MATERIAL DATA SHEET

Inconel 718 solution-treated-and-aged sheet, 0.25-6.3 mm (MIL-HDBK-5H)

Historical public-release sheet reference using the lower listed strength across the covered AMS 5596 thickness bands.

Field	Value
Material ID	milhdbk-inconel718-aged-sheet-0-25-6-3-mm
Category	Metal
Condition	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm | sheet
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 6.3.5.0(b), PDF page(s) 1054 (handbook page(s) 6-52); 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	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm
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Notes	Historical reference only; design release is explicitly disabled.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	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm
Temper	solution treated and aged
Heat treatment	solution treated and aged per AMS 5596
Product form	sheet
Thickness / diameter range	0.010-0.249 in (0.25-6.32 mm)
Test direction	L and LT; lower listed values retained across thickness bands
Processing route	wrought nickel-base superalloy sheet
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	8221	kg/m^3	Historical Nominal	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, L	1241.056	MPa	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.; L direction
Tensile yield strength, L	999.74	MPa	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.; L direction
Ultimate tensile strength, LT	1241.056	MPa	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.; LT direction
Tensile yield strength, LT	1013.529	MPa	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.; LT direction
Compressive yield strength, L	1068.687	MPa	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.; L direction
Compressive yield strength, LT	1089.372	MPa	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.; LT direction
Ultimate shear strength	854.95	MPa	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.
Elongation, LT	12	%	Historical Public Release Table Value	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.; LT direction

Property	Value	Unit	Type	Applies to
Young's modulus	202.706	GPa	Historical Nominal	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.
Compression modulus	213.048	GPa	Historical Nominal	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.
Shear modulus	78.6	GPa	Historical Nominal	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.
Poisson's ratio	0.29	-	Historical Nominal	Inconel 718; solution treated and aged; AMS 5596 sheet; 0.25-6.32 mm; Lower listed value across 0.010-0.187 and 0.188-0.249 in AMS 5596 columns.

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