

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

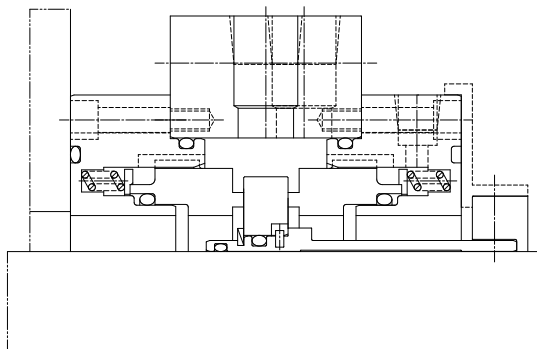


FIGURE 1: TYPE 7700D / 7700W

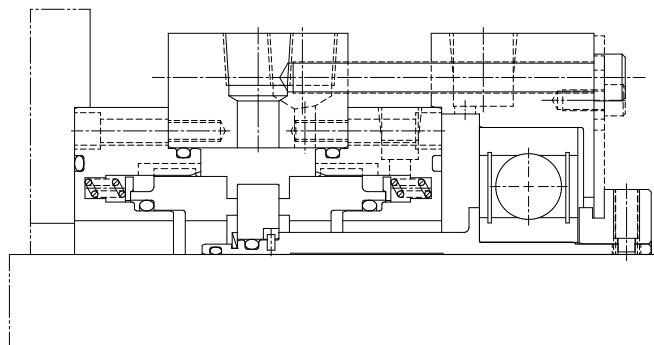


FIGURE 2: TYPE 7700D / 7700W WITH BEARING

Foreword

These instructions are provided to familiarise 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 vessel and any ancillary equipment.

If the seal is to be used for an application other than its original intended use or outside the recommended performance limits, John Crane must be contacted before its installation and use.

Any warranty may be affected by improper handling, installation or use of this seal. Contact John Crane for information as to exclusive product warranty and limitations of liability

If questions or problems arise, contact your local John Crane Sales/ Service Engineer or the original equipment manufacturer, as appropriate.

ATTENTION John Crane mechanical seals are precision products and must be handled appropriately. Take particular care to avoid damage to lapped sealing faces and 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.

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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 750°F/400°C, 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.



TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

Before starting the equipment

1. Check the machine 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 vessel manual instructions, and all screws are securely fastened.
3. Complete the assembly of the vessel and turn the shaft (by hand if possible) to ensure free rotation.
4. Consult all available equipment operating instructions to check for the correctness of all piping and connections, particularly regarding seal recirculation/flush, heating or cooling requirement, and services external to the seal.

ATTENTION This mechanical seal can be designed to operate in a liquid (Type 7700W), 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 vessel instruction manual.

ATTENTION Except for Dry-running seals, which are designed to operate without liquid (Type 7700D), wet seals that are operated without adequate liquid lubrication will often give rise to a squealing noise from the seal area and result in overheating and scoring or other damage to the sealing surfaces, causing excessive emissions and a reduced 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 vessel, 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 the exclusive product warranty and limitations of liability.

Operating conditions

The following are the operating limits of the Type 7700 series seals. The selection of materials used in the construction of the seal should be made with regard to their temperature, chemical resistance and compatibility with the liquid being sealed.

PRESSURE LIMITS

Dry-running: Full Vacuum to 275 PSIG (19 Barg)

Wet Running: Full Vacuum to 500 PSIG (35 Barg)

TEMPERATURE LIMITS

Dry-running: -40° to 450° F (-40° to 232° C)

Wet Running: -40° to 500° F (-40° to 260° C)

SPEED LIMITS

Dry-running: 500 FPM (2.5 m/s)

Wet Running: 4,700 FPM (23.8 m/s)

