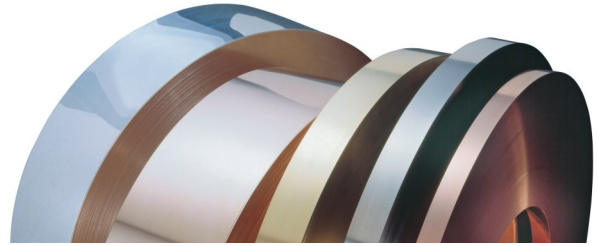


# Bronze (Copper-Tin)

## BB40 Plus

### Ecobronze



Material Designation	
DIN-EN Symbol	(CuSn4+)
DIN-EN	CW450K
UNS	C51100
JIS	C5111
The Miller Company	C511 Plus

Physical Properties		
Electrical conductivity soft	12	MS/m
Thermal conductivity	86	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	4
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**

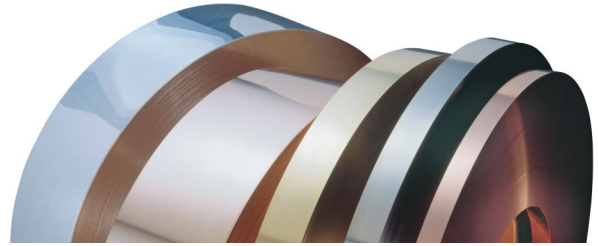
The Ecobronze BB40 Plus is a modified 4 % tin bronze which is distinguished by a very fine structure with considerably higher strength and elongation and a high electrical conductivity. It is used for miniaturized connectors and current-carrying springs in contacts.

Among the 4 to 8 % tin bronzes BB40 Plus exhibits the highest electrical conductivity. Regarding the strength it reaches the level of a standard 6 % bronze.

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

Mechanical Properties *)					
Temper condition	H06S <b>R 600S</b> H 190S	H08S <b>R 660S</b> H 200S	H10S <b>R 700S</b> H 210S	H12S <b>R 750S</b> H 220S	
Tensile strength in N/mm <sup>2</sup>	600 - 680	660 - 720	700 - 800	750 - 840	
0.2 % yield strength in N/mm <sup>2</sup>	560	625	660	720	
Elongation A <sub>L50</sub> %	> 13	> 7	> 5	> 2	
Vickers hardness HV	190 - 220	200 - 230	210 - 240	220 - 245	
Electrical conductivity in % IACS	20	20	20	20	
Minimum radius of the bending mandrel for 90° bend and strip thickness s with a thickness/width ratio of < 10					
0.10 ≤ s ≤ 0.25 mm	transverse	0 x s	0 x s	0.5 x s	1 x s
	parallel	1 x s	2 x s	3 x s	4 x s
*) Reference values					

# Bronze (Copper-Tin) BB40 Plus Ecobronze



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 strip 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	
Strip in reel form with coil weight of up to 1500 kg	
Multipancake up to 2.5 t	
Hot-dip tinned strip	
Profiled strip	
Electroplated strip (tin, nickel)	

Your Local Contact Person		
Europe	USA	Asia

**DIEHL**  
Metal Applications



**DIEHL**  
Metal Applications

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Diehl\_Metall\_Strip\_BB40Plus\_Ecobronze\_V3\_M-5M

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