

Material designation	
EN	Cu-OFE
UNS	not standardized

Chemical composition*	
Cu	≥ 99.99 %

* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	≥ 58.6 ≥ 101
Thermal conductivity	W/(m·K)	> 394
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	17.7
Density	g/cm ³	8.94
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	
Material	EN 13604
Rod and Wire	EN 13601
drawn Roundwire	EN 13602
Profil	EN 13605
Tube	EN 13600

Material properties and typical applications

Wieland-K10 is a very pure, oxygenfree copper with high electrical and thermal conductivity. The material shows excellent adherence of the oxide skin. It is resistant to heat treatment in reducing atmosphere. Because of its high degree of purity **Wieland-K10** is suitable for high-vacuum applications. Further applications are electronic tubes or semiconductor parts (EN 13604).

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		Heat treatment	
Resistance welding (butt weld)	fair	Melting range	1083 °C Liquidus
Inert gas shielded arc welding	excellent	Hot working	750–900 °C
Gas welding	good	Soft annealing	250–500 °C 1–3 h
Hard soldering	excellent	Thermal stress relieving	150–200 °C 1–3 h
Soft soldering	excellent		

Wieland-K10

Cu-OFE

Mechanical properties according to EN

Rods and Wires											acc. to EN 13601						
Temper	Diameter/Distance across flat round, square, rectangular		Thickness		Width square		Tensile strength		Yield strength		Elongation		Hardness				
	mm from	mm to	mm from	mm to	mm from	mm to	R_m MPa min.	$R_{p0,2}$		A100 %	A %	HB		HV			
								MPa min.	MPa max.			min.	max.	min.	max.		
D	2	160	0,5	40	1	200	cold-finished 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		Tensile strength		Yield strength		Elongation		Hardness			
	mm max.	mm max.	mm max.	mm max.	R_m		$R_{p0,2}$		A100 %	A %	HB		HV	
					MPa min.	MPa min.	MPa max.	MPa max.			min.	max.	min.	max.
D	50	180	drawn											
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		Yield strength		Elongation		Hardness			
	mm von	mm bis	R_m		$R_{p0,2}$		A %	HB		HV		
			MPa min.	MPa max.	MPa min.	MPa max.		min.	max.	min.	max.	
D	–	–	cold-finished 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)	–	–	–	–	