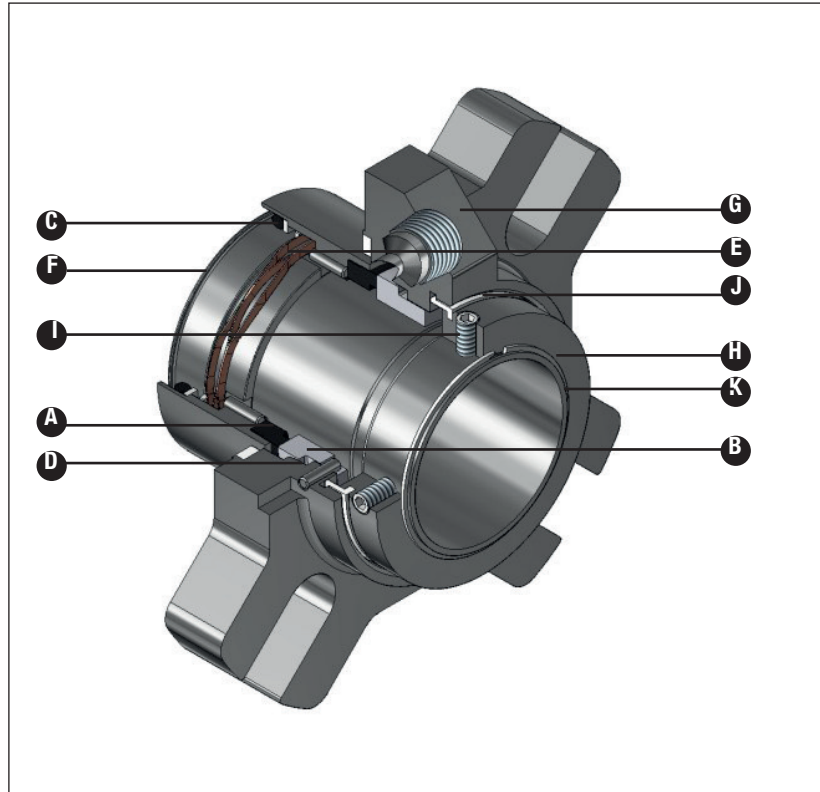


- A - Face/Primary Ring Ass'y
- B - Seat/Mating Ring
- C - Dynamic O-Ring
- D - Static O-Ring
- E - Nonclogging Wave Spring
- F - Sleeve
- G - Gland
- H - Collar
- I - Set Screws
- J - Centralizing Spacer Ring
- K - Retaining Ring



4610 shown

### Product Description

The 4600 series cartridge seal is the complete, affordable and off-the-shelf sealing solution for industrial liquid applications.

Type 4600 series meets key industry pump standards, and is designed to permit use in rotating shaft equipment including ANSI/DIN pumps, close-coupled pumps, vertical pumps, and similar rotating shaft equipment.

### Typical Applications

- Water and wastewater
- Pulp and paper
- Power generation
- Chemical
- Food and beverage
- Pharmaceutical
- Mining
- Steel production
- General industrial

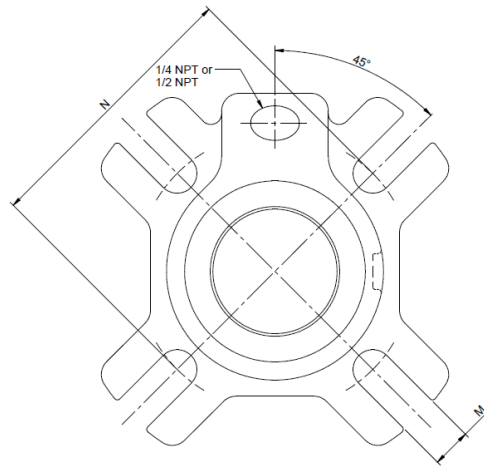
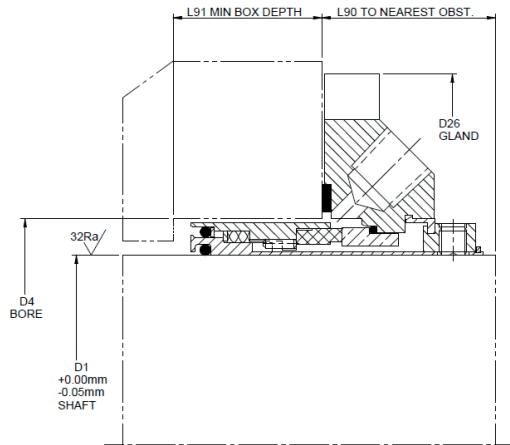
### Design Features

- Single and Dual O-ring Pusher Design
- Optimized running face design
- Non-clogging, crest-to-crest wave spring
- Pre-assembled unique centralizing spacer ring does not require removal before equipment startup
- Compact cartridge design
- Dual arrangement design can operate as tandem (unpressurized) or double (pressurized)
- Dual seal sleeve offers standard pumping vanes which improve flow and cooling
- Robust pin drive mechanism for both primary and mating ring

