

SM688 (C 68800)

CuZn23Al3Co

Alloy characteristics

SM688 is very favorable for electrical connectors and useful to replace the C 5191 (CuSn6) and C5210 (CuSn8). The cold forming properties are very good, the bending properties in good way and bad way are at the same level as C5191 (CuSn6) or even better, especially in the temper class of 600-700 N/mm². The electrical conductivity is 2-3% IACS higher than C5191 (CuSn6). Strip can be produced from 0.076 – 5mm, it is even available in sheets and circles. Applications are for: connectors, switches, carriers, contact springs, relays and many other electronic ones. The strips can be delivered with tempered qualities on request. The material is in line with the U.S. EPA and meets the OEKO-TEX standard regarding the Pb and Cd.

Mechanical properties	Temper conditions					
	0 HV150-180	H01 HV175-210	H02 HV190-220	H04 HV210-240	H06 HV230-260	
Tensile strength in N/mm ²	540-600	600-700	660-750	740-830	820-910	
0,2% yield strength in N/mm ² min	430	510	580	660	780	
Vickers hardness HV	150-180	175-210	190-220	210-240	230-260	
Elongation A _{L50%}	>30	>13	>8	>3	>2	
Electrical conductivity in % IACS	17	17	17	16	16	
Bendability						
0.10 ≤ s ≤ 0.25 mm	Transverse	0 x s	0 x s	0 x s	1 x s	3 x s
	Parallel	0 x s	0 x s	0 x s	1.5 x s	10 x s
0.25 < s ≤ 0.5 mm	Transverse	0 x s	0 x s	0 x s	2 x s	-
	Parallel	0 x s	0 x s	1 x s	2 x s	-

Physical properties

Thermal expansion coefficient 20 ... 300 °C	18.2	10 ⁻⁶ /K
Density	8.2	g/cm ³
Thermal conductivity	78	W/(m·K)
Modulus of elasticity (1 GPa = 1 kN/mm ²) cold formed	115	GPa = kN/mm ²
Electrical conductivity soft	10	MS/m

Material designation

DIN EN Symbol	CuZn23Al3Co
UNS	C68800
JIS	C6880

Chemical composition

Cu	Balance
Zn	23 %
Al	3 %
Co	0.4 %
Fe	<0.05
Ni	<0.1
Others	< 0.105

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