

## Manganese Bronze

| Copper Alloy Number | Ingot Number | Composition (% maximum except as indicated) |          |          |           |          |    |         |    |          |          |                      | Sand Cast Mechanical Properties |           |              |                     | Pour Temperature |                | ASTM Casting Standards |
|---------------------|--------------|---|----------|----------|-----------|----------|----|---------|----|----------|----------|----------------------|---------------------------------|-----------|--------------|---------------------|------------------|----------------|------------------------|
|                     |              | Cu  | Sn       | Pb       | Zn        | Fe       | Sb | Ni      | Si | Al       | Mn       | Total Named Elements | Tensile ksi                     | Yield ksi | Elongation % | Brinell 500 kg Load | Light Castings   | Heavy Castings |                        |
| <b>C86100</b>       |              | 66.0-68.0                                   | 0.10     | 0.10     | balance   | 2.0-4.0  |    |         |    | 4.5-5.5  | 2.5-5.0  | 99.0                 | check CDA for typical props     |           |              |                     |                  |                |                        |
| <b>C86200</b>       | 423          | 60.0-66.0                                   | 0.10     | 0.10     | 22.0-28.0 | 2.0-4.0  |    | 0.8     |    | 3.0-4.9  | 2.5-5.0  | 99.0                 | 90                              | 45        | 18           |                     | 1950-2150        | 1800-1950      | B271, B505, B584, B763 |
| <b>C86300</b>       | 424          | 60.0-66.0                                   | 0.10     | 0.10     | 22.0-28.0 | 2.0-4.0  |    | 0.8     |    | 5.0-7.5  | 2.5-5.0  | 99.0                 | 110                             | 60        | 12           | 223<br>[3000 kg]    | 1950-2150        | 1800-1950      | B271, B505, B584, B763 |
| <b>C86400</b>       | 420          | 56.0-62.0                                   | 0.50-1.0 | 0.50-1.3 | 34.0-42.0 | 0.40-2.0 |    | 0.8     |    | 0.50-1.5 | 0.10-1.0 | 99.0                 | 60                              | 20        | 15           |                     | 1900-2050        | 1750-1900      | B271, B584, B763       |
| <b>C86500</b>       | 421          | 55.0-60.0                                   | 1.0      | 0.30     | 36.0-42.0 | 0.40-2.0 |    | 0.8     |    | 0.50-1.5 | 0.10-1.5 | 99.0                 | 65                              | 25        | 20           | 100<br>[3000 kg]    |                  |                | B271, B505, B584, B763 |
| <b>C86700</b>       | 422          | 55.0-60.0                                   | 1.5      | 0.50-1.5 | 30.0-38.0 | 1.0-3.0  |    | 0.8     |    | 1.0-3.0  | 1.0-3.5  | 99.0                 | 80                              | 32        | 15           |                     | 1900-2000        | 1750-1900      | B271, B584, B763       |
| <b>C86800</b>       |              | 53.5-57.0                                   | 1.0      | 0.20     | balance   | 1.0-2.5  |    | 2.5-4.0 |    | 2.0      | 2.5-4.0  | 99.0                 | check CDA for typical props     |           |              |                     | 1950-2150        | 1800-1950      |                        |

\*a = ASTM spec B22 has compression deformation limit minimum of 55 ksi