wieland

Wieland-KC1

CuPb1P | Free-cutting copper

Material designation

EN	CuPb1P CW113C
UNS	C18700

Material properties and typical applications

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

Chemical composition*

Cu	balance
Pb	1 %
P	0.01 %

**Reference values in % by weight*

Physical properties*

Electrical conductivity	MS/m %IACS	50 86
Thermal conductivity	W/(m·K)	350
Thermal expansion coefficient (0–300 °C)	10^{-6}/K	17
Density	g/cm³	8.9
Moduls of elasticity	GPa	115

**Reference values at room temperature*

Types of delivery

The BU Extruded Products 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

Machinability (CuZn39Pb3 = 100 %)	80 %
Capacity for being cold worked	excellent
Capacity for being hot worked	fair

Surface treatment

Polishing	
mechanical	good
electrolytic	good
Electroplating	excellent

Joining

Resistance welding (butt weld)	fair
Inert gas shielded arc welding	fair
Gas welding	fair
Hard soldering	good
Soft soldering	excellent

Heat treatment

Melting range	1,079–1,080 °C
Hot working	700–900 °C
Soft annealing	400–500 °C 1–3 h
Thermal stress relieving	200–250 °C 1–3 h

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.

Product standards

Rod	EN 12164

Trademarks

WICONNEC®

Further information is provided in our brochure on Wiconnec.

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Mechanical properties according to EN

Round rods/polygonal rods												acc. to EN 12164
Temper	Diameter		Width across flat		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %			Hardness	
	mm		mm		MPa	MPa		A100	A11.3	A	HB	
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		all		as manufactured – without specified mechanical properties							
R250	2	80	2	80	250	180	–	3	5	7	–	–
H080	2	80	2	80	–	–	–	–	–	–	80	110
R300	2	20	2	20	300	240	–	2	3	5	–	–
H095	2	20	2	20	–	–	–	–	–	–	95	130
R360	2	10	2	10	360	300	–	–	–	–	–	–
H120	2	10	2	10	–	–	–	–	–	–	120	–

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