

Designation	DIN	EN Nr.	UNS (ASTM)	AISI	WCA
CuNi12Zn24	2.0730	CW403J	C75700	-	303

Chemical composition

Zn	Cu	Fe	Mn	Ni	Pb	Sn	Others
Balance	63.0 - 66.0	≤ 0.30	≤ 0.50	11.0 – 13.0	≤ 0.03	≤ 0.03	<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

Nickel silver CuNi12Zn24 provides good resistance to atmospheric corrosion, organic compounds as well as neutral and alkaline saline solutions. It is poorly resistant to oxidizing acids. The sensitivity to stress corrosion cracking of this alloy is much lower than that of brass. Nickel silver CuNi12Zn24 has an alpha single-phase structure. The alloy has excellent cold forming properties, on the other hand, its hot formability is limited. Nickel silver is mainly used for the fabrication of connectors, relay springs, and in the optical and watch making industry. Its machinability is rather poor. It is better to use a leaded nickel silver, e.g. CuNi12Zn25Pb1 if good machinability is necessary. Nickel silver CuNi12Zn24 can be easily polished or plated and can be brazed or welded. Its weldability by laser however is not good.

Typical uses

Relay springs, hinges for glasses, connectors, components for the watch industry, pressure membranes, etc. Various parts for precision, electronic as well as optical instruments. Parts made by stamping, folding or bending and cutting.

Typical manufacturing range

	Thickness (mm)	Width (mm)	Length (mm)
Rolled products Strip in coils ^[1]	0.10 - 1.00	3 - 140	-
Strip as sheets ^[1]	0.10 - 1.00	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
R360	H80	soft annealed	360 - 430	35	80 - 110
R430	H110	½ hard	430 - 510	8	110 - 150
R490	H150	¾ hard	490 - 580	-	150 - 180
R550	H170	hard	550 - 640	-	170 - 200
R620	H190	extra hard	620 min.	-	190 min.

Physical properties

Modulus of elasticity	kN/mm ²	125
Poisson ratio		0.34
Density	g/cm ³	8.67
Melting point / Melting range	°C	1020 / 1065
Linear dilatation coefficient	10 ⁻⁶ / °C	18
Thermal conductivity at 20°C	W/m °K	42
Electrical resistivity	μΩcm	23
Electrical conductivity	MS/m	4.4
Electrical conductivity	% IACS	8
Specific heat at 20°C	J/(kg.K)	380
Magnetic properties		Non magnetic

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 "WCA Precision" and "WCA 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						

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