

**SM7025 (C70250)**

CuNi3SiMg

**Alloy characteristics**

SM7025 was created in the 80s and became one of the most important alloys of the CuNiSi (Coroson) family. This alloy was created for the lead frame and connector industry and has an  $\alpha$ -structure. Today, it has the property of hardening by precipitation as well (Solution annealing available after July 2017). The alloy is used for connectors with pins of high rigidity and for connectors with high tensile strength, reasonable electrical conductivity and good relaxation behavior.

SM7025 is good for all components of the electrical industry, focused on connectors for automotive for use on high temperatures; many sockets in computers are standardized with this alloy. But, all kind of stamped parts, relays, switches and semiconductor components can be produced from this alloy. It is in compliance to the requirements of the OEKO-TEX Standard 100 in terms of the PB and Cd. The alloy is registered with the U.S. EPA as antimicrobial.

Mechanical properties		Temper condition		
		R620 HV180-220	R650 HV200-240	R690 HV220-260
Tensile strength in N/mm <sup>2</sup>		620-760	650-780	690-800
0,2% yield strength in N/mm <sup>2</sup>		≥500	≥585	≥655
Vickers hardness HV (ref.value)		180-220	200-240	220-260
Elongation A <sub>L50%</sub>		> 10	> 7	> 5
Electrical conductivity in % IACS min.		40	40	40
Bendability				
0.10 ≤ s ≤ 0.25mm	Transverse	0 x t	0.5 x t	1 x t
	Parallel	0 x t	0.5 x t	1 x t
0.25 < s ≤ 0.5mm	Transverse	0 x t	0.5 x t	1 x t
	Parallel	0 x t	0.5 x t	1 x t

**Physical properties (Typical values in annealed temper at 20 °C)**

Thermal expansion coefficient 20 ... 300 °C	17.6	10 <sup>-6</sup> /K
Specific heat capacity	0.399	J/(g·K)
Density	8.82	g/cm <sup>3</sup>
Thermal conductivity	190	W/(m·K)
Thermal coefficient of electrical resistance (0 ... 100 °C)	1.8	10 <sup>-3</sup> /K
Modulus of elasticity ( 1 GPa = 1 kN/mm <sup>2</sup> ) cold formed	130 max.	GPa
Electrical conductivity (IACS)	40	%

**Material designation**

DIN EN	
UNS	C70250

**Chemical composition**

Cu	Min. 96.2 %
Ni	2.2 – 4.2%
Si	0.25 - 1.2 %
Mg	0.05-0.30 %
Others	Rest

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