Cartridge Mechnical Seal
cal Seal Custom Service
cal Seal Repairing Service
olution at the Plant
cal Seals Sealing Support System
pont® Perfluorocarbon Rubber
solators

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ENT IS DESIGNED TO PROVIDE DIMENSIONAL INFORMATION AND AN INDICATION OF AVAILABILITY.
INFORMATION AND SAFE OPERATING LIMITS CONTACT OUR TECHNICAL

RMC

Mechanical Seals ODM Service Provider

OUR AIM

Let our customers not to think to change suppliers again

QUALITY

Craftsmanship processing
Abide by Quality First
Full participation in control
Beyond customer expectations

XK06-007-00433

UKAS MANAGEMENT SYSTEMS

Lloyd's Register

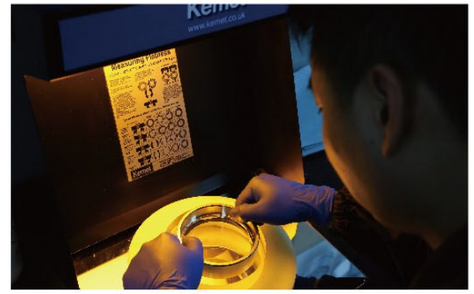
R&D

GDM, GSM, EDM, ESM, KDC, KSC and other popular series products

Designed by our R& D team through professional training and long-term work experience concluded, are recognized and supported by world wide of customers.

Aided design

The company uses AUTOCAD, Solidworks and other professional custom R & D software, designed by professional engineers, and verified by rotating balance running test.



TESTING CAPABILITY

Secondary dimension image measuring instrument, digital display altimeter, spring power tester, Shore hardness tester, plane flat crystal, outer diameter micrometer, inner diameter dial gauge, caliper with table, etc Advanced first-class testing equipment is the guarantee of product quality and reliability!

Measuring range	Accuracy
Image measuring instrument VML400	1μm
Digital altimeter	0.1μm
Spring power tester	0.001N
Roughness measuring instrument	-200μm--16μm-0.01μm
Shore hardness tester	0-100HSD

MATERIAL

FBU has consistently adhered to the use of the highest quality material applications and our seals. We strictly control the quality of our sealing materials. The selection of each material has undergone rigorous testing. At the same time, our cooperation with DUPONT®/MORGAN®/GREENE TWEED® and other brands are established with a good relationship. It is our responsibility to select the best and most accurate materials for our customers.

MATERIAL CODE

Face

Description	FBU code	Application	MAX Temp ℃
Carbon			
Antimony Impregnated Carbon/MY10KS,MAT3000	A	Hot oil, high temp.	350
Resin Impregnated Carbon FDA/MAT715,MAT4000	C	Food	260
Dry Running Carbon MAT240	D	Dry Running Mixer/Agitators	316
Tungsten Carbide			
Nickel Bound Tunsten Carbide	T	Slurry, pulp	350
Silicon Carbide			
Sintered Silicon Carbide	S	Corrosive liquid	380
Reaction Bonded Silicon Carbide	R	Common	380

METAL METERIAL

Description	FBU code
304SS	1
316SS	2
Duplex Steel	3
904L Steel	4
Alloy 276	5
Titanuim	6
Zr−702	7

GASKETS

Description	FBU code
PTFE	T
Graphite	G
NON−asbestos gasket	A

Secondary Seal

Description	FBU code	MAX TEMP.℃	MIN TEMP.℃	Recommended for	Not recommended for
EPDM Ethylene Propylene Rubber	E	150	−50	Automotive Brake Fluids, Hot water, Steam, Dilute Acids, Dilute Alkalies,Ketones, Alcohols and Phosphate Esters base hydraulic fluids (Skydrol, Fyrquel, Pydraul)。	Petroleum Oils, Diester base lubricants
VITON Fluorocarbon Rubber	V	200	−20	Petroleum oils, Diester based Lubricants, silicate Ester, Silicon fluids & greases, Hydrogenated hydrocarbons, Acids, Phosphate Ester	Ketones , Alcohols, Amines, low Molecular weight Ester & Ethers, hot Hydroflouric or Chlorosulfuric acids, Hot Water.
AFLAS	L	200	−20	hot water and steam	Acid liquid
FFKM Perflurocarbon Rubber	K	327	−20	High Temperature Resistance, Excellent Chemical Resistance, Chlorine solutions, Petroleum Oil.	Molten Metals, Gaseous Alkali Metals, Halogenated Freons/Fluids, Uranium Hexafluoride.
PTFE	T	250	−100	Excellent Chemical Resistance, Fuel Resistance, Low Coefficient of Friction, Wide temperature range.	For use in dynamic situation

When selecting secondary rubber material for uncertain questions,welcome to contact our engineers for prompt solution at service@fbuseals.com

FACE MATERIAL CHARACTERISTICS

PV Limits for Different Materials

Face Material Pairs		PV Limits (Bar m/s)		Remarks
Rotary	Stationary	Aqueous Solution	Non Aqueous Solution	
Carbon	Ceramic	210	420	Standard Supply
Carbon	Chrome Oxide	420	400	
Carbon	Tungsten Carbide	420	1220	
Carbon	Silicon Carbide	630	1850	
Tungsten Carbide	Tungsten Carbide	260	420	
Tungsten Carbide	Silicon Carbide	360	1050	
Silicon Carbide	Silicon Carbide	300	850	

METAL BELLOW SEALS

Metal Bellows are recommended for hot & corrosive applications. The bellow seal doesn't have a semi dynamic elastomer, hence can be used in high temparature applications. High temparature resistant graphit is used as secondary seal. As metal bellows seals are pressure balanced they do not require a balance step on the shaft.

Bellows Material Selection for Hydrocarbon Duties Containging Sulphur

Part Number	Sulphur content					
	Material of construction	< 0 ℃		< /=200 ℃		>200℃	
		<2 %	>2%	<2 %	>2%	<2 %	>2%
Ends	AM350	√		√		√	
	Alloy 276	√	√	√	√		
	Alloy 718	√	√	√	√	√	√
	316SS	√	√	√	√		
	Alloy 42	√		√		√	
	Alloy 276	√	√	√	√		
Sec.seal	Kalrez			√	√	√	√
	Graphit	√	√	√	√	√	√

Bellows

AM350	
Temperature	Up to 400℃ (752 °F)
Use	In mild chemical environment
Other information	Not recommended in cryogenic applications
Alloy 718(Inconel718)	
Temperature	Up to 400℃ (752 °F)
Use	In corrosive environment
Other information	API recommended bellows API
	Best available bellows material
Alloy 276	
Temperature	Up to 400℃ (752 °F)
Use	In corrosive environment
Other information	API recommended bellows API
	Best available bellows material

Holder

Alloy42 (Carpenter 42)	
Temperature	Up to 400℃ (752 °F)
Use	In mild chemical environment
Other information	Low co-effecient of thermal expansion. high temp.
	Low corrosion resistance

Standard Bellow Materials

End-Fittings		Bellow		Holder	Code
Alloy 276	-	Alloy 276	-	Alloy 276	HHH
316SS	-	Alloy 276	-	316SS	SHS
316SS	-	AM 350	-	Alloy 42	SAC
316SS	-	Alloy 718	-	Alloy 42	S7C
316SS	-	AM 350	-	316SS	SAS

CONTENT

ESM

The Economically Efficient Single Seal Solution for Centrifugal Pumps

Horizontal

Key Features

- Rotating and balanced design.
- Modular design, universal compatible parts, reduced production cost.
- Springs loading protect from liquid, longer seal lifetime.
- Drive screws clamp directly on to shaft or sleeve to minimise drive loss.
- Standard 4 bolts gland designed for ISO 2858 pump.
- Suitable for Plan 11/ 21/32.

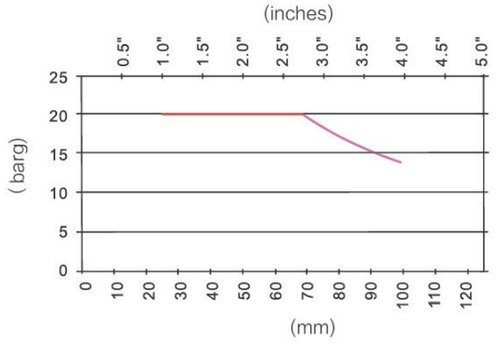
Operating Conditions

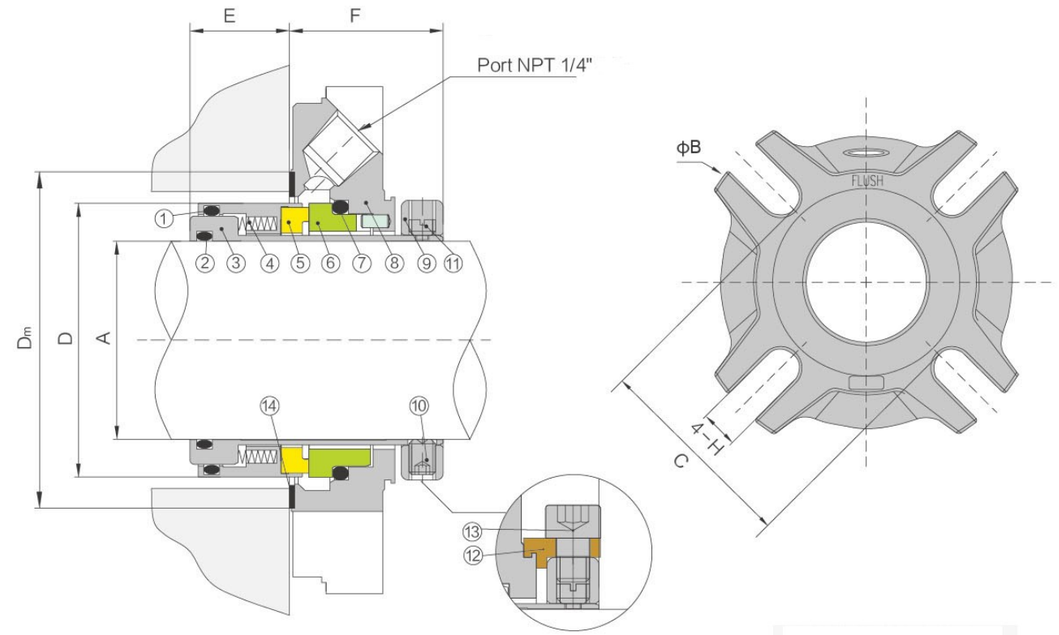
Temperature	−20ºC to +180ºC [−68ºF to +356ºF]
Pressure	0~20 Bar
Speed	Up to 20 m/s
Sealing product	Acid,alkaline, low percentage of pulp, water, oil and other similar media.

