

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/cm ³
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.

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

This Data is indicative only and as such is not to be relied upon in place of the full specification. In particular, mechanical property requirements vary widely with temper, product and product dimensions. All information is based on our present knowledge and is given in good faith. No liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon.

Please note that the 'Datasheet Update' date shown above is no guarantee of accuracy or whether the datasheet is up to date.

The information provided in this datasheet has been drawn from various recognised sources, including EN Standards, recognised industry references (printed & online) and manufacturers' data. No guarantee is given that the information is from the latest issue of those sources or about the accuracy of those sources.

Material supplied by the Company may vary significantly from this data, but will conform to all relevant and applicable standards.

As the products detailed may be used for a wide variety of purposes and as the Company has no control over their use; the Company specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied.

Advice given by the Company to any third party is given for that party's assistance only and without liability on the part of the Company. All transactions are subject to the Company's current Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions; a copy of which is available on request.