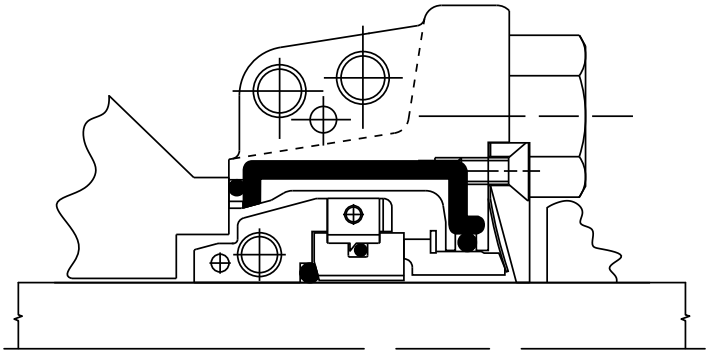
TYPE 3710
CARTRIDGE SPLIT SEAL

Installation, Operation & 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. Any modifications will void any and all warranties.
5. The Type 3710 seal is not intended to be used in hazardous or toxic fluids. If the process fluid is either hazardous or toxic, please contact your local John Crane representative for a more appropriate seal recommendation.
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 is bolted securely as described in **Install Gland Assembly - Step 4**, number 4. on page 4.
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 startup, 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.**

General Instructions

The Type 3710 cartridge split seal is the latest benchmark in the evolution of split seal designs. It is well suited for a variety of applications, such as condensate, paper stock, sludge, and river water. It can be installed on horizontal equipment including pumps, mixers and agitators, where reliability and minimal downtime are essential. There are special Type 3710 designs for use on vertical applications where an additional connection is supplied in the gland to vent the stuffing box.

ATTENTION Do not fit the mating ring or primary ring face halves together before actual installation.

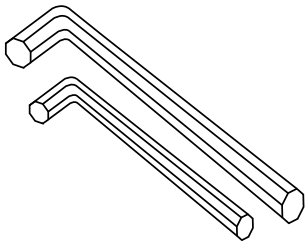
Both seal faces are machined as rings, and then split into two halves. Peaks and valleys on one half will mate exactly with the other half, providing accurate alignment. However, each time the halves are engaged and separated, small fragments may break loose, resulting in a less than perfect fit between the parts. This may result in excess leakage.

Since a split seal is assembled with the pump in place, special attention must be paid to keeping the seal area as clean as possible.

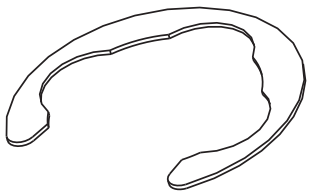
1. Study the engineering layout drawing to confirm the proper seal arrangement for the pump being used.
2. To assure satisfactory operation, handle seal with care. Take particular caution to see that the lapped sealing faces are not scratched or marred.

Tools Required

Seal mounting bolts are not included with this seal. Prior to beginning seal installation, obtain seal mounting bolts to replace studs in equipment housing. Hex head bolts are recommended. When sizing bolts, reference seal layout drawing for gland thickness. Be sure to allow for proper thread engagement into the equipment housing. Allen wrenches are provided for all screws necessary for seal assembly.

