

STAINLESS STEEL TUBING GALLERY

304 WELDED



316 WELDED



304 SEAMLESS



316 SEAMLESS



STAINLESS STEEL TUBING SPECIFICATIONS

Seamless and Welded

- Recommend Annealed 304 or 316 stainless steel tubing to ASTM A269 or A213 or equivalent (ERW tubing is not recommended).
- 4-1 safety factor considering tensile strength of 75,000 psi at room temperature.
- Tube hardness should not exceed RB 80. The preferable hardness range is RB 75-80.
- Tubing should be free of any surface defects and imperfections, and should be suitable for bending and flaring. For drawn and welded tubing, a derating factor must be used.

TUBING WORKING PRESSURE TABLE - WELDED

Table 1 - Wall Thickness of Tube (Inches)

TUBE OD (IN)	0.01	0.012	0.016	0.02	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.12	0.134	0.156
1/16														
1/8									<i>Working Pressure (psig)</i>					
3/16														
1/4				3,000	4,200	5,250	7,350	10,135						
5/16				2,396	3,355	4,193	5,871							
3/8				2,000	2,800	3,500	4,900	6,500						
1/2				1,500	2,100	2,625	3,675	4,875	6,225	7,125	8,175			
5/8				1,200	1,680	2,100	2,940	3,900	4,980	5,700	6,540			
3/4				1,000	1,400	1,750	2,450	3,250	4,150	4,750	5,450			
7/8				857	1,200	1,500	2,100	2,786	3,557	4,071	4,671			
1				750	1,050	1,313	1,838	2,438	3,113	3,563	4,088			

The allowable working pressures for 304 stainless steel and 316 stainless steel welded tubing to ASTM A269, ASTM/ASME A249 or equivalent based on the following data: Temperature: -20°F to 100°F. Ultimate tensile strength: 75,000 psi; allowable stress: 20,000 psi as specified by ASME B31.3-2002.

TUBING WORKING PRESSURE TABLE - SEAMLESS

Table 2 - Wall thickness of Tube (Inches)

TUBE OD (IN)	0.01	0.012	0.016	0.02	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.12	0.134	0.156
1/16	5,587	6,861	9,593	12,185										
1/8					8,565	10,829			<i>Working Pressure (psig)</i>					
3/16					5,474	7,039	10,116							
1/4					4,020	5,132	7,500	10,135						
5/16						4,037	5,848	8,071						
3/8						3,326	4,791	6,566						
1/2						2,611	3,741	5,092	6,696					
5/8							2,951	3,998	5,225	6,075				
3/4							2,436	3,289	4,283	4,966	5,785			
7/8							2,073	2,793	3,628	4,199	4,881			
1							1,804	2,427	3,146	3,637	4,220	4,688		
1-1/4									2,485	2,867	3,321	3,682	4,149	4,900
1-1/2									2,046	2,358	2,726	3,020	3,398	4,003

The allowable working pressures for 304 stainless steel and 316 stainless steel seamless tubing to ASTM A269, ASTM/ASME A213 or equivalent based on the following data: Temperature: -20°F to 100°F. Ultimate tensile strength: 75,000 psi; allowable stress: 20,000 psi as specified by ASME B31.3-2002.

STRESS FACTOR FOR ELEVATED TEMPERATURES

TEMP(°F)	STAINLESS STEEL ASTM A-269	
	304	316
100	1.00	1.00
200	1.00	1.00
300	1.00	1.00
400	0.94	0.97
500	0.88	0.85
600	0.82	0.85
700	0.80	0.82
800	0.76	0.80
900	0.73	0.78
1000	0.69	0.77

To calculate the maximum allowable working pressure for various tubing materials at elevated temperatures, multiply the maximum allowable working pressure for the tube size and wall thickness found in Tables 1 and 2 by the correct stress factor located in this Table.

TO SAFELY SELECT PRODUCT:

Merit Brass Company is not a manufacturer of stainless steel tube or tube fittings, but we must stress the importance of choosing high quality tube and fittings to ensure the safety and reliability of your system. Please review your specific system requirements to ensure that they meet your needs, and that the system designer and user choose product with safety in mind. In designing your system, please consider the entire design and select the products necessary to complete your line safely and with performance that is trouble free. It is the responsibility of the system designer, installer and user to determine the system:

- Function
- Material compatibility
- Adequate ratings
- Proper installation, operation and maintenance

WARNING: Valve components should not be mixed or interchanged with any other manufacturer.

THREAD SPECIFICATIONS

One or more tubing end connections may exist on a given tube fitting; and therefore, it is important to note that the tube fittings stocked by Merit Brass are supplied with American National Pipe Threads (NPT) unless otherwise described. The reference specification is ASA B2.1; 1960. These threads meet the codified ISO standards as well as individual countries' standards.

Merit can obtain British Standard Pipe Threads (BSP) if you are interested. These BSP threads are available as follows:

- ISO Parallel pipe thread (British Standard Pipe Thread): reference specifications BS2779, ISO 228/1, DIN259, JISB 0202, IS 2643.
- ISO Taper pipe thread (British Standard Pipe Taper Thread): Reference specifications BS 21, ISO 7/1, DIN 2999, JIS B0203, IS 554.

If you are interested in the BSP tube fittings, please contact your sales representative today at mbsales@meritbrass.com or 800.726.9800.

