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

302 STAINLESS STEEL, UNS S30200

Strip, Coil, Foil & Wire, AMS 5515 & AMS 5516 (Annealed), AMS 5903 (1/4 Hard), AMS 5904 (1/2 Hard), AMS 5905 (3/4 Hard), AMS 5906 (Full Hard)

Applications

Springs, Fasteners, Washers, Clips, Clamps, Electrical Connectors, Contacts

Description

Type 302 is an austenitic stainless steel capable of attaining high strengths and ductility by cold working. Type 302 is not hardenable by heat treatment and in 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.

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
Sulphur: 0.030 max
Iron: Balance

Physical Properties

Density: 0.29 lbs/in^3 8.03 g/cm^3

Electrical Resistivity: microhm-in (microhm-cm):
At 68 °F (20 °C): 27.4 (69.5)
At 1200 ° F (659 °C): 45.8 (116)

Specific Heat: BTU/lb/°F (kJ/kg•K):
32 - 212 °F (0 - 100 °C): 0.12 (0.50)

Thermal Conductivity: BTU/hr/ft^2/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) – 9.4 x 10^{-6} (16.9)
32 – 600 °F (0 - 315 °C) – 9.9 x 10^{-6} (17.8)
32 – 1000 °F (0 - 538 °C) – 10.2 x 10^{-6} (18.4)
32 – 1200 °F (0 - 649 °C) – 10.4 x 10^{-6} (18.7)

Modulus of Elasticity: ksi (MPa)
28.0 x 10^3 (193 x 10^3) in tension
11.2 x 10^3 (78 x 10^3) in torsion

Magnetic Permeability: H = 200 Oersteds: Annealed < 1.02 max.

Melting Range: 2250 – 2650 °F (1399 – 1454 °C)

Forms

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

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. Max

Tempered:

302 can be supplied in the tempered condition. Please refer to Ulbrich Technical Services for more information.

Additional Properties

Corrosion Resistance

Refer to NACE (National Association 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.*

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 finishes.*

Heat Treatment

302 is non-hardenable by heat treatment.

Welding

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