Material Arrangement

Seal faces	SSIC/CARBON/TC
Rubber	EPR/Viton®/Aflas®/Kalrez®
Springs	ALLOY276
Metal	316SS/DUPLEX/ALLOY276/904L

Pressure Chart





ESM

NO	Decription	Material	NO	Decription	Material
1	O−Ring	EPR/Viton®/Aflas®/Kalrez®	8	Gland	316SS
2	O−Ring	EPR/Viton®/Aflas®/Kalrez®	9	Clamp Ring	316SS
3	Shaft Sleeve	316SS	10	Drive Screw	316SS
4	Spring	Alloy 276	11	Anti−tamper Screw	316SS
5	Rotary Face	Carbon/SSIC/TC	12	Setting Clip	Brass
6	Stationary Face	SSIC/TC	13	Clip Screw	316SS
7	O−Ring	EPR/Viton®/Aflas®/Kalrez®	14	Gasket	AF1

ESM-(mm)

ØA	ØB	C	ØD	ØDm	E	F	H
24	110.0	60.5	38.0	56.0	18.2	37.4	13.2
25	110.0	60.5	39.4	56.0	18.2	37.4	13.2
28	110.0	60.5	42.6	58.0	18.2	37.4	13.2
30	110.0	63.5	44.0	61.5	18.2	37.4	13.2
32	110.0	63.5	46.0	61.5	18.2	37.4	13.2
33	110.0	63.5	47.0	61.5	18.2	37.4	13.2
35	110.0	67.0	49.0	65.0	18.2	37.4	13.2
38	127.0	72.0	55.8	70.0	22.5	35.0	14.2
40	127.0	72.0	55.8	70.0	22.5	35.0	14.2
43	127.0	72.0	59.0	71.0	22.5	35.0	14.2
45	133.0	77.0	62.2	75.0	22.5	35.0	14.2
48	133.0	77.0	65.4	75.0	22.5	35.0	14.2
50	133.0	77.0	65.4	75.0	22.5	35.0	14.2
53	139.0	86.0	68.5	83.0	24.4	35.5	14.2
55	146.0	94.0	71.7	92.0	24.4	35.5	17.5
58	146.0	94.0	74.9	92.0	24.4	35.5	17.5
60	155.0	100.0	78.1	92.0	24.4	35.5	17.5
63	178.0	109.5	84.1	108.0	23.2	37.8	17.5
65	178.0	109.5	87.3	108.0	23.2	37.8	17.5
70	178.0	109.5	90.5	108.0	23.2	37.8	17.5
75	190.5	125.0	96.8	124.0	23.2	37.8	17.5
80	190.5	125.0	100.0	124.0	23.2	37.8	17.5
85	203.0	135.0	106.4	133.0	23.2	37.8	17.5
90	216.0	150.0	112.7	146.0	23.2	37.8	20.0
95	216.0	150.0	119.1	146.0	23.2	37.8	20.0
100	229.0	168.0	122.2	165.0	23.2	37.8	20.0

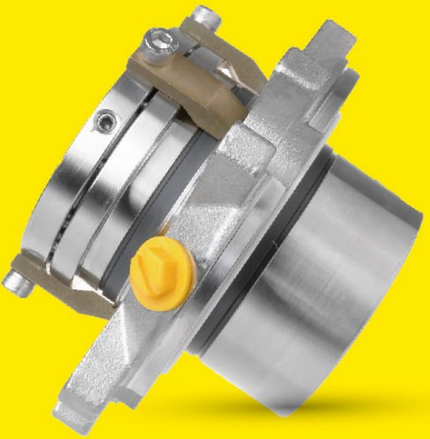
ESM-(Inches)

ØA	ØB	C	ØD	ØDm	E	F	H
1.000	4.125	2.375	1.550	2.205	0.716	1.472	0.520
1.125	4.250	2.375	1.675	2.283	0.716	1.472	0.520
1.250	4.375	2.500	1.810	2.421	0.716	1.472	0.520
1.375	4.375	2.625	1.928	2.559	0.716	1.472	0.520
1.500	5.000	2.832	2.198	2.756	0.885	1.378	0.559
1.625	5.000	2.832	2.323	2.795	0.885	1.378	0.559
1.750	5.250	3.022	2.448	2.953	0.885	1.378	0.559
1.875	5.250	3.022	2.573	2.953	0.885	1.378	0.559
2.000	5.500	3.386	2.698	3.268	0.960	1.397	0.559
2.125	5.750	3.687	2.823	3.622	0.960	1.397	0.689
2.250	5.750	3.687	2.948	3.622	0.960	1.397	0.689
2.375	6.000	3.937	3.073	3.622	0.960	1.397	0.689
2.500	7.000	4.312	3.312	4.252	0.913	1.488	0.689
2.625	7.000	4.312	3.437	4.252	0.913	1.488	0.689
2.750	7.000	4.312	3.562	4.252	0.913	1.488	0.689
2.875	7.500	4.937	3.687	4.764	0.913	1.488	0.689
3.000	7.500	4.937	3.812	4.882	0.913	1.488	0.689
3.125	7.500	4.937	3.937	4.882	0.913	1.488	0.689
3.250	8.000	5.312	4.062	5.118	0.913	1.488	0.689
3.375	8.000	5.312	4.187	5.236	0.913	1.488	0.689
3.500	8.000	5.312	4.312	5.236	0.913	1.488	0.689
3.625	8.500	5.900	4.437	5.748	0.913	1.488	0.787
3.750	8.500	5.900	4.562	5.748	0.913	1.488	0.787
3.875	8.500	5.900	4.687	5.748	0.913	1.488	0.787
4.000	9.000	6.600	4.812	6.496	0.913	1.488	0.787

If seal sizes bigger than 100mm (4")is required for specified equipment, please contact FBU technical department for dimensional information and availability.

EDM

The Economically Efficient Double Seal Solution for Centrifugal Pumps



Horizontal

Key Features

- Rotating and balanced design.
- Modular design, universal compatible parts, reduced production cost.
- Springs loading protect from liquid, longer seal lifetime.
- Drive screws clamp directly on to shaft or sleeve to minimise drive loss.
- Standard 4 bolts gland designed for ISO 2858 pump.
- Suitable for Plan 52/53/54.

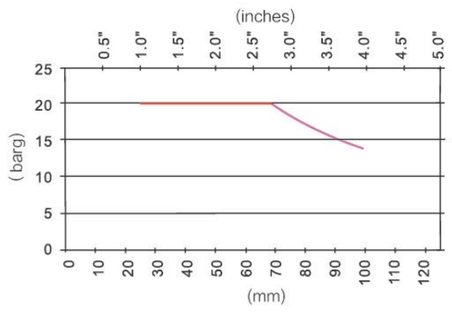
Operating Conditions

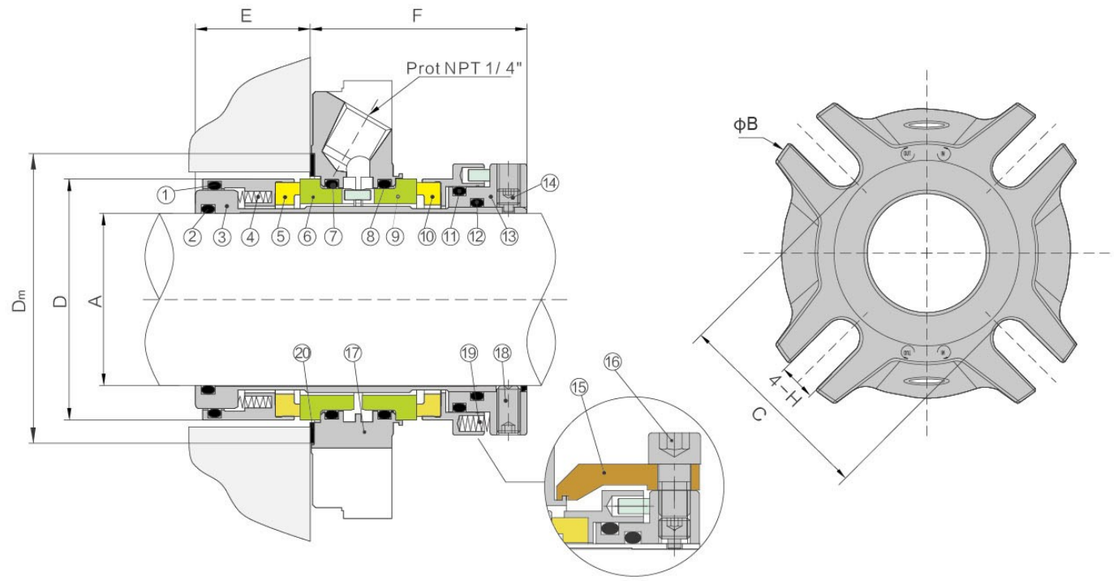
Temperature	−20° C to +180° C [−68° F to +446° F]
Pressure	0~20 Bar
On−wire speed	Up to 20 m/s
Sealing product	Acid,alkaline, low percentage of pulp, water, oil and other similar media.

