

Designation	CuSn8	DIN 2.1030	EN Nr. CW453K	UNS (ASTM) C52100	AISI -	WSA 560
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Chemical composition

Cu	Sn	Ni	Pb	Fe	Zn	P	Others
Balance	7.50 - 8.50	≤ 0.20	≤ 0.02	≤ 0.10	≤ 0.20	0.01 - 0.4	≤ 0.20

Values (Weight %). In order to achieve maximum homogeneity and consistent quality, the actual manufacturing tolerances are tighter and more precisely than the composition indicated.

Main technical properties and features

The alloy CuSn8 is a phosphor bronze containing 8% of tin. The presence of phosphorus enhances wear resistance and stiffness. This alloy presents a very good corrosion resistance (in sea water, polluted industrial atmosphere), an excellent stress corrosion cracking resistance, a good mechanical strength and a good formability. The CuSn8 alloy can be welded, and brazing is strongly recommended. The annealing temperature ranges from 500 to 700 °C, and stress relieving temperature ranges from 200 - 300 °C. This alloy presents a moderate machinability index of 20 (CuZn39Pb3 has an index of 100).

Typical uses

Sliding elements where wear resistance and high mechanical strength are required, stamped parts, contact springs, relay springs, diaphragms, connectors, etc.

Typical manufacturing range

	Thickness (mm)	Width (mm)	Length (mm)
Rolled products Strip in coils ^[1]	0.10 – 1.50	3 - 140	-
Strip as sheets ^[1]	0.10 - 1.50	10 - 120	500 - 3000

^[1] Not all our production possibilities are presented here. Other dimensions or product forms available upon request. Some combinations of thicknesses and widths are not possible.

Mechanical properties of strips

Temper			R _m (N/mm ²)	A _{50mm} (%)	Hardness HV
R370	H090	soft annealed	370 - 450	≥ 50	90 - 120
R450	H135	½ hard	450 - 550	≥ 20	135 – 175
R540	H170	¾ hard	540 - 630	≥ 13	170 - 200
R600	H190	hard	600 - 690	≥ 5	190 - 220
R660	H210	spring hard	660 - 750	≥ 3	210 - 240

Physical properties

Modulus of elasticity	kN/mm ²	115
Density	g/cm ³	8.80
Melting point / Melting range	°C	875 – 1025
Linear dilatation coefficient	10 ⁻⁶ /°C	18.5
Thermal conductivity at 20°C	W/m °K	67
Heat Capacity at 20°C	J/(kg. K)	377
Electrical resistivity at 20°C	μΩcm	13.3
Electrical conductivity at 20°C	MS/m	7.5
Electrical conductivity at 20°C	% IACS	13
Magnetic properties		Diamagnetic

Tolerances (strip and foil)

Thickness	Thickness (mm)		EN Standard		WEBER + CALIBRA		
	≥	<	10140 Precision	10258 Precision	WCA Standard	WCA Precision	WCA Extreme
<p>The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards.</p> <p>Our "WSA Precision" and "WSA Extreme" tolerances are available upon request.</p>	-	0.025	-	-	-	-	± 0.001
	0.025	0.050	-	-	± 0.003	± 0.002	± 0.0015
	0.050	0.065	-	± 0.003	± 0.003	± 0.0025	± 0.002
	0.065	0.100	-	± 0.004	± 0.004	± 0.0035	± 0.003
	0.100	0.125	± 0.005	± 0.006	± 0.005	± 0.004	± 0.003
	0.125	0.150	± 0.005	± 0.006	± 0.005	± 0.005	± 0.004
	0.150	0.250	± 0.010	± 0.008	± 0.008	± 0.006	± 0.004
	0.250	0.300	± 0.010	± 0.009	± 0.009	± 0.007	± 0.005
	0.300	0.400	± 0.010	± 0.010	± 0.010	± 0.007	± 0.005
	0.400	0.500	± 0.015	± 0.012	± 0.012	± 0.008	± 0.006
	0.500	0.600	± 0.015	± 0.014	± 0.014	± 0.010	± 0.007
	0.600	0.800	± 0.015	± 0.015	± 0.015	± 0.010	± 0.007
	0.800	1.000	± 0.015	± 0.018	± 0.018	± 0.012	± 0.009
	1.000	1.200	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
	1.200	1.250	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
	1.250	1.500	± 0.020	± 0.020	± 0.020	± 0.015	± 0.014
Width	Our width tolerances "Standard" is +0.2, -0.0 (or ± 0.1 mm upon request). They are available for slit widths < 125 mm and thicknesses < 1.00 mm. Special tolerances upon request.						
Camber	Width (mm)		Camber max. (mm/m)				
<p>Our tolerance "WCA Standard" respects the EN Standard 1654 (Length of measurement 1000 mm). Other tolerances upon request.</p>	>	≤	WCA Standard		WCA Extreme		
			≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm	
	3	6	12	-	6	-	
	6	10	8	10	4	5	
	10	20	4	6	2	3	
20	250	2	3	1	1.5		
Surface	Special surface qualities upon request						
Flatness	Special requirement on the longitudinal or transversal flatness upon request						

WCA-MK.020 / Edition 2023/10

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