Ulbrich Stainless Steels & Special Metals, Inc. • 153 Washington Avenue • North Haven, CT 06473 USA • 800-243-1676 • ULBRICH.com

HASTELLOY® G-30, UNS N06030

(Nickel Alloy G-30) Strip, Coil, Foil, Wire, ASTM B582

Applications

Gas scrubbers, acid production and pickling

Description

Hastelloy® G-30 is an improved version of nickel-chromium-iron-molybdenum-copper alloy G-3. With higher chromium, added cobalt and tungsten, the G-30 shows superior corrosion resistance over most other nickel and iron based alloys in commercial phosphoric acids as well as complex environments containing highly oxidizing acids. The resistance of the alloy to the formation of grain boundary precipitates in the heat-affected zone makes it suitable for use in most chemical process applications in the as-welded condition.

Chemistry Typical

Nickel: Balance
Chromium: 28.00 – 31.50
Iron: 13.00 – 17.00
Molybdenum: 4.00 – 6.00
Copper: 1.00 – 2.40
Tungsten: 1.5-4.0
Cobalt: 5.00 max
Manganese:1.50 max
Columbium + Tantalum: 0.30-1.50
Carbon: 0.03 max
Phosphorus: 0.04 max
Silicon: 0.80 max
Sulfur: 0.02 max

Physical Properties

Density: 0.297 lbs/in³, 8.22 g/cm³

Mean Coefficient of Thermal Expansion: :in/in/°F (mm/m/°C):
70 - 212 °F (20 - 100 °C): 7.1 x 10^{-6} (12.8)

Thermal Conductivity: BTU-in/h-ft-°F (W/m-°K):
70 °F (21 °C): 71 (10.2)

Modulus of Elasticity: ksi (MPa)
29.3 x 10^3 (202 x 10^3) in tension

Melting Point (approximate): 2550 °F (1399 °C)

Forms

Coil – Strip, Foil, Ribbon
Wire – Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Annealed Typical

Ultimate Tensile Strength: 85 KSI min (586 MPa min)
Yield Strength: (0.2% offset) 35 KSI min (241 MPa min)
Elongation: 30% min

Tempered:

Contact Ulbrich Technical Service for additional information.

Additional Properties

Corrosion Resistance

Hastelloy® G-30 shows superior corrosion resistance in commercial phosphoric acids as well as complex environments containing highly oxidizing acids such as nitric/hydrochloric, nitric/hydrofluoric and sulfuric acids.
Refer to NACE (National Associate of Corrosion Engineers) for recommendations.

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.*

Cold Forming

Hastelloy® G-30 has good ductility and may be formed by conventional methods.

Heat Treatment

Hastelloy® G-30 can be hardened by cold working.

Welding

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