



# BRONZES General Tables Equivalences - Composition

## Lead Bronzes

| Commercial Ref.       | Chemical composition<br>Alloys re. specifications in force<br>(values in percentages, minimum/maximum) |             |              |     |      |      |      |      |   |        | Most similar International standards                                     |
|-----------------------|--|-------------|--------------|-----|------|------|------|------|---|--------|--|
|                       | Cu   | Sn          | Pb           | Zn  | Ni   | P    | Fe   | Sb   | S | Others |  |
| <b>B - Pb10</b><br>2) | 78,0<br>82,0   | 9,0<br>11,0 | 8,0<br>11,0  | 2,0 | 1,50 | 0,05 | 0,25 | 0,50 |   |        | SO 1338 - CuPb10Sn<br>NFA 53-707 - CuPb10Sn10<br>BS 1400 - LB2<br>C93700 |
| <b>B - Pb15</b><br>2) | 75,0<br>79,0   | 7,0<br>9,0  | 13,0<br>17,0 | 3,0 | 2,0  | 0,05 | 0,25 | 0,50 |   |        | ISO 1338 - CuPb15n8<br>BS 1400 - LB1<br>C93800                           |
| <b>B - Pb20</b><br>2) | 69,0<br>76,0   | 4,0<br>6,0  | 18,0<br>23,0 | 3,0 | 2,50 | 0,05 | 0,25 | 0,50 |   |        | ISO 1338 - CuPb20Sn<br>NFA 53-707 - CuPb20Sn5<br>BS 1400 - LB5<br>C94300 |

## Aluminium Bronzes

| Commercial Ref.        | Chemical composition<br>Alloys re. specifications in force<br>(values in percentages, minimum/maximum) |     |      |     |            |     |            |             |     |        | Most similar International standards   |
|------------------------|--|-----|------|-----|------------|-----|------------|-------------|-----|--------|--|
|                        | Cu   | Sn  | Pb   | Zn  | Ni         | P   | Fe         | Sb          | S   | Others |  |
| <b>B-AlFe</b><br>2) 5) | 83,0   | 0,3 | 0,2  | 0,5 | 3,0        | 0,2 | 2,0<br>4,0 | 8,0<br>11,0 | 1,0 |        | ISO 1338 - CuAl10Fe3<br>BS 1400 - AB1<br>NFA 53-709-CuAl10Fe3<br>C95400 - AMPCO 18 |
| <b>B-AlNi</b><br>2) 5) | 79,0<br>Resto  | 0,2 | 0,05 | 0,5 | 4,0<br>6,5 | 0,1 | 3,5<br>5,5 | 8,5<br>11,0 | 3,0 |        | ISO 1338 - CuAl10Fe5Ni5<br>BS 1400 - AB2<br>NFA 53-709-CuAl10Fe5Ni5<br>C95500      |



## BRONZES General Tables Characteristics - Applications

### Lead Bronzes

| Commercial Ref. | Denomination of materials and processes in accordance with standard |              |               | Approximate mechanical characteristics at 20°C (minimum values) |  |                   |                     |                                    | Properties   | Applications  |
|-----------------|---|--------------|---------------|---|--|-------------------|---------------------|------------------------------------|--|---|
|                 | Denomination  | Material no. | Process       | Elastic limit $R_{p0.2}$ N/mm <sup>2</sup>                      | Breaking load $R_{p0.2}$ N/mm <sup>2</sup> | Elongation A5 (%) | Hardness HB 10/1000 | Elastic Modulus KN/mm <sup>2</sup> |  |   |
| B - Pb10<br>2)  | CuPb10Sn<br>DIN 1716  | 2.1176.01    | G             | 80  | 180  | 8                 | 65                  | 75 to 83                           | Material endowed with good corrosion-proofing, resistance to slipping and wear and tear. Excellent antifriction quality. | Friction bearings for high speeds, pressures, impacts and vibrations in contact with acidic or abrasive agents for hot rolling mills etc. |
|                 |   | 2.1176.04    | GC            | 110   | 230  | 12                | 70                  |                                    |  |   |
|                 |   | 2.1176.03    | GZ            | 110   | 220  | 8                 | 70                  |                                    |  |   |
| B - Pb15<br>2)  | CuPb15Sn<br>DIN 1716  | 2.1182.01    | G             | 90  | 180  | 8                 | 60                  | 75 to 80                           | Corrosion-proofing and good emergency operating properties without lubricant, even with water.                           | Bearings for medium loads and high speeds, hot rolling mills, pumps and corrosion-proof valves.   |
|                 |   | 2.1182.04    | GC            | 110   | 220  | 8                 | 65                  |                                    |  |   |
|                 |   | 2.1182.03    | GZ            | 110   | 220  | 7                 | 65                  |                                    |  |   |
| B - Pb20<br>2)  | CuPb20Sn<br>DIN 1716  | 2.1188.01    | G<br>GC<br>GZ | 90  | 160  | 6                 | 50                  | 74 to 78                           | Suitable for emergency use without lubricant, also with intermittent water. Resistant to sulphuric acid.                 | Bearings for medium loads and high speeds, hot rolling mills, pumps and corrosion-proof valves.   |

### Aluminium Bronzes

| Commercial Ref. | Denomination of materials and processes in accordance with standard |              |          | Approximate mechanical characteristics at 20°C (minimum values) |  |                   |                     |                                    | Properties  | Applications  |
|-----------------|---|--------------|----------|---|--|-------------------|---------------------|------------------------------------|---|---|
|                 | Denomination  | Material no. | Process  | Elastic limit $R_{p0.2}$ N/mm <sup>2</sup>                      | Breaking load $R_{p0.2}$ N/mm <sup>2</sup> | Elongation A5 (%) | Hardness HB 10/1000 | Elastic Modulus KN/mm <sup>2</sup> |   |   |
| B-AlFe<br>2) 5) | CuAl10Fe3<br>DIN 1714   | 2.0940.01    | G        | 180   | 500  | 15                | 115                 | 110 to 116                         | Extremely hard, tough material. Not suitable for use in sea water.  | For mechanical components submitted to stresses between - 200 and +200°C. |
|                 |   | 2.0940.03    | GC<br>GZ | 200   | 550  | 15                | 115                 |                                    |   |   |
| B-AlNi<br>2) 5) | CuAl10Ni<br>DIN 1714  | 2.0975.01    | G        | 270   | 600  | 12                | 140                 | 110 to 128                         | Extremely hard, tough material. Resistant to non-oxidant acids including hot sea water. Highly weldable material. | For very high loads and stresses.   |
|                 |   | 2.0975.04    | GC       | 300   | 700  | 13                | 160                 |                                    |   |   |
|                 |   | 2.0975.03    | GZ       | 300   | 700  | 13                | 160                 |                                    |   |   |