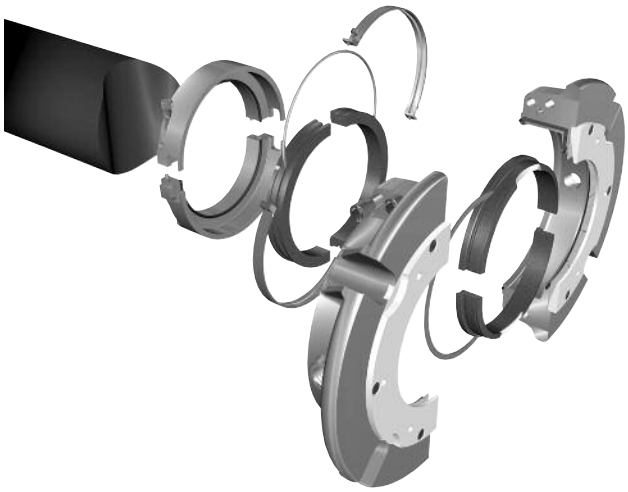


ALLEN WRENCHES



SETTING GAUGE

Typical Type 3710 Exploded View Assembly Drawing



Typical Type 3710 Seal Components

1 Mating Ring Adapter - 2 halves	1 Gland Assembly - 2 halves
1 Mating Ring - 2 halves	1 Primary Ring - 2 halves
1 Mating Ring Retaining Ring (round cross-section)	1 Primary Ring Retaining Ring (square cross-section)
1 Setting Gauge	5 Gland Screws (4 required, 1 spare)
3 Mating Ring Adapter Screws (2 required, 1 spare)	3 or 4 Allen Wrenches
1 Clamp Ring - 2 halves (includes captured screw)	2 Pipe Plugs
3 Clamp Ring Screws (2 preinstalled, 1 spare)	1 O-Ring Lube (MSDS sheet supplied upon request)

Inspect the parts carefully. If any of the parts are missing, please contact your John Crane representative.

Preparing the Equipment

1. Remove the packing follower or existing seal. If the follower is not split, it must be cut in half to be removed without further disassembly of the pump.
2. Remove the pump studs.
3. Clean out the seal chamber. Remove all the old packing rings and any lantern rings.
4. Clean the seal chamber face area, scraping off any loose rust or paint chips. The seal chamber face should be flat and clean to provide a suitable sealing surface for the gland o-ring.
5. Remove burrs and sharp edges from shaft or sleeve.
6. Check seal chamber requirements:
   - **a.** Verify seal chamber face perpendicularity to the shaft, and shaft concentricity to the seal chamber. Do not exceed 0.005" FIM per inch / 0.005mm FIM per mm of shaft diameter.
   - **b.** Sleeve or shaft finish must be 63µin.(RMS)/1.6µm or better.
   - **c.** Bearings must be in good condition.
7. Inspect the shaft or sleeve for wear. Shaft conditions are specified in Figure 1. Mating ring adapter clamps to shaft and must be within tolerance.

   Section “A”
   Diameter “D” +.0/.002" / +0.0/-0.05mm. Make sure there are no scratches, burrs, or sharp edges. O-ring sealing surface, all scratches must be repaired.

   Section “B”
   Diameter “D” +0.0/-0.002"/ +0.0/-0.05mm. No burrs or any deposits on the shaft/sleeve surface area are acceptable.

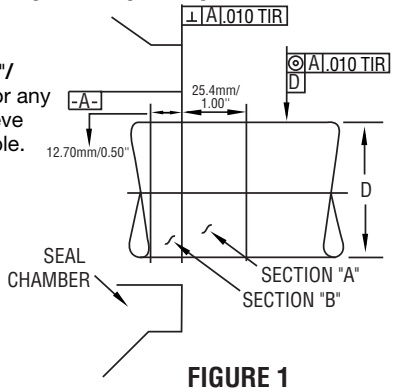


FIGURE 1

Install Mating Ring Assembly - Step 1

Parts Needed: Mating Ring, Mating Ring Retaining Ring, Clamp Ring

1. Remove the mating ring halves from their packaging.

ATTENTION Do not fit the mating ring halves together before actual installation.

2. Place one mating ring half around the shaft and fit the corresponding mating ring half into position so the mating ring forms a complete ring.

NOTE: Be sure to orient the mating ring so the chamfer on the inside diameter of the seal face is toward the seal chamber as shown in Figure 2.

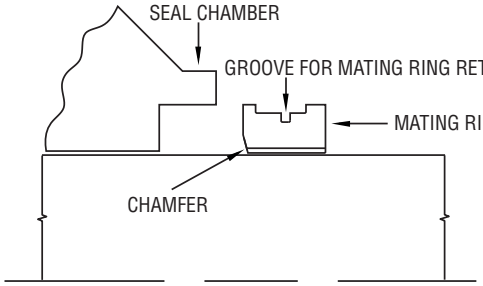
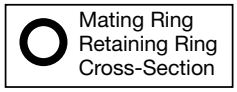


FIGURE 2

3. Center the mating ring retaining ring over the split joint and press it into the deep center groove in the mating ring assembly, as shown in Figure 3.

