



2510 General Duty Double Cartridge Seal

Installation, Operation and Rebuild Instructions

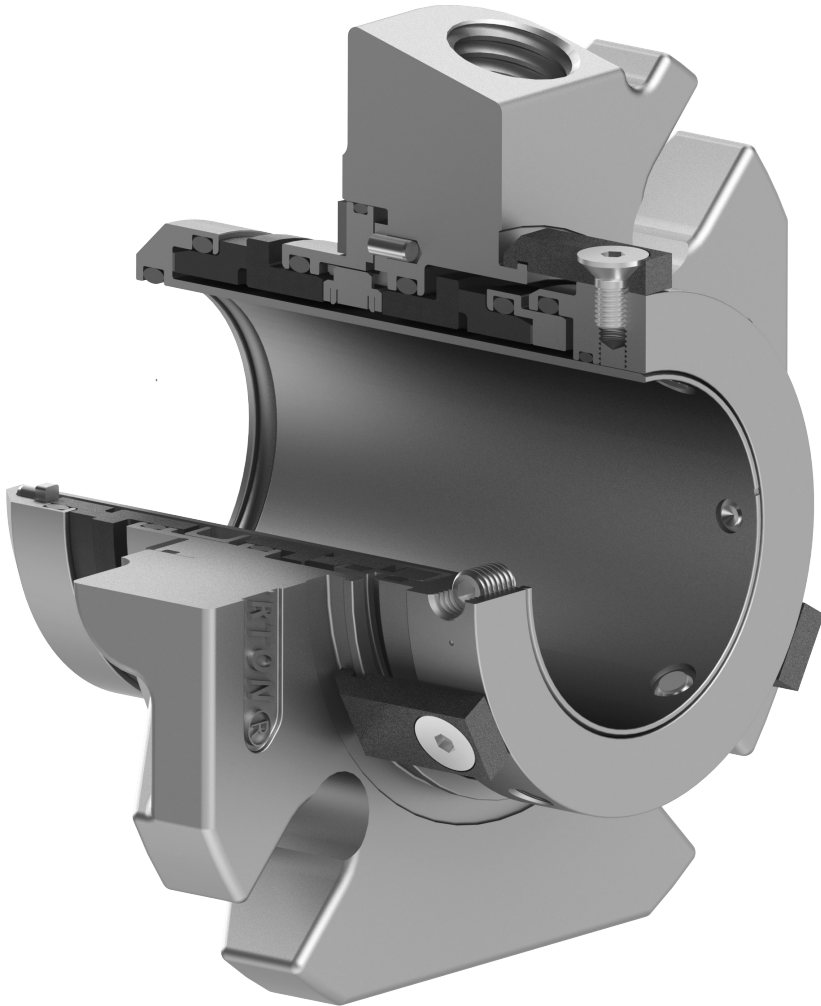


TABLE OF CONTENTS

1.0	Cautions	2
2.0	Transport and Storage	2
3.0	Description	2 – 5
3.1	Parts Identification	2
3.2	Operating Parameters	3
3.3	Intended Use	3
3.4	Dimensional Data	4 – 5
4.0	Preparation for Installation	6 – 7
4.1	Equipment	6
4.2	Mechanical Seal	7
5.0	Seal Installation	8
6.0	Commissioning/Equipment Start-up	9
7.0	Decommissioning/Equipment Shut Down	10
8.0	Spare Parts	10
9.0	Seal Rebuild	10 – 16
9.1	Seal Disassembly	11 – 12
9.2	Seal Assembly	13 – 16
10.0	Mechanical Seal Returns and Hazard Communication Requirements	16

Seal Data Reference

(from Box Label)

ITEM # _____

SEAL _____

(Example: 2510 1.875 SA CB/SSC S FKM)

INSTALLATION DATE _____

1.0 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, seek 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. The decision to use this seal or any other Chesterton seal in a particular service is the customer's responsibility.

Do not touch the mechanical seal for any reason while it is operating. Lockout or uncouple the driver prior to personal contact with the seal. Do not touch the mechanical seal while it is in contact with hot or cold fluids. Ensure that all the mechanical seal materials are compatible with the process fluid. This will prevent possible personal injury.

2.0 TRANSPORT AND STORAGE

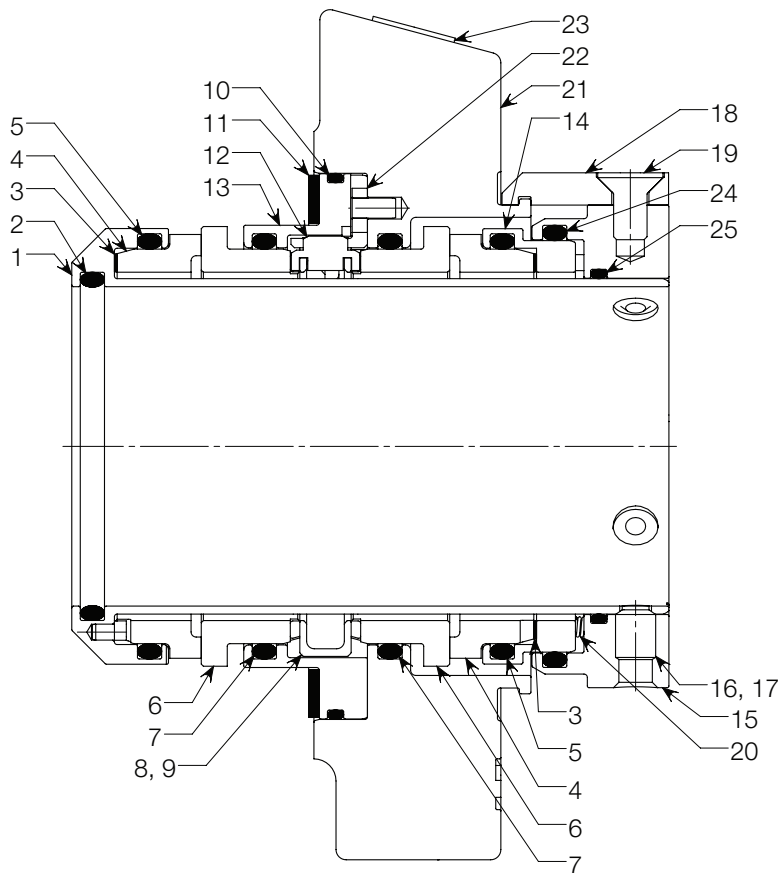
Transport and store seals in their original packaging. Mechanical seals contain components that may be subject to alteration and aging. It is therefore important to observe the following conditions for storage:

- Dust free environment
- Moderately ventilated at room temperature
- Avoid exposure to direct sunlight and heat
- For elastomers, storage conditions according to ISO 2230 should be observed.

3.0 DESCRIPTION

3.1 Parts Identification

Figure 1



KEY

- 1 - Sleeve Assembly
- 2 - Shaft O-ring (V)
- 3 - Rotary Cushion
- 4 - Rotary Seal Ring
- 5 - Rotary O-ring (W)
- 6 - Stationary Seal Ring
- 7 - Stationary O-ring (X)
- 8 - Drive Channel
- 9 - Channel Clip (not shown)
- 10 - Adapter O-ring
- 11 - Gasket
- 12 - Flow Deflector
- 13 - Adapter
- 14 - Holder Assembly
- 15 - Lock Ring
- 16 - Cup Point Set Screw (not shown)
- 17 - 1/4 Dog Set Screw
- 18 - Centering Clip
- 19 - Flat Head Screw
- 20 - Spring
- 21 - Gland
- 22 - Drive Assembly
- 23 - Cap Plug
- 24 - Lock Ring Holder O-ring
- 25 - Lock Ring Sleeve O-ring

3.0 DESCRIPTION cont.

3.2 Operating Parameters*

Pressure Limits:

2510 Seals can withstand operating pressures from vacuum (710 mm or 28" Hg) to the maximum pressure.

Process Pressure:

25 mm – 120 mm (1.000" – 4.750") up to 21 barg (300 psig)

Barrier Pressure:

25 mm – 65 mm (1.000" – 2.625") up to 17 barg (250 psig)
70 mm – 120 mm (2.750" – 4.750") up to 14 barg (200 psig)

2 barg (30psig) minimum barrier pressure is required for proper lubrication of the outboard seal.

