



Nickel 270, (Alloy 270), UNS N02270

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated
ASTM F3

Alloy 270 Wire Description

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Alloy 270 is a high purity grade of nickel and has a low base hardness and high ductility. It is essentially free from non-metallic inclusions. This alloy is typically made by powder metallurgy

Applications

Fluorescent lamp components
Electrical resistance thermometers
Hydrogen thyatron components
Platter bars
Passive cathode

Chemistry Typical

Nickel + Cobalt: 99.9 min
Copper: 0.01 max
Iron: 0.05 max
Manganese: 0.003 max
Carbon: 0.02 max
Sulfur: 0.003 max
Titanium: .005 max
Magnesium: 0.005 max
Silicon: 0.005 max

Physical Properties

Density: 0.322 lb/in³, 8.91 g/cm³

Electrical Resistivity: ohm-cir-mil/ft,(μohm•m): 45.0 (0.075)

Specific Heat: BTU/lb-°F (J/g-°K): 0.110 (460)

Thermal Conductivity: BTU-in/hr-ft²-°F (W/m•°C): 595(86)

Magnetic Permeability: Ferromagnetic

Mean Coefficient of Thermal Expansion: μin/in-°F (μm/m-°C) 70-200°F (20-95°C): 7.4(13.3)

Modulus of Elasticity: KSI (MPa) 30 x 10³ (207 x 10³) in tension

Melting Point: 2650°F (1454°C)

Mechanical Properties at Room Temperature

Properties: Annealed Typical

Ultimate Tensile Strength: 50 KSI min (345MPa min)

Yield Strength: 16 KSI min (110 MPa min)

Elongation: 50 % min

Hardness: Rb 66 max: gauges ≥ 0.010 inches

Properties Tempered

Alloy 270 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 270 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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