Material Arrangement

Seal faces	SSIC/CARBON/TC
Rubber	EPR/Viton®/Aflas®/Kalrez®
Springs	ALLOY 276
Metal	316SS/DUPLEX/ALLOY 276/904L

Pressure Chart





EDM

NO	Decription	Material	NO	Decription	Material
1	O−Ring	EPR/Viton®/Aflas®/Kalrez®	11	O−Ring	EPR/Viton®/Aflas®/Kalrez®
2	O−Ring	EPR/Viton®/Aflas®/Kalrez®	12	O−Ring	EPR/Viton®/Aflas®/Kalrez®
3	Shaft Sleeve	316SS	13	Clamp Ring	316SS
4	Spring	Alloy 276	14	Anti−tamper Screw	316SS
5	Inboard Rotary Face	Carbon/SSIC/TC	15	Setting Clip	Brass
6	Inboard Stationary Face	SSIC/TC	16	Clip Screw	316SS
7	O−Ring	EPR/Viton®/Aflas®/Kalrez®	17	Gland	316SS
8	O−Ring	EPR/Viton®/Aflas®/Kalrez®	18	Drive Screw	316SS
9	Outboard Stationary Face	SSIC/TC	19	Spring	Alloy 276
10	Outboard Rotary Face	Carbon/SSIC/TC	20	Gasket	AF1

EDM (mm)

ØA	ØB	C	ØD	ØDm	E	F	H
24	110.0	60.5	38.0	56.0	31.1	51.0	13.2
25	110.0	60.5	39.4	56.0	31.1	51.0	13.2
28	110.0	60.5	42.6	58.0	31.1	51.0	13.2
30	110.0	63.5	44.0	61.5	31.1	51.0	13.2
32	110.0	63.5	46.0	61.5	31.1	51.0	13.2
33	110.0	63.5	47.0	61.5	31.1	51.0	13.2
35	110.0	67.0	49.0	65.0	31.1	51.0	13.2
38	127.0	72.0	55.8	70.0	29.1	56.3	14.2
40	127.0	72.0	55.8	70.0	29.1	56.3	14.2
43	127.0	72.0	59.0	71.0	29.1	56.3	14.2
45	133.0	77.0	62.2	75.0	29.1	56.3	14.2
48	133.0	77.0	65.4	75.0	29.1	56.3	14.2
50	133.0	77.0	65.4	75.0	29.1	56.3	14.2
53	139.0	86.0	68.5	83.0	31.3	56.3	14.2
55	146.0	94.0	71.7	92.0	31.3	56.3	17.5
58	146.0	94.0	74.9	92.0	31.3	56.3	17.5
60	155.0	100.0	78.1	92.0	31.3	56.3	17.5
63	178.0	109.5	84.1	108.0	28.1	63.8	17.5
65	178.0	109.5	87.3	108.0	28.1	63.8	17.5
70	178.0	109.5	90.5	108.0	28.1	63.8	17.5
75	190.5	125.0	96.8	124.0	28.1	63.8	17.5
80	190.5	125.0	100.0	124.0	28.1	63.8	17.5
85	203.0	135.0	106.4	133.0	28.1	63.8	17.5
90	216.0	150.0	112.7	146.0	28.1	63.8	20.0
95	216.0	150.0	119.1	146.0	28.1	63.8	20.0
100	229.0	168.0	122.2	165.0	28.1	63.8	20.0

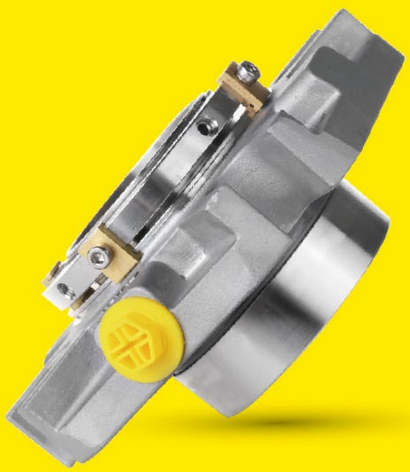
EDM (Inches)

ØA	ØB	C	ØD	ØDm	E	F	H
1.000	4.125	2.375	1.550	2.205	1.226	2.008	0.520
1.125	4.250	2.375	1.675	2.283	1.226	2.008	0.520
1.250	4.375	2.500	1.810	2.421	1.226	2.008	0.520
1.375	4.375	2.625	1.928	2.559	1.226	2.008	0.520
1.500	5.000	2.832	2.198	2.756	1.147	2.217	0.559
1.625	5.000	2.832	2.323	2.795	1.147	2.217	0.559
1.750	5.250	3.022	2.448	2.953	1.147	2.217	0.559
1.875	5.250	3.022	2.573	2.953	1.147	2.217	0.559
2.000	5.500	3.386	2.698	3.268	1.231	2.217	0.559
2.125	5.750	3.687	2.823	3.622	1.231	2.217	0.689
2.250	5.750	3.687	2.948	3.622	1.231	2.217	0.689
2.375	6.000	3.937	3.073	3.622	1.231	2.217	0.689
2.500	7.000	4.312	3.312	4.252	1.231	2.217	0.689
2.625	7.000	4.312	3.437	4.252	1.107	2.512	0.689
2.750	7.000	4.312	3.562	4.252	1.107	2.512	0.689
2.875	7.500	4.937	3.687	4.764	1.107	2.512	0.689
3.000	7.500	4.937	3.812	4.882	1.107	2.512	0.689
3.125	7.500	4.937	3.937	4.882	1.107	2.512	0.689
3.250	8.000	5.312	4.062	5.118	1.107	2.512	0.689
3.375	8.000	5.312	4.187	5.236	1.107	2.512	0.689
3.500	8.000	5.312	4.312	5.236	1.107	2.512	0.689
3.625	8.500	5.900	4.437	5.748	1.107	2.512	0.787
3.750	8.500	5.900	4.562	5.748	1.107	2.512	0.787
3.875	8.500	5.900	4.687	5.748	1.107	2.512	0.787
4.000	9.000	6.600	4.812	6.496	1.107	2.512	0.787

If seal sizes bigger than 100mm (4")is required for specified equipment, please contact FBU technical department for dimensional information and availability.

KSC

The Standard Stationary Single Seal Solution for Higher Effeicent OEM Customers



Horizontal

Key Features

- Stationary face compensation technology.
- Solid seal structure reduces deformation at high temperature and low temperature conditions.
- High Speed limits, up to 220 degree. No seal face drop or displacement.
- Higher pressure limits, up to 25 bar.
- Suitable for API Plan 11/ 21/32/62.

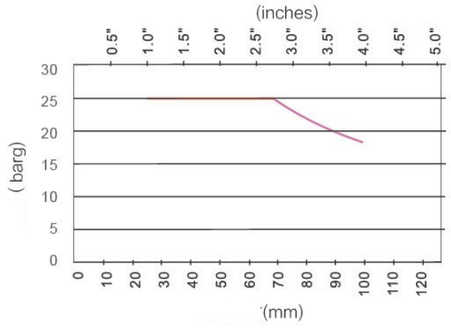
Operating Conditions

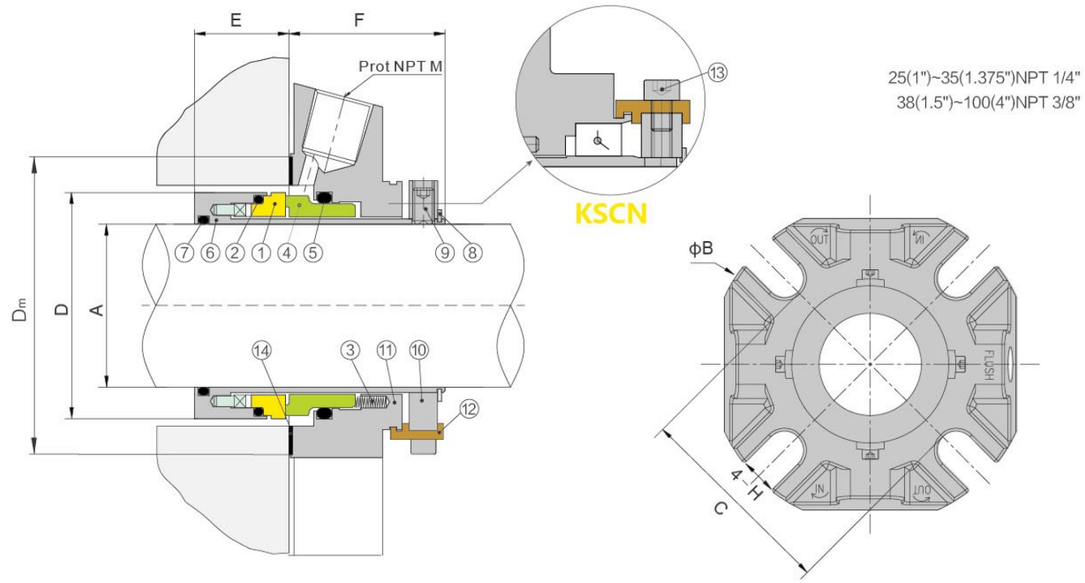
Temperature	−20° C to +220° C [−68° F to +428° F]
Pressure	0~25 Bar
On−wire speed	Up to 25 m/s
Sealing product	Acid,alkaline, low percentage of pulp, water, oil and other similar media.

Material Arrangement

Seal faces	SSIC/CARBON/TC
Rubber	EPR/Viton®/Aflas®/Kalrez®
Springs	ALLOY 276
Metal	316SS/DUPLEX/ALLOY 276/904L

Pressure Chart





KSC

NO	Decription	Material	NO	Decription	Material
1	Rotary Face	SSIC/TC	8	Circlip	316SS
2	O−Ring	EPR/Viton®/Aflas®/Kalrez®	9	Drive Screw	316SS
3	Spring	Alloy 276	10	Clamp Ring	316SS
4	Stationary Face	Carbon/SSIC/TC	11	Gland	316SS
5	O−Ring	EPR/Viton®/Aflas®/Kalrez®	12	Setting Clip	Brass
6	Shaft Sleeve	316SS	13	Clip Screw	316SS
7	O−Ring	EPR/Viton®/Aflas®/Kalrez®	14	Gasket	AF1

KSC-(mm)

ØA	ØB	C	ØD	ØDm	E	F	H
25	105.0	62.0	43.0	60.0	24.6	42.4	13.2
28	105.0	62.0	46.0	60.0	24.6	42.4	13.2
30	105.0	67.0	48.0	65.0	24.6	42.4	13.2
32	110.0	70.0	50.0	65.0	24.6	42.4	13.2
33	110.0	70.0	50.0	65.0	24.6	42.4	13.2
35	113.0	72.0	53.0	68.0	24.6	42.4	13.2
38	135.0	80.0	56.0	78.0	24.6	42.4	13.2
40	135.0	80.0	58.0	78.0	24.6	42.4	14.2
42	135.0	80.0	61.0	78.0	24.6	42.4	14.2
43	135.0	80.0	61.0	78.0	24.6	42.4	14.2
45	138.0	82.5	62.5	79.0	24.6	42.4	14.2
48	138.0	82.5	65.5	82.0	24.6	42.4	14.2
50	150.0	87.0	68.0	85.0	24.6	42.4	14.2
53	150.0	97.0	72.0	95.0	24.6	42.4	18.0
55	150.0	97.0	73.0	88.0	24.6	42.4	18.0
60	157.0	102.0	78.0	100.0	24.6	42.4	18.0
65	165.0	109.0	84.8	107.0	24.6	42.4	18.0
70	178.0	118.5	93.0	116.0	24.6	42.4	18.0
75	190.0	129.0	100.0	125.0	26.6	57.4	18.0
80	195.0	135.0	106.4	131.0	26.6	57.4	18.0
85	198.0	139.0	109.5	135.0	26.6	57.4	22.0
90	205.0	145.0	115.9	142.0	26.6	57.4	22.0
95	208.0	148.0	119.1	145.0	26.6	57.4	22.0
100	218.0	154.0	125.4	151.0	26.6	57.4	22.0