# TYPE 4610/4620P

## SINGLE AND DUAL COMPACT CARTRIDGE O-RING PUSHER SEALS

### Type 4610 Standard Bore Arrangement



See Installation Instructions for piping arrangements

# TYPE 4610/4620P

## SINGLE AND DUAL COMPACT CARTRIDGE O-RING PUSHER SEALS

### Type 4610 Standard Bore Dimensional Data

inches

Seal Size	Size Code	D1 Shaft Size	D4 Box Bore		D26	L90	L91	M	N
			Min.	Max.					
24	0240	0.945	1.575	1.937	4.126	1.476	1.260	0.437	2.626
25	0250	0.984	1.614	1.937	4.126	1.476	1.260	0.437	2.626
28	0280	1.102	1.732	2.063	4.252	1.476	1.260	0.437	2.752
30	0300	1.181	1.811	2.189	4.370	1.476	1.260	0.437	2.874
32	0320	1.260	1.874	2.189	4.370	1.476	1.260	0.437	2.874
33	0330	1.299	1.929	2.311	4.500	1.476	1.260	0.437	3.063
35	0350	1.378	2.000	2.311	4.500	1.476	1.260	0.437	3.063
38	0380	1.496	2.250	2.500	5.000	1.476	1.299	0.563	3.437
40	0400	1.575	2.362	2.500	5.000	1.516	1.299	0.563	3.437
43	0430	1.693	2.480	2.626	5.252	1.516	1.299	0.563	3.563
44	0444	1.750	2.500	2.626	5.252	1.516	1.299	0.563	3.563
45	0450	1.772	2.500	2.626	5.252	1.516	1.299	0.563	3.563
47	0476	1.875	2.626	3.000	5.500	1.516	1.299	0.563	3.874
48	0480	1.890	2.626	3.000	5.500	1.516	1.299	0.563	3.874
50	0500	1.969	2.750	3.000	5.500	1.516	1.299	0.563	3.874
53	0530	2.087	2.874	3.311	5.748	1.516	1.299	0.689	4.374
55	0550	2.165	2.874	3.311	5.748	1.516	1.299	0.689	4.374
57	0571	2.250	3.000	3.311	5.748	1.516	1.299	0.689	4.374
58	0580	2.283	3.126	3.563	6.000	1.516	1.299	0.689	4.626
60	0600	2.362	3.126	3.563	6.000	1.516	1.299	0.689	4.626
63	0630	2.480	3.252	3.874	6.252	1.516	1.417	0.689	4.874
65	0650	2.559	3.500	3.874	6.252	1.516	1.417	0.689	4.874
66	0666	2.625	3.500	3.874	6.252	1.516	1.417	0.689	4.874
69	0698	2.750	3.740	3.874	6.252	1.516	1.417	0.689	4.874
70	0700	2.756	3.740	3.874	6.252	1.516	1.417	0.689	4.874
73	0730	2.875	4.000	4.500	8.110	1.811	1.673	0.811	5.709
75	0750	2.953	4.000	4.500	8.110	1.811	1.673	0.811	5.709
76	0762	3.000	4.000	4.500	8.110	1.811	1.673	0.811	5.709
79	0793	3.125	4.252	4.748	8.110	1.811	1.673	0.811	5.945
80	0800	3.150	4.252	4.748	8.110	1.811	1.673	0.811	5.945
82	0825	3.250	4.252	4.748	8.110	1.811	1.673	0.811	5.945
85	0850	3.346	4.370	4.874	8.110	1.811	1.673	0.811	6.063
87	0857	3.375	4.370	4.874	8.110	1.811	1.673	0.811	6.063
89	0889	3.500	4.500	5.000	8.504	1.811	1.673	0.811	6.220
90	0900	3.543	4.626	5.118	8.504	1.811	1.673	0.811	6.299
92	0920	3.625	4.626	5.118	8.504	1.811	1.673	0.811	6.299
95	0950	3.740	4.752	5.252	9.685	1.811	1.673	0.811	6.457
96	0952	3.750	4.752	5.252	9.685	1.811	1.673	0.811	6.457
98	0984	3.875	4.874	5.374	9.685	1.811	1.673	0.811	6.575
100	1000	3.937	5.000	5.512	9.685	1.811	1.673	0.811	6.732
101	1016	4.000	5.000	5.512	9.685	1.811	1.673	0.811	6.732
102	1047	4.125	5.252	5.906	9.685	2.441	1.732	0.811	7.126
105	1050	4.134	5.252	5.906	9.685	2.441	1.732	0.811	7.126
107	1079	4.250	5.252	5.906	9.685	2.441	1.732	0.811	7.126
110	1100	4.331	5.500	6.102	9.685	2.441	1.732	0.811	7.402
111	1111	4.375	5.500	6.102	9.685	2.441	1.732	0.811	7.402
113	1143	4.500	5.500	6.102	9.685	2.441	1.732	0.811	7.402
115	1150	4.528	5.500	6.102	9.685	2.441	1.732	0.811	7.402
117	1174	4.625	5.752	6.378	10.472	2.441	1.732	0.811	7.638
120	1200	4.724	5.752	6.378	10.472	2.441	1.732	0.811	7.638
126	1206	4.750	5.752	6.378	10.472	2.441	1.732	0.811	7.638
128	1238	4.875	6.299	6.929	10.472	2.441	1.732	0.811	8.268
129	1250	4.921	6.299	6.929	10.472	2.441	1.732	0.811	8.268
130	1270	5.000	6.299	6.929	10.472	2.441	1.732	0.811	8.268
131	1300	5.118	6.299	6.929	10.472	2.441	1.732	0.811	8.268
132	1301	5.125	6.299	6.929	10.472	2.441	1.732	0.811	8.268
133	1333	5.250	6.898	7.480	11.654	2.441	1.732	0.937	8.898
135	1350	5.315	6.850	7.480	11.654	2.441	1.732	0.937	8.898
136	1365	5.375	6.850	7.480	11.654	2.441	1.732	0.937	8.898
137	1397	5.500	6.850	7.480	11.654	2.441	1.732	0.937	8.898
140	1400	5.512	6.850	7.480	11.654	2.441	1.732	0.937	8.898
142	1428	5.625	6.850	7.480	11.654	2.441	1.732	0.937	8.898

