

Setting Mechanical Seals



 **CARRARI**[®]
PACKINGS AND GASKETS

Style 890 – Single Stationary Multiple Spring Cartridge

Flush connection



- Drive mechanisms external to the product;
- Seal faces positioned for maximum protection;
- A dynamic elastomer moves on a non-metallic surface, eliminating fretting defects;
- Hydraulically balanced;
- Cartridge easy to install;
- The position of the faces maximises their cooling.

Rotating face	Tungsten Carbide, Silicon Carbide or Carbon
Stationary face	Silicon Carbide, Tungsten Carbide
Springs	Hast**C
Body	C316 SS/17-4 316 SS Hast**C276 For special configurations, refer to the manufacturer.
O-Rings	EPR (Ethylene Propylene), Viton AFLAS* (Perfluoroelastomer)
Max. Temp.	204°C*(400°F)
Max. Pressure	300 PSI (carbon) (20 BAR) For higher pressure refer to the manufacturer.
Max. Rotation	6000 fpm (30m/s)

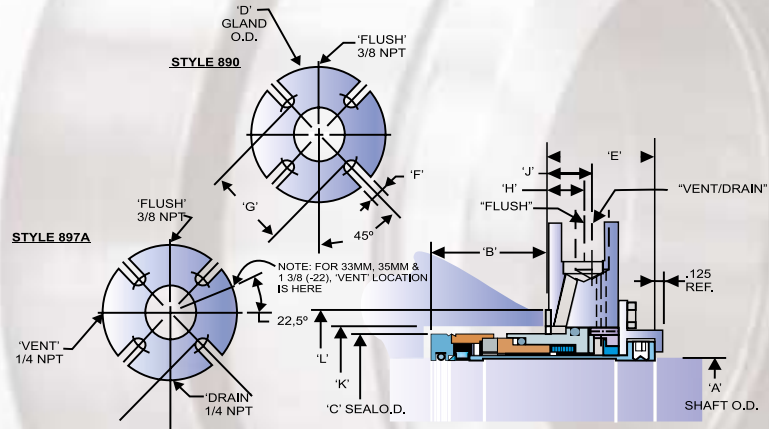


Style 897 A - (Quench) Single Stationary Multiple Spring Cartridge

Quench



- Style 897A has all the benefits of the 890 plus quench connections.



Rotating face	Tungsten Carbide, Silicon Carbide or Carbon
Stationary face	Silicon Carbide, Tungsten Carbide
Springs	Hast C
Body	C316 SS/17-4 316 SS Hast**C276 For special configurations, refer to the manufacturer.
O-Rings	EPR (Ethylene Propylene), Viton AFLAS* (Perfluoroelastomer)
Max. Temp.	200°C*(400°F)
Max. Pressure	300 PSI (carbon) (20 BAR) For higher pressure refer to the manufacturer.
Max. Rotation	6000 fpm (30m/s)

Dimensional Table - Style 890/897A

Size of the seal	A	(Metric size) ^{**}	B	C	D	E	F	G	H	J	K (joint)	L (joint)
16	1,000	24	1,633	1,700	4,000	1,531	0,437	2,375	0,531	0,657	1,790	2,230
16	1,000	25	1,633	1,700	4,000	1,531	0,437	2,375	0,531	0,657	1,790	2,230
18	1,125	28	1,633	1,700	4,250	1,531	0,437	2,462	0,531	0,657	1,915	2,355
20	1,250	30	1,633	1,950	4,250	1,531	0,437	2,583	0,531	0,657	2,040	2,480
-	-	32	1,633	1,950	4,250	1,531	0,437	2,583	0,531	0,657	2,040	2,480
22	1,375	33	1,633	1,950	4,250	1,531	0,437	2,712	0,531	0,657	2,165	2,605
-	-	35	1,633	1,950	4,250	1,531	0,437	2,712	0,531	0,657	2,165	2,605
24	1,500	38	1,633	2,200	4,500	1,531	0,562	2,950	0,531	0,657	2,415	2,855
26	1,625	40	1,633	2,325	5,000	1,531	0,562	3,075	0,531	0,657	2,540	2,990
28	1,750	43	1,633	2,450	5,500	1,531	0,562	3,188	0,531	0,657	2,665	3,105
-	-	45	1,633	2,450	5,500	1,531	0,562	3,188	0,531	0,657	2,665	3,105
30	1,875	48	1,633	2,575	5,500	1,531	0,562	3,313	0,531	0,657	2,790	3,230
32	2,000	50	1,582	2,700	5,500	1,594	0,562	3,570	0,562	0,719	3,040	3,490
34	2,125	53	1,582	2,825	6,000	1,594	0,687	3,687	0,500	0,719	3,165	3,605
36	2,250	55	1,539	2,950	6,250	1,656	0,687	3,813	0,593	0,782	3,290	3,730
38	2,375	58	1,714	3,195	6,250	1,656	0,687	3,937	0,531	0,782	3,415	3,855
-	-	60	1,714	3,195	6,250	1,656	0,687	3,937	0,531	0,782	3,415	3,855
40	2,500	63	1,650	3,320	6,500	1,720	0,687	3,937	0,500	0,845	3,500	3,855
42	2,625	65	1,650	3,560	6,500	1,720	0,687	4,188	0,500	0,845	3,625	4,070
44	2,750	68	1,589	3,650	7,500	1,781	0,687	4,438	0,500	0,907	3,820	4,320
-	-	70	1,589	3,650	7,500	1,781	0,687	4,438	0,656	0,907	3,820	4,320
46	2,875	72	1,712	3,785	7,500	1,781	0,687	4,625	0,656	0,907	3,950	4,450
48	3,000	75	1,822	3,900	8,000	1,781	0,687	5,062	0,656	0,907	4,075	4,825

