



317 Stainless Steel, UNS S31700

Shaped, Flat, Square, Round, Fine, Plated and Bare Wire
AMS 5507, ASTM A666

317 Alloy Description

 [Get A Quote](#)

Alloy 317 is an austenitic chromium-nickel stainless steel that possesses excellent corrosion resistance. Of all the 300 series stainless steels, alloy 317 is the most corrosion resistant and has the highest tensile and creep strength properties at elevated temperatures. The high molybdenum content the alloy's superior pitting resistance.

Applications

Screens for marine and chemical applications
Pulp and paper applications
Marine components
Food Processing
Seals and other components for the oil and gas industry

Chemistry Typical

Carbon: 0.08 max
Manganese: 2.00 max
Silicon: 0.75 max
Chromium: 18.00-20.00
Nickel: 11.00-15.00
Molybdenum: 3.00-4.00
Phosphorus: 0.045 max

Sulfur: 0.030 max

Nitrogen: 0.10 max

Physical Properties

Density: 0.290 lbs/in³, 7.99 g/cm³

Electrical Resistivity, microhm-in, (microhm-cm):

68°F (20°C): 29.4 (74.0)

Specific Heat, BTU/lb/°F (kJ/kg•K):

32-212°F (0-100°C): 0.12 (0.50)

Thermal Conductivity, BTU/hr/ft²/ft/°F, (W/m•K):

At 212°F (100°C): 9.4 (16.2)

At 932°F (500°C): 12.4 (21.4)

Mean Coefficient of Thermal Expansion, in/in/°F (µm/m•K):

32-212°F (0-100°C): 8.9×10^{-6} (16.0)

32-600°F (0-315°C): 9.0×10^{-6} (16.2)

32-1000°F (0-538°C): 10.3×10^{-6} (18.5)

32-1500°F (0-871°C): 11.1×10^{-6} (18.5)

Modulus of Elasticity, KSI (MPa)

28.0×10^3 (193×10^3) in tension

11.2×10^3 (77×10^3) in torsion

Magnetic Permeability, H 200: Annealed < 1.0 max.

Melting Range, °F (°C) 2500 – 2590 (1371 – 1421)

Mechanical Properties at Room Temperature

Properties: Annealed Typical

Ultimate Tensile Strength: 75 KSI min (517 MPa min)

Yield Strength: 30 KSI min (205 MPa min)

Elongation: 35% min

Hardness: Rb 95 max

Properties: Tempered

Alloy 317 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

See 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

Cold Forming

Alloy 317 can be readily formed and drawn.

Heat Treatment

Alloy 317 is non hardenable by heat treatment.

Welding

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

Limitation of Liability and Disclaimer of Warranty: In no event will Ulbrich Stainless Steels and Special Metals, Inc., be liable for any damages arising from the use of the information included in this document or that it is suitable for the 'applications' noted. We believe the information and data provided to be accurate to the best of our knowledge but, all data is considered typical values only. It is intended for reference and general information and not recommended for specification, design or engineering purposes. Ulbrich assumes no implied or express warranty in regard to the creation or accuracy of the data provided in this document.

Copyright© January 2014 Ulbrich Stainless Steels & Special Metals, Inc. – Revision 6.1.2015