

Pressure Rating Table for Stainless Steel Tube

Notes to the Table of Design Pressure

1. This data is intended to provide a general guide. It must not be relied upon in the absence of competent professional advice.
2. These design pressures have been calculated using the basic formulas of AS 4041-2006 "Pressure Piping". This code includes provision for various additional factors and must be consulted as appropriate. Note that tubes to specifications ASTM A213, A249 and A269 (and pipe specification A312) are specifically included in AS 4041; other tube specifications e.g. ASTM A554 and AS 1528 are not covered by the pressure piping code.
3. Alternative piping codes such as ASME B31.3 may give different design pressures.
4. Additional factors of safety may need to be applied to the values given in the table, depending upon the application conditions.
5. Calculations here are seamless tube to specifications such as ASTM A213. A weld joint efficiency factor of 85% is usually allowed for standard welded pipe and tube, and allowance made for corrosion or wear loss if appropriate.
6. The table gives design pressures at ambient temperature, up to 50°C. Reduced pressures apply at elevated temperatures, which can be calculated using the design strengths given in AS 4041.
7. Reduced pressures must be used for 304L and 316L unless these are "dual certified" 304/304L and 316/316L grades.
8. Pressures are given in megapascals (MPa). Conversions to other units are:

to convert	to	multiply by
megapascals (MPa)	pounds/sq. inch (psi)	145.0
megapascals (MPa)	ksi	0.145
megapascals (MPa)	kilograms/mm ² (kgf/mm ²)	0.10197
megapascals (MPa)	bar	10.00
megapascals (MPa)	kilopascals (kPa)	1000

Limitation of Liability

The information contained in this Atlas Steels Pressure Rating Table for Stainless Steel Tube document is not an exhaustive statement of all relevant information. It is a general guide for customers to the products and services available from Atlas Steels and no representation is made or warranty given in relation to this information or the products or processes it describes.

Pressure Rating Table for Stainless Steel Tube

Stainless Steel Grade TP304 and TP316 Tube

AS 4041 design pressures at ambient temperature.

Seamless tube certified to ASTM A 213M or A269.

Welded tube certified to ASTM A249M (weld joint factor must be applied).

Design Pressures (MPa)

O.D.		Wall Thickness (mm)										
(mm)	(inch)	0.45	0.50	0.60	0.70	0.90	1.20	1.50	1.60	2.00	2.50	3.20
4.76	3/16	25.7	28.8	35.3	42.1	56.6	81.0					
6.35	1/4	18.8	21.1	25.7	30.4	40.4	56.6	74.5	80.9			
7.14	9/32	16.6	18.6	22.6	26.7	35.3	49.2	64.4	69.7			
7.94	5/16	14.8	16.6	20.1	23.8	31.4	43.5	56.5	61.1	80.9		
9.52	3/8	12.3	13.7	16.6	19.6	25.7	35.3	45.6	49.2	64.4		
12.70	1/2	9.1	10.1	12.3	14.4	18.8	25.7	32.8	35.3	45.6		
15.88	5/8		8.0	9.7	11.4	14.8	20.1	25.6	27.5	35.3	45.6	
19.05	3/4		6.7	8.1	9.4	12.3	16.6	21.1	22.6	28.8	37.0	
22.23	7/8		5.7	6.9	8.1	10.4	14.1	17.8	19.1	24.3	31.1	
25.40	1		5.0	6.0	7.0	9.1	12.3	15.5	16.6	21.1	26.8	35.3
31.75	1 ¼			4.8	5.6	7.2	9.7	12.3	13.1	16.6	21.1	27.5
38.10	1 ½				4.6	6.0	8.1	10.1	10.8	13.7	17.3	22.6
44.45	1 ¾				4.0	5.1	6.9	8.6	9.2	11.6	14.7	19.1
50.80	2					4.5	6.0	7.5	8.1	10.1	12.8	16.6
63.50	2 ½					3.6	4.8	6.0	6.4	8.1	10.1	13.1
76.20	3						4.0	5.0	5.3	6.7	8.4	10.8
88.90	3 ½						3.4	4.3	4.5	5.7	7.2	9.2
101.60	4						3.0	3.7	4.0	5.0	6.3	8.1
127.00	5							3.0	3.2	4.0	5.0	6.4
152.40	6							2.5	2.6	3.3	4.1	5.3
203.20	8							1.8	2.0	2.5	3.1	4.0
254.00	10							1.5	1.6	2.0	2.5	3.2

IMPORTANT: Refer to the associated notes to this table on page 1.