LAMINERIES MATTHEY
NOTZ group advanced metal solutions

CuSn8

		DIN	EN Nr.	UNS (ASTM)	AISI	LMSA
Designation	**CuSn8**	2.1030	CW453K	C52100	-	**B300**

Chemical composition

Cu	Sn	P	Pb	Fe	Zn	Ni	Others
Balance	7.50 - 8.50	0.01 - 0.35	≤ 0.02	≤ 0.10	≤ 0.20	≤ 0.20	≤ 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 CuSn8 is a phosphor bronze alloy containing 8 % of tin. Among all bronze alloys, it has the highest phosphorus content, which 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 an excellent formability. The CuSn8 alloy can be welded, and brazing is strongly recommended. The annealing temperature is comprised between 485 and 675 ºC, and stress relieving can be performed in the range 200 - 250 ºC. This alloy presents a moderate machinability index of 20 % (compared to CuZn39Pb3 equal to 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]	0.010 - 2.000	1.5 - 200.0	-
	Strip as sheets [1]	0.010 - 1.500	10.0 - 200.0	100 - 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/mm²)	A_{50mm} (%)	Hardness HV
R370	H90	soft annealed	370 - 450	60 min.	90 - 120
R450	H115	½ hard	450 - 520	35 min.	115 - 155
R520	H150	¾ hard	520 - 590	23 min.	150 - 190
R590	H175	hard	590 - 690	10 min.	175 - 205
R690	H240	extra hard	690 min.	-	240 min.

Other tempers can be guaranteed, according to other standards such as EN 1652 or 1654, for example.

CuSn8

Physical properties

Modulus of elasticity	kN/mm²	115
Density	g/cm³	8.79
Melting point / Melting range	°C	1040
Linear dilatation coefficient	10^{-6}·/ ºC	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	11
Magnetic properties		Diamagnetic

Tolerances (strip and foil)

Thickness

The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards.

Our "LMSA Precision" and "LMSA Extreme" tolerances are available upon request.

Thickness (mm)		EN Standard		Lamineries MATTHEY		
≥	<	10140 Precision	10258 Precision	LMSA Standard	LMSA Precision	LMSA Extreme
-	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

Our tolerance "LMSA Standard" respects the EN Standard 1654 (Length of measurement 1000 mm).
Other tolerances upon request.

Width (mm)		Camber max. (mm/m)			
		LMSA Standard		LMSA 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

Rue Montagu 38
CH 2520 La Neuveville
P. +41 (0)32 752 32 32

www.matthey.ch
sales@matthey.ch