

Wieland-M05 Brass (lead-free)

Extruded/drawn products

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.

Chemical composition*		Material designation	
Cu	95%	EN	CuZn5, CW500L
Zn	balance	UNS	C21000
		DIN*	CuZn5, 2.0220
		BS*	CZ125
		NF*	CuZn5

* Reference values in % by weight

* Former national standards

Physical properties*			Fabrication properties		Corrosion resistance*	
Electrical conductivity	MS/m	33.3	Forming		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.	
	% IACS	57	Machinability (CuZn39Pb3 = 100 %)	20%		
Thermal conductivity	W/(m*K)	243	Capacity for being cold worked	excellent		
			Capacity for being hot worked	fair		
Thermal expansion coefficient (0-300°C)	10 ⁻⁶ /K	18.0	Joining			
			Resistance welding	good		
Density	g/cm ³	8.86	Inert gas shielded arc welding	good		
			Hard soldering	excellent		
Modulus of elasticity	GPa	127	Soft soldering	excellent		

* Reference values at room temperature

1 GPa = 1 kN/mm²

1 MS/m = 1 m/Ω • mm²

Surface treatment			Product standards	
Polishing	mechanical	excellent	Rod	EN 12163
	electrolytic	excellent	Tube	EN 12449
Electroplating		excellent		
Heat treatment				
Melting range		1055 - 1065 °C		
Hot working		750 - 900 °C		
Soft annealing		450-650 °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]	250	335
R _{p0.2} [MPa]	100	300
A ₁₀ [%]	45	10
HB	65	110

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
M05	CuZn5	CW500L	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.

Wieland

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