

# Wieland-Z12

CuZn35Pb2  
Machining brass

## Extruded and drawn products



Material designation	
EN	CuZn35Pb2/CW601N
UNS	C34200/C34500

Chemical composition*	
Cu	63 %
Pb	2 %
Zn	balance

\* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	14.7 25
Thermal conductivity	W/(m·K)	116
Thermal expansion coefficient (0–300 °C)	10 <sup>-6</sup> /K	20.4
Density	g/cm <sup>3</sup>	8.46
Modulus of elasticity	GPa	105

\* 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
Wire	EN 12166
Section	EN 12167
Hollow rod	EN 12168
Tube	EN 12449

**Material properties and typical applications**

**Wieland-Z12** 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 %)	80 %	<b>Polishing</b>
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 <sub>m</sub> MPa min.	R <sub>p0.2</sub> MPa min.    MPa max.		A100 %	A11.3 %	A %	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 <sub>m</sub> MPa min.	R <sub>p0.2</sub> MPa min.    MPa max.		A100 %	A11.3 %	A %	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 <sub>m</sub> MPa min.	R <sub>p0.2</sub> MPa min.    MPa max.		A %	HV		min.	max.			
							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 <sub>m</sub> MPa min.	R <sub>p0.2</sub> MPa min.    MPa max.		A100 %	A11.3 %	A %	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	–			

Wieland-Werke AG

[www.wieland.com](http://www.wieland.com)

Graf-Arco-Str. 36, 89079 Ulm, Germany, Phone +49 (0)731 944-0, Fax +49 (0)731 944-2772, [info@wieland.de](mailto:info@wieland.de)

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