

CW452K

CuSn3Zn9

Alloy Designation

EN CW454K

DIN CEN/TS 13388

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UNS

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Chemical Composition (Balance)

Weight percentage

Cu Rest %

Sn 1.5 ... 3.5 %

Zn 7.5 ... 10 %

Characteristics

CuSn3Zn9 has excellent cold forming properties, good conductivity combined with high strength and hardness. Corrosion resistance, especially against seawater and industrial atmosphere is good and stress corrosion cracking susceptibility is low. Spring properties are good, so it is used for applications like spring, connectors, contacts.

Main Applications

Automotive: Switches and Relays, Contacts, Connectors, Terminals.

Electrical: Switches and Relays, Contacts, Connectors, Terminals, Components for the electrical industry, Stamped parts.

Mechanical Properties (EN 1652)

Temper	Tensile Strength	Yield Strength Minimum	Elongation Minimum	Hardness	Bending 90°	
	Rm	Rp0.2	A _{50mm}	HV *	gw rel. Bending Radius R/T	bw
	MPa	MPa	%	HV	Strip Thickness ≤ 0.50mm	
R320	320 .. 380	≤ 230 *	25	80 .. 110	0	0
R380	380 .. 430	200 *	16	110 .. 140	0	0
R430	430 .. 520	330 *	6	140 .. 170	0	0
R510	510 .. 600	430 *	3	160 .. 190	0	1
R580	580 .. 690	520 *	-	180 .. 210	1	2
R660	≥ 660	610 *	-	≥ 200	-	-

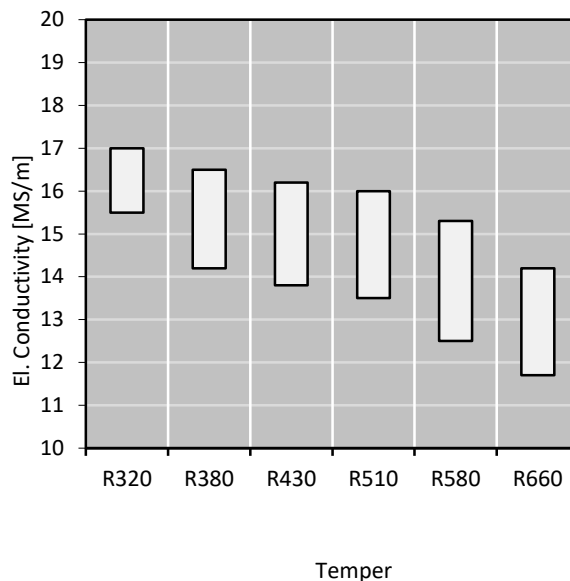
* only for information

Physical Properties

Typical values in annealed temper at 20 °C

Density		8.81	g/cm ³
Thermal expansion coefficient	20 .. 300 °C	18.4	10 ⁻⁶ /K
Specific heat capacity		0.38	J/(g·K)
Thermal conductivity		120	W/(m·K)
Electrical conductivity	MS/m	15	MS/m
Electrical conductivity	IACS	25	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	1.0	10 ⁻³ /K
Modulus of elasticity	GPa	120	GPa

Electrical Conductivity



Fabrication Properties *

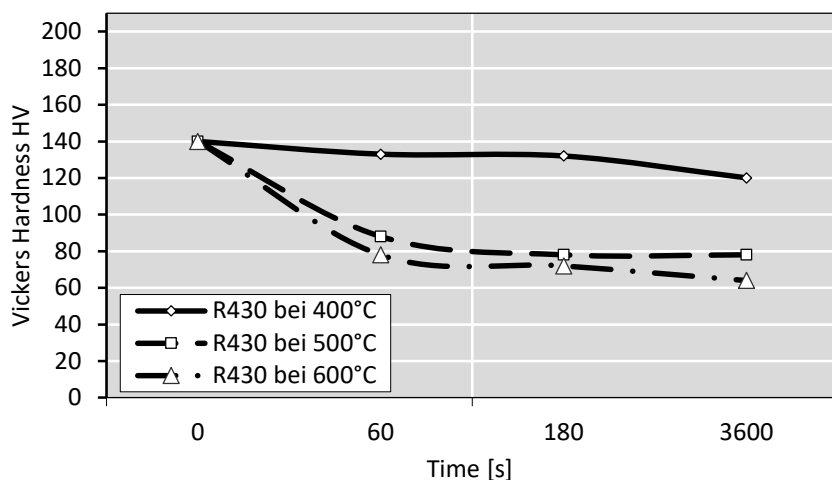
Cold Forming Properties	Excellent
Machinability (Rating 20)	Less suitable
Electroplating Properties	Good
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding	Less suitable
Gas Shielded Arc Welding	Excellent
Laser Welding	Excellent

* For more details call our technical service

Corrosion Resistance *

CuSn3Zn9 is resistant to industrial and drinking water, aqueous and alkaline solutions (not oxidizing), pure water vapour (steam), non oxidizing acids (without oxygen in solution) and salts, neutral saline solutions. Stress corrosion cracking susceptibility is low.

Softening Resistance



After short time heat treatment Vickers Hardness is measured. The diagram shows typical values.

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

Due to continued improvements within our production process, the details stated in our brochure can not be guaranteed. We reserve the right to update or amend our products, without prior notification. We suggest that you obtain confirmation of our product details / specifications prior to committing to specific alloys.