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

INCONEL® X750, UNS N07750

(Nickel X750) Strip, Coil, Foil, Wire, AMS 5542, AMS 5598, MIL-N-7786

Applications

Bellows, gas turbine, rotor blades, springs, fasteners

Description

Inconel® X750 is a nickel-chromium alloy made precipitation-hardenable by the additions of Titanium and Aluminum, having high creep-rupture strength at high temperatures to about 1300 °F (700 °C). It also has excellent properties down to cryogenic temperatures. Excellent corrosion and oxidation resistance and high strength at temperatures up to 1300 °F.

Chemistry Typical

Nickel + Cobalt: 70.00 min
Chromium: 14.0-17.0
Iron: 5.0-9.0
Titanium: 2.25-2.75
Aluminum: 0.40-1.00
Columbium + Tantalum: 0.70-1.20
Manganese: 1.00 max.
Silicon: 0.50 max.
Sulfur: 0.01 max.
Copper: 0.50 max.
Carbon: 0.08 max.
Cobalt: 1.00 max

Physical Properties

Density: 0.299 lbs/in³ , 8.28 g/cm³

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

70 - 212 °F (20 - 100 °C) 7.0 x 10⁻⁶ (12.0)

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Modulus of Elasticity: ksi (MPa)

31.0 x 10³ (213.7 x 10³) in tension

11.0 X 10³ (75.8 x 10³) in torsion

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Melting Point: 2540 - 2600 °F (1393 - 1427 °C)

Forms

Coil – Strip, Foil, Ribbon

Wire – Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Annealed Typical

Ultimate Tensile Strength

135 KSI max (930 MPa): gauges < 0.040 inches

145 KSI max (10000 MPa): gauges 0.040 - 0.060 inches

150KSI max (1034 MPa): gauges > 0.060 inches

Elongation: 20% min

Tempered

Inconel® X750 can be cold rolled to various tempers. Contact Ulbrich Technical Service for additional information.

Heat Treatment

Inconel® X750 can be heat treated. Contact Ulbrich Technical Service for additional information.

Additional Properties

Corrosion Resistance

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 in all alloys – Contact Ulbrich Sales for more information.*

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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 Wire Sales for custom wire finishes.*

Heat Treatment

Inconel® X750 can be hardened by:

Cold Working

Age Hardening

Cold Working followed by Age Hardening

Welding

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

For Reference Only

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