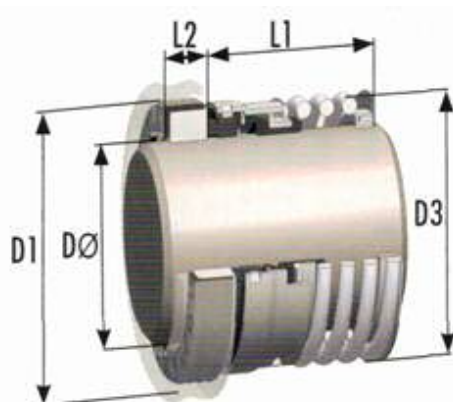




Mechanical Seals

ASP-Type 1 Industry Standard Seal



The provided dimensions above can be subject to minor deviations

Shaft Size		Seat OD		Rotary OD		Working Length		Seat Height	
Inch	Code	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
0.5	127	1	25.4	0.937	23.8	1.187	30.16	0.312	7.93
0.625	158	1.25	31.75	1.093	27.76	1.312	33.32	0.405	10.28
0.75	191	1.375	34.93	1.218	30.94	1.312	33.32	0.405	10.28
0.875	222	1.5	38.1	1.343	34.11	1.375	34.93	0.405	10.28
1	254	1.625	41.28	1.5	38.1	1.562	39.67	0.437	11.1
1.125	286	1.75	44.44	1.625	41.28	1.625	41.28	0.437	11.1
1.25	317	1.875	47.63	1.812	46.02	1.625	41.28	0.437	11.1
1.375	349	2	50.8	1.917	48.68	1.687	42.85	0.437	11.1
1.5	381	2.125	53.98	2.041	51.85	1.687	42.85	0.437	11.1
1.625	412	2.375	60.33	2.287	58.1	2	50.8	0.5	12.7
1.75	444	2.5	63.5	2.412	61.27	2	50.8	0.5	12.7
1.875	476	2.625	66.68	2.537	64.44	2.125	53.98	0.5	12.7
2	508	2.75	69.85	2.646	67.21	2.125	53.98	0.5	12.7
2.125	539	3	76.2	2.835	72.02	2.375	60.33	0.562	14.28
2.25	571	3.125	79.38	2.965	75.3	2.375	60.33	0.562	14.28
2.375	603	3.25	82.55	3.083	78.3	2.5	63.5	0.562	14.28
2.5	635	3.375	85.73	3.21	81.54	2.5	63.5	0.562	14.28
2.625	666	3.375	85.73	3.394	86.22	2.75	69.85	0.625	15.88
2.75	698	3.5	88.9	3.52	89.4	2.875	73.03	0.625	15.88
2.875	730	3.75	95.25	3.644	92.57	2.875	73.03	0.625	15.88
3	762	3.875	98.43	3.77	95.75	2.875	73.03	0.625	15.88

The provided dimensions above can be subject to minor deviations

ASP- 1 (Shaft Diameters 5/16" through 4")

A true workhorse for industrial pumps. Commonly used in industry for sealing pumps in a wide range of services. 80% of applications are water, but oil, waste water, and light chemical applications are also common.

Robust, short working length, highly accommodating and reliable, rubber diaphragm balanced seal which provides enhanced seal capability, performance and life. Improved design features further enhance this popular seal.

FEATURES: Rubber bellows seal, non-clogging, single coil spring, The drive band's notch design eliminates oversteering of the bellows.

Used in: Centrifugal pumps and turbine pumps, mixers, blenders, compressors, and chillers.

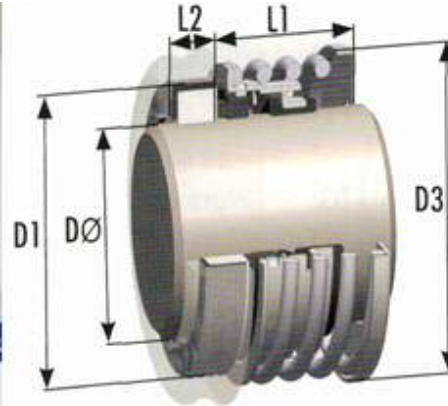
Pressures to 150 PSI. Temperature: -40°F to +400°F (depending on the chosen elastomer).

Elastomers: Nitrile (Buna-N) , Viton (FKM) , EPDM

Rotary Face Materials: Carbon, Silicon Carbide, Tungsten Carbide, GFPTFE

Stationary Face Materials: Ceramic, 17-4, Ni-resist, Silicon Carbide, Tungsten Carbide,

ASP-Type 2 Industry Standard Seal



Shaft Size		Seat OD		Rotary OD		Working Length		Seat Height	
Inch	Code	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
0.5	127	1	25.4	1.187	30.14	0.813	20.64	0.312	7.93
0.625	158	1.25	31.75	1.312	33.32	0.875	22.23	0.405	10.28
0.75	191	1.375	34.93	1.438	36.52	0.875	22.23	0.405	10.28
0.875	222	1.5	38.1	1.564	39.72	0.937	23.8	0.405	10.28
1	254	1.625	41.28	1.783	45.3	1	25.4	0.437	11.1
1.125	286	1.75	44.44	1.908	48.47	1.062	26.97	0.437	11.1
1.25	317	1.875	47.63	2.079	52.8	1.062	26.97	0.437	11.1
1.375	349	2	50.8	2.204	55.98	1.125	28.58	0.437	11.1
1.5	381	2.125	53.98	2.329	59.15	1.125	28.58	0.437	11.1
1.625	412	2.375	60.33	2.636	66.96	1.375	34.93	0.5	12.7
1.75	444	2.5	63.5	2.761	70.12	1.375	34.93	0.5	12.7
1.875	476	2.625	66.68	2.88	73.16	1.5	38.1	0.5	12.7
2	508	2.75	69.85	3.011	76.48	1.5	38.1	0.5	12.7
2.125	539	3	76.2	3.256	82.71	1.687	42.85	0.562	14.28
2.25	571	3.125	79.38	3.381	85.9	1.687	42.85	0.562	14.28
2.375	603	3.25	82.55	3.506	89.06	1.812	46.02	0.562	14.28
2.5	635	3.375	85.73	3.631	92.24	1.812	46.02	0.562	14.28
2.625	666	3.375	85.73	3.875	98.43	1.937	49.2	0.625	15.88
2.75	698	3.5	88.9	4	101.6	1.937	49.2	0.625	15.88
2.875	730	3.75	95.25	4.125	104.78	2.062	52.37	0.625	15.88
3	762	3.875	98.43	4.25	107.95	2.062	52.37	0.625	15.88

The provided dimensions above can be subject to minor deviations

ASP- 2 (Shaft Diameters 5/16" through 5")

A true workhorse for industrial pumps. Commonly used in industry for sealing pumps in a wide range of services. 80% of applications are water, but oil, waste water, and light chemical applications are also common.

Robust, short working length, highly accommodating and reliable, rubber diaphragm balanced seal which provides enhanced seal capability, performance and life. Improved design features further enhance this popular seal.

FEATURES: Rubber bellows seal, non-clogging, single coil spring, The drive band's notch design eliminates oversteering of the bellows.

Used in: Centrifugal pumps and turbine pumps, mixers, blenders, compressors, and chillers.

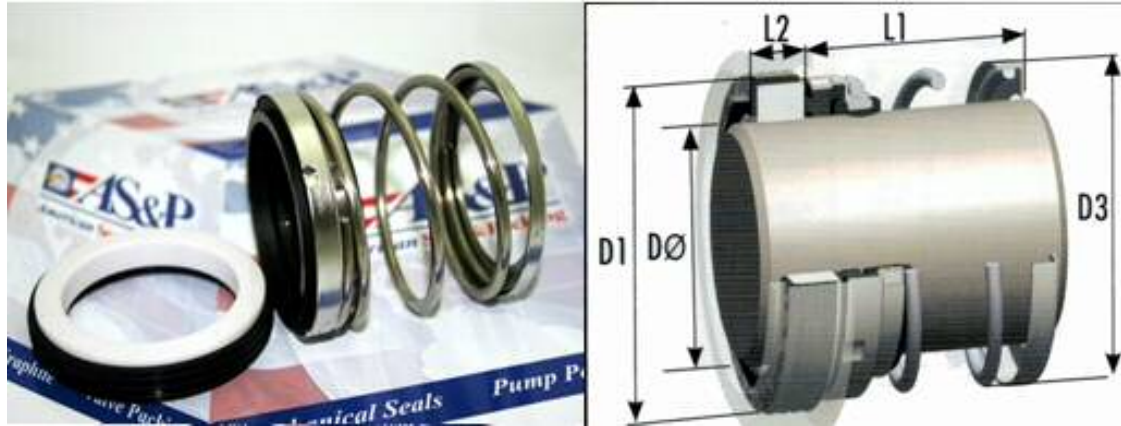
Pressures to 150 PSI. Temperature: -40°F to +400°F (depending on the chosen elastomer).

Elastomers: Nitrile (Buna-N) , Viton (FKM) , EPDM

Rotary Face Materials: Carbon, Silicon Carbide, Tungsten Carbide, GFPTFE

Stationary Face Materials: Ceramic, 17-4, Ni-resist, Silicon Carbide, Tungsten Carbide,

ASP-Type 21 Industry Standard Seal



Shaft Size	Shaft Size	Size	Seat OD		Rotary OD		Working Length		Seat Height	
Inch	Metric	Code	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
0.5		127	1	25.4	0.925	23.5	0.812	20.62	0.312	7.93
	14	140	1.25	31.75	1.063	27	0.875	22.23	0.405	10.28
0.625		158	1.25	31.75	1.063	27	0.875	22.23	0.405	10.28
	16	160	1.25	31.75	1.063	27	0.875	22.23	0.405	10.28
	18	180	1.375	34.93	1.209	30.7	0.875	22.23	0.405	10.28
0.75		191	1.375	34.93	1.209	30.7	0.875	22.23	0.405	10.28
	20	200	1.5	38.1	1.315	33.4	0.937	23.8	0.405	10.28
	22	220	1.5	38.1	1.315	33.4	0.937	23.8	0.405	10.28
0.875		222	1.5	38.1	1.315	33.4	0.937	23.8	0.405	10.28
	24	240	1.625	41.28	1.543	39.2	1	25.4	0.437	11.1
	25	250	1.625	41.28	1.543	39.2	1	25.4	0.437	11.1
1		254	1.625	41.28	1.701	43.2	1	25.4	0.437	11.1
	28	280	1.75	44.44	1.795	45.6	1.062	26.97	0.437	11.1
1.125		286	1.75	44.44	1.795	45.6	1.062	26.97	0.437	11.1
	30	300	1.875	47.63	1.866	47.4	1.062	26.97	0.437	11.1
1.25		317	1.875	47.63	1.866	47.4	1.062	26.97	0.437	11.1
	32	320	1.875	47.63	1.866	47.4	1.062	26.97	0.437	11.1
	33	330	2	50.8	2.047	52	1.125	28.58	0.437	11.1
1.375		349	2	50.8	2.047	52	1.125	28.58	0.437	11.1
	35	350	2	50.8	2.071	52	1.125	28.58	0.437	11.1
	38	380	2.125	53.98	2.189	55.6	1.125	28.58	0.437	11.1
1.5		381	2.125	53.98	2.197	55.6	1.125	28.58	0.437	11.1
	40	400	2.375	60.33	2.331	59.2	1.375	34.93	0.5	12.7
1.625		412	2.375	60.33	2.331	59.2	1.375	34.93	0.5	12.7
	43	430	2.5	63.5	2.563	65.1	1.375	34.93	0.5	12.7

