



# **FORKARDT HARDINGE**



## **General Catalog**

## WE SOLVE YOUR GRIPPING PROBLEMS

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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.

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**

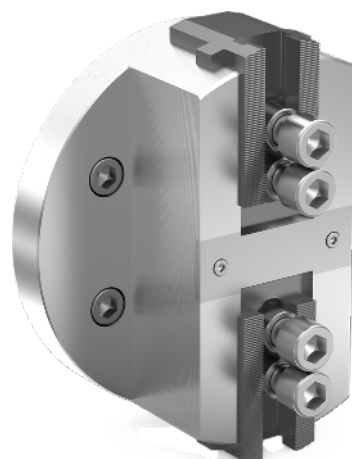
## BLN 2 JAW CLOSED CENTER POWER CHUCK

**Ideal for:**

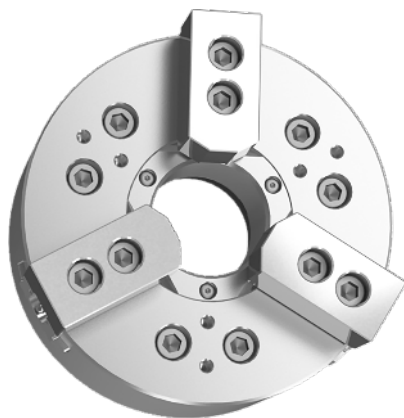
- Machining of irregular shaped components such as valves or fittings
- Ball-shaped parts requiring full envelope of jaws

**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



## 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 Features

- Adjust-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



Forkardt Hardinge 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 mm TIR repeatability

## HIGH PRECISION GRINDING AIR CHUCK

### Ideal for:

- Use on grinding machines
- Machining of abrasive materials

### Key Features

- 0.002 mm 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



Available in sizes 125 to 630mm

## F+ MANUAL QUICK CHANGE 3-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 4-JAW INDEPENDENT CHUCK

### Ideal for:

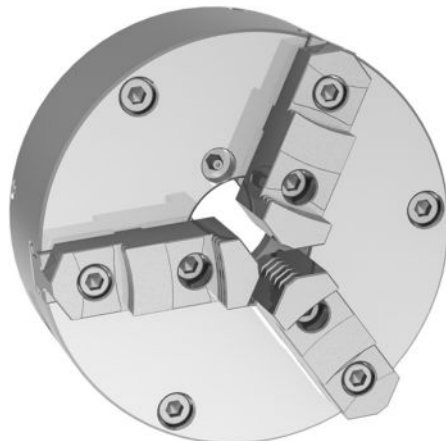
- Cylindrical work pieces
- Square or irregular shaped workpieces

### 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

- Adjust-Tru<sup>®</sup> for high precision and repeatability
- Self-centering operation

Forkardt Hardinge 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

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## HIGH CAPACITY - LS PULL DOWN LEVER CHUCK

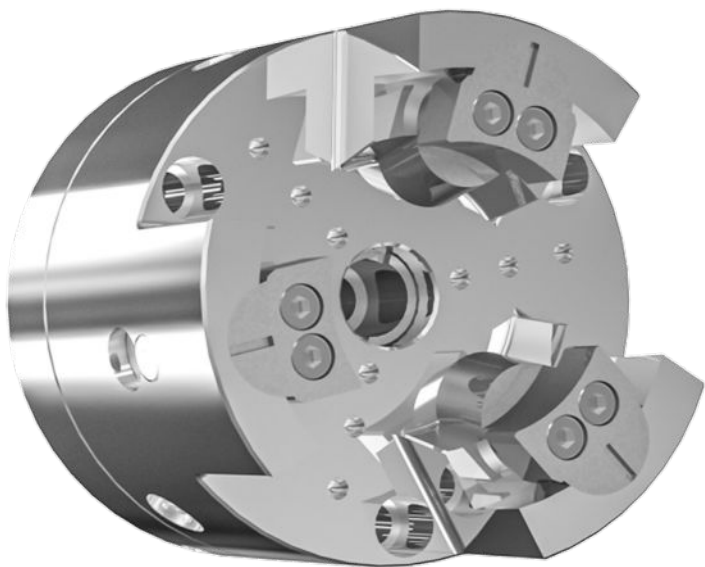
### Ideal for:

