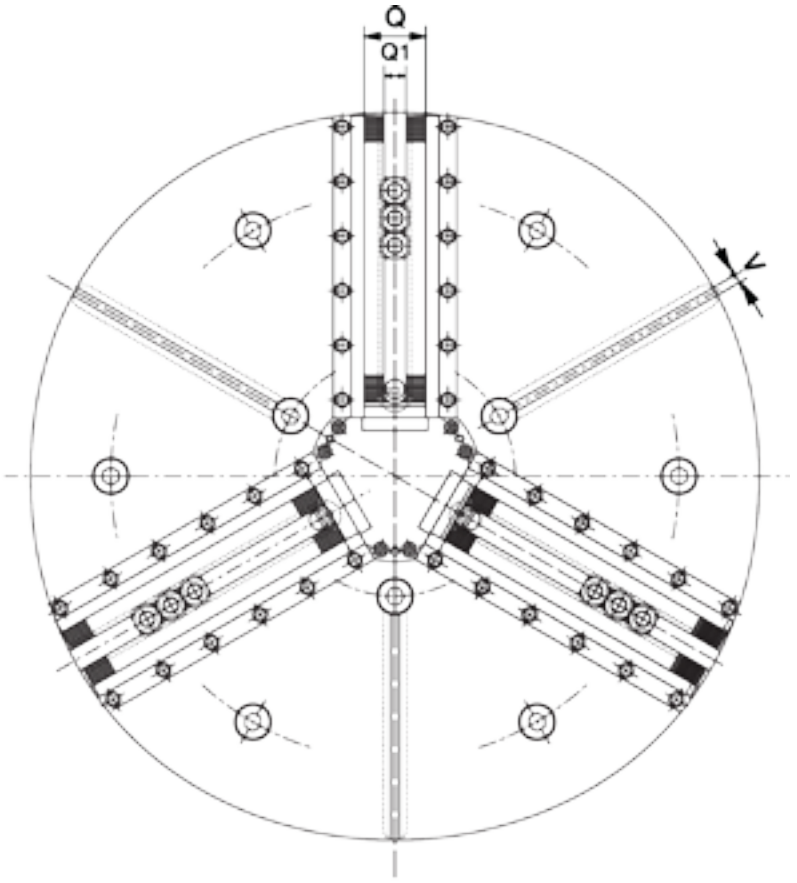
### Multiple Profile Jaw Guide System

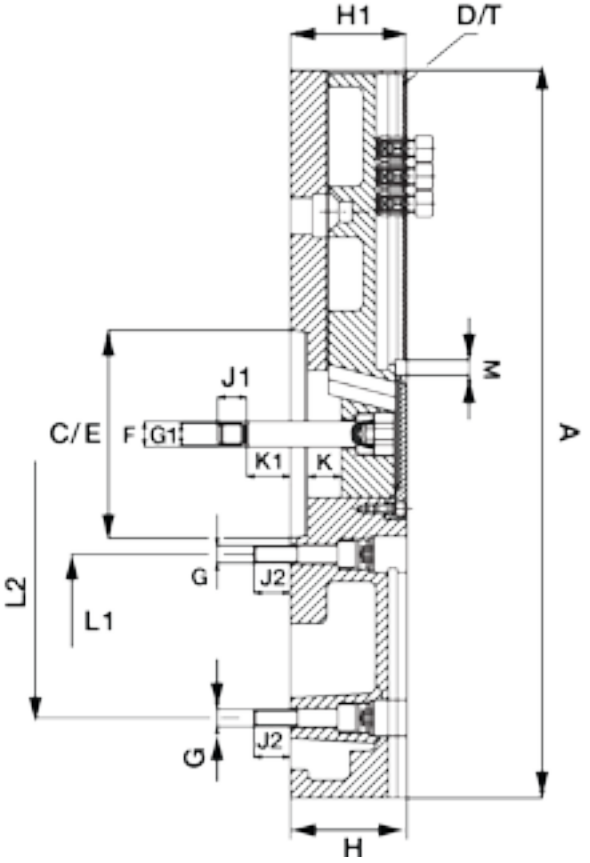


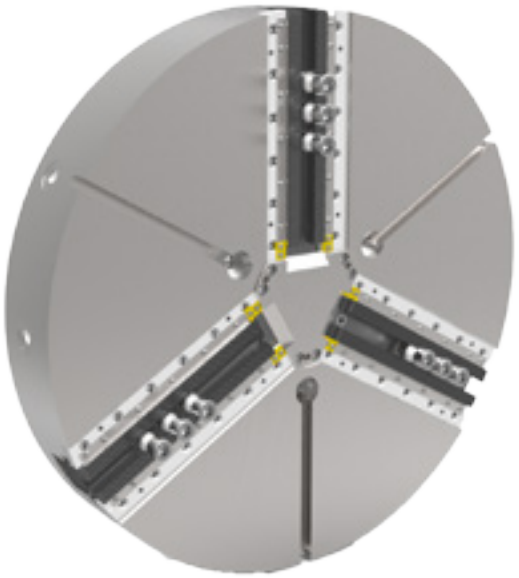
The RSC series chuck uses Forkardt's patented QLC multiple profile jaw guide system.  This advanced jaw guide system has been proven in high production environments to provide prolonged life when compared to traditional square guide systems.  This system allows the RSC to excel in harsh environments by working to keep coolant out of the chuck.

### Positive Clamp Confirmation

A robust proximity sensing mechanism is used to provide confirmation that the chuck has reached full clamp position on the workpiece


Q
Q1
V


H1
D/T
J1
C/E
F
G1
K1
K
M
A
L2
L1
G
J2
G
J2
H



## Large Diameter Power Chuck Model KS

The Forkardt KS series of large diameter power chucks is universally adaptable. The patented wedge hook mechanism leads to enormous clamping forces and enables the chuck to be utilized in the most demanding of cutting applications while still maintaining a consistently high repeatability.

| | | | 800 | 1000 | 1250 | 1400 |
|---|---|---|---|---|---|---|
| Outer Diameter | A | mm | 800 | 1000 | 1250 | 1400 |
| Chuck Mounting Recess | C / E | mm | A15 / 285.8 | A15 / 285.8 | A15 / 285.8 | A15 / 285.8 |
| Jaw Mounting | D / T | mm | T230 / 6.28 | T230 / 6.28 | T230 / 6.28 | T230 / 6.28 |
| Drawbar Bolt | F | mm | 35 | 35 | 35 | 35 |
| Mounting Bolts | G | | M24 | M24 | M24 | M24 |
| Draw Tube Thread | G1 | | M30 | M30 | M30 | M30 |
| Chuck Width | H | mm | 160 | 160 | 160 | 160 |
| Chuck Width w/ Base Jaw | H1 | mm | 158 | 158 | 158 | 158 |
| Thread Length | J1 | mm | 40 | 40 | 40 | 40 |
| Thread Length | J2 | mm | 35 | 35 | 35 | 35 |
| Actuator Stroke | K | mm | 50 | 50 | 50 | 50 |
| Drawbar Bolt Length | K1 | mm | Option | | | |
| Pitch Circle Of Mounting Bolts | L1 | mm | 330.2 | 330.2 | 330.2 | 330.2 |
| Additional Mounting Bolts P. C. D. | L2 | mm | Option | | | |
| Jaw Stroke | M | mm | 13 | 13 | 13 | 13 |
| Jaw Width | Q | mm | 80 | 80 | 80 | 80 |
| Slot Width | $Q1^{H7}$ | mm | 30 | 30 | 30 | 30 |
| **Performance Data** | | | | | | |
| Max. Actuating Force | F max | daN | 12,000 | 12,000 | 12,000 | 12,000 |
| Max. Gripping Force | Fsp max | daN | 27,500 | 28,000 | 28,500 | 31,000 |
| Max. Speed | $min^{-1}$ | RPM | 750 | 600 | 500 | 400 |
| Weight | | kg | 475 | 700 | 950 | 1,250 |
| Moment Of Inertia | | $kgm^2$ | 38.5 | 80 | 230 | 361 |
| Part No. | | | D47447000 | D1042936000 | D42934000 | D1042933000 |

# Index
# Chuck

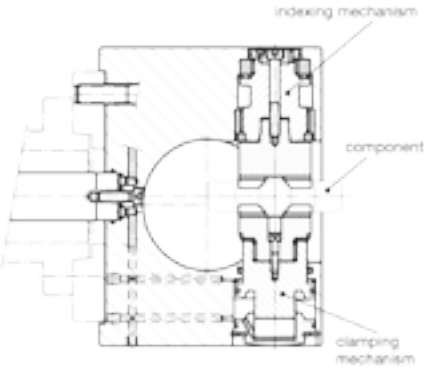
FORKARDT™

The Forkardt indexing chuck is intended for the manufacture of workpieces with multiple machining axes. Due to short chucking and indexing times the Forkardt indexing chuck line is an ideal choice for both large and small batch production.

When clamped with conventional chucking equipment, each of these axes require repositioning and re-gripping, which drastically increases turnover rates and more easily allows the introduction of significant errors. The Forkardt index chuck allows one operator to handle several machines to complete parts in one single chucking operation. The index chuck does not require special machines or transfer lines and can be used with a multi-spindle machine or standard CNC lathes.

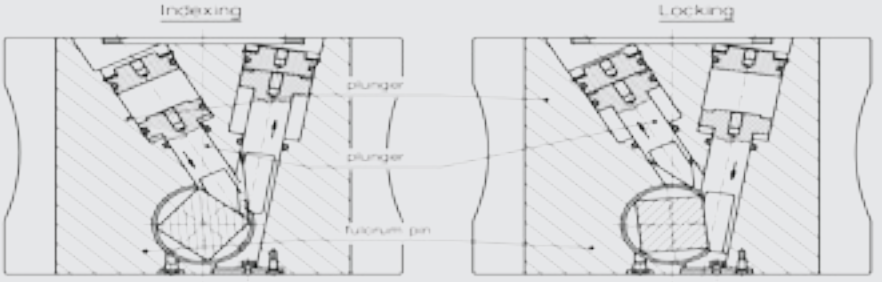
**Assembly and Function**

Clamping, indexing, locking and unclamping of the jaws are performed by integral hydraulic cylinders. The oil is fed to the different cylinders via a multiple oil supply system mounted on the spindle end and a pipe bundle running through the spindle bore.




The rough component is automatically centered by the jaws, prisms and concentric clamping pressure. The successive machining cycle produces pieces with minimum out of balance and high dimensional accuracy.

The chuck clamps unilaterally via the clamping position of the lower jaw. Two hydraulically operated opposed flanges work in sequence to index and lock the fulcrum pin.



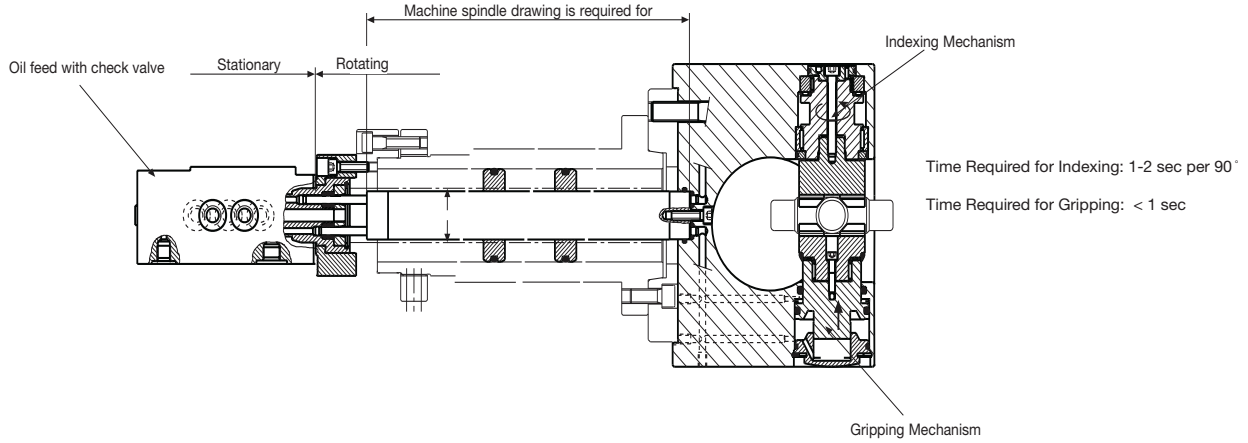

The angular position of the jaws is matched to the number of component axes and maintained with a high degree of accuracy. In addition, the electrical circuit includes an adjustable time lag relay to incorporate a short time lag between the indexing and locking cycles. The completed indexing cycle is acknowledged via an additional oil channel, operating a control cylinder to actuate.

The HSR is Forkardt's standard indexing chuck model. Other styles and special designs are available.

# Hydraulic Indexing Chuck Model HSR

## Features & Benefits

- For machining of workpieces with multiple machining axes
- Hydraulically controlled via two four way solenoid valves
- Ideal for both large and small batch production
- Up to six different indexing positions while spindle is turning
- Optional hydraulic control unit and power supply available




The chuck speed at which an indexing of the part during the rotation of the machine spindle can be carried out corresponds to 2/3 of the indicated speed.

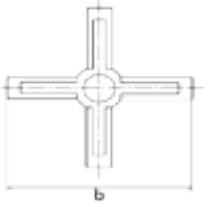
The maximum practical machining and indexing speeds are best determined at the machine on the basis of operating smoothness, the degree of precision with which the workpiece is machined, the work finish and the correct indexing.

If required the indexing operations during the full speed of the machine spindle can be controlled through the built in indexing control unit. The index position feedback signal is provided by a system of pneumatic switches.

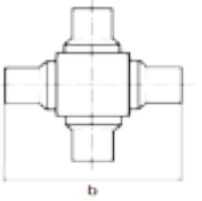
The following sizes are recommended for spiders and differential gears:

| Model | Total Width b mm | Jaw Stroke mm |
|---|---|---|
| HSR 200 | 50 | 12 |
| HSR 225 | 75 | 12 |
| HSR 230 | 115 | 15 |
| HSR 250 | 180 | 17 |
| HSR 275 | 215 | 17 |
| HSR 315 | 268 | 20 |

Differential Gear



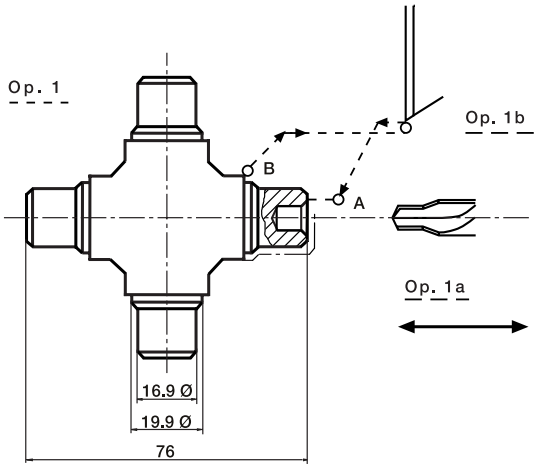

Spider



## Spider Machining with Forkardt Indexing Chuck Model HSR

Universal joint shaft spiders, with their symmetrical shape and location of bearing surfaces are typically finish processed on machines with stationary tools. Index chucking is a more economical way to achieve the finish machining of these parts as bearing surfaces can be performed on a standard CNC lathe.

**Component**
Universal joint spider, forged, stock allowance approximately 2 mm,
Material 15 CR 3




| Sequence of Operations | Time (min) |
|---|---|
| (1) Spindle idle, remove finished component from chuck, load chuck with rough component and clamp<br>(1a) Component pin centering | 0.12 |
| Drilling speed: 2350 RPM<br>Cutting speed: 14 min-1ute<br>Feed: 0.15 mm/rev. | |
| (1b) Copy turn path A -B | |
| Drilling speed: 1800 RPM<br>Cutting speed: 14 min-1ute<br>Feed: 0.25 mm/rev. | |
| (1a) and (1b) change after every 90 ° Indexing cycle of the component at running spindle.<br><br>After machining the fourth bearing surface, the spindle is stopped and the chuck positioned for operation (1) | 0.94 |
| **Total Time** | **1.06** |

### Indexing Accuracy

For machining journal crosses in small and medium lot sizes, the accuracy of rough machining is normally adequate. For very large journals such as differential spiders with a total length of 300 mm and longer, the indexing accuracy can be improved by finish machining.

- **Rough-Machining Accuracy**
  About 0.1 mm at a distance of 100 mm to the indexing center

- **Fine-Machining Accuracy**
  About 0.03-0.05 mm at a distance of 100 mm to the indexing center. All journals are initially rough machined and then finish machined in the second indexing cycle.

The accuracy of the machined component is not determined by the chuck mechanism, but by the secure seating of the component in the clamping jaws.

## Methods of Holding

The best and most reliable method of holding in any indexing chuck is crossing prisms. For this reason, the clamping inserts are designed as two crossing prism axes and with every clamping insert only one prism axis contacts the component during gripping. They are 90% offset at the installed clamping inserts.

The second prism of every clamping insert has only to exert one locating effect and is not in contact after completed gripping operation.

## Chucking Operation

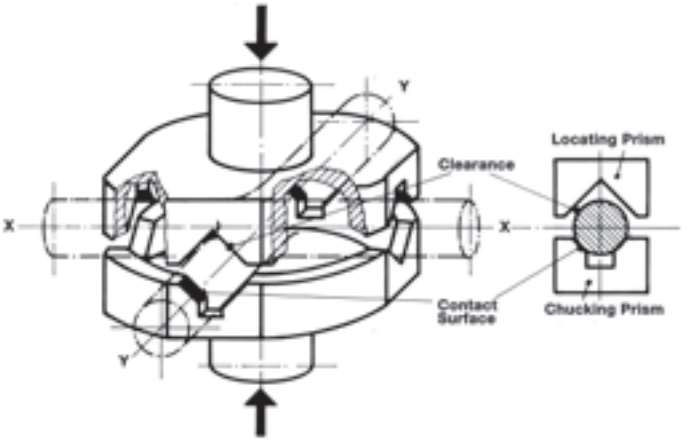
**A**

The component is held in the X axis by two clamping Vees in the upper jaw and in the Y axis by two clamping Vees in the lower jaw. The component is automatically set to the accurate position.

The opposed free prisms are used for locating. For distinguishing purposes, the gripping prisms are provided with a groove, whereas the locating prisms are not provided with a groove. (Fig. B and Fig. C)

The operator must pay attention that every position on a prism with a groove stands opposite one without a groove (see Fig. A and Fig. B).

**C**




## Machining of Fittings

The combination of reduced setup and machining cycle times allows for a more effective utilization of the machine's capabilities. This in turn makes the Forkardt indexing chuck ideal for the manufacturing of valves and fittings greater than 25 mm in size.

## Hydraulic Unit and Control Stand

Forkardt has designed a control stand and hydraulic control unit to work with the HSR indexing chuck.

The control stand is designed for the control of the HSR chuck. The chuck functions are switched via two solenoid valves and four pressure switches are provided for monitoring the clamping/releasing function and indexing positions.

The hydraulic unit is fully equipped with tank, oil pump, electric drive and all hydraulic control stand components.

