

Addition to the user manual for Certa pumps



Contents

1 Cleaning-Out-Of-Place (COP) and Manual Cleaning	2
1.1 Disassembly and assembly	2
1.2 Disassembling the pump	2
1.3 Disassembling the mechanical seal system	5
1.4 Assembling the front mechanical seal system	5
1.5 Assembling the pump head	7
1.6 Lip seal assembly	9
1.7 Assembly of shaft sleeve for lip seal	10
1.8 Assembly procedure of lip seal	12
2 Tightening torques	14

1 Cleaning-Out-Of-Place (COP) and Manual Cleaning

Removal of soil when the equipment is partially or totally disassembled. Soil removal is effected with chemical solutions and water rinses with the assistance of one or a combination of brushes, non-metallic scouring pads and scrapers, and high or low pressure hoses and tanks which may be fitted with recirculating pump(s) and with all cleaning aids manipulated by hand.



Use appropriate cleaning agents to prevent corrosion and / or chemical attack



Wear appropriate protection equipment when performing manual cleaning

1.1 Disassembly and assembly



Use the appropriate torque value—see "Tightening torques" on page 14



Before beginning disassembly, disconnect the pump from the mains power, and secure it against unintentional start-up.



The photographs shown in the following procedures were taken of a Certa pump of medium size. If your pump is a heavier model, you should use the appropriate lifting equipment to support the weight of the pump during disassembly and assembly, to avoid personal injury.

1.2 Disassembling the pump

Removing the front housing



- Make sure the pump is secured to prevent it from tilting.
- Unscrew the cap nuts with a wrench, by turning them counter clockwise.

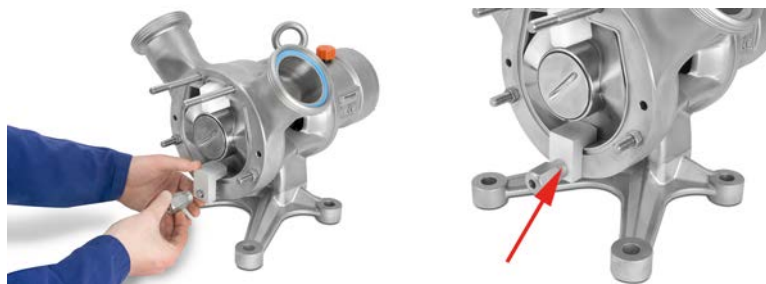


- Remove the front housing.



- Carefully remove the seal in the centre of the housing and store it safely.

Removing the locking screw



- Use the blocking tool to lock the rotor and the shaft before opening the locking screw on the rotor
- Use one of the cap nuts from the front housing to fasten the blocking tool

No grub screw:



- Open the locking screw using the socket adapter, turning it counter clockwise



High torque required!
Use appropriate tool

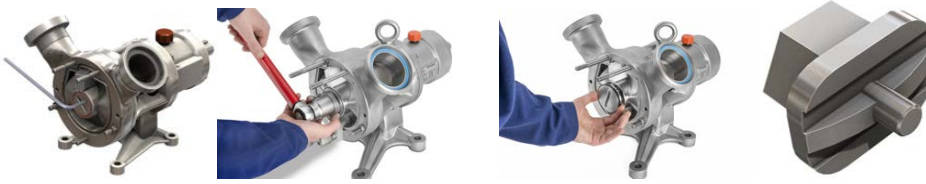


An O-ring seal keeps the disc spring of the locking screw in place.



The component parts of the locking screw.

With grub screw:



- Loosen the Grub Screw, open the locking screw using the socket adapter, turning it counter clockwise
- Remove the blocking tool



The Grub Screw is inserted from the inside



The component parts of the locking screw

Removing the rotor and gate



- Pull the rotor, together with the gate, out of the housing, as shown.



The seal faces are brittle

- Carefully remove the rotor and store safely. Take care when removing the rotor to ensure the seal faces are not damaged.
- To re-assemble the pump, refer to the assembly instructions below, starting with section "Assembling the support / Centering the rotor with the shim ring".

1.3 Disassembling the mechanical seal system



To make the procedure clearer, on some pictures the middle housing has been removed. This is not necessary for regular maintenance.

Removing the seal system



- Undo the screws on the support at the back of the housing, by turning them counter clockwise with a wrench.



