

# Manganese Bronze

|                     |              | Composition (% maximum except as indicated) |          |           |           |           |                     |               |                |         |                      | Sand Cast Mechanical Properties Minimum |           |              |                     | Pour Temperature [F]         |                |
|---------------------|--------------|---|----------|-----------|-----------|-----------|---------------------|---------------|----------------|---------|----------------------|---|-----------|--------------|---------------------|------------------------------|----------------|
| Copper Alloy Number | Ingot Number | Copper (Cu) incl Ni                         | Tin (Sn) | Lead (Pb) | Zinc (Zn) | Iron (Fe) | Nickel (Ni) incl Co | Aluminum (Al) | Manganese (Mn) | Other   | Total Named Elements | Tensile ksi                             | Yield ksi | Elongation % | Brinell 500 kg Load | Light Castings               | Heavy Castings |
| C86100              |              | 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             |           |              |                     |                              |                |
| C86200              | 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      |
| C86300              | 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 [3000 kg]       | 1950-2150                    | 1800-1950      |
| C86350              |              | 60.0-64.0                                   | 0.8      | 0.09      | balance   | 1.0       | 0.50                | 0.30-1.1      | 2.0-5.0        | 0.10 Mg | 99.5                 | 52                                      | –         | –            |                     |                              |                |
| C86400              | 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      |
| C86500              | 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           |                     | 1900-2050<br>DC: 1700 - 1800 | 1750-1900      |
| C86550              |              | 57.0 min                                    | 1.0      | 0.50      | balance   | 0.7-2.0   | 1.0                 | 0.50-2.5      | 0.10-3.0       | 0.10 Si | 99.0                 | 47                                      | 17        | 18           | 100 [3000 kg]       |                              |                |
| C86700              | 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      |
| C86800              |              | 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      |