General instructions

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



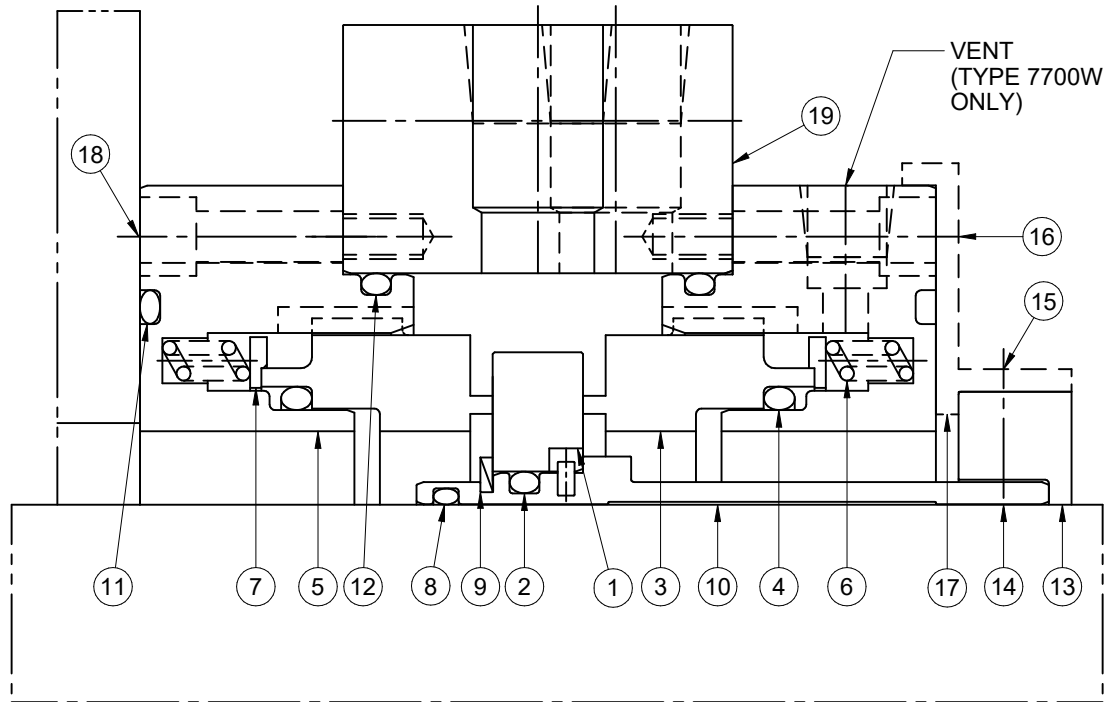
TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

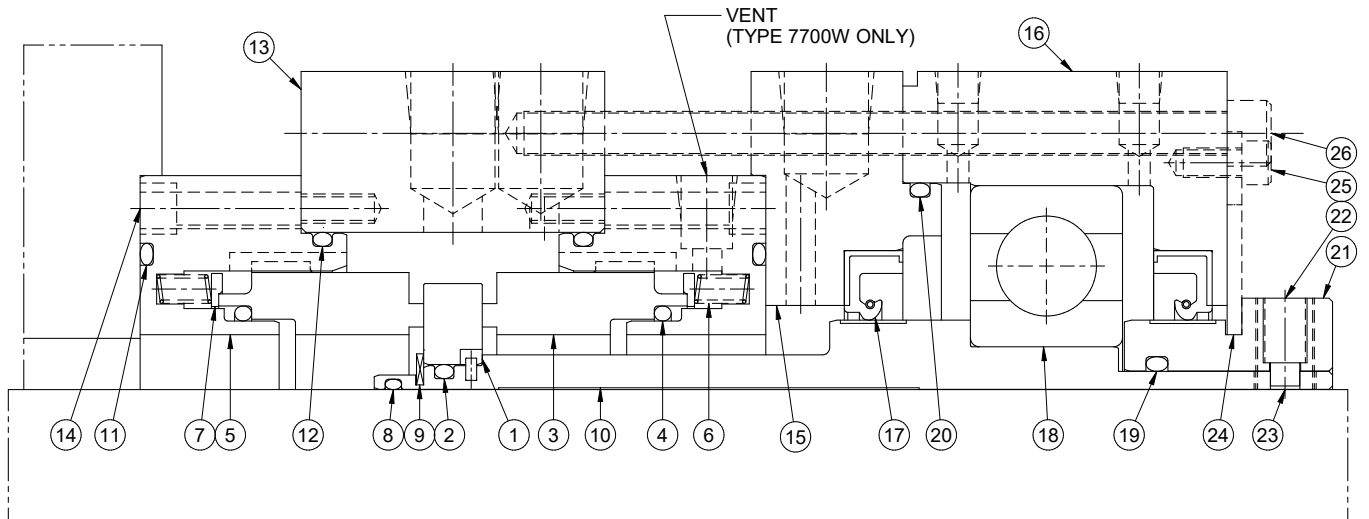
Installation, Operation & Maintenance Instructions

Typical arrangement Type 7700D / 7700W

- 1 – Mating Ring
- 2 – O-ring
- 3 – Primary Ring
- 4 – O-ring
- 5 – Retainer
- 6 – Spring
- 7 – Disc
- 8 – O-ring
- 9 – Snap Ring
- 10 – Sleeve Assy
- 11 – O-ring
- 12 – O-ring
- 13 – Collar
- 14 – Set Screw
- 15 – Cap Screw
- 16 – Cap Screw
- 17 – Spacer
- 18 – Cap Screw
- 19 – Gland Plate