# Actuating Cylinders

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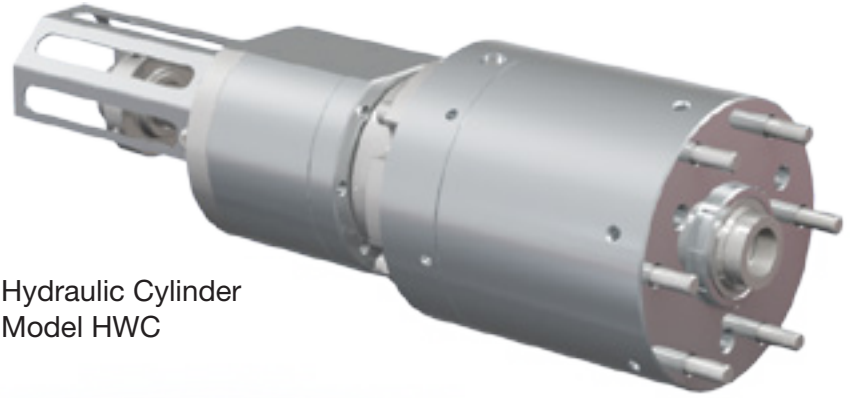
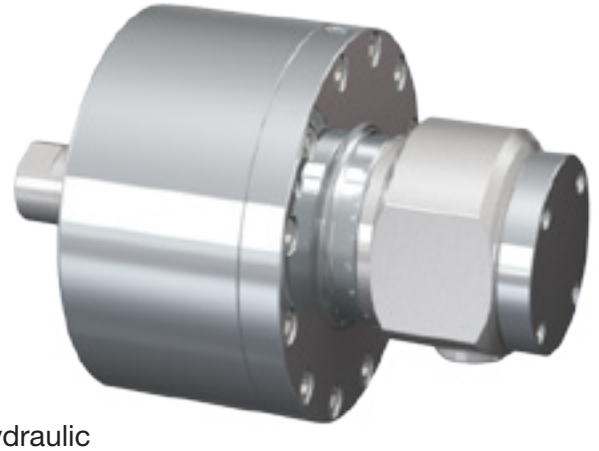
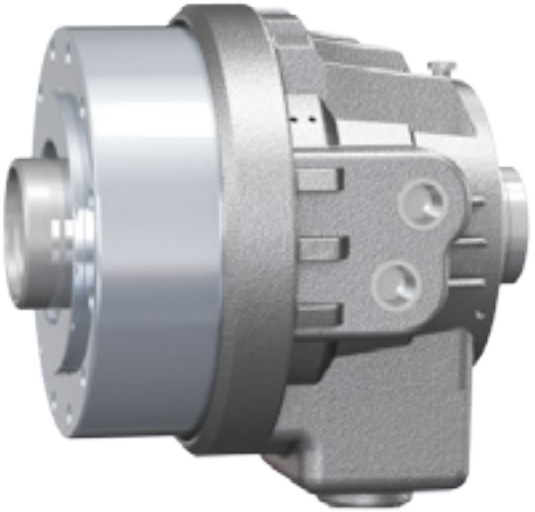


Hydraulic Cylinder
Model HWC



Solid Hydraulic
Cylinder Model BLR

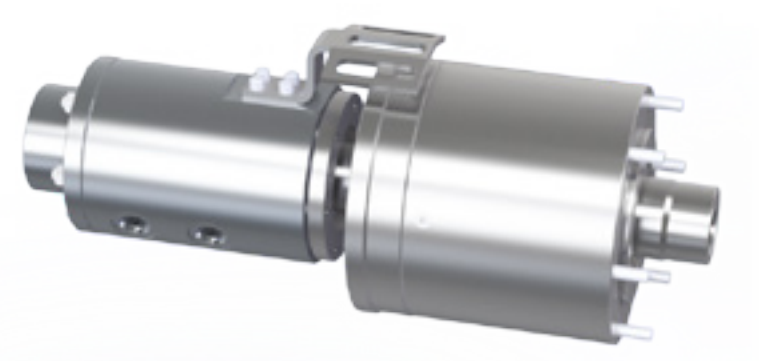


Hydraulic Thru-Hole
Cylinder Model BC

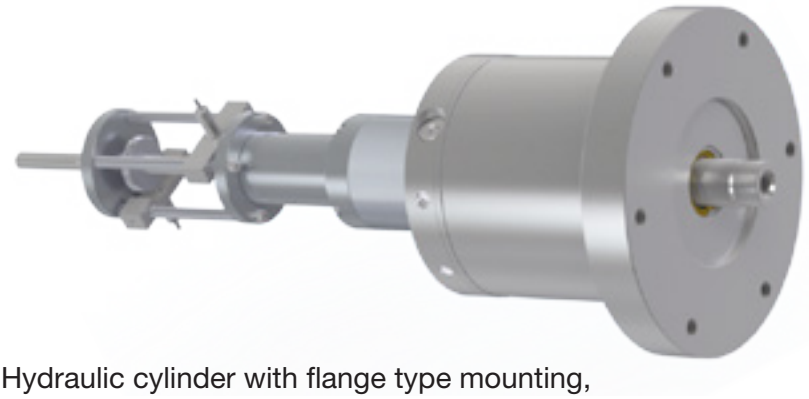
Pneumatic Cylinder
Model ARC

## Application Specific Designs

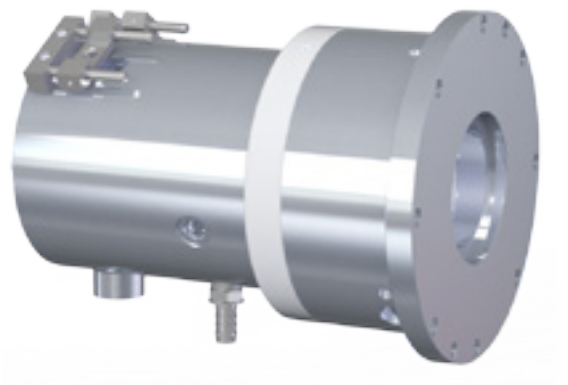
Forkardt designs and builds rotating cylinders for any application. We offer a wide range of standard cylinder models, and our engineers can custom design specific performance characteristics to match the application.Below are some examples of designs created.



Hydraulic thru hole cylinder with triple passage rotary air coupling mounted for air sensing, anti-vibration arms and work support units



Hydraulic cylinder with flange type mounting, third port for 500 PSI oil thru, and 3.62” stroke



Hydraulic thru-hole cylinder with 3.5” thru hole, special mounting to suit customer machine and 1” stroke

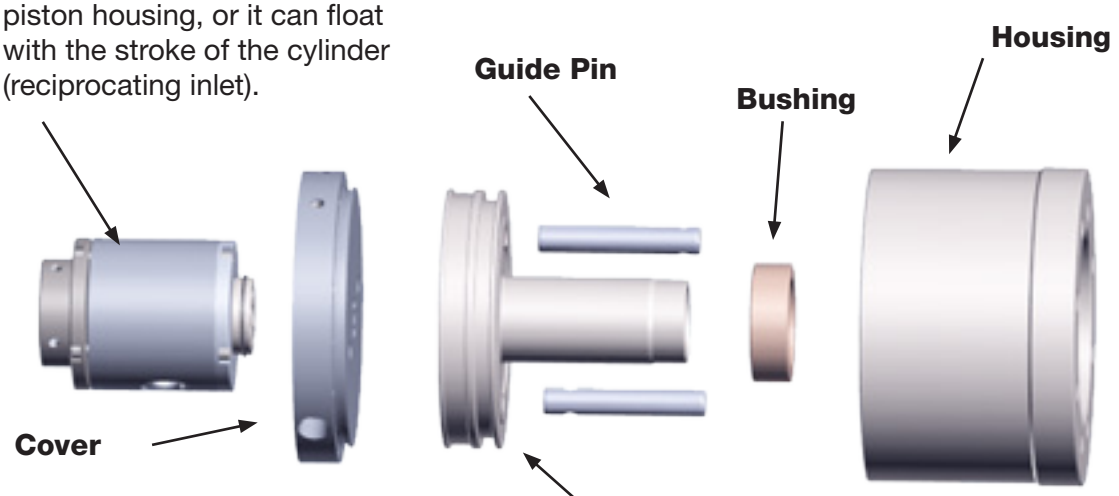
Seal kits are available to keep your cylinder running safely and efficiently. Please contact our sales office to purchase the correct seal kit for your Forkardt, Logansport or SP rotating cylinder.

## Product Overview

Rotating Cylinders have basic components which dictate the function and design of the cylinder

**Inlet Assembly**- The inlet assembly, sometimes called the distributor, can be designed in two ways. It can have a fixed position in relation to the piston housing, or it can float with the stroke of the cylinder (reciprocating inlet).

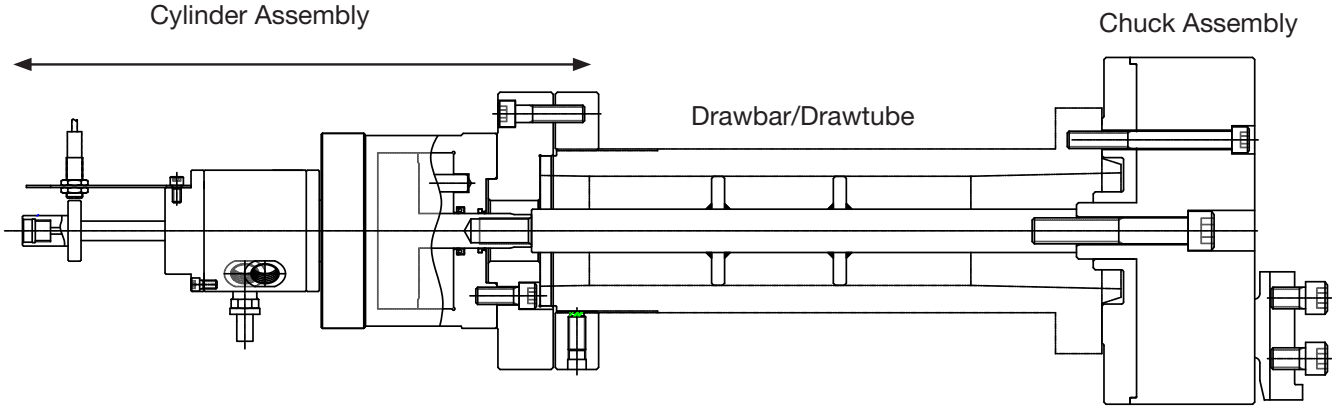
**Trapping**- This safety feature allows the cylinder to remain pressurized, and the chuck to maintain clamping pressure, in the event of a power loss.




**Seals**- The seals keep compressed air or hydraulic fluid captured within the cylinder. The seals are designed to allow movement and support between internal components.

**Piston**- Cylinders can be designed with a single piston, two pistons connected in one housing (tandem), an open center piston, or with two different size pistons in separate housings which can be energized independently (duplex).

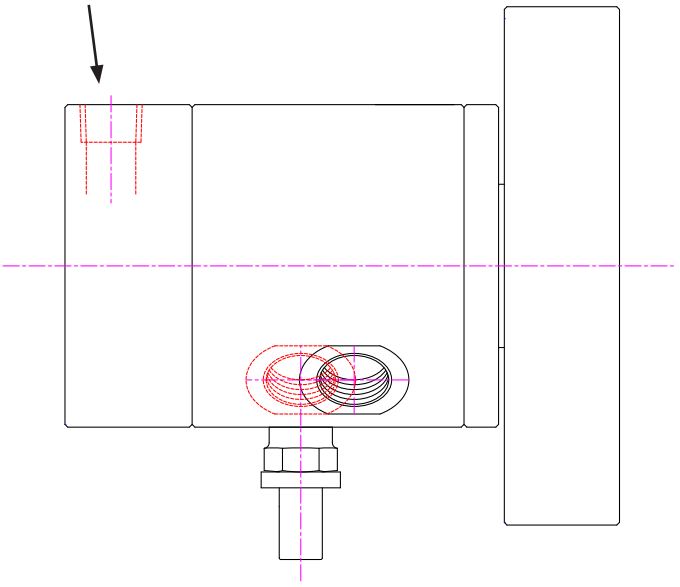
Forkardt supplies the complete chuck and actuation package to fit your CNC lathe or turning center. Our engineers will design and specify the power chuck, drawbar and adapters needed to integrate with your machine spindle and processing requirements.



## Options

Forkardt cylinders can be built or modified to allow the following features

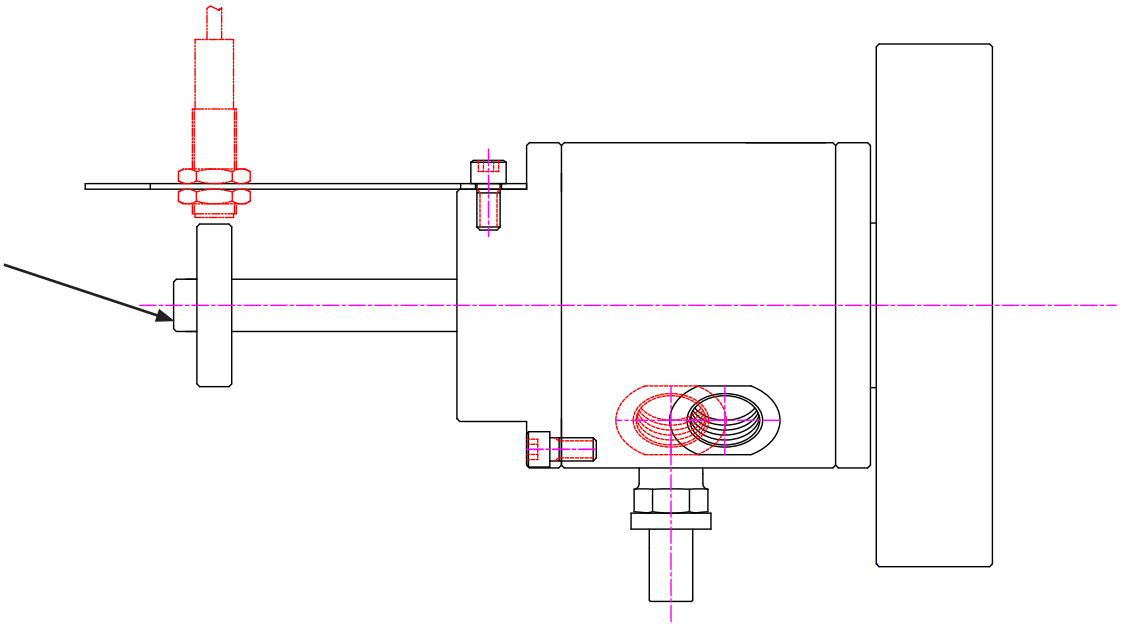
**Third Port**- Additional port added to the inlet assembly to allow for coolant and air access through the piston rod.



**Fast Acting**- Allows for increased volume flow through the cylinder decreasing overall stroke cycle time. Cycles of less than one second are possible on two inches of stroke.

**Variable Pressure Feature**- Allows clamping forces to be reduced from high to low during the cycle time. A pilot port in the inlet triggers “on the fly” pressure changes transferred to the part through chuck jaw relaxation. The reduction in part distortion allows for better roundness control.

**Solid or Hollow Trip Rod**- Works with customer supplied proximity switch to sense the position of the cylinder. Hollow rod allows air or coolant through.



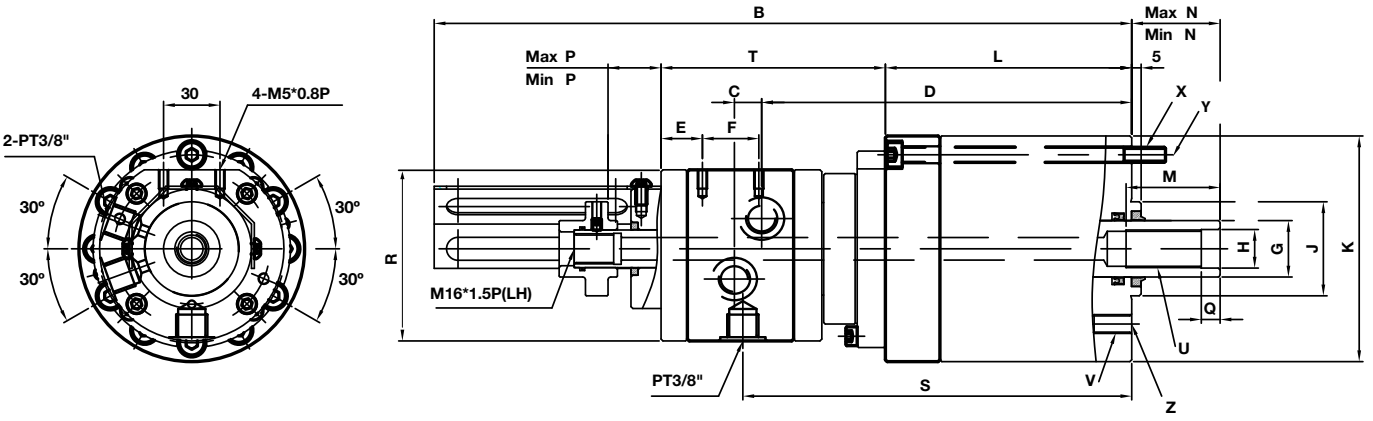
# HWC

# Hydraulic Cylinder

Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a hydraulic failure

## Features & Benefits

- Designed to directly replace most competitors models
- Simple inlet design
- Constant hydraulic flow
- Thru-hole for coolant, oil or air with rotating union
- Proximity switch or linear system stroke control
- Up to 8,000 RPM capability
- Standard built in trapping




| Model | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HWC085 | 371.0 | 14.5 | 196.8 | 22.0 | 30.0 | 30.0 | 20.5 | 50.0 | 120.0 | 131.0 | 50.0 |
| HWC125 | 373.25 | 15.0 | 205.5 | 6.0 | 30.0 | 50.0 | 31.0 | 95.0 | 170.0 | 137.0 | 55.0 |

| Model | N | | P | | Q | R | S | T | U | V | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min | max | min | max | | | | | | | | | |
| HWC085 | 15.0 | 47.0 | 60.2 | 28.2 | 10.0 | 98.0 | 206.8 | 119.3 | M20x1.5P | M10x1.5P | M8x1.25P | 100.0 | 80.0 |
| HWC125 | 30.0 | 70.0 | 28.4 | 68.4 | 10.0 | 120.0 | 212.5 | 115.6 | M30x3.5P | M16x2.0P | M12x1.75P | 145.0 | 145.0 |

| Model | Oil Leakage Rate (l/min) | Max. Pressure (Mpa) | Piston Area(cm²) | | Max Operating Force kN | Weight (kg) |
|---|---|---|---|---|---|---|
| | | | Push Side | Pull Side | | |
| HWC085 | 0.8 | 8.0 | 51 | 47 | 37.8 | 9 |
| HWC125 | 0.8 | 8.0 | 115 | 99 | 79.2 | 16 |

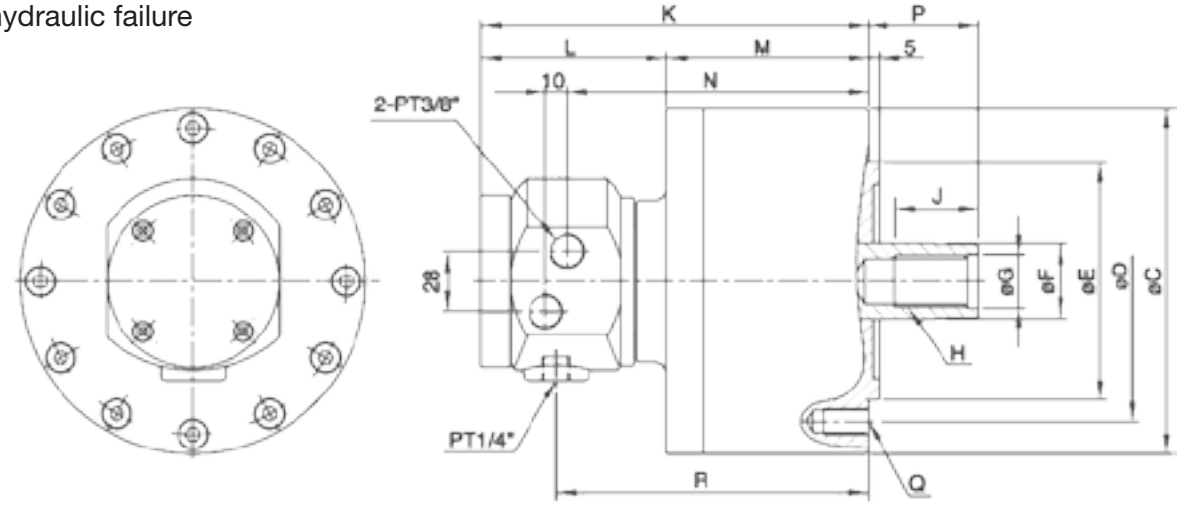
# Solid Hydraulic Cylinder

# BLR

## Features & Benefits

- Super thin design reduces interference with machines and reduces weight
- Up to 6,000 RPM capability
- Standard built in trapping

