GWO CHERN INDUSTRIAL CO., LTD.

Committed to Eco-Friendly Materials • Built on Integrity • Advancing Sustainable Development

Copper Alloy Solutions Built on Integrity and Sustainability

ISO 9001 | IECQ QC 080000 | RoHS Compliant

www.gwo-chern.com.tw

Company Introduction

Founded in 1992, GWO CHERN INDUSTRIAL CO., LTD. specializes in brass, copper, and special copper alloy materials. With over 30 years of experience in copper alloy bars and wires, the company has built a solid reputation as a reliable partner for customers worldwide.

GWO CHERN operates under ISO 9001 and IECQ QC080000 systems, ensuring strict quality control from raw materials to final inspection. Continuous investment in advanced equipment and technology enhances product quality and manufacturing competitiveness.

Guided by Environmental Protection, Sustainability, and Integrity, GWO CHERN is committed to delivering high-quality materials and building long-term partnerships with customers.

Environmental Protection

Development of RoHS-compliant materials and implementation of IECQ QC080000 to control hazardous substances and reduce environmental impact.

Sustainability

Continuous investment in advanced equipment and process optimization to improve efficiency, quality stability, and long-term competitiveness.

Integrity

Commitment to customer satisfaction through reliable quality, stable delivery, and long-term partnerships.

Quality Certifications

ISO 9001

Certified since 2001, ensuring consistent quality control.

IECQ QC 080000

Hazardous substance management system compliant with global standards.

RoHS / ELV

Lead-free materials in compliance with EU directives.

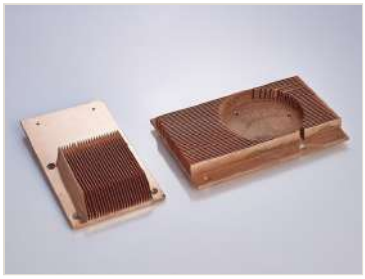
Standardized Manufacturing Process

Raw Material Procurement ▶ Melting & Casting ▶ Extrusion ▶ Drawing ▶ Quality Inspection ▶ Packaging & Shipment

Key Equipment: Advanced German drawing machines, precision horizontal continuous casting systems, and 2000-ton indirect copper extrusion presses.

1992	30+	3
Founded	Years of Experience	Certifications

Red Copper Series



C1011 Oxygen-Free Copper (Electronic Grade)

Standard: JIS C1011

Description: Ultra-high purity oxygen-free copper with extremely low oxygen content (≤0.001%). It offers उत्कृष्ट electrical conductivity (≥101% IACS) and thermal conductivity. Ideal for vacuum applications, ensuring no blistering or oxidation during high-temperature welding or vacuum processing.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
≥99.99	≤0.001	—	—	—	—	—	≤0.001	—	≤0.0003	Zn≤0.0001 Se≤0.001 O≤0.001 Cd≤0.0001 S≤0.0018 Te≤0.001 Hg≤0.0001

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [KN/mm²]
8.94	101	391	118

Applications: Excellent electrical and thermal conductivity, good ductility and corrosion resistance. Widely used in electrical components and industrial chemical equipment.



C1020 Oxygen-Free Copper

Standard: JIS C1020 / ASTM C10200

Description: High-purity oxygen-free copper with oxygen content ≤0.001% and conductivity ≥101% IACS. Provides excellent ductility and weldability, suitable for high-frequency signal transmission such as busbars and coaxial cable conductors.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
≥99.96	—	—	—	—	—	—	—	—	—	O≤0.001

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [KN/mm²]
8.94	101	391	118

Applications: Electrical components, industrial chemical equipment, and high-performance conductive applications.

Red Copper Series



C1100 Electrolytic Tough Pitch Copper (ETP Copper)

Standard: JIS C1100

Description: The most widely used electrical copper with purity ≥99.90% and conductivity ≥101% IACS. Offers excellent cold and hot workability, making it suitable for a wide range of applications in construction, electrical, electronics, and industrial equipment.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
≥99.90	—	—	—	—	—	—	—	—	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [KN/mm²]
8.89–8.94	101	391	118

Applications: Downpipes, skylight frames, heat exchangers, rivets, busbars, radio components, stranded wires, switches, terminals, and electrical wiring.

Brass Series



C2600 Cartridge Brass

Standard: JIS C2600

Description: Brass alloy with high copper content, offering excellent cold workability, ductility, elasticity, and aesthetic appearance. Suitable for precision stamping and deep drawing applications, widely used in electronic and precision component industries.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
68.5–71.5	≤0.02	≤0.02	—	≤0.02	≤0.02	—	—	≤0.02	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [KN/mm²]
8.53	28	121	110

Applications: Electronic terminals, connectors, pins, rivets, zippers, architectural panels, decorative hardware, radiators, and heat exchanger tubes.

