

C99500

Continuous Cast

| | |
|-----------------------------|---|
| Product Description: | Special Alloy |
| Solids: | ½" to 9" O.D. |
| Tubes: | 1⅝" to 9" O.D. |
| Rectangles: | Up to 14" |
| Standard Lengths: | 144" |
| Shape/Form: | semi-finished, mill stock or near-net shapes, anode, bar stock, billet/bloom, squares, hex, plate, profile or structural shape, flats/rectangular bar |

Typical Uses

| | |
|-------------------|---|
| Electrical | electrical parts |
| Industrial | gears for mining equipment, propeller wheels, valve stems |
| Marine | outboard marine components |

Similar or Equivalent Specification

| CDA | ASTM | SAE | AMS | Federal | Military | Other |
|--------|-----------------------|-----|-----|---------|----------|-------|
| C99500 | B505 B505M B763 | | | | | |

Chemical Composition

| Cu% | Pb% | Zn% | Fe% | Ni% ¹ | Al% | Mn% | Si% |
|------|------|---------------|---------------|------------------|---------------|------|---------------|
| Rem. | 0.09 | 0.50- 2.00 | 3.00- 5.00 | 3.50- 5.50 | 0.50- 2.00 | 0.50 | 0.50- 2.00 |

Chemical Composition according to ASTM B505/B505M-18

¹Not including Co.

Note: Cu + Sum of Named Elements, 99.7% min. Single values represent maximums.

Machinability

| Copper Alloy UNS No. | Machinability Rating | Density (lb/in ³ at 68 ° F) |
|----------------------|----------------------|--|
| C99500 | 50 | 0.3 |



Mechanical Properties

| Tensile Strength, min | | Yield Strength, at 0.5% Extension Under Load, min | | Elongation, in 2 in. or 50 mm min | Brinell Hardness (500 kg load) | Remarks |
|-----------------------|-----|---|-----|-----------------------------------|--------------------------------|---------|
| ksi | MPa | ksi | MPa | % | typical BHN | |
| 70 | 483 | 40 | 276 | 12 | 145 | |

Mechanical Properties according to ASTM B505/B505M-18

Physical Properties

| | US Customary | Metric |
|---|---|--|
| Density | 0.3 lb/in ³ at 68 °F | 8.3 gm/cm ³ at 20 °C |
| Specific Gravity | 8.3 | 8.3 |
| Electrical Conductivity | 10% IACS at 68 °F | 0.057 MegaSiemens/cm at 20 °C |
| Coefficient of Thermal Expansion 68-572 | 8.3 · 10 ⁻⁶ per °F (68-572 °F) | 14.3 · 10 ⁻⁶ per °C (20-300 °C) |
| Modulus of Elasticity in Tension | 19000 ksi | 131000 MPa |

Physical Properties provided by CDA

Fabrication Properties

| Technique | Suitability |
|--------------------------|-------------|
| Gas Shielded Arc Welding | Good |
| Machinability Rating | 50 |

Fabrication Properties provided by CDA

Thermal Properties

| Treatment | Min* | Value* | Time** | Medium |
|-------------------------|------|--------|--------|--------|
| Stress Relief | | 600 | | |
| Solution Treatment | 1625 | | 60 | Water |
| Precipitation Treatment | | 900 | 60 | |

Thermal Properties provided by CDA

*Temperature is measured in Fahrenheit. **For Stress Relief, Solution Treatment and Annealing - Time is measured in hours/inch of thickness. For Precipitation Heat Treatment - Time is measured in hours.