Brass Wire—Compositions, Properties and Standards

EN Number	EN Symbol	Nearest Old BS Equiv.	Cu %	Al %	Fe %	Ni %	Pb %	Others %	Zn %	Tensile Strength (N/mm^2)	Elongation %	Remarks
CW501L	CuZn10	CZ101	89.0-91.0	0.02	0.05	0.3	0.05	0.1 Sn	Rem.	240-530	45-4	90/10 brass. Electronic connector wire applications including high frequency radio technology, 44% IACS. Used for ornamental purposes, including jewellery, because of colour and ability to be brazed.
CW502L	CuZn15	CZ102	84.0-86.0	0.02	0.05	0.3	0.05	0.1 Sn	Rem.	260-530	38-3	85/15 brass. Electronic connector wire applications, 37% IACS. Used for ornamental purposes, including jewellery, because of colour and ability to be brazed. In cold worked condition, used for springs. Rectangular wire used for zips. Wire brushes.
CW503L	CuZn20	CZ103	79.0-81.0	0.02	0.05	0.3	0.05	0.1 Sn	Rem.	260-540	45-2	80/20 brass. Electronic connector wire applications, 33% IACS. Used for springs, locks and wire brushes.
CW505L	CuZn30	CZ106	69.0-71.0	0.02	0.05	0.3	0.05	0.1 Sn	Rem.	280-550	40-3	70/30 ductile brass suitable for severe cold forming such as heading, to produce rivets, pins and screws, 28% IACS. Electronic connector wire applications including high frequency radio technology. Rectangular wire for zips. Brushes, picture frame wire and ferrules.
CW507L	CuZn36	CZ107	63.5-65.5	0.02	0.05	0.3	0.05	0.1 Sn	Rem.	290-700	45-2	2/1 brass. Electronic connector wire applications, 27% IACS. Used for cold headed fasteners, springs and screws with rolled threads, picture frame wire, brushes, knitted wire washers and connector pins.
CW508L	CuZn37	CZ108	62.0-64.0	0.05	0.1	0.3	0.1	0.1 Sn	Rem.	290-700	45-2	Common brass. May be a more cost effective choice than CW505L for severe cold forming such as heading, 26% IACS. Used for electronic connector wire applications including high frequency radio technology.
CW509L	CuZn40	CZ109	59.0-61.5	0.05	0.2	0.3	0.2	0.2 Sn	Rem.	360-500	20-2	Lead free 60/40 brass. Approved for drinking water contact under 4MS.
CW510L	CuZn42		57.0-59.0	0.05	0.3	0.3	0.2	0.3 Sn	Rem.	360-500	20-2	Poor cold working. Approved for drinking water contact under 4MS.
CW600N	Cu Zn35Pb1		62.5-64.0	0.05	0.1	0.3	0.8-1.6	0.1 Sn	Rem.	340-480	15-2	Leaded brass, machinable good cold working, 25% IACS. Used for rivets.
CW601N	CuZn35Pb2	CZ131	62.0-63.5	0.05	0.1	0.3	1.6-2.5	0.1 Sn	Rem.	340-480	15-2	Used for screws & machine parts.
CW603N	CuZn36Pb3	CZ124	60.0-62.0	0.05	0.3	0.3	2.5-3.5	0.2 Sn	Rem.	340-480	15-2	Electronic connector wire applications including high frequency radio technology 22% IACS. Approved for drinking water contact under 4MS.
CW606N	CuZn37Pb2	CZ119	61.0-62.0	0.05	0.2	0.3	1.6-2.5	0.2 Sn	Rem.	340-480	15-2	Leaded brass, lead content is added to impart good machining properties but should be low if the brass is to be cold headed.
CW608N	CuZn38Pb2		60.0-61.0	0.05	0.2	0.3	1.6-2.5	0.2 Sn	Rem.	360-500	15-2	Leaded brass. Electronic connector wire applications including high frequency radio technology, 24% IACS.
CW610N	CuZn39Pb0.5	CZ123	59.0-60.5	0.05	0.2	0.3	0.2-0.8	0.2 Sn	Rem.	360-500	15-2	Machinable with some cold working possible.
CW612N	CuZn39Pb2	CZ128	59.0-60.0	0.05	0.3	0.3	1.6-2.5	0.3 Sn	Rem.	360-500	15-2	Electronic connector wire applications including high frequency radio technology, 24% IACS. Approved for drinking water contact under 4MS.
CW614N	CuZn39Pb3	CZ121-Pb3	57.0-59.0	0.05	0.3	0.3	2.5-3.5	0.3 Sn	Rem.	360-500	20-2	Leaded brass 58% copper, 3% lead. Electronic connector wire applications including high frequency radio technology, 25% IACS. Free machining. Poor cold working properties. Approved for drinking water contact under 4MS.
CW617N	CuZn40Pb2	CZ122	57.0-59.0	0.05	0.3	0.3	1.6-2.5	0.3 Sn	Rem.	360-500	20-2	Free machining brass. Approved for drinking water contact under 4MS.
CW712R	CuZn36Sn1Pb		61.0-63.0		0.1	0.2	0.2-0.6	1.0-1.5 Sn	Rem.	340-400	25-10	Leaded naval brass, 26% IACS. Used for underwater applications.
CW720R	CuZn40Mn1Pb		57.0-59.0	0.2	0.3	0.6	1.0-2.0	0.5-1.5 Mn 0.3 Sn	Rem.	390-440	20-8	Leaded high tensile complex brass.
CW724R	CuZn21Si3P		75.0-77.0	0.05	0.3	0.2	0.1	0.02-0.10 P 2.7-3.5 Si 0.3 Sn	Rem.	500-750	15-2	Lead free, free machining. Approved for drinking water contact under 4MS.

About this table

These table below shows the brasses included in the following EN standards for individual product forms:

EN 12166 ‘Copper and copper alloys—Wire for general purposes’

This table also includes brass equivalents previously included in BS 2873 ‘Specification for copper and copper alloys. Wire’ for completeness and continuity. The tables give information on grades detailed in the national standards but there are also a number of proprietary wire grades available for specific applications or where a particular set of properties are required.

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. The compositions are shown as either a range or maximum for individual elements. Note that not all elements listed as impurities are shown here.

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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