

TUBING SELECTION

Proper selection, handling, cutting, cleaning and installation of tubing is essential to leak free systems. The tubing surface is to be smooth and free from any scratches, axial or circumferential, which will allow leakage paths along the joints.

TUBING HARDNESS

Tubing must always be softer than the fitting material. Using the suggested hardness explained below will ensure perfectly sealing joints. Brennan instrumentation fittings have been tested successfully on tubing with hardness up to RB 90, the maximum allowable under ASTM A213 and ASTM A269. Although use of tubing this hard is permissible, and Brennan fittings will perform satisfactorily on such tubing, a hardness of between 70-74 RB is optimum. Tubing in this range also lowers installation time, difficulty and cost due to greater ease of bending. It is suggested customers use tubing with a hardness not exceeding a maximum of RB 80.

TUBING THICKNESS

The allowable pressure ratings of tubing for the wide range of wall thicknesses are calculated from values as specified by ANSO Code B 31.1. The range of tubing wall thicknesses vary from .010” to .109”. These wall thicknesses are generally preferred for tube sizes up to 1”. For higher tube sizes, this range may be increased to .120” and .160”.

Tubing with significantly higher wall thickness is generally not recommended as it may lead to lower of performance and higher torque requirements to create the joint. Tubing with significantly lower wall thicknesses is also not recommended as there is possibility of collapse of the tube.

WORKING PRESSURE TABLE

Tube OD IN	0.01	0.012	0.016	0.002	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								
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.