

Material Designation

UNS	C76400
EN*	CuNi18Zn20

*European Standard

Chemical Composition (Reference)

Cu	60 %
Ni	18 %
Zn	22 %

Typical Applications

- Connectors
- Relay springs
- Shieldings

Physical Properties*

Electrical Conductivity	%IACS	5.7
Thermal Conductivity	Btu/(ft·h·°F)	19.0
Coefficient of Electrical Resistance**	10 ⁻³ /°F	0.2
Coefficient of Thermal Expansion**	µin/(in·°F)	9.8
Density	lb/in ³	0.315
Modulus of Elasticity	10 ⁶ psi	19.6
Specific Heat	Btu/(lb·°F)	0.091

* Reference values at room temperature

** Between 30 and 600°F

Fabrication Properties

Capacity for Being Cold Worked	excellent
Machinability	less suitable
Capacity for Being Electroplated	excellent
Capacity for Being Hot-Dip Tinned	excellent
Soft Soldering	excellent
Resistance Welding	excellent
Gas Shielded Arc Welding	excellent
Laser Welding	fair

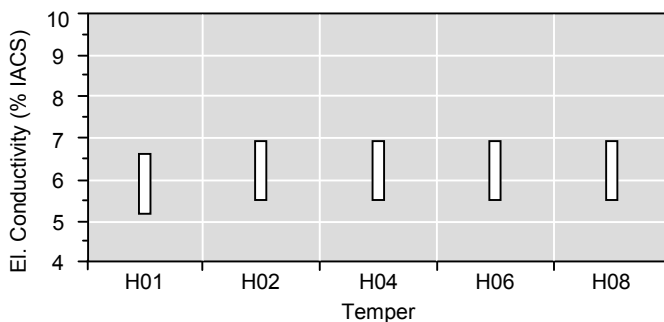
Corrosion Resistance

Good resistance to atmospheric influences, organic compounds, neutral and alkaline saline solutions. Not resistant to oxidizing acids, hydrous ammonia (insensitive to stress corrosion cracking is much lower than that of brass).

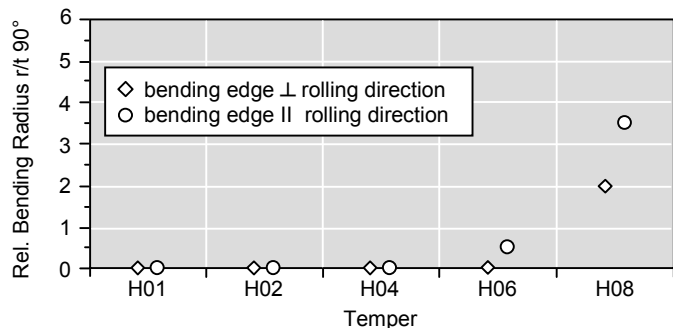
Mechanical Properties

Temper		H01	H02	H04	H06	H08
		¼ hard	½ hard	hard	extra hard	spring
Tensile Strength	ksi	55 - 65	65 - 75	72 - 86	84 - 97	93 - 106

Electrical Conductivity



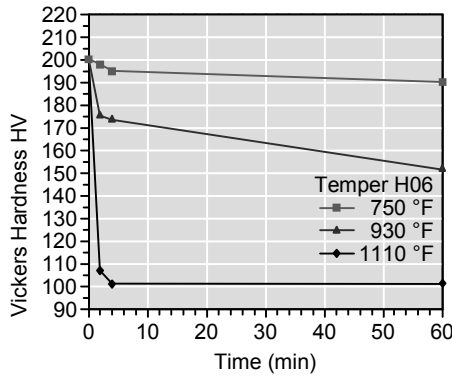
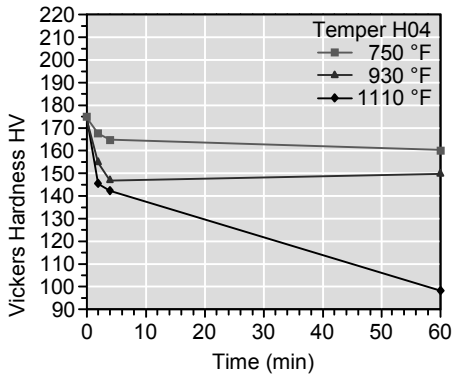
Bendability (Strip Thickness t max 0.02 inch)



C76400

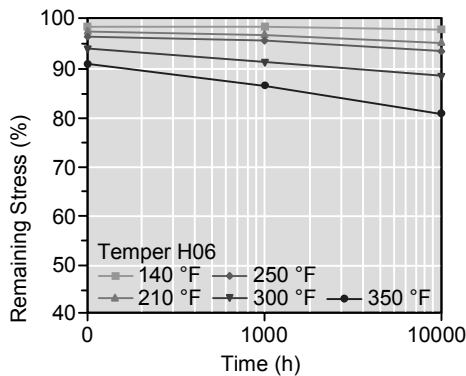
Wieland-N18

Resistance to Softening



Vickers hardness after heat treatment (typical values)

Relaxation at Stress Level 0.5 x Yield Strength



Stress remaining as a function of service temperature and time. Measured on stress relief annealed specimens parallel to rolling direction. Values extrapolated according to F.R. Larson, J. Miller, Trans ASME74 (1952) 765 – 775. Due to plastic deformation different relaxation values are to be expected.

Fatigue Strength

The fatigue strength is defined as the maximum bending stress amplitude which a material withstands for 10^7 load cycles under symmetrical alternate load without breaking. It is dependent on the temper tested and is about 1/3 of the tensile strength.

Types and Formats Available

- Standard coils with outside diameters up to 58 inches
- Traverse-wound coils with drum weights up to 4,000 lbs
- Multicoil up to 10,000 lbs
- Hot-dip tinned and electroplated strip
- Contour-milled strip

Dimensions Available

- Strip thickness from 0.005 inch, thinner gauges on request
- Strip width from 0.1 inch

Wieland

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