Typical arrangement Type 7700D / 7700W with bearing



- | | | | |
|------------------|------------------|----------------------|--------------------------|
| 1 – Mating Ring | 8 – O-ring | 15 – Adapter Plate** | 22 – Dog Point Set Screw |
| 2 – O-ring | 9 – Snap Ring | 16 – Bearing Housing | 23 – Set Screw |
| 3 – Primary Ring | 10 – Sleeve Assy | 17 – Lip Seal** | 24 – Spacer |
| 4 – O-ring | 11 – O-ring | 18 – Bearing | 25 – Cap Screw |
| 5 – Retainer | 12 – O-ring | 19 – O-ring** | 26 – Cap Screw |
| 6 – Spring | 13 – Gland Plate | 20 – O-ring** | |
| 7 – Disc | 14 – Cap Screw | 21 – Collar | |

** Sizes 5.750, 6.250 - 8.250 Only



TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

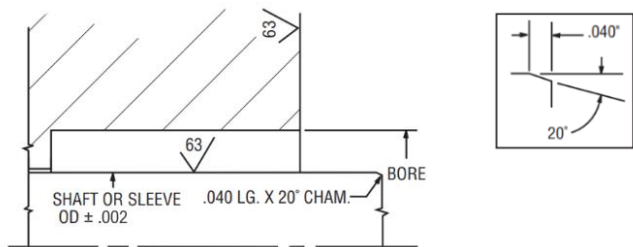
CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

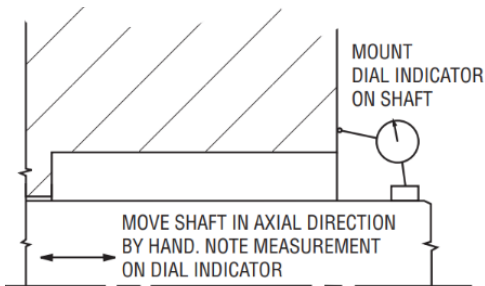
Preparing the equipment

Imperial / Metric Conversions:	
.040" x 20°	= 1.0mm x 20°
63√ (μin)	= 1.6√ (μm)
0.002"	= 0.05mm
0.046"	= 1.17mm
0.020"	= 0.51mm
0.180"	= 4.57mm

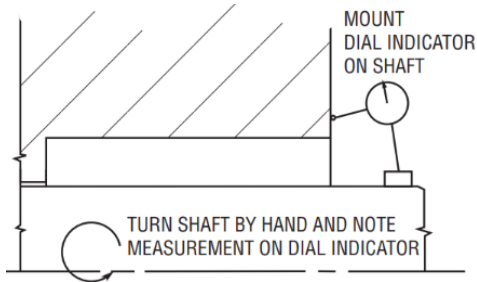
1. Check seal chamber dimensions and finishes.



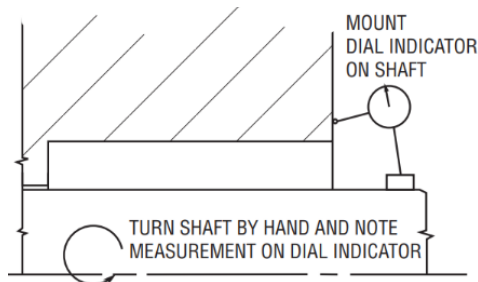
2. Measure axial end play (± 0.046" max).



3. Determine squareness of seal chamber face to shaft (0.020" TIR max).



4. Measure shaft runout (0.180" TIR max).



NOTE

If the measured dimensions exceed these values given, correct the equipment to meet the specifications prior to seal installation.

