C360 Brass - C36000 (Free-Machining Brass)

Overview

C360 Brass, also known as Free-Cutting Brass or Free-Machining Brass (C36000), is the most commonly used brass rod and bar alloy. Its lead content (2.5-3.7%) gives the alloy a 100% machinability rating—the standard against which all other copper alloys are compared. It is the most important commercial copper alloy, with over 600 million pounds consumed in the U.S. each year.

Chemical Composition

Element	Content (%)
Copper (Cu)	60.0 - 63.0
Zinc (Zn)	Balance (~35.5)
Lead (Pb)	2.5 - 3.7
Iron (Fe)	≤ 0.35

Mechanical Properties

- Tensile Strength: 58,000 psi (H02 temper)
- Yield Strength: 45,000 psi (H02 temper)
- Machinability Rating: 100% (reference standard)
- Hot Working Temperature: 1300-1450°F (704-788°C)
- Melting Point: 1630-1650°F (888-899°C)
- Electrical Resistivity: 0.0000066 ohm-cm

Physical Characteristics

- Duplex alpha-beta microstructure
- Fair hot workability (can be extruded and hot forged)
- Poor cold workability due to high lead content
- Excellent for thread-rolling, knurling
- Can be soldered and brazed (welding not recommended)
- Forms protective patina (won't rust)

Applications

- Screw machine parts: couplings, bushings, connectors
- Plumbing fittings and valve components
- Electrical components: switches, circuit board relays
- Gears, nuts, and bolts
- Automotive components and industrial hardware

- Faucet seats and stems
- Lock bodies and hardware

Specifications

- UNS: C36000
- ASTM: B16
- AMS: 4610
- SAE: J461, J463
- QQ-B-626