

Wieland-M05

CuZn5
C21000

Rolled Products

Wieland

Material Designation	
EN	CuZn5
UNS*	C21000

* Unified Numbering System (USA)

Chemical Composition (Reference)	
Cu	95 %
Zn	balance

Typical Applications
• Jewellery and metal goods
• Components for the electrical industry

Physical Properties*		
Electrical Conductivity	MS/m %IACS	33 57
Thermal Conductivity	W/(m·K)	243
Coefficient of Electrical Resistance**	10 ⁻³ /K	2.6
Coefficient of Thermal Expansion**	10 ⁻⁶ /K	18.0
Density	g/cm ³	8.86
Modulus of Elasticity	GPa	127
Specific Heat	J/(g·K)	0.380
Poisson's Ratio		0.34

* Reference values at room temperature

** Between 0 and 300 °C

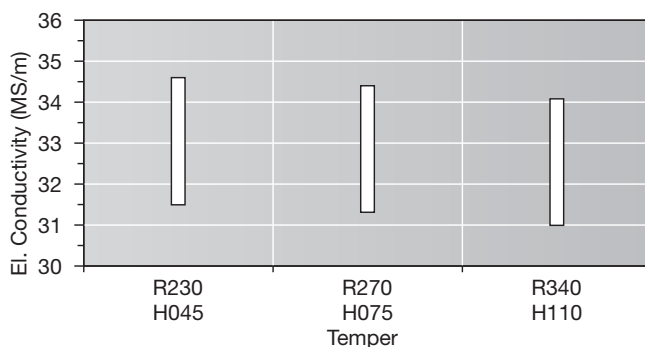
Fabrication Properties	
Capacity for Being Cold Worked	excellent
Machinability	less suitable
Capacity for Being Electroplated	excellent
Capacity for Being Hot-Dip Tinned	excellent
Soft Soldering	excellent
Resistance Welding	good
Gas Shielded Arc Welding	good
Laser Welding	fair

Corrosion Resistance
Wieland-M05 has a very low sensitivity to stress corrosion cracking. The material is largely resistant to industrial atmosphere but not resistant to oxidizing acids.

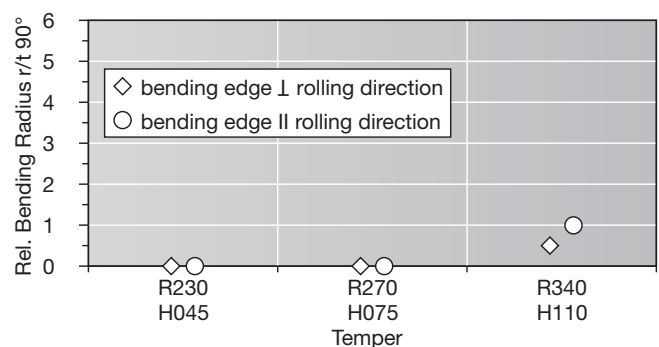
Mechanical Properties				
Temper		R230	R270	R340
Tensile Strength R _m	MPa	230–280	270–350	≥ 340
Yield Strength R _{p0.2}	MPa	≤ 130	≥ 200	≥ 280
Elongation A _{50mm}	%	≥ 36	≥ 12	≥ 4

Temper	H045	H075	H110
Hardness HV	45–75	75–110	≥ 110

Electrical Conductivity



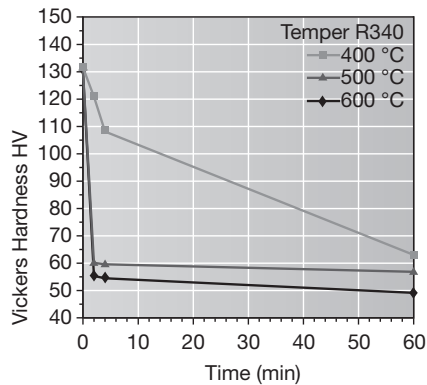
Bendability (Strip Thickness t ≤ 0.5 mm)



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Resistance to Softening



Vickers hardness
after heat treatment
(typical values)

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 $\frac{1}{3}$ 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 from 0.10 mm, thinner gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness