wieland

Wieland-Z11

CuZn35Pb1 | Machining brass

Material designation

EN	CuZn35Pb1 CW600N
UNS	C34000

Material properties and typical applications

Wieland-Z11 is a high-copper machining brass which has excellent cold working properties and can still be machined. It is ideal for producing components which are primarily coined, riveted, crimped or flanged and, to a small extent, machined.

Chemical composition*

Cu	63 %
Pb	1 %
Zn	balance

**Reference values in % by weight*

Physical properties*

Electrical conductivity	MS/m %IACS	14.7 25
Thermal conductivity	W/(m·K)	113
Thermal expansion coefficient (0–300 °C)	10^{-6}/K	20.4
Density	g/cm³	8.45
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 %)	75 %
Capacity for being cold worked	good
Capacity for being hot worked	good

Surface treatment

Polishing	
mechanical electrolytic	good fair
Electroplating	excellent

Joining

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

Heat treatment

Melting range	885–910 °C
Hot working	700–800 °C
Soft annealing	450–650 °C 1–3 h
Thermal stress relieving	200–300 °C 1–3 h

Corrosion resistance

Machining brass is generally quite resistant against organic substances as well as 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 12164 EN 12165
Wire	EN 12166
Section	EN 12167
Tube	EN 12449

Trademarks

WICONNEC®

Further information is provided in our brochure on Wiconnec.

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Mechanical properties according to EN

Round rods/polygonal rods — acc. to EN 12164

Temper	Diameter mm		Width across flats mm		Tensile strength R_m MPa	Yield strength $R_{p0.2}$ MPa		Elongation % A100	Elongation % A11.3	Elongation % A	Hardness HB	
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		all		as manufactured – without specified mechanical properties							
R340	10	80	10	60	340	–	280	–	–	20	–	–
H070	10	80	10	60	–	–	–	–	–	–	70	120
R400	2	25	2	20	400	200	–	4	8	12	–	–
H100	2	25	2	20	–	–	–	–	–	–	100	140
R480	2	14	2	10	480	350	–	3	5	8	–	–
H125	2	14	2	10	–	–	–	–	–	–	125	–

Rectangular rods — acc. to EN 12167

Temper	Thickness mm		Tensile strength R_m MPa	Yield strength $R_{p0.2}$ MPa		Elongation % A100	Elongation % A11.3	Elongation % A	Hardness HB	
	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		as manufactured – without specified mechanical properties							
R340	3	20	340	–	280	10	15	20	–	–
H070	3	20	–	–	–	–	–	–	70	120
R400	3	10	400	200	–	4	8	12	–	–
H100	3	10	–	–	–	–	–	–	100	140
R480	3	10	480	350	–	2	5	8	–	–

Tubes — acc. to EN 12449

Temper	Wall thickness mm		Tensile strength R_m MPa	Yield strength $R_{p0.2}$ MPa		Elongation % A100	Hardness HV		Hardness HB	
	from	to	min.	min.	max.	min.	min.	max.	min.	max.
M	–	20	as manufactured – without specified mechanical properties							
R290	–	10	290	–	180	45	–	–	–	–
H060	–	10	–	–	–	–	60	90	55	85
R370	–	10	370	200	–	20	–	–	–	–
H085	–	10	–	–	–	–	85	120	80	115
R440	–	5	440	340	–	10	–	–	–	–
H115	–	5	–	–	–	–	115	–	110	–

Round wires — acc. to EN 12166

Temper	Diameter mm		Tensile strength R_m MPa	Yield strength $R_{p0.2}$ MPa		Elongation % A100	Elongation % A11.3	Elongation % A	Hardness HB	
	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		as manufactured – without specified mechanical properties							
R340	0.5	20	340	–	280	10	15	20	–	–
H080	1.5	20	–	–	–	–	–	–	80	130
R400	0.5	14	400	200	–	4	8	12	–	–
H100	1.5	14	–	–	–	–	–	–	100	150
R480	0.5	8	480	350	–	2	5	–	–	–

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