COPPER ALLOY

Phosphor Bronze: CW451K

DSM 2.4.1

Phosphor Bronze: CW451K:

Bronzes are Copper-based alloys, the major alloying element being Tin.

Definition:

Phosphor Bronzes are engineering alloys noted for their toughness, fatigue strength & ductility coupled with high corrosion & wear resistance.

Features:

This standard wrought grade is widely used for general purpose applications where cold formability & good mechanical properties are required combined with excellent conductivity, brazing & solder capability, including very good spring & plating properties.

ASM Typical Application:

Bushings

These values are representative and should not be considered as definitive. For critical applications, refer to material data-sheet.

TYPICAL MECHANICAL PROPERTIES @25°C : (18 mm to 40mm Dia.)	
DENSITY:	**8850 Kg/m^3**
YOUNGS MODULUS:	**110 GPa**
POISSONS RATIO:	**0.34**
YIELD STRENGTH	**380 MPa**
TENSILE STRENGTH	**460 MPa**

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Key Features:

METHOD	RESULT
Machining	Poor
Cold Working_ Ambient	Excellent
Hot Forming	Limited
Brazing & soldering	Excellent & Excellent
Welding – (Mig & others)	Fair & Not recommended.
Welding – Resistance (spot)	Good
Corrosion Resistance (uncoated)	**Atmosphere:** Excellent **Marine:** Excellent

Supplied Forms:

- **Round:**
- **Plate:**
- **Sheet:**

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CHEMICAL COMPOSITION					
Copper (Cu)	**Balance**	**Nickel (Nl)**	**0.0 / 0.2 %**	**Iron (Fe)**	**0.0 / 0.1 %**
Tin (Sn)	**4.5 /5.5 %**	**Zinc (Zn)**	**0.0 / 0.2 %**	**Lead. (Pb)**	**0.0 / 0.02 %**
Phosph. (P)	**.01 / 0.4 %**				

- **Tin (Sn):** Increases corrosion & tensile strength
- **Phosphorous (P):** Increases wear resistance and stiffness

CURRENT INTERNATIONAL SPECIFICATION COMPARISON	
BRITISH: EN 1652	CW451K
GERMAN: DIN	2.1020
EUROPEAN: EN	CuSn5
AMERICAN: UNS	C51000
JAPANESE GRADE	JIS H 3270
CHINESE GRADE	----

REPLACES

BS 2874	DESCRIPTION
PB 102	Copper Tin Alloy

Alternatives:

Alternative materials are allowed only with the express written permission of ASMPT. Please email details of your request to engineering_enquiries@asmpt.com