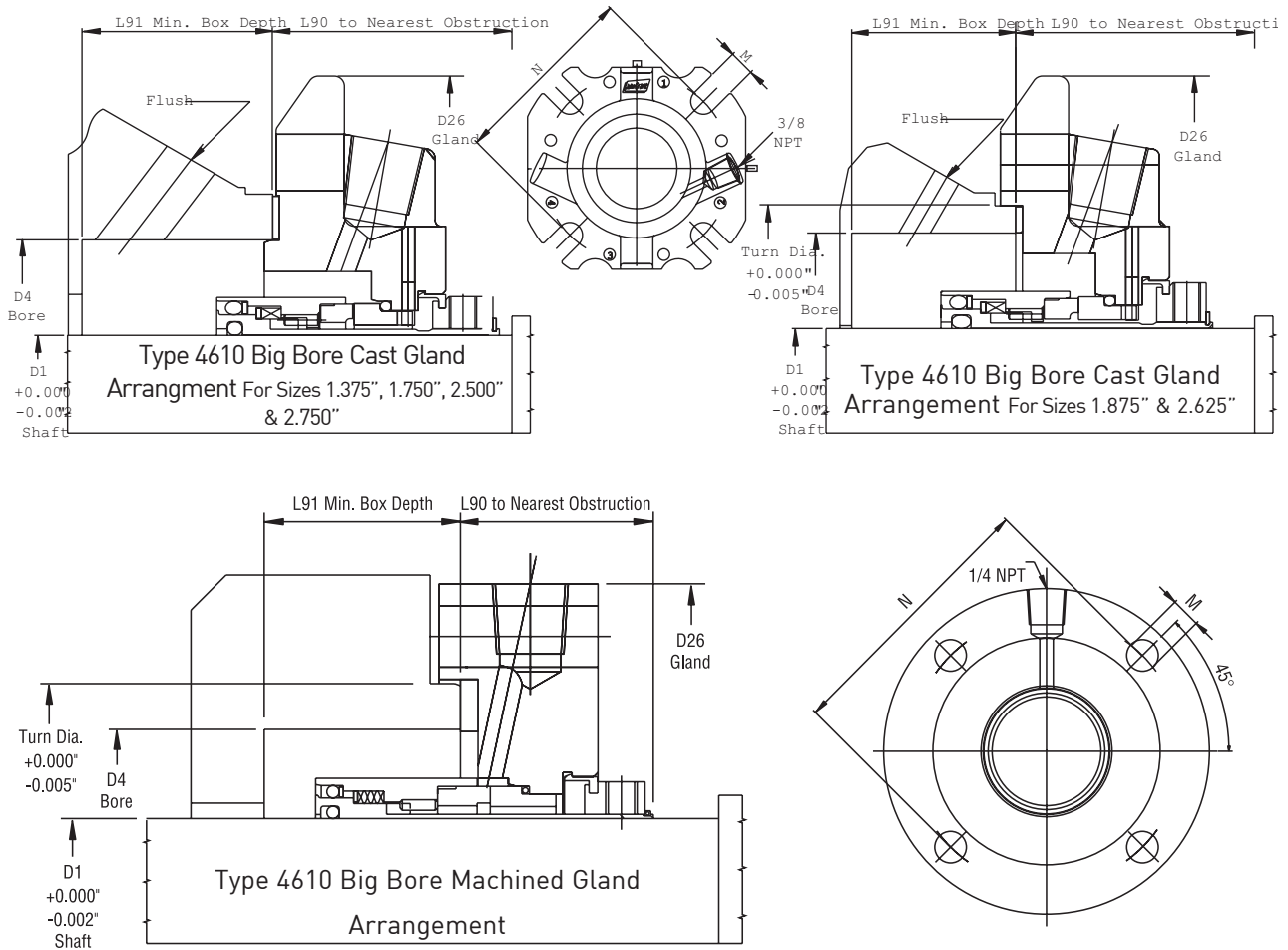
metric

Seal Size	Size Code	D1 Shaft Size	D4 Box Bore		D26	L90	L91	M	N
			Min.	Max.					
24	0240	24.00	40.00	49.20	104.80	37.50	32.00	11.10	66.70
25	0250	25.00	41.00	49.20	104.80	37.50	32.00	11.10	66.70
28	0280	28.00	44.00	52.40	108.00	37.50	32.00	11.10	69.90
30	0300	30.00	46.00	55.60	111.00	37.50	32.00	11.10	73.00
32	0320	32.00	47.60	55.60	111.00	37.50	32.00	11.10	73.00
33	0330	33.00	49.00	58.70	114.30	37.50	32.00	11.10	77.80
35	0350	35.00	50.80	58.70	114.30	37.50	32.00	11.10	77.80
38	0380	38.00	57.15	63.50	127.00	38.50	33.00	14.30	87.30
40	0400	40.00	60.00	63.50	127.00	38.50	33.00	14.30	87.30
41	0412	41.20	60.00	63.50	127.00	38.50	33.00	14.30	87.30
43	0430	43.00	63.00	66.70	133.40	38.50	33.00	14.30	90.50
44	0444	44.40	63.00	66.70	133.40	38.50	33.00	14.30	90.50
45	0450	45.00	63.00	66.70	133.40	38.50	33.00	14.30	90.50
47	0476	47.60	66.70	76.20	139.70	38.50	33.00	14.30	98.40
48	0480	48.00	66.70	76.20	139.70	38.50	33.00	14.30	98.40
50	0500	50.00	69.85	76.20	139.70	38.50	33.00	14.30	98.40
53	0530	53.00	73.00	84.10	146.00	38.50	33.00	17.50	111.10
55	0550	55.00	73.00	84.10	146.00	38.50	33.00	17.50	111.10
57	0571	57.10	76.20	84.10	146.00	38.50	33.00	17.50	111.10
58	0580	58.00	79.40	90.50	152.40	38.50	33.00	17.50	117.50
60	0600	60.00	79.40	90.50	152.40	38.50	33.00	17.50	117.50
63	0630	63.00	82.60	98.40	158.80	38.50	36.00	17.50	123.80
65	0650	65.00	88.90	98.40	158.80	38.50	36.00	17.50	123.80
66	0666	66.60	88.90	98.40	158.80	38.50	36.00	17.50	123.80
69	0698	69.80	95.00	98.40	158.80	38.50	36.00	17.50	123.80
70	0700	70.00	95.00	98.40	158.80	38.50	36.00	17.50	123.80
73	0730	73.03	101.60	114.30	206.00	46.00	42.50	20.60	145.00
75	0750	75.00	101.60	114.30	206.00	46.00	42.50	20.60	145.00
76	0762	76.20	101.60	114.30	206.00	46.00	42.50	20.60	145.00
79	0793	79.38	108.00	120.60	206.00	46.00	42.50	20.60	151.00
80	0800	80.00	108.00	120.60	206.00	46.00	42.50	20.60	151.00
82	0825	82.55	108.00	120.60	206.00	46.00	42.50	20.60	151.00
85	0850	85.00	111.00	123.80	206.00	46.00	42.50	20.60	154.00
87	0857	85.73	111.00	123.80	206.00	46.00	42.50	20.60	154.00
89	0889	88.90	114.30	127.00	216.00	46.00	42.50	20.60	158.00
90	0900	90.00	117.50	130.00	216.00	46.00	42.50	20.60	160.00
92	0920	92.08	117.50	130.00	216.00	46.00	42.50	20.60	160.00
95	0950	95.00	120.70	133.40	246.00	46.00	42.50	20.60	164.00
96	0952	95.25	120.70	133.40	246.00	46.00	42.50	20.60	164.00
98	0984	98.43	123.80	136.50	246.00	46.00	42.50	20.60	167.00
100	1000	100.00	127.00	140.00	246.00	46.00	42.50	20.60	171.00
101	1016	101.60	127.00	140.00	246.00	46.00	42.50	20.60	171.00
102	1047	104.77	133.40	150.00	246.00	62.00	44.00	20.60	181.00
105	1050	105.00	133.40	150.00	246.00	62.00	44.00	20.60	181.00
107	1079	107.95	133.40	150.00	246.00	62.00	44.00	20.60	181.00
110	1100	110.00	139.70	155.00	246.00	62.00	44.00	20.60	188.00
111	1111	111.12	139.70	155.00	246.00	62.00	44.00	20.60	188.00
113	1143	114.30	139.70	155.00	246.00	62.00	44.00	20.60	188.00
115	1150	115.00	139.70	155.00	246.00	62.00	44.00	20.60	188.00
117	1174	117.47	146.10	162.00	266.00	62.00	44.00	20.60	194.00
120	1200	120.00	146.10	162.00	266.00	62.00	44.00	20.60	194.00
126	1206	120.65	146.10	162.00	266.00	62.00	44.00	20.60	

