WIELAND-M30

CuZn30

C26000

ROLLED PRODUCTS

wieland

Material Designation	
EN	CW505L
UNS*	C26000

** Unified Numbering System (USA)*

Chemical Composition (Reference)	
Cu	70 %
Zn	balance

Typical Applications

- Jewellery and 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)	126
Coefficient of Electrical Resistance**	10^{-3}/K	1.5
Coefficient of Thermal Expansion**	10^{-6}/K	19.7
Density	g/cm³	8.55
Modulus of Elasticity	GPa	114
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	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.

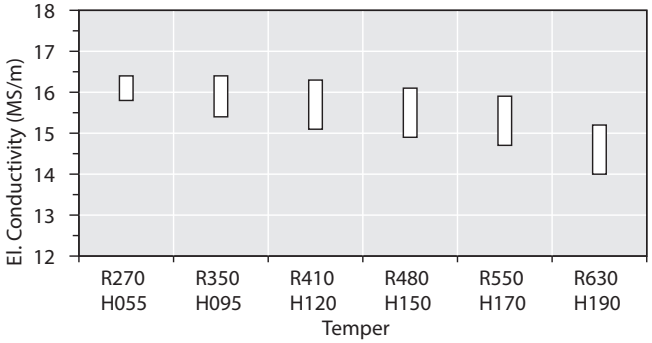
Not resistant to: acids, hydrous sulphur compounds, hydrous ammonia (stress corrosion cracking) in non-stress-relieved condition.

Mechanical Properties							
Temper		**R270**	**R350**	**R410**	**R480**	**R550**	**R630**
Tensile Strength R_m	MPa	270–350	350–430	410–490	480–560	550–640	≥ 630
Yield Strength $R_{p0.2}$	MPa	≤ 160	≥ 170	≥ 260	≥ 430	≥ 500	–
Elongation A_{50mm}	%	≥ 40	≥ 21	≥ 9	≥ 4	–	–

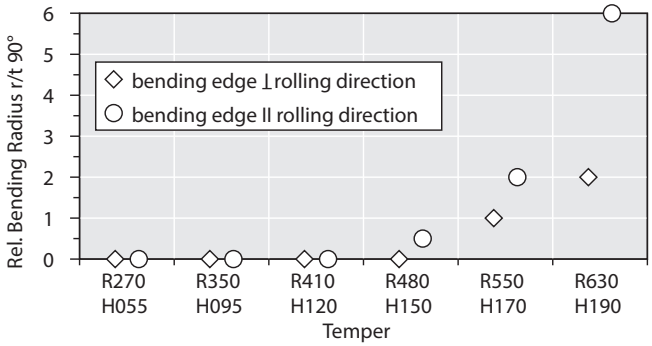
Temper		**H055**	**H095**	**H120**	**H150**	**H170**	**H190**
Hardness HV		55–90	95–125	120–155	150–180	170–200	≥ 190

Temper		**G010**	**G020**	**G030**	**G050**	**G075**
Grain Size	mm	≤ 0.015	0.015–0.030	0.020–0.040	0.035–0.070	0.050–0.100
Hardness HV		≤ 120	≤ 95	≤ 90	≤ 80	≤ 70

Electrical Conductivity



Bendability (Strip Thickness t ≤ 0.5 mm)



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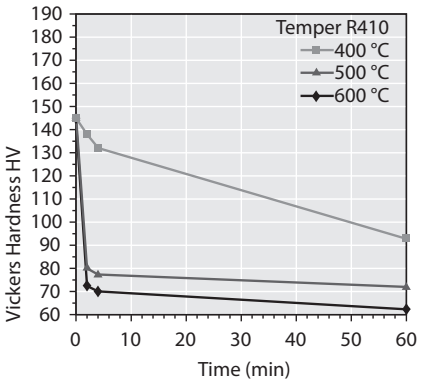
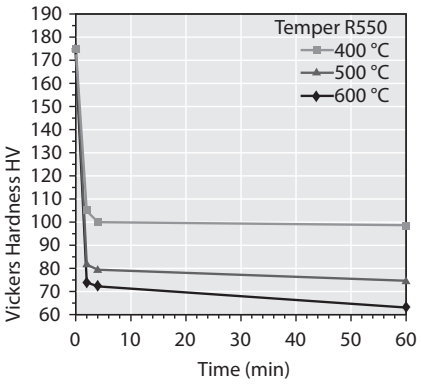
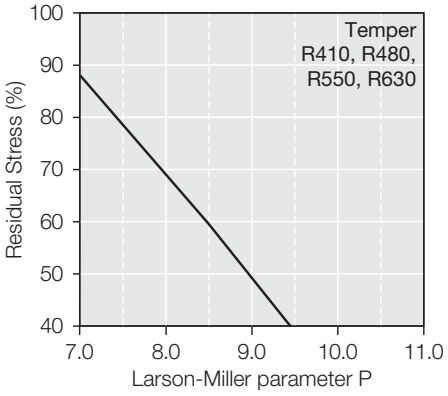
Resistance to Softening





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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11/18 Bm (MC.ED.UL./R)