

Designation	DIN	EN Nr.	UNS (ASTM)	AISI	WCA
CuZn42Pb0.01	-	CW510L		-	207

Chemical composition

Zn	Cu	Fe	Sn	Ni	Si	Mn	Pb
Balance	57.0 - 58.5	0.10 – 0.50	0.10 - 0.50	0.10 - 0.50	≤ 0.10	≤ 0.10	≤ 0.03

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

CuZn42-PNA 378 is a lead-free material which, with a combination of alloy composition and microstructure, offers good performance in machining. The material shows both very good hot formability and good cold formability. It opens up new possibilities for component manufacturing with a combination of high strength and good workability together with good machinability. Due to its very low lead content, the alloy is suitable for jewelry applications according to REACH standards.

Typical uses

The CuZn42-PNA 378 brass in cold-rolled strips is used in many fields such as machined parts for watch industry, jewelry, components for electrical and mechanical industries.

Typical manufacturing range

		Thickness (mm)	Width (mm)	Length (mm)
Rolled products	Strip in coils ^[1]	0.10 - 3.00	3 - 110	-
	Strip as sheets ^[1]	0.10 - 3.00	10 - 110	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 _{p0.2} (N/mm ²)	R _m (N/mm ²)	A _{50mm} (%)	Hardness HV
global range	200 - 690	450 - 750	35 - 7	140 - 220
hard				160 - 210

Physical properties

Modulus of elasticity	kN/mm ²	105
Density	g/cm ³	8.4
Melting point	°C	900
Linear dilatation coefficient	10 ⁻⁶ /°C	20
Thermal conductivity at 20°C	W/m °K	113
Thermal capacity (C _p) at 20°C	J/kg K	377
Electrical conductivity	MS/m	≥ 14.6 ^[1]
Electrical conductivity	% IACS	≥ 25 ^[1]
Magnetic properties		

^[1] The electrical conductivity only applies to the soft temper. For the other tempers, it is function of the chemical composition, the level of cold deformation and the grain size. A high deformation level as well as small grain size decrease the conductivity.

Tolerances (strip and foil)

Thickness	Thickness (mm)		EN Standard		WEBER + CALIBRA		
	≥	<	10140 Precision	10258 Precision	WCA Standard	WCA Precision	WCA Extreme
The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards. Our "WCA Precision" and "WCA Extreme" tolerances are available upon request.	-	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)				
Our tolerance "WCAA Standard" respects the EN Standard 1654 (Length of measurement 1000 mm). Other tolerances upon request.	>	≤	WCAA 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						

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