

Wieland-K32
Cu-ETP
Non deoxidized copper

Extruded and drawn products



Material designation	
EN	Cu-ETP CW004A
UNS	C11000

Chemical composition*	
Cu	≥ 99,90 %

with oxygen, not deoxidized
O₂ max. 0,06 %

* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	≥ 57 ≥ 98
Thermal conductivity	W/(m·K)	>385
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	17.7
Density	g/cm ³	8.93
Modulus of elasticity	GPa	127

* 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 EN 12165
Wire	EN 13601
Section	EN 13605
Tube	EN 13600

Material properties and typical applications

Wieland-K32 is a copper with a low oxygen content. It exhibits good electrical and thermal conductivity. Due to the oxygen content its use at an elevated temperature in a reducing atmosphere is critical, especially if a hydrogen-containing atmosphere (hydrogen embrittlement) is concerned. This means there are certain restrictions during annealing as well as welding and soldering

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	good
Capacity for being hot worked	fair	electrolytic	excellent
		Electroplating	excellent

Joining

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

Heat treatment

Melting range (liquidus)	1083 °C
Hot working	750–900 °C
Soft annealing	250–500 °C 1–3 h
Thermal stress relieving	150–200 °C 1–3 h

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Mechanical properties according to EN

Rod and wire													acc. to EN 13601			
Temper	Diameter/ across flats		Thickness		Width		Tensile strength		Elongation at rupture		Yield strength		Hardness			
	round, square, hexagonal		square		square		R _m MPa	R _{p0.2} MPa		A100 %	A %	HB		HV		
	mm from	mm to	mm from	mm to	mm from	mm to		min.	min.			max.	min.	min.	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		Elongation at rupture		Yield strength		Hardness					
	mm		mm		R _m MPa	R _{p0.2} MPa		A100 %	A %	HB		HV				
	max.	max.	max.	max.		min.	min.			max.	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	Wallthickness		Tensile strength		Elongation at rupture		Yield strength		Hardness							
	mm		R _m MPa		R _{p0.2} MPa		A %	HB		HV						
	from	to	min.	max.	min.	max.		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)	–	–	–	–				

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