



Instructions for the removal and installation of position transducers

Operating and maintenance manual for Chapter 5.5 Position transducer

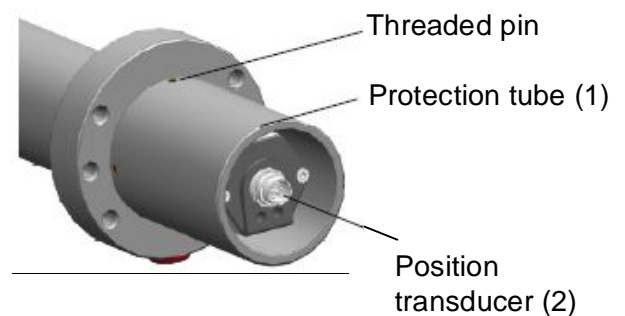
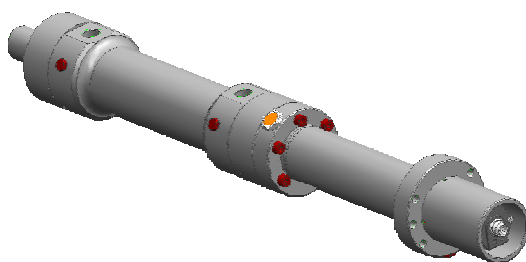
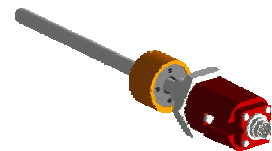
The following chapters will show in detail how to install and remove typically used magnetostrictive and inductive position transducers.
For further information and safety notices, please refer to the Hänchen operating and maintenance manual.

You can also return the cylinder to Hänchen for wear part replacement.
Having a position transducer installed by Hänchen guarantees

- correct choice and installation of all components
- an electronic function test of the position transducer in the cylinder
- a pressure test of the with a position transducer

1. Magnetostrictive position transducer

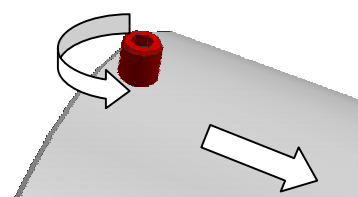
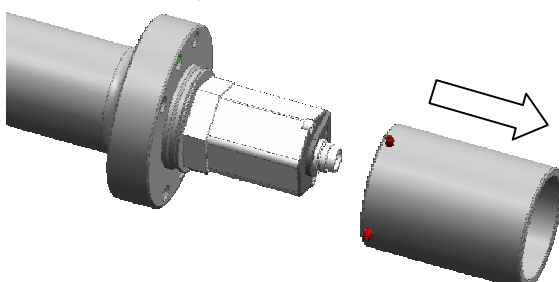
1.1. Version with four threaded pins on the outside



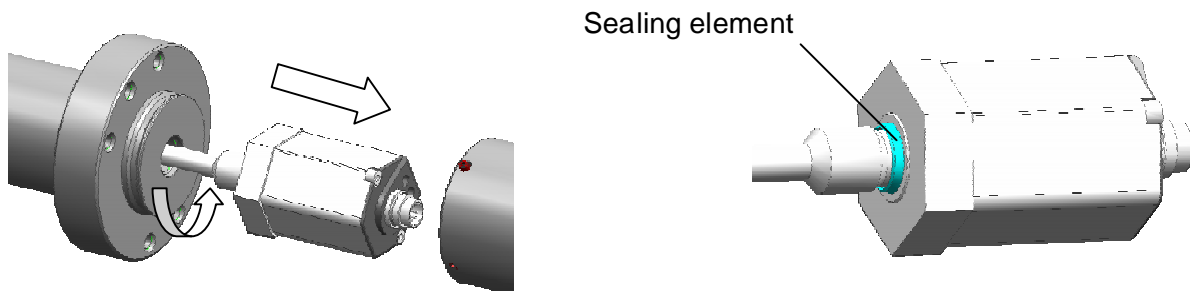
Removal

Attention: First retract piston rod and depressurize the cylinder completely!

- Remove connecting plug of position transducer (2)
- Unscrew threaded pins (4x M5, SW=2.5)
- Carefully remove protection tube (1)



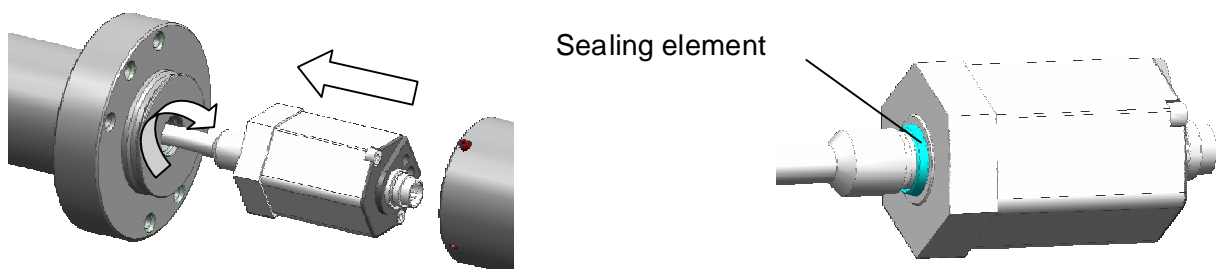
- Unscrew position transducer (2) from cover in anticlockwise direction
- Pull position transducer out of cover carefully and without force.
- **Attention: Oil might leak out**
- Remove sealing element sealing the position transducer



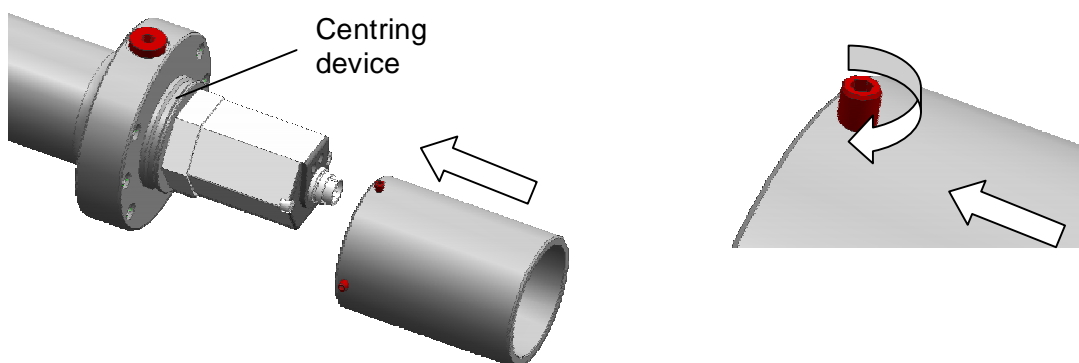
Installation

Attention: Piston rod must be retracted and cylinder completely depressurized!

