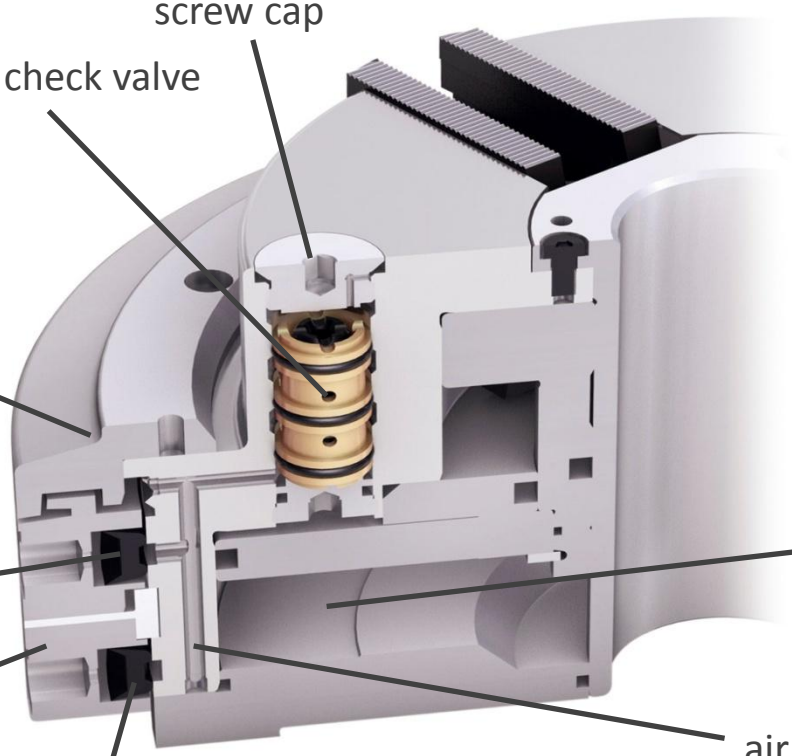
Superior Clamping and Gripping

SCHUNK

Installation TB-chucks and DRMB

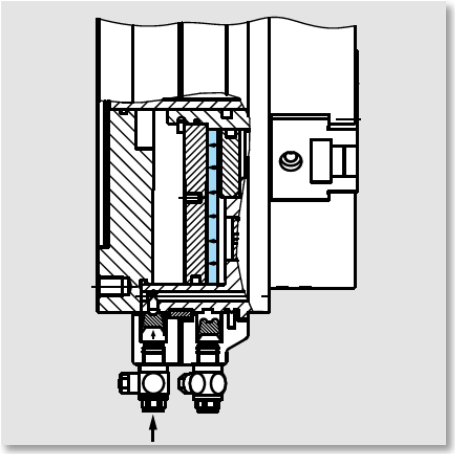
Function TB-chucks in general



Function TB-chucks in general

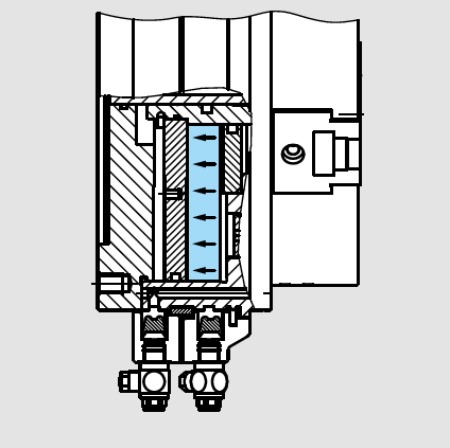
Opening and closing only possible at stopped machine spindle.

The profile seals deform radially under pneumatic pressure and seal on the chuck body to fill the cylinder chamber. The reached air pressure is maintained permanently through a non-return valve in the chuck.



The SCHUNK profile seals lift up to the expanded position.

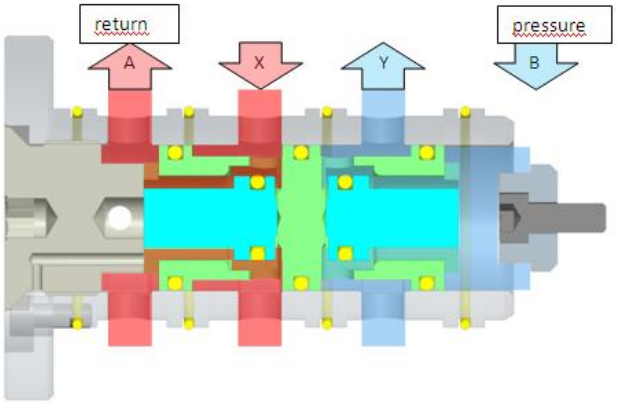
The air pressure is maintained by a non-return valve. The chuck can start to rotate.



Function check valve

Switchpoint of check valve (unlockable check valve) during clamping and opening.

Clamping:



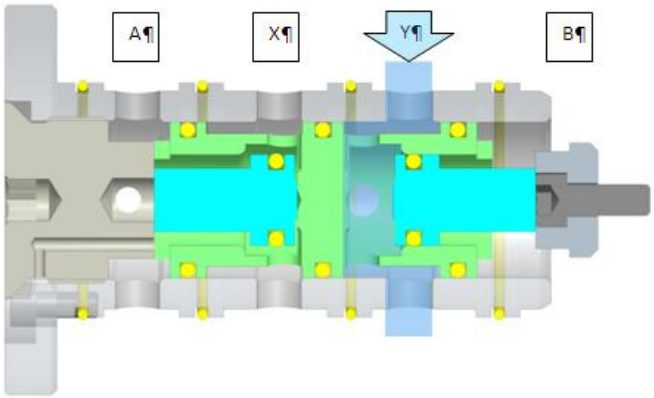
A = to distributor ring

X = cylinder chamber II

Y = cylinder chamber I

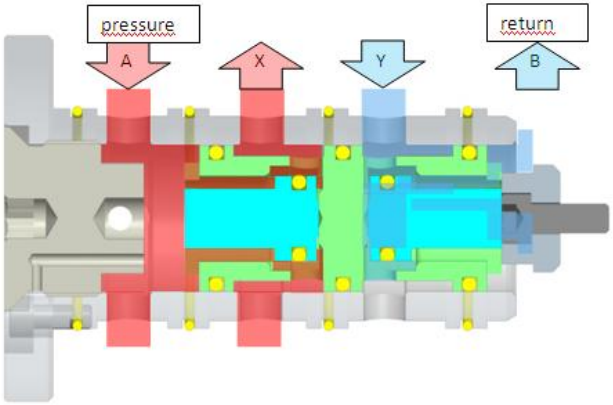
B = from distributor ring

Clamped:



