



Monel® 404 (Nickel 404), UNS N04404

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire
ASTM F-96

Nickel 404 or Monel® 404 Description

Nickel 404 has good strength, toughness excellent resistance to many corrosive environments. The alloy also has low permeability and good brazing characteristics.



Applications

Marine fixtures

Chemical processing equipment

Boiler feed water heaters and other heat exchanger components

Electronic devices where ceramic to metal sealing is required

Chemistry Typical

Nickel + Cobalt: 52.0-57.0

Manganese: 0.10 max

Silicon: 0.10 max

Cobalt: 1.00 max

Iron: 0.50 max

Sulfur: 0.024 max

Carbon: 0.15 max

Copper: Balance

Aluminum: 0.05 max

Physical Properties

Density, 0.322 lbs/in³, 8.91 g/cm³

Electrical Resistivity: ohm-cir mil/ft (microhm-m)

At 70°F (21°C): 294 (0.498)

Specific Heat: Btu/lb-°F (J/g-°C)

At 70°F (21°C): 0.0989 (0.414)

Thermal Conductivity: BTU/hr/ft²/ft/°F (W/m-°C)

At 70°F (21°C) – 133 (21)

Mean Coefficient of Thermal Expansion: $\mu\text{in/in-}^\circ\text{F}$, ($\mu\text{m/m}^\circ\text{C}$)

70-200°F (21-93°C) 7.39 (13.3)

70-572°F (21-300°C) 8.50 (15.3)

70-1000°F (21-539°C) 9.22 (16.6)

70-1500°F (21-816°C) 9.78 (17.6)

Modulus of Elasticity: KSI (MPa)

24.5 x 10³ (169 x 10³) in Tension

Magnetic Permeability, H = 200 Oersteds: Annealed 1.0017 max

Melting Point: 2370°F (1300°C)

Mechanical Properties at Room Temperature

Properties: Annealed

Ultimate Tensile Strength: 70 KSI min (483 MPA min)

Yield Strength (0.2% offset): 25 KSI min (172 MPA min)

Elongation: 35% min

Properties: Tempered

Nickel 404 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

Nickel 404 is non hardenable by heat treatment.

Welding

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

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