

Wieland-K88

High-copper alloy

Extruded and drawn products



Material designation	
EN	no EN standard
UNS	C 18080

Chemical composition*	
Cr	0.5 %
Ag	0.2 %
Fe	0.08 %
Ti	0.06 %
Si	0.03 %
Cu	balance

* Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	46 80
Thermal conductivity	W/(m·K)	320
Density	g/cm ³	8.92
Modulus of elasticity	GPa	140

* Reference values at room temperature

** depending on dimension and shape; see back side of this data sheet)

Corrosion resistance

Wieland-K88 is resistant to pure water vapour, non oxidizing acids and alkaline solutions as well as neutral saline solutions. The material is insensitive to stress corrosion cracking.

Product standards
no EN standard

Material properties and typical applications

Wieland-K88 is a high-copper and precipitation hardened alloy. It provides an optimised combination of good electrical and thermal conductivity as well as a high strength. Another important advantage of this alloy is the good stress relaxation resistance at elevated temperatures up to 200 °C.

This material can be optimised in terms of its conductivity or its strength when applying different hardening methods. Therefore, conductivity and strength should be agreed when ordering.

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 %)	poor	Polishing	
Capacity for being cold worked	excellent	mechanical	good
Capacity for being hot worked	poor	electrolytic	good
		Electroplating	good
		Heat treatment	
		Melting range	1080–1100 °C
		Hot working	800–1000 °C

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

* high temperatures have an impact on the precipitation hardening

Trademarks



Further information is provided in the brochure on Witronic.

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Mechanical properties

Round rods

Temper	Diameter		Tensile strength R_m MPa	Yield strength $R_{p0.2}$ MPa	Elongation			Hardness HV	Electrical conductivity	
	mm from	mm to			A100 %	A11.3 %	A %		MS/m	%IACS
*	1.5	20								

* not standardized – properties of bars on request

Round wires

Temper	Diameter		Tensile strength R_m MPa	Yield strength $R_{p0.2}$ MPa	Elongation			Hardness HV	Electrical conductivity	
	mm from	mm to			A100 %	A11.3 %	A %		MS/m	%IACS
*	0.3	2	> 550	> 500	≥ 1	–	–	–	> 46	> 80
*	0.3	2	> 650	> 600	≥ 1	–	–	–	> 40	> 70

* not standardized – properties of wire on request

Larger dimensions on request

Specific adjustment of the interdependent parameters strength and conductivity are possible on request

Tubes

Temper	Tensile strength	Yield strength	Elongation			Hardness HV	Electrical conductivity	
	R_m MPa	$R_{p0.2}$ MPa	A100 %	A11.3 %	A %		MS/m	%IACS
*	450	430	15	17	25	140	49	85

* not standardized – the values are to be considered as reference values, the properties should be agreed with Wieland according to the specific application