TECHNICAL DATA SHEET

Aluminum 2024-T3

High-Strength Copper Alloy Aluminum

VTECH MATERIALS LIBRARY

Document Control

Document No.	TDS-AL-2024-T3-QQA250	**Revision**	A
Issue Date	2026-04-07	**Owner**	Engineering
Specification	AMS-QQ-A-250/4 / ASTM B209 by product form	**Product Form / UNS**	Sheet and plate (temper specific) / UNS A92024

Engineering use note: Starter-library values are intended for engineering screening and template standardization. Verify against the latest governing specification, drawing, PO, and MTR before production release.

1. General Description

2024-T3 is a high-strength aluminum-copper alloy widely used in aerospace structures. It offers excellent strength-to-weight ratio and good fatigue performance, but lower corrosion resistance and weldability than 5xxx or 6xxx alloys.

2. Chemical Composition (wt%)

Property	Value
Copper (Cu)	3.8-4.9
Magnesium (Mg)	1.2-1.8
Manganese (Mn)	0.3-0.9
Silicon (Si)	<=0.50
Iron (Fe)	<=0.50
Zinc (Zn)	<=0.25
Titanium (Ti)	<=0.15
Chromium (Cr)	<=0.10
Aluminum (Al)	Balance

3. Mechanical Properties

Property	Value
Condition	T3

Property	Value
Ultimate tensile strength	Approx. 427 MPa
0.2% yield strength	Approx. 290 MPa
Elongation	Approx. 10-20 % by thickness
Hardness	Approx. 120 HB typical

4. Physical Properties

Property	Value
Density	2.78 g/cm3
Elastic modulus	73 GPa
Thermal conductivity	121 W/m.K
Melting range	500-638 C

5. Heat Treatment / Processing

A heat-treatable alloy usually supplied in a temper such as T3, T351, or T4 depending on form and application. Welding is generally not preferred for strength-critical use.

6. Corrosion / Environmental Performance

Good atmospheric performance with proper finish and protection, but lower intrinsic corrosion resistance than 5xxx and 6xxx alloys. Cladding, anodizing, primers, and sealants are common in aerospace practice.

7. Key Characteristics

- High specific strength
- Good fatigue resistance
- Good machinability
- Limited weldability

8. Typical Applications

- Aircraft skins and structures
- Fittings
- Ribs and spars
- High-strength lightweight components

9. Standards & Equivalents

AMS-QQ-A-250/4
ASTM B209
UNS A92024
AA 2024

10. Notes & Limitations

Temper and thickness materially affect properties. Verify exact form, temper, and grain-direction requirements before release.