Speed Limits:

25 mm – 120 mm (1.000" – 4.750") up to 25 mps (5000 FPM)

Temperature Limits:

Elastomers

To 150°C (300°F) EPDM

To 205°C (400°F) FEPM, FKM

To 260°C (500°F) FFKM

**Environmental controls are required for the specific application.*

Limits can change depending on operating conditions, size and seal ring material.

Consult Chesterton Mechanical Seal Application Engineering for operating conditions outside of these published parameters.

Standard Materials:

All Metal Parts:

316 Stainless Steel/EN 1.4401

Springs: Alloy C-276/EN 2.4819

Rotary Face: CB; SSC; TC

Stationary Face: SSC; TC

Elastomers:** FKM, EPDM, FEPM, or FFKM

****Other materials available upon request.**

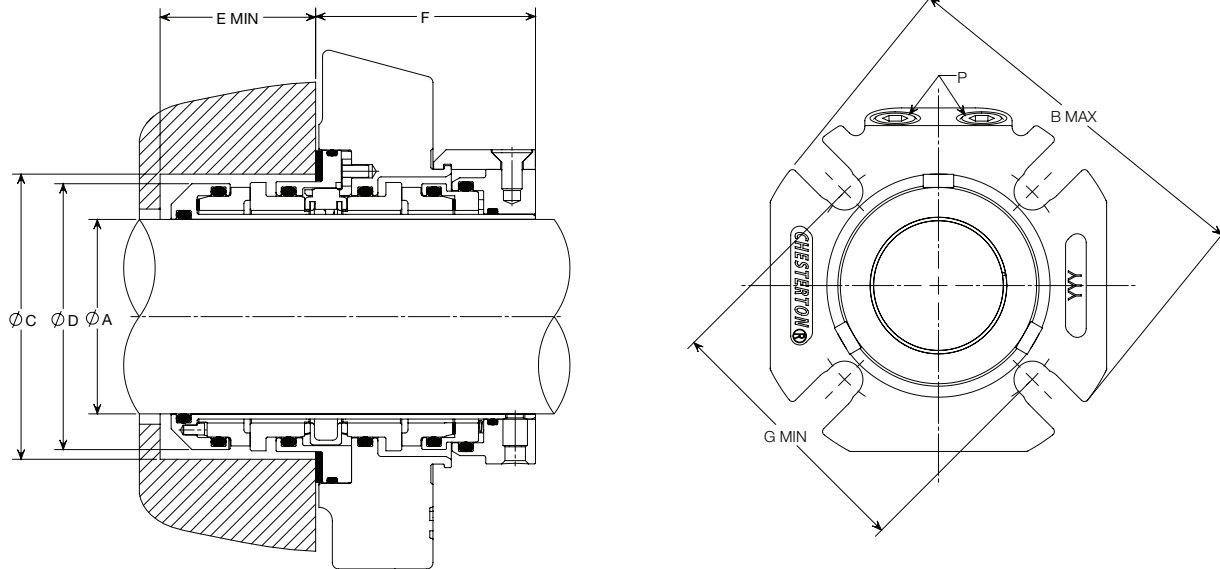
3.3 Intended Use

The mechanical seal is to be operated within the operating parameters as specified. For use beyond the intended application and/or outside the operating parameters, consult Chesterton Mechanical Seal Application Engineering to confirm the suitability of the mechanical seal prior to putting the mechanical seal in operation.

3.0 DESCRIPTION cont.

3.4 Dimensional Data (Drawings)

Figure 2



3.4.1 Dimensional Data

METRIC - Millimeters

Table 1

SHAFT SIZE	GLAND OD	STUFFING BOX BORE		IB SEAL DIA	SB DEPTH	OB LENGTH	BOLT CIRCLE BY BOLT SIZE				STUFFING BOX TO BOLT SURFACE	NPT SIZE			
		C MIN	C MAX				D MAX	E MIN	F MAX	G MIN					
										10 mm			12 mm	16 mm	20 mm
25 mm	104,2	44,2	51,0	40,2	34,8	53,9	73,4	-	-	-	29,0	3/8 - 18			
28 mm	104,2	47,3	51,8	42,7	34,8	53,9	73,4	-	-	-	29,0	3/8 - 18			
30 mm	104,2	49,3	56,6	44,8	34,8	53,9	78,2	-	-	-	29,0	3/8 - 18			
30 mm (OS)	126,8	59,5	68,3	44,8	34,8	53,9	90,0	-	-	-	29,0	3/8 - 18			
32 mm	110,8	51,1	57,6	46,8	34,8	53,9	80,4	-	-	-	29,0	3/8 - 18			
33 mm	110,8	52,1	58,6	47,8	34,8	53,9	79,9	81,3	-	-	29,0	3/8 - 18			
35 mm	110,8	54,2	59,1	49,6	34,8	53,9	83,5	85,5	-	-	29,0	3/8 - 18			
38 mm	114,1	57,2	61,9	55,9	37,1	53,9	86,9	88,3	-	-	29,0	3/8 - 18			
40 mm	126,8	59,2	68,3	57,7	37,1	53,9	90,3	92,3	-	-	29,0	3/8 - 18			
40 mm (OS)	126,8	69,4	74,6	57,7	37,1	53,9	96,5	-	-	-	29,0	3/8 - 18			
42 mm	126,8	61,3	68,3	60,8	37,1	53,9	90,3	92,3	-	-	29,0	3/8 - 18			
43 mm	126,8	62,3	68,8	60,8	37,1	53,9	94,4	96,4	-	-	29,0	3/8 - 18			
45 mm	139,2	64,3	73,4	62,8	37,1	53,9	95,2	97,2	-	-	29,0	3/8 - 18			
48 mm	139,2	67,1	73,6	65,8	37,1	53,9	95,6	97,6	-	-	29,0	3/8 - 18			
50 mm	139,2	69,1	78,4	67,9	37,1	53,9	100,3	102,3	-	-	29,0	3/8 - 18			
50 mm (OS)	152,2	85,4	94,4	67,9	37,1	53,9	118,6	120,6	-	-	29,0	3/8 - 18			
53 mm	152,2	72,2	87,3	72,7	37,1	53,9	108,6	110,6	114,0	-	29,0	3/8 - 18			
55 mm	152,2	74,2	81,0	72,7	37,1	53,9	104,8	106,8	110,2	-	29,0	3/8 - 18			
58 mm	152,2	77,3	91,9	78,0	37,1	53,9	116,6	118,6	121,9	-	29,0	3/8 - 18			
60 mm	152,2	79,3	91,9	78,0	37,1	53,9	116,6	118,6	121,9	-	29,0	3/8 - 18			
60 mm (OS)	164,7	96,3	107,9	78,0	37,1	53,9	129,8	131,8	-	-	29,0	3/8 - 18			
65 mm	163,9	84,1	100,0	84,4	49,1	53,9	127,7	129,7	133,7	-	29,0	3/8 - 18			
70 mm	195,9	95,6	113,0	93,5	49,1	63,8	-	136,9	140,9	-	34,6	1/2 - 14			
75 mm	201,7	100,6	119,3	99,6	49,1	63,8	-	142,8	146,8	-	34,6	1/2 - 14			
80 mm	203,0	105,5	122,4	103,4	49,1	63,8	-	149,9	153,9	-	34,6	1/2 - 14			
85 mm	211,1	110,5	128,7	109,0	49,1	63,8	-	152,1	156,1	160,1	34,6	1/2 - 14			
90 mm	214,4	115,6	132,0	113,3	49,1	63,8	-	159,6	163,6	167,6	34,6	1/2 - 14			
95 mm	221,5	120,4	138,4	118,7	49,1	63,8	-	161,4	165,4	169,4	34,6	1/2 - 14			
100 mm	227,6	125,5	144,7	125,0	49,1	63,8	-	168,4	172,4	176,4	34,6	1/2 - 14			
105 mm	228,4	130,6	151,1	131,4	49,1	63,8	-	174,9	178,9	182,9	34,6	1/2 - 14			
110 mm	237,3	135,7	154,1	134,4	49,1	63,8	-	177,8	181,8	185,8	34,6	1/2 - 14			
115 mm	241,1	140,5	160,5	140,8	49,1	63,8	-	184,1	188,1	192,1	34,6	1/2 - 14			
120 mm	266,6	145,6	163,8	144,1	49,1	63,8	-	187,3	191,3	195,3	34,6	1/2 - 14			