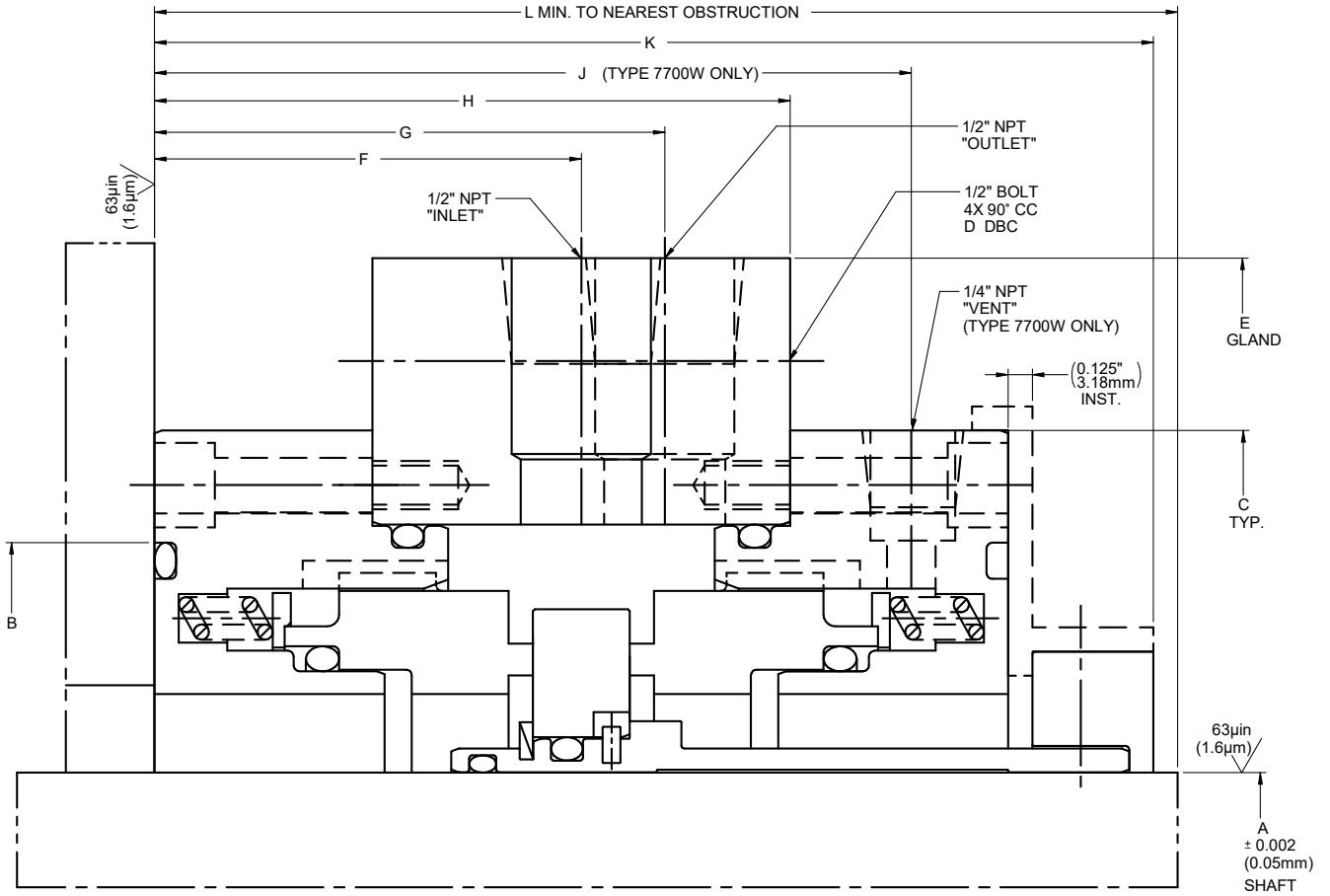


TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

Typical installation of Type 7700D / 7700W





TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

Type 7700D / 7700W dimensional data (inches)

