

## Wieland-KC1 free-cutting copper

Wieland-KC1 is a free-cutting copper alloy with high electrical conductivity. It is particularly suitable for connectors and other electronic applications.

## Extruded/drawn products

### Chemical composition\*

Cu	balance
Pb	1%
P	0.01%

### Material designation

EN	CuPb1P / CW113C
UNS	C18700
DIN*	not standardized
BS*	not standardized
NF*	not standardized

\* Reference values in % by weight

\* Former national standards

### Physical properties\*

Electrical conductivity	MS/m	50
	% IACS	86
Thermal conductivity	W/(m*K)	350
Density	g/cm <sup>3</sup>	8.9
Modulus of elasticity	GPa	115

\* 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

<b>Forming</b>	
Machinability	70%
(CuZn39Pb3 = 100 %)	
Capacity for being cold worked	good
Capacity for being hot worked	fair
<b>Joining</b>	
Resistance welding	poor
Inert gas shielded arc welding	poor
Hard soldering	good
Soft soldering	excellent

### Corrosion resistance

Pure copper and high-copper alloys generally exhibit good corrosion resistance due to their precious character and are practically insensitive to stress corrosion cracking.

### Surface treatment

Polishing	mechanical	good
	electrolytic	good
Electroplating		excellent

### Product standards

Rod	EN 12164
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### Heat treatment

Melting range	1079 °C
Soft annealing	400-500 °C, 1 h
Thermal stress relieving	200-250 °C, 4 h

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

Reference values	drawn (4-30mm)	drawn (30 - 50 mm)
R <sub>m</sub> [MPa]	360	on request
R <sub>p0.2</sub> [MPa]	340	
A5 [%]	8	
HB	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
KC1	CuPb1P	CW113C								
Round tubes										
Drawn sections										
Extruded sections										
Sectional tubes										
Round rods									4	30
Round wires									4	12
Polygonal wires										

**Wieland - KC1**

All values in mm

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