MATERIAL DATA SHEET

AA5059 armor plate, 0.500-2.000 in, L (MIL-DTL-46027N)

Current specified longitudinal minimum properties for Class III AA5059 armor plate in one exact thickness band.

Field	Value
Material ID	dla-aa5059-armor-plate-0-500-2-000in-l
Category	Metal
Condition	AA5059 Class III armor plate qualified to MIL-DTL-46027N w/Amendment 1; temper not stated | wrought aluminum armor plate
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
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Source and Validity

Field	Value
Quality	Standard minimum
Design release allowed	No
Source family	Government materials specification
Confidence	Standard minimum
License	Open
Source note	Independent transcription from a current official Distribution Statement A specification.
Citation	U.S. Department of Defense, MIL-DTL-46027N w/Amendment 1, Armor Plate, Aluminum Alloy, Weldable 5083, 5456, and 5059, Table II, PDF page 4, and density section, PDF page 14; official DLA record https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=25120; Distribution Statement A.
Valid temperature	Table II does not state a test temperature.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	AA5059 Class III armor plate qualified to MIL-DTL-46027N w/Amendment 1; temper not stated
Uncertainty	Current specified minimum values with original customary units and explicit SI conversions; not statistical sample means.
Last reviewed	2026-08-02
Reviewer	scripts/import_dla_current_aluminum_armor.py
Review status	Checked
Review scope	Checked official DLA record, revision, Distribution Statement A, PDF hash, exact alloy/class, plate thickness band, direction, minimum semantics, original units, density and SI conversion.

Field	Value
Notes	Current MIL-DTL-46027N w/Amendment 1 minimums for the exact AA5059 plate band and longitudinal direction. The specification does not state a temper. Use the complete current specification, contract requirements, qualified supplier data and the lot material test report for procurement or release.
License ID	US-DOD-DISTRIBUTION-STATEMENT-A
License URL	https://www.dodcui.mil/Distribution-Statements/
Attribution	U.S. Department of Defense / Defense Logistics Agency

Material Condition

Field	Value
Condition	AA5059 Class III armor plate qualified to MIL-DTL-46027N w/Amendment 1; temper not stated
Temper	not stated by the specification; do not infer a temper
Heat treatment	not stated by the specification
Product form	wrought aluminum armor plate
Thickness / diameter range	0.500-2.000 in inclusive (12.7-50.8 mm)
Test direction	longitudinal (L), per Table II footnote
Processing route	wrought plate; detailed route not stated
Temperature range	Table II does not state a test temperature.
Notes	Current MIL-DTL-46027N w/Amendment 1 minimums for the exact AA5059 plate band and longitudinal direction. The specification does not state a temper. Use the complete current specification, contract requirements, qualified supplier data and the lot material test report for procurement or release.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	2660.0	kg/m^3	Current Specified Reference	AA5059 alloy in MIL-DTL-46027N w/Amendment 1

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, L	358.527	MPa	Current Specified Minimum	AA5059 Class III armor plate; 0.500-2.000 in inclusive (12.7-50.8 mm); longitudinal direction; temper not stated by the specification
Tensile yield strength, L	268.896	MPa	Current Specified Minimum	AA5059 Class III armor plate; 0.500-2.000 in inclusive (12.7-50.8 mm); longitudinal direction; temper not stated by the specification
Elongation, L	7.0	%	Current Specified Minimum	AA5059 Class III armor plate; 0.500-2.000 in inclusive (12.7-50.8 mm); longitudinal direction; temper not stated by the specification

Engineering note: seed solid-material values are reference values only. Verify against the project material specification or supplier data sheet before release.