



302 Stainless Steel, UNS S30200

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire
AMS 5515, AMS 5516, AMS 5903 (1/4 Hard), AMS 5906 (full hard)

302 Alloy Description

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Alloy 302 is an austenitic stainless steel which has better corrosion resistance than alloy 301. With its higher nickel content alloy 302 does not work harden as quickly as alloy 301. The alloy is not hardenable by heat treatment and is non-magnetic in the annealed condition. It becomes increasingly magnetic with cold working. If carbide precipitation is an issue 304 may be a better choice with its lower carbon content.

Applications

Various screening applications

Springs

Wire forms

Fasteners

Washers

Clamps

Electrical connectors

Chemistry Typical

Carbon: 0.08-0.15

Manganese: 2.00 max

Silicon: 1.00 max

Chromium: 17.00-19.00

Nickel: 7.00-10.00

Molybdenum: 0.75 max

Phosphorus: 0.040 max

Sulfur: 0.030 max

Physical Properties

Density: 0.29 lbs/in³, 8.03 g/cm³

Electrical Resistivity microhm-in(microhmcm):

At 68°F (20°C): 28.4 (72)

At 1200°F (659°C): 45.8 (116)

Specific Heat, BTU/lb/oF, (kJ/kg•K):

32-212°F (0-100°C): 0.12 (0.50)

Thermal Conductivity, BTU/hr/ft²/ft/oF (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/oF(μm/m•K):

32-212°F (0-100°C): 9.4×10^{-6} (16.9)

32-600°F (0-315°C): 9.6×10^{-6} (17.3)

32-1000°F (0-538°C): 10.2×10^{-6} (18.4)

32-1200°F (0-649°C): 10.4×10^{-6} (18.7)

Modulus of Elasticity, KSI (MPa)

28.0×10^3 (193×10^3) in tension

11.2×10^3 (78×10^3) in torsion

Magnetic Permeability, H = 200 Oersteds Annealed: 1.02 max

Melting Range, °F (°C) – 2550 – 2650 (1399 – 1454)

Mechanical Properties at Room Temperature

Properties: Annealed

Ultimate Tensile Strength: 75 KSI min (515 MPa min)

Yield Strength (0.2% offset): 30 KSI min (205 MPa min)

Elongation: 40% Min

Hardness: B92 or Equiv.

Properties Tempered

1/4 Hard

Ultimate Tensile Strength: 125-150 KSI (861-1034 MPa)

Yield Strength (.2% offset): 100-130 KSI (589-896 MPa)

Elongation: 20% nominal

Hardness: Rc 25-30

Full Hard

Ultimate Tensile Strength: 185-225 KSI (1275-1551 MPa)

Yield Strength (.2% offset): 170-210 KSI (1172-1447 MPa)

Elongation: 1-4 %

Hardness: Rc 40-45

*Alloy 302 can be supplied in a rolled tempered condition. Contact Ulbrich Wire Technical Service for details.

Additional Properties

Corrosion Resistance

Refer to 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

Welding

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

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