3.0 DESCRIPTION cont.

3.4.2 Dimensional Data

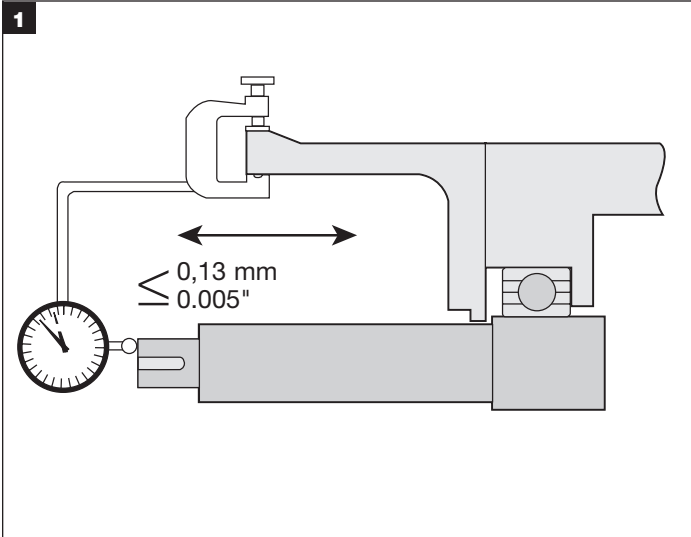
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Table 2

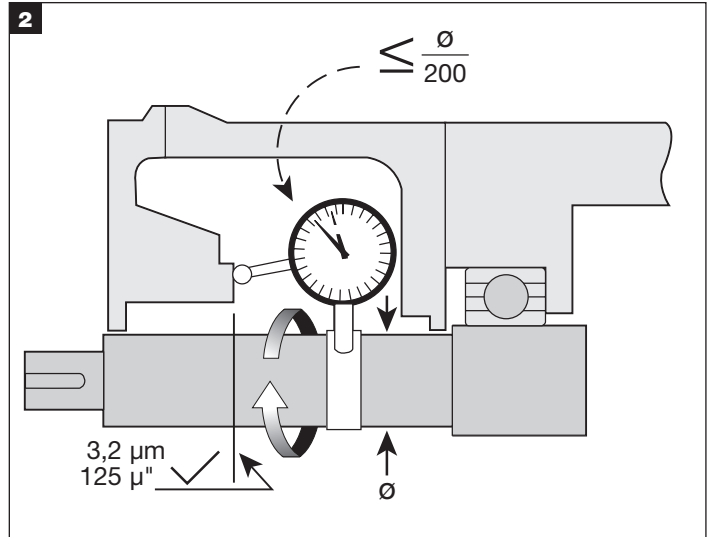
SHAFT SIZE	GLAND OD	STUFFING BOX BORE		IB SEAL DIA	SB DEPTH	OB LENGTH	BOLT CIRCLE BY BOLT SIZE				STUFFING BOX TO BOLT SURFACE	NPT SIZE
		C MIN	C MAX				G MIN					
A	B MAX	C MIN	C MAX	D MAX	E MIN	F MAX	3/8"	1/2"	5/8"	3/4"	J MAX	P
1.000	4.10	1.75	2.01	1.58	1.37	2.12	2.88	-	-	-	1.14	3/8 - 18
1.125	4.10	1.88	2.04	1.70	1.37	2.12	2.88	-	-	-	1.14	3/8 - 18
1.125 OS	4.49	2.61	2.94	1.70	1.37	2.12	3.77	-	-	-	1.14	3/8 - 18
1.250	4.10	2.00	2.27	1.84	1.37	2.12	3.15	-	-	-	1.14	3/8 - 18
1.375	4.36	2.13	2.33	1.95	1.37	2.12	3.27	3.40	-	-	1.14	3/8 - 18
1.375 OS	5.39	2.73	2.94	1.95	1.37	2.12	3.78	-	-	-	1.14	3/8 - 18
1.500	4.49	2.25	2.44	2.20	1.46	2.12	3.41	3.53	-	-	1.14	3/8 - 18
1.625	4.99	2.38	2.69	2.32	1.46	2.12	3.51	3.64	-	-	1.14	3/8 - 18
1.750	5.48	2.51	2.81	2.45	1.46	2.12	3.63	3.76	-	-	1.14	3/8 - 18
1.750 OS	6.65	3.48	3.75	2.45	1.46	2.12	4.59	4.72	-	-	1.14	3/8 - 18
1.875	5.48	2.63	2.94	2.57	1.46	2.12	3.75	3.88	-	-	1.14	3/8 - 18
1.875 OS	5.99	3.53	3.81	2.57	1.46	2.12	4.65	4.78	-	-	1.14	3/8 - 18
2.000	5.48	2.75	3.19	2.70	1.46	2.12	4.14	4.27	-	-	1.14	3/8 - 18
2.125	5.99	2.88	3.44	2.82	1.46	2.12	4.26	4.39	4.51	-	1.14	3/8 - 18
2.125 OS	6.99	3.86	4.25	2.82	1.46	2.12	5.09	5.22	5.34	-	1.14	3/8 - 18
2.250	5.99	3.00	3.46	2.95	1.46	2.12	4.38	4.51	4.63	-	1.14	3/8 - 18
2.375	5.99	3.13	3.62	3.07	1.46	2.12	4.57	4.70	4.82	-	1.14	3/8 - 18
2.375 OS	8.39	4.11	4.50	3.07	1.46	2.12	5.34	5.47	5.59	-	1.14	3/8 - 18
2.510	6.45	3.25	3.81	3.20	1.46	2.12	4.63	4.76	4.88	-	1.14	3/8 - 18
2.510 OS	7.76	4.48	5.25	3.20	1.46	2.12	6.09	6.22	6.34	-	1.14	3/8 - 18
2.625	6.45	3.38	3.94	3.32	1.46	2.12	5.01	5.14	5.26	-	1.14	3/8 - 18
2.625 OS	6.98	4.55	4.78	3.32	1.46	2.12	5.62	5.75	5.87	-	1.14	3/8 - 18
2.750	7.71	3.75	4.45	3.68	1.93	2.51	-	5.42	5.55	-	1.36	1/2 - 14
2.750 OS	7.89	4.45	4.76	3.68	1.93	2.51	-	5.84	5.97	6.09	1.36	1/2 - 14
2.875	7.83	3.88	4.57	3.79	1.93	2.51	-	5.50	5.63	-	1.36	1/2 - 14
3.000	7.94	4.00	4.70	3.92	1.93	2.51	-	5.65	5.78	-	1.36	1/2 - 14
3.000 OS	8.64	4.92	5.37	3.92	1.93	2.51	-	6.45	6.58	6.70	1.36	1/2 - 14
3.125	7.99	4.13	4.82	4.04	1.93	2.51	-	5.80	5.93	-	1.36	1/2 - 14
3.250	8.19	4.25	4.95	4.17	1.93	2.51	-	5.93	6.06	-	1.36	1/2 - 14
3.375	8.31	4.38	5.07	4.29	1.93	2.51	-	6.02	6.15	6.27	1.36	1/2 - 14
3.375 OS	8.39	4.95	5.26	4.29	1.93	2.51	-	6.33	6.45	6.58	1.36	1/2 - 14
3.500	8.44	4.50	5.20	4.42	1.93	2.51	-	6.19	6.31	6.44	1.36	1/2 - 14
3.625	8.49	4.63	5.32	4.54	1.93	2.51	-	6.32	6.44	6.57	1.36	1/2 - 14
3.750	8.72	4.75	5.45	4.67	1.93	2.51	-	6.39	6.51	6.64	1.36	1/2 - 14
3.750 OS	9.76	5.95	6.38	4.67	1.93	2.51	-	7.46	7.59	-	1.36	1/2 - 14
3.875	8.84	4.88	5.57	4.79	1.93	2.51	-	6.52	6.65	6.77	1.36	1/2 - 14
4.000	8.96	5.00	5.70	4.92	1.93	2.51	-	6.66	6.79	6.91	1.36	1/2 - 14
4.125	8.99	5.13	5.82	5.04	1.93	2.51	-	6.78	6.91	7.03	1.36	1/2 - 14
4.125 OS	9.76	5.95	6.25	5.04	1.93	2.51	-	7.33	7.45	7.58	1.36	1/2 - 14
4.250	8.99	5.25	5.95	5.17	1.93	2.51	-	6.92	7.04	7.17	1.36	1/2 - 14
4.375	9.34	5.38	6.07	5.29	1.93	2.51	-	7.03	7.16	7.28	1.36	1/2 - 14
4.500	9.49	5.50	6.20	5.42	1.93	2.51	-	7.18	7.31	7.43	1.36	1/2 - 14
4.500 OS	12.49	6.73	7.48	5.42	1.93	2.51	-	8.56	8.68	8.81	1.36	1/2 - 14
4.625	9.49	5.63	6.32	5.54	1.93	2.51	-	7.28	7.41	7.53	1.36	1/2 - 14
4.750	10.49	5.75	6.45	5.67	1.93	2.51	-	7.40	7.53	7.66	1.36	1/2 - 14
4.750 OS	11.39	7.20	7.63	5.67	1.93	2.51	-	8.71	8.84	8.96	1.36	1/2 - 14

