

Phosphorus Deoxidised Non Arsenical Copper C106 / CW024A is the standard commercial grade of copper where the oxygen content is significantly lowered by a controlled addition of phosphorus during the melting cycle. A slight excess of phosphorus ensures complete removal of any oxide. The residual phosphorus remains alloyed with the copper within the specified range 0.013-0.050%.

The copper content of C106 is 99.85% minimum. This is the preferred grade for non-electrical purposes such as fasteners, roofing sheet, plumbing tube and other general engineering and constructional applications. The alloy comes into its own where the manufacture of the component or plant involves welding or brazing. This grade of copper is not susceptible to hydrogen embrittlement which can be a serious risk with non-deoxidised grades.

### Chemical Composition

Copper 99.85 min  
Oxygen 0.013 – 0.050  
Total Imps 0.06% max

### Related Specifications

- BS2874: C106
- BS EN 13601: CW024A
- C12200
- Cu-DHP

### Key Features

- Very good electrical and thermal conductivity values
- Non-magnetic & spark resistant
- Good corrosion resistance
- Excellent formability
- Excellent joining properties
- Ideal for plating and polishing

### Typical Physical Properties

Melting Point	1083°C
Density	8.9 g/cm <sup>3</sup>
Specific heat	385 J/Kg °K
Thermal conductivity	340 W/m°C
Thermal expansion coefficient (20-200°C)	17.3 x 10 <sup>-6</sup> °C
Electrical conductivity	90 % IACS
Electrical resistivity	0.0246 microhm m
Modulus of elasticity	130000 N/mm <sup>2</sup>

### Fabrication Properties

Hot Working Temperature Range	750-950°C
Hot Formability	Good
Cold Formability	Excellent
Cold reduction between anneals	95% max.
Machinability rating (free cutting brass = 100)	20%
Bendability (Gilding Brass 95%)	70%

### Joining Methods

Soldering	Excellent
Brazing	Excellent
Oxy-acetylene welding	Good
Gas-shielded arc welding	Excellent

Resistance welding: Spot and Seam  
Butt

Fair  
Good

### **Typical Applications Areas**

Roofing sheet, heat exchanger plant, calorifiers, chemical plant, storage tanks, architectural metalwork, air conditioning equipment and pipe work, central heating systems, refrigeration plant, chemical pipe work, water and gas installations and tubing, soil and waste disposal, marine and general engineering fasteners, masonry fixings and numerous other applications where the excellent workability, joining properties, thermal conductivity and corrosion resistance to many process environments is unique.

This technical information is given by Holme Dodsworth Metals without charge and the user shall employ such information at his own discretion and risk. For more detailed technical advice on temper selection, fabrication, joining, machining, physical and mechanical data please contact us as space does not permit the listing of every feature of the material.