- Mass production
- Turning operations for roughing and finishing

### Key Features

- Hermetically sealed
- Long stroke
- Quick change jaws available

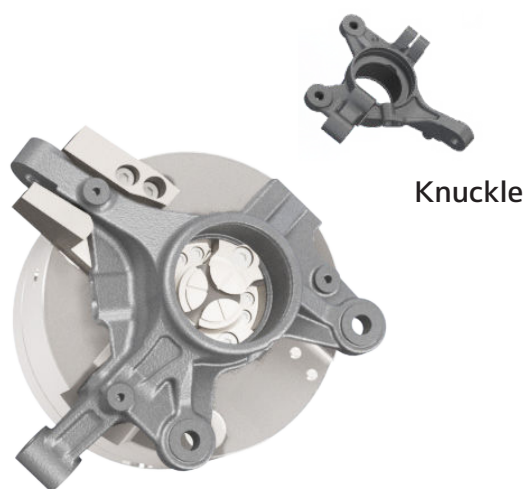
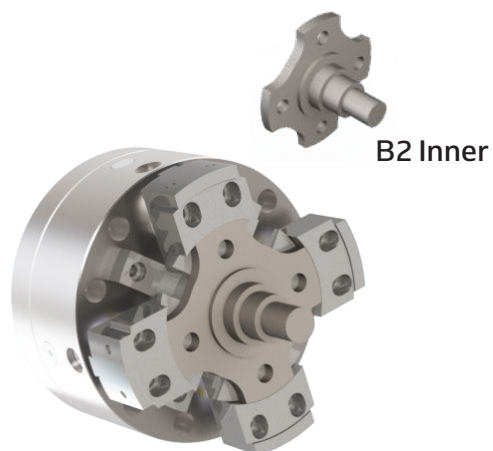
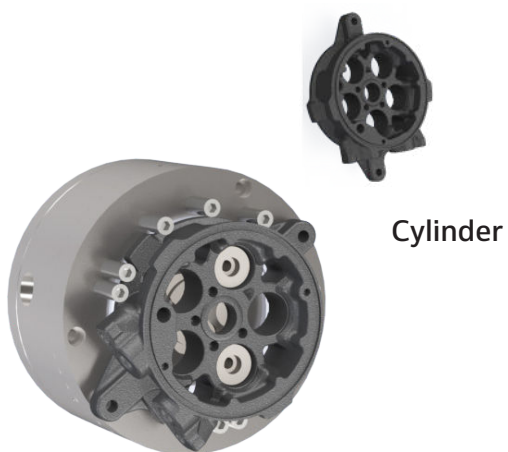
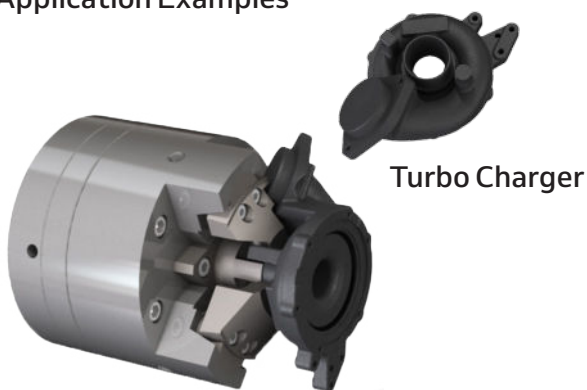




