WIELAND-K75®

ROLLED PRODUCTS

wieland

CuCrSiTi

C18070

Material Designation	
EN	no EN standard
UNS*	C18070

**Unified Numbering System (USA)*

Chemical Composition (Reference)	
Cr	0.3 %
Ti	0.1 %
Si	0.02 %
Cu	balance

Typical Applications

- Components fpr the electrical industry
- Stanped parts
- Relay springs
- Semiconductor components
- Connectors suitable for use at elevated temperatures

Physical Properties*		
Electrical Conductivity	MS/m % IACS	45 78
Thermal Conductivity	W/(m·K)	310
Coefficient of Electrical Resistance**	10^{-3}/K	3.0
Coefficient of Thermal Expansion**	10^{-6}/K	18.0
Density	g/cm³	8.88
Modulus of Elasticity	GPa	138
Specific Heat	J/(g·K)	0.385
Poisson's Ratio		0.34

* *Reference values at room temperature*

** *Between 0 and 300 °C*

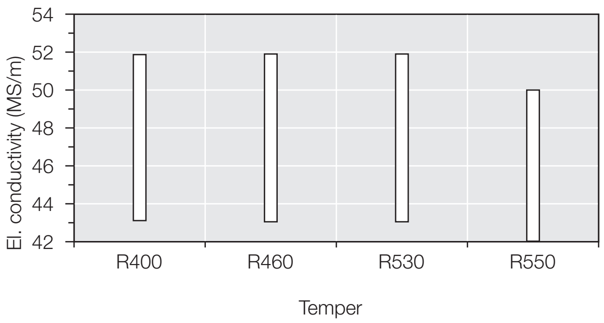
Fabrication Properties	
Capacity for Being Cold Worked	good
Machinability	less suitable
Capacity for Being Electroplated	good
Capacity for Being Hot-Dip Tinned	good
Soft Soldering	good
Resistance Welding	fair
Gas Shielded Arc Welding	excellent
Laser Welding	fair

Corrosion Resistance

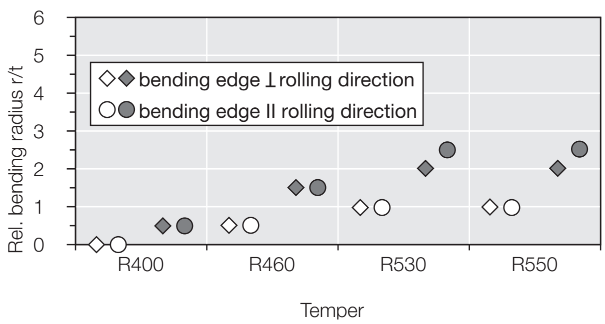
Wieland-K75® is resistant to pure water vapour and non oxidizing acids and alkalis as well as neutral saline solutions. The material is insensitive to stress corrosion cracking.

Mechanical Properties					
Temper		**R400**	**R460**	**R530**	**R550**
Tensile Strength R_m	MPa	400–480	460–560	530–610	550–630
Yield Strength $R_{p0,2}$	MPa	≥ 300	≥ 400	≥ 460	≥ 520
Elongation A_{50mm}	%	≥ 8	≥ 9	≥ 10	≥ 10
Hardness HV (only for information)		(120–140)	(140–170)	(150–190)	(150–190)

Electrical Conductivity



Bendability (Strip Thickness t ≤ 0.5 mm) ◇○ 90° ◆● 180°

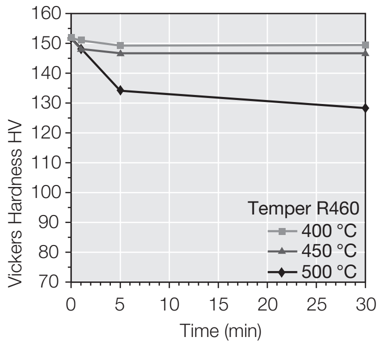


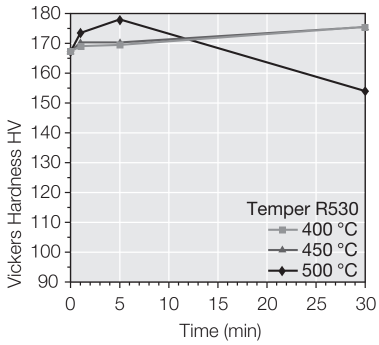
WIELAND-K75®

CuCrSiTi

C18070

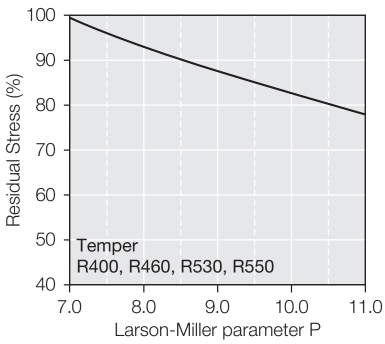
Resistance to Softening





Vickers hardness after heat treatment (typical values)

Thermal Stress Relaxation



Stress remaining after thermal relaxation as a function of Larson-Miller parameter P (F. R. Larson, J. Miller, TransASME74 (1952) 765–775) given by:

P = (20 + log(t))*(T + 273)*0.001.

Time t in hours, temperature T in °C.

Example: P = 9 is equivalent to 1.000 h/118 °C.

Measured on stress relief annealed specimens parallel to rolling direction.

Total stress relaxation depends on the applied stress level. Furthermore, it is increased to some extent by cold deformation.

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 ⅓ of the tensile strength R_m.

Types and Formats available

- Standard coils with outside diameters up to 1.400 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
- Strip and sheet with protective coating

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 **wieland.com**

Graf-Arco-Str. 36, 89079 Ulm, Germany, Phone +49 731 944 2030, info@wieland.com

05/17 Bm (GSW/Au)