

## SINGLE O-RING CARTRIDGE SEAL

Installation, Operation &amp; Maintenance Instructions

### Foreword

These instructions are provided to familiarize the user with the seal and its designated use. The instructions must be read and applied whenever work is done on the seal, and must be kept available for future reference.

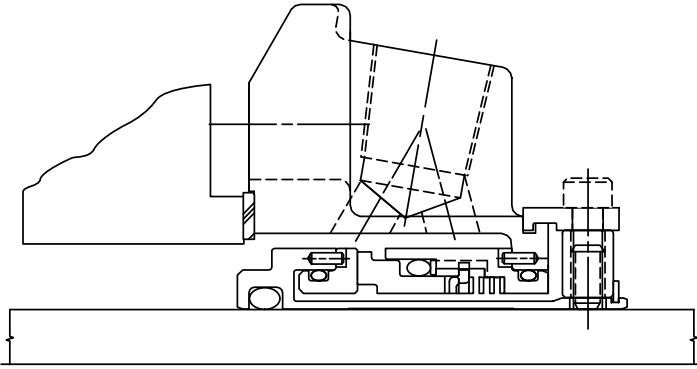
**ATTENTION** These instructions are for the installation and operation of a seal as used in rotating equipment and will help to avoid danger and increase reliability. The information required may change with other types of equipment or installation arrangements. These instructions must be read in conjunction with the 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 representative or the original equipment manufacturer, as appropriate.

**ATTENTION** 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.



### Safety Instructions

1. The following designations are used in the installation instructions to highlight instructions of particular importance.

**NOTE:** Refers to special information on how to install or operate the seal most efficiently.

**ATTENTION** Refers to special information or instructions directed towards the prevention of damage to the seal or its surroundings.



**Refers to mandatory instructions designed to prevent personal injury or extensive damage to the seal or its surroundings.**

2. Installation, removal and maintenance of the seal must be carried out only by qualified personnel who have read and understood these installation instructions.
3. The seal is designed exclusively for sealing rotating shafts. The manufacturer cannot be held liable for use of the seal for purposes other than this.
4. The seal must only be used in technically perfect condition, and must be operated within the recommended performance limits in accordance with its designated use set out in these installation instructions.

5. If the pumped fluid is hazardous or toxic, appropriate precautions must be taken to ensure that any seal leakage is adequately contained. Further information on sealing hazardous or toxic fluids should be obtained from John Crane prior to seal installation.
6. Fluorocarbon components should never be burned or incinerated as the fumes and residues are highly toxic. If fluorocarbons are accidentally heated above 400°C/750°F, they can decompose. Protective gloves should be worn as hydrofluoric acid may be present.
7. PTFE components should never be burned or incinerated as the fumes are highly toxic.

### Before Starting the Equipment

1. Check the pump at the coupling for proper alignment of the driver or motor.
2. Ensure that the gland plate nuts/bolts are securely tightened according to the pump manual instructions, and that all screws are securely fastened.
3. Complete the assembly of the pump, and turn the shaft (by hand if possible) to ensure free rotation.
4. Consult all available equipment operating instructions to check for correctness of all piping and connections, particularly regarding seal recirculation/flush, heating or cooling requirements, and services external to the seal.

**ATTENTION** This mechanical seal is designed to operate in a liquid so the heat energy it creates is adequately removed. The following check should be carried out not only after seal installation, but also after any period of equipment inactivity.

5. Check that the seal chamber fluid lines are open and free of any obstruction, and ensure that the seal chamber is properly vented and filled with liquid - refer to the pump instruction manual.

**ATTENTION** Dry-running - often indicated by a squealing noise from the seal area - will cause overheating and scoring or other damage to the sealing surfaces, resulting in excessive leakage or a much shortened seal life.



**Before start-up, ensure that all personnel and assembly equipment have been moved to a safe distance so there is no contact with rotating parts on the pump, seal, coupling, or motor.**

**WARNING:** Seal installation should be handled only by qualified personnel. If questions arise, contact the local John Crane representative. Improper use and/or installation of this product could result in injury to the person and/or harmful emissions to the environment, and may affect any warranty on the product. Please contact the company for information as to exclusive product warranty and limitations of liability.

