# C68700 Aluminum Brass Tube - Technical Data Sheet

GNEE's main copper products include copper tubes, copper rods, copper plates, copper wires, copper strips, etc.
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Material Designation:
UNS No.: C68700
Common Name: Arsenical Aluminum Brass
Alternative Names: Aluminum Brass, C68700 CuZn20Al2
Material Family: Copper-Zinc-Aluminum Alloy (Brass)

C68700 is an arsenical aluminum brass alloy renowned for its excellent corrosion resistance in seawater, superior resistance to dezincification, and cost-effectiveness, making it an ideal material for heat exchanger and condenser tubes in marine environments

## 1. Chemical Composition (ASTM B111 Standard)

| Element | Composition (% by Weight) |
|---|---|
| Copper (Cu) | 77.5 - 80.5% |
| Zinc (Zn) | Remainder |
| Aluminum (Al) | 1.8 - 2.5% |
| Arsenic (As) | 0.02 - 0.06% |
| Iron (Fe) | ≤ 0.06% |
| Manganese (Mn) | ≤ 0.05% |

| Element | Composition (% by Weight) |
|---|---|
| Lead (Pb) | ≤ 0.07% |
| Other (Total) | ≤ 0.15% |

Note: The addition of Arsenic is critical for providing superior resistance to dezincification corrosion.

## 2. Physical Properties

| Property | Value |
|---|---|
| Density | 8.33 g/cm$^3$ (0.301 lb/in$^3$) |
| Melting Point (Liquidus) | ~1040 °C (~1904 °F) |
| Melting Point (Solidus) | ~990 °C (~1814 °F) |
| Thermal Conductivity | 58 W/m·K (at 20°C) |
| Electrical Conductivity | ~18 % IACS |
| Modulus of Elasticity (Tension) | 110 GPa (16 x 10$^6$ psi) |
| Coefficient of Thermal Expansion | 18.2 x 10$^{-6}$/°C (20-300°C) |

## 3. Mechanical Properties (Typical for Annealed Temper)

| Property | Value |
|---|---|
| Tensile Strength | 380 MPa (55,000 psi) |
| Yield Strength (0.5% Ext under Load) | 140 MPa (20,000 psi) |
| Elongation (in 50 mm / 2 in) | 60 % |
| Hardness (Rockwell B) | 45 HRB |

## 4. Key Characteristics & Advantages

Excellent Corrosion Resistance: Outstanding performance in seawater, brackish water, and other chloride-containing environments. Superior to Admiralty Brass.

Superior Dezincification Resistance: The Arsenic (As) addition effectively inhibits selective leaching of zinc, a common failure mode for brass in corrosive waters.

Good Erosion-Corrosion Resistance: Maintains surface integrity under high-fluid velocities, making it ideal for condenser and heat exchanger tubes.

Moderate Biofouling Resistance: The protective surface film offers some resistance to marine organism attachment.

Good Fabricability: Can be cold worked, bent, and expanded.

Cost-Effective: Provides a more economical alternative to 90-10 Copper Nickel (C70600) for many seawater applications.

## 5. Typical Applications

C68700 tube is primarily used in applications requiring exceptional resistance to seawater corrosion.

Condenser Tubes in power plants and marine vessels.

Heat Exchanger Tubes for:

Seawater Coolers & Heaters

Desalination Plants

Offshore Oil & Gas Platforms

Chemical & Process Industries

Marine Piping Systems for pumps, valves, and fittings.

## 6. Available Forms & Standards

Primary Form: Seamless and Welded Tubes.

Related ASTM Standards:

ASTM B111 / B111M: Standard Specification for Copper and Copper-Alloy Seamless Condenser Tubes and Ferrule Stock.

ASTM B543: Standard Specification for Welded Copper and Copper-Alloy Heat Exchanger Tube.

Common Sizes: A wide range of diameters and wall thicknesses is available, conforming to OEM and industry specifications.

## 7. Comparison with Alternative Alloys

| Alloy | UNS | Key Advantage vs. C68700 | Key Disadvantage vs. C68700 |
|---|---|---|---|
| Admiralty Brass | C44300 | Lower Cost | Poor resistance to dezincification; not recommended for modern seawater service. |
| 90-10 Copper Nickel | C70600 | Better overall corrosion & impingement resistance; superior for | Higher Cost. |

| Alloy | UNS | Key Advantage vs. C68700 | Key Disadvantage vs. C68700 |
|---|---|---|---|
| | | high-velocity water. | |
| 70-30 Copper Nickel | C71500 | Superior strength and maximum resistance to corrosion and erosion. | Significantly Higher Cost. |

# About Us

**Plant And Equipment**

We rely on a full-process production line of melting, extrusion, drawing, heat treatment and finishing. Our core equipment includes medium-frequency induction furnaces, extruders, cold drawing machines and annealing furnaces, and are equipped with intelligent detection systems to ensure that the copper we produce is of first-class quality and stable performance.

**Packaging And Shipping**

To ensure our products arrive in perfect condition, we use robust packaging:

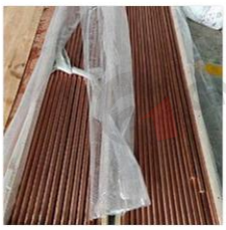
Protective End Caps: Prevent damage to tube ends.

Waterproof Wrapping: Protects against moisture and corrosion during transit.

Secured Bundling: Tubes are bundled and strapped onto wooden crates or pallets.

Clear Labeling: Each bundle is clearly labeled with material grade, heat number, and dimensions.





Founded in 2008, GNEE has many years of experience in copper product export. Headquartered in Henan Province, China, adjacent to the Beijing-Hong Kong-Macao Expressway, the company has over 200 dedicated employees, registered capital of RMB 10 million, and covers an area of over 350,000 square meters. GNEE is SGS-certified.

We provide high-quality copper products, excellent service, and highly competitive pricing. We specialize in the production and manufacturing of copper tubes, rods, sheets, coils, and wire.

Our products are exported to over 160 countries worldwide and are widely used in key sectors such as large-scale pipeline construction, petrochemicals, shipbuilding, the automotive industry, and large power plants.

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