# TYPE 4610/4620P

## SINGLE AND DUAL COMPACT CARTRIDGE O-RING PUSHER SEALS

### Type 4610 Big Bore Typical Arrangement



### Type 4610 Big Bore Dimensional Data

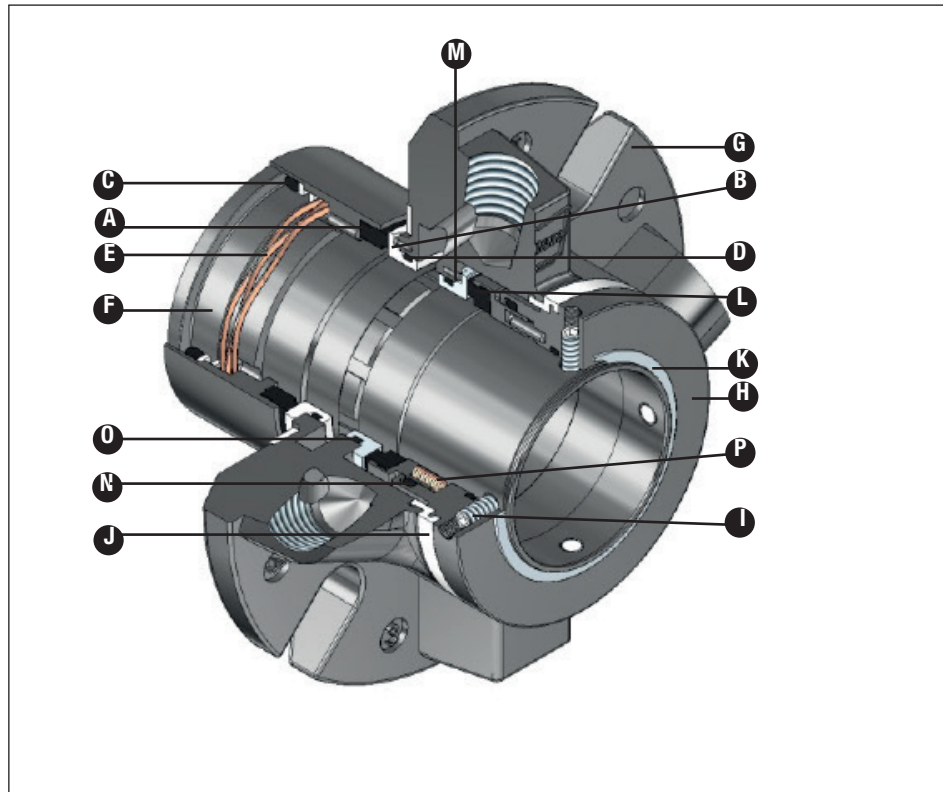
#### Big Bore Cast Gland (inches)

Pump Manufacturer	D1 Shaft Size	D4 Box Bore		D26	L90	L91	M	N	Turn Dia.
		Min.	Max.						
Durco Mk III Group IK, Goulds 3196 STX, Sulzer ALB #1	1.375	2.875	3.023	5.375	2.059	0.600	0.562	4.062	—
Goulds 3196 MTX	1.750	3.500	3.925	6.500	2.100	0.638	0.687	5.093	—
Durco Mk III Group II	1.875	3.625	3.734	6.500	1.929	0.809	0.687	5.093	4.125
Goulds 3196 XLTX	2.500	4.750	4.875	8.000	2.479	0.377	0.687	6.062	—
Durco Mk III Group III	2.625	4.625	4.740	8.000	2.432	0.424	0.687	6.062	5.125
Goulds 3196 X-17	2.750	4.750	4.875	8.000	2.386	0.470	0.687	6.062	—

#### Big Bore Machined Gland (inches)

Durco Mk III Group IJ	1.125	1.730	2.750	4.500	1.422	1.180	0.437	3.750	3.125
Goulds 3196 LTX	2.125	2.875	4.336	7.125	1.462	1.220	0.687	6.000	4.711
Sulzer ALB #2	2.125	2.875	4.187	7.156	1.462	1.220	0.437	5.250	4.562
Sulzer ALB #3	2.500	3.250	4.750	8.000	1.462	1.220	0.562	6.000	5.125

- A- Inboard Face/ Primary Ring Ass'y
- B- Inboard Seat/ Mating Ring
- C- Inboard Dynamic O-Ring
- D- Inboard Static O-Ring
- E- Non-clogging Wave Spring
- F- Sleeve
- G- Gland
- H- Collar
- I- Set Screws
- J- Centralizing Spacer Ring
- K- Retaining Ring
- L- Outboard Face/ Primary Ring Ass'y
- M- Outboard Seat/ Mating Ring
- N- Outboard Dynamic O-Ring
- O- Outboard Static O-Ring
- P- Outboard Springs



4620P shown

### Product Description

The 4600 series cartridge seal is the complete, affordable and off-the-shelf sealing solution for industrial liquid applications.

Type 4600 series meets key industry pump standards, and is designed to permit use in rotating shaft equipment including ANSI/DIN pumps, close-coupled pumps, vertical pumps, and similar rotating shaft equipment.