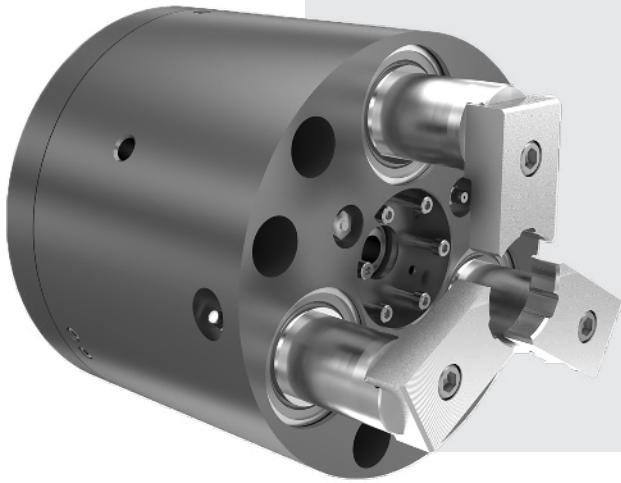
## Features & Benefits

- 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

## Application Examples



The Retractable Work Driver Power Chuck (RWD) extends and retract to cut shaft turning operations in half. The RWD 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

The RWD chuck allows machining of workpieces between centers over the entire length, eliminating unnecessary part handling

### Improved Concentricity & End Location

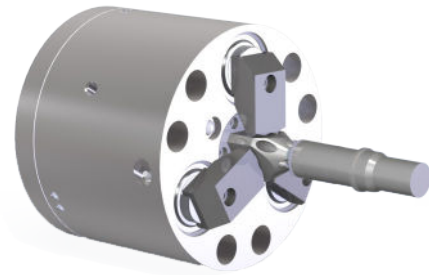
Drive Centers provide true between centers machining for greater accuracy, eliminating part turnaround

### 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



## RIM-LOK ID & 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 & 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 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 32 to 160mm.

The Forkardt Hardinge 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 Hardinge 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

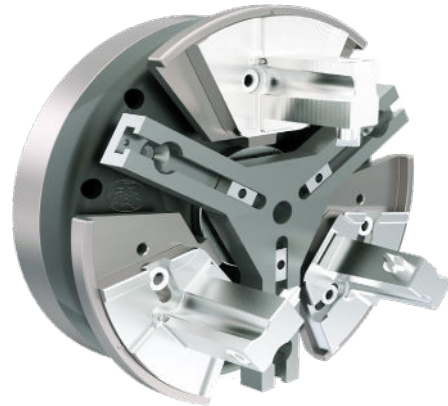
### Pull Back Gear Diaphragm

#### 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:

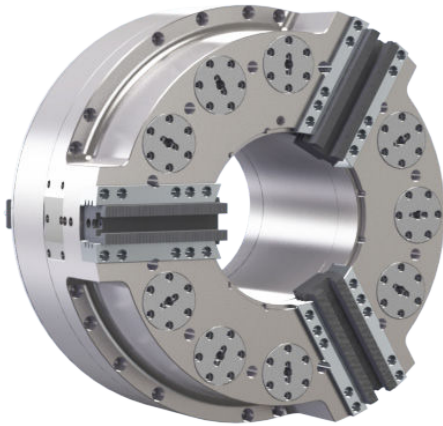
- Centrifugal force compensation
- Quick jaw changeover



