

Data Sheet

402/403 All-Welded Flanged Diaphragm Seal

FEATURES

- All-welded construction ensures a leak-tight, tamper-proof seal
- Provided standard with corrosion-resistant 316L Stainless steel top housing

TYPICAL USES

- Oil and gas
- Refineries
- Chemical and petrochemical
- Water and wastewater
- NACE compliant processes (Sour Gas Separation)
- Biogas and biodiesel



402-403
Flanged Seal



SPECIFICATIONS

Connection Style:	402: Flanged 403: Flanged with flushing port
Process Connection Size:	1/2, 3/4, 1, 1 1/2, 2, 3 NPS
Instrument Connection Size:	1/4, 1/2 NPT
Pressure Rating (MAWP):	Dictated by ASME flange ratings (see table 1 on page 2)
Added Tolerance:	±0.5% typical

WETTED COMPONENTS

Diaphragm	Bottom Housing
316 SS, Tantalum, Titanium, Hastelloy® B, Hastelloy® C 276, K-Monel®	316 SS, Tantalum, Titanium, Hastelloy® B, Hastelloy® C 276, Monel®, Carpenter® 20

NON-WETTED COMPONENTS

Top Housing	Flange
316L Stainless steel	Carbon steel

KEY BENEFITS

- Fewer potential leak paths with an all-welded design
- Variety of flange sizes and ratings
- Optional instrument weld for a fully-contained assembly

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TABLE 1 - FLANGE RATINGS

CARBON STEEL FLANGE							STAINLESS STEEL FLANGE						
Maximum Allowable Pressure (psi)							Maximum Allowable Pressure (psi)						
Temp. (°F)	FLANGE CLASS						Temp. (°F)	FLANGE CLASS					
	150	300	600	900	1500	2500		150	300	600	900	1500	2500
<100	285	740	1480	2220	3705	6170	<100	275	750	1440	2160	3600	6000
200	260	675	1350	2025	3375	5625	200	230	600	1200	1800	3000	5000
300	230	655	1315	1970	3280	5470	300	205	540	1075	1615	2690	4480
400	200	635	1270	1900	3170	5280	400	190	495	995	1490	2485	4140
500	170	600	1200	1795	2995	4990	500	170	465	930	1395	2330	3880
600	140	550	1095	1640	2735	4560	600	140	440	885	1325	2210	3680
650	125	535	1075	1610	2685	4475	650	125	430	865	1295	2160	3600
700	110	535	1065	1600	2665	4440	700	110	420	845	1265	2110	3520
750	95	505	1010	1510	2520	4200	750	95	415	825	1240	2065	3440
800	80	410	825	1235	2060	3430	800	80	405	810	1215	2030	3380
850	65	270	535	805	1340	2230	850	65	395	790	1190	1980	3300
900	50	170	345	515	860	1430	900	50	390	780	1165	1945	3240
950	35	105	205	310	515	860	950	35	380	765	1145	1910	3180
1000	20	50	105	155	280	430	1000	20	355	710	1065	1770	2950

TABLE 2 - FILL FLUIDS

Fill Fluid	Temperature	Viscosity (cSt at 70°F (21°C))	Variation Code	Notes
Glycerin (food grade)	0 °F to 400 °F (-18 °C to 204 °C)	1,300	CG	Direct-mounting only. Not for use with vacuum service
50 cSt Silicone	-40 °F to 500 °F (-40 °C to 260 °C)	50	CK	
10 cSt Silicone	-40 °F to 500 °F (-40 °C to 260 °C)	10	DJ	
Halocarbon® 4.2	-70 °F to 300 °F (-57 °C to 199 °C)	4.2	CF	For use with oxygen/oxidizing process media
Slytherm® 800	-40 °F to 750 °F (-40 °C to 400 °C)	10	HA	High temperature applications
Syltherm® XLT	-150 °F to 500 °F (-100 °C to 260 °C)	1.4	CC	Low temperature applications
Calflo® AF	-20 °F to 600 °F (-29 °C to 316 °C)	60	KF	High temperature, silicone-free
Mineral Oil	10 °F to 400 °F (-12 °C to 204 °C)	75	MY	
Neobee® M-20 (food grade)	5 °F to 400 °F (-15 °C to 204 °C)	9.5	NM	
Silicone (food grade)	-40 °F to 500 °F (-40 °C to 260 °C)	350	CZ	
Distilled Water	40 °F to 185 °F (4 °C to 85 °C)	0.9	FJ	
50/50 Glycerin/Water	15 °F to 200 °F (-9 °C to 93 °C)	30	GH	
Propylene Glycol	-50 °F to 325 °F (-46 °C to 163 °C)	54	CV	
Ethylene Glycol	20 °F to 325 °F (-7 °C to 163 °C)	14	FK	
50/50 Ethylene Glycol/Water	-25 °F to 190 °F (-32 °C to 88 °C)	2.9	CT	
80/20 Glycerin/Water	15 °F to 225 °F (-9 °C to 107 °C)	270	GR	
95/5 Water/Propylene Glycol	40 °F to 185 °F (4 °C to 85 °C)	1.0	PY	