## SINGLE O-RING CARTRIDGE SEAL

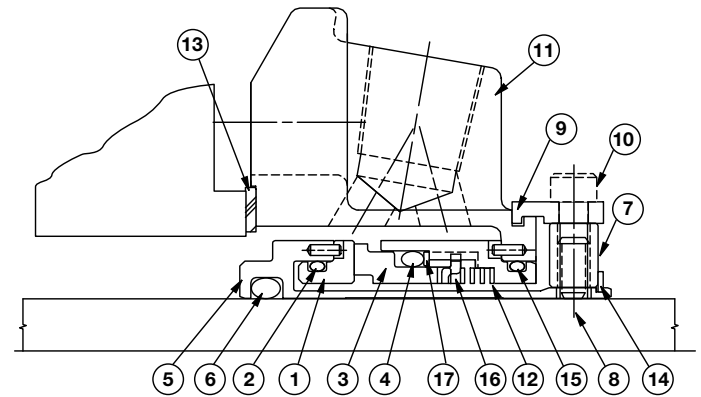
Installation, Operation & Maintenance Instructions

### General Instructions

1. Study the engineering layout drawing to confirm the proper seal arrangement for the pump being used. Type 5610 and 5610Q seals are designed for versatility and can be assembled in various ways. The following instructions describe the standard configurations.
2. To assure satisfactory operation, handle seal with care. Take particular caution to see that the lapped sealing faces are not scratched or marred.

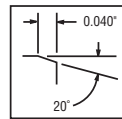
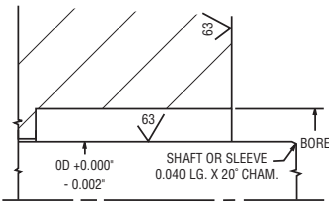
Part Name		
1 Mating Ring	7 Collar	13 Gasket
2 O-ring	8 Set Screws	14 Snap Ring
3 Primary Ring	9 Spacers	15 O-ring
4 O-ring	10 Cap Screws	16 Drive Ring
5 Sleeve Assembly	11 Gland Plate Assembly	17 Anti X-ring
6 O-ring	12 Spring	

### Typical Type 5610 Single O-ring Cartridge Seal Arrangement

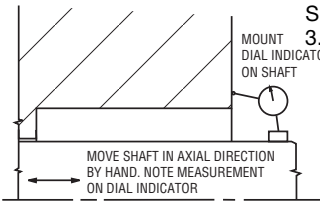


### Preparing the Equipment

1. Check seal chamber dimensions and finishes.

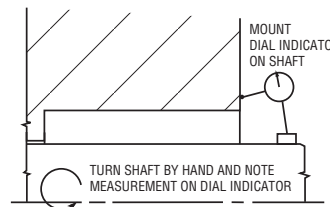


2. Measure axial end play:



Sizes to 3.000" = 0.003" FIM max.  
3.000" and greater = 0.005" FIM max.

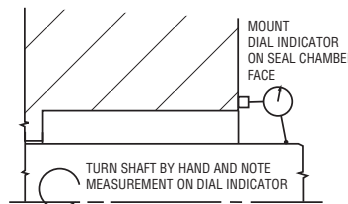
3. Determine squareness of seal chamber face to shaft:



Rotating Mating Ring  
Sizes to 3.000" = 0.005" FIM max.  
3.000" and greater = 0.007" FIM max.

Rotating Seal Head  
Sizes to 3.000" = 0.002" FIM max.  
3.000" and greater = 0.003" FIM max.

4. Measure shaft runout:



Sizes to 3.000" = 0.002" FIM max.  
3.000" and greater = 0.003" FIM

**NOTE:** If measured dimensions exceed those values given, correct the equipment to meet specifications prior to seal installation.

### Type 5610 Single O-ring Cartridge Seal Assembly

Assemble the Type 5610 as follows, referring to the applicable engineering layout drawing.

**NOTE:** These instructions apply to a rotating mating ring configuration. The seal assembly and mating ring positions could be reversed should an application require.

**NOTE:** Elastomeric O-rings can be damaged or destroyed if care is not taken. Prior to assembly of O-ring into groove, make sure groove is clean and free of foreign materials. Lubricate both groove and O-ring prior to installation with light lube oil (SAE #10 or #20) or silicone grease (such as Dow Corning compound #4.) For ethylene propylene elastomers, do not lubricate with petroleum products.

