



Alloy 52, UNS N14052

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire ASTM F30

Alloy 52 Description

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Alloy 52 was developed for glass-to-metal seals for some of the soft glasses and ceramics. The alloy's rate of thermal expansion is virtually constant to a temperature of about 1050°F (565°C).

Applications

Magnetic reed switches

Glass to metal seals that need controlled linear expansion

Chemistry Typical

Carbon: 0.05 max

Silicon: 0.30 max

Manganese: 0.60 max

Nickel: 50.5 nom

Chromium: 0.25 max

Iron: Balance

Phosphorus: 0.025 max

Sulfur: 0.025 max

Aluminum: 0.10 max

Physical Properties

Density: 0.30 lb/in³, 8.30 g/cm³

Electrical Resistivity: ohm-cir-mil/ft, microhm-cm:

At 68°F (20°C): 258(43)

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

68-212°F (20-100°C): 97(140)

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

77-842°F (25-450°C): 5.4 (9.8)

Melting Point: 2600°F (1430°C)

Mechanical Properties at Room Temperature

Properties: Annealed Typical

Ultimate Tensile Strength: 78 KSI nom (536 MPa nom)

Yield Strength: 35 KSI nom (240 MPa nom) Elongation: 30% nom

Hardness: Rb 73 nom

Properties Tempered

Alloy 52 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 52 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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