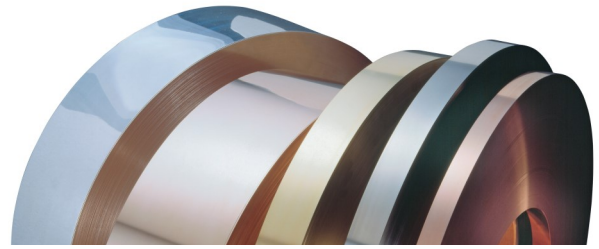


## Bronze (Copper-Tin) BB50



Material Designation	
DIN-EN Symbol	CuSn5
DIN-EN	CW451K
UNS	C51000
JIS	C5102
The Miller Company	C510

Physical Properties		
Electrical conductivity soft	9.9	MS/m
Thermal conductivity	78	W/(m·K)
Thermal expansion coefficient **	17	10 <sup>-6</sup> /K
Density	8.9	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	5
Zn	< 0.2
Ni	< 0.2
Fe	< 0.1
Pb	< 0.005
p	0.03 - 0.35
Other	< 0.1

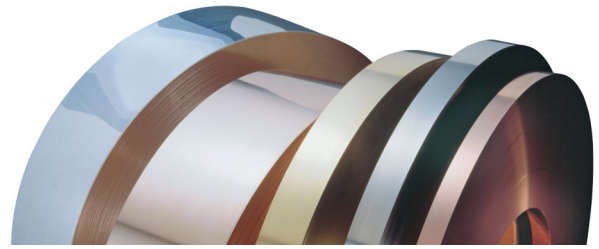
Typical Applications
<ul style="list-style-type: none"> <li>• Connectors for electrical engineering, electronics and automotive technology</li> <li>• Stamped-bent parts</li> <li>• Contact springs</li> <li>• Leaf springs for relays</li> <li>• Slide bearings</li> <li>• Slide bars</li> </ul>

About The Alloy
<p>BB50 is a 5% tin bronze which is distinguished by a very good combination of strength and electrical conductivity. It is used for connectors and current-carrying springs in contacts.</p> <p>Among the 4 to 8 % tin bronzes BB50 still exhibits a relatively high electrical conductivity; the highest reachable strength is higher than for BB40. By means of an additional tempering after the cold forming process the bendability can be further improved.</p> <p>The alloy is registered with the U.S. EPA as Antimicrobial and with respect to Pb and Cd meets the OEKO-TEX Standard 100.</p>

Mechanical Properties *)							
Temper condition		O R 300 H 80	H02 R 400 H 120	H03 R 490 H 160	H04 R 550 H 180	H06 R 630 H 200	H08 R 690 H 220
Tensile strength in N/mm <sup>2</sup>		300 - 390	400 - 500	490 - 580	550 - 640	630 - 720	690 - 780
0.2 % yield Strength in N/mm <sup>2</sup>		< 250	340	450	520	600	670
Elongation A <sub>L50</sub> %		> 45	> 18	> 10	> 8	> 4	> 2
Vickers hardness HV		75 - 105	120 - 160	160 - 190	180 - 210	200 - 230	220 - 250
Electrical conductivity in % IACS		17	16	16	16	15	15
Minimum radius of the bending mandrel for 90° bend and strip thickness s, tempered quality							
0.10 ≤ s ≤ 0.25 mm	transverse	0 x s	0 x s	0 x s	0 x s	0 x s	0 x s
	parallel	0 x s	0 x s	0 x s	1 x s	2 x s	4 x s
0.25 < s ≤ 1.0 mm	transverse	0 x s	0 x s	0 x s	0 x s	1 x s	-
	parallel	0 x s	0 x s	1 x s	2 x s	3 x s	-

\*) Reference values

## Bronze (Copper-Tin) BB50



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	very 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	USA	Asia

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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.