MATERIAL DATA SHEET

EN AW-2618A-T61 forged blank (CC BY experimental reference)

Room-temperature tensile properties, batch chemistry and hardness for exact EN AW-2618A-T61 forged stock.

Field	Value
Material ID	wiley-en-aw-2618a-t61-forged-blank-reference
Category	Metal
Condition	EN AW-2618A forged cylindrical blank in the initial T61 state | forged cylindrical blank; semi-finished stock for radial compressor wheels
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
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Source and Validity

Field	Value
Quality	Unknown
Design release allowed	No
Source family	peer_reviewed_open_article
Confidence	Reference-grade
License	Open
Source note	Exact-grade condition-specific values from a CC BY 4.0 peer-reviewed article.
Citation	Ying Han, Julian M. Rosalie, Jan Radners, Mauro Madia, Philipp von Hartrott, and Birgit Skrotzki, Influence of Test Temperature and Test Frequency on Fatigue Life of Aluminum Alloy EN AW-2618A, Advanced Engineering Materials (2026) e202503187, https://doi.org/10.1002/adem.202503187.
Valid temperature	20 ... 25 degC (The retained T61 tensile and hardness references are room-temperature values only.)
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	EN AW-2618A forged cylindrical blank in the initial T61 state
Uncertainty	Exact EN AW-2618A forged stock and full T61 schedule. Table 3 tensile values are experimental results reproduced from the authors' CC BY prior study [32]; the 136 HBW value is measured for the current batch. Not an EN minimum or a general forging allowable.
Last reviewed	2026-08-03
Reviewer	scripts/import_peer_reviewed_open_aluminum_public.py
Review status	Checked

Field	Value
Review scope	Checked explicit article CC BY 4.0 grant, DOI/source integrity, exact alloy identity, condition and geometry limits, value location, and measured/reported rather than specified-minimum semantics.
Notes	Exact EN AW-2618A forged stock and full T61 schedule. Table 3 tensile values are experimental results reproduced from the authors' CC BY prior study [32]; the 136 HBW value is measured for the current batch. Not an EN minimum or a general forging allowable.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Ying Han et al.

Material Condition

Field	Value
Condition	EN AW-2618A forged cylindrical blank in the initial T61 state
Temper	T61 (article identifies this as a slightly underaged state)
Heat treatment	solution anneal 530 degC for 8 h; quench in boiling water; age 195 degC for 28 h; air cool to ambient
Product form	forged cylindrical blank; semi-finished stock for radial compressor wheels
Thickness / diameter range	blank dimensions not stated; sampled blocks 16 x 16 x 100 mm from section 3
Test direction	axial fatigue sampling region; tensile specimen direction is shown but not textually designated L/LT/ST
Processing route	wrought forged cylindrical blank; block extraction and condition-specific heat treatment as stated
Temperature range	20 ... 25 degC
Notes	Exact EN AW-2618A forged stock and full T61 schedule. Table 3 tensile values are experimental results reproduced from the authors' CC BY prior study [32]; the 136 HBW value is measured for the current batch. Not an EN minimum or a general forging allowable.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Tensile yield strength	365.0	MPa	Reported Ccby Experimental Screening	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Ultimate tensile strength	428.0	MPa	Reported Ccby Experimental Screening	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Elongation	5.3	%	Reported Ccby Experimental Screening	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Reduction in area	9.6	%	Reported Ccby Experimental Screening	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Brinell hardness	136.0	HBW 2.5/62.5	Experimental Measured Screening	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference

Composition

Property	Value	Unit	Type	Applies to
Copper mass fraction	2.5	%	Inspection Certificate Composition Reference	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Magnesium mass fraction	1.6	%	Inspection Certificate Composition Reference	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Iron mass fraction	1.1	%	Inspection Certificate Composition Reference	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Nickel mass fraction	1.1	%	Inspection Certificate Composition Reference	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Silicon mass fraction	0.23	%	Inspection Certificate Composition Reference	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference
Titanium mass fraction	0.05	%	Inspection Certificate Composition Reference	EN AW-2618A forged cylindrical blank in T61; rectangular blocks 16 x 16 x 100 mm extracted from section 3; room-temperature tensile reference

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