KSC-(Inches)

ØA	ØB	C	ØD	ØDm	E	F	H
1.000	4.134	2.440	1.693	2.362	0.969	1.669	0.520
1.125	4.134	2.440	1.811	2.362	0.969	1.669	0.520
1.250	4.330	2.760	2.000	2.250	0.969	1.669	0.520
1.375	4.449	2.840	2.087	2.677	0.969	1.669	0.520
1.500	4.842	3.149	2.205	2.874	0.969	1.669	0.520
1.625	4.842	3.149	2.402	3.071	0.969	1.669	0.599
1.750	5.433	3.248	2.461	3.110	0.969	1.669	0.599
1.875	5.433	3.248	2.579	3.228	0.969	1.669	0.599
2.000	5.905	3.818	2.677	3.346	0.969	1.669	0.599
2.125	5.905	3.818	2.874	3.465	0.969	1.669	0.709
2.250	6.181	4.020	3.071	3.937	0.969	1.669	0.709
2.375	6.417	4.290	3.212	4.213	0.969	1.669	0.709
2.500	6.417	4.290	3.339	4.213	0.969	1.669	0.709
2.625	7.008	4.660	3.661	4.567	0.969	1.669	0.709
2.750	7.283	4.960	3.858	3.779	0.969	1.669	0.709
2.875	7.480	5.079	3.937	4.921	1.047	2.260	0.709
3.000	7.677	5.197	4.189	5.157	1.047	2.260	0.709
3.125	7.677	5.315	4.212	4.113	1.047	2.260	0.709
3.250	7.795	5.472	4.311	5.315	1.047	2.260	0.709
3.375	7.795	5.591	4.500	5.157	1.047	2.260	0.866
3.500	8.071	5.709	4.563	5.591	1.047	2.260	0.866
3.625	8.189	5.827	4.689	5.709	1.047	2.260	0.866
3.750	8.583	6.063	4.937	5.945	1.047	2.260	0.866
4.000	8.583	6.063	4.937	5.945	1.047	2.260	0.866

If seal sizes bigger than 100mm (4")is required for specified equipment, please contact FBU technical department for dimensional information and availability.

Horizontal

KDC

The Standard Stationary Single Seal Solution for Higher Effeicent OEM Customers

Key Features

- Stationary face compensation technology.
- Solid seal structure reduces deformation at high temperature and low temperature conditions.
- Intergrated and Bi-directional diversion，sleeve with pump ring.
- High Speed limits, up to 220 degree. No seal face drop or displacement.
- Higher pressure limits, up to 25 bar.
- Wet Part in Duplex steel,904L ,Alloy 276 avaiable.
- Suitable for API Plan 52/53A/53B/54.

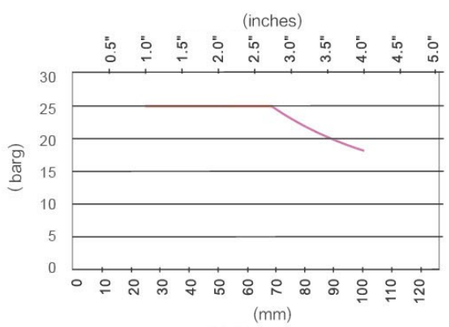
Operating Conditions

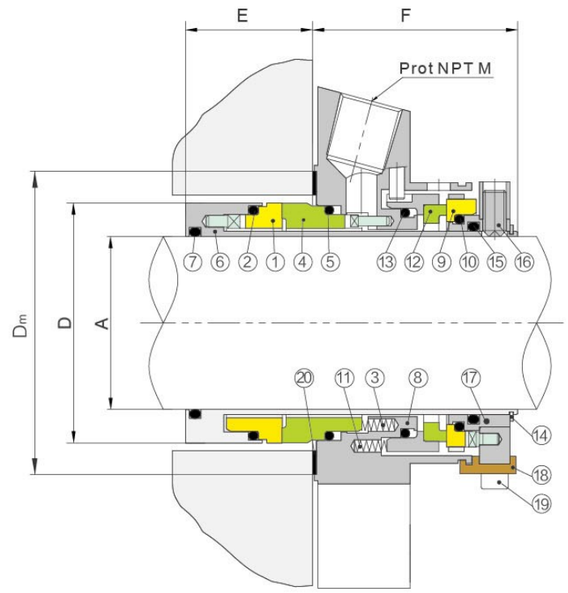
Temperature	−20° C to +220° C [−67° F to +428° F]
Pressure	0~25 Bar
On-wire speed	Up to 25 m/s
Sealing product	Acid,alkaline, low percentage of pulp, water, oil and other similar media.

Material Arrangement

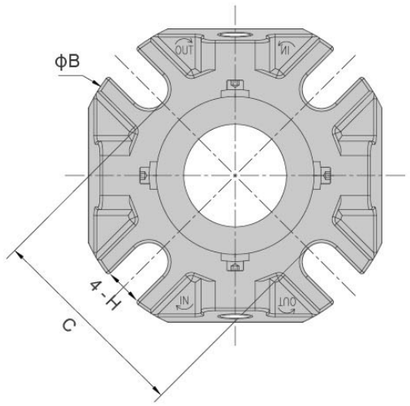
Seal faces	SSIC/CARBON/TC
Rubber	EPR/Viton®/Aflas®/Kalrez®
Springs	ALLOY 276
Metal	316SS/DUPLEX/ALLOY 276/904L

Pressure Chart





25(1")~35(1.375")NPT 1/4"
38(1.5")~100(4")NPT 3/8"



KDC

NO	Decription	Material	NO	Decription	Material
1	Inboard Rotary Face	SSIC/TC	11	Spring	Alloy 276
2	O-Ring	EPR/Viton®/Aflas®/Kalrez®	12	Outboard Stationary Face	Carbon-316SS Stainless Steel
3	Spring	Alloy 276	13	O-Ring	EPR/Viton®/Aflas®/Kalrez®
4	Inboard Stationary Face	Carbon/SSIC/TC	14	Circlip	Alloy 276
5	O-Ring	EPR/Viton®/Aflas®/Kalrez®	15	O-Ring	EPR/Viton®/Aflas®/Kalrez®
6	Shaft Sleeve	316SS	16	Drive Screw	316SS
7	O-Ring	EPR/Viton®/Aflas®/Kalrez®	17	Clamp Ring	316SS
8	Gland	316SS	18	Setting Clip	Brass
9	Outboard Rotary Face	TC-316SS Stainless Steel	19	Clip Screw	316SS
10	O-Ring	EPR/Viton®/Aflas®/Kalrez®	20	Gasket	AF1

KDC-(mm)

ØA	ØB	C	ØD	ØDm	E	F	H
25	105.0	62.0	43.0	60.0	33.1	53.4	13.2
28	105.0	62.0	46.0	60.0	33.1	53.4	13.2
30	105.0	67.0	48.0	65.0	33.1	53.4	13.2
32	110.0	70.0	50.0	65.0	33.1	53.4	13.2
33	110.0	70.0	50.0	65.0	33.1	53.4	13.2
35	113.0	72.0	53.0	68.0	33.1	53.4	13.2
38	135.0	80.0	56.0	78.0	33.1	53.4	13.2
40	135.0	80.0	58.0	78.0	33.1	53.4	14.2
42	135.0	80.0	61.0	78.0	33.1	53.4	14.2
43	135.0	80.0	61.0	78.0	33.1	53.4	14.2
45	138.0	82.5	62.5	79.0	33.1	53.4	14.2
48	138.0	82.5	65.5	82.0	33.1	53.4	14.2
50	150.0	87.0	68.0	85.0	33.1	53.4	14.2
53	150.0	97.0	72.0	95.0	33.1	53.4	18.0
55	150.0	97.0	73.0	88.0	33.1	53.4	18.0
60	157.0	102.0	78.0	100.0	33.1	53.4	18.0
65	165.0	109.0	84.8	107.0	33.1	53.4	18.0
70	178.0	118.5	93.0	116.0	33.1	53.4	18.0
75	190.0	129.0	100.0	125.0	44.1	63.9	18.0
80	195.0	135.0	106.4	131.0	44.1	63.9	18.0
85	198.0	139.0	109.5	135.0	44.1	63.9	22.0
90	205.0	145.0	115.9	142.0	44.1	63.9	22.0
95	208.0	148.0	119.1	145.0	44.1	63.9	22.0
100	218.0	154.0	125.4	151.0	44.1	63.9	22.0

KDC-(Inches)

ØA	ØB	C	ØD	ØDm	E	F	H
1.000	4.134	2.440	1.693	2.362	1.303	2.102	0.520
1.125	4.134	2.440	1.811	2.362	1.303	2.102	0.520
1.250	4.330	2.760	2.000	2.250	1.303	2.102	0.520
1.375	4.449	2.840	2.087	2.677	1.303	2.102	0.520
1.500	4.842	3.149	2.205	2.874	1.303	2.102	0.520
1.625	4.842	3.149	2.402	3.071	1.303	2.102	0.599
1.750	5.433	3.248	2.461	3.110	1.303	2.102	0.599
1.875	5.433	3.248	2.579	3.228	1.303	2.102	0.599
2.000	5.905	3.818	2.677	3.346	1.303	2.102	0.599
2.125	5.905	3.818	2.874	3.465	1.303	2.102	0.709
2.375	6.181	4.020	3.071	3.937	1.303	2.102	0.709
2.500	6.417	4.290	3.212	4.213	1.303	2.102	0.709
2.625	6.417	4.290	3.339	4.213	1.303	2.102	0.709
2.750	7.008	4.660	3.661	4.567	1.303	2.102	0.709
2.875	7.283	4.960	3.858	3.779	1.736	2.516	0.709
3.000	7.480	5.079	3.937	4.921	1.736	2.516	0.709
3.125	7.677	5.197	4.189	5.157	1.736	2.516	0.709
3.250	7.677	5.315	4.212	4.113	1.736	2.516	0.709
3.375	7.795	5.472	4.311	5.315	1.736	2.516	0.866
3.500	7.795	5.591	4.500	5.157	1.736	2.516	0.866
3.625	8.071	5.709	4.563	5.591	1.736	2.516	0.866
3.750	8.189	5.827	4.689	5.709	1.736	2.516	0.866
4.000	8.583	6.063	4.937	5.945	1.736	2.516	0.866

If seal sizes bigger than 100mm (4") is required for specified equipment, please contact FBU technical department for dimensional information and availability.

