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SO1

Material designation	
CuAl9Ni5Fe4	
ASTM B150	C63200
GAM MM11	CuAl9Ni5Fe4
GAM MM13	CuAl9Ni5Fe4
NFA 51116	CuAl9Ni5Fe4

Chemical composition*			
Elements	% mean	Impurities	% max.
Fe	3.9	Pb	0.02
Ni	4.4	Sn	0.1
Mn	1.3	Si	0.1
Al	9.2	Zn	0.3
Cu	Balance	Others	0.1

* Reference values in % by weight

Properties and typical applications

SO1 is an alloy with excellent resistance to seawater and acid solutions and good wear resistance. Nuts, slides, bushings, bolts for marine and aeronautics.

Physical properties at 20°C	
Density (g/cm3)	7.6
Young modulus (GPa)	125
Thermal expansion coefficient (20-300°C) (10^{-6}/K)	17
Thermal conductivity (W/m.K)	35
Thermal capacity (J/Kg.K)	440
Electrical conductivity (% I.A.C.S.)	8

Heat treatment	
Melting range (°C)	1040-1060
Hot working (°C)	880-950
Annealing temperature (°C)*	650-750
Stress relieving treatment (°C)**	300-400

**** Annealing treatment of a material leads to reduce its hardness and increase its ductility.***

***** Stress relieving treatment allows to eliminate the residual stresses present in the material in ordrer to avoid the stress corrosion cracking.***

Forming	
Hot forming	Good
Cold forming	Not recommanded
Machinability	40% (CuZn39Pb3 = 100%)

Corrosion resistance

The bronzes of aluminum have a high corrosion resistance, in particular in the sea environments.

Joining	
Soldering	
Soft	Not recommanded
Hard	Fair
Welding	
Gaz welding	Not recommanded
Inert gas shielded arc welding	Good
Resistance welding	Good

Mechanical properties according to ASTM - B150	
Yield Strength $Rp_{0,5}$ [Mpa]	**> 345**
Tensile Strength Rm [Mpa]	**> 620**
Elongation [%]	**> 15**

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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