

# Copper and Copper Alloys

## CW508L Sheet

### Description

Brasses are alloys comprised of Copper and Zinc, often containing small amounts of other alloying elements to bestow specific advantageous properties. They are renowned for their exceptional corrosion resistance and high tensile strength, making them well-suited for hot forging. Free machining brass, in particular, sets a benchmark for machining against which other metals are measured.

Brasses are categorized into two classes: the alpha alloys, containing less than 37% zinc, and the alpha/beta alloys, with zinc content ranging from 37-45%. Alpha alloys are ductile and amenable to cold working, while alpha/beta or duplex alloys exhibit limited cold ductility, rendering them harder and stronger. CZ108/CW508L belongs to the alpha alloy category.

CZ108/CW508L is a high-purity cold forming brass primarily employed when demanding bending properties are necessary. While it can be machined, it requires slow speeds and very light feeds during machining.

Applications for CZ108/CW508L typically include scientific applications, radiators, heat exchangers, and decorative purposes.

### Designations

CZ108/CW508L can be associated with the following designations, although it may not be an exact equivalent:

- UNS C27200
- ISO CuZn37

### Chemical Composition

EN 1652:1997. CW508L Brass

| Element        | % Present     |
|----------------|---------------|
| Copper (Cu)    | 62.00 - 64.00 |
| Nickel (Ni)    | 0.0 - 0.30    |
| Others (Total) | 0.0 - 0.20    |
| Lead (Pb)      | 0.0 - 0.10    |
| Iron (Fe)      | 0.0 - 0.10    |
| Tin (Sn)       | 0.0 - 0.10    |
| Aluminium (Al) | 0.0 - 0.05    |
| Zinc (Zn)      | Balance       |

### Corrosion Resistance

CZ108/CW508L exhibits good to excellent corrosion resistance in the majority of environments. However, it is not suitable for use with acetic acid, moist ammonia or ammonia compounds, hydrochloric acid, and nitric acid, as it may not perform well in these specific corrosive conditions.

### Cold Working

CZ108/CW508L demonstrates excellent cold working properties and can be readily drawn, making it suitable for various forming processes that involve cold working.

### Hot Working

Fabrication is considered as Fair.

### Weldability

Soldering and brazing of CZ108/CW508L are both rated as "excellent" in terms of their suitability. Oxyacetylene welding is considered "good," and gas shielded welding methods are rated as "fair." Additionally, resistance flash butt-welding is another viable option for joining CZ108/CW508L.

### Supplied Forms

CZ108/CW508L is commonly supplied in the form of half-hard tubes and half-hard sheets. It is available in both sheet and tube forms

### Physical Properties

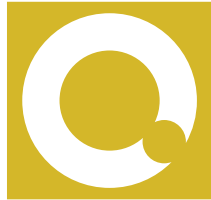
| Property              | Value                     |
|-----------------------|---------------------------|
| Density               | 8.44 g/cm <sup>3</sup>    |
| Melting Point         | 916 °C                    |
| Thermal Expansion     | 20.5 x10 <sup>-6</sup> /K |
| Modulus of Elasticity | 103.4 GPa                 |
| Thermal Conductivity  | 116 W/m.K                 |

### Mechanical Properties

EN 1652:1997. Sheet. 0.2mm to 5.00mm

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

| Property          | Value        |
|-------------------|--------------|
| Proof Stress      | 110-500 MPa  |
| Tensile Strength  | 300-550 MPa  |
| Elongation A50 mm | 38-3 %       |
| Hardness Vickers  | 55 to 180 HV |



**ORION**  
ALLOYS

Datasheet Update: 17/10/23

#### Disclaimer

This data serves as an indicative reference and should not be used as a substitute for the full specification. Mechanical properties can vary significantly depending on the temper, product, and its dimensions. All the information provided is based on our current knowledge and is given in good faith. The company bears no responsibility for any actions taken by third parties based on this information.

Please be aware that the 'Datasheet Update' date mentioned above does not guarantee accuracy or whether the datasheet is up to date. The information in this datasheet has been compiled from various reliable sources, including EN Standards, well-established industry references (both printed and online), and data from manufacturers. However, we cannot guarantee that the information is the latest available or that these sources are completely accurate.

While the material supplied by the company may vary from the data presented here, it will conform to all relevant and applicable standards.

Because the products outlined in this datasheet can be used for a wide range of purposes and the company has no control over their specific use, we explicitly disclaim all conditions or warranties, whether expressed or implied by statute or otherwise, concerning dimensions, properties, or fitness for any particular purpose.

Any advice provided by the company to third parties is for their assistance only and carries no liability on the company's part. All transactions are subject to the company's current Conditions of Sale, and the extent of the company's liabilities to any customer is clearly outlined in those Conditions, a copy of which is available upon request.

---

#### Contact

Tel: 01279 434422 • email: [enquiries@orionalloys.com](mailto:enquiries@orionalloys.com) • [www.orionalloys.com](http://www.orionalloys.com)

Orion Alloys Ltd, Unit A1, Riverway Industrial Estate, Riverway, Harlow, Essex, CM20 2DP