

SPECIFICATIONS

Commercial	C106
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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, chalcopryite and bornite. Copper is also often found as a by-product of silver production.

Next to Silver, Copper is the next best conductor of electricity. It has yellow/gold colour that can be polished to a bright metallic lustre. It is tough, ductile and malleable. Copper has a disagreeable taste and a peculiar smell.

Copper is resistant to corrosion in 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
- ~ Hydraulic, air and oil lines
- ~ Air Conditioning and refrigeration
- ~ Heater units and burners tubes Consumer
- ~ Plumbing pipe and fittings

CHEMICAL COMPOSITION

EN 1652:1997 CW024A	
Element	% Present
Copper (Cu)	99.9 min
Others (Total)	0.1 max

ALLOY DESIGNATIONS

C106/CW024A Copper corresponds to the following designations **but may not be a direct equivalent:**

UNS C12200

ISO Cu-DHP

SUPPLIED FORMS

C106/CW024A is typically supplied as Round tube, Half Hard Sheet and Soft Sheet.

- Sheet
- Tube
- Plate

GENERIC PHYSICAL PROPERTIES

Property	Value
Density	8.92 g/cm ³
Melting Point	1083 °C
Thermal Expansion	16.9 x10 ⁻⁶ /K
Modulus of Elasticity	117 GPa
Thermal Conductivity	391.2 W/m.K
Electrical Resistivity	0.0203 x10 ⁻⁶ Ω .m

MECHANICAL PROPERTIES

EN 1652:1997 Sheet 0.2mm to 15mm thick	
Property	Value
Proof Stress	50-340 MPa
Tensile Strength	200-360 MPa
Elongation A50 mm	50-5 %
Hardness Vickers	40 to 110 HV

Mechanical properties vary widely according to condition (soft/half hard/etc)

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.

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.

WELDABILITY

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

CONTACT

Address:	Aldridge Warehouse No. 1 Wharf Approach Anchor Brook Industrial Park Aldridge Walsall WS9 8BX
Tel:	+44 (0)19 2245 3982
Email:	sales@durbinmetals.co.uk
Web:	www.durbinmetals.co.uk

REVISION HISTORY

Datasheet Updated	18 July 2019
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