Y = pressure maintenance cylinder chamber II

Function check valve

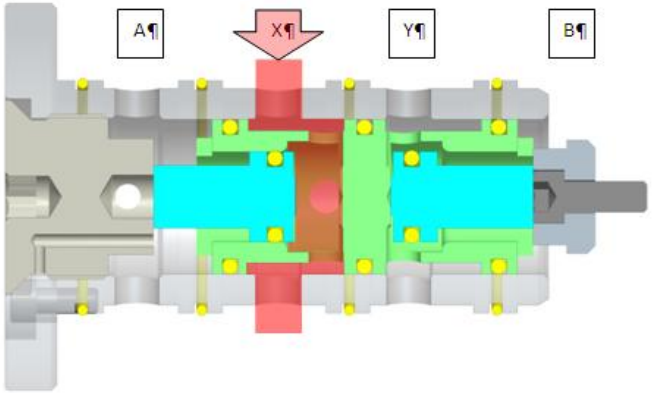


A = from distributor ring

Y = cylinder chamber II

X = cylinder chamber I

B = to distributor ring



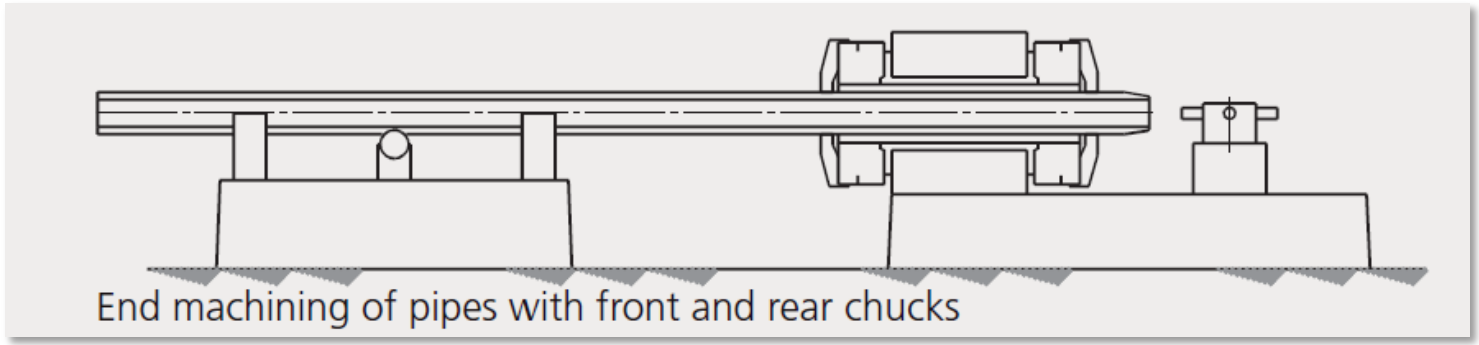
X = pressure maintenance

cylinder chamber I

When the air feed is depressurized the piston in the check valve seals the bore of the distributor ring. By switching the air pressure of the distributor ring is led in the other chamber, which moves the entire check valve in the opposite position.