GSM

Horizontal

Key Features

- Stationary face compensation technology.
- Solid seal structure reduces deformation at high temperature and low temperature conditions.
- High Speed limits, up to 220 degree. No seal face drop or displacement.
- Higher pressure limits, up to 25 bar.
- Suitable for API Plan 11/ 21/32/62.

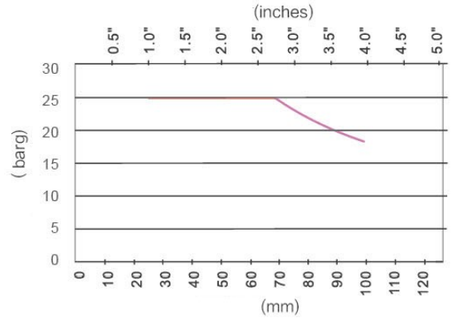
Operating Conditions

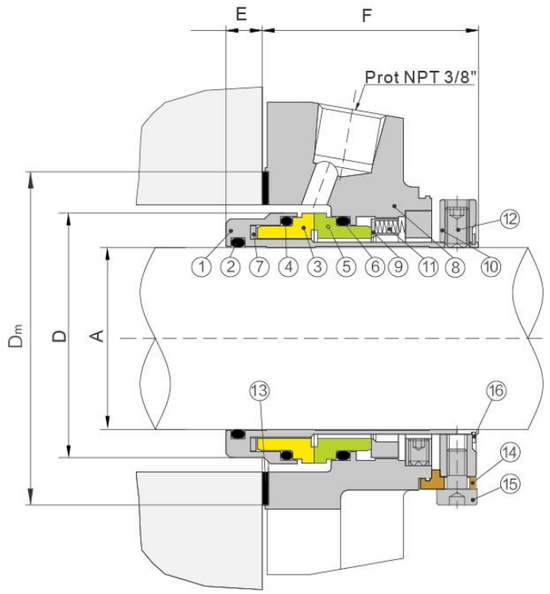
Temperature	−40° C to +280° C [−40° F to +527° F]
Pressure	0~25 Bar
On−wire speed	Up to 25 m/s
Sealing product	Acid,alkaline, low percentage of pulp, water, oil and other similar media.

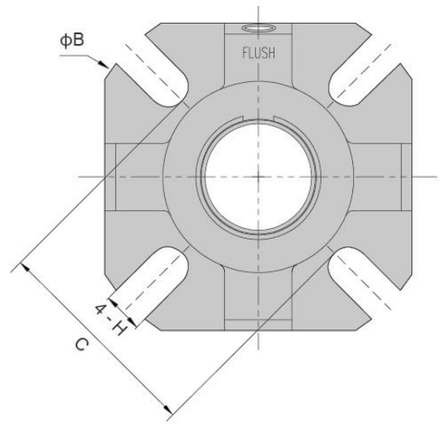
Material Arrangement

Seal faces	SSIC/CARBON/TC
Rubber	EPR/Viton®/Aflas®/Kalrez®
Springs	ALLOY 276
Metal	316SS/DUPLEX/ALLOY 276/904L

Pressure Chart







GSM

NO	Decription	Material	NO	Decription	Material
1	Shaft Sleeve	316SS	9	'Spring Plate	316SS
2	O−Ring	EPR/Viton®/Aflas®/Kalrez®	10	Clamp Ring	316SS
3	Rotary Face	SSIC/TC	11	Spring	Alloy 276
4	O−Ring	EPR/Viton®/Aflas®/Kalrez®	12	Drive Screw	316SS
5	Stationary Face	Carbon/SSIC/TC	13	Gasket	AF1
6	O−Ring	EPR/Viton®/Aflas®/Kalrez®	14	Setting Clip	Brass
7	Drive Ring	316SS	15	Clip Screw	316SS
8	Gland	316SS	16	Circlip	316SS

GSM-(mm)

ØA	ØB	C	ØD	ØD m	E	F	H
25	105	66.5	42.0	55.0	10	53.5	14
28	105	66.5	45.5	60.0	10	53.5	14
30	105	66.5	47.0	60.0	10	53.5	14
32	105	66.5	50.0	63.0	10	53.5	14
33	105	66.5	50.0	63.0	10	53.5	14
35	120	68.5	52.0	65.0	10	53.5	14
38	135	80	55.0	75.5	10	53.5	15
40	135	80	57.0	75.5	10	53.5	15
43	135	80	60.0	75.5	10	53.5	15
45	139	84.5	62.0	80.0	10	53.5	14
48	139	84.5	65.0	80.0	10	53.5	14
50	150	87.5	68.0	83.0	10	53.5	17.5
53	150	97	72.0	93.0	10	53.5	17.5
55	150	97	72.0	93.0	10	53.5	17.5
60	165	102	77.9	98.5	10	53.5	17.5
63	171	108	81.0	104.5	10	53.5	17.5
65	171	108	84.2	104.5	10	53.5	17.5
70	180	112	87.5	107.0	10	53.5	17.5

GSM-(Inches)

ØA	ØB	C	ØD	ØD m	E	F	H
1.000	4.134	2.618	1.654	2.165	0.393	2.106	0.551
1.125	4.134	2.618	1.791	2.362	0.393	2.106	0.551
1.250	4.134	2.618	1.929	2.480	0.393	2.106	0.551
1.375	4.725	2.697	2.047	2.559	0.393	2.106	0.551
1.500	5.315	3.150	2.165	2.972	0.393	2.106	0.591
1.625	5.315	3.150	2.362	2.972	0.393	2.106	0.591
1.750	5.475	3.326	2.441	3.150	0.393	2.106	0.551
1.875	5.475	3.326	2.559	3.150	0.393	2.106	0.551
2.000	5.906	3.450	2.677	3.268	0.393	2.106	0.689
2.125	5.906	3.819	2.835	3.661	0.393	2.106	0.689
2.250	6.500	3.327	2.937	3.878	0.393	2.106	0.689
2.375	6.500	4.015	3.067	3.878	0.393	2.106	0.689
2.500	6.725	4.251	3.189	4.114	0.393	2.106	0.689
2.625	6.725	4.251	3.315	4.114	0.393	2.106	0.689
2.750	7.100	4.409	3.445	4.213	0.393	2.106	0.689

If seal sizes bigger than 100mm (4")is required for specified equipment, please contact FBU technical department for dimensional information and availability.

GDM

The Standard Stationary Double Seal Solution for Chemical Pumps

Horizontal

Key Features

- Stationary face compensation technology.
- Double balanced solid face design.
- Intergrated and Bi-directional diversion，unique pump ring design, excellet barrier fluid circulation.
- High Speed limits, up to 220 degree. No seal face drop or displacement.
- Higher pressure limits, up to 25 bar.
- Wet Part in Duplex steel, 904L, Alloy 276, Ti2, Zr-702 available.
- Suitable for API Plan 52/53A/53B/54.

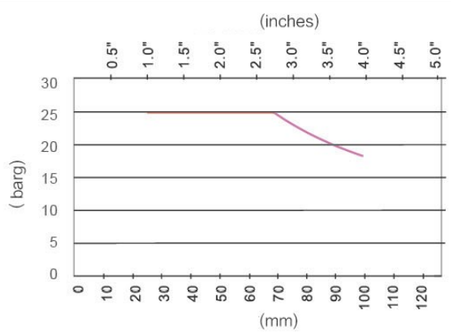
Operating Conditions

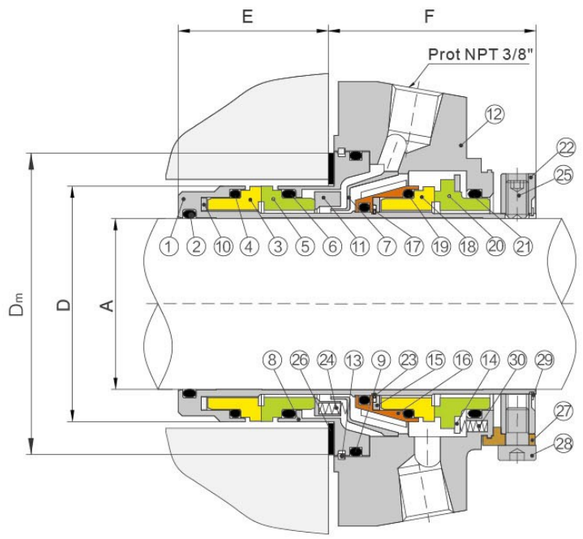
Temperature	-20° C to +220° C [-68° F to +428° F]
Pressure	0~25 Bar
On-wire speed	Up to 25 m/s
Sealing product	Acid,alkaline, low percentage of pulp, water, oil and other similar media.

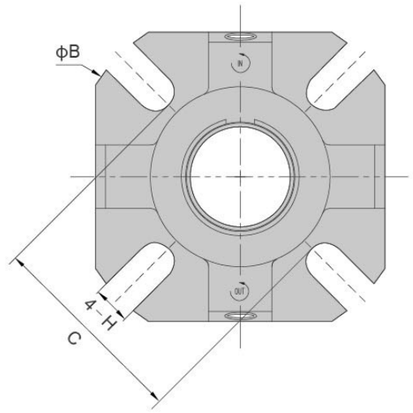
Material Arrangement

Seal faces	SSIC/CARBON/TC
Rubber	EPR/Viton®/Aflas®/Kalrez®
Springs	ALLOY 276
Metal	316SS/DUPLEX/ALLOY 276/904L/TI2, ZR-702

Pressure Chart







GDM

NO	Decription	Material	NO	Decription	Material
1	Shaft Sleeve	316SS	16	Pump Ring	316SS
2	O-Ring	EPR/Viton®/Aflas®/Kalrez®	17	O-Ring	EPR/Viton/Aflas/Kalrez
3	Inboard Rotary Face	SSIC/TC	18	Outboard Rotary Face	SSIC/TC
4	O-Ring	EPR/Viton®/Aflas®/Kalrez®	19	O-Ring	EPR/Viton®/Aflas®/Kalrez®
5	Inboard Stationary Face	Carbon/SSIC/TC	20	Outboard Stationary Face	Carbon/SSIC/TC
6	O-Ring	EPR/Viton®/Aflas®/Kalrez®	21	O-Ring	EPR/Viton®/Aflas®/Kalrez®
7	Deflector	316SS	22	Clamp Ring	316SS
8	Gland Insert	316SS	23	Circlip	316SS
9	O-Ring	EPR/Viton®/Aflas®/Kalrez®	24	Spring	Alloy 276
10	Drive Ring	316SS	25	Drive Screw	316SS
11	SpringPlate	316SS	26	Gasket	AF1
12	Gland	316SS	27	Setting Clip	Brass
13	Snap Ring	316SS	28	Clip Screw	316SS
14	Spring Plate	316SS	29	Circlip	316SS
15	Pin	316SS	30	Spring	Alloy 276

