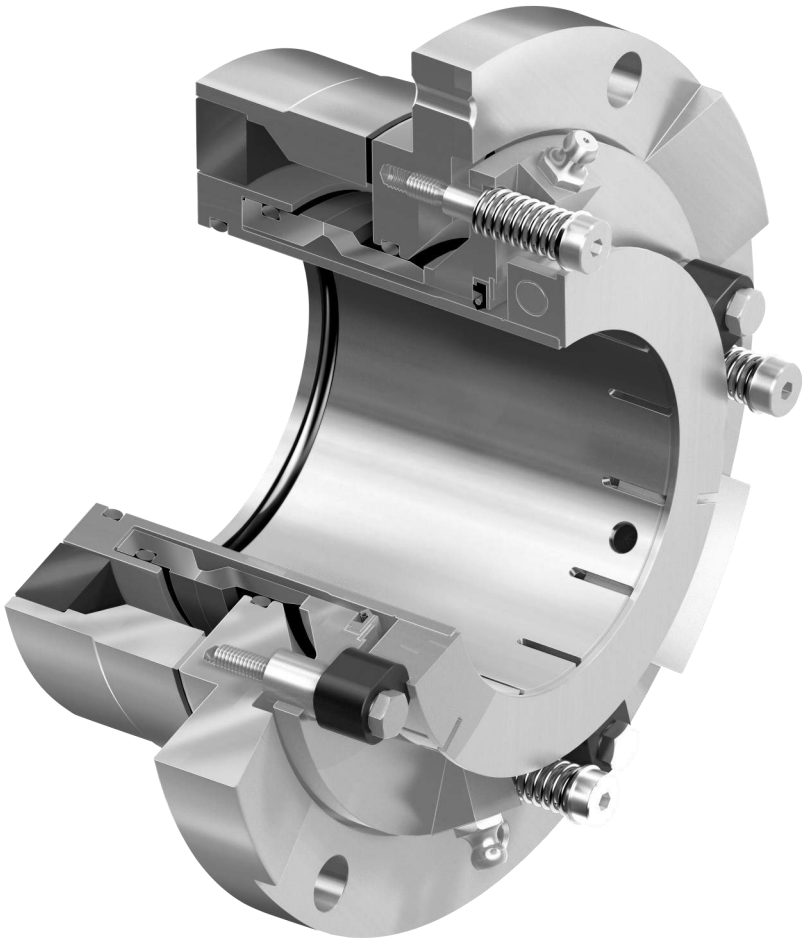
170L Slurry Cartridge Single Seal – Dry Version

Designed to fit Weir™ AH series pump

Installation, Operation and Rebuild Instruction



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Seal Data Reference

(from Box Label)

Item #_____

Seal _____

(example 170L 100mm SSC/TC)

Installation Date_____

1.0 CAUTIONS

These instructions are general in nature. It is assumed that the installer is familiar with seals and certainly with the requirements of their plant for the successful use of mechanical seals. If in doubt, get assistance from someone in the plant who is familiar with seals or delay the installation until a seal representative is available. All necessary auxiliary arrangements for successful operation (heating, cooling, flushing) as well as safety devices must be employed. These decisions are to be made by the user. The decision to use this seal or any other Chesterton seal in a particular service is the customer's responsibility.

Do not touch the mechanical seal for any reason while it is operating. Lockout or uncouple the driver prior to personal contact with the seal. Do not touch the mechanical seal while it is in contact with hot or cold fluids. Ensure that all the mechanical seal materials are compatible with the process fluid. This will prevent possible personal injury.

