

Assembly, Operating and Maintenance Instructions for Tandem Mechanical Seal Type 770

1 General

Check shaft runout before installing the mechanical seal. After shaft has been installed, shaft runout must not exceed 0,05 mm, measured at the impeller seat.

Shaft and sleeves must not have any sharp edges. Make sure that minimum bevels are 3 mm in length, with an angle of 15°, and minimum radii are 3 mm. Suitable tools must be used and care taken to avoid damaging the secondary seals, if the seals must be pushed over grooves, edges etc.

Shaft and sleeves must be undamaged and polished in the area of the secondary seals ($R_a < 0,4 \mu\text{m}$). Surfaces should be slightly wetted with soapy water, so that secondary seals slide smoothly.

Caution: Do not grease or oil secondary seals made of pure graphite.

2 Installing a mechanical seal (cartridge design) in acc. with the enclosed drawing OW 238 566-10 or documentation

2.1 Push inboard (pump-side) mechanical seal, consisting of parts **10, 20, 40, 41** and **90**, together with non-tensioned graphite seal **20** onto shaft protecting sleeve **100** as far as it will go, and secure part **40** to the shaft protecting sleeve using the 3 grub screws **90**. Pay attention to the position of the countersinks in the shaft protecting sleeve.

Now compress graphite seal **20** by evenly tightening screws **41** until metal-to-metal contact between part **40** and metal bellows is obtained.

2.2 Place the shaft protecting sleeve with mounted pump-side mechanical seal face down onto a plane surface and place silicon carbide ring **55** onto the running face of the metal bellows **10**. Then place graphite gasket **60** on guide bush **320** and place together on the rear of the seat ring **55**.

2.3 Push outboard mechanical seal **910**, complete with O-ring **920** and mounted pumping thread **941**, onto the shaft protecting sleeve **100** until it touches the mark (groove around shaft protecting sleeve). Make sure not to exert pressure onto the seal face but only onto the pumping thread. Align the mechanical seal on the shaft protecting sleeve in acc. with the centering holes in the shaft protecting sleeve and secure with the 3 grub screws **990**.

2.4 Pre-assemble seal cover 9200 by using a drill to press the silicon carbide seat ring 955 (with O-ring 960 installed) plane-parallel into the seat ring holder. (When doing so, use gasket to protect seal face). Pay attention to the position of the torque transmitting element **961**. Push assembly fixtures **231** and cover seal **9210** (O-ring) onto the seal cover.

2.5 Place graphite gasket **60** into the cooling housing **200** and insert shaft protecting sleeve **100**, complete with fully assembled mechanical seals, into the cooling housing from above. Do make sure that gasket **60** and seat ring **55** are positioned correctly.

Align quench connections **ZA** and **ZE**. Insert the seal cover **9200** assembled in **para. 2.4** into the cooling housing **200** and secure with 2 screws **220**.

Engage assembly fixtures **231** with the groove in the shaft protecting sleeve and secure with screws **230**.

2.6 We recommend to subject the complete assembly to a leakage test with compressed air. To this end, plug one of the connections **ZA/ZE** and use the other as air inlet. Apply an air pressure of **3 bar**, submerge the complete mechanical seal assembly in water and check for leakage.

2.7 **Screw studs 9220 into casing cover 161.** Place casing cover onto the workbench and place gasket **210** onto the casing cover in alignment with the holes. Then push preassembled seal assembly onto the casing cover via the studs.

Caution! Make sure that gasket **210** is properly seated!

Tighten nuts 9221 evenly. Check if casing cover and seal cover are planeparallel by means of a dial gauge. Maximum deviation: below 0.05 mm. Greater deviations must be corrected by tightening nuts on one side.

3 Installation in the pump

3.1 Push casing cover **161**, complete with mechanical seal assembly, carefully onto the shaft **210** until the outer diameter of the casing cover touches the bearing bracket lantern **344**. Do not exert force to push the casing cover into the bearing bracket lantern, before the assembly fixtures **231** have been disengaged.

Caution! Disengage assembly fixtures **231** and secure to seal cover.

3.2 Push in impeller **230** with preassembled throttling bush **542.02**, and fasten tightly with impeller nut in accordance with the pump's operation instructions.

3.3 Continue pump assembly as described in the pump's operating instructions. After pump installed, connect quench pot and fill the seal chamber (see also Supplementary Operating Instructions **1121.8124** or **8127**).

