RIVERSIDE BRASS
& ALUMINUM FOUNDRY LIMITED

# C94500

**Last Updated: Jan 27, 2006**

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

| | Cu | Al | Sb | Fe | Pb | Ni(1) | P(2) | Si | S | Sn | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Min./Max. | Rem. | .005 | .8 | .15 | 16.0-22.0 | 1.0 | .05 | .005 | .08 | 6.0-8.0 | 1.2 |
| Nominal | 74.0 | - | - | - | 19.0 | - | - | - | - | 7.0 | - |

(1) Ni value includes Co.
(2) For continuous castings, P shall be 1.5%, max.
Note: Cu + Sum of Named Elements, 99.0% min.

Applicable Specifications

| Product | Specification |
|---|---|
| Ingot | ASTM B30 |
| Sand | ASTM B66 |

Common Fabrication Processes
Casting

Fabrication Properties

| Joining Technique | Suitability |
|---|---|
| Soldering | Good |
| Brazing | Poor |
| Oxyacetylene Welding | Not Recommended |
| Gas Shielded Arc Welding | Not Recommended |
| Coated Metal Arc Welding | Not Recommended |
| Machinability Rating | 80 |

Mechanical Properties (measured at room temperature, 68 F (20 C)

| Temper | Section Size | Cold Work | Typ/ Min | Temp | Tensile Strength | Yield Strength (0.5% ext. under load) | Yield Strength (0.2% offset) | Yield Strength (0.05% offset) | El | Rockwell Hardness | | | | Vickens Hard. | Brinell Hard. | | Shear Strength | Fatigue Strength* | Izod Impact Strength |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in. | % | | F | ksi | ksi | ksi | ksi | % | B | C | F | 30T | 500 | 500 | 3000 | ksi | ksi | ft-lb |
| | mm. | | | C | MPa | MPa | MPa | MPa | | | | | | | | | MPa | MPa | J |
| As Sand Cast | | | | | | | | | | | | | | | | | | | |
| M01 | 0.0 | 0 | TYP | 68 | 25 | 12 | - | - | 12 | - | - | - | - | - | 50 | - | 13 | 10 | 4.0 |
| | 0.0 | | | 20 | 172 | 83 | - | - | 12 | - | - | - | - | - | 50 | - | 90 | 69 | 5.4 |
| | | | | | | | | | | | | | | | | | | | |

*Fatigue Strength: 100 x 10 6cycles,
unless indicated as [N]X 106.

Physical Properties

| <> | US Customary | Metric |
|---|---|---|
| Melting Point - Liquidus | 1725 F | 941 C |
| Melting Point - Solidus | 1475 F | 802 C |
| Incipient Melting | 600 F | 316 C |
| Density | 0.34 lb/in3 at 68 F | 9.41 gm/cm3 @ 20 C |
| Specific Gravity | 9.41 | 9.41 |
| Electrical Resistivity | 103.7 ohms-cmil/ft @ 68 F | 17.24 microhm-cm @ 20 C |
| Electrical Conductivity | 10 %IACS @ 68 F | 0.058 MegaSiemens/cm @ 20 C |
| Thermal Conductivity | 30.2 Btu · ft/(hr · ft2·oF)at 68F | 52.3 W/m · oK at 20 C |
| Coefficient of Thermal Expansion | 10.3 ·10-6 per oF (68-392 F) | 18.5 ·10-6 per oC (20-200 C) |
| Specific Heat Capacity | 0.09 Btu/lb/oF at 68 F | 377.1 J/kg · oK at 293 K |
| Modulas of Elasticity in Tension | 10500 ksi | 72400 MPa |
| Magnetic Permeability | 1.0 | 1.0 |

**Tempers Most Commonly Used** No information available.

**Typical Uses**
**Industrial**
Locomotive Shoes, Corrosion Resistant Castings, High Load, Low Speed Bearings, Locomotive Wedges