Front & rear end chuck

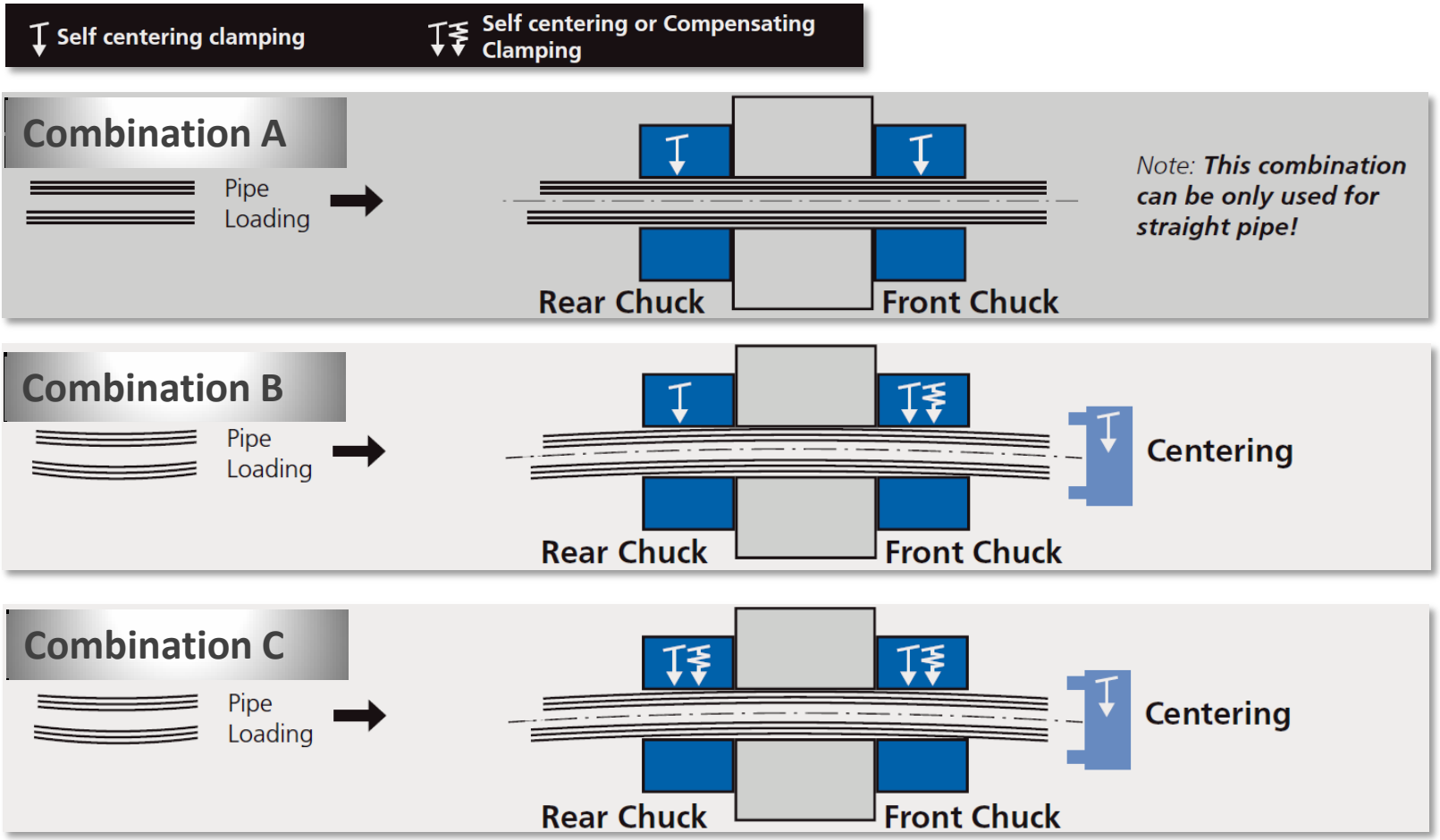
Application example



End machining of pipes with front and rear chucks

Front & rear end chuck

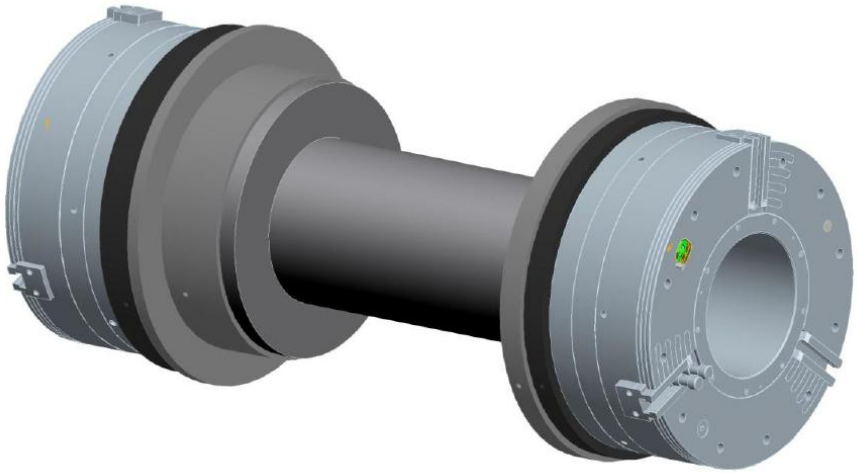
Different chuck combination



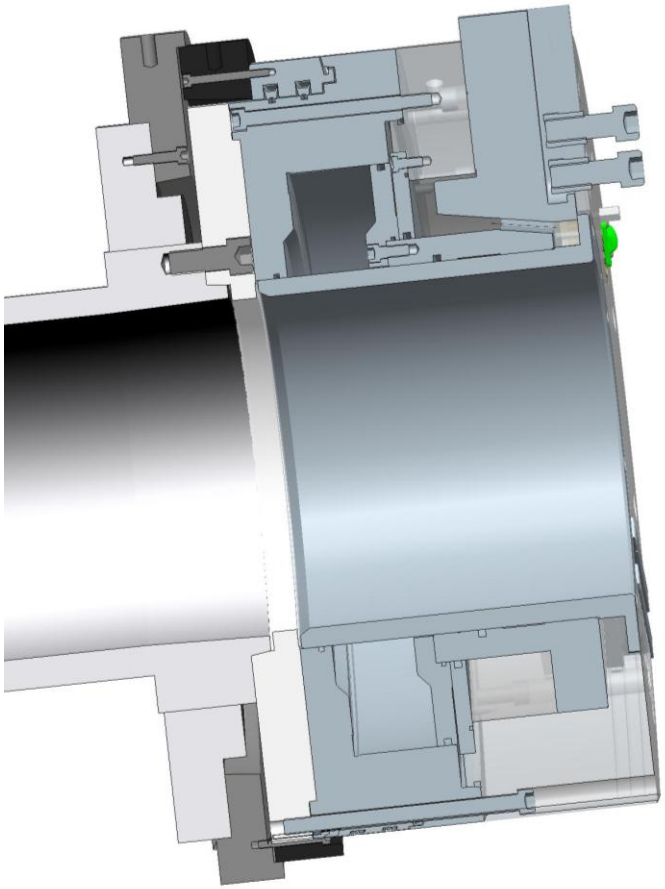
Installation front & rear end chuck

Example:

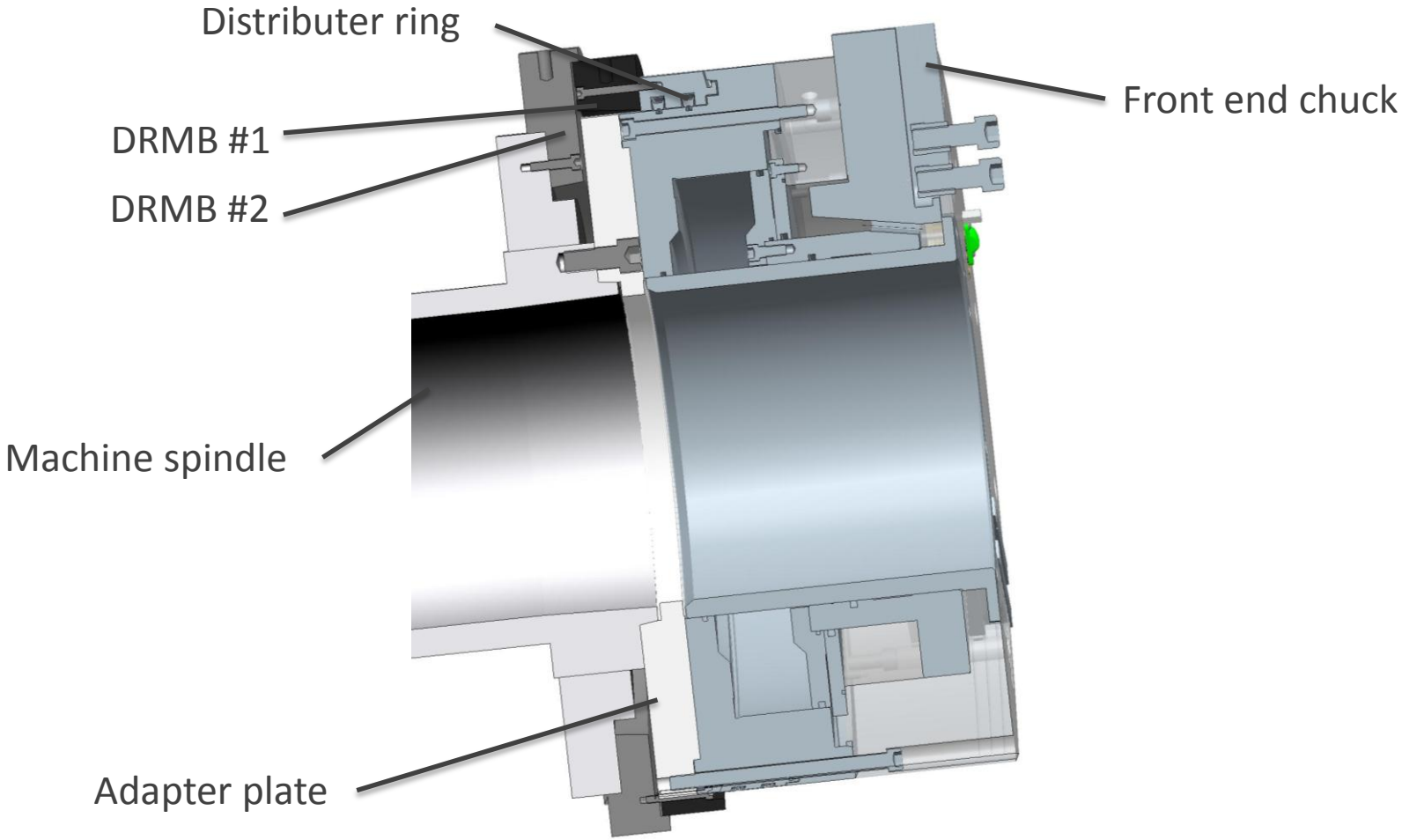
- Machine Type: Mori-Seiki
- Lathe chuck: ROTA TB-LH 850-375



Installation front end chuck



Installation front end chuck



Installation front end chuck

- Installing front DRMB (Distributor Ring Mounting Bracket)
- Front DRMB installed over spindle bearing cap
- Critical: O.D. dimension of spindle bearing cap. Needed before machining front DRMB.

