

CW721R / CZ114 is a high tensile brass consisting of a duplex structure. Developed for more exacting applications where strength and corrosion resistance are required. Also referred to as a manganese bronze the CW721R / CZ114 has additions of aluminium, iron, tin and manganese that are added to the basic 60/40 brass matrix, creating a variety of properties to benefit the designer.

The aluminium and tin content gives the CW721R / CZ114 a brighter finish and is the main reason for the increase in corrosion resistance. The iron and manganese additions also improve the strength level, with the iron also acting a grain refiner. Some of the other benefits of the CW721R / CZ114 grade are a very good hot working capacity to allow for hot stamping and a good machinability rating.

Related Specifications

CZ114	CuZn39AlFeMn
CW721R	

Chemical Composition

Copper	56.5-58.5%
Tin	0.2-0.8%
Lead	0.5-1.5%
Iron	0.3-1.0%
Aluminium	1.5% max
Manganese	0.5-2.0%
Zinc	Rem

Key Features

- Enhanced Strength Levels
- Excellent hot forming properties
- Good Corrosion resistance
- High machinability rating
- Non-sparking

Typical Physical Properties

Melting Point	910°C
Density	8.36 g/cm ³
Specific Heat	380 J/Kg°K
Thermal conductivity (RT)	88 W/m°K
Thermal expansion coefficient (20-200°C)	20 x 10 ⁻⁶
Electrical conductivity	21% IACS
Electrical Resistivity	0.082 ohm mm ² /m
Magnetic Permeability	1.07
Young's Modulus	97 x 10 ³ N/mm ²

Fabrication Properties

Hot Working Temperature Range	700-750°C
Hot Formability	Very Good
Cold Formability	Poor
Machinability rating (free cutting brass = 100)	75%
Annealing Temp. Range	425-600°C
Stress Relieving Temp. Range	225-350°C

Joining Methods

Soldering	 <p>Joining can be restricted due to the Al content.</p>
Brazing	
Oxy-acetylene welding	
Gas-shielded arc welding	
Resistance welding: Spot and Seam Butt	

Typical Uses:

Due to the enhanced properties of CW721R / CZ114 brass it is commonly used in gas valves and fittings, fasteners, pump trim, gears, locks, heavy-duty electrical connectors, transmission components, marine hardware, safety tools and decorative metalwork.

This technical information is given by Holme Dodsworth Metals without charge and the user shall employ such information at their own discretion and risk. For more detailed technical advice on temper selection, fabrication, joining, machining, physical and mechanical data please contact us as space does not permit the listing of every feature of the material.