

Table 16: Brass Sheet, Strip and Plate - Compositions, Uses and Typical Properties

This table shows only the old BS alloys with their equivalent EN specifications. For alloys not included, see earlier tables.

Designation			Description	Composition, %, Range (Excluding Impurities)					Typical Mechanical Properties (1)				Remarks				
Old BS Near Equivalent	EN			Cu	Al	Pb	Others	Zinc	0.2% Proof Strength (N/mm ²)		Tensile Strength (N/mm ²)			Elongation %		Hardness (HV)	
	Symbol	Number							(a)	(h)	(a)	(h)		(a)	(h)		(a)
Cold Rolled Sheet and Strip																	
CZ125	CuZn5	CW500L	Cap Copper	94.0-96.0				Rem.	100	370	250	420	50	4	60	130	Industrial use practically confined to caps for ammunition.
CZ101	CuZn10	CW501L	Gilding Metals	89.0-91.0				Rem.	100	385	265	450	55	8	60	140	Used for architectural metalwork, imitation jewellery etc. on account of golden colours and ability to be brazed and enamelled.
CZ102	CuZn15	CW502L		84.0-86.0				Rem.	100	400	290	465	60	10	65	150	
CZ103	CuZn20	CW503L		79.0-81.0				Rem.	110	450	310	540	65	12	70	160	
CZ106	CuZn30	CW505L	70/30 brass (Cartridge brass)	69.0-71.0				Rem.	125	450	325	540	70	15	70	170	Deep drawing brass having maximum ductility of the Cu-Zn alloys.
CZ107	CuZn36	CW507L	2/1 brass	63.5-65.5				Rem.	124	450	325	540	65	10	70	170	A good cold working alloy.
CZ108	CuZn37	CW508L	Common brass (Basis brass)	62.0-64.0				Rem.	125	550	355	585	55	7	80	180	General purpose alloy suitable for simple forming etc.
CZ137 (superseded CZ123)	CuZn39Pb0.5	CW610N	60/40 brass	59.0-60.5		0.2-0.8		Rem.	180	350	355	465	45	25	90	140	Good hot working alloys which can also be cold worked to a limited extent.
CZ109	CuZn40	CW509L	Lead free 60/40 brass	59.5-61.5				Rem.			355	465	45	25	90	140	
CZ110	CuZn20Al2As	CW702R	Aluminium brass	76.0-79.0	1.8-2.3		0.02-0.06 As	Rem.			340	390	60	50	75	100	The addition of aluminium and tin produces enhanced corrosion resistance when compared with the unalloyed brass.
CZ112	CuZn36Sn1Pb	CW712R	Naval brass	61.0-63.0		0.2-0.6	1.0-1.5 Sn	Rem.			370	525	45	20	95	160	
CZ120	CuZn38Pb2 and CuZn39Pb2	CW608N and CW612N	Leaded clock brasses	60.0-61.0		1.6-2.5		Rem.	170	495	420	590	30	5	110	185	In the hard condition these alloys can be accurately punched to shape with a minimum of 'burr', hence their major use as pinions for clocks, watches and instruments. Also suitable for engraving.
				59.0-60.0		1.6-2.5		Rem.	170	495	420	590	30	5	110	185	
CZ131 (superseded CZ119)	CuZn35Pb2	CW601N		62.0-63.5		1.6-2.5		Rem.	125	465	340	540	50	7	75	175	
CZ118	CuZn35Pb1	CW600N		62.5-64.0		0.8-1.6		Rem.	108	325	325	525	50	7	70	170	
Hot Rolled Plate																	
CZ137 (superseded CZ123)	CuZn39Pb0.5	CW610N	60/40 brass	59.0-60.5		0.2-0.8		Rem.	170		385		40		110		Used for tube plates of condensers and similar purposes.
CZ109	CuZn40	CW509L	Lead free 60/40 brass	59.5-61.5				Rem.	170		385		40		110		
CZ110	CuZn20Al2As	CW702R	Aluminium brass	76.0-79.0	1.8-2.3		0.02-0.06 As	Rem.	170		400		35		110		These alloys are more resistant to corrosion (especially by sea water) than 60/40 brass. They are also used for the purposes outlined above.
CZ112	CuZn36Sn1Pb	CW712R	Naval brass	61.0-63.0		0.2-0.6	1.0-1.5 Sn	Rem.	120		340		55		85		
CZ105	CuZn30As	CW707R	70/30 arsenical brass	69.0-71.0			0.02-0.06 As	Rem.	110		325		55		85		
CZ106	CuZn30	CW505L	70/30 brass (Cartridge brass)	69.0-71.0				Rem.	110		325		55		85		

Notes:
 (1) Ranges of tempers are available between annealed and hard and, for some materials, up to extra hard and extra spring hard.
 (a) - annealed (h) - hard

Compositions:
 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.

Standards:
 This table includes materials 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 materials 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'