

Alloy 2024

ALUMINIUM ALLOY

AEROSPACE ALUMINIUM

Aluminium / Aluminum alloys have strong corrosion resistance characteristics. These alloys are sensitive to high temperatures ranging between 200 and 250°C (392 and 482°F). An increase in strength takes place when these alloys are exposed at subzero temperatures and strength is lost when these alloys are exposed to high temperatures. Aluminium / Aluminum alloys are good low-temperature alloys.

Alloy 2024 was introduced by Alcoa in 1931 as an alclad sheet in the T3 temper. It was the first Al-Cu-Mg alloy to have a yield strength approaching 50,000-psi and generally replaced 2017-T4 (Duralumin) as the predominant 2XXX series aircraft alloy. With its relatively good fatigue resistance, especially in thick plate forms, alloy 2024 continues to be specified for many aerospace structural applications. 2024 variant alloys, such as higher purity 2124 and 2324, with improvements in strength and other specific characteristics, have also found application in critical aircraft structures. An improved sheet alloy for fuselage applications was introduced in 1991. Alclad C188 offers improved fracture toughness and fatigue crack growth while maintaining the strength characteristics of 2024.

Alloy 2024 is available in bare and alclad sheet and plate product forms in the annealed state and several tempers of T3, T4, and T8 types.

Chemical Properties

Al	Cr	Cu	Fe	Mg	Mn	Zn	Si	Ti	Other each	Other Total
90.7-94.7	0.1 max	3.8-4.9	0.5 max	1.2-1.8	0.3-0.9	0.25 max	0.5 max	0.15 max	0.05 max	0.15 max

Mechanical Properties

Yield strength	Tensile strength	Elongation	Hardness
Min 0.2% Mpa	Min Mpa	Min %	HRB
75.8	186	20	47

Physical Properties

Density	Elastic Modulus	Mean Coefficient of Thermal	Thermal Conductivity	Melting Point
(Kg/m ³)	(Gpa)	Expansion(µm/m/°C)	(W/m.K)	(nΩ.m)
2.78	73.1	22.8	193	502-638

Equivalent Designation

UNS A 92024
 Werkstoff no 3.1355
 Din AlCuMg2
 Jis 2024
 Gost D16
 AFNOR 2024
 UNI P-AlCu4.4MgMn
 PN AlCu4Mg2
 CSN 424203
 ONORM AlCuMg2
 GOST D16
 ISO AlCu4Mg1

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