1. Place gland plate on table with gasket side facing up.
2. Install lubricated O-ring into the outside diameter (OD) groove of mating ring.
3. Stand sleeve on its base and slide mating ring over sleeve, align pins and press in place.
4. Install set screws in collar.
5. Loosely attach the spacers to the collar with cap screws.

6. Set the gland plate assembly gasket side down on table. Install collar on gland plate assembly and engage spacers into groove, aligning spacers with pipe taps of gland plate. Uniformly finger tighten the cap screws.
7. Install lubricated O-ring into outside diameter (OD) groove of retainer.
8. Place spring inside retainer.
9. Insert drive ring in retainer with tabs facing opposite of spring. Align notches with dents in retainer.
10. Insert anti x-ring in retainer.
11. Install lubricated O-ring on the primary ring. Push down until seated on the step of the outside diameter (OD) of primary ring.
12. Align notches on primary ring tail with drive ring tabs and press into bore of retainer. Make sure primary ring is engaged into tabs and moves freely.
13. Place gland plate onto table with gasket side up.
14. Insert seal assembly in gland plate, align pins and press in place. Turn gland plate over and confirm that retainer is flush with end of gland plate.

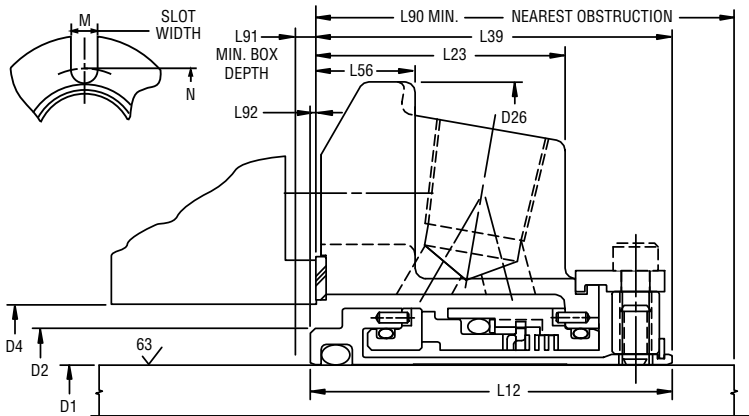
## SINGLE O-RING CARTRIDGE SEAL

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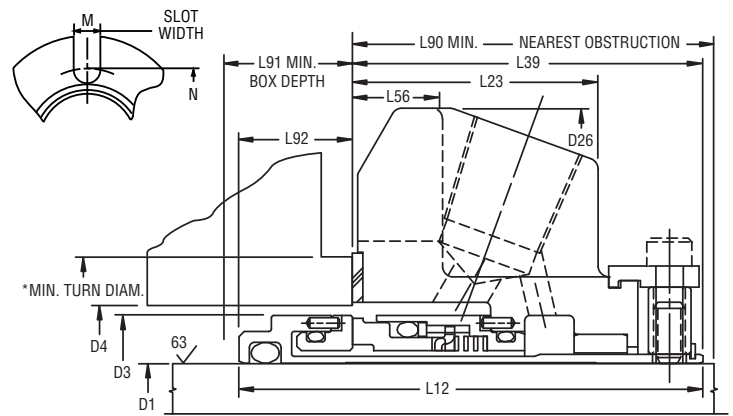
### Type 5610 Single O-ring Cartridge Seal Assembly (continued)

15. Clean faces of primary and mating rings with denatured alcohol and a lint-free cloth.
16. Making sure seal face does not fall out, slide gland plate sub-assembly over sleeve until faces touch.
17. Carefully rotate the gland plate until through holes in sleeve are lined up with the collar set screws.
18. Carefully press down on gland plate and install snap ring over the end of sleeve. This sets the axial spacing of the cartridge. Do not over compress gland plate or this may damage the seal.
19. Tighten set screws until they start to enter the sleeve ID.
20. Uniformly tighten cap screws on spacers.
21. Install gasket and sleeve O-ring.
22. Pressure test according to John Crane standard QA-5-0568.

