

Brass Sheet, Strip and Plate—Compositions, Properties and Standards

EN Number	EN Symbol	Nearest Old BS Equiv.	Cu %	Al %	Pb %	Others %	Zinc %	0.2% Proof Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation %	Hardness (HV)	Remarks
CW500L	CuZn5	CZ125	94.0-96.0	0.02	0.05	0.3 Ni	Rem.	130-280	230-340	45-8	45-110	57% IACS. Very good cold working. Used for ordnance, connectors, contacts, shell casings, detonator caps.
CW501L	CuZn10	CZ101	89.0-91.0	0.02	0.05	0.3 Ni	Rem.	140-290	240-350	45-4	50-110	44% IACS. Very good cold working. Used for architectural metalwork, imitation jewellery on account of golden colours and ability to be brazed and enamelled. Ordnance, lead frames, detonator caps, waves guides, shell casings. Gilding metal.
CW502L	CuZn15	CZ102	84.0-86.0	0.02	0.05	0.3 Ni	Rem.	170-360	260-410	45-4	55-135	43% IACS. Very good cold working properties. Used for architectural metalwork, imitation jewellery on account of golden colours and ability to be brazed and enamelled. Contacts, radiators, conduits, heat exchangers. Gilding metal.
CW503L	CuZn20	CZ103	79.0-81.0	0.02	0.05	0.3 Ni	Rem.	110-440	270-480	48-5	55-155	33% IACS. Very good cold working properties. Used for architectural metalwork, imitation jewellery on account of golden colours and ability to be brazed and enamelled. Gilding metal.
CW505L	CuZn30	CZ106	69.0-71.0	0.02	0.05	0.3 Ni	Rem.	110-430	270-490	40-9	55-150	29% IACS. 70/30 Deep drawing cartridge brass having maximum ductility of the Cu-Zn alloys.
CW506L	CuZn33		66.0-68.0	0.02	0.05	0.3 Ni	Rem.	130-450	280-500	40-6	55-155	28% IACS. Good cold working for deep drawing and cold forging.
CW507L	CuZn36	CZ107	63.5-65.5	0.02	0.05	0.3 Ni	Rem.	110-500	300-550	38-3	55-170	26% IACS. 2/1 brass. A good cold working alloy.
CW508L	CuZn37	CZ108	62.0-64.0	0.02	0.1	0.3 Ni	Rem.	110-500	300-550	38-3	55-170	26% IACS. General purpose alloy suitable for simple forming.
CW509L	CuZn40	CZ109	59.0-61.5	0.05	0.2	0.3 Ni	Rem.	200-390	340-480	33-6	85-140	Good hot working alloys which can also be cold worked to a limited extent. Muntz metal.
CW600N	CuZn35Pb1	CZ118	62.5-64.0	0.05	0.8-1.6	0.3 Ni	Rem.	200-490	290-540	50-5	60-170	Leaded clock brass. Machinable and good cold working.
CW604N	CuZn37Pb0.5		62.0-64.0	0.05	0.1-0.8	0.3 Ni	Rem.	200-490	290-540	50-5	60-170	Excellent cold working, can be machined. Used for components which are coined, riveted, crimped or flanged and to a small extent, machined.
CW606N	CuZn37Pb2	CZ119	61.0-62.0	0.05	1.6-2.5	0.3 Ni	Rem.	200-490	290-540	50-5	60-170	Good machinability, limited cold working & riveting.
CW608N	CuZn38Pb2	CZ120	60.0-61.0	0.05	1.6-2.5	0.3 Ni	Rem.	200-490	340-540	43-5	75-170	Leaded clock brass. In the hard condition can be accurately punched to shape with a minimum of 'burr', hence major use as pinions for clocks, watches and instruments. Also suitable for engraving. Limited bending.
CW610N	CuZn39Pb0.5	CZ137	59.0-60.5	0.05	0.2-0.8	0.3 Ni	Rem.	200-490	340-540	43-5	75-170	Leaded Muntz Metal, machinable. Used for tube plates of condensers, support sheets and baffles. Available as plate.
CW612N	CuZn39Pb2	CZ128	59.0-60.0	0.05	1.6-2.5	0.3 Ni	Rem.	270-510	360-560	40-9	90-175	Leaded brass. In the hard condition, can be accurately punched to shape with a minimum of "bur" hence major use as pinions for clocks, watches and instruments. Also suitable for engraving. Limited bending.
CW702R	CuZn20Al2As	CZ110	76.0-79.0	1.8-2.3	0.05	0.02-0.06 As 0.1 Ni	Rem.	90-240	330-390	30-25	70-100	The addition of aluminium produces enhanced corrosion resistance to sea water. Used for header tanks and tube plates. Available as plate.
CW703R	CuZn23Al3Co		72.0-75.0	3.0-3.8	0.05	0.25-0.55 Co 0.3 Ni	Rem.	580-780	660-820	10-2	190-235	17% IACS. High strength strip for springs and connectors. BS EN 1654.
CW715R	CuZn38AlFeNiPbSn		59.0-60.7	0.1-0.5	0.3-0.7	0.05 As 0.1-0.4 Fe 0.2-0.5 Ni 0.3-0.6 Sn	Rem.	140-200	390-430	25-20	110-120	Available as plate.
CW717R	CuZn38Sn1As		59.0-62.0		0.2	0.02-0.06 As 0.2 Ni 0.5-1.0 Sn	Rem.	100-200	320-400	30-18	80-110	Available as plate aluminium brass.
CW719R	CuZn39Sn1		59.0-61.0		0.2	0.2 Ni 0.5-1.0 Sn	Rem.	100-200	320-400	30-18	80-110	Available as plate naval brass.

About this table

Compositions given are the EN materials appropriate to designation number. Composition ranges may be outside those of previous BS specifications, therefore compliance should be checked before assuming suitability for applications. Note that not all elements listed as impurities are shown here. For the full chemical composition you should refer to the standard or the Copper and copper alloys. Compendium of compositions and products PD CEN/TS 13388.

This table includes brasses previously included in BS 2870 'Specification for rolled copper and copper alloys: sheet, strip and foil' and BS 2875 'Specification of copper and copper alloys: plate'.

These brasses are now included in the following EN standards for individual product forms:

EN 1652 'Copper and copper alloys—Plate, sheet, strip and circles for general purposes'

EN 1653 'Copper and copper alloys—Plate, sheet and circles for boilers, pressure vessels and hot water storage units'

EN 1654 'Copper and copper alloys—Strip for springs and connectors'

EN 1172 'Copper and copper alloys—Sheet and strip for building purposes'

For more detail, the appropriate standard(s) should be consulted.

Table notes

Compositions are given as either a range or a maximum.

1N/mm² = 1MPa

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