Wieland-M36

CuZn36 | Brass (lead free)

Material designation

EN	CuZn36 CW507L
UNS	C26800/C27000

Material properties and typical applications

Wieland-M36 is a lead-free one-phase brass with excellent cold working properties. It is highly suitable for coining, riveting and crimping.

Chemical composition*

Cu	64 %
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*

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

Surface treatment

Polishing	
mechanical	excellent
electrolytic	good
Electroplating	excellent

Joining

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

Heat treatment

Melting range	904–932 °C
Hot working	750–870 °C
Soft annealing	450–650 °C 1–3 h
Thermal stress relieving	200–300 °C 1–3 h

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
Wire	EN 12166
Section	EN 12167
Tube	EN 12449

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Mechanical properties according to EN

Round rods/polygonal rods — acc. to EN 12163

Temper	Diameter mm from	Diameter mm to	Width across flats mm from	Width across flats mm to	Tensile strength R_m MPa min.	Yield strength $R_{p0.2}$ MPa min.	Yield strength $R_{p0.2}$ MPa max.	Elongation % A100 min.	Elongation % A11.3 min.	Elongation % A min.	Hardness HB min.	Hardness HB 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	10	4	8	460	330	–	–	6	8	–	–
H140	4	10	4	8	–	–	–	–	–	–	140	–

Rectangular rods — acc. to EN 12167

Temper	Thickness mm from	Thickness mm to	Tensile strength R_m MPa min.	Yield strength $R_{p0.2}$ MPa min.	Yield strength $R_{p0.2}$ MPa max.	Elongation % A100 min.	Elongation % A11.3 min.	Elongation % A min.	Hardness HB min.	Hardness HB 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 mm max.	Tensile strength R_m MPa min.	Yield strength $R_{p0.2}$ MPa min.	Yield strength $R_{p0.2}$ MPa max.	Elongation % A100 min.	Hardness HV min.	Hardness HV max.	Hardness HB min.	Hardness HB max.
M	20	as manufactured – without specified mechanical properties							
R290	20	290	–	180	50	–	–	–	–
H055	20	–	–	–	–	55	85	50	80
R360	10	360	180	–	25	–	–	–	–
H080	10	–	–	–	–	80	115	75	110
R430	5	430	300	–	12	–	–	–	–
H110	5	–	–	–	–	110	–	105	–

Round wires — acc. to EN 12166

Temper	Diameter mm from	Diameter mm to	Tensile strength R_m MPa min.	Yield strength $R_{p0.2}$ MPa min.	Yield strength $R_{p0.2}$ MPa max.	Elongation % A100 min.	Elongation % A11.3 min.	Elongation % A min.	Hardness HB min.	Hardness HB 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	–

Wieland-Werke AG | Graf-Arco-Straße 36 | 89079 Ulm | Germany
info@wieland.com | wieland.com

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