Copper and Copper Alloys: CW721R
High Tensile Brass ~ Manganese Bronze

SPECIFICATIONS

Commercial	CZ114

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. CZ114 /CW721R is a duplex or alpha/beta alloy.
Brass alloy CZ114/CW721R is a versatile high strength, hot workable, machinable engineering alloy sometimes referred to as a Manganese Bronze or High Tensile Brass.

Applications
CZ114 / CW721R is typically used in:
~ Architectural applications
~ High strength components
~ Valves
~ Valve stems
~ Fittings
~ Marine fittings

CHEMICAL COMPOSITION

EN 12164:2011
CW721R Brass

Element	% Present
Copper (Cu)	57.00 - 59.00
Manganese (Mn)	0.80 - 1.80
Lead (Pb)	0.80 - 1.60
Aluminium (Al)	0.30 - 1.30
Iron (Fe)	0.20 - 1.20
Tin (Sn)	0.20 - 1.00
Others (Total)	0.0 - 0.30
Nickel (Ni)	0.0 - 0.30
Zinc (Zn)	Balance

ALLOY DESIGNATIONS

CW721R/CZ114 Brass corresponds to the following designations **but may not be a direct equivalent:** UNS C67500
CZ114 is also sometimes called Manganese Bronze.

SUPPLIED FORMS

CZ114 / CW721R Brass is typically supplied as Round Bar

- Bar

GENERIC PHYSICAL PROPERTIES

Property	Value
Density	8.63 g/cm³
Melting Point	865 °C
Modulus of Elasticity	96.5 GPa
Thermal Conductivity	88.3 W/m.K
Electrical Resistivity	0.090 x10^{-6} Ω .m

MECHANICAL PROPERTIES

EN 12164:2011
Bar
From 5mm to 40mm Dia.

Property	Value
Proof Stress	180-270 MPa
Tensile Strength	440-500 MPa
Hardness Brinell	100-140 Max HB
Elongation A	20-12 %

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

CORROSION RESISTANCE

The addition of Tin to the composition of CZ114/CW721R increases this alloys' resistance to corrosion in marine and mildly acidic environments.

COLD WORKING

CZ114/CW721R has a poor rating for cold working.

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HOT WORKING

Hot working of CZ114/CW721R is excellent.
The hot forgeability rating is very good, rated at 80 compared to forging brass which rated as 100. The recommended hot working temperature for this alloy is between 625 and 750°C.

HEAT TREATMENT

The annealing temperature of CZ114/CW721R is between 425°C and 600°C.

MACHINABILITY

CZ114/CW721R has a poor machinability rating of 30 compared to Brass CZ121/CW614N which is rated as 100.

WELDABILITY

Soldering and brazing of CZ114/CW721R are rated as excellent.
Oxyacetylene welding, butt welding and spot welding are rated as good.
Gas shielded arc welding and seam welding are rated as fair.
Coated metal arc welding is not recommended.

CONTACT

REVISION HISTORY

Datasheet Updated	13 November 2018

DISCLAIMER

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