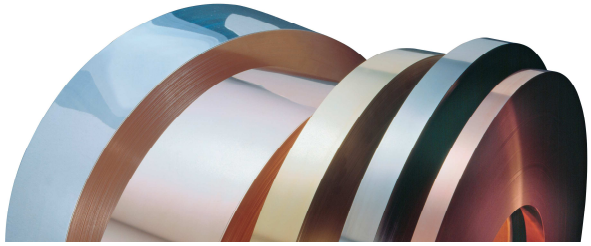
SUNDWIGER Messingwerk

Nickel Silver
NB18



Material Designation	
DIN-EN Symbol	CuNi18Zn20
DIN-EN	CW409J
UNS	≈ C 76400
JIS	C7521

Physical Properties		
Electrical conductivity soft	3	MS/m
Thermal conductivity	27	W/(m·K)
Thermal expansion coefficient **	17	10-6/K
Density	8.7	g/cm³
Modulus of elasticity	135	GPa = kN/mm²

* Reference values at room temperature
** Between 20 and 300 °C

Nominal Composition (mass content in %)	
Cu	Balance
Ni	18
Zn	20
Fe	< 0.2
Mn	< 0.5
Pb	< 0.01
Other	< 0.2

Typical Applications

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

About The Alloy

NB18 is a nickel silver alloy containing 18 % nickel and 20 % zinc. The alloy has good cold-forming properties, is tarnish resistant and has very good spring properties.

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.

NB18 is insensitive to stress corrosion cracking. NB18 is used for contact springs in relays, EMI shieldings and jewelry.

Mechanical Properties *)

Temper condition		O **R 370** H 85	H02 **R 450** H 115	H04 **R 500** H 160	H06 **R 580** H 180	H08 **R 640** H 200
Tensile strength in N/mm²		370 - 460	450 - 520	500 - 590	580 - 680	640 - 730
0.2 % yield Strength in N/mm²		< 250	250	410	510	600
Elongation A_{L50} %		> 30	> 9	> 3	> 2	-
Vickers hardness HV		85 - 125	115 - 160	160 - 190	180 - 210	200 - 230
Electrical conductivity in % IACS		5	4	4	4	4
Minimum radius of the bending mandrel for 90° bend and strip thickness s						
0.10 ≤ s ≤ 0.25 mm	transverse parallel	0 x s 0 x s	0 x s 0 x s	0 x s 0 x s	0 x s 0 x s	0 x s 0 x s
0.25 < s ≤ 1.0 mm	transverse parallel	0 x s 0 x s	0 x s 0 x s	0 x s 0 x s	0 x s 1 x s	- -

*) Reference values

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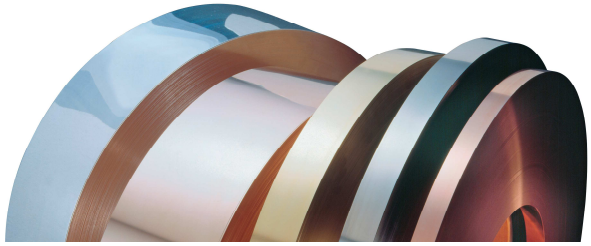

Processing Instructions	
Cold forming properties	very good
Machinability	satisfactory
Electroplating properties	very good
Hot-dip tinning properties	satisfactory
Soldering	satisfactory
Resistance welding	very good
Gas shielded arc welding	good
Laser welding	good

Available Dimensions
Bright pre-rolled strips 1 to 2.5 mm
Precision strip thickness from 0.05 to 1.2 mm
Strip width from 3.0 to 600 mm, but at least 10 times of the strip thickness
Other widths available on request.

Available Versions
Coils with standard outer diameters of 1200 mm
Strips in reel form with coil weight of up to 1500 kg
Multipancake up to 2.5 t
Hot-dip tinned strips
Profiled strips
Electroplated strips (tin, nickel)

Your Local Contact Person	
Europe	Asia
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