GDM-(mm)

ØA	ØB	C	ØD	ØDm	E	F	H
25	105	66.5	42.0	55.0	38.9	54.2	14
28	105	66.5	45.5	60.0	38.9	54.2	14
30	105	66.5	47.0	60.0	38.9	54.2	14
32	105	66.5	50.0	63.0	38.9	54.2	14
33	105	66.5	50.0	63.0	38.9	54.2	14
35	120	68.5	52.0	65.0	38.9	54.2	14
38	135	80	55.0	75.5	40.1	54.2	15
40	135	80	57.0	75.5	40.1	54.2	15
43	135	80	60.0	75.5	40.1	54.2	15
45	139	84.5	62.0	80.0	40.1	54.2	14
48	139	84.5	65.0	80.0	40.1	54.2	14
50	150	87.5	68.0	83.0	40.1	54.2	17.5
53	150	97	72.0	93.0	40.1	54.2	17.5
55	150	97	72.0	93.0	40.1	54.2	17.5
60	165	102	77.9	98.5	40.1	54.2	17.5
63	171	108	81.0	104.5	40.1	54.2	17.5
65	171	108	84.2	104.5	40.1	54.2	17.5
70	180	112	87.5	107.0	40.1	54.2	17.5

GDM-(Inches)

ØA	ØB	C	ØD	ØDm	E	F	H
1.000	4.134	2.618	1.654	2.165	2.106	0.393	0.551
1.125	4.134	2.618	1.791	2.362	2.106	0.393	0.551
1.250	4.134	2.618	1.968	2.480	2.106	0.393	0.551
1.375	4.725	2.697	2.047	2.559	2.106	0.393	0.551
1.500	5.315	3.150	2.165	2.972	2.106	0.393	0.591
1.625	5.315	3.150	2.362	2.972	2.106	0.393	0.591
1.750	5.475	3.326	2.441	3.150	2.106	0.393	0.551
1.875	5.475	3.326	2.559	3.150	2.106	0.393	0.551
2.000	5.906	3.450	2.677	3.268	2.106	0.393	0.689
2.125	5.906	3.819	2.835	3.661	2.106	0.393	0.689
2.250	6.500	3.327	2.937	3.878	2.106	0.393	0.689
2.375	6.500	4.015	3.067	3.878	2.106	0.393	0.689
2.500	6.725	4.251	3.189	4.114	2.106	0.393	0.689
2.625	6.725	4.251	3.315	4.114	2.106	0.393	0.689
2.750	7.100	4.409	3.445	4.213	2.106	0.393	0.689

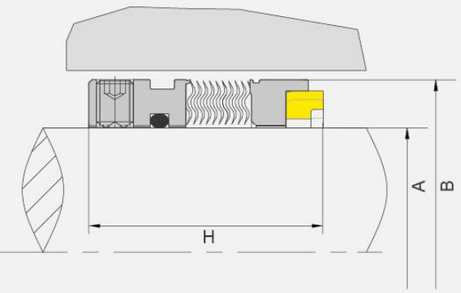
If seal sizes bigger than 100mm (4")is required for specified equipment, please contact FBU technical department for dimensional information and availability.

M100

METAL BELLOWS

Key Features

- Single rotary bellows component seal.
- Hydraulically balanced seal faces for the product, when mated with a suitable stationary.
- Bi-directional rotation.
- Short internal working length.



Material Arrangement

Seal faces	SSIC/CARBON/TC
Rubber	EPR/Viton®/Aflas®/Kalrez®
Bellows	AM 350/Alloy 276/Alloy 718
Holder	316SS/Alloy 42/Alloy 276
End-Fittings	316SS/Alloy 276

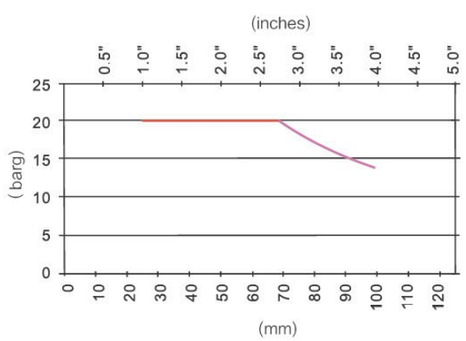
M100-(mm)

A	Shaft Size	B	H
	18.00	27.50	32.00
	20.00	27.50	33.32
	22.00	27.50	36.00
	24.00	30.00	38.10
	25.00	30.00	39.00
	28.00	32.50	42.00
	30.00	32.50	44.00
	32.00	32.50	46.02
	33.00	32.50	47.00
	35.00	32.50	49.20
	38.00	34.00	52.37
	40.00	34.00	55.55
	43.00	34.00	58.72
	45.00	34.00	58.72
	48.00	34.00	61.90
	50.00	34.50	65.07
	53.00	34.50	68.25
	55.00	34.50	71.00
	58.00	39.50	74.60
	60.00	39.50	74.60
	63.00	39.50	80.95
	65.00	39.50	84.12
	68.00	37.50	87.30
	70.00	45.00	87.30
	75.00	45.00	95.25

Operating Conditions

Temperature	-20° C to +210° C [-68° F to +410° F]
Pressure	0~20 Bar
On-wire speed	Up to 20 m/s
Sealing product	Acid,alkaline, low percentage of pulp, water, oil and other similar media.

Pressure Chart

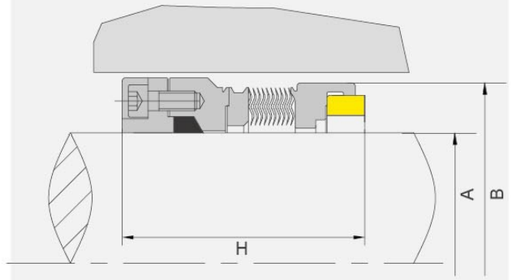


M200

METAL BELLOWS

Key Features

- Single rotary bellows component seal.
- Hydraulically balanced seal faces for the product, when mated with a suitable stationary.
- Bi-directional rotation.
- Short internal working length.



Material Arrangement

Seal faces	SSIC/CARBON/TC
Sec.seal	Carbon Graphit
Bellows	AM 350/Alloy 276/Alloy 718
Holder	316SS/Alloy 42/Alloy 276
End-Fittings	316SS/Alloy 276

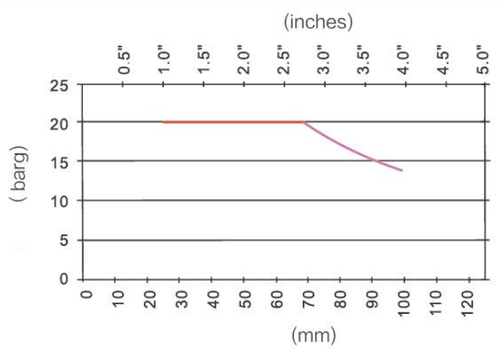
M200-(Inches)

A	Shaft Size	B	H
	1"	1.625	1.531
	1 1/8"	1.750	1.562
	1 1/4"	1.875	1.593
	1 3/8"	2.000	1.593
	1 1/2"	2.125	1.593
	1 5/8"	2.250	1.593
	1 3/4"	2.375	1.625
	1 7/8"	2.500	1.625
	2"	2.625	1.656
	2 1/8"	2.750	1.656
	2 1/4"	2.875	1.719
	2 3/8"	3.000	1.719
	2 1/2"	3.250	1.750
	2 5/8"	3.375	1.781
	2 3/4"	3.500	1.781
	2 7/8"	3.687	1.875
	3"	3.812	1.875
	3 1/8"	4.000	1.875
	3 1/4"	4.125	1.875
	3 3/8"	4.250	1.875
	3 5/8"	4.500	1.875
	3 3/4"	4.625	1.875
	4 7/8"	4.875	1.875

Operating Conditions

Temperature	-40° C to +350° C [-40° F to +662° F]
Pressure	0~20 Bar
On-wire speed	Up to 20 m/s
Sealing product	Acid,alkaline, low percentage of pulp, sugar, water, oil and other similar media.

Pressure Chart



API

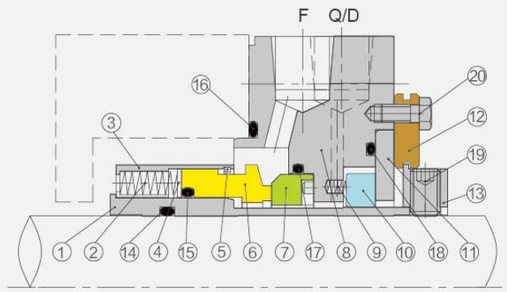
API (The American Petroleum Institute) created the API 682 standard for mechanical seals and sealing systems based on the accumulated knowledge and experience of manufactur ers and users of equipment in the hydr ocarbon and petrochemical industry.

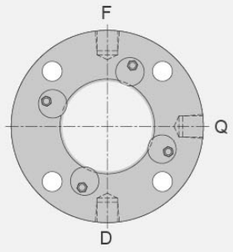
The standard Glands all major aspects of mechanical seal and system design, qualification testing and application and ensures seals sold into the market as API682 compliant meet the demanding requirements of the API environment.

To meet the needs of API 682 standar d, FBU created the A line of Cartridge API 682 seals. The A line uses modular design to maximize interchangeability, allowing single and dual seals in a variety of configurations.

All the API seals ar e tested rigorously for their reliability.

Horizontal





ASTL(1CW-FL)

API 682 Type A Arragement 1 Single Seal

The Type ASTL(1CW−FL) is a single cartridge seal designed to provide low emssion/leakage for most refinery application. It is applied in Non−Hydrocar−bon, Non−Flashing Hydrocarbon,and Flashing Hydrocabon services. Process leakage in further contained with a floating segmented bushing allowing it to be transported to a suitable drain or vapor reGlandy system.