4.0 PREPARATION FOR INSTALLATION

4.1 Equipment

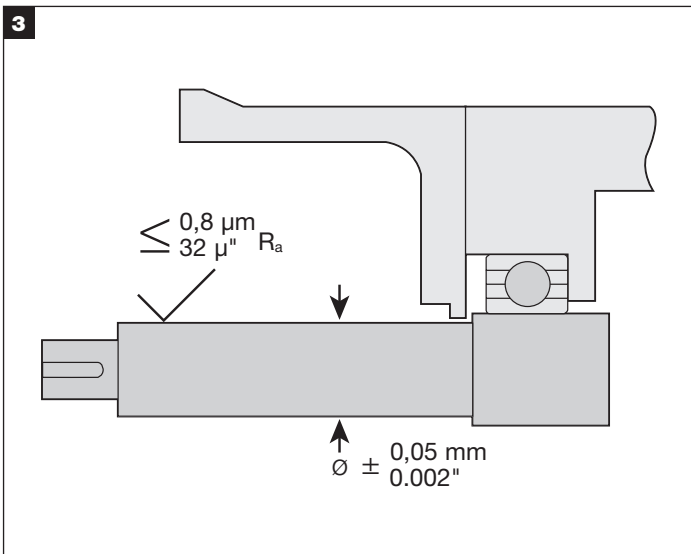


If practical, place the dial indicator tip on the end of the shaft sleeve or on a step in the shaft to measure end play. Alternately push and pull the shaft in the axial direction. If the bearings are in good condition, end play should not exceed 0,13 mm (.005").

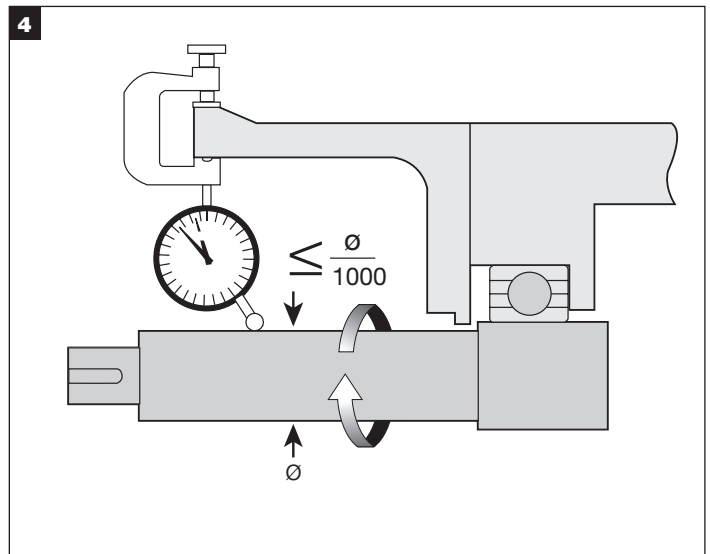


If possible, attach a base dial indicator to the shaft and rotate both the indicator and shaft slowly while reading the runout of the stuffing box face. Misalignment of the stuffing box face relative to the shaft should not exceed 0,005 mm TIR per mm (.005 in per inch) of shaft diameter.

The stuffing box face must be flat and smooth enough to seal the gland. Surface roughness should be 3,2 microns (125 microinch) Ra maximum for gaskets and 1,1 micron (45 microinch) Ra for O-rings. Steps between halves of split case pumps should be machined flat. Make sure the stuffing box is clean and clear along its entire length.



Remove all sharp corners, burrs, and scratches on the shaft, especially in areas where the O-ring will slide, and polish if necessary to achieve a 1,1 micron (45 microinch) Ra finish. Make sure the shaft or sleeve diameter is within 0,05 mm (.002") of nominal.



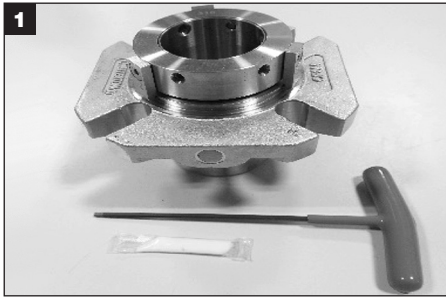
Use a dial indicator to measure the shaft runout in the area where the seal will be installed. Runout should not exceed 0,001 mm TIR per mm (.001 in per inch) of shaft diameter.

