

PB1

Material designation		Chemical composition*			
CuZn39Pb1		Elements	% mean	Impurities	% max.
		Cu	59.5	Fe	0.15
		Pb	1.25	Ni	0.1
				Sn	0.15
				Al	0.05
EN 12164 / EN 12165 / EN 12167	CW611N				
BS2872 / BS2874	CZ129				
ASTM B 135	C37000				
		Zn	balance	Other	0.2

* Reference values in % by weight

Properties and typical applications

This alloy offers an excellent hot deformation behavior with good machinability thanks to the presence of lead. Architectural, decorative and industrial applications.

Physical properties at 20°C		Heat treatment	
Density (g/cm ³)	8.4	Melting range (°C)	885-900
Young modulus (GPa)	98	Hot working (°C)	650-750
Thermal expansion coefficient (20-300°C) (10 ⁻⁶ /K)	21	Annealing temperature (°C)*	450-600
Thermal conductivity (W/m.K)	120	Stress relieving treatment (°C)**	250-350
Thermal capacity (J/Kg.K)	377	<i>* Annealing treatment of a material leads to reduce its hardness and increase its ductility.</i>	
Electrical conductivity (% I.A.C.S.)	28	<i>** Stress relieving treatment allows to eliminate the residual stresses present in the material in order to avoid the stress corrosion cracking.</i>	

Forming		Joining	
Hot forming	Excellent	Soldering	
Cold forming	Fair	Soft	Excellent
Machinability	85% (Ref: CuZn39Pb3 = 100%)	Hard	Good
Corrosion resistance		Welding	
Free-cutting brasses generally have good resistance to corrosion in organic materials and neutral or alkaline compounds. However, they may present a problem of cracking corrosion in an aggressive environment in the presence of internal stresses, but also a risk of dezincification in the presence of hot and acidic water.		Gaz welding	Not recommended
		Inert gas shielded arc welding	Not recommended
		Resistance welding	Not recommended

Mechanical properties according to EN12164						
Condition of material	Diameter [mm]		Rp0,2 [Mpa] min. or max.	Rm [Mpa] min.	A(%) min.	Hardness HB
	from	to				
M	All		As extruded - without specific mechanical properties			
R360	6	80	< 300	360	20	-
H070			-	-	-	70-100
R410	6	40	> 230	410	12	-
H100			-	-	-	100-145
R500	6	14	> 350	500	8	-
H120			-	-	-	> 120

Fabrication range

Available forms:



Do not hesitate to contact us for further information regarding the dimensions, tolerances and metallurgical conditions. Our technical teams are by your side to help you succeed in your projects.

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