

Wieland-Z11

CuZn35Pb1 | Machining brass

Material designation

EN	CuZn35Pb1 CW600N
UNS	C33500

Chemical composition*

Cu	63 %
Pb	1 %
Zn	balance

*Reference values in % by weight

Physical properties*

Electrical conductivity	MS/m	14.7
	%IACS	25
Thermal conductivity	W/(m·K)	113
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	20.4
Density	g/cm ³	8.45
Modulus of elasticity	GPa	110

*Reference values at room temperature

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

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.

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

Joining

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

Surface treatment

Polishing	
mechanical	good
electrolytic	fair
Electroplating	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

Trademarks



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		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								
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			Tensile strength R _m	Yield strength R _{p0.2}		Elongation %			Hardness			
	mm			MPa	MPa		A100	A11.3	A	HB			
	from	to	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		Tensile strength R _m	Yield strength R _{p0.2}		Elongation %			Hardness				
	mm		MPa	MPa		A100			HV		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		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										
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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