### Typical Type 5610 Installation Dimensions



### Typical Type 5610Q Installation Dimensions



\*Oversize bore seals only

### Type 5610 Single Cartridge Dimensional Data (inches)

Seal Size/D1	D4				D26	L12	L23	L39	L56	L90	L91	L92	M	N
	D2	Min.	Max.											
1.000	1.375	1.445	1.889	4.000	1.989	1.353	1.954	0.531	2.000	0.160	0.035	0.525	2.805	
1.125	1.500	N/A	2.015	4.125	2.062	1.446	2.062	0.531	2.125	0.125	N/A	0.525	2.933	
1.250	1.625	N/A	2.294	4.250	2.062	1.446	2.062	0.531	2.125	0.125	N/A	0.525	3.213	
1.375	1.750	N/A	2.421	4.375	2.062	1.446	2.062	0.531	2.125	0.125	N/A	0.525	3.338	
1.500	1.937	2.007	2.680	4.875	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.525	3.599	
1.625	2.062	2.132	2.812	5.000	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.562	3.766	
1.750	2.170	2.240	2.918	5.250	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.562	3.875	
1.875	2.312	2.382	2.918	5.250	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.562	3.875	
2.000	2.437	2.507	3.015	5.500	2.375	1.601	2.312	1.063	2.375	0.187	0.062	0.562	4.000	
2.125	2.562	2.632	3.360	5.859	2.375	1.601	2.312	1.593	2.375	0.187	0.062	0.687	4.469	
2.250	2.687	2.757	3.485	6.500	2.375	1.601	2.312	0.593	2.375	0.187	0.062	0.687	4.566	
2.375	2.812	2.882	3.610	6.500	2.484	1.717	2.466	0.625	2.528	0.143	0.018	0.687	4.719	
2.500	3.062	N/A	3.891	6.750	2.484	1.717	2.562	0.625	2.625	0.125	N/A	0.687	5.000	
2.625	3.312	N/A	4.062	6.750	2.500	1.625	2.500	0.625	2.562	0.125	N/A	0.687	5.170	
2.750	3.312	N/A	4.062	6.750	2.500	1.625	2.500	0.625	2.562	0.125	N/A	0.687	5.170	
2.875	3.375	N/A	4.186	7.000	2.500	1.725	2.500	0.625	2.562	0.125	N/A	0.687	5.312	
3.000	3.625	N/A	4.469	7.750	2.500	1.787	2.562	0.685	2.625	0.125	N/A	0.812	5.720	
3.125	3.750	3.853	4.600	7.875	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	5.845	
3.250	3.750	3.853	4.600	7.437	2.562	1.593	2.510	N/A	2.635	0.177	0.052	0.812	5.845	
3.375	4.000	4.125	4.850	8.125	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	6.095	
3.500	4.125	4.250	4.975	8.250	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	6.220	
3.625	4.218	4.343	5.100	8.375	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.687	6.250	
3.750	4.343	4.468	5.199	8.750	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.687	6.770	
3.875	4.468	4.593	5.375	8.750	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	6.636	
4.000	4.593	4.718	5.500	9.000	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	6.761	
4.125	4.718	4.843	5.625	9.000	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	6.886	
4.250	4.843	4.968	5.750	9.250	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	7.011	
4.500	5.093	5.218	6.000	9.500	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	7.261	
4.750	5.343	5.468	6.313	10.375	2.562	1.593	2.562	N/A	2.687	0.125	N/A	0.812	7.574	
5.000	5.843	5.968	7.260	12.000	2.953	1.749	3.043	N/A	3.168	0.125	N/A	0.812	10.000	
5.250	6.093	6.218	7.510	12.250	2.953	1.749	3.043	N/A	3.168	0.125	N/A	0.812	10.250	
5.500	6.343	6.468	8.000	12.687	2.953	1.749	3.043	N/A	3.168	0.125	N/A	0.937	10.500	

