

Wieland-M15/M16

CuZn15
Lead free brass

Extruded and drawn products



Material designation	
EN	CuZn15 / CW502L
UNS	C23000

Chemical composition*	
Cu	85 %
Pb	< 0.05 %
Zn	balance
Wieland M16:	
Pb	< 90 ppm
Cd	< 50 ppm

* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	21.1 36
Thermal conductivity	W/(m·K)	159
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	18.5
Density	g/cm ³	8.75
Modulus of elasticity	GPa	122

* Reference values at room temperature

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.

Product standards	
Rod	EN 12163
Wire	EN 12166
Tube	EN 12449

Material properties and typical applications

Wieland-M15 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.

With its reduced contents of lead and cadmium our **Wieland-M16** meets the requirements of the Oeko-Tex Standard 100 product class I.

Types of delivery

The Extruded and Drawn Products Division 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		Surface treatment	
Machinability (CuZn39Pb3 = 100 %)	20 %	Polishing	
Capacity for being cold worked	excellent	mechanical	excellent
Capacity for being hot worked	fair	electrolytic	excellent
		Electroplating	excellent
Joining		Heat treatment	
Resistance welding (butt weld)	good	Melting range	1005–1025 °C
Inert gas shielded arc welding	good	Hot working	750–900 °C
Gas welding	good	Soft annealing	450–600 °C 1–3 h
Hard soldering	excellent	Thermal stress relieving	200–300 °C 1–3 h
Soft soldering	excellent		

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Mechanical properties according to EN

Round rods / polygonal rods acc. to EN 12163

Temper	Diameter		Width across flat		Tensile strength	Yield strength		Elongation at rupture			Hardness	
	mm from	mm to	mm from	mm to	R _m MPa min.	R _{p0,2} MPa min. MPa max.		A100 %	A11.3 %	A %	HB	
M	all		all		as manufactured – without specified mechanical properties							
R260	4	80	4	80	260	–	170	–	40	45	–	–
H060	4	80	4	80	–	–	–	–	–	–	60	115
R340	4	40	4	40	340	200	–	–	20	22	–	–
H100	4	40	4	40	–	–	–	–	–	–	100	130
R430	4	10	4	10	430	350	–	–	8	10	–	–
H130	4	10	4	10	–	–	–	–	–	–	130	170

Tubes acc. to EN 12449

Temper	Wallthickness mm max.	Tensile strength	Yield strength		Elongation at rupture	Hardness		HB		
		R _m MPa min.	R _{p0,2} MPa min. MPa max.		A %	HV		min.	max.	
M	20	as manufactured – without specified mechanical properties								
R260	20	260	–	150	42	–	–	–	–	
H050	20	–	–	–	–	50	80	45	75	
R310	10	310	200	–	20	–	–	–	–	
H080	10	–	–	–	–	80	110	75	105	
R370	5	370	290	–	10	–	–	–	–	
H105	5	–	–	–	–	105	–	100	–	

Round wires acc. to EN 12166

Temper	Diameter		Tensile strength	Yield strength		Elongation at rupture			Hardness		
	mm from	mm to	R _m MPa min.	R _{p0,2} MPa min. MPa max.		A %			HV		
M	all		as manufactured – without specified mechanical properties								
R260	4	20	260	–	170	33	35	38	–	–	
H060	4	20	–	–	–	–	–	–	60	120	
R340	1.5	20	340	200	–	18	20	22	–	–	
H105	1.5	20	–	–	–	–	–	–	105	135	
R430	0.5	5	430	350	–	6	8	–	–	–	
H135	1.5	5	–	–	–	–	–	–	135	175	
R530	0.5	3	530	450	–	3	–	–	–	–	
H155	1.5	3	–	–	–	–	–	–	155	–	