CuNi12Zn24

CuNi12Zn24 | C75700

Nickel silver alloy combines corrosion resistance, which allows it to be used in springs and connectors in more demanding environments, with good formability and mechanical strength.
Due to its excellent formability, the alloy is also used in deep drawing applications.
The alloy's natural color is the closest to silver, which is why it is often used in cutlery and silver-plated tableware.

Comparable Standarts

EN	UNS
CW403J	C75700

Chemical Composition %

Cu	Zn	Ni	Sn	Fe	Pb	Mn
63-66	rem	11-13	0.03 max	0.3 max	0.03 max	0.5 max

Physical Properties

Melting Point	1020-1065	[°C]
Density	8.67	(g/cm³)
Cp @ 20°C	0.380	[kJ/kgK]
Thermal Conductivity	40	(W/mK)
Electrical Conductivity	≥8	%IACS
Modules of Elasticity	125	[GPa]
α @ 20°C	16.2	[10-6/K]

Note: The specified conductivity applies to the soft condition only.

Cp specific heat

α thermal expansion coefficent

Fabrication Properties

Machinability	less suitable
Electrolytic Coating Feature	excellent
Soft Soldering	excellent
Gas shield arc welding	excellent
Laser Welding	good
Cold Formability	excellent
Resistance welding	excellent
Hot-dip tinned properties	excellent

Electrical Conductivity

Electrical conductivity depends on chemical composition, level of cold deformation, and grain size. High levels of deformation and small grain size reduce conductivity.

Typcial Uses

Contact springs for the watch industry, connectors, gears, pressure diaphragms, cutlery, various parts for electronic and optical devices, and parts made by pressing, deep drawing, bending, and cutting.

Corrosion Resistance

Nickel silver materials are resistant to atmospheric effects, organic compounds, and neutral and alkaline salt solutions.
Nickel silver materials are not resistant to oxidizing acids and aqueous ammonias.

Mechanical Properties

	Tensile Strength [MPa]	Yield Strangth [MPa]	Elongation A50 [%]	Hardness HV [-]	Bend ratio 90° [r]	
					GW	BW
R360	360-430	≤ 230	≥ 35	80-110	0	0
R430	430-510	≥ 230	≥ 8	110-150	0	0
R490	490-580	≥ 400	≥ 5	150-180	0	0
R550	550-640	≥ 480	-	170-200	0	0.5
R620	620-710	≥ 580	-	190-220	2	4

Other tempers are available upon request.

r = x * t (thickness t ≤ 0.5mm)

GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction.

Dimensional Specifications

Thickness (mm)	Width (mm)
0.10-0.20	10-340
0.21-1.00	5-340
1.01-4.00	15-340
4.01-5.00	25-340

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