1.75		444	2.5	63.5	2.563	65.1	1.375	34.93	0.5	12.7
	45	450	2.625	66.68	2.563	65.1	1.5	38.1	0.5	12.7
1.875		476	2.625	66.68	2.626	66.7	1.5	38.1	0.5	12.7
	48	480	2.75	69.85	2.626	66.7	1.5	38.1	0.5	12.7
	50	500	2.75	69.85	2.795	71	1.5	38.1	0.5	12.7
2		508	2.75	69.85	2.886	73.3	1.5	38.1	0.5	12.7
	53	530	3	76.2	2.886	73.3	1.687	42.85	0.562	14.28
2.125		539	3	76.2	2.886	73.3	1.687	42.85	0.562	14.28
	55	550	3.125	79.38	3.094	78.6	1.687	42.85	0.562	14.28
2.25		571	3.125	79.38	3.094	78.6	1.687	42.85	0.562	14.28
	60	600	3.25	82.55	3.232	82.1	1.812	46.02	0.562	14.28
2.375		603	3.25	82.55	3.232	82.1	1.812	46.02	0.562	14.28
2.5		635	3.375	85.73	3.331	84.6	1.812	46.02	0.562	14.28
	65	650	3.375	85.73	3.488	88.6	1.937	49.2	0.625	15.88
2.625		666	3.375	85.73	3.488	88.6	1.937	49.2	0.625	15.88
2.75		698	3.5	88.9	3.543	90	1.937	49.2	0.625	15.88
	70	700	3.5	88.9	3.543	90	1.937	49.2	0.625	15.88
2.875		730	3.75	95.25	3.748	95.2	2.062	52.37	0.625	15.88
	75	750	3.875	98.43	4.043	102.7	2.062	52.37	0.625	15.88
3		762	3.875	98.43	4.043	102.7	2.062	52.37	0.625	15.88
3.125		794	4	101.6	4.094	104	2.187	55.55	0.783	19.88
3.25		825	4.125	104.78	4.094	104	2.187	55.55	0.783	19.88
3.375		857	4.25	107.95	4.252	108	2.187	55.55	0.783	19.88
3.5		889	4.375	111.13	4.409	112	2.187	55.55	0.783	19.88
3.625*		921	4.5	114.3	4.488	114	2.312	58.72	0.783	19.88
3.75		953	4.625	117.48	4.685	119	2.312	58.72	0.783	19.88
3.875*		2284	4.75	120.65	4.764	121	2.312	58.72	0.783	19.88
4		1016	4.875	123.83	4.882	124	2.312	58.72	0.783	19.88

ASP-21 (Shaft Diameters 5/16" through 5")

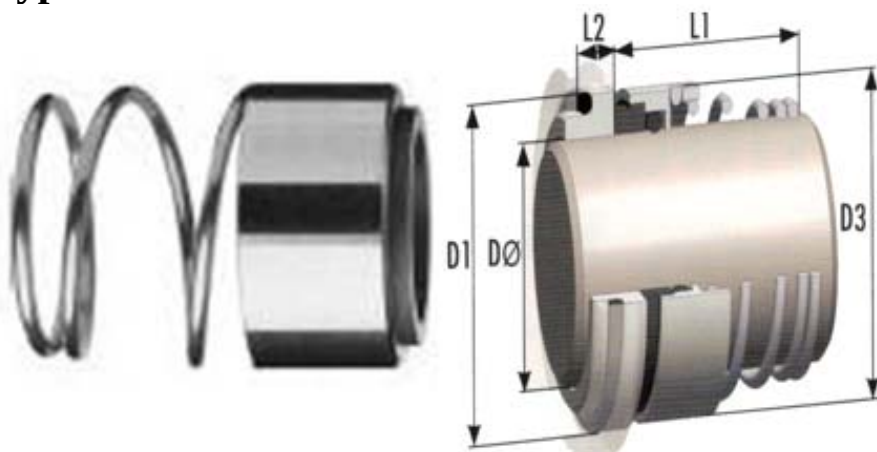
A true workhorse for industrial pumps. Commonly used in industry for sealing pumps in a wide range of services. 80% of applications are water, but oil, waste water, and light chemical applications are also common.

FEATURES: Rubber bellows seal, non-clogging, single coil spring, The drive band's notch design eliminates overstressing of the bellows.

Used in: Centrifugal pumps and turbine pumps, mixers, blenders, compressors, and chillers.

Pressures to 150 PSI. Temperature: -40°F to +400°F (depending on the chosen elastomer).

Type 32



Conical spring, 'O'-Ring mounted, shaft directional dependent seal with inserted seal face. Available in the Type 32DINS for the European market, which has a stationary to suit common European DIN housings.

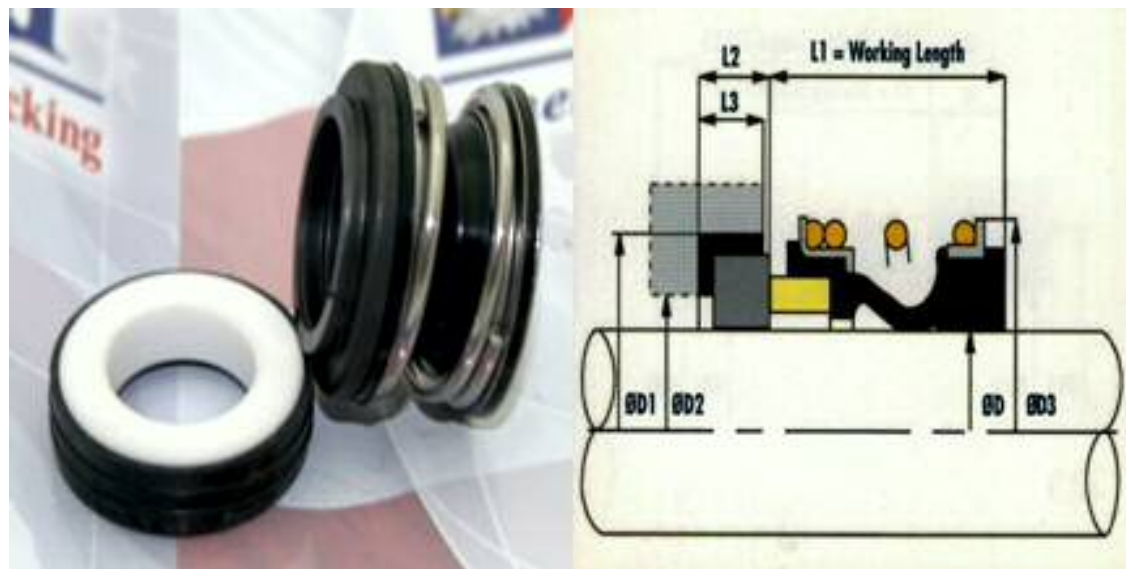
Metric Shaft Size Size	Size Code	D1	D3	L1	L2
10	100	19.2	19	15.5	6.6
12	120	21.6	21	15.5	5.6
14	140	24.6	23	15.5	5.6
15	150	24.6	24	15.5	6.6
16	160	28	26	17.5	7.5
18	180	30	29	18.5	8
19	190	31	31	20	7.5
20	200	35	31	20	7.5
22	220	35	33	21.5	7.5
24	240	38	35	23	7.5
25	250	38	36	24.5	7.5
26	260	40	37	24.5	8
28	280	42	40	24.5	9
30	300	45	43	24.5	10.5
32	320	48	46	28	10.5
33	330	48	46	28	11
35	350	52	49	28	11
38	380	55	53	31	10.3
40	400	58	56	34	10.8
42	420	62	59	35	12
43	430	62	59	35	12
45	450	64	61	36.5	11.6
48	480	68.4	64	42	11.6
50	500	69.3	66	43	11.6

Metric Shaft Size Size	Size Code	D1	D3	LI	L2
55	550	75.4	71	47	13.3
58	580	78.4	76	50	13.3
60	600	80.4	78	51	13.3
65	650	85.4	84	52	13
70	700	92	90	54	13
75	750	99	98	55	14
80	800	104	100	58	15



ASP-6

This seal was designed with a working length to suit a common International standard. Our ASP-6 Seal has same working length and the some seal as our ASP - 21, and is suitable for general duties.



STANDARD SIZES

Inch Shaft Size D	Size Code	Seat Bore	D2	Rotary OD	Working Length	Seat Thickness	Seat Height
0.375"	95	24.6	60.01	20	25.4	8.74	7.47
0.5"	127	27.79	19.05	22	25.4	8.74	7.47
0.625"	158	30.95	22.23	26	25.4	10.32	8.97
0.75"	191	34.15	25.4	32	25.4	10.32	8.97
0.875"	222	37.3	28.58	36	25.4	10.32	8.97
1"	254	40.5	31.75	39	25.4	10.32	8.97
1.125"	286	47.63	35.72	42	33.34	11.99	10.46
1.25"	317	50.8	38.89	46	33.34	11.99	10.46
1.375"	349	53.98	42.07	49	33.34	11.99	10.46
1.5"	381	57.15	45.24	54	33.34	11.99	10.46
1.625"	412	60.35	48.42	56	33.34	11.99	10.46
1.75"	444	63.5	51.59	61	40.48	11.99	10.46
1.875"	476	66.7	54.75	64	40.48	11.99	10.46
2"	508	69.85	58	66	40.48	13.5	11.96
2.125"	539	73.05	62.00	69	41	13.5	11.96
2.25"	571	76.2	65	78	41	13.5	11.96
2.375"	603	79.4	68	80	41.00	13.5	11.96
2.5"	635	82.55	71.2	83	41	13.5	11.96
2.625"	666	92.1	78.35	85	49	15.9	14.5
2.75"	698	95.25	81.1	90	49	15.9	14.5
2.875"	730	98.45	84.5	96	49	15.9	14.5
3"	762	101.65	88.1	99	49	15.9	14.5

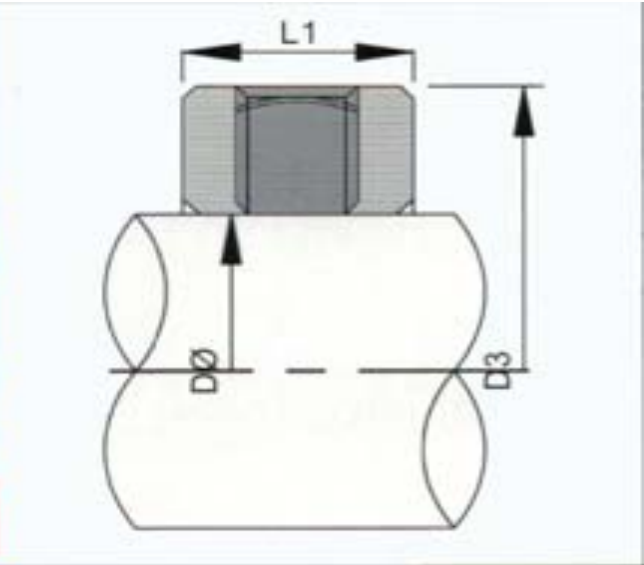
3.125"	794	111.15	93.68	104	56	20	18.5
3.25"	826	114.3	96.85	104	56	20	18.5
3.375"	857	117.5	100	109	56	20	18.5
3.5"	889	120.65	103.18	114	56	20	18.5
3.625"	921	123.85	106.35	114	59	20	18.5
3.75"	953	127	109.52	119	59	20	18.5
3.875"	984	130.2	112.65	122	62	20	18.5
4"	1016	133.35	115.88	124	62	20	18.5

FEATURES: Compact, single spring, elastomer bellows seal. The factory-assembled, Rotory piece. It permits fast, easy installation and the full-convolution elastomer bellows provide maximum flexibility in compensating for shaft movement and wear.

Uses: Centrifugal water pumps, deep and shallow well jet pumps, swimming pool pumps and wastewater pumps. Pressures to 75 PSI. Temperature: -40°F to +400°F.



Spring Seal Lock Collar

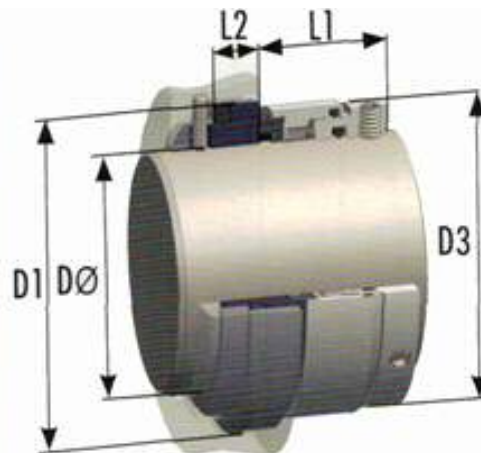


Lock Collars allow you to adapt a single spring seal to your pump regardless of stuffing box depth. Set screws (not shown) lock your collar into position on your pump shaft. Both L-shaped and square lock collars are available (square cross section is most common).

