Wieland-M33
CuZn33
C26800

Rolled Products

Wieland

Material Designation	
EN	CuZn33
UNS*	C26800

** Unified Numbering System (USA)*

Chemical Composition (Reference)	
Cu	67 %
Zn	balance

Typical Applications

- Metal goods
- Deep drawn parts
- Components for the electrical industry
- Stamped parts
- Connectors

Physical Properties*		
Electrical Conductivity	MS/m %IACS	16 28
Thermal Conductivity	W/(m·K)	121
Coefficient of Electrical Resistance**	10^{-3}/K	1.6
Coefficient of Thermal Expansion**	10^{-6}/K	19.9
Density	g/cm³	8.50
Modulus of Elasticity	GPa	112
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.

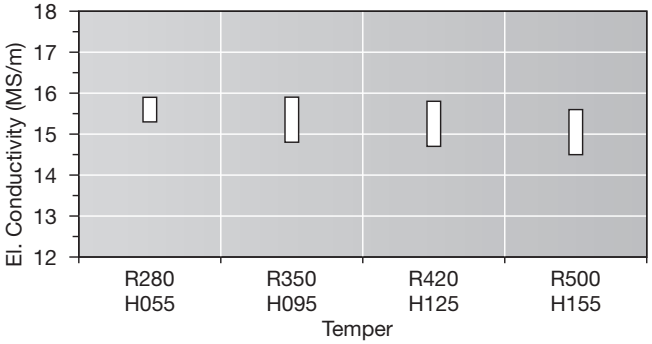
Mechanical Properties

Temper		R280	R350	R420	R500
Tensile Strength R_m	MPa	280–380	350–430	420–500	≥ 500
Yield Strength $R_{p0.2}$	MPa	≤ 170	≥ 170	≥ 300	≥ 450
Elongation A_{50mm}	%	≥ 40	≥ 23	≥ 6	–

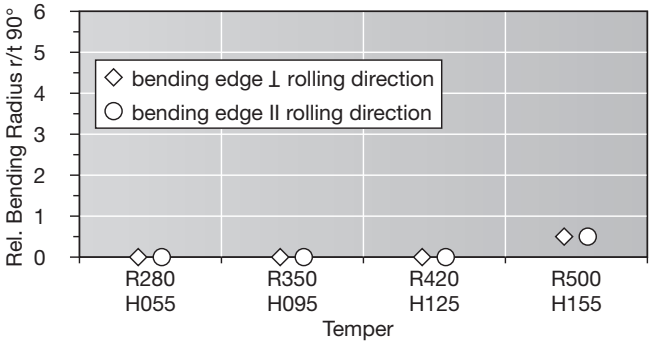
Temper	H055	H095	H125	H155
Hardness HV	55–90	95–125	125–155	≥ 155

Temper		G010	G020	G030	G050
Grain Size	mm	≤ 0.015	0.015–0.030	0.020–0.040	0.035–0.070
Hardness HV		≤ 120	≤ 95	≤ 90	≤ 80

Electrical Conductivity



Bendability (Strip Thickness t ≤ 0.5 mm)



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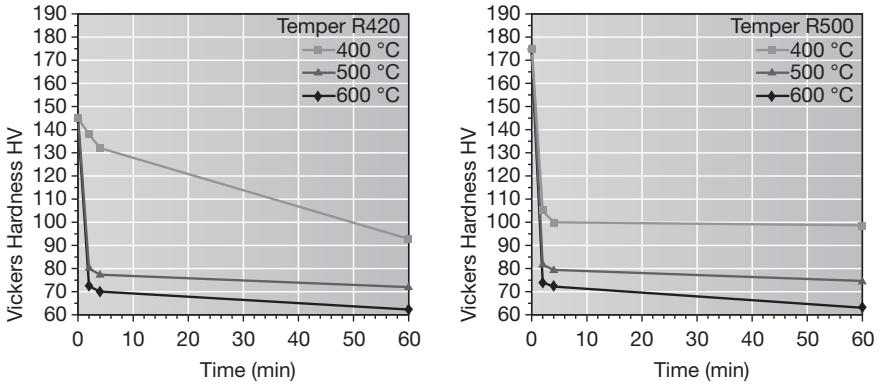
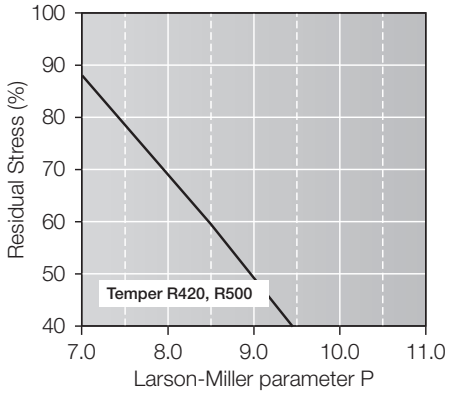
Resistance to Softening



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:
$P = (20 + \log(t))*(T + 273)*0.001$.
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 $^1/_3$ 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

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10/12 Bm (GSW/Ri)