Style 900S - High Temperature Metal Bellows Single Cartridge

Flush connection



- Static grafoil gaskets;
- Temperatures up to 425 °C;
- Inconel bellows available;
- Cartridge easy to install;
- Metal bellows provide better faces alignment;
- Does not have dynamic gaskets;
- Self-cleaning;
- Adapts to API standard pumps;
- Available with stationary or rotating bellows.

Rotating face	Tungsten Carbide, Silicon Carbide or Carbon
Stationary face	Silicon Carbide, Carbon
Springs	AM350 bellows
Body	316 SS/17-4 316 SS Hast**C276 For special configurations, refer to the manufacturer.
O-Rings	GRAFOIL gaskets
Max. Temp.	425°C*
Max. Pressure	300 PSI (carbon) (20 BAR). For higher pressure refer to the manufacturer.
Max. Rotation	4500 fpm (22m/s)

Style 875P - Dual Stationary Multiple Spring Cartridge

Flush connection



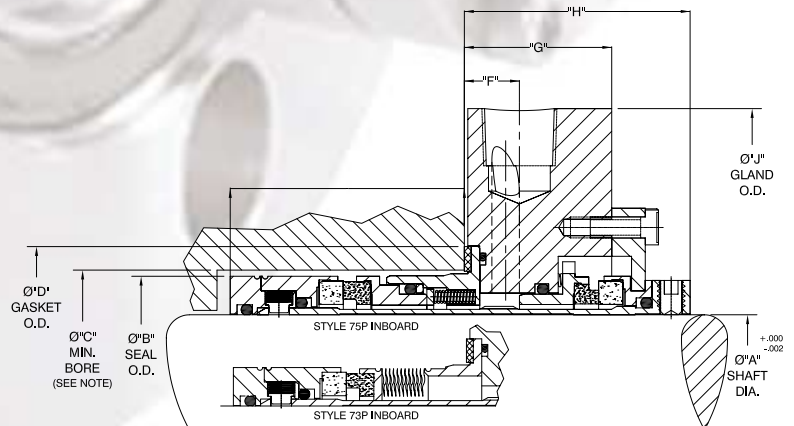
- Cartridge seals for critical, toxic and emission control applications, where single seals are not accepted;
- Built-in pumping device improves barrier fluid cooling;
- Springs locations prevents contact with the process fluid;
- Double balanced inboard face withstands reverse pressures in transient conditions;
- Cartridge design allows for easy installation;
- Can be upgraded to meet high pressure applications and extreme conditions;
- Faces retained in metal bases eliminate drive pins;
- Hydraulically balanced design.