Seal Size/A inch	B	C	D	E	F	G	H	J	K	L
0.750	3.125	4.531	5.250	6.312	1.953	2.484	3.031	3.468	4.656	4.781
1.000	3.375	4.531	5.250	6.312	1.953	2.484	3.031	3.468	4.656	4.781
1.250	3.625	4.781	5.500	6.562	1.953	2.484	3.031	3.468	4.656	4.781
1.500	3.875	5.031	5.750	6.812	1.953	2.484	3.031	3.468	4.656	4.781
1.750	4.125	5.281	6.000	7.062	2.078	2.609	3.156	3.656	4.906	5.031
2.000	4.375	5.531	6.250	7.312	2.078	2.609	3.156	3.656	4.906	5.031
2.250	4.625	5.781	6.500	7.562	2.078	2.609	3.156	3.656	4.906	5.031
2.500	4.875	6.031	6.750	7.812	2.078	2.609	3.156	3.656	4.906	5.031
2.750	5.125	6.281	7.000	8.062	2.203	2.734	3.281	3.906	5.156	5.281
3.000	5.375	6.531	7.250	8.312	2.203	2.734	3.281	3.906	5.156	5.281
3.250	5.625	6.781	7.500	8.562	2.203	2.734	3.281	3.906	5.156	5.281
3.500	5.875	7.031	7.750	8.812	2.203	2.734	3.281	3.906	5.156	5.281
3.750	6.125	7.281	8.000	9.062	2.328	2.859	3.406	4.156	5.406	5.531
4.000	6.375	7.531	8.250	9.312	2.328	2.859	3.406	4.156	5.406	5.531
4.250	6.625	7.781	8.500	9.562	2.328	2.859	3.406	4.156	5.406	5.531
4.500	6.875	8.031	8.750	9.812	2.328	2.859	3.406	4.156	5.406	5.531
4.750	7.125	8.281	9.000	10.062	2.328	2.859	3.406	4.156	5.406	5.531
5.000	7.375	8.531	9.250	10.312	2.328	2.859	3.406	4.156	5.531	5.656
5.250	7.625	8.781	9.500	10.562	2.328	2.859	3.406	4.156	5.531	5.656
5.500	7.875	9.031	9.750	10.812	2.453	2.984	3.531	4.406	5.859	5.984
5.750	8.125	9.281	10.000	11.062	2.453	2.984	3.531	4.406	5.859	5.984
6.000	8.375	9.531	10.375	11.437	2.453	2.984	3.531	4.406	5.859	5.984
6.250	8.625	9.906	10.625	11.687	2.453	2.984	3.531	4.406	5.859	5.984
6.500	8.875	10.156	10.875	11.937	2.671	3.421	3.968	4.843	6.296	6.421
6.750	9.125	10.406	11.125	12.187	2.671	3.421	3.968	4.843	6.296	6.421
7.000	9.375	10.656	11.375	12.437	2.671	3.421	3.968	4.843	6.296	6.421
7.250	9.625	10.906	11.625	12.687	2.671	3.421	3.968	4.843	6.296	6.421
7.500	9.875	11.156	11.875	12.937	2.671	3.421	3.968	4.843	6.296	6.421
7.750	10.125	11.843	12.562	13.625	2.671	3.421	3.968	4.828	6.296	6.421
8.000	10.375	12.093	12.812	13.875	2.671	3.421	3.968	4.828	6.296	6.421
8.250	10.625	12.343	13.062	14.125	2.671	3.421	3.968	4.828	6.296	6.421



TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

Type 7700D / 7700W dimensional data (millimeters)

Seal Size/A mm	B	C	D	E	F	G	H	J	K	L
19.05	79.38	115.09	133.35	160.32	49.61	63.09	76.99	88.09	118.26	121.44
25.40	85.73	115.09	133.35	160.32	49.61	63.09	76.99	88.09	118.26	121.44
31.75	92.08	121.44	139.70	166.67	49.61	63.09	76.99	88.09	118.26	121.44
38.10	98.43	127.79	146.05	173.02	49.61	63.09	76.99	88.09	118.26	121.44
44.45	104.78	134.14	152.40	179.37	52.78	66.27	80.16	92.86	124.61	127.79
50.80	111.13	140.49	158.75	185.72	52.78	66.27	80.16	92.86	124.61	127.79
57.15	117.48	146.84	165.10	192.07	52.78	66.27	80.16	92.86	124.61	127.79
63.50	123.83	153.19	171.45	198.42	52.78	66.27	80.16	92.86	124.61	127.79
69.85	130.18	159.54	177.80	204.77	55.96	69.44	83.34	99.21	130.96	134.14
76.20	136.53	165.89	184.15	211.12	55.96	69.44	83.34	99.21	130.96	134.14
82.55	142.88	172.24	190.50	217.47	55.96	69.44	83.34	99.21	130.96	134.14
88.90	149.23	178.59	196.85	223.82	55.96	69.44	83.34	99.21	130.96	134.14
95.25	155.58	184.94	203.20	230.17	59.13	72.62	86.51	105.56	137.31	140.49
101.60	161.93	191.29	209.55	236.52	59.13	72.62	86.51	105.56	137.31	140.49
107.95	168.28	197.64	215.90	242.87	59.13	72.62	86.51	105.56	137.31	140.49
114.30	174.63	203.99	222.25	249.22	59.13	72.62	86.51	105.56	137.31	140.49
120.65	180.98	210.34	228.60	255.57	59.13	72.62	86.51	105.56	137.31	140.49
127.00	187.33	216.69	234.95	261.92	59.13	72.62	86.51	105.56	140.49	143.66
133.35	193.68	223.04	241.30	268.27	59.13	72.62	86.51	105.56	140.49	143.66
139.70	200.03	229.39	247.65	274.62	62.31	75.79	89.69	111.91	148.82	151.99
146.05	206.38	235.74	254.00	280.97	62.31	75.79	89.69	111.91	148.82	151.99
152.40	212.73	242.09	263.53	290.50	62.31	75.79	89.69	111.91	148.82	151.99
158.75	219.08	251.61	269.88	296.85	62.31	75.79	89.69	111.91	148.82	151.99
165.10	225.43	257.96	276.23	303.20	67.84	86.89	100.79	123.01	159.92	163.09
171.45	231.78	264.31	282.58	309.55	67.84	86.89	100.79	123.01	159.92	163.09
177.80	238.13	270.66	288.93	315.90	67.84	86.89	100.79	123.01	159.92	163.09
184.15	244.48	277.01	295.28	322.25	67.84	86.89	100.79	123.01	159.92	163.09
190.50	250.83	283.36	301.63	328.60	67.84	86.89	100.79	123.01	159.92	163.09
196.85	257.18	300.81	319.07	346.08	67.84	86.89	100.79	122.63	159.92	163.09
203.20	263.53	307.16	325.42	352.43	67.84	86.89	100.79	122.63	159.92	163.09
209.55	269.88	313.51	331.77	358.78	67.84	86.89	100.79	122.63	159.92	163.09

