

### Foreword

These instructions are for the installation and operation of a seal as used in rotating equipment and will help to avoid danger and increase reliability. The information required may change with other types of equipment or installation arrangements.

These instructions must be read in conjunction with the Generic Instruction Manual and the instruction manuals for both the pump and any ancillary equipment. If the seal is to be used for an application other than that originally intended or outside the recommended performance limits, John Crane must be contacted before its installation and use. Any warranty may be affected by improper handling, installation, or use of this seal. Contact John Crane for information as to exclusive product warranty and limitations of liability. If questions or problems arise, contact your local John Crane Sales/Service Engineer or the original equipment manufacturer, as appropriate.

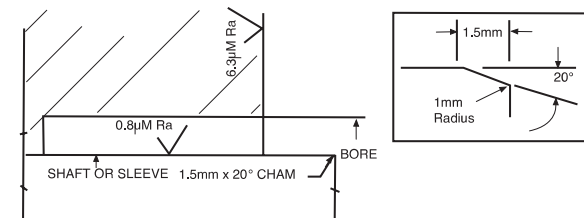
John Crane mechanical seals are precision products and must be handled appropriately. Take particular care to avoid damage to lapped sealing faces and to flexible sealing rings. Do not excessively compress the seal before or during installation.

### Seal Performance and Installation Dimensions

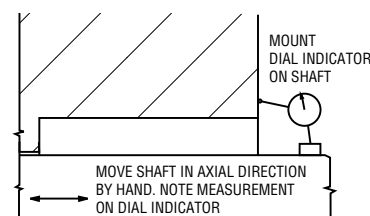
Refer to General Arrangement drawing.

### Preparing the equipment

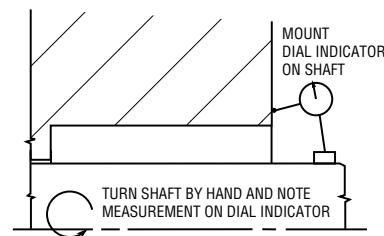
1. Check the seal chamber dimensions and finishes.



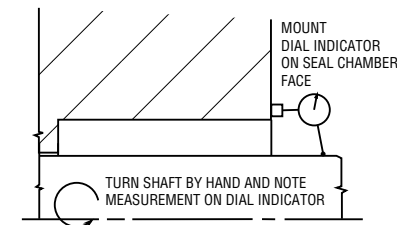
2. Measure axial end play.



3. Determine squareness of seal chamber face to shaft.



4. Measure shaft runout.



**TABLE 1. Shape and Positional Tolerances**

SHAFT RUN-OUT IN SEAL AREA:				
Size	25mm	50mm	75mm	100mm
Tolerance	0.03mm	0.05mm	0.08mm	0.10mm
(FULL INDICATOR MOVEMENT)				
SQUARENESS OF SHAFT TO STUFFING BOX FACE:				
Size	25mm	50mm	75mm	100mm
Tolerance	0.05mm	0.05mm	0.08mm	0.10mm
(FULL INDICATOR MOVEMENT)				
CONCENTRICITY'S OF SLEEVE AND BOX BORE:				
Size	25mm	50mm	75mm	100mm
Tolerance	0.05mm	0.08mm	0.10mm	0.13mm
(FULL INDICATOR MOVEMENT)				

**TABLE 2. Surface Finish**

SEAL TYPE	VALUE
Shaft	0.8 µm Ra (fine machined)
Stuffing box face	6.3 µm Ra (machined)

**NOTE** Remove all set screw burrs and sharp edges that could damage the sleeve O-ring during fitting. If the measured dimensions exceed the values given, correct the equipment to meet the specifications before installing the seal. If the seal is installed on a shaft sleeve, the sleeve must be liquid and pressure-tight through its bore.

### Installing the Seal (Cartridge Design)

**NOTE** To assure satisfactory operation, the seal must be handled with care.

1. Before starting the installation, please ensure the following instructions are read carefully.
2. Remove the seal from its packaging, inspect for any damage, and wipe clean.
3. The pump equipment should be clean and meet the criteria outlined in the pre-installation checks above.
4. Lubricate the shaft/sleeve using soft hand soap/water solution, glycerine or silicone grease.
5. Slide the seal on to the shaft and rotate until the flush port is in a suitable position for equipment piping.
6. Slide the cartridge over the seal chamber studs until the gasket abuts against the seal chamber face.
7. Fit nuts, with suitable washers, and equally tighten to the torque levels recommended by the pump manufacturer.
8. Ensure the shaft is in its working position and evenly tighten the drive arrangement which secures the cartridge sleeve to the shaft.
9. Turn the shaft by hand to ensure free rotation with no shaft binding.
10. Complete the required piping to the seal.

**NOTE** Take care not to use excess sealant or PTFE tape when making circulation pipework connections.

**ATTENTION** Unused tapped connections must be correctly plugged before seal operation.

**TABLE 3. Recommended Lubricants**

ELASTOMER	LUBRICANT
Fluoroelastomer (i.e. Viton™)	Mineral-hydrocarbon oils, silicone grease (chloride free), glycerine
Ethylene Propylene	Glycerine, silicone grease (chloride free)
Perfluoroelastomer	Mineral-hydrocarbon oils, silicon grease (chloride free), glycerine

**NOTE** Always use a lubricant that is compatible with your machinery and product. Use lubricant sparingly, only enough to install seal with ease. Viton is a registered trademark of DuPont.

The RRDP can employ various drive arrangements within its design. Refer to general arrangement drawing for tightening torques.



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