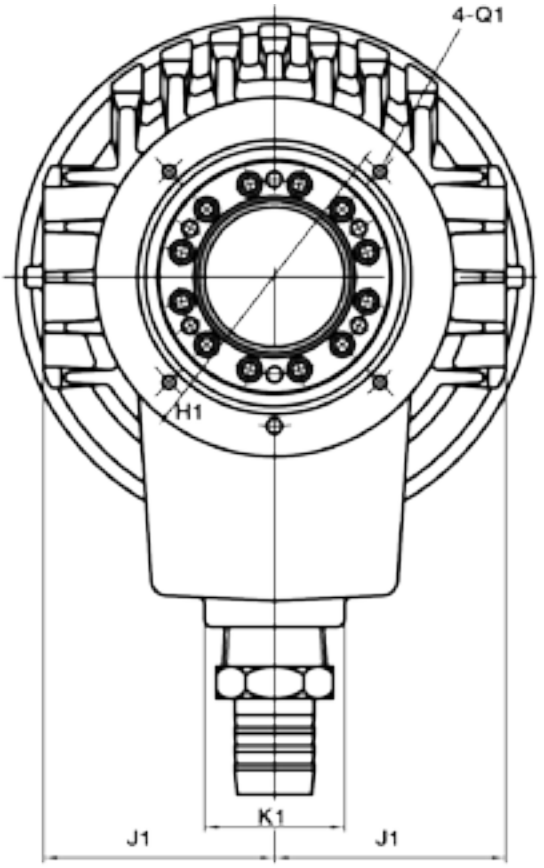
Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a hydraulic failure

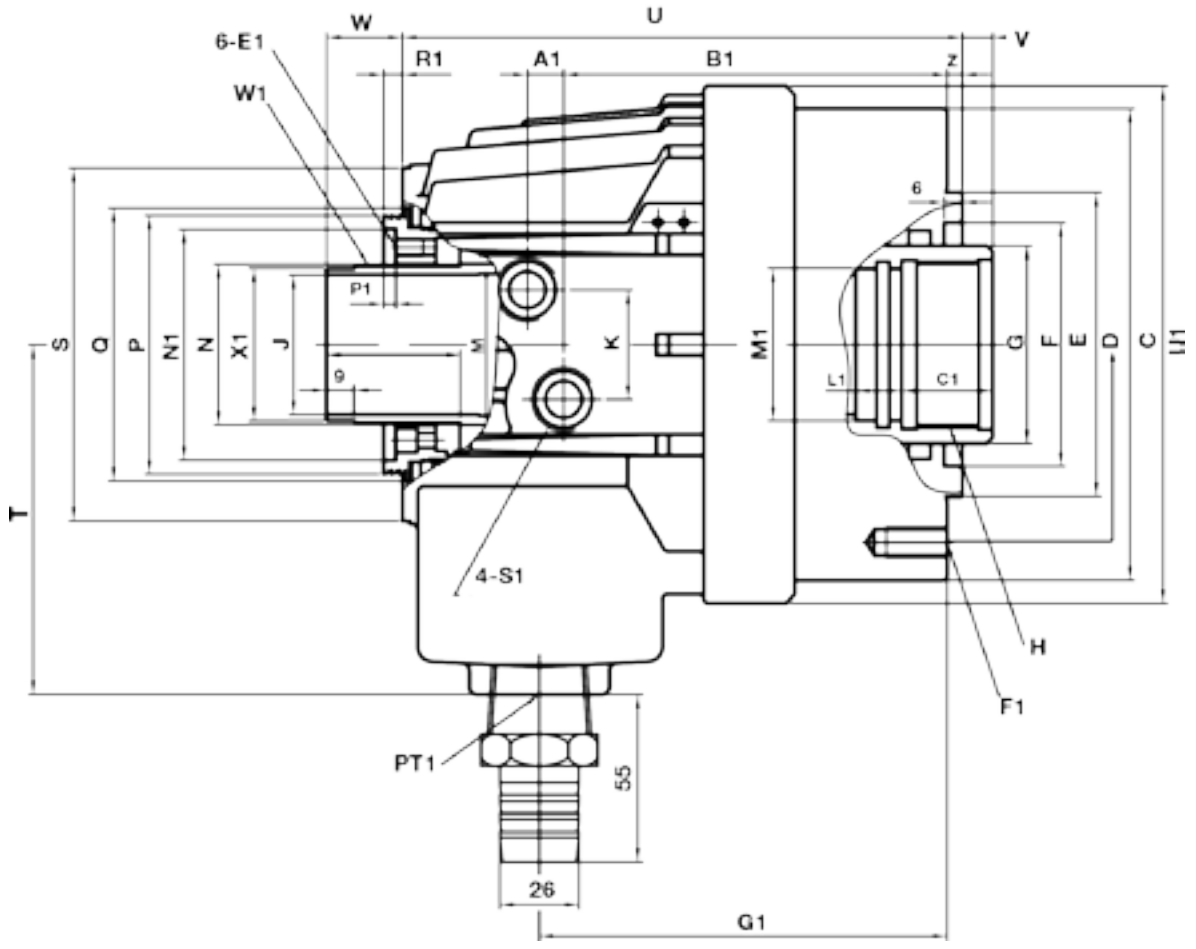



| Model | A | B | C | D | E (h7) | F (h8) | G | H | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BL1020R | 105 | 20 | 135 | 100 | 80 | 30 | 21 | M20×2.5P | 35 | 172 | 86 |
| BL1225R | 125 | 25 | 160 | 130 | 110 | 35 | 25 | M24×3P | 45 | 180 | 86 |
| BL1530R | 150 | 30 | 190 | 130 | 110 | 45 | 31 | M30×3.5P | 45 | 189 | 84 |
| BL2035R | 200 | 35 | 245 | 145 | 120 | 55 | 37 | M36×4P | 60 | 206.5 | 83 |

| Model | M | N | P | | Q | R | Piston Stroke (mm) | Max. Speed RPM | Moment of Inertia (kgf-m²) |
|---|---|---|---|---|---|---|---|---|---|
| | | | max. | min | | | | | |
| BL1020R | 86 | 132 | 45 | 25 | M10 x 1.5P | 137 | 20 | 6000 | 0.013 |
| BL1225R | 94 | 140 | 51 | 26 | M12 x 1.75P | 145 | 25 | 6000 | 0.023 |
| BL1530R | 105 | 149 | 56 | 26 | M12 x 1.75P | 154 | 30 | 5500 | 0.048 |
| BL2035R | 123.5 | 166.5 | 69 | 34 | M16 x 2P | 171.5 | 35 | 5500 | 0.098 |

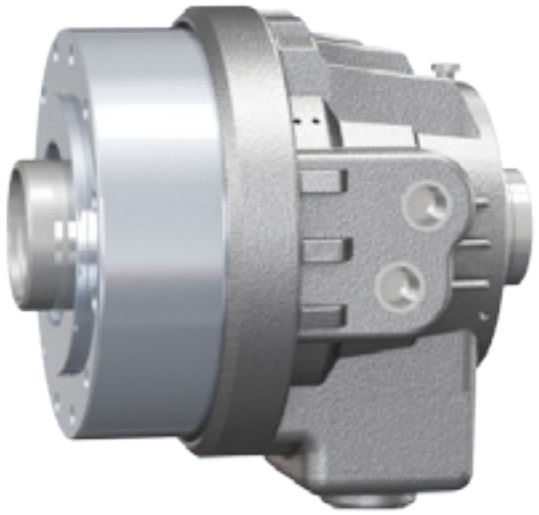
| Model | Oil Leakage Rate (l/min) | Max. Pressure (Mpa) | Piston Area(cm²) | | Max. Operating Force (kN) | | Weight (kg) |
|---|---|---|---|---|---|---|---|
| | | | Push Side | Pull Side | Push Side | Pull Side | |
| BL1020R | 0.8 | 3.9 | 86 | 79 | 31.4 | 28.4 | 6.6 |
| BL1225R | 0.8 | 3.9 | 122 | 113 | 45.1 | 41.2 | 8.8 |
| BL1530R | 0.8 | 3.9 | 176 | 160 | 63.7 | 58.8 | 12.8 |
| BL2035R | 0.8 | 3.9 | 314 | 290 | 115.6 | 105.9 | 22.5 |


4-Q1
H1
K1
J1
J1


W
U
V
6-E1
W1
R1
A1
B1
Z
6
P1
S
Q
P
N1
N
X1
J
M
9
K
M1
L1
C1
G
F
E
D
C
U1
T
4-S1
H
F1
PT1
55
26
G1

# Hydraulic Thru-Hole Cylinder

# BC



## Features & Benefits

- Compact & Lightweight
- Large Thru-Hole Diameter
- Built-In Check-Valve
- Speeds up to 8,000 RPM

Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a hydraulic failure

| Model | A1 | B1 | C | C1 | D | E | E1 | F | F1 | G | G1 | H | H1 | J | J1 | K | K1 | L1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BC1036 | 11 | 102.5 | 135 | 25 | 115 | 100 | M5x0.8 | 65 | M10x1.5 | 48 | 98 | M42x1.5 | 88 | 36 | 73 | 30 | 47 | 15 |
| BC1246 | 11.5 | 126.5 | 155 | 30 | 130 | 100 | M6x1.0 | 80 | M10x1.5 | 65 | 135 | M55x2.0 | 98 | 46 | 76 | 36 | 47 | 15 |
| BC1552 | 12 | 136 | 190 | 30 | 170 | 130 | M6x1.0 | 85 | M10x1.5 | 70 | 145 | M60x2.0 | 110 | 52 | 86 | 36 | 47 | 15 |
| BC1875 | 17.5 | 153.5 | 215 | 35 | 190 | 160 | M6x1.0 | 120 | M10x1.5 | 95 | 166.5 | M85x2.0 | 155 | 75 | 101 | 36 | 47 | 15 |
| BC2091 | 21 | 168 | 240 | 35 | 215 | 180 | M6x1.0 | 140 | M12x1.75 | 110 | 183 | M100x2.0 | 165 | 91 | 110 | 36 | 47 | 15 |
| BC2511 | 23 | 176.5 | 305 | 45 | 275 | 230 | M6x1.0 | – | M16x2.0 | 140 | 193 | M130x2.0 | 215 | 118 | – | 40 | – | 15 |

| Model | M | M1 | N | N1 | P | P1 | Q | Q1 | R1 | S | S1 | T | T1 | U | U1 | V Max. | V Max. | W Max. | W1 | W Max. | X1 | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BC1036 | 44.6 | 38 | 55 | 64 | 73 | 4 | 45 | M5x0.8 | 5 | 104 | PT3/8 | 115 | 6 | 161 | 150 | 10 | -5 | 40 | M44x1.5 | 25 | 42 | 5 |
| BC1246 | 52.9 | 50 | 64 | 76 | 85 | 4 | 90 | M5x0.8 | 6 | 118 | PT1/2 | 115 | 6 | 184 | 170 | 10 | -5 | 40 | M52x1.5 | 25 | 50 | 5 |
| BC1552 | 59.6 | 55 | 73 | 85 | 96 | 4 | 102 | M6x1.0 | 7 | 137 | PT1/2 | 130 | 6 | 196 | 210 | 17 | -5 | 47 | M58x1.5 | 25 | 56 | 5 |
| BC1875 | 84.6 | 80 | 98 | 108 | 121 | 4 | 131 | M6x1.0 | 7 | 166 | PT1/2 | 160 | 6 | 230 | 235 | 20 | -5 | 50 | M84x2.0 | 25 | 81 | 5 |
| BC2091 | 99.6 | 95 | 108 | 120 | 138 | 4 | 148 | M6x1.0 | 7 | 182 | PT1/2 | 185 | 6 | 253 | 260 | 25 | -5 | 55 | M99x2.0 | 25 | 96 | 5 |
| BC2511 | 133.6 | – | 148 | 195 | – | 5 | – | M6x1.0 | – | 230 | PT1/2 | 210 | – | 275 | 315 | 25 | -5 | 52 | – | – | – | – |

| Model | Thru-Hole Dia. (mm) | Piston Stroke (mm) | Max. Speed (rpm) | Gross Weight (kg) | GD² (kfg-m²) | Piston Dia. (mm) | Oil Leakage Rate (0/ min) | Max. Speed (kfg/ cm²) | Piston Area (cm²) | | Operating Force Max. (psi) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Push Side | Pull Side | Push Side | Pull Side |
| BC1036 | 36 | 15 | 8000 | 8.8 | 0.044 | 105 | 3.0 | 40 | 67 | 64.5 | 2500 | 2400 |
| BC1246 | 46 | 15 | 7000 | 13.8 | 0.078 | 125 | 3.0 | 40 | 100 | 89 | 3700 | 3200 |
| BC1552 | 52 | 22 | 6200 | 19.3 | 0.21 | 155 | 3.9 | 40 | 161 | 150 | 5900 | 5500 |
| BC1875 | 75 | 25 | 4700 | 28.5 | 0.38 | 180 | 4.2 | 40 | 198 | 183 | 7200 | 6700 |
| BC2091 | 91 | 30 | 3800 | 36.1 | 0.61 | 205 | 4.5 | 40 | 252 | 234 | 9200 | 8600 |
| BC2511 | 118 | 30 | 2800 | 54 | 1.5 | 250 | 7.0 | 40 | 345 | 335 | – | – |

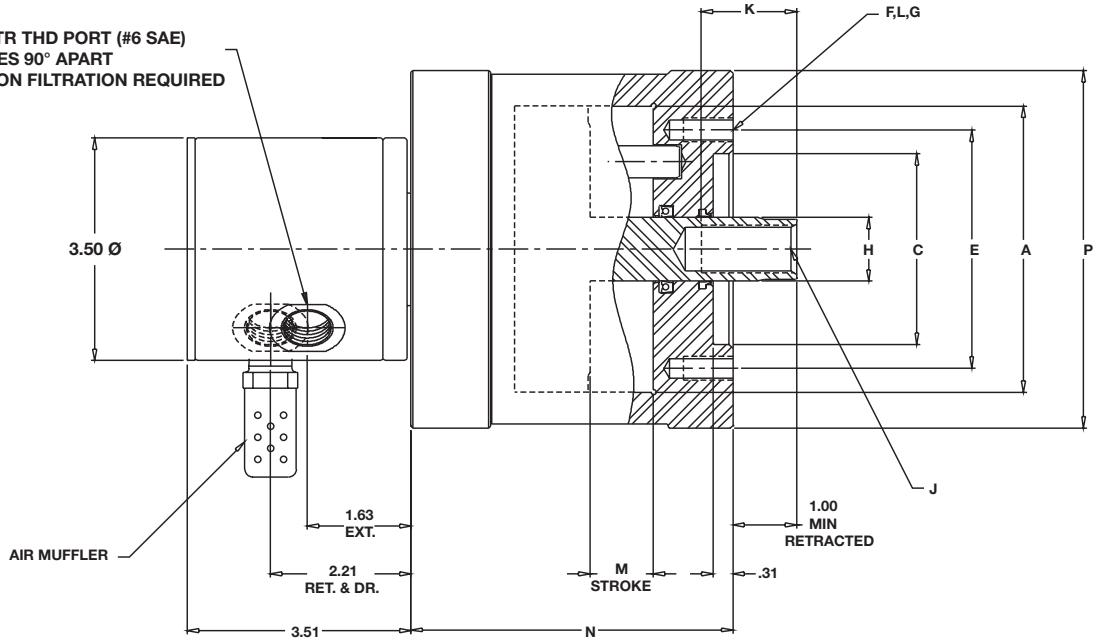
Note: Specifications subject to change without notice. *12" Bore - 6 additional holes on a 9.50 B.C.
Dimensions denoted in millimeters unless otherwise specified.

# Pneumatic Cylinder Model ARC

Standard trapping feature will keep cylinder in its extended or retracted state for a period of time in the event of a pneumatic failure

## Features & Benefits

- Simple inlet design
- Constant air flow
- Up to 6000 RPM
- Standard built-in trapping
- Optional trip rod and thru port
- Ideal for horizontal or vertical applications




| Model | A Bore | C +.001 -.000 | E B.C. | F Thread | G No. | H | J Thread | K Depth | L Depth | M Stroke | N | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARC045 | 114.30 | 76.20 | 95.25 | .375”-16 | 4 | 25.40 | .75”-16 | 41.40 | 22.35 | 25.4 | 128.52 | 143.00 |
| ARC060 | 152.40 | 114.30 | 139.70 | .50”-13 | 4 | 31.75 | .75”-16 | 41.40 | 25.40 | 38.10 | 139.70 | 182.63 |
| ARC080 | 203.20 | 114.30 | 139.70 | .50”-13 | 4 | 31.75 | .75”-16 | 41.40 | 25.40 | 38.10 | 141.73 | 231.65 |
| ARC100 | 254.00 | 152.40 | 177.80 | .625”-11 | 6 | 31.75 | 1”-14 | 41.40 | 28.70 | 38.10 | 155.70 | 289.05 |
| ARC120 | 304.80 | 152.40 | 177.80 | .625”-11 | 6 | 31.75 | 1”-14 | 41.40 | 28.70 | 38.10 | 158.75 | 345.95 |

Specifications subject to change without notice. 12" Bore - 6 additional holes on a 9.50 B.C. Dimensions in mm unless otherwise noted

| DRAWBAR FORCES AT AIR PRESSURE GAUGE PSIG | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model | Bore Size | 50 | 60 | 70 | 80 | 90 | 100 |
| ARC045 | 114.30 | 745 | 890 | 1.040 | 1,190 | 1,340 | 1,490 |
| ARC060 | 152.40 | 1,040 | 1,300 | 1,560 | 1,820 | 2,080 | 2,340 |
| ARC080 | 203.20 | 1,920 | 2,400 | 2,880 | 3,360 | 3,840 | 4,320 |
| ARC100 | 254.00 | 3,000 | 3,750 | 4,500 | 5,250 | 6,000 | 6,750 |
| ARC120 | 304.80 | 4,400 | 5,500 | 6,600 | 7,700 | 8,800 | 9,900 |

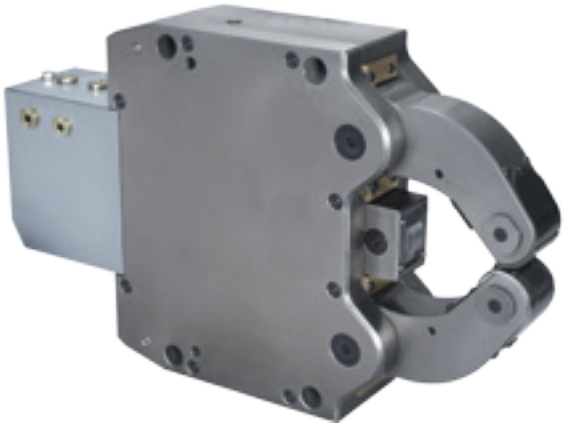
Note: Values shown are minimum. Allowances have already been made for losses due to piston rod area, guide pin areas, and friction

# Steady Rests

FORKARDT™

Forkardt Steady Rests are made of high grade alloy steel and all parts are fully hardened to 60 HRC and nitrided to be 100% corrosion free.

By mounting accordingly these steady rests can be used for turning outside diameters, inside diameters, facing, drilling, grinding and induction hardening.



