MATERIAL DATA SHEET

EN AW-2618A-T61 forging, overaged 1000 h at 230 degC (CC BY experimental)

Room- and elevated-temperature tensile properties for an exact EN AW-2618A forging after severe service-simulation overageing.

Field	Value
Material ID	wiley-en-aw-2618a-t61-overaged-1000h-230c-forging
Category	Metal
Condition	EN AW-2618A forged cylindrical blank, initially T61, then overaged 1000 h at 230 degC and air cooled | 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 ... 230 degC (Tensile values exist at room temperature and 230 degC only; do not interpolate without validation.)
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	EN AW-2618A forged cylindrical blank, initially T61, then overaged 1000 h at 230 degC and air cooled
Uncertainty	Exact EN AW-2618A forging and full T61-plus-overageing schedule. Table 3 values are experimental results reproduced from the authors' CC BY prior study [32]; the current paper states one tensile test per temperature. This severe overaged state is not a registered product temper, EN minimum or design allowable.
Last reviewed	2026-08-03
Reviewer	scripts/import_peer_reviewed_open_aluminum_public.py

Field	Value
Review status	Checked
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 forging and full T61-plus-overageing schedule. Table 3 values are experimental results reproduced from the authors' CC BY prior study [32]; the current paper states one tensile test per temperature. This severe overaged state is not a registered product temper, EN minimum or design 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, initially T61, then overaged 1000 h at 230 degC and air cooled
Temper	T61 plus experimental overageing 1000 h at 230 degC
Heat treatment	T61: solution anneal 530 degC for 8 h, boiling-water quench, age 195 degC for 28 h, air cool; then overage 230 degC for 1000 h and air cool
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 ... 230 degC
Notes	Exact EN AW-2618A forging and full T61-plus-overageing schedule. Table 3 values are experimental results reproduced from the authors' CC BY prior study [32]; the current paper states one tensile test per temperature. This severe overaged state is not a registered product temper, EN minimum or design allowable.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Tensile yield strength	265.0	MPa	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; room temperature
Ultimate tensile strength	351.0	MPa	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; room temperature
Elongation	7.1	%	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; room temperature
Reduction in area	10.0	%	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; room temperature
Tensile yield strength at 230 degC	181.0	MPa	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; test temperature 230 degC
Ultimate tensile strength at 230 degC	191.0	MPa	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; test temperature 230 degC
Elongation at 230 degC	9.9	%	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; test temperature 230 degC

Property	Value	Unit	Type	Applies to
Reduction in area at 230 degC	16.6	%	Reported Ccby Experimental Screening	EN AW-2618A forged blank, T61 plus 1000 h at 230 degC overageing; rectangular blocks 16 x 16 x 100 mm extracted from section 3; one tensile test per temperature; test temperature 230 degC

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