

# NICKEL ALLOY

# ALLOY 600



## Alloy 600 (UNS N06600)

Alloy 600 is a nickel-chromium alloy designed for use from cryogenic to elevated temperatures in the range of 2000°F (1093°C). The high nickel content of the alloy enables it to retain considerable resistance under reducing conditions and makes it resistant to corrosion by a number of organic and inorganic compounds. The nickel content gives it excellent resistance to chloride-ion stress-corrosion cracking and also provides excellent resistance to alkaline solutions.

Its chromium content gives the alloy resistance to sulphur compounds and various oxidizing environments. The chromium content of the alloy makes it superior to commercially pure nickel under oxidizing conditions. In strong oxidizing solutions like hot, concentrated nitric acid, 600 has poor resistance. Alloy 600 is relatively un-attacked by the majority of neutral and alkaline salt solutions and is used in some caustic environments. The alloy resists steam and mixtures of steam, air and carbon dioxide.

### AVAILABLE TUBE PRODUCT FORMS

STRAIGHT  
SEAMLESS

### TYPICAL MANUFACTURING SPECIFICATIONS

ASTM B163  
ASTM B167  
AMS 5580  
BS 3074

Also individual customer specifications.

### TYPICAL APPLICATIONS

HEAT EXCHANGERS  
THERMOCOUPLES  
CONTROL AND INSTRUMENTATION TUBES

### INDUSTRIES PREDOMINANTLY USING THIS GRADE

CHEMICAL PROCESSES  
NUCLEAR AND POWER



## Technical Data

### MECHANICAL PROPERTIES

Temper	Annealed	
Tensile Rm	110	ksi (min)
Tensile Rm	738	MPa (min)
R.p. 0.2% Yield	37	ksi (min)
R.p. 0.2% Yield	255	MPa (min)
Elongation (2" or 4D gl)	45	% (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	-	0.15
Si	-	0.5
Mn	-	1
S	-	0.015
Cr	14	17
Cu	-	0.5
Fe	6	10
Ni	72	-