

Material Standards

Material	Bar Stock a	Forging b	Tubing
316 S.S.	ASTM A276	ASTM A182	ASME-SA-213 / ASTM-A-213
	ASME SA479	ASME SA182	ASTM-A-249 / ASTM-A-269
			MIL-T-8504 / MIL-T-8506
Brass	ASTM B16	ASTM B283	ASTM-B75
			ASME-SB75 (TEMPER "O")
Alloy 400	ASTM B164	ASTM B564	
	ASME SB164	ASME SB564	
Alloy 600	ASTM B166	ASTM B564	ASTM-B-163
	ASME SB166	ASME SB564	
Alloy C-276	ASTM B574	ASTM SB564	ASTM-B-622 / ASTM-B-626
Carbon Steel	ASTM A108		SAE J542b / SAE J525b
			ASTM-A-179
PTFE	ASTM D1710	ASTM D3293	

(a) includes straight configurations

(b) includes elbows, crosses and tees

Pipe End Pressure Ratings

Calculations based on ASME b31.3 code for process piping

NPT / ISO Pipe Size in.	316 SS and Carbon Steel				Brass			
	Male		Female		Male		Female	
	psig	bar	psig	bar	psig	bar	psig	bar
1/16	11000	760	6700	460	5500	380	3300	230
1/8	10000	690	6500	440	5000	340	3200	220
1/4	8000	550	6600	560	4000	270	3300	220
3/8	78000	540	5300	360	3900	270	2600	180
1/2	7700	530	4900	330	3800	260	2400	160
3/4	7300	500	4600	320	3600	250	2300	160
1	5300	370	4400	300	2600	180	2200	150
1 1/4	6000	410	5000	350	3000	200	2500	170
1 1/2	5000	340	4600	310	2500	170	2300	150
2	3900	270	3900	270	1900	130	1900	130

Stress Value based on ANSI B31.3 code for process piping

Material	Allowable Stress Value		Design Factor	Ultimate Tensile Strength	
	psi	bar		psig	bar
316 SS	20000	1372	3.75:1	75000	5170
Brass	10000	689	4:01	40000	2760
Steel	20000	1378	3:01	60000	4140

SAE/MS Pressure Rating

Pressure ratings are from SAE J1926/3

SAE / MS Thread Size	316 SS and Carbon Steel			
	(Non-positionable)		(Positionable)	
	psig	bar	psig	bar
5/16 - 24	4568	315	4568	315
7/16 - 20				
1/2 - 20			3626	250
9/16 - 18				
3/4 - 16	3626	250	2900	200
7/8 - 14				
1 1/16 - 12	2900	200	2320	160
1 3/16 - 12				
1 5/16 - 12				
1 5/8 - 12	2390	160	1813	125
1 7/8 - 12				
2 1/2 - 12	1813	125	1450	100