wieland

Wieland-M36

CuZn36 | C27000 | CW507L

One of the highest zinc-containing brasses, C27000 combines moderate mechanical strength and moderate electrical conductivity with excellent formability. The brass offers designers a highly economical solution to tin bronzes in spring applications and connectors when requirements on temperature stability are low. In addition, the yellow aesthetic combined with its excellent platability constitutes frequent use for deep drawn parts and other metal goods.

Chemical composition (Reference)	
Cu	64 %
Zn	remainder

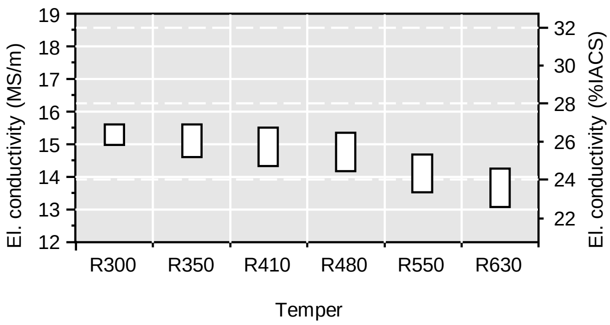
Physical properties (Reference values at room temperature)				
Electrical conductivity	15	MS/m	26	%IACS
Thermal conductivity	120	W/(m·K)	69	Btu·ft/(ft²·h·℉)
Coefficient of electrical resistance*	1.7	10^{-3}/K	0.9	10^{-3}/℉
Coefficient of thermal expansion*	20.2	10^{-6}/K	11.2	10^{-6}/℉
Density	8.44	g/cm³	0.305	lb/in³
Modulus of elasticity	105	GPa	15,000	ksi
Specific heat	0.377	J/(g·K)	0.090	Btu/(lb·℉)
Poisson´s ratio	0.34		0.34	

* Between 0 and 300 ℃

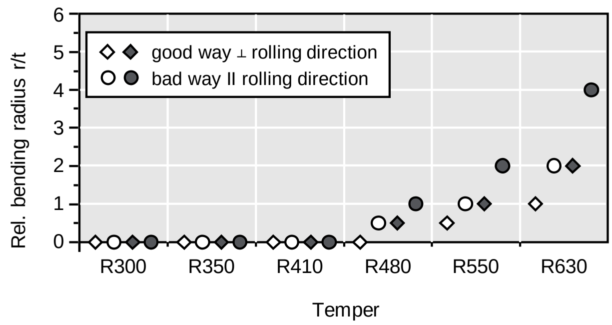
Mechanical properties (values in brackets are for information only)

Temper	Tensile strength R_m		Yield strength $R_{p0.2}$		Elongation A_{50}	Hardness HV
	MPa	ksi	MPa	ksi	%	
R300	300-370	44-54	≤ 180	≤ 26	≥ 38	(55-90)
R350	350-440	51-64	≥ 170	≥ 25	≥ 19	(95-125)
R410	410-490	59-71	≥ 300	≥ 44	≥ 8	(120-150)
R480	480-560	70-81	≥ 430	≥ 62	≥ 3	(150-180)
R550	550-640	80-93	≥ 500	≥ 73	-	(170-200)
R630	≥ 630	≥ 91	≥ 600	≥ 87	-	(≥ 190)

Electrical conductivity



Bendability (Strip thickness t ≤ 0.5 mm) ◇○ 90° ◆● 180°



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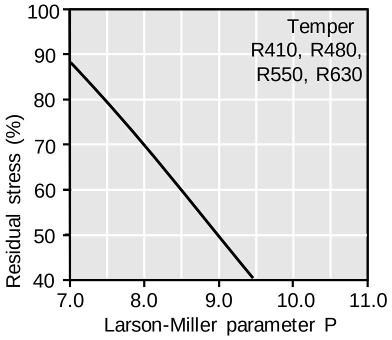
Thermal stress relaxation

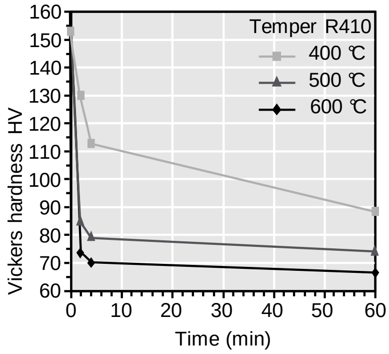


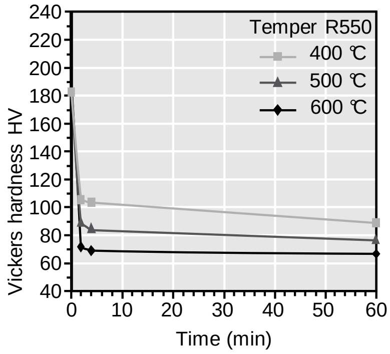
Stress remaining after thermal relaxation as a function of Larson-Miller parameter P
(F. R. Larson, J. Miller, Trans ASME74 (1952) 765–775) given by:
P = (20 + log(t))*(T + 273)*0.001.
Time t in hours, temperature T in ℃.
Example: P = 9 is equivalent to 1,000 h/118 ℃.
Measured on rolled to temper specimens 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.

Softening resistance





Vickers hardness after heat treatment (typical values)

Types and formats available

- Standard coils with outside diameters up to 1,400 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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