



Material Data Sheet

834

Copper-Tin-Zinc (Red Brass)

Chemical Composition
(% max, unless shown as range or min.)

| | Cu* | Sn | Pb | Zn | Fe | Sb | As | Ni | S | P | Al | Si |
|----------------|------------------|------------|------------|-----------------|------------|------------|----------|------------|------------|------------|-------------|-------------|
| Min/Max | 88.0-92.0 | .20 | .50 | 8.0-12.0 | .25 | .25 | - | 1.0 | .08 | .03 | .005 | .005 |
| Nominal | 90.0 | - | - | 10.0 | - | - | - | - | - | - | - | - |

*Cu + Sum of Named Elements, 99.3% min.
In determining Cu min., Cu may be calculated as Cu + Ni

Fabrication Practices

| Joining Technique | Suitability |
|--------------------------|-----------------|
| Soldering | Excellent |
| Brazing | Excellent |
| Oxyacetylene Welding | Fair |
| Gas Shielded Arc Welding | Fair |
| Coated Metal Arc Welding | Not Recommended |

Physical Properties

| | US Customary | Metric |
|----------------------------------|---|---|
| Melting Point - Liquidus | 1910 F | 1043 C |
| Melting Point - Solidus | 1870 F | 1021 C |
| Density | 0.318 lb/in ³ @ 68 F | 8.8 gm/cm ³ @ 20 C |
| Specific Gravity | 8.8 | 8.8 |
| Electrical Resistivity | 23.5 ohms-cmil/ft @ 68 F | 3.91 microhm-cm @ 20 C |
| Electrical Conductivity | 44 %IACS @ 68 F | 0.256 MegaSiemens/cm @ 20 C |
| Thermal Conductivity | 109.0 Btu · ft/(hr · ft ² · °F) at 68F | 188.7 W/m · °K at 20 C |
| Coefficient of Thermal Expansion | 10.0 · 10 ⁻⁶ per °F (68-572 F) | 18.0 · 10 ⁻⁶ per °C (20-300 C) |
| Specific Heat Capacity | 0.09 Btu/lb/°F at 68 F | 377.1 J/kg · °K at 293 K |
| Modulus of Elasticity in Tension | 15000 ksi | 103400 MPa |

Heat Treatment

Stress Relieving:
500° F (260C) for 1h/in. of Section Thickness

Cannot be strengthened by heat treatment

Machinability Rating: 60
(C36000, Free Cutting Brass = 100)

Typical Uses:

Moderate Strength, Conductivity Castings
Rotating Bands

Mechanical Properties

| | | US Customary | Metric | Applicable Specification |
|--|---------|----------------|----------------|--------------------------|
| Tensile Strength | Typical | 35 ksi | 241 MPa | |
| Yield Strength (0.5% Ext. under load) | Typical | 10 ksi | 69 MPa | |
| Elongation | Typical | 30 %, in 2 in. | 30 %, in 51 mm | |

6300 West Ridge Road, Erie, PA 16506
Phone: 814-838-8602 • Fax: 814-838-8917 • Sales@ErieBronze.com