

Nickel Alloy

Alloy 825

(UNS N08825)

Application

Alloy 825 (UNS N08825) is an austenitic nickel-iron-chromium alloy with additions of molybdenum, copper and titanium. It was developed to provide exceptional corrosion resistance in both oxidizing and reducing environments. The alloy is resistant to chloride stress-corrosion cracking and pitting.

The addition of titanium stabilizes Alloy 825 against sensitization in the as-welded condition making the alloy resistant to intergranular attack after exposure to temperatures in a range that would sensitize unstabilized stainless steels. The fabrication of Alloy 825 is typical of nickel-base alloys, with material being readily formable and weldable by a variety of techniques.

Available tube product forms

STRAIGHT || COILED || SEAMLESS

Typical manufacturing specifications

ASTM B163, ASTM B423, ASTM B704

Also individual customer specifications.

Industries predominantly using this grade

**Oil and gas, Chemical processes,
Nuclear and power etc.**

Maximum Coil Length per Dimension (Unit : meter)

		Wall thickness (mm)					
		0.51	0.71	0.89	1.24	1.65	2.11
Outside diameter (mm)	3.175	2881	2237	1925	-	-	-
	6.35	1315	978	806	618	-	-
	9.53	851	625	509	381	301	250
	12.7	-	460	372	276	215	175
	19.05	-	-	242	177	136	110
	25.4	-	-	-	131	100	80

* We can provide longer length according to customer requirement

Technical Data

Chemical composition(% by weight)

Element	Ni	Cr	Mn	C	Cu	Si	S	Al	Ti	Mo	Fe	-
Minimum	38.0	19.5	-	-	1.5	-	-	-	0.6	2.5	22.0	-
Maximum	46.0	23.5	1.0	0.05	3.0	0.5	0.03	0.2	1.2	3.5	-	-
Aiming	40	20	0.6	0.01	1.7	0.3	0.0005	0.1	0.7	2.7	33	-

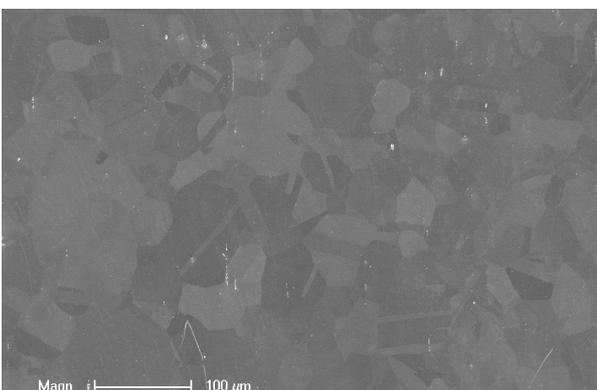
Mechanical Properties

	Specifications(Tubing, Annealed)		Actual data	
Tensile Rm	85	ksi (min.)	92~104	ksi
Tensile Rm	586	MPa (min.)	640~720	MPa
Yield (R.p. 0.2%)	35	ksi (min.)	37~62	ksi
Yield (R.p. 0.2%)	241	MPa (min.)	260~430	MPa
Elongation	30	% (min.)	35~50	%

Physical Properties(Room Temperature)

Specific Heat (0-100°C)	440	J.kg ⁻¹ .°K ⁻¹
Thermal Conductivity	11.1	W.m ⁻¹ .°K ⁻¹
Thermal Expansion	14	µm/m.°C
Modulus Elasticity	196	GPa
Electrical Resistivity	112	µohm.cm
Density	8.13	g/cm3

Microstructure



Maximum allowable pressure (Unit : BAR)

		Wall thickness (mm)						
		0.89	1.24	1.65	2.11	2.77	3.96	4.78
Outside diameter (mm)	6.35	451	655	897	1197	-	-	-
	9.53	290	415	572	780	1011	-	-
	12.7	213	304	414	566	741	-	-
	19.05	-	197	267	361	470	-	-
	25.4	-	146	197	265	342	508	629
	31.8	-	-	156	209	269	396	487
	38.1	-	-	129	173	222	325	399
	50.8	-	-	96	128	164	239	292

* Please let us know your design pressure, we can produce requested tube size

* The table above is for your reference