MATERIAL DATA SHEET

AA7005 hot-rolled plate, 3.3 mm, aged 120 degC for 192 h, RD (CC BY experimental)

Measured longitudinal tensile, conductivity and fatigue reference values for exact AA7005 hot-rolled plate after one fully stated solution-and-ageing schedule.

Field	Value
Material ID	mdpi-aa7005-plate-3p3mm-aged-120c-192h-rd
Category	Metal
Condition	commercial AA7005 hot-rolled plate, solution treated, water quenched and experimentally peak aged at 120 degC for 192 h | hot-rolled plate
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:02

Source and Validity

Field	Value
Quality	Experimental screening
Design release allowed	No
Source family	Experimental screening dataset
Confidence	Reference-grade
License	Open
Source note	Condition-specific base-material values from a CC BY 4.0 peer-reviewed article.
Citation	Ni Tian et al., Effect of Precipitates on the Mechanical Performance of 7005 Aluminum Alloy Plates, Materials 2022, 15, 5951, https://doi.org/10.3390/ma15175951.
Valid temperature	25 ... 25 degC (Tensile, conductivity and fatigue tests were conducted at 25 degC.)
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	commercial AA7005 hot-rolled plate, solution treated, water quenched and experimentally peak aged at 120 degC for 192 h
Uncertainty	Experimental values for one commercial AA7005 3.3 mm hot-rolled plate, one solution-and-ageing schedule and longitudinal direction. Five tensile and fatigue specimens were tested, but the cited text gives no dispersion. The state is not relabeled as a registered temper and the values are not EN product minima.
Last reviewed	2026-08-03
Reviewer	scripts/import_mdpi_open_aluminum_public.py
Review status	Checked
Review scope	Checked article CC BY notice, DOI and PDF hash, exact alloy/temper, source geometry, table values, and reported or measured rather than specified-minimum semantics.

Field	Value
Notes	Experimental values for one commercial AA7005 3.3 mm hot-rolled plate, one solution-and-ageing schedule and longitudinal direction. Five tensile and fatigue specimens were tested, but the cited text gives no dispersion. The state is not relabeled as a registered temper and the values are not EN product minima.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Ni Tian et al.

Material Condition

Field	Value
Condition	commercial AA7005 hot-rolled plate, solution treated, water quenched and experimentally peak aged at 120 degC for 192 h
Temper	experimental peak-aged state; no registered T-temper suffix is claimed
Heat treatment	solution treatment at 470 degC for 90 min, water quench, no more than 10 min room-temperature rest, then artificial ageing at 120 degC for 192 h
Product form	hot-rolled plate
Thickness / diameter range	3.3 mm
Test direction	longitudinal, loading parallel to rolling direction
Processing route	commercial hot-rolled plate supplied by Northeast Light Alloy Co., Ltd.
Temperature range	25 ... 25 degC
Notes	Experimental values for one commercial AA7005 3.3 mm hot-rolled plate, one solution-and-ageing schedule and longitudinal direction. Five tensile and fatigue specimens were tested, but the cited text gives no dispersion. The state is not relabeled as a registered temper and the values are not EN product minima.

Properties

Physical

Property	Value	Unit	Type	Applies to
Electrical conductivity	40.9	% IACS	Experimental Measured Screening	commercial AA7005 hot-rolled plate, 3.3 mm thick; solution treated at 470 degC for 90 min, water quenched, and aged at 120 degC for 192 h; longitudinal tensile loading parallel to rolling direction; room temperature 25 degC; strain rate 1e-3 1/s; five specimens

Mechanical

Property	Value	Unit	Type	Applies to
Tensile yield strength, RD	340.0	MPa	Experimental Measured Screening	commercial AA7005 hot-rolled plate, 3.3 mm thick; solution treated at 470 degC for 90 min, water quenched, and aged at 120 degC for 192 h; longitudinal tensile loading parallel to rolling direction; room temperature 25 degC; strain rate 1e-3 1/s; five specimens
Ultimate tensile strength, RD	382.0	MPa	Experimental Measured Screening	commercial AA7005 hot-rolled plate, 3.3 mm thick; solution treated at 470 degC for 90 min, water quenched, and aged at 120 degC for 192 h; longitudinal tensile loading parallel to rolling direction; room temperature 25 degC; strain rate 1e-3 1/s; five specimens
Elongation, RD	14.0	%	Experimental Measured Screening	commercial AA7005 hot-rolled plate, 3.3 mm thick; solution treated at 470 degC for 90 min, water quenched, and aged at 120 degC for 192 h; longitudinal tensile loading parallel to rolling direction; room temperature 25 degC; strain rate 1e-3 1/s; five specimens
Fatigue life at 185 MPa and R=0	942200.0	cycles	Experimental Measured Screening	commercial AA7005 hot-rolled plate, 3.3 mm thick; solution treated at 470 degC for 90 min, water quenched, and aged at 120 degC for 192 h; longitudinal tensile loading parallel to rolling direction; room temperature 25 degC; strain rate 1e-3 1/s; five specimens

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