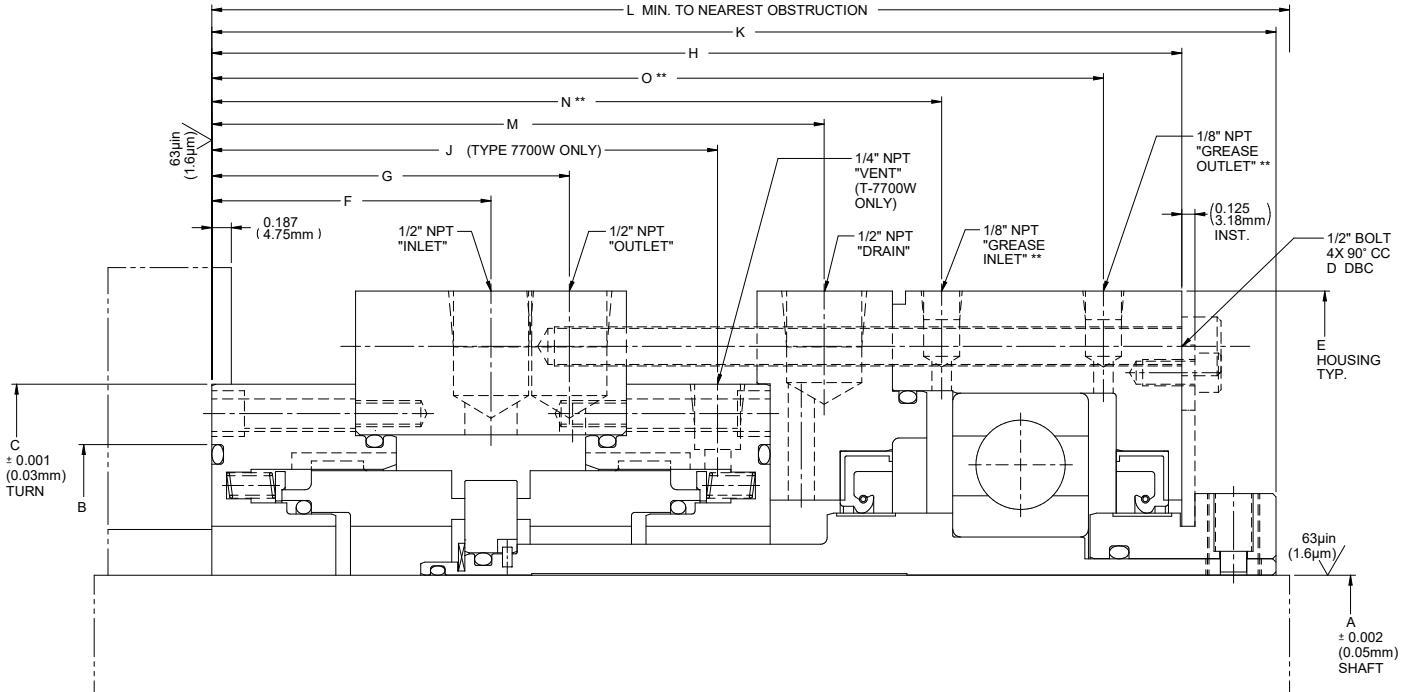


TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

Typical installation of Type 7700D / 7700W with bearing



** Sizes 5.750, 6.250 – 8.250 Only



TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

Type 7700D / 7700W with bearing dimensional data (inches)