Available in grip ranges from 4 to 800mm

## Model SRF

Ideal for:
- All standard applications

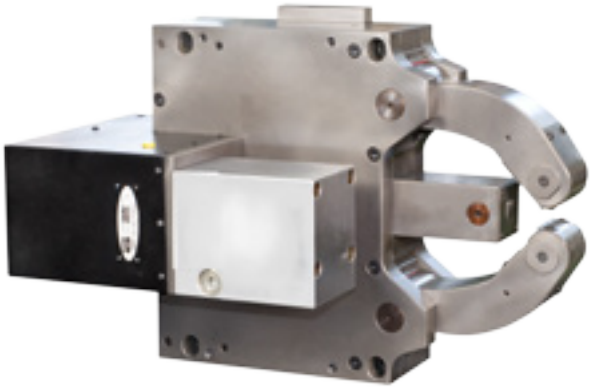
Key Features:
- Can be mounted to flat bed and slant bed CNC

## Model SRFA

Ideal for:
- Vertical loading applications

Key Features:
- Rear mounted actuating cylinder
- Top arm extra mounting

Available in grip ranges from 4 to 800mm



Available in grip ranges from 8 to 630mm

## Model SRFB

Ideal for:
- Mounting to machines with sheet metal enclosures

Key Features:
- Side mounted actuating cylinder

Available in grip ranges from 20 to 630mm

## Model SRFAB

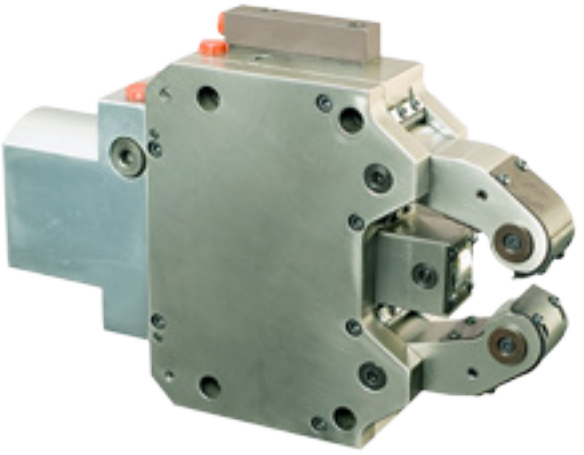
Ideal for:
- Vertical loading applications

Key Features:
- Side mounted actuating cylinder
- Top arm extra mounting

## Model SRF-C

Ideal for:
- Applications where space is an issue

Key Features:
- Compact size



Available in grip ranges from 65 to 510mm

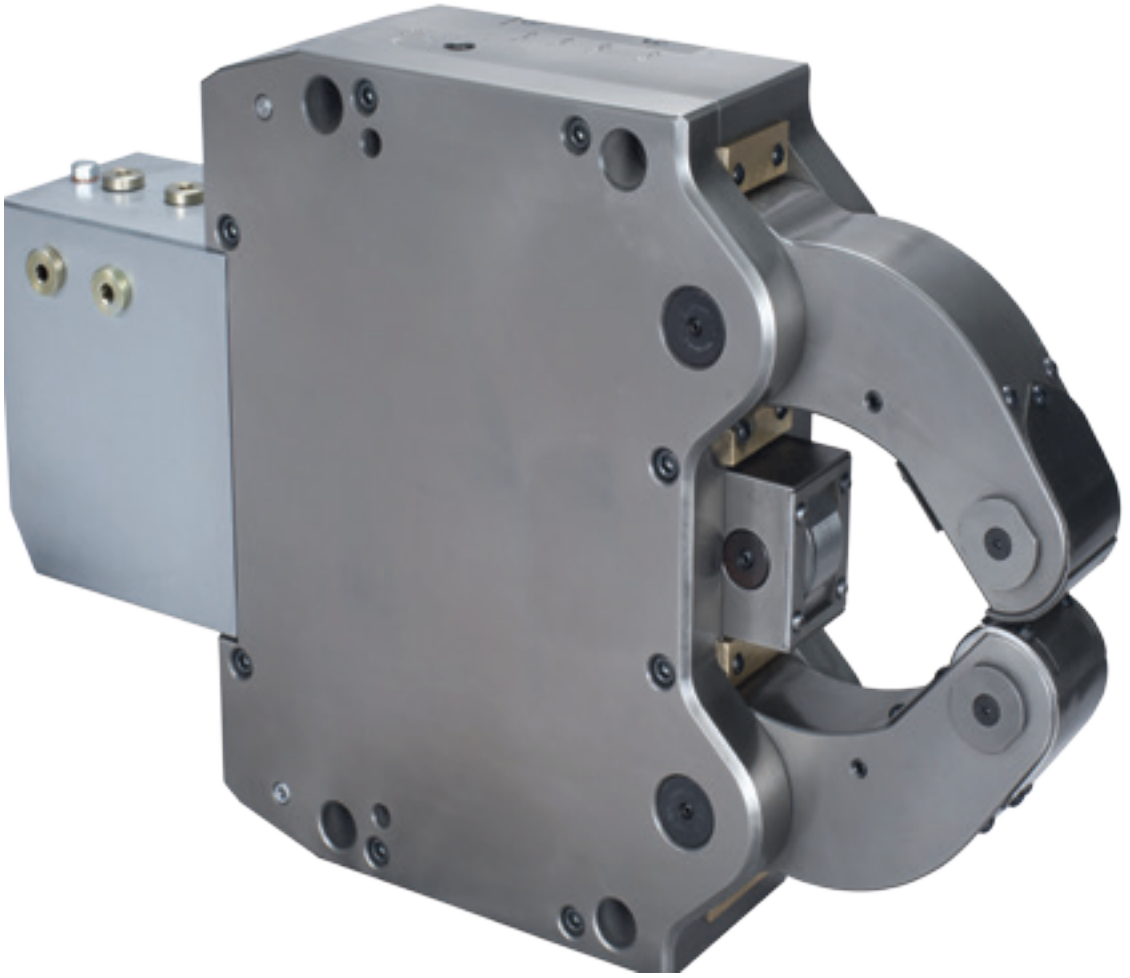
## Model SRF-H

Ideal for:
- Heavy duty machining applications
- Turbine shaft, windmill shaft, and marine crank shafts

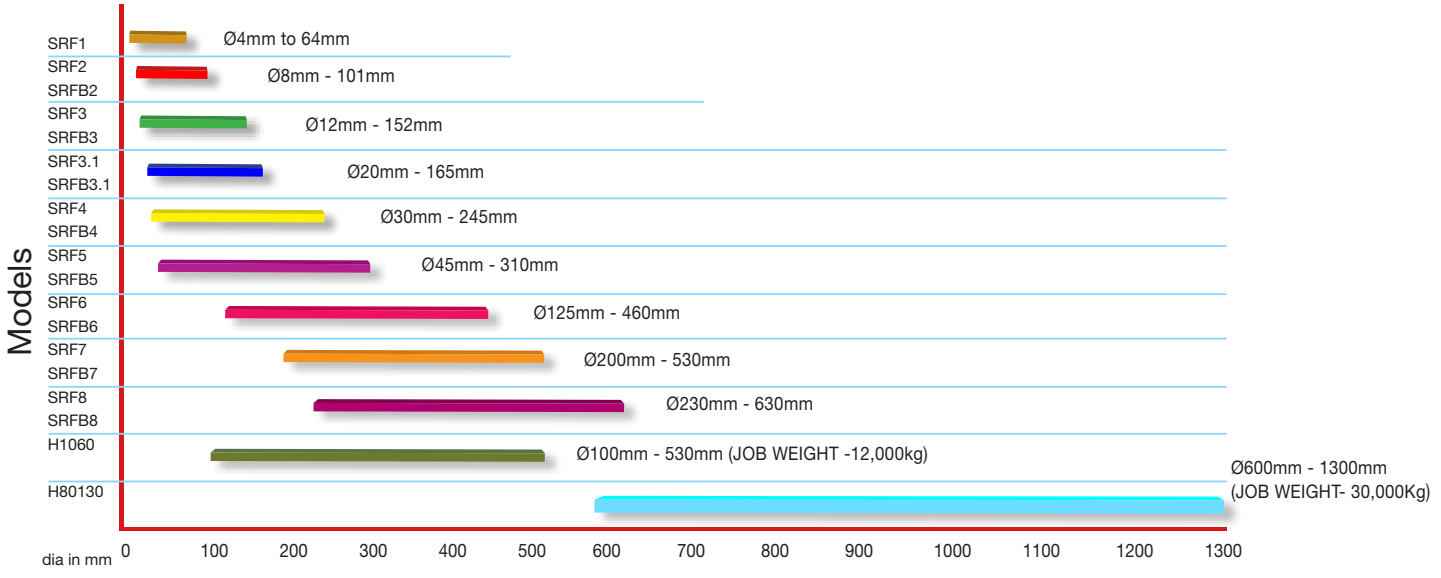
Key Features:
- Heavy duty construction
- Large rollers to handle weight up to 30,000 kg

Available in grip ranges from 600 to 1300mm. Weight up to 30,000 kg.

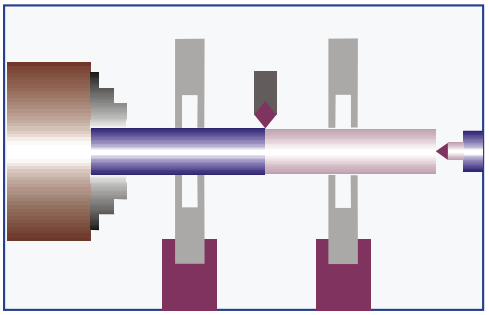
## Steady Rests - Turning Steady Rests



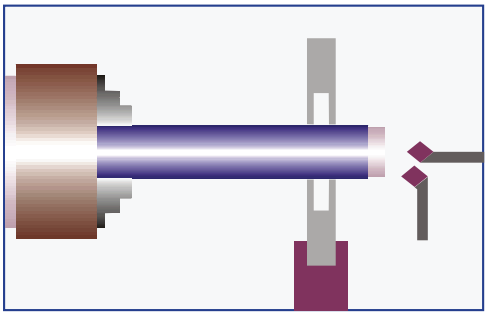
### Quick Range Selector



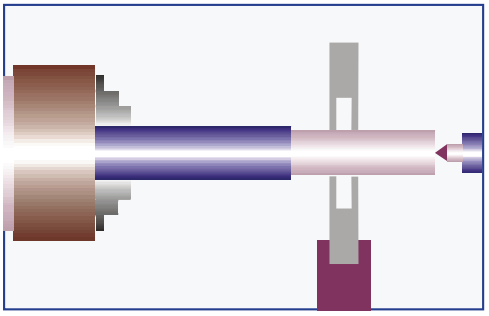
Tandem Steady Rest Fixed

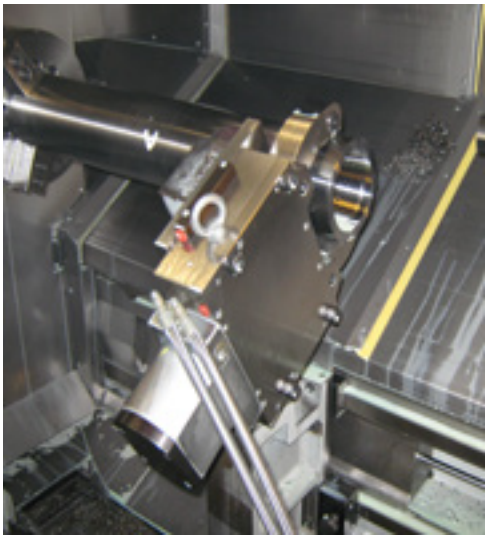


Steady Rest Fixed for end machining



Steady Rest Traveling





## Steady Rests

Steady rests are normally used for efficient machining of long slender shafts. On conventional steady rests three screw 120° apart are adjusted manually. This type of centering process is not reliable and depends on operator's skill.

Forkardt's self centering steady rests work on an entirely different principle. Three rollers hold the work piece at points Approx120° apart. These rollers move such that they always inscribe concentric circles between them. This feature along with the internal compensating system prevents the dislocation of work piece center under changing clamping pressures. This results in high centering accuracy.

Forkardt Steady Rests are made of high grade alloy steel and all parts are fully hardened to 60 HRC, and nitrided to be 100% corrosion free. By mounting accordingly these steady rests can be used for turning outside diameters, inside diameters, facing, drilling, grinding , induction hardening etc.

Steady rests can be operated either hydraulically or pneumatically with the only difference being the clamping cylinder bore. In the SRF series the clamping cylinder is fixed as axial extension at the rear end. With the SRFB series the cylinder is fixed to the side of the steady rest to save mounting space.

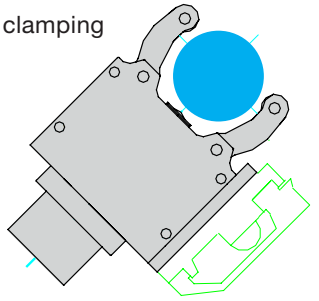
**Below are the models available for your clamping needs!**

| | |
|---|---|
| SRF | Standard steady rest with rear mounted cylinder and diameter range from 4mm to 800mm |
| SRFA | Steady rest with rear mounted cylinder and extra opening for top arm. Diameter range from 4mm to 800mm |
| SRFB | Steady rest with side mounted cylinder and diameter range from 8mm to 630mm |
| SRFAB | Steady rest with side mounted cylinder and extra opening for top arm. Diameter range from 20 mm to 630mm |
| SRF-C | Compact size steady rests Clamping diameter 65mm to 510mm. |
| SRF-H | Heavy duty steady rests with maximum clamping diameter of 1300mm and weight carrying capacity 30,000 kg. |

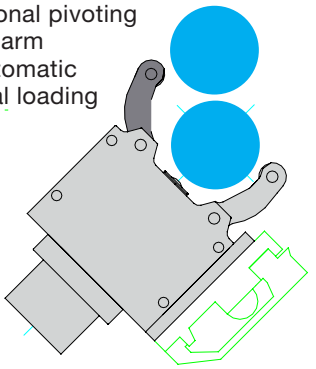
## Features & Benefits

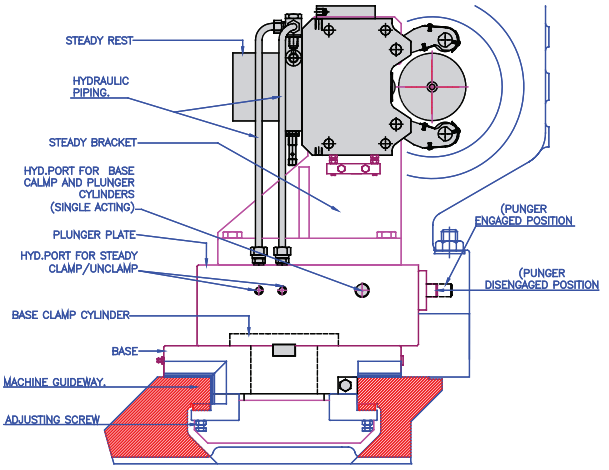
- Automatic centering to reduce cycle time and increase productivity.
- High centering accuracy.
- Replaceable sealing strips and provision for compressed air connection prevents the entry of coolant and dirt to the body of the unit.
- All standard steady rests have provision for centralized lubrication systems.
- Actuating cylinder is provided with integral safety valve to ensure support of the work piece under sudden pressure drops.
- These are based on a special cam design, which is proven in the field.
- Adjustable 3 piece chip guard for outer rollers with minimum reduction of clamping range.
- Positive opening of the steady rest is ensured by precisely engineered opening mechanism
- Compact and robust designs allow the machine tool to be used under optimum conditions.
- Special rollers, featuring multiple sealing disks, are used to prevent contamination.
- Actuating cylinder can be operated either hydraulically or pneumatically.
- These steady rests can be mounted either on slant or flat bed lathes. Rigid and precisely made brackets ensure centering accuracy.
- All internal and outside parts are case hardened and ground to ensure highest precision and reliability.
- Middle roller and roller pocket is protected against dirt by a roller stripper.
- These are suitable for fixed as well as traveling applications.
- Optional provision for manual lubrication can be provided.

Large clamping range

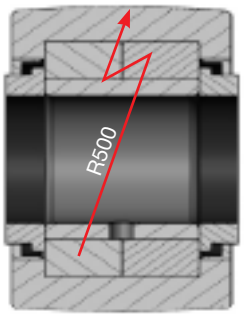


Additional pivoting upper arm for automatic vertical loading

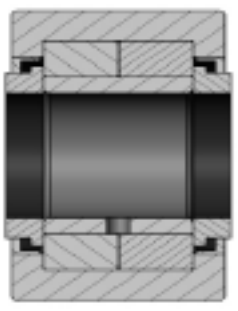




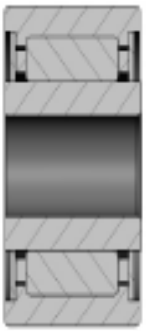

## Option of Rollers




Spherical



Cylindrical

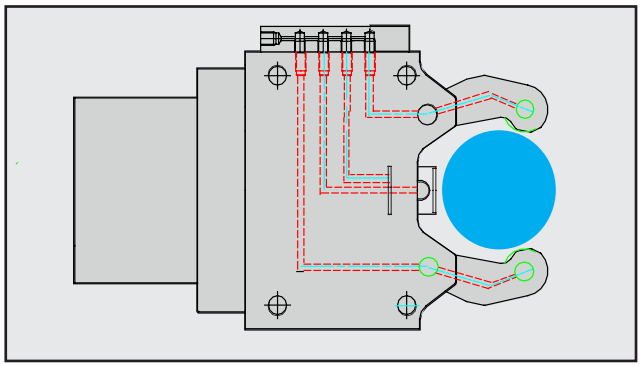


Slender

Forkardt steady rollers with special sealing ensure high precision and service life.

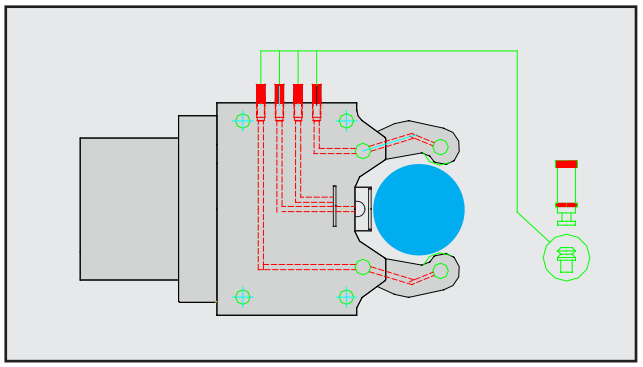
Forkardt provides several different types of rollers to fit your component and process.

# Steady Rest Lubrication



## Central Lubrication

This lubrication system is used in heavy working conditions and high build of swarf as well as travelling steady rest applications. The steady rest is provided with a lubricating connection to supply the oil to the lubricating points and rollers through metering cartridges. The pressure required for the lubricating pump is 10-30 bar.



## Manual Lubrication

This lubrication system is used for light duty working conditions and low building of swarf. The lubrication points and rollers are supplied with grease through grease nipple and grease gun.

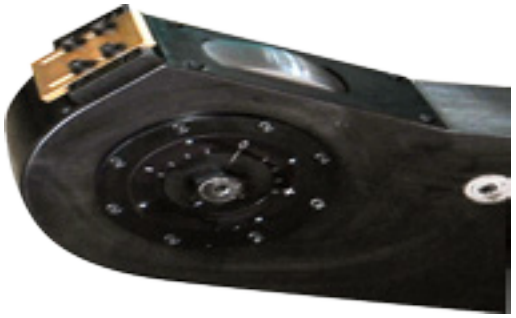
Lubrication schedule depends on the working conditions.  A typical maintenance schedule is every 4-8 operating hours with DIN 51402 grease.

## Coolant / Air Supply - Option

To avoid interference of chips with rollers and work piece an optional built-in channel on the steady rest feeds coolant or air from a central connecting port to the arms of steady rest.

