MATERIAL DATA SHEET

Inconel 625 annealed sheet, <=6.3 mm (MIL-HDBK-5H)

Historical public-release annealed-sheet reference conservatively combined through 6.3 mm.

Field	Value
Material ID	milhdbk-inconel625-annealed-sheet-6-3-mm
Category	Metal
Condition	Inconel 625; annealed sheet; <=6.3 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 6.3.3.0(b), PDF page(s) 1037 (handbook page(s) 6-35); 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 625; annealed sheet; <=6.3 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
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Notes	Historical reference only; design release is explicitly disabled.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	Inconel 625; annealed sheet; <=6.3 mm
Temper	annealed
Heat treatment	annealed at 1700-1900 degF for time commensurate with thickness per handbook section 6.3.3
Product form	sheet
Thickness / diameter range	<=0.248 in (6.3 mm), within the <=0.250 in table columns
Test direction	L and LT; lower listed value across applicable thickness columns
Processing route	wrought solid-solution-strengthened nickel-alloy 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	8442	kg/m^3	Historical Nominal	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, L	813.581	MPa	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns; L direction
Tensile yield strength, L	365.422	MPa	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns; L direction
Ultimate tensile strength, LT	820.476	MPa	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns; LT direction
Tensile yield strength, LT	372.317	MPa	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns; LT direction
Compressive yield strength, L	379.212	MPa	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns; L direction
Compressive yield strength, LT	386.106	MPa	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns; LT direction
Ultimate shear strength	544.686	MPa	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns
Elongation, LT	30	%	Historical Public Release Table Value	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns; LT direction
Young's modulus	205.464	GPa	Historical Nominal	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns
Compression modulus	205.464	GPa	Historical Nominal	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns
Shear modulus	81.358	GPa	Historical Nominal	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns

Property	Value	Unit	Type	Applies to
Poisson's ratio	0.28	-	Historical Nominal	Inconel 625; annealed sheet; <=6.3 mm; lower A/S-basis value across the <=0.250 in columns

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