MATERIAL DATA SHEET

Ti-10V-2Fe-3Al STA die forging, <76.2 mm (MIL-HDBK-5H)

Historical public-release S-basis conventional die-forging reference.

Field	Value
Material ID	milhdbk-ti10v2fe3al-sta-die-forging-76-2-mm
Category	Metal
Condition	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm | conventional die forging
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
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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 5.5.3.0(b), PDF page(s) 995 (handbook page(s) 5-135); 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	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 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Notes	Historical reference only; design release is explicitly disabled.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	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm
Temper	solution treated and aged (900-950 degF)
Heat treatment	solution treated below beta transus, water quenched and aged 8 hours at 900-950 degF
Product form	conventional die forging
Thickness / diameter range	<3.000 in (76.2 mm)
Test direction	L, LT and ST subject to the source-table transverse-dimension footnote
Processing route	alpha-beta processed near-beta titanium-alloy die forging
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	4650	kg/m^3	Historical Nominal	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, L	1192.793	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; L direction
Tensile yield strength, L	1103.161	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; L direction
Ultimate tensile strength, LT	1192.793	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; LT direction
Tensile yield strength, LT	1103.161	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; LT direction
Compressive yield strength, L	1158.319	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; L direction
Compressive yield strength, LT	1144.53	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; LT direction
Ultimate shear strength	668.791	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column
Elongation, L	4	%	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; L direction

Property	Value	Unit	Type	Applies to
Elongation, LT	4	%	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; LT direction
Ultimate tensile strength, ST	1192.793	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; ST direction
Tensile yield strength, ST	1103.161	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; ST direction
Compressive yield strength, ST	1144.53	MPa	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; ST direction
Elongation, ST	4	%	Historical Public Release Table Value	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column; ST direction
Young's modulus	109.627	GPa	Historical Nominal	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column
Compression modulus	112.385	GPa	Historical Nominal	Ti-10V-2Fe-3Al; solution treated and aged; conventional die forging; <76.2 mm; S-basis, AMS 4984 <3.000 in column

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