

## Bearing Bronze C93200 (SAE 660) — Material Data Sheet

ASTM B505 continuous-cast bar · UNS C93200 · High-leaded tin bronze (SAE 660, Alloy 932)

Continuous-cast 83 Cu – 7 Sn – 7 Pb – 3 Zn bearing bronze

The workhorse bearing bronze — SAE 660 — for bushings, thrust washers and wear parts machined from continuous-cast bar.

|               |            |                    |             |
|---------------|------------|--------------------|-------------|
| TENSILE, B505 | 35 ksi min | HARDNESS (TYPICAL) | 65 HB       |
| YIELD, B505   | 20 ksi min | LEAD               | 7 % nominal |
| ELONGATION    | 10 % min   | MAGNETIC           | No          |

### Nominal composition



Midpoints of the specification ranges, for orientation only. Limits are in the table.

### Chemical composition — C93200 bearing bronze (ASTM B505 Table 10)

| Element               | Symbol | Min % | Max % |
|-----------------------|--------|-------|-------|
| Copper                | Cu     | 81.0  | 85.0  |
| Tin                   | Sn     | 6.3   | 7.5   |
| Lead                  | Pb     | 6.0   | 8.0   |
| Zinc                  | Zn     | 2.0   | 4.0   |
| Iron                  | Fe     | —     | 0.20  |
| Nickel (incl. cobalt) | Ni     | —     | 1.0   |
| Antimony              | Sb     | —     | 0.35  |
| Sulfur                | S      | —     | 0.08  |
| Phosphorus            | P      | —     | 1.5   |
| Aluminium             | Al     | —     | 0.005 |
| Silicon               | Si     | —     | 0.005 |

Values per ASTM B505/B505M-23 Table 10, Chemical Requirements (verified against the specification); B505 Table 11 requires the named elements to total 99.0 % (C93200) or 99.5 % (C95400, C95500) minimum. Confirm the edition called out on your purchase order with our estimating team.

### Physical properties (typical)

|          |                          |
|----------|--------------------------|
| DENSITY  | 0.322 lb/in <sup>3</sup> |
| MAGNETIC | No                       |
| SPARKING | Non-sparking             |

### Heat treatment

Not heat treatable. Supplied as continuous cast.

### Mechanical properties — C93200 continuous-cast bar per ASTM B505 Table 9

| Condition | Tensile strength, min (ksi) | Yield strength at 0.5 % extension, min (ksi) | Elongation, min (%) |
|-----------|-----------------------------|----------------------------------------------|---------------------|
| As cast   | 35                          | 20                                           | 10                  |

Values per ASTM B505/B505M-23 Tables 1 and 9 (verified against the specification). Confirm the edition called out on your purchase order with our estimating team.

Applicable standards

|                   |                                     |
|-------------------|-------------------------------------|
| ASTM B505 / B505M | Copper alloy continuous castings    |
| ASTM B584         | Copper alloy sand castings (C93200) |
| SAE J461 / J462   | SAE 660 bearing bronze              |

Forms we supply in C93200 Bearing Bronze

- Sleeve and flanged bushings
- Thrust washers and wear plates
- Gears and slides
- Custom bearing components machined to print
- Certified B505 solid and cored bar

Typical applications

- Pump and valve bushings
- Machine-tool and press bearings
- Agricultural, construction and mining equipment
- Marine deck and steering gear
- General industrial bearings at moderate load