

Wieland-Z11 Machining brass

Extruded/drawn products

Wieland-Z11 is a high-copper machining brass exhibiting excellent cold working and good machining properties. It is ideal for producing components which - apart from being machined - are coined, riveted, crimped or flanged.

Chemical composition*

Cu	63%
Pb	1%
Zn	balance

Material designation

EN	CuZn35Pb1 CW600N
UNS	C34000
DIN*	CuZn36Pb1.5 2.0331
BS*	CZ118
NF	not standardized

* Reference values in % by weight

* Former national standards

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

1 GPa = 1 kN/mm²

1 MS/m = 1 m/Ω · mm²

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	75%
Capacity for being cold worked	good
Capacity for being hot worked	good

Joining

Resistance welding	fair
Inert gas shielded arc welding	poor
Hard soldering	fair
Soft soldering	excellent

Corrosion resistance

Machining brass is generally quite resistant against organic substances as well as neutral or alkaline compounds.

*Stress corrosion cracking and dezincification in warm, acidic waters should be taken into account, especially in an ammoniacal atmosphere and whilst under mechanical stress.

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, 1-3 h
Thermal stress-relieving	200-300 °C, 1-3 h

Product standards

Rod	EN 12164 EN 12165
Wire	EN 12166
Section	EN 12167
Tube	EN 12449

Mechanical properties (values can be achieved and are a function of size and form)

Reference values	from (soft/extruded)	to (hard)
R _m [MPa]	350	490
R _{p0.2} [MPa]	140	450
A ₁₀ [%]	50	15
HB	80	120

Forms and sizes available

Material										
Wieland	EN designation		Outside diameter		Wall thickness		Circumscribing diameter		Diameter / width across flats	
	Brief designation	Number	from	to	from	to	from*	to	from	to
Z11	CuZn35Pb1	CW600N	6	60	0.25	5				
Round tubes			6	60	0.25	5				
Drawn sections							2.5	130		
Extruded sections								150		
Sectional tubes								50		
Round and polygonal rods									2	125
Round wires									0.3	
Polygonal wires									2	

All values in mm

* Depending on the form, cross-sections in the lower size range are also available as wire.

Wieland - Z11

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