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INCONEL® 600, UNS N06600

(Nickel 600) Strip, Coil, Foil, Wire, AMS 5540, ASTM B168

Applications

Furnace components, chemical processing, food processing, nuclear engineering, honeycombs, flexible metal hose, tubing, bellows, television parts

Description

Inconel® 600 is a nickel-chromium alloy designed for use from cryogenic to elevated temperatures in the range of 2000 °F (1093 °C). It is non magnetic and readily weldable. It is used in a variety of corrosion resisting applications. The high nickel content of the material provides exceptional resistance to chloride stress corrosion cracking.

Chemistry Typical

Nickel + Cobalt: 72.0 min.
Chromium: 14.0-17.0
Iron: 6.00-10.00
Carbon: 0.15 max.
Manganese: 1.00 max
Sulfur: 0.015 max.
Silicon: 0.50 max.
Copper: 0.50 max

Physical Properties

Density: 0.304 lbs/in³, 8.42 g/cm³

Electrical Resistivity, ohm-circ mil/ft, ($\mu\Omega$ -m):
620 (1.03)

Specific Heat, Btu/lb-°F, (J/kg-°C):
0.106 (444)

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Mean Coefficient of Thermal Expansion: in/in/°F (mm/m/°C)

70 - 200 °F (21 - 93 °C) - 6.9×10^{-6} (12.4)

70 - 400 °F (21 - 204 °C) - 7.3×10^{-6} (13.1)

Modulus of Elasticity: ksi (MPa)

30×10^3 (207×10^3) in tension

Magnetic Permeability, H = 200 Oersteds: Annealed: 1.010

Melting Point: 2470 - 2576 °F (1354 - 1413 °C)

Forms

Coil – Strip, Foil, Ribbon

Wire – Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Annealed

Ultimate Tensile Strength: 80 KSI min (552 MPa min)

Yield Strength: (0.2% offset) 35 KSI min (241 MPa min)

Elongation: 30% min (gauges > 0.010 inches)

Tempered

Inconel® 600 can be cold rolled to various tempers. Contact Ulbrich Technical Service for additional information.

Tempered: Hard

Ultimate Tensile Strength: 125 KSI min (860 MPa min)

Yield Strength: (0.2% offset) 90 KSI min (620 MPa min)

Elongation: 2% min (gauges > 0.010 inches)

Hardness: Rc 30 min

Additional Properties

Corrosion Resistance

Refer to NACE (National Associate of Corrosion Engineers) for recommendations.

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Finishes

#1 – Hot rolled annealed and descaled. It is available in strip, foil and ribbon. It is used for applications where a smooth decorative finish is not required.

#2D – Dull finish produced by cold rolling, annealing and descaling. Used for deep drawn parts and those parts that need to retain lubricants in the forming process.

#2B – Smooth finish produced by cold rolling, annealing and descaling. A light cold rolling pass is added after anneal with polished rolls giving it a brighter finish than 2D.

#BA – Bright annealed cold rolled and bright annealed

#CBA – Course bright annealed cold rolled matte finish and bright anneal

#2 – Cold Rolled

#2BA – Smooth finish produced by cold rolling and bright annealing. A light pass using highly polished rolls produces a glossy finish. A 2BA finish may be used for lightly formed applications where a glossy finish is desired in the formed part.

Polished – Various grit finish for specific polish finished requirements.

** Not all finishes are available for all alloys – Contact Ulbrich Sales for more information.*

Wire Finishes

XC – Extra Clean Bright Annealed or Bright Annealed and Cold Rolled

Grease – Ultra bright finish (for decorative applications)

Soap – Soap coating on tempered wire to act as lubricant

** Contact Ulbrich Wire for custom wire finishes.*

Heat Treatment

Inconel® 600 cannot be hardened heat treating.

Welding

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

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