

## D11

Material designation		Chemical composition*			
<b>CuAl11Ni6Fe6</b>		Elements	% mean	Impurities	% max.
		Fe	5.2	Pb	0.03
		Ni	5.2	Sn	0.1
		Mn	0.9	Si	0.1
		Al	11	Zn	0.3
		Cu	Balance	Others	0.5
EN 12163 / EN 12167	CW308G				
AMS 4590C	C63020				
NFA 51116	CuAl11Ni5Fe5				
NFL 14706	CuAl11Ni5Fe5				

\* Reference values in % by weight

### Properties and typical applications

This alloy has a particularly high resistance to corrosion and wear. D11 is widely used in the marine and aerospace industries. Valves, valve seats, sliding components, wear parts, fittings for high pressure steam.

Physical properties at 20°C		Heat treatment	
Density (g/cm <sup>3</sup> )	7.6	Melting range (°C)	1050-1075
Young modulus (GPa)	127	Hot working (°C)	850-950
Thermal expansion coefficient (20-300°C) (10 <sup>-6</sup> /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	<b>Soldering</b>	
Cold forming	Not recommended	Soft	Not recommended
Machinability	40% (CuZn39Pb3 = 100%)	Hard	Fair
<b>Corrosion resistance</b>		<b>Welding</b>	
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]	Rm [Mpa]	A(%)	Hardness HB
	from	to	min.	min.	min.	
M	All		As extruded - without specific mechanical properties			
R740	8	80	420	740	5	-
H220			-	-	-	220-260
R830	8	80	550	830	-	-
H240			-	-	-	> 240

### 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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