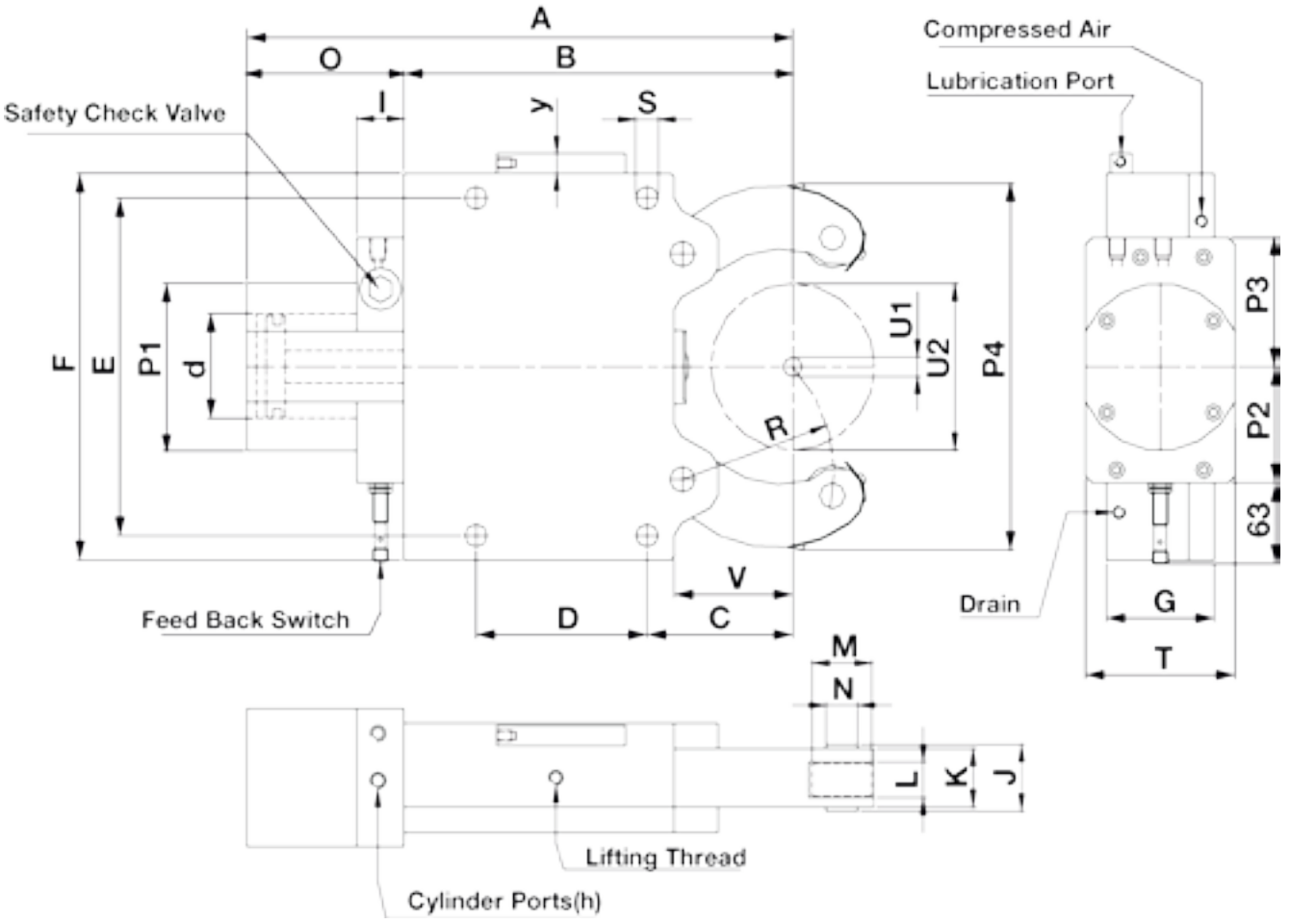
## 3-Piece Swarf Guard

3 piece replaceable swarf guards made from special material protects the rollers and other internal parts from the dirt and swarf during the machining.

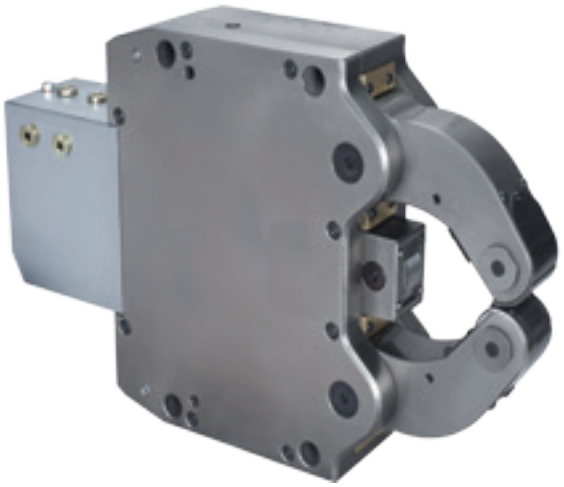


## Eccentric Fine Adjustment - Option

Eccentric roller pins on the two arms of the steady rest allow quick, fine adjustment of centre line. This provision helps to avoid unlocking of the steady rest on the bracket for small adjustments.

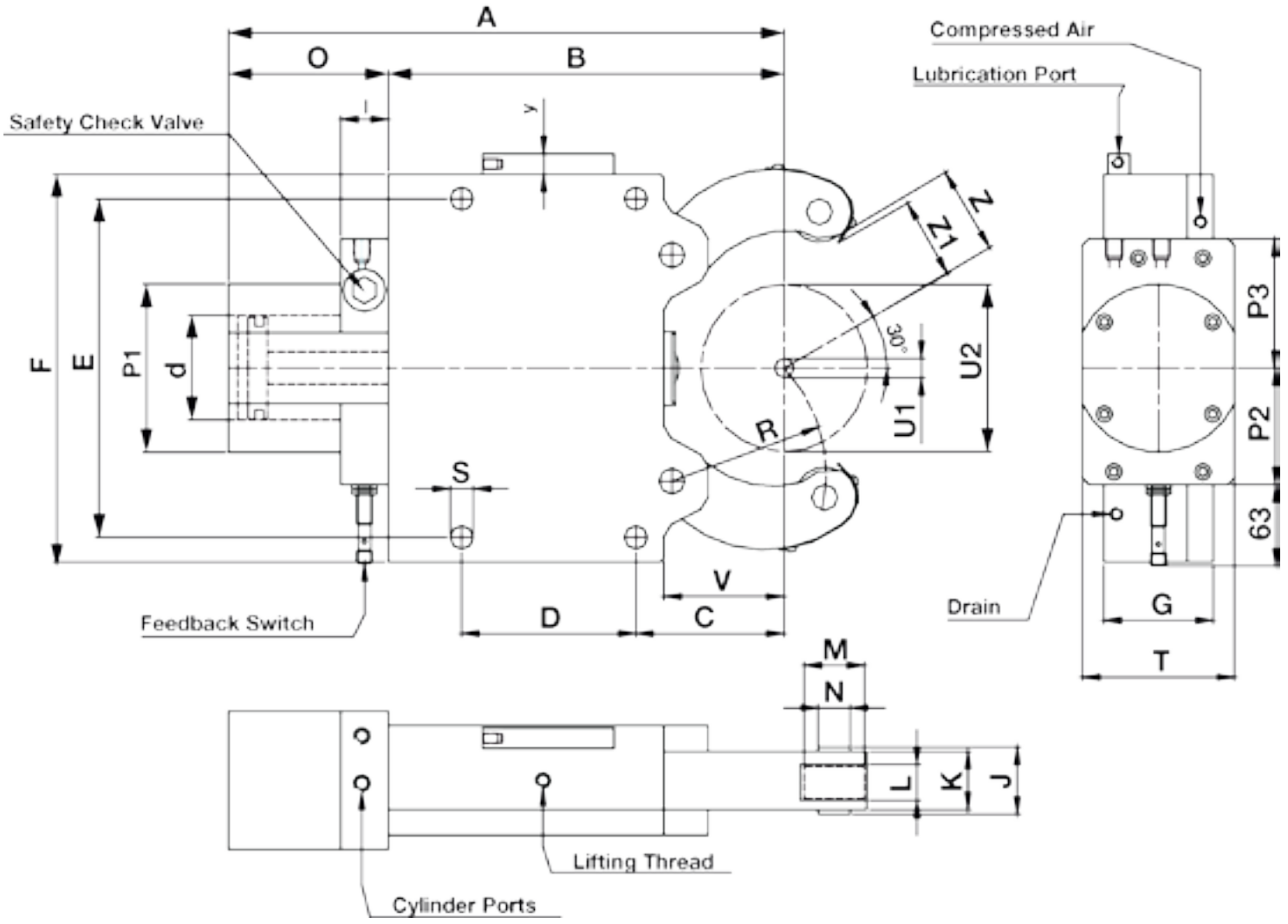

A
O
B
I
y
S
Safety Check Valve
Compressed Air
Lubrication Port
F
E
P1
d
U1
U2
P4
R
P3
P2
63
V
D
C
Feed Back Switch
Drain
G
T
M
N
L
K
J
Lifting Thread
Cylinder Ports(h)

## Steady Rest For Standard Turning Applications



This series is for all standard applications. Available in a range of diameters from 4mm to 800mm. These steady rests work on both flat bed as well as slant bed CNC lathes. We supply brackets for mounting according to the customers requirements

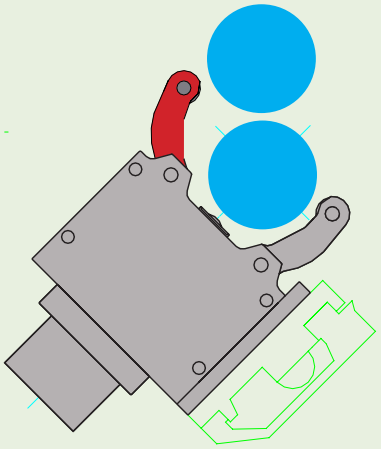
| STEADY REST TYPE | | SRF1 | SRF2 | SRF3 | SRF3.1 | SRF3.2 | SRF4 | SRF5 | SRF5.1 | SRF6 | SRF7 | SRF8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Standard Features:**<br>• Safety Valve<br>• Provision for max. opening feedback<br>• (1) 3 piece set of swarf guard<br>• Provision for compressed air connection<br>• Provision for centralized lubrication | A | 212 | 298.5 | 462 | 470 | 486 | 624 | 706 | 731.5 | 980 | 1235.5 | 1404 |
| | B | 137 | 195 | 308 | 316 | 332 | 437 | 500 | 520 | 709 | 898 | 1000 |
| | C | 51 | 70 | 115 | 123 | 138 | 146 | 178 | 198 | 215 | 320 | 375 |
| | D | 64 | 85 | 135 | 135 | 135 | 240 | 270 | 270 | 330 | 440 | 500 |
| | E | 118 | 170 | 262 | 262 | 262 | 365 | 400 | 400 | 610/640 | 650 | 855 |
| | F | 132 | 205 | 290 | 290 | 290 | 400 | 450 | 450 | 680 | 720 | 930 |
| | G | 55 | 70 | 85 | 85 | 85 | 110 | 145 | 145 | 145 | 162 | 190 |
| | I | - | 33 | 37 | 37 | 37 | 37 | 37 | 37 | 46 | 60 | 60 |
| | J | 33 | 42 | 52 | 52 | 52 | 67 | 83 | 83 | 83 | 96 | 110 |
| | K | 25 | 35 | 45 | 45 | 45 | 60 | 75 | 75 | 75 | 82 | 100 |
| | L | 12 | 19 | 25 | 25 | 25 | 25 | 29 | 29 | 29 | 32 | 32 |
| | M | 19 | 35 | 47 | 47 | 47 | 52 | 62 | 62 | 80 | 100 | 100 |
| | N | 10 | 21 | 25 | 25 | 25 | 32 | 40 | 40 | 43 | 55 | 60 |
| | O | 75 | 103.5 | 154 | 154 | 154 | 187 | 206.5 | 211.5 | 271 | 337.5 | 385.5 |
| | P1 | 82.5 | 105 | 137 | 137 | 137 | 165 | 165 | 165 | 190 | 238 | 238 |
| | P2 | 27.5 | 66 | 92 | 90 | 90 | 102 | 102 | 102 | 115 | 143 | 143 |
| | P3 | 55 | 75 | 92 | 94 | 94 | 110 | 110 | 110 | 130 | 158 | 158 |
| | P4 | 118.5 | 188 | 279 | 279 | 323 | 415 | 473 | 509.5 | 732 | 869.5 | 976 |
| | R | 50.5 | 75 | 117.3 | 124 | 139 | 172 | 209 | 236 | 290 | 390 | 402 |
| | S | 11 | 14 | 18 | 18 | 18 | 23 | 23 | 23 | 27 | 27 | 35 |
| | T | 55 | 68 | 102 | 102 | 102 | 126 | 144 | 144 | 158 | 190 | 190 |
| | V | 37 | 60 | 91.5 | 99.5 | 109.5 | 128 | 160 | 180 | 182 | 292.5 | 295.5 |
| | Y | - | 19 | 19 | 19 | 19 | 19 | 20 | 20 | 27 | 27 | 27 |
| Centering range without chip guard. | U1 | 4 | 8 | 12 | 20 | 50 | 30 | 45 | 85 | 125 | 200 | 230 |
| | U2 | 64 | 101 | 152 | 165 | 200 | 245 | 310 | 350 | 460 | 530 | 630 |
| **Centering range with 3 piece chip guard.** | **U1** | **4** | **16** | **16** | **20** | **50** | **30** | **45** | **85** | **125** | **191** | **230** |
| | **U2** | **64** | **101** | **152** | **165** | **200** | **245** | **310** | **350** | **460** | **530** | **630** |
| Cylinder Bore. | d | 30 | 50 | 80 | 80 | 80 | 100 | 100 | 100 | 130 | 150 | 150 |
| Hyd. Connection. (Bsp) | h | 1/4" | 1/4" | 1/4" | 1/4" | 1/4" | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" |
| Operating Pressure. Min/Max | bar | 6/50 | 8/60 | 8/60 | 8/60 | 8/60 | 8/60 | 8/80 | 8/80 | 8/70 | 6/70 | 6/70 |
| Max. Clamp Force/Roller | daN | 100 | 350 | 1000 | 1000 | 1000 | 1500 | 2000 | 2000 | 3000 | 4000 | 4000 |
| Clamping Press/Roller At 15 Bar | daN | 35 | 100 | 250 | 250 | 500 | 500 | 500 | 500 | 670 | 900 | 900 |
| Centering Accuracy Entire Clamping Range | mm | 0.02 | 0.02 | 0.04 | 0.04 | 0.04 | 0.05 | 0.06 | 0.06 | 0.06 | 0.08 | 0.08 |
| Repeatability. | mm | 0.005 | 0.005 | 0.007 | 0.007 | 0.007 | 0.007 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 |
| Max. Peripheral Speed. | $min^{-1}$ | 850 | 950 | 800 | 800 | 725 | 725 | 670 | 670 | 525 | 570 | 570 |
| Weight | kg | 7 | 18.5 | 48 | 48 | 50 | 104 | 155 | 430 | 430 | 520 | 580 |


A
O
B
Safety Check Valve
Compressed Air
Lubrication Port
F
E
P1
d
S
R
30°
U1
U2
Z
Z1
P3
P2
63
V
D
C
Feedback Switch
Drain
G
T
M
N
L
K
J
Lifting Thread
Cylinder Ports

# SRFA

## Steady Rest With Rear Mounted Actuating Cylinder And Top Arm Extra Opening

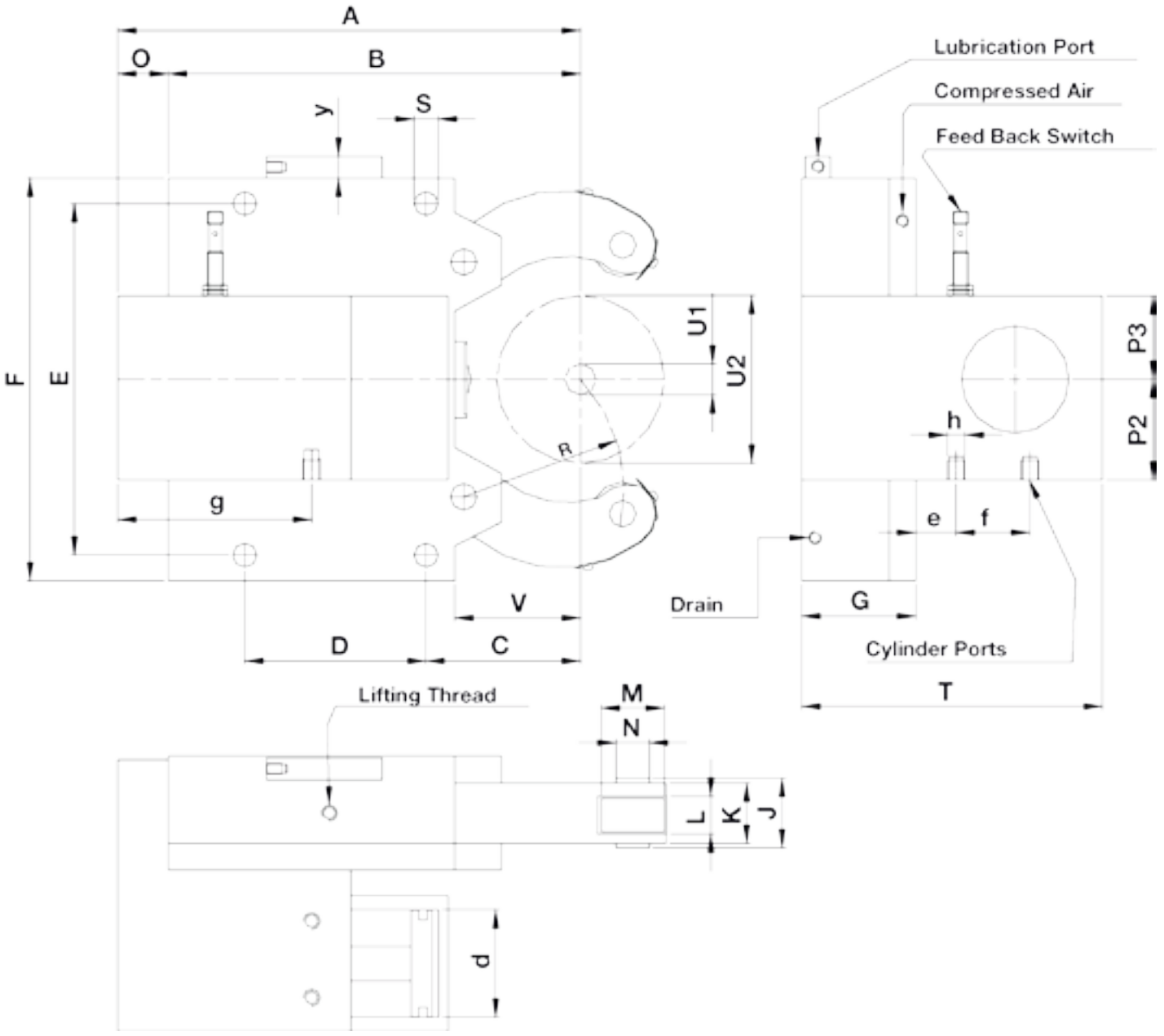
This series of steady rests are made for applications where vertical loading is required e.g. using a gantry loader. Forkardt has a standard range of these steady rests.



