

Wieland-KA1 High-copper alloy

Extruded/drawn products

Wieland-KA1 is a high-copper with silver alloy. It is characterized by its resistance to hydrogen embrittlement according to EN 1976. Through the addition of silver the softening temperature is increased without substantially influencing the electrical conductivity. Wieland-KA1 is therefore suitable for continuous loads at elevated temperatures.

Chemical composition*

Cu	balance
Ag	appr. 0.1 %
P	appr. 0.005 %

* Reference values in % by weight

Material designation

EN	CuAg0.10P,CW016A
UNS	C11600
DIN*	CuAg0.1P, 2.1191

* Former national standard

Physical properties*

Electrical conductivity	MS/m	≥55
	% IACS	≥94
Thermal conductivity	W/(m*K)	~ 380
Thermal expansion coefficient (0-300°C)	10 ⁻⁶ /K	17
Density	g/cm ³	8.9
Modulus of elasticity	GPa	110

* Reference values at room temperature

1 GPa = 1 kN/mm²

1 MS/m = 1 m/Ω • mm²

Fabrication properties

Forming

Machinability	20%
(CuZn39Pb3 = 100 %)	
Capacity for being cold worked	excellent
Capacity for being hot worked	excellent

Joining

Resistance welding	excellent
Inert gas shielded arc welding	excellent
Hard soldering	excellent
Soft soldering	excellent

Corrosion resistance*

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

Surface treatment

Polishing	mechanical	excellent
	electrolytic	excellent
Electroplating		excellent

Heat treatment

Melting point	1083°C liquidus
Hot working	750 - 900 °C
Soft annealing	400 - 550 °C
Thermal stress-relieving	300 - 350 °C

Product standards

Rod	EN 13601
Wire	EN 13601
Section	EN 13605
Tube	EN 13600

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

Reference values	from (soft)	to (hard)
R _m [MPa]	250	360
R _{p0.2} [MPa]	200	350
A ₅ [%]	14	7
HB	70	115

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
KA1	CuAg0.10P	CW016A								
Round tubes										
Drawn sections										
Extruded sections										
Sectional tubes								230		
Round and polygonal rods									2	6
Round wires									0.3	
Polygonal wires									2	

Wieland - KA1

All values in mm

Wieland

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