



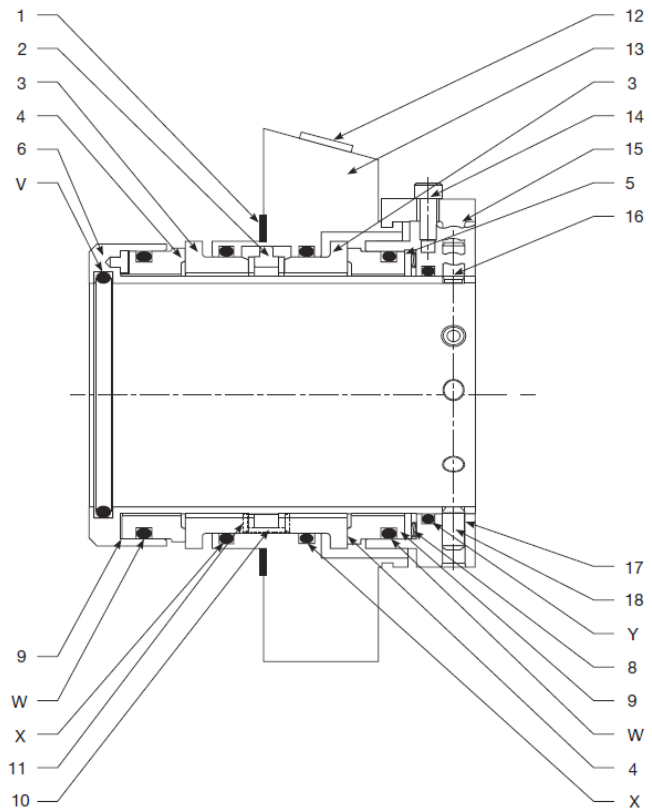
Installation of Chesterton 280 Mechanical Seal

1. General

Be sure to read all instructions carefully before installing seal.

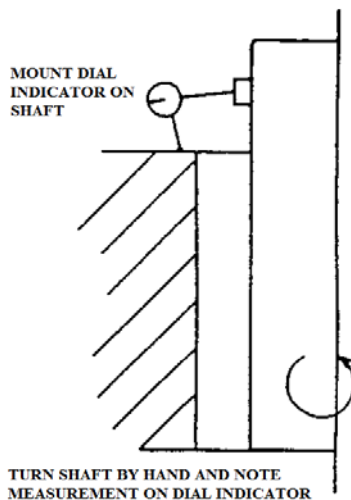
The Chesterton Type 280 Seal is a precision product. To assure satisfactory operation, handle seal with care. Take particular caution to see that the lapped sealing faces are not scratched or marred.

KEY	
1 - Gasket	13 - Gland
2 - Lug	14 - Socket Head Cap Screw
3 - Stationary Face	15 - Centering Clip
4 - Rotary Face	16 - 1/4 Dog Pt. Set Screw
5 - Follower Assembly	17 - Lock Ring
6 - Sleeve Assembly	18 - Set Screw
8 - Spring	V - Shaft O-Ring
9 - Rotary Gasket	W - Rotary O-Ring
10 - Channel	X - Stationary O-Ring
11 - Channel Clip	Y - Lock Ring O-Ring
12 - Port Plug	

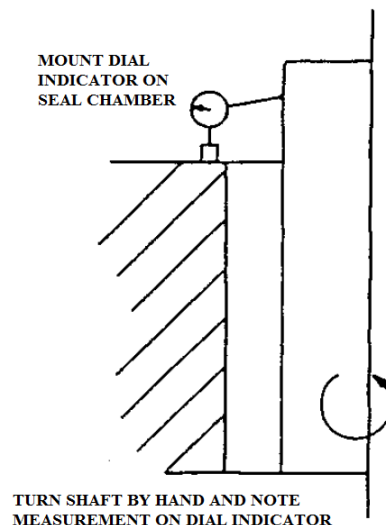


2. Preparing the Seal

A. Determine squareness of seal housing face to shaft (.005" T.I.R. maximum)



B. Measure shaft runout (.001" T.I.R. max.)





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3. Preparing the Seal (cont.)