Check the split joint for any mismatching between the mating ring halves and, if required, correct by gently adjusting the faces until they are perfectly aligned and flush.



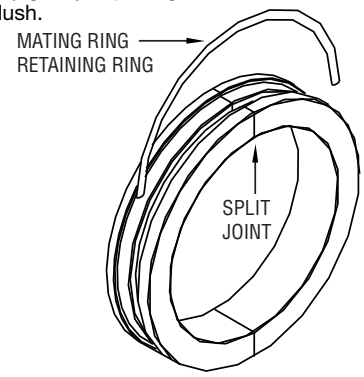


FIGURE 3

ATTENTION When you are mounting the seal on vertical equipment, be careful not to drop the ring in the pump seal chamber.

Install Mating Ring Assembly - Step 1 (cont.)

4. Place the clamp ring around the mating ring by positioning it within the shallow groove on the outside diameter of the mating ring. Match up the location notch on the mating ring outside diameter with the clamp ring tab to ensure proper orientation as shown in Figure 4a.

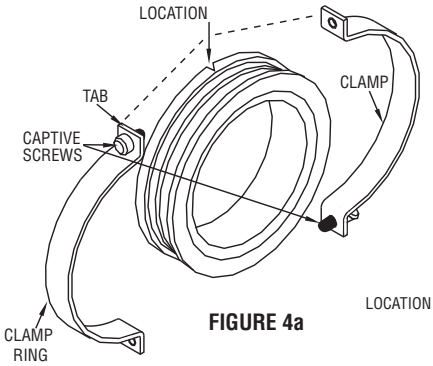


FIGURE 4a

Orientation is important: match up the location notch on the mating ring outside diameter with the clamp ring tab grooves to ensure proper orientation as shown in Figure 4b.

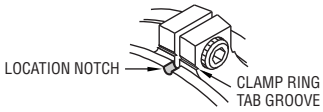


FIGURE 4b

NOTE: Figure 4b is not applicable for seal sizes greater than 160mm/5.500"

5. Evenly tighten the screws in the clamp ring halves to the torque value specified on the top assembly drawing in order to secure the assembly. Do not cross-thread or force the screws. Screws should thread smoothly. There should be the same amount of space between the Tabs on each side as seen in Figure 5. Do not overtighten the clamp ring screws as distortion to the seal face may occur.

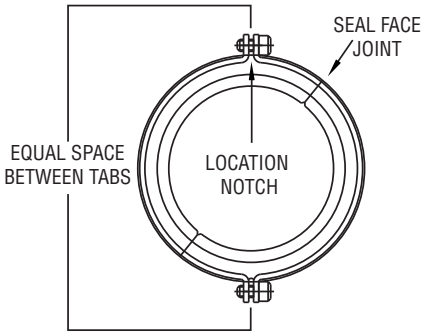


FIGURE 5

6. The completed mating ring assembly should now look like Figure 6.

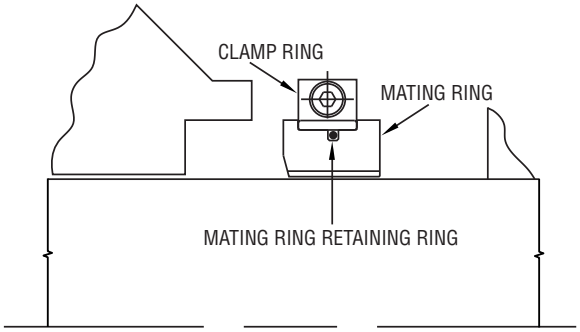


FIGURE 6

NOTE: Seal faces are flat to within 0.000035". As with any split seal, assuring the seal face halves are properly aligned is extremely important to assure optimal performance.

