

CuSn4

Standard Designation

EN CW450K / UNS C51100

Chemical Composition

Cu	Sn [%] nominal	P [%] (nominal)	
Balance	4	0.1	

Description / Applications

CuSn4 belongs to the copper-tin alloys. In the group of phosphor bronzes CuSn4 CuSn4 is the alloy with the highest electrical conductivity.

Applications: connectors, contact pins, relay contacts

Physical Properties¹⁾

Density	8.9 g/cm ³	Thermal expansion coefficient	18.2·10 ⁻⁶ /K
Electrical conductivity	11,5 m/Ω·mm ² 20 % IACS ²⁾	Modulus of elasticity	118 GPa ³⁾
Thermal conductivity	84 W/m·K		

¹⁾ Guideline values for soft temper, measured at room temperature

³⁾ 1 GPa = 1 kN/mm²

²⁾ IACS = International Annealed Copper Standard

Processing information

Weldability	good	Stress corrosion cracking	none
Solderability	very good		

Mechanical properties

Temper	Tensile Strength Rm [MPa]	Yield Strength Rp0,2 [MPa]	Elongation A50 [%]	Hardness HV	Bendability ¹⁾			
					90° r/t ²⁾		180° r/t ²⁾	
					GW ³⁾	BW ⁴⁾	GW ³⁾	BW ⁴⁾
R290/H70	290 - 390	max. 190	min. 40	70 - 100	0	0	0	0
R390/H115	390 - 490	min. 210	min. 11	115 - 155	0	0	0	0.5
R480/H150	480 - 570	min. 420	min. 4	150 - 180	0	0	0.5	1
R540/H170	540 - 630	min. 490	min. 3	170 - 200	0.5	0.5	0.5	1
R610/H190	min. 610	min. 540	-	min. 190	0.5	2	1	2.5

¹⁾ The r/t values are valid for a strip thickness up to 0.6 mm (without crack). The data refer to rolled-to-temper material and a width of the bending area of 5 mm.

V-shape bend test according to ISO 7438

²⁾ r = inner radius, t = thickness

³⁾ GW = good way

⁴⁾ BW = bad way

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