- B. The shaft finish should be 32 microinches RA (0.8 microns) Maximum. It should feel smooth if you run your fingernail down it axially.
- C. Protect the sleeve o-ring by lubricating the shaft with a clean silicone based lubricant, as that provided with the seal.

4. Seal Installation

- A. The ¼ dog point set screws go into the small holes in the sleeve. Do not disengage these screws from the sleeve with 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 the ID bore. Also, when repositioning or removing the seal, make sure the centering clips and socket head cap screws are engaged.
- B. Centering clips are preset at the factory. If for any reason you loosen or remove the centering clip cap screws, re-tighten each cap screw finger tight (approximately 15 inch-pounds (1.7 Nm) of torque). **Make sure that the lip on the end of the centering clip is inside the gland groove.**
- C. **CAUTION:** If the seal is operating at a stuffing box pressure over 300 Psig (20 bar g) or the shaft is case hardened, replace the 316SS cup point set screws with the hardened steel cup point screws supplied with the seal.
- D. Slide the seal onto the shaft making sure the ¼ dog point set screws are engaged through the seal sleeve.
- E. Orient the barrier fluid connections to the location required. The ports are plugged prior to shipping.
- F. Piping connections should not be made prior to tightening the gland bolts.
- G. Tighten the gland bolts evenly. **IMPORTANT: The gland bolts must be tightened before tightening the set screws onto the shaft.**
- H. **IMPORTANT: All ¼ dog point set screws must be tightened FIRST.** See Figure on page 3 for location of dog point set screws. If rotation of the lock ring is required for tightening set screws, loosen or remove one centering clip. Finger tighten each 1/4 dog point set screw by twisting the short end of the hex key with your finger tips. Tighten each ¼ dog point set screw per the recommended tightening torque shown on the chart on last page.
- I. Once the 1/4 dog point set screws are tightened, finger tighten each set screw by twisting the short end of the hex key with your finger tips until the point of each set screw touches the shaft. Then tighten each set screw per recommended tightening torque shown on the chart on page 4.



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- J. Remove socket head cap screws and centering clips. Retain for later use.
- K. **IMPORTANT: It is important to make sure that the gland is properly centered over the sleeve.** To do this, turn the shaft by hand to make sure the seal turns freely. If you hear metal to metal contact within the seal, it was improperly centered. Replace the centering clips finger tight, loosen gland bolts, tighten clips, re-tighten gland bolts, and then remove clips. If metal to metal contact still exists, check the centering of the stuffing box.
- L. Piping Connections should not be made until the gland nuts are tightened.
- M. The seal is equipped with a pumping device to circulate the barrier fluid. (The piping connections are dependent on shaft rotation.) Direction of shaft rotation is determined when looking at the lock ring end of the seal.