Install Mating Ring Adapter - Step 2

Parts Needed: Mating Ring Adapter, Setting Gauge, O-ring Lube, Mating Ring Adapter Screws

1. Lubricate the O-ring inside the mating ring adapter halves with the O-ring lube provided.

Do not lubricate the shaft.

2. Assemble the mating ring adapter halves around the mating ring/clamp ring assembly. Engage the clamp ring tabs into the drive slots, match up the alignment pins, and loosely tighten the screws on each side of the mating ring adapter (see Figure 7).

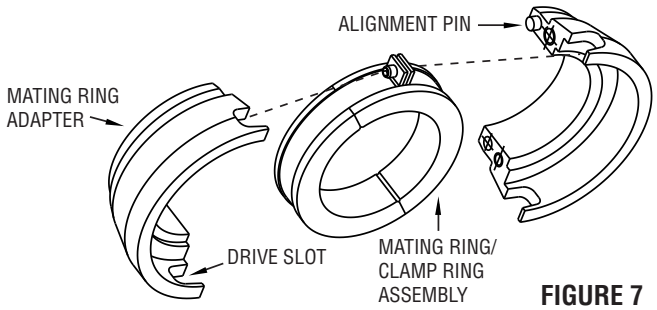


FIGURE 7

3. The mating ring adapter assembly should be loose enough to slide along the shaft. Next, affix the setting gauge to the mating ring adapter and slide the assembly back against the seal chamber face (as shown in Figure 8). Evenly tighten the mating ring adapter screws. Refer to top assembly drawing for specified torque value.

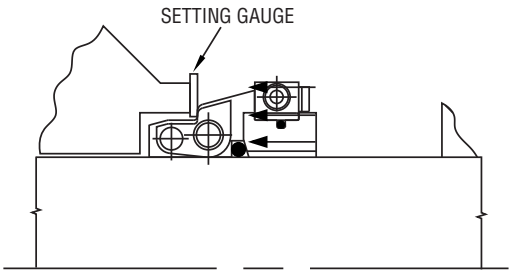


FIGURE 8

4. Remove the setting gauge. The installation should now look like Figure 9.

5. Push the tab on the clamp ring in the direction opposite of shaft rotation until it is engaged with the edges of the opening in the mating ring adapter. This helps ensure proper contact between the mating ring and o-ring.

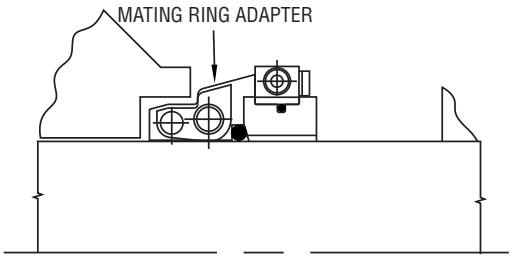


FIGURE 9

Install Primary Ring Assembly - Step 3

Parts Needed: Primary Ring, Primary Ring Retaining Ring, O-Ring Lube

1. Assemble the primary ring halves together around the shaft. From this point on, do not separate them from each other. (Note: Pushing the primary ring against the mating ring makes aligning the halves easier). Center the primary ring retaining ring over the split joint of the primary ring halves. Slide it into the groove on the primary ring outside diameter as shown in Figures 10 and 11. Check that all split joints are flush, with no axial steps.

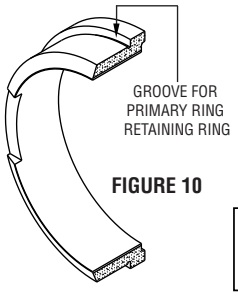


FIGURE 10

Primary Ring Retaining Ring Cross-Section

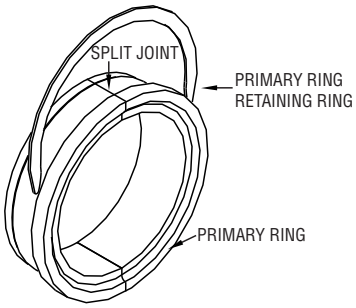


FIGURE 11

NOTE: Seal faces are flat to within 0.000035". As with any split seal, assuring the seal face halves are properly aligned is extremely important to assure optimal performance.

