

Wieland-SE2

CuSi4Zn9MnP | lead-free special brass

Material designation

EN	CW246E CuSi4Zn9MnP
UNS	not standardized

Chemical composition*

Cu	rest
Pb	max. 0.10 %
Si	3 %
Zn	10 %
Pb	0.1 %
Mn	0.01 - 0.09 %

*Reference values in % by weight

Physical properties*

Electrical conductivity	MS/m %IACS	n.a. n.a.
Thermal conductivity	W/(m·K)	n.a.
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	n.a.
Density	g/cm ³	8.33
Modulus of elasticity	GPa	~ 100

*Reference values at room temperature

Corrosion resistance

Special brass generally exhibits good corrosion resistance due to alloying additions. In SE2, the high copper content and the addition of silicon reduce the susceptibility to stress corrosion cracking and dezincification compared with conventional brasses.

Product standards

Rod	EN 12163 EN 12164 EN 12165
Section	EN 12167

Material properties and typical applications

SE2 is a lead-free special brass with good corrosion resistance and good machinability. The material is provided both in machining quality and in hot-forging quality and is designed for sanitary applications. The material meets the requirements for dezincification resistance according to ISO 6509. The material is lead-free in accordance with RoHS and ELV.

Material accepted for products in contact with drinking water as per 4 MS positive list.

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 tempsers.

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	70 %
Capacity for being cold worked	good
Capacity for being hot worked	fair

Surface treatment

Polishing	
mechanical	good
electrolytic	poor
Electroplating	good

Joining

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

Heat treatment

Melting range	850–950 °C
Hot working	700–800 °C
Soft annealing	550–600 °C
Thermal stress relieving	200–300 °C 1–3 h

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Dimensions and mechanical properties according to standards

Round rods/polygonal rods										acc. to EN 12163 / 12164		
Temper	Diameter		Width across flats		Tensile strength	Yield strength		Elongation			Hardness	
					R _m	R _{p0.2}		A100	A11.3	A	HB	
	mm	mm	mm	mm	MPa	MPa		%	%	%		
	from	to	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		all		as manufactured							
R380	12	48	12	48	380	120	–	–	–	18	–	–
H070	12	48	12	48	–	–	–	–	–	–	70	–