# C87300

**Material Notes:** Casting methods recommended for this alloy: Centrifugal, Investment, Permanent Mold, Plaster, and Sand.

**Applications:** Bearings, bells, impellers, pump and valve components, marine fittings, corrosion resistant castings.

Classified under: Silicon bronzes and silicon brasses. ASTM B584; formerly ASTM B198-12A

Typical data for separately cast test bars. Alloy does not respond to heat treating.

**Key Words:** Silicon Bronze, Everdur, Herculor, Navy Tombasil, ASTM B584; ASTM B198-12A, formerly C87200

| Physical Properties | Metric | English | Comments |
|---|---|---|---|
| Density | 8.36 g/cc | 0.302 lb/in³ | |

| Mechanical Properties | Metric | English | Comments |
|---|---|---|---|
| Hardness, Brinell | 85 | 85 | |
| Tensile Strength, Ultimate | 380 MPa | 55100 psi | |
| Tensile Strength, Yield | 170 MPa @Strain 0.500 % | 24700 psi @Strain 0.500 % | |
| Elongation at Break | 30 % | 30 % | In 50 mm |
| Modulus of Elasticity | 105 GPa | 15200 ksi | |
| Compressive Strength | 125 MPa | 18100 psi | at permanent set of 0.1% |
| | 415 MPa | 60200 psi | at permanent set of 10% |
| Machinability | 50 % | 50 % | UNS C36000 (free-cutting brass) = 100% |
| Izod Impact | 45.0 J | 33.2 ft-lb | |

| Electrical Properties | Metric | English | Comments |
|---|---|---|---|
| Electrical Resistivity | 0.000025733 ohm-cm @Temperature 20.0 °C | 0.000025733 ohm-cm @Temperature 68.0 °F | Calculated from 6.7% IACS |
| Magnetic Permeability | 1.0 | 1.0 | |

| Thermal Properties | Metric | English | Comments |
|---|---|---|---|
| CTE, linear | 19.6 µm/m-°C @Temperature 20.0 - 260 °C | 10.9 µin/in-°F @Temperature 68.0 - 500 °F | |
| Thermal | 28.0 W/m-K | 194 BTU-in/hr-ft²-°F | |

| Conductivity | @Temperature 20.0 °C | @Temperature 68.0 °F |
|---|---|---|
| Melting Point | 821 - 916 °C | 1510 - 1680 °F |
| Solidus | 821 °C | 1510 °F |
| Liquidus | 916 °C | 1680 °F |

| **Component Elements Properties** | **Metric** | **English** | **Comments** |
|---|---|---|---|
| Copper, Cu | >= 94 % | >= 94 % | |
| Iron, Fe | <= 0.20 % | <= 0.20 % | |
| Lead, Pb | <= 0.20 % | <= 0.20 % | |
| Manganese, Mn | 0.80 - 1.5 % | 0.80 - 1.5 % | |
| Silicon, Si | 3.5 - 4.5 % | 3.5 - 4.5 % | |
| Zinc, Zn | <= 0.25 % | <= 0.25 % | |