4.0 PREPARATION FOR INSTALLATION *cont.*

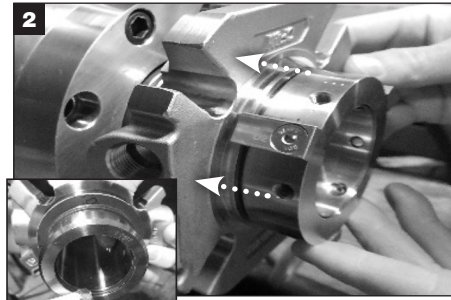
4.2 Mechanical Seal

1. Review seal packaging to ensure no damage has occurred to the contents.
2. Review the seal fit dimensions in Tables 1 & 2 to ensure the equipment to be sealed has the required dimensions.
3. Record the seal Item Number and Name found on the label for future reference or when contacting A.W. Chesterton Application Engineering.
4. Check to ensure that the O-rings installed in this seal are compatible with the fluid being sealed.
5. Read Section 5.0 Seal Installation completely before installing the seal on the equipment.
6. The 1/4 dog set screws go into the smaller holes in the sleeve. The dimples on the outside diameter of the lock ring indicate the position of the 1/4 dog set screws. Do not disengage these screws from the sleeve when 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 into the inside diameter bore.
7. Centering clips have been preset at the factory. If, for any reason, you loosen or remove the centering clip flat head screws before installing the seal on the equipment, retighten as follows: Tighten the flat head screw finger tight, ensuring the centering clips are properly engaged. Using a hex key, tighten the flat head screw an additional 1/8 turn. This will approximate the 4,5 Nm (40 in·lbs) of torque for sizes 25mm – 65mm (1.000” – 2.650”), 7,8 Nm (70 in·lbs) of torque for sizes 70mm – 120mm (2.750” – 4.750”) set at the factory.

5.0 SEAL INSTALLATION



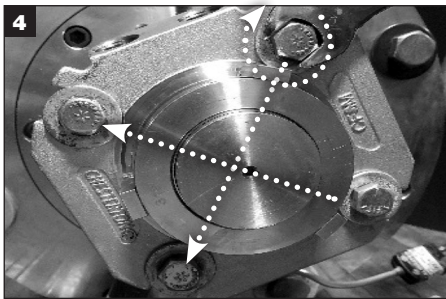
Tools required for installation: Hex key and grease (**supplied with seal**). Open end or socket/torque wrench (size dependent on mounting bolt size; **supplied by customer**).



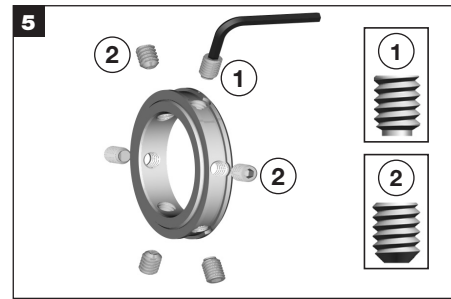
Apply a thin film of grease to the Shaft O-ring (V) and slide the seal onto the shaft by pushing on the gland. **CAUTION: Ensure that all set screws are engaged through the sleeve but do not protrude into the sleeve inside diameter bore.**



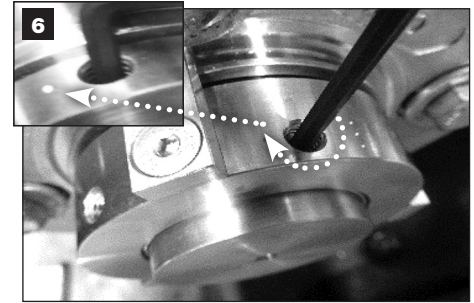
Reassemble the pump and make necessary shaft alignments and impeller adjustments. The impeller can be reset at any time, as long as the centering clips are in place and the seal set screws are loosened while the shaft is being moved. **CAUTION: See (4.2.7 Preparation for Installation – Mechanical Seal step 7.)**



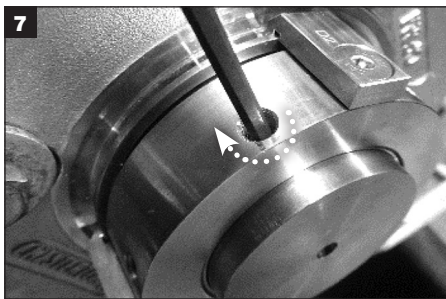
Tighten the gland bolts evenly. **IMPORTANT: The gland bolts must be tightened before tightening the set screws onto the shaft. Gland bolt torque is dependent on application. IMPORTANT: Piping connections should not be made prior to tightening the gland bolts. See Figure 3 for port orientation.**



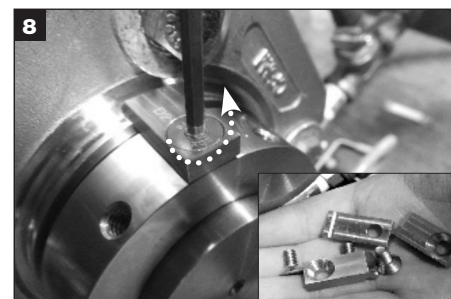
IMPORTANT: 1/4 dog set screws ① must be tightened FIRST and cup point set screws ② must be tightened last. 1/4 dog set screw locations are marked with a dimple on the outside diameter of the lock ring, next to the screw holes.



Tighten three 1/4 dog set screws ① (see inset image, marked with a dimple) evenly with the hex key provided.



Tighten cup point set screws ② evenly with the hex key provided. **IMPORTANT: After all sets screws have been tightened by hand, retighten with a torque wrench:**
Sizes 25 mm – 65 mm (1.000" – 2.625")
 to 5,5 – 6,5 Nm (50 – 60 in-lbs.)
Sizes 70 mm – 120 mm (2.750" – 4.750")
 to 12 – 13 Nm (105 – 115 in-lbs.)



Remove all flat head screws and centering clips and retain for future use when making impeller adjustments and/or seal removal.



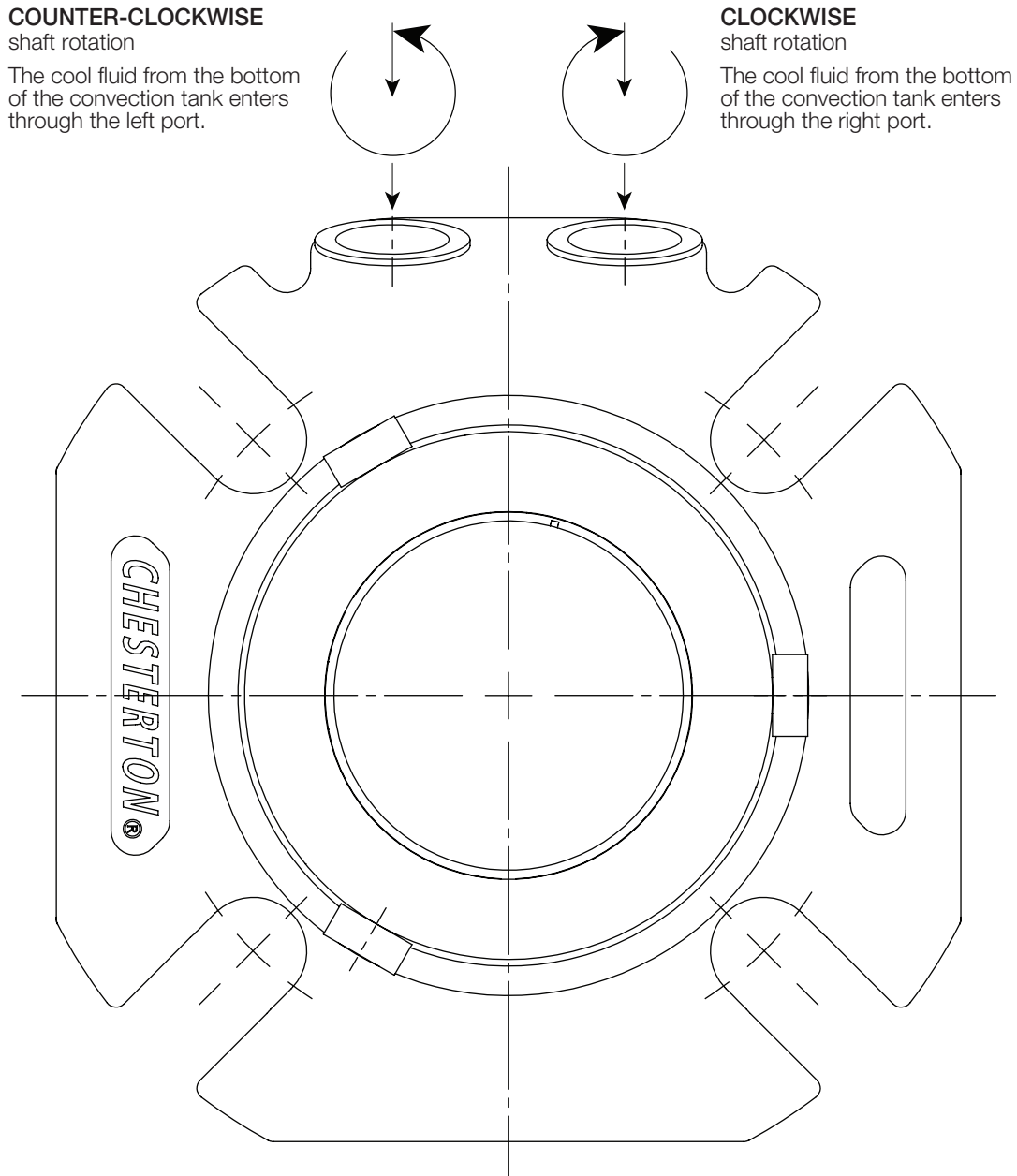
IMPORTANT: To ensure that the gland is properly centered over the sleeve turn the shaft by hand and make sure the seal turns freely. If you hear or feel metal-to-metal contact within the seal, it was improperly centered. Re-install the centering clips finger tight. Remove any piping connections. Loosen the gland bolts. Fully tighten clips. Loosen the set screws. Re-tighten the gland bolts. Re-tighten the set screws. Remove the clips. If metal-to-metal contact still exists check the centering of the stuffing box.