Shaft Size		Code	Collar O.D.		Collar Height		Number of Screws
Inch	Metric		Inch	Metric	Inch	Metric	
0.375		95	0.748	19	0.295	7.5	3x120
	10	100	0.748	19	0.295	7.5	3x120 Degree
	20	120	0.827	21	0.295	7.5	3x120 Degree
0.5		127	0.827	21	0.295	7.5	3x120 Degree
	14	140	0.906	23	0.295	7.5	3x120 Degree
	15	150	0.945	24	0.295	7.5	3x120 Degree
0.625		158	0.984	25	0.295	7.5	3x120 Degree
	16	160	0.984	25	0.295	7.5	3x120 Degree
	18	180	1.22	31	0.295	7.5	3x120 Degree
0.75		191	1.22	31	0.295	7.5	3x120 Degree
	20	200	1.299	33	0.295	7.5	3x120 Degree
	22	220	1.378	35	0.295	7.5	3x120 Degree
0.875		222	1.378	35	0.295	7.5	3x120 Degree
	24	240	1.457	37	0.295	7.5	3x120 Degree
	25	250	1.496	38	0.349	10	3x120 Degree
1		254	1.496	38	0.349	10	3x120 Degree
	28	280	1.614	41	0.349	10	3x120 Degree
1.125		286	1.614	41	0.349	10	3x120 Degree
	30	300	1.693	43	0.349	10	3x120 Degree
1.25		317	1.772	45	0.349	10	3x120 Degree
	32	320	1.772	45	0.394	10	3x120 Degree
	33	330	1.811	46	0.394	10	3x120 Degree

1.375		349	1.89	48	0.394	10	3x120 Degree
	35	350	1.89	48	0.394	10	3x120 Degree
	38	380	2.087	53	0.394	10	3x120 Degree
1.5		381	2.087	53	0.394	10	3x120 Degree
	40	400	2.165	55	0.394	10	3x120 Degree
1.625		412	2.165	55	0.394	10	3x120 Degree
	43	430	2.283	58	0.394	10	3x120 Degree
1.75		444	2.362	60	0.394	10	3x120 Degree
	45	450	2.362	60	0.394	10	3x120 Degree
1.875		476	2.48	63	0.394	10	3x120 Degree
	48	480	2.48	63	0.394	10	3x120 Degree
	50	500	2.559	65	0.394	10	3x120 Degree
2		508	2.559	65	0.394	10	3x120 Degree
	53	530	2.677	68	0.394	10	3x120 Degree
2.125		539	2.677	68	0.394	10	3x120 Degree
	55	550	2.756	70	0.394	10	3x120 Degree
2.25		571	2.756	70	0.394	10	3x120 Degree
	58	580	3.031	77	0.394	10	3x120 Degree
	60	600	3.11	79	0.394	10	3x120 Degree
2.375		603	3.11	79	0.394	10	6X60 Degree
2.5		635	3.228	82	0.394	10	6X60 Degree
	65	650	3.307	84	0.472	12	6X60 Degree
2.625		666	3.307	84	0.472	12	6X60 Degree
	68	680	3.425	87	0.472	12	6X60 Degree
2.75		698	3.504	89	0.472	12	6X60 Degree
	70	700	3.504	89	0.472	12	6X60 Degree
2.875		730	3.74	95	0.472	12	6X60 Degree
	75	750	3.858	98	0.472	12	6X60 Degree
3		762	3.858	98	0.472	12	6X60 Degree
3.125		794	4.055	103	0.472	12	6X60 Degree
	80	800	4.055	103	0.472	12	6X60 Degree
3.25		825	4.055	103	0.472	12	6X60 Degree
	85	850	4.252	108	0.472	12	6X60 Degree
3.375		857	4.252	108	0.472	12	6X60 Degree
3.5		889	4.449	113	0.472	12	6X60 Degree
	90	900	4.449	113	0.472	12	6X60 Degree
3.625*		921	4.449	113	0.472	12	6X60 Degree
	95*	950	4.646	118	0.472	12	6X60 Degree
3750*		953	4.646	118	0.472	12	6X60 Degree
3.875*		984	4.764	121	0.472	12	6X60 Degree
	100*	1000	4.843	123	0.472	12	6X60 Degree
4•000*		1016	4.843	123	0.59	15	8X40 Degree

ASP-MP60 In-line Balanced Seal



Shaft Size			Seat OD		Rotary OD		Working Length		Seat Height	
Inch	Metric	Code	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
	18	180		33		32.5		30		10
0.75		191	1.375"	N/a		33.5		30	.406"	N/a
	20	200		35		34.5		30		10
	22	220		37		36.5		30		10
0.875		222	1.5"	N/a		36.5		30	.406"	N/a
	24	240		39		38.5		30		10
	25	250		40		39.6		30		10
1		254	1.625"	N/a		39.6		30	.437"	N/a
	28	280		43		42.9		32.5		10
1.125		286	1.75"	N/a		42.9		32.5	.437"	N/a
	30	300		45		44.5		32.5		10
1.25		317	1.875"	N/a		46		32.5	.437"	N/a
	32	320		48		46		32.5		10
	33	330		48		47		32.5		10
1.375		349	2"	N/a		49.3		32.5	0.437	N/a
	35	350		50		49.3		32.5		10
	38	380		56		52.8		34		11
1.5		381	2.125"	N/a		52.8		34	.437"	N/a
	40	400		58		56		34		11
1.625		412	2.375"	N/a		56		34	.50"	N/a
	43	430		61		59		34		11
1.75		444	2.50"	N/a		59		34	.50"	N/a
	45	450		63		59		34		11
1.875		476	2.625"	N/a		62.4		34	.50"	N/a
	48	480		66		62.4		34		11
	50	500		70		65.6		34.5		13

2		508	2.75"	N/a	65.6	34.5	.50"	N/a
	53	530		73	68.8	34.5		13
	55	550		75	70.8	34.5		13
2.25		571	3.125"	N/a	71.9	34.5	.562"	N/a
	58	580		78	75.2	34.5		13
	60	600		80	75.2	34.5		13
2.375		603	3.25"	N/a	75.2	34.5	.562"	N/a
	63	630		83	78.3	34.5		13
2.5		635	3.375"	N/a	78.3	34.5	.562"	N/a
	65	650			84.2	36		13
2.625		666	3.375"	N/a	84.2	36	.625"	N/a
2.75		698	3.50"	N/a	87.4	36	.625"	N/a
	70	700			87.4	36		15.3
2.875*	73*	730	3.75"	N/a	90.6	36	.625"	N/a
	75	750		97	93.7	36		1
3		762	3.875"	N/a	93.7	36	.625"	N/a

The provided dimensions above can be subject to minor deviations

Metric seals Typically come with L-Shape Seats. USA Market seals (Inch) generally ship with O-ring Mount seals.

ASP- MP60 (Shaft Diameters 3/4" through 3")

A true workhorse for industrial pumps. Idea for sealing pumps in a wide range of services. 80% of applications are water, but oil, waste water, and chemical applications (using FEP Encapsulated O-rings) are also common.

Narrow profile, multiple spring, 'O'-Ring mounted, set-screw driven, non-clogging, balanced mechanical seal. The balanced design, protected springs sealed out of the fluid and dynamic O'-Ring enable use in demanding applications. P.T.F.E. Back-Up Ring is recommended to be specified for higher pressure 'O'-Ring applications

Robust, short working length, highly accommodating and reliable, in-line balanced seal which provides enhanced seal capability, performance and life. Easily repairable in the field

FEATURES: In-line balanced (meaning it will handle higher pressures. Up to 450 psi), with a removable carbon face making it easy to repair the seal simply by replacing the carbon, set screws and o-rings.

Used in: Centrifugal pumps and turbine pumps, mixers, blenders, compressors, and chillers.

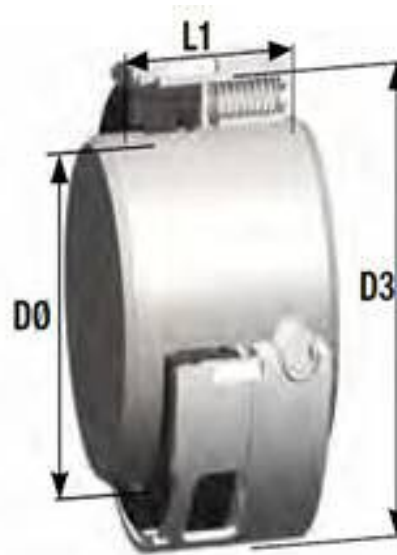
Pressures to 150 PSI. Temperature: -40°F to +400°F (depending on the chosen elastomer).

Elastomers: Nitrile (Buna-N) , Viton (FKM) , EPDM, FEP Encapsulated PTFE

Rotary Face Materials: Carbon, Silicon Carbide, Tungsten Carbide,

Stationary Face Materials: Ceramic, 17-4, Ni-resist, Silicon Carbide, Tungsten Carbide,





This Multiple spring seal had been a standard in the industry since the 1950's. There are several basic versions either with an o-ring or with a PTFE wedge, balanced or unbalanced, trim (a thinner cross section) or standard. The Our ASP Type 8 Standard dimensions are as follows:

<u>Seal</u> <u>Size</u>	<u>D3</u>	<u>L1</u>
0.5	1.031	0.812
0.625	1.209	0.75
0.75	1.366	0.875
0.875	1.496	0.937
1	1.614	1
1.125	1.752	1.062
1.25	1.929	1.062
1.375	2.047	1.125
1.5	2.189	1.125
1.625	2.402	1.375
1.75	2.531	1.375
1.875	2.563	1.375
2	2.783	1.375
2.125	3.031	1.687
2.25	3.154	1.687
2.375	3.272	1.687
2.5	3.409	1.687
2.625	3.528	1.687
2.75	3.654	1.687
2.875	3.776	1.687
3	3.846	1.687

GS (General Service) Metal Bellows

Metal Bellows seals can seal with Flexible Graphite instead of a rubber boot or o-ring Elastomers allowing it to be used in higher temperature applications

No Springs to clog.

Metal Bellows seals are a very effective method of maintaining seal face pressure on the seal face.

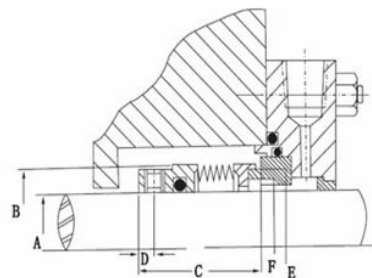
Metal Bellows seals that do use o-rings only require one static o-ring to seal off any leakage along the shaft in Chemical Service this o-ring can be Aflas, EPDM, Nitrile, Viton, Encapsulated PTFE, Ameri-rez, or PTFE

Because the o-ring is static it will not wear on the shaft. When installed correctly metal bellows seals will provide exceptionally long service. Metal bellows seals are an excellent solution on chemical applications where Kalrez, Chemrez, Viton, FKM, Buna, Aflas or EPDM are not compatible.



For many years an inexpensive form of metal bellows seals have been used very successfully in the waste water / sewage industry and in the agricultural fields pumping irrigation water. These seals were generally made of a formed bellows rather than a welded bellows. Welded bellows seals are much stronger and have superior flex and recovery characteristics which are more ideal to holding seal faces together but cost more to manufacture. Welded metal bellows seals are less prone to metal fatigue and are available in single and double ply.

Seal Dash Number	"A" Shaft size				
.000					
-.002	B REF	C ±.030	D REF	E REF	
-16	1"	1.562	1.25	1.438	1.235
-18	1.125"	1.687	1.25	1.565	1.362
-20	1.25"	1.812	1.312	1.719	1.516
-22	1.375"	1.937	1.437	1.845	1.641
-24	1.5"	2.062	1.437	1.97	1.716
-26	1.625"	2.187	1.437	2.095	1.841
-28	1.75"	2.312	1.437	2.22	1.966
-30	1.875"	2.437	1.5	2.345	2.09
-32	2"	2.562	1.5	2.471	2.216
-34	2.125"	2.687	1.5	2.595	2.34
-36	2.25"	2.812	1.562	2.721	2.466
-38	2.375"	2.937	1.562	2.846	2.59
-40	2.5"	3.187	1.562	3.096	2.79
-42	2.625"	3.312	1.625	3.221	2.915
-44	2.75"	3.437	1.625	3.347	3.04
-46	2.875"	3.625	1.844	3.502	3.201
-48	3"	3.75	1.844	3.727	3.327
-50	3.125"	3.875	1.909	3.772	3.442
-52	3.25"	4	1.909	3.897	3.567
-54	3.375"	4.125	1.909	4.022	3.629
-56	3.5"	4.25	2.052	4.147	3.817
-58	3.625"	4.375	2.052	4.272	3.942
-60	3.75"	4.5	2.072	4.397	4.067
-62	3.875"	4.625	2.072	4.522	4.192





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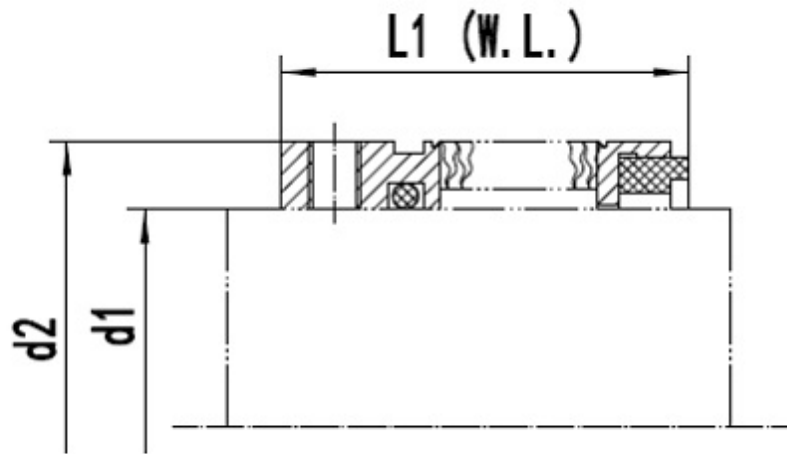
780 Metal bellow has similar installation sizes as John Crane type 670, 676, 680 metal bellow components.

