

Material Designation	
EN	CuZn37
UNS*	C27200

\* Unified Numbering System (USA)

Chemical Composition (Reference)	
Cu	63 %
Zn	balance

Typical Applications
• Metal goods
• Deep drawn parts
• Stamped parts
• Connectors
• Components for the electrical industry

Physical Properties*		
Electrical Conductivity	MS/m	15
	%IACS	26
Thermal Conductivity	W/(m·K)	120
Coefficient of Electrical Resistance**	10 <sup>-3</sup> /K	1.7
Coefficient of Thermal Expansion**	10 <sup>-6</sup> /K	20.2
Density	g/cm <sup>3</sup>	8.44
Modulus of Elasticity	GPa	110
Specific Heat	J/(g·K)	0.377
Poisson's Ratio		0.34

\* Reference values at room temperature

\*\* Between 0 and 300 °C

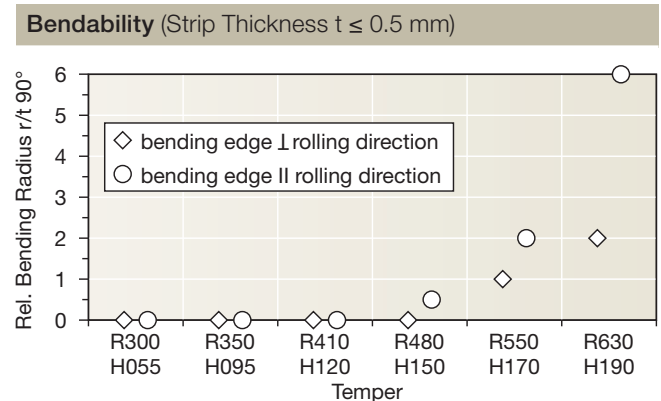
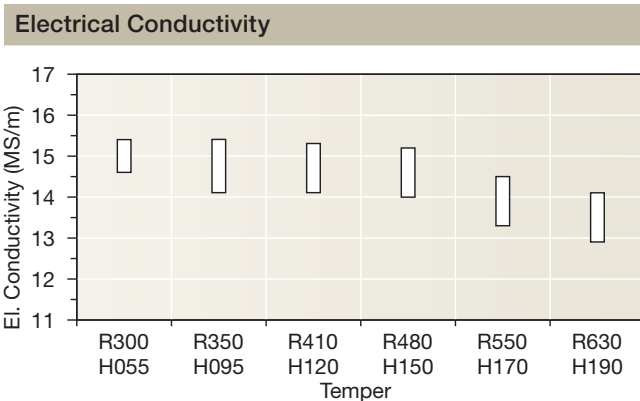
Fabrication Properties	
Capacity for Being Cold Worked	excellent
Machinability	fair
Capacity for Being Electroplated	excellent
Capacity for Being Hot-Dip Tinned	excellent
Soft Soldering	excellent
Resistance Welding	good
Gas Shielded Arc Welding	fair
Laser Welding	less suitable

Corrosion Resistance
Good resistance to: fresh water, neutral or alkaline solutions, organic compounds as well as land, sea, and industrial atmosphere.
Not resistant to: acids, hydrous sulphur compounds, hydrous ammonia (stress corrosion cracking) in non-stress-relieved condition.

Mechanical Properties							
Temper		R300	R350	R410	R480	R550	R630
Tensile Strength R <sub>m</sub>	MPa	300–370	350–440	410–490	480–560	550–640	≥ 630
Yield Strength R <sub>p0.2</sub>	MPa	≤ 180	≥ 170	≥ 300	≥ 430	≥ 500	≥ 600
Elongation A <sub>50mm</sub>	%	≥ 38	≥ 19	≥ 8	≥ 3	–	–

Temper	H055	H095	H120	H150	H170	H190
Hardness HV	55–95	95–125	120–155	150–180	170–200	≥ 190

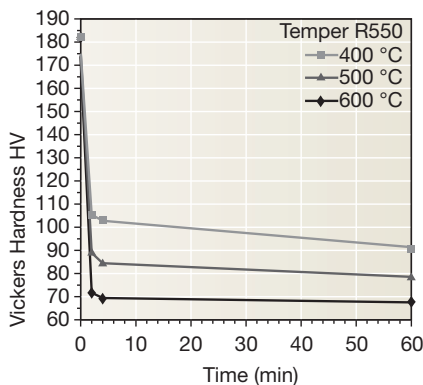
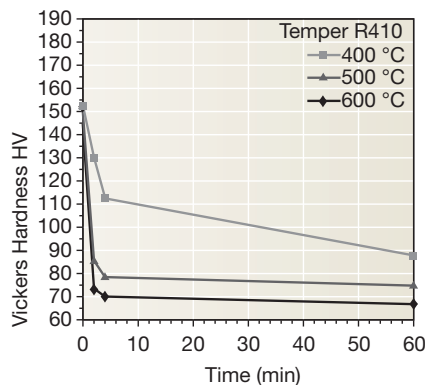
Temper	G010	G020	G030	G050	
Grain Size	mm	≤ 0.015	0.015–0.030	0.020–0.045	0.035–0.070
Hardness HV		≤ 120	≤ 95	≤ 90	≤ 80



# Wieland-M37

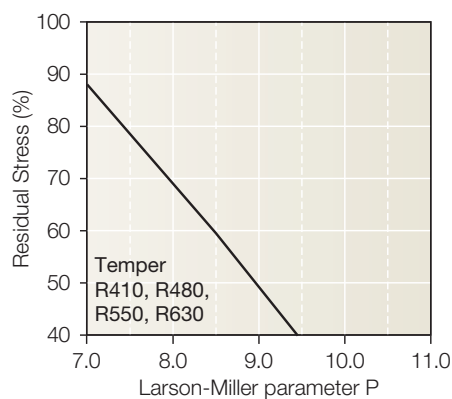
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## Resistance to Softening



Vickers hardness  
after heat treatment  
(typical values)

## 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:  
 $P = (20 + \log(t)) \cdot (T + 273) \cdot 0.001$   
Time  $t$  in hours, temperature  $T$  in °C.  
Example:  $P = 9$  is equivalent to 1.000 h/118 °C.

Measured on rolled to temper 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  $\frac{1}{3}$  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
- Sheet
- Strip and sheet with protective coating

## Dimensions Available

- Strip thickness from 0.10 mm, thinner gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness

Wieland-Werke AG

[www.wieland.com](http://www.wieland.com)

Graf-Arco-Str. 36, 89079 Ulm, Germany, Phone +49 731 944 2030, Fax +49 731 944 4257, [info@wieland.de](mailto:info@wieland.de)

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