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ABOUT US

PRODUCTS

CAPABILITIES

ALLOYS / DATA SHEETS

APPLICATIONS

QUALITY

SURCHARGES

CONTACT US



309 Stainless Steel, UNS S30908

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated Wire
ASTM A 167, ASTM A276, ASTM 580, AMS 5523

309 Alloy Description

Alloy 309 is an austenitic chromium nickel stainless steel and is used in applications requiring both corrosion resistance along with oxidation resistance up to 2000°F. This alloy possesses high tensile and creep strength at elevated temperatures. Strength at elevated temperatures is similar to that of 18-8 Stainless Steels. It is more resistant to marine atmospheres than alloy 304.

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Applications

Furnace parts

Heat Exchangers

Paper Mill applications

Chemistry Typical

Carbon: 0.08 max

Manganese: 2.00 max

Silicon: 1.00 max

Chromium: 22.00- 24.00

Nickel: 12.00-15.00

Molybdenum: 0.75 max

Phosphorus: 0.040 max

Sulphur: 0.030 max

Copper: 0.75 max

Iron: Balance

Physical Properties

Density, 0.289 lbs/in³ 9.01 g/cm³

Electrical Resistivity, microhm-in (microhm-cm)

68°F (20°C) – 30.7 (78.0)

Specific Heat, BTU/lb/°F (kJ/kg•K)

32-212°F (0-100°C): 0.12 (0.50)

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

At 212°F (100°C): 9.0 (15.6)

At 932°F (500°C): 10.8 (18.7)

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

32-212°F (0-100°C): 8.3×10^{-6} (14.9)

32-600°F (0-315°C): 9.3×10^{-6} ((16.7)

32-1000°F (0-538°C): 9.6×10^{-6} ((17.3)

32-1200°F (0-649°C): 10.0×10^{-6} ((18.0)

Modulus of Elasticity, KSI (MPa)

29.0×10^3 (200×10^3) in tension

11.2×10^3 (78×10^3) in torsion

Magnetic Permeability, H = 200 Oersted: Annealed < 1.02 max.

Melting Range, °F (°C) 2550 – 2590 (1399 – 1454)

Mechanical Properties at Room Temperature

Properties: Typical

Ultimate Tensile Strength: 75 KSI min (620 MPA min)

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

Elongation: 40% min

Hardness: Rb 95 max

Tempered

Alloy 309 can be supplied in various rolled to temper conditions. Contact Ulbrich Wire with special mechanical property requests

Additional Properties

Corrosion Resistance

Refer to NACE (National Association of Corrosion Engineers) for recommendations

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 request

Forms

Continuous Coils

Cut to lengths

Precision cutting

Cold Forming

Alloy 309 can be rolled formed, stamped and drawn readily. In-process annealing is usually required to reduce hardness and increase ductility

Heat Treatment

Alloy 309 can only be hardened by cold working

Welding

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

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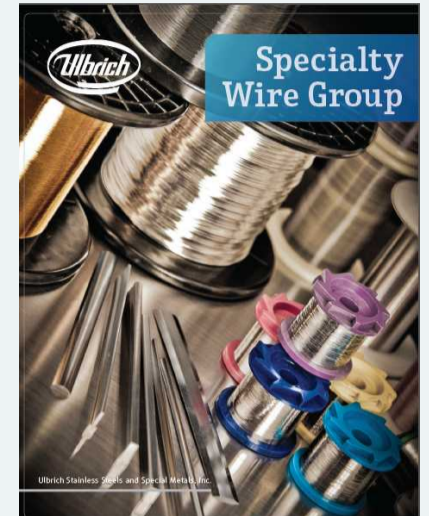


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Ulbrich Wire Group custom engineers precision wire products including; Fine Wire, Round Wire, Flat Wire, Square Wire, Shaped Profiles and PV Ribbon products. The Ulbrich Wire Group of companies are divisions of Ulbrich Stainless Steels and Special Special Metals, Inc. Our wire facilities have over 40 years of experience producing thousands of unique shapes ... [\[Learn More...\]](#)



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[Wire Products](#)
[Flat Wire / Ribbon Wire](#)
[Square Wire](#)
[Custom Shaped Wire](#)
[Round Wire](#)
[Fine Wire & Braid Wire](#)
[Plated Wire](#)
[Photovoltaic Ribbon \(PV Ribbon\)](#)

CAPABILITIES

[Wire Capabilities](#)
[Wire Dimensional Capabilities](#)
[Rolling Shaped Wire](#)
[Annealing](#)
[Finishing & Plating](#)
[Cut To Length](#)
[Tooling](#)
[Testing](#)
[Round, Flat and Shaped Wire](#)
[Packaging](#)

MATERIALS

[Materials](#)

SURCHARGES

[Wire Surcharges](#)

APPLICATIONS

[Applications](#)

TOOLS

[Tools](#)

QUALITY

[Quality](#)
[Ulbrich Quality Policy](#)
[Wire Group](#)
[Certifications](#)
[MSDS](#)
[Conflict Minerals](#)

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