

C52100 (CuSn8) 18 08 US

Comparable standards: UNS C52100 • EN CW453K • JIS -
 Aurubis designations: C521 • PNA283

Description CuSn8 is a solid solution strengthened copper alloy with 8% tin (bronze). It is therefore the highest alloyed phosphor bronze. This is apparent in the high strength combined with still adequate conductivity. In addition, it has better corrosion resistance and good sliding properties. CuSn8 is used for springy components and sliding elements when increased strength and wear resistance are required.

Composition

Cu	Sn	P	Zn
[%]	[%]	[%]	[%]
rem.	7.5 – 8.5	0.01 – 0.40	max. 0.2

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/in³] [g/cm³]	[Btu/lb°F] [kJ/kgK]	[%IACS] [MS/m]	[Btu/ft h °F] [W/mK]	x1000 ksi [GPa]	[10 ⁻⁶ /°F] [10 ⁻⁶ /K]
1904 1040	0.318 8.79	0.09 0.377	12.9 7.5	39 67	16.7 115	10.3 18.5

The specified conductivity applies to the soft condition only

Mechanical properties

	Tensile strength Rm	Yield strength Rp0.2 min	Elon-gation 2'' min	Hardness HR30T HV	min bend ratio 90°		min. bend ratio 180°	
	[ksi] [MPa]	[ksi] [MPa]	[%]		GW	BW	GW	BW
Soft	56-65 385-450	23 160	60		0	0	0	0
H01 (1/4H)	63-75 435-515	35 240	40		0	0	0	0
H02 (1/2H)	69-84 475-580	51 350	25		0	0	0	0
H03 (3/4H)	80-92 550-635	70 485	18					
H04 (H)	85-100 585-690	78 540	12		0	1.5	0	1.5
H06 (EH)	97-112 670-770	92 635	10					
H08 (SH)	105-119 725-820	100 690	3		2	4	3	
H10 (ES)	110-122 760-840	105 725	2					

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

Typical uses

Automotive, Components of electrical engineering, Connectors, Frame Connectors, Relays- and conductor Springs, Retaining Clamps, Spring rings, Slide bearings, Bushings