Seal Size/A inch	B	C	D	E	F	G	H	J	K	L	M	N	O
0.750	3.375	4.531	5.250	6.312	1.953	2.484	5.484	3.468	6.171	6.296	4.406	N/A	
1.000	3.375	4.531	5.250	6.312	1.953	2.484	5.484	3.468	6.171	6.296	4.406		
1.250	3.625	4.781	5.500	6.562	1.953	2.484	5.562	3.468	6.250	6.375	4.406		
1.500	3.875	5.031	5.750	6.812	1.953	2.484	6.203	3.468	6.890	7.015	4.406		
1.750	4.125	5.281	6.000	7.062	2.078	2.609	5.984	3.656	6.671	6.796	4.656		
2.000	4.375	5.531	6.250	7.312	2.078	2.609	5.671	3.656	6.359	6.484	4.531		
2.250	4.625	5.781	6.500	7.562	2.078	2.609	5.750	3.656	6.437	6.562	4.593		
2.500	4.875	6.031	6.750	7.812	2.078	2.609	5.812	3.656	6.500	6.625	4.593		
2.750	5.125	6.281	7.000	8.062	2.203	2.734	6.031	3.906	6.718	6.843	4.843		
3.000	5.375	6.531	7.250	8.312	2.203	2.734	6.234	3.906	6.921	7.046	4.906		
3.250	5.625	6.781	7.500	8.562	2.203	2.734	6.234	3.906	6.921	7.046	4.906		
3.500	5.875	7.031	7.750	8.812	2.203	2.734	5.984	3.906	6.656	6.781	4.781		
3.750	6.125	7.281	8.000	9.062	2.328	2.859	6.359	4.156	7.046	7.171	5.156		
4.000	6.375	7.531	8.250	9.312	2.328	2.859	6.312	4.156	6.984	7.109	5.031		
4.250	6.625	7.781	8.500	9.562	2.328	2.859	6.359	4.156	7.046	7.171	5.156		
4.500	6.875	8.031	8.750	9.812	2.328	2.859	6.593	4.156	7.281	7.406	5.125		
4.750	7.125	8.281	9.000	10.062	2.328	2.859	6.515	4.156	7.218	7.343	5.062		
5.000	7.375	8.531	9.250	10.312	2.328	2.859	6.593	4.156	7.343	7.468	5.125		
5.250	7.625	8.781	9.500	10.562	2.328	2.859	6.593	4.156	7.343	7.468	5.125		
5.500	7.875	9.031	9.750	10.812	2.453	2.984	6.890	4.406	7.765	7.890	5.406		
5.750	8.125	9.281	10.000	11.062	2.453	2.984	8.515	4.406	9.421	9.546	5.328	6.406	7.750
6.000	8.500	9.656	10.375	11.437	2.453	2.984	7.000	4.406	7.875	8.000	5.406	N/A	
6.250	8.750	9.906	10.625	11.687	2.453	2.984	8.718	4.406	9.625	9.750	5.328	6.406	7.968
6.500	9.000	10.156	10.875	11.937	2.671	3.421	9.406	4.843	10.312	10.437	5.859	6.984	8.531
6.750	9.250	10.406	11.125	12.187	2.671	3.421	9.281	4.843	10.187	10.312	5.859	6.984	8.531
7.000	9.500	10.656	11.375	12.437	2.671	3.421	9.281	4.843	10.187	10.312	5.859	6.984	8.531
7.250	9.750	10.906	11.625	12.687	2.671	3.421	8.921	4.843	9.828	9.953	5.859	6.984	8.171
7.500	10.000	11.156	11.875	12.937	2.671	3.421	9.609	4.843	10.500	10.625	5.859	6.984	8.734
7.750	10.500	11.843	12.562	13.625	2.671	3.421	9.937	4.828	10.843	10.968	5.906	7.187	8.937
8.000	10.750	12.093	12.812	13.875	2.671	3.421	9.937	4.828	10.843	10.968	5.906	7.187	8.937
8.250	11.000	12.343	13.062	14.125	2.671	3.421	9.937	4.828	10.843	10.968	5.906	7.187	8.937



TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

Type 7700D / 7700W with bearing dimensional data (millimeters)

