



# TECHNICAL DATA SHEET

PRODUCT: COPPER ALLOY UNS- C46400

## PRODUCT BASIC INFORMATION:

Alloy:	UNS- C46400	Naval Brass
Form:	--	
Temper:		--
Dimension:	--	
Surface Finish:	--	
Similar Alloys		
Application:	General Use	

## CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	(Al)	0.5 to 1.5
Nickel	(Ni)	0 to 1.0
Iron	(Fe)	0.4 to 2.0
Copper	(Cu)	55 to 60
Manganese	(Mn)	0.1 to 1.5
Magnesium	(Mg)	--
Lead	(Pb)	0 to 0.4
Zinc	(Zn)	36 to 42
Tin	(Sn)	0 to 1.0
Cadmium	(Cd)	--
Remainder Total		0 to 1.0

**MECHANICAL PROPERTIES:**

Properties	Metric	Imperial
Tensile strength	483 MPa	70000 psi
Tensile Strength, Yield	172 MPa	25000 psi
Elongation	25 %	25 %
Elastic modulus	105 GPa	15200 ksi
Shear Modulus	--	--
Fatigue Strength	130 – 150MPa	18900 - 21800 psi

**PHYSICAL DATA :**

	Metric Units	Imperial Unit
Melting Point (Liquidus)	880 °C	1620 °F
Melting Point (Solidus)	862 °C	1580 °F
Density	8.30 g/cc @ 20°C	0.300 lb/in <sup>3</sup> @ 68°F
Specific Gravity	--	--
Coefficient of Thermal Expansion	--	--
Thermal Conductivity	87.0 W/mK @ 20°C	604 BTU-in/hr-ft <sup>2</sup> -°F
Thermal Capacity (Specific Heat):	0.373 J/g-°C	0.0891 BTU/lb-°F
Electrical Conductivity	22%	IACS
Electrical Resistivity:	0.00000840 Ω.cm @ 20°C	--
Modulus of Elasticity (tension)	105 GPa @ 20°C	15200 ksi
Modulus of Rigidity (torsion)	--	--
Poisson's Ratio	--	--

**PROCESSING PROPERTIES:**

	METRIC	ENGLISH
Annealing Temperature:	260 °C	500 °F
Hot-Working Temperature:	--	--
Recrystallization Temperature:	--	--

**DESCRIPTIVE PROPERTIESD:**

	METRIC	ENGLISH
Velocity of Sound:	--	--

## OTHER PROPERTIES:

<b>Typical Applications</b>	<b>Automotive:</b> weld guns Builders <b>Hardware:</b> brackets Electrical: electrical hardware Industrial: compressors, forming dies for wood pulp industry, frames, gears, hooks, lever arms, machinery, machinery parts (substituted for steel and malleable iron), machinery parts requiring high strength, pressing dies for wood pulp, struts, wear rings for pressing dies for wood pulp industry <b>Marine:</b> boat parts, clamps, covers for marine hardware, propellers for salt and fresh water, rudders
<b>Machinability</b>	Copper casting alloy UNS C86500 has a machinability rating of 26.
<b>Weldability</b>	The preferred welding techniques for UNS C86500 are soldering and brazing. Carbon arc welding, oxyacetylene welding, gas-shielded arc welding and coated metal arc welding are not recommended for this alloy.
<b>Heat Treatment</b>	The stress relieving temperature of this alloy is 500 F or 260 C. The time at temperature is one hour per inch of section thickness. This alloy does not respond to heat treatment.
<b>Hot Working</b>	--
<b>Cold Working</b>	--
<b>Annealing</b>	--
<b>Forging</b>	--
<b>Hardening</b>	--

## Product

## Specification

<b>As Centrifugal Cast (Castings)</b>	<b>ASTM - B271/B271M - COPPER BASE ALLOY CENTRIFUGAL CASTINGS</b>
	<b>AMS - 4860 - MANGANESE BRONZE CASTINGS, SAND AND CENTRIFUGAL, AS CAST</b>
	<b>SAE - J462 - CAST COPPER ALLOYS</b>
	<b>SAE - J461 - WROUGHT AND CAST COPPER ALLOYS</b>
<b>As Continuous Cast (Castings)</b>	<b>ASTM - B505/B505M - COPPER BASE ALLOY CONTINUOUS CASTINGS</b>
	<b>AMS - 4860 - MANGANESE BRONZE CASTINGS, SAND AND CENTRIFUGAL, AS CAST</b>
	<b>SAE - J462 - CAST COPPER ALLOYS</b>
<b>As Sand Cast (Castings)</b>	<b>ASTM - B584- COPPER ALLOY SAND CASTINGS FOR GENERAL APPLICATIONS</b>
	<b>ASTM - B763/B763M - COPPER ALLOY SAND CASTINGS FOR VALVE APPLICATIONS</b>
	<b>ASTM - B30 - COPPER BASE ALLOYS IN INGOT FORM</b>
<b>Ingot</b>	<b>FEDERAL - QQ-C-523 - COPPER ALLOY INGOTS: BRASS (YELLOW HIGH STRENGTH) MANGANESE AND MANGANESE-ALUMINUM BRONZE</b>
<b>Valve</b>	--

## APPLICATIONS

**Principal Design Features** C86300 grade of manganese bronze is an alloy that consists of copper, zinc, manganese and aluminum. Alloy C86300 has a chocolate brown colour due to the presence of manganese in the composition. Copper European alloy C86300 is exceedingly resistant to corrosion and durable. It is often used in architecture

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## PACKAGING, HANDING & STORAGE:

<b>Package:</b>	Packed in waterproof Kraft, fastened by steel straps on wood pallets, suitable for handling, loading and unloading from the trunks or containers, suitable for export ocean forwarding.
<b>Handling:</b>	Prevent the goods hurting the people who are moving, loading, unloading, especially pay attention to the rolling and dropping for the coils.
<b>Storage:</b>	Stored in indoor area on plain floor, free away from moisture, water, snow, animal oils and dye wastes, avoid storing with acid or basic chemical goods.

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