Data Sheet

HIGH TENSILE BRASS - CZ114/CW721R

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 addition 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.

Key Features:
Enhanced strength levels
Excellent hot forming properties
Good corrosion resistance
High machinability rating
Non-sparking

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

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 and decorative metalwork.

Typical Physical Properties:	
Melting point	910°C
Density	8.36 g/cm³
Specific heat	380 J/Kg °K
Thermal conductivity	88 W/m°C
Thermal expansion coefficient (20 - 200°C)	20 x 10 - 6 per °C
Electrical conductivity	21% IACS
Electrical resistivity	0.082 ohm mm²/m
Magnetic permeability	1.07
Young's Modulus	97 x 10^3 N/mm²
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	Joining can be restricted due to the Al control
Brazing	Joining can be restricted due to the Al control
Oxy-acetylene welding	Joining can be restricted due to the Al control
Gas-shielded arc welding	Joining can be restricted due to the Al control
Resistance welding: Spot and seam butt	Joining can be restricted due to the Al control

01922 712665
sales@metelec.co.uk
metelec.com