1. If possible, rotate the shaft by hand to ensure no metal to metal contact within the seal.
2. Attach appropriate environmental controls to the seal. (see Figure 3)
3. Take all necessary precautions and follow normal safety procedures before starting the equipment

* Please contact Chesterton Mechanical Seal Application Engineering for assistance regarding cartridge seals.

Figure 3

Barrier/Buffer Fluid



7.0 DECOMMISSIONING / EQUIPMENT SHUT DOWN

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. Ensure that the pump is isolated and check that the stuffing box is drained from any fluid and pressure is fully released. **IMPORTANT: Replace centering clips prior to seal removal from the equipment!**

Remove the seal from the equipment in the reverse order from installation instructions. In case of disposal, ensure the local regulations and requirements for disposal or recycling of the different components in the seal are adhered to.

8.0 SPARE PARTS

Use only Chesterton original spare parts. Use of non-original spare parts represents risk of failure, danger to persons/equipment and voids the product warranty.

Spare Part Kits can be purchased from Chesterton, referencing the (as manufactured) seal data from the recorded seal information on the cover page of these instructions.

9.0 SEAL REBUILD

A correctly installed and operated mechanical seal requires little maintenance. It is recommended to periodically check the seal for leakage. Some components of a mechanical seal such as seal rings, O-rings, etc., require replacement over time.

While a seal is installed and operating, maintenance is not possible. Therefore it is recommended that a spare seal unit or a spare parts kit be held in stock to allow quick repair.

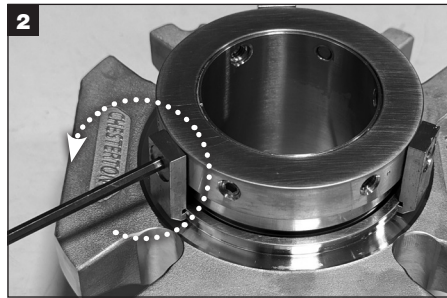
1. Note the condition of the parts, including elastomer surfaces and gland springs. Analyze the cause of failure and correct the problem, if possible, before reinstalling the seal.
2. Clean all elastomer and gasket surfaces with an approved cleaning solvent that complies with local and site regulations.

9.0 SEAL REBUILD

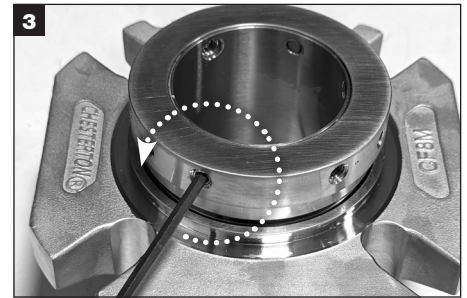
9.1 Seal Disassembly



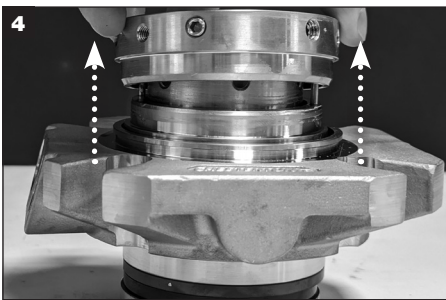
Tools required for disassembly of seal: Hex key (supplied with seal); tweezers or a curved pick (supplied by customer; for removal of O-rings).



Remove the centering clips and discard.



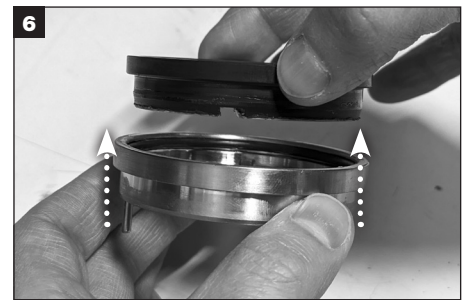
Remove all cup point and 1/4 dog set screws from the lock ring and discard.



Remove the lock ring from the sleeve and set it aside.



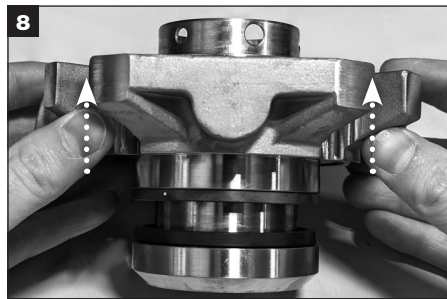
Remove the holder assembly and set it aside.



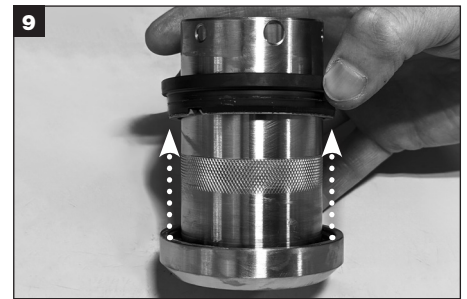
Remove the outboard rotary seal ring from the holder assembly and discard.



Remove the outboard rotary O-ring (W) from the holder assembly and discard.



Separate the gland assembly from the sleeve assembly and set it aside.



Remove the inboard rotary seal ring from the sleeve and discard.



Remove the inboard Rotary O-ring (W) from the sleeve and discard.



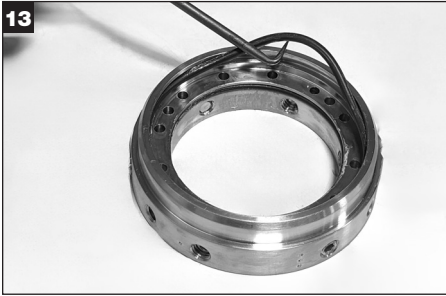
Remove the Shaft O-ring (V) from the sleeve and discard.



Remove all springs from the lock ring and discard.

