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Haynes® 188 Wire, Alloy 188 Wire, UNS R30188

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated
AMS 5608, AMS 5772, AMS 5801, PWA 1042, GE B50TF59-S4

Haynes® 188 or Alloy 188 Description Wire Description

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Alloy 188 is a cobalt-nickel-chromium-tungsten super alloy combining excellent high-temperature strength with very good resistance to oxidizing environments up to 2100°F (1095°C) It is readily fabricated and formed by conventional techniques.

Applications

Seal rings for gas turbine.

Packing for gas turbines

Chemistry Typical

Nickel: 20.00-24.00

Chromium: 20.00-24.00

Tungsten: 13.00-16.00

Iron: 3.00 max

Cobalt: Balance

Lanthanum: 0.02-0.12

Boron: 0.015 max

Carbon: 0.05-0.15

Manganese: 1.25max

Silicon: 0.2-0.5

Phosphorus: 0.02 max

Sulfur: 0.015 max

Physical Properties

Density, 0.324 lbs/in³, 8.98 g/cm³

Electrical Resistivity: $\mu\text{ohm-in}$, ($\mu\text{ohm-cm}$)

400°F (200°C): 41.5(105.0)

800°F (400°C): 43.8(110.5)

1000°F (600°C): 44.7(114.8)

1200°F (700°C): 45.6(116.4)

1400°F (800°C): 46.1(117.5)

1600°F (900°C): 46.5(118.3)

1800°F (1000°C): 46.7(119.1)

Mean Coefficient of Thermal Expansion: $\mu\text{in/in-}^\circ\text{F}$ ($\mu\text{m/m-}^\circ\text{C}$)

70-800°F (20-500°C): 7.8(14.5)

70-1000°F (20-600°C): 8.2(15.2)

70-1200°F (20-700°C): 8.6(15.8)

70-1400°F (20-800°C): 9.0(16.5)

70-1600°F (20-900°C): 9.4(17.1)

70-1800°F (20-1000°C): 9.9(17.9)

Thermal Conductivity: BTU-in/ft-°F (W/m-°K)

800°F (400°C): 125(17.5)

1000°F (600°C): 138(21.1)

1200°F (700°C): 152(23.0)

1400°F (800°C): 167(24.8)

1600°F (900°C): 174(25.5)

1800°F (1000°C): 189(27.6)

Modulus of Elasticity: KSI (MPa)

33.6 x 10³(23.2 x 10³) in tension

Melting Range: 2400-2570°F (1315-1410°C)

Mechanical Properties at Room Temperature

Properties: Annealed (Typical)

Ultimate Tensile Strength: 130 KSI min (896 MPa min)

Yield Strength (0.2% offset): 60 KSI min (414 MPa min)

Elongation: 45% min

Hot Tensile 1200°F (Typical)

Ultimate Tensile Strength: 90 KSI min (620 MPa min)

Yield Strength (0.2% offset): 35 KSI min (243 MPa min):

Elongation:

Gauges up to 0.020 inches: 35% min

Gauges over 0.020 inches: 20% min

Properties Tempered

Alloy 188 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: (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

Welding

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

*Haynes® Alloy 188 is a registered trademark of Haynes Alloys

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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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