Monel® 400 (Alloy 400), UNS N04400

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire AMS 4730, AMS 4544, QQN 2810D, ASTM B127, ASTM B164

Monel® 400 or Alloy 400 Description Wire Description

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Alloy 400 is a ductile material and with combination of nickel and copper is resistant to a wide variety of corrosive conditions. This alloy is most frequently applied in a range of environments going from mildly oxidizing through neutral and to moderately reducing conditions. Additional application area of this material is in marine environments and other non-oxidizing chloride solutions.

Applications

Cable wrap for oil and gas production
Marine components
Chemical processing
Fasteners
Screens

Chemistry Typical

Nickel + Cobalt: 63.0-70.0
Manganese: 2.0 max
Silicon: 0.50 max
Cobalt: 1.00 max
Iron: 2.5 max

Sulfur: 0.024 max

Carbon: 0.30 max

Copper: Balance

Physical Properties

Density, 0.319 lbs/in^3, 8.8 g/cm^3

Electrical Resistivity: microhm-cm:

At 68°F: 51.0

Thermal Conductivity: BTU/hr/ft^2/ft/°F (W/m•K):
At 212°F (100°C): 14.0 (24.1)

Mean Coefficient of Thermal Expansion: in/in/°F,(µm/m•C):
32-212°F(0-100°C): 7.7 x 10⁻⁶ (13.9)

Modulus of Elasticity: KSI (MPa) in Tension
26x 10^3(179 x 10^3)

Magnetic Permeability: Annealed: moderately

Melting Point: 2460°F (1350°C)

Mechanical Properties at Room Temperature

Properties: Annealed

Gauges: > .003 inches
Ultimate Tensile Strength: 70-85 KSI (483-586 MPA)
Yield Strength (0.2% offset): 28 KSI min (193 MPA min)
Elongation: 35% min
Hardness: Rb 68 max

Gauges: ≤ .003”

Ultimate Tensile Strength: Report
Yield Strength (0.2% offset): 28-48 KSI (193-331 MPa)
Elongation: Report
Hardness: Report

Spring Temper:
Ultimate Tensile Strength: 100 KSI min (690 MPa min)
Yield Strength (0.2% offset): 90 KSI min (620 MPa min)
Elongation: 2% min

Properties Tempered
Alloy 400 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

Alloy 400 is non hardenable by heat treatment.

Welding

For best results refer to: SSINA's "Welding of Stainless Steels and Other Joining Methods"

*Monel® 400 is a registered trademark of the INCO family of companies.

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