

ELGILOY Specialty Metals – Wire Products

Inconel® alloy 625

UNS N06625
W.Nr 2.4856

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 to 700°F (370°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	Cb (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

Applicable Specifications

Wire & Bar | AMS 5666, AMS 5837, ASTM B446, AWS A5.14, NACE MR0175 (ISO 15156-3).

Typical Mechanical Properties – Spring Applications

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

INCONEL® is a registered trademark of the Special Metals Corporation group of companies.

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