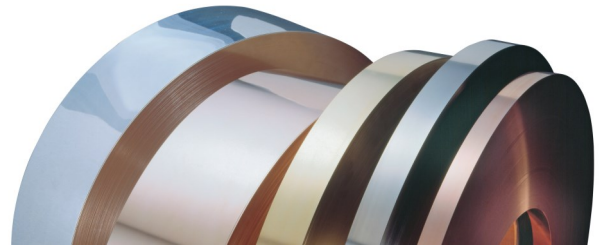


# Special Alloys

## SB35



Material Designation	
DIN-EN Symbol	CuSn2Zn9
DIN-EN	CW454K
UNS	C42500
JIS	-
The Miller Company	-

Physical Properties		
Electrical conductivity soft	16	MS/m
Thermal conductivity	130	W/(m·K)
Thermal expansion coefficient **	18	10 <sup>-6</sup> /K
Density	8.8	g/cm <sup>3</sup>
Modulus of elasticity	120	GPa = kN/mm <sup>2</sup>

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

Nominal Composition (mass content in %)	
Cu	Balance
Sn	1.8
Zn	9
Ni	< 0.2
Fe	< 0.05
Pb	< 0.005
P	0.03 - 0.2
Other	< 0.1

### Typical Applications

- Carriers
- Connectors
- Insulation displacement contacts (IDCs)
- Contact springs
- Security keys

### About The Alloy

SB35 is a further developed multi-alloy bronze which is distinguished by its high electrical conductivity, outstanding strength and a good bending behaviour.

Due to the manufacturing process chosen and the balanced chemical composition SB35 exhibits an excellent resistance to stress relaxation.

Similar to bronze, SB35 is used as a material for current-carrying spring elements.

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 \*)

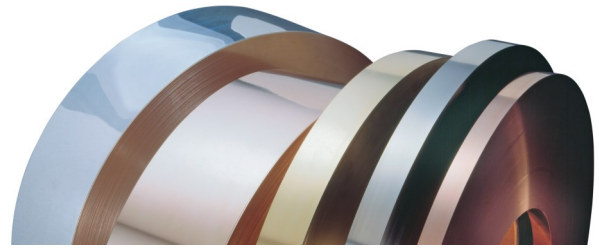
Temper condition	O R 320 H 80	H02 R 400 H 130	H04S R 470S H 150S	H05S R 550S H 170S	H08S R 640S H 190S	H10S R 680S H 210S
Tensile strength in N/mm <sup>2</sup>	320 - 380	400 - 500	470 - 550	550 - 640	640 - 730	680 - 770
0.2 % yield Strength in N/mm <sup>2</sup>	250	420	490	510	600	655
Elongation A <sub>L50</sub> %	> 25	> 20	> 15	> 8	> 7	> 5
Vickers hardness HV	80 - 110	130 - 150	150 - 170	170 - 200	190 - 215	210 - 230
Electrical conductivity in % IACS	28	27	27	27	26	26

Minimum radius of the bending mandrel for 90° bend and strip thickness s, tempered quality

Strip thickness s	Orientation	O	H02	H04S	H05S	H08S	H10S
0.10 ≤ s ≤ 0.25 mm	transverse	0 x s	0 x s	0 x s	0 x s	0.5 x s	1.5 x s
	parallel	0 x s	0 x s	0 x s	0 x s	1.5 x s	3 x s
0.25 < s ≤ 1.0 mm	transverse	0 x s	0 x s	0 x s	1 x s	1 x s	-
	parallel	0 x s	0 x s	0.5 x s	2 x s	4 x s	-

\*) Reference values

## Special Alloys SB35



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

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	USA	Asia

**DIEHL**  
Metal Applications



**DIEHL**  
Metal Applications

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We reserve the right to make alterations especially where necessitated by technical developments or changes in availability.  
Please ask for the latest edition of this material data sheet.