

CC102 / CW106C is a high copper alloy containing a small amount of chromium & zirconium that improve its mechanical performance. Copper on its own has outstanding electrical and heat transfer properties but is soft and ductile. However the small additions of these elements followed by a suitable heat treatment significantly increases strength while retaining high conductivity values.

This gives a high performance alloy which has traditionally been used for resistance welding equipment, switchgear components, circuit breakers parts, rotating electrical machinery, current carrying arms and shafts, switch contacts, heat sinks, MIG welding contact tubes, soldering iron tips, and many other electrical and thermal conductors requiring greater strength than copper.

A desirable combination of low wear, long life, and efficient performance are provided to designers as a result of its high electrical and thermal conductivity, high strength levels and a retention of mechanical properties at elevated temperatures (up to 525°C). This ensures maximum retention of mechanical properties under practical working conditions.

Related Specifications

- CC102
- CW106C
- BS4577 A/2/2
- CuCr1Zr
- C18150

Composition

Copper	Rem
Chromium	0.5-1.2%
Zirconium	0.03-0.30%
Total Others	0.2% max

Mechanical Properties (Specification Minima <25mm)

Ultimate Tensile Strength	410 N/mm ²
Elongation	15%
Hardness	140 HV

Key Features

- Very High Electrical Conductivity
- Good mechanical strength and toughness
- Very Good Thermal Conductivity
- Resistance to Softening up to 525°C

Typical Physical Properties

Melting Point	1080°C
Density	8.89 g/cm ³
Coefficient of thermal Expansion	16.45 x 10 ⁻⁶ per °C
Thermal Conductivity	300 W/m °C
Electrical Conductivity	75 - 85% IACS
Modulus of Elasticity	117200 N/mm ²

Fabrication Properties

Hot Formability	Good
Cold Formability	Fair
Machinability Rating	25% (Free cutting brass = 100)
Joining Methods: Soldering	Good
Brazing	Fair
Gas Shielded Arc Welding	Fair
Resistance Welding	Fair

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