

# Technical Data

## Pressure/Temperature Ratings

Temp. °F	Material/Class																	
	A105* & A350 LF2**					A182 F11***		A182 F5		A182 F9		A182 316		A182 316L				
	150	300	600	800	1500	800	1500	800	1500	800	1500	800	1500	800	1500			
-20 to 100	285	740	1480	1975	3705	2000	3750	2000	3750	2000	3750	1920	3600	1600	3000			
200	260	675	1350	1800	3375	2000	3750	1985	3725	2000	3750	1655	3095	1350	2530			
300	230	655	1315	1750	3280	1925	3610	1910	3580	1940	3640	1495	2795	1210	2270			
400	200	635	1270	1690	3170	1850	3465	1880	3530	1880	3530	1370	2570	1100	2065			
500	170	600	1200	1595	2995	1775	3325	1775	3325	1775	3325	1275	2390	1020	1910			
600	140	550	1095	1460	2735	1615	3025	1615	3025	1615	3025	1205	2255	960	1800			
650	125	535	1075	1430	2685	1570	2940	1570	2940	1570	2940	1185	2220	935	1750			
700	110	535	1065	1420	2665	1515	2840	1515	2840	1515	2840	1160	2170	915	1715			
750	95	505	1010	1345	2520	1420	2660	1410	2640	1420	2660	1140	2135	895	1680			
800	80	410	825	1100	2060	1355	2540	1355	2540	1355	2540	1125	2110	875	1645			
850	65	270	535	715	1340	1300	2435	1290	2415	1300	2435	1115	2090	860	1610			
900	50	170	345	460	860	1200	2245	985	1850	1200	2245	1105	2075					
950	35	105	205	275	515	850	1595	735	1370	1005	1885	1030	1930					
1000	20	50	105	140	260	575	1080	530	995	675	1270	935	1750					
1050	<i>A350 LF2 is suitable to -50°F at -20°F pressure ratings.</i>					385	720	385	720	460	855	915	1720					
1100						255	480	265	495	300	565	815	1525					
1150						165	310	165	310	200	375	630	1185					
1200						100	190	95	170	140	255	495	925					
1250												390	735					
1300															310	585		
1350															255	480		
1400															200	380		
1450															155	290		
1500															110	205		

Data in table are maximum fluid pressures at temperatures shown in side column in accordance with ANSI B16.34 and API 602.

Notes: \*Permissible, but not recommended for prolonged use above 800°F.

\*\*Not to be used over 650°F.

\*\*\*Permissible, but not recommended for prolonged use above 1100°F.

## Body and Bonnet Materials

	Description		Carbon Steel	Low Temp. Steel	Alloy Steel ASTM A182			Austenitic SS ASTM A182	
			ASTM A105	ASTM A350 LF2	F5	F11	F9	F316L	F316
Chemical Composition	Carbon	%	0.35 max.	.030 max.	0.15 max.	0.10-0.20	0.15 max.	.035 max.	0.08 max.
	Manganese	%	0.60-1.05	1.35 max.	0.30-0.60	0.30-0.80	0.30-0.60	2.0 max.	2.0 max.
	Phosphorus	%	0.040 max.	0.035 max.	0.030 max.	0.040 max.	0.030 max.	0.040 max.	0.040 max.
	Sulphur	%	0.050 max.	0.040 max.	0.030 max.	0.040 max.	0.030 max.	0.030 max.	0.030 max.
	Silicon	%	0.35 max.	0.15-0.30	0.50 max.	0.50-1.00	0.50-1.00	1.00 max.	1.00 max.
	Nickel	%	—	—	0.50 max.	—	—	10.00-15.00	10.00-14.00
	Chromium	%	—	—	4.0-6.0	1.00-1.50	8.00-10.0	16.00-18.00	16.00-18.00
	Molybdenum	%	—	—	0.44-0.65	0.44-0.65	.90-1.10	2.0-3.0	2.0-3.0

## Trim Materials

	Description		410	316	316L	Monel	Stellite® Gr. 6
			Chemical Composition	Carbon	%	0.15 max.	.08 max.
Manganese	%	1.00 max.		2.0 max.	2.0 max.	2.0 max.	2.00 max.
Phosphorus	%	0.040 max.		.040 max.	.040 max.	—	—
Sulphur	%	0.030 max.		0.030 max.	0.030 max.	0.024	—
Silicon	%	1.00 max.		1.00 max.	1.00 max.	0.5 max.	2.00 max.
Nickel	%	—		10.00-14.00	10.00-15.00	63.0 min.	3.00 max.
Chromium	%	12.00-14.00		16.00-18.00	16.00-18.00	—	25.0-32.0
Molybdenum	%	—		2.0-3.0	2.0-3.0	—	1.00 max.
Copper	%	—		—	—	28.0-34.0	—
Other Elements	%	—		—	—	Fe: 2.5 max.	Fe: 5.00 max. W: 3.0-6.0 Co: balance