Installation front end chuck

- The chuck adapter plate is then installed onto the A2-20 spindle nose
- Once installed, plate must be indicated in within 0.001“ (0,025 mm)

Installation front end chuck

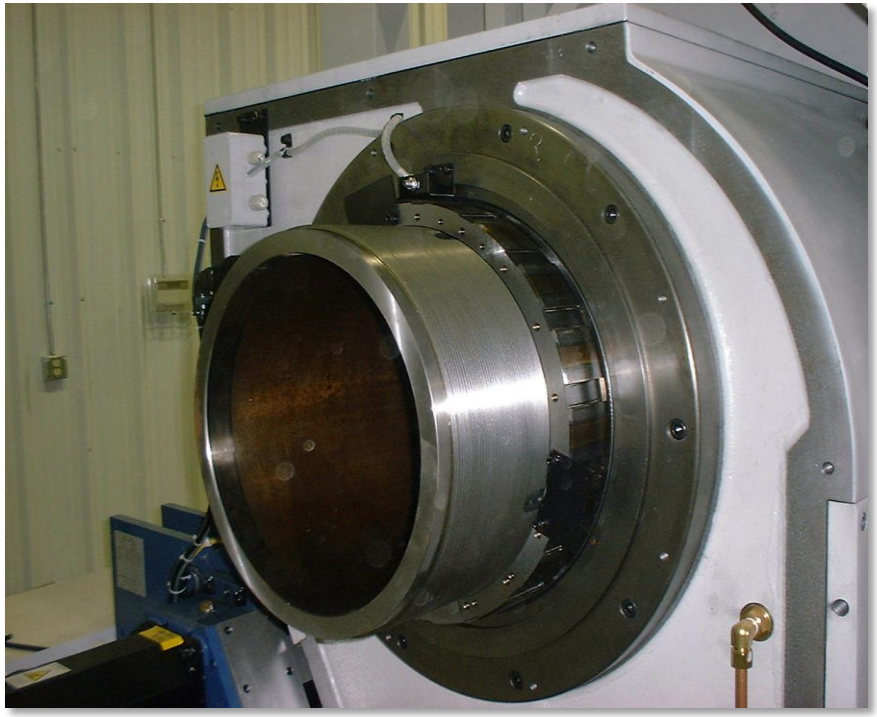
- Positioning chuck with crane for front end installation

Installation front end chuck

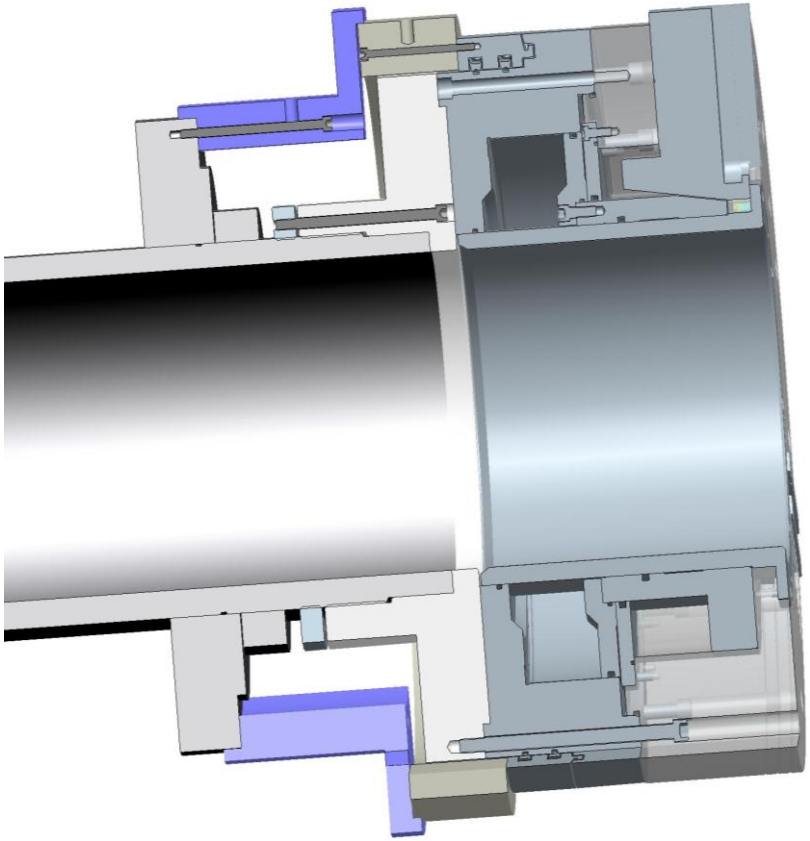
- Installing front end chuck
- Indicated in by loosening mounting bolts and adjusted by tapping the O.D. with dead blow hammer
- Once indicated within 0,001“, bolts must be re-tightened
- Front DRMB then adjusted forward and screwed into back of distributor ring

