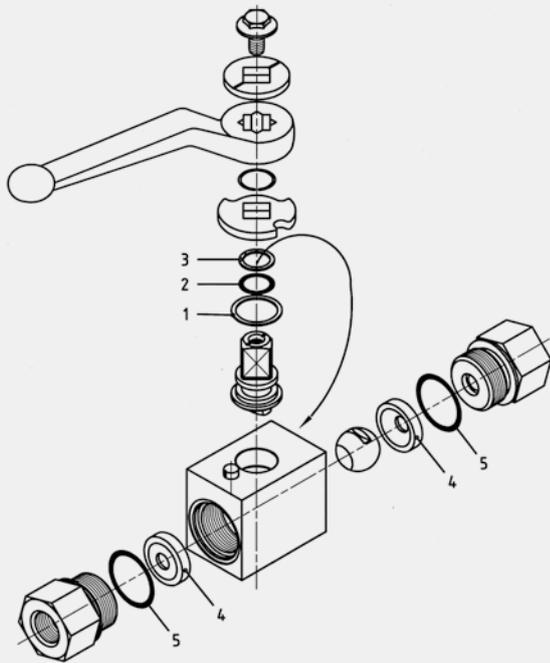


# Assembly instructions for seal kit BKH



- Pos.1 1 x Thrust washer
- Pos.2 1 x O-ring for stem
- Pos.3 1 x Back-up ring for stem
- Pos.4 2 x Ball seat for ball
- Pos.5 2 x O-ring for adapter

## Notice

The change of seals should only be undertaken by experienced and qualified experts. We recommend that seals are only replaced at **MHA ZENTGRAF** or by one of our authorized distributors, so that the quality of repair can be guaranteed.

## 1. Dismantling

Release any remaining fluid from the valve by first placing the ball in the HALF OPEN position and then in the OPEN position. Unscrew both adapters (anti-clockwise). Remove seals (note order and direction that these are in). The ball can only be removed when the valve is in the CLOSED position. Disassemble the stem by pressing it into the body of the valve. Remove all O-rings from the stem with suitable tools (e.g. small screwdriver). Remove the thrust washer (on the stem collar) from the stem.

## 2. Preparation

Prior to replacing seals ensure that all components are clean and free of any contamination. All seal elements and O-rings as well as the areas of the valves that will be in contact with the seals have to be greased slightly with Vaseline.

## 3. Pre-Assembly

Mount the thrust washer (Pos.1) on the stem collar. Replace O-rings (Pos.2+5) (using suitable tools) on the stem and onto each adapter. Ensure that O-rings are not damaged on keen edges or overstretched, (e.g. by covering screw threads or the shaft square by using suitable tools, alternatively by using a thin and soft foil).

Back-up rings (Pos.3) are located above the stem O-ring (Pos.2), i.e. on the unpressurized side. Ensure that the back-up ring sits tight and aligned without overlap in the groove to avoid any damage when assembling the stem to the body.

## 4. Assembly

Reassemble the stem to the body by pressing and turning at the same time, and then align the body axially to the stem ridge. Then insert the ball in and center it. Turn the shaft 90° (CLOSED position) in order to retain the ball within the body. Place the new seals in the body ensuring that the concave areas face the ball. Gently screw the adapters into the body and make sure that the O-ring is not damaged.

Tighten to the prescribed torque settings as indicated below:

- DN4-6: 48 Nm**
- DN10: 90 Nm**
- DN13: 110 Nm**
- DN16: 110 Nm**
- DN20: 220 Nm**
- DN25: 250 Nm**

**Warning:** Using higher torque values may cause significant damage to the valve body adapter.

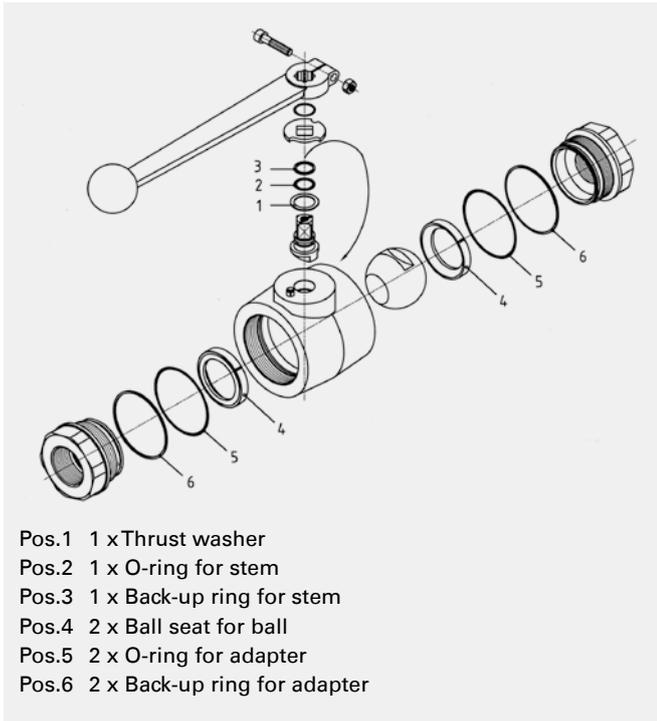
Place stop disk over the stem square ensuring that the valve closes when turned to the right, and secure it with a snap ring. Then assemble handle or actuator.

