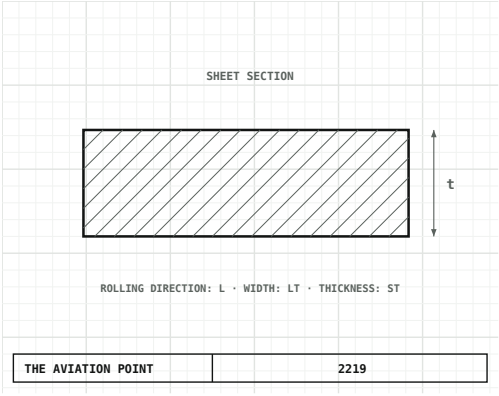
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2219 — wrought aluminum alloy

An aluminum-copper alloy that does what other 2000 series alloys do not: it is rated readily weldable, it holds strength hot and it works cold.



Schematic

Designation

Item	Value
Designation	2219
Class	Aluminum
Type	wrought aluminum alloy

Composition

Element	Limit
Si	0.20
Fe	0.30
Cu	5.8–6.8
Mn	0.20–0.40
Mg	0.02
Zn	0.10
Ti	0.02–0.10
V	0.05–0.15
Zr	0.10–0.25
Al	Remainder

A single number is a maximum. Other elements: 0.05 each, 0.15 total, except where the Teal Sheets say otherwise. Source: Aluminum Association Teal Sheets (Aug 2018).

Specifications and forms

Specification	Form
AMS 4031, AMS-QQ-A-250/30	Sheet and plate
AMS 4162, AMS 4163	Extrusion
AMS 4144	Hand forging

Specifications as listed by MIL-HDBK-5J. Federal QQ-A specifications passed to SAE as AMS-QQ-A. Check the current revision.

Properties

Property	Value	Source
Density	0.103 lb/in³ (2.84 g/cm³)	MIL-HDBK-5J; Teal Sheets
Arc welding, O and T6/T8 tempers	A (readily weldable)	MIL-HDBK-5J Table 3.1.3.4(a)
Spot welding, T6/T8 tempers	A	MIL-HDBK-5J Table 3.1.3.4(a)
Stress corrosion, T6, T85XX, T87	A in L, LT and ST (plate)	MIL-HDBK-5J Table 3.1.2.3.1(a)
Stress corrosion, T351X, T37	ST: D	MIL-HDBK-5J Table 3.1.2.3.1(a)
E / Ec / G	10.5 / 10.8 / 4.0 × 10³ ksi	MIL-HDBK-5J Table 3.2.8.0(b1)

Check the rating for the exact product in Table 3.1.2.3.1(a).

Design allowables, 2219 sheet and plate

Property, ksi	T62 A	T62 B	T81 A	T81 B
Ftu, L	54	55	61	62
Ftu, LT	54	55	62	63
Fty, L	36	37	47	48
Fty, LT	36	37	46	47

Reference data. The aircraft manufacturer's documentation (SRM / IPC) takes precedence.

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Property, ksi	T62 A	T62 B	T81 A	T81 B
Fcy, L	37	39	47	48
Fcy, LT	37	38	48	49
Fsu	31	32	35	35
Fbru, e/D = 1.5	84	85	95	96
Fbru, e/D = 2.0	107	109	121	123
Fbry, e/D = 1.5	62	64	76	78
Fbry, e/D = 2.0	79	81	92	94

T62: 0.020–2.000 in, AMS 4031 and AMS-QQ-A-250/30. T81: 0.020–0.249 in, AMS-QQ-A-250/30. MIL-HDBK-5J Table 3.2.8.0(b1), p. 3-168. For T62 the user's properties may be lower if the material was formed or worked before solution treatment. S, A and B are the MIL-HDBK-5J statistical bases. L is the longitudinal grain direction, LT the long transverse. Bearing values are dry-pin values.

Notes

- **Not a source of design allowables.** Values are for reference. MMPDS and the SRM govern a repair.
- **Not a substitution approval.** A different alloy or temper needs approved data.
- **Welding structure is approved-data work.** A weld repair needs the SRM or an approval.

SOURCES · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 4 · MIL-HDBK-5J, Chapter 3 · Aluminum Association, International Alloy Designations, rev. Aug 2018 · MMPDS

SCAN · OPEN THIS DATA SHEET
theaviationpoint.com/parts/materials/2219/

Reference data. The aircraft manufacturer's documentation (SRM / IPC) takes precedence.