

Wieland-MA1

Brass (lead-free/ dezincification resistant)

Wieland-MA1 is a dezincification resistant brass with excellent cold working properties and a pure α -structure. This alloy is used for applications in warm, acidic waters. It is standardized according to EN 12451 for heat exchanger tubes and is increasingly used in the UK and Australian markets. Wieland-MA1 is also suitable for coining, riveting, crimping, flanging, cold extrusion or other cold working operations.

Extruded/drawn products

Chemical composition*

Cu	70%
As	0.03%
Zn	balance

* Reference values in % by weight

Material designation

EN	CuZn30As, CW707R
UNS	-
DIN*	not standardized
BS*	CZ126
NF*	not standardized

* Former national standards

Physical properties*

Electrical conductivity	MS/m	16.3
	% IACS	28
Thermal conductivity	W/(m*K)	126
Density	g/cm ³	8.55
Modulus of elasticity	GPa	114

* Reference values at room temperature

1 GPa = 1 kN/mm²

1 MS/m = 1 m/Ω • mm²

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	25%
Capacity for being cold worked	excellent
Capacity for being hot worked	fair

Joining

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

Corrosion resistance*

Brass with medium copper content is generally resistant to fresh water, organic substances, neutral or alkaline compounds as well as land, marine and industrial atmospheres. In a stress-relieved condition it is virtually unsusceptible to stress corrosion cracking. Furthermore, resistance to dezincification has been improved through the addition of arsenic.

Surface treatment

Polishing	mechanical	excellent
	electrolytic	excellent
Electroplating		excellent

Heat treatment

Melting range	910-965°C
Hot working	750-870°C
Soft annealing	450-680 °C, 1-3 h
Thermal stress-relieving	200-300 °C, 1-3 h

Product standards

Tube	EN 12451
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Mechanical properties (values can be achieved and are a function of size and form)

Reference values	from (soft/extruded)	to (hard)
R _m [MPa]	340	500
R _{p0,2} [MPa]	110	470
A _{11,3} [%]	55	15
HB	70	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
MA1	CuZn30As	CW707R	8	170	0.2	8				
Round tubes										
Drawn sections							2.5	100		
Extruded sections								130		
Sectional tubes								120		
Round and polygonal rods									2	130
Round wires										
Polygonal wires										

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All values in mm

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

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