

Wieland-KA1

CuAg0.1P
High-copper alloy

Extruded and drawn products



Material designation	
EN	CuAg0.1P/CW016A
UNS	–

Chemical composition*	
Cu	balance
Ag	0.1 %
P	0.005 %

* Reference values in % by weight

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

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.

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

Material properties and typical applications

Wieland-KA1 is a high-copper with silver alloy. It is characterized by its resistance to hydrogen embrittlement according to EN ISO 2626. 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.

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 %)	20 %	Polishing	
Capacity for being cold worked	excellent	mechanical	excellent
Capacity for being hot worked	excellent	electrolytic	excellent
		Electroplating	excellent
Joining		Heat treatment	
Resistance welding (butt weld)	excellent	Melting range	1083 °C
Inert gas shielded arc welding	excellent	Hot working	750–900 °C
Gas welding	excellent	Soft annealing	400–550 °C 1–3 h
Hard soldering	excellent	Thermal stress relieving	300–350 °C 1–3 h
Soft soldering	excellent		

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Mechanical properties according to EN

Seamless tubes for electrical purposes acc. to EN 13600

Temper	Wall thickness mm up to	Hardness				Tensile strength		Yield strength		Elongation	
		HBW		HV		R _m MPa		R _{p0.2} MPa		A	
		min.	max.	min.	max.	min.	max.	min.	max.	%	min.
D	–	cold drawn – without specified mechanical properties									
H035	40	35	60	35	65	–	–	–	–	–	–
R200	40	–	–	–	–	200	250	–	120	–	35
H065	20	60	90	65	95	–	–	–	–	–	–
R250	20	–	–	–	–	250	300	150	–	–	15
H090	10	85	105	90	110	–	–	–	–	–	–
R290	10	–	–	–	–	290	360	250	–	–	5
H100	5	95	–	100	–	–	–	–	–	–	–
R360	5	–	–	–	–	360	–	320	–	–	(3)

Rod, bar and wire for general electrical purposes acc. to EN 13601

Temper	Dimensions									Hardness				Tensile strength R _m MPa	Yield strength R _{p0.2} MPa	Elongation	
	round, square, hexagonal			rectangular						HBW		HV				A100	A
	mm from	mm over	mm to	Thickness			Width			min.	max.	min.	max.	% min.	% min.		
D	2	–	160	0.5	–	40	1	–	200	cold drawn – without specified mechanical properties							
H035	2	–	160	0.5	–	40	1	–	200	35	65	35	65	–	–	–	–
R200	2	–	160	1	–	40	5	–	200	–	–	–	–	200	max. 120	25	35
H065	2	–	80	0.5	–	40	1	–	200	65	90	70	95	–	–	–	–
R250	2	–	10	1	–	10	5	–	200	–	–	–	–	250	max. 200	8	12
R250	–	10	140	–	10	40	–	10	200	–	–	–	–	250	min. 180	–	15
R230	–	30	80	–	10	40	–	10	200	–	–	–	–	230	min. 160	–	18
H085	2	–	40	0.5	–	20	1	–	120	85	110	90	115	–	–	–	–
H075	–	40	80	–	20	40	–	20	160	75	100	80	105	–	–	–	–
R300	2	–	20	1	–	10	5	–	120	–	–	–	–	300	min. 260	5	8
R280	–	20	60	–	10	20	–	10	160	–	–	–	–	280	min. 240	–	10
R260	–	40	60	–	20	40	–	20	160	–	–	–	–	260	min. 220	–	12
H100	2	–	10	0.5	–	5	1	–	120	100	–	110	–	–	–	–	–
R350	2	–	10	1	–	5	5	–	120	–	–	–	–	350	min. 320	3	5

Profiles and profiled wire for electrical purposes acc. to EN 13605

Temper	Dimensions		Hardness				Tensile strength R _m MPa	Yield strength R _{p0.2} MPa	Elongation	
	Thickness mm max.	Width/height mm max.	HBW		HV				A100	A
			min.	max.	min.	max.	min.	max.	% min.	% min.
D	50	180	as manufactured – without specified mechanical properties							
H035	50	180	35	65	35	70	–	–	–	–
R200	50	180	–	–	–	–	200	max. 120	25	35
H065	10	150	65	95	70	100	–	–	–	–
R240	10	150	–	–	–	–	240	min. 160	–	15
H080	5	100	80	115	85	120	–	–	–	–
R280	5	100	–	–	–	–	280	min. 240	–	8