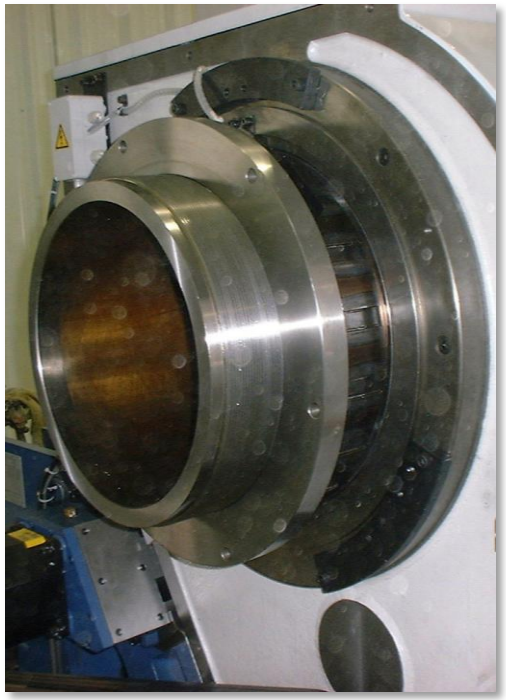
Installation rear end chuck

- Machine shown with rear cover removed

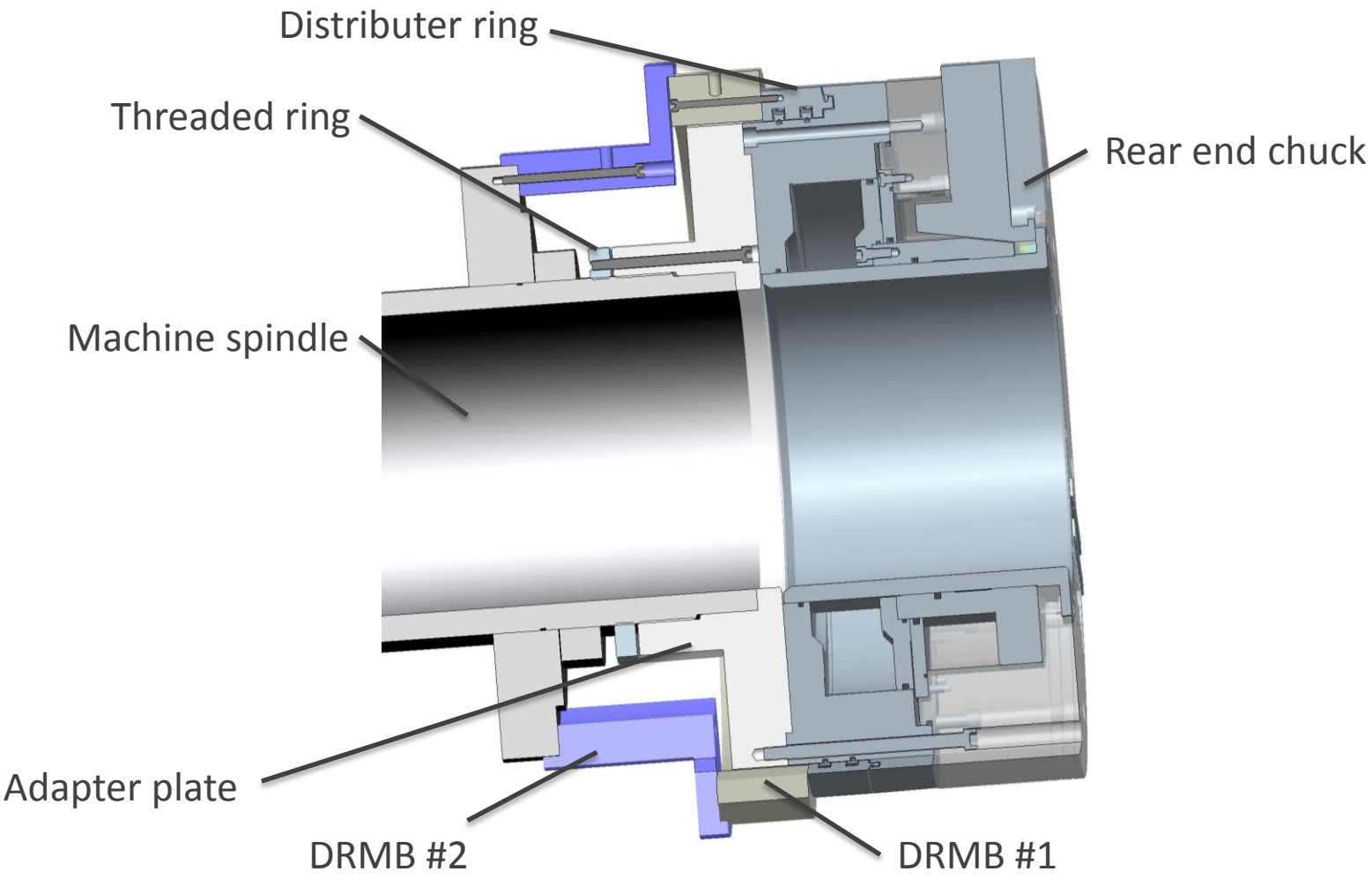


Installation rear end chuck





Installation rear end chuck

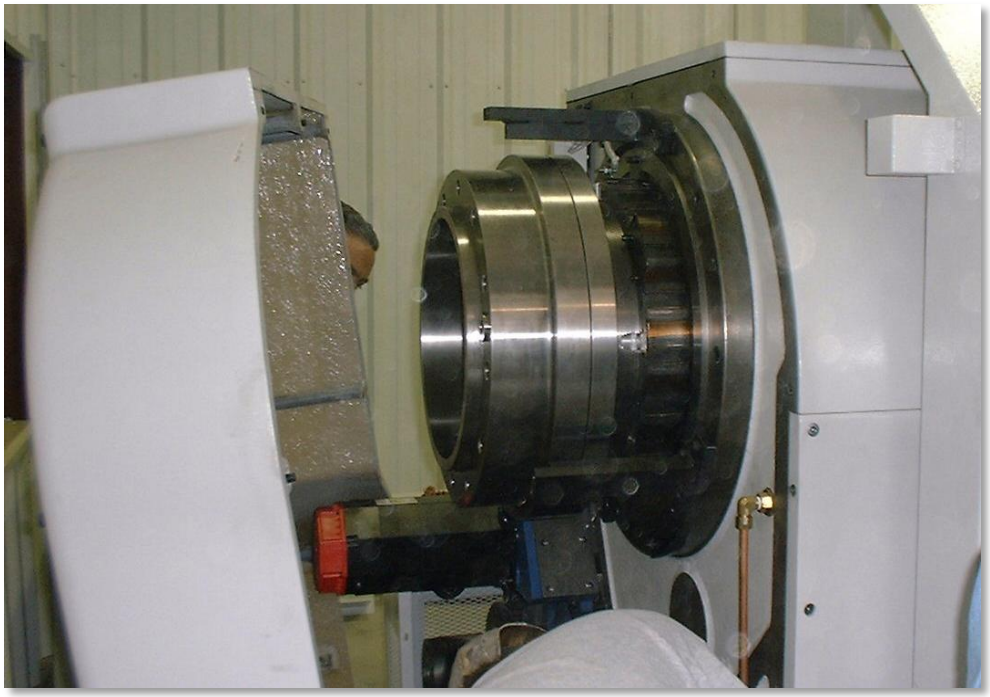


Installation rear end chuck

- Next, the rear A2-20 spindle nose is screwed into location
- The lock ring is then screwed against back face of the rear spindle nose
- Finally, the two parts are bolted together
- Sales point: SCHUNK is the only chuck manufacturer that provides the customer with a rear standard spindle nose

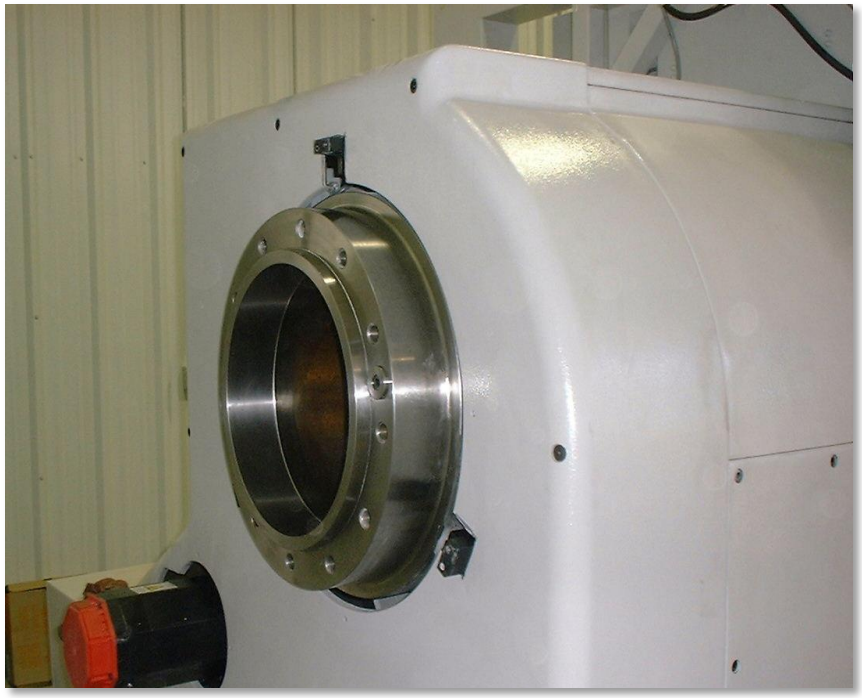
Installation rear end chuck

- Bases and extensions of rear (DRMB) are installed
- Rear cover cut in 3 locations to provice clearance for extensions of rear DRMB
- Rear machine cover then reinstalled