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ORDERING CODE	Example:	50	402	S	S	02T	XCK	PU	150	RF
Process Connection Size										
50 - ½ NPS		50								
75 - ¾ NPS										
10 - 1 NPS										
15 - 1½ NPS										
20 - 2 NPS										
30 - 3 NPS										
Seal Type										
402 - All-welded seal, flanged process connection without flushing port			402							
403 - All-welded seal flanged process connection with flushing port										
Diaphragm Material										
S - 316L SS				S						
H - Hastelloy® C-276										
J - Hastelloy® C-22										
U - Tantalum										
G - Hastelloy® B										
P - K-Monel® (Only available with Monel® top and lower housing)										
TI - Titanium (Only available with a Titanium top and lower housing)										
Bottom Housing Material										
S - 316L Stainless steel					S					
H - Hastelloy® C-276										
J - Hastelloy® C-22										
M - Monel® (Includes Monel® top housing standard)										
Ti - Titanium (Includes Titanium top housing standard)										
Instrument Connection Size										
02T - ¼ NPT Female						02T				
04T - ½ NPT Female										
Options (if choosing option(s) must include an "X")										
Fill Fluid (See Table 2 on page 2 for more available fluids)										
CK - 50 cSt Silicone							X			
Optional Features										
PU - Pipe plug for flushing connection (403 only)								PU		
SE - Stainless steel rings and bolts										
6B - Cleaned for oxygen service										
DB - Dual ½ NPT flushing connections (403 only, 1" and larger process connections)										
DU - Instrument welded to seal										
W1 - Dye penetrant testing										
Flange Rating										
150 - 150 class ASME									150	
300 - 300 class ASME										
600 - 600 class ASME										
900 - 900 class ASME										
1500 - 1500 class ASME										
2500 - 2500 class ASME (Available on request)										
Flange Types - (contact Ashcroft for alternate flange types)										
RF - Raised face										RF
RJ - Ring joint										
FF - Flat face										

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DIMENSIONS in [] are millimeters

For reference only, consult Ashcroft for specific dimensional drawings

Figure 1

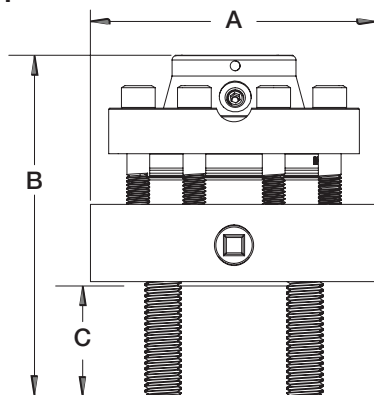
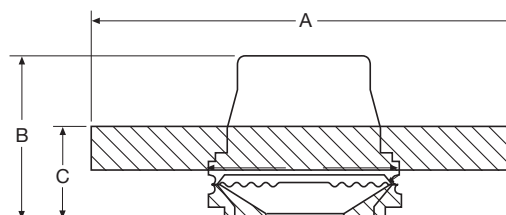


Figure 2



Model		402						403					
Flange		A		B		C		A		B		C	
Size	Rating (#)	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
½	150	3.5	[89]	4.5	[114]	1.35	[34]	3.5	[89]	4.5	[114]	1.35	[34]
	300 or 600	4	[102]	5	[127]	1.66	[42]	4	[102]	5	[127]	1.66	[42]
	900 or 1500	4.75	[121]	5.82	[148]	2.25	[57]	4.75	[121]	5.82	[148]	2.25	[57]
¾	150	4	[102]	4.5	[114]	1.35	[34]	4	[102]	4.5	[114]	1.35	[34]
	300 or 600	5	[127]	2.05	[52]	1.15	[29]	5	[127]	2.92	[74]	2	[51]
	900 or 1500	5.12	[130]	2.05	[52]	1.15	[29]	5.88	[149]	2.92	[74]	2	[51]
1	150	4.25	[108]	2.05	[52]	1.15	[29]	4.25	[108]	2.88	[71]	1.9	[48]
	300 or 600	5.00	[127]					5.00	[127]				
	900 or 1500	6.00	[152]					6.00	[152]				
1½	150	5.00	[127]	2.42	[61]	2.44	[62]	5.00	[127]	2.99	[76]	2.08	[53]
	300 or 600	6.25	[155]					6.50	[165]				
	900 or 1500	7.00	[178]					7.00	[178]			2.75	[70]
2	150	6.00	[152]	2.68	[68]	1.76	[45]	6.00	[152]	3.16	[80]	2.26	[57]
	300 or 600	6.50	[165]					6.50	[165]				
	900 or 1500	8.50	[216]					8.50	[216]			2.902	[74]

Figure 1

Figure 2