It is designed for petro-chemical and chemical processing when the operating temperature is not very high. Elastomer O-rings (FKM, FFKM, etc.) are used as the secondary seal. For some special purpose applications, an all HC-276, or all TA2 component is an essential requirement.

If the listed constructing material listed below is not the one you are looking for, please contact us to see whether we can accommodate your needs.

Construction	Standard	Optional
Bellows:	17-4 PH	HC-276, TA2
Secondary Seal:	FKM	FFKM, NBR, HNBR, PTFE-Encapsulated Fluorocarbon, etc.
Seal Face:	Antimony Impregnated	
Carbon Graphite	Tungsten Carbide,	
SiC, Resin		
Impregnated		
Carbon Graphite		
Ring Adaptor:	Carp. 42	Duplex, HC-276, TA2
Adaptor:	SS 316L	HC-276, TA2
Operating		
Non-Concurrent*		
Limit		
Temperatures:	HC-276: -40F to 428oF (-20oC to 220oC)	
17-4 PH: -40F to		
392oF (-20oC to		
200oC)		
Pressure:	Externally pressurized:	
	Up to 363 psi / 25 bar	
Speed:	Up to 5000 fpm or 25 m/s	

* These operating limits are non-concurrent. In general, an increase in the seal size, or temperature, or rotating speed can reduce the maximum operating pressure limit of the metal bellow component.



unit: inch

d1	d2	L1 (W. L.)
1.125	1.687	1.25
1.25	1.812	1.312
1.375	1.937	1.437
1.5	2.062	1.437
1.625	2.187	1.437
1.75	2.312	1.437
1.875	2.437	1.5
2	2.562	1.5
2.125	2.687	1.5
2.25	2.812	1.562
2.375	2.937	1.562
2.5	3.187	1.562
2.625	3.312	1.625
2.75	3.437	1.625
2.875	3.625	1.687
3	3.75	1.687
3.125	3.875	1.75
3.25	4	1.75
3.375	4.125	1.75
3.5	4.25	1.875
3.625	4.375	1.875
3.75	4.5	1.875
3.875	4.625	1.875
4	4.75	1.875

unit: mm

d1	d2	L1 (W. L.)
28	42	32.5
30	44	32.5
32	46	32.5
33	47	32.5
35	49.2	32.5
38	52.4	34
40	55.6	34
43	58.7	34
45	58.7	34
48	61.9	34
50	65.1	34.5
53	68.3	34.5
55	71	34.5
58	71.7	37.5
60	74.6	39.5
63	81.4	39.5
65	84.1	39.5
70	87.3	45
75	95.3	45
80	98.4	44.5
85	104.8	44.5
90	108	49.5
95	114.4	49.5
100	120.7	49.5
100	117.4	47.8





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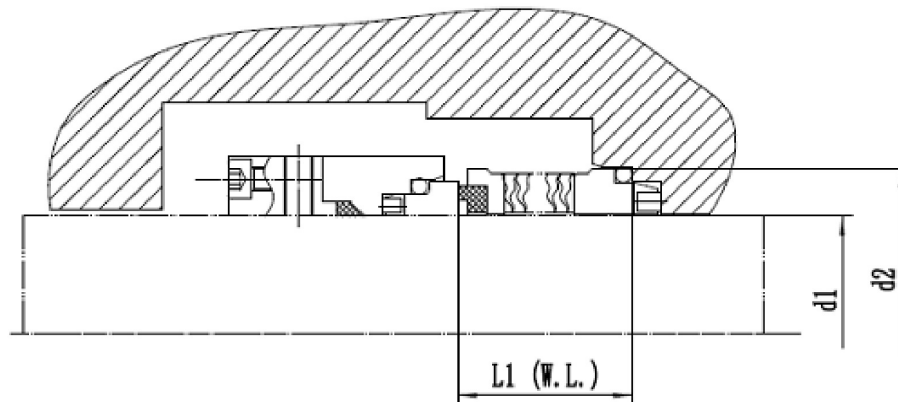
709 bellow components have similar installation sizes as John Crane type 609 metal bellow components.

It has narrow cross-section, making it a good candidate for limited installation space in petro-chemical and chemical processing when the operating temperature is high. Flexible graphite is used as the secondary seal.

If the listed constructing material listed below is not the one you are looking for, please contact us to see whether we can accommodate your needs.

Construction	Standard	Optional
Bellows:	17-4 PH	HC-276, TA2
Secondary Seal:	FKM	FFKM, NBR, HNBR, PTFE-Encapsulated Aflas, Kalrez, Chemrez
Seal Face:	Antimony Impregnated Carbon Graphite	Tungsten Carbide, SIC,
Carbon Graphite Ring Adaptor:	Carp. 42	Duplex, HC-276, TA2
Adaptor:	SS 316L	HC-276, TA2
Operating Non-Concurrent* Limit Temperatures:	-40 to 400 F	
Pressure:	Externally pressurized: Up to 363 psi / 25 bar	
Speed:	Up to 5000 fpm or 25 m/s	

* Any increase in the seal size, or temperature, or rotating speed can reduce the maximum operating pressure limit of the metal bellow component.



Inches			Metric		
L1 (W. L.)	D2	D1	L1 (W. L.)	D2	D1
1.125	2.062	1.138	28.58	52.37	28.91
1.25	2.187	1.138	31.75	55.55	28.91
1.375	2.312	1.138	34.93	58.72	28.91
1.5	2.562	1.191	38.1	65.07	30.25
1.625	2.562	1.222	41.28	65.07	31.04
1.75	2.687	1.254	44.45	68.25	31.85
1.875	2.812	1.254	47.63	71.42	31.85
2	2.937	1.285	50.8	74.6	32.64
2.125	3.187	1.316	53.98	80.95	33.43
2.25	3.312	1.348	57.15	84.12	34.24
2.375	3.437	1.379	60.33	87.3	35.03
2.5	3.562	1.41	63.5	90.47	35.81
2.625	3.687	1.443	66.68	93.65	36.65
2.75	3.937	1.608	69.85	100	40.84
2.875	4.062	1.608	73.03	103.17	40.84
3	4.187	1.608	76.2	106.35	40.84
3.125	4.312	1.608	79.38	109.52	40.84
3.25	4.437	1.608	82.55	112.7	40.84
3.375	4.562	1.608	85.73	115.87	40.84
3.5	4.687	1.65	88.9	119.05	41.91
3.625	4.812	1.65	92.08	122.22	41.91
3.75	4.937	1.65	95.25	125.4	41.91
3.875	5.062	1.65	98.43	129.57	41.91



704 bellow component is a stationary welded metal bellow component. It has similar installation size as John Crane type 604.

1. The stationary design makes it more suitable for operations with relatively high speed rotation and / or relatively large shaft-to-chamber misalignment. It is a general purpose, high temperature seal component.

If the listed constructing material listed below is not the one you are looking for, Please contact our sales and engineering department.

Construction

	Standard	Optional
Bellows:	Inconel 718	17-4 PH
Secondary Seal:		
Seal Face:	Antimony Impregnated Carbon Garphite	SiC, Tungsten Carbide
Ring Adaptor:	Carp. 42	Duplex, Inconel 718
Adaptor:	SS 316L	Inconel 718, SS 304

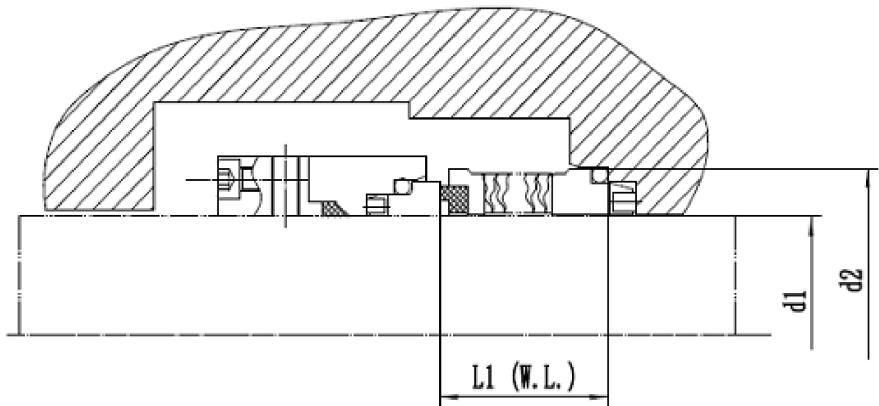
Operating Limit (Non-Concurrent*)

Non-Concurrent* Limit

Temperatures:	Inconel 718: -40°F to 750°F (-40°C to 400°C) 17-4 PH: -4°F to 392°F (-20°C to 200°C)
Pressure:	Externally pressurized: Up to 363 psi / 25 bar.
Speed:	Up 9900 fpm or 50 m/s

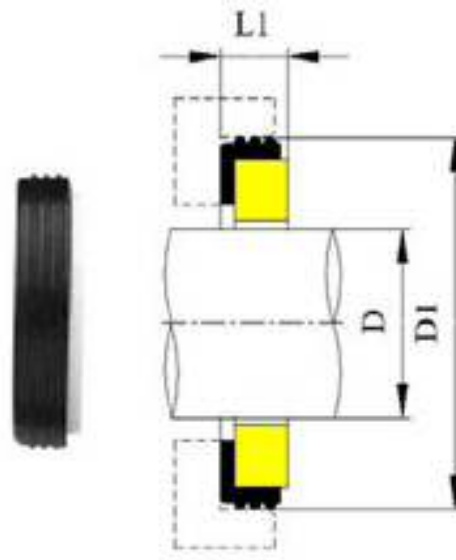
* These operating limits are non-concurrent. In general, an incease in the seal size, or temperature, or rotating speed can reduce the maximum operating pressure limit of the metal bellow component.

Size Chart



Metric Dimensions					
d1	d2	L1 (W. L.)	d1	d2	L1 (W. L.)
1.125	2.062	1	28.58	52.37	28.91
1.25	2.187	1.138	31.75	55.55	28.91
1.375	2.312	1.138	34.93	58.72	28.91
1.5	2.562	1.191	38.1	65.07	30.25
1.625	2.562	1.222	41.28	65.07	31.04
1.75	2.687	1.254	44.45	68.25	31.85
1.875	2.812	1.254	47.63	71.42	31.85
2	2.937	1.285	50.8	74.6	32.64
2.125	3.187	1.316	53.98	80.95	33.43
2.25	3.312	1.348	57.15	84.12	34.24
2.375	3.437	1.379	60.33	87.3	35.03
2.5	3.562	1.41	63.5	90.47	35.81
2.625	3.687	1.443	66.68	93.65	36.65
2.75	3.937	1.608	69.85	100	40.84
2.875	4.062	1.608	73.03	103.17	40.84
3	4.187	1.608	76.2	106.35	40.84
3.125	4.312	1.608	79.38	109.52	40.84
3.25	4.437	1.608	82.55	112.7	40.84
3.375	4.562	1.608	85.73	115.87	40.84
3.5	4.687	1.65	88.9	119.05	41.91
3.625	4.812	1.65	92.08	122.22	41.91
3.75	4.937	1.65	95.25	125.4	41.91
3.875	5.062	1.65	98.43	128.57	41.91





Cup Mount Seats are the most common for Single Spring Seals.

The advantage of a cup mount seat is that it has more rubber to conform to bore surface irregularities. The disadvantage is that it will not contain as much pressure as an o-ring mount seat.

