

### Dismantling the Pump



Pumps which convey hazardous liquids must be decontaminated before dismantling the pump. The appropriate personal protection equipment should be used.

*Tools required: Torque wrench with socket - across flats 28mm (M16 locknut), 34mm (M24 locknut), 46mm (M36 locknut), & 13mm, Engineers pliers, Hide mallet, Screwdriver - medium flat blade, Allen key - 2.5mm, 5mm & 6mm across flats.*

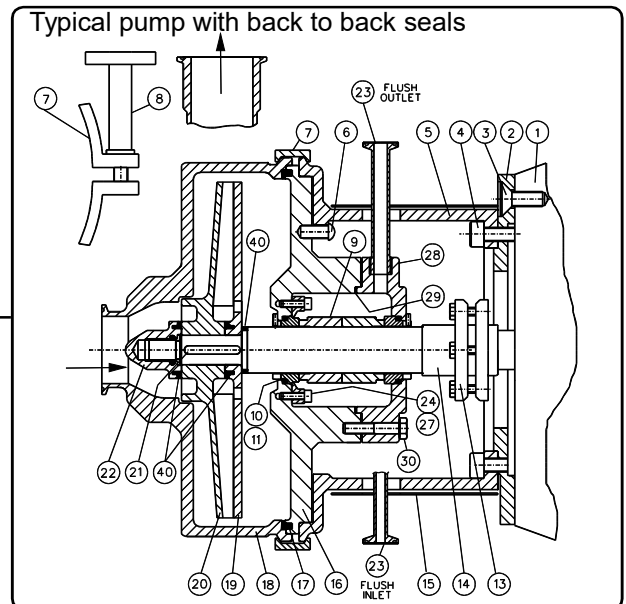


- 1) Isolate the motor (1) from the power supply.
- 2) Disconnect the inlet, outlet and flush connections.



- Risk of contact with liquid being pumped.
- 3) Unscrew the clamp ring handle (8) by several turns and lift the clamp ring (7) over the flanged adaptor (5).
- 4) Remove the cover (18).
- 5) Unscrew the impeller locknut (22) (right hand thread) with the torque wrench and socket.
- 6) Slide the impeller vane plate (20) and (where fitted) the back plate (19) forward off the shaft (14) by maintaining an even pressure. Hitting the impeller can cause serious damage.
- 7) Remove the key (21) and impeller joint ring (40) from the pump stub shaft (14).
- 8) Unscrew the flush connectors (23) and remove the shaft guard (15).

- 9) Unscrew the stuffing box cover screws (30) and slide the stuffing box cover (28) to the rear.
- 10) Remove the housing plate screws (6) and take out the housing plate (16).
- 11) The front mechanical seal (9), seal seat (11), seat ring (10) and stuffing box washer (29) can now be inspected.
- 12) To inspect or replace the rear seal seat assembly, remove both mechanical seals and slide the stuffing box cover (28) off the shaft.



### Reassembling the Pump

- 1) Locate the rear seal seat assembly (10,11) in the stuffing box cover (28). Slide the stuffing box cover onto the shaft, taking care that the seal seat does not contact the shaft (14) and become chipped.
- 2) Fit the rear and front mechanical seals (9) (see page S2 for important fitting details).
- 3) Locate the front seal seat assembly (10,11), the clamp plate (24) (where fitted) and the stuffing box washer (29) in the housing plate (16) and tighten the screws (27) to 4 Nm. Fit the housing plate into the flanged adaptor (5) and tighten the housing plate screws (6). Take care during assembly that the seal seat (11) does not contact the shaft (14) and become chipped.
- 4) Slide the stuffing box cover (28) forward to the housing plate (16) and tighten the stuffing box cover screws (30) to 16 Nm. Refit the shaft guard (15) and screw in the flush connectors (23).
- 5) Refit the key (21) and impeller joint ring (40) on to the stub shaft (14).
- 6) Slide the impeller back plate (19) (where fitted) and the vane plate (20) onto the pump stub shaft.

Pump model	Locknut torque (Nm)
H & CH	90 (M16 locknut)
	140 (M24 locknut)
	180 (M36 locknut)

- 7) Screw on the impeller locknut (22) (right hand thread) and tighten to the specified torque (see table).
- 8) Refit the cover (18).
- 9) Fit the clamp ring (7) into position and tighten the clamp ring handle (8), ensuring that the clamp ring is correctly located.
- 10) Connect the inlet, outlet and flush connections.
- 11) Before start-up, the flush must be running and the pump should be flooded with liquid at the seal faces, as dry running will cause overheating and may damage the mating surfaces.