2. Apply a light, even film of the o-ring lubricant to the o-ring contact area on the primary ring. See Figure 12.

3. Clean the seal faces with alcohol. Slide the primary ring assembly forward to the rotating member.

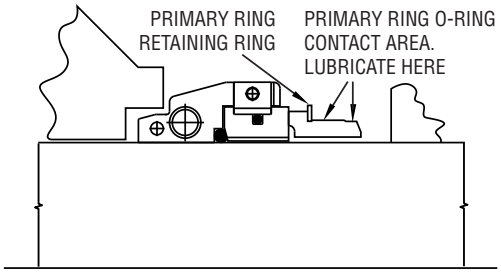


FIGURE 12

Install Gland Assembly - Step 4

Parts Needed: Gland Assembly, Pipe Plugs, O-Ring Lube, Gland Screws, Seal Mounting Bolts and Washers (provided by user)

1. Make sure that any unused flush connection taps in the gland are plugged with the pipe plugs provided.

2. Lubricate the o-rings inside the gland halves using the o-ring lube provided. Install one gland assembly half around the shaft and position it so that the spring finger nearest the gland split aligns with the primary ring drive slot, as shown in Figure 13 to the right. This ensures the primary ring and gland splits are offset by approximately 90° and the tail end of the primary ring rests on the o-ring. Place the top gland half on the shaft, matching up the alignment pins.

3. Evenly tighten the gland cap screws holding the gland halves together, alternating from side to side at approximately 75% of its full specified torque value (refer to top assembly drawing).

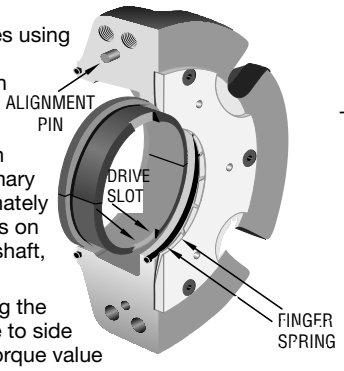


FIGURE 13

4. Install seal mounting bolts (typically not supplied - see Tools Required Section on Page 2). Evenly tighten bolts but do not fully tighten at this time. The gland should NOT make metal-to-metal contact with the pump housing or box face at this time. (TIP! Evenly tighten bolts enough to make light metal-to-metal contact, then back off bolts one complete turn).

5. Fully torque the gland cap screws.

6. Evenly tighten the seal mounting bolts until light metal-to-metal contact is made. Tighten each bolt an additional 1/4 turn to complete the installation. DO NOT OVER TORQUE THE BOLTS. DOING SO MAY CAUSE GLAND DISTORTION WHICH COULD RESULT IN EXCESSIVE LEAKAGE.

TROUBLESHOOTING TIPS:

1. If there is leakage between the gland halves, do not tighten the seal mounting bolts further. Slightly back off each mounting bolt and retighten the gland cap screws in Step 3.

2. If there is leakage between the gland and box face, tighten each seal mounting bolt by 1/8 turn.

3. Some leakage may occur between the seal faces upon startup. If leakage is less than 30 drops a minute this should improve as the faces 'run in'. If leakage is greater than 30 drops a minute, the equipment should be shut down and the seal should be inspected for nicked or cut O-rings, disjointed seal faces, chipped or cracked seal faces, or any other issue that may cause leakage.

The installation is now complete.

Type 3710 Dimensional Data (mm)