### Type 5610Q Single Cartridge Dimensional Data (inches)

Seal Size/D1	D3	D4				D26	L12	L23	L39	L56	L90	L91	L92	M	N
		Min.	Max.												
1.000	1.564	1.625	1.889	4.000	2.575	1.353	1.954	0.531	2.000	0.746	0.621	0.525	2.805		
1.125	1.689	1.750	2.015	4.125	2.651	1.446	2.062	0.531	2.125	0.714	0.589	0.525	2.933		
1.250	1.812	1.875	2.294	4.250	2.728	1.446	2.062	0.531	2.125	0.791	0.666	0.525	3.213		
1.375	1.939	2.000	2.421	4.375	2.728	1.446	2.062	0.531	2.125	0.791	0.666	0.525	3.338		
1.500	2.187	2.250	2.680	4.875	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.525	3.599		
1.625	2.312	2.375	2.812	5.000	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.562	3.766		
1.750	2.406	2.480	2.918	5.250	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.563	3.875		
1.875	2.549	2.625	2.918	5.250	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.563	3.875		
2.000	2.673	2.750	3.015	5.500	2.963	1.601	2.312	1.032	2.375	0.775	0.650	0.562	4.000		
2.125	2.798	2.875	3.360	5.859	2.963	1.601	2.313	0.593	2.375	0.775	0.650	0.687	4.469		
2.250	2.923	3.000	3.485	6.500	2.963	1.601	2.313	0.593	2.375	0.775	0.650	0.687	4.566		
2.375	3.048	3.125	3.610	6.500	3.063	1.717	2.466	0.625	2.528	0.722	0.597	0.687	4.719		
2.500	3.301	3.375	3.891	6.750	3.088	1.717	2.563	0.625	2.625	0.542	0.417	0.687	5.000		
2.625	3.551	3.625	4.062	6.750	3.088	1.625	2.500	0.625	2.562	0.713	0.588	0.687	5.170		
2.750	3.551	3.625	4.062	6.750	3.088	1.625	2.500	0.625	2.562	0.713	0.588	0.687	5.170		
2.875	3.614	3.687	4.186	7.000	3.088	1.725	2.500	0.625	2.562	0.713	0.588	0.687	5.312		
3.000	3.864	3.934	4.469	7.750	3.088	1.787	2.562	0.685	2.625	0.651	0.526	0.812	5.720		
3.125	4.022	4.125	4.600	7.875	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	5.845		
3.250	4.022	4.125	4.600	7.437	3.093	1.593	2.510	N/A	2.635	0.708	0.583	0.812	5.845		
3.375	4.246	4.375	4.850	8.125	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	6.095		
3.500	4.371	4.500	4.975	8.250	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	6.220		
3.625	4.500	4.625	5.100	8.375	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.687	6.250		
3.750	4.625	4.724	5.199	8.750	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.687	6.770		
3.875	4.750	4.875	5.375	8.750	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	6.636		
4.000	4.875	5.000	5.500	9.000	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	6.761		
4.125	5.000	5.125	5.625	9.000	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	6.886		
4.250	5.125	5.250	5.750	9.250	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	7.011		
4.500	5.375	5.500	6.000	9.500	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	7.261		
4.750	5.625	5.750	6.313	10.375	3.156	1.593	2.562	N/A	2.687	0.719	0.594	0.812	7.574		
5.000	6.125	6.250	7.260	12.000	3.609	1.749	3.043	N/A	3.168	0.691	0.566	0.812	10.000		
5.250	6.375	6.500	7.510	12.250	3.609	1.749	3.043	N/A	3.168	0.691	0.566	0.812	10.250		
5.500	6.625	6.750	8.000	12.687	3.609	1.749	3.043	N/A	3.168	0.691	0.566	0.937	10.500		

## SINGLE O-RING CARTRIDGE SEAL

Installation, Operation & Maintenance Instructions

### Type 5610 Oversize Bore Single Cartridge Dimensional Data (inches)

Seal Size/D1	D4													Min. Turn Diam.
	D2	Min.	Max.	D26	L12	L23	L39	L56	L90	L91	L92	M	N	
1.375	1.750	2.875	3.023	5.375	2.062	1.446	2.062	0.625	2.125	0.250	0.125	0.562	4.062	3.268
1.750	2.170	3.500	3.925	6.500	2.156	1.487	2.125	0.656	2.187	0.250	0.125	0.687	5.093	3.885
1.875	2.312	3.625	3.734	6.500	2.156	1.316	1.954	0.485	2.017	0.327	0.202	0.687	5.093	*
2.125	2.562	3.875	4.250	7.250	2.375	1.570	2.282	0.749	2.407	0.219	0.094	0.687	5.687	4.264
2.500	3.062	4.750	5.078	8.000	2.484	1.697	2.407	0.749	2.625	0.204	0.079	0.687	6.062	5.139
2.625	3.312	4.625	4.740	8.000	2.500	1.619	2.329	0.578	2.454	0.296	0.171	0.687	6.062	**
2.750	3.312	4.750	4.875	8.000	2.500	1.697	2.407	0.656	2.532	0.218	0.093	0.687	6.062	5.139