Rotating face	Tungsten Carbide x Silicon Carbide
Stationary face	Silicon Carbide, Carbon
Springs	AM350 bellows
Body	316 SS/17-4 316 SS Hast**C276 For special configurations, refer to the manufacturer.
O-Rings	EPR (Ethylene Propylene), Viton AFLAS* Perfluoroelastomer
Max. Temp.	204 °C*
Max. Pressure	400 PSI (27 BAR) Internal x External For higher pressure refer to the manufacturer.
Max. Rotation	4500 fpm (22m/s)



Dimensional table - Style 875P - Dual seal

Size of the seal	A	B	C	D	E	F	G	H	J	K	L
16	1.000	1.700	1.750	2.230	2.120	.500	1.340	2.063	4"	7/16	2.375
18	1.125	1.700	1.750	2.230	2.041	.500	1.309	2.031	4 1/4	7/16	2.463
20	1.250	1.950	2.000	2.355	2.120	.500	1.340	2.063	4 1/4	7/16	2.583
22	1.375	1.950	2.000	2.480	2.041	.777	1.309	2.031	4 1/4	7/16	2.713
24	1.500	2.200	2.250	2.605	2.120	.500	1.340	2.063	4 1/2	9/16	2.950
26	1.625	2.325	2.375	2.855	2.120	.500	1.340	2.063	5"	9/16	3.075
28	1.750	2.450	2.500	2.990	2.120	.500	1.340	2.063	5 1/2	9/16	3.188
30	1.875	2.575	2.625	3.105	2.120	.500	1.340	2.063	5 1/2	9/16	3.313
32	2.000	2.700	2.750	3.230	2.120	.500	1.340	2.063	5 1/2	9/16	3.570
34	2.125	2.825	2.875	3.490	2.120	.500	1.340	2.063	6"	11/16	3.688
36	2.250	2.950	3.000	3.605	2.120	.500	1.340	2.063	6 1/4	11/16	3.813
38	2.375	3.195	3.250	3.730	2.120	.500	1.340	2.063	6 1/4	11/16	3.938
40	2.500	3.320	3.375	3.855	2.120	.500	1.340	2.063	6 1/2	11/16	3.938
42	2.625	3.560	3.625	4.070	2.120	.500	1.340	2.063	6 1/2	11/16	4.188
44	2.750	3.650	3.750	4.320	2.120	.500	1.340	2.063	7 1/2	11/16	4.438
46	2.875	3.785	3.875	4.450	2.402	.500	1.643	2.366	7 1/2	11/16	4.625
48	3.000	3.900	4.000	4.700	2.402	.500	1.643	2.366	8"	11/16	5.062



Note: Max Bore = "D" Gasket O.D. - .250 Inch

Style C2SP - Single Rotating Multiple Spring Cartridge

Flush connection



- Best value;
- Springs not in contact with the product eliminates failure due to corrosion;
- Monolithic rotating unit virtually eliminates clogging in the seal area;
- A dynamic elastomer moves on a non-metallic surface, eliminating fretting defects;
- Hydraulically balanced;
- Cartridge easy to install;
- The position of the faces maximises their cooling.

Rotating face	Tungsten Carbide, Silicon Carbide or Carbon
Stationary face	Silicon Carbide, Carbon
Springs	Hastloy C
Body	316 SS/17-4 316 SS Hast**C276 For special configurations, refer to the manufacturer.
O-Rings	EPR (Ethylene Propylene), Viton AFLAS* Perfluoroelastomer
Max. Temp.	200 °C*
Max. Pressure	300 PSI (20 BAR) Internal x External For higher pressure refer to the manufacturer.
Max. Rotation	4500 fpm (22,5m/s)



Dimensional table - Style C2SP

Inch sizes

Size of the seal	A	B	C	D	E	F	G	H	J	K	L
16	1,000	1,633	1,700	4,000	1,531	0,437	2,375	0,531	0,657	1,790	2,230
18	1,125	1,633	1,700	4,250	1,531	0,437	2,462	0,531	0,657	1,915	2,355
20	1,250	1,633	1,950	4,250	1,531	0,437	2,583	0,531	0,657	2,040	2,480
22	1,375	1,633	1,950	4,250	1,531	0,437	2,712	0,617	0,688	2,165	2,605
24	1,500	1,633	2,200	4,500	1,531	0,562	2,950	0,531	0,657	2,415	2,855
25	1,625	1,633	2,325	5,000	1,531	0,562	3,075	0,531	0,657	2,540	2,990
28	1,750	1,633	2,450	5,500	1,531	0,562	3,188	0,531	0,657	2,665	3,105
30	1,875	1,633	2,575	5,500	1,531	0,562	3,313	0,531	0,657	2,790	3,230
32	2,000	1,582	2,700	5,500	1,594	0,562	3,570	0,562	0,719	3,040	3,490
34	2,125	1,582	2,825	6,000	1,594	0,687	3,687	0,500	0,719	3,165	3,605
36	2,250	1,539	2,950	6,250	1,656	0,687	3,813	0,593	0,782	3,290	3,730
38	2,375	1,714	3,195	6,250	1,656	0,687	3,937	0,531	0,782	3,415	3,855
40	2,500	1,650	3,320	6,500	1,720	0,687	3,937	0,500	0,845	3,500	3,855
42	2,625	1,650	3,560	6,500	1,720	0,687	4,188	0,500	0,845	3,625	4,070
44	2,750	1,589	3,650	7,500	1,781	0,687	4,438	0,500	0,907	3,820	4,320
46	2,875	1,712	3,795	7,500	1,781	0,687	4,625	0,654	0,907	3,950	4,450
48	3,000	1,822	3,900	8,000	1,781	0,687	5,062	0,658	0,907	4,075	4,700

