CuNi18Zn27

CuNi18Zn27 | C77000

Nickel silver is an excellent spring material. It combines with excellent stiffness, formability, corrosion resistance, and soldering properties.
Including flat and slightly formed springs, CuNi18Zn27 material is also widely used for switches, jacks, and relays. Due to its high nickel content, which provides a silvery-white appearance, it is used in decorative trims and belt buckles.

Comparable Standarts

EN	UNS
CW410J	C77000

Chemical Composition %

Cu	Zn	Ni	Sn	Fe	Pb	Mn
53-56	rem	17-19	0.03 max	0.3 max	0.03 max	0.5 max

Physical Properties

Melting Point	1000-1070	[°C]
Density	8.70	(g/cm³)
Cp @ 20°C	0.380	[kJ/kgK]
Thermal Conductivity	32	(W/mK)
Electrical Conductivity	≥6	%IACS
Modules of Elasticity	125	[GPa]
α @ 20°C	16.7	[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, degree of cold deformation, and grain size. High levels of deformation and small grain size reduce conductivity.

Typcial Uses

Connectors, relay springs, coatings, switches, jacks, transmitters, optical frames, surgical instruments, jewelry, resistors.

Corrosion Resistance

Nickel silver materials exhibit resistance to atmospheric exposure, organic compounds, and neutral and alkaline salt solutions.
Nickel silver materials are not resistant to oxidizing acids and aqueous ammonia solutions.

Mechanical Properties

	Tensile Strength [MPa]	Yield Strangth [MPa]	Elongation A50 [%]	Hardness HV [-]	Bend ratio 90° [r]	
					GW	BW
R390	390-470	≤ 280	≥ 30	90-120	0	0
R470	470-540	≥ 280	≥ 11	120-170	0	0
R540	540-630	≥ 450	≥ 4	170-200	0	0
R600	600-700	≥ 550	≥ 2	190-220	0.5	1
R700	700-800	≥ 660	≥ 1	220-250	2.5	5

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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