C28000 (Alloy 280) / H62 Muntz Metal

GNEE's main copper products include copper tubes, copper rods, copper plates, copper wires, copper strips, etc.

Website：chinacopperalloys.com

Email: sales@gneemetal.com

1.0 Executive Summary

C28000, also known as Muntz Metal or 60/40 brass, is a high-strength alpha-beta brass alloy with excellent hot workability and good cold formability. Its balanced composition of copper and zinc provides a unique combination of moderate corrosion resistance, machinability, and attractive golden color, making it a versatile and cost-effective material for a wide range of industrial and decorative applications.

Common Equivalents:
China: H62 (GB/T 5231)
USA: C28000 (ASTM B36, UNS), Alloy 280
EU: CuZn40 (CW509N)
Japan: C2800 (JIS H3250)
ISO: CuZn40 (ISO 426/1)

2.0 Chemical Composition (Nominal, wt%)

Element	Min (%)	Max (%)	Typical (%)	Remarks
Copper (Cu)	60.0	63.0	62.0	Balance
Zinc (Zn)	Remainder		~38.0	Primary alloying element
Lead (Pb)	-	0.07	<0.05	Impurity, affects hot workability
Iron (Fe)	-	0.07	<0.05	Impurity
Other Impurities	-	0.15 (each)	-	Includes Sb, P, S, etc.

Note: Composition conforms to ASTM B36 Standard Specification for Brass Plate, Sheet, Strip, And Rolled Bar.

3.0 Physical & Mechanical Properties

Property	Condition	Typical Value	Units	Test Standard
Density	At 20°C	8.47	g/cm³	ASTM E1266
Melting Range (Liquidus/Solidus)		905 - 915	°C	
Thermal Conductivity	At 20°C	120	W/m·K	
Electrical Conductivity	At 20°C	28	% IACS	
Modulus of Elasticity		100	GPa	
Ultimate Tensile Strength (UTS)	Annealed (O)	350 - 380	MPa	ASTM E8
	Half-Hard	410 -	MPa	

Property	Condition	Typical Value	Units	Test Standard
	(H02)	450		
	Hard (H04)	490 - 530	MPa	
Yield Strength (0.2% Offset)	Annealed (O)	120 - 150	MPa	ASTM E8
	Half-Hard (H02)	320 - 370	MPa	
	Hard (H04)	420 - 480	MPa	
Elongation	Annealed (O)	45 - 55	%	ASTM E8
	Half-Hard (H02)	20 - 30	%	
	Hard (H04)	10 - 15	%	
Hardness	Annealed (O)	70 - 85	HV	ASTM E92/E384
	Half-Hard (H02)	110 - 130	HV	
	Hard (H04)	150 - 170	HV	
Machinability (C36000=100%)		30	%	

4.0 Standard Product Specifications & Tolerances

4.1 Forms Available:

Strip / Coil: Most common for mass production.
Sheet / Plate: For larger, flat components.
Bar / Rod: Round, square, hexagonal.

Tube / Pipe: For heat exchangers and conduits.

4.2 Thickness & Width Ranges (Strip/Sheet Example):

Dimension	Typical Range	Common Tolerance Standard
Thickness	0.1 mm – 6.0 mm	ASTM B248M (Half-Hard/Hard: ±0.02mm to ±0.08mm)
Width	10 mm – 600 mm	ASTM B248M (Slit Edge: ±0.10mm to ±0.50mm)
Coil Weight	500 kg – 5000 kg	As per customer requirement.

4.3 Standard Coil Parameters:

Inner Diameter (I.D.): 508 mm (20") or 610 mm (24") is standard.
Outer Diameter (O.D.): Max 1500 mm, typically 1200-1400 mm for safe handling.
Winding: Tight, even, with or without paper interleaving.

5.0 Surface Conditions & Finishes

Finish Code	Description	Appearance & Application	Remarks
Mill Finish	As-rolled or annealed.	Characteristic metallic luster, may have light rolling lines. General industrial use.	Most economical.
No. 1 (Bright)	Polished or highly finished rolls.	Smooth, bright, reflective surface. For decorative trims, nameplates.	Good for subsequent plating.
No. 2 (Satin / Brushed)	Directionally brushed with abrasive belts.	Uniform satin, non-reflective, hides fingerprints. Architectural, appliance.	Common final finish.
No. 4 (Polished)	Sequentially polished with finer abrasives.	Highly reflective, mirror-like. High-end decor, reflectors.	Requires protective film.