### Typical Applications

- Water and wastewater
- Pulp and paper
- Power generation
- Chemical
- Food and beverage
- Pharmaceutical
- Mining
- Steel production
- General industrial

### Design Features

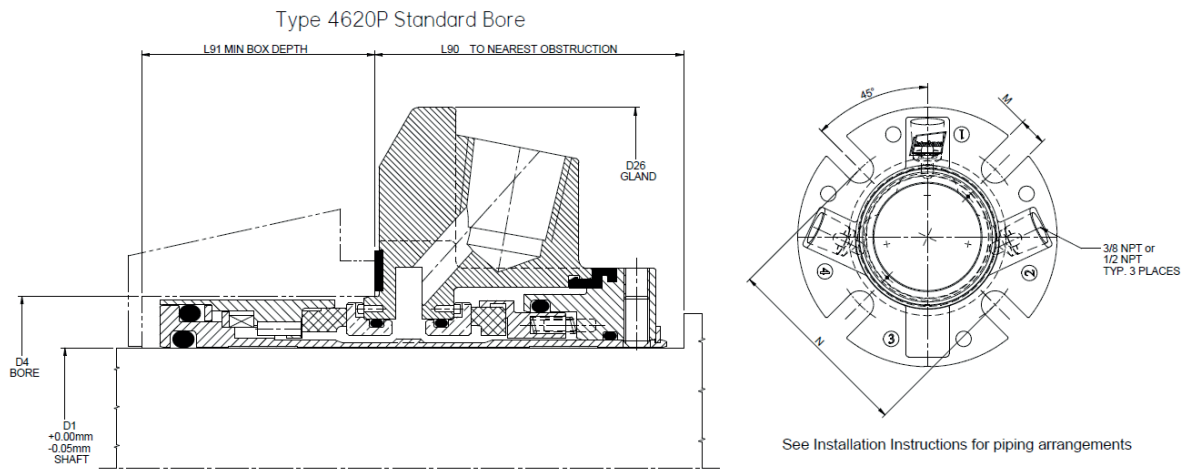
- Single and Dual O-ring Pusher Design
- Optimized running face design
- Non-clogging, crest-to-crest wave spring
- Pre-assembled unique centralizing spacer ring does not require removal before equipment startup
- Compact cartridge design
- Dual arrangement design can operate as tandem (unpressurized) or double (pressurized)
- Dual seal sleeve offers standard pumping vanes which improve flow and cooling
- Robust pin drive mechanism for both primary and mating ring

# TYPE 4610/4620P

## SINGLE AND DUAL COMPACT CARTRIDGE O-RING PUSHER SEALS

Technical Specification

### Type 4620P Standard Bore Arrangement



# TYPE 4610/4620P

## SINGLE AND DUAL COMPACT CARTRIDGE O-RING PUSHER SEALS

### Type 4620P Standard Bore Dimensional Data

inches

Seal Size	Size Code	D1 Shaft Size	D4 Box Bore		D26	L90	L91	M	N	
			Min.	Max.						
1.000	24	0240	0.945	1.626	1.890	4.000	2.000	1.634	0.524	2.803
	25	0250	0.984	1.626	1.890	4.000	2.000	1.634	0.524	2.803
	28	0280	1.102	1.752	2.016	4.126	2.126	1.602	0.524	2.933
1.125	0285	1.125	1.752	2.016	4.126	2.126	1.602	0.524	2.933	
	30	0300	1.181	1.811	2.295	4.252	2.126	1.602	0.524	3.213
1.250	0317	1.250	1.874	2.295	4.252	2.126	1.602	0.524	3.213	
	32	0320	1.260	1.874	2.295	4.252	2.126	1.602	0.524	3.213
1.375	33	0330	1.299	2.000	2.421	4.374	2.126	1.602	0.524	3.339
	34	0349	1.375	2.000	2.421	4.374	2.126	1.602	0.524	3.339
	35	0350	1.378	2.000	2.421	4.374	2.126	1.602	0.524	3.339
1.500	38	0380	1.496	2.252	2.681	4.874	2.185	1.681	0.524	3.598
	38	0381	1.500	2.252	2.681	4.874	2.185	1.681	0.524	3.598
1.625	40	0400	1.575	2.374	2.811	5.000	2.185	1.681	0.563	3.768
	40	0412	1.625	2.374	2.811	5.000	2.185	1.681	0.563	3.768
1.750	43	0430	1.693	2.500	2.917	5.252	2.185	1.681	0.563	3.874
	44	0444	1.750	2.500	2.917	5.252	2.185	1.681	0.563	3.874
1.875	45	0450	1.772	2.500	2.917	5.252	2.185	1.681	0.563	3.874
	47	0476	1.875	2.626	2.917	5.252	2.185	1.681	0.563	3.874
2.000	48	0480	1.890	2.626	2.917	5.252	2.185	1.681	0.563	3.874
	50	0500	1.969	2.752	3.016	5.500	2.374	1.713	0.563	4.000
	50	0508	2.000	2.752	3.016	5.500	2.374	1.713	0.563	4.000
2.125	53	0530	2.087	2.874	3.358	5.858	2.374	1.713	0.689	4.469
	53	0539	2.125	2.874	3.358	5.858	2.374	1.713	0.689	4.469
2.250	55	0550	2.165	2.874	3.358	5.858	2.374	1.713	0.689	4.469
	57	0571	2.250	3.000	3.484	6.500	2.476	1.713	0.689	4.567
2.375	58	0580	2.283	3.126	3.610	6.500	2.528	1.713	0.689	4.720
	60	0600	2.362	3.126	3.610	6.500	2.528	1.713	0.689	4.720
	60	0603	2.375	3.126	3.610	6.500	2.528	1.713	0.689	4.720
2.500	63	0630	2.480	3.374	3.890	6.752	2.626	1.705	0.689	5.000
	63	0635	2.500	3.374	3.890	6.752	2.626	1.705	0.689	5.000
2.625	65	0650	2.559	3.374	3.890	6.752	2.626	1.705	0.689	5.000
	66	0666	2.625	3.685	4.063	6.752	2.563	1.728	0.689	5.169
2.750	69	0698	2.750	3.685	4.063	6.752	2.563	1.728	0.689	5.169
	70	0700	2.756	3.685	4.063	6.752	2.563	1.728	0.689	5.169
2.875	73	0730	2.874	3.812	4.186	7.000	2.562	1.727	0.687	5.312
	75	0750	2.953	4.000	4.469	7.750	2.625	2.250	0.812	5.720
3.000	76	0762	3.000	4.000	4.469	7.750	2.625	2.250	0.812	5.720
	79	0793	3.125	4.125	4.600	7.875	2.687	2.250	0.812	5.845
3.125	80	0800	3.150	4.125	4.600	7.437	2.635	2.250	0.812	5.845
	80	0825	3.250	4.125	4.600	7.437	2.635	2.250	0.812	5.845
3.250	85	0850	3.346	4.375	4.850	8.125	2.687	2.250	0.812	6.095
	85	0857	3.375	4.375	4.850	8.125	2.687	2.250	0.812	6.095
3.375	88	0889	3.500	4.500	4.975	8.250	2.687	2.250	0.812	6.220
	90	0900	3.543	4.625	5.100	8.375	2.687	2.250	0.688	6.250
3.625	92	0920	3.625	4.625	5.100	8.375	2.687	2.250	0.688	6.250
	95	0950	3.740	4.724	5.199	8.750	2.687	2.250	0.688	6.770
3.750	95	0952	3.750	4.724	5.199	8.750	2.687	2.250	0.688	6.770
	98	0984	3.875	4.875	5.375	8.750	2.687	2.250	0.812	6.636
3.875	100	1000	3.937	5.000	5.500	9.000	2.687	2.250	0.812	6.761
	101	1016	4.000	5.000	5.500	9.000	2.687	2.250	0.812	6.761
4.000	104	1047	4.125	5.125	5.625	9.000	2.687	2.250	0.812	6.886
	105	1050	4.134	5.125	5.625	9.000	2.687	2.250	0.812	6.886
4.250	107	1079	4.250	5.250	5.750	9.250	2.687	2.625	0.812	7.011
	110	1100	4.331	5.500	6.000	9.500	2.687	2.625	0.812	7.261
4.375	111	1111	4.375	5.500	6.000	9.500	2.687	2.625	0.812	7.261
	114	1143	4.500	5.500	6.000	9.500	2.687	2.625	0.812	7.261
4.500	115	1150	4.528	5.500	6.000	9.500	2.687	2.625	0.812	7.261
	117	1174	4.625	5.750	6.313	10.375	2.687	2.625	0.812	7.574
4.625	120	1200	4.724	5.750	6.313	10.375	2.687	2.625	0.812	7.574
	126	1206	4.750	5.750	6.313	10.375	2.687	2.625	0.812	7.574
4.750	125	1250	4.921	6.350	7.260	12.000	3.168	2.598	0.812	10.000
	127	1270	5.000	6.350	7.260	12.000	3.168	2.598	0.812	10.000
5.000	130	1300	5.118	6.600	7.510	12.250	3.168	2.598	0.812	10.250
	133	1333	5.250	6.600	7.510	12.250	3.168	2.598	0.812	10.250
5.250	135	1350	5.315	6.850	8.000	12.687	3.168	2.598	0.937	10.500
	139	1397	5.500	6.850	8.000	12.687	3.168	2.598	0.937	10.500
5.500	140	1400	5.512	6.850	8.000	12.687	3.168	2.598	0.937	10.500

