

# MULTITUBO EN CONDUCCION Y TRANSFERENCIA, S.A.

## TABLAS DE PRESION PERMITIDAS SUGERIDAS

### ANEXO # 2

#### STAINLESS STEEL TUBING

Tube OD	Tube Wall Thickness (Inches)																
	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.156	0.188	
1/16"	5600	6800	8100	9400	12000												
1/8"						8500	10900										
3/16"						5400	7000	10200									
1/4"						4000	5100	7500	10200		Working Pressure, PSIG						
5/16"							4000	5800	8000								
3/8"							3300	4800	6500								
1/2"							2600	3700	5100	6700							
5/8"								2900	4000	5200	6000						
3/4"								2400	3300	4200	4900	5800					
7/8"								2000	2800	3600	4200	4800					
1"									2400	3100	3600	4200	4700				
1 1/4"										2400	2800	3300	3600	4100	4900		
1 1/2"											2300	2700	3000	3400	4000	4900	
2"												2000	2200	2500	2900	3600	

304 and 316 annealed seamless tubing per ASTM A-269 or equivalent working pressure are based on allowable stress of 20,000 psi between -20°F and 100°F (Reference: ANSA B31.3)

#### CARBON STEEL TUBING

Tube OD	Tube Wall Thickness (Inches)													
	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.148	0.165	0.180	0.220	
1/8"	8000	10200												
3/16"	5100	6600	9600											
1/4"	3700	4800	7000	9600										
5/16"		3700	5500	7500		Working Pressure, PSIG								
3/8"		3100	4500	6200										
1/2"		2300	3200	4500	5900									
5/8"		1800	2600	3500	4600	5300								
3/4"			2100	2900	3700	4300	5100							
7/8"			1800	2400	3200	3700	4300							
1"			1500	2100	2700	3200	3700	4100						
1 1/4"				1600	2100	2500	2900	3200	3600	4000	4600	5000		
1 1/2"					1800	2000	2400	2600	2900	3300	3700	4100	5100	
2"					1500	1700	1900	2100	2400	2700	3000	3700		

Carbon steel hydraulic tubing per ASTM A-179 or equivalent. Working pressures are based on allowable stress of 15,700 psi between -70°F and 100°F (Reference: ANSI B31.3)

#### COPPER TUBING

Tube OD	Tube Wall Thickness (Inches)							
	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/8"	2700	3600						
3/16"	1800	2300	3400					
1/4"	1300	1600	2500	3500				
5/16"		1300	1900	2700		Working Pressure, PSIG		
3/8"		1000	1600	2200				
1/2"		800	1100	1600	2100			
5/8"			900	1200	1600	1900		
3/4"			700	1000	1300	1500	1800	
7/8"			600	800	1100	1300	1500	
1"			500	700	900	1100	1300	1500

#### PIPE END PRESSURE RATINGS

NTP Pipe Size	316 Stainless and Carbon Steel		Brass	
	Male	Female	Male	Female
1/8"	10000	6500	5000	3200
1/4"	8000	6600	4000	3300
3/8"	7800	5300	3900	2600
1/2"	7700	4900	3800	2400
3/4"	7300	4600	3600	2300
1"	5300	4400	2600	2200

Fittings with both Tube and NPT threaded pipe end connections have different pressure rating.

When specifying these type fittings, please refer to this chart for maximum allowable pressure rating.

A thread sealant is recommended when using NPT connections.

#### STRESS FACTORS

Stress Factor used to calculate maximum allowable working pressures at elevated temperatures.

NOTE: to find the maximum allowable working pressures for various tube materials at elevated temperatures,

simply multiply the maximum allowable working pressure for the tube size and wall thickness found in these

charts by the correct stress Factor found in the table below:

Temperature Stress Factor					
TEMP		304SS	316SS	Steel	Cooper
°F	°C	Stainless	Stainless		
200	93	1.00	1.00	0.95	0.80
400	204	0.93	0.96	0.86	0.50
600	316	0.82	0.85		
800	427	0.76	0.79		
1000	538	0.69	0.76		
1200	649	0.30	0.37		

Example:

Type 316 Stainless Steel 1/2" OD x 0.035" wall at 1000°F  
2600 psi x 0.76 = 1976 psi

Allowable working pressure for 1/2" OD x 0.035" wall type  
316 stainless steel tubing is therefore 1976 psi at 1000°F