



## Copper and Copper Alloys - CW712R ~ Naval Brass Rod

### SPECIFICATIONS

Commercial	CZ112
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Brasses are alloys of Copper and Zinc. They may also contain small amounts of other alloying elements to impart advantageous properties. Brasses have high corrosion resistance and high tensile strength. They are also suited to fabrication by hot forging. Free machining grades of brass set the standard for machining, by which other metals are compared.

Brasses are divided into two classes. The alpha alloys, with less than 37% Zinc, and the alpha/beta alloys with 37-45% Zinc. Alpha alloys are ductile and can be cold worked. Alpha/beta or duplex alloys have limited cold ductility and are harder and stronger. CZ121 / CW614N is an alpha/beta alloy.

Brass alloy CZ121 / CW614N is used for machining. It has Lead added to the composition to improve machinability. The Lead remains insoluble in the microstructure of the brass and the soft particles act as chip breakers.

Applications - CZ112/CW712R, often referred to as Naval Brass is typically used in a range of marine and mechanical applications, including:

- ~ Heat Exchanger Tubeplates
- ~ Bolts, Nuts and Rivets
- ~ Other hardware for underwater applications
- ~ Machined Components

### CHEMICAL COMPOSITION

EN 12163:2011  
CW712R Brass Rod

Element	% Present
Copper (Cu)	61 - 63
Tin (Sn)	1 - 1.5
Lead (Pb)	0.2 - 0.6
Nickel (Ni)	0.2 max
Others (Total)	0.2 max
Iron (Fe)	0.1 max
Zinc (Zn)	Balance

### ALLOY DESIGNATIONS

CZ112/CW712R corresponds to the following designation **but may not be a direct equivalent:**  
CuZn36Sn1Pb

### SUPPLIED FORMS

CZ112/CW712R is typically supplied as Bar  
• Bar

### GENERIC PHYSICAL PROPERTIES

Property	Value
Density	8.40 g/cm <sup>3</sup>
Melting Point	900 °C
Electrical Resistivity	26 % IACS
Electrical Resistivity	0.066 x10 <sup>-6</sup> Ω .m

### MECHANICAL PROPERTIES

EN 12163:2011  
Bar  
From 5mm to 60mm Dia.

Property	Value
Proof Stress	160-200 MPa
Tensile Strength	340-400 MPa
Hardness Brinell	80 - 135 HB
Elongation A	25 - 20 %

*Mechanical properties vary widely according to condition (soft/half hard/etc)*

### CORROSION RESISTANCE

The corrosion resistance of CZ112/CW712R is very good

### MACHINABILITY

The machinability of alloy CZ112/CW712R is 60 to 70% compared to CZ121/CW614N Brass which is rated as 100.



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### CONTACT

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### REVISION HISTORY

Datasheet Updated	13 November 2018
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