

# Wieland-Z29

CuZn39Pb2  
Machining brass

## Extruded and drawn products



Material designation	
EN	CuZn39Pb2 / CW612N
UNS	C37700

Chemical composition*	
Cu	59.5 %
Pb	2.3 %
Zn	balance

\* Reference values in % by weight

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

\* 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
Hollow rod	EN 12168

### Material properties and typical applications

**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.

### 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 %)	90 %	<b>Polishing</b>	
Capacity for being cold worked	poor	mechanical	good
Capacity for being hot worked	excellent	electrolytic	poor
		Electroplating	excellent
Joining		Heat treatment	
Resistance welding (butt weld)	fair	Melting range	880–895 °C
Inert gas shielded arc welding	poor	Hot working	650–800 °C
Gas welding	poor	Soft annealing	450–600 °C 1–3 h
Hard soldering	fair	Thermal stress relieving	200–300 °C 1–3 h
Soft soldering	excellent		

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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 <sub>m</sub> MPa min.	R <sub>p0.2</sub> MPa min. MPa max.		A100 %	A11.3 %	A %	HB	
M	all		all		as manufactured – without specified mechanical properties							
R360	6	80	5	60	360	–	300	–	15	20	–	–
H090	6	80	5	60	–	–	–	–	–	–	70	100
R430	2	40	2	35	410	230	–	8	10	12	–	–
H110	2	40	2	35	–	–	–	–	–	–	100	145
R500	2	14	2	10	500	350	–	3	5	8	–	–
H135	2	14	2	10	–	–	–	–	–	–	120	–

### Rectangular rods acc. to EN 12167

Temper	Thickness		Tensile strength	Yield strength		Elongation			Hardness		
	mm from	mm to	R <sub>m</sub> MPa min.	R <sub>p0.2</sub> MPa min. MPa max.		A100 %	A11.3 %	A %	HB		
M	all		as manufactured – without specified mechanical properties								
R360	3	20	360	–	300	10	15	20	–	–	
H090	3	20	–	–	–	–	–	–	70	100	
R430	3	10	410	220	–	8	10	12	–	–	
H110	3	10	–	–	–	–	–	–	100	145	
R500	3	10	500	350	–	2	5	8	–	–	
H135	3	10	–	–	–	–	–	–	120	–	

### Round wires acc. to EN 12166

Temper	Diameter		Tensile strength	Yield strength		Elongation			Hardness		
	mm from	mm to	R <sub>m</sub> MPa min.	R <sub>p0.2</sub> MPa min. MPa max.		A100 %	A11.3 %	A %	HB		
M	all		as manufactured – without specified mechanical properties								
R360	0.5	20	360	–	300	10	15	20	–	–	
H080	1.5	20	–	–	–	–	–	–	80	110	
R410	0.5	14	410	220	–	8	10	12	–	–	
H100	1.5	14	–	–	–	–	–	–	100	160	
R500	0.5	8	500	350	–	2	5	–	–	–	
H130	1.5	8	–	–	–	–	–	–	130	–	