

Brass Grades Data Sheet

Designation And Common Terminology	Available Forms	Nominal Composition	Main Benefits
CZ101 / CW501L Gilding Metal	■	CuZn10	Excellent cold working properties and attractive rich golden color. Primarily a sheet grade. Used for architectural / decorative applications.
CZ108 / CW508L Basis Brass	●●■—○	CuZn37	Very good hot and cold working capabilities. Ideal for spinning, deep drawing, thread rolling and bending. Also readily soldered.
CZ109 / CW509L Muntz Metal	●●■—○	CuZn40	A lead-free brass offering very good hot working and reasonable cold forming attributes. Can be hot headed and hot stamped with ease.
CZ110 / CW702R Aluminium Brass	●	CuZn20Al2As	Very good fresh water and sea water corrosion resistance, good strength levels and machining. Arsenic imparts a resistance to dezincification.
CZ112 / CW712R Naval Brass	●●■—○	CuZn36Sn	High corrosion resistance for marine hardware and other mildly aggressive environments. Good strength levels and excellent hot formability.
CZ114 / CW721R High Tensile Brass	●●■—○	CuZn40Mn1Pb- AlFeSn	Very high strength levels and a good corrosion resistance combined with a good machinability and hot stamping properties.
CZ115 / CW722R High Tensile Brass	●●■—○	CuZn40Mn1Pb- FeSn	A high strength, readily machinable alloy with a restricted Al content to aid brazing. A very good corrosion resistance but not as high as CZ114.
CZ120 / CW612N Engraving Brass	●●■—○	CuZn39Pb2	A leaded free-machining and engraving brass. Primarily a sheet grade, it offers a combination of good strength and high corrosion resistance.
CZ121 / CW614N Free Machining Brass	●●■—○	CuZn39Pb3	The classic free machining grade for high speed operations. Offers a machinability rating of 100% a good strength and good corrosion resistance.
CZ126 / CW707R Arsenical Brass	○	CuZn30As	A tube grade with an addition of arsenic that improves the corrosion resistance but retains its good strength, ductility and forming properties.
CZ131 / CW601N Riveting & Turning Brass	●●■—○	CuZn37Pb2	Reasonable cold forming properties and a good strength, ductility and corrosion resistance. The lead gives good wear resistance and machining.
CZ132 / CW602N DZR Brass	●●■—○	CuZn36Pb2As	High strength and ductility with a good corrosion resistance. Readily machined and formed and an excellent resistance to dezincification.

CZ137 / CW610N Leaded Muntz Metal	●●■—○	CuZn39Pb0.5	Offers very good hot working and limited cold forming. It is readily machined and offers good strength, ductility and corrosion resistance.
ZAMALLOY High Tensile Aluminium Brass	●	CuZn19Al6Mn5	Excellent strength and hardness levels and very good wear resistance. High corrosion resistance, readily machinable and good hot formability.

- - Round
- ◆ - Hex
- - Rectangle
- - Square
- - Plate
- - Hollow



Copper-zinc Alloys: Brasses

ISO Designation	Material	Old BS Designation	EN Designation
CuZn5	95/5 brass	CZ 125	CW500L
CuZn10	90/10 brass	CZ 101	CW501L
CuZn15	85/15 brass	CZ 102	CW502L
CuZn20	80/20 brass	CZ 103	CW503L
CuZn28	72/28 brass	–	CW504L
CuZn30	70/30 brass	CZ 106	CW505L
CuZn33	67/33 brass	CZ 107	CW507L
CuZn37	63/37 brass	CZ 108	CW508L
CuZn40	60/40 brass	CZ 109	CW509L

Copper-zinc-lead Alloys (Leaded Brasses)

ISO Designation	Material	Old BS Designation	EN Designation
CuZn9Pb2	89% copper, 2% lead	No longer available	No longer available
CuZn34Pb1	65% copper, 1% lead	CZ 118	CW600N
CuZn36Pb2	62% copper, 2% lead	CZ 119/CZ 131	CW606N
CuZn36Pb3	61% copper, 3% lead	CZ 124	CW603N
CuZn38Pb1	61% copper, 1% lead	–	CW607N
CuZn40Pb	60% copper, 0.5% lead	CZ 123	CW610N
CuZn39Pb2	59% copper, 2% lead	CZ 120	CW612N
CuZn40Pb2	60% copper, 2% lead	CZ 122	CW617N
CuZn40Pb3	57% copper, 3% lead	CZ 121	CW614N
CuZn43Pb1	56% copper, 1% lead	–	CW622N

Copper-nickel-zinc-Lead Alloys (Leaded Nickel Silvers)