\*Seal cartridge is OD registered on the Turn Diam. of 4.125'.

\*\*Seal cartridge is OD registered on the Turn Diam. of 5.125'.

### Type 5610Q Oversize Bore Single Cartridge Dimensional Data (inches)

Seal Size/D1	D3	D4													Min. Turn Diam.
		Min.	Max.	D26	L12	L23	L39	L56	L90	L91	L92	M	N		
1.375	1.939	2.875	3.023	5.375	2.062	1.446	2.062	0.625	2.125	0.791	0.666	0.562	4.062	3.268	
1.750	2.406	3.500	3.925	6.500	2.156	1.487	2.125	0.656	2.187	0.744	0.619	0.687	5.093	3.885	
1.875	2.549	3.625	3.734	6.500	2.156	1.316	1.954	0.485	2.017	0.915	0.790	0.687	5.093	*	
2.125	2.798	3.875	4.250	7.156	2.375	1.570	2.282	0.749	2.407	0.806	0.681	0.687	5.687	4.264	
2.500	3.301	4.750	5.078	8.000	2.484	1.697	2.407	0.656	2.532	0.698	0.573	0.687	6.062	5.000	
2.625	3.551	4.625	4.740	8.000	3.088	1.619	2.329	0.578	2.454	0.884	0.759	0.687	6.062	**	
2.750	3.551	4.750	4.875	8.000	2.500	1.697	2.407	0.656	2.532	0.806	0.681	0.687	6.062	5.139	

\*Seal cartridge is OD registered on the Turn Diam. of 4.125'.

\*\*Seal cartridge is OD registered on the Turn Diam. of 5.125'.

### Installing the Seal

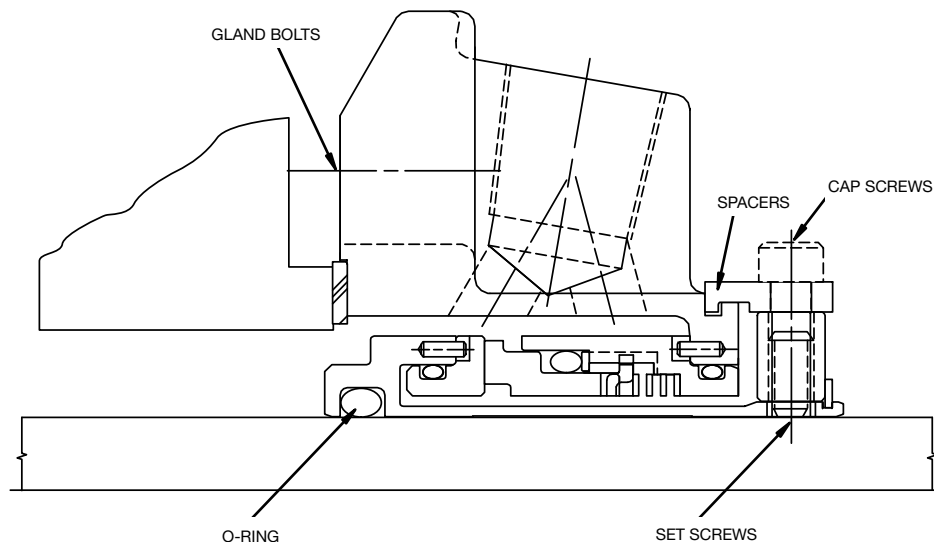
1. Before starting the installation, read the following instructions carefully.
2. Remove the seal from its packaging, inspect for any damage, and wipe clean.
3. The equipment should be clean and meet the specifications noted in the "Preparing the Equipment" section. Lubricate sleeve O-ring with lubricant recommended in chart below. Lubricate shaft sparingly. Lubricate gland plate bolts/nuts as required.