9.0 SEAL REBUILD cont.

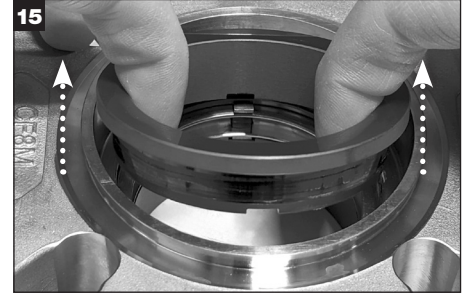
9.1 Seal Disassembly cont.



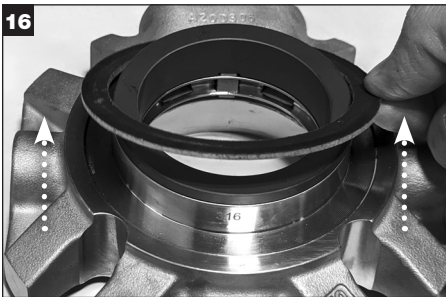
13 Remove the Lock Ring Holder O-ring (U) and discard.



14 Remove the Lock Ring Sleeve O-ring (Y) and discard.



15 Remove the outboard stationary seal ring from the gland and discard.



16 Remove the gasket from the adapter and discard.



17 Remove the inboard stationary seal ring from the gland and discard.



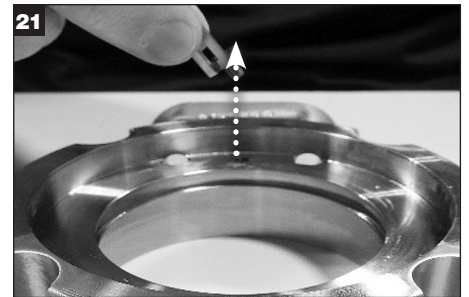
18 Remove the inboard Stationary O-ring (X) from the adapter and discard.



19 Remove the adapter from the gland. Remove the Adapter O-ring (Z) and discard. Set the adapter aside.



20 Remove the drive channel from the gland; remove the channel clips and the flow deflector from the drive channel and discard.



21 Remove the drive assembly from the gland and discard.

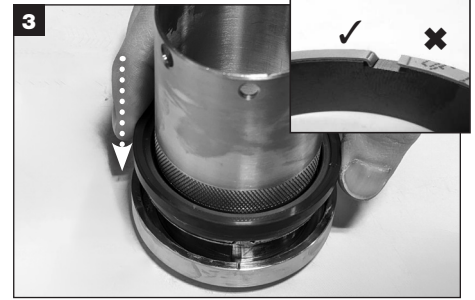
9.2 Seal Assembly



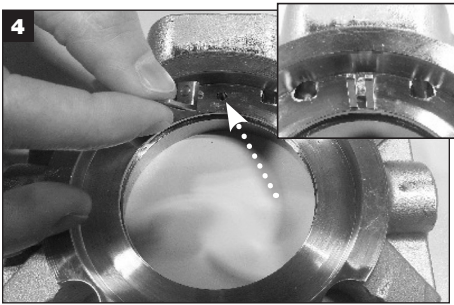
Tools required for assembly of seal: Hex key and grease (supplied with seal); lint-free cloth, tweezers, or a thin pick (supplied by customer; for installation of O-rings). Clean all metal components with an approved solvent, including all gasket and O-ring surfaces. Place metal components and all spare seal components on a clean dry surface.



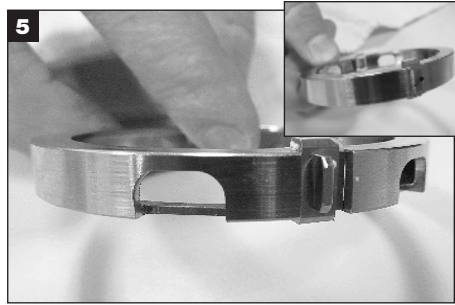
Apply a thin film of grease to the Rotary O-ring (W) and install it into the groove on the inner diameter of the sleeve assembly.



Ensure cushions are on the back of the rotary seal ring and tab ends are folded into drive slots. Align the center of the drive slot on the rotary seal ring with the notch on the sleeve. Slide the rotary seal ring down the sleeve and gently compress until it is seated. The sleeve drive lugs should engage the slots on the rotary seal ring.

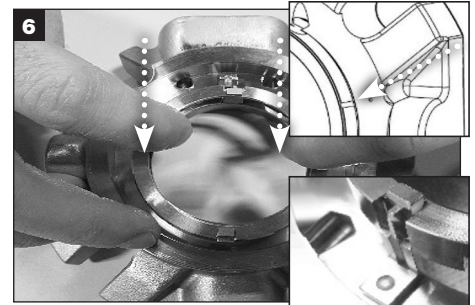


Insert the drive assembly into the gland pin hole. Ensure all surfaces are clean and free of debris.

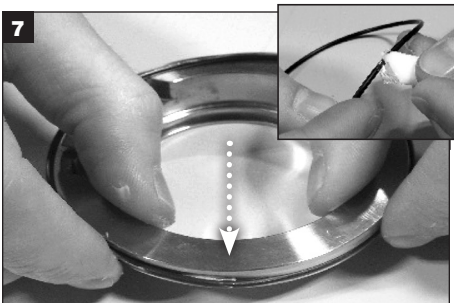


Apply a thin film of grease to the drive channel clip* and drive channel flow deflector. Install the drive channel flow deflector in the slot between the two cutaways. Install the drive channel clip(s) in the remaining slot(s).

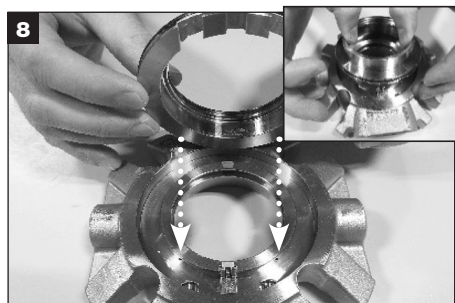
*NOTE: Seal sizes
25 mm - 65 mm (1.000" - 2.625") use 1 clip;
70 mm - 120 mm (2.750" - 4.750") use 3 clips.



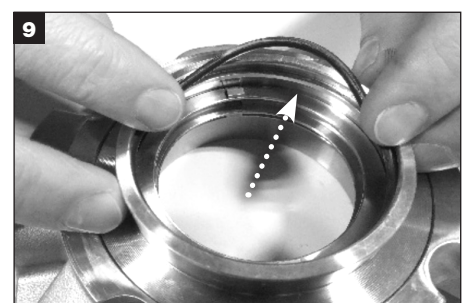
Insert the drive channel assembly into the gland with openings facing down. Engage the flow deflector into the drive assembly anti-rotation lug. The dimple on the gland will align with the mark on the outside of the drive channel.



Apply a thin film of grease to the adapter O-ring (Z) and install on outside diameter of adapter plate.

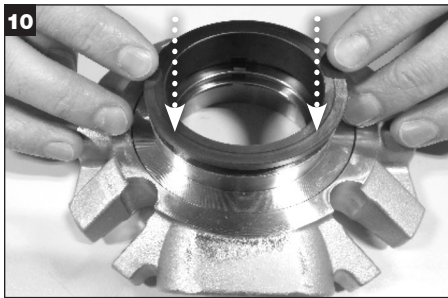


Align the adapter slots with the slots in the drive channel and gland. Push to seat the adapter. **IMPORTANT: The adapter surface must be below the gland surface to be fully seated and installed correctly.**



Apply a thin film of grease to the Stationary O-ring (X) and install it in the inner diameter groove in the adapter.

