

NICKEL ALLOY

ALLOY 400



Alloy 400 (UNS N04400)

Alloy 400 (UNS N04400) is a solid-solution alloy that can be hardened only by cold working. It has high strength and toughness over a wide temperature range and excellent resistance to many corrosive environments.

Alloy 400 is widely used in many fields, especially marine and chemical processing. Typical applications are valves and pumps; pump and propeller shafts; marine fixtures and fasteners; electrical and electronic components; springs; chemical processing equipment; gasoline and fresh water tanks; crude petroleum stills, process vessels and piping; boiler feedwater heaters and other heat exchangers; and deaerating heaters.

AVAILABLE TUBE PRODUCT FORMS

STRAIGHT | COILED | SEAMLESS

SEAM WELDED, COLD REDRAWN AND ANNEALED

TYPICAL MANUFACTURING SPECIFICATIONS

ASTM B163 AMS 4574

ASTM B165 BS3074

Also individual customer specifications.

TYPICAL APPLICATIONS

HEAT EXCHANGERS

STEAM GENERATORS

REBOILER TUBES

BRINE HEATERS AND EVAPORATOR BODIES IN SALT PLANT

NUCLEAR CORE COOLING TUBES

SULPHURIC AND HYDROFLUORIC ACID ALKYLATION PLANT

CONTROL LINES

INDUSTRIES PREDOMINANTLY USING THIS GRADE

CHEMICAL PROCESSES

OIL AND GAS

NUCLEAR AND POWER



Technical Data

MECHANICAL PROPERTIES

Temper	Annealed	
Tensile Rm	70	ksi (min)
Tensile Rm	480	MPa (min)
R.p. 0.2% Yield	28	ksi (min)
R.p. 0.2% Yield	195	MPa (min)
Elongation (2" or 4D gl)	40	% (min)

PHYSICAL PROPERTIES (Room Temperature)

Specific Heat (0-100°C)	427	J.kg ⁻¹ .°K ⁻¹
Thermal Conductivity	21.8	W.m ⁻¹ .°K ⁻¹
Thermal Expansion	13.9	µm/µm/°C
Modulus Elasticity	173	GPa
Electrical Resistivity	5.47	µohm/cm
Density	8.83	g/cm ³

CHEMICAL COMPOSITION (% by weight)

Element	Min	Max
C	-	0.3
Si	-	0.5
Mn	-	2
S	-	0.24
Cu	Balance	
Fe	-	2.50
Ni	63	70