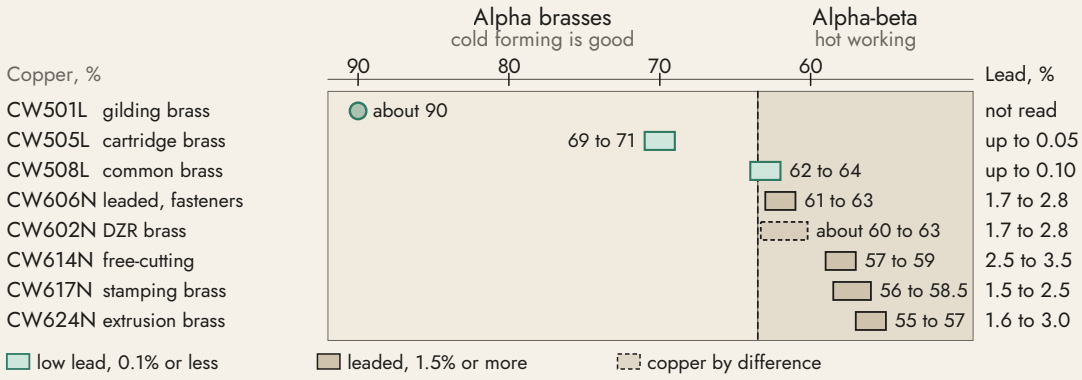
Brass *alloys* explained

Name the brass by its EN number, not by the word brass. Choose a low-lead alpha brass for forming, a leaded brass for machining and a DZR brass for wet parts, and match colour by physical sample.

AT A GLANCE

Alloy (EN number, old CZ number)	Copper, %	Lead, %	What the datasheet says it does	Typical use
CW501L (CZ101) gilding brass, web page	about 90	not read	Strong cold working. Easy to engrave, braze, solder or enamel. Golden coloured.	Architectural, decorative, craft
CW505L (CZ106) cartridge brass, A	69 to 71	up to 0.05	Sheet. Superb cold forming and deep drawing. Good weldability.	Deep-drawn and spun parts
CW508L (CZ108) common brass, A	62 to 64	up to 0.10	Sheet, strip, tube. Good hot and cold forming, very good bending. Weldability listed as excellent.	Decorative parts, hinges, locks
CW606N (CZ131) leaded, A	61 to 63	1.7 to 2.8	Bar. Good strength and ductility, good machinability.	Fasteners, rivets, nuts
CW602N (CZ132) DZR brass, B	balance	1.7 to 2.8	Bar. Duplex, with arsenic and a heat treatment: excellent resistance to dezincification (zinc 35 to 37%). Easily hot forged. Arc welding not recommended.	Water fittings
CW614N (CZ121) free-cutting, A	57 to 59	2.5 to 3.5	Bar. Highest machinability of any copper alloy; excellent hot forming; ductility compromised.	Machined parts, locks, hinges
CW617N (CZ122) stamping brass, B	56.0 to 58.5	1.5 to 2.5	Forging-stock bar, also free-machining. Excellent hot forming. Arc welding not recommended.	Hot-pressed parts, hardware
CW624N (CZ130) extrusion, A	55 to 57	1.6 to 3.0	Bar and angle, hot extruded. High strength; an aesthetically pleasing finish.	Shopfittings, hinges, profiles

Composition is as printed on stockholder datasheets (A and B are two UK stockholders; CW501L is from a stockholder web page), which cite the EN product standards; zinc is the balance apart from lead and small additions. They are not the standards themselves: confirm against the current edition and the mill certificate. No colour is given on any of these datasheets, and none is claimed here.



Eight brasses placed by copper content, with lead beside each bar. The dashed line is at about 36 to 37% zinc. Ranges are from stockholder datasheets; CW501L is approximate and CW602N is worked out by difference. Original drawing by Make Bespoke Studio.

SPECIFICATION WORDING

BRASS SHEET OR STRIP

Brass sheet to [EN 1652, edition to be confirmed], alloy [CW508L (CuZn37)], temper [half hard], [__] mm thick. Lead not above [0.10]% per the material certificate. Finish [name, code] as approved sample [ref. __]. One visible run from one batch where possible. No change of alloy without written approval.

TURNED OR MACHINED BRASS PARTS

Brass bar to [EN 12164, edition to be confirmed], alloy [CW614N (CuZn39Pb3)], with a material certificate for each batch. Finished to match reference sample [ref. __]. Where the part must match adjacent sheet in [CW508L], the finished parts are checked side by side in the project lighting before production.

BRASS IN CONTACT WITH WATER

Component: [alloy named by the partner, for example CW602N (CuZn36Pb2As), dezincification resistant]. Evidence of resistance [test report or certificate ref. __]. Lead content [__]% and the compliance route for [drinking water / skin contact / not applicable] to be stated in writing by the partner before the sample is approved.

COLOUR MATCH TO EXISTING BRASS

Match to the existing [element, location] within [tolerance agreed with the partner], on physical samples in the same alloy [name] and finish [name], viewed in the project lighting. The partner states the alloy proposed and, if known, the alloy of the existing metal.

TERMS USED

Brass

A copper and zinc alloy. Sheet, bar and extrusion grades differ in workability and lead content, so name the alloy, not just "brass".

Dezincification

Selective corrosion in which zinc leaches out of some brasses in wet conditions, leaving a porous, copper-rich residue. DZR brasses resist it.

CW number (EN designation)

The European number for a wrought copper alloy, such as CW508L. Older UK datasheets print the CZ number too (CZ108).

Alpha brass

A brass with below about 36 to 37% zinc and a single structure. It cold forms well, so it suits sheet, bending and deep drawing.

Duplex (alpha-beta) brass

A brass with more zinc (about 37 to 45%) and two structures present. It is stronger and better for hot working, and worse for cold forming.

Free-cutting brass

A leaded brass, such as CW614N, made to machine quickly and cleanly. The lead is why, and it makes the metal poor for forming sheet.

DZR brass

Dezincification-resistant brass, such as CW602N: a duplex brass with arsenic and a heat treatment, made to resist zinc loss in water.

STANDARDS AND SOURCES

- UK copper-alloy stockholder datasheets: CW508L, CW505L, CW606N, CW614N and CW624N (each updated 5 December 2024); CW602N and CW617N from a second stockholder (2023).
- A stockholder's Copper Glossary of Terms and a gilding-brass web page: alpha, duplex, free-machining and DZR brass, dezincification, season cracking, nickel silver, architectural bronze; CW501L.
- A coating manufacturer's decorative PVD datasheet: brass needs nickel and chrome plating before PVD; read 5 November 2026.
- BS EN 1652, BS EN 12164, BS EN 12167, BS EN 12449: named on the datasheets; text not read. Confirm the current edition.
- Make Bespoke Studio, TL-MET-02: which metal for which environment: brass among eight metals and six environments.

Full guide: https://makebespoke.com/trade/technical/brass-alloys-explained. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.