ELASTOMER	LUBRICANT
Fluoroelastomer (i.e. Viton®)	Vegetable Oil, Animal Oil, Mineral-Hydrocarbon Oils, Soap Solution, Parker 'Super-O-Lube', Silicone Grease
Ethylene Propylene	Vegetable Oil, Polywater®, Soap Solution, Glycerine, Propylene Glycol, Silicone Grease
Perfluoroelastomer (i.e. Kalrez®)	Vegetable Oil, Animal Oil, Mineral-Hydrocarbon Oils

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

Viton and Kalrez are registered trademarks of DuPont. Polywater is a registered trademark of American Polyware Co.

4. Make sure that gland plate gasket is properly positioned, and that collar set screws do not extend past sleeve ID. Slide complete cartridge seal assembly onto shaft. For ANSI pumps position gland plate so pipe connection #1 is at or near top dead center. For DIN pumps, position gland plate so slot between pipe connections #2 and #3 is at or near top dead center. Slide cartridge onto studs (if applicable) until gasket is flush against the face of seal chamber. Hand tighten gland plate bolts/nuts.
5. Reassemble pump and make all necessary impeller adjustments.
6. Continue tightening gland plate bolts/nuts in an alternating pattern until secure (1/4 turns, 180° apart), with gland plate and face of pump seal chamber metal-to-metal. Do not over-stress or distort gland plate.
7. Tighten collar set screws evenly (1/4 turns, 180° apart), securing cartridge seal to shaft.
8. Remove spacers and save.
9. Make appropriate piping connections to seal assembly.



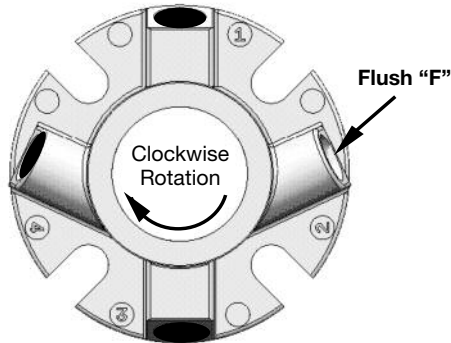
## SINGLE O-RING CARTRIDGE SEAL

Installation, Operation &amp; Maintenance Instructions

### Installing the Seal (cont.)

It is recommended that the seal cavity be vented through the pump's lantern ring connection located at top dead center. It is always recommended that a flush injection be utilized. The flush should be piped into the seal gland to ensure maximum efficiency.

Port #1 - Not Drilled  
Port #2 - Flush  
Port #3 - Not Drilled  
Port #4 - Not Drilled

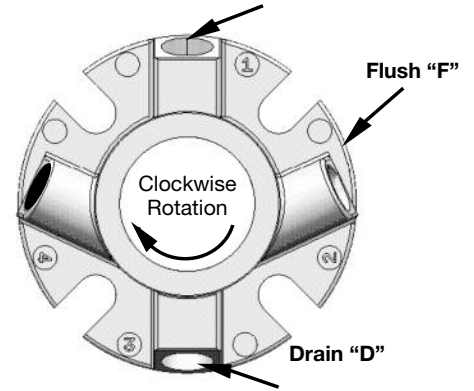


Type 5610

For DIN pumps rotate gland 135° CCW. Use port #2 as flush.

**NOTE:** For CCW (counter clockwise) rotation pumps, **Quench "Q"** consult John Crane.

Port #1 - Quench  
Port #2 - Flush  
Port #3 - Drain  
Port #4 - Not Drilled



Type 5610Q

### Decommissioning the Equipment

1. 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. Remember fluid is often trapped during draining and may exist outside the seal. The equipment instruction manual should be consulted to check for any special precautions.**

2. Ensure that the equipment is isolated by the appropriate valves. Check that the fluid is drained and pressure is fully released.

### Maintenance

No maintenance of a seal is possible while installed. Therefore, it is recommended that a spare seal unit be held in stock to allow immediate replacement of a removed seal.

It is recommended that used seals are returned to a John Crane service location, as rebuilding to as-new specifications must be carried out by qualified personnel.



