MATERIAL DATA SHEET

T300/913C UD tape lamina model inputs (NASA/WWFE reference)

Directional elastic and strength inputs reported for exact T300/913C tape.

Field	Value
Material ID	nasa-aa587-t300-913c-tape-model-inputs
Category	Composite
Condition	cured T300 carbon-fiber/913C-resin unidirectional tape lamina model | unidirectional tape lamina (0-degree tape in the analyzed structure)
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
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Source and Validity

Field	Value
Quality	Experimental screening
Design release allowed	No
Source family	Government materials report
Confidence	Reference-grade
License	Open
Source note	Exact-system tape parameters from an official public-use NASA analysis report.
Citation	I. S. Raju, E. H. Glaessgen, B. H. Mason, T. Krishnamurthy, and C. G. Davila, NASA Structural Analysis Report on the American Airlines Flight 587 Accident - Local Analysis of the Right Rear Lug, AIAA Paper 2005-2255 (2005), Table 1, PDF page 5; NASA NTRS 20050199068, https://ntrs.nasa.gov/citations/20050199068. Table attribution: Hinton and Soden (1998), WWFE.
Valid temperature	The table does not identify test or model temperature; no temperature extrapolation is allowed.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	cured T300 carbon-fiber/913C-resin unidirectional tape lamina model
Uncertainty	This card transcribes the T300/913C tape parameters that Raju et al. report from the 1998 World-Wide Failure Exercise for a NASA progressive-failure model. The NASA paper does not present these values as NASA measurements, qualification allowables, batch statistics or supplier guarantees. It identifies tape versus fabric, but does not state ply thickness, fiber volume fraction, resin content, cure cycle, moisture condition or test temperature. Table 1 also prints G_IC as 220 kJ/m^2, a unit/value combination that appears physically suspect; PropLib excludes it rather than silently changing the source.
Last reviewed	2026-08-03

Field	Value
Reviewer	scripts/import_nasa_t300_913c_public.py
Review status	Checked
Review scope	Checked NTRS public-use status, NTRS/PDF identity and hash, exact T300/913C tape identity, Table 1 symbols, units and the NASA paper's WWFE attribution.
Notes	This card transcribes the T300/913C tape parameters that Raju et al. report from the 1998 World-Wide Failure Exercise for a NASA progressive-failure model. The NASA paper does not present these values as NASA measurements, qualification allowables, batch statistics or supplier guarantees. It identifies tape versus fabric, but does not state ply thickness, fiber volume fraction, resin content, cure cycle, moisture condition or test temperature. Table 1 also prints G_IC as 220 kJ/m^2, a unit/value combination that appears physically suspect; PropLib excludes it rather than silently changing the source.
License ID	US-GOV-PUBLIC-USE
License URL	https://ntrs.nasa.gov/citations/20050199068
Attribution	National Aeronautics and Space Administration; WWFE parameters attributed in Table 1

Material Condition

Field	Value
Condition	cured T300 carbon-fiber/913C-resin unidirectional tape lamina model
Temper	not applicable
Heat treatment	cure cycle not reported in the NASA table
Product form	unidirectional tape lamina (0-degree tape in the analyzed structure)
Thickness / diameter range	ply thickness not reported
Test direction	1 = fiber direction; 2 = in-plane transverse direction; 12 = in-plane shear
Processing route	prepreg tape cured into an aircraft laminate; detailed layup and cure are not source-qualified by this card
Temperature range	The table does not identify test or model temperature; no temperature extrapolation is allowed.
Notes	This card transcribes the T300/913C tape parameters that Raju et al. report from the 1998 World-Wide Failure Exercise for a NASA progressive-failure model. The NASA paper does not present these values as NASA measurements, qualification allowables, batch statistics or supplier guarantees. It identifies tape versus fabric, but does not state ply thickness, fiber volume fraction, resin content, cure cycle, moisture condition or test temperature. Table 1 also prints G_IC as 220 kJ/m^2, a unit/value combination that appears physically suspect; PropLib excludes it rather than silently changing the source.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Longitudinal tensile modulus	138.0	GPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
Transverse tensile modulus	11.0	GPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
Major Poisson's ratio	0.28	-	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
Transverse Poisson's ratio	0.4	-	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
In-plane shear modulus	5.5	GPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
Longitudinal tensile strength	1500.0	MPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
Longitudinal compressive strength	900.0	MPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
Transverse tensile strength	27.0	MPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis

Property	Value	Unit	Type	Applies to
Transverse compressive strength	200.0	MPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis
In-plane shear strength	80.0	MPa	Source Reported Model Input Screening	T300/913C unidirectional tape lamina; room-temperature state is not explicitly stated; parameter used by the NASA progressive-failure analysis

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