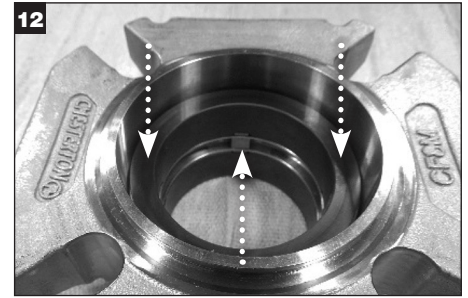
9.2 Seal Assembly cont.



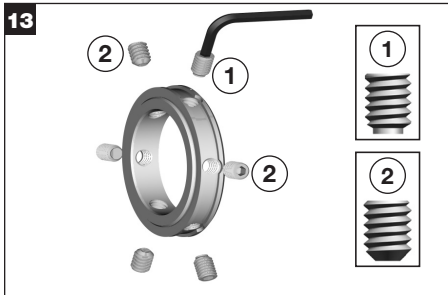
Align the slots on one stationary seal rings with the anti-rotation channel clips and flow deflector. Carefully press into place and ensure that the seal ring is fully seated.



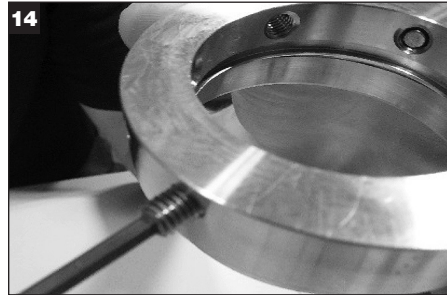
Carefully invert the gland and place it on a clean cloth to protect the inboard seal ring surface. Apply a thin film of grease to the remaining Stationary O-ring (X) and install it in the inside diameter groove in the gland.



Align the slots on the remaining stationary seal ring with the anti-rotation channel clips and flow deflector and carefully press it into place. Ensure that the seal ring is fully seated.



Install the 1/4 dog set screws ① into the screw holes marked with a dimple on the outside diameter of the lock ring. Install the cup point set screws ② into the remaining holes in the lock ring.



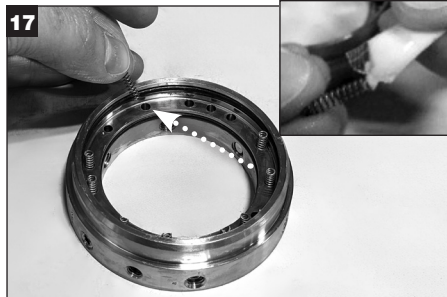
IMPORTANT: The set screws should not protrude into the inner diameter of the lock ring prior to installing onto the seal sleeve.



Apply a thin film of grease to the Lock Ring Holder O-ring (U) and insert it into the larger inside diameter lock ring groove.



Apply a thin film of grease to the Lock Ring Sleeve O-ring (Y) and insert it into the smaller inside diameter lock ring groove.



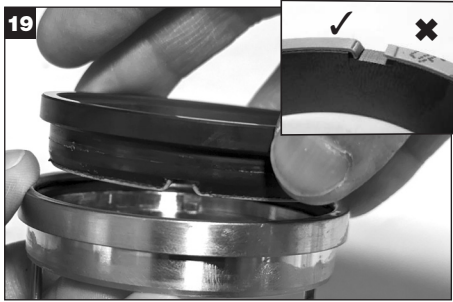
Apply a small amount of grease to one end of each spring and insert into the unmarked holes in the lock ring. **CAUTION: DO NOT install springs into the marked holes intended for the holder assembly pins.**



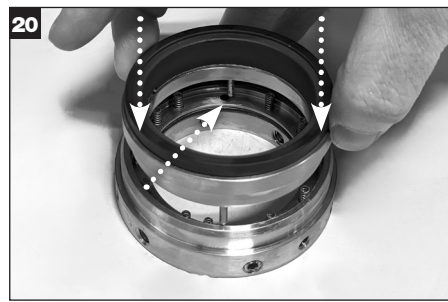
Apply a thin film of grease to the outboard Rotary O-ring (W) and insert it into the inside diameter holder assembly groove.

9.0 SEAL REBUILD cont.

9.2 Seal Assembly cont.



Ensure cushions are on the back of the rotary seal ring and tab ends are folded into drive slots. Align the drive slots in the rotary seal ring with the holder assembly lugs; press gently on the rotary seal ring to seat into position in the holder assembly.



Align the pins in the holder assembly with the marked holes in the lock ring and press to seat into position.



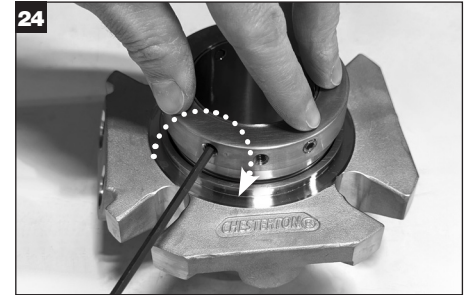
Clean all seal ring surfaces with a clean cloth and approved solvent prior to final assembly of components.



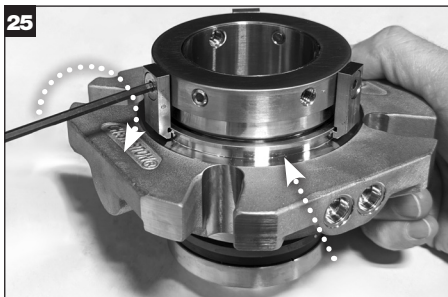
Place the gland over the lock ring assembly, Chesterton marking facing down, and align the stationary seal ring face with the rotary seal ring face.



Invert the sleeve assembly, holding around the outside diameter of the sleeve assembly, and slide it into the gland and lock ring assemblies. **IMPORTANT: The notch on the end of the sleeve should be aligned with the three vertical dots on the lock ring outside diameter when properly installed.**



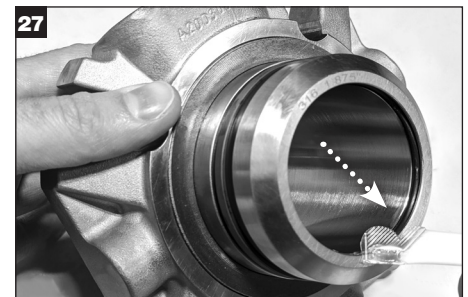
Hold the entire seal assembly and carefully invert it, rotate it, and place it on a clean work surface. Press firmly on the top of the lock ring and engage the 1/4 dog set screws into the small holes in the sleeve. Tighten 1/4 dog screws evenly to keep the lock ring centered properly with the sleeve. **CAUTION: DO NOT deflect the sleeve by overtightening the 1/4 dog set screws. The 1/4 dog set screws must not protrude past the sleeve inside diameter.**



Install the centering clips by engaging the slot in the clip with the lip on the gland. Press down on the top of the gland to compress the assembly and turn each centering clip to engage the lip on the gland and hand-tighten the centering clip flat head screw. Repeat this step for all centering clips. Retighten with a torque wrench:
Sizes 25 mm – 65 mm (1.000" – 2.625")
to 4,5 Nm (40 in-lbs.)
Sizes 70 mm – 120 mm (2.750" – 4.750")
to 7,8 Nm (70 in-lbs.)



Install the stuffing box gasket in the gland recess.



Apply a thin film of grease to the Shaft O-ring (V) and insert it into the groove in the sleeve inside diameter.

9.0 SEAL REBUILD cont.

9.2 Seal Assembly cont.



The seal rebuild is complete and the seal is ready for installation.

10.0 MECHANICAL SEAL RETURNS AND HAZARD COMMUNICATION REQUIREMENTS

Any mechanical seal returned to Chesterton that has been in operation, must comply with our Hazard Communication requirements. Please go to our web page at **chesterton.com/Mechanical_Seal>Returns** to obtain information required for returning seals for repair or seal analysis.



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05/24