Seal Size/A mm	B	C	D	E	F	G	H	J	K	L	M	N	O
19.05	85.73	115.09	133.35	160.32	49.61	63.09	139.29	88.09	156.74	159.92	111.91	N/A	
25.40	85.73	115.09	133.35	160.32	49.61	63.09	139.29	88.09	156.74	159.92	111.91		
31.75	92.08	121.44	139.70	166.67	49.61	63.09	141.27	88.09	158.75	161.93	111.91		
38.10	98.43	127.79	146.05	173.02	49.61	63.09	157.56	88.09	175.01	178.18	111.91		
44.45	104.78	134.14	152.40	179.37	52.78	66.27	151.99	92.86	169.44	172.62	118.26		
50.80	111.13	140.49	158.75	185.72	52.78	66.27	144.04	92.86	161.52	164.69	115.09		
57.15	117.48	146.84	165.10	192.07	52.78	66.27	146.05	92.86	163.50	166.67	116.66		
63.50	123.83	153.19	171.45	198.42	52.78	66.27	147.62	92.86	165.10	168.28	116.66		
69.85	130.18	159.54	177.80	204.77	55.96	69.44	153.19	99.21	170.64	173.81	123.01		
76.20	136.53	165.89	184.15	211.12	55.96	69.44	158.34	99.21	175.79	178.97	124.61		
82.55	142.88	172.24	190.50	217.47	55.96	69.44	158.34	99.21	175.79	178.97	124.61		
88.90	149.23	178.59	196.85	223.82	55.96	69.44	151.99	99.21	169.06	172.24	121.44		
95.25	155.58	184.94	203.20	230.17	59.13	72.62	161.52	105.56	178.97	182.14	130.96		
101.60	161.93	191.29	209.55	236.52	59.13	72.62	160.32	105.56	177.39	180.57	127.79		
107.95	168.28	197.64	215.90	242.87	59.13	72.62	161.52	105.56	178.97	182.14	130.96		
114.30	174.63	203.99	222.25	249.22	59.13	72.62	167.46	105.56	184.94	188.11	130.18		
120.65	180.98	210.34	228.60	255.57	59.13	72.62	165.48	105.56	183.34	186.51	128.57		
127.00	187.33	216.69	234.95	261.92	59.13	72.62	167.46	105.56	186.51	189.69	130.18		
133.35	193.68	223.04	241.30	268.27	59.13	72.62	167.46	105.56	186.51	189.69	130.18		
139.70	200.03	229.39	247.65	274.62	62.31	75.79	175.01	111.91	197.23	200.41	137.31		
146.05	206.38	235.74	254.00	280.97	62.31	75.79	216.28	111.91	239.29	242.47	135.33	162.71	196.85
152.40	215.90	245.26	263.53	290.50	62.31	75.79	177.80	111.91	200.03	203.20	137.31	N/A	
158.75	222.25	251.61	269.88	296.85	62.31	75.79	221.44	111.91	244.48	247.65	135.33	162.71	202.39
165.10	228.60	257.96	276.23	303.20	67.84	86.89	238.91	123.01	261.92	265.10	148.82	177.39	216.69
171.45	234.95	264.31	282.58	309.55	67.84	86.89	235.74	123.01	258.75	261.92	148.82	177.39	216.69
177.80	241.30	270.66	288.93	315.90	67.84	86.89	235.74	123.01	258.75	261.92	148.82	177.39	216.69
184.15	247.65	277.01	295.28	322.25	67.84	86.89	226.59	123.01	249.63	252.81	148.82	177.39	207.54
190.50	254.00	283.36	301.63	328.60	67.84	86.89	244.07	123.01	266.70	269.88	148.82	177.39	221.84
196.85	266.70	300.81	319.07	346.08	67.84	86.89	252.40	122.63	275.41	278.59	150.01	182.55	227.00
203.20	273.05	307.16	325.42	352.43	67.84	86.89	252.40	122.63	275.41	278.59	150.01	182.55	227.00
209.55	279.40	313.51	331.77	358.78	67.84	86.89	252.40	122.63	275.41	278.59	150.01	182.55	227.00



TYPE 7700D/7700W (WITH AND WITHOUT BEARING)

CARTRIDGE VESSEL SEAL

Installation, Operation & Maintenance Instructions

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 "Preparing the Equipment". Lubricate the sleeve O-ring with appropriate lubricant to assist in assembly. Lubricate shaft sparingly. Lubricate gland bolts, and torque nuts to the proper values.
4. Make sure that collar set screws do not extend past sleeve ID. Slide complete cartridge seal assembly onto shaft, ensuring the pipe connections are oriented as shown in the seal assembly layout drawing. Align seal cartridge thru holes with customer supplied studs (if applicable). Hand-tighten gland plate bolts/nuts.
5. Finish assembling mixer and complete all necessary adjustments.
6. Continue tightening gland plate bolts/nuts in an alternating pattern (1/4 turns, 180° apart) until gland plate is secure. 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 for future use in cartridge removal.
9. Make appropriate piping connections to seal cartridge.

Decommissioning the equipment

1. Ensure that the vessel 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 vessel instruction manual should be consulted to check for any special precautions.

2. Ensure that the vessel 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 Seal Rebuilding Center, as rebuilding to as-new specifications must be carried out by qualified personnel.



It is the responsibility of the equipment operator 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's 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.

Please visit www.johncrane.com for material options and operating limits.



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Singapore
Tel: 65-6518-1800

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.