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



Forkardt Hardinge 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

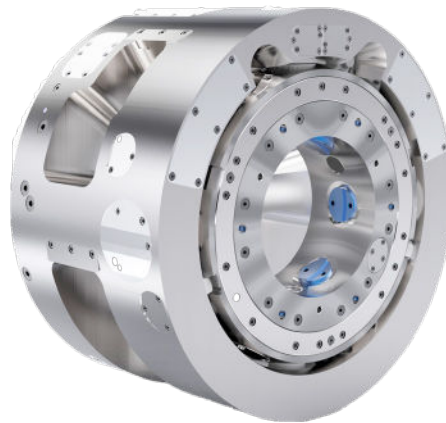
## ZS SERIES INDEX CHUCK

### Ideal for:

- Machining large oilfield couplings

### Key Features:

- 180° indexing
- Up to 18 clamping points



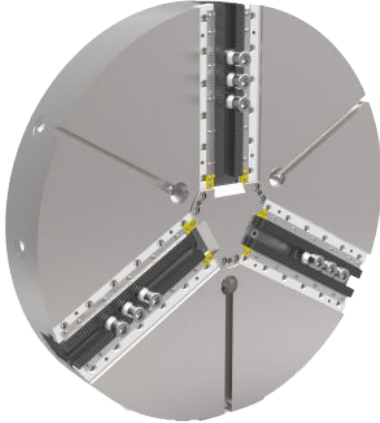
## UVE THRU HOLE AIR CLAMP CHUCK

### 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

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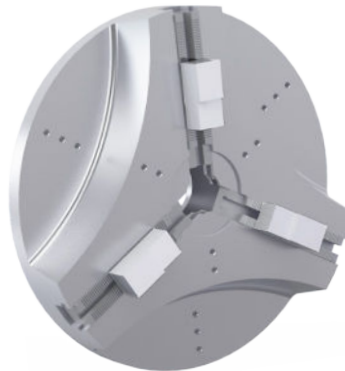
## KSL LIGHT WEIGHT POWER CHUCK

### 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:

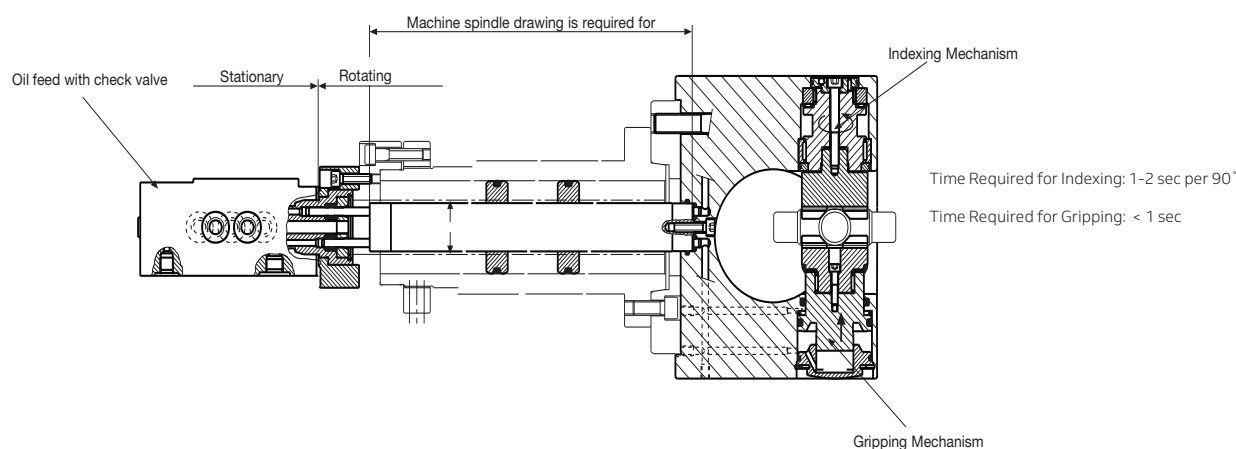
- Flat back and direct mount available
- American standard and solid jaws available



## 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



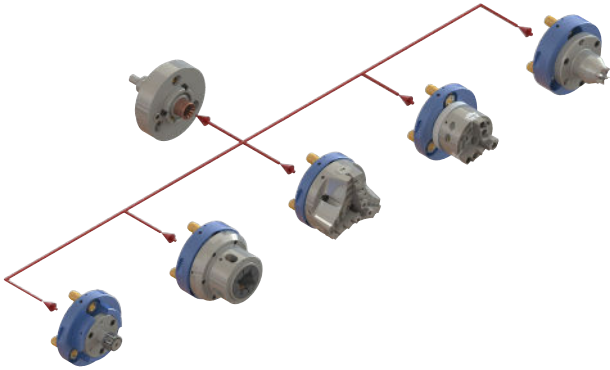
The chuck speed at which an indexing of the part during the rotation of the machine spindle can be carried out corresponds to  $\frac{2}{3}$  of the indicated speed.

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.

Forkardt Hardinge 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.

