

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 15.5
%IACS 26
Thermal conductivity W/(m·K) 121
Thermal expansion coefficient (0–300 °C) 10⁻⁶/K 20.2
Density g/cm³ 8.44
Modulus 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.

The material is lead free according to RoHS and ELV.

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 30 %
(CuZn39Pb3 = 100 %)
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 electrolytic excellent
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	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.	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	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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