

SPECIFICATIONS

Commercial	C106
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This Defence Standard (DEF STAN) 02-837 specifies the requirements for the manufacture, inspection, testing and supply of copper tubes that meet the requirements for phosphorus deoxidised non-arsenical copper conforming to the chemical composition of BS EN 12449:1999, CW024A.

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

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REVISION HISTORY

Datasheet Updated	18 July 2019
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