CuSn8

CuSn8 | C52100

CuSn8 is a solid solution strengthened copper alloy with 8% tin.
The high tin content provides good spring properties with high strength at an adequate conductivity.
The alloy is wear-resistant, offers excellent corrosion resistance, and can be easily soldered.

Comparable Standarts

EN	UNS
CW453K	C52100

Chemical Composition %

Cu	Zn	Ni	Sn	Fe	Pb	P
rem	0.2 max	0,2 max	7.5-8.5	0.1 max	0.02 max	0.01-0.4

Physical Properties

Melting Point	1040	[°C]
Density	8.8	(g/cm³)
Cp @ 20°C	0.377	[kJ/kgK]
Thermal Conductivity	67	(W/mK)
Electrical Conductivity	≥13	%IACS
Modules of Elasticity	115	[GPa]
α @ 20°C	18.5	[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	not recommended
Soldering ability	excellent
Oxyacetylene welding	fair
Gas shield arc welding	good
Resistance welding	good
Machining	not recommended
Brazing	excellent

Electrical Conductivity

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

Typcial Uses

Automotive, electrical components, connectors, relays, conductor springs, springs, bushings and slide bearings, metal hose, the paper, textile and chemical industry, manufacturing, as well as electrical and mechanical parts.

Corrosion Resistance

Bronze is resistant to natural and industrial atmospheres, maritime air, potable and service water (if the flow rate is not excessive), seawater, non-oxidizing acids, alkaline solutions, and neutral saline environments. Bronze has low corrosion resistance to ammonia, halogenide, cyanides, hydrogen sulfide solutions and atmospheres, and oxidizing acids. Bronze alloys exhibit enhanced resistance to seawater and pitting corrosion.

Mechanical Properties

	Tensile Strength [MPa]	Yield Strength [MPa]	Elongation A50 [%]	Hardness HV [-]	Bend ratio 90° [r]		Bend ratio 180° [r]	
					GW	BW	GW	BW
R370	370-450	≤ 300	≥ 50	90-120	0	0	0	0
R450	450-550	≥ 280	≥ 20	135-175	0	0	0	0
R540	540-630	≥ 460	≥ 13	170-200	0	0.5	1	2
R600	600-690	≥ 530	≥ 5	190-220	0.5	1.5	2	3
R660	660-750	≥ 620	≥ 3	210-240	1	2.5	3	4
R740	≥ 740	≥ 700	≥ 2	≥ 230	-	-	-	-

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)
0.10-0.20	10-340
0.21-1.00	5-340
1.01-4.00	15-340
4.01-5.00	25-340

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