O-Ring Groove Seat

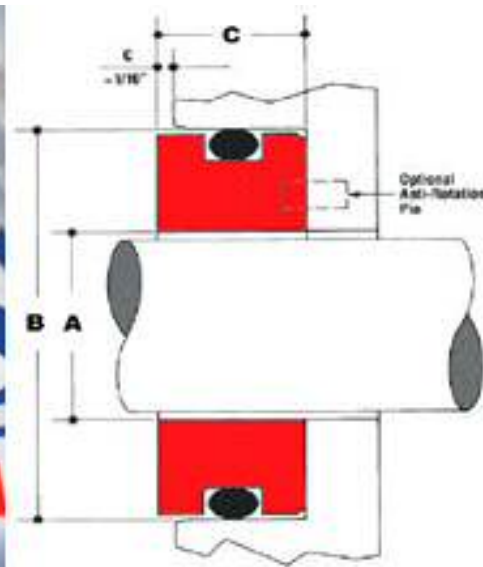
Dimensional Data

SHAFT SIZE (D)	SEAT COUNTER DIAMETER (D1)	SEAT WIDTH (L1)	O-RING SIZE (568A Dash #)	SEAT I.D.
0.750	1.375	0.406	216	0.812
0.875	1.500	0.406	218	0.937
1.000	1.625	0.437	220	1.062
1.125	1.750	0.437	222	1.187
1.250	1.875	0.437	223	1.312
1.375	2.000	0.437	224	1.437
1.500	2.125	0.437	225	1.562
1.625	2.375	0.500	227	1.687
1.750	2.500	0.500	228	1.812
1.875	2.625	0.500	229	1.937
2.000	2.750	0.500	230	2.062
2.125	3.000	0.562	232	2.203
2.250	3.125	0.562	233	2.328
2.375	3.260	0.562	234	2.449
2.500	3.375	0.562	235	2.578
2.625	3.375	0.625	235	2.703
2.750	3.500	0.625	236	2.828
2.875	3.750	0.625	238	2.953
3.000	3.875	0.625	239	3.093

3.125	4.000	0.781	240	3.218
3.250	4.125	0.781	241	3.343
3.375	4.250	0.781	242	3.468
3.500	4.375	0.781	243	3.593
3.625		0.781	244	3.718
3.750	4.625	0.781	245	3.843
3.875	4.750	0.781	246	3.968
4.000	4.875	0.781	247	4.093



O-Ring Mount Seat



O-Ring Seat		A	B	C	O-Ring Seat		A	B	C
Size	Code	I.D.	Bore	Thickness	Size	Code	I.D.	Bore	Thickness
			±.002		3"	48	3.077	3.875	0.625
1/2"	8	0.553	1	0.312	3-1/8"	50	3.202	4	0.625
5/8"	10	0.678	1.25	0.406	3-1/4"	52	3.327	4.125	0.625
3/4"	12	0.803	1.375	0.406	3-3/8"	54	3.452	4.25	0.625
7/8"	14	0.928	1.5	0.406	3-1/2"	56	3.577	4.375	0.625
1"	16	1.053	1.625	0.437	3-5/8"	58	3.707	4.5	0.781
1-1/8"	18	1.178	1.75	0.437	3-3/4"	60	3.832	4.625	0.781
1-1/4"	20	1.303	1.875	0.437	3-7/8"	62	3.957	4.75	0.781
1-3/8"	22	1.433	2	0.437	4"	64	4.102	4.875	0.781
1-1/2"	24	1.558	2.125	0.437					
1-5/8"	26	1.687	2.375	0.5					
1-3/4"	28	1.812	2.5	0.5					
1-7/8"	30	1.937	2.625	0.5					
2"	32	2.062	2.75	0.5					
2-1/8"	34	2.199	3	0.562					
2-1/4"	36	2.324	3.125	0.562					
2-3/8"	38	2.449	3.25	0.562					
2-1/2"	40	2.574	3.375	0.562					
2-5/8"	42	2.702	3.375	0.625					
2-3/4"	44	2.827	3.5	0.625					
2-7/8"	46	2.952	3.75	0.625					

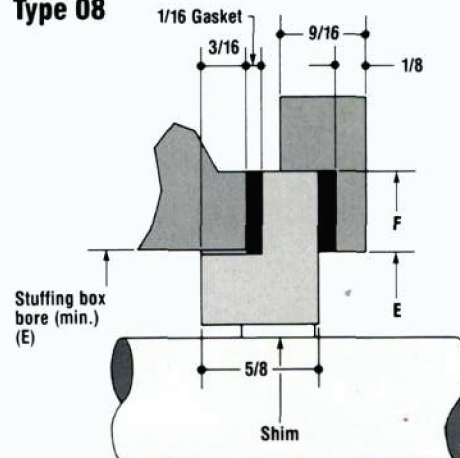
Stationary Seats 02-08

The seats can be installed in any of the ways shown in the drawings either a custom gland or packing follower in the reversed position.

Tighten gland bolts evenly and use only 10-20 foot pounds of torque to seat gasket. Only increase bolt torque if gasket fails to seat properly.

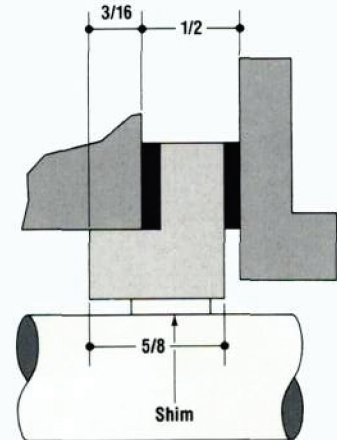
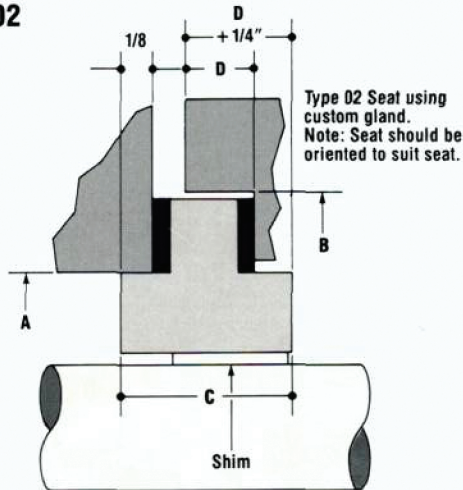
USE shim to center seat if pilot does not accurately center seat in stuffing box.

Type 08



Type 08 Seat with custom gland.
Note: Seat may be reversed if stuffing box depth is a problem, however gasket must be centered manually.

Type 02



Type 08 Seat using reversed packing gland

Seat Size		Suits These Sizes of Seats			Type 02 Seat				Type 08 Seat	
Code	Size	Types 3A, 8 9, 16A	Types 17A & 45	Types 8B & 9B	Stuffing Box Bore (Min.)	Counter-Bore Diam.			Stuffing Box Bore (Min.)	Counter-Bore Diam.
					A	B	C	D	E	F
010	5/8"	5/8"	—	—	—	—	—	—	—	—
012	3/4"	3/4"	3/4"	—	1-7/16"	1-7/8	3/4"	3/8	—	—
014	7/8"	7/8"	5/8"-3/4"	1"	1-9/16"	1-7/8	3/4"	3/8"	1.500	1.937
016	1"	1"	7/8"-1"	1-1/8"	1-5/8"	2-1/16	13/16"	7/16"	1.625	2.125
018	1-1/8"	1-1/8"	1"-1-1/8"	1-1/4"-1-3/8"	1-3/4"	2-3/16	13/16"	7/16"	1.750	2.250
020	1-1/4"	1-1/4"	1-1/8"-1-1/4"	1-1/2"	2"	2-7/16	13/16"	7/16"	1.875	2.375
022	1-3/8"	1-3/8"	1-1/4"-1-3/8"	1-5/8"	2"	2-7/16	7/8"	1/2"	2.000	2.437
024	1-1/2"	1-1/2"	1-3/8"-1-1/2"	1-3/4"	2-1/4"	2-13/16	7/8"	1/2"	2.250	2.750
026	1-5/8"	1-5/8"	1-1/2"-1-5/8"	1-7/8"	2-15/32"	2-21/32	7/8"	1/2"	2.375	2.875
028	1-3/4"	1-3/4"	1-5/8"-1-3/4"	2"	2-1/2"	3-1/16	7/8"	1/2"	2.500	3.125
030	1-7/8"	1-7/8"	1-3/4"-1-7/8"	2-1/8"	2-5/8"	3-3/16	1"	5/8"	2.625	3.250
032	2"	2"	1-7/8"-2"	2-1/4"	2-7/8"	3-7/16	1"	5/8"	2.750	3.500
034	2-1/8"	2-1/8"	2"-2-1/8"	2-3/8"	2-29/32"	3-7/16	1"	5/8"	2.875	3.750
036	2-1/4"	2-1/4"	2-1/8"-2-1/4"	2-1/2"	3-1/4"	3-13/16	1"	5/8"	3.000	3.875
038	2-3/8"	2-3/8"	2-1/4"-2-3/8"	2-5/8"	3-3/8"	3-15/16	1"	5/8"	3.125	3.937
040	2-1/2"	2-1/2"	2-3/8"-2-1/2"	2-3/4"	3-1/2"	4-1/16	1"	5/8"	3.250	4.125
042	2-5/8"	2-5/8"	2-1/2"-2-5/8"	2-7/8"	3-5/8"	4-3/16	1"	5/8"	3.375	4.250
044	2-3/4"	2-3/4"	2-5/8"-2-3/4"	3"	3-3/4"	4-5/16	1"	5/8"	3.500	4.375
046	2-7/8"	2-7/8"	2-3/4"-2-7/8"	3-1/8"	3-7/8"	4-7/16	1"	5/8"	3.625	4.562
048	3"	3"	2-7/8"-3"	3-1/4"	4"	4-9/16	1"	5/8"	3.750	4.625

ASP – 52/56 Cartridge Seal



Product Description

The Type 52/56 is a Multiple Spring, Self-Aligning, 'O'-Ring Mounted, 4-Bolt Gland Cartridge Mechanical Seal.

- Cost-effective alternative to replace Mechanical Seals commonly found in industrial, public utility and marine applications.

Available in:

- Type 52B: Plain Gland
- Type 56B: Tangential Flush, Quench and Drain Gland

- All components interchangeable between Types 52B/56B and 55B.

- Flush port sizes: 1/4" NPT

Material Options

Rotary Face

Sintered Silicon Carbide
M825 Carbon
Tungsten Carbide

Stationary Face

Reaction Bonded Silicon Carbide
Tungsten Carbide

Elastomers

Viton® (as standard) / Aflas® / EP / Nitrile / Kalrez

Springs

Hastelloy C

Metal parts

316 Stainless Steel

Features Summary

- 4-Bolt Gland design for nearly all universal fittings
- Self-Aligning Stationary faces
- Easy installation greatly minimising fitting errors
- Hydraulically-balanced faces
- Minimal internal and external protrusion
- Non-Clogging seal faces and springs
- Non-Shaft fretting
- Carbon vs Silicon Carbide Seal Faces providing 3x higher pV values compared to Carbon vs Ceramic
- Available **Stock**

Performance Capabilities

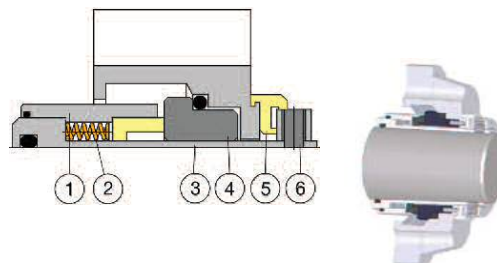
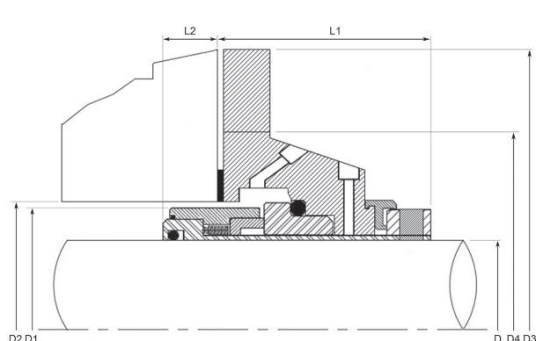
- Temperature: -30°C to +150°C

- Pressure: Up to 30 bar (435 psi)

Important: Performance information given is dependent

on materials and other operating conditions.



