

Wieland-KS2

CuSP | Free-cutting copper, lead free acc. to RoHS

Material designation	
EN	CuSP CW114C
UNS	C14700

Chemical composition*	
Cu	balance
S	0.2-0.5 %
P	0.003-0.005%
Pb	< 0.1000%

*Reference values in % by weight

Physical properties*		
Electrical conductivity	MS/m %IACS	52 90
Thermal conductivity	W/(m·K)	374
Thermal expansion coefficient (0-300 °C)	10 ⁻⁶ /K	17.6
Density	g/cm ³	8.9
Modulus of elasticity	GPa	118

*Reference values at room temperature

Corrosion resistance
Generally good corrosion resistance, also in industrial atmosphere and marine air, insensitive to stress corrosion cracking.

Product standards	
Rod	EN 12164
Wire	EN 12166

Material properties and typical applications

Wieland-KS2 is a free-cutting lead-free material with good machinability and very high electrical conductivity. It is particularly suitable for turned connectors and other electronic applications. Other typical applications are mechanical engineering components and welding torch nozzles.

The addition of sulphur ensures short chips during machining.

It is suited as alternative to the well established Wieland KC1 - CuPb1P.

The material is lead free according to RoHS and ELV.

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 %)	80 %	Polishing	
Capacity for being cold worked	excellent	mechanical	good
Capacity for being hot worked	fair	electrolytic	good
		Electroplating	good

Joining

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

Heat treatment

Melting range	1,067-1,079 °C
Hot working	750-875 °C
Soft annealing	400-450 °C 1-3 h
Thermal stress-relieving	225-275 °C 1-3 h

Trademark



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Dimensions and mechanical properties according to standards

Round rods/polygonal rods											acc. to EN 12164	
Temper	Diameter		Width across flat		Tensile strength R_m	Yield strength $R_{p0,2}$		Elongation %			Hardness	
	mm		mm		MPa	MPa		A100	A11,3	A	HB	
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		all		as manufactured - without specified mechanical properties							
R250	2	80	2	80	250	180	-	3	5	7	-	-
H080	2	80	2	80	-	-	-	-	-	-	80	110
R300	2	20	2	20	300	240	-	2	3	5	-	-
H095	2	20	2	20	-	-	-	-	-	-	95	130
R360	2	10	2	10	360	300	-	-	-	-	-	-
H120	2	10	2	10	-	-	-	-	-	-	120	-

Dimensions and mechanical properties according to standards

Wires											acc. to EN 12166	
Temper	Diameter		Tensile strength R_m		Yield strength $R_{p0,2}$		Elongation %			Hardness		
	mm		MPa		MPa		A100	A11,3	A	HV		
	from	to	min.	min.	min.	min.	min.	min.	min.	min.	max.	
M	all		all		as manufactured - without specified mechanical properties							
R250	1,5	12	250	180	2	4	7	-	-	-	-	-
H090	1,5	12	-	-	-	-	-	-	90	-	130	110
R300	1,5	12	300	240	-	3	5	-	-	-	-	-
H110	1,5	12	-	-	-	-	-	-	110	-	140	130
R360	1,5	10	360	300	-	-	-	-	-	-	-	-
H120	1,5	10	-	-	-	-	-	-	120	-	-	-