LAMINERIES MATTHEY
NOTZ group advanced metal solutions

CuNi9Sn2

		DIN	EN Nr.	UNS (ASTM)	AISI	LMSA
Designation	**CuNi9Sn2**	2.0875	CW351H	C72500	-	**B320**

Chemical composition

Cu	Zn	Fe	Mn	Ni	Pb	Sn	Others
Balance	≤ 0.10	≤ 0.30	≤ 0.30	8.50 - 10.50	≤ 0.03	1.80 - 2.80	≤ 0.10

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

CuNi9Sn2 is a copper-nickel-tin alloy with high mechanical strength combined with good thermal relaxation resistance, and an excellent cold and hot formability. This alloy is suitable for stamping and has a very good fatigue strength. CuNi9Sn2 alloy has good corrosion resistance in sea water and industrial atmosphere. It is resistant to moisture, oxidizing acids, alkaline solutions, acids and dry gases such as: oxygen, chlorine, hydrogen chloride, hydrogen fluoride, sulfur dioxide and carbon dioxide. It also has very good resistance to stress corrosion cracking. This alloy can be easily welded.

Typical uses

Circuit breaker components, springs for relays and switches, housings for electrical modules, pins for printed circuits. This alloy is used in the electronic industry, in the automotive industry and in telecommunication industry.

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/mm^2)	$Rp_{0.2}$ (N/mm^2)	A_{50mm} (%)	Hardness HV	R/t (90°) G / B [1]
R340	H075	soft	340 - 410	250 max.	30 min.	75 - 110	-
R380	H110	¼ hard	380 - 470	200 min.	10 min.	110 - 150	0 / 0
R450	H140	½ hard	450 - 530	370 min.	6 min.	140 - 170	0 / 0
R500	H160	¾ hard	500 - 580	450 min.	3 min.	160 - 190	0 / 1.0
R560	H180	hard	560 - 650	520 min.	2 min.	180 - 210	0 / 1.5
R610	H190	extra hard	610 min.	580 min.	-	190 min.	0.5 / 3.5

[1] Minimum bend radius at 90°. R = radius, t = strip thickness, G = "Good way", perpendicular to rolling direction and B =" Bad way", parallel to rolling direction.

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

CuNi9Sn2

Physical properties

Modulus of elasticity	kN/mm²	140
Poisson ratio		0.34
Density	g/cm³	8.89
Melting point	°C	1129
Linear dilatation coefficient	10^{-6}·/ °C	16.6
Thermal conductivity at 20°C	W/m K	48
Heat Capacity at 20°C	J/(kg. K)	370
Electrical resistivity at 20°C	μΩcm	15.6
Electrical conductivity at 20°C	MS/m	6.4
Electrical conductivity at 20°C	% IACS	11
Magnetic properties		Non-magnetic

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