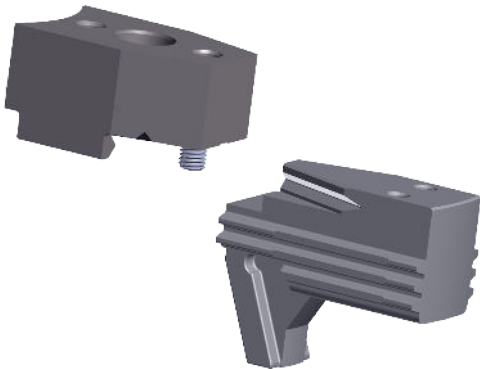
ForChange Quick Change System



Tru-Change Precision Coupling Rings



Quick Change Jaw System MIR



Replaceable Solid Carbide Inserts

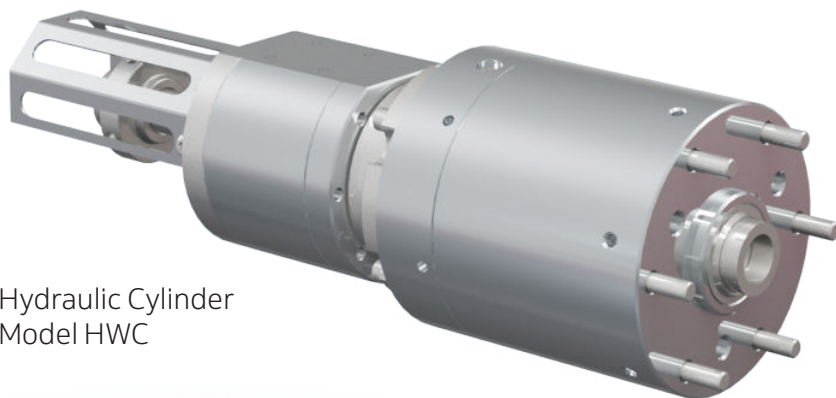


Grip Force Meter SKM

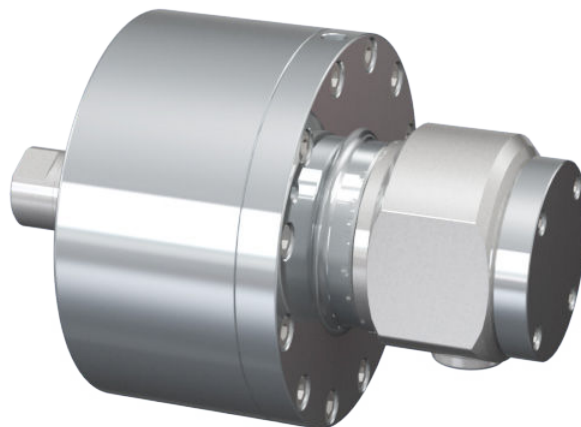


## APPLICATION SPECIFIC DESIGNS

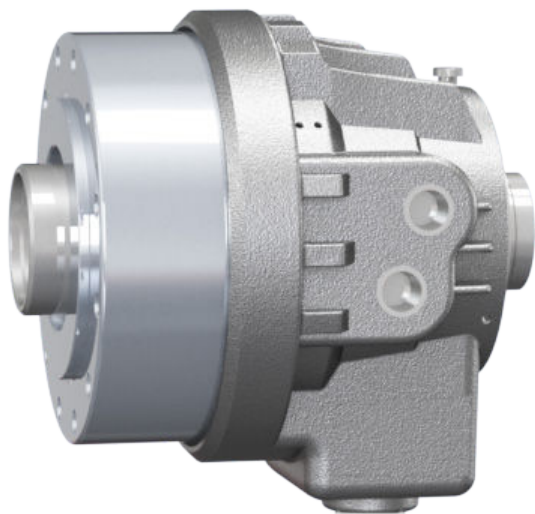
Forkardt Hardinge designs and builds rotating cylinders for any application. We offer a wide range of standard cylinder models, and our engineers can custom design specific performance characteristics to match the application. Below are some examples of designs created.



