

## Tin Bronze & Leaded Tin Bronze

|                     |              | Composition (% maximum except as indicated) |           |           |         |      |      |         |        |       |      |      |      |                      | Sand Cast Mechanical Properties<br>Minimum |           |              |                     | Pour Temperature<br>[F] |                | ASTM Casting Standards      |
|---------------------|--------------|---|-----------|-----------|---------|------|------|---------|--------|-------|------|------|------|----------------------|--|-----------|--------------|---------------------|-------------------------|----------------|-----------------------------|
| Copper Alloy Number | Ingot Number | Cu  | Sn        | Pb        | Zn      | Fe   | Sb   | Ni      | Si     | Al    | Mn   | P    | S    | Total Named Elements | Tensile ksi                                | Yield ksi | Elongation % | Brinell 500 kg Load | Light Castings          | Heavy Castings |                             |
| <b>C90300</b>       | 225          | 86.0-89.0                                   | 7.8-9.0   | 0.25      | 3.5-5.0 | 0.15 | 0.20 | 0.8     | 0.005  | 0.005 |      | 0.03 | 0.05 | 99.4                 | 40   | 18        | 20           |                     | 2100-2300               | 1900-2100      | B271, B763, B505, B584      |
| <b>C90500</b>       | 210          | 86.0-89.0                                   | 9.5-10.5  | 0.25      | 1.5-3.0 | 0.15 | 0.20 | 0.8     | 0.005  | 0.005 |      | 0.03 | 0.05 | 99.7                 | 40   | 18        | 20           |                     | 2100-2300               | 1900-2100      | B22, B271, B763, B505, B584 |
| <b>C90700</b>       | 205          | 88.0-90.0                                   | 10.3-12.0 | 0.50      | 0.50    | 0.15 | 0.20 | 0.50    | 0.005  | 0.005 |      | 0.30 | 0.05 | 99.4                 | 35   | 17        | 10           | 65                  | 1900-2000               | 1800-1900      | B505, B427                  |
| <b>C90800</b>       |              | 85.0-89.0                                   | 11.3-13.0 | 0.25      | 0.25    | 0.15 | 0.10 | 0.50    | 0.005  | 0.005 |      | 0.30 | 0.05 | 99.4                 | 35   | 17        | 10           | 65                  | 1900-2000               | 1800-1900      | B427                        |
| <b>C91000</b>       | 197          | 84.0-86.0                                   | 14.3-16.0 | 0.20      | 1.5     | 0.10 | 0.10 | 0.8     | 0.005  | 0.005 |      | 0.03 | 0.05 | 99.4                 | check CDA for typical props                |           |              |                     | 1900-2000               | 1800-1900      | B505                        |
| <b>C91100</b>       |              | 82.0-85.0                                   | 15.3-17.0 | 0.25      | 0.25    | 0.15 | 0.20 | 0.50    | 0.005  | 0.005 |      | 1.0  | 0.05 | 99.4                 | check CDA for typical props                |           |              |                     | 1900-2000               | 1800-1900      | B22                         |
| <b>C91300</b>       | 194          | 79.0-82.0                                   | 18.0-20.0 | 0.25      | 0.25    | 0.25 | 0.20 | 0.50    | 0.005  | 0.005 |      | 1.0  | 0.05 | 99.4                 | check CDA for typical props                |           |              |                     | 1900-2000               | 1800-1900      |                             |
| <b>C91600</b>       | 205A         | 86.0-89.0                                   | 10.0-10.8 | 0.25      | 0.25    | 0.15 | 0.10 | 1.2-2.0 | 0.005  | 0.005 |      | 0.25 | 0.05 | 99.4                 | 35   | 17        | 10           | 65                  | 2000-2200               | 1900-2000      | B427                        |
| <b>C91700</b>       |              | 84.0-87.0                                   | 11.5-12.5 | 0.25      | 0.25    | 0.15 | 0.10 | 1.2-2.0 | 0.005  | 0.005 |      | 0.30 | 0.05 | 99.4                 | 35   | 17        | 10           | 65                  | 2000-2200               | 1900-2000      | B427                        |
| <b>C92200</b>       | 245          | 86.0-89.0                                   | 5.8-6.5   | 1.0-1.8   | 3.5-5.0 | 0.20 | 0.20 | 0.8     | 0.005  | 0.005 |      | 0.03 | 0.05 | 99.5                 | 34   | 16        | 22           |                     | 2100-2300               | 1900-2150      | B61, B271, B505, B584       |
