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XCEL Series of Turbine Mixers

Bulletin 02-831
 02/06/2012
 NEW

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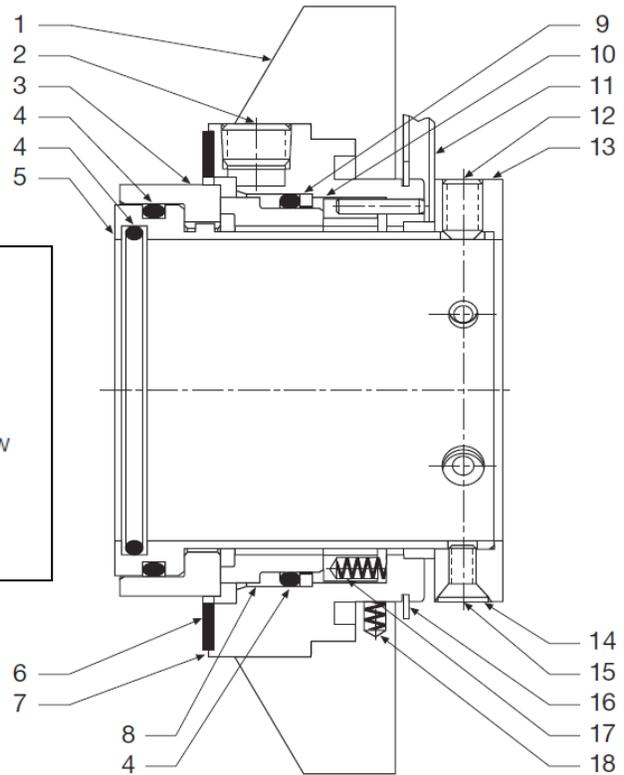
Installation of Chesterton 155 Mechanical Seal

1. General

Be sure to read all instructions carefully before installing seal.

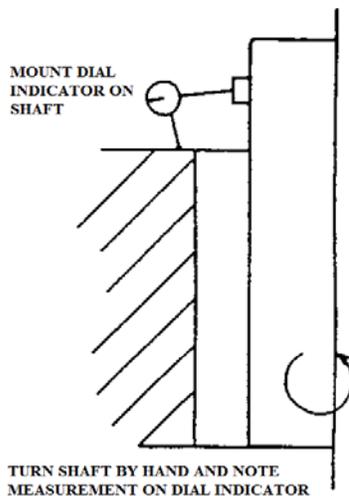
The Chesterton Type 155 Seal is a precision product. To assure satisfactory operation, handle seal with care. Take particular caution to see that the lapped sealing faces are not scratched or marred.

KEY	
1 - Bolt Tab	10 - Stationary Drive
2 - Pipe Plug	11 - Centering Strap
3 - Rotary Seal Ring	12 - Cup Point Set Screw
4 - O-Ring	13 - Lock Ring
5 - Sleeve	14 - Dot
6 - Gasket	15 - Flat HD Socket Screw
7 - Hub Gland Assembly	16 - Snap Ring
8 - Stationary Seal Ring	17 - Spring
9 - Back-up Washer	18 - Bolt Tab Spring

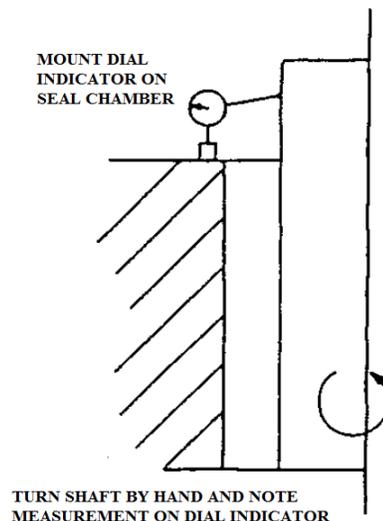


2. Preparing the Seal

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 flat head socket screws (covered with yellow dots) hold the lock ring in place. These socket screws go through the smaller holes on the sleeve. **DO NOT** loosen the flat head socket screws when positioning the seal. The three cup point screws next to the flat head socket screws press on the sleeve. Their loading configuration assists in centering the sleeve on the shaft. The three cup point screws further away from the flat head socket screws go through the larger holes on the sleeve. Make sure these are engaged through the sleeve but do not protrude into the sleeve ID bore.
- B. **CAUTION:** If the 155 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.
- C. Slide the seal onto the shaft, by pushing on the lock ring.
- D. Orient the flush connection to the location required. The port is plugged prior to shipping. Removal of the plug will require 25 lbs.-ft (33.9 Nm) of torque.
- E. Piping connections should not be made prior to tightening the gland bolts.
- F. Tighten the gland nuts evenly. **IMPORTANT: The gland nuts must be tightened before tightening the set screws onto the shaft.**
- G. The seal has been designed to promote self-centering of the sleeve on the shaft. Following the set screw tightening procedure outlined below will lead to the maximum self-centering possible.
- H. Tighten the three cup point set screws that are closer to the flat head screws with the hex keys provided. Tighten the three cup point set screws that are further away from the flat head screws, evenly. After these three cup point screws have been tightened with the hex key, tighten them again with a torque wrench to 50-60 lbs -in. (5.7 – 6.8 Nm). Pull out the centering strap, and save the strap. If the strap is lost after seal installation, a standard wire wrap, .054” thick by .187” wide (1.37 mm thick by 4.75 mm) can be used.



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- I. **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.

1. Start the centering strap through the slot in the hub gland.
2. Loosen the gland bolts.
3. Loosen the set screws (Do not loosen the flat head socket screws as this will allow the lock ring to come off).
4. Push the strap in until it completely surrounds the seal sleeve. It will pilot between the hub gland, seal sleeve and lock ring.
5. Re-tighten the gland bolts.
6. Re-tighten the set screws.
7. Remove the centering strap.

If metal to metal contact still exists check the centering of the stuffing box. Take all necessary precautions and follow normal safety procedures before starting equipment.

5. 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.