- Before screwing the position transducer in, apply medium-strength threadlocker to the thread
- Insert position transducer incl. new sealing element into cover without force and tighten in clockwise direction
- Make sure that sealing element is fitted correctly
- The torque of the position transducer's thread is 30 Nm



- Then carefully push protection tube onto centring device
- Fix threaded pins using threadlocker and tighten them
- Fix connecting plug of position transducer (2)



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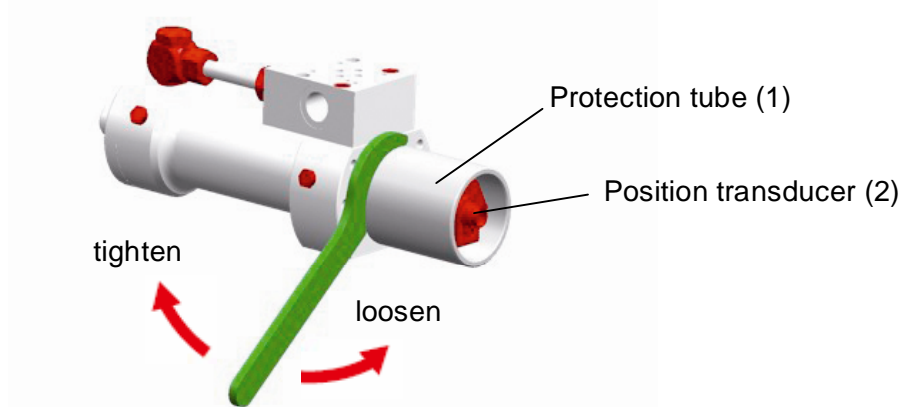
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1.2. Version with two hook wrench holes on the outside

Removal

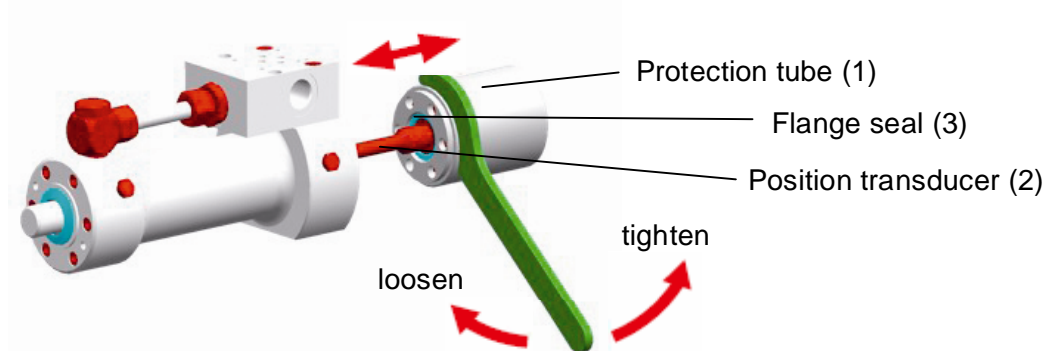
Attention: First retract piston rod and depressurize the cylinder completely!



- Remove connecting plug of position transducer (2)
 - Use correct hook wrench (Art. no. 0293000A) to unscrew protection tube
 - Unscrew protection tube (1) together with position transducer (2) from cover in anticlockwise direction
 - Pull position transducer out of cover carefully and without force
- Attention: Oil might leak out**

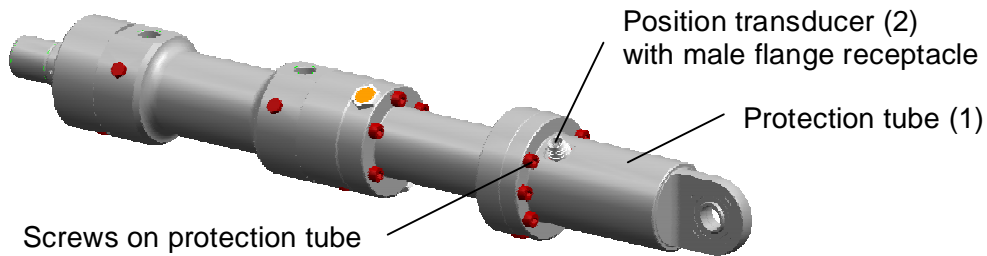
Installation

Attention: Piston rod must be retracted and cylinder completely depressurized!



- Push position transducer into protection tube through central hole until hexagon touches inner front-side hexagon centring device of protection tube
- Insert flange seal (3)
- Before screwing the position transducer in, apply medium-strength threadlocker to the thread
- Insert position transducer with protection tube and flange seal into cover without force and tighten in clockwise direction
- Use correct hook wrench (Art. no. 0293000A) to tighten protection tube
- The torque of the position transducer's thread is 30 Nm
- Fix connecting plug of position transducer (2)