- Carefully pull out the support unit.



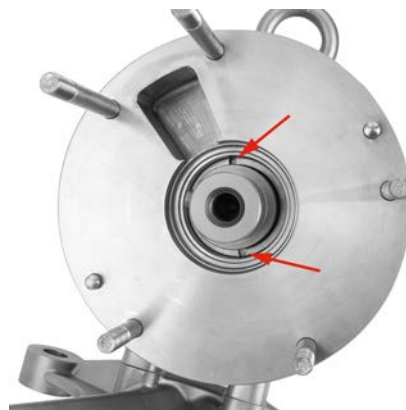
Loosen the Grub Screws in the inside of the static face with shrink fitted spring assembly



The seal face assembly with O-Ring at the outer diameter which is installed in the pump housing

1.4 Assembling the front mechanical seal system

Installing the seal system in the back housing



The arrows show the two notches in the housing where the seal face assembly will be located.

Install the seal face assembly in the pump housing. Make sure the two pins at the back of the assembly fit into the two notches in the housing



The pins need to match the according notches to prevent the part from rotating.



Fit the O-Ring to the inner diameter of the backing housing

Make sure the seal face assembly fits into the two notches

- The seal face assembly is in place once a catching can be noticed and the seal face assembly stays in place
- A higher force might be required to overcome the O-ring resistance



Check for compression of the spring assembly.

Fitting the rotor seal system



The seal face for fitting in the rotor, together with the rubber cup.

- Install the rubber cup on the seal face.



- Carefully press the seal face with the side of the cup evenly into the rotor.
- Make sure that the seal face is pushed all the way in, by pressing it as shown. It is recommended to use a hand press or other suitable tools to ensure correct assembly.



1.5 Assembling the pump head

Assembling the middle housing and the front housing



- Fit the seal in the rear of the middle housing.



You do not need to disassemble the middle housing to change, for example, the Gate or the mechanical seal system. This is only explained for the sake of completeness.



- Locate the middle housing over the threaded pins.
- Make sure you align the slot where the gate is placed with the same slot in the back housing.



- Tighten the nuts clockwise to hold the middle housing in place. Make sure you use the threaded pins that allow the nuts to fit into the holes in the front housing (check the orientation of the nozzles).

Assembling the rotor and gate



- Assemble the rotor and gate on the shaft.



Check for compression of the spring assembly.

No grub screw:



1x Disc Spring C100-C250

2x Disc Spring C300-C600

- Fasten the locking screw with the socket adapter. You may need to lock the shaft to prevent it from turning, using the blocking tool.



Use the appropriate torque value—see "Tightening torques" on page 14

With grub screw:



- Fasten the locking screw with the socket adapter and then the Grub Screw. You may need to lock the shaft to prevent it from turning, using the blocking tool.



Check if the peaks of the rotor are located slightly behind the front surface of the middle ring.

- Remove the blocking tool.

Assembling the front housing



- Fit the seal in the front of the middle housing.



- Attach the front housing. Make sure you align the channel correctly over the gate.



- Tighten the cap nuts by turning them clockwise with a wrench.

1.6 Lip seal assembly

Disassembly of lip seal



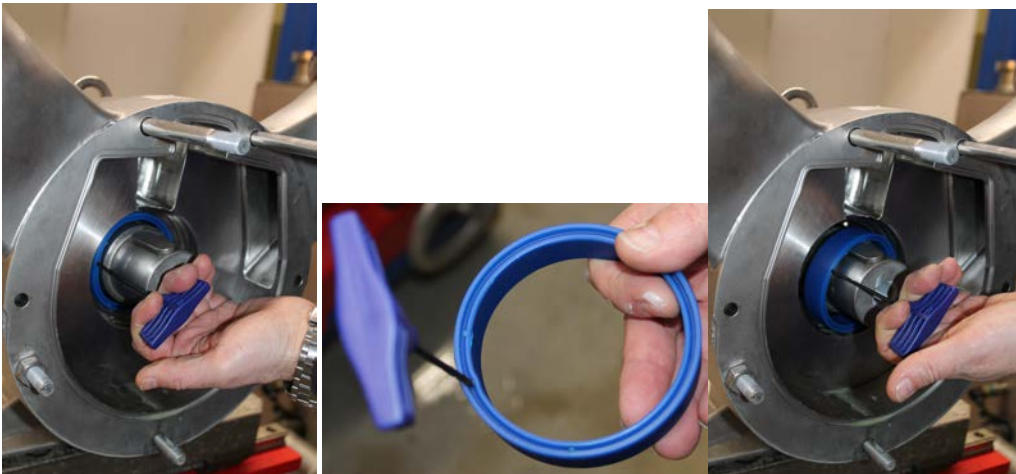
- Disassemble the pump until the rotor and gate are left.



