

Designation	DIN	EN Nr.	UNS (ASTM)	AISI	LMSA
CuZn28	2.0261	CW504L	C25600	-	B200

Chemical composition (weight %)

Zn	Cu	Ni	Pb	Fe	Sn	Al	Autres
Balance	71.0-73.0	≤ 0.3	≤ 0.05	≤ 0.05	≤ 0.1	≤ 0.02	≤ 0.10

In order to achieve maximum homogeneity and consistent quality, the actual tolerances on both alloy components and impurities are significantly tighter and more precisely defined than the standard composition indicated.

Main technical properties and features

The alloy CuZn28 is a brass, which has a homogeneous α faces centered cubic single phase, solid solution of Zn in copper. The α phase is very ductile at low temperature. CuZn28 (PAM) has an interesting compromise of relatively high tensile strength and hardness with an excellent cold deformability. Amongst the Cu and Zn alloys, there are other brasses having higher amount of Zn, a higher tensile strength and hardness but consequently a reduced cold deformability. Lamineries MATTHEY SA produces also the CuZn37 for example.

The brass CuZn28 is sensitive to the stress-corrosion cracking, a cracking process that requires the simultaneous action of a corrosive agent (in ammoniacal atmosphere, for example) and sustained tensile stress. The stresses may be significantly below the yield strength of the material, and can be residual or applied. Moreover, it should be noted that as the zinc content rises, the inclination to stress corrosion cracking increases. To reduce this risk of corrosion, a stress relieving annealing is frequently done. The recrystallization temperature of CuZn28 is generally between 450 - 600°C and the stress-relieving temperature is between 200 - 300°C for 2-6h heat treatments. The machinability of CuZn28 is poor; its machinability index is estimated at 30% of those of the free cutting brass, CuZn39Pb3. It is one of the most suitable brasses for mirror polishing. The soft or hard soldability of CuZn28 is excellent, however because of the low melting temperature and high vapor pressure of zinc (906°C), the weldability of this alloy and generally, of brasses, is moderate.

Typical manufacturing range

		Thickness (mm)	Width (mm)	Length (mm)
Rolled products	Strip in coil ¹⁾	0.010 - 2.000	1.5 - 200.0	-
	Foil cut to length ¹⁾	0.010 - 1.500	10.0 - 200.0	100 - 3000

1) Not all our production possibilities are presented here. Other dimensions or other product forms available upon request. Certain combinations of thicknesses and widths are not possible.

Mechanical properties of strips

Temper			R _{p0.2} (N/mm ²)	R _m (N/mm ²)	A _{50mm} (%)	Hv (N/mm ²)
R270	H55	soft annealed	≤ 160	270-350	≥ 40	55-90
R350	H95	1/2 hard	≥ 170	350-450	≥ 21	95-140
R450	H130	hard	≥ 340	450-550	≥ 9	130-175
R490	H160	extra hard	≥ 540	≥ 490	-	≥ 160

Typical uses

The CuZn28 is used in many different applications, like needles, dials, etc. for the watch industry; chemical etching, eyelets, rivets, caps, deep drawing parts, etc.

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Physical properties

Modulus of elasticity	kN/mm ²	115
Poisson ratio		0.3
Density	kg/dm ³	8.55
Melting point / Melting range	°C	910 - 965
Linear dilatation coefficient (x10 ⁻⁶) for a temperature range 20 - 200°C.	/°C	19.5
Thermal conductivity at 20°C	W/m °K	125
Specific heat at 20°C	μΩcm	5.9
Electrical conductivity	MS/m	17
Electrical conductivity	% IACS	29
Magnetic properties		Non magnetic

Tolerances

Thickness	Thickness (mm)		EN Standard		Lamineries MATTHEY SA		
	≥	<	10140 Precision	10258 Precision	LMSA Standard	LMSA Precision	LMSA Extreme
<p>The table shown is an outline of our typical thickness tolerances available, which are tighter than industry standards.</p> <p>Upon request: our "Precision" and "Extreme" tolerances are also available.</p>	0.025	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
1.25	1.500	± 0.020	± 0.020	± 0.020	± 0.015	± 0.014	

Width

Our width tolerance is + 0.2 -0.0 mm (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)			
	>	≤	LMSA standard		LMSA extrêmes	
			≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm
<p>Our tolerance "standard" respects the EN Standard 1654 (Length of measurement 1000 mm).</p> <p>Other tolerances upon request.</p>	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