

5.2. NB12 - CuNi12Zn24

Alloy Designation	
EN	CuNi12Zn24
DIN-EN	CW403J
UNS	C75700
JIS	-

Chemical Composition		
Weight percentage		
Cu	Balance	%
Ni	12	%
Zn	24	%
Fe	< 0,2	%
Mn	< 0,5	%
Pb	< 0,01	%

Characteristics
NB12 is a nickel silver alloy containing 12 % nickel and 24 % zinc. The alloy has good cold-forming properties and is particularly suitable for deep-drawing. Like all copper alloys the copper-nickel-zinc alloys are not susceptible to embrittlement at lower temperature. The corrosion resistance of nickel silver is considerably better than that of binary copper-zinc alloys. NB12 is insensitive to stress corrosion cracking. NB12 is used for contacts, deep-drawing parts and for optical goods. The alloy is registered with the U.S. EPA as Antimicrobial.

Main Applications
Coins, Caps for quartz crystals, Electromagnetic shieldings, Deep drawing parts, Tableware, Security keys, Cutlery, Contact springs, Connector, Leaf springs for relays, Electric contacts

Mechanical Properties						
Temper	Tensile Strength Rm	Yield Strength Minimum Rp0,2	Elongation Minimum A50 mm	Hardness HV*	Bendability 90°	
					gw	bw
	MPa	MPa	%	HV	rel. Bending radius R/T	
					Strip thickness < 0,50 mm	
R350	350 .. 450	200	35	80 .. 110	0	0
R430	430 .. 510	230	8	110 .. 150	0	0
R490	490 .. 580	400	7	150 .. 180	0	0
R550	550 .. 640	480	3	170 .. 200	0	1
R620	620 .. 710	580	-	190 .. 220	-	-

Physical Properties			
Typical values in annealed temper at 20 °C			
Density		8,7	g/cm ³
Thermal expansion coefficient	20 .. 300°C	17	10-6/K
Thermal conductivity		33	W/(m*K)
Electrical conductivity	MS/m	4	MS/m
Electrical conductivity	IACS	7	%
Thermal coefficient of electrical resistance	(0 .. 100°C)	0,4	10-3/K
Modulus of elasticity	GPa	125	GPa

Fabrication Properties	
Cold Forming Properties	Excellent
Machinability (Rating 20)	Satisfactory
Electroplating Properties	Excelent
Hot Tinning Properties	Satisfactory
Soft Soldering, Brazing	Satisfactory
Resistance Welding	Excelent
Gas Shielded Arc Welding	Good
Laser Welding	Good

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