

D7

Material designation		Chemical composition*			
CuAl10Ni5Fe4		Elements	% mean	Impurities	% max.
		Fe	4.25	Pb	0.05
		Ni	4.65	Sn	0.10
		Mn	0.3	Si	0.20
		Al	10.6	Zn	0.40
		Cu	Balance	Others	0.50
NF A 51-116	CuAl10Ni5Fe4				
BS2874	CA104				
BS B23	CA104				
EN 12163 / 12165 / 12167	CW307G				

* Reference values in % by weight

Properties and typical applications

This alloy is ideal for applications in severe conditions of friction, mechanical loading and corrosion. D7 is widely used in marine and aerospace applications.

Physical properties at 20°C		Heat treatment	
Density (g/cm ³)	7.6	Melting range (°C)	1050-1075
Young modulus (GPa)	127	Hot working (°C)	850-950
Thermal expansion coefficient (20-300°C) (10 ⁻⁶ /K)	17	Annealing temperature (°C)*	650-750
Thermal conductivity (W/m.K)	39	Stress relieving treatment (°C)**	300-400
Thermal capacity (J/Kg.K)	419	<i>* Annealing treatment of a material leads to reduce its hardness and increase its ductility.</i>	
Electrical conductivity (% I.A.C.S.)	7	<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	Not recommended	Soft	Not recommended
Machinability	40% (CuZn39Pb3 = 100%)	Hard	Fair
Corrosion resistance		Welding	
The bronzes of aluminum have a high corrosion resistance, in particular in the sea environments.		Gaz welding	Not recommended
		Inert gas shielded arc welding	Good
		Resistance welding	Good

Mechanical properties according to EN 12163						
Condition of material	Diameter [mm]		Rp0,2 [Mpa] min.	Rm [Mpa] min.	A(%) min.	Hardness HB
	from	to				
M	All		As extruded - without specific mechanical properties			
R680	8	80	320	680	10	-
H170			-	-	-	170-210
R740	8	80	400	740	8	-
H200			-	-	-	> 200

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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