Ulbrich Wire • 55 Defco Park Road • North Haven, CT 06473 USA • 800-243-1676 • ULBRICHWIRE.com

CUPRO-NICKEL WIRE AND COPPER-NICKEL-TIN ALLOY WIRE

Flat, Shaped and Round Wire

Applications

Cupronickels Alloys: Condensers; Evaporator and heat exchanger application; Ferrules; Applications where biofouling is a concern; Silver colored coinage.

Copper-Nickel-Tin Alloys: Relay springs; Switch springs; Lead frames; Telecommunication connectors

Description

Cupronickel alloys are widely used for marine applications due to their excellent resistance to seawater corrosion, low biofouling rates, and good fabricability. They have provided reliable service for decades while offering effective solutions to today's technological challenges addition of nickel to copper improves strength and corrosion resistance while allowing the alloy to remain ductile.

Alloy C72500: Developed by Bell Laboratories to solve issues of stress corrosion found in field parts. The alloy blends the strength of Phosphor Bronze and the Corrosion resistance of Nickel Silver without too much loss of electrical conductivity. A combination of very good fatigue strength and resistance to corrosion and tarnish have also made this alloy an excellent choice for other applications found in corrosive environments or applications requiring improved solderability.

Chemistry Typical

UNS #	COPPER	NICKEL	LEAD	IRON	ZINC	OTHER
C70600	Balance	9.0 - 10.0*	0.05 max	1.0 - 1.8	1.0 max	1.0 Mn max
C71500	Balance*	29.0 - 33.0	0.05 max	0.40 - 1.0 max	1.0 max	1.0 Mn max
C72500	Balance	8.5 - 10.5*	0.05 max	0.6 max	0.50 max	1.8 - 2.8 Sn, 0.20 Mn max

** Contact Ulbrich Wire for request regarding the availability of other copper alloys.*
** Contact Ulbrich Technical Department for limits for additional trace elements and impurity levels.*
** Copper plus sum of named elements 99.5% min.*
** Nickel Values include Cobalt.*
** Copper Values include Silver.*

Limitation of Liability and Disclaimer of Warranty: In no event will Ulbrich Stainless Steels & Special Metals, Inc., be liable for any damages arising from the use of the information included in this document or that it is suitable for the 'applications' noted. We believe the information and data provided to be accurate to the best of our knowledge but, all data is considered typical values only. It is intended for reference and general information and not recommended for specification, design or engineering purposes. Ulbrich assumes no implied or express warranty in regard to the creation or accuracy of the data provided in this document.
Copyright January 2014 Revision 10.01.2015. Ulbrich Stainless Steels & Special Metals, Inc. All rights reserved.

For Reference Only

Physical Properties

Typical Density: 0.321 - 0.323 lbs/in³, 8.88 - 8.94 g/cm³

Electrical Conductivity: (% IACS at 68°F 20°C, annealed): 4.6 - 11%

Mean Coefficient of Thermal Expansion: µin/in-°F:
68 - 572 °F: 8.5 - 9.2

Thermal Conductivity: BTU-in/hr-ft²-°F at 68 °F: 17 - 31

Modulus of Elasticity: KSI
18 - 22 x 10^3 in tension

Forms

Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Properties: Annealed Typical

Ultimate Tensile Strength: 43 KSI min (296 MPa min)
Yield Strength: 19 KSI min (131 MPa min)
Elongation: 35% min

Properties: Tempered

These alloys can be cold worked to various tempers.

** Actual physical and mechanical properties are alloy dependent. Contact Ulbrich Technical Service for alloy specific properties.*

Additional Properties

Corrosion Resistance

Contact Ulbrich Wire for specific information.

Wire Finishes

XC - Extra clean. Annealed or annealed and cold rolled.
Contact Ulbrich Wire with special finish requests.

Heat Treatment

These alloys are non hardenable by heat treatment.

Welding

Contact Ulbrich Wire for specific information.

For Reference Only

Limitation of Liability and Disclaimer of Warranty: In no event will Ulbrich Stainless Steels & Special Metals, Inc., be liable for any damages arising from the use of the information included in this document or that it is suitable for the 'applications' noted. We believe the information and data provided to be accurate to the best of our knowledge but, all data is considered typical values only. It is intended for reference and general information and not recommended for specification, design or engineering purposes. Ulbrich assumes no implied or express warranty in regard to the creation or accuracy of the data provided in this document.
Copyright January 2014 Revision 10.01.2015. Ulbrich Stainless Steels & Special Metals, Inc. All rights reserved.