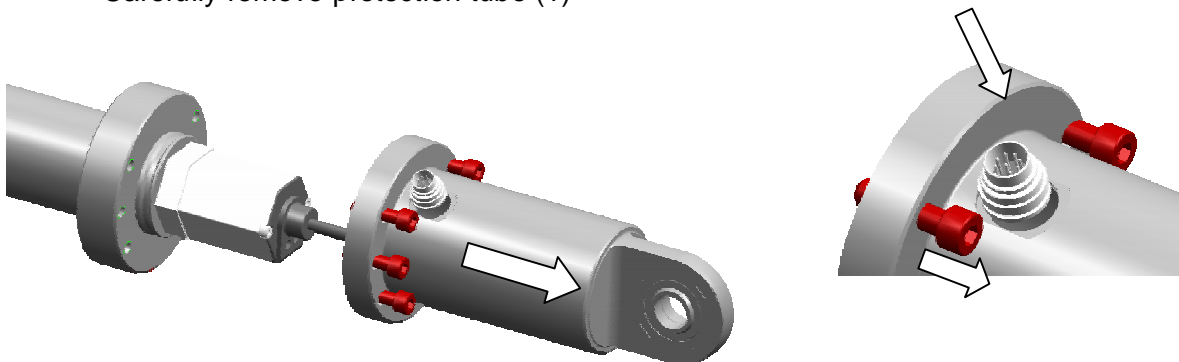
1.3. Version Protection tube with mounting



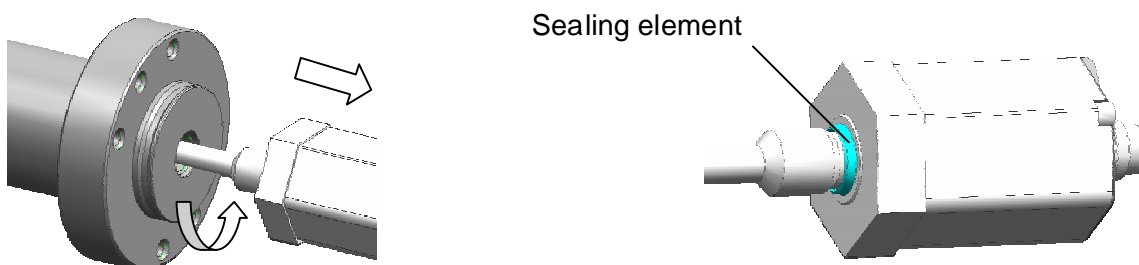
Removal

Attention: First retract piston rod and depressurize the cylinder completely!

- Remove connecting plug from male flange receptacle of position transducer (2)
- Carefully loosen nut on male flange receptacle, push male flange receptacle inside protection tube
- Loosen and remove screws on protection tube
- Carefully remove protection tube (1)



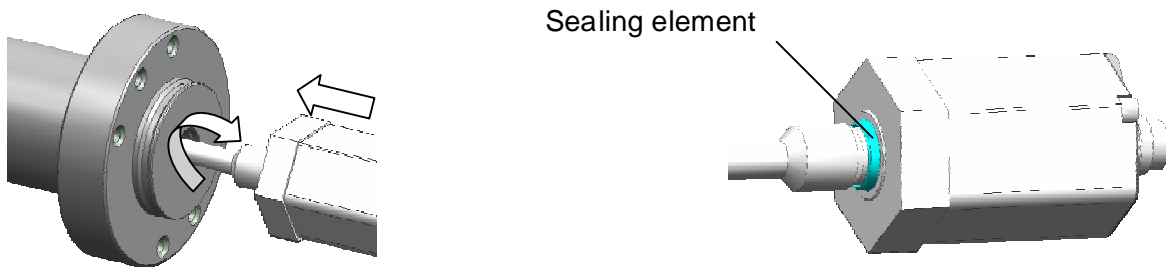
- Unscrew position transducer (2) from cover in anticlockwise direction
- Pull position transducer out of cover carefully and without force. **Attention: Oil might leak out**
- Remove sealing element sealing the position transducer



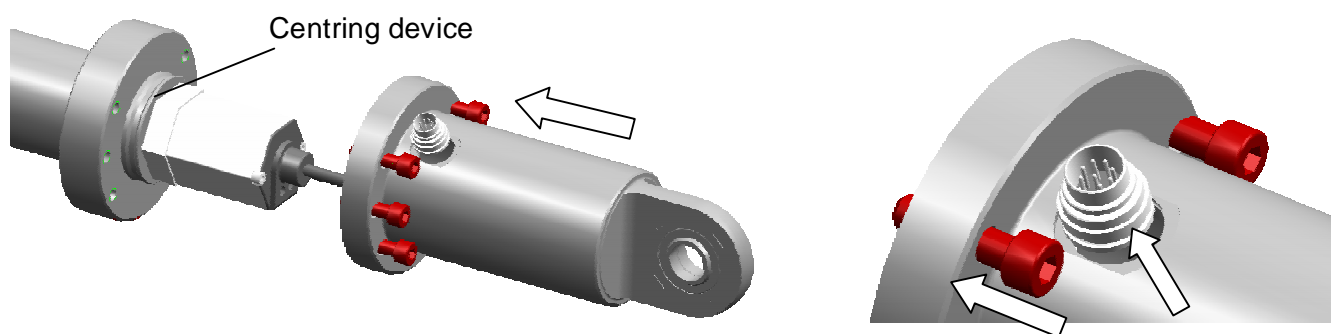
Installation

Attention: Piston rod must be retracted and cylinder completely depressurized!

- Before screwing the position transducer in, apply medium-strength threadlocker to the thread
- Insert position transducer with protection tube into cover without force and tighten in clockwise direction
- Make sure that sealing element is fitted correctly
- The torque of the position transducer's thread is 30 Nm



- Lead cable out through protection tube and secure with nut
- Carefully push protection tube onto centring device and secure it on cover using at least 2 screws in a crosswise pattern
- Then tighten all screws in a crosswise pattern with the prescribed torque (see operating and maintenance manual)
- Fix connecting plug of position transducer (2)