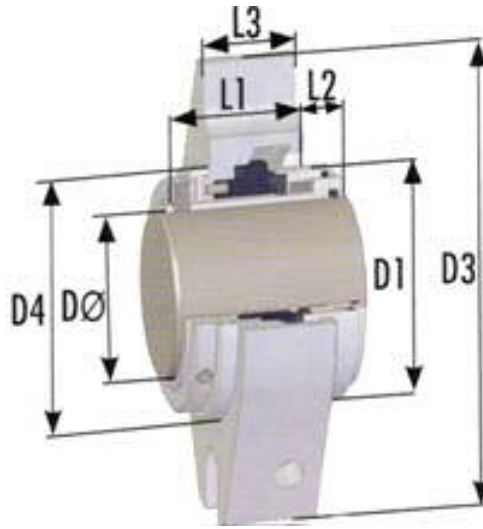


1	Rotary Retainer	4	Stationary Face
2	Springs	5	Centering Spacer
3	Sleeve	6	Clamp Ring

Dimensional Data

D		D1 Rotary OD		D2 (S/B ID) Min		D2 (S/B ID) Max		D3 Gland OD		D4 Slot to Slot		L1 Ext W/L		L2 Int W/L		Slot Width	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
1.000	25	1.66	42.30	1.73	44.00	1.89	48.00	3.86	98.00	2.34	59.5	1.83	46.40	0.46	11.80	0.51	13.00
	28	1.66	42.30	1.73	44.00	1.89	48.00	3.86	98.00	2.34	59.5	1.83	46.40	0.46	11.80	0.51	13.00
1.125	30	1.81	46.00	1.87	47.50	2.01	51.00	3.86	98.00	2.56	65.0	1.83	46.40	0.46	11.80	0.51	13.00
	32	1.92	48.90	1.97	50.00	2.17	55.00	4.25	108.00	2.56	65.0	1.83	46.40	0.48	12.30	0.51	13.00
1.250	32	1.92	48.90	1.97	50.00	2.17	55.00	4.25	108.00	2.91	74.0	1.83	46.40	0.48	12.30	0.51	13.00
	33	1.92	48.90	1.97	50.00	2.17	55.00	4.25	108.00	2.91	74.0	1.83	46.40	0.48	12.30	0.51	13.00
1.375	35	2.07	52.80	2.12	53.90	2.30	58.50	4.25	108.00	2.91	74.0	1.83	46.40	0.52	13.30	0.51	13.00
	38	2.07	52.80	2.12	53.90	2.30	58.50	4.25	108.00	2.91	74.0	1.83	46.40	0.52	13.30	0.51	13.00
1.500	40	2.20	56.00	2.25	57.15	2.44	62.00	4.63	117.50	2.91	74.0	1.83	46.40	0.54	13.80	0.51	13.00
	42	2.20	56.00	2.25	57.15	2.44	62.00	4.63	117.50	2.91	74.0	1.83	46.40	0.54	13.80	0.51	13.00
1.625	43	2.33	59.20	2.37	60.30	2.60	66.00	4.63	117.50	3.09	78.5	1.83	46.40	0.54	13.80	0.51	13.00
	44	2.33	59.20	2.37	60.30	2.60	66.00	4.63	117.50	3.09	78.5	1.83	46.40	0.54	13.80	0.51	13.00
1.750	45	2.45	62.40	2.50	63.50	2.91	74.00	5.26	133.50	3.35	85.0	1.83	46.40	0.54	13.80	0.51	13.00
	46	2.45	62.40	2.50	63.50	2.91	74.00	5.26	133.50	3.35	85.0	1.83	46.40	0.54	13.80	0.51	13.00
1.875	48	2.59	65.80	2.62	66.67	2.91	74.00	5.26	133.50	3.39	86.0	1.83	46.40	0.62	15.80	0.63	16.00
	50	2.59	65.80	2.62	66.67	2.91	74.00	5.26	133.50	3.39	86.0	1.83	46.40	0.62	15.80	0.63	16.00
2.000	55	2.70	68.80	2.75	69.85	3.11	79.00	5.89	149.50	3.78	96.0	1.94	49.40	0.50	12.80	0.63	16.00
	60	2.70	68.80	2.75	69.85	3.11	79.00	5.89	149.50	3.78	96.0	1.94	49.40	0.50	12.80	0.63	16.00
2.125	63	2.83	71.90	2.87	73.02	3.25	82.55	5.89	149.50	3.88	98.5	1.94	49.40	0.50	12.80	0.63	16.00
	65	2.96	75.20	3.01	76.50	3.37	85.72	5.89	149.50	3.88	98.5	1.94	49.40	0.50	12.80	0.63	16.00
2.250	66	2.96	75.20	3.01	76.50	3.37	85.72	6.38	162.00	3.88	98.5	1.94	49.40	0.50	12.80	0.63	16.00
	70	3.08	78.30	3.12	79.37	3.50	88.90	6.38	162.00	3.90	99.0	2.03	51.50	0.45	11.50	0.63	16.00
2.375	75	3.08	78.30	3.12	79.37	3.50	88.90	6.38	162.00	3.90	99.0	2.03	51.50	0.45	11.50	0.63	16.00
	80	3.31	84.20	3.37	86.72	3.63	92.25	6.75	171.50	3.90	99.0	2.13	54.00	0.50	12.80	0.63	16.00
2.500	85	3.31	84.20	3.37	86.72	3.63	92.25	6.75	171.50	3.90	99.0	2.13	54.00	0.50	12.80	0.63	16.00
	90	3.44	87.40	3.50	88.90	3.87	98.42	6.75	171.50	4.50	114.3	2.13	54.00	0.57	14.60	0.63	16.00
2.625*	95	3.44	87.40	3.50	88.90	3.87	98.42	6.75	171.50	4.50	114.3	2.13	54.00	0.57	14.60	0.63	16.00
	100	3.56	90.60	3.62	92.07	3.87	98.42	6.75	171.50	4.50	114.3	2.13	54.00	0.57	14.60	0.63	16.00
2.750*	105	3.81	96.90	3.88	98.43	4.50	114.30	7.38	187.50	5.04	128.0	2.13	54.00	0.59	15.00	0.63	16.00
	110	3.81	96.90	3.88	98.43	4.50	114.30	7.38	187.50	5.04	128.0	2.13	54.00	0.59	15.00	0.63	16.00
3.000*	115	3.93	100.00	4.00	101.60	4.50	114.30	7.38	187.50	5.08	129.0	2.13	54.00	0.63	16.00	0.79	20.00
	120	3.93	100.00	4.00	101.60	4.50	114.30	7.38	187.50	5.08	129.0	2.13	54.00	0.63	16.00	0.79	20.00
3.125*	125	4.06	103.30	4.13	104.78	4.62	117.47	7.87	200.00	5.08	129.0	2.13	54.00	0.63	16.00	0.79	20.00
	130	4.18	106.40	4.25	107.95	4.75	120.65	7.87	200.00	5.39	137.0	2.13	54.00	0.63	16.00	0.79	20.00
3.375*	135	4.18	106.40	4.25	107.95	4.75	120.65	7.87	200.00	5.39	137.0	2.13	54.00	0.63	16.00	0.79	20.00
	140	4.31	109.60	4.38	111.13	4.75	120.65	7.87	200.00	5.79	147.0	2.13	54.00	0.63	16.00	0.79	20.00
3.500*	145	4.44	112.80	4.50	114.30	5.25	133.40	7.87	200.00	5.79	147.0	2.13	54.00	0.63	16.00	0.79	20.00
	150	4.44	112.80	4.50	114.30	5.25	133.40	8.39	213.00	5.79	147.0	2.13	54.00	0.63	16.00	0.79	20.00
3.625*	155	4.56	116.00	4.63	117.48	5.37	136.52	8.39	213.00	5.87	149.0	2.13	54.00	0.63	16.00	0.79	20.00
	160	4.56	116.00	4.63	117.48	5.37	136.52	8.39	213.00	5.87	149.0	2.13	54.00	0.63	16.00	0.79	20.00
3.750*	165	4.94	125.60	5.13	130.18	5.75	146.05	9.27	235.50	6.22	158.0	2.24	57.00	0.43	10.80	0.79	20.00
	170	4.94	125.60	5.13	130.18	5.75	146.05	9.27	235.50	6.22	158.0	2.24	57.00	0.43	10.80	0.79	20.00
4.000*	175	4.94	125.60	5.13	130.18	5.75	146.05	9.27	235.50	6.22	158.0	2.24	57.00	0.43	10.80	0.79	20.00
	180	4.94	125.60	5.13	130.18	5.75	146.05	9.27	235.50	6.22	158.0	2.24	57.00	0.43	10.80	0.79	20.00

ASP-55 Single Cartridge Seal



Seal Code	Shaft Size		Stuffing Box Bore		Seal Chamber		Gland	Gland
	Inch	Metric	Max	Metric	Max	Min	OD	Penetration
250		25		42.3	48	44	101.6	11.8
254	1			42.3	48	44	101.6	11.8
280		28		46	51	47.5	101.6	11.8
286	1.125			46	51	47.5	101.6	11.8
300		30		48.9	55	50	111	46.4
317	1.25			48.9	55	50	111	12.3
320		32		48.9	55	50	111	12.3
330		33		52.8	58.5	53.9	111	13.3
349	1.375			52.8	58.5	53.9	111	13.3
350		35		52.8	58.5	53.9	111	13.3
380		38		56	62	57.15	133.4	13.8
381	1.5			56	62	57.15	133.4	13.8
400		40		59.2	66	60.3	133.4	13.8
412	1.625			59.2	66	60.3	133.4	13.8
420		42		59.2	66	60.3	133.4	13.8
430		43		62.4	74	63.5	134	13.8
440		44		62.4	74	63.5	134	13.8
444	1.75			62.4	74	63.5	134	13.8
450		45		62.4	74	63.5	134	13.8
476	1.875			65.8	74	66.67	133.4	15.8
480		48		65.8	74	66.67	133.4	15.8
500		50		68.8	79	69.85	136.5	12.8
508	2			68.8	79	69.85	136.5	12.8
539	2.125			71.9	82.55	73.02	152.4	12.8

550		55	75.2	85.72	76.5	152.4	12.8
571	2.25		75.2	85.72	76.5	152.4	12.8
600		60	78.3	88.9	79.37	165	11.5
603	2.375		78.3	88.9	79.37	165	11.5
630		63	84.2	92.25	85.72	174.6	12.8
635	2.5		84.2	92.25	85.72	174.6	12.8
650		65	87.4	98.42	88.9	174.6	14.6
666	2.625*		87.4	98.42	88.9	174.6	14.6
698	2.750*		90.6	98.42	92.07	174.6	14.6
700		70	90.6	98.42	92.07	174.6	14.6
750		75	96.9	114.3	98.43	190	15
762	3.000*		96.9	114.3	98.43	190	15
794	3.125*		100	114.3	101.6	190	16
800		80	100	114.3	101.6	190	16
825	3.250*		103.3	117.47	104.78	203	16
850		85	106.4	120.65	107.95	203	16
857	3.375*		106.4	120.65	107.95	203	16
889	3.500*		109.6	120.65	111.13	216	16
900		90	112.8	133.4	114.3	216	16
921	3.625*		112.8	133.4	114.3	216	16
950		95	116	136.52	117.48	216	16
953	3.750*	—	116	136.52	117.48	216	16
1000		100	125.6	146.05	130.18	228.6	10.8
1016	4.000*		125.6	146.05	130.18	228.6	10.8

The provided dimensions above can be subject to minor deviations

ASP- 55 Single Cartridge (Shaft Diameters 1" through 4")

Designed as a low cost solution. Idea for sealing pumps in a wide range of services. 80% of applications are water, but oil, waste water, and some chemical applications (using FKM or Aflas O-rings) no problem. Available with SINSIC/RBSIC or Carbon/RBSIC seal faces. Elastomers can be Viton, EP or Nitrile.

Narrow profile, balanced, multiple spring, 'O'-Ring mounted, two-bolt gland Seal Assembly, with dual tangential flush as standard. Designed with minimal internal and external protrusion and with gland dimensions for near universal fitting. Easy to install, reliable and economical. Ideal for replacing gland packing on common marine and general pump applications.

Please Note; up to and including 2.500 I 65mm, Style 55 is guaranteed ex-stock in every metric and imperial size shown in SINSIC vs RBSIC and Carbon vs RBSIC faces. Above these sizes, The 55 is guaranteed ex-stock in metric sizes and SINSIC vs SINSIC faces only. Inch shaft sizes above 2.500" are readily available; please enquire.

Suggested Operating Limits

Maximum Operating Pressure Limits primarily depends upon Face Materials, Shaft Size, Speed and Media. Consult your professional at American Seal & Packing.

Pressures to 150 PSI. Temperature: -40°F to +400°F (depending on the chosen elastomer).

