wieland

eco SZ3®

CuZn40SiP – CW728R | lead-free brass according to RoHS

Material designation

EN	CW728R
UNS	C68330

Chemical composition*

Cu	59.5 %
Pb	max. 0.100 %
Si	0.2 %
P	0.15 %
Zn	balance

**Reference values in % by weight*

Physical properties*

Electrical conductivity	MS/m %IACS	13.2 23
Thermal conductivity	W/(m·K)	104
Thermal expansion coefficient (0–300 °C)	10^{-6}/K	21.7
Density	g/cm³	8.21
Moduls of elasticity	GPa	107

**Reference values at room temperature*

Material properties and typical applications

eco SZ3® is a material with good machinability despite being lead-free. It can therefore be used as a replacement for conventional leaded free-cutting brasses if a lead content of max. 0.1 % is required.
Its mechanical properties and corrosion resistance are comparable to those of leaded brasses such as CuZn39Pb3 or CuZn40Pb2.

The material is lead-free in accordance with RoHS and ELV.

Material accepted for products in contact with drinking water according to 6th revision of evaluation criteria for metallic materials ("UBA-List").

Types of delivery

The BU Global Extruded & Cast 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 (CuZn39Pb3 = 100 %)	90 %
Capacity for being cold worked	poor
Capacity for being hot worked	excellent

Surface treatment

Polishing	mechanical electrolytic	good poor
Electroplating		excellent

Corrosion resistance

Machining brass is generally quite resistant against organic substances as well as neutral or alkaline compounds.
Stress corrosion cracking should be taken into account, especially in an ammoniacal atmosphere and whilst under mechanical stress.
Dezincification in warm, acidic waters should also be taken into consideration.

Joining

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

Heat treatment

Melting range	870 - 900 °C
Hot working	550 - 650 °C
Soft annealing	450 - 500 °C, 2 - 3 h
Thermal stress-relieving	200 - 300 °C, 1 - 3 h

Product standards

no EN standard yet

Trademarks

wieland ecoline

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Dimensions and mechanical properties according to standards

Round rods / polygonal rods

Temper	Diameter		Width across flat		Tensile strength	Yield strength		Elongation		
					R_m	$R_{p0.2}$		A100	A11.3	A
	mm	mm	mm	mm	MPa	MPa		%	%	%
	from	to	from	to	min.	min.	max.	min.	min.	min.
M	all		all		as manufactured					
W-R400*	6	80	5	60	400	–	360	–	15	20
W-R460*	2	60	2	35	460	240	–	4	6	10
W-R520*	2	16	2	10	520	380	–	–	2	4

Round wires acc. to EN 12166

Temper	Diameter		Tensile strength	0.2 %-Proof strength		Elongation			Hardness	
			R_m	$R_{p0.2}$		A100	A11.3	A	HV	
	mm	mm	MPa	MPa		%	%	%		
	from	to	min.	min.	max.	min.	min.	min.	min.	max.
M	all		as manufactured							
W-R420*	6	20	420	–	380	–	15	20	–	–
W-H100*	6	20	–	–	–	–	–	–	100	170
W-R480*	0.5	14	480	280	–	4	6	10	–	–
W-H130*	1.5	14	–	–	–	–	–	–	130	210
W-R540*	0.5	8	540	400	–	2	4	–	–	–
W-H150*	1.5	8	–	–	–	–	–	–	150	–
W-R600*	0.5	8	600	450	–	2	3	–	–	–
W-H160*	1.5	8	–	–	–	–	–	–	160	–

**factory standard, intended for standardization*

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