

**BC**

Material designation		Chemical composition*			
<b>CuZn39Pb2</b>		Elements	% mean	Impurities	% max.
		Cu	59.3	Fe	0.2
		Pb	2.05	Ni	0.1
				Si	0.015
				Al	0.05
		Zn	balance	Other	0.2
EN 12164 / EN 12165 / EN 12167	CW612N				
NF A 51-105	CuZn39Pb2				
BS 2872-2874	CZ128				
ASTM B124	C37700				

\* Reference values in % by weight

### Properties and typical applications

BC is a free cutting and stamping brass. The addition of lead considerably increases the machinability, and the duplex structure of the alloy assures a good hot formability. It is very used in valves, electric terminals, screws and bolts...

Physical properties at 20°C		Heat treatment	
Density (g/cm <sup>3</sup> )	8.4	Melting range (°C)	880-895
Young modulus (GPa)	98	Hot working (°C)	650-800
Thermal expansion coefficient (20-300°C) (10 <sup>-6</sup> /K)	21	Annealing temperature (°C)*	450-600
Thermal conductivity (W/m.K)	117	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.)	27	<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	<b>Soldering</b>	
Cold forming	Fair	Soft	Excellent
Machinability	90% (Ref: CuZn39Pb3 = 100%)	Hard	Good
Corrosion resistance		<b>Welding</b>	
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				
<b>M</b>	All		As extruded - without specific mechanical properties			
<b>R360</b>	6	80	< 300	360	20	-
<b>H070</b>			-	-	-	70-100
<b>R410</b>	6	40	> 230	410	12	-
<b>H100</b>			-	-	-	100-145
<b>R500</b>	6	14	> 350	500	8	-
<b>H120</b>			-	-	-	> 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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