**Standard Features:**
- Safety Valve
- Provision for max. opening feedback
- (1) 3 piece set of swarf guard
- Provision for compressed air connection
- Provision for centralized lubrication

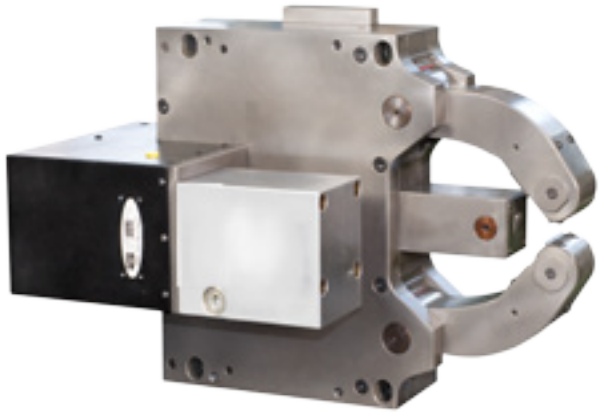
| STEADY REST TYPE | | SRFA 2 | SRFA 3 | SRFA 3.1 | SRFA 4 | SRFA 5 | SRFA 6 |
|---|---|---|---|---|---|---|---|
| | A | 295 | 463 | | 609 | 686 | 980 |
| | B | 195 | 308 | 316 | 437 | 500 | 709 |
| | C | 70 | 115 | 123 | 146 | 178 | 215 |
| | D | 85 | 135 | 135 | 240 | 270 | 330 |
| | E | 170 | 262 | 262 | 365 | 400 | 610/640 |
| | F | 205 | 290 | 290 | 400 | 450 | 705 |
| | G | 70 | 85 | 85 | 110 | 145 | 145 |
| | I | 33 | 37 | 37 | 38 | 37 | 37 |
| | J | 42 | 53.5 | 52 | 67 | 78.5 | 83 |
| | K | 35 | 45 | 45 | 60 | 75 | 75 |
| | L | 19 | 25 | 25 | 25 | 29 | 29 |
| | M | 35 | 47 | 47 | 52 | 62 | 80 |
| | N | 21 | 20 | 25 | 32 | 40 | 42 |
| | O | 100 | 155 | 149 | 172 | 186 | 271 |
| | P1 | 102 | 137 | 137 | 165 | 168 | 200 |
| | P2 | 66 | 92 | 90 | 102 | 94 | 120 |
| | P3 | 75 | 92 | 94 | 110 | 118 | 135 |
| | R | 75 | 119 | 124 | 172 | 209 | 290 |
| | S | 14 | 18 | 18 | 23 | 23 | 27 |
| | T | 68 | 102 | 102 | 126 | 144 | 158 |
| | V | 60 | 91.5 | 99.5 | 128 | 160 | 175 |
| | Y | 19 | 19 | 19 | 19 | 20 | 19 |
| Centering Range Without Chip Guard. | U1 | 8 | 12 | 20 | 30 | 48 | 160 |
| | U2 | 80 | 130 | 150 | 220 | 268 | 460 |
| **Centering Range With 3 Piece Chip Guard.** | **U1** | **16** | **20** | **20** | **30** | **48** | **160** |
| | **U2** | **80** | **130** | **150** | **220** | **268** | **460** |
| | Z | 41 | 55 | 76 | 111 | 135 | 230 |
| | Z1 | 34 | 54 | 74 | 106 | 130 | 225 |
| Cylinder Bore. | d | 50 | 80 | 80 | 100 | 100 | 130 |
| Hyd. Connection. (Bsp) | h | 1/4" | 1/4" | 1/4" | 3/8" | 3/8" | 3/8" |
| Operating Pressure. Min./Max. | bar | 8/60 | 8/60 | 8/60 | 8/60 | 8/60 | 8-70 |
| Max. Clamp Force/Roller. | daN | 350 | 1000 | 1000 | 1500 | 2000 | 3000 |
| Clamping Press./Roller At 15 Bar | daN | 100 | 250 | 250 | 500 | 500 | 670 |
| Centering Accuracy Entire Clamping Range. | mm | 0.02 | 0.04 | 0.04 | 0.05 | 0.06 | 0.06 |
| Repeatability. | mm | 0.005 | 0.007 | 0.007 | 0.007 | 0.01 | 0.01 |
| Max. Peripheral Speed. | $min^{-1}$ | 950 | 800 | 800 | 725 | 670 | 525 |
| Weight | Kg | 18.5 | 48 | 48 | 104 | 160 | 430 |

** Angle of inclination is 19 degree instead of 30 degree.


A
O
B
y
S
F
E
U1
U2
R
g
V
D
C
Lubrication Port
Compressed Air
Feed Back Switch
P3
P2
h
e
f
Drain
G
Cylinder Ports
T
Lifting Thread
M
N
L
K
J
d

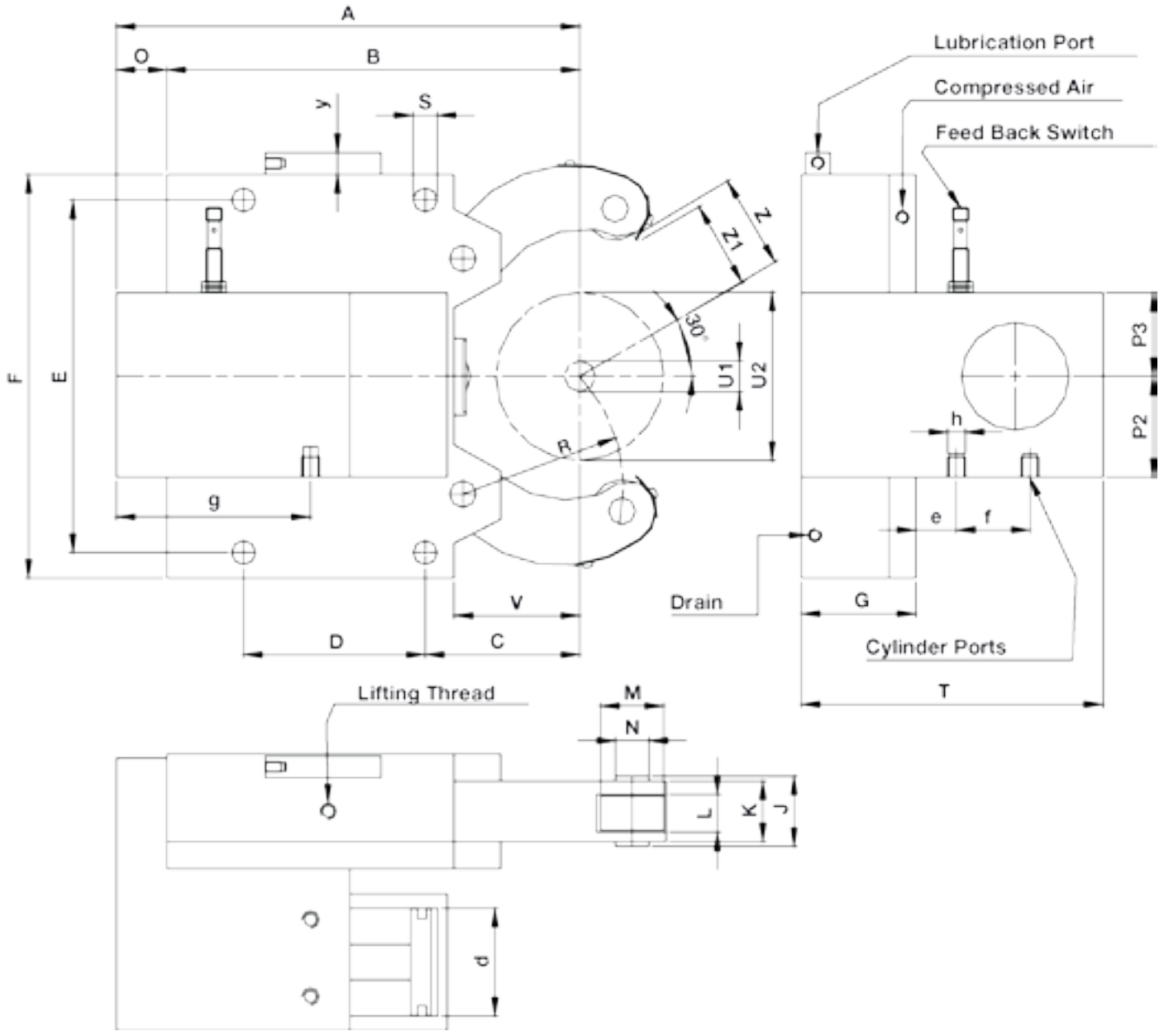
# SRFB

## Standard Steady Rest With Side Mounted Cylinder



This series is made for machines where the rear mounted cylinder may foul with the sheet metal enclosures or other machine enclosures. To achieve this the actuating cylinder of the steady rest is mounted on the side of the steady rest.

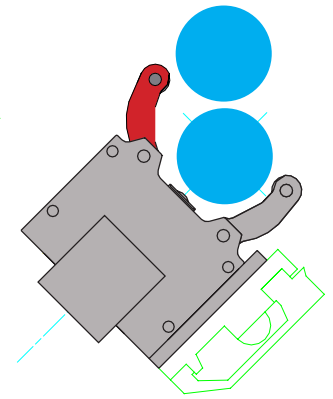
| STEADY REST TYPE | | SRF-B 3 | SRF-B 3.1 | SRF-B 4 | SRF-B 5 | SRF-B 6 | SRF-B 7 | SRF-B 8 |
|---|---|---|---|---|---|---|---|---|
| **Standard Features:**<br>• Safety Valve<br>• Provision for max. opening feedback<br>• (1) 3 piece set of swarf guard<br>• Provision for compressed air connection<br>• Provision for centralized lubrication | A | 348 | 356 | 480 | 612.5 | 823 | 1001 | 1130 |
| | B | 308 | 316 | 437 | 500 | 709 | 897.5 | 1019 |
| | C | 115 | 123 | 146 | 178 | 215 | 320 | 375 |
| | D | 135 | 135 | 240 | 270 | 330 | 440 | 500 |
| | E | 262 | 262 | 365 | 400 | 610/640 | 650 | 855 |
| | F | 290 | 290 | 400 | 450 | 680 | 710 | 930 |
| | G | 85 | 85 | 110 | 145 | 145 | 180 | 190 |
| | J | 52 | 52 | 67 | 80 | 83 | 112 | 110 |
| | K | 45 | 45 | 60 | 75 | 75 | 100 | 100 |
| | L | 25 | 25 | 25 | 29 | 29 | 32 | 32 |
| | M | 47 | 47 | 52 | 62 | 80 | 100 | 100 |
| | N | 25 | 25 | 32 | 36 | 43 | 55 | 60 |
| | O | 40 | 40 | 43 | 112.5 | 114 | 103.5 | 111 |
| | P2 | 74 | 74 | 85 | 85 | 125.8 | 130 | 130 |
| | P3 | 57 | 57 | 68 | 85 | 89.2 | 130 | 130 |
| | R | 117.5 | 124 | 172 | 209 | 290 | 398 | 402 |
| | S | 18 | 18 | 23 | 23 | 27 | 27 | 35 |
| | T | 199 | 198 | 246 | 325 | 383 | 405 | 487 |
| | V | 91.5 | 99.5 | 128 | 160 | 182 | 283.5 | 290 |
| | Y | 19 | 19 | 19 | 20 | 27 | 27 | 27 |
| Centering Range Without Chip Guard. | U1 | 12 | 20 | 30 | 50 | 125 | 200 | 230 |
| | U2 | 152 | 165 | 245 | 310 | 460 | 530 | 630 |
| **Centering Range With 3 Piece Chip Gu6ard.** | **U1** | **21** | **20** | **30** | **50** | **125** | **200** | **230** |
| | **U2** | **152** | **165** | **245** | **310** | **460** | **530** | **630** |
| Cylinder Bore | d | 80 | 80 | 100 | 100 | 130 | 150 | 150 |
| | e | 58 | 58 | 68 | 85 | 55 | 191 | 191 |
| | f | 27 | 27 | 39 | 40 | 50 | 50 | 50 |
| | g | 180 | 180 | 220 | 270 | 430 | 450 | 450 |
| Hyd. Connection. (Bsp) | h | 1/4" | 1/4" | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" |
| Operating Pressure. Min/Max | bar | 8/60 | 8/60 | 8/60 | 8/80 | 8/70 | 8/70 | 8/70 |
| Max. Clamp Force/Roller. | daN | 1000 | 1000 | 1500 | 2000 | 3000 | 4000 | 4000 |
| Clamping Press./Roller At 15 Bar | daN | 250 | 250 | 400 | 400 | 600 | 880 | 880 |
| Centering Accuracy Entire Clamping Range | mm | 0.04 | 0.04 | 0.05 | 0.06 | 0.06 | 0.08 | 0.08 |
| Repeatability | mm | 0.007 | 0.007 | 0.007 | 0.01 | 0.01 | 0.02 | 0.02 |
| Max. Peripheral Speed. | $min^{-1}$ | 800 | 800 | 720 | 650 | 525 | 570 | 570 |
| Weight | kg | 53 | 53 | 115 | 190 | 500 | 580 | 650 |


A
O
B
y
S
Z
Z1
30°
U1
U2
R
F
E
g
V
D
C
Lubrication Port
Compressed Air
Feed Back Switch
P3
P2
h
e
f
Drain
G
Cylinder Ports
T
Lifting Thread
M
N
L
K
J
d

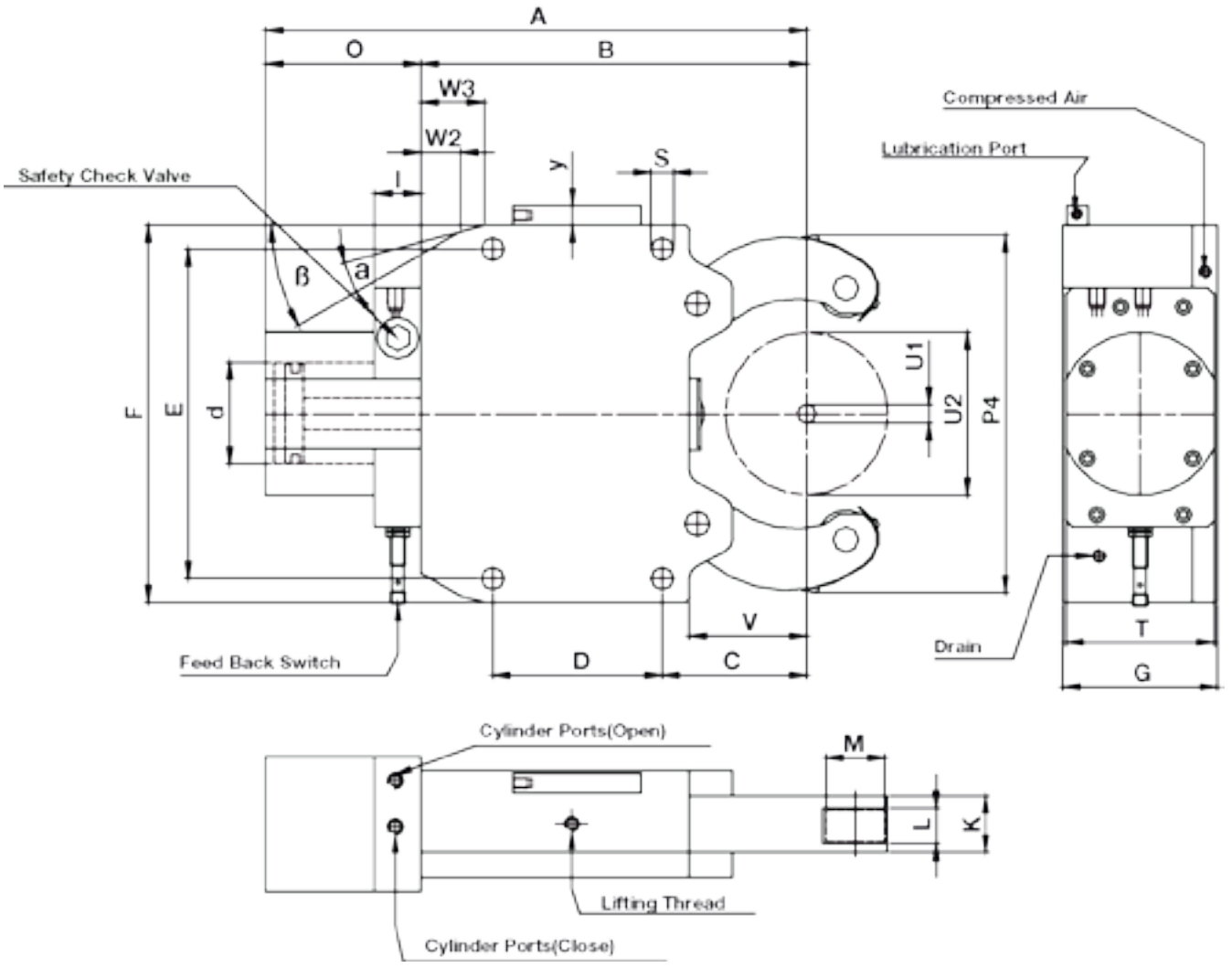
# SRFAB

## Steady Rest With Side Mounted Actuating Cylinder And Extra Opening For The Top Arm

This series of steady rests are made with side mounted actuating cylinder for applications where vertical loading is required

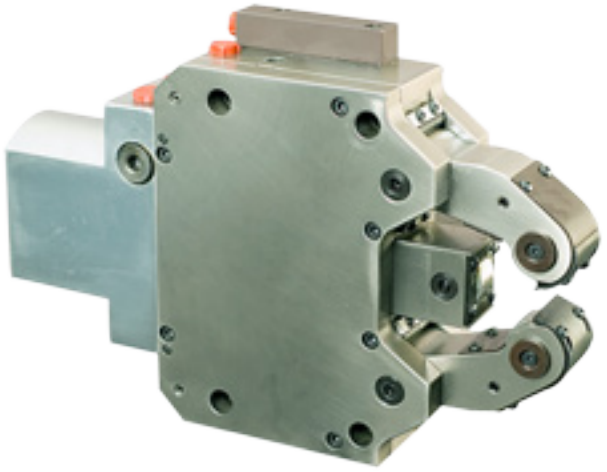


| STEADY REST TYPE | | SRFA-B 3 | SRFA-B 3.1 | SRFA-B 4 | SRFA-B5 |
|---|---|---|---|---|---|
| **Standard Features:**<br>• Safety Valve<br>• Provision for max. opening feedback<br>• (1) 3 piece set of swarf guard<br>• Provision for compressed air connection<br>• Provision for centralized lubrication | A | 348 | 356 | 480 | 614 |
| | B | 308 | 316 | 437 | 500 |
| | C | 115 | 123 | 146 | 178 |
| | D | 135 | 135 | 240 | 270 |
| | E | 262 | 262 | 365 | 400 |
| | F | 290 | 290 | 400 | 450 |
| | G | 85 | 85 | 110 | 145 |
| | J | 52 | 52 | 69.5 | 83 |
| | K | 45 | 45 | 60 | 75 |
| | L | 25 | 25 | 25 | 29 |
| | M | 47 | 47 | 52 | 62 |
| | N | 25 | 25 | 32 | 36 |
| | O | 40 | 40 | 43 | 124 |
| | P2 | 74 | 74 | 85 | 85 |
| | P3 | 57 | 57 | 68 | 85 |
| | R | 117.5 | 124 | 172 | 209 |
| | S | 18 | 18 | 23 | 23 |
| | T | 199 | 198 | 245 | 325 |
| | V | 91.5 | 99.5 | 128 | 160 |
| | Y | 19 | 19 | 19 | 20 |
| Centering range without chip guard. | U1 | 12 | 20 | 30 | 48 |
| | U2 | 130 | 150 | 220 | 268 |
| Centering range with 3 piece chip guard. | U1 | 21 | 20 | 30 | 48 |
| | U2 | 130 | 150 | 220 | 268 |
| | Z | 66 | 76 | 111 | 135 |
| | Z1 | 62 | 72 | 106.5 | 130 |
| Cylinder bore. | d | 80 | 80 | 100 | 100 |
| | e | 58 | 58 | 68 | 85 |
| | f | 27 | 27 | 39 | 40 |
| | g | 180 | 180 | 220 | 270 |
| Hyd. Connection. (Bsp) | h | ¼” | ¼” | 3/8” | 3/8” |
| Operating Press. Min/Max | bar | 8/60 | 8/60 | 8/60 | 8/80 |
| Max. Clamp Pressure/Roller. | daN | 1000 | 1000 | 1500 | 2000 |
| Clamping Press./Roller At 15 Bar | daN | 250 | 250 | 400 | 400 |
| Centering Accuracy Entire Clamping Range. | mm | 0.04 | 0.04 | 0.05 | 0.06 |
| Repeatability. | mm | 0.007 | 0.007 | 0.007 | 0.01 |
| Max. Peripheral Speed | $min^{-1}$ | 800 | 800 | 720 | 650 |
| Weight | kg | 55 | 55 | 115 | 190 |


A
O
B
W3
W2
l
y
S
Safety Check Valve
Compressed Air
Lubrication Port
β
a
F
E
d
U1
U2
P4
V
D
C
T
G
Drain
Feed Back Switch
Cylinder Ports(Open)
M
L
K
Lifting Thread
Cylinder Ports(Close)

