

C51900

CuSn6

Alloy Designation

EN	CuSn6
DIN CEN/TS 13388	CW452K
UNS	C51900

Chemical Composition (Balance)

Weight percentage

Cu	Rest	%
Sn	6	%
P	0.1	%

Characteristics

CuSn6 provides an excellent combination of strength, cold formability and hardness. It is wear resistant, has good corrosion resistance and soldering properties.

Due to its high strength and good spring properties combined with good machining properties it is used for all kind of springs, Connectors, Bourdon tubes or flexible metal tubes.

Main Applications

Stamped parts, Connectors, Contact springs, Spring elements, Ultra high strength spring elements, Membranes, Switch elements, Fixed contacts.

Mechanical Properties (EN 1652)

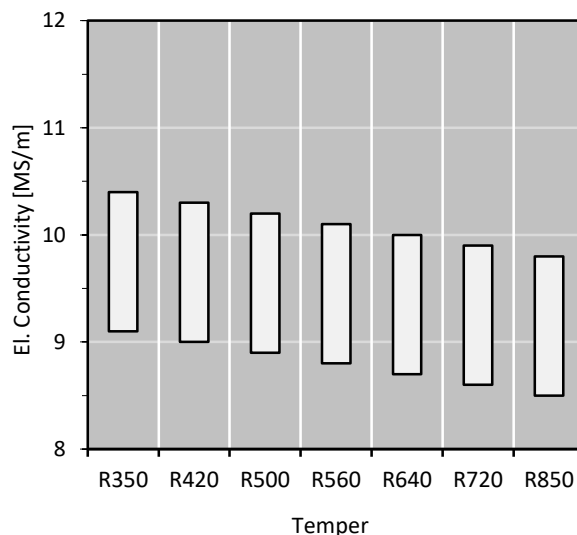
Temper	Tensile Strength	Yield Strength	Yield Strength	Elongation	Hardness *	Bendability	
	Rm	Standard Rp _{0.2}	Bending optimized Rp _{0.2}	Bending optimized min. A _{50mm}	HV	90° gw	bw
	MPa	MPa	MPa	%	HV	rel. Bending Radius R/T	
R350	350 .. 420	≤ 300 *		45	80 .. 120	0	0
R420	420 .. 520	≥ 350	≥ 340	29	120 .. 170	0	0
R500	500 .. 590	≥ 450	≥ 410	22	160 .. 190	0	0
R560	560 .. 650	≥ 520	≥ 490	15	180 .. 210	0	0
R640	640 .. 730	≥ 590	≥ 570	12	200 .. 230	0	0.5
R720	≥ 720	≥ 650	≥ 620	4	≥ 210	1	-
R850 **	≥ 850		≥ 800	1.5	≥ 240	1	-

Physical Properties

Typical values in annealed temper at 20 °C

Density		8.95	g/cm ³
Thermal expansion coefficient	20 .. 300 °C	18.5	10 ⁻⁶ /K
Specific heat capacity		0.377	J/(g·K)
Thermal conductivity		75	W/(m·K)
Electrical conductivity	MS/m	9	MS/m
Electrical conductivity	IACS	16	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	0.7	10 ⁻³ /K
Modulus of elasticity	GPa	115	GPa

Electrical Conductivity



Fabrication Properties *

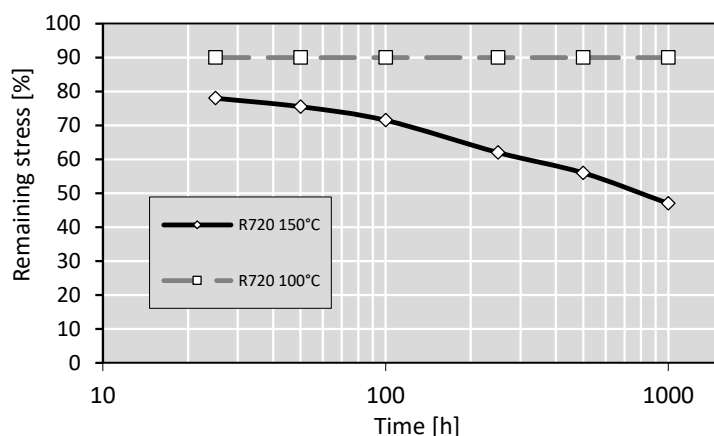
Cold Forming Properties	Excellent
Machinability (Rating 20)	Less suitable
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent / Good
Resistance Welding	Good
Gas Shielded Arc Welding	Good
Laser Welding	Good

* For more details call our technical service

Corrosion Resistance *

CuSn6 has a good resistance to seawater, different agents and industrial atmosphere and has a good resistance to tarnishing.

Relaxation Properties



Relaxation values give an indication about stress relieve of strip under tension for a certain time and temperature. Typical test sample thickness is 0.3 – 0.6 mm.

Initial Stress
80% von $R_{p0.2}$
Parallel Rolling Direction

Bend Fatigue (at room temperature)

The fatigue strength gives an indication about the resistance to variations in applied tension. It is measured under symmetrical alternating load. The maximum bending load for 10^7 load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength R_m .

Available delivery forms *

Strips in coils

Traverse-wound coils with drum weights up to 1.5 t

TECSTRIP®_multicoil up to 2.5 t

Hot-Dip-Tinned strips in thickness range 0.10 up to 1.20 mm

* For more details call our sales service