- Pull the rotor, together with the gate, out of the pump housing, as shown.

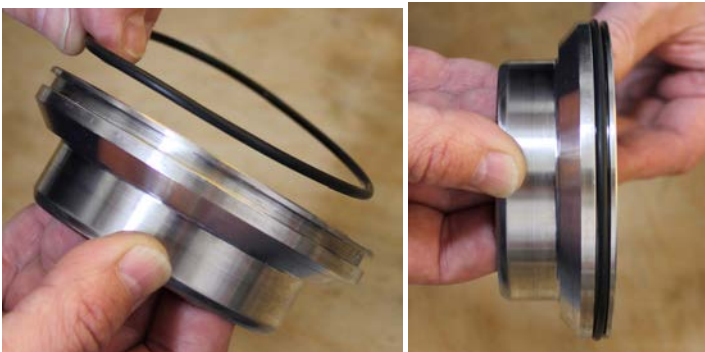


The lip seal which is pressed in the back housing, remains there until it needs to be replaced because of wear. It is not necessary to remove it for cleaning.



- Screw the puller tool into the notch of the lip seal, as shown and pull it out of the pump housing.

1.7 Assembly of shaft sleeve for lip seal



- Fit the seal on the shaft sleeve as shown



- Fit the shaft sleeve in the rotor. Make sure the small pin in the rotor fits into the groove of the shaft sleeve.



- Press the shaft sleeve into the rotor using a soft hammer and a plastic part to protect the shaft sleeve from damage.



- Make sure the shaft sleeve is completely assembled in the rotor.



The shaft sleeve which is pressed in the rotor, remains there until it needs to be replaced because of wear. It is not necessary to remove it for cleaning.

1.8 Assembly procedure of lip seal



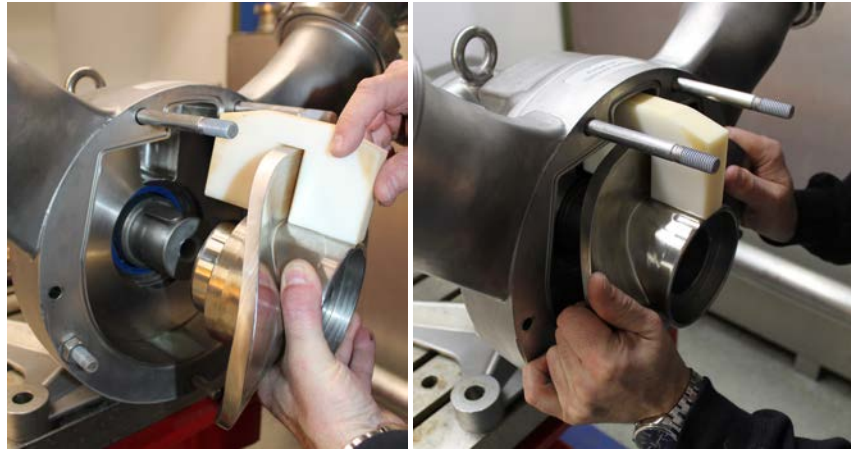
- Lip Seal



- Fit the lip seal with the groove and lip to the front into the pump housing.



- Use two screw drivers in the groove to push the lip seal in place. Be carefully not do damage the lip on the lip seal.



