Elgiloy Specialty Metals – Wire Products

Inconel® alloy 625

UNS N06625
W. Nr 2.4856

Applicable Specifications

Wire & Bar	AMS 5666, AMS 5837, ASTM B446, AWS A5.14, NACE MR0175/ISO 15156-3, NACE MR0103/ISO 17945

Description: Inconel® 625 is a Nickel-Chromium-Molybdenum-Columbium (Niobium) alloy with excellent oxidation resistance, corrosion resistance, and strength at high temperatures. Age-hardening treatments are not required to obtain the high strength properties of Inconel® 625 due to the solid solution effects of molybdenum and columbium on the nickel-chromium matrix. Inconel® 625 is resistant to chloride-ion stress-corrosion cracking, pitting, and stress-corrosion cracking making it suitable for seawater applications. Inconel® 625 can operate from cryogenic temperatures up to 1800°F (980°C).
Applications include: Springs, seals, nuclear water reactors, and aircraft ducting systems.
Industries supplied include: Marine, Chemical Processing, and Aerospace.

Nominal Composition

	Ni	Cr	Mo	Nb	Fe	Co	Si	Mn	Al	Ti	C
min	58	20	8	3.15							
max		23	10	4.15	5	1.0	0.5	0.5	0.4	0.4	0.10

Physical Properties

	At 70°F	At 20°C
Density	0.305 lb/in^3	8.44 g/cm^3
Modulus of Elasticity (E)	30.1 x 10^3 ksi	208 GPa
Modulus of Rigidity (G)	11.8 x 10^3 ksi	81.2 GPa
Coefficient of Expansion	7.4 microinches/in.-°F (70-600°F)	13.3 x µm/m-°C (20-300°C)
Electrical Resistivity	50.8 µ ohm.in	129 µ ohm.cm
Thermal Conductivity	68 Btu-in./ft.^{2}hr.-°F	9.8 W/m-K

Typical Mechanical Properties

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1925-2050°F (1050-1120°C)	120 – 150 ksi (830-1100 MPa)	-300°F to 1800°F (-184°C to 980°C)
Spring Temper		200 – 240 ksi (1380-1655 MPa)	-300°F to 700°F (-184°C to 370°C)

For further information:
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