

CuSn6

Standard Designation

EN CW452K / UNS 51900

Chemical Composition

Cu	Sn [%]	P [%]	
Balance	6	0.1	

Description / Applications

CuSn6 belongs to the copper-tin alloys. CuSn6 is the most common phosphor bronze and provides an extraordinary combination of strength and electrical conductivity.

Applications: connectors, contact pins, springs, stamped pieces, parts in the machine and apparatus construction

Physical Properties¹⁾

Density	8.8 g/cm ³	Thermal expansion coefficient	18.5·10 ⁻⁶ /K
Electrical conductivity	9 m/Ω·mm ² 15 % IACS ²⁾	Modulus of elasticity	115 GPa ³⁾
Thermal conductivity	75 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⁾
R350/H80	350 - 420	max. 300	min. 45	90 - 120	0	0	0	0
R420/H125	420 - 520	min. 260	min. 17	125 - 165	0	0	0	0
R500/H160	500 - 590	min. 450	min. 8	160 - 190	0	0	0	0.5
R560/H180	560 - 650	min. 500	min. 5	180 - 210	0	0	0.5	1
R640/H200	640 - 730	min. 600	min. 3	200 - 230	0.5	1	1.5	2
R720/H220	min. 720	min. 690	-	min. 220	1	1.5	-	-

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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