| <b>C92300</b>       | 230          | 85.0-89.0                                   | 7.8-9.0   | 0.30-0.9  | 3.0-5.0 | 0.20 | 0.20 | 0.8     | 0.005  | 0.005 |      | 0.03 | 0.05 | 99.3                 | 36   | 16        | 18           |                     | 2100-2300               | 1900-2100      | B271, B763, B505, B584      |
| <b>C92500</b>       | 200A         | 85.0-88.0                                   | 10.3-12.0 | 1.0-1.5   | 0.50    | 0.20 | 0.20 | 0.8-1.5 | 0.005  | 0.005 |      | 0.30 | 0.05 | 99.3                 | check CDA for typical props                |           |              |                     | 1900-2000               | 1800-1900      | B505                        |
| <b>C92600</b>       | 215          | 86.0-88.5                                   | 9.3-10.5  | 0.8-1.5   | 1.3-2.5 | 0.20 | 0.25 | 0.7     | 0.0050 | 0.005 |      | 0.03 | 0.05 | 99.3                 | 40   | 18        | 20           |                     | 2100-2300               | 1920-2100      | B584, B763                  |
| <b>C92700</b>       | 206          | 86.0-89.0                                   | 9.3-11.0  | 1.0-2.3   | 0.8     | 0.15 | 0.20 | 0.8     | 0.005  | 0.005 |      | 0.25 | 0.05 | 99.3                 | check CDA for typical props                |           |              |                     | 2150-2300               | 1950-2150      | B505                        |
| <b>C92800</b>       | 295          | 78.0-82.0                                   | 15.3-17.0 | 4.0-5.7   | 0.8     | 0.15 | 0.20 | 0.8     | 0.005  | 0.005 |      | 0.05 | 0.05 | 99.3                 | check CDA for typical props                |           |              |                     | 1900-2000               | 1800-1900      | B505                        |
| <b>C92900</b>       | 206A         | 82.0-86.0                                   | 9.3-11.0  | 2.0-3.0   | 0.25    | 0.15 | 0.10 | 2.8-4.0 | 0.005  | 0.005 |      | 0.50 | 0.05 | 99.3                 | 45   | 25        | 8            | 75                  | 2000-2200               | 1900-2000      | B505, B427                  |
| <b>C93200</b>       | 315          | 82.0-84.0                                   | 6.5-7.5   | 6.5-7.7   | 2.5-4.0 | 0.20 | 0.30 | 0.8     | 0.005  | 0.005 |      | 0.03 | 0.08 | 99.0                 | 30   | 14        | 15           |                     | 2000-2250               | 1900-2050      | B584                        |
| <b>SAE 660</b>      | 660          | 81.0-85.0                                   | 6.3-7.5   | 6.0-8.0   | 2.0-4.0 | 0.20 | 0.35 | 1.0     | 0.005  | 0.005 |      | 0.15 | 0.08 | 99.2                 | 35   | 20        | 10           |                     | 2000-2250               | 1900-2050      | B66, B271, B763, B505, B584 |
| <b>C94100</b>       |              | 74.0-79.0                                   | 4.7-6.5   | 15.0-21.7 | 1.0     | 0.10 | 0.7  | 0.8     | 0.005  | 0.005 |      | 0.05 | 0.08 | 98.7                 | 25   | 17        | 7            |                     |                         |                |                             |
| <b>C94300</b>       |              | 69.0-72.0                                   | 4.7-5.8   | 23.0-27.0 | 0.8     | 0.10 | 0.7  | 0.8     | 0.005  | 0.005 |      | 0.05 | 0.08 | 99.0                 | 24   |           | 10           |                     |                         |                |                             |
| <b>C94700</b>       |              | 86.0-89.0                                   | 4.7-6.0   | 0.08      | 1.3-2.5 | 0.20 | 0.10 | 4.5-6.0 | 0.005  | 0.005 | 0.20 | 0.05 | 0.05 | 98.7                 | 45   | 20        | 25           |                     | 2150-2300               | 2000-2150      | B505, B584, B763            |
| <b>C94800</b>       |              | 85.0-89.0                                   | 4.7-6.0   | 0.30-0.9  | 1.3-2.5 | 0.20 | 0.10 | 4.5-6.0 | 0.005  | 0.005 | 0.20 | 0.05 | 0.05 | 98.7                 | 40   | 20        | 20           |                     | 2150-2300               | 2000-2150      | B505, B763                  |
| <b>C94900</b>       |              | 79.0-81.0                                   | 4.3-6.0   | 4.0-5.7   | 4.3-6.0 | 0.25 | 0.25 | 4.5-6.0 | 0.005  | 0.005 | 0.10 | 0.05 | 0.08 | 99.4                 | 38   | 15        | 15           |                     | 2200-2350               | 2100-2200      | B584, B763, B584            |