

Material Designation	
EN	no EN standard
UNS*	C70350

\* Unified Numbering System (USA)

This is a high-performance copper alloy developed by Wieland and Olin Brass, USA.

Chemical Composition (Reference)	
Ni	1.5 %
Co	1.1 %
Si	0.6 %
Cu	balance

Typical Applications
• Components for the electrical industry
• Stamped parts
• Connectors
• Relay springs

Physical Properties*		
Electrical Conductivity**	MS/m %IACS	29 50
Thermal Conductivity	W/(m·K)	200
Coefficient of Electrical Resistance***	10 <sup>-3</sup> /K	1.83
Coefficient of Thermal Expansion***	10 <sup>-6</sup> /K	17.6
Density	g/cm <sup>3</sup>	8.82
Modulus of Elasticity	GPa	131
Specific Heat	J/(g·K)	0.39
Poisson's Ratio		0.34

\* Reference values at room temperature

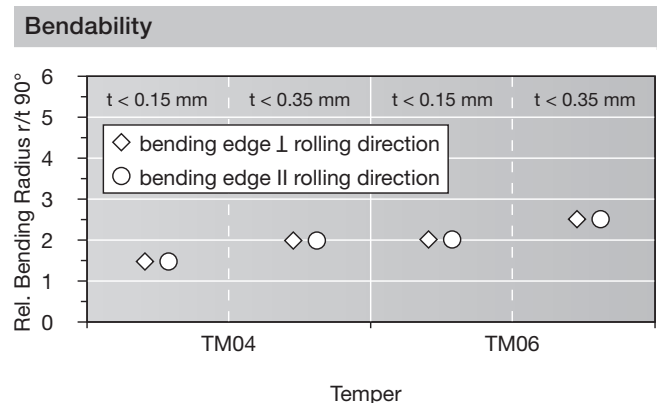
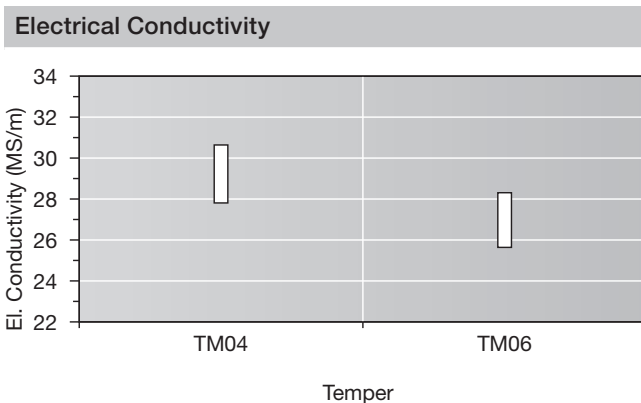
\*\* For TM06 45 %IACS

\*\*\* Between 0 and 300 °C

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

**Corrosion Resistance**  
Wieland-K57® has good corrosion resistance in natural atmosphere. It is insensitive to stress corrosion cracking.

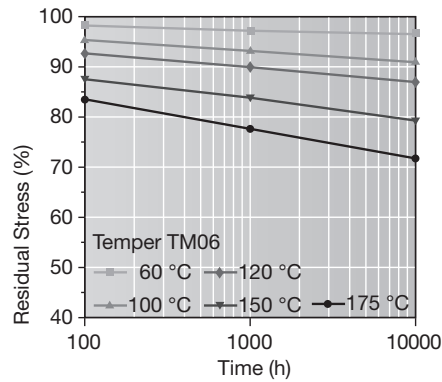
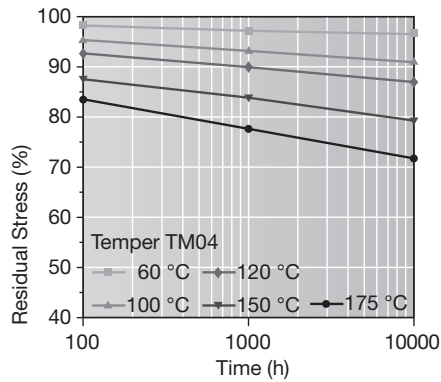
Mechanical Properties			
Temper		TM04	TM06
Tensile Strength R <sub>m</sub>	MPa	770–900	840–970
Yield Strength R <sub>p0.2</sub>	MPa	750–850	810–920
Elongation A <sub>50mm</sub>	%	≥ 4	≥ 1
Hardness (for information only)	HV	(220–280)	(240–300)



# Wieland-K57<sup>®</sup>

CuNi1Co1Si  
C70350

## 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
- Contour-milled strip

## Dimensions Available

- Strip thickness  
0.08 / 0.10 / 0.15 / 0.20 / 0.25 / 0.30 / 0.32 / 0.35 / 0.40 mm
- Other 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)

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