

Table 18: Brass Wire - 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.

Old BS Near Equivalent	EN		Description	Composition, %, Range				Typical Mechanical Properties (1)				Remarks
				Cu	Pb	Others	Zn	Tensile Strength (N/mm ²)		Elongation %		
	Symbol	Number						(a)	(hh)	(a)	(hh)	
CZ101	CuZn10	CW501L	90/10 brass	89.0-91.0			Rem.	280	420	50	10	Alloys within this range have better corrosion resistance properties than the lower copper content alloys and are used for paper machine plant. They are also used for ornamental purposes because of their colour and ability to be brazed. The addition of arsenic improves corrosion resistance still further.
CZ102	CuZn15	CW502L	85/15 brass	84.0-86.0			Rem.	310	510	55	10	
CZ103	CuZn20	CW503L	80/20 brass	79.0-81.0			Rem.	310	510	65	15	
CZ105 and CZ126	CuZn30As	CW707R	70/30 arsenical brass	69.0-71.0		0.02-0.06 As	Rem.	325	525	70	12	
CZ106	CuZn30	CW505L	70/30 brass	69.0-71.0			Rem.	325	525	70	12	Alloys of the higher copper contents, within the range quoted, are the most ductile and suitable for severe cold forming such as heading.
CZ107	CuZn36	CW507L	2/1 brass	63.5-65.5			Rem.	340	570	65	10	
CZ108	CuZn37	CW508L	Common brass	62.0-64.0			Rem.	340	550	60	10	
CZ109	CuZn40	CW509L	Lead-free 60/40 brass	59.5-61.5			Rem.	340	480	55	15	
CZ119	CuZn37Pb2	CW606N	Leaded brass	61.0-62.0	1.6-2.5		Rem.	340	400	50	25	The lead content is added to impart good machining properties but should be low if the brass is to be cold headed.
CZ121-Pb3	CuZn39Pb3	CW614N	Leaded brass 58% copper, 3% lead	57.0-59.0	2.5-3.5		Rem.	390	480	35	15	Wire supplied as continuous feedstock for high speed machining operations.
CZ122	CuZn40Pb2	CW617N	Free cutting brasses	57.0-59.0	1.6-2.5		Rem.	440	530	25	8	A variety of copper and lead contents to give a choice of optimum combinations of ductility, formability and machinability to suit a very wide range of end-uses.
CZ123	CuZn39Pb0.5	CW610N		59.0-60.5	0.2-0.8		Rem.	340	420	40	18	
CZ124	CuZn36Pb3	CW603N		60.0-62.0	2.5-3.5		Rem.	340	400	40	25	
CZ128	CuZn39Pb2	CW612N		59.0-60.0	1.6-2.5		Rem.	400	500	25	12	
CZ131 (superseded CZ119)	CuZn35Pb2	CW601N		62.0-63.5	1.6-2.5		Rem.	400	500	25	12	
NS103	CuNi10Zn27	CW401J	Nickel Silver	61.0-64.0		9.0-11.0 Ni	Rem.	360	850	40	6	White colour. Good corrosion resistance. Jewellery, model making.

Notes:

- (1) Ranges of tempers are available between annealed and half hard. Hard and spring hard tempers are also available for most alloys.
- (a) - annealed (hh) - half 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 2873 'Copper and copper alloys. Wire' which are now included in EN 12166 'Wire for General Purposes'.