

Edition from	07.02.2022	Alloy datasheet	No. 242
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Alloy	ISO	EN	ASTM
58M	CuZn42	(CW510L)	-

Others:

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Main characteristics Copper-zinc alloy with ($\alpha+\beta$) microstructure. Tin and nickel additions modify microstructural characteristics to improve machinability.

Chemical composition	Cu 57,0 – 59,0 %	Zn Remainder	Ni 0,2 – 0,3 %	Sn 0,2 – 0,3 %
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Impurities Max.	Al 0,05 %	Fe 0,05 %	Pb 0,1 %	Cd 0,005 %	Others 0,1 %
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Product portfolio Hot extruded and cold drawn products

Section type	Round, square, hexagonal, flat
Rod	Available
Wire	Available
Profile	On demand

Examples of use Any part obtained by automatic screw machining.

Mechanical properties	Form	Dimension Ø	Temper	UTS N/mm ²	YS N/mm ²	A %	Hardness HV
				R460 H120	> 460 ----	> 340 ----	> 12 ----
	Rod	1,5 – 19,0	R500 H140	> 500 ----	> 430 ----	> 8 ----	---- > 140
	Wire	1,5 – 6,35	R580 H160	> 580 ----	> 460 ----	> 3 ----	---- > 160
			R640 H180	> 640 ----	---- ----	---- ----	---- > 180

Other tempers on demand

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Physical properties	Density	kg/dm ³	8,4
	Melting range	°C	860 – 890
	Linear expansion coefficient (20-400°C)		0,000021
	Specific heat	J/kg K	380
	Thermal conductivity at 20°C	W/m · K	136
	Electrical conductivity at 20°C	% IACS	25,0
	Elasticity modulus	kN/mm ²	106

Workability	Cold working, maximum section reduction	%	poor, 20
	Hot working, temperature range	°C	fair, 630 - 730
	Machining, compared with CuZn39Pb3 (100 %)	%	fair, 70
	Annealing temperatures	°C	420 - 630
	Stress relieving temperatures	°C	250 - 350
	Soft soldering		excellent
	Hard soldering		fair
	Autogenous welding		poor
	Arc welding		poor
Resistance welding		poor	

Symbols	Ø	= round rod diameter (mm)
	UTS	= ultimate tensile strength
	YS	= yield stress at 0,2 %
	A	= tensile elongation