



Nickel 200, UNS N02200

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire
ASTM B 160, ASTM B162, AMS 5553

Nickel 200 Description

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Nickel is a wrought commercially pure Nickel with a maximum carbon level of 0.15%. This alloy provides highly ductile mechanical properties across a wide temperature range. It provides corrosion resistance in neutral to moderately reducing environments, provides high thermal and electrical conductivity in comparison to nickel-base alloys, stainless and low alloy steels. This alloy is not recommended for service above 600°F (316°C) because long-time exposures in the 800°F to 1200°F range result in precipitation of a carbon containing phase and loss of ductility.

Applications

Electronic components where going maybe required

Lead wires

Battery components

Transducers

Sparking electrodes

Heat exchangers

Bands and tags

Chemistry Typical

Nickel + Cobalt: 99.00 min

Carbon: 0.15 max

Manganese: 0.35 max

Silicon: 0.35 max

Sulfur: 0.010 max

Iron: 0.40 max

Copper: 0.25 max

Physical Properties

Density, 0.321 lbs/in³, 8.89 g/cm³

Specific Heat: BTU/lb/°F (J/kg•K):

32-212°F (0-100°C): 0.12 (456)

Thermal Conductivity, BTU/hr/ft²/ft/°F (W/m•K)

At 212°F (100°C): 38.8(67.1)

At 400°F (204°C): 35.4(61.3)

At 600°F (316°C): 36.5(56.3)

Mean Coefficient of Thermal Expansion: in/in/°F (μm/m•K)

80-200°F (27- 93°C): 7.4×10^{-6} (13.3)

80-400°F (27-204°C): 7.7×10^{-6} (13.9)

80-600°F (27-316°C): 8.0×10^{-6} (14.4)

Modulus of Elasticity, KSI (MPa)

30.0×10^3 (207×10^3)

Melting Range: 2615-2535°F (1435-1445°C)

Mechanical Properties at Room Temperature

Properties: Annealed

Ultimate Tensile Strength: 55 KSI min (380 MPa min)

Yield Strength (0.2% offset): 15 KSI min (100 MPa min)

Elongation:

35% min: gauges \leq 0.0035 inches

40% min: gauges $>$ 0.0035 inches

Hardness:

HV 117 max: gauges ≤ 0.010 inches

Rb 66 max: gauges > 0.010 inches

Properties: Tempered

Nickel 200 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: 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 200 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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