



Pb < 0.1%
0% Cadmium
RoHS ok

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Lead free brass

Z40

Material designation		Chemical composition*			
CuZn40		Elements	% mean	Impurities	% max.
		Cu	60	Pb	0.1
EN12163 / 12164 / 12165 / 12167	CW509L	Zn	Balance	Other	0.1
NF A 51-104	CuZn40	* Reference values in % by weight			
DIN 17660	CuZn40-2.0360				
BS 2872-2874	CZ109				

Properties and typical applications
Z40 is a lead free brass suitable for hot stamping and machining of parts for various industries (defense, automotive, luxury...).

Physical properties at 20°C		Heat treatment	
Density (g/cm3)	8.4	Melting range (°C)	900-910
Young modulus (GPa)	103	Hot working (°C)	650-750
Thermal expansion coefficient (20-300°C) (10 ⁻⁶ /K)	21	Annealing temperature (°C)*	450-650
Thermal conductivity (W/m.K)	121	Stress relieving treatment (°C)**	250-350
Thermal capacity (J/Kg.K)	376	* <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	Good	Soldering	
Cold forming	Good	Soft	Very good
Machinability	50% (Ref : CuZn39Pb3 = 100%)	Hard	Very good
Corrosion resistance		Welding	
Lead-free brasses generally have good resistance to corrosion. 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 (if Zn > 15%) in the presence of hot and acidic water.		Gaz welding	Fair
		Inert gas shielded arc welding	Fair
		Resistance welding	Fair

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.	
info@m-lego.com	