

## SM76S (C 19005)

CuNi1.5SiZn

### Alloy characteristics

SM76S is a corrosion alloy of the III generation with an  $\alpha$ -structure and it is forced for excellent properties for connectors in industry. This alloy is the result of a long development of the low alloyed CuNiSi family material. The main request for the relaxation behavior, paired with a fair electrical conductivity and medium tensile strength. SM76S can be used for formed parts, springs, because of an excellent fatigue strength. The spring properties of SM76S are good to very good. Main applications: transistor carriers, all kind of car electrics, connector pins (male), but as well leaf springs for switches and relays. The de-stressing effect may not appear.

The SM76S has a good to very good corrosion resistance and is very insensitive for cracking while stress corrosion. In general, it is able to be hardened by heat precipitation, what SOFIA MED is able to process, reaching excellent solution annealed properties. It is registering by this alloy at the U.S. EPA as antimicrobial and it respects with Pb and Cd the requirements of the OEKO-TEX.

Mechanical properties	Temper conditions										
	H01 R360		H02 R400		H03 R460		H06 R520		H08 R580		
Tensile strength in N/mm <sup>2</sup>	360 – 430		410 – 470		460 – 520		520 – 580		580 – 660		
0,2% yield strength in N/mm <sup>2</sup>	>250		>360		>410		>460		>540		
Vickers hardness HV (for reference on)	100 – 130		125 – 155		135 – 165		145 – 170		170 – 200		
Elongation A <sub>L50%</sub>	> 12		> 9		> 7		> 5		> 7*		
Electrical conductivity in % IACS	57		57		57		48		48		
Special hardened by precipitation qualities on request						* hardened by precipitation					
Bendability		90°	180°	90°	180°	90°	180°	90°	180°	90°	180°
t<0.25mm	Transverse	0 x t	0 x t	0 x t	0 x t	0.5 x t	0.5 x t	0.8 x t	1.5 x t	1.0 x t	2.0 x t
	Parallel	0 x t	0 x t	0.5 x t	1.0 x t	1.0 x t	1.0 x t	1.3 x t	2.0 x t	1.5 x t	3.0 x t
0.25 < t ≤ 0.5 mm	Transverse	0 x t	0 x t	0 x t	0.5 x t	1.0 x t	1.0 x t	1.0 x t	2.0 x t	1.5 x t	2.5 x t
	Parallel	0 x t	0 x t	0.5 x t	1.5 x t	1.5 x t	1.5 x t	1.5 x t	2.5 x t	2.0 x t	3.5 x t

### Physical properties

Thermal expansion coefficient 20 ... 300 °C	16.8	10 <sup>-6</sup> /K
Density	8.81	g/cm <sup>3</sup>
Thermal conductivity	142	W/(m·K)
Modulus of elasticity ( 1 GPa = 1 kN/mm <sup>2</sup> ) cold formed	130	GPa = kN/mm <sup>2</sup>

### Material designation

DIN EN Symbol	CuNi1.5SiZn
UNS	C19005

### Chemical composition

Cu	Balance
Ni	1.4-1.7 %
Si	0.20 - 0.35 %

*This information was given with the best knowledge, but we cannot guarantee any characteristics we describe listed above. The contract terms of Sofia Med agreed with any individual customer and our general conditions of sales describe the liability of these conditions. In any case do we reserve the right by technical development or any other reason to modify this sheet according to our needs. This data sheet is part of*

Zn	0.2 – 0.7%
Other	< 0.5 %

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