2.0 TRANSPORT AND STORAGE

Transport and store seals in their original packaging. Mechanical seals contain components that may be subject to alteration and ageing. It is therefore important to observe the following conditions for storage:

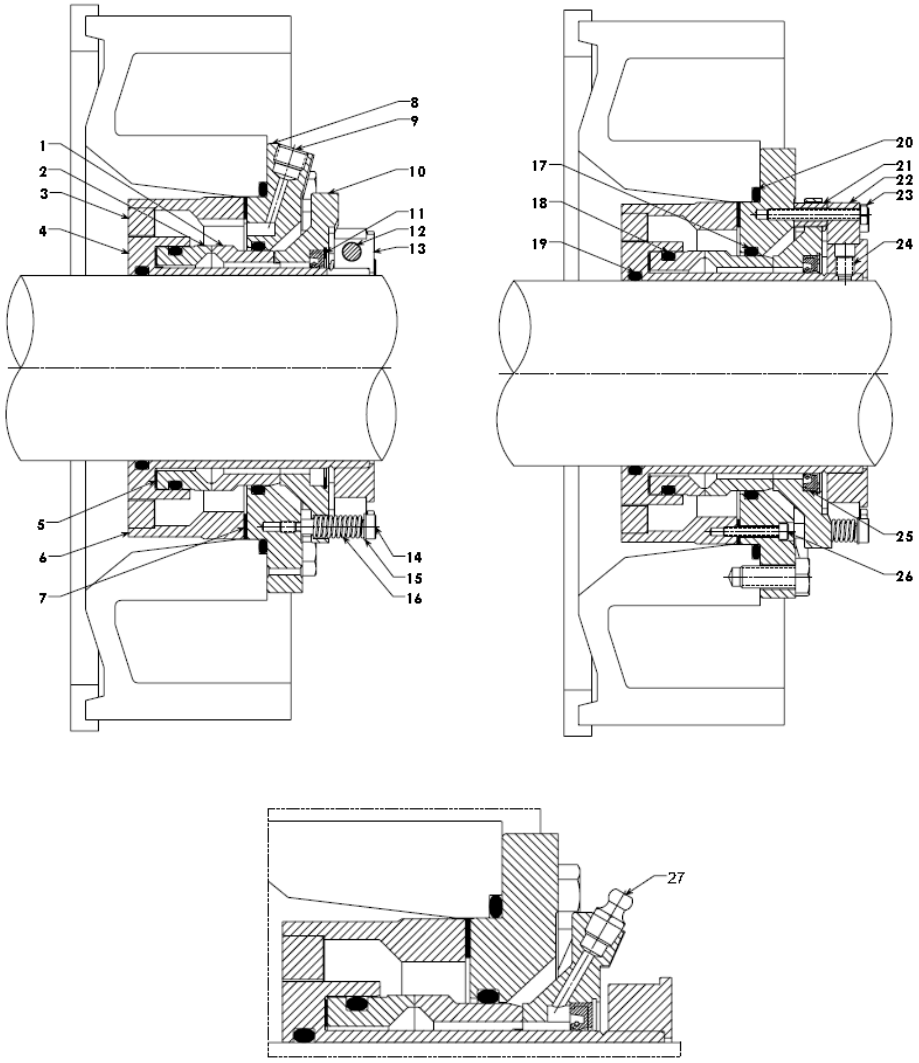
- Dust free environment
- Moderately ventilated at room temperature
- Avoid exposure to direct sunlight and heat.
- For elastomers, storage conditions according to ISO 2230 should be observed.

3.0 DESCRIPTION

3.1 Parts Identification

Key

1	-	Stationary Seal Ring
2	-	Rotary Seal Ring
3	-	Restriction Bushing
4	-	Sleeve Assembly
5	-	Seal Ring Cushion
6	-	Adapter
7	-	Gasket
8	-	Gland Restriction Bushing
9	-	Pipe Plug
10	-	Quench and Drain Pusher
11	-	Internal Snap Ring
12	-	Torx Socket Head Cap Screw
13	-	Lock Ring Assembly
14	-	Hex Socket Head Shoulder Screw
15	-	Washer
16	-	Spring
17	-	O-Ring
18	-	O-Ring
19	-	O-Ring
20	-	O-Ring (Customer Supplied)
21	-	Bushing
22	-	Centering Clip
23	-	Hex Cap Screw
24	-	¼ Dog Point Set Screw
25	-	Lip Seal (Customer Supplied)
26	-	Hex Socket Head Cap Screw
27	-	Grease Fitting



