

2024 Aluminum Alloy: Properties

General Characteristics

Characteristic	Appraisal
Strength	High
Corrosion Resistance	Poor
Weldability & Brazability	Poor
Workability	Good
Machinability	Fair

Chemical Composition

Element	Minimum %	Maximum %
Silicon	No Min	0.5
Iron	No Min	0.5
Copper	3.8	4.9
Manganese	0.5	0.6
Magnesium	1.2	1.8
Chromium	No Min	0.1
Zinc	No Min	0.25
Titanium	No Min	0.15
Other Elements	No Min	0.05 each, 0.15 in total

Physical Properties

Property	2024-T3	2024-4, -T351	2024-T851
Density	2.78 g/cc 0.100 lb/in ³	2.78 g/cc 0.100 lb/in ³	2.78 g/cc 0.100 lb/in ³

Mechanical Properties

Property	2024-T3	2024-4, -T351	2024-T851
Tensile Strength	483 MPa 70000 psi	469 MPa 68000 psi	>=455 MPa 66000 psi
Yield Strength	345 MPa 50000 psi	324 MPa 47000 psi	>=400 MPa 58000 psi
Modulus of Elasticity	73.1 GPa 10600 ksi	73.1 GPa 10600 ksi	72.4 GPa 10500 ksi

Thermal Properties

Property	2024-T3	2024-4, -T351	2024-T851
Coefficient of Thermal Expansion @ 20.0 - 100 °C Temp	23.2 μm/m-°C 12.9 μin/in-°F	23.2 μm/m-°C 12.9 μin/in-°F	23.2 μm/m-°C 12.9 μin/in-°F
Thermal Conductivity	121 W/m-K 840 BTU-in/hr-ft ² -°F	121 W/m-K 840 BTU-in/hr-ft ² -°F	151 W/m-K 1050 BTU-in/hr-ft ² -°F