SPECIFICATIONS

Commercial	CZ121

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 - CZ121/CW614N is typically used in:
High speed machined components
Architectural extrusions
Locks
Hinges

CHEMICAL COMPOSITION

EN 12164:2011
CW614N Brass

Element	% Present
Copper (Cu)	57 - 59
Lead (Pb)	2.5 - 3.5
Iron (Fe)	0.3 max
Nickel (Ni)	0.3 max
Tin (Sn)	0.3 max
Others (Total)	0.2 max
Aluminium (Al)	0.05 max
Zinc (Zn)	Balance

ALLOY DESIGNATIONS

CZ121/CW614N corresponds to the following designations **but may not be a direct equivalent:**
UNS C38500
CuZn39Pb3

SUPPLIED FORMS

CZ121/CW614N is typically supplied as round, flat, square and hexagon bar
- Bar
- Hollow Bar

GENERIC PHYSICAL PROPERTIES

Property	Value
Density	8.47 g/cm³
Melting Point	875 °C
Thermal Expansion	20.9 x10^{-6} /K
Modulus of Elasticity	97 GPa
Thermal Conductivity	123 W/m.K
Electrical Resistivity	0.062 x10^{-6} Ω .m

MECHANICAL PROPERTIES

EN 12164:2011
Bar
6mm to 80mm Dia. / 5mm to 60mm AF

Property	Value
Proof Stress	230-350 MPa
Tensile Strength	360-500 MPa
Hardness Brinell	90 to 160 HB
Elongation A	20 to 5 %

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

CORROSION RESISTANCE

The corrosion resistance of CZ121/CW614N is fair to excellent.

COLD WORKING

Cold working of CZ121/CW614N is poor and is not recommended. It can, however, be knurled if required.

HOT WORKING

Fabrication of CZ121/CW614N by hot working is excellent. It is recommended that hot working be done between 630 and 730°C.

HEAT TREATMENT

Solution treatment or annealing can be done by rapid cooling after heating to 430-600°C.

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MACHINABILITY

The machinability of alloy CZ121/CW614N is excellent. It has a machinability rating of 100 and is the standard against which the machinability of other alloys is measured.

WELDABILITY

Soldering of CZ121/CW614N is rated as excellent and brazing is good. Butt welding is fair but all other welding methods are not recommended.

CONTACT

Address:	Please make contact directly with your local service centre, which can be found via the Locations page of our web site
Web:	www.aalco.co.uk

REVISION HISTORY

Datasheet Updated	13 November 2018

DISCLAIMER