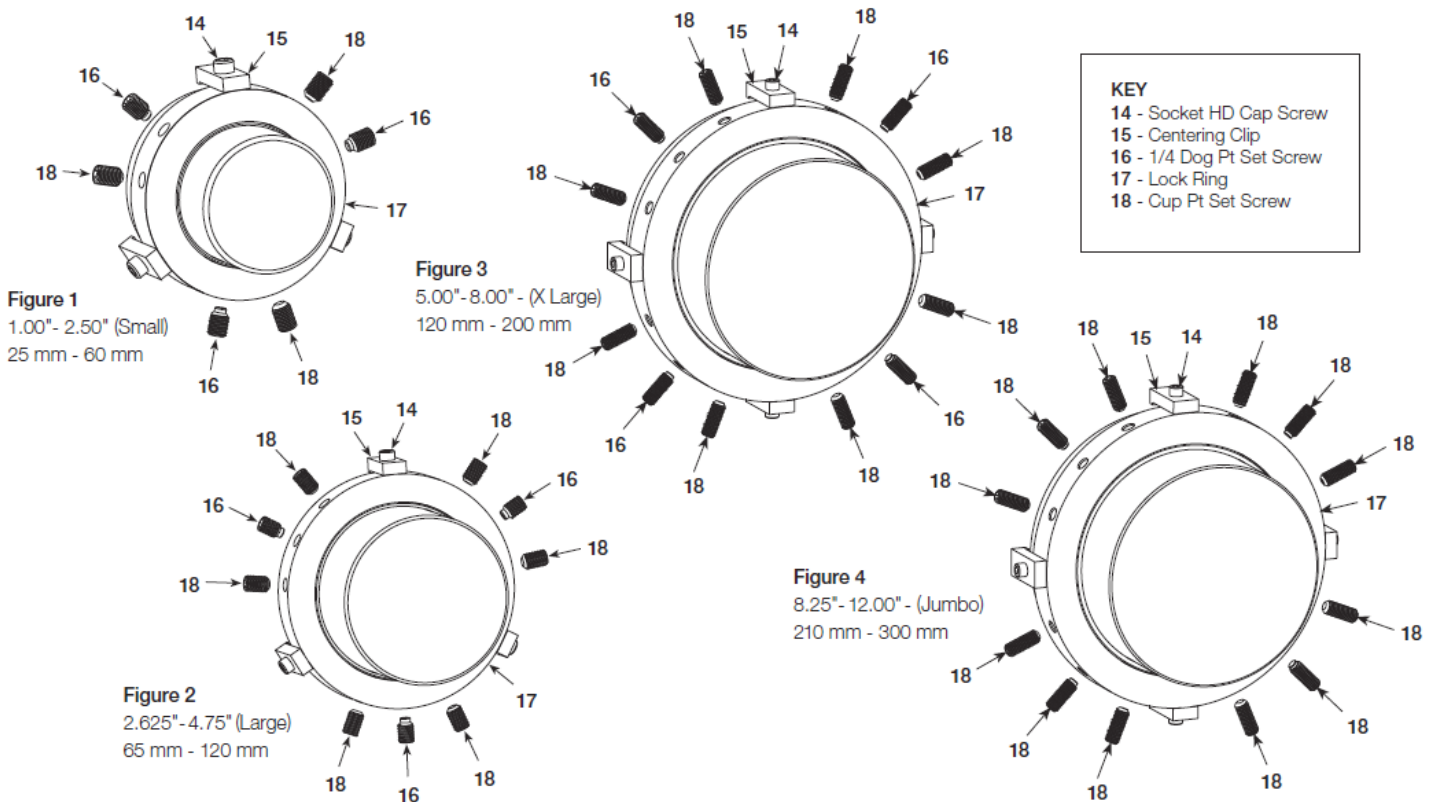
5. Convection (*Thermosiphon Connection*)

A. **CLOCKWISE** shaft rotation

The cool fluid from the bottom of the convection or thermosiphon tank enters through the right port.

B. **COUNTER-CLOCKWISE** shaft rotation

The cool fluid from the bottom of the convection or thermosiphon tank enters through the left port.





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6. Screw and Bolt Torque

SEAL SIZE	DOG POINT SET SCREWS	CUP POINT SET SCREWS	STUFFING BOX BOLTS
Up to 2.50" (60 mm)	50-60 in-lbf (5.7 – 6.8 Nm)	50-60 in-lbf (5.7 – 6.8 Nm)	20-30 ft-lbf (27-40 Nm)
Up to 4.75" (120 mm)	65-75 in –lbf (7.3 – 8.3 Nm)	65-75 in – lbf (7.3 – 8.3 Nm)	25-35 ft-lbf (34-48 Nm)
Up to 8.00" (200 mm)	120–135 in-lbf (13.6 – 15.3 Nm)	120–135 in-lbf (13.6 – 15.3 Nm)	40-60 ft-lbf (54-81 Nm)
Up to 12.00" (300 mm)	NONE	290-310 in-lbf (32.8 – 35.0 Nm)	As Required

7. Before Starting Unit

- A. Check unit at coupling for proper alignment of the driver or motor.
- B. Complete assembly of unit. Turn shaft by hand to insure free rotation.
- C. Insure before start-up that all personnel and assembly equipment have been moved to a safe distance so there is no contact with rotating parts on the agitator, seal coupling, or motor.

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.