Seal Dash Number	A +0.00/ -0.05	B Min.	B Max.	C Min.	D	E	F Set Dim.	G	H*	J	K	L Min.
-040	40	63.50	68.25	74.60	8.29	47.70	1.59	44.45	82.55	15.85	134.11	12.79
-045	45	63.50	68.25	74.60	8.29	47.70	1.59	44.45	82.55	15.85	134.11	12.79
-050	50	69.85	76.20	84.12	7.95	50.80	1.59	46.43	87.33	14.27	139.70	13.18
-053	53	73.03	82.55	92.08	5.56	55.58	1.59	50.80	100.08	16.67	155.58	16.20
-060	60	80.98	95.25	104.78	6.30	54.48	1.59	50.80	104.75	19.05	165.10	15.86
-062	62	80.98	92.08	104.78	6.30	54.48	1.59	50.80	104.75	19.05	165.10	16.37
-065	65	92.08	109.52	120.65	6.35	60.31	1.59	53.98	120.65	19.05	184.15	14.22
-070	70	92.08	109.52	120.65	6.35	60.31	1.59	53.98	120.65	19.05	184.15	13.99
-075	75	100.00	104.78	112.71	6.35	63.58	3.96	57.15	134.62	17.78	196.85	19.78
-080	80	109.52	120.65	130.18	6.35	63.50	6.35	57.15	134.62	17.78	196.85	18.31
-082	82	109.52	120.65	130.18	6.35	63.50	6.35	57.15	134.62	17.78	196.85	18.35
-085	85	112.70	127.00	138.10	9.55	63.50	1.59	57.15	146.05	22.23	215.90	16.94
-090	90	112.70	127.00	138.10	9.55	63.50	1.59	57.15	146.05	22.23	215.90	16.94
-095	95	120.65	130.18	138.10	7.16	64.26	2.36	57.15	155.60	22.23	228.60	18.49
-0100	100	127.00	139.70	152.40	7.16	63.50	2.36	57.15	155.60	22.23	228.60	18.00
-0102	102	127.00	139.70	152.40	7.16	63.50	2.36	57.15	155.60	22.23	228.60	18.00
-0110	110	137.80	155.57	165.10	7.80	63.50	2.36	57.15	168.28	22.23	242.57	17.36
-0120	120	142.88	155.58	165.10	7.80	63.65	2.36	57.15	168.28	22.23	242.57	17.39
-0130	130	161.93	187.33	196.85	7.16	63.65	2.36	57.15	200.00	23.88	285.75	16.78
-0135	135	161.93	187.33	196.85	7.16	63.65	1.59	57.15	200.00	23.88	285.75	17.00
-0140	140	161.10	190.50	203.20	6.35	71.44	2.36	63.50	206.36	23.88	292.10	18.59
-0160	160											
-0170	170											

*Bolt Circle = H dimension + (1) bolt diameter + 1.6mm.

Type 3710 Dimensional Data (inches)

Seal Dash Number	A +0.00/ -0.05	B Min.	B Max.	C Min.	D	E	F Set Dim.	G	H*	J	K	L Min.
-24	1.500	2.500	2.687	2.937	0.326	1.878	0.063	1.750	3.250	0.625	5.281	0.503
-27	1.687	2.500	2.687	2.937	0.326	1.878	0.063	1.750	3.250	0.625	5.281	0.503
-28	1.750	2.500	2.687	2.937	0.326	1.878	0.063	1.750	3.250	0.625	5.281	0.503
-30	1.875	2.625	2.875	3.125	0.345	2.000	0.063	1.828	3.350	0.562	5.500	0.487
-31	1.938	2.750	3.000	3.312	0.312	2.000	0.063	1.828	3.440	0.562	5.500	0.519
-32	2.000	2.750	3.000	3.312	0.312	2.000	0.063	1.828	3.440	0.562	5.500	0.519
-34	2.125	2.875	3.125	3.625	0.219	2.188	0.063	2.000	3.940	0.656	6.130	0.638
-35	2.188	3.062	3.625	4.000	0.282	2.250	0.063	2.000	4.125	0.750	6.500	0.660
-36	2.250	3.062	3.625	4.000	0.282	2.250	0.063	2.000	4.125	0.750	6.500	0.660
-38	2.375	3.188	3.750	4.125	0.250	2.145	0.063	2.000	4.125	0.750	6.500	0.624
-39	2.438	3.188	3.625	4.000	0.250	2.145	0.063	2.000	4.125	0.750	6.500	0.644
-40	2.500	3.188	3.625	4.000	0.250	2.145	0.063	2.000	4.125	0.750	6.500	0.644
-42	2.625	3.625	3.875	4.250	0.219	2.375	0.093	2.125	4.750	0.750	7.250	0.591
-43	2.688	3.625	4.000	4.250	0.219	2.375	0.093	2.125	4.750	0.750	7.250	0.591
-44	2.750	3.625	4.312	4.750	0.250	2.375	0.063	2.125	4.750	0.750	7.250	0.551
-46	2.875	3.937	4.125	4.437	0.250	2.500	0.156	2.250	5.300	0.700	7.750	0.779
-47	2.937	3.937	4.125	4.437	0.250	2.500	0.156	2.250	5.312	0.700	7.750	0.779
-48	3.000	3.937	4.125	4.437	0.250	2.500	0.156	2.250	5.312	0.700	7.750	0.779
-50	3.125	4.312	4.750	5.125	0.250	2.500	0.250	2.250	5.300	0.700	7.750	0.720
-52	3.250	4.312	4.750	5.125	0.250	2.500	0.250	2.250	5.312	0.700	7.750	0.722
-54	3.375	4.437	5.000	5.437	0.375	2.500	0.063	2.250	5.750	0.875	8.500	0.667
-55	3.437	4.437	5.000	5.437	0.375	2.500	0.063	2.250	5.750	0.875	8.500	0.667
-56	3.500	4.437	5.000	5.437	0.375	2.500	0.063	2.250	5.750	0.875	8.500	0.661
-58	3.625	4.750	5.125	5.437	0.281	2.530	0.093	2.250	6.125	0.875	9.000	0.729

