

# C52100 - SUPRALLOY®

## Wieland - B18 SUPRALLOY®



Material Designation	
UNS	C52100
EN*	CuSn8

\*European Standard

Chemical Composition (Reference)	
Cu	92 %
Sn	8 %

### Typical Applications

- Miniaturized connectors
- Contact springs
- Relais springs

### Physical Properties\*

Electrical Conductivity	%IACS	13
Thermal Conductivity	Btu/(ft·h·°F)	39.0
Coefficient of Electrical Resistance**	10 <sup>-3</sup> /°F	0.4
Coefficient of Thermal Expansion**	µin/(in·°F)	18.5
Density	lb/in <sup>3</sup>	0.318
Modulus of Elasticity	10 <sup>6</sup> psi	16.7
Specific Heat	Btu/(lb·°F)	0.09

\* Reference values at room temperature

\*\* Between 30 and 600°F

### 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

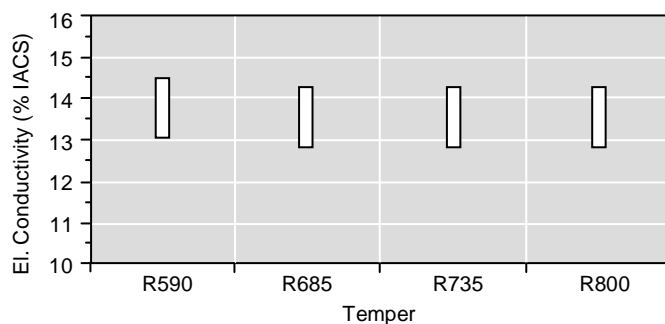
### Corrosion Resistance

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

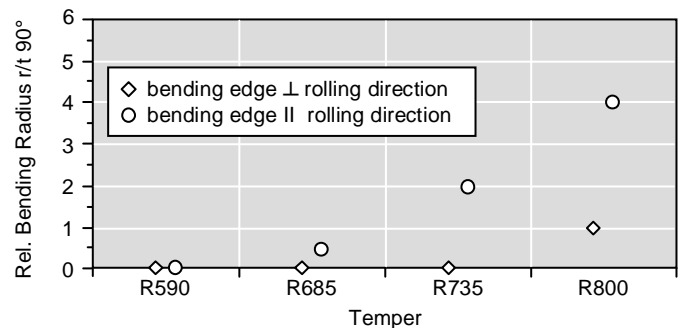
### Mechanical Properties

Temper		R590	R685	R735	R800
Tensile Strength	ksi	86 - 102	100 - 114	106 - 121	116 - 130
Yield Strength	ksi	≥ 78	≥ 94	≥ 102	≥ 112
Elongating at fracture	%	≥ 20	≥ 15	≥ 9	≥ 5

### Electrical Conductivity



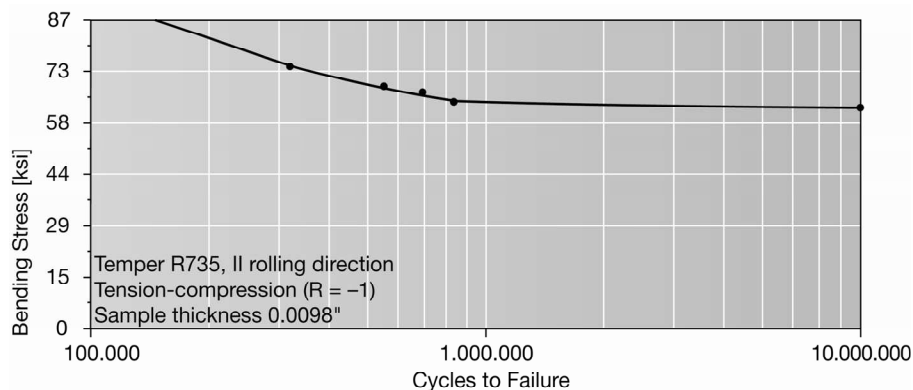
### Bendability (Strip Thickness t max 0.02 inch)



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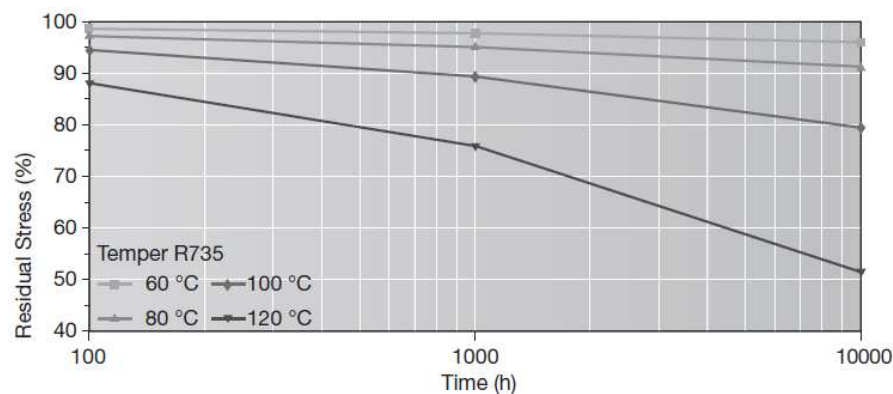
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### Fatigue Strength (for information only)



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.

### Relaxation (for information only)



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. Due to plastic deformation different relaxation values are to be expected.

### Types and Formats Available

- Standard coils with outside diameters up to 58 inches
- Traverse-wound coils with drum weights up to 4,000 lbs
- Multicoil up to 10,000 lbs
- Hot-dip tinned and electroplated strip
- Contour-milled strip

### Dimensions Available

- Strip thickness from 0.004" to 0.0157" thinner gauges on request
- Strip width from 0.28 inch

# Wieland

Wieland Metals, Inc.

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