Brass Series



C2680 Brass

Standard: JIS C2680 / ASTM C26800

Description: Excellent cold workability and plating performance. Suitable for stamping, deep drawing, and bending processes, with superior surface finishing characteristics.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
64.0–68.0	≤0.05	≤0.05	—	—	—	—	—	—	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [KN/mm²]
8.47	27	117	103

Applications: Radiator cores, hinges, locks, lighting components, fasteners, and piping fittings.

Brass Series



C2700 Brass

Standard: JIS C2700 / ASTM C27000

Description: Good ductility and electroplating properties. Suitable for cold working and shallow drawing applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
63.0–67.0	≤0.02	≤0.02	—	≤0.02	≤0.02	—	—	≤0.02	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [KN/mm²]
8.47	27	117	103

Applications: Electrical terminals, mechanical components, snap fasteners, and general hardware parts.

Brass Series



C2720 Brass

Standard: JIS C2720 / ASTM C27200

Description: Good ductility and plating performance. Suitable for cold working and shallow drawing applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
62.0–64.0	≤0.02	≤0.02	—	≤0.02	≤0.02	—	—	≤0.02	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.47	27	117	103

Applications: Electrical terminals, mechanical components, snap fasteners, and general hardware parts.

Brass Series



C2800 Muntz Metal

Standard: JIS C2800 / ASTM C28000

Description: Lower cold workability but excellent hot workability. Provides good strength and ductility, suitable for hot forming processes.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
59.0–63.0	≤0.02	≤0.02	—	≤0.02	≤0.02	—	—	≤0.02	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.39	28	121	103

Applications: Electrical fittings, stamped parts, and bent components.

Leaded Brass Series



C3501 Leaded Brass

Standard: JIS C3501 / ASTM C35000

Description: Excellent machinability, wear resistance, and high strength. Offers good performance in both cold and hot working processes, making it suitable for precision machining applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
60.0–64.0	0.7–1.7	≤0.20	—	—	—	—	—	—	—	Fe+Sn ≤0.40

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.44	26	117	103

Applications: Connectors, valves, watch components, gears, screws, rivets, and precision machined parts.

Leaded Brass Series



C35300 Leaded Brass

Standard: ASTM C35300

Description: Excellent machinability and cold forging properties, ideal for precision machining and forming applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
60.0–63.0	1.5–2.5	≤0.15	—	—	—	—	—	—	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.44	26	115	103

Applications: Bicycle components, nuts, gears, and precision machined parts.

Leaded Brass Series



C36000 Free-Cutting Brass

Standard: ASTM C36000

Description: Excellent machinability and drilling performance, with high strength, good ductility, and outstanding corrosion resistance. Also offers good formability, extrudability, and thermal and electrical conductivity.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
60.0–63.0	2.5–3.0	≤0.35	—	—	—	—	—	—	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.50	26	117	96

Applications: Precision machined parts, automatic lathe components, valves, and fittings.

Leaded Brass Series



C3601 Free-Cutting Brass

Standard: JIS C3601 / ASTM C36000

Description: Good machinability and ductility, suitable for a wide range of precision machining applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
59.0–63.0	1.8–3.7	≤0.30	—	≤0.20	—	—	—	—	—	Fe+Sn ≤0.50 As ≤0.02

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.50	26	117	96

Applications: Electronic components, watch parts, hardware components, and precision machined parts.

Leaded Brass Series



C3602 Free-Cutting Brass

Standard: JIS C3602 / ASTM C36000

Description: Good machinability and ductility, suitable for a wide range of precision machining applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
59.0–63.0	1.8–3.7	≤0.50	—	≤0.20	—	—	—	—	—	Fe+Sn ≤0.80 As ≤0.02

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.50	26	117	96

Applications: Electronic components, watch parts, hardware components, and precision machined parts.

Leaded Brass Series



C3603 Free-Cutting Brass

Standard: JIS C3603 / ASTM C36010

Description: Good machinability with moderate ductility, suitable for precision machining applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
57.0–61.0	1.8–3.7	≤0.35	—	≤0.20	—	—	—	—	—	Fe+Sn ≤0.60 As ≤0.02

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.50	26	117	96

Applications: Electronic components, watch parts, hardware components, and precision machined parts.

Leaded Brass Series



C3604 Free-Cutting Brass

Standard: JIS C3604 / ASTM C36010

Description: Good machinability with balanced ductility, suitable for a wide range of precision machined components.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
57.0–61.0	1.8–3.7	≤0.50	—	≤0.20	—	—	—	—	—	Fe+Sn ≤0.80 As ≤0.02

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.50	26	117	96

Applications: Electronic components, watch parts, hardware components, and precision machined parts.