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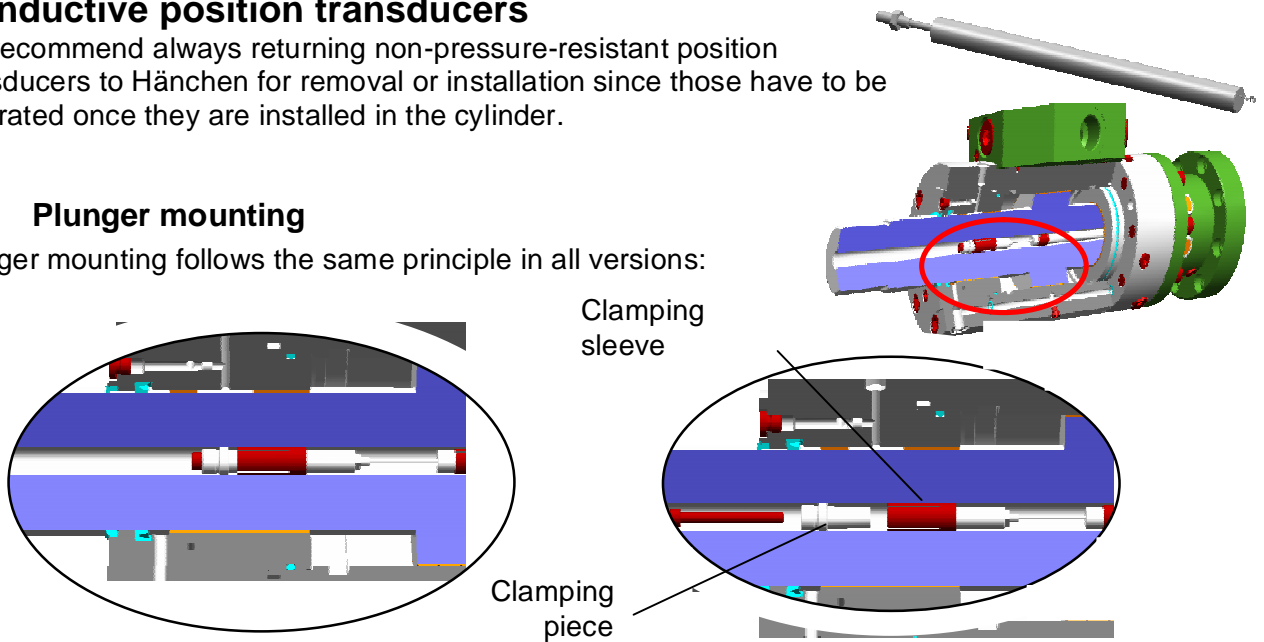
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2. Inductive position transducers

We recommend always returning non-pressure-resistant position transducers to Hänchen for removal or installation since those have to be calibrated once they are installed in the cylinder.

2.1. Plunger mounting

Plunger mounting follows the same principle in all versions:

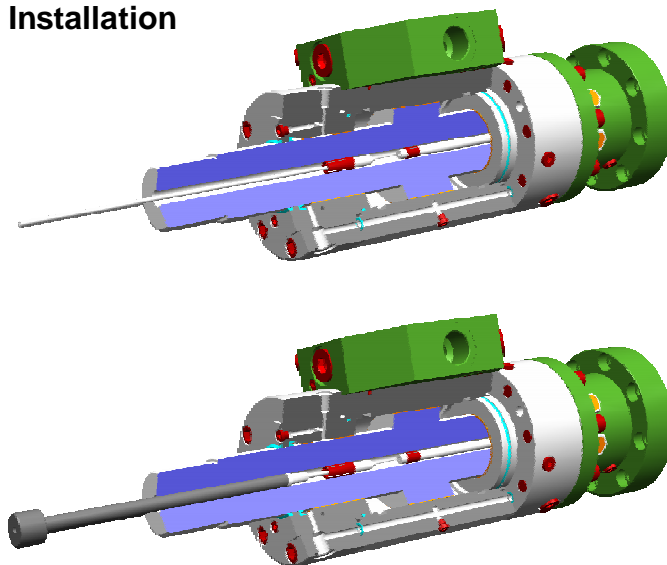


The following assembly tools are required:

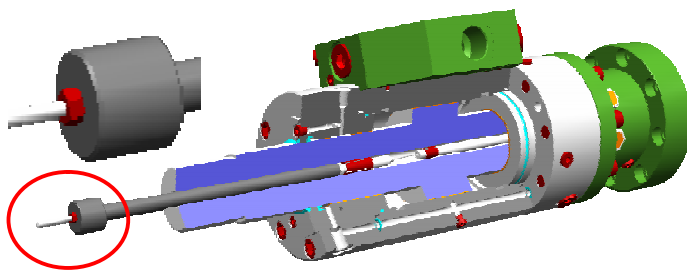
Series 320:

Piston rod diameters 25 and 30:		Art. no. 0928700A
Piston rod diameters 40 to 100:		Art. no. 0928800A
Piston rod diameter 125:	Stroke 400 or less	Art. no. 0928800A
	Stroke 401 or higher	Art. no. 55509633
Piston rod diameter 160:	Stroke 200 or less	Art. no. 0928800A
	Stroke 201 or higher	Art. no. 55509633

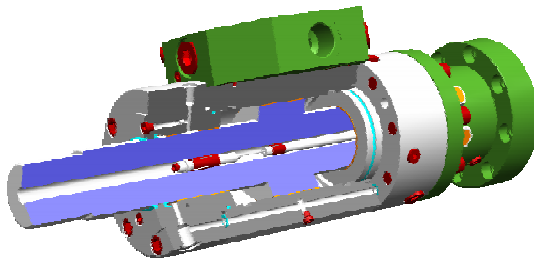
Installation



- Screw the assembly screw onto the clamping sleeve and push in to fit
- Screw the assembly tube loosely onto the clamping piece and push it into the clamping sleeve

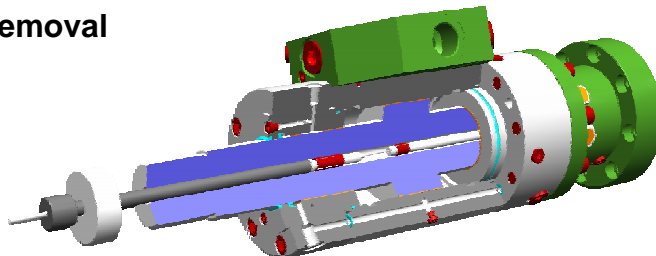


- Hold assembly screw to fit
- Push in the assembly tube by rotating the nut, and clamp the connection