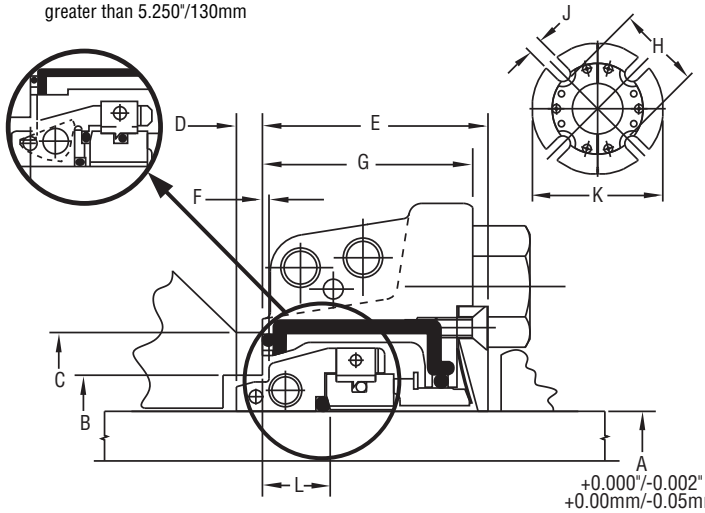
Type 3710 Dimensional Data (inches) Cont.

Seal Dash Number	A +0.00/ -0.05	B Min.	B Max.	C Min.	D	E	F Set Dim.	G	H*	J	K	L Min.
-60	3.750	4.750	5.125	5.437	0.281	2.530	0.093	2.250	6.125	0.875	9.000	0.729
-62	3.875	4.937	5.500	6.000	0.357	2.625	0.093	2.250	6.125	0.875	9.000	0.673
-64	4.000	5.000	5.500	6.000	0.281	2.500	0.093	2.250	6.125	0.875	9.000	0.709
-66	4.125	5.125	5.719	6.062	0.281	2.500	0.093	2.230	6.125	0.875	9.000	0.709
-68	4.250	5.250	5.750	6.062	0.281	2.500	0.093	2.230	6.125	0.875	9.000	0.709
-70	4.375	5.425	6.125	6.500	0.307	2.500	0.093	2.250	6.625	0.875	9.550	0.684
-71	4.437	5.425	6.125	6.500	0.307	2.500	0.093	2.250	6.625	0.875	9.550	0.684
-72	4.500	5.425	6.125	6.500	0.307	2.500	0.093	2.250	6.625	0.875	9.550	0.684
-76	4.750	5.625	6.125	6.500	0.307	2.500	0.093	2.250	6.625	0.875	9.550	0.684
-80	5.000	5.938	6.750	7.250	0.312	2.500	0.093	2.250	7.437	0.813	10.750	0.678
-82	5.125	6.375	7.375	7.750	0.281	2.500	0.093	2.250	7.875	0.940	11.250	0.661
-84	5.250	6.375	7.375	7.750	0.281	2.500	0.093	2.250	7.875	0.940	11.250	0.660
-88	5.500	6.500	7.500	8.000	0.250	2.812	0.093	2.500	8.125	0.940	11.500	0.732
-96	6.000	7.063	8.000	8.500	0.250	2.825	0.093	2.500	8.625	0.940	11.750	0.707
-100	6.250	7.500	8.438	8.750	0.281	2.750	0.063	2.500	9.000	0.940	12.000	0.580
-104	6.500	7.500	8.500	8.875	0.250	2.750	0.093	2.500	9.000	0.940	12.000	0.672
-112	7.000	8.250	9.063	9.375	0.281	2.850	0.063	2.500	9.640	1.000	12.500	0.518
-116	7.250	8.250	9.250	9.625	0.281	2.850	0.063	2.500	9.640	1.000	12.500	0.650
-128	8.000	9.438	10.500	11.281	0.250	3.375	0.093	3.312	11.375	1.125	13.690	0.639
-136	8.500											