Installation rear end chuck

- Rear machine cover re-installed
- Customer now has a standard A2-20 spindle nose on rear of machine
- Note clearance cutouts for rear DRMB mounting brackets



Installation rear end chuck

- Rear chuck adapter plate being installed
- Plate to be indicated in by loosening mounting bolts, then tapping around O.D. of plate
- Plate to be indicated in within 0,001“
- Once indicated in, bolts are then re-tightened

Installation rear end chuck

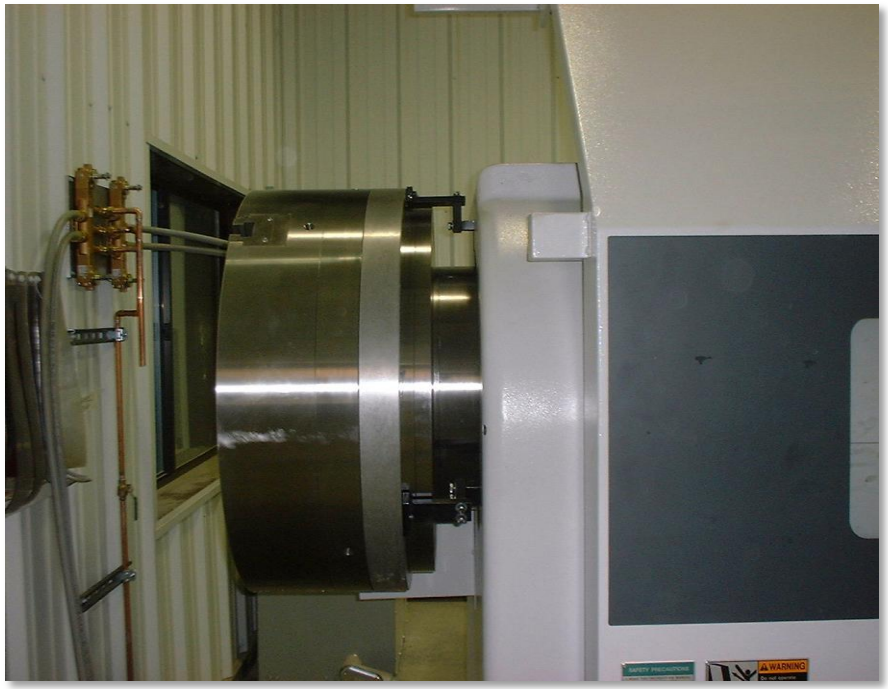
- Using a crane, the chuck is moved into position to allow attachment to chuck adapter plate at rear of machine

Installation rear end chuck

- Chuck is then mounted and indicated within 0,001“
- Same procedures as front end chuck for indication

Installation rear end chuck

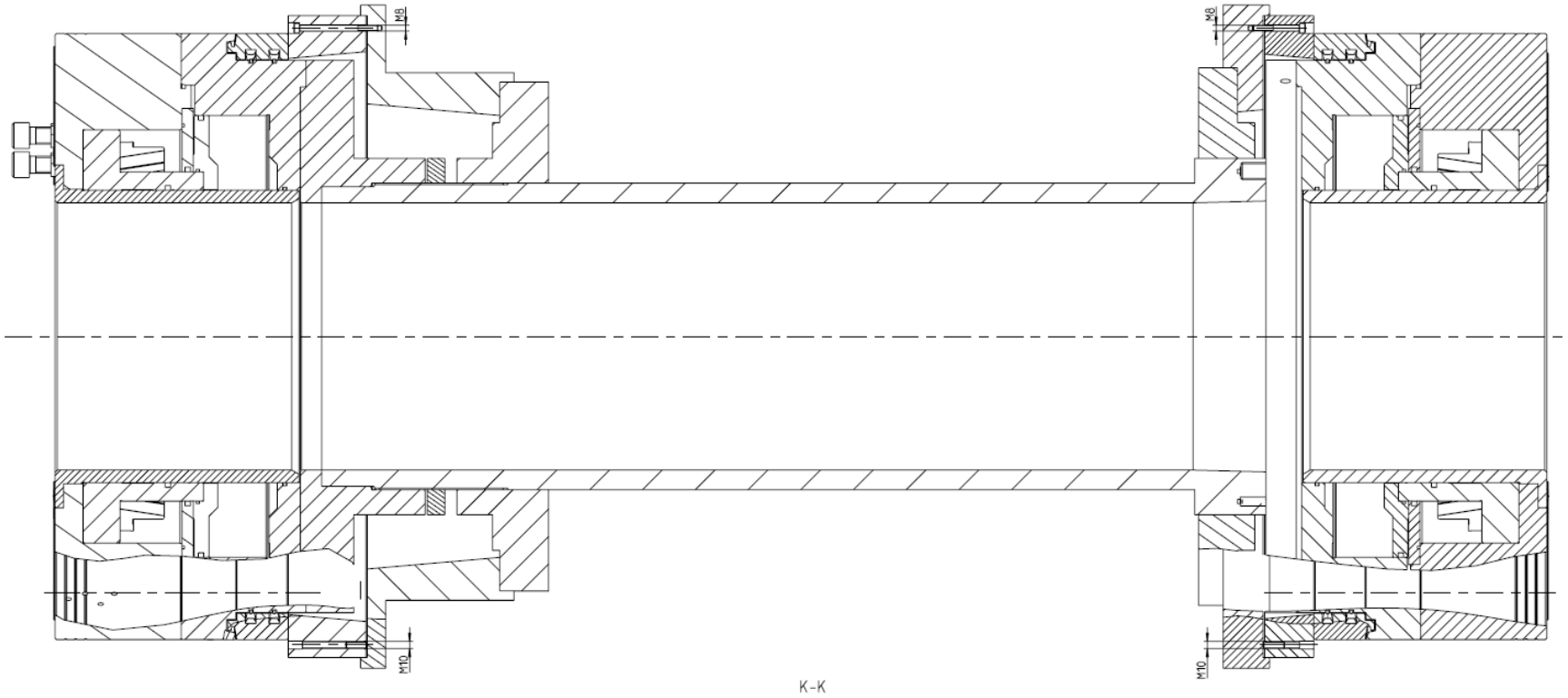
- Once chuck is installed, the remaining components of the rear DRMB are bolted into the back of the distributor ring



Installation rear end chuck

- Air lines are installed from solenoid valves to distributor ring
- We recommend using the ELKE (2F) unit to actuate and control the chucks
- Air lines are fixed and will not be removed during machine operation

Installation front & rear end chucks



Installation front & rear end chucks

- Temporary air lines are installed to check chuck actuation
- Customer to install permanent steel braided air lines when they adjust machine to actuate chucks with M codes
- Installation complete

Example front end chuck with steady rest

- DOOSAN PUMA 800L
- ROTA TB-LH 850-375

Example rear end chuck with ELKE/2F

- DOOSAN PUMA 800L
- ROTA TB-LH 850-375

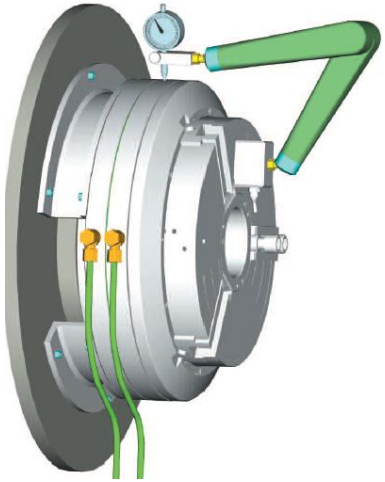
Distributer ring mounting on spindle

Stationary distributer ring mounting with a one piece distrbuter ring (TB/EP/-LH)

