

## Wieland-Z90 Machining brass

## Extruded/drawn products

Wieland-Z90 is a high-copper machining brass with excellent cold working and good machining properties. It is used in the USA for cylinder tubes and mainly for sanitary applications.

### Chemical composition\*

Cu	67%
Pb	0.6%
Zn	balance

### Material designation

EN	not standardized (~CuZn32Pb1)
UNS	C33000
DIN*	not standardized
BS*	not standardized
NF*	not standardized

\* Reference values in % by weight

\* Former national standards

### Physical properties\*

Electrical conductivity	MS/m	15.1
	% IACS	26
Thermal conductivity	W/(m*K)	117
Thermal expansion coefficient (0-300°C)	10 <sup>-6</sup> /K	20.2
Density	g/cm <sup>3</sup>	8.5
Modulus of elasticity	GPa	105

\* Reference values at room temperature

1 GPa = 1 kN/mm<sup>2</sup>

1 MS/m = 1 m/Ω • mm<sup>2</sup>

### Fabrication properties

#### Forming

Machinability (CuZn39Pb3 = 100 %)	60%
Capacity for being cold worked	excellent
Capacity for being hot worked	fair
<b>Joining</b>	
Resistance welding	fair
Inert gas shielded arc welding	poor
Hard soldering	good
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	excellent
	electrolytic	good
Electroplating		excellent

### Heat treatment

Melting range	905-940 °C
Hot working	750-870 °C
Soft annealing	450-650 °C, 1-3 h
Thermal stress-relieving	200-300 °C, 1-3 h

### Product standards

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

Reference values	from (soft/extruded)	to (hard)
R <sub>m</sub> [MPa]	330	540
R <sub>p0.2</sub> [MPa]	100	470
A <sub>5</sub> [%]	50	10
HB	65	140

## 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
Z90	CuZn32Pb1	not stand.	8	120	0.2	8				
Round tubes										
Drawn sections										
Extruded sections										
Sectional tubes								90		
Round and polygonal rods										
Round wires										
Polygonal wires										

**Wieland - Z90**

All values in mm

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