

Copper C106 / CW024A

It is believed that copper has been mined for over 5000 years. It can be found in elemental form and in the minerals cuprite, malachite, azurite, chalcopyrite and bornite. Copper is also often produced as a by-product of silver production.

Next to silver, copper is the next best conductor. It is a yellowish red metal that polishes to a bright metallic lustre. It is tough, ductile and malleable. Copper has a disagreeable taste and a peculiar smell.

Copper is corrosion-resistant to most atmospheres including marine and industrial environments. It is corroded by oxidising acids, halogens, sulphides and ammonia based solutions.

C106 / CW024A is phosphorous de-oxidised non-arsenical copper that is 99.9% pure.

Applications

C106 is typically used in applications like:

- ◆ Refrigeration
- ◆ Gutters and roofing
- ◆ Gas plants
- ◆ Busbars
- ◆ Hydraulic, air and oil lines
- ◆ Air Conditioning and refrigeration
- ◆ Heater units and burners tubes Consumer
- ◆ Plumbing pipe and fittings

Typical Chemical Composition

%	C106 / CW024A
Cu	99.85 min
Pb	-
Sn	-
Fe	-
Al	-
Mn	-
Zn	-
Si	-
Ni	-
P	0.015-0.04

Typical Mechanical Properties

Grade	C106/CW024A
Tensile Strength (MPa)	220
Proof Stress 0.2% (MPa)	45
Elongation A5 (%)	45
Hardness VPN	45-60

Typical Physical Properties

Property	Value
Density	8.94 g/cm ³
Melting Point	1083°C
Modulus of Elasticity	GPa
Electrical Resistivity	0.0203x10 ⁻⁶ Ω.m
Thermal Conductivity	339.2 W/m.K at 100°C
Thermal Expansion	16.9x10 ⁻⁶ /K at 100°C

Alloy Designations

Phosphorous de-oxidised non-arsenical copper corresponds to the following standard designations and specifications:

CEN	BS	UNS	ISO
CW024A	C106	C12200	Cu-DHP

Corrosion Resistance

Corrosion resistance is either good or excellent in most environments and atmospheres other than those containing ammonia ions.

Cold Working

C106 / CW024A has an excellent response to cold working.



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Hot Working

With forging of brass rated as 100, the hot forgeability of C106 / CW024A is rated at 65. Hot working temperatures should be between 760 and 870°C

Heat Treatment

Solution treatment or annealing can be done by rapid cooling after heating to 370-650°C.

Machinability

This alloy has a machinability rating of 20 when Brass CZ121 / CW614N is 100.

Welding

Deoxidation of C106 / CW024A improves embrittlement resistance during welding.

Brazing and soldering are both excellent joining methods for C106 / CW024A. Gas shielded arc welding is also excellent. Oxyacetylene welding and butt welding are good. Welding methods not recommended include:

- ◆ Coated metal arc welding
- ◆ Spot welding
- ◆ Seam welding

Supplied Forms

C106 / CW024A is typically supplied in the following forms:

- ◆ Round tube
- ◆ Sheet – Half Hard
- ◆ Sheet – Soft

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