ZIRCONIUM 702, UNS C15100

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated
ASTM B551

Applications

Metal gaskets for chemical processing plants, Getter straps, Nuclear components

Description

Commercially pure Zirconium 702 exhibits good ductility even at cryogenic temperatures. It has good strength comparable with other common engineering alloys. Zirconium is a reactive metal that has a high affinity for oxygen resulting in the formation of a protective oxide layer in air at room temperature. This protective oxide gives zirconium alloys their superior corrosion resistance.

Chemistry Typical

Zirconium + Hafnium: 99.2 min
Hafnium: 4.5 max
Iron + Chromium: 0.2 max
Hydrogen: 0.005 max
Nitrogen: 0.025 max
Carbon: 0.05 max
Oxygen: 0.16 min

Physical Properties

Density: 0.235 lbs/in³, 6.51 g/cm³

Mean Coefficient of Thermal Expansion: in/in/°F (µm/m/°C):
70 - 212 °F (20 - 100 °C) 3.2×10^{-6} (5.8)

Thermal Conductivity: BTU-in/h-ft-°F (W/m-°K): 70 °F (21 °C): 13 (22)

Modulus of Elasticity, ksi (mPa):
14.4×10^3 (99.2×10^3) in tension
5.25×10^3 (36.2×10^3) in shear

Melting Point: 2550 °F (1852 °C)

We Deliver Precision®

Mechanical Properties at Room Temperature

Annealed Typical
Ultimate Tensile Strength: 55 KSI min (379 MPa min)
Yield Strength (0.2% offset): 30 KSI min (207 MPa min)
Elongation: 16% min

Properties Tempered
Zirconium 702 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 Associate 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".