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434 STAINLESS STEEL, UNS S43400

Strip, Coil, Foil, Wire, AMS 5503, ASTM A240

Applications

Architectural, automotive trim amd molding, furnace combustion chambers, dishwashers, range hoods, gas burners on heating units, gutters and down spouts, steam iron bases and flatware, nitric acid plant equipment, oil refinery equipment, roofing and siding and restaurant equipment

Description

Type 434 is one of the most widely used of the “non-hardenable” ferritic stainless steels. The addition of molybdenum increases this alloy’s corrosin resistance and its attack to many deicing chemicals. It combines good heat and oxidation resistance up to 1500 ºF (816 ºC) as well as good mechanical properties.

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
Sulfur: 0.030 max
Copper: 0.50 max
Iron: Balance

Physical Properties

Density: 0.28 lbs/in^3 7.74 g/cm^3

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/ft^2/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 x 10^{-6} (10.4)
32 – 1000 °F (0 - 538 °C): 6.3 x 10^{-6} (11.4)

Modulus of Elasticity: ksi (MPa)
29 x 10^3 (200 x 10^3) in tension

Magnetic Permeability: Magnetic

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

Forms

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

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

Tempered

Type 434 can be rolled to the tempered condition. Please contact UlbrichTechnical 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 for 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 is not removed from tempered wire to act as a lubricant.

** Contact Ulbrich Wire for custom wire finishes.*

Cold Forming

Type 434 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 increased tendency to “rope” during forming than Type 430.

Heat Treatment

Type 434 can not be hardened by heat treatment.

Welding

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