Wieland-K58

CuNi3Si1Mg | C70250

Material designation	
EN	no EN standard
UNS*	C70250

*Unified Numbering System (USA)

Chemical composition (Reference)	
Ni	3.8 %
Si	0.75 %
Mg	0.15 %
Cu	balance

Typical applications

- Components for the electrical industry
- Stamped parts
- Relay springs
- CPU socket applications
- Connectors

Suitable for use at elevated temperatures

Physical properties*		
Electrical conductivity	MS/m %IACS	24 41
Thermal conductivity	W/(m·K)	181
Coefficient of electrical resistance**	10^{-3}/K	1.8
Coefficient of thermal expansion**	10^{-6}/K	17.6
Density	g/cm³	8.80
Modulus of elasticity	GPa	130
Specific heat	J/(g·K)	0.399
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	good
Laser welding	fair

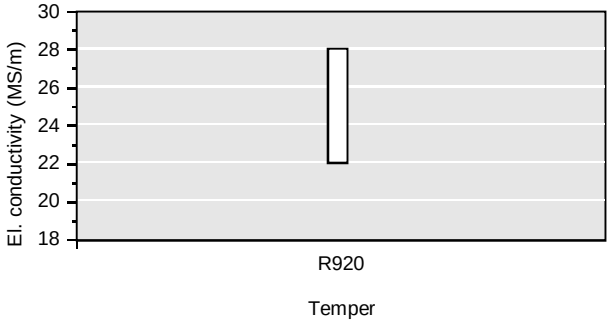
Corrosion Resistance

Wieland-K58 has good corrosion resistance in natural atmosphere. It is insensitive to stress corrosion cracking.

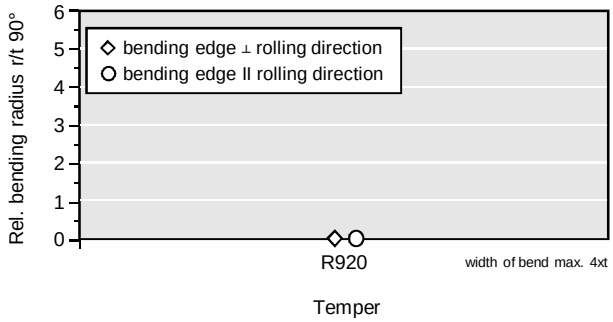
Mechanical properties

Temper		R920
Tensile strength R_m	MPa	920-1,080
Yield strength $R_{p0.2}$	MPa	≥ 900
Elongation A_{50mm}	%	≥ 1
Hardness HV (for Information only)		(260-320)

Electrical conductivity



Bendability (Strip thickness t ≤ 0.1 mm)



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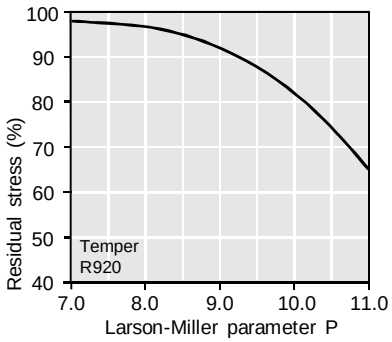
Thermal stress relaxation



Stress remaining after thermal relaxation as a function of Larson-Miller parameter P
(F. R. Larson, J. Miller, Trans ASME74 (1952) 765–775) given by:
P = (20 + log(t))*(T + 273)*0.001.
Time t in hours, temperature T in ℃.
Example: P = 9 is equivalent to 1,000 h/118 ℃.
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 1/3 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

Dimensions available

- Strip thickness 0.05-0.30 mm, other gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness

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