

Wieland-K20/K21

Cu-DHP | Deoxidized copper

Material designation

EN	Cu-DHP CW024A
UNS	C12200

Chemical composition*

Cu	≥ 99.95 %
P	0.015–0.040 %

deoxidized

*acc. to EN 12449

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

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.

Product standards

Tube	EN 12449
Rod	EN 12165

Material properties and typical applications

Wieland-K20/K21 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 low level of impurities compared to K20 making it possible to achieve particularly low yield strength values for soft tubes.

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

Joining

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

Surface treatment

Polishing	
mechanical electrolytic	good excellent
Electroplating	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

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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.		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		-	

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