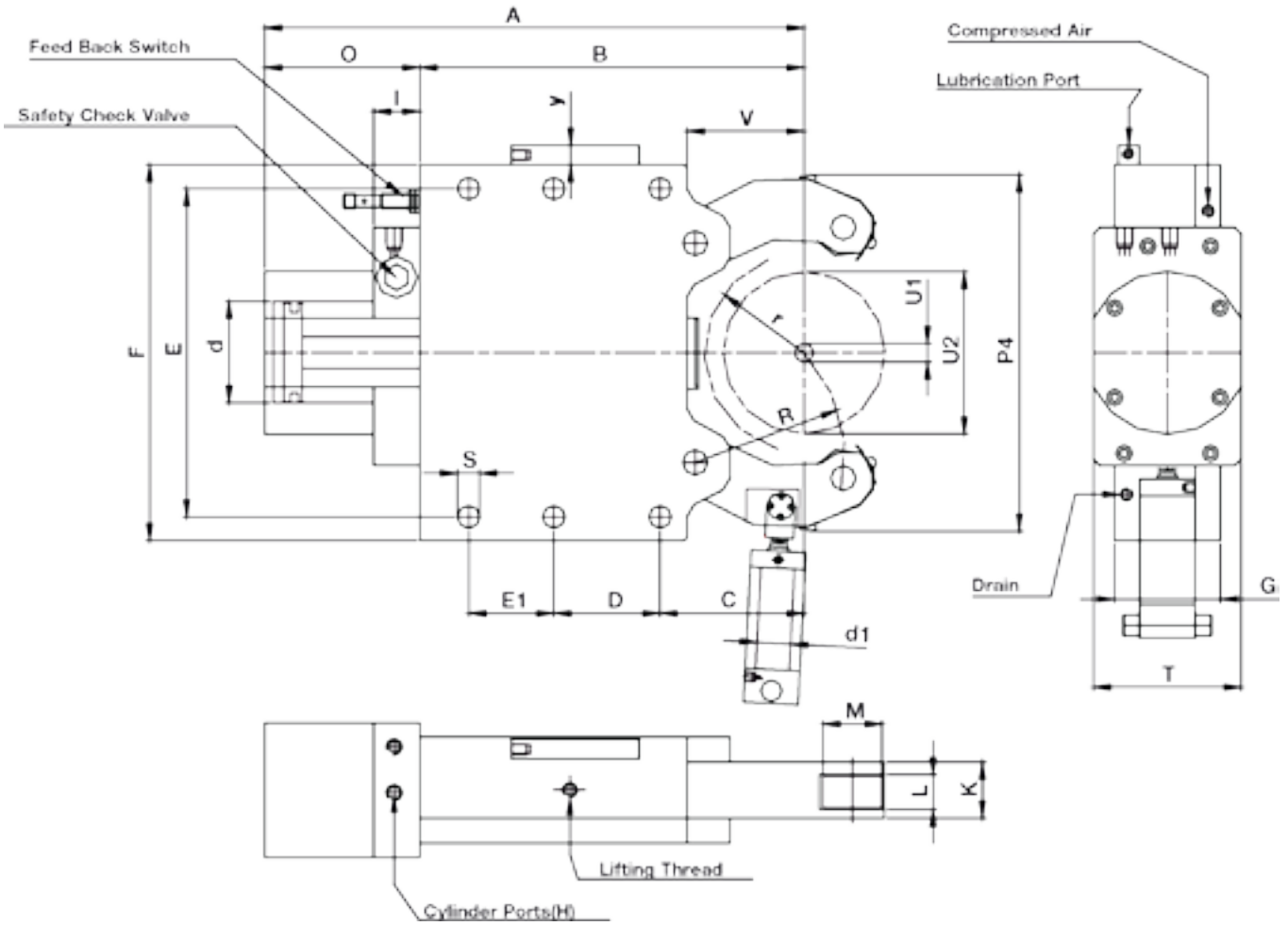
# SRFC

## Steady Rest With Centering Accuracy For Entire Clamping Range



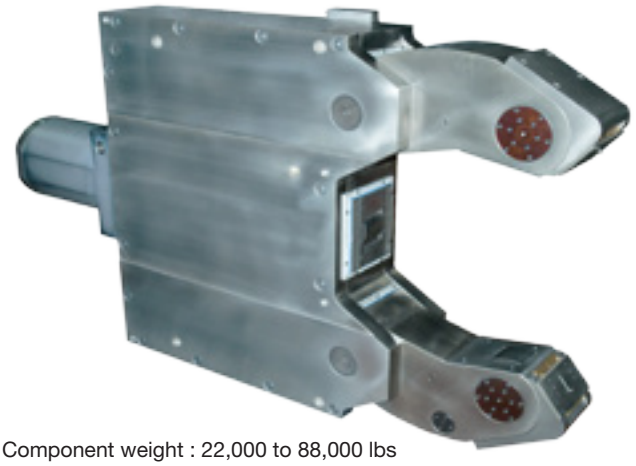
This series of steady rests are made with centering capabilities to maintain accuracy.

| STEADY REST TYPE. | | SRF-C3 | SRF-C4 | SRF-C4.1 | SRF-C5 | SRF-C5.1 | SRF-C6 | SRF-C6.1 |
|---|---|---|---|---|---|---|---|---|
| **Standard Features:**<br>• Safety Valve<br>• Provision for max. opening feedback<br>• (1) 3 piece set of swarf guard<br>• Provision for compressed air connection<br>• Provision for centralized lubrication | A | 443 | 578 | 612 | 753 | 763 | 816 | 816 |
| | B | 335 | 450 | 490 | 607 | 622 | 670 | 680 |
| | C | 150 | 168 | 198 | 230 | 240 | 215 | 245 |
| | D | 140 | 180 | 180 | 240 | 240 | 330 | 300 |
| | E | 312 | 360 | 360 | 445 | 445 | 610 | 610 |
| | F | 345 | 400 | 400 | 485 | 485 | 680 | 680 |
| | G | 105 | 125 | 125 | 150 | 150 | 150 | 150 |
| | K | 45 | 60 | 60 | 75 | 75 | 75 | 75 |
| | L | 25 | 25 | 25 | 29 | 29 | 29 | 29 |
| | M | 47 | 52 | 52 | 62 | 62 | 80 | 80 |
| | O | 88 | 159 | 122 | 146 | 190 | 135 | 135 |
| | P4 | 392.5 | 476.5 | 503 | 574 | 632.5 | 752 | 752 |
| | S | 18 | 23 | 23 | 23 | 23 | 27 | 27 |
| | T | 105 | 111 | 124 | 146 | 121 | 150 | 150 |
| | V | 115 | 146 | 171 | 195 | 195 | 185 | 215 |
| | W2 | 10 | 100 | 110 | 130 | 135 | 155 | 155 |
| | W3 | 50 | 62 | 60 | 51 | 55.5 | 87 | 87 |
| | b | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| | α | 15 | 15 | 15 | 15 | 15 | 20 | 20 |
| Centering Range With Chip Guard | U1 | 65 | 60 | 90 | 80 | 100 | 135 | 215 |
| | U2 | 235 | 280 | 330 | 390 | 410 | 460 | 510 |
| Cylinder Bore. | d | 70 | 90 | 90 | 100 | 100 | 120 | 120 |
| Hyd. Connection.(Bsp) | h | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" |
| Operating Pressure.(Min/Max) | bar | 8-70 | 08-70 | 8-70 | 8-80 | 08-80 | 8-80 | 8-80 |
| Max. Clamp Force /Roller. | daN. | 1000 | 1500 | 1500 | 2000 | 2000 | 3000 | 3000 |
| Centering Accuracy Over Entire Clamping Range. | mm | 0.04 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| Repeatability | mm | 0.007 | 0.007 | 0.007 | 0.01 | 0.01 | 0.01 | 0.01 |
| Max. Peripheral Roller Speed. | $min^{-1}$ | 700 | 700 | 700 | 725 | 660 | 700 | 700 |
| Weight | kg | 40 | 90 | 90 | 170 | 180 | 385 | 385 |


A
O
B
I
y
V
Feed Back Switch
Safety Check Valve
Compressed Air
Lubrication Port
F
E
d
U1
U2
P4
r
R
S
E1
D
C
d1
Drain
G
T
M
L
K
Lifting Thread
Cylinder Ports(H)

# SRFH

## Steady Rest For Heavy Duty Applications



Component weight : 22,000 to 88,000 lbs

This series of steady rests is made for heavy duty applications.

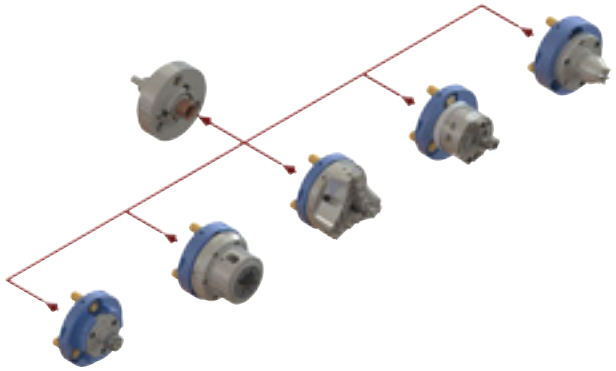
| STEADY REST TYPE | | SRF-H80130 | SRF-H1060 | SRF-H1540 |
|---|---|---|---|---|
| **Highlights:**<br>• Very Heavy duty construction.<br>• Large rollers to handle very heavy loads (10 - 40 Tons)<br>• Hydraulic support to Bottom arm for using on large flat bed lathes.<br>• For turbine shaft, windmill shaft, marine crank shafts | A | 2266 | 1564 | 1504.5 |
| | B | 1760 | 1110 | 1176.5 |
| | C | 680 | 358 | 462.5 |
| | D | 310 | 525 | 365 |
| | E | 1440 | 970 | 760 |
| | F | 1500 | 1110 | 840 |
| | G | 306 | 296 | 150 |
| | I | 80 | 80 | 40 |
| | K | 186 | 186 | 75 |
| | L | 116 | 96 | 32 |
| | M | 270 | 200 | 110 |
| | O | 506 | 454 | 328 |
| | P4 | 1729 | 1069 | 1122 |
| | R | 805 | 420 | 497 |
| | s | 39 | 34 | 27 |
| | T | 276 | 276 | 131 |
| | V | 620 | 283 | 425.5 |
| Centering Range With Chip Guard | U1 | 600 | 100 | 150 |
| | U2 | 1050 | 520 | 400 |
| Cylinder Bore. | d | 200 | 200 | 100 |
| | d1 | 200 | 80 | 80 |
| Max. Load Capacity | daN | 30000 | 12000 | 4000 |
| Cylinder Support Of Bottom Arm | daN | 20000 | 7000 | 1500 |
| Min/Max. Pressure For Bottom Arm Cylinder | daN | 25/80 | 20/75 | 15/40 |
| Hyd. Connection.(Bsp) | h | 1/2" | 1/2" | 3/8" |
| Operating Pressure.(Min/Max) | bar | 15/80 | 10/60 | 08/115 |
| Max. Clamp Force /Roller. | daN | 8300 | 6500 | 8300 |
| Clamp. Press./Roller At 15 Bar | daN | 1200 | 1200 | 500 |
| Centering Accuracy Over Entire Clamping Range. | mm | 0.08 | 0.06 | 0.04 |
| Repeatability | mm | 0.01 | 0.01 | 0.01 |
| Max. Peripheral Roller Speed. | $min^{-1}$ | 200 | 200 | 550 |
| Weight | kg | 3000 | 2200 | 750 |

# Accessories

FORKARDT™

Forkardt is able to provide the entire package with the workholding, actuation, adapters and accessories such as jaws, inserts, grip force meters, quick change devices and grease.

ForChange Quick Change System



Tru-Change Precision Coupling Rings

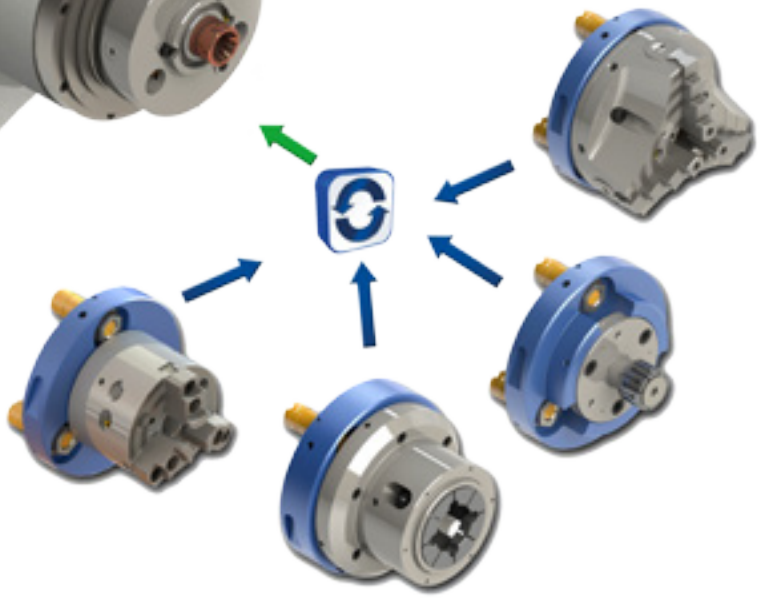
Quick Change Jaw System MIR

Replaceable Solid Carbide Inserts

Grip Force Meter SKM

# ForChange Quick Change System

The Forkardt ForChange system is ideal for small series production where fast and easy changeover is important. The modular design allows the system to be easily retrofitted to existing machines, and once set, the interchangeable flanges can be used on different machines without loss of precision.

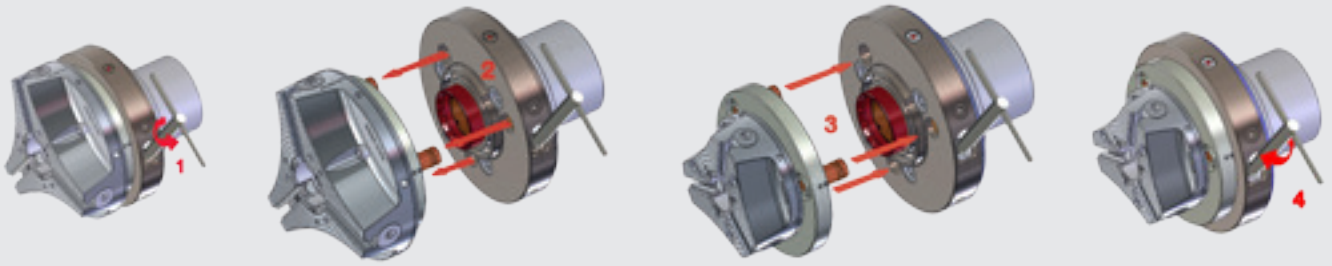


## Features & Benefits

- High precision at changeover on chucks up to 630mm in diameter
- Quick chuck changeover
- Can be automated
- Modular design allows retrofitting to existing machines
- Compact design
- 1 central locking screw for quick chuck changeover
- Ideal for small series or single part production where setups are frequent

## Function

The ForChange system consists of a basic flange which is mounted on the spindle, and an interchangeable flange that is attached to the chuck. Connection takes place by linearly inserting the locking pins into the basic flange. The locking mechanism ensures even distribution of tensile forces for maximum exchange accuracy. At the same time, he components are coupled for transmission of actuation forces.

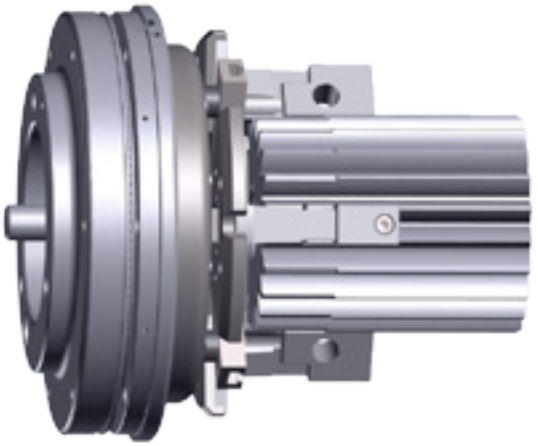



Release Loosen Insert Lock

## Tru-Change Precision Coupling Rings

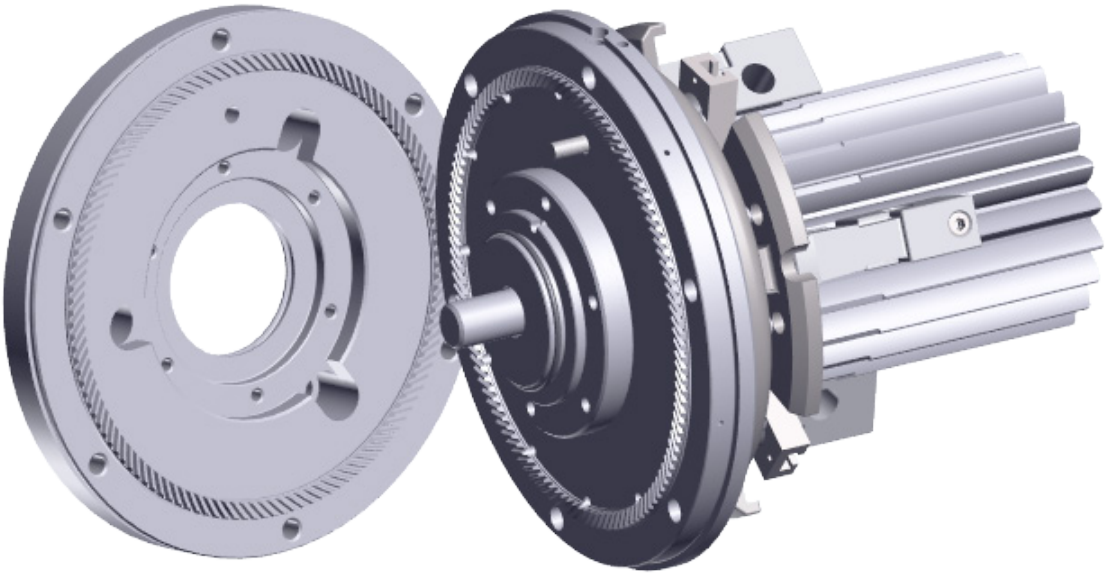
The innovative Tru-Change coupling rings are the optimum coupling device for indexing or power transmission applications. The patented curved tooth design provides full flank tooth interface between two coupling halves. The result is an exceptionally high torsional load capability with self centering and zero backlash as added benefits.

Tru-Change is the perfect tool for jobs that require high torque loads, positive engagement between members, concentricity between mating components, quick changeover and minimal space and weight.

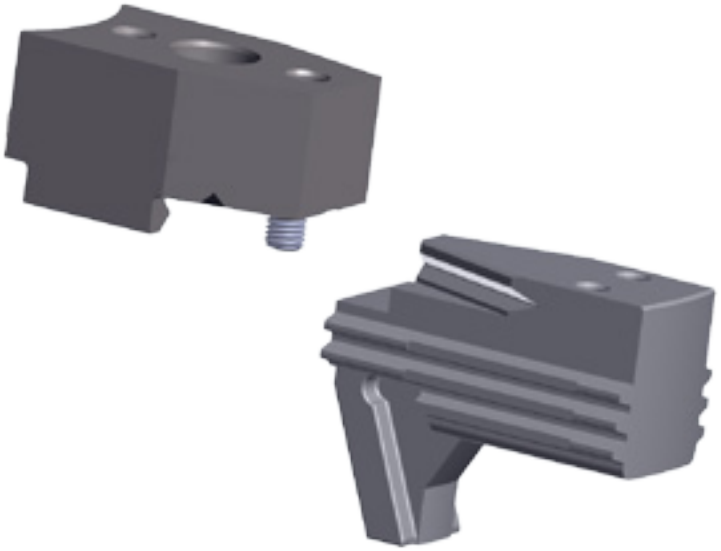


### Features & Benefits

- 
- 2 micron repeatability
- Self improving repeatability through continuous seating of coupling halves
- Full radius tooth tips provide quick and assured coupling engagement
- Hub extensions on tooth side of coupling halves offer an alternative to radial tooth face couplings
- High number of teeth allow angular indexes of less than one degree with +/- 3 second true position

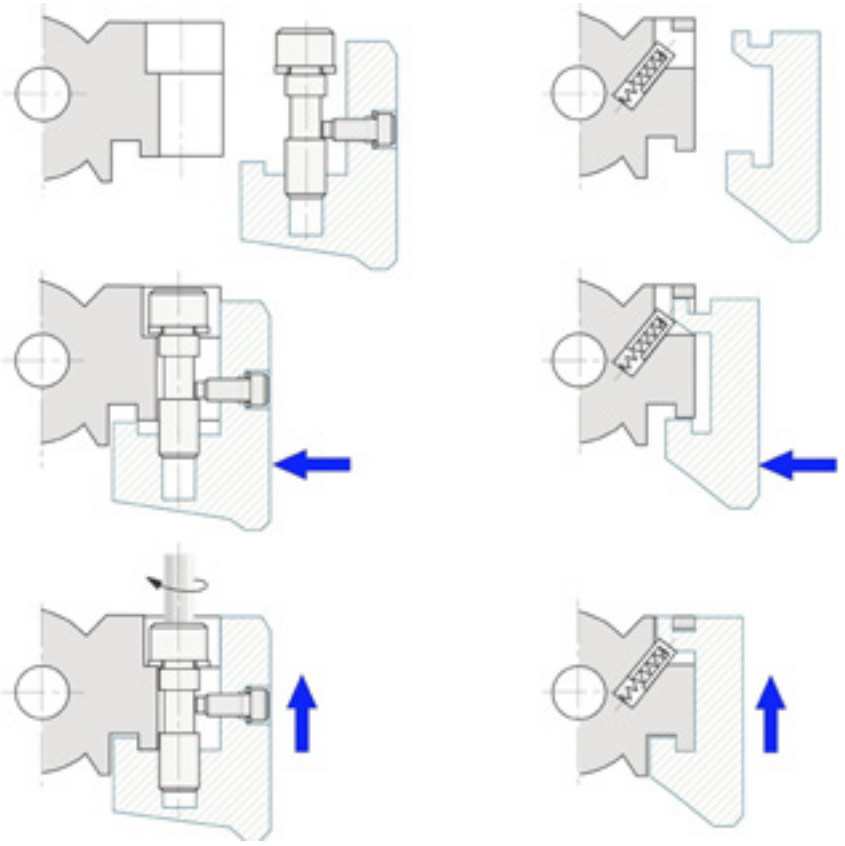


## Quick Change Jaw System MIR



### Features & Benefits

- Jaw changeover in 5 seconds
- 0.01 mm TIR repeatability
- High rotational accuracy
- Jaw changeover requires one turn with wrench or no tools at all depending on model
- Designed to fit individual applications

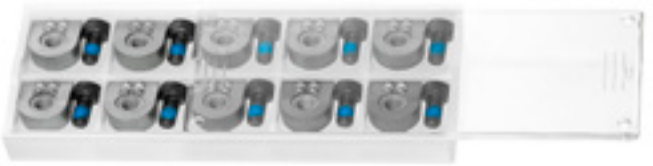


With Bolt

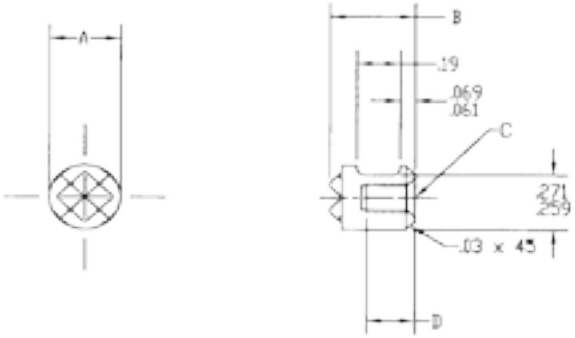

No Bolt

## Replaceable Solid Carbide Inserts

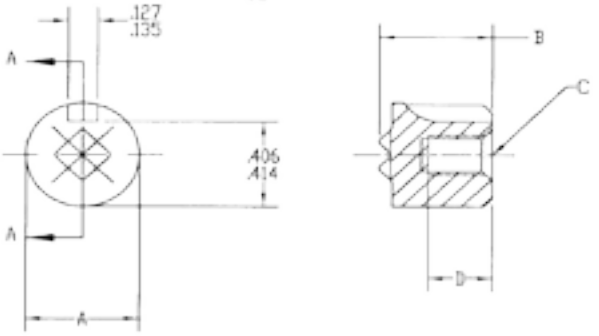
Forkardt's solid carbide inserts are available in various diameters, heights, and tooth patterns. Sold in kits of 10, with hardware included.



