

C11000 Electrolytic Tough Pitch (ETP) Copper

1. Introduction

C11000, also known as Electrolytic Tough Pitch (ETP) copper, is the most common copper for electrical applications. It has a minimum copper content of 99.90% and represents the highest electrical conductivity of any metal except silver. C11000 has excellent thermal and electrical conductivity, good corrosion resistance, and high ductility.

2. Chemical Composition (ASTM B152 / B187)

Element	Content (%)
Copper (Cu)	99.90% min
Oxygen (O)	0.005% - 0.040%
Lead (Pb)	0.005% max
Bismuth (Bi)	0.001% max

3. Physical Properties

Property	Metric Value	Imperial Value
Density	8.89 g/cm ³	0.321 lb/in ³
Melting Point	1083°C	1981°F
Electrical Conductivity	101% IACS	101% IACS
Thermal Conductivity	391 W/m·K	226 Btu/ft ² /ft/hr/°F
Modulus of Elasticity	117 GPa	17,000 ksi
Coefficient of Thermal Expansion	17.0 μm/m·°C	9.4 μin/in·°F

4. Mechanical Properties (Typical for H02 Half Hard Temper)

Note: Properties vary based on temper (Annealed, Half Hard, Full Hard).

Tensile Strength: 260 - 330 MPa (38 - 48 ksi)

Yield Strength: 200 - 300 MPa (29 - 44 ksi)

Elongation in 50mm: 10% - 25%

Hardness (Rockwell F): 60 - 90 HRF

5. Key Features & Advantages

High Conductivity: Minimum 101% IACS, ideal for electrical transmission.

Excellent Formability: Easily bent, drawn, and headed.

Corrosion Resistance: Excellent resistance to atmospheric corrosion and pure water.

Aesthetic Appeal: Beautiful natural metallic luster, ideal for architectural use.

6. Typical Applications

Electrical: Busbars, conductors, windings, switchgear, transformer terminals.

Industrial: Heat exchangers, gaskets, chemical equipment.

Architecture: Roofing, flashing, gutters, and decorative facades.

Automotive: Radiators, electrical connectors.

7. Fabrication & Welding

Machinability Rating: 20 (Free Cutting Brass = 100)

Soldering: Excellent

Brazing: Good

Gas Shielded Arc Welding: Fair

Oxyacetylene Welding: Not Recommended (due to oxygen content)

8. International Specifications

ASTM: B152, B187, B124, B152M

ISO: Cu-ETP

EN: CW004A

JIS: C1100

GB: T2

9. Supply Capability & Specifications

We provide C11000 (ETP Copper) in various forms and tempers (O, 1/4H, 1/2H, H, EH) to meet diverse industrial requirements. Below are our standard manufacturing ranges:

■ Sheets & Plates

Thickness: 0.1mm - 100mm

Width: 10mm - 1000mm (Up to 2500mm for specific grades)

Length: 1000mm - 6000mm or Custom Cut

Surface: Mill Finish, Polished, Brushing, Mirror (8K), Plastic Film Coating
(PVC/PE)

■ Strips & Coils

Thickness: 0.01mm - 3.0mm

Width: 5mm - 600mm

Coil Weight: Based on customer requirements

Edge: Slit edge, Rounded edge, Deburred edge

■ Pipes & Tubes

Outer Diameter (OD): 2mm - 350mm

Wall Thickness (WT): 0.2mm - 50mm

Shape: Round, Square, Rectangular, Hexagonal

Type: Straight lengths or Pancake Coils (for HVAC)

■ Rods & Bars

Diameter/Size: 2mm - 200mm

Shape: Round, Square, Hexagonal, Flat (Busbar)

Length: 1000mm - 6000mm or Custom Cut

Tolerance: h7, h8, h9 or according to ASTM standards

■ Wires

Diameter: 0.05mm - 15mm

Type: Bare Copper Wire, Tinned Copper Wire (Optional)

Packing: Spool, Coil, or Barrel

10. Surface Options & Quality Control

We offer multiple surface treatments to ensure the material is ready for your specific application:

Mirror Finish (8K): High reflectivity, used for decoration and precision electronics.

Brushing/Satin: Uniform directional finish.

Polished: Smooth surface without oxidation.

Protection: Interleaving paper or PE/PVC film to prevent scratches during transit.

11. Why Choose Our C11000 Copper?

High Purity: Cu \geq 99.90% guaranteed.

Precision Tolerance: Strict control over dimensions using advanced rolling and drawing equipment.

Full Certification: MTC (Material Test Certificate) provided with every shipment, complying with EN 10204 3.1.

Fast Lead Time: Large inventory of standard sizes for immediate dispatch.

CONTACT US FOR A QUOTE

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