3.2 Operating Parameters†

Pressure:

60-145 mm 250 psig (17 bar g)
180-220 mm 150 psig (8 bar g)

†Seal pressure capabilities are dependent on the fluid sealed, temperature, speed, and face combination

Speed Limits:

Up to 4000 FPM (20 mps)

Consult Seal Applications Engineering for higher applications

Temperature Limits:

Elastomers

To 150°C (300°F) EPDM
To 205°C (400°F) FEPM, FKM
To 260°C (500°F) FFKM

Standard Materials*

All Metal Parts: 316 SS/ EN 1.4401
A2205 / EN 3.017
Springs: Alloy C276 / EN 2.4819
Rotary Face: SSC, TC
Stationary Face: SSC, TC
Elastomers: FKM, EP, FEPM, ChemLast™

*Other materials available upon request.

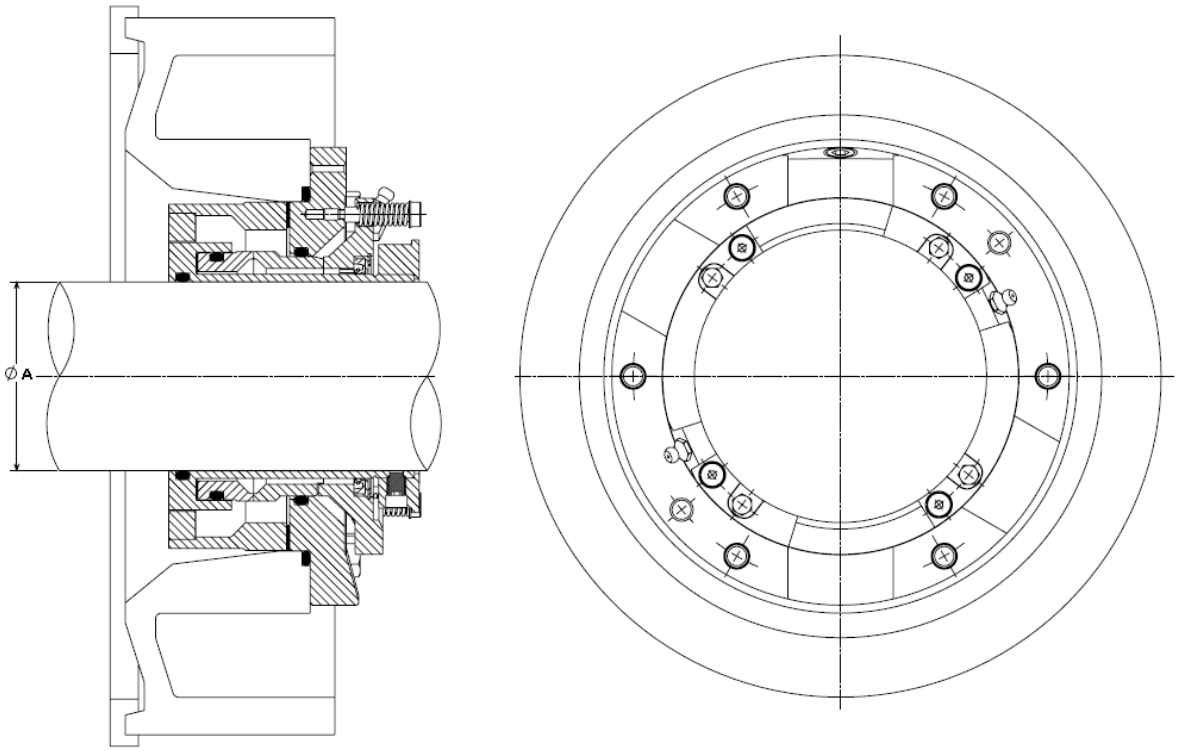
3.3 Intended Use

The mechanical seal is specifically designed for the intended application and is to be operated within the operating parameters as specified. For use beyond the intended application and/or outside the operating parameters, consult Chesterton to confirm the suitability of the mechanical seal prior to putting the mechanical seal in operation.

