

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/(ft ² ·h·°F) |
| Coefficient of electrical resistance* | 1.5 10 ⁻³ /K | 0.8 10 ⁻³ /°F |
| Coefficient of thermal expansion* | 19.7 10 ⁻⁶ /K | 10.9 10 ⁻⁶ /°F |
| Density | 8.82 g/cm ³ | 0.309 lb/in ³ |
| Modulus of elasticity | 110 GPa | 16,000 ksi |
| Specific heat | 0.377 J/(g·K) | 0.090 Btu/(lb·°F) |
| Poisson’s ratio | 0.34 | 0.34 |

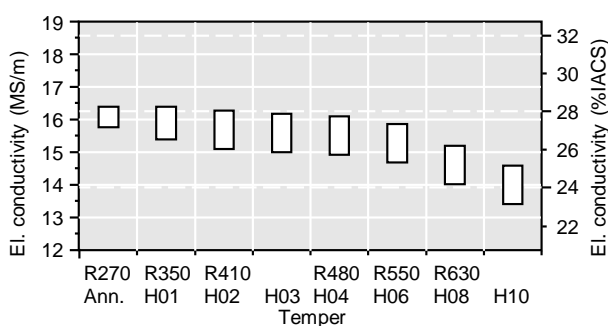
* Between 0 and 300 °C

Mechanical properties (values in brackets are for information only)

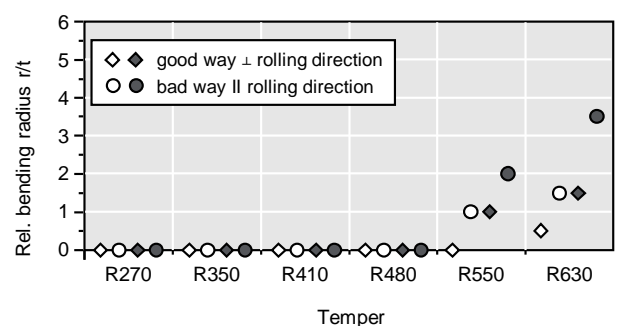
| Temper | Tensile strength R _m | | Yield strength R _{p0.2} | | Elongation A ₅₀ % | Hardness HV |
|-----------|---------------------------------|--------|----------------------------------|------|---------------------------------|-------------|
| | MPa | ksi | MPa | ksi | | |
| R270 | 270-350 | 39-51 | ≤ 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



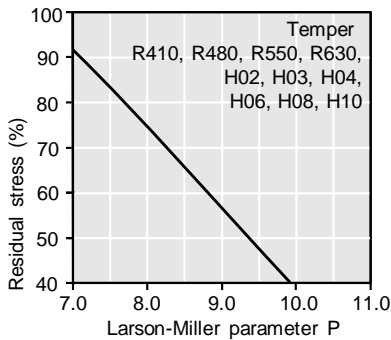
Bendability (Strip thickness t ≤ 0.5 mm) ◆ 90° ● 180°



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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 °C.

Example: P = 9 is equivalent to 1,000 h/118 °C.

Measured on rolled to temper specimens parallel to rolling direction.

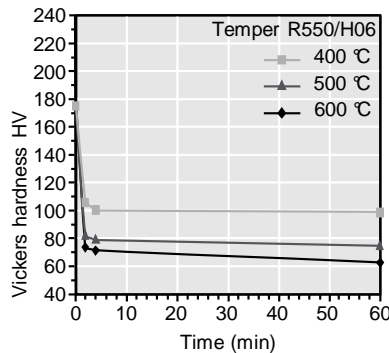
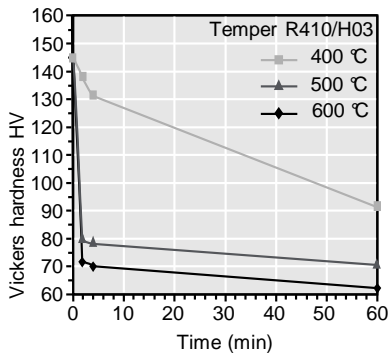
Total stress relaxation depends on the applied stress level.

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 .

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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