MATERIAL DATA SHEET

Aluminum 5086-H32 sheet/plate, 0.51-6.3 mm (MIL-HDBK-5H)

Historical public-release A-basis H32 sheet/plate reference.

Field	Value
Material ID	milhdbk-5086-h32-sheet-plate-0-51-6-3-mm
Category	Metal
Condition	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range | sheet or plate
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:15

Source and Validity

Field	Value
Quality	Catalog record
Design release allowed	No
Source family	Government materials handbook
Confidence	Reference-grade
License	Open
Source note	Independent transcription from an official public-release U.S. government handbook.
Citation	U.S. Department of Defense, MIL-HDBK-5H, Metallic Materials and Elements for Aerospace Vehicle Structures, 1 December 1998, Table 3.5.3.0(b), PDF page(s) 523 (handbook page(s) 3-227); official DLA document record https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=53876. The official PDF carries Distribution Statement A: Approved for public release; distribution is unlimited.
Valid temperature	21 ... 21 degC (Room-temperature historical handbook values. Applicability is limited to the exact alloy, temper/condition, product form, size band, material axis, statistical basis, and specification identified by the cited table.)
Valid pressure	Pressure dependence is not represented by these solid-material reference values.
Valid phase / condition	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range
Uncertainty	Values are historical handbook table transcriptions with explicit SI conversion. They are not a substitute for a current material specification, supplier certificate, drawing allowable, or project approval.
Last reviewed	2026-08-02
Reviewer	scripts/import_milhdbk5h_public_metals.py
Review status	Checked

Field	Value
Review scope	Checked official DLA document identity, Distribution Statement A, PDF hash, table/page location, alloy/condition/form/size scope, basis semantics, and SI conversions.
Notes	Historical reference only; design release is explicitly disabled.
License ID	US-DOD-DISTRIBUTION-STATEMENT-A
License URL	https://www.dodcui.mil/Distribution-Statements/
Attribution	U.S. Department of Defense

Material Condition

Field	Value
Condition	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range
Temper	H32
Heat treatment	strain hardened and stabilized to H32
Product form	sheet or plate
Thickness / diameter range	0.020-0.248 in (0.51-6.3 mm), subset of the 0.020-2.000 in table band
Test direction	L and LT
Processing route	wrought non-heat-treatable aluminum-magnesium sheet or plate
Temperature range	21 ... 21 degC
Notes	Room-temperature historical handbook values. Applicability is limited to the exact alloy, temper/condition, product form, size band, material axis, statistical basis, and specification identified by the cited table. Historical reference only; confirm the current procurement specification and material test report.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	2657	kg/m^3	Historical Nominal	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, L	275.79	MPa	Historical Public Release Table Value	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band; L direction
Tensile yield strength, L	193.053	MPa	Historical Public Release Table Value	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band; L direction
Ultimate tensile strength, LT	275.79	MPa	Historical Public Release Table Value	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band; LT direction
Tensile yield strength, LT	179.264	MPa	Historical Public Release Table Value	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band; LT direction
Compressive yield strength, L	179.264	MPa	Historical Public Release Table Value	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band; L direction
Compressive yield strength, LT	193.053	MPa	Historical Public Release Table Value	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band; LT direction
Ultimate shear strength	165.474	MPa	Historical Public Release Table Value	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band
Young's modulus	70.327	GPa	Historical Nominal	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band
Compression modulus	71.705	GPa	Historical Nominal	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band
Shear modulus	26.545	GPa	Historical Nominal	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band

Property	Value	Unit	Type	Applies to
Poisson's ratio	0.33	-	Historical Nominal	5086-H32; sheet or plate; 0.51-6.3 mm public counterpart range; A-basis, 0.020-2.000 in band

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