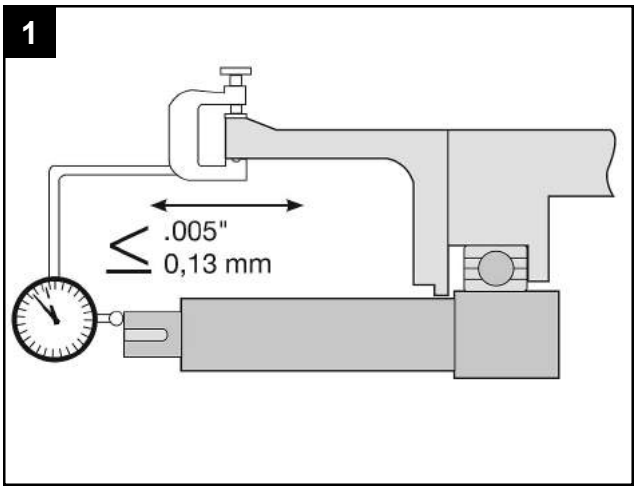
3.4 Pump Frame Size Availability Data

170L Slurry Seal Dry End - Seal Assembly Availability			
Weir Pump Model / Frame	**Shaft Size (mm) A**	**Standard**	**Quench/Drain and Lip Seal**
3/2 C&P-AH	60	x	x
4/3 C&P-AH			
4/3 D&Q-AH	85	x	x
6/4 D&Q-AH			
6/4 E-AH	100	x	x
8/6 E&R-AH			
10/8 E&R-M			
12/10 E&R-M			
8/6 F-AH	130	x	x
10/8 F-M			
12/10 F-M			
10/8 F-AH	145	x	x
12/10 F-AH			
14/12 F-AH			
10/8 G&T-AH	180	x	x
10/8 ST-AH			
12/10 G&T-AH			
12/10 ST-AH			
14/12 G&T-AH			
16/14 TU-AH	220	x	x
20/18 TU-AH			

