Inconel® X-750, UNS N07750

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated AMS 5542, AMS 5598, AMS 5667, AMS 5671, AMS 5698, AMS 5699, MIL-N-7786

Inconel® X750 Alloy Description

Alloy X750, with the addition of titanium and aluminum, is a nickel-chromium precipitation-hardenable alloy 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

Applications

Seal and other rings for gas turbines
Springs
Nuclear Springs
Fasteners

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)

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

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

**Mechanical Properties at Room Temperature**

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

Elongation: 20% min

**Properties: Tempered**

Alloy X750 can be cold rolled to achieve the temper properties required by specific customers and/or manufacturing requirements. Contact Ulbrich Wire for details.

**Heat Treatment**

Alloy X750 can be heat treated. Contact Ulbrich Wire for additional information

**Additional Properties**

**Corrosion Resistance**

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

**Standard Wire Finishes**

**Extra Clean:** 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 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”

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