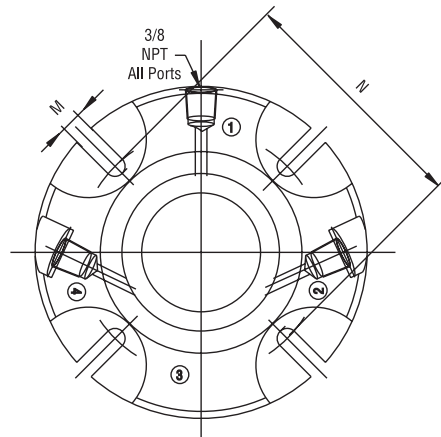
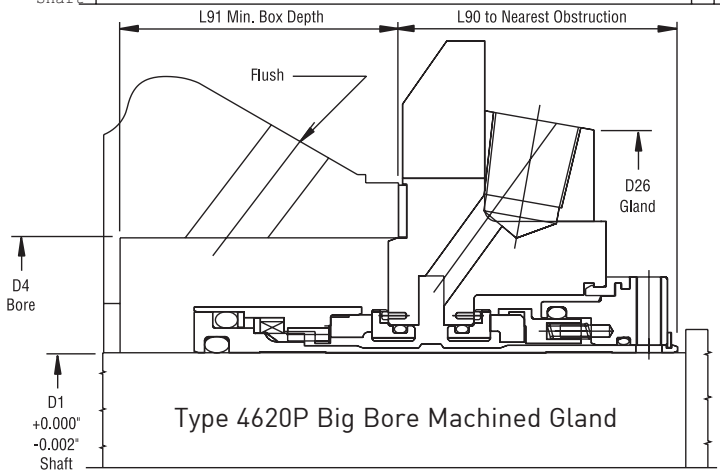
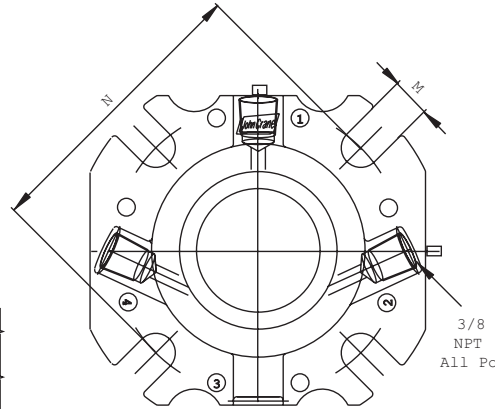
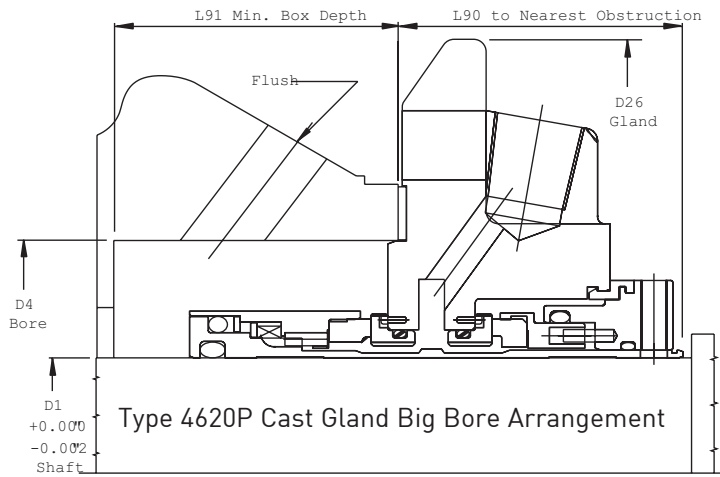
metric

