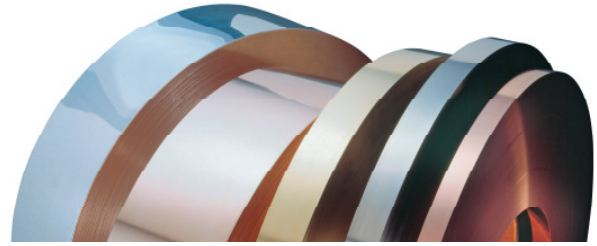


Bronze (Copper-Tin) BB40



| Material Designation | |
|----------------------|--------|
| DIN-EN Symbol | CuSn4 |
| DIN-EN | CW450K |
| UNS | C51100 |
| JIS | C5111 |
| The Miller Company | C511 |

| Physical Properties | | |
|----------------------------------|------|-----------------------------|
| Electrical conductivity soft | 11.6 | MS/m |
| Thermal conductivity | 86 | W/(m·K) |
| Thermal expansion coefficient ** | 17 | 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 | 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"> • Connectors for electrical engineering, electronics and automotive technology • Stamped-bent parts • Contact springs • Leaf springs for relays • Slide bearings • Slide bars |

About The Alloy

BB40 is a 4 % 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.

Among the 4 to 8 % tin bronzes BB40 exhibits the highest electrical conductivity. By means of an additional tempering after the cold forming process the bendability can be further improved.

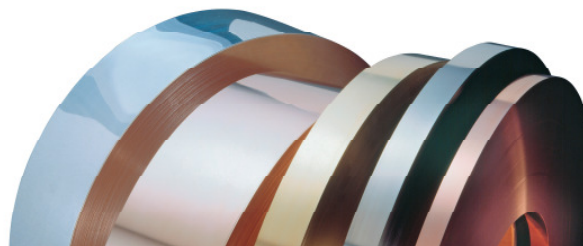
The alloy is registered with the U.S. EPA as Antimicrobial and with respect to Pb and Cd meets the OEKO-TEX Standard 100.

Mechanical Properties *)

| Temper condition | O R 290 H 70 | H02 R 390 H 115 | H03 R 480 H 150 | H04 R 540 H 170 | H06 R 610 H 190 |
|--|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Tensile strength in N/mm ² | 290 - 390 | 390 - 490 | 480 - 570 | 540 - 630 | 610 - 690 |
| 0.2 % yield Strength in N/mm ² | < 190 | 320 | 440 | 510 | 570 |
| Elongation A _{L50} % | > 45 | > 20 | > 10 | > 6 | > 3 |
| Vickers hardness HV | 70 - 105 | 115 - 155 | 150 - 180 | 170 - 200 | 190 - 220 |
| Electrical conductivity in % IACS | 20 | 19 | 19 | 19 | 19 |
| 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 |
| | parallel | 0 x s | 0 x s | 0 x s | 2.5 x s |
| 0.25 < s ≤ 0.5 mm | transverse | 0 x s | 0 x s | 0 x s | 1 x s |
| | parallel | 0 x s | 0 x s | 1 x s | 4 x s |

*) Reference values

Bronze (Copper-Tin) BB40



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 |
|--------|-----|------|



| | | |
|--|--|---|
| <p>Sundwiger Messingwerk GmbH & Co. KG</p> <p>Hönnetalstraße 110 58675 Hemer Germany Phone +49 2372 661-100 Fax +49 2372 661-260 E-Mail: michael.koehler@diehl.com</p> <p>www.diehl.com/metall</p> | <p>The Miller Company</p> <p>275 Pratt Street CT 06450 Meriden USA Phone +1 203 63969-02 Fax +1 203 63969-24 E-Mail: sales@themillerco.com</p> <p>www.diehl.com/metall</p> | <p>Diehl Metall (Shenzhen) Co. Ltd.</p> <p>Block 25 Shatoujiao Free Trade Zone 518081 Shenzhen - P.R. China Phone +86 755 25261454-0 Fax +86 755 25260974 E-Mail: info@diehlmetall.com.cn</p> <p>www.diehl.com/metall</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.