

# NICKEL ALLOY

# ALLOY 625



## Alloy 625 (UNS N06625)

Alloy 625 is a nickel-chromium 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-treated (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 <sup>-1</sup> .°K <sup>-1</sup>
Thermal Conductivity	14.8	W.m <sup>-1</sup> .°K <sup>-1</sup>
Thermal Expansion	12.4	µm/µm/°C
Modulus Elasticity	207	GPa
Electrical Resistivity	10.3	µohm/cm
Density	8.42	g/cm <sup>3</sup>

### 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