



Inconel® 625 (Alloy 625), UNS N06625

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated
AMS 5599, AMS 5666, AMS 5837, AMS 5979, ASTM B443

Alloy 625 Wire Description

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Alloy 625 is a non-magnetic, corrosion and oxidation resistant, nickel-chromium alloy. This material can be used because of its high strength, excellent uniform corrosion resistance, resistance to stress cracking and excellent pitting resistance in 500°-600°F (260-316°C) water.

Its outstanding strength and toughness in the temperature range from cryogenic to 2000°F (1093°C) are derived primarily from the solid solution effects of the refractory metals columbium and molybdenum in a nickel-chromium matrix. The alloy has excellent fatigue strength and stress corrosion cracking to chloride ions.

Applications

Heat exchanger header bars
Wire rope for mooring cables,
Metal seals
Chemical processing components

Chemistry Typical

Nickel: 58.00 min

Chromium: 20.0-23.0

Iron: 5 min

Molybdenum: 8.0-10.0

Columbium + Tantalum: 3.15-4.15

Manganese: 0.50 max

Carbon: 0.10 max

Silicon: 0.50 max

Phosphorus: 0.015 max

Sulfur: 0.015 max

Aluminum: 0.40 max

Titanium: 0.40 max

Cobalt: 1.00 max

Physical Properties

Density: 0.305 lbs/in³, 8.44 g/cm³

Mean Coefficient of Thermal Expansion: in/in/°F (m/m/°C)

68-400°F (20-204°C): 7.3×10^{-6} (13.1)

68-600°F (20-315°C): 7.5×10^{-6} (13.5)

68-800°F (20-427°C): 7.7×10^{-6} (13.9)

Magnetic Permeability H= 200 Oersteds: Annealed: 1.0006

Modulus of Elasticity: KSI (MPa) in Tension

30.2×10^3 (208×10^3)

Melting Range, °F 2350-2460 (°C 1290-1350)

Mechanical Properties at Room Temperature

Annealed Typical

Ultimate Tensile Strength: 120 KSI min (827 MPa min)

Yield Strength: (0.2% offset) 60 KSI min (414 MPa min)

Elongation: 30% min (gauges > 0.040inched

Properties Tempered

Alloy 625 can be cold rolled to achieve the temper properties required by specific customers and/or manufacturing requirements. Contact Ulbrich Wire for details.

Additional Properties

Corrosion Resistance

Refer to NACE (National Association of Corrosion Engineers) for recommendations

Standard Wire Finishes

Extra Clean: (XC) Extra clean is also referred to as “bright annealed” or “bright annealed and cold rolled”

Grease (round wire only): Drawn in a heavy grease produces an “Ultra bright” finish for decorative applications

Soap (round wire only): Soap is used as a lubricant in the drawing process and is not removed. It acts as a lubricant during customer part forming operation. A soap finish is available in tempered products.

Plated: Many plating options are available.

*Special finishes are available: Contact Ulbrich Wire Sales with special finish and plating requests.

Forms

Continuous Coils

Cut to lengths

Precision cutting

Heat Treatment

Alloy625 cannot be hardened heat treating

Welding

For best results refer to: SSINA’s “Welding of Stainless Steels and Other Joining Methods”

* Inconel®625 is a registered trademark of the Special Metals Corp

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