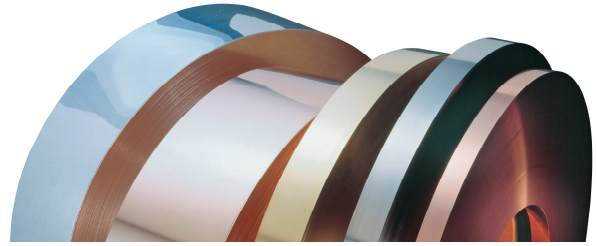


Bronze (Copper-Tin) BB21



| Material Designation | |
|----------------------|------------|
| DIN-EN Symbol | CuSn2Zn2Fe |
| DIN-EN | - |
| UNS | C50725 |
| JIS | - |

| Physical Properties* | | |
|--|------|-----------------------------|
| Electrical conductivity soft | 19 | MS/m |
| Thermal conductivity | 150 | W/(m·K) |
| Thermal expansion coefficient ** | 17.5 | 10-6/K |
| Density | 8.9 | g/cm ³ |
| Modulus of elasticity | 120 | GPa = kN/mm ² |
| * Reference values at room temperature | | |
| ** Between 20 and 300 °C | | |

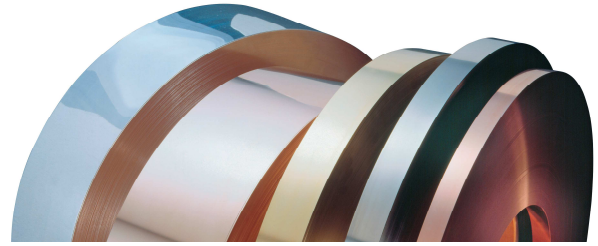
| Nominal Composition (mass content in %) | |
|--|--------------|
| Cu | Balance |
| Sn | 2 |
| Zn | 2.2 |
| Ni | < 0.2 |
| Fe | 0.1 |
| Pb | < 0.005 |
| P | 0.028 - 0.04 |
| Other | < 0.1 |

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

| About The Alloy |
|--|
| <p>BB21 is a 2% phosphor bronze with additions of 2.2% Zn and 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.</p> <p>Tin bronze with about 2% Sn exhibit a higher electrical conductivity compared to the standard bronzes. Due to coherent precipitates BB21 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.</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 290 H 70 | H02 R 390 H 120 | H03 R 480 H 150 | H04 R 540 H 170 | H06 R 610 H 190 |
| Tensile strength in N/mm ² | | 290 - 390 | 390 - 500 | 480 - 555 | 510 - 600 | 600 - 665 |
| 0.2 % yield strength in N/mm ² | | < 190 | 280 | 430 | 470 | 575 |
| Elongation A _{L50} % | | > 40 | > 20 | > 10 | > 6 | > 3 |
| Vickers hardness HV | | 70 - 100 | 120 - 160 | 150 - 185 | 170 - 200 | 190 - 220 |
| Electrical conductivity in % IACS | | 32 | 31 | 31 | 31 | 31 |
| 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) BB21



| 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 | Asia |
| <p>SUNDWIGER Messingwerk</p> <p>Sundwiger Messingwerk GmbH</p> <p>Hönnetalstraße 110 58675 Hemer Deutschland Tel. +49 2372 661-100 Fax +49 2372 661-48100 E-Mail: sales-sundwig@sundwiger-mw.com www.sundwiger-mw.com</p> | <p>SUNDWIGER Messingwerk</p> <p>Sundwiger Metal (Shenzhen) Co. Ltd.</p> <p>5F, Block 25, Shatoujiao Free Trade Zone 518081 Shenzhen P.R. of China Tel. +86 755 2235 7466 Fax +86 755 25260974 E-Mail: sales@sundwiger-mw.com.cn www.sundwiger-mw.com</p> |

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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.