



434 Stainless Steel, UNS S43400

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire
Specifications: AMS 5503, ASTM A-240

434 Alloy Description

Alloy 434 is one of the most widely used of the ferritic stainless steels. The addition of molybdenum improves the alloy's general corrosion resistance and makes the alloy resistant to attack by deicing chemicals. It combines good heat and oxidation resistance up to 1500°F (816°C) as well as good mechanical properties.

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Applications

Architectural screens
Appliances, range hoods
Restaurant equipment
Roofing and siding
Automotive trim
Automotive trim and molding

Chemistry Typical

Carbon: 0.08 max
Manganese: 1.00 max
Silicon: 0.60 max
Chromium: 16.00 – 18.00
Nickel: 0.50 max
Molybdenum: 0.75 – 1.25

Phosphorus: 0.040 max

Iron: Balance Sulfur: 0.030 max

Copper: 0.50 max

Physical Properties

Density, 0.28 lbs/in³, 7.74 g/cm³

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

68°F (20°C): 23.68 (60)

Specific Heat, BTU/lb/°F (kJ/kg•K)

32-212°F (0-100°C): 0.11 (0.46)

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

At 212°F (100°C): 15.1 (26.1)

At 932°F (500°C): 15.2 (26.3)

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

32- 212°F (0-100°C): 5.8×10^{-6}

32-1000°F (0-538°C): 6.3×10^{-6} (11.4)

Modulus of Elasticity, KSI (MPa)

29.0×10^3 (200×10^3) in tension

Magnetic Permeability: Magnetic

Melting Range, °F (°C) 2700-2790 (1482-1532)

Mechanical Properties at Room Temperature

Annealed Typical

Ultimate Tensile Strength: 65 KSI min (450 MPa min)

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

Elongation: 22% min

Hardness: Rb 89 max

Properties Tempered

Alloy 434 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

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 434 can not be hardened by heat treatment

Welding

For best results refer to: SSINA’s “Welding of STainless Steels and Other Joining Methods”

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