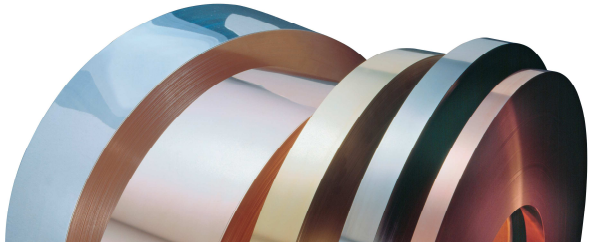
SUNDWIGER Messingwerk

High-Performance Alloys
SB02



Material Designation	
DIN-EN Symbol	CuFe2P
DIN-EN	CW107C
UNS	C19400
JIS	C1940

Physical Properties		
Electrical conductivity soft	36.5	MS/m
Thermal conductivity	260	W/(m·K)
Thermal expansion coefficient **	17	10-6/K
Density	8.9	g/cm³
Modulus of elasticity	123	GPa = kN/mm²

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

Nominal Composition (mass content in %)	
Cu	Balance
Fe	2.4
Zn	0.13
Pb	< 0.005
P	0.03
Other	< 0.1

Typical Applications

- Age-hardenable alloys for connectors and power transistor carriers and semiconductor devices
- Leaf springs for relays
- Stamped-bent parts
- Transistor carriers
- Connector pins
- Carriers
- Car electrics

About The Alloy

Low-alloyed copper alloys are distinguished by a high electrical conductivity. They do not reach the spring force of the bronzes, however, in comparison with pure copper, they are significantly harder.

During the last decade SB02 (UNS C19400) has gained importance for lead frames because of the high electrical conductivity and the favourable price and in the meantime it has become the copper alloy with the world-wide most frequent use for this application. Due to the necessary miniaturisation of components and the increased packing density involved, materials with high conductivity gain importance.
Therefore, for some time SB02 is also used in electric and electronic automotive applications for special connectors and for the central fuse, relay and terminal box.

The alloy is registered with the U.S. EPA as Antimicrobial and with respect to Pb and Cd meets the OEKO-TEX Standard 100.

Mechanical Properties *)

Temper condition		O **R 300** H 80	H01 **R 340** H 100	H02 **R 370** H 110	H04 **R 415** H 125	H08 **R 480** H 140	H10 **R 530** H 150
Tensile strength in N/mm²		300 - 340	340 - 390	370 - 430	415 - 480	480 - 525	530 - 570
0.2 % yield Strength in N/mm²		< 240	240	330	380	440	470
Elongation A_{L50} %		> 20	> 10	> 6	> 4	> 3	> 3
Vickers hardness HV		80 - 100	100 - 120	110 - 140	125 - 145	140 - 160	150 - 170
Electrical conductivity in % IACS		63	62	60	60	60	60
Minimum radius of the bending mandrel for 90° bend and strip thickness s, tempered quality							
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	0.5 x s 0.5 x s	0.5 x s 1 x s	1 x s 1.5 x s
0.25 < s ≤ 0.5 mm	transverse parallel	0 x s 0 x s	0 x s 0 x s	0 x s 0 x s	1 x s 1 x s	1 x s 2 x s	1.5 x s 3 x s

*) Reference values

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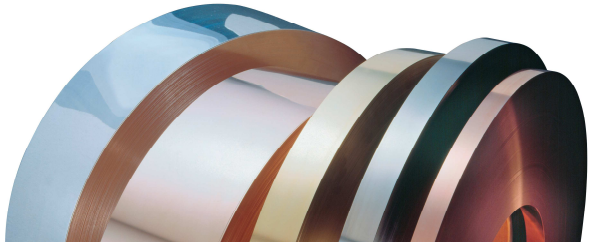

Processing Instructions	
Cold forming properties	very good
Machinability	sufficient
Electroplating properties	very good
Hot-dip tinning properties	very good
Soldering	very good
Resistance welding	good
Gas shielded arc welding	good
Laser welding	good

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)

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