

TEMPERATURE CORRECTION FACTORS

As the service temperature increases, the maximum pressure a hose assembly can withstand decreases. The material from which the hose is made and the method of fitting attachment (mechanical, soldered, welded, silver brazed) determine the maximum pressure at which an assembly can be used. By using the factors given in the chart below, the approximate safe working pressure at elevated temperatures can be calculated for assemblies with welded or mechanically attached fittings.

Temperature Correction Factors

Temp	304, 316L	321				
(°F)	Stainless	Stainless	Bronze	Monel	Hastelloy	Inconel
Room	1.00	1.00	1.00	1.00	1.00	1.00
150	.96	.97	.92	.93	.97	.99
200	.92	.94	.89	.90	.94	.98
250	.91	.92	.86	.87	.92	.97
300	.86	.88	.83	.83	.91	.97
350	.85	.86	.81	.82	.89	.96
400	.82	.83	.78	.79	.87	.95
450	.80	.81	.75	.77	.86	.94
500	.77	.78	—	.73	.85	.94
600	.73	.74	—	.72	.84	.92
700	.69	.70	—	.71	.82	.90
800	.64	.66	—	.70	.81	.89
900	—	.62	—	—	.79	.87
1000	—	.60	—	—	.78	.86
1100	—	.58	—	—	.75	.84
1200	—	.55	—	—	.73	.82
1300	—	.50	—	—	.69	.79
1400	—	.44	—	—	.65	.77
1500	—	.40	—	—	—	.74

Saturated Steam Pressure To Temperature (PSIG)

Saturated Steam (PSIG)	Temp (°F)	Saturated Steam (PSIG)	Temp (°F)	Saturated Steam (PSIG)	Temp (°F)
0	212	150	366	450	460
10	238	175	377	475	465
20	259	200	388	500	470
30	274	225	397	550	480
40	287	250	406	600	489
50	298	275	414	700	505
60	307	300	422	800	520
75	320	325	429	900	534
80	324	350	436	1000	546
90	331	375	442	1250	574
100	338	400	448	1500	606
125	353	425	454	2500	669

Example

How to determine if 3/4" annular stainless hose with welded fittings is satisfactory for the given operating conditions:

Given:

Maximum operating temperature is 700° F.
Maximum operating pressure is 200 PSIG.

Computation:

From the specification table on page 5— nominal rated burst pressure for 3/4" 312-SP0075 with welded fittings is 3200 PSIG.

From Temperature Correction Factors Chart — factor for stainless at 700°F is .70

Rated Burst Pressure: 3200 PSIG x .70 = 2240 PSIG (rated burst pressure at 700°F)

Safe Operating Pressure: 2240 ÷ 4 = 560 PSIG (using 4:1 safety factor)

Result:

Since the maximum operating pressure for 312-SP0075 at 700°F is 560 PSIG the hose will meet the required operating conditions outlined above.

Saturated Steam Pressure To Temperature (Hg)

Saturated Steam Vacuum (in. of Hg)	Temp (°F)
—	0
29.84	20
29.74	32
29.67	40
29.39	60
28.89	80
27.99	100
26.48	120
24.04	140
20.27	160
15.20	180
6.46	200

