Aluminum 2024

Technical Datasheet

Key Features

- Good machinability
- Surface finish capabilities
- High strength
- Adequate workability

Common Applications

- Gears and shafts
- Bolts
- Clock parts
- Computer parts
- Coupling
- Fuse parts
- Missile parts

Material Description

Aluminum 2024 is a high-strength, heat-treatable aluminum alloy primarily composed of aluminum, copper, and magnesium. It is widely used in aerospace and military applications where high strength-to-weight ratios are critical. With copper as the primary alloying element, it is malleable when in the fully soft, annealed temper and can be heat-treated to high strength levels after forming. Although it offers good machinability, its lower corrosion resistance compared to other aluminum alloys often necessitates protective coatings or cladding. This alloy is favored in applications such as aircraft structures, missile parts, and gears and shafts due to its reliable performance under high-stress conditions.

Chemical Composition (%)

	Al	Cr	Cu	Fe	Mg	Mn	Si	Ti	Zn		
Min.	90.7		3.8		1.2	0.3					
Max.	94.7	0.10	4.9	0.50	1.8	0.9	0.5	0.15	0.25		

Mechanical Properties

Ultimate Tensile Strength	27,000 PSI
Tensile Yield Strength	11,000 PSI
Hardness	Brinell 47
Elongation at Break	≧12%

Physical Properties

Density	0.1 lb/in³ (2.78 g/cm³)
Thermal Conductivity	193W/m.K
Modulus of elasticity	10,600 KSI (73.1 GPa)
Melting Point	935 - 1,180°F (502 - 638 °C)

Technical Assistance

Our knowledgeable staff, supported by our in-house team of expert metallurgists and engineers, is ready to assist you with any technical inquiries.

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