

NICKEL ALLOY

ALLOY 625



Alloy 625 (UNS N06625)

Alloy 625 is a nickel-chromium-molybdenum alloy used for its high strength, excellent fabricability and outstanding corrosion resistance. Service temperatures can range from cryogenic to 980°C (1800°F).

Alloy 625 strength is derived from the solid solution strengthening effect of molybdenum and niobium on its nickel-chromium matrix. Thus precipitation-hardening treatments are not required. This combination of elements also is responsible for superior resistance to a wide range of corrosive environments of unusual severity as well as to high-temperature effects such as oxidation and carburization.

AVAILABLE TUBE PRODUCT FORMS

STRAIGHT | COILED | SEAMLESS

SEAM WELDED, COLD REDRAWN AND ANNEALED

TYPICAL MANUFACTURING SPECIFICATIONS

ASTM B444 BS 3074

AMS 5581

Also individual customer specifications.

TYPICAL APPLICATIONS

WELLHEAD COMPONENTS

SHEATHING

DOWNHOLE EQUIPMENT FOR CORROSIVE / SOUR SERVICE

REACTOR CORE

CONTROL ROD COMPONENTS

GAS PIPELINE CONTROL LINES

HEAT EXCHANGERS

OIL REFINING

CHEMICAL PROCESSING

CONTROL AND INSTRUMENTATION TUBES

INDUSTRIES PREDOMINANTLY USING THIS GRADE

CHEMICAL PROCESSES

OIL AND GAS

NUCLEAR AND POWER



Technical Data

MECHANICAL PROPERTIES

Temper	Annealed (Grade 1)		Solution-annealed (Grade 2)	
Tensile Rm	120	ksi (min)	100	ksi (min)
Tensile Rm	827	MPa (min)	690	MPa (min)
R.p. 0.2% Yield	60	ksi (min)	40	ksi(min)
R.p. 0.2% Yield	414	MPa (min)	276	MPa (min)
Elongation (2" or 4D gl)	30	% (min)	30	% (min)

PHYSICAL PROPERTIES (Room Temperature)

Specific Heat (0-100°C)	460	J.kg ⁻¹ .°K ⁻¹
Thermal Conductivity	14.8	W.m ⁻¹ .°K ⁻¹
Thermal Expansion	12.4	mm/m/°C
Modulus Elasticity	207	GPa
Electrical Resistivity	10.3	μohm/cm
Density	8.42	g/cm ³

CHEMICAL COMPOSITION

(% by weight)

Element	Min	Max
C	-	0.1
Si	-	0.5
Mn	-	0.5
P	-	0.015
S	-	0.015
Al	-	0.4
Cr	20	23
Fe	-	5
Mo	8	10
Nb	3.150	4.150
Ni	Balance	
Ti	-	0.40