## 5. Test

Test to ensure that the valve can be opened and closed easily. We recommend that the valve is tested with air at 0,6 MPa and under working pressure with a compatible liquid, max. 1,1 x PN in closed position of the ball. If water is used for testing ensure after the test procedure has been carried out that all water is removed from the valve. This is best achieved by blowing through the valve with air whilst the valve is in a half-open position. Treat with an anti-corrosion liquid.

Store the valve in the OPEN position.

# Assembly instructions for seal kit MKHP



## Notice

The change of seals should only be undertaken by experienced and qualified experts. We recommend that seals are only replaced at **MHA ZENTGRAF** or by one of our authorized distributors, so that the quality of repair can be guaranteed.

## 1. Dismantling

Release any remaining fluid from the valve by first placing the ball in the HALF OPEN and then in the OPEN position. Unscrew both adapters (anti-clockwise). Remove seals (note the order and direction that these are in). The ball can only be removed when the valve is in CLOSED position. Disassemble the stem by pressing it into the body of the valve. Remove all O-rings from the stem with suitable tools (e.g. small screwdriver). Remove the thrust washer (on the stem collar) from the stem.

## 2. Preparation

Prior to replacing seals ensure that all components are clean and free of any contamination. Slightly grease all seals and O-rings as well as the areas of the valves that will be in contact with the seals with Vaseline.

## 3. Pre-Assembly

Mount the thrust washer (Pos.1) onto the stem collar. Mount O-ring (Pos.2) and back-up ring (Pos.3) carefully onto the stem using suitable tools and avoid damages through sharp edges or overstretching (e.g. by covering screw threads resp. of the shaft square by using suitable tools, alternatively by using a thin and soft foil). Mount the stem back-up ring (Pos.3) on top of the stem O-ring (Pos.2), i.e. on the pressure less side. Ensure that the back-up ring is located in the groove to avoid any damage when assembling the stem to the body. Mounting of the endless back-up ring to the adapter.

Mount the back-up ring (Pos.6) carefully onto the adapter by using a rounded tool (no sharp edges), be sure to stretch it as

little and constantly as possible. After a short time (approx. 30 to 60 sec.) the back-up ring returns to its original form and size. Push the back-up ring towards the thread side of the groove and mount the O-ring (Pos.5).

## 4. Assembly

Reassemble the stem to the body by pressing and turning at the same time, and then align the ball operating claw axially to the body. Insert the ball and center it. Turn the shaft 90° (CLOSED position) in order to retain the ball within the body. Place the new seals in the body ensuring that the concave areas face the ball. Gently screw the adapters into the body and make sure that the O-ring will not be damaged.

Tighten to the prescribed torque settings as indicated below:

<b>DN32 Steel:</b>	<b>700 Nm</b>
<b>DN40 - 50 Steel:</b>	<b>800 Nm</b>
<b>DN32 - 50 Stainless steel:</b>	<b>700 Nm</b>

**Warning:** Using higher torque values may cause significant damage to the valve body adapter.

Place stop disk over the stem square ensuring that the valve closes when turned to the right and secure with the snap ring. Assemble handle or actuator.

## 5. Test

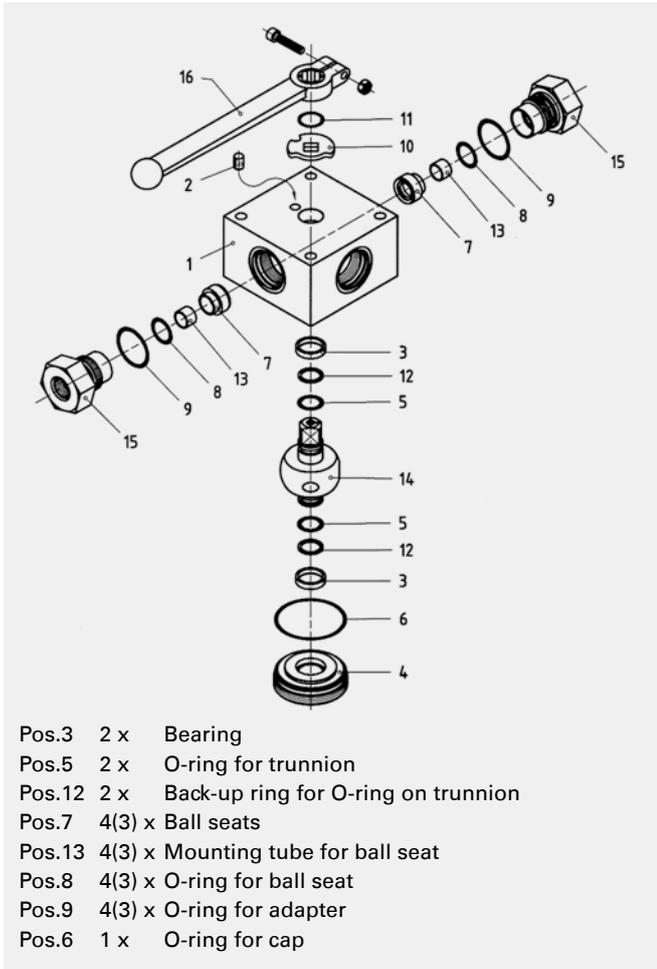
Check that the valve can be opened and closed easily. We recommend that the valve is tested with air at 0,6 MPa and under working pressure with a compatible liquid (e.g. water), max. 1,1 x PN in closed position of the ball. Afterwards all the fluid has to be removed again from the valve. This can be achieved by blowing air through the valve, whilst in HALF OPEN position. Let completely dry and treat with an anti-corrosive agent, if necessary.

