

| 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<br>%IACS       | 6.4<br>11 |
| 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     |
| Poisson's Ratio                        |                     | 0.34      |

\* 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**

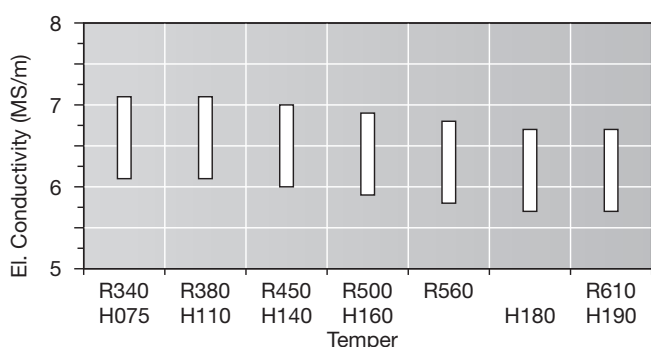
Wieland-L49 has good corrosion resistance in industrial atmosphere and resists very well to tarnishing even at prolonged storage. It also exhibits good resistance to different waters, humidity, non oxidizing acids, alkaline and saline solutions, organic acids, and dry gases. It is insensitive to stress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

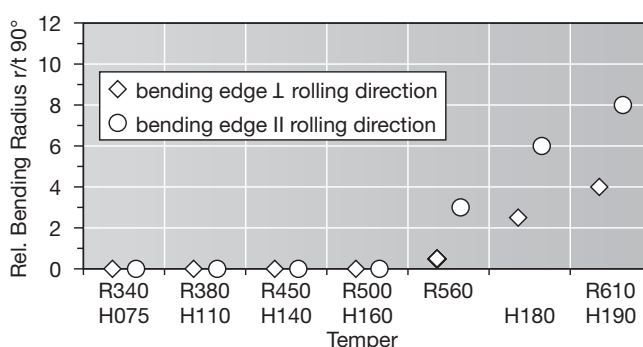
Intermediate tempers are feasible. Higher elongation values can be obtained by additional heat treatments.

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

**Electrical Conductivity**



**Bendability (Strip Thickness t ≤ 0.5 mm)**

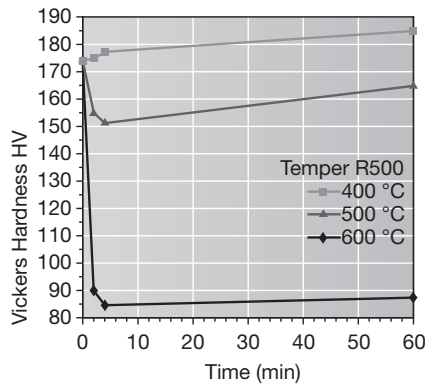
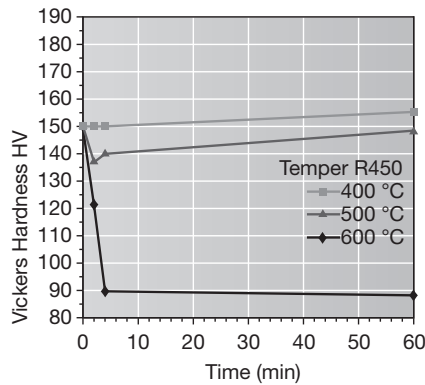


# Wieland-L49

CuNi9Sn2

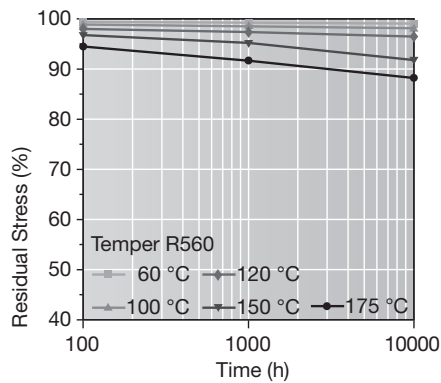
C72500

## 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

Wieland-Werke AG

[www.wieland.com](http://www.wieland.com)

Rolled Products Division

Graf-Arco-Str. 36, 89079 Ulm, Germany, Phone +49 (0)731 944-0, Fax +49 (0)731 944-2772, [info@wieland.de](mailto:info@wieland.de)  
 Ziegeleiweg 20, 42555 Velbert-Langenberg, Germany, Phone +49 (0)731 944-0, Fax +49 (0)731 944-9270, [info@wieland.de](mailto:info@wieland.de)  
 Lantwattenstr. 11, 78007 Villingen-Schwenningen, Germany, Phone +49 (0)731 944-0, Fax +49 (0)731 944-7108, [info@wieland.de](mailto:info@wieland.de)

This leaflet is for your general information only and is not subject to revision. No claims can be derived from it unless there is evidence of intent or gross negligence. The data given are no warranty that the product is of a specified quality and they cannot replace expert advice or the customer's own tests.