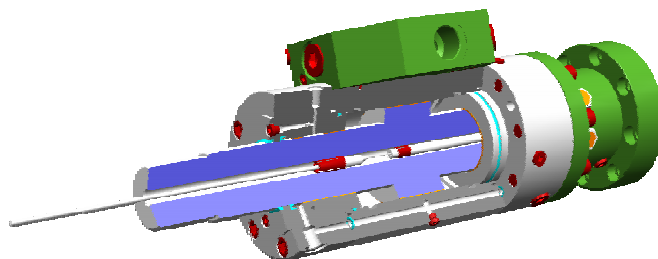


- Tighten screw (M6, SW=5) using a long wrench

Removal



- Unscrew screw using a long wrench
- Install assembly tools
- Screw assembly tube loosely onto clamping cone
- Screw assembly screw loosely into clamping sleeve
- Pull out clamping cone using an



- Pull out clamping sleeve

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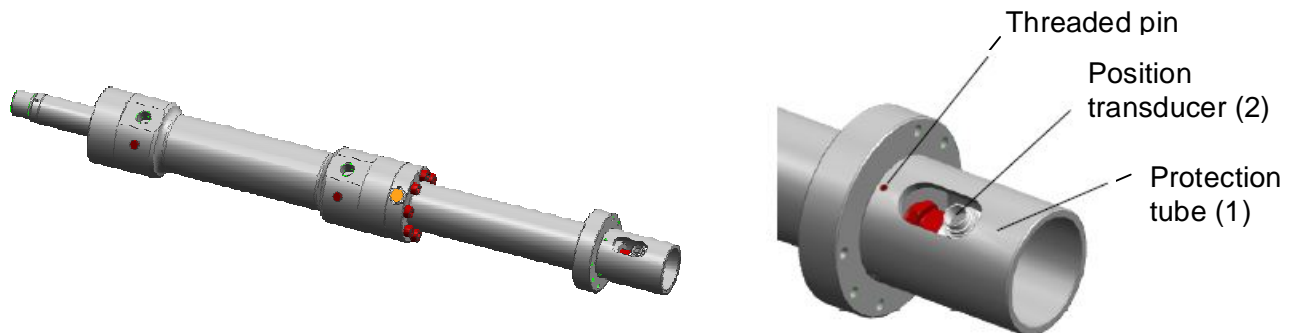
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2.2 Body mounting

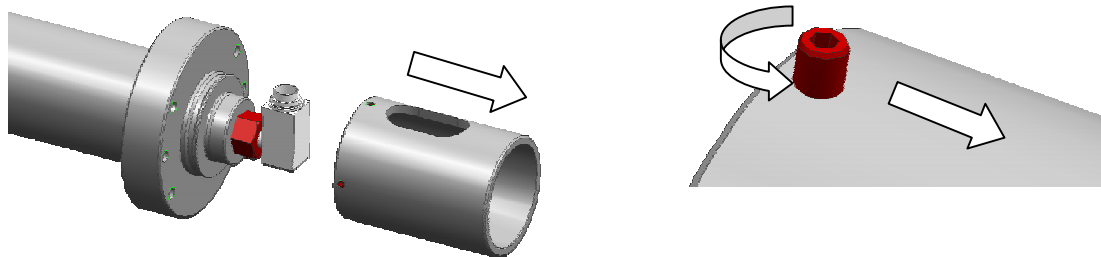
2.2.1 Version with four threaded pins on the outside



Removal

Attention: First retract piston rod and depressurize the cylinder completely!

- Remove connecting plug from male flange receptacle of position transducer (2)
- Unscrew threaded pins (4x M5, SW=2.5)
- Carefully remove protection tube (1)



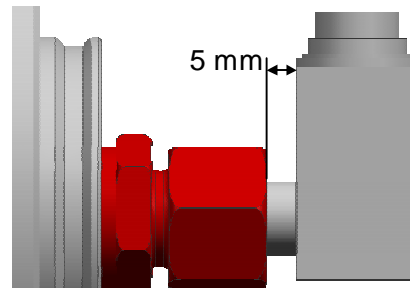
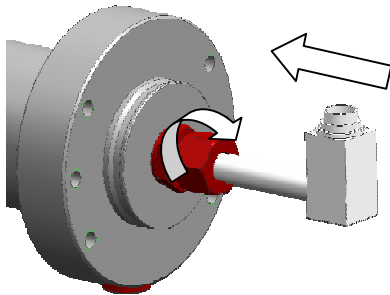
- Loosen lock nut on screw connection and pull position transducer out of cover through screw connection carefully and without force
- The screw connection remains tight and inside the cover



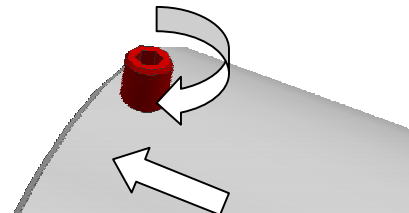
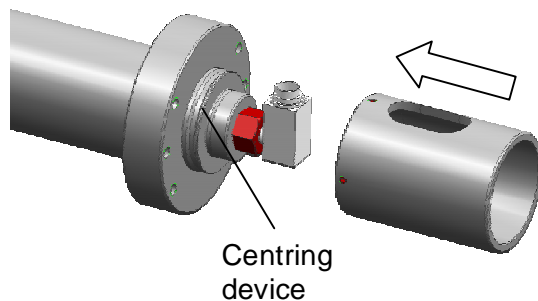
Installation

Attention: Piston rod must be retracted and cylinder completely depressurized!

