



Weld Fitting
Pressure Temperature Chart

ASME B31.1

ASME B16.9 - A234 Gr. WPB



Schedule: **Std**

Nominal Pipe Size	Outside Diameter	Wall Thickness	Temperature (°F)			
			-20° to 650°	700°	750°*	800°*
			Working Pressure – (psig)			
1/2	0.84	0.109	4340	4170	3760	3125
3/4	1.03	0.113	3605	3460	3125	2595
1	1.315	0.133	3300	3165	2860	2375
1 1/4	1.66	0.140	2710	2600	2350	1950
1 1/2	1.9	0.145	2435	2340	2110	1755
2	2.375	0.154	2050	1965	1775	1475
2 1/2	2.875	0.203	2245	2155	1945	1615
3	3.5	0.216	1945	1865	1685	1400
3 1/2	4	0.226	1775	1700	1535	1275
4	4.5	0.237	1645	1580	1425	1185
5	5.562	0.258	1445	1385	1250	1040
6	6.625	0.280	1310	1255	1135	940
8	8.625	0.322	1150	1105	1000	830
10	10.75	0.365	1045	1005	905	750
12	12.75	0.375	900	865	780	650
14	14	0.375	820	785	710	590
16	16	0.375	715	685	620	515
18	18	0.375	635	610	550	455
20	20	0.375	570	545	490	410
22	22	0.375	515	495	445	370
24	24	0.375	470	455	410	340
26	26	0.375	435	420	375	315
28	28	0.375	405	385	350	290
30	30	0.375	375	360	325	270
36	36	0.375	315	300	270	225
42	42	0.375	265	255	230	190
48	48	0.375	235	225	200	165

*Upon prolonged exposure to temperatures around 775°F the carbide phase of carbon steel may be converted to graphite. For all applications refer to the appropriate section of B31 Code for Pressure Piping. See appendix for more information.

This information is provided for quick references, always consult applicable ASME, ASTM and Manufacture's standards.



Weld Fitting
Pressure Temperature Chart

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Schedule: **XH**

Nominal Pipe Size	Outside Diameter	Wall Thickness	Temperature (°F)			
			-20° to 650°	700°	750°*	800°*
			Working Pressure – (psig)			
1/2	0.84	0.147	6100	5860	5290	4395
3/4	1.03	0.154	5090	4890	4415	3665
1	1.315	0.179	4580	4395	3970	3295
1 1/4	1.66	0.191	3800	3645	3290	2735
1 1/2	1.9	0.2	3445	3310	2985	2480
2	2.375	0.218	2970	2850	2575	2135
2 1/2	2.875	0.276	3115	2990	2700	2245
3	3.5	0.300	2760	2650	2390	1985
3 1/2	4	0.318	2545	2445	2205	1830
4	4.5	0.337	2385	2290	2070	1720
5	5.562	0.375	2135	2050	1850	1535
6	6.625	0.432	2060	1980	1785	1485
8	8.625	0.5	1820	1750	1580	1310
10	10.75	0.500	1445	1390	1255	1040
12	12.75	0.500	1210	1165	1050	870
14	14	0.500	1100	1055	955	790
16	16	0.5	960	920	830	690
18	18	0.500	850	815	735	610
20	20	0.500	765	730	660	550
22	22	0.500	690	665	600	500
24	24	0.5	635	610	550	455
26	26	0.500	585	560	505	420
28	28	0.500	540	520	470	390
30	30	0.500	505	485	435	360
36	36	0.500	420	400	365	300
42	42	0.500	360	345	310	255
48	48	0.500	315	300	270	225

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Pressure Temperature Chart

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Schedule: **XXH**

Nominal Pipe Size	Outside Diameter	Wall Thickness	Temperature (°F)			
			-20° to 650°	700°	750°*	800°*
			Working Pressure – (psig)			
1/2	0.84	0.294	14580	14000	12635	10500
3/4	1.03	0.308	11790	11320	10215	8490
1	1.315	0.358	10440	10020	9045	7515
1 1/4	1.66	0.382	8460	8120	7330	6090
1 1/2	1.9	0.4	7590	7290	6580	5465
2	2.375	0.438	6490	6230	5620	4670
2 1/2	2.875	0.552	6805	6530	5895	4895
3	3.5	0.600	5960	5720	5165	4290
3 1/2	4	0.636	5465	5245	4735	3930
4	4.5	0.674	5105	4900	4420	3675
5	5.562	0.750	4530	4350	3925	3260
6	6.625	0.864	4365	4190	3785	3145
8	8.625	0.875	3310	3175	2870	2380
10	10.75	1.000	3015	2890	2610	2170
12	12.75	1.000	2510	2410	2175	1805