Sizes in "mm"

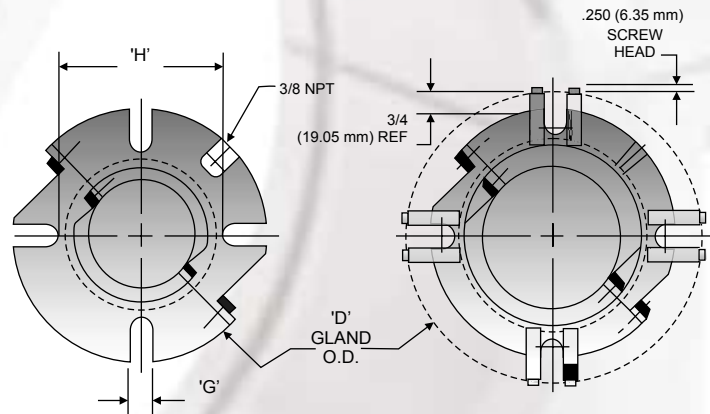
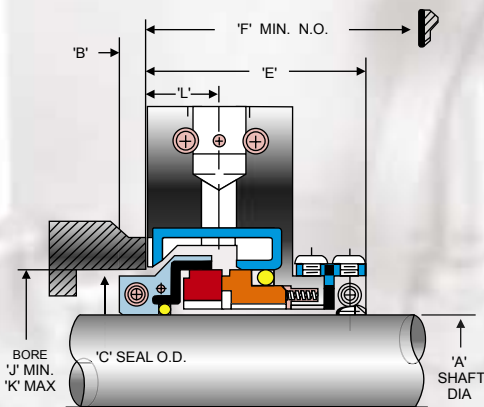
Size of the seal	B	C	D	E	F	G	H	J	K	L
24	41,5	43,2	101,6	38,9	11,1	60,3	13,5	16,7	45,5	56,6
25	41,5	43,2	101,6	38,9	11,1	60,3	13,5	16,7	45,5	56,6
28	41,5	43,2	108,0	38,9	11,1	62,5	13,5	16,7	46,6	59,8
30	41,5	49,5	108,0	38,9	11,1	65,6	13,5	16,7	51,6	63,0
32	41,5	49,5	108,0	38,9	11,1	65,6	13,5	16,7	51,8	63,0
33	41,5	49,5	108,0	38,9	11,1	68,9	13,5	16,7	55,0	66,2
35	41,5	49,5	108,0	38,9	11,1	68,9	13,5	16,7	55,0	66,2
38	41,5	55,9	114,3	38,9	14,3	74,6	13,5	16,7	61,3	72,5
40	41,5	59,0	127,0	38,9	14,3	78,1	13,5	16,7	64,5	75,9
43	41,5	62,2	139,7	38,9	14,3	81,0	13,5	16,7	67,7	78,9
45	41,5	62,2	139,7	38,9	14,3	81,0	13,5	16,7	67,7	78,9
48	41,5	65,4	139,7	38,9	14,3	84,1	13,5	16,7	70,8	82,0
50	40,2	68,6	139,7	40,5	14,3	90,7	14,8	18,3	77,2	88,0

Style 882 - Split seal *



- Universal Fitting;
- Designed to be fitted on pumps and mixers without changing the stuffing box;
- Available in both metric and inch sizes;
- Ensures axial and radial alignment;
- Does not require measurements, shims or special tools;
- Internal assembly that exploits the product pressure to keep the faces in contact;
- The centrifugal force keeps solids away from contact faces;
- Springs do not come into contact with the product, thereby eliminating any possibility of locking;
- Faces are not handled during the installation;
- O-ring placed outside the stuffing box;
- Balanced;
- Stationary design provides better faces alignment.