- Push the position transducer into the screw-in screw connection with lock nut and insert it into the cover carefully and without force. Mind plunger and body
- The distance between plug and lock nut should be 5 mm
- Secure screw-in screw connection using lock nut



- Carefully push protection tube onto centring device
- Fix threaded pins using threadlocker and tighten them
- Fix connecting plug of position transducer (2)



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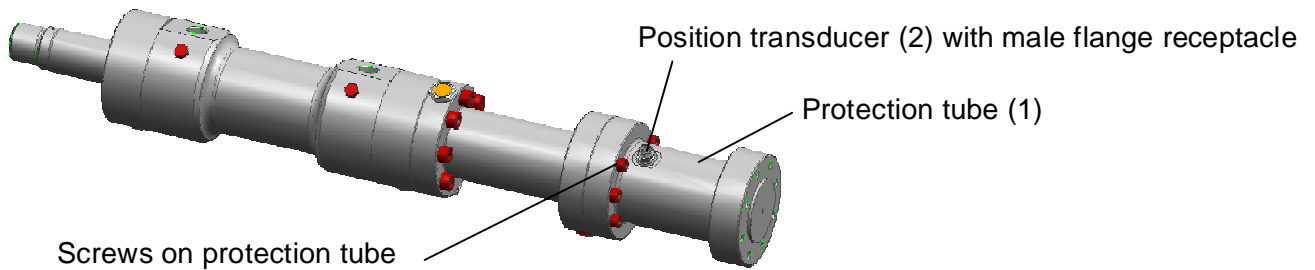
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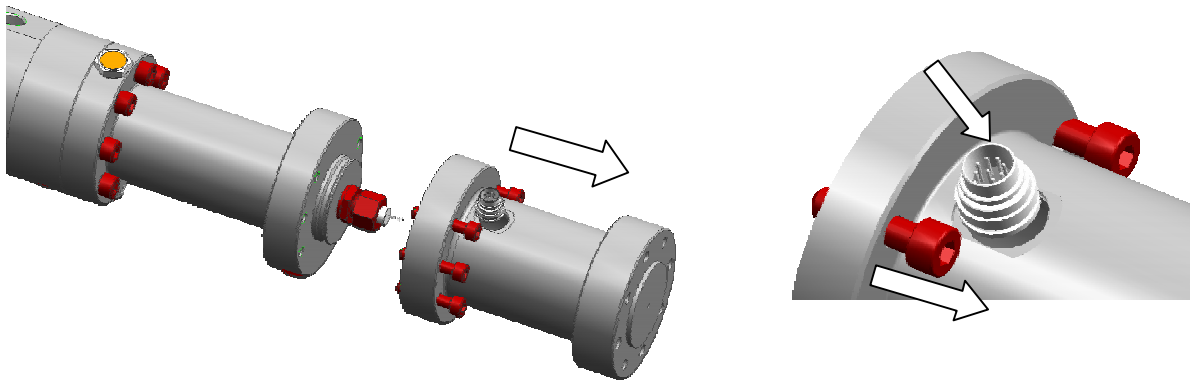
2.2.2 Version Protection tube with mounting



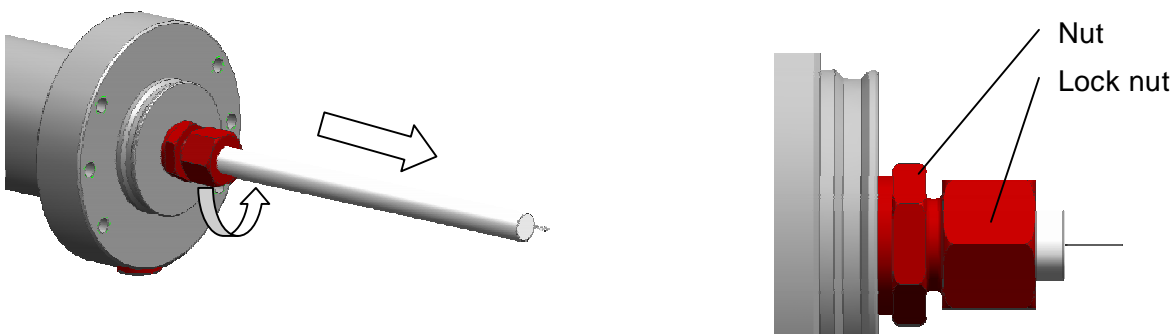
Removal

Attention: First retract piston rod and depressurize the cylinder completely!

- Remove connecting plug from male flange receptacle of position transducer (2)
- Carefully loosen nut on male flange receptacle, push male flange receptacle inside tube
- Loosen and remove screws on protection tube
- Carefully remove protection tube (1)



- Carefully loosen lock nut on screw connection and pull position transducer out of cover through screw connection carefully and without force
- The screw connection remains tight and inside the cover



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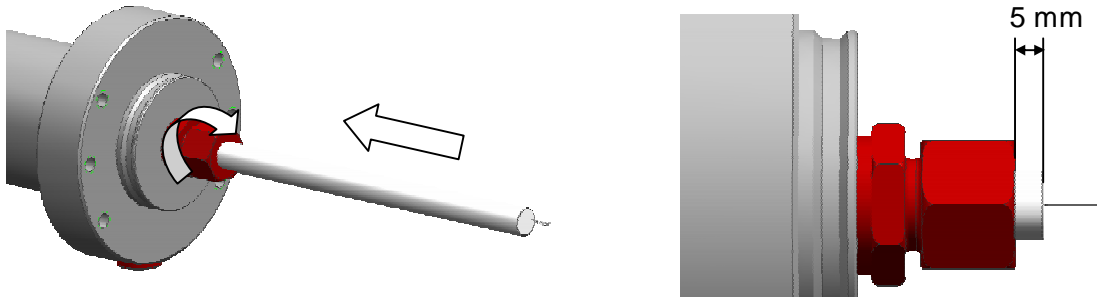
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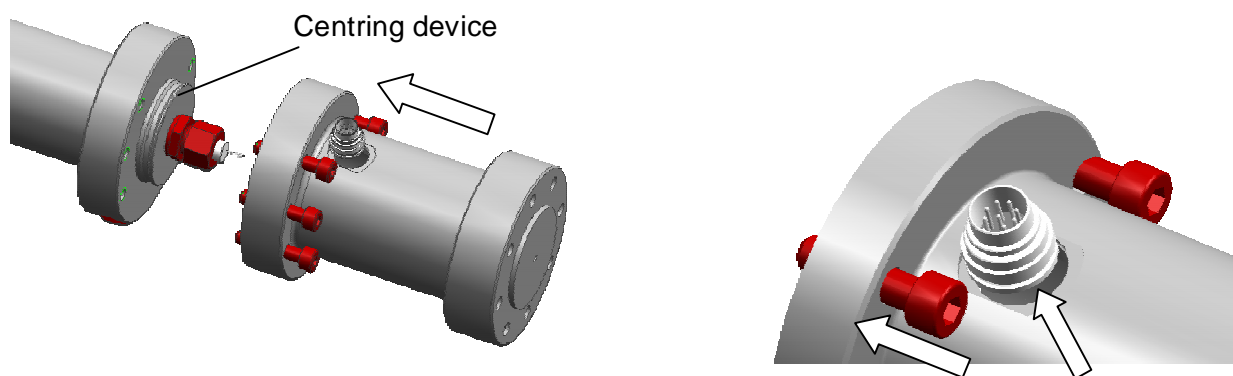
Installation

Attention: Piston rod must be retracted and cylinder completely depressurized!

