

ALLOY 825 TUBING



Alloy 825 is an austenitic nickel-iron-chromium alloy also defined by additions of molybdenum, copper and titanium. It was developed to provide exceptional resistance to numerous corrosive environments, both oxidizing and reducing. With a nickel content range between 38–46%, this grade exhibits pronounced resistance to stress corrosion cracking (SCC) induced by chlorides and alkalis. The chromium and molybdenum content provides good pitting resistance in all environments except strongly oxidizing chloride solutions. Utilized as an effective material in a wide variety of process environments, Alloy 825 maintains good mechanical properties from cryogenic temperatures to 1,000° F.

PRODUCTION SPECIFICATIONS

ASTM B163/ASME SB163,
ASTM B829, NACE MR0175

MECHANICAL PROPERTIES

Yield Strength 0.2% Offset	35 KSI min.
Tensile Strength	85 KSI min.
Elongation (min. 2in.)	30%

DIMENSIONAL TOLERANCES

OD	OD Tolerance	Wall Tolerance
3/8" Tubes	+0.004"/-.000"	+/- 10%
1/2" Tubes	+0.005"/-.000"	+/- 10%

SIZE RANGE

Outside Diameter (OD)	Wall Thickness
1/4" - 3/4"	.035" - .065"

Cold Finished and Bright Annealed Tube

ALLOY 825 (UNS N08825) CHEMICAL COMPOSITION % (MAX.)

Element	Symbol	Range (%)
Chromium	Cr	19.5 - 23.5
Nickel	Ni	38.0 - 46.0
Carbon	C	0.05
Molybdenum	Mo	2.5 - 3.5
Manganese	Mn	1.0
Silicon	Si	0.5
Sulfur	S	0.03
Iron	Fe	22.0 (min.)
Copper	Cu	1.5 - 3.0
Aluminum	Al	0.2
Titanium	Ti	0.6 - 1.2

OD	Wall	ID	PSI
1/4" (.2500")	.035	.180	21,420
3/8" (.3750")	.035 .049	.305 .277	14,280 19,992
1/2" (.5000")	.035 .049 .065	.430 .402 .370	10,710 14,994 19,890
5/8" (.6250")	.049 .065	.527 .495	11,995 15,912
3/4" (.7500")	.065	.620	13,260

All Pressure Ratings are approximate and for illustration purposes only.
Values are not Guaranteed or Warranted.

TYPICAL APPLICATIONS

Oil & Gas Production - Sour Gas & Oil Wells
Acid Production - Sulphuric & Phosphoric
Pollution Control - Sulfur-Containing Flue Gas
Pickling Operations - Heating Coils & Tanks
Radioactive Waste Handling - Fuel Element Dissolvers
Food Processing Equipment

FABRICATION

This material has excellent formability, typical of nickel-base alloys, allowing the material to be bent to extremely small radii. Annealing after bending is not normally necessary. Upon request, PAC Stainless will provide additional information regarding the heating, hot or cold forming, machining and welding of Alloy 825 product.