Rotating face	Silicon Carbide			
Stationary face	Carbon or Silicon Carbide			
Springs	Hastloy C			
Body	316 SS/17-4 316 SS Hast**C276 For special configurations, refer to the manufacturer.			
O-Rings	EPR or viton or (AFILAS*Perfluoroelastomer)			
Dimension	1 3/4"-3" (45mm-75mm)	3 1/8"-3 3/4" (80mm-95mm)	3 7/8"-4 3/4" (100mm-120mm)	5" (125mm) e acima
Temperature	175°C (350°F)	175°C (350°F)	175°C (350°F)	175°C (350°F)
Rotation	3600 RPM	1800 RPM	1800 RPM	575 RPM
Pressure	17bar (250 PSI)	14bar (200 PSI)	10bar (150 PSI)	7bar (100 PSI)



Dimensional Table - Style 882 Split seal

Size of the seal	A	(Metric size)"	B	C	D	E	F	G	H	J	K (joint)	L (joint)
16	1,000	24	1,633	1,700	4,000	1,531	0,437	2,375	0,531	0,657	1,790	2,230
16	1,000	25	1,633	1,700	4,000	1,531	0,437	2,375	0,531	0,657	1,790	2,230
18	1,125	28	1,633	1,700	4,250	1,531	0,437	2,462	0,531	0,657	1,915	2,355
20	1,250	30	1,633	1,950	4,250	1,531	0,437	2,583	0,531	0,657	2,040	2,480
-	-	32	1,633	1,950	4,250	1,531	0,437	2,583	0,531	0,657	2,040	2,480
22	1,375	33	1,633	1,950	4,250	1,531	0,437	2,712	0,531	0,657	2,165	2,605
-	-	35	1,633	1,950	4,250	1,531	0,437	2,712	0,531	0,657	2,165	2,605
24	1,500	38	1,633	2,200	4,500	1,531	0,562	2,950	0,531	0,657	2,415	2,855
26	1,625	40	1,633	2,325	5,000	1,531	0,562	3,075	0,531	0,657	2,540	2,990
28	1,750	43	1,633	2,450	5,500	1,531	0,562	3,188	0,531	0,657	2,665	3,105
-	-	45	1,633	2,450	5,500	1,531	0,562	3,188	0,531	0,657	2,665	3,105
30	1,875	48	1,633	2,575	5,500	1,531	0,562	3,313	0,531	0,657	2,790	3,230
32	2,000	50	1,582	2,700	5,500	1,594	0,562	3,570	0,562	0,719	3,040	3,490
34	2,125	53	1,582	2,825	6,000	1,594	0,687	3,687	0,500	0,719	3,165	3,605
36	2,250	55	1,539	2,950	6,250	1,656	0,687	3,813	0,593	0,782	3,290	3,730
38	2,375	58	1,714	3,195	6,250	1,656	0,687	3,937	0,531	0,782	3,415	3,855
-	-	60	1,714	3,195	6,250	1,656	0,687	3,937	0,531	0,782	3,415	3,855
40	2,500	63	1,650	3,320	6,500	1,720	0,687	3,937	0,500	0,845	3,500	3,855
42	2,625	65	1,650	3,560	6,500	1,720	0,687	4,188	0,500	0,845	3,625	4,070
44	2,750	68	1,589	3,650	7,500	1,781	0,687	4,438	0,500	0,907	3,820	4,320
-	-	70	1,589	3,650	7,500	1,781	0,687	4,438	0,656	0,907	3,820	4,320
46	2,875	72	1,712	3,785	7,500	1,781	0,687	4,625	0,656	0,907	3,950	4,450
48	3,000	75	1,822	3,900	8,000	1,781	0,687	5,062	0,656	0,907	4,075	4,825

