

Wieland-M42

CuZn42 | CW510L

CuZn42 is a lead-free brass alloy, that is highly suitable for machining due to its two-phase microstructure. This alloy is, therefore, a perfect option to replace common lead-containing machining brasses, particularly when lead content is required to be lower than 0.05 %.

Chemical composition (Reference)

Cu	58 %
Zn	remainder

Physical properties (Reference values at room temperature)

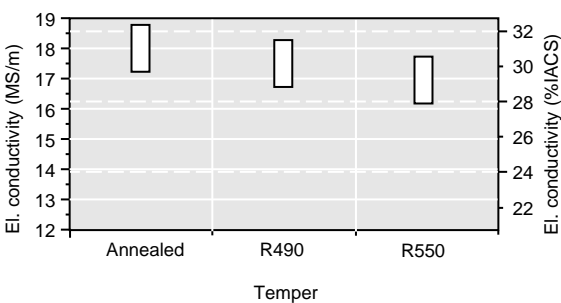
Electrical conductivity	18 MS/m	31 %IACS
Thermal conductivity	113 W/(m·K)	65 Btu·ft/(ft ² ·h·°F)
Coefficient of electrical resistance*	1.1 10 ⁻³ /K	0.6 10 ⁻³ /°F
Coefficient of thermal expansion*	20.3 10 ⁻⁶ /K	11.3 10 ⁻⁶ /°F
Density	8.40 g/cm ³	0.303 lb/in ³
Modulus of elasticity	105 GPa	15,000 ksi
Specific 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	%	
Annealed	(400-470)	(58-69)	(≤ 180)	(≤ 27)	(≥ 37)	85 - 125
R490	490-560	71-82	≥ 360	≥ 52	≥ 17	(160-190)
R550	550-650	79-95	≥ 450	≥ 65	≥ 10	(175-205)

Electrical conductivity



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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 1,400 mm
- Contour-milled strip
- Sheet
- Strip and sheet with protective coating

Dimensions available

- Strip thickness from 0.20 mm, thinner gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness

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