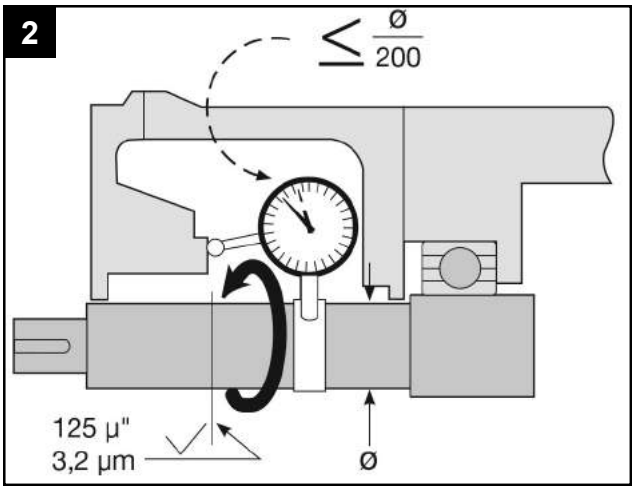
3.5 Seal Configuration



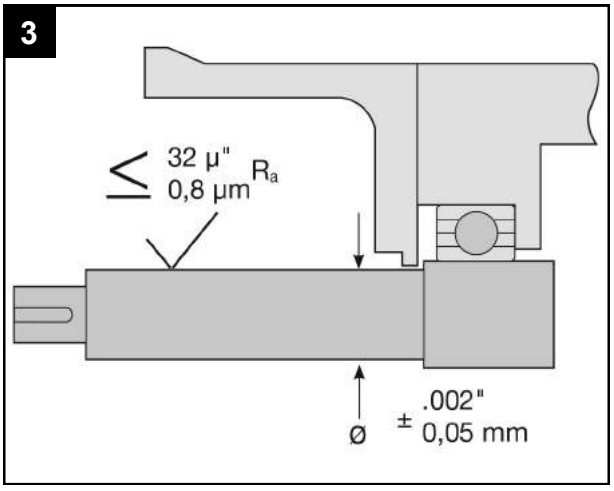
4.1 Equipment



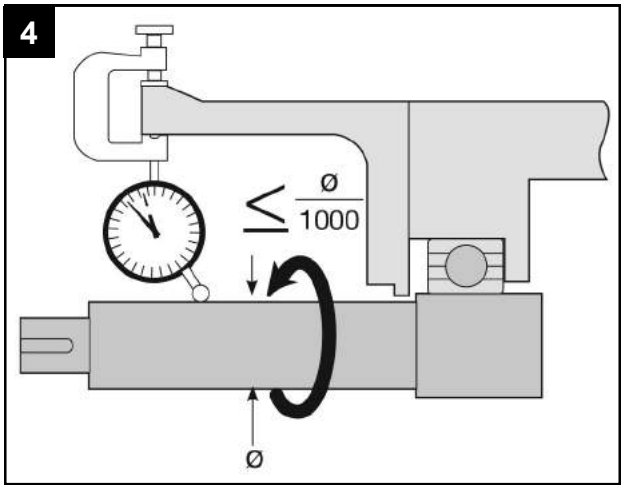
If practical, place the dial indicator tip on the end of the shaft sleeve or on a step in the shaft to measure end play. Alternately push and pull the shaft in the axial direction. If the bearings are in good condition, end play should not exceed 0,13 mm (.005").



If possible, attach a base dial indicator to the shaft and rotate both the indicator and shaft slowly while reading the runout of the stuffing box face. Misalignment of the stuffing box face relative to the shaft should not exceed 0,005 mm TIR per mm (.005 in per inch) of shaft diameter. The stuffing box face must be flat and smooth enough to seal the gland. Surface roughness should be 3,2 microns (125 microinch) Ra maximum for gaskets and 0,8 micron (32 microinch) Ra for O-Rings. Steps between halves of split case pumps should be machined flat. Make sure the stuffing box is clean and clear along its entire length.



Remove all sharp corners, burrs, and scratches on the shaft, especially in areas where the O-Ring will slide, and polish if necessary to achieve a 0,8 micron (32 microinch) Ra finish. Make sure the shaft or sleeve diameter is within 0,05 mm (.002") of nominal.



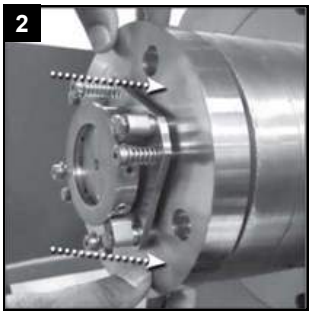
Use a dial indicator to measure the shaft runout in the area where the seal will be installed. Runout should not exceed 0,005 mm TIR per mm (.005 in per inch) of shaft diameter.

4.2 Mechanical Seal

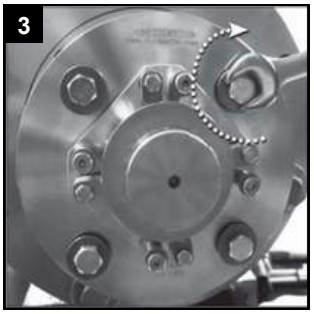
1. Check the chemical listing to determine if the O-Rings installed in this seal are compatible with the fluid being sealed.
2. **CAUTION:** If the seal is operating at a stuffing box pressure over 20 bar (300 psig) for sizes 25-60 mm (1" to 2 1/2"), or 16 bar (250 psig) for sizes 65-120 mm (2 5/8" to 4 3/4") or if the shaft is case-hardened, replace the 316 stainless steel set screws with the hardened steel set screws supplied with the seal. The 1/4 dog point set screws go into the small holes in the sleeve. Do not disengage these screws from the sleeve when positioning the seal. The cup point set screws go through the larger holes in the sleeve. Make sure all screws are engaged in the sleeve but do not protrude into the ID bore. Also, when repositioning or removing the seal, make sure the centering clips and socket head cap screws are engaged.
3. Centering clips have been preset at the factory. If for any reason you loosen or remove the centering clip cap screw, retighten as follows prior to installing the seal on the equipment: Tighten the cap screw finger tight. Then using hex wrench, tighten cap screw an additional 1/8 turn. This will approximate the 3,4 Nm (30 inch-pounds) of torque for sizes 45-60 mm (1.75" to 2 1/2"), and 4,5 Nm (40 inch-pounds) of torque for 65-120 mm (2 5/8" to 4 3/4") set at the factory. For sizes 25-43 mm (1" to 1.625") tighten the button head screws to 2,3 Nm (20 inch-pounds) of torque.

