

Wieland-Z29 Machining brass

Extruded/drawn products

Wieland-Z29 is a brass with excellent machining and good hot-drop forging properties. It can be sufficiently cold worked. Due to its good ductility Wieland-Z29 is also often used for the production of connectors with high torque requirements.

Chemical composition*

Cu	59.5%
Pb	2.3%
Zn	balance

Material designation

EN	CuZn39Pb2
	CW612N
UNS	C37700
DIN*	CuZn39Pb2-2.0380
BS*	CZ128
NF*	CuZn39Pb2

* Reference values in % by weight

* Former national standards

Physical properties*

Electrical conductivity	MS/m	13.9
	% IACS	24
Thermal conductivity	W/(m*K)	109
Thermal expansion coefficient (0-300°C)	10 ⁻⁶ /K	21.1
Density	g/cm ³	8.44
Modulus of elasticity	GPa	102

* Reference values at room temperature

1 GPa = 1 kN/mm²

1 MS/m = 1 m/Ω • mm²

Fabrication properties

Forming

Machinability	90%
(CuZn39Pb3 = 100 %)	
Capacity for being cold worked	poor
Capacity for being hot worked	excellent

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	poor
Electroplating		excellent

Heat treatment

Melting range	880-895 °C
Hot working	650-800 °C
Soft annealing	450-600 °C, 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
Hollow rod	EN 12168

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

Reference values	from (soft/extruded)	to (hard)
R _m [MPa]	390	560
R _{p0.2} [MPa]	180	500
A ₅ [%]	35	3
HB	95	150

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
Z29	CuZn39Pb2	CW612N	8	130	0.5	20				
Round tubes										
Drawn sections							2.5	100		
Extruded sections								150		
Sectional tubes										
Round and polygonal rods									2	100
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 - Z29

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