

## Types 402/403 Flanged All-Welded Diaphragm Seal



TYPE 403 SHOWN

### PRODUCT FEATURES

- Recommended for use where clamped joints are not acceptable
- Assists in controlling plant emissions by helping prevent potential leakage of hazardous chemicals
- Prevents inadvertent disassembly

### SPECIFICATIONS

<b>Model Number:</b>	Type 402, 403
<b>Process Connection Size:</b>	½", ¾", 1", 1½", 2", 3", 4"
<b>Instrument Connection Size:</b>	¼", ½" NPT
<b>Diaphragm Material:</b>	316 L SS, Hastelloy B, Hastelloy C 22, Hastelloy C 276, Tantalum, Monel, Titanium
<b>Bottom Housing Materials:</b>	316 L SS, Hastelloy B, Hastelloy C 22, Hastelloy C 276, Monel, Titanium
<b>Filling Fluid:</b>	Glycerin, Silicone, Halocarbon, Syltherm and others

OPTIONS	Code
Stainless steel clamp rings and flanged ring – includes 300 stainless steel clamping bolts (1500 psi max)	SE
300 series stainless steel clamping bolts (max pres is 1500 psi)	SB
Pipe plugs for flushing connections – pipe plugs are available in the same materials as bottom housings	PU
Welded instrument to diaphragm seal	DU
Dual flushing connections (½ NPT) (Limited to 2" and 3" flanged seals only)	DB
Clean for gaseous oxygen or strong oxidizing agent applications.	6B

### Order Example

1	2	3	4	5	6	7	8	9
10	402	S	S	02T	CG	SE	150	RF
Process Connection (10)	Type (402)	Diaphragm Capsule Material (S)	Bottom Housing Material (S)	Type (02T)	Fill Fluid (CG) When attached to an instrument	Options (SE)	Flange Rating	Flange Type

## Types 402/403 Flanged All-Welded Diaphragm Seal

**Table 1 – Process Connection**

Process Connection	Size	Code
Flanged	1/2	50
Flanged	3/4	75
Flanged	1	10
Flanged	1 1/2	15
Flanged	2	20
Flanged	3	30

**Table 2 – Type**

Description	Code
All-welded diaphragm seal	402
All-welded diaphragm seal w/flushing connection	403

**Table 3 – Diaphragm Materials**

Materials	Code
316L SS	S
Hastelloy B	G
Hastelloy C-276	H
Tantalum	U
Monel 400	P
Titanium	TI
Hastelloy C-22	J

**Table 4 – Housing Materials**

Bottom	Code	Top
316L SS	S	316L SS
Hastelloy B	G	316L SS
Hastelloy C-22	J	316L SS
Hastelloy C-276	H	316L SS
Monel 400 <sup>(1)</sup>	M	Monel 400
Titanium <sup>(2)</sup>	TI	Titanium

(1) Supplied standard with Monel top housing

(2) Supplied standard with Titanium top housing

**Table 5 – Instrument Connection**

Instrument Connection	Size	Code
Threaded – female NPT	1/4	02T
Threaded – female NPT	1/2	04T

**Table 6 – Filling Fluid**

Fill	Service	Connection to Instrument	Temperature 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	-70/300	CF
Syltherm	Pressure	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

Monel is a registered trademark of Huntington Alloys, Inc.  
 Hastelloy is a registered trademark of Cabot Corp.  
 Halocarbon is a registered trademark of Halocarbon Products  
 GYLON 3510 is a registered trademark of Garlock Inc.

**Table 7 – Flanges**

CARBON STEEL FLANGE						
Maximum Allowable Pressure (psi)						
Temperature (°F)	FLANGE CLASS					
	150	300	600	900	1500	2500
<100	285	740	1480	2220	3705	6170
200	260	675	1350	2025	3375	5625
300	230	655	1315	1970	3280	5470
400	200	635	1270	1900	3170	5280
500	170	600	1200	1795	2995	4990
600	140	550	1095	1640	2735	4560
650	125	535	1075	1610	2685	4475
700	110	535	1065	1600	2665	4440
750	95	505	1010	1510	2520	4200
800	80	410	825	1235	2060	3430
850	65	270	535	805	1340	2230
900	50	170	345	515	860	1430
950	35	105	205	310	515	860
1000	20	50	105	155	280	430

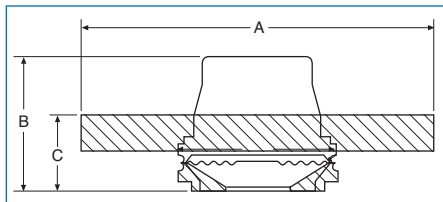
STAINLESS STEEL FLANGE (XSE)						
Maximum Allowable Pressure (psi)						
Temperature (°F)	FLANGE CLASS					
	150	300	600	900	1500	2500
<100	275	720	1440	2160	3600	6000
200	230	600	1200	1800	3000	5000
300	205	540	1075	1615	2690	4480
400	190	495	995	1490	2485	4140
500	170	465	930	1395	2330	3880
600	140	440	885	1325	2210	3680
650	125	430	865	1295	2160	3600
700	110	420	845	1265	2110	3520
750	95	415	825	1240	2065	3440
800	80	405	810	1215	2030	3380
850	65	395	790	1190	1980	3300
900	50	390	780	1165	1945	3240
950	35	380	765	1145	1910	3180
1000	20	355	710	1065	1770	2950

**Table 8 – Flange Type**

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

### Types 402, 403 Raised Face – Flanged – 1, 1 1/2, 2"

#### Dimensions



Flange		TYPE 402						TYPE 403					
		A		B		C		A		B		C	
Size	Rating (#)	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
1	150	4 1/4	(108)	2 1/8	(54)	1 3/16	(30)	4 1/4	(108)	2 7/8	(73)	1 1/16	(49)
	300 or 600	5	(127)			1 1/4	(32)	5	(127)			2	(51)
	900 or 1500	6	(152)			1 1/4	(32)	6	(152)			2	(51)
1 1/2	150	5	(127)	2 1/8	(62)	5	(127)	5	(127)	2 15/16	(75)	1 7/8	(48)
	300 or 600	6 1/4	(159)			6 1/4	(159)	6 1/4	(159)			1 7/8	(48)
	900 or 1500	7	(178)			7	(178)	7	(178)			1 7/8	(48)
2	150	6	(152)	2 15/32	(63)	6	(152)	6	(152)	2 15/16	(75)	2 3/16	(56)
	300 or 600	6 1/2	(165)			6 1/2	(165)	6 1/2	(165)			2 3/16	(56)
	900 or 1500	8 1/2	(216)			8 1/2	(216)	8 1/2	(216)			2 3/16	(56)