wieland

Wieland-M37/M38

CuZn37 | Brass (lead free)

Material designation

EN	CuZn37 CW508L
UNS	M37: C27000/ C27200 M38: C27200/ C27400

Chemical composition*

Cu	63 %
Pb	< 0.05 %
Zn	balance

**Reference values in % by weight*

Physical properties*

Electrical conductivity	MS/m %IACS	15.5 26
Thermal conductivity	W/(m·K)	121
Thermal expansion coefficient (0–300 °C)	10^{-6}/K	20.2
Density	g/cm³	8.44
Moduls of elasticity	GPa	110

**Reference values at room temperature*

Corrosion resistance

Brass with medium copper content is generally quite resistant to organic substances and neutral or alkaline compounds.

Stress corrosion cracking should be taken into account, especially in an ammoniacal atmosphere and whilst under mechanical stress. Dezincification in warm, acidic waters should also be taken into consideration.

Product standards

Rod	EN 12163 EN 12165
Wire	EN 12166
Section	EN 12167
Tube	EN 12449

Material properties and typical applications

Wieland-M37/M38, with its low copper content, is a one-phase alloy still having excellent cold working properties. It is, therefore, highly suitable for stamping, riveting, crimping and flanging.

M38 balances the benefits of low material costs and good cold working properties. It is, therefore, the material most frequently used for cold working.

Types of delivery

The BU Extruded Products 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

Machinability (CuZn39Pb3 = 100 %)	30 %
Capacity for being cold worked	excellent
Capacity for being hot worked	good

Joining

Resistance welding (butt weld)	fair
Inert gas shielded arc welding	fair
Gas welding	fair
Hard soldering	excellent
Soft soldering	excellent

Surface treatment

Polishing	
mechanical	excellent
electrolytic	fair
Electroplating	excellent

Heat treatment

Melting range	904–920 °C
Hot working	750–850 °C
Soft annealing	450–650 °C 1–3 h
Thermal stress relieving	200–300 °C 1–3 h

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Mechanical properties according to EN

Round rods/polygonal rods — acc. to EN 12163

Temper	Diameter		Width across flats		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness	
	mm		mm		MPa	MPa		A100	A11.3	A	HB	
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		all		as manufactured – without specified mechanical properties							
R290	4	80	4	80	290	–	230	–	40	45	–	–
H070	4	80	4	80	–	–	–	–	–	–	70	110
R370	4	40	4	35	370	240	–	–	12	14	–	–
H105	4	40	4	35	–	–	–	–	–	–	105	145
R460	4	8	4	6	460	330	–	–	6	8	–	–
H140	4	8	4	6	–	–	–	–	–	–	140	–

Rectangular rods — acc. to EN 12167

Temper	Thickness		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness	
	mm		MPa	MPa		A100	A11.3	A	HB	
	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		as manufactured – without specified mechanical properties							
R290	3	20	290	–	230	30	40	45	–	–
H050	3	20	–	–	–	–	–	–	50	100
R370	3	10	370	240	–	10	12	14	–	–
H085	3	10	–	–	–	–	–	–	85	130
R460	3	4	460	330	–	4	6	–	–	–
H105	3	4	–	–	–	–	–	–	105	145

Tubes — acc. to EN 12449

Temper	Wall thickness	Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %	Hardness			
	mm	MPa	MPa		A100	HV		HB	
	max.	min.	min.	max.	min.	min.	max.	min.	max.
M	20	as manufactured – without specified mechanical properties							
R300	20	300	–	220	45	–	–	–	–
H060	20	–	–	–	–	60	90	55	85
R370	10	370	200	–	25	–	–	–	–
H085	10	–	–	–	–	85	120	80	115
R440	5	440	320	–	10	–	–	–	–
H115	5	–	–	–	–	115	–	110	–

Round wires — acc. to EN 12166

Temper	Diameter		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness	
	mm		MPa	MPa		A100	A11.3	A	HB	
	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		as manufactured – without specified mechanical properties							
R290	0.5	20	290	–	230	30	40	45	–	–
H055	1.5	20	–	–	–	–	–	–	55	110
R370	0.5	20	370	240	–	10	12	14	–	–
H095	1.5	20	–	–	–	–	–	–	95	140
R460	0.5	5	460	330	–	4	6	–	–	–
H115	1.5	5	–	–	–	–	–	–	115	155
R550	0.5	4	550	450	–	2	5	–	–	–
H130	1.5	4	–	–	–	–	–	–	130	170
R700	0.5	4	700	550	–	–	–	–	–	–
H160	1.5	4	–	–	–	–	–	–	160	–

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