MATERIAL DATA SHEET

A-286 solution-treated and aged sheet (NASA historical reference)

Historical design-reference mechanical properties for solution-treated-and-aged A-286 sheet, strip, and plate plus room-temperature density.

Field	Value
Material ID	nasa-a286-sta-sheet-reference
Category	Metal
Condition	A-286 solution treated and aged (STA) sheet, strip, or plate; historical design reference | sheet, strip, and plate
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:10

Source and Validity

Field	Value
Quality	Catalog record
Design release allowed	No
Source family	Government materials handbook
Confidence	Reference-grade
License	Open
Source note	Named historical alloy reference transcribed from an official public-use NASA handbook.
Citation	NASA-CR-123776, Materials Data Handbook: Alloy A-286, 1972, NASA Technical Reports Server record 19720022813; property locations: PDF page 52 (handbook page 44), Table 7.411; PDF page 83, Chapter 9; https://ntrs.nasa.gov/citations/19720022813. NTRS marks the document 'Work of the US Gov. Public Use Permitted.'
Valid temperature	21 ... 21 degC (Room-temperature historical reference.)
Valid pressure	Pressure dependence is not represented by these solid reference values.
Valid phase / condition	A-286 solution treated and aged (STA) sheet, strip, or plate; historical design reference
Uncertainty	Historical reference data transcribed with the stated property semantics and SI conversions. Confirm against the official PDF, a current procurement specification, the actual product form and thickness, and a material test report before engineering use.
Last reviewed	2026-08-01
Reviewer	scripts/import_nasa_public_metals.py
Review status	Checked

Field	Value
Review scope	Checked official NTRS public-use status, report identity and PDF hash, cited tables, minimum/nominal semantics, condition text, and SI conversions. No claim of current specification validity or design release is made.
Notes	Historical reference only; not a current supplier certificate or procurement allowable.
License ID	US-GOV-PUBLIC-USE
License URL	https://ntrs.nasa.gov/citations/19720022813
Attribution	National Aeronautics and Space Administration

Material Condition

Field	Value
Condition	A-286 solution treated and aged (STA) sheet, strip, or plate; historical design reference
Temper	STA
Heat treatment	solution treated and aged; verify the applicable schedule in the handbook and current specification
Product form	sheet, strip, and plate
Thickness / diameter range	greater than 0.004 in (0.102 mm)
Test direction	not stated in the cited table
Processing route	wrought precipitation-hardened iron-nickel-base alloy
Temperature range	21 ... 21 degC
Notes	Historical reference data transcribed with the stated property semantics and SI conversions. Confirm against the official PDF, a current procurement specification, the actual product form and thickness, and a material test report before engineering use.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	7940	kg/m^3	Nominal	Room temperature.

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength	965.266	MPa	Historical Design Reference	STA sheet/strip/plate >0.004 in; converted from 140 ksi.
Tensile yield strength	655.002	MPa	Historical Design Reference	STA sheet/strip/plate >0.004 in; converted from 95 ksi.
Ultimate shear strength	627.423	MPa	Historical Design Reference	STA sheet/strip/plate >0.004 in; converted from 91 ksi.
Elongation	15	%	Historical Design Reference	In 2 in for STA sheet/strip/plate >0.004 in.

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