

Material Designation			Nominal Composition (mass content in %)		About The Alloy
DIN-EN Symbol	CuSn5		Cu	Balance	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.
DIN-EN	CW451K		Sn	5	
UNS	C51000		Zn	< 0,2	
JIS	C5102		Ni	< 0,2	
			Fe	< 0,1	
			Pb	< 0,005	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	0,03 - 0,35	
			Other	< 0,1	
			Typical Applications		The alloy is registered with the U.S. EPA as Antimicrobial and with respect to Pb and Cd meets the OEKO-TEX Standard 100.
			<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></ul>		
Electrical conductivity soft	9,9	MS/m			
Thermal conductivity	78	W/(m·K)			
Thermal expansion coefficient **	17	10-6/K			
Density	8,9	g/cm³			
Modulus of elasticity	120	GPa = kN/mm²			
* Reference values at room temperature					
** Between 20 and 300 °C					

## 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

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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	very good

### 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)

### 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

### Your Local Contact Person

Europe

Asia



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