

Wieland-M20 Brass (lead-free)

Extruded/drawn products

Wieland-M20 has excellent cold working properties due to its high copper content.

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

Chemical composition*

Cu	80%
Zn	balance

Material designation

EN	CuZn20, CW503L
UNS	C24000
DIN*	CuZn20, 2.0250
BS*	CZ103
NF*	CuZn20

* Reference values in % by weight

* Former national standards

Physical properties*

Electrical conductivity	MS/m	19
	% IACS	32
Thermal conductivity	W/(m*K)	142
Thermal expansion coefficient (0-300°C)	10 ⁻⁶ /K	18.8
Density	g/cm ³	8.67
Modulus of elasticity	GPa	119

* Reference values at room temperature

1 GPa = 1 kN/mm²

1 MS/m = 1 m/Ω • mm²

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	20%
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	970 - 1010 °C
Hot working	750 - 900 °C
Soft annealing	450 - 600 °C, 1-3 h
Thermal stress-relieving	200 - 300 °C, 1-3 h

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

Reference values	from (soft)	to (hard)
R _m [MPa]	310	530
R _{p0.2} [MPa]	125	500
A ₅ [%]	65	5
HB	65	150

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
M20	CuZn20	CW503L	6	100	0.1	4.25				
Round tubes										
Drawn sections							2.5	100		
Extruded sections								130		
Sectional tubes								70		
Round and polygonal rods									2	80
Round wires									0.3	
Polygonal wires									2	

Wieland - M20

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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