5.0 SEAL INSTALLATION

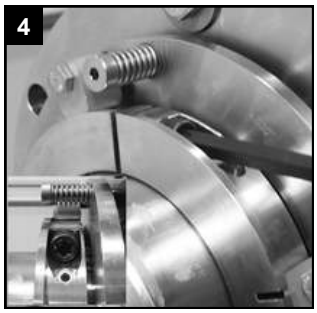
Remove seal from packaging and place on clean work surface.



Apply a thin film of grease *(provided with seal)* on the shaft. Slide seal onto the shaft.



Tighten gland bolts as specified in **Table 1**.



Tighten lock ring bolts as specified in **Table 1**. Reassemble the equipment. Make all necessary equipment and impeller adjustments.

Loosen the hex head cap screws attached to the centering clips.

Turn the clips 180° from their original position.

Retighten the cap screws (to hold clips In place).

Table 1

	Torque Value (ft-lb)		Torque Value (N-m)	
Shaft Size	**Gland Bolts**	**Lock Ring**	**Gland Bolts**	**Lock Ring**
60 mm	20-30	6-8	27-40	8-11
85 mm	25-35	14-16	34-48	19-22
100 mm	40-60	28-30	54-81	38-41
130 mm	40-60	28-30	54-81	38-41
145 mm	40-60	28-30	54-81	38-41
180 mm	40-60	28-30	54-81	38-41
220 mm	40-60	28-30	54-81	38-41

6.0 COMMISIONING/EQUIPMENT START UP

1. Attach appropriate pluming/environmental controls to the seal.
2. Take all necessary precautions and follow normal safety procedures before starting the equipment.

Please contact Chesterton Mechanical Seal Application Engineering for assistance regarding the 170L seal.

7.0 DECOMMISIONING/EQUIPMENT SHUT DOWN

Ensure that the equipment is electrically isolated. If the equipment has been used on toxic or hazardous fluids, ensure that the equipment is correctly decontaminated and made safe prior to commencing work. Ensure that the pump is isolated and check that the stuffing box is drained from any fluid and pressure is fully released. Disassemble the seal and remove from equipment in the reverse order from installation instructions. Incase of disposal, ensure the local regulations and requirements for disposal or recycling of the different components in the seal are adhered to.

8.0 SPARE PARTS

Use only Chesterton original spare parts. Use of non-original spare parts represents risk of failure, danger to persons/equipment and voids the product warranty.
Spare Parts Kit can be purchased from Chesterton, referencing the recorded seal data from cover page.

9.0 SEAL MAINTENANCE AND REPAIR

9.1 Seal Maintenance

A correctly installed and operated mechanical seal requires little maintenance. It is recommended to periodically check the seal for leakage. Wearing components of a mechanical seal such as seal faces, O-Ring, etc., require replacement over time. While a seal is installed and operating, maintenance is not possible. Therefore it is recommended that a spare seal unit or a spare parts kit be held in stock to allow quick repair.

1. Note the condition of the parts, including elastomer surfaces and gland springs. Analyze the cause of failure and correct the problem, if possible, before reinstalling the seal.
2. Clean all elastomer and gasket surfaces with cleaning solvent.

9.2 Returning Seals for Repair and Hazard Communication Requirements

Any mechanical seal returned to Chesterton that has been in operation, must comply with our Hazard Communication requirements. Please go to our web page at

www.chesterton.com/Mechanical_Seal_Returns
to obtain information required for returning seals for repair or seal analysis.

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