**It is the responsibility of the equipment user to ensure that any parts being sent to a third party have appropriate safe handling instructions externally attached to the package.**

### Quality Assurance

This seal has been assembled in accordance with John Crane quality assurance standards and with proper maintenance and use will give safe and reliable operation to the maximum recommended performance as shown in any relevant approved John Crane publication.

## SINGLE O-RING CARTRIDGE SEAL

Installation, Operation &amp; Maintenance Instructions

### Ordering Information

1. Cartridge seal size = solid shaft or sleeve outside diameter (OD).
2. Select single (5610) or single with quench (5610Q) arrangement.
3. Determine whether standard or enlarged seal chamber configuration is required.
4. Choose seal drawing number from chart below.
5. For other material combinations or size considerations, consult the local John Crane representative.

### Materials of Construction - Standard

Primary Ring	Carbon Graphite Silicon Carbide (optional) Nickel Binder Tungsten Carbide (optional)
Mating Ring	Silicon Carbide Nickel Binder Tungsten Carbide (optional)
Cartridge Hardware	316 Stainless Steel*
Secondary Seal	Fluoroelastomer*

### Operating Limits

Pressure:	Sizes up to 3.000": 300 psig / 21 barg max. Sizes over 3.000": 200 psig / 13 barg
Temperature:	-20°F to 400°F / -29°C to 204°C
Speed:	To 5000 fpm / 25 mps

\*Various options.

### Type 5610/5610Q Cartridge Drawing Numbers Standard Bore Layouts

Seal Size	5610	5610Q
1.000	H-SP-39543	H-SP-39545
1.125	H-SP-37305	H-SP-37313
1.250	H-SP-39554	H-SP-39556
1.375	H-SP-37306	H-SP-37314
1.500	H-SP-39564	H-SP-39566
1.625	H-SP-39574	H-SP-39576
1.750	H-SP-37307	H-SP-37315
1.875	H-SP-37308	H-SP-37316
2.000	H-SP-39584	H-SP-39586
2.125	H-SP-37309	H-SP-37317
2.250	H-SP-39594	H-SP-39596
2.375	H-SP-39604	H-SP-39606
2.500	H-SP-37310	H-SP-37318
2.625	H-SP-37311	H-SP-37319
2.750	H-SP-37312	H-SP-37320
2.875	H-SP-39614	H-SP-39616
3.000	H-SP-39624	H-SP-39626
3.125	H-SP-41625	H-SP-41626
3.250	H-SP-41630	H-SP-41631
3.375	H-SP-41636	H-SP-41637
3.500	H-SP-41641	H-SP-41642
3.625	H-SP-41646	H-SP-41647
3.750	H-SP-41651	H-SP-41652
3.875	H-SP-41954	H-SP-41955
4.000	H-SP-41656	H-SP-41657
4.125	H-SP-41661	H-SP-41662
4.250	H-SP-41664	H-SP-41666
4.500	H-SP-41668	H-SP-41669
4.750	H-SP-41671	H-SP-41672
5.000	H-SP-41674	H-SP-41675
5.250	H-SP-41677	H-SP-41678
5.500	H-SP-41680	H-SP-41681

### Type 5610/5610Q Cartridge Drawing Numbers Oversize Bore Layouts

Seal Size	5610	5610Q
1.375	H-SP-38057	H-SP-38058
1.750	H-SP-38067	H-SP-38068
1.875	H-SP-38077	H-SP-38078
2.125	H-SP-39034	H-SP-39035
2.500	H-SP-39007	H-SP-39008
2.625	H-SP-38087	H-SP-38088
2.750	H-SP-39017	H-SP-39018

# TYPE 5610 & 5610Q

## SINGLE O-RING CARTRIDGE SEAL

Installation, Operation & Maintenance Instructions

## SINGLE O-RING CARTRIDGE SEAL

Installation, Operation &amp; Maintenance Instructions



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If the products featured will be used in a potentially dangerous and/or hazardous process, your John Crane representative should be consulted prior to their selection and use. In the interest of continuous development, John Crane Companies reserve the right to alter designs and specifications without prior notice. It is dangerous to smoke while handling products made from PTFE. Old and new PTFE products must not be incinerated. ISO 9001 and ISO14001 Certified, details available on request.