Hydraulic Cylinder  
Model HWC



Solid Hydraulic  
Cylinder Model BLR

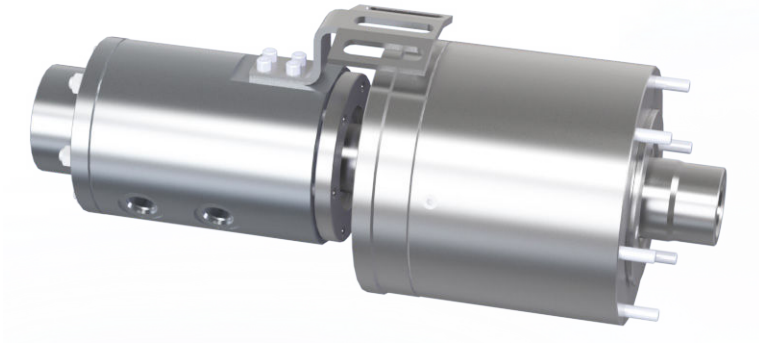


Hydraulic Thru-Hole  
Cylinder Model BC

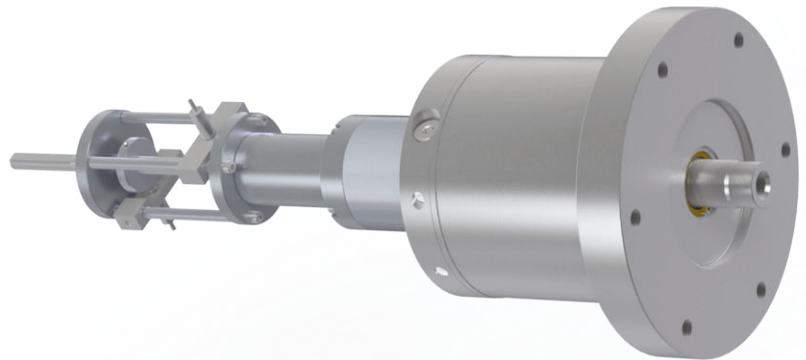




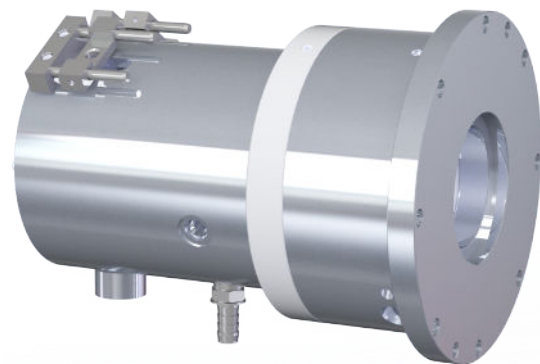
Pneumatic Cylinder  
Model ARC



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

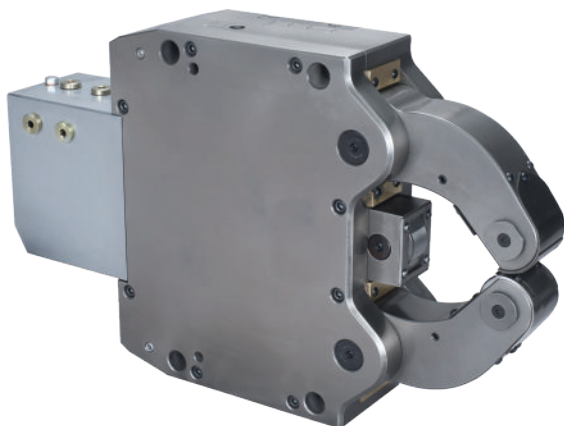


Hydraulic thru-hole cylinder with 3.5"  
thru hole, special mounting to suit  
customer machine & 1" stroke

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.

