



## TYPICAL USES

**Electrical** Electrical Parts  
**Industrial** Valve Stems, Gears for Mining Equipment,  
 Propeller Wheels  
**Marine** Outboard Marine Components

**Bronze Family:** Special Alloy  
**Solids:** ½” to 9” OD  
**Tubes:** 1⅛” to 9” OD  
**Rectangles:** Up to 14”  
**Standard Lengths:** 144”

## SIMILAR OR EQUIVALENT SPECIFICATION

| CDA    | ASTM      | ASARCON | SAE | AMS | FEDERAL | INGOT | MILITARY | OTHER |
|--------|-----------|---------|-----|-----|---------|-------|----------|-------|
| C99500 | ASTM B505 |         |     |     |         |       |          |       |

## CHEMICAL COMPOSITION

| Alloy   | Cu%       | Sn% | Pb%  | Zn%       | Fe%       | Ni%       | Sb% | P%  | S%  | Al%       | Mn%  | Si% |
|---------|-----------|-----|------|-----------|-----------|-----------|-----|-----|-----|-----------|------|-----|
| C99500* | Remainder | N/A | 0.09 | 0.50-2.00 | 3.00-5.00 | 3.50-5.50 | N/A | N/A | N/A | 0.50-2.00 | 0.50 | N/A |

Chemical Composition according to ASTM B505-08

Note: Single values represent maximums.

\*Silicon 0.5 - 2.0

## MACHINABILITY

| Alloy  | Machinability Rating | Density (lb/cu in.) |
|--------|----------------------|---------------------|
| C99500 | 50                   | 0.300               |

## MECHANICAL PROPERTIES

| Tensile Strength, min |     | Yield Strength, at .5% extension under load min |     | Elongation in 2 in. or 50 mm min, % | Brinell Hardness, min | Remarks |
|-----------------------|-----|---|-----|-------------------------------------|-----------------------|---------|
| ksi                   | MPa | ksi   | MPa |                                     |                       |         |
| 70                    | 483 | 40  | 276 | 12                                  |                       |         |

Mechanical Properties according to ASTM B505-08

## PHYSICAL PROPERTIES

ALLOY: C99500 CONTINUED

|                                  | US Customary                             | Metric                                   |
|----------------------------------|--|--|
| Density                          | 0.300 lb/in <sup>3</sup> at 68 F         | 8.3 gm/cm <sup>3</sup> @ 20 C            |
| Specific Gravity                 | 8.300                                    | 8.3                                      |
| Electrical Resistivity           | 710 ohms-cmil/ft @ 68 F                  | 11.64 microhm-cm @ 20 C                  |
| Electrical Conductivity          | 10 %IACS @ 68 F                          | 0.057 MegaSiemens/cm @ 20 C              |
| Coefficient of Thermal Expansion | 8.30 ·10 <sup>-6</sup> per oF (68-572 F) | 14.9 ·10 <sup>-6</sup> per oC (20-300 C) |
| Modulus of Elasticity in Tension | 19000 ksi                                | 131000 MPa                               |

Physical Properties provided by CDA

## FABRICATION PRACTICES

| Joining Technique      | Suitability     |
|------------------------|-----------------|
| Gas Shield Arc Welding | Not Recommended |

Fabrication Properties provided by CDA

## THERMAL PROPERTIES

| Treatment            | Temp./Time - US | Temp./Time - SI |
|----------------------|-----------------|-----------------|
| Stress Temperature   | 600             | 316             |
| Solution Minimum     | 1625            | 886             |
| Solution Maximum     |                 |                 |
| Solution Time        | 1.0             |                 |
| Solution Medium      | Water           |                 |
| Precipitation Value  | 900             | 483             |
| Precipitation Time   | 1.0             |                 |
| Precipitation Medium | Water           |                 |
| Annealing Minimum    |                 |                 |
| Annealing Maximum    |                 |                 |
| Annealing Time       |                 |                 |
| Hot Works Minimum    |                 |                 |
| Hot Works Maximum    |                 |                 |

Thermal Properties provided by CDA