

# C51100 (CuSn4) 18 08 US

Comparable standards: UNS C51100 • EN CW450K • JIS C5111  
 Aurubis designations: C511 • PNA284

**Description** CuSn4 is a solid solution strengthened copper alloy (bronze) with 4 % tin. It combines high strength, good electrical conductivity, excellent formability, corrosion resistance and can easily be soldered. The main usage is for electrical connectors

**Composition**

Cu*	Sn	Zn	Fe	P	Pb
[%]	[%]	[%]	[%]	[%]	[%]
rem	3.5 – 4.9	0.30 max	0.10 max	0.03 - 0.35	0.05 max

\*) Cu + sum of named elements min 99.5 %

**Physical properties**

Melting point	Density	Specific heat cap. at 20°C	Electrical cond.	Thermal cond. at 20°C	Mod. of elasticity	Coef. of therm exp. at 20°C
[°F] [°C]	[lb/in <sup>3</sup> ] [g/cm <sup>3</sup> ]	[Btu/lb°F] [kJ/kgK]	[%IACS] [MS/m]	[Btu/ft h °F] [W/mK]	x1000 ksi [GPa]	[10 <sup>-6</sup> /°F] [10 <sup>-6</sup> /K]
1945 1063	0.32 8.86	0.09 0.38	20 12	48 84	16 110	9.9 17.8

The specified conductivity applies to the soft condition only

**Mechanical properties**

	Tensile strength Rm	Yield strength Rp0.2 nominal	Elongation 2'' nominal	Hard-ness nominal HR30T HV	min bend ratio 90°		min. bend ratio 180°	
	[ksi] [MPa]	[ksi] [MPa]	[%]		GW	BW	GW	BW
Soft	46-54 317-373	22 152	47	52 80	0.0	0.0	0.0	0.0
H02 (1/2H)	55-70 379-483	50 345	31	65 125	0.0	0.0	0.0	0.0
H04 (H)	72-87 497-600	75 517	11	74 185	0.0	1.0	0.0	1.0
H06 (EH)	84-99 579-683	87 600	5	78 225	0.5	2.0	0.5	3.0
H08 (SH)	91-105 623-724	93 642	2	79 245				
H10 (ES)	96-109 662-752	97 669	1	80 250				

Other tempers are available upon request.  
 GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction

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**Fabrication properties**

Cold formability	excellent
Hot formability	poor
Soldering	excellent
Brazing	excellent
Oxyacetylene welding	fair
Gas shield arc welding	good
Resistance welding	good

**Stress relaxation resistance**

Typical temperature for min 70 % remaining stress after 3000 h: 125 °C

**Typical uses**

Bridge bearing plates, bellows, clutch discs, electrical connectors, switches, terminals, contacts, diaphragms, fuse, clips, fasteners, lock washers, sleeve bushings, mechanical springs, switch parts, terminal brackets, chemical hardware, kettles, pots, perforated sheets, textile machinery parts

**Applicable specifications**

ASTM B103, B888

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