MATERIAL DATA SHEET

AISI 301 1/4 hard sheet/strip (MIL-HDBK-5H)

Historical public-release A-basis reference for cold-worked AISI 301 1/4 hard sheet and strip.

Field	Value
Material ID	milhdbk-aisi301-quarter-hard-sheet
Category	Metal
Condition	AISI 301; 1/4 hard; sheet or strip | sheet or strip
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:02

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 2.7.1.0(b)-(c), PDF page(s) 271-272 (handbook page(s) 2-217 to 2-218); 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	AISI 301; 1/4 hard; sheet or strip
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
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.

Field	Value
Notes	Historical reference only; design release is explicitly disabled.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	AISI 301; 1/4 hard; sheet or strip
Temper	1/4 hard
Heat treatment	cold worked to 1/4 hard condition
Product form	sheet or strip
Thickness / diameter range	strength table does not state a condition-specific bound; elongation covers <=0.015 and >=0.016 in bands where listed
Test direction	L strength; minimum elongation from the LT table
Processing route	cold-worked austenitic stainless sheet or strip
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	7916	kg/m^3	Historical Nominal	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, L	854.95	MPa	Historical Public Release Table Value	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction
Tensile yield strength, L	475.738	MPa	Historical Public Release Table Value	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction
Compressive yield strength, L	303.369	MPa	Historical Public Release Table Value	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction
Ultimate shear strength	455.054	MPa	Historical Public Release Table Value	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation
Elongation, LT	25	%	Historical Public Release Table Value	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; LT direction
Young's modulus, L	186.158	GPa	Historical Nominal	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction
Young's modulus	193.053	GPa	Historical Nominal	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; LT direction
Compression modulus	186.158	GPa	Historical Nominal	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; LT direction
Shear modulus	73.084	GPa	Historical Nominal	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation
Poisson's ratio	0.27	-	Historical Nominal	AISI 301; 1/4 hard; sheet or strip; A-basis strengths; S-basis minimum elongation

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