Seal Size	Size Code	D1 Shaft Size	D4 Box Bore		D26	L90	L91	M	N	
			Min.	Max.						
1.000	24	0240	24.00	41.3	48.0	101.6	50.8	41.5	13.3	71.2
	25	0250	25.00	41.3	48.0	101.6	50.8	41.5	13.3	71.2
	28	0280	28.00	44.5	51.2	104.8	54.0	40.7	13.3	74.5
1.125	0285	28.58	44.5	51.2	104.8	54.0	40.7	13.3	74.5	
	30	0300	30.00	46.0	58.3	108.0	54.0	40.7	13.3	81.6
1.250	0317	31.75	47.6	58.3	108.0	54.0	40.7	13.3	81.6	
	32	0320	32.00	47.6	58.3	108.0	54.0	40.7	13.3	81.6
1.375	33	0330	33.00	50.8	61.5	111.1	54.0	40.7	13.3	84.8
	34	0349	34.93	50.8	61.5	111.1	54.0	40.7	13.3	84.8
	35	0350	35.00	50.8	61.5	111.1	54.0	40.7	13.3	84.8
1.500	38	0380	38.00	57.2	68.1	123.8	55.5	42.7	13.3	91.4
	38	0381	38.10	57.2	68.1	123.8	55.5	42.7	13.3	91.4
1.625	40	0400	40.00	60.3	71.4	127.0	55.5	42.7	14.3	95.7
	40	0412	41.28	60.3	71.4	127.0	55.5	42.7	14.3	95.7
1.750	43	0430	43.00	63.5	74.1	133.4	55.5	42.7	14.3	98.4
	44	0444	44.45	63.5	74.1	133.4	55.5	42.7	14.3	98.4
1.875	45	0450	45.00	63.5	74.1	133.4	55.5	42.7	14.3	98.4
	47	0476	47.63	66.7	74.1	133.4	55.5	42.7	14.3	98.4
2.000	48	0480	48.00	66.7	74.1	133.4	55.5	42.7	14.3	98.4
	50	0500	50.00	69.9	76.6	139.7	60.3	43.5	14.3	101.6
	50	0508	50.80	69.9	76.6	139.7	60.3	43.5	14.3	101.6
2.125	53	0530	53.00	73.0	85.3	148.8	60.3	43.5	17.5	113.5
	53	0539	53.98	73.0	85.3	148.8	60.3	43.5	17.5	113.5
2.250	55	0550	55.00	73.0	85.3	148.8	60.3	43.5	17.5	113.5
	57	0571	57.15	76.2	88.5	165.1	62.9	43.5	17.5	116.0
2.375	58	0580	58.00	79.4	91.7	165.1	64.2	43.5	17.5	119.9
	60	0600	60.00	79.4	91.7	165.1	64.2	43.5	17.5	119.9
	60	0603	60.33	79.4	91.7	165.1	64.2	43.5	17.5	119.9
2.500	63	0630	63.00	85.7	98.8	171.5	66.7	43.3	17.5	127.0
	63	0635	63.50	85.7	98.8	171.5	66.7	43.3	17.5	127.0
2.625	65	0650	65.00	85.7	98.8	171.5	66.7	43.3	17.5	127.0
	66	0666	66.68	93.6	103.2	171.5	65.1	43.9	17.5	131.3
2.750	69	0698	69.85	93.6	103.2	171.5	65.1	43.9	17.5	131.3
	70	0700	70.00	93.6	103.2	171.5	65.1	43.9	17.5	131.3
2.875	73	0730	73.03	96.8	106.3	177.8	65.1	43.9	17.5	134.9
	75	0750	75.00	101.6	113.5	196.85	66.68	57.15	20.62	145.29
3.000	76	0762	76.20	101.6	113.5	196.85	66.68	57.15	20.62	145.29
	79	0793	79.38	104.78	116.84	200.03	68.25	57.15	20.62	148.46
3.125	80	0800	80.00	104.78	116.84	188.90	66.93	57.15	20.62	148.46
	80	0825	82.55	104.78	116.84	188.90	66.93	57.15	20.62	148.46
3.250	85	0850	85.00	111.13	123.19	206.38	68.25	57.15	20.62	154.81
	85	0857	85.73	111.13	123.19	206.38	68.25	57.15	20.62	154.81
3.375	88	0889	88.90	114.30	126.37	209.55	68.25	57.15	20.62	157.99
	90	0900	90.00	117.48	129.54	212.73	68.25			

# TYPE 4610/4620P

## SINGLE AND DUAL COMPACT CARTRIDGE O-RING PUSHER SEALS

### Type 4620P Big Bore Typical Arrangement



### Type 4620P Big Bore Dimensional Data

#### Big Bore Cast Gland (inches)

Pump Manufacturer	D1 Shaft Size	D4 Box Bore		D26	L90	L91	M	N
		Min.	Max.					
Durco Mk III Group IK, Goulds 3196 STX, Sulzer ALB #1	1.375	2.875	3.023	5.375	2.125	1.603	0.562	4.062
Goulds 3196 MTX	1.750	3.500	3.925	6.500	2.187	1.680	0.687	5.093
Durco Mk III Group II	1.875	3.625	3.734	6.500	2.187	1.680	0.687	5.093
Goulds 3196 XLTX	2.500	4.750	4.875	8.000	2.532	1.859	0.687	6.062
Durco Mk III Group III	2.625	4.625	4.740	8.000	2.562	1.727	0.687	6.062
Goulds 3196 X-17	2.750	4.750	4.875	8.000	2.532	1.820	0.687	6.062

#### Big Bore Machined Gland (inches)

Goulds 3196 LTX	2.125	3.875	4.250	7.156	2.408	1.742	0.687	5.687
Sulzer ALB #2	2.125	4.125	4.250	7.156	2.407	1.742	0.437	5.250
Sulzer ALB #3	2.500	4.750	4.875	8.000	2.532	1.859	0.687	6.062

