

Wieland-K20/K21/K28

Cu-DHP | Deoxidized copper

Material designation

EN	Cu-DHP CW024A
UNS	C12200

Chemical composition*

Cu	≥ 99.90 %
P	0.015–0.040 %

deoxidized

*acc. to EN 12449

Material properties and typical applications

Wieland-K20/K21/28 is a deoxidized copper with limited residual phosphorus content possessing excellent welding and hard soldering properties as well as resistance to hydrogen embrittlement. It also has excellent formability and is used where requirements for electrical conductivity are not high. K21 has a particularly high purity, making it possible to achieve very low yield strength values for soft tubes.

Physical properties*

Electrical conductivity	MS/m	> 45
	%IACS	> 77
Thermal conductivity	W/(m·K)	> 330
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	17.7
Density	g/cm ³	8.94
Modulus of elasticity	GPa	132

*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 %)	20 %
Capacity for being cold worked	excellent
Capacity for being hot worked	good

Surface treatment

Polishing	
mechanical	good
electrolytic	excellent
Electroplating	excellent

Corrosion resistance

Resistant to industrial atmosphere, industrial and drinking water (max. flow rate approx. 1.5 to 2 m/s), pure water vapour, non oxidizing acids, alkalis (except for ammoniacal and cyanide-containing compounds), neutral saline solutions.

Not resistant to oxidizing acids, moist ammonia and halogenated gases, hydrogen sulphide, seawater.

Joining

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

Heat treatment

Melting range	1,083 °C
Hot working	750–950 °C
Soft annealing	350–500 °C 1–3 h
Thermal stress relieving	150–200 °C 1–3 h

Product standards

Tube	EN 12449
Rod	EN 12165

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Mechanical properties according to EN

Tubes acc. to EN 12449									
Temper	Wall thickness	Tensile strength R_m	Yield strength $R_{p0.2}$		Elongation %	Hardness			
	mm	MPa	MPa		A	HV		HB	
	max.	min.	min.	max.	min.	min.	max.	min.	max.
M	20	–	–	–	–	–	–	–	–
R200	20	200	–	110	40	–	–	–	–
H040	20	–	–	–	–	40	65	35	60
R250	10	250	150	–	20	–	–	–	–
H070	10	–	–	–	–	70	100	65	95
R290	5	290	250	–	5	–	–	–	–
H095	5	–	–	–	–	95	120	90	115
R360	3	360	320	–	–	–	–	–	–
H110	3	–	–	–	–	110	–	105	–

Rods acc. to EN 12165				
Temper	Diameter		Hardness	
			HB	
	mm from	mm to	min.	max.
M	all		as manufactured	
H040	6	160	40	–