CuZn5

CuZn5 | C21000

CuZn5 is a solid-solution strengthened copper alloy containing 5% zinc (brass). Its color and resistance are similar to copper, but its strength is superior to that of copper or Cu-ETP. CuZn5 exhibits excellent cold formability and is suitable for bending, pressing, and other cold forming processes. The alloy can be soldered, brazed, and welded.
Application areas include industrial and electrical components, jewelry, the watch industry, and metalware.

Comparable Standarts

EN	JIS	UNS
CW500L	C2100	C21000

Chemical Composition %

Cu	Zn	Ni	Sn	Fe	Pb	Al
94-96	rem	0.3 max	0.1 max	0.05 max	0.05 max	0.02 max

Physical Properties

Melting Point	1066	[°C]
Density	8.86	(g/cm³)
Cp @ 20°C	0.38	[kJ/kgK]
Thermal Conductivity	234	(W/mK)
Electrical Conductivity	≥57	%IACS
Modules of Elasticity	117	[GPa]
α @ 20°C	18	[10-6/K]

Note: The specified conductivity applies to the soft condition only.

Cp specific heat

α thermal expansion coefficent

Fabrication Properties

Cold Formability	excellent
Hot Formability	good
Soldering ability	excellent
Oxyacetylene welding	good
Gas shield arc welding	good
Resistance welding	not recommended
Machining	not recommended
Brazing	excellent

Electrical Conductivity

Electrical conductivity depends on chemical composition, temperature variations, and grain size. High levels of deformation and small grain size reduce conductivity.

Typcial Uses

Electrical component parts, jewelry and watch industry components, stamping and embossing, base for gold plating and vitreous enamel, cosmetic packaging.

Corrosion Resistance

Brass is resistant to corrosion in natural, industrial, and salt-containing environments; potable and service water (if the flow rate is not excessive); non-oxidizing acids; and alkaline and neutral saline solutions. Brass has low corrosion resistance in environments containing ammonia, halogens, cyanide, and hydrogen sulfide solutions or atmospheres; oxidizing acids; and seawater (especially at high flow rates).
Unlike brass alloys with high zinc content, CuZn5 is not prone to dezincification or stress corrosion cracking. However, if corrosive cracking is a concern, the alloy should be stress-relieved.

Mechanical Properties

	Tensile Strength [MPa]	Yield Strangth [MPa]	Elongation A50 [%]	Hardness HV [-]	Bend ratio 90° [r]		Bend ratio 180° [r]	
					GW	BW	GW	BW
R230	230-280	≤ 130	≥ 36	45-75	0	0	0	0
R270	270-350	≥ 200	≥ 12	75-110	0	0	0	1
R340	≥ 340	≥ 280	≥ 4	≥ 110	0.5	1	1	2

Other tempers are available upon request.

r = x * t (thickness t ≤ 0.5mm)

GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction.

Dimensional Specifications

Thickness (mm)	Width (mm)
0.04-0.20	10-380
0.21-1.00	5-380
1.01-4.00	15-400
4.01-8.00	25-400

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