wieland

Wieland-M30

CuZn30 | C26000 | CW505L

The “work-horse” of all copper alloys, Cartridge Brass as it is often termed can be readily formed into thousands of different parts and has the strength to perform many useful functions. The unique properties of C26000 have allowed this alloy to find application in everything from bullet cases and automotive terminals to door trim and jewelry. With a warm yellow color and ability to accommodate severe forming/drawing this alloy is one of the most versatile commercial metals.

Chemical composition (Reference)	
Cu	70 %
Zn	remainder

Physical properties (Reference values at room temperature)				
Electrical conductivity	16	MS/m	28	%IACS
Thermal conductivity	126	W/(m·K)	73	Btu·ft/(ft²·h·℉)
Coefficient of electrical resistance*	1.5	10^{-3}/K	0.8	10^{-3}/℉
Coefficient of thermal expansion*	19.7	10^{-6}/K	10.9	10^{-6}/℉
Density	8.55	g/cm³	0.309	lb/in³
Modulus of elasticity	110	GPa	16,000	ksi
Specific heat	0.377	J/(g·K)	0.090	Btu/(lb·℉)
Poisson´s ratio	0.34		0.34	

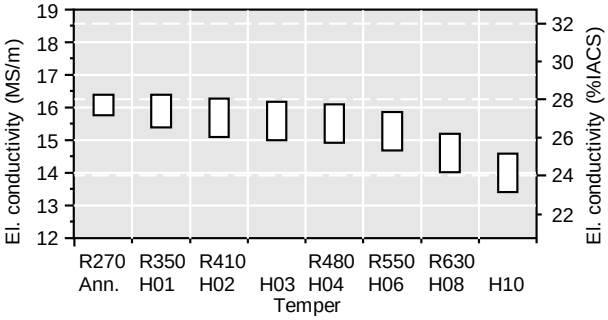
* Between 0 and 300 ℃

Mechanical properties (values in brackets are for information only)

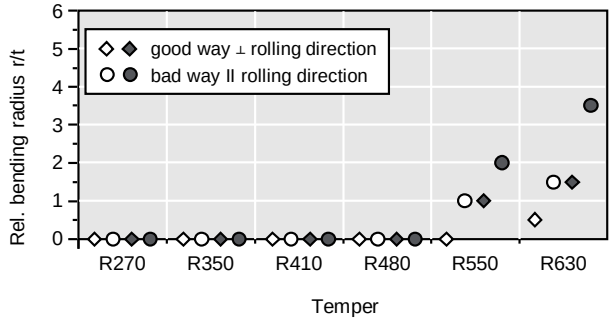
Temper	Tensile strength R_m		Yield strength $R_{p0.2}$		Elongation A_{50}	Hardness HV
	MPa	ksi	MPa	ksi	%	
R270	270-350	39-51	≤ 160	≤ 23	≥ 40	(55-90)
R350	350-430	51-62	≥ 170	≥ 25	≥ 21	(95-125)
R410	410-490	59-71	≥ 260	≥ 38	≥ 9	(120-150)
R480	480-560	70-81	≥ 430	≥ 62	≥ 4	(150-180)
R550	550-640	80-93	≥ 500	≥ 73	-	(170-200)
R630	≥ 630	≥ 91	-	-	-	(≥ 190)
Annealed*	310-420	45-61	≥ 70	≥ 10	≥ 40	
H01*	340-405	49-59	≥ 145	≥ 21	≥ 34	
H02*	395-460	57-67	≥ 290	≥ 42	≥ 19	
H03*	440-510	64-74	≥ 300	≥ 44	≥ 8	
H04*	490-560	71-81	≥ 440	≥ 64	≥ 6	
H06*	570-635	83-92	≥ 525	≥ 76	≥ 2	
H08*	625-690	91-100	≥ 550	≥ 80	≥ 1	
H10*	655-715	95-104	≥ 570	≥ 83	≥ 1	

* According to ASTM B888

Electrical conductivity



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



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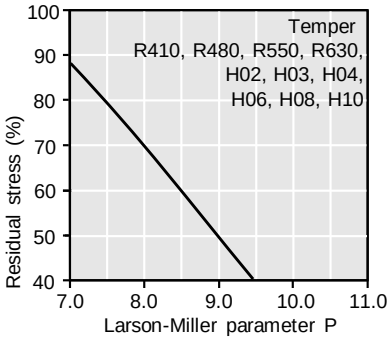
Thermal stress relaxation

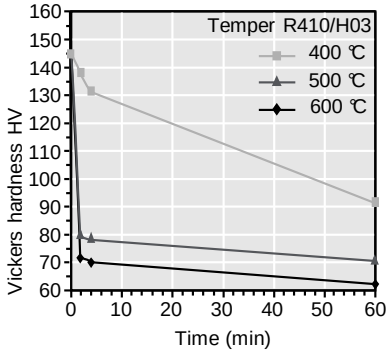


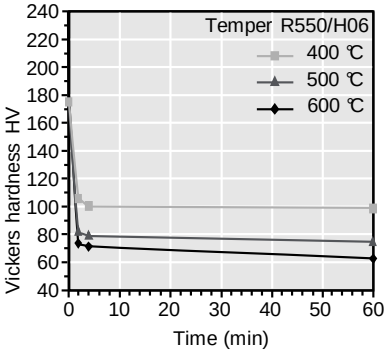
Stress remaining after thermal relaxation as a function of Larson-Miller parameter P
(F. R. Larson, J. Miller, Trans ASME74 (1952) 765–775) given by:
P = (20 + log(t))*(T + 273)*0.001.
Time t in hours, temperature T in ℃.
Example: P = 9 is equivalent to 1,000 h/118 ℃.
Measured on rolled to temper specimens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