

SM202 (C 19210)

CuFe0,1P

Alloy characteristics

SM202 is an alloy with a very high electrical conductivity, which is typical for a low-alloyed copper. Of course, they cannot reach a high spring force like CuSn alloys, but due to the additives in comparison to copper they are much harder than copper. SM202 is used for lead frames, semiconductors and power transistors in priority.

The iron content in SM202 is very low and the electrical conductivity between SM202 and SM194 (UNS C19400) is different, but here the higher thermal conductivity and the higher electrical conductivity for SM202 to mention as well. In comparison with pure copper SM202 has a higher strength while at the same circumstance the electrical conductivity is slightly lower. The welding and soldering properties of SM202 are excellent. There is a registering by this alloy at the U.S. EPA as antimicrobial and it respects with Pb and Cd the requirements of the OEKO-TEX Standard 100.

Mechanical properties		Temper conditions				
		0 R300 HV80	H02 R360 HV100	H04 R390 HV110	H06 R415 HV130	H08 R450 HV140
Tensile strength in N/mm ²		300 – 380	360 – 440	390 – 450	415 – 480	450 – 520
0,2% yield strength in N/mm ²		< 300	280	330	380	430
Vickers hardness HV		80 – 110	110 – 130	110 – 140	120 – 145	130 – 160
Elongation A _{L50%}		> 15	> 6	> 3	> 3	> 2
Bendability						
0.10 ≤ s ≤ 0.25 mm	Transverse	0 x s	0 x s	1 x s	1 x s	1.5 x s
	Parallel	0 x s	0 x s	1 x s	1 x s	1.5 x s
0.25 < s ≤ 0.5 mm	Transverse	0 x s	0 x s	1 x s	1 x s	-
	Parallel	0 x s	0 x s	1 x s	1.5 x s	-

Physical properties

Thermal expansion coefficient 20 ... 300 °C	17	10 ⁻⁶ /K
Density	8.9	g/cm ³
Thermal conductivity	430	W/(m·K)
Modulus of elasticity (1 GPa = 1 kN/mm ²) cold formed	125	GPa = kN/mm ²
Electrical conductivity soft	49	MS/m

Material designation

DIN EN Symbol	CuFe0,1P
UNS	C19210
JIS	C1921

Chemical composition

Cu	Balance
Fe	0.1 %
P	0.03 %
Other	< 0.1 %

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