MATERIAL DATA SHEET

AA3004 cast condition A6, compression reference (CC BY experimental)

Room- and elevated-temperature compression yield strength for laboratory AA3004 after 625 degC for 4 h.

Field	Value
Material ID	mdpi-aa3004-cast-a6-compression
Category	Metal
Condition	laboratory permanent-mold cast AA3004, condition A6 | laboratory permanent-mold cast ingot; machined compression specimen
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	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	G. S. Wang, K. Liu, and S. L. Wang, Evolution of Elevated-Temperature Strength and Creep Resistance during Multi-Step Heat Treatments in Al-Mn-Mg Alloy, Materials 2018, 11, 1158, https://doi.org/10.3390/ma11071158.
Valid temperature	20 ... 300 degC (Compression yield was measured at room temperature and 300 degC only; do not interpolate without validation.)
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	laboratory permanent-mold cast AA3004, condition A6
Uncertainty	Experimental AA3004 compression data for one laboratory cast heat and condition A6; three-test mean and stated standard deviation. Not a wrought-product tensile minimum or EN temper.
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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 AA3004 compression data for one laboratory cast heat and condition A6; three-test mean and stated standard deviation. Not a wrought-product tensile minimum or EN temper.
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Attribution	G. S. Wang

Material Condition

Field	Value
Condition	laboratory permanent-mold cast AA3004, condition A6
Temper	experimental heat-treatment code A6; no registered temper claimed
Heat treatment	625 degC for 4 h; direct water quench to room temperature
Product form	laboratory permanent-mold cast ingot; machined compression specimen
Thickness / diameter range	cast ingot 30 x 40 x 80 mm; specimen 10 mm diameter x 15 mm long
Test direction	compression direction not stated
Processing route	laboratory melt from commercial-purity feedstock, permanent-mold cast, heat treated and water quenched
Temperature range	20 ... 300 degC
Notes	Experimental AA3004 compression data for one laboratory cast heat and condition A6; three-test mean and stated standard deviation. Not a wrought-product tensile minimum or EN temper.

Properties

Physical

Property	Value	Unit	Type	Applies to
Electrical conductivity	26.9	% IACS	Experimental Measured Screening	laboratory AA3004 permanent-mold casting (Al-1.2Mn-1.1Mg-0.6Fe-0.25Si wt.%), 10 mm diameter x 15 mm compression specimen; three-test mean; strain rate 10^-3 1/s; condition A6, 625 degC for 4 h, followed by direct water quench to room temperature

Mechanical

Property	Value	Unit	Type	Applies to
Compression yield strength at room temperature	86.2	MPa	Experimental Measured Screening	laboratory AA3004 permanent-mold casting (Al-1.2Mn-1.1Mg-0.6Fe-0.25Si wt.%), 10 mm diameter x 15 mm compression specimen; three-test mean; strain rate 10^-3 1/s; condition A6, 625 degC for 4 h, followed by direct water quench to room temperature
Compression yield strength at 300 degC	59.3	MPa	Experimental Measured Screening	laboratory AA3004 permanent-mold casting (Al-1.2Mn-1.1Mg-0.6Fe-0.25Si wt.%), 10 mm diameter x 15 mm compression specimen; three-test mean; strain rate 10^-3 1/s; condition A6, 625 degC for 4 h, followed by direct water quench to room temperature

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