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Weld Fitting
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Schedule: 40

Nominal Pipe Size	Outside Diameter	Wall Thickness	Temperature (°F)			
			-20° to 650°	700°	750°*	800°*
			Working Pressure – (psig)			
FOR DIMENSION SPECIFICATIONS 1/2" THROUGH 10" REFER TO SCHEDULE STD						
12	12.75	0.406	980	940	845	705
14	14	0.438	960	920	830	690
16	16	0.500	960	920	830	690
18	18	0.562	960	920	830	690
20	20	0.594	910	875	790	655
24	24	0.688	880	840	760	630

Schedule: 80

Nominal Pipe Size	Outside Diameter	Wall Thickness	Temperature (°F)			
			-20° to 650°	700°	750°*	800°*
			Working Pressure – (psig)			
FOR DIMENSION SPECIFICATIONS 1/2" THROUGH 8" REFER TO SCHEDULE XS						
10	10.75	0.594	1730	1660	1500	1245
12	12.75	0.688	1690	1620	1465	1215
14	14	0.750	1675	1610	1455	1205
16	16	0.844	1650	1585	1430	1185
18	18	0.938	1630	1565	1410	1170
20	20	1.031	1610	1545	1395	1160
22	22	1.125	1595	1535	1385	1150
24	24	1.219	1585	1520	1375	1140

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Weld Fitting
Pressure Temperature Chart

ASME B31.1

ASME B16.9 - A234 Gr. WPB



Schedule: **160**

Nominal Pipe Size	Outside Diameter	Wall Thickness	Temperature (°F)			
			-20° to 650°	700°	750°*	800°*
			Working Pressure – (psig)			
1/2	0.84	0.188	8175	7850	7085	5885
3/4	1.03	0.219	7685	7375	6660	5530
1	1.315	0.25	6725	6455	5825	4840
1 1/4	1.66	0.250	5135	4930	4450	3695
1 1/2	1.9	0.281	5030	4830	4360	3620
2	2.375	0.344	4910	4715	4255	3535
2 1/2	2.875	0.375	4365	4190	3785	3145
3	3.5	0.438	4170	4005	3615	3000
4	4.5	0.531	3905	3750	3385	2810
5	5.562	0.625	3700	3555	3210	2665
6	6.625	0.719	3565	3420	3090	2565
8	8.625	0.906	3440	3300	2980	2475
10	10.75	1.125	3425	3285	2965	2465
12	12.75	1.312	3360	3225	2915	2420
14	14	1.406	3275	3145	2835	2355
16	16	1.594	3245	3115	2810	2335
18	18	1.781	3220	3090	2790	2320
20	20	1.969	3205	3075	2775	2305
22	22	2.125	3140	3010	2720	2260
24	24	2.344	3175	3050	2750	2285

***Upon prolonged exposure to temperatures around 775°F the carbide phase of carbon steel may be converted to graphite. For all applications refer to the appropriate section of B31 Code for Pressure Piping. See appendix for more information.**

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Appendix:

The calculated values do not apply to non-reinforced branch connections such as laterals. The calculated values do not apply to threaded fittings such as Swages.

The following formula from ASME B31.1 paragraph 104 was used in producing the tables above. Please note that there is no corrosion allowance included in the calculated values listed in the tables. Every application is different, and it is the responsibility of the purchaser to verify suitability.

$$P = \frac{2 SE (t_m - A)}{D_o - 2 y (t_m - A)}$$

Where:

- P** = allowable pressure (psi)
- SE** = maximum allowable stress in pipe wall (psi) from ASME B31.1
- t_m** = wall thickness (in) Note! -12.5% manufacturing tolerance on wall thickness is used in the calculations above.
- A** = additional thickness (in) to compensate for removal of material and/or corrosion allowance.
(**A = 0** in for the calculations above)
- y** = a coefficient depending on material and temperature range (y = 0.4 for the calculations above)
- D_o** = outside diameter (in)