

<b>Edition from</b>	<b>21.05.2021</b>	<b>Alloy datasheet</b>	<b>No. 345</b>
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<b>Alloy</b>	<b>ISO</b>	<b>EN</b>	<b>ASTM</b>
<b>58A</b>	<b>CuZn39Pb3</b>	<b>CW614N</b>	<b>C38500</b>

Others:

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**Main characteristics**      Copper-zinc alloy with ( $\alpha + \beta$ ) microstructure and fine dispersed lead particles. and fine distribution of lead particles. Good hot working properties and excellent machinability. The most widely used European alloy for automatic lathes.

<b>Chemical composition</b>	Cu 57,0 – 59,0 %	Zn Remainder	Pb 2,5 – 3,5 %		
Impurities Max.	Al 0,05 %	Fe 0,20 %	Sn 0,20 %	Ni 0,20 %	Others 0,20 %

<b>Product portfolio</b>	Hot extruded and cold drawn products
Section type	Round, square, hexagonal, flat
Rod	Available
Wire	Available
Profile	On demand

**Examples of use**      Turned parts on automatic lathes (e.g. screws, nuts, bolts, rivets, bushes, bearings, sealing rings, splints, hinges, lock components), spare parts for the watch industry.

<b>Mechanical properties</b>	Form	Temper	Dimension $\varnothing$	Rm N/mm <sup>2</sup>	Rp0,2 N/mm <sup>2</sup>	A %	Hardness HV
	Rod	¼ hard	6,0 – 14,0	> 400	> 230	> 15	90 – 125
		¼ hard	14,0 – 40,0	> 380	> 200	> 18	90 - 125
		½ hard	4,0 – 40,0	> 430	> 250	> 10	120 – 160
		hard	4,0 – 14,0	> 500	> 390	> 8	140 - 175
	Wire	½ hard	2,5 – 6,35	> 430	> 250	> 10	120 - 160
hard		2,5 – 6,35	> 500	> 390	> 8	140 - 175	

*Other tempers on demand*

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<b>Physical properties</b>	Density	kg/dm <sup>3</sup>	8,4
	Melting range	°C	875 – 890
	Linear expansion coefficient (20-400°C)		0,000021
	Specific heat	J/kg K	380
	Thermal conductivity at 20°C	W/m · K	121
	Electrical conductivity at 20°C	% IACS	23,0
	Elasticity modulus / Shear modulus	kN/mm <sup>2</sup>	96 / 35

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<b>Workability</b>	Cold working, maximum section reduction	%	poor, 20
	Hot working, temperature range	°C	good, 625 - 725
	Machining, compared with CuZn39Pb3 (100 %)	%	excellent, 100
	Annealing temperatures	°C	450 - 600
	Stress relieving temperatures	°C	250 - 350
	Soft soldering		very good
	Hard soldering		good
	Autogenous welding		not recommended
	Arc welding		not recommended
Resistance welding		not recommended	

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

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