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.

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

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

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

Example

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 Product Specifications table - nominal rated burst pressure for 3/4" with one layer of braid and 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 3/4” one braid layer at 700°F is 560 PSIG the hose will meet the required operating conditions outlined above.