CuSn4

KEMPER
DRIVING PROGRESS

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 is the alloy with the highest electrical conductivity. Applications: connectors, contact pins, relay contacts

Physical Properties[1)]

Density	8.9 g/cm³	Thermal expansion coefficient	$18.2 \cdot 10^{-6}$/K
Electrical conductivity	11,5 m/Ω·mm² 20 % IACS[2)]	Modulus of elasticity	120 GPa[3)]
Thermal conductivity	84 W/m·K		

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

[2)] IACS = International Annealed Copper Standard

[3)] 1 GPa = 1 kN/mm²

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

The details in this datasheet are exclusively meant for general information only. They correspond to the state of knowledge at the time of issue and cannot replace the examination by our customers. Liability cannot be derived from the information.

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