

Diaphragm Seal Flanged Process Connection Types 102, 202, 302 Series, Flushing Conn. 103, 203, 303

The comprehensive line of Ashcroft Seals will meet a variety of applications and installation requirements. Over 30,000 configurations are possible with connections types, diaphragm and bottom housing materials. Fill port is standard in all designs.

Features:

- A thin Teflon PTFE gasket between the diaphragm and the bottom housing ensures a leak-tight, corrosion resistant seal.
- Flanges are nickel plated carbon steel 316SS flanges are available.

Types 102/103 are top housing and diaphragm capsule designs. The diaphragm capsule is threaded to the top housing. The diaphragm

and top housing are then clamped to the bottom housing. Viton O-ring, compatible with all fill fluid and Teflon backup ring provide a seal between the diaphragm capsule and the top housing.

Types 202/203 are welded or bonded designs. Metallic diaphragms are welded to the top housing. Elastomeric diaphragms are bonded to the top housing. The diaphragm and top housings are then clamped to the bottom housing.

Types 302/303 are clamped designs. Elastomeric diaphragms are clamped between the top housing and bottom housing.



Type 102

SELECTION TABLES*

Table 1 – Process Connection/Type Number

Process Connection	Process Conn. Size Code – Inches							Type Number			
	Size	1/4	1/2	3/4	1	1 1/2	2	3	Capsule	Welded & Bonded	Clamped
	Code	25	50	75	10	15	20	30			
Flanged		•	•	•	•	•	•	•	102	202	302
Flanged (with Flushing Connection)		•	•	•	•	•	•	•	103	203	303

Table 3 – Bottom Housing Material⁽⁵⁾

Material	Code	Connection Size	Flange Class	102 & 202	103 & 203	Connection Size	Flange Class	302	303
Steel	B	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
304 SS	C	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
316L SS	S	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Hastelloy B	G	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Hastelloy C 22	J	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Hastelloy C 276	H	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Carpenter 20	D	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Monel 400	M	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Inconel 600	W	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Nickel	N	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•	1/2", 3/4", 1 1/2" 2"	150, 300	•	•
Titanium	TI	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•	•				
Tantalum Clad SS	SU	1, 1 1/2", 2"	150, 300, 600	•					
Halar Coated Monel ⁽⁹⁾	BH	1/2", 3/4", 1, 1 1/2", 2", 3"	150, 300, 600, 900 & 1500	•		1/2", 3/4", 1 1/2" 2"	150, 300	•	•
PVC ⁽⁴⁾	V	1, 1 1/2", 2"	150	•		1 1/2", 2"	150	•	•
Teflon ⁽⁴⁾	T	1, 1 1/2", 2"	150	•		1 1/2", 2"	150	•	•
Kynar ⁽⁴⁾	KY	1, 1 1/2", 2"	150	•		1 1/2", 2"	150	•	•

Table 2 – Diaphragm Material

Material	Temp. Limits	Code	102/103	202/203	302/303
316L SS		S	•	•	
304 SS		C	•	•	
Monel 400		P	•	• ⁽²⁾	
Nickel		N	•	•	
Carpenter 20		D	•	•	
Tantalum		U	•	•	
Hastelloy B		G	•	•	
Hastelloy C 22		J	•	•	
Hastelloy C 276		H	•	•	
Titanium		TI	•	•	
Gold Plated 304 SS		W	•	•	
Teflon	-40/400°F	T	•	•	•
Viton ⁽¹⁾	-40/350°F	Y	•	•	•
Kalrez ⁽¹⁾	30/212°F	K	•	•	•
Halar Coated Monel	-40/300°F	R	•	•	•

Table 4 – Instrument Connection

Size – NPT	Code
1/4	02T
1/2	04T

*See Table A on page 170-171 for instrument compatibility.

Continued next page

SELECTION TABLES* (Cont.)

Table 5 – Filling Fluid

Filling	Service	Connection to Instrument	Temperature Limits Range °F	Code
Glycerin	Pressure	Direct Only	0/400	CG
Silicone	Pressure/Vacuum	Direct or Remote Line	-40/600	CK
Halocarbon	Pressure/Vacuum in presence of strong oxidizing agent	Direct or Remote Line	-80/392	CF
Syltherm	Pressure/Vacuum	Direct or Remote Line	-40/750	HA
Food Grade Silicone	Pressure/Vacuum	Direct or Remote Line	-40/500	CZ
Distilled Water	Pressure/Vacuum	Direct or Remote Line	40/185	FJ
Ethylene Glycol & Water	Pressure/Vacuum	Direct or Remote Line	-10/200	CT
Propylene Glycol	Pressure/Vacuum	Direct or Remote Line	-50/325	CV
Mineral Oil	Pressure/Vacuum	Direct or Remote Line	10/400	HY
Silicone 10 CST	Pressure/Vacuum	Direct or Remote Line	-40/500	DJ

Table 6 – Optional Features

See page 168-169 for X variations.

Table 8 – Flange Type

Type	Code	
Raised Face	RF	Standard
Ring Joint	RJ	Optional
Flat Face	FF	Optional

NOTES

- (1) Viton and Kalrez diaphragm max. pressure 500 psi.
- (2) Type 202, 203 monel diaphragm must be ordered w/ monel top housing (XYM).
- (3) Halar coated monel bottom housing Temp. -40°F/300°F.
- (4) Bottom housing non-metallic material

Material	Max. Pressure	Temperature
PVC	75 psi	100°F
Teflon Flanged	270 psi	150°F
Kynar	200 psi	180°F
- (5) 2500 class flange available upon request

Table 7 – Flange Ratings

Ashcroft flanged diaphragm seals are manufactured in accordance with ASME/ANSI B 16.5. The chart below indicates maximum allowable working pressures for carbon steel and stainless steel flanged diaphragm seals. This pressure is determined by the flange material, the class of the flange and the temperature the flange will be exposed to.

The diaphragm seal must be rated for a pressure greater than the full scale range of the instrument.

CARBON STEEL FLANGE							STAINLESS STEEL FLANGE (XSE)						
Maximum Allowable Working Pressure (psi)							Maximum Allowable Working 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	720	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
10000	20	50	105	155	280	430	10000	20	355	710	1065	1770	2950

TO ORDER 102, 202 & 302 FLANGED SERIES DIAPHRAGM SEAL:

10 - 102 - S S - 04T X CG - - - 150 RF

1. Process Connection _____
2. Diaphragm Material _____
3. Bottom Housing Material _____
4. Instrument Connection _____
5. Fill Fluid (when attached to instrument) _____
6. Optional Features (see page 168-169) _____
7. Flange Class _____
8. Flange Type _____