Elastomers: Nitrile (Buna-N) , Viton (FKM) , EPDM

Rotary Face Materials: Carbon, Silicon Carbide, Tungsten Carbide

Stationary Face Materials: Silicon Carbide, Tungsten Carbide



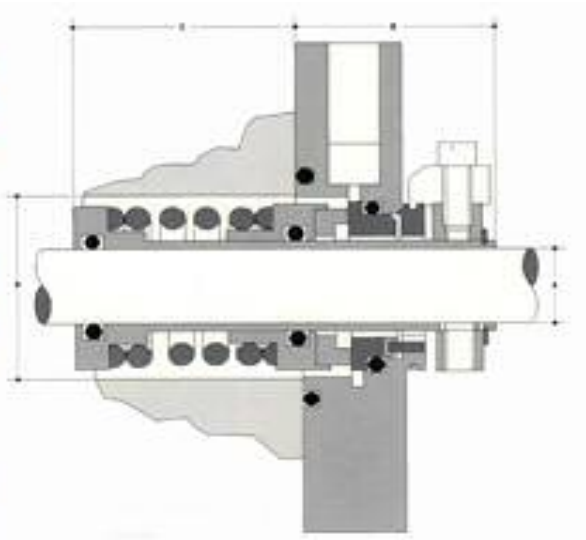
Phone: (714) 361-1435

sales@aspseal.com

Fax: (714) 593-9701

www.aspseal.com

ASP-1100 Seal – Elastomer Bellows Cartridge Seal



A		B	C	D
Seal Size	Seal Code	Min. Stuffing Box Bore	Min. Inboard	Min. Outboard
1"	016	1.750	1.375	1.437 ↑ ↓ 1.437
1-1/8"	018	1.750	1.437	
1-1/4"	020	2.093	1.562	
1-3/8"	022	2.093	1.625	
1-1/2"	024	2.250	1.687	
1-5/8"	026	2.375	1.750	
1-3/4"	028	2.500	1.812	
1-7/8"	030	2.687	1.875	
2"	032	2.812	2.000	
2-1/8"	034	2.937	2.000	
2-1/4"	036	3.125	2.125	
2-3/8"	038	3.250	2.125	
2-1/2"	040	3.375	2.250	
2-5/8"	042	3.500	2.250	
2-3/4"	044	3.625	2.437	
2-7/8"	046	3.750	2.500	
3"	048	3.875	2.500	

MATERIAL SPECIFICATIONS:

STANDARD

Metal Components—316 Stainless Steel
O' Rings—Viton
Faces—Chemical Grade Carbon
Seat—Ceramic or Silicon Carbide
Springs—316 Stainless Steel

OPTIONAL—Materials available upon request

PRESSURE RATING:

Vacuum to 200 PSI²
Speeds to 3600 RPM

TEMPERATURE RATING:

—40°F to +550°F
(depending on elastomer selection)

TO FIND SHAFT ROTATION

Look into stuffing box from coupling end—if shaft is rotating clockwise, a RI seal (right hand wound spring) is required/counter clockwise, a LI seal (left hand wound spring) is required.

The ASP-1100 is a tried and proven design used in industry for over 50 years. By utilizing the ASP-Type 1 Rotary, the cost is kept low. By capturing the durable ASP-Type 1 into a cartridge, installation errors have nearly been eliminated. No measuring required. Slide it on and bolt it in and your seal is installed. The large single spring is difficult to clog, making it a common seal in waste water treatment plants. Because it's a common design seal repairs are easy.

In simple water applications carbon vs. ceramic seats can last 20 years. If the application is abrasive we recommend Tungsten or Silicon hard faces.

A simple design, and readily available components, leave your pump simply sealed !

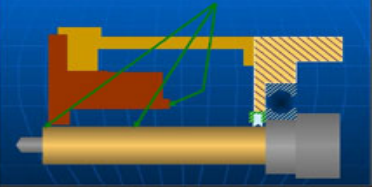
CARTRIDGE SEAL INSTALLATION

- CHECK PUMP SHAFT FOR BURRS
- CHECK GLAND BOSS FOR NICKS
- LUBRICATE SECONDARY SEALS
- SLIDE SEAL ONTO PUMP SHAFT
- ASSEMBLE PUMP COMPONENTS
- SET IMPELLER CLEARANCE
- BOLT UP SEAL GLAND
- TIGHTEN SET SCREWS AND PULL TABS

CARTRIDGE SEAL INSTALLATION

- BURRS ON THE PUMP SHAFT COULD CUT SHAFT/SLEEVE O-RINGS WHEN INSTALLING THE SEAL RESULTING IN LEAKAGE
- NICKS OR ANY OTHER IRREGULARITY ON THE GLAND BOSS COULD RESULT IN IMPROPER SEALING OF THE GLAND GASKET/O-RING

CHECKING SHAFT AND GLAND BOSS FOR BURRS, NICKS OR OTHER IRREGULARITY



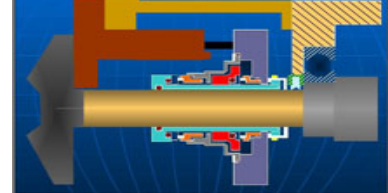
CARTRIDGE SEAL INSTALLATION

- LUBRICATE O-RINGS/GASKETS SO THAT THEY DON'T HANG UP, TEAR OR "ROLL OUT" WHEN SLIDING THE SEAL ONTO THE PUMP SHAFT
- LUBRICATING THE GLAND O-RING WILL PREVENT IT FROM FALLING OUT OF THE O-RING GROOVE BEFORE BOLTING UP THE GLAND

CARTRIDGE SEAL INSTALLATION

- GENTLY SLIDE THE SEAL ASSEMBLY ONTO THE PUMP SHAFT UNTIL THE SHAFT/SLEEVE O-RING IS RESISTING
- APPLY EVEN PRESSURE TO THE END OF THE SEAL SLEEVE UNTIL THE SHAFT/SLEEVE O-RING SLIDES ONTO THE PUMP SHAFT
- ASSEMBLE THE REMAINING PUMP COMPONENTS TAKING CARE NOT TO IMPACT THE SEAL ASSEMBLY

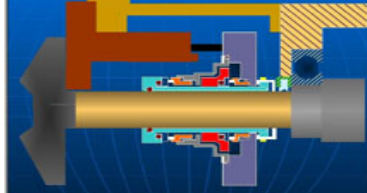
CARTRIDGE SEAL INSTALLATION



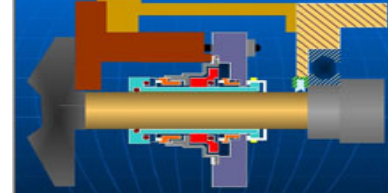
CARTRIDGE SEAL INSTALLATION

- ONCE ALL PUMP COMPONENTS ARE ASSEMBLED, SET IMPELLER CLEARANCE. DO NOT SET IMPELLER CLEARANCE AFTER THE SEAL HAS BEEN BOLTED UP AND SET
- CHECK GLAND ORIENTATION REQUIREMENTS AND BOLT UP THE GLAND ACCORDINGLY

CARTRIDGE SEAL INSTALLATION



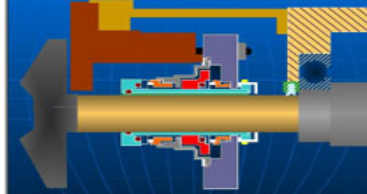
CARTRIDGE SEAL INSTALLATION



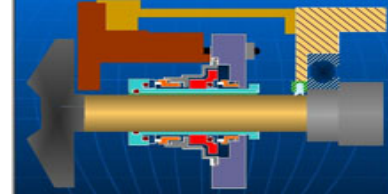
CARTRIDGE SEAL INSTALLATION

- TIGHTEN ONE SET SCREW UNTIL IT TOUCHES THE PUMP SHAFT LIGHTLY
- MOVE TO THE OPPOSITE SET SCREW AND TIGHTEN IT FULLY
- FULLY TIGHTEN ALL SET SCREWS
- REMOVE SET TABS
- IF THE PUMP IS TO BE STORED WITH A SEAL INSTALLED, DO NOT TIGHTEN SET SCREWS OR REMOVE SET TABS

CARTRIDGE SEAL INSTALLATION



CARTRIDGE SEAL INSTALLATION



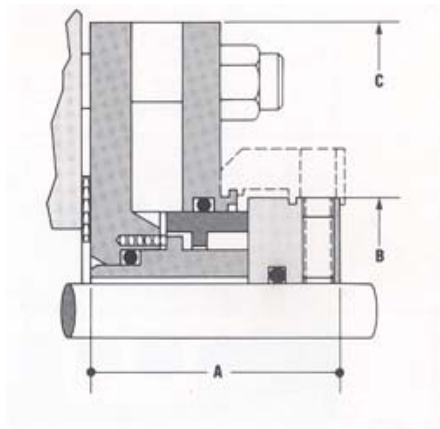
STORING ASSEMBLED PUMP

- IF THE PUMP IS TO BE PLACED IN STORES WITH A CARTRIDGE SEAL PRE-INSTALLED, DO NOT TIGHTEN GLAND BOLTS OR SET SCREWS
- LEAVE GLAND BOLTS HAND TIGHT AND DO NOT REMOVE SET TABS
- If gland orientation does not match up with piping configuration in the "Unit", the seal can be rotated without disturbing seal faces

American Seal & Packing
1537 E. McFadden Ave.
Suite A.
Santa Ana, CA. 92705
Ph: 714-361-1435
Sales@aspseal.com



ASP-Type 19 Mixer / Agitator Seal

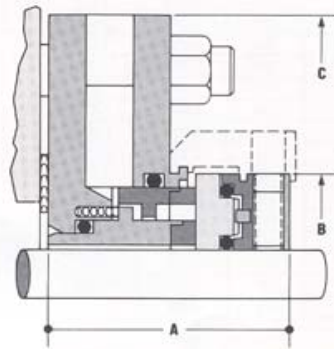


The Type 19 seal is a uniquely designed double seal that utilizes 2 stationary faces running on one stationary. This design allows the seal to tolerate the greater runout typical in mixer and agitators.

Available in a range of seal face combinations including Carbon, Silicon Carbide, Tungsten Carbide and GFPTFE.

Seal Size	Seal Code	Working Length A	B	GLAND O.D. C	3/8 Dia. Bolts	1/2 Dia. Bolts	5/8 Dia. Bolts
1/2"	008	1-7/8"	1.750	3.980	2.500	2.750	
5/8"	010	▲	1.875		2.625	2.875	
3/4"	012		2.000		2.750	3.000	
7/8"	014		2.125	3.980	2.875	3.125	
1"	016		2.250	4.980	3.000	3.250	
1-1/8"	018		2.375		3.125	3.375	
1-1/4"	020		2.500	4.980	3.250	3.500	
1-3/8"	022		2.625	5.480	3.375	3.625	
1-1/2"	024		2.750		3.500	3.750	
1-5/8"	026		2.875	5.480	3.625	3.875	
1-3/4"	028		3.000	5.980	3.750	4.000	
1-7/8"	030		3.125		3.875	4.125	
2"	032		3.250	5.980	4.000	4.250	4.500
2-1/8"	034		3.375	6.480	4.125	4.375	4.625
2-1/4"	036		3.500		4.250	4.500	4.750
2-3/8"	038		3.625		4.375	4.625	4.875
2-1/2"	040		3.750	6.480	4.500	4.750	5.000
2-5/8"	042		3.875	6.980	4.625	4.875	5.125
2-3/4"	044	▼	4.000		4.750	5.000	5.250
2-7/8"	046	1-7/8"	4.125	6.980	4.875	5.125	5.375
3"	048	2-5/32"	4.250	7.980	5.000	5.250	5.500
3-1/8"	050	▲	4.375		5.125	5.375	5.625
3-1/4"	052		4.500	8.480	5.250	5.500	5.750
3-3/8"	054		4.625		5.375	5.625	5.875
3-1/2"	056		4.750	8.980	5.500	5.750	6.000
3-5/8"	058		4.875		5.625	5.875	6.125
3-3/4"	060		5.000	9.480	5.750	6.000	6.250
3-7/8"	062		5.125		5.875	6.125	6.375
4"	064		5.250	9.980	6.000	6.250	6.500
4-1/8"	066		5.375		6.125	6.375	6.625
4-1/4"	068		5.500	10.480	6.250	6.500	6.750
4-3/8"	070		5.625		6.375	6.625	6.875
4-1/2"	072		5.750	10.980	6.500	6.750	7.000
4-5/8"	074		5.875		6.625	6.875	7.125
4-3/4"	076	▼	6.000	11.480	6.750	7.000	7.250
4-7/8"	078	2-5/32"	6.125		6.875	7.125	7.375

Carbon Faces vs. Seat Insert



MATERIAL SPECIFICATIONS:

Metal Parts—316 Stainless Steel
Springs—Stainless Steel
Face Combinations—consult factory per application

PRESSURE RATING:

To 300 PSI
Speeds—to 3600 RPM

TEMPERATURE RATING:

—40°F to +550°F
(depending on elastomer selection)

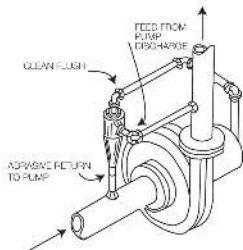
Inlet and outlet Barrier Fluid Ports 1/4" NPT

ABRASIVE SEPARATORS

American Seal & Packing offers a unique pair of abrasive separators. Centrifugal filtering creates a vortex action that effectively separates a high percentage of solids from seal flush liquids. This is a method that can increase seal or packing life many times over to greatly reduce replacement and maintenance costs.