Forkardt Hardinge 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

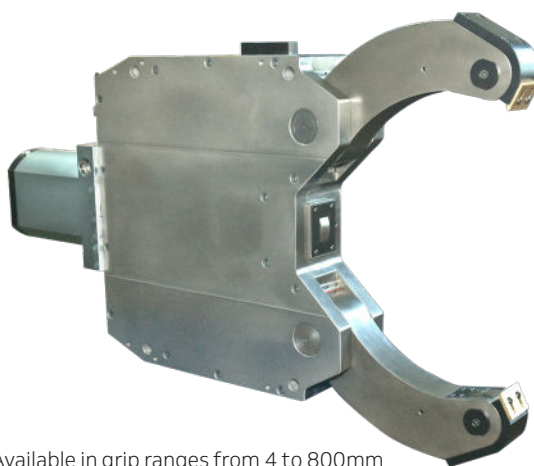
## MODEL SRFA

### Ideal for:

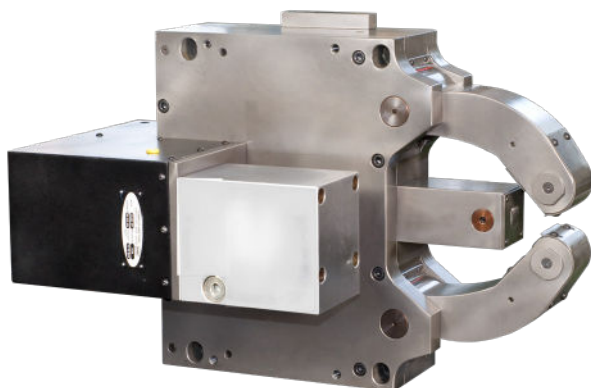
- Vertical loading applications

### 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

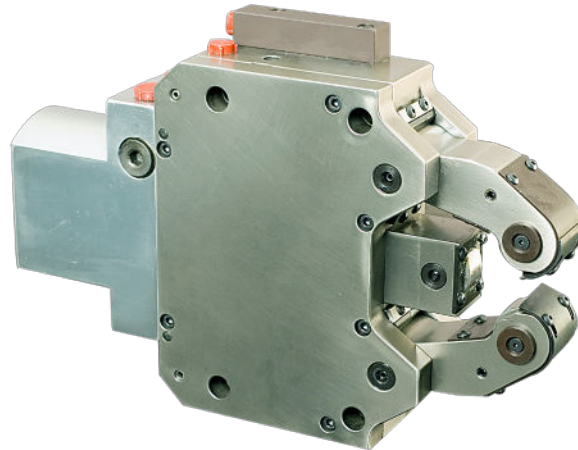
## MODEL SRF-C

**Ideal for:**

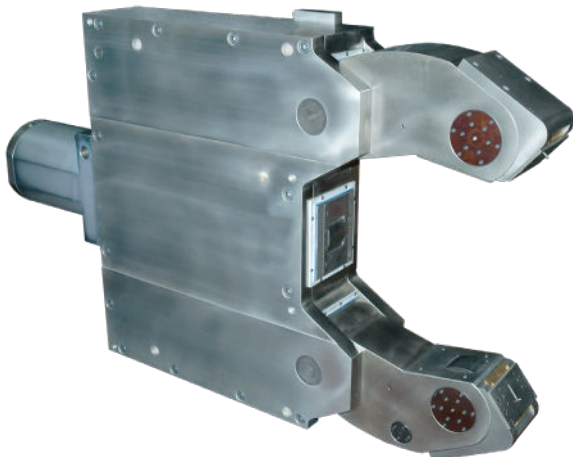
- Applications where space is an issue

**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, & 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.

## OEM Serviceable Chucks & Actuators

- Forkardt
- NA Woodworth
- BUCK Chuck
- Logansport
- SP
- Sheffer
- Tork Lok
- Teikoku



## Repair

Our 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.

## Service

Our 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 Hardinge'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

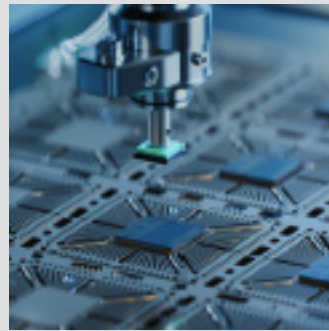
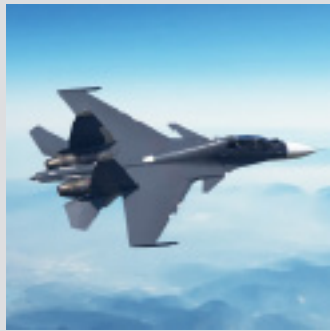


7" 3 Jaw Diaphragm Chuck Assembly with Special Tooling

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



## Forkardt Hardinge, a solution for every industry



**FORKARDT  
HARDINGE**

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