- Push the position transducer into the screw connection with lock nut and insert it into the cover carefully and without force. Mind plunger and body
- The distance between plug and lock nut should be 5 mm
- Secure screw connection using lock nut



- Lead cable out through protection tube and secure with nut
- Carefully push protection tube onto centring device and secure it on cover using at least 2 screws in a crosswise pattern
- Then tighten all screws in a crosswise pattern with the prescribed torque (see operating and maintenance manual)
- Fix connecting plug of position transducer (2)



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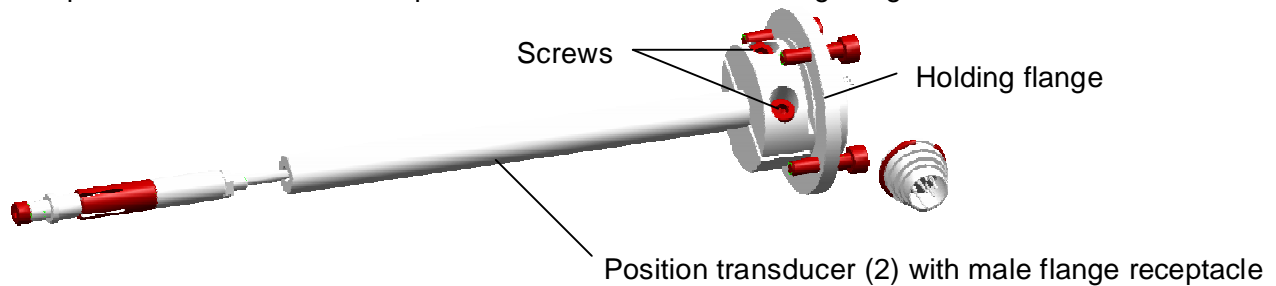
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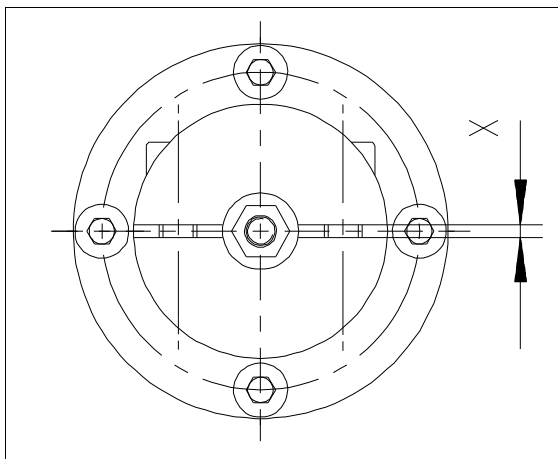
2.2.3 Version Holding flange

This type of body mounting is used for series 320 test cylinders.
The position transducer is clamped with 2 screws in the holding flange.



2.2.3.1 Installation of position transducer in holding flange

- Screw in both screws until screw head touches holding flange
The distance sensor should be rotatable by hand with some force.
Measure reference dimension x
- Tighten both screws by half a turn each.
The reference dimension x will reduce by approx. 0.5 mm



2.2.3.2 Mounting of holding flange

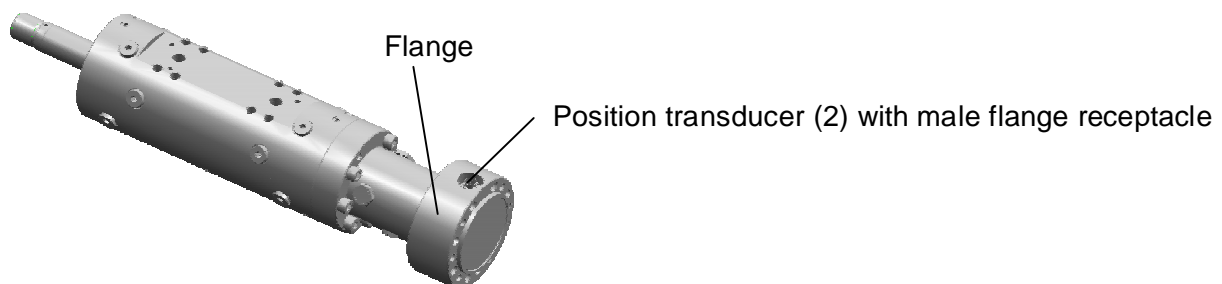
Depending on the size, we distinguish between 2 versions:

Piston rod diameters 25 and 30:

Version 1 with washer disc and cover

Piston rod diameters 40 to 160:

