

NICKEL ALLOY

ALLOY 59



Alloy 59 (UNS N06059)

The chemically stable and high-temperature resistant nickel and cobalt alloy 2.4605 (alloy 59) is mainly used in the chemical industry, flue gas desulphurisation plants, paper industry. Alloy 59 is a nickel-chromium-molybdenum alloy with excellent corrosion resistance and high mechanical strength. The alloy has excellent resistance to both oxidizing and reducing media, and possesses superior resistance to chloride pitting and stress corrosion cracking.

The alloy is widely used in the most severe environments. Some applications include: flue gas scrubber components, bleach plant and digester components for the pulp and paper industry, sour gas handling equipment, sulfuric acid coolers, waste incinerators, and seawater equipment.

AVAILABLE TUBE PRODUCT FORMS

STRAIGHT

COILED

SEAMLESS

SEAM WELDED, COLD REDRAWN AND ANNEALED

TYPICAL MANUFACTURING SPECIFICATIONS

ASTM B619

ASTM B622

ASTM B626

Also individual customer specifications.

TYPICAL APPLICATIONS

FLUE GAS DESULPHURISATION

COMPONENTS EXPOSED TO SOUR GAS

SULPHURIC ACIDS REACTORS

EVAPORATORS

INDUSTRIES PREDOMINANTLY USING THIS GRADE

CHEMICAL PROCESSES

OIL AND GAS



Technical Data

MECHANICAL PROPERTIES

Temper	Annealed	
Tensile Rm	100	ksi (min)
Tensile Rm	690	MPa (min)
R.p. 0.2% Yield	45	ksi (min)
R.p. 0.2% Yield	310	MPa (min)
Elongation (2" or 4D gl)	40	% (min)

PHYSICAL PROPERTIES (Room Temperature)

Specific Heat (0-100°C)	414	J.kg ⁻¹ .°K ⁻¹
Thermal Conductivity	10.2	W.m ⁻¹ .°K ⁻¹
Thermal Expansion	21.3	mm/m/°C
Modulus Elasticity	210	GPa
Electrical Resistivity	1.26	μohm/cm
Density	8.61	g/cm ³

CHEMICAL COMPOSITION (% by weight)

Element	Min	Max
C	-	0.001
Si	-	0.10
Mn	-	0.50
P	-	0.015
S	-	0.010
Al	0.100	0.400
Co	-	0.30
Cr	22	24
Cu	-	0.50
Fe	-	1.50
Mo	15	16.50
Ni	Balance	