* Patented by FLEX-A-SEAL

Mechanical seals Style 550

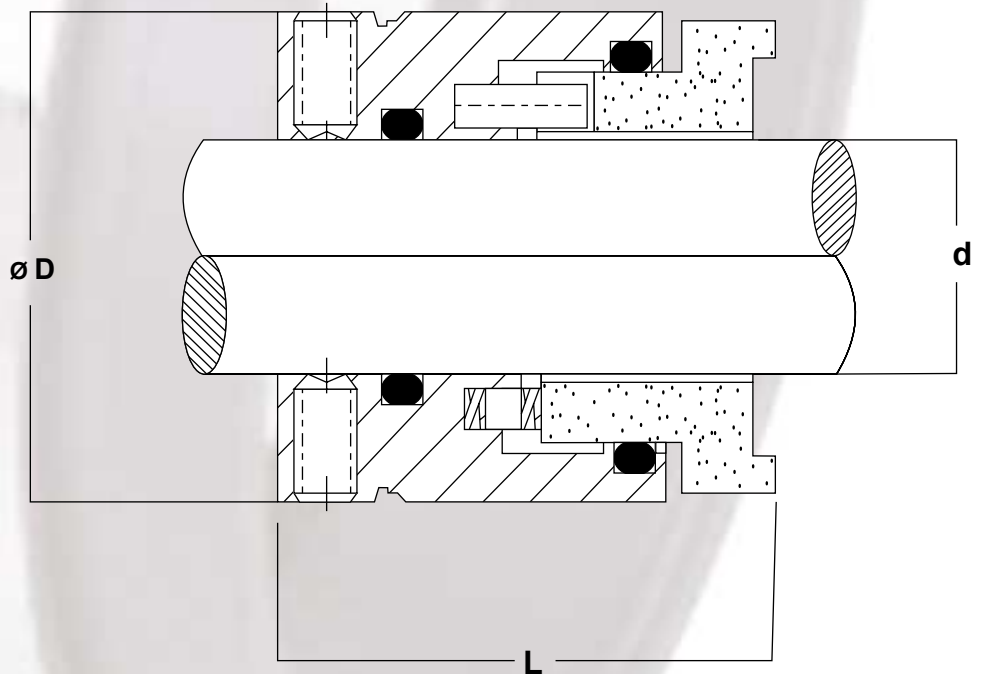


- Balanced;
- Constant load on faces;
- Self-cleaning;
- Easy to repair;
- Can be handled as one piece unit;
- O-ring placed away from the contact fluid;
- Easy to install in equipment having small stuffing boxes;
- Special Metallurgy is available on request.

Rotating face	Carbon
Stationary face	Tungsten Carbide x Silicon Carbide
Springs	Hastloy C
Body	316 SS/17-4 316 SS Hast**C276 For special configurations, refer to the manufacturer.
O-Rings	EPR or Viton or (AFLAS*Perfluoroelastomer)
Max. Temp.	204°C*(400°F)
Max. Pressure	300 PSI (carbon) (20 BAR). For higher pressure refer to the manufacturer.
Max. Rotation	6000 fpm (22m/s)

Dimensional table - Style 550

d	L	D
1,000	1,375	1,562
1,125	1,375	1,687
1,375	1,750	1,937
1,500	1,750	2,062
1,625	1,750	2,250
1,750	1,750	2,375
1,875	1,750	2,500
2,000	1,750	2,625

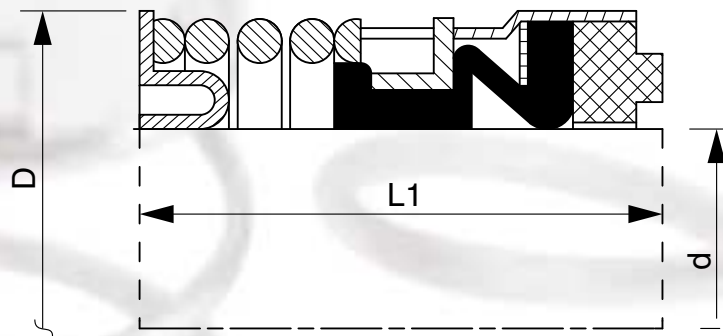


Style 51 Single spring



- Unbalanced
- Single spring
- Bi-directional
- Elastomer bellows
- Set screw lock collars available

Rotating face	Carbon Graphite, Silicon Carbide, Tungsten Carbide
Stationary face	STYLE "ORM" O-ring mount Ceramic, Silicon Carbide, Tungsten Carbide, Stainless Steel
Body	304 Standard - 316 SS/17-4 316 SS
O-Rings	Buna, Viton, Epdm, Atlas, Neoprene
Max. Temp.	160°C* (320 F)
Max. Pressure	150 PSI (10 BAR) For higher pressure refer to the manufacturer.
Max. Rotation	4000 fpm (20m/s)



