

Wieland-B18 SUPRALLOY®

CuSn8
C52100

Rolled Products

Material Designation	
EN	CuSn8
UNS*	C52100

* Unified Numbering System (USA)

Chemical Composition (Reference)	
Sn	8 %
Cu	balance

Typical Applications
• Miniaturized connectors
• Contact springs
• Relais springs

Physical Properties*		
Electrical Conductivity	MS/m %IACS	7.5 13
Thermal Conductivity	W/(m·K)	67
Coefficient of Electrical Resistance**	10 ⁻³ /K	0.7
Coefficient of Thermal Expansion**	10 ⁻⁶ /K	18.5
Density	g/cm ³	8.80
Modulus of Elasticity	GPa	115
Specific Heat	J/(g·K)	0.377
Poisson's Ratio		0.34

* Reference values at room temperature

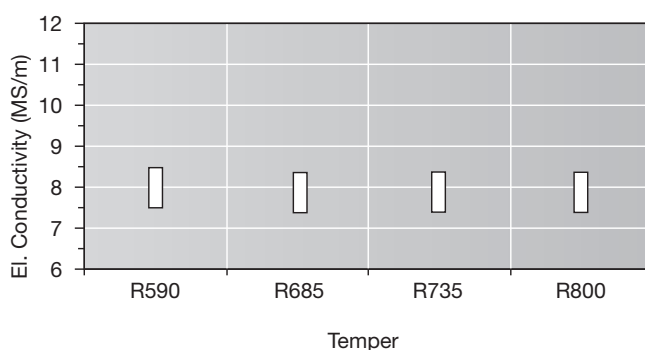
** Between 0 and 300 °C

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	good
Laser Welding	good

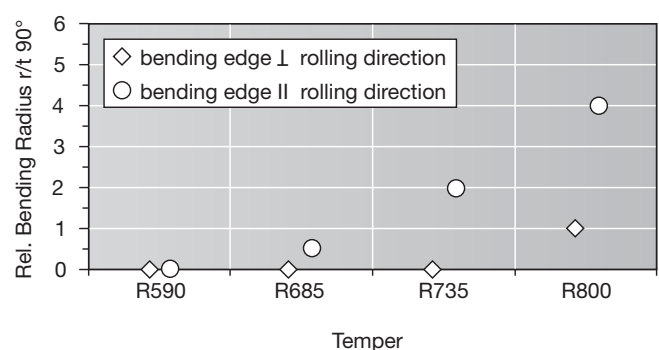
Corrosion Resistance
Resistant to seawater and industrial atmosphere. Largely insensitive to stress corrosion cracking.

Mechanical Properties					
Temper		R590	R685	R735	R800
Tensile Strength R _m	MPa	590–705	685–785	735–835	800–900
Yield Strength R _{p0.2}	MPa	≥ 540	≥ 650	≥ 700	≥ 775
Elongation A _{50mm}	%	≥ 20	≥ 15	≥ 9	≥ 5
Hardness HV (for information only)		(185–235)	(210–260)	(230–270)	(250–290)

Electrical Conductivity



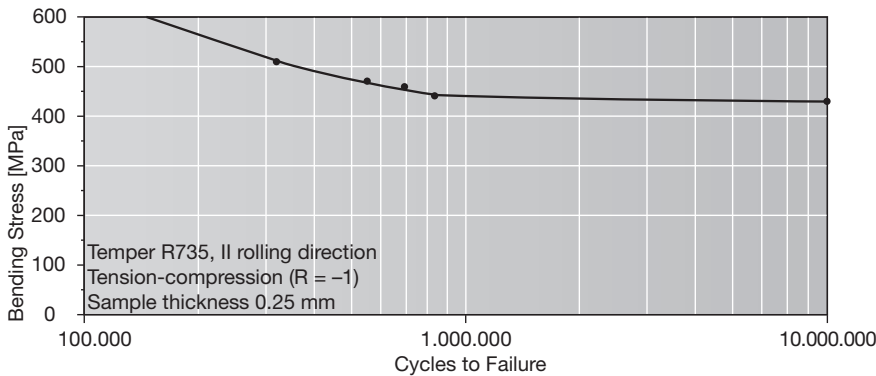
Bendability (Strip Thickness t ≤ 0.5 mm)



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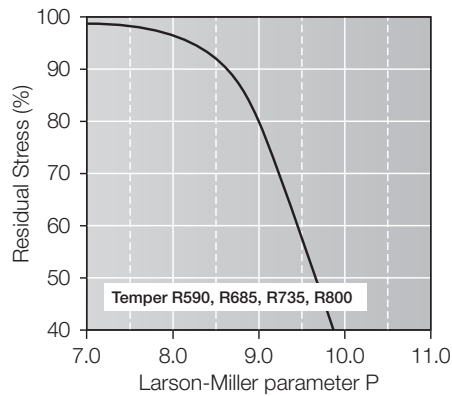
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Fatigue Strength / Woehler Curve (for information only)



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.

Thermal Stress Relaxation



Stress remaining after thermal relaxation as a function of Larson-Miller parameter (F. R. Larson, J. Miller, Trans ASME74 (1952) 765–775) given by:
 $P = (20 + \log(t))(T + 273) \cdot 0.001$
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.

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 from 0.10–0.40 mm, thinner gauges on request
- Strip width from 7 mm

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