Connected to the discharge side of the pump, the separator takes the abrasive-laden fluid and removes foreign bodies completely. The clean fluid is then injected into the gland housing to lubricate the seal faces. This is particularly important in plant start ups where foreign particles are invariably present in the liquid.

It also permits the taking of service water from streams, rivers, lakes, and other sources containing abrasives without the usual wear to seals, or packings.



Operation:

Principle: Liquid piped from the pump discharge enters the feed tap and is rotated inside the cone shaped bore at a velocity dependent on the pressure differential. The particles in the liquids being of greater densities remain close to the tapered wall of the cone and are forced downward to the discharge outlet at the bottom of separator. From there, they are piped with a small amount of liquid to a lower pressure point in the system. No liquid is lost. The clean liquid rises up through the outlet at the top of the separator and is then piped to the housing for flushing the seal faces or lantern gland if packings are used.

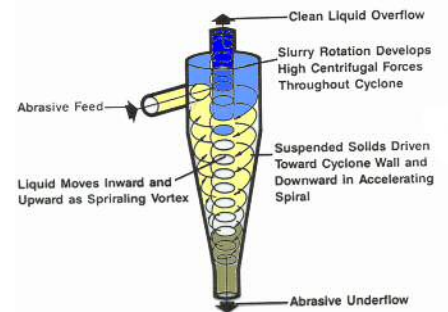
Conditions:

- 1) Minimum pressure differential of 20 psi should be maintained between feed and overflow the ideal pressure for maximum removal of solids is 100 psi.
- 2) Specific gravity of the particles being separated must be greater than the liquid.
- 3) Centrifugal separators are effective with inherent abrasives such as sand, and small particles of iron oxide. Substances that are dissolved in the liquid cannot be removed by a centrifugal separator.

Material: 316SS
Temperature Range: -20°F to +400°F
Pressures up to 2000 PSI



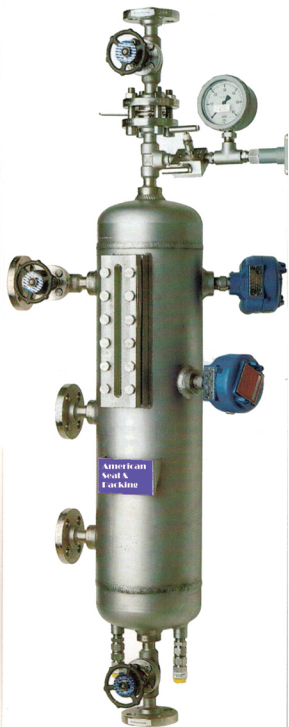
Material: Nylon
Temperature Range: 0°F to +240°F
Pressures up to 650 PSI



When liquid is injected under pressure into the cone shape cylinder, the pressure differential creates a velocity flow that causes any solids heavier than the liquid to be expelled to the cone wall and downward to the outlet where they are drawn to a low pressure area. The clean liquid is directed to the seal area. An anti-clog design avoids elements that could clog or fail. One simple design for all pressure and temperature ranges.

Seal Flush Reservoir

For Use with Tandem or Double Seals



Design Criteria

Capacity: 3 Gallons

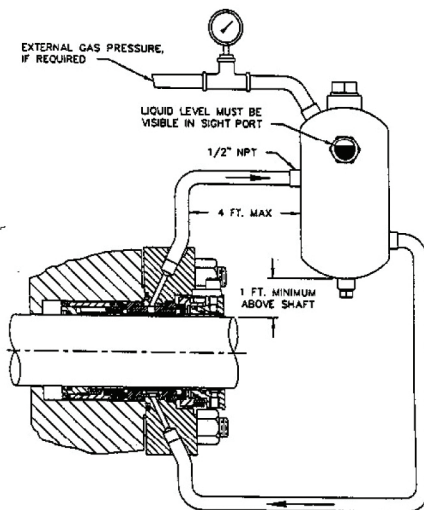
Material: Carbon Steel 10 Gauge

Finish: Enamel Painted Exterior

Rated Pressure: 400 PSIG

Rated Temperature: 400 F

Testing: 150 PSIG Hydrostatically



Installation

Locate the reservoir not more than four feet (1.2 meters) from the seal, with the bottom of the reservoir 12 to 18 inches (30 to 45 centimeters) above the centerline of the pump shaft.

Mount the reservoir to a rigid support location, where the sight glass is easily visible for inspection and the fill ports are accessible.

Fill the reservoir to the center of the sight-glass. This provides enough barrier liquid to allow for losses, while leaving head space in the reservoir to allow for thermal expansion. Eliminate any air trapped in the seal or piping by loosening the fittings on the seal gland. Commonly used barrier fluids include water, a mixture of ethylene glycol with water, propylene glycol and water, methanol, alcohols, kerosene and diesel fuel. Synthetic oils have been found to do a good job in applications. Do not use automatic transmission fluids or automotive antifreeze. The barrier fluid must be compatible with product being pumped.





SEAL TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	REMEDY
1. Cracked or broken stationary seat (ceramic).	Seal ran dry and heated up. When liquid reached seal faces, it was cooler, causing thermal cracks.	Insure that seal chamber is full of liquid before starting pump. On high temperature application insure proper flushing at seal faces.
2. Grooved or scored stationary seat (metal).	Too much spring tension from rotary is exerting excessive pressure, forcing seal ring to groove seat.	Change spring to shorter operating height or remove excessive shims if possible.
3. Stationary seat (metal) welded to seal ring (carbon or metal).	Seal ran dry or ran at excessive temperature for long period, sufficient to bond materials with extreme heat.	Insure that seal chamber is full of liquid before starting pump and during operation.
4. Carbon washer scored and grooved.	Dirty system.	Have system cleaned and install filter or separator.
5. Buna bellows hard and brittle, rapid carbon wear.	Temperature too high.	Use Viton® elastomers, stainless steel, tungsten carbide, or silicon carbide seal rings and/or seats.
6. Short seal life in treated systems.	Treatment level and temperature higher than anticipated.	Advise AS&P of pump temperature and PPM Treatment Level, for alternate seal replacement.
7. Carbon washer worn unevenly.	Seal improperly installed.	Check installation instructions for proper seal assembly.
8. Bellows fractured (minute crazing or splitting).	Intermittent use in critical applications or material incompatibility.	Consult AS&P for suitable bellows for application.
9. Bellows soft and sticky; appears to be dissolving.	Bellows not compatible with material being pumped.	Consult AS&P for recommendation advising pumpage and temperatures.
10. Retainer drive tabs badly worn or broken.	Vibration or coupling misalignment. Periodic loss of lubrication at seal faces.	Realign pump and motor. Insure proper flushing at seal faces.
11. Flexible bellows broken.	Coupling misalignment.	Realign pump and motor.
12. Seal wears out shaft.	Check bearings for shaft end play. Check bearings for shaft radial movement. Check shaft straightness.	Replace bearings. Replace shaft.

Buna-N is the standard elastomer for bellows, cups and O-rings. Viton® Neoprene and EPDM are available for services where Buna-N is not compatible with the fluids or temperatures encountered.

Seal heads are normally stocked in 304 or 316 stainless steel. Monel and other special metals can be supplied for use where standard stainless is incompatible with the fluids being handled.

Seats are available in Ceramic, 316 stainless steel, Tungsten Carbide, and Silicon Carbide.

Mechanical Seal Application Data Sheet

Customer Contact Info

Company: _____

Mailing Address: _____

City: _____ State/Province: _____ Zip/Postal Code: _____

Country: _____ Contact : _____ Title: _____

Phone: _____ Fax: _____ Email: _____

Current Pump info

Industry sector: ☐ Refinery ☐ Offshore ☐ Petrochemical ☐ Other _____

Equipment type: ☐ Centrifugal pump ☐ Positive Displacement pump ☐ Progressive Cavity pump
☐ Other _____

Model No. _____

Maker _____

Material of Construction _____

Original Seal _____

Pump Operating Data

Suction Pressure _____ (MPa) Discharge Pressure _____ (MPa) Speed _____ (rpm)

Direction of Rotation (Viewed from Drive End) CW/CCW _____

Movement of the shaft: Axial: _____ Max: _____

Radial: _____ Max: _____

Medium Information

Medium _____

Max Temperature _____ (°C) Density _____ (g/cm³) Viscosity _____ (ct)

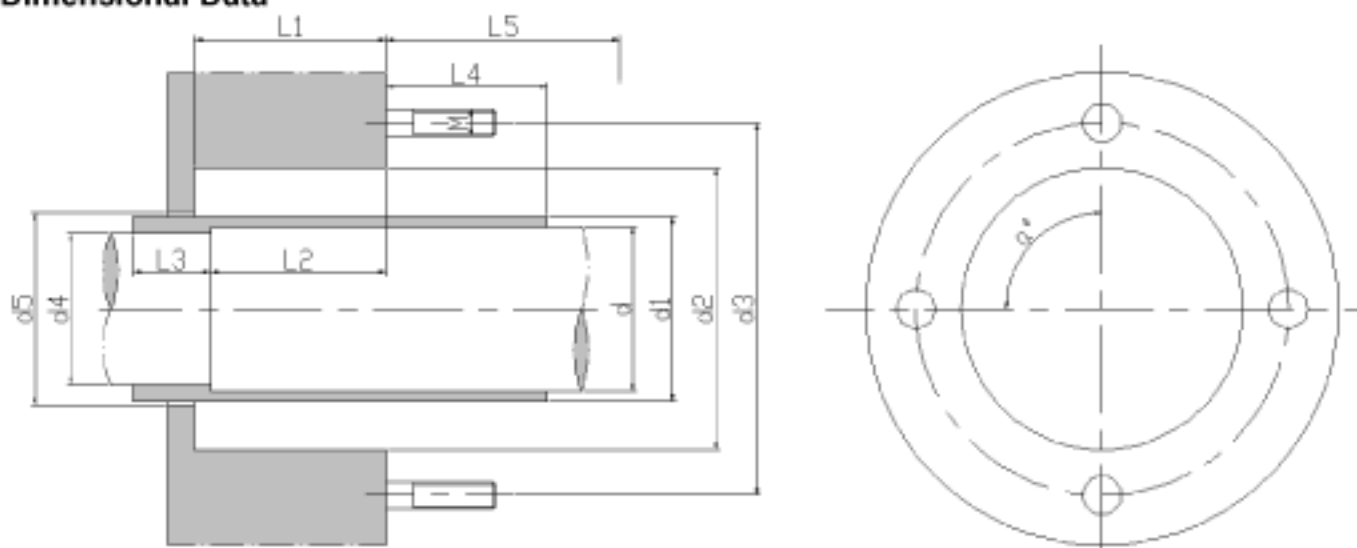
Boiling Point _____ (°C) Freezing Point _____ (°C)

Medium Description _____ A, CLEAN B, DIRTY C, ABRASIVE D, SLURRY E, TOXIC

Percentage of Solid _____ Grain Size _____

API Plans

Dimensional Data



d-Shaft OD _____

d2-Stuffing Chamber Bore ID _____

d4-Step Shaft OD _____

M-Numbers of Bolts/Size _____

L2-Shaft Step Depth _____

L4-Sleeve Extension _____

a-Angle Between Bolts _____

d1-Sleeve OD _____

d3-Bolt Center Diameter _____

d5- Stuffing Chamber ID _____

L1-Stuffing Chamber Depth _____

L3-Impellar Sleeve Length _____

L5-Nearest Obstruction _____

Present Sealing Device

Plate name: _____

Material: _____

Approximate Life: _____

Seal type: _____

Manufacture: _____

Approximate Cost: _____

Additional information

Indicate what you expects to pay for the application solution?

Indicate how many pieces will be used every year, if the first item prove successful?