Version 2 with cap and cover

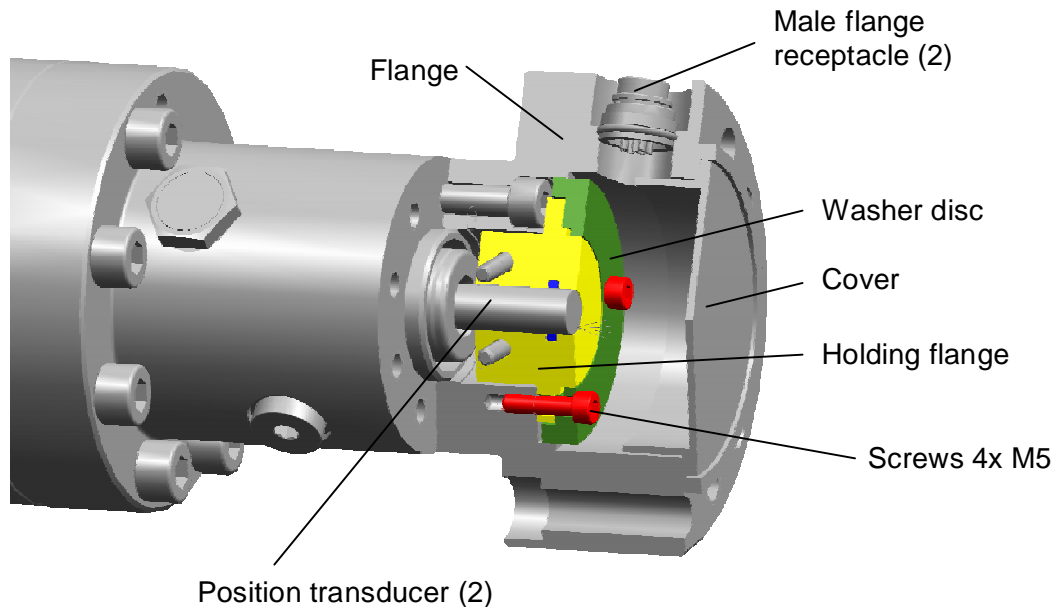


2.2.3.2.1 Version 1 with washer disc and cover

Removal

Attention: First retract piston rod and depressurize the cylinder completely!

- Remove connecting plug from male flange receptacle of position transducer (2)
- Remove cover on flange
- Carefully loosen nut on male flange receptacle, push male flange receptacle inside flange
- Loosen and remove screws 4x M5 (fixing washer disc and holding flange on flange)
- Pull out washer disc together with holding flange and position transducer carefully and without force



Installation

Attention: Piston rod must be retracted and cylinder completely depressurized!

- First, the position transducer has to be fixed in the holding flange (see Chapter 2.2.3.1, Installing position transducer in holding flange)
- Carefully put washer disc onto centring device of holding flange and loosely insert screws (4x M5)
- Then insert washer disc and holding flange with position transducer into flange and piston rod carefully and without force. Mind plunger and body
- Screw washer disc with holding flange to flange using at least 2 screws in a crosswise pattern
- Then tighten all screws in a crosswise pattern with the prescribed torque (see operating and maintenance manual)
- Lead cable out through flange and secure with nut
- Put cover back on flange
- Plug in connecting plug of position transducer (2)

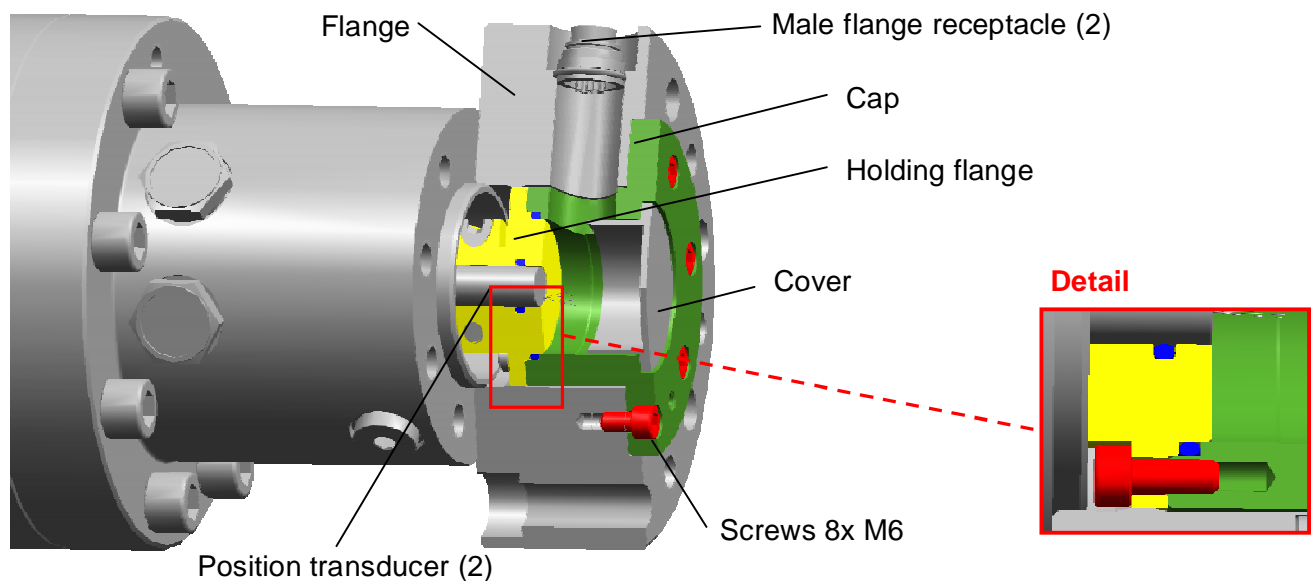
2.2.3.2.2 Version 2 with cap and cover

Attention! In this version, the cap is completely inside the flange with a piston rod diameter of 80 or more. The following drawing shows the situation with a piston rod diameter < 80. This does not concern the installation or removal.

Removal

Attention: First retract piston rod and depressurize the cylinder completely!

- Remove connecting plug from male flange receptacle of position transducer (2)
- Remove cover in cap
- Carefully loosen nut on male flange receptacle, push male flange receptacle inside flange and cap
- Loosen and remove screws 8x M6 (fixing cap on flange)
- Pull out cap together with holding flange and position transducer carefully and without force



Installation

Attention: Piston rod must be retracted and cylinder completely depressurized!

- First, the position transducer has to be fixed in the holding flange (see Chapter 2.2.3.1, Installing position transducer in holding flange)
- Then screw holding flange with installed position transducer to cap (4x M5). First screw in 2 screws in a crosswise pattern, then tighten all screws in a crosswise pattern with the prescribed torque
- Insert the thus installed parts into the centring device into the flange and into the piston rod carefully and without force. Mind plunger and body
- Fix cap to flange using the screws (8x M6). To do this, screw in at least 2 screws on the flange in a crosswise pattern
- Then tighten all screws in a crosswise pattern with the prescribed torque (see operating and maintenance manual)
- Lead cable out through cap and flange and secure with nut
- Put cover back on flange
- Fix connecting plug of position transducer (2)