Dimensional Table - Style 51 Single Spring

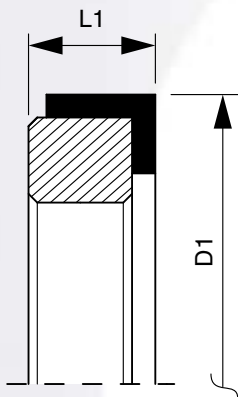
Inch sizes (")	(Metric size)"	D	L1	D1	L2
1.000	24-25	1.500	1.562	1.625	0.437
1.125	28	1.625	1.625	1.750	0.437
1.250	30-32	1.812	1.625	1.875	0.437
1.375	33-35	1.875	1.687	2.000	0.437
1.500	38	2.000	1.687	2.125	0.437
1.625	40	2.250	2.000	2.375	0.500
1.750	43-45	2.375	2.000	2.500	0.500
1.875	48	2.500	2.125	2.625	0.500
2.000	50	2.625	2.125	2.750	0.500
2.125	53	2.812	2.375	3.000	0.562
2.250	55	2.937	2.375	3.125	0.562
2.375	60	3.062	2.500	3.250	0.562
2.500	63	3.187	2.500	3.375	0.562
2.625	65	3.375	2.750	3.375	0.625
2.750	70	3.500	2.750	3.500	0.625
2.875	73	3.625	2.875	3.750	0.625
3.000	75	3.750	2.875	3.875	0.625

D1 is the diameter of the cavity for the stationary face
L2 is the axial length of the stationary seat

Stationary O-ring mount "ORM"



Rotating face	Carbon or Ceramic
Stationary face	STYLE "ORM" O-ring mount
O-Rings	EPR or Viton
Max. Temp.	200°C*
Max. Pressure	170 PSI For higher pressure refer to the manufacturer.
Max. Rotation	15 m/s

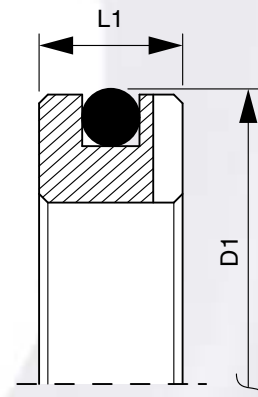


O-ring Mount stationary housing
Style "ORM"

L-type stationary face



Rotating face	Carbon or Ceramic
Stationary face	STYLE "ORM" O-ring mount
O-Rings	EPR or Viton
Max. Temp.	200°C*
Max. Pressure	170 PSI For higher pressure refer to the manufacturer.
Max. Rotation	15 m/s



Style "L" stationary housing

N°	d ∅	D1	L1
12	0,750	1,375	0,406
14	0,875	1,500	0,406
16	1,000	1,625	0,437
18	1,125	1,750	0,437
20	1,250	1,875	0,437
22	1,375	2,000	0,437
24	1,500	2,125	0,437
26	1,625	2,375	0,500
28	1,750	2,500	0,500
30	1,875	2,625	0,500
32	2,000	2,750	0,500
34	2,125	3,000	0,562
36	2,250	3,125	0,562
38	2,375	3,250	0,562
40	2,500	3,375	0,562
42	2,625	3,375	0,625
44	2,750	3,500	0,625
46	2,875	3,750	0,625
48	3,000	3,875	0,625

RECOMMENDATION SHEET FOR MECHANICAL SEALS

COMPANY		
DETAILS:		
ASSIGNMENT:	DATE	
TELEPHONE:		

