

# Wieland-L49

CuNi9Sn2  
C72500

# Rolled Products

# Wieland

Material Designation	
EN	CuNi9Sn2
UNS*	C72500

\* Unified Numbering System (USA)

Chemical Composition (Reference)	
Ni	9 %
Sn	2 %
Cu	balance

Typical Applications
<ul style="list-style-type: none"> <li>Relay springs</li> <li>Connectors</li> </ul>

Physical Properties*		
Electrical Conductivity	MS/m	6.4
	%IACS	11.0
Thermal Conductivity	W/(m·K)	48
Coefficient of Electrical Resistance**	10 <sup>-3</sup> /K	0.6
Coefficient of Thermal Expansion**	10 <sup>-6</sup> /K	17.6
Density	g/cm <sup>3</sup>	8.89
Modulus of Elasticity	GPa	140
Specific Heat	J/(g·K)	0.370

\* Reference values at room temperature

\*\* Between 0 and 300 °C

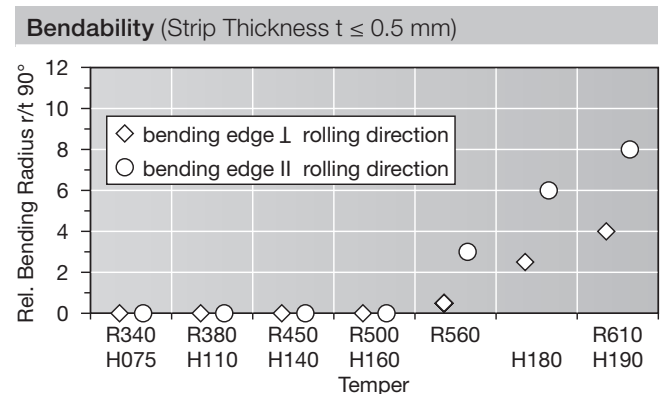
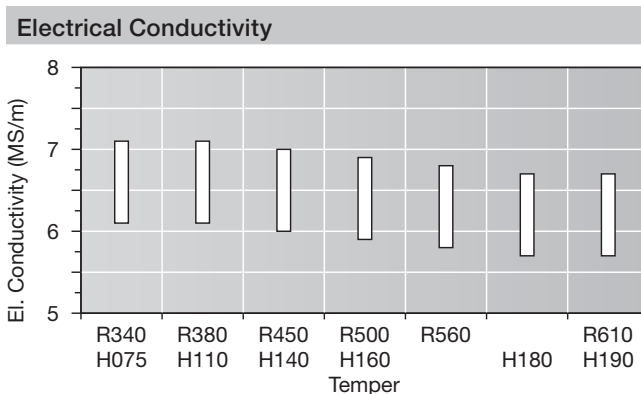
Fabrication Properties	
Capacity for Being Cold Worked	excellent
Machinability	less suitable
Capacity for Being Electroplated	excellent
Capacity for Being Hot-Dip Tinned	excellent
Soft Soldering	excellent
Resistance Welding	good
Gas Shielded Arc Welding	excellent
Laser Welding	good

**Corrosion Resistance**

Wieland-L49 has good corrosion resistance in industrial atmosphere and resists very well to tarnishing even at prolonged storage. It also exhibits good resistance to different waters, humidity, non oxidizing acids, alkaline and saline solutions, organic acids, and dry gases. It is insensitive to stress corrosion cracking.

Mechanical Properties							
Temper		R340	R380	R450	R500	R560	R610
Tensile Strength R <sub>m</sub>	MPa	340 – 410	380 – 470	450 – 530	500 – 580	560 – 650	≥ 610
Yield Strength R <sub>p0.2</sub>	MPa	≤ 250	≥ 200	≥ 370	≥ 450	≥ 520	≥ 580
Elongation A <sub>50mm</sub>	%	≥ 30	≥ 10	≥ 6	≥ 3	≥ 2	–

Temper	H075	H110	H140	H160	H180	H190
Hardness HV	75 – 110	110 – 150	140 – 170	160 – 190	180 – 210	≥ 190

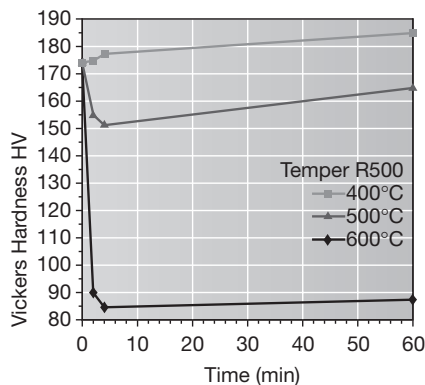
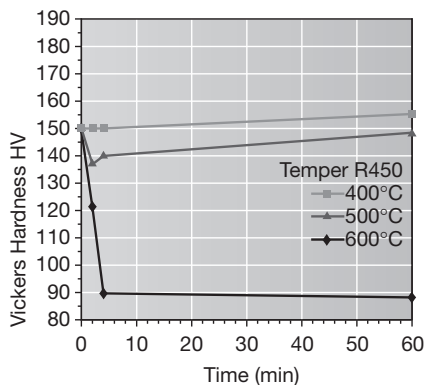


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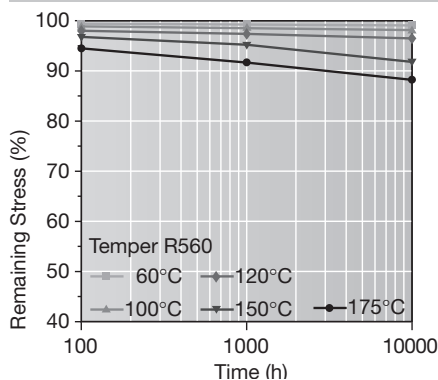
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## Resistance to Softening



Vickers hardness after heat treatment (typical values)

## Stress Relaxation



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.

Total stress relaxation depends on the applied stress level.

## 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  $\frac{1}{3}$  of the tensile strength  $R_m$ .

## Types and Formats Available

- Standard coils with outside diameters up to 1400 mm
- Traverse-wound coils with drum weights up to 1.5 t
- Multicoil up to 5 t
- Hot-dip tinned strip
- Contour-milled strip
- Sheet

## Dimensions Available

- Strip thickness from 0.10 mm, thinner gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness

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Rolled Products Division

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