

Wieland-KA1

CuAg0.1P | Highcopper alloy

Material designation

EN	CuAg0,1P CW016A
UNS	not standardized

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 precious 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 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 %)	20 %
Capacity for being cold worked	excellent
Capacity for being hot worked	excellent

Surface treatment

Polishing	
mechanical	excellent
electrolytic	excellent
Electroplating	excellent

Joining

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

Heat treatment

Melting range	1,083 °C
Hot working	750–900 °C
Soft annealing	400–550 °C 1–3 h
Thermal stress relieving	300–350 °C 1–3 h

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Mechanical properties according to EN

Rod and wire														acc. to EN 13601					
Temper	Diameter/Distance across flats round, square, rectangular		Thickness		Width		Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %		Hardness							
	mm		mm		mm		MPa	MPa		A100	A	HBW		HV					
	from	to	from	to	from	to	min.	min.	max.	min.	min.	min.	max.	min.	max.				
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	–	120	25	35	–	–	–	–				
H065	2	80	0.5	40	1	200	–	–	–	–	–	65	90	70	95				
R250	2	10	1	10	5	200	250	–	200	8	12	–	–	–	–				
R250	> 10	140	> 10	40	> 10	200	250	180	–	–	15	–	–	–	–				
R230	> 30	80	> 10	40	> 10	200	230	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	260	–	5	8	–	–	–	–				
R280	> 20	60	> 10	20	> 10	160	280	240	–	–	10	–	–	–	–				
R260	> 40	60	> 20	40	> 20	160	260	220	–	–	12	–	–	–	–				
H100	2	10	0.5	5	1	120	–	–	–	–	–	100	–	110	–				
R350	2	10	1	5	5	120	350	320	–	3	5	–	–	–	–				

Profiles												acc. to EN 13605			
Temper	Thickness	Width/Height	Tensile strength R_m		Yield strength $R_{p0.2}$		Elongation %		Hardness						
	mm	mm	MPa		MPa		A100	A	HBW		HV				
	max.	max.	min.		min.	max.	min.	min.	min.	max.	min.	max.			
D	50	180	cold-drawn without specified mechanical properties												
H035	50	180	–	–	–	–	–	–	35	65	35	70			
R200	50	180	200	–	120	25	35	–	–	–	–				
H065	10	150	–	–	–	–	–	65	95	70	100				
R240	10	150	240	–	160	–	15	–	–	–	–				
H080	5	100	–	–	–	–	–	80	115	85	120				
R280	5	100	280	–	240	–	8	–	–	–	–				

Tubes											acc. to EN 13600			
Temper	Wall thickness	Tensile strength R_m		Yield strength $R_{p0.2}$		Elongation %		Hardness						
	mm	MPa		MPa		A	HBW		HV					
	to	min.	max.	min.	max.	min.	min.	max.	min.	max.				
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)	–	–	–	–				