

Wieland-M05

CuZn5 | Brass (lead free)

Material designation

EN	CuZn5 CW500L
UNS	C21000

Chemical composition*

Cu	95 %
Pb	< 0.05 %
Zn	balance

*Reference values in % by weight

Material properties and typical applications

Wieland-M05 has excellent cold working properties due to its very high copper content. This alloy is particularly suitable for stamping, riveting, crimping, flanging, cold extrusion or other cold working operations. Wieland-M05 is also used in the jewellery industry.

Physical properties*

Electrical conductivity	MS/m %IACS	33.3 57
Thermal conductivity	W/(m·K)	243
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	18.0
Density	g/cm ³	8.86
Modulus of elasticity	GPa	127

*Reference values at room temperature

Types of delivery

The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempers.

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	20 %
Capacity for being cold worked	excellent
Capacity for being hot worked	fair

Surface treatment

Polishing	
mechanical	excellent
electrolytic	excellent
Electroplating	excellent

Corrosion resistance

In general excellent resistance to corrosion in seawater, industrial atmosphere and to stress corrosion cracking.

Joining

Resistance welding (butt weld)	good
Inert gas shielded arc welding	good
Gas welding	good
Hard soldering	excellent
Soft soldering	excellent

Heat treatment

Melting range	1055–1065 °C
Hot working	750–900 °C
Soft annealing	450–600 °C 1–3 h
Thermal stress relieving	200–300 °C 1–3 h

Product standards

Tube	EN 12449
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Mechanical properties according to EN									
Tubes acc. to EN 12449									
Temper	Wall thickness	Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %	Hardness			
	mm	MPa	MPa		A100	HV		HB	
	max.	min.	min.	max.	min.	min.	max.	min.	max.
M	20	as manufactured – without specified mechanical properties							
R220	20	220	–	130	40	–	–	–	–
H050	20	–	–	–	–	50	75	45	70
R260	10	260	190	–	18	–	–	–	–
H075	10	–	–	–	–	75	105	70	100
R320	5	320	260	–	8	–	–	–	–
H095	5	–	–	–	–	95	125	90	120
R440	3	440	410	–	–	–	–	–	–
H120	3	–	–	–	–	120	–	115	–