

Inconel® alloy 625

UNS N06625
W. Nr 2.4856

Applicable Specifications

Strip and Foil ASTM B443, AMS 5599, AMS 5869, ISO 6208, 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 Alloy 625 due to the solid solution effects of molybdenum and columbium on the nickel-chromium matrix. I625 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: Honeycomb, springs, seals, bellows, diaphragms, land-based turbine components, aircraft exhaust ducting, and heat exchangers.

Industries supplied include: Automotive, Marine, Chemical Processing, Power Generation, Nuclear and Aerospace.

Nominal Composition

	C	Mn	Si	P	S	Cr	Mo	Nb	Co	Ti	Al	Fe	Ni
min						20.00	8.00	3.15					
max	0.10	0.50	0.50	0.015	0.015	23.00	10.00	4.15	1.00	0.40	0.40	5.00	Bal

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 μm/m-°C (20-538°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 - 250 ksi (1380 - 1724 MPa)	-300°F to 700°F (-184°C to 370°C)

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