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Hastelloy® G-3 (Alloy G3), UNS N06985

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated
ASTM 581, ASTM B 582

Hastelloy G-3 Wire Description

Alloy G3 has excellent corrosion resistance to oxidizing chemicals and atmospheres while offering resistance to reducing chemicals resulting from the nickel and copper content. The high molybdenum provides very good resistance to pitting and crevice corrosion. The low carbon helps prevent sensitization, giving the alloy resistance to inter-granular corrosion.

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Applications

Components used in handling equipment that processes reducing acids such as phosphoric and sulfuric

Components used in the productions of sour gas and oil

Chemistry Typical

Nickel: Balance

Chromium: 21.00-23.5

Iron: 18.00-21.00

Molybdenum: 6.0-8.0

Copper: 1.5-2.5

Cobalt: 5.0 max

Columbium + Tantalum: 0.50 max

Carbon: 0.015 max

Tungsten: 1.5 max

Silicon: 1.0 max

Phosphorus: 0.04 max

Sulfur: 0.03 max

Physical Properties

Density: 0.294lb/in³, 8.14 g/cm³

Electrical Resistivity: ohm-cir-mil/ft,(micro-ohms-cm):

675.97(112.37)

Specific Heat: BTU/lb-°F (J/Kg-°C)

At 77°F (25°C): 0.108 (453)

At 212°F (100°C): 0.111 (464)

At 392°F (200°C): 0.114 (478)

At 572°F (300°C): 0.118 (493)

At 752°F (400°C): 0.121 (507)

At 932°F (500°C): 0.124 (521)

At 1112°F (600°C): 0.130 (543)

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

At 77°F (25°C): 69 (10.0)

At 212°F (100°C): 82 (11.8)

At 392°F (200°C): 96 (13.8)

At 572°F (300°C): 110 (15.9)

At 752°F (400°C): 124 (17.9)

At 932°F (500°C): 139 (20.0)

At 1112°F (600°C): 151 (21.8)

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

75-212°F (24-100°C): 8.1 (14.6)

75-392°F (24-200°C): 8.1 (14.6)

75-572°F (24-300°C): 8.1 (14.6)

75-752°F (24-400°C): 8.2 (14.8)

75-932°F (24-500°C): 8.4 (15.1)

75-1112°F (24-600°C): 8.4 (15.1)

Modulus of Elasticity: KSI (MPa)

28.9×10^3 (199×10^3) in tension

Melting Range: 2300-2450°F (1260-1343°C):

Mechanical Properties at Room Temperature

Properties: Annealed Typical

Ultimate Tensile Strength: 90 KSI min (621 MPa min)

Yield Strength: 35 KSI min (241 MPa min)

Elongation: 45% min

Hardness: Rb 100 max (aim)

Properties Tempered

Alloy G-3 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 G-3 is non hardenable by heat treatment.

Welding

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

Hastelloy® G-3 is a registered trademark of Haynes International Corp.

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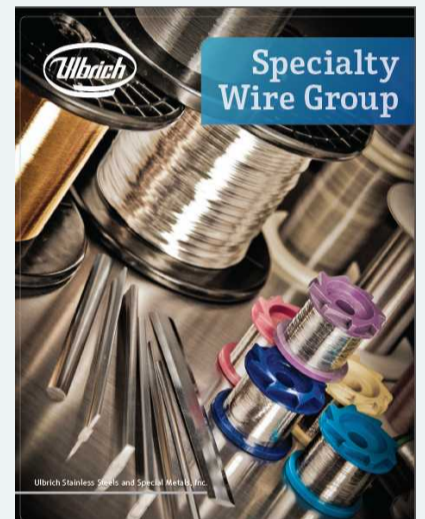


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