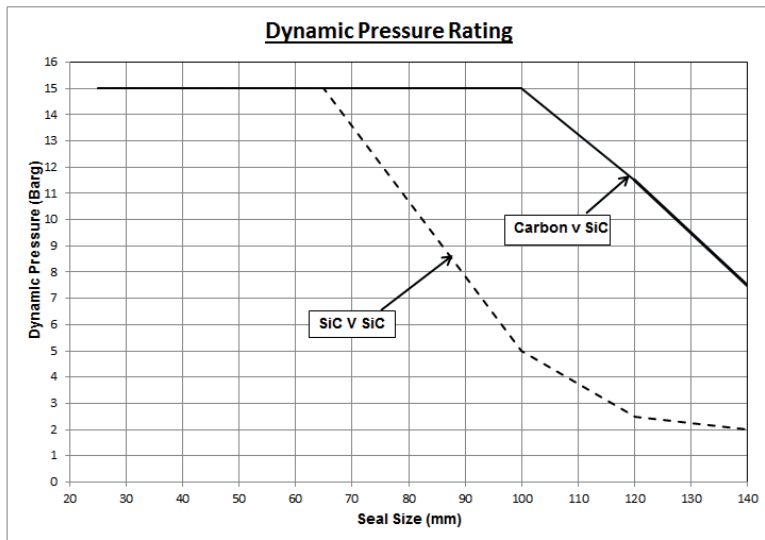
# TYPE 4610/4620P

## SINGLE AND DUAL COMPACT CARTRIDGE O-RING PUSHER SEALS

### Materials of Construction

SEAL COMPONENTS	MATERIALS	
	Description	Options
Face/Primary Ring	Standard Carbon Graphite	Options Silicon Carbide (Inboard Only)
Seat/Mating Ring	Silicon Carbide	—
O-ring	Fluoroelastomer	EPDM TFE Propylene Perfluoroelastomer
Springs	Alloy-C-276	—
Gasket, Centering Ring	Glass-filled PTFE Note: Some sizes have Sint. 316SS Spacers	—
Hardware	316SS or better	
Inboard Primary Ring Adaptor	Duplex SS	—
Outboard Primary Ring Adaptor	Alloy 20	—

### Basic Pressure Rating



The basic pressure rating is for a standard seal, as shown in the typical arrangement, when installed according to the criteria given in this data sheet and generally industrial practices. The basic pressure rating assumes stable operation at the speeds indicated on the above chart in a clean, cool, lubricating, nonvolatile liquid with an adequate flush rate. When used with the multiplier factors, the basic pressure rating can be adjusted to provide a conservative estimate of the dynamic pressure rating. For process services outside this range or a more accurate assessment of the dynamic pressure rating, contact John Crane for more information.



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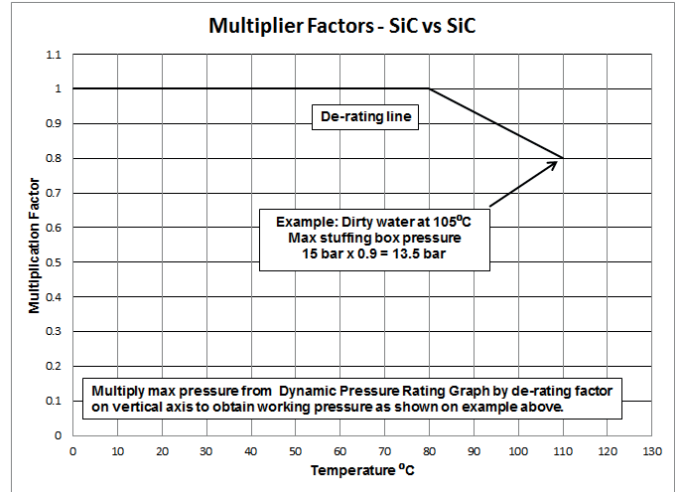
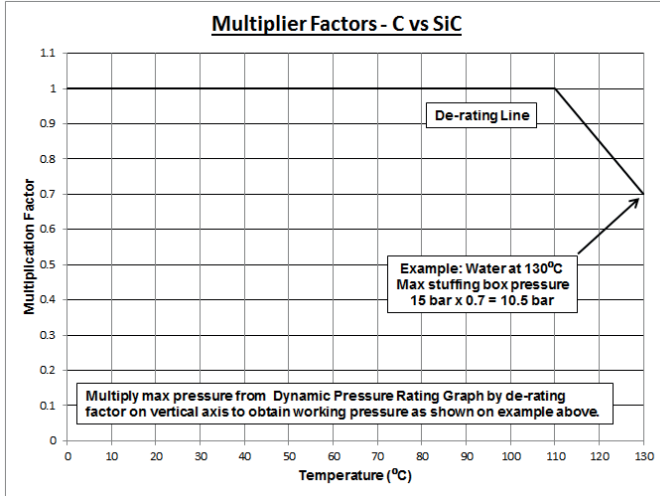
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### Multiplier Factors



Single Type 4610 and Tandem <sup>1</sup> Type 4620P
Process Pressure
Up to 15 barg or 220 psig Seal size and material dependent See Dynamic Pressure Rating Graph

Double <sup>2</sup> Type 4620P	
Barrier Fluid Pressure <sup>2</sup>	Inboard Seal Internal Pressure Rating <sup>3</sup>
Up to 15 barg or 220 psig Seal Size, Material & Barrier Fluid dependent <sup>2</sup> See Dynamic Pressure Rating Graph	1-2 barg or 15-30 psig

<sup>1</sup>Tandem (Unpressurized) : Uses a “buffer” with pressure lower than process seal chamber or stuffing box pressure (Plan 52). Pressure rating is same as Single.

<sup>2</sup>Double (Pressurized): Uses a “barrier” fluid with pressure higher than process seal chamber fluid or stuffing box pressure (Plan 53).

As a Double (Pressurized) Arrangement, maximum barrier fluid pressure is same as Dynamic Pressure Rating for Type 4620P carbon vs. SiC inboard seal (see Figure 3). Maximum barrier fluid pressure is 9 barg or 130 psig for 3.000” (75mm) and larger sizes when barrier fluid is oil and shaft speed is greater than 1800 rpm.

<sup>3</sup>Inboard Seal Internal Pressure Rating = Barrier Pressure – Process Pressure

When using as a Double Pressurized Arrangement, set the barrier fluid pressure at 15-30 psig / 1-2 barg above process fluid.

It is not recommended to operate at higher pressure differential due to the inboard seal internal pressure limit.

**Additional Notes:**

\*Barrier fluid must have a viscosity less than 15 cSt/65 SSU and fluid lubricity equal or better than water at 40°C. It is recommended that the barrier temperature be maintained below 65°C.

\*\*The ratio of sealed pressure to vapor pressure must be greater than 1.5, otherwise contact Engineering. If the specific gravity is less than 0.6, contact Engineering.



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