

Wieland-GS1

CuSn4Zn2PS-C-GC | leadfree red brass

Material designation

EN	CuSn4Zn2PS-C-GC
UNS	not standardized

Chemical composition*

Cu	balance
Sn	4 %
Zn	2 %
S	0,4 %
P	≤ 0,10 %
Pb	≤ 0,10 %

*Reference values in % by weight

Physical properties*

Electrical conductivity	MS/m %ACS	11.6 20
Thermal conductivity	W/(m·K)	approx. 80–90
Thermal expansion coefficient (0–300 °C)	10 ⁻⁶ /K	~17
Density	g/cm ³	8.98
Modulus of elasticity	GPa	116

*Reference values at room temperature

Corrosion resistance

Cast alloys belong to the most corrosion-resistant copper alloys. They exhibit excellent resistance to atmospheric influences, carbonic acid and saline water.

GS1 is resistant to dezincification (according to ISO test 6509) and insensitive to Stress corrosion cracking.

Product standards

DIN SPEC 2701

Material properties and typical applications

Wieland GS1 is a copper-tin-zinc casting alloy. It is a lead-free alternative to the proven material CC499K. The material is mainly used in the mounting parts industry and as fittings and pipe connectors. GS1 can be used as a medium-hard structural material. The addition of phosphorus and sulphur results in good machinability, thus replacing lead in traditional machining materials. The material is accepted for products in contact with drinking water as per 4 MS positive list.

The material is lead-free according to RoHS and ELV.

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 tempers.

Fabrication properties

Forming

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

Heat treatment

Melting range	900–1,046 °C
Thermal stress relieving	250–400 °C 2–4 h

Mechanical properties, reference values

	Tensile strength R _m MPa	Yield strength R _{p0,2} MPa	Elongation A %	Hardness HBW
Continuous casting	250	110	13	65

Product information

Attention is drawn to the property right DE202016101661U1 and the property rights belonging to the patent family. The treatment / processing of the delivered goods made of CuSn4Zn2SP (Wieland GS1) into media-carrying components requires a licence from the patent holder. The owners signal that they are willing to grant a license.

Further information can be found in DIN SPEC 2701: 2018-12.