ISO Designation	Material	Old BS Designation	EN Designation
CuNi10Zn42Pb2	Leaded 10% nickel brass	NS101	CW402J
CuNi18Zn19Pb1	Leaded 18% nickel brass	NS113	CW408J

Special Copper-zinc Alloys – Special Brasses

ISO Designation	Material	Old BS Designation	EN Designation
CuZn20Al2	Aluminium brass	CZ110	CW702R
CuZn28Sn1	Admiralty brass	CZ111	CW706R
CuZn38Sn1	Naval brass	CZ112	CW712R
CuZn30As	Arsenical brass	CZ105	CW707R

Copper-nickel-zinc Alloys (Nickel Silvers)

ISO Designation	Material	Old BS Designation	EN Designation
CuNi10Zn27	10% nickel silver	NS103	CW401J
CuNi12Zn24	12% nickel silver	NS104	CW403J
CuNi15Zn21	15% nickel silver	NS105	No longer available
CuNi18Zn20	18% nickel silver	NS106	CW409J
CuNi18Zn27	18% nickel silver	NS107	CW410J

Chemical Composition

- Gliding Metal
CZ101 / CW501L

NAME	PERCENTAGE
Copper	89.0-91.0%
Lead	0.05% max
Iron	0.10% max
Zinc	Rem
Others	0.40% max

- Basis Brass
CZ108 / CW508L

NAME	PERCENTAGE
Copper	62.0-65.0%
Lead	0.30% max
Zinc	Rem
Others	0.50% max

- Muntz Metal
CZ109 / CW509L

NAME	PERCENTAGE
Copper	59.0 - 62.0 %
Lead	0.75 % max.
Iron	0.10% max.
Total Imp. Excl. Iron	0.30 % max.
Zinc	Remainder

- Aluminium Brass
CZ110 / CW702R

NAME	PERCENTAGE
Copper	76.0 – 79.0%
Aluminium	1.80 – 2.5 % max.
Arsenic	0.02 – 0.06 %
Zinc	Remainder

- Naval Brass
CZ112 / CW712R

NAME	PERCENTAGE
Copper	59.5-63.5%
Tin	1.0-1.5%
Lead	0.2-0.6%
Zinc	Rem

- High Tensile Brass
CZ114 / CW721R

NAME	PERCENTAGE
Copper	56.5-58.5%
Tin	0.2-0.8%
Lead	0.5-1.5%
Iron	0.3-1.0%
Aluminium	1.5% max
Manganese	0.5-2.0%
Zinc	Rem

- High Tensile Brass
CZ115 / CW722R

NAME	PERCENTAGE
Copper	56.5-58.5%
Tin	0.2-0.8%
Lead	0.5-1.5%
Iron	0.3-1.0%
Aluminium	0.1% max
Manganese	0.5-2.0%
Zinc	Rem
Others	0.5% max

- Engraving Brass
CZ120 / CW612N

NAME	PERCENTAGE
Copper	58.0-60.0%
Lead	1.5-2.5%
Zinc	Rem
Others	0.3% max

- Free Machining Brass
CZ121 / CW614N

NAME	PERCENTAGE
Copper	56.5-58.5%
Lead	2.5-3.5%
Iron	0.3% max
Zinc	Rem
Total Imps	0.7% Max

- Arsenical Brass
CZ126 / CW707R

NAME	PERCENTAGE
Copper	68.5 – 71.5 %
Lead	0.07% max
Iron	0.5% max
Zinc	Rem
Total Imps	0.5% Max

- Riveting and Turning Brass
CZ131 / CW601N

NAME	PERCENTAGE
Copper	61.0-63.0%
Lead	1.5-2.5%
Iron	0.2% max
Zinc	Rem
Others	0.50% max

- DZR Brass
CZ132 / CW602N

NAME	PERCENTAGE
Copper	Rem
Lead	1.7-2.8%
Arsenic	0.08-0.15%
Zinc	35.0-37.0%
Tin	0.2% max
Iron	0.2% max
Total Impurities	0.5% max

- Leaded Muntz Metal
CZ137 / CW610N

NAME	PERCENTAGE
Copper	58.0 – 61.0 %
Iron	0.15 % max
Lead	0.40 - 0.90 %
Other Imp	0.10 % max
Tin	0.25 % max
Zinc	Rem

- ZAMALLOY
High Tensile Aluminium Brass
CW704R

NAME	PERCENTAGE
Copper	63.0 – 65.0 %
Aluminium	5.0 – 6.0 %
Iron	2.0 – 3.5%
Manganese	3.5 – 5.0 %
Nickel	0.5 % max
Lead	0.2 - 0.8 %
Zinc	Rem
Other Imp	0.40 % max