

Wieland-Z11

CuZn35Pb1
Machining brass

Extruded and drawn products



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 %IACS	14.7 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 12449 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 Extruded and Drawn Products Division 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		Surface treatment	
Machinability (CuZn39Pb3 = 100 %)	75 %	Polishing	
Capacity for being cold worked	good	mechanical	good
Capacity for being hot worked	good	electrolytic	fair
		Electroplating	excellent
Joining		Heat treatment	
Resistance welding (butt weld)	fair	Melting range	885–910 °C
Inert gas shielded arc welding	poor	Hot working	700–800 °C
Gas welding	poor	Soft annealing	450–650 °C 1–3 h
Hard soldering	fair	Thermal stress relieving	200–300 °C 1–3 h
Soft soldering	excellent		

Trademarks



Further information is provided in the 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	Yield strength		Elongation			Hardness	
	mm from	mm to	mm from	mm to	R _m MPa min.	R _{p0.2} MPa min. MPa max.		A100 % min.	A11.3 % min.	A % min.	HB 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	Yield strength		Elongation			Hardness		
	mm from	mm to	R _m MPa min.	R _{p0.2} MPa min. MPa max.		A100 % min.	A11.3 % min.	A % min.	HB 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	–	–	
H125	3	10	–	–	–	–	–	–	125	–	

Tubes acc. to EN 12449

Temper	Wall thickness		Tensile strength	Yield strength		Elongation	Hardness		HB		
	mm from	mm to	R _m MPa min.	R _{p0.2} MPa min. MPa max.		A %	HV 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	Yield strength		Elongation			Hardness		
	mm from	mm to	R _m MPa min.	R _{p0.2} MPa min. MPa max.		A100 % min.	A11.3 % min.	A % min.	HB 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	–	–	–	
H135	1.5	8	–	–	–	–	–	–	135	–	

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