

Wieland-M10 Brass (lead-free)

Extruded/drawn products

Wieland-M10 has excellent cold working properties due to its very high copper content.

This alloy is suitable for stamping, riveting, crimping, flanging, cold extrusion or other cold working operations.

Chemical composition*

Cu	90%
Zn	balance

Material designation

EN	CuZn10, CW501L
UNS	C22000
DIN*	CuZn10, 2.0230
BS*	CZ101
NF*	CuZn10

* Reference values in % by weight

* Former national standards

Physical properties*

Electrical conductivity	MS/m	24.7
	% IACS	42
Thermal conductivity	W/(m*K)	184
Thermal expansion coefficient (0-300°C)	10 ⁻⁶ /K	18.2
Density	g/cm ³	8.8
Modulus of elasticity	GPa	124

* Reference values at room temperature
1 GPa = 1 kN/mm²
1 MS/m = 1 m/Ω • mm²

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	40%
Capacity for being cold worked	excellent
Capacity for being hot worked	fair

Joining

Resistance welding	good
Inert gas shielded arc welding	good
Hard soldering	excellent
Soft soldering	excellent

Corrosion resistance*

Brasses with a high copper content are generally resistant to organic substances and neutral or alkaline compounds. They are virtually unsusceptible to stress corrosion cracking.

Surface treatment

Polishing	mechanical	excellent
	electrolytic	excellent
Electroplating		excellent

Product standards

Rod	EN 12163
Wire	EN 12166
Tube	EN 12449

Heat treatment

Melting range	1025 - 1045 °C
Hot working	750 - 900 °C
Soft annealing	450 - 600°C, 1-3h
Thermal stress-relieving	200 - 300 °C, 1-3h

Mechanical properties (values can be achieved and are a function of size and form)

Reference values	from (soft)	to (hard)
R _m [MPa]	230	460
R _{p0.2} [MPa]	60	420
A ₅ [%]	60	15
HB	75	130

Forms and sizes available

Material										
Wieland	EN designation		Outside diameter		Wall thickness		Circumscribing diameter		Diameter / width across flats	
	Brief designation	Number	from	to	from	to	from*	to	from	to
M10	CuZn10	CW501L	10	220	1	11				
Round tubes										
Drawn sections							2.5	100		
Extruded sections								130		
Sectional tubes								165		
Round and polygonal rods									2	250
Round wires									0.3	
Polygonal wires									2	

All values in mm

* Depending on the form, cross-sections in the lower size range are also available as wire.

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