

C92500

Continuous cast

| | |
|---------------------|---|
| Product description | Nickel-phosphor bronze |
| Solids | 1/2" to 13" O.D. |
| Tubes | 1" to 16" O.D. |
| Rectangles | Up to 20" |
| 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

Automotive

Automotive synchronizer rings

Industrial

Gears

Similar or equivalent specification

| CDA | ASTM | SAE | AMS | Federal | Military | Other |
|--------|---------------|--------------|-----|---------|----------|-------|
| C92500 | B505 B505M | J461 J462 | | | | |

Chemical composition

| Cu (%) ¹ | Pb (%) | Sn (%) | Zn (%) | Fe (%) | P (%) | Ni (%) ^{1,2} | Al (%) | S (%) | Sb (%) | Si (%) |
|---------------------|-----------|-------------|--------|--------|-------|-----------------------|--------|-------|--------|--------|
| 85.00-88.00 | 1.00-1.50 | 10.00-12.00 | 0.50 | 0.30 | 1.50 | 0.80-1.50 | 0.005 | 0.05 | 0.25 | 0.005 |

Chemical composition according to ASTM B505/B505M-23

¹In determining Cu min., Cu may be calculated as Cu + Ni. ²Ni value includes Co.
Note: Cu + sum of named elements, 99.3% min. Single values represent maximums.

Machinability

| Copper alloy UNS no. | Machinability rating | Density (lb/in ³ at 68 ° F) |
|----------------------|----------------------|--|
| C92500 | 30 | 0.317 |

C92500 continued

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 | |
| 40 | 276 | 24 | 165 | 10 | 80 | |

Mechanical properties according to ASTM B505/B505M-23

Physical properties

| | US customary | Metric |
|----------------------------------|-----------------------------------|---------------------------------|
| Density | 0.317 lb/in ³ at 68 °F | 8.7 gm/cm ³ at 20 °C |
| Specific gravity | 8.7 | 8.7 |
| Specific heat capacity | 0.09 Btu/lb/°F at 68 °F | 377.1 J/kg at 20 °C |
| Modulus of elasticity in tension | 16000 ksi | 110000 MPa |
| Incipient Melting | 600 °F | 316 °C |

Physical properties provided by CDA

Fabrication properties

| Technique | Suitability |
|--------------------------|-----------------|
| Soldering | Excellent |
| Brazing* | Good |
| Oxyacetylene welding | Not recommended |
| Gas shielded arc welding | Not recommended |
| Coated metal arc welding | Not recommended |
| Machinability rating | 30 |

Fabrication properties provided by CDA

*Since brazing is performed within the hot-short range, strain must be avoided during brazing and cooling.

Casting characteristics

| Casting attribute | Level |
|---|-------------|
| Casting yield | Medium |
| Drossing | Low |
| Effect of section size | High |
| Fluidity | Medium |
| Gassing | Medium-high |
| Patternmakers shrinkage (inches per foot) | 3/16 |
| Shrinkage in solidification | Low |

Casting characteristics provided by CDA