Finish Code	Description	Appearance & Application	Remarks
BA (Bright Annealed)	Annealed in a controlled atmosphere.	Very clean, bright, uniform color without scale. Premium appearance parts.	Excellent for brazing.
Pickled & Oiled	Acid-cleaned to remove oxide, oiled for protection.	Dull matte gray/yellow. For parts requiring further hot work or plating.	Temporary rust protection.

6.0 Processing Characteristics

Hot Working: Excellent. Forging, extrusion, and hot stamping performed at 650-750° C.
Cold Working: Good. Can be bent, stamped, and drawn in annealed or softer tempers.
Machining: Fair. More challenging than free-machining brasses (e.g., C36000) but acceptable with proper tools and coolant.
Joining: Excellent for brazing and soldering. Good for welding (gas tungsten arc welding recommended). Silver brazing is common.
Heat Treatment: Stress-relief annealing at 250-300° C. Full annealing at 500-650° C followed by rapid cooling.
Corrosion Resistance: Good resistance to atmospheric, fresh water, and seawater corrosion. Susceptible to dezincification in stagnant saline water; inhibited grades are available.

7.0 Typical Applications

Industry	Specific Applications
Architecture & Construction	Roofing, façade cladding, decorative strips, door handles, hinges, architectural forgings.
Electrical & Heat Exchange	Heat exchanger tubes, radiator cores, electrical terminals, switchgear components.
Hardware & Plumbing	Valve bodies, pump components, flanges, nuts, bolts, fasteners, lock components.

Industry	Specific Applications
Automotive	Radiator tanks, decorative trim, carburetor parts, bushing sleeves.
Consumer Goods	Nameplates, badges, zippers, musical instruments, ammunition components.

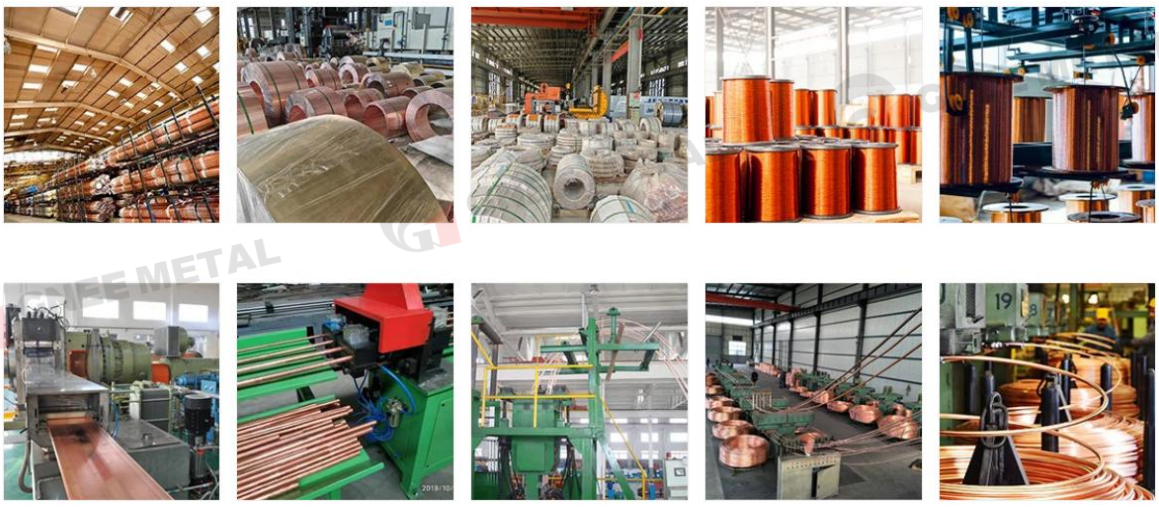
8.0 Packaging for Export (Typical)

Inner Protection: VCI (Vapor Corrosion Inhibitor) paper or anti-tarnish paper wrap.
Edge Protection: Plastic or cardboard edge protectors.
Core Support: Wooden or steel mandrel inside coil I.D.
Base & Fixing: Heavy-duty IPPC-marked fumigated wooden pallet. Coil secured to pallet with steel strapping.
Outer Protection: Multiple layers of heavy-duty PE stretch film, fully waterproofed.
Marking: Clear, waterproof labels with Product Name, Alloy, Size, Net/Gross Weight, Coil No., Direction, and handling symbols.

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:

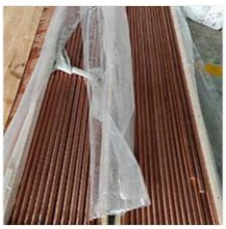
Protective End Caps: Prevent damage to tube ends.

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.

Website：chinacopperalloys.com
Email: sales@gneemetal.com