*Bolt Circle = H dimension + (1) bolt diameter + 1/16".

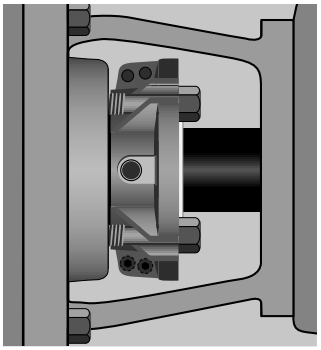
Type 3710 Cartridge Seal Arrangement

Double O-ring design for seal sizes greater than 5.250"/130mm



Post Installation Checks

1. Turn the shaft slowly by hand to ensure there is no mechanical interference in the seal. Some resistance will be normal on a new installation. The spring holder has an interference fit with the shaft. Once the equipment is started the spring holder will wear to have a clearance with the shaft.



2. Pipe per specified piping plan.
3. Apply pressure and check for leakage.
4. Start the rotating equipment using the equipment manufacturer's recommended procedures. Always vent the seal chamber to ensure that the seal area is flooded. Do not run the pump dry.

   If installation assistance is required, please contact your nearest John Crane representative.

Repair

Repair kits are available for seal reconditioning. The seal can be repaired in the field or can be forwarded to your nearest John Crane service location for factory repair.

Ordering Information

1. Cartridge Seal size = solid shaft or sleeve outside diameter (OD).
2. Select 3710 cartridge split seal arrangement.
3. For other material combinations or size considerations, consult your local John Crane representative.

Materials of Construction - Standard

Seal Faces	Carbon vs. Silicon Carbide Silicon Carbide vs. Silicon Carbide
Metallurgy	316 Stainless Steel
Finger Spring	17-7 pH Stainless Steel
Spring Retainer	Polymer
Elastomers	Fluorocarbon Ethylene Propylene Rubber (EPR)

Operating Limits

Pressure:	Vacuum to 200 psi / 13.7 bar max.*
Temperature:	Up to 250°F / 121°C
Shaft Speed:	3,600 rpm for seal sizes up to 2.500"/62mm
	1,800 rpm for seal sizes between 2.500"/62mm and 5.250"/135mm
	900 rpm for seal sizes greater than 5.250"/135mm

*For Silicon Carbide vs. Silicon Carbide face combination, consult John Crane

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. It is recommended that a spare seal or repair kit be held in stock to allow immediate replacement of a removed seal.

Type 3710 can be returned to a John Crane service location, as rebuilding to as-new specifications must be carried out by qualified personnel. Otherwise, repair kits are available for field repair.

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.

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United Arab Emirates
Tel: 971-481-27800
Fax: 971-488-62830

Asia Pacific
Singapore
Tel: 65-6518-1800
Fax: 65-6518-1803

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.

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