Forging Brass Series



C3712 Forging Brass

Standard: JIS C3712 / ASTM C37100

Description: Excellent hot forging properties, suitable for precision forged components and mechanical parts.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
58.0–62.0	0.25–1.2	—	—	≤0.20	—	—	—	—	—	Fe+Sn ≤0.80 As ≤0.02

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.41	27	117	103

Applications: Forged parts, mechanical components, and precision structural components.

Forging Brass Series



C3771 Forging Brass

Standard: JIS C3771 / ASTM C37700

Description: Excellent hot forging properties and good machinability, suitable for valves and mechanical components.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
57.0–61.0	1.0–2.5	—	—	≤0.20	—	—	—	—	—	Fe+Sn ≤1.0 As ≤0.02

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m・K)]	Elastic Modulus [kN/mm²]
8.41	27	117	103

Applications: Valves, mechanical components, and forged parts.

Naval Brass Series



C4621 Naval Brass

Standard: JIS C4621 / ASTM C46200

Description: Excellent resistance to seawater corrosion, suitable for marine and shipbuilding applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
61.0–64.0	≤0.20	≤0.10	0.7–1.5	—	—	—	—	—	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m・K)]	Elastic Modulus [kN/mm²]
8.41	27	117	103

Applications: Marine components, shafts, and offshore equipment.

Naval Brass Series



C46400 Naval Brass

Standard: ASTM C46400

Description: Excellent resistance to seawater corrosion and good hot workability, suitable for marine and shipbuilding applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
59.0–62.0	≤0.20	≤0.10	0.5–1.0	—	—	—	—	—	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.41	26	67	117

Applications: Marine components, valves, shafts, condenser tubes, and offshore equipment.

Phosphor Bronze Series



C5191 Phosphor Bronze

Standard: JIS C5191 / ASTM C51900

Description: High strength, excellent elasticity, and good wear resistance, suitable for springs and precision elastic components.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
Rem.	≤0.02	≤0.10	5.5–7.0	—	—	—	—	—	0.03–0.35	Zn ≤0.20 Cu+Sn+P ≥99.5

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.83	13	67	105

Applications: Springs, electrical contacts, and precision elastic components.

High Tensile Brass Series



C6782 High Tensile Brass

Standard: JIS C6782

Description: High strength, good hot forging properties, and excellent corrosion resistance, suitable for heavy-duty mechanical components.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
56.0–60.5	≤0.50	0.1–1.0	—	—	0.2–2.0	—	—	0.5–2.5	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.10	15	100	110

Applications: High-strength mechanical components, shafts, structural parts, and forged products.

High Strength Brass Series



C86300 High Strength Brass

Standard: ASTM C86300

Description: High-strength aluminum bronze-type alloy with excellent wear resistance and load-bearing capacity, suitable for heavy-duty applications.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
60.0–66.0	≤0.20	2.0–4.0	≤0.20	≤1.0	5.0–7.5	—	—	2.5–5.0	—	—

Physical Properties

Density (20°C)	Conductivity [%IACS]
7.83	8

Applications: Heavy-duty mechanical parts, wear-resistant components, bearings, and gears.

Bismuth Series (Lead-free / Cadmium-free Free-Cutting Brass)



C6801 Bismuth Free-Cutting Brass

Standard: JIS C6801

Description: Environmentally friendly free-cutting brass using bismuth (Bi) as a substitute for lead, offering excellent machinability with reduced environmental impact.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
57.0–64.0	≤0.01	≤0.50	0.1–2.5	—	—	—	0.5–4.0	—	≤0.20	Cd ≤ 0.0075

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.50	24	117	96

Applications: Eco-friendly precision machined components, electronic parts, connectors, and hardware components.

Bismuth Series (Lead-free / Cadmium-free Free-Cutting Brass)



C6802 Bismuth Free-Cutting Brass

Standard: JIS C6802

Description: Low-lead and cadmium-free environmentally friendly free-cutting brass, providing excellent machinability and compliance with environmental regulations.

Chemical Composition

Cu	Pb	Fe	Sn	Ni	Al	Si	Bi	Mn	P	Others
57.0–64.0	≤0.09	≤0.70	0.1–3.0	—	—	—	0.5–4.0	—	≤0.20	Cd ≤ 0.0075

Physical Properties

Density (20°C)	Conductivity [%IACS]	Thermal Conductivity [W/(m • K)]	Elastic Modulus [kN/mm²]
8.50	24	117	96

Applications: Eco-friendly precision machined components, electronic parts, connectors, and hardware components.

國晟工業股份有限公司

GWO CHERN INDUSTRIAL CO., LTD.

ISO 9001 | IECQ QC 080000 | RoHS Compliant

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