DEPARTMENT: _____

SECTOR: _____

TELEPHONE: _____

INFORMATION ON THE PUMP

BRAND: _____

EQUIPMENT: _____

SIZE: _____

TYPE: _____ MODEL: _____

RPM: _____ SERIES N.: _____

AXIS DIMENSIONS: _____ LINER DIMENSIONS: _____

BOX DIAM.: _____ BOX DEPTH: _____

PIN DIMENSIONS: _____ PINS N.: _____

PINS CENTRE DIAM.: _____

OBSTRUCTION 1RA. DISTANCE: _____

GLAND MAX. EXT. DIAM.: _____

REQUESTED ELLIPTICAL GLAND?: _____ DIMENSIONS: _____ x _____

SPLIT CASE: HORIZONTAL _____ SOLID _____ VERTICAL _____

THE LINER CAN BE CUT _____ BE ELIMINATED _____

THE HUMID PARTS ARE MADE OF: _____

OPERATION: INTERMITTENT _____ CONTINUOUS _____

PUMP FEATURES

COOLING LINER IN THE PUMP? _____ YES _____ NO _____

HAS THE PUMP BEEN ALTERED? _____ YES _____ NO _____

WHICH TYPE OF MECHANICAL SEAL IS USED? _____

CODE: _____

AVERAGE DURATION: _____ YES _____ NO _____

WITH WHAT? _____

PRODUCT INFORMATION

PRODUCT TO BE SEALED: _____

CONCENTRATION: _____

TEMPERATURE: _____ NORMAL: _____ MAXIMUM: _____

SPECIFIC GRAVITY: _____ PH _____

PRESSURES: _____ EXTRACTION _____ DRAIN _____

GLAND BOX: _____ VAPOUR PRESSURE _____

FLUID FEATURES:

DOES IT HAVE SOLIDS? _____ YES _____ NO _____

DOES IT CRYSTALLISE IN SOLIDS? _____ YES _____ NO _____

DOES IT HARDEN? _____ YES _____ NO _____

IS IT DANGEROUS OR TOXIC? _____ YES _____ NO _____

IS IT CORROSIVE? _____ YES _____ NO _____

IS IT LUBRICATING? _____ YES _____ NO _____

ENVIRONMENTAL CHECKS

AVAILABLE CHECKS:

WASH/FLUID: _____ YES _____ NO _____

COLD WATER: _____ YES _____ NO _____

WASH FLUID PRESSURE: _____

IF THE ANSWER IS YES, SPECIFY: _____

DATA OF THE INSTALLED MECHANICAL SEAL

TYPE OF MECHANICAL SEAL: _____

STATIONARY COMPOSITION: _____

MATERIALS: _____

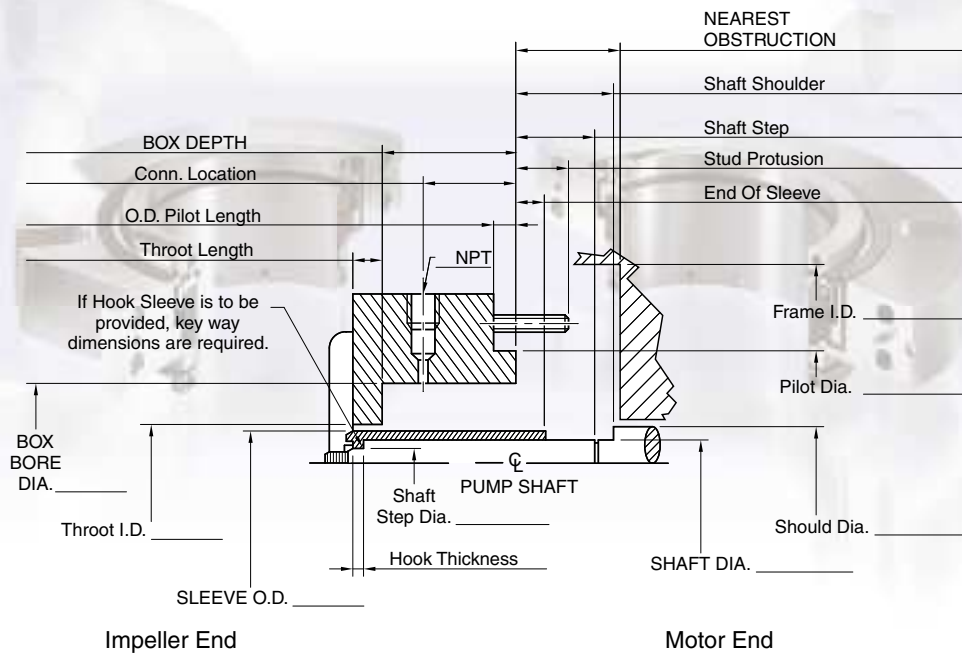
SIDES OF THE MECHANICAL SEAL: _____ x _____

METAL PARTS: _____

"O" RINGS: _____

TYPE OF GLAND: _____

ENVIRONMENTAL CHECKS: _____



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www.carrara.it

CARRARA SpA > via Provinciale, 1/E > 25030 ADRO (Bs) ITALY > Tel. +39 030 7451129 > Fax +39 030 7453238 > info@carrara.it