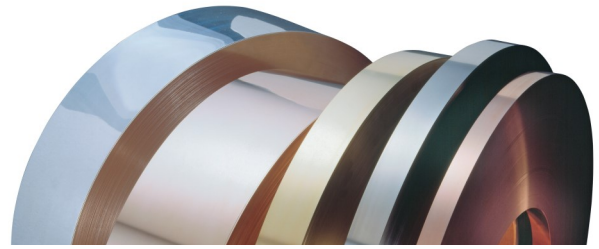


## Bronze (Copper-Tin) BB20



Material Designation	
DIN-EN Symbol	CuSn2Fe0,1P
DIN-EN	-
UNS	C50715
JIS	-
The Miller Company	C50715

Physical Properties*		
Electrical conductivity soft	20	MS/m
Thermal conductivity	200	W/(m·K)
Thermal expansion coefficient **	17.5	10-6/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	2
Zn	< 0.2
Ni	< 0.2
Fe	0.1
Pb	< 0.005
P	0.028 - 0.04
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> </ul>

**About The Alloy**

BB20 is a 2% phosphor bronze with additions of 0.1% Fe which exhibits a good combination of strength, electrical conductivity and metal value. It is used for connectors and current-carrying springs in contacts.

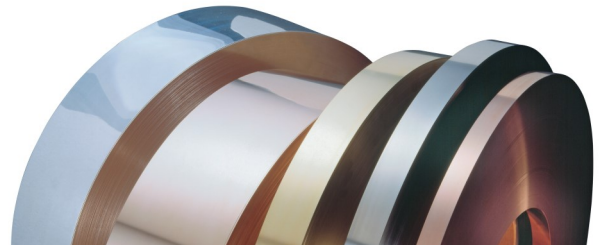
Tin bronze with about 2% Sn exhibit a higher electrical conductivity compared to the standard bronzes. Due to coherent precipitates BB20 has improved strength. Although the tin content is reduced, mechanical properties are similar to CuSn4. By means of an additional tempering after the cold forming process the bendability can be further improved.

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 290 H 70	H02 R 390 H 120	H03 R 480 H 150	H04 R 510 H 170	H06 R 600 H 190
Tensile strength in N/mm <sup>2</sup>		290 - 390	390 - 500	480 - 555	510 - 600	600 - 665
0.2 % yield strength in N/mm <sup>2</sup>		< 190	290	395	440	550
Elongation A <sub>L50</sub> %		> 40	> 16	> 10	> 6	> 3
Vickers hardness HV		70 - 100	120 - 160	150 - 185	170 - 200	190 - 220
Electrical conductivity in % IACS		34	33	33	33	33
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
	parallel	0 x s	0 x s	0 x s	1 x s	1.5 x s
0.25 < s ≤ 0.5 mm	transverse	0 x s	0 x s	0 x s	0.5 x s	1 x s
	parallel	0 x s	0 x s	1 x s	1 x s	2 x s

\*) Reference values

## Bronze (Copper-Tin) BB20



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

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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.