



436 Stainless Steel, UNS S43600

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire

436 Alloy Description

Alloy 436 is a Niobium (Columbium) stabilized variation of alloy 434. This addition minimizes “roping” or “ridging” during stretch forming operations. Alloy 436 should be used in welding application where the risk of preferential corrosion due to intergranular attack is minimized.



Applications

Architectural screens

Automotive exhaust applications

Chemistry Typical

Carbon: 0.12 max

Manganese: 1.00 max

Silicon: 1.00 max

Chromium: 16.00-18.00

Nickel: 0.50 max

Molybdenum: 0.75-1.25

Phosphorus: 0.040 max

Sulfur: 0.030 max

Columbium + Tantalum: 5xC min-0.70 max

Iron: Balance

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): 5.2 x 10⁻⁶(9.3)

32-1000°F (0-538°C): 6.3 x 10⁻⁶(11.4)

Modulus of Elasticity: KSI (MPa)

29.0 x 10³ (200 x 10³) in tension

Magnetic Permeability: Magnetic

Melting Range: °F (°C) 2600-2750 (1427-1510)

Mechanical Properties at Room Temperature

Properties: Annealed

Ultimate Tensile Strength: 77 KSI min (531 MPa min)

Yield Strength: (0.2% Offset) 53 KSI min (365 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 corrosion information.

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 436 is readily drawn and formed. Its drawing characteristics are similar to those of low carbon steel, although it is stronger in the annealed condition and will require stronger tooling and increased power. It is also adaptable to most hot-forming operations. It does have a slightly tendency to “rope” during forming, but it is minimized by the addition of columbium.

Welding

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

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