304V Stainless Steel, UNS S30400

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire
ASTM A276, ASTM A313, ASTM A666

304V Alloy Description

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Alloy 304V is a double melted austenitic stainless steel. The alloy is initially electric-arc melted followed by a Vacuum Arc Re-melt (VAR). This melting practice minimizes voids and contaminants while yielding a more uniform chemistry. This refinement to the purity and homogeneity of the metal allows for use in high reliability products.

Applications

Orthodontic arc wire
Catheters
Guide wires
Surgical instruments
Surgical implant
Mandrels
Springs
Needles

Chemistry Typical

Carbon: 0.08 Max
Manganese: 2.00 max
Phosphorus: 0.040 max
Sulfur: 0.030 max

Silicon: 1.00 max

Chromium: 18.00- 20.00

Nickel: 8.00- 10.50

Copper: 0.75 max

Molybdenum: 0.75 max

Iron: Balance

Physical Properties

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

Electrical Resistivity microhm-in (microhm-cm)

At °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/ft^2/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 x 10^{-6} (16.9)

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

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: °F (°C): 2550 – 2650 (1399 – 1454)

Mechanical Properties at Room Temperature

Ultimate Tensile Strength: 75 KSI min (517 MPa min)
Yield Strength (0.2% Offset): 30 KSI min (205 MPa min)
Elongation: 40% min
Hardness: B92 max

Tempered:*
Alloy 304V can be supplied in a various rolled tempered conditions. Contact Ulbrich Technical Service for details.

*Alloy 304V can be cold worked to extremely high tensile strengths. Contact Ulbrich Technical Service for details

Additional Properties

Corrosion Resistance
Alloy 304V has excellent corrosion resistance and is used in many corrosive environments and atmospheres. Please 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 andis 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 304V is ductile and can be cold worked by stamping, drawing, bending or forming methods.

Heat Treatment

Alloy 304V can only be hardened by cold working.

Welding

Refer to SSINA's 'Welding of Stainless Steels and Other Joining Methods' for best practices.