Wieland-K88®
CuCrAgFeTiSi
C18080

Rolled Products

Wieland

Material Designation	
EN	no EN standard
UNS*	C18080

** Unified Numbering System (USA)*

Chemical Composition (Reference)	
Cr	0.5 %
Ag	0.1 %
Fe	0.08 %
Ti	0.06 %
Si	0.03 %
Cu	balance

Typical Applications

- Components for the electrical industry
- Stamped parts
- Connectors
- Relay springs

Physical Properties*		
Electrical Conductivity	MS/m %IACS	46 79
Thermal Conductivity	W/(m·K)	320
Coefficient of Electrical Resistance**	10^{-3}/K	3.0
Coefficient of Thermal Expansion**	10^{-6}/K	17.6
Density	g/cm³	8.92
Modulus of Elasticity	GPa	140
Specific Heat	J/(g·K)	0.381
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

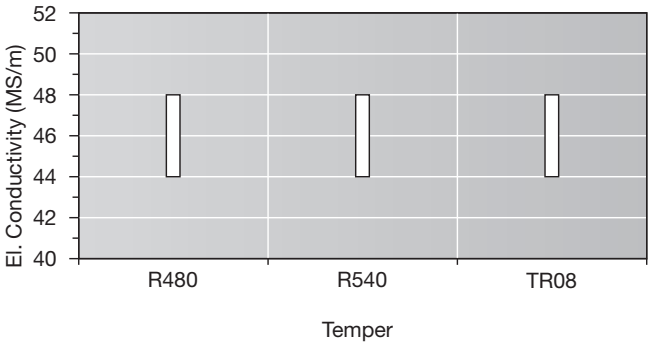
Corrosion Resistance

Wieland-K88® 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.

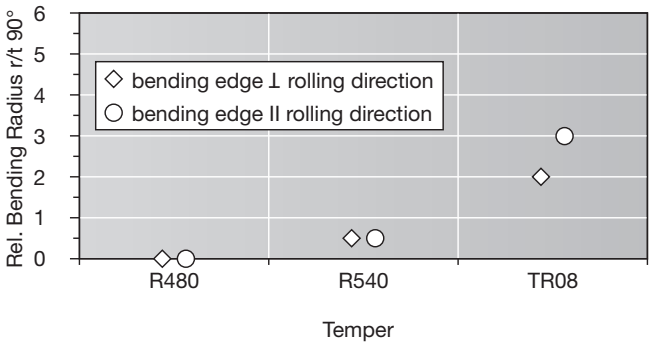
Mechanical Properties

Temper		R480	R540	TR08
Tensile Strength R_m	MPa	480–560	540–630	520–620
Yield Strength $R_{p0.2}$	MPa	≥ 450	≥ 520	≥ 500
Elongation A_{50mm}	%	≥ 7	≥ 2	≥ 7
Hardness HV (for information only)		(140–170)	(150–180)	(160–190)

Electrical Conductivity



Bendability (Strip Thickness t ≤ 0.5 mm)



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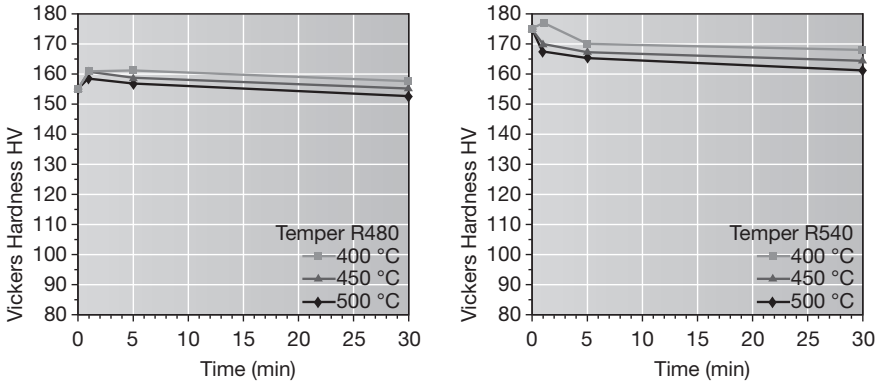
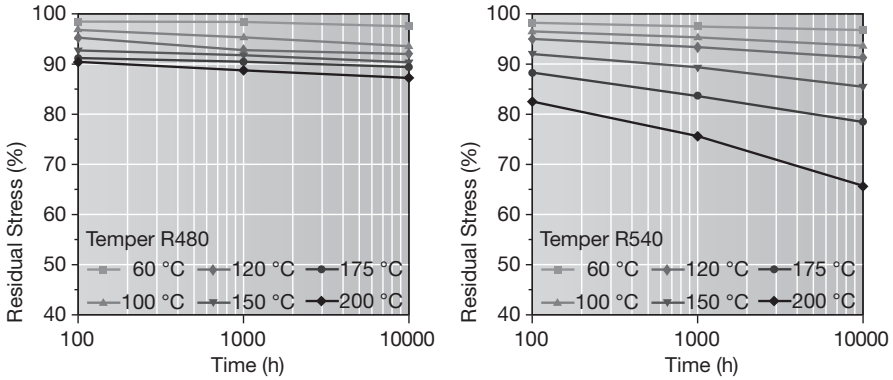
Resistance to Softening



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 $^1/_3$ 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

Dimensions Available

- Strip thickness for Temper R480 and R540:
  0.10 / 0.15 / 0.20 / 0.25 / 0.30 / 0.32 / 0.35 and 0.40 mm
- Strip thickness for Temper TR08:
  0.50 / 0.60 / 0.64 / 0.80 and 1.00 mm
  Other gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness

Wieland-Werke AG **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
Ziegeleiweg 20, 42555 Velbert-Langenberg, Germany, Phone +49 (0)731 944-0, Fax +49 (0)731 944-9270, info@wieland.de
Lantwattenstr. 11, 78007 Villingen-Schwenningen, Germany, Phone +49 (0)731 944-0, Fax +49 (0)731 944-7108, info@wieland.de

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