Key Features

- Single rotary pusher seal design.
- Monolithic seal faces.
- Hydraulically balanced seal faces.
- Low Emission Optimized face design.
- Quench and drain environmental ports.

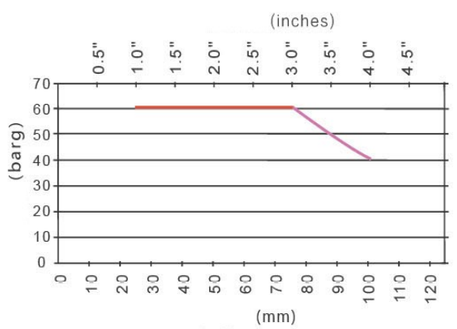
ASTL

NO	Decription	Material
1	Sleeve	316SS
2	Springs	Alloy 276
3	Rotary Hold	316SS
4	Push Ring	316SS
5	Clamp Ring	316SS
6	Rotary Face	Carbon/SSIC
7	Stationary Face	SSIC/TC
8	Gland	316SS
9	Springs	316SS
10	Bush Ring	Carbon
11	Retaining Ring	316SS
12	Clips	316SS
13	Setting Ring	316SS
14	O−Ring	EPR/Viton®/Aflas®/Kalrez®
15	O−Ring	EPR/Viton®/Aflas®/Kalrez®
16	O−Ring	EPR/Viton®/Aflas®/Kalrez®
17	O−Ring	EPR/Viton®/Aflas®/Kalrez®
18	O−Ring	EPR/Viton®/Aflas®/Kalrez®
19	Drive Screw	Alloy 276
20	Clips Screws	316SS

Operating Conditions

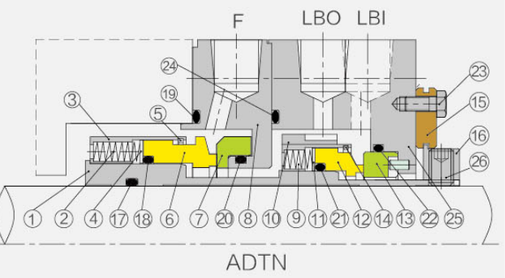
Temperature	−40℃ to +220℃
	(Application and Seal Material Dependent)
Pressure	0~40 Bar
	Upto 20 m/s

Pressure Chart

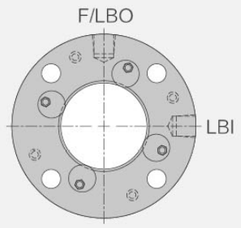


Horizontal

ADTN(2CW-CW)



ADTN



API682 Type A Arrangement 2 Dual Unpressurized Cartridge Seal

The type ADTN(2CW-CW) is a dual unpressured cartridge seal designed for hazardous applications. The inboard seal design utilizes the seal low leakage as the type ASTL. The outboard seal provides additional containment in conjunctionwith an API flushing plan 52. It can be used for the light dydrocar-bon, aromatic hydrocarbon,acetic acid.

Key Features

- Rotary Dual seal design.
- Monolithic inboard and outboard seal faces.
- Double balanced inboard seal faces.
- Buffer fluid in and out ports available.
- Low Emission Optimized face design.

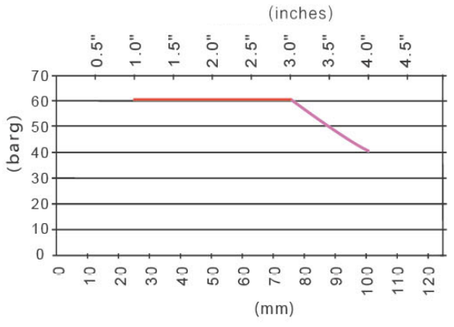
ADTN

NO	Decription	Material
1	Sleeve	316SS
2	Inboard Springs	Alloy 276
3	Inboard Rotary Holder	316SS
4	Inboard Retaining Ring	316SS
5	Inboard Clamp Ring	316SS
6	Inboard Rotary Face	Carbon/SSIC
7	Inboard Stationary Face	SSIC/TC
8	Gland	316SS
9	Outboard Springs	Alloy 276
10	'Outboard Rotary Hold	316SS
11	Outboard Retaining Ring	316SS
12	Outboard Rotary Face	Carbon
13	Outboard Stationary	SSIC/TC
14	Outboard Clamp Ring	316SS
15	Clips	316SS
16	Setting Ring	316SS
17	O-Ring	EPR/Viton®/Aflas®/Kalrez®
18	O-Ring	EPR/Viton®/Aflas®/Kalrez®
19	O-Ring	EPR/Viton®/Aflas®/Kalrez®
20	O-Ring	EPR/Viton®/Aflas®/Kalrez®
21	O-Ring	EPR/Viton®/Aflas®/Kalrez®
22	O-Ring	EPR/Viton®/Aflas®/Kalrez®
23	Setting Screw	316SS
24	O-Ring	EPR/Viton®/Aflas®/Kalrez®
25	Insert Gland	316SS
26	Drive Screw	Alloy 276

Operating Conditions

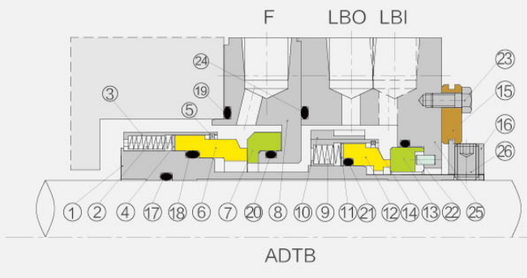
Temperature	-40℃ to +220℃
	(Application and Seal Material Dependent)
Pressure	0~40 Bar
	Upto 20 m/s

Pressure Chart

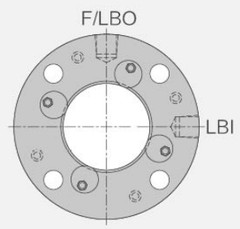


Horizontal

ADTB(3CW-FB)



ADTB



API682 Type A Arrangement 3 Dual Pressurized Cartridge Seal

The type ADTB is a dual pressurized cartridge seal designed for maximum containment of hazardous fluids and light hydrocarbons. The outboard seal retains the barrier fluid using either an API flushing plan 53 or 54. It is the most used in light dydrocarbon, aromatic hydrocarbon flammable and explosive sealing product.

Key Features

- Rotary Dual seal design.
- Monolithic inboard and outboard seal faces.
- Double balanced inboard seal faces.
- Barrier Fluid in and out ports available.
- Low Emission Optimized face design.
- Reverse Pressure Hydraulically Balanced Mating Ring.
- Tangential Outlet Barrier Fluid Connections.

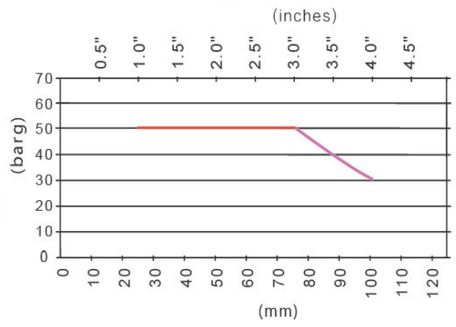
ADTB

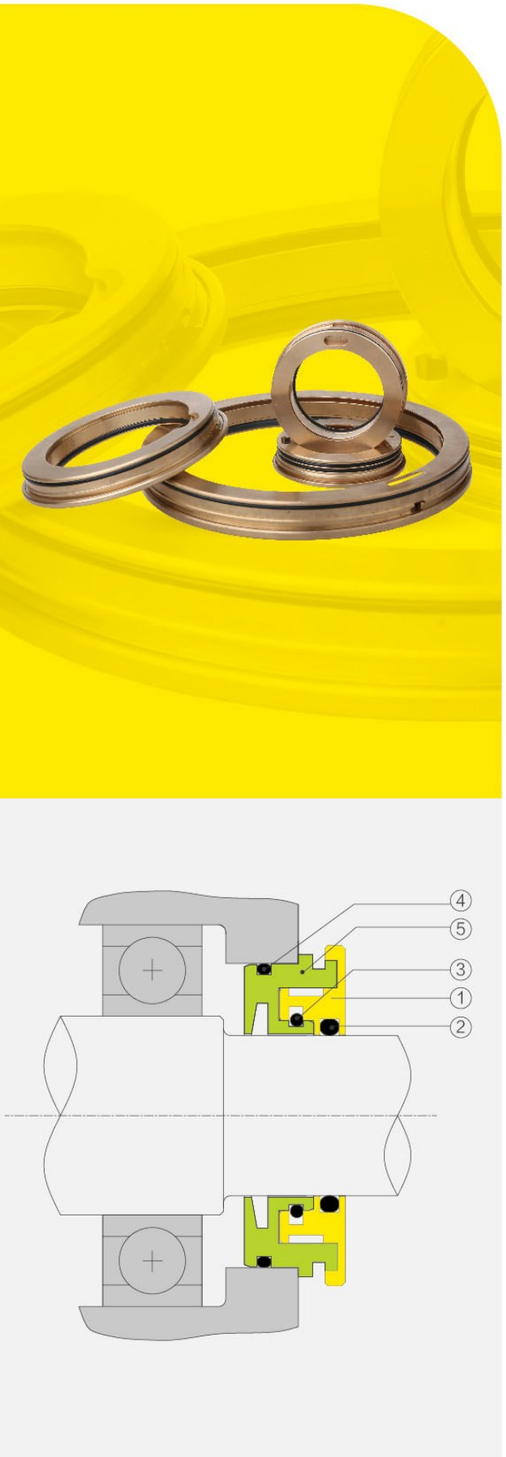
NO	Decription	Material
1	Sleeve	316SS
2	'Inboard Springs	Alloy 276
3	Inboard Rotary Holder	316SS
4	'Inboard Retaining Ring	316SS
5	Inboard Clamp Ring	316SS
6	'Inboard Rotary Face	Carbon/SSIC
7	Inboard Stationary Face	SSIC/TC
8	Gland	316SS
9	Outboard Springs	Alloy 276
10	Outboard Rotary Hold	316SS
11	Outboard Retaining Ring	316SS
12	Outboard Rotary Face	Carbon
13	Outboard Stationary	SSIC/TC
14	Outboard Clamp Ring	316SS
15	Clips	316SS
16	Setting Ring	316SS
17	'O-Ring	EPR/Viton®/Aflas®/Kalrez®
18	'O-Ring	EPR/Viton®/Aflas®/Kalrez®
19	O-Ring	EPR/Viton®/Aflas®/Kalrez®
20	'O-Ring	EPR/Viton®/Aflas®/Kalrez®
21	'O-Ring	EPR/Viton®/Aflas®/Kalrez®
22	'O-Ring	EPR/Viton®/Aflas®/Kalrez®
23	Setting Screw	316SS
24	O-Ring	EPR/Viton®/Aflas®/Kalrez®
25	Insert Gland	316SS
26	Drive Screw	Alloy 276

Operating Conditions

Temperature	-40℃ to +260℃
	(Application and Seal Material Dependent)
Pressure	0~40 Bar
	Upto 20 m/s

Pressure Chart





Type SX

Bearing Isolators

Key Features

- Non-contact, zero friction, permanent bearing protection.
- Dynamic O-ring design to prevent water vapor from entering the bearing box when the equipment is cooled.
- Zero Maintenance.
- Zero Power Consumption.
- Temperature range for general design – 37℃~204℃.
- Copper is the main material for fabrication. Stainless steel, aluminium alloy and PTFE can also be selected for extreme working conditions.