Store the valve in the OPEN position.

Order number for recommended assembling tool for back-up ring assembly on adapter:

<b>DN 32: 40218</b>
<b>DN 40: 40219</b>
<b>DN 50: 40220</b>

# Assembly instructions for seal kit 3/4 KH



## Notice

The change of seals should only be undertaken by experienced and qualified experts. We recommend that seals are only replaced at **MHA ZENTGRAF** or by one of our authorized distributors, so that the quality of repair can be guaranteed.

## 1. Dismantling

In order to release the remaining pressure, carry out 1x reciprocating movement.

Disassemble the shaft handle (Pos.16). Unscrew all adapters (Pos.15) anti-clockwise. Remove seals (Pos.7). Unscrew cap (Pos.4) at body bottom with suitable tools anti-clockwise. Remove trunnions (Pos.14) and bearing shells (Pos.3). Remove all O-rings and back-up rings from trunnion and adapters and cap with suitable tools (for example with a small screwdriver).

## 2. Preparation

Prior to replacing seals ensure that all components are clean and free of any contamination. Grease slightly with Vaseline all sealing elements and O-rings as well as the areas of the valves that will be in contact with the seals.

## 3. Pre-Assembly

Assemble O-rings (Pos.5) and back-up rings (Pos.12) in the grooves of the trunnion, back-up rings towards the unpressurized side.

Mount O-rings carefully on the (Pos.9) adapters (Pos.15) using suitable tools (at DN20 & DN25).

Attention: Ensure that O-rings are not damaged on keen edges or overstretched, (for example by covering screw threads or the shaft square by using suitable tools, alternatively by using a thin, soft foil).

For DN4 to DN16: Place mounting tubes (Pos.13) in the bore of the seal elements (Pos.7), or at DN20 and DN25: place seal element in sleeve (no description in this figure), spherical side facing to the exterior.

Mount O-ring for sealing element (Pos.8) on sealing element (Pos.7), (or at DN20 and DN25 mount on sleeve) and place together in adapter.

Pre-assemble O-ring (Pos.6) on cap (Pos.4). (Note: ensure that no damage can occur!).

## 4. Assembly

First assemble the bearing shells (bushing) (=Pos.3) in the body (Pos.1) and cap (Pos.4) so that the bevel faces the ball valve center and thus it can be used as chamfer for the O-ring (and back-up ring) of the trunnion.

Note: Ensure that the back-up rings lie in the groove fully closed to prevent damage during assembly.

Assemble the shaft end of the trunnion (shaft faces towards exterior) to the cap (Pos.4) by pressing and turning at the same time.

DN4 to DN16: place O-ring for cap (Pos.6) in the body.

Push trunnion (together with cap) into body until the cap thread touches the body thread, then screw in the cap and tighten to the prescribed torque (see table).

Gently screw the pre-assembled adapters into the body and ensure that the O-ring is not damaged. Tighten the adapters to the prescribed torque.

Replace stop disk (Pos.10) over shaft square so that the desired operation function is achieved, secure with snap ring (Pos.11). Assemble the handle (Pos.16) or the actuator (after it has been tested).

## 5. Test

Test to ensure that the valve can be opened and closed easily. We recommend that the valve be tested with 6 bar air and under working pressure with a compatible liquid, max. 1,1 x PN. If water is used for testing ensure after the test procedure has been carried out that all water is removed from the valve. This is best achieved by blowing air through the valve whilst the valve is in a half-open position. Treat with anti-corrosive.

Store the valve in the „OPEN“ or “CLOSED” position, or end position.

**Note:** We recommend professional assembly tools especially for the cap. Please contact us for further information.

# Assembly instructions for seal kit 3/4 KH

## Tightening torques of adapter and cap

Size	Adapter		Cap	
	Tightening torque in Nm	Thread	Tightening torque in Nm	Torque
DN 4-6	40	M18x1,5	120-140	M38x1,5
DN 8-10	70	M22x1,5	140-160	M45x1,5
DN 13-16	110	M30x1,5	320-350	M60x1,5
DN 20	180	M38x1,5	550-600	M80x2
DN 25 (-32, -40)	250	M45x1,5	650-700	M92x3



**Warning: Using higher torque values may cause significant damage to the valve body adapter.**