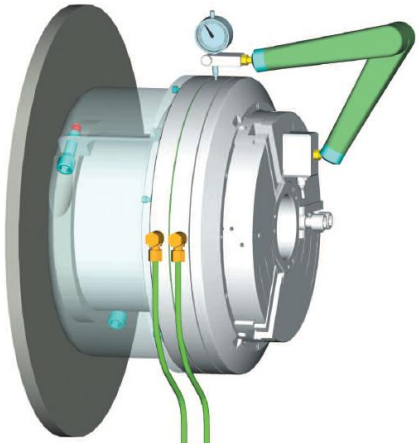
The distributer ring is mounted on the spindle box of the machine in a stationary manner using fastening elements (distance consoles or mounting brackets) and must be centered by these distance consoles and brackets both, axially and radially.

There must be no contact between the stationary distributer ring and the rotating chuck.

Mounting via segments, hard to adjust T.I.R, open for contamniation



Mounting solution with closed clamping ring Better sealed against contamination



DRMB example on TB chucks

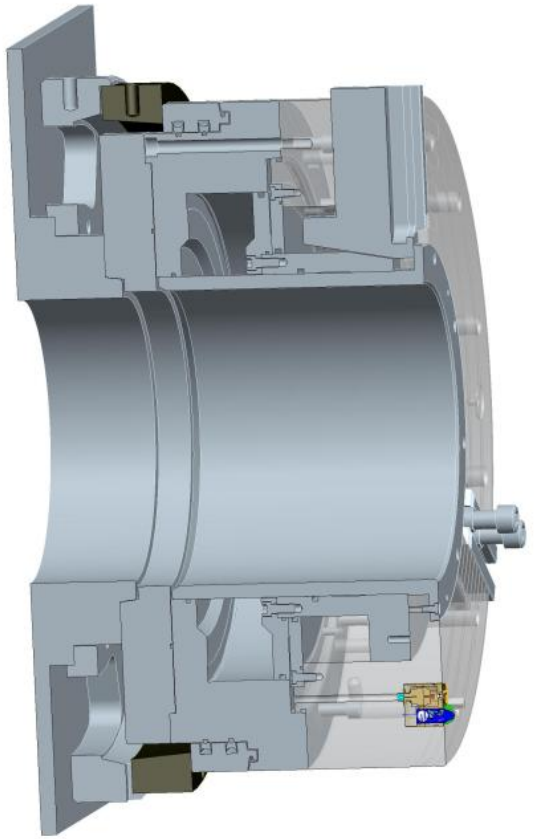
Mounting with distance consoles

DRMB example on TB chucks

Mounting with distance consoles

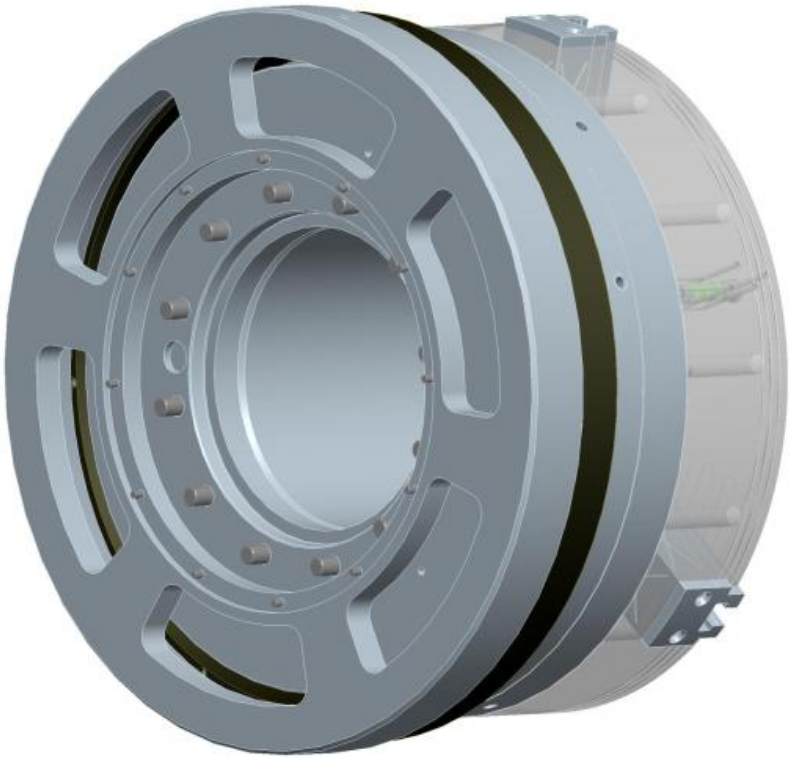
Complex DRMB examples on TB-chucks

Mounting with complete distance ring



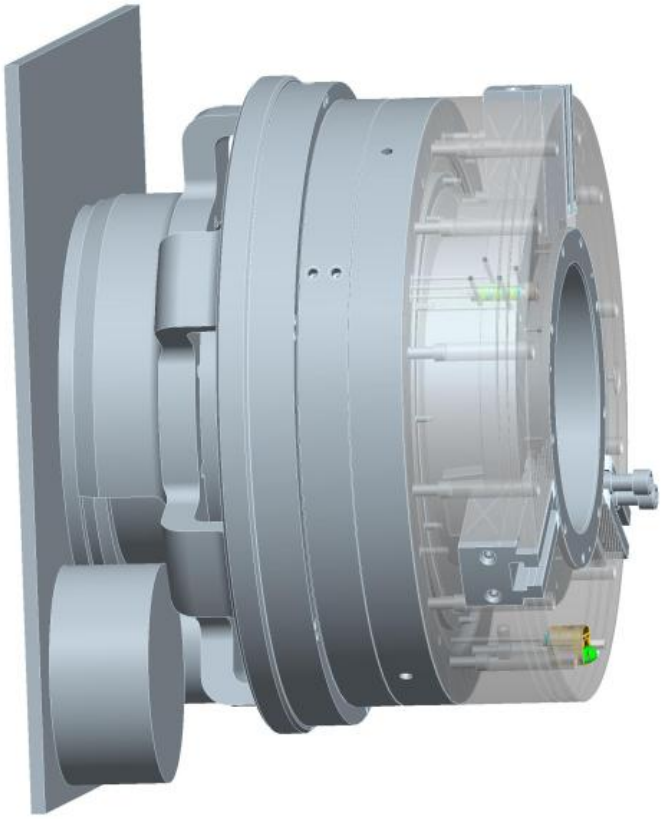
Complex DRMB examples on TB-chucks

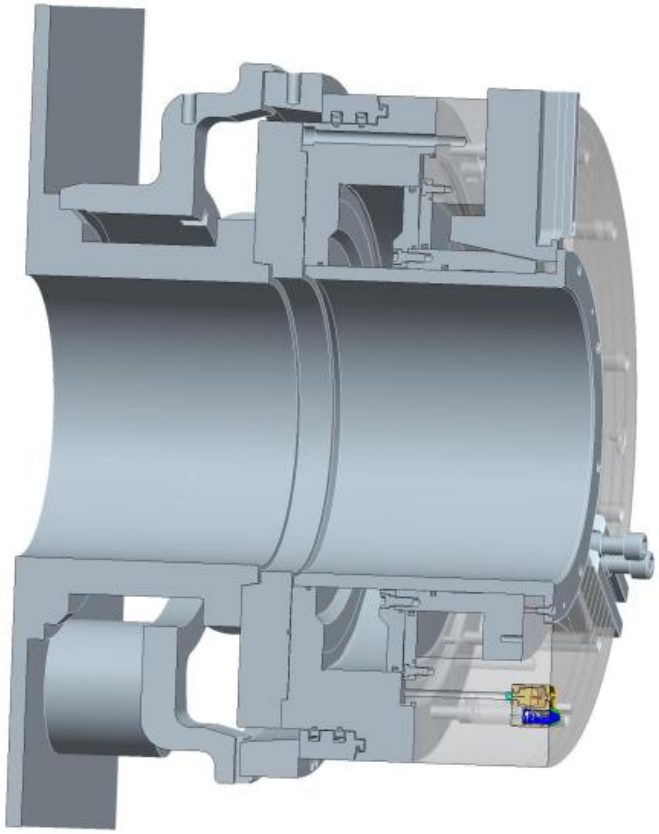
Mounting with complete distance ring



Complex DRMB examples on TB-chucks

Mounting with complete distance ring





Complex DRMB examples on TB-chucks

Mounting with complete distance ring

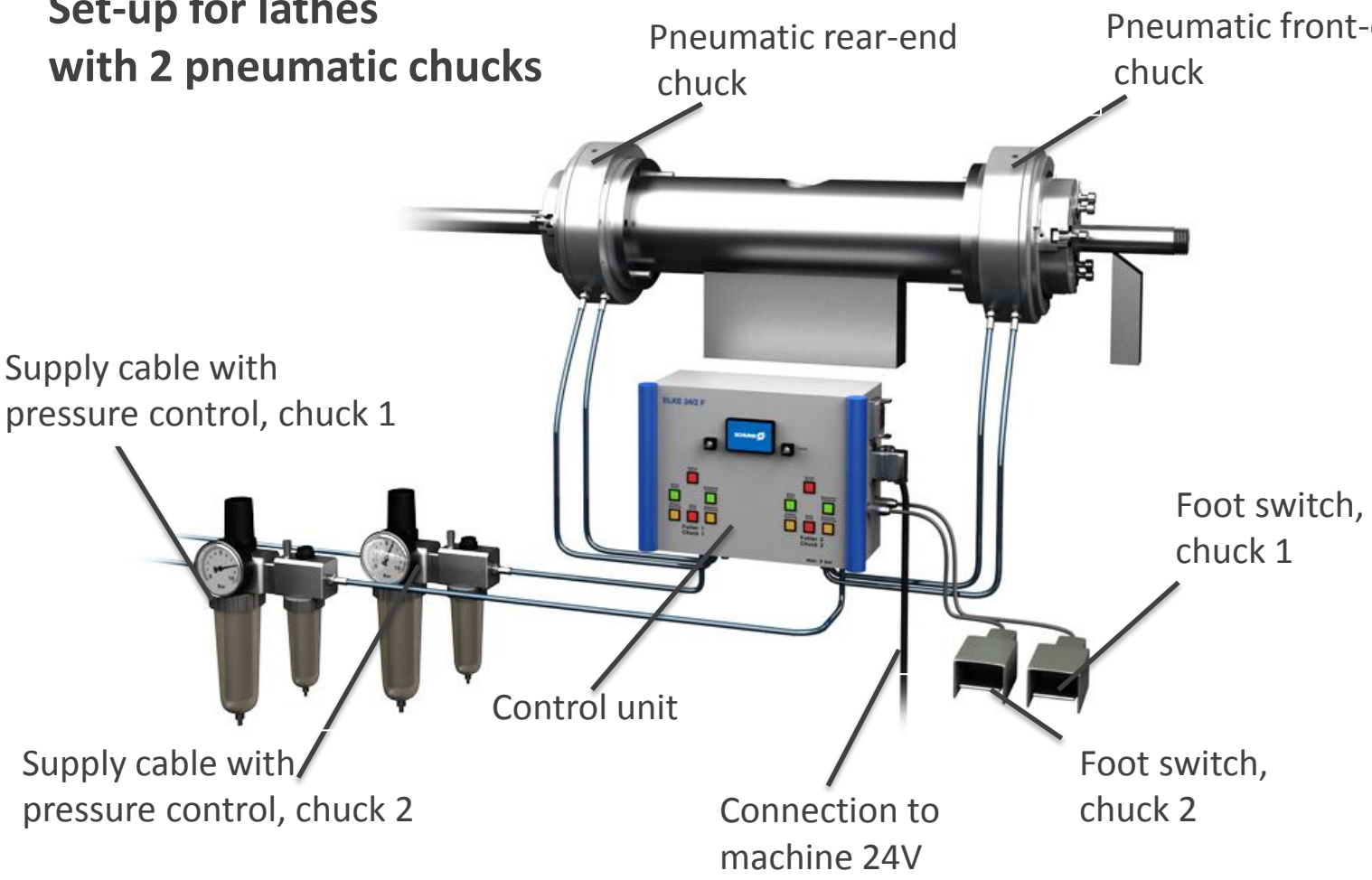
Monitoring system ELKE 2F

Operation and control **Chuck 1**

Operation and control **Chuck 2**

Monitoring system ELKE 2F

Set-up for lathes
with 2 pneumatic chucks



Monitoring system ELKE/2F

Operating modes:

5 operating modes for controlling the chuck are available on the ELKE 24/2 F (operating pressure 2-8 bar):

- Actuation of the pneumatic front-end chuck only
- Actuation of the pneumatic rear-end chuck only
- Actuation of the pneumatic front-end chuck first and then the rear-end chuck
- Actuation of the pneumatic rear-end chuck first and then the front-end chuck
- Synchronous actuation of both chucks

Monitoring system ELKE/2F

Advantages	Customer benefits
2 chucks can be controlled	Ideal for front-end and rear-end machining
5 different operating modes	The ideal operating mode is available for every application
Integrated pressure monitoring	Maximum operational safety
Up to max. 4 RSS units can be integrated (max. 2 per chuck)	Additional confirmation prompts via RSS-P1 and RSS-W1
Large display	Clear function display
2 foot switches can be connected	Optimum ease of machine operation
„Teach in“ function	The control unit can be optimized and adjusted to individual processes via the „Teach in“ function
Illuminated push-buttons for operation	Clear and safe routine operation guaranteed
Fast opening and closing times	Quicker and safer workpiece clamping, shorter cycle times
Different chuck pressure can be set for each of the chucks	Each chuck can be adapted to the clamping situation

Superior Clamping and Gripping

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