Dynamic O-Ring Principles

All the sizes can be designed to suit for the carvity.

Static

Dynamic

SX

NO	Decription	Material
1	Rotary	Bronze
2	O-Ring	Viton®
3	O-Ring	Viton®
4	O-Ring	Viton®
5	Stator Housing	Bronze

The SX series is designed for use in Oil Splash, Dry running and Grease application on horizontonal pieces of equipment at shaft surface Veleocities up to 20 m/s (3937 ft/min).
The SX can also be used in the vast majority of existing Oil Mist applications that comply with the now superseed and API 610, 7th Edition requirements and where small quantity of Oil Mist escapes to atmosphere.

INDUSTRIAL APPLICATIONS ▸

CHEMICAL PROCESSING

There are a wide range of different applications in the chemical processing industries.Each of these applications must be sealed successfully to ensure meeting emission requirements.FBU provides a range of metallurgies and face combinations to successfully seal some of the most demanding chemical applications.

INDUSTRY CHALLENGES

- Toxic, volatile, or flammable media, corrosive fluids, and abrasive slurries.
- Cryogenic and vacuum applications require specific engineered design solutions.
- System and personnel safety.
- Stringent environmental and emissions regulations.
- High Temperature products including heat transfer fluids.

SEAL SOLUTIONS

- Model GSM Model ESM Model KSC
- Model GDM Model EDM Model KDC
- Model GSMA Model ESMA
- Model GDMA Model EDMA

INDUSTRIAL APPLICATIONS

PULP & PAPER

The challenges facing the Pulp and Paper industry include reducing water consumption/usage as well as minimizing environmental impact in a cost-effective manner. FBU offers engineered solutions for all stages of pulp and paper processing including pulping, stock preparation, reGlandy systems, and wastewater treatment.

INDUSTRY CHALLENGES

Minimizing water consumption/usage while effectively sealing in the following applications:

- Pulping
- Digesters, Washers, Pulpers
- Stock Preparation
- Bleaching, Coatings, Screening
- ReGlandy
- Evaporation Boilers, Causticizers
- Wastewater Treatment
- Sludge, Treated Wastewater

SEAL SOLUTIONS

- For Pulp pumps
- Model 2210 Model 2230 Model 2212
- Model 2220 Model 2240 Model 2221
- Model 2350
- Sulzer®/Andritz®/ABS®
- For Pressure Screen
- Model 2550 Model 2650 Model 2750
- Ahstriom®/VOITH®
- For Agitators
- Model 2450
- Sulzer® Salomix®

MARINE

The marine industry has very specific needs and unique applications. Seawater, corrosion, and abrasives impact personnel and cargo safety. We knows dependable and simple solutions are necessary whether the vessel is at sea or docked for maintenance.

INDUSTRY CHALLENGES

- Minimizing water consumption/usage while effectively sealing in the following applications:
  - Saltwater corrosion
  - Distance from repair shop
  - Excessive movement
  - Limited space
  - Varying & dangerous cargoes
  - Water pollution

SEAL SOLUTIONS

- Model 1950
- Model 1951
- Model 1952
- Model 1510
- Model 1520
- Lip Seal
- IMO®/ALLWEILER®/Thune-Eureka®/KSB®

INDUSTRIAL APPLICATIONS

FOOD

The food and beverage industries have very diverse sealing requirements. Applications range from wet grain milling, to oil and syrup production, distillation and brewing. Companies must be economically competitive while maintaining product integrity.

INDUSTRY CHALLENGES

- Product purity
- Safety
- Limiting area for bacteria build-up
- Emissions control options for particulate matter (PM) and volatile organic compounds (VOC)
- High temperature
- Compliance to FDA regulations

MUNICIPAL SEWAGE

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge.

INDUSTRY CHALLENGES

- Semi-solid waste or mud Water.
- Needs to be recycled and reused.
- Need to meet emission standards.
- Waste water can be recycled for agriculture.

MINING

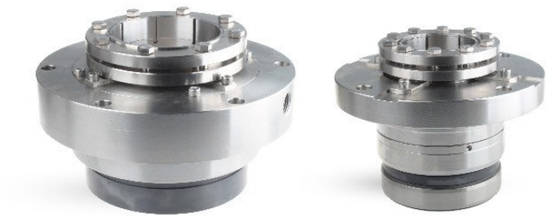
The mining industries experience many challenges such as increased operations costs, variable end user markets, and stringent environmental regulations. Production demands immediate response while maintaining long-range goals. FBU recognizes these concerns and offers effective and competitive solutions for maximum efficiency and profitability.

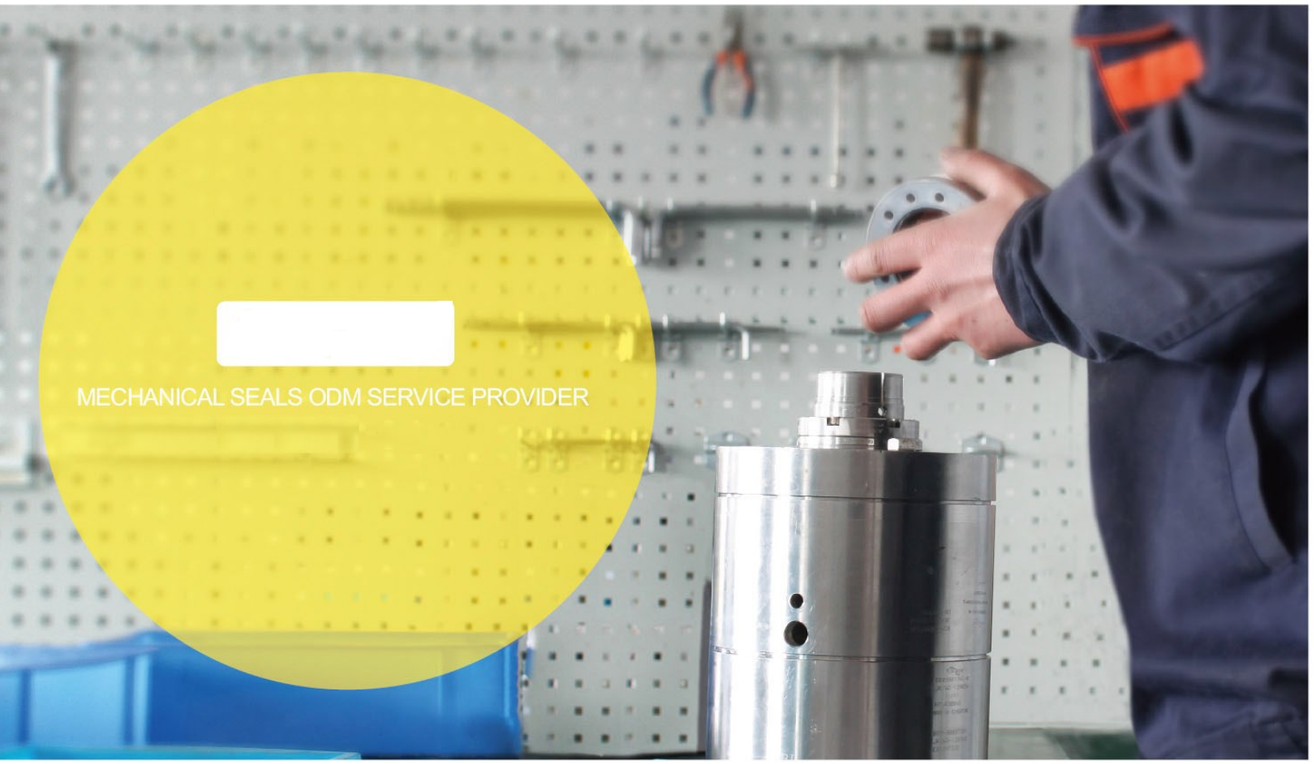
INDUSTRY CHALLENGES

Eliminating water flush
Abrasives
Erosion
Corrosion
Equipment with excessive movement
Installation

SEAL SOLUTIONS

Model 3200
Model 3400
Model 3550
Warman®/Sulzer®/Weir®.





MECHANICAL SEALS ODM SERVICE PROVIDER

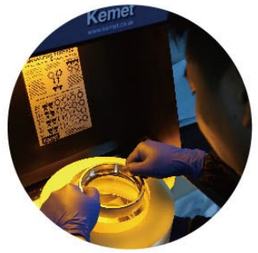
Expert mechanical seal maintenance service

We provide mechanical seal repair service for all manufacturers.
Reliable, fast service, short delivery time.
The seal after repair is as good as the new one.

Modernization of seals (materials, sliding surfaces, auxiliary seals)
Professional services related to sealing.
Additional services such as inventory management, maintenance contracts, seal maintenance, as part of equipment maintenance.

Before Reparing

After Reparing



FBU uses professional sealing knowledge to serve you.
Mechanical seals for pumps, mixers and other rotating equip-ment.
Available in a variety of standard, cartridge and special seals with short delivery times.
Seal repair service.
Customer site solution.

Comprehensive repair of mechanical seals

Failure analysis

- Disassemble, carefully clean and inspect the seal.
- Professional maintenance needs analysis.
- Determine operating conditions when necessary.
- Analysis by reason.

Service plan

- Suggestions for Improvement
- Cost estimate

Sealing service

- Replace worn, corroded and damaged parts.
- Grind the sealing surface and replace the sealing ring if necessary.
- Flatness of the sealing surface.
- Replace auxiliary seals, springs and screws.

Operating conditions

- Seal assembly.
- Ensure proper operating conditions, tightness checks, stress tests.
- packaging and delivery to customers.