



Pressure & temperature limitations

As mentioned before each diaphragm seal system has limitations according to its construction or base material and the specific data sheet for each item lists these in full. However, besides these maximum and minimum temperature ratings there is also a further limitation on flanges concerning what pressure can be used at specific temperatures, and these must be taken into consideration when specifying.

In table 2 are shown the allowable ranges for temperature and pressure for the most common AISI-316 flanges available according ASME B 16.5. All pressures are shown in BAR.

Table 2

°F	°C	flange rating (class)						
		150#	300#	400#	600#	900#	1500#	2500#
-20 to ..								
100	38	19	50	66	99	149	248	414
200	93	17	43	57	85	128	213	356
300	149	15	39	51	77	116	193	321
400	204	13	36	47	71	106	177	295
500	260	12	33	44	66	99	165	274
600	316	10	31	41	62	93	155	259
650	343	9	31	41	61	92	153	255
700	371	8	30	40	60	89	149	248
750	399	7	29	39	58	88	145	243
800	427	6	29	38	57	86	143	239
850	454	4	28	37	56	84	140	233
900	482	3	27	36	54	81	136	226
950	510	2	27	36	53	80	133	222
1.000	538	1	25	33	50	75	125	209
1.050	566		25	33	50	74	124	207
1.100	593		22	30	44	67	111	185
1.150	621		19	25	38	57	94	158
1.200	649		14	19	28	43	71	118
1.250	677		12	17	25	38	63	104
1.300	704		10	13	19	28	47	79
1.350	732		7	10	14	21	36	59
1.400	760		5	7	10	16	26	43
1.450	788		4	6	8	12	20	33
1.500	816		3	4	6	9	14	24

Conversion formula for temperature ranges

formula

- °F = 9/5°C + 32
- °C = 5/9(°F-32)

Conversion table for pressure ranges

Table 3

unit	mbar	bar	Pa	kPa	MPa	PSI
1 mbar	1	0,001	100	0,1	0,0001	0,0145
1 bar	1.000	1	100.000	100	0,1	14,5038
1 Pa (N/m ²)	0,01	0,00001	1	0,001	0,000001	0,000145
1 kPa (k N/m ²)	10	0,01	1.000	1	0,001	0,145
1 MPa (M N/m ²)	10.000	10	1.000.000	1.000	1	145,038
1 PSI	68,95	0,06895	6.895,06	6,895	6,895.10	1

Upper and lower part materials

Table 4

material	upper / lower part	diaphragm
Stainless steel	AISI 316; AISI 316 L; AISI 321	AISI 316 L
Hastelloy	B2; C-4; C-276	B2; C-276
Monel	400	400
Inconel	600; 686	600; 686
Incoloy	825	825
Nickel	200; 201	200; 201
Lining/foil	PTFE	PTFE 0.25 mm
Exotic	Platinum; Tantalum; Titanium; Zirconium	
Coating	PFA; PTFE; ETFE; FEP; PVDF; Halar (ECTFE)	
Plastics	PP; PVC; PVDF; PTFE	
Precious material	Gold and Silver plating 40 micron	

temperature limitations

Silver plating	max. 150 °C
Gold plating	max. 400 °C
PTFE foil	max. 150 °C ≤ 100 bar, for 0.25 mm thickness
PVC	max. 60 °C ≤ 2 bar
PP	max. 80 °C ≤ 2 bar
PVDF	max. 120 °C ≤ 2 bar
PFA coating	max. 260 °C
PTFE coating	max. 290 °C
ETFE coating	max. 150 °C
FEP coating	max. 205 °C
PVDF coating	max. 120 °C
Halar coating	max. 150 °C