## Replacing the Seal - Double back to back seals, type 59U (inboard) & 59U (outboard)

**ATTENTION**

Mechanical seals are precision products. Installation should be carried out to the laid down procedure. Seals should be installed in a clean environment with particular care given to the lapped and polished seal faces.

Notes: - For information on the seal fitted in your pump, please refer to the data sheet.

*Tools required: Diluted soft soap solution, Seal fitting tube & sleeve (recommended), Torque wrench 1-20 Nm & hex drive bit - see table below.*

### Removing the old seals:

Dismantle the pump and seals as described on page S1.  
Remove any grub screw burrs from the pump stub shaft.

### Fitting the new seals:

See also items 1 - 4 **Reassembling the Pump** on page S1.

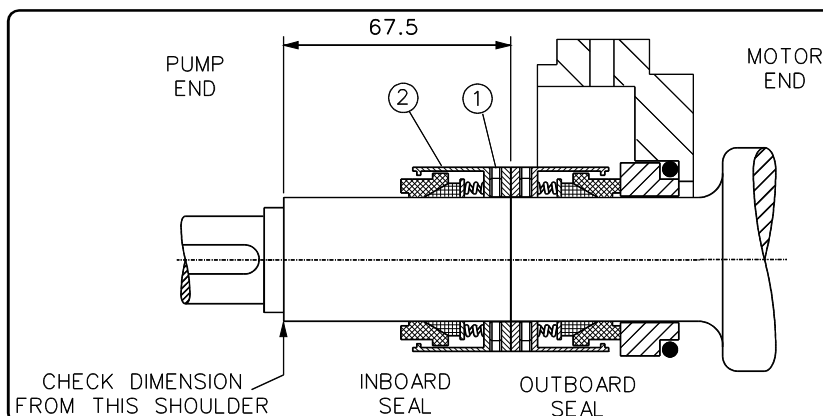
- 1) Ensure all components are clean. Any sharp edges on the shaft shoulder or keyway should be removed.
- 2) Lubricate the shaft with a very slight smear of diluted soft soap solution. **Never use mineral oil, grease, vaseline**, etc, as it is **not** hygienic.

### Outboard seal type 59U:

- 3) Remove the 4 off retention clips before fitting the new seal onto the shaft.
- 4) Ensure that the grub screws (1) are well clear of the bore of the retainer (2).
- 5) Slide the seal unit gently onto the shaft, taking particular care when passing the seal over the stepped shaft not to damage the bore of the seal face. If the seal does not slide easily, remove it from the shaft, reverse it and push it gently onto the shaft so as to ease the wedge. Then remove the seal, place it on the shaft the right way round and slide it onto the shaft. Ensure the seal face is towards the motor end.
- 6) Measure 67.5mm from the shoulder of the shaft to the rear of the seal. (Note: the dimension is taken from the first shoulder - see drawing below).
- 7) Lightly tighten the grub screws (1) in the retainer (2), centralising the seal on the shaft. Re-check the 67.5mm measurement and fully tighten the grub screws (1).

### Inboard seal type 59U:

- 8) Remove the 4 off retention clips before fitting the new seal onto the shaft.
- 9) Ensure that the grub screws (1) are well clear of the bore of the retainer (2).
- 10) Slide the seal unit gently onto the shaft, taking particular care when passing the seal over the stepped shaft not to damage the bore of the seal face. If the seal does not slide easily, remove it from the shaft, reverse it and push it gently onto the shaft so as to ease the wedge. Then remove the seal, place it on the shaft the right way round and slide it onto the shaft. Ensure the seal face is towards the pump end.
- 11) Butt the inboard seal up to the outboard seal.
- 12) Lightly tighten the grub screws (1) in the retainer (2), centralising the seal on the shaft. Then fully tighten the grub screws† (1) to the specified torque (see table below).
- 13) Reassemble the pump as described on page S1.
- 14) Before start-up, the flush must be running and the pump should be flooded with liquid at the seal faces, as dry running will cause overheating and may damage the mating surfaces.



Grub screw		
Size	Hex bit size	Torque
M5	2.5 mm	3 Nm
M6	3.0 mm	4 Nm
M8	4.0 mm	11 Nm

† **Mechanical seal grub screws** - once tightened the screws should not be reused. If the screws are loosened for any reason, they must be replaced.