- Fit the rotor together with the gate and shaft sleeve assembled into the pump housing.
- Push it carefully in place not to damage the lip of the lip seal



2 Tightening torques

Certa 100

Adjoining parts	Screw type	Torque
Cover for bearing—Support	M6 A2 70 DIN 931	7Nm / 5 lb-ft
End shield—Support	M8 A2 70 DIN 931	16Nm / 12 lb-ft
End shield—Threaded plug	R 1/4" DIN 908	25Nm / 18.5 lb-ft
Back housing—End shield	M6 A2 70 DIN 912	7Nm / 5 lb-ft
Shaft—Locking screw	M10x1	45Nm / 33 lb-ft
Front housing—Cap nut	SW22	35Nm / 26 lb-ft
Mechanical seal—Set screw	M4 SW3	-

Certa 200

Adjoining parts	Screw type	Torque
Cover for bearing—Support	M6 A2 70 DIN 931	7Nm / 5 lb-ft
End shield—Support	M8 A2 70 DIN 931	16Nm / 12 lb-ft
End shield—Threaded plug	R 1/4" DIN 908	25Nm / 18.5 lb-ft
Back housing—End shield	M6 A2 70 DIN 912	7Nm / 5 lb-ft
Shaft—Locking screw	M10x1	45Nm / 33 lb-ft
Front housing—Cap nut	SW22	35Nm / 26 lb-ft
Mechanical seal—Set screw	M4 SW3	-

Certa 250

Adjoining parts	Screw type	Torque
Cover for bearing—Support	M6 A2 70 DIN 931	7Nm / 5 lb-ft
End shield—Support	M10 A2 70 DIN 931	33Nm / 24.5 lb-ft
End shield—Threaded plug	R 1/4" DIN 908	25Nm / 18.5 lb-ft
Back housing—End shield	M10 A2 70 DIN 912	33Nm / 24.5 lb-ft
Shaft—Locking screw	M16x1,5	70Nm / 51.5 lb-ft
Front housing—Cap nut	SW22	45Nm / 33 lb-ft
Mechanical seal—Set screw	M4 SW3	-

Certa 300

Adjoining parts	Screw type	Torque
Cover for bearing—Support	M6 A2 70 DIN 931	7Nm / 5 lb-ft
End shield—Support	M12 A2 70 DIN 931	56Nm / 41.5 lb-ft
End shield—Threaded plug	R 1/4" DIN 908	25Nm / 18.5 lb-ft
Back housing—End shield	M10 A2 70 DIN 912	33Nm / 24.5 lb-ft
Shaft—Locking screw	M20x1,5	120Nm / 88.5 lb-ft
Front housing—Cap nut	SW22	45Nm / 33 lb-ft
Mechanical seal—Set screw	M5 SW4	-

Certa 400

Adjoining parts	Screw type	Torque
Cover for bearing—Support	M6 A2 70 DIN 931	7Nm / 5 lb-ft
End shield—Support	M12 A2 70 DIN 931	56Nm / 41.5 lb-ft
End shield—Threaded plug	R 1/4" DIN 908	25Nm / 18.5 lb-ft
Back housing—End shield	M10 A2 70 DIN 912	33Nm / 24.5 lb-ft
Shaft—Locking screw	M20x1,5	120Nm / 88.5 lb-ft
Front housing—Cap nut	SW22	56Nm / 41.5 lb-ft
Mechanical seal—Set screw	M6 SW5	-

Certa 500

Adjoining parts	Screw type	Torque
Cover for bearing—Support	M6 A2 70 DIN 931	7Nm / 5 lb-ft
End shield—Support	M16 A2 70 DIN 931	135Nm / 99.5 lb-ft
End shield—Threaded plug	R 1/4" DIN 908	25Nm / 18.5 lb-ft
Back housing—End shield	M12 A2 70 DIN 912	56Nm / 41.5 lb-ft
Shaft—Locking screw	M24x2	200Nm / 147.5 lb-ft
Front housing—Cap nut	SW30	135Nm / 99.5 lb-ft
Mechanical seal—Set screw	M6 SW5	-

Certa 600

Adjoining parts	Screw type	Torque
Cover for bearing—Support	M6 A2 70 DIN 931	7Nm / 5 lb-ft
End shield—Support	M16 A2 70 DIN 931	135Nm / 99.5 lb-ft
End shield—Threaded plug	R 1/4" DIN 908	25Nm / 18.5 lb-ft
Back housing—End shield	M16 A2 70 DIN 912	135Nm / 99.5 lb-ft
Shaft—Locking screw	M24x2	200Nm / 147.5 lb-ft
Front housing—Cap nut	SW30	135Nm / 99.5 lb-ft
Mechanical seal—Set screw	M6 SW5	-