### Multipurpose Round Style




PC-045-4SC




PC-070-4SC & 12SC

| Kit Number | A | B | C | D |
|---|---|---|---|---|
| PC0454SCK | .312” dia. | 0.375 | #10-32 | 0.19 |
| PC0704SCK | .500” dia. | 0.500 | #10-32 | 0.19 |
| PC07012SCK | .500” dia. | 0.500 | #10-32 | 0.25 |

### PC-045-4SC

4 Points / .312” Wide

- Light Duty
- Nonadjustable

### PC-070-4SC

4 Points / .500” Wide

- 4 points
- Heavy duty
- Adjustable and nonadjustable

### PC-070-12SC

4 Points / .500” Wide

- 8 points
- Medium duty
- Adjustable and nonadjustable

## Angle Lok Style

General Use Angle Lok

### PC-127-4SC

4 Points / .561” Wide

- 4 points
- Heavy duty
- Maximum tooth penetration

### PC-127-4SCS

4 Points / .391” Wide

- 4 points
- Heavy duty
- Maximum tooth penetration

### PC-128-4SC

4 Points / .750” Wide

- 4 points
- Heavy duty
- Maximum tooth penetration

### PC-127-10SC

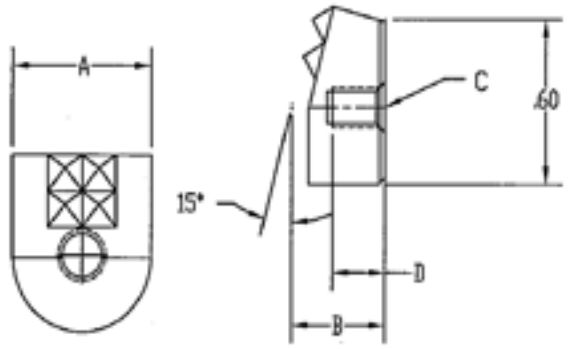
10 Points / .561” Wide

- 10 points
- Medium duty
- Medium tooth penetration

### PC-127-8SC

8 Points / .561” Wide

- 8 points
- Medium duty
- Medium tooth penetration




- Resistant to high abrasion
- Non-adjustable
- Gripping points at top of jaw
- Ideal for castings, forgings, draft angles to 7” and bar stock

| Kit Number | A | B | C | D |
|---|---|---|---|---|
| PC1274SCK | .561” wide | 0.375 | #10-32 | 0.22 |
| PC1274SCSK | .391” wide | 0.375 | #10-32 | 0.25 |
| PC12710SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1278SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1284SCK | .750” wide | 0.500 | 1/4-28 | 0.25 |
| PC1302SCSK | .396” wide | 0.375 | #10-32 | 0.25 |
| PC1304SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1322SCSK | .396” wide | 0.375 | #10-32 | 0.25 |
| PC1324SCK | .561” wide | 0.375 | #10-32 | 0.25 |
| PC1455SCK | .561” wide | 0.375 | #10-32 | 0.25 |

*Measurements in millimeters unless otherwise noted

Application Specific Angle Lok

### PC-130-2SCS

2 teeth / .396” Wide

- 2 straight tooth
- Medium duty
- Medium tooth penetration

### PC-132-2SCS

2 teeth / .396” Wide

- 2 spherical tooth
- Medium duty
- Medium tooth penetration

### PC-130-4SC

4 teeth / .561” Wide

- 4 straight tooth
- Medium duty
- Medium tooth penetration

### PC-132-4SC

4 teeth / .561” Wide

- 4 spherical tooth
- Medium duty
- Medium tooth penetration

### PC-145-5SC

5 teeth / .561” Wide

- 45 ° angle tooth
- Medium duty
- Medium tooth penetration

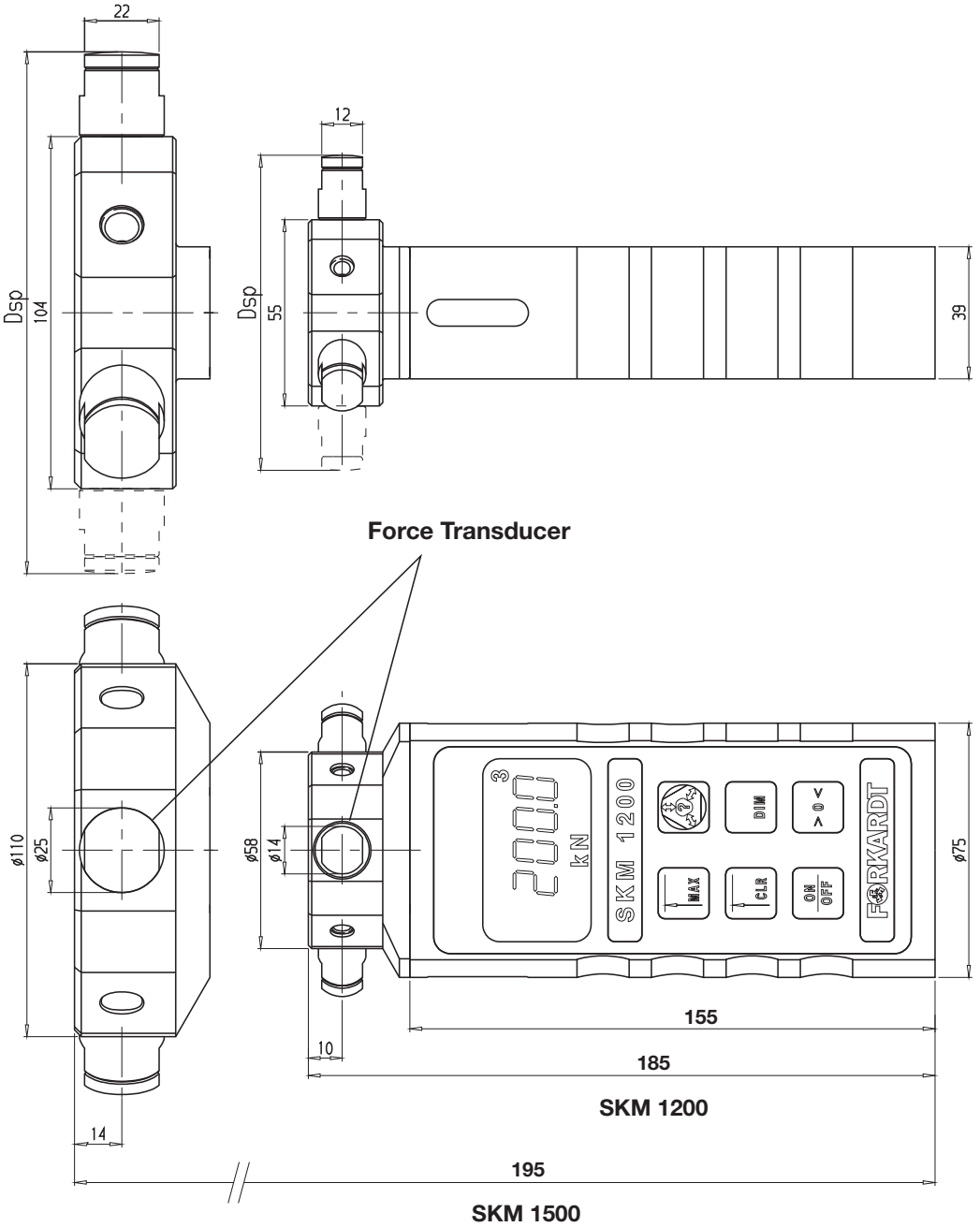
### PC-110

Spherical / .561” Wide

- Spherical
- No tooth penetration

# Electronic Grip Force Meter SKM

Forkardt SKM grip force meters are electronic units with a compact design. The devices are ready for static testing of 2, 3, and 6 jaw chucks. They are equipped with high precision force pick-up heads. The electronics, C-MOS technology, is housed in an ergonomically designed aluminum casing. A microprocessor and program routine ensure the testing operation is consistent and highly accurate.



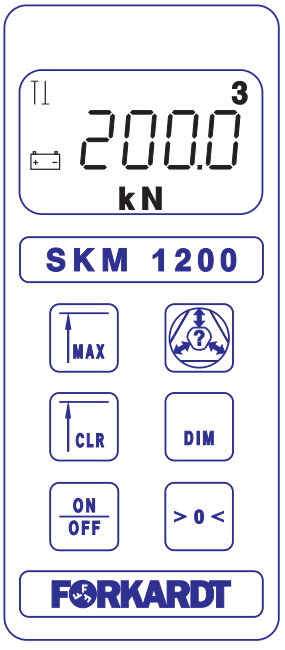
# ACC

# Grip Force Meter

| | SKM12000 | SKM1500 |
|---|---|---|
| Measuring Range | 0 ... 200.0 Kn | 0 ... 500.0 Kn |
| Lowest Unit of Measurement | 0.1 Kn | |
| Permitted Overload | 100 ... 120% Of max. Range value and display flash | |
| Excess Overload | > 120% Of max. Range value, flashes, display blank | |
| Display Range | 0 ... 20,000 Digit´s | |
| Measuring Tolerance | < +/- 0.5 % Of of max. Range value | |
| Measuring Frequency | 1000 Hz | |
| Display Frequency | 4 Hz (average value from 250 readings) | |
| Maximum Value Record | Maximum value memory | |
| Unit Scales | T, kn, k lbs | |
| Number of Jaws | 2, 3, 6 | |
| Battery | Rechargeable with mains adapter 230 vac / 50 hz | |
| Operating Time | 10 Hours from a full charge | |
| Recharging Time | 8 Hours with unit switched off | |
| Casing Dimensions | 155 X 75 x 39 mm | |
| Insulation | To ip 65 standards | |
| Dimensions Measuring Head | 55 Mm Ø | 104 Mm Ø |
| Chucking Diameter (Dsp) | 63 ... 293 Mm Ø | 114 ... 544 Mm Ø |
| Weight | Approx 1.3 Kg | Approx 2.9 Kg |

## Display

| | |
|---|---|
| Number Of Jaws | 2, 3, 6 |
| ↑/↑↓ | Record Maximum Overload |
| Gripping Force | 0-200 kN (SKM 1200) |
| | 0-500 kN (SKM 1500) |
| Battery | Needs Charging |
| Unit Scale | t, kN, klbs |




## Key Functions


**Record Maximum Value**
The maximum value recorded is stored and displayed. Maximum value mode allows to take a reading in chucking situations when the display cannot be viewed. The maximum value remains displayed after unclamping the meter. The memory can be cleared before a new maximum value reading is taken by pressing the CLR button. If the memory isn't cleared manually it will be cleared automatically whenever the next reading is taken and the new result will be displayed. In order to avoid misinterpreted readings, the maximum recorded value is automatically deleted, whenever the meter is switched off.

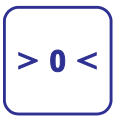
**Changing Number of Jaws**
The number of jaws changes each time this key is pressed. The chosen number of jaws is shown in the top right corner of the display. Possible values are 2, 3 and 6 jaws. The reading eventually displayed is the actual measurement multiplied by the number of jaws selected, and the maximum value is cleared.


**Clear Maximum Value**
The recorded maximum value is cleared, but the unit remains in maximum value mode.


**Changing the Unit Scale**
On pressing this button the unit scale is changed. Available unit scales are t, kN and klbs. The value read is recalculated and displayed when the unit scale is changed.

1 kN = 1000 N, 1 t = 9807 N,
1 k lbs = 1000 lbs = 4448 N


**Switching On / Off**
Current settings remain stored when the meter is switched off. Upon switching it back on, measuring operations can be started immediately.




**Adjusting the Zero-Point**
The zero-point on the meter is adjusted by pressing this button. This function should only be used when the meter is not clamped or loaded.

## SKM Accessories

Extension pieces can be mounted to the head of the FORKARDT SKM meters using combinations of tension and compression bolts. Chucking diameters of 63 to 293 mm (SKM 1200) and 114 to 544 mm (SKM 1500) can be accommodated (in 10 mm intervals). One of the tension or compression bolts must always be screwed into the matching hole on top of the measuring head (when viewed with display side up). The measuring sensor is located at this position in the measuring (the joint is recognizable). The remaining tension or compression bolts should be positioned appropriately according to the number of jaws.

| SKM 1200 | | | SKM 1500 | | |
|---|---|---|---|---|---|
| "System M6 3 Pieces Each" | Length 1 [mm] | Part No. | System M12 3 Pieces Each | Length 1 [mm] | Part No. |
| Tension Bolt | 4 | D164809020 | Tension Bolt | 5 | D164814020 |
| Tension Bolt | 9 | D164809021 | Tension Bolt | 10 | D164814021 |
| Tension Bolt | 14 | D164809022 | Tension Bolt | 15 | D164814022 |
| | | | Tension Bolt | 20 | D164814023 |
| Compression Bolt | 15 | D164809025 | Compression Bolt | 20 | D164814025 |
| Compression Bolt | 30 | D164809026 | Compression Bolt | 40 | D164814026 |
| Compression Bolt | 60 | D164809027 | Compression Bolt | 80 | D164814027 |
| | | | Compression Bolt | 160 | D164814028 |
| 2 Spanners (Gauge 12) | | | 2 Spanners (Gauge 22) | | |
| Carry-Case, Mains Adapter | | | Carry-Case, Mains Adapter | | |

**OEM Serviceable Chucks & Actuators**

- **Forkardt**
- **Buck Chuck**
- **SP**
- **Tork Lok**
- **NA Woodworth**
- **Logansport**
- **Sheffer**
- **Teikoku**

## Paid Repair

The Forkardt service department assesses and repairs all brands currently produced by Forkardt. Customers can send their workholding to the Forkardt plant to receive an assessment for the repairs needed to bring it within original working condition. Any new improvements or revisions to that model will be incorporated into the repair, as if you are receiving a new chuck at a discounted price.

Most estimates are sent within one week of the item arriving at the Forkardt facility. A non-refundable assessment fee may be charged if there are extra ordinary efforts required.

## Paid Service

Forkardt service technicians can help install or troubleshoot existing workholding set ups. This allows the customer to be trained and also allows the customer to reallocate resources by letting the experts take care of the product.

Technicians can perform on site training for preventative maintenance, disassembly and repair. This leads to improved and safer performance of the product.

Service technicians can also perform balancing on most brands of chucks in the field. This leads to improved performance of the machine, tooling and product.

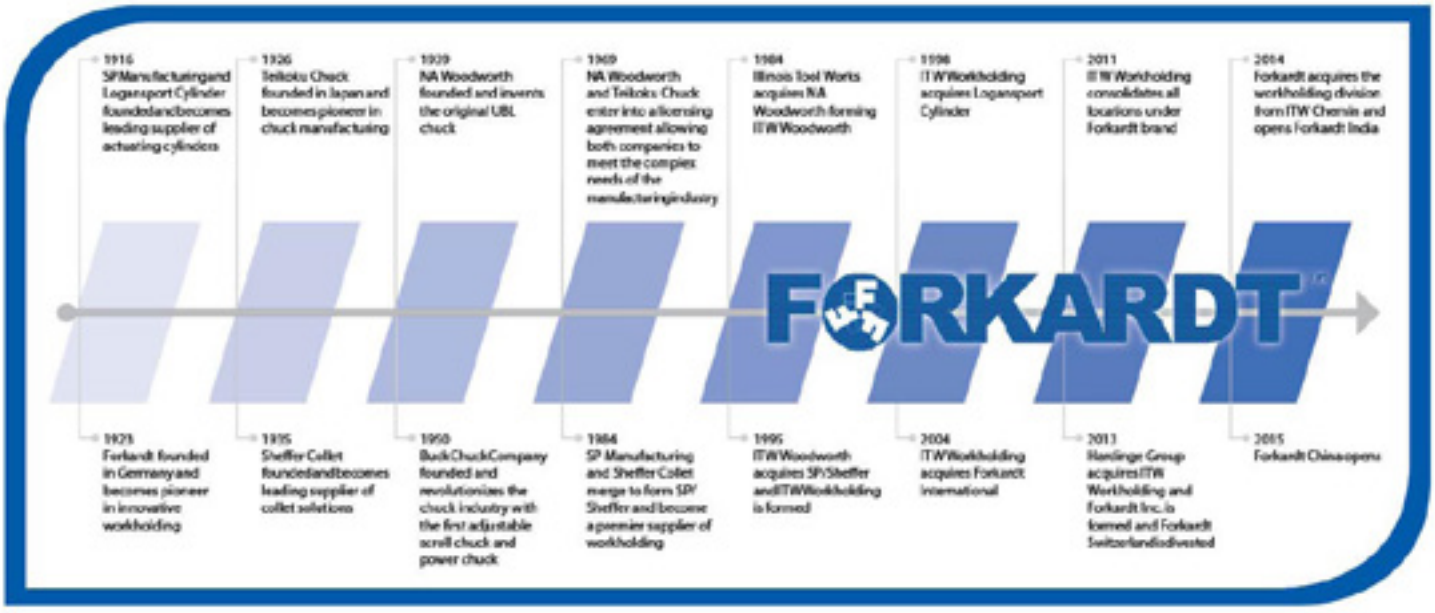
## Limited Warranty

Forkardt's products are warranted for a period of (1) year from date of delivery to be free from defects in material and workmanship.

This warranty does not include, nor does Forkardt assume responsibility for, defects or damage caused by misuse or abuse, alterations, service or repair by others, wear parts or failure to properly maintain the product.

**BEFORE & AFTER**

**7" 3 Jaw Diaphragm Chuck Assembly with Special Tooling**

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