

NICKEL ALLOY

ALLOY 690



Alloy 690 (UNS N06690)

Alloy 690 is a high-chromium nickel alloy having excellent resistance to many corrosive aqueous media and high-temperature atmospheres. The alloy's high chromium content gives it excellent resistance to carburisation, metal dusting, oxidation and sulfidation at high temperature. In addition to its corrosion resistance, alloy 690 has high strength, good metallurgical stability, and favorable fabrication characteristics.

AVAILABLE TUBE PRODUCT FORMS

STRAIGHT

SEAMLESS

TYPICAL MANUFACTURING SPECIFICATIONS

ASTM B167

Also individual customer specifications

TYPICAL APPLICATIONS

HEAT EXCHANGERS

STEAM GENERATORS

HIGH TEMPERATURE APPLICATIONS EXPOSED TO CAUSTIC SOLUTIONS

INDUSTRIES PREDOMINANTLY USING THIS GRADE

CHEMICAL PROCESSES

NUCLEAR AND POWER

OIL AND GAS



Technical Data

MECHANICAL PROPERTIES

Temper	Annealed	
Tensile Rm	86	ksi (min)
Tensile Rm	590	MPa (min)
R.p. 0.2% Yield	35	ksi (min)
R.p. 0.2% Yield	240	MPa (min)
Elongation (2" or 4D gl)	≥30	% (min)

PHYSICAL PROPERTIES (Room Temperature)

Specific Heat (0-100°C)	450	J.kg ⁻¹ .°K ⁻¹
Thermal Conductivity	13.5	W.m ⁻¹ .°K ⁻¹
Thermal Expansion	14	mm/m/°C
Modulus Elasticity	211	GPa
Electrical Resistivity	1.26	μohm/cm
Density	8.2	g/cm ³

CHEMICAL COMPOSITION (% by weight)

Element	Min	Max
C	-	0.05
Si	-	0.50
Mn	-	0.50
P	-	0.020
S	-	0.015
Al	-	0.500
Cr	27	31
Cu	-	0.50
Fe	7	11
Ti	-	0.50
Ni	Balance	