MATERIAL DATA SHEET

AA6008-T7 hollow extrusion, patent example A1 (patent overheat-and-cool route)

Measured tensile and axial-crush reference for exact AA6008-T7 hollow-profile example A1: regular folds; reported maximum crack length below 5 mm.

Field	Value
Material ID	uspatent-aa6008-a1-t7-hollow-profile
Category	Metal
Condition	AA6008-T7 patent-example hollow profile A1 | mono-chamber rectangular hollow extruded profile
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	published_patent_example
Confidence	Reference-grade
License	Open
Source note	Exact-grade, process-specific experimental values independently transcribed from a published U.S. patent example.
Citation	Alexis Skubich and Martin Jarrett, High strength products extruded from 6xxx aluminium alloys having excellent crash performance, U.S. Patent Application Publication US20170306465A1, published 26 October 2017, Example and Tables I-II, official PDF page 5 (patent page 4), https://image-ppubs.uspto.gov/dirsearch-public/print/downloadPdf/20170306465. Source: United States Patent and Trademark Office.
Valid temperature	The example does not state tensile- or crush-test temperature; no temperature extrapolation is allowed.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	AA6008-T7 patent-example hollow profile A1
Uncertainty	Measured values for one published AA6008 patent-example profile (A1) and its specific processing route. The source supplies no heat count, specimen count, dispersion or measurement uncertainty. These are not current EN minima, population allowables, a supplier certificate, or evidence that implementing the patented process is permitted. Aluminium is reported only as the composition remainder and is not assigned a calculated percentage.

Field	Value
Last reviewed	2026-08-03
Reviewer	scripts/import_us_patent_aa6008_public.py
Review status	Checked
Review scope	Checked official publication identity/PDF hash and all six pages for a copyright notice; USPTO patent-information terms; exact AA6008 identity; Alloy A composition; profile geometry; A-1/A-2/A-3 route, temper, tensile values and qualitative/bounded crush results; and measured-instance rather than standard-minimum semantics.
Notes	Measured values for one published AA6008 patent-example profile (A1) and its specific processing route. The source supplies no heat count, specimen count, dispersion or measurement uncertainty. These are not current EN minima, population allowables, a supplier certificate, or evidence that implementing the patented process is permitted. Aluminium is reported only as the composition remainder and is not assigned a calculated percentage.
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Material Condition

Field	Value
Condition	AA6008-T7 patent-example hollow profile A1
Temper	T7
Heat treatment	homogenize near 575 degC; heat near 575 degC; water-spray cool to Td near 430 degC while keeping the billet surface near or above 350 degC; extrude a few tens of seconds later at surface exit temperature above 500 and below 580 degC; water quench to room temperature; stretch 1%; natural age 48 h at ambient temperature; artificial age 7 h at 190 degC to T7
Product form	mono-chamber rectangular hollow extruded profile
Thickness / diameter range	approximately 40 x 55 mm section; wall thickness close to 2.5 mm
Test direction	tensile specimens machined near crash specimens; orientation not stated
Processing route	homogenize near 575 degC; heat near 575 degC; water-spray cool to Td near 430 degC while keeping the billet surface near or above 350 degC; extrude a few tens of seconds later at surface exit temperature above 500 and below 580 degC; water quench to room temperature; stretch 1%; natural age 48 h at ambient temperature; artificial age 7 h at 190 degC to T7
Temperature range	The example does not state tensile- or crush-test temperature; no temperature extrapolation is allowed.

Field	Value
Notes	Measured values for one published AA6008 patent-example profile (A1) and its specific processing route. The source supplies no heat count, specimen count, dispersion or measurement uncertainty. These are not current EN minima, population allowables, a supplier certificate, or evidence that implementing the patented process is permitted. Aluminium is reported only as the composition remainder and is not assigned a calculated percentage.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength	301.0	MPa	Experimental Measured Screening	patent example Alloy A / profile A1, explicitly AA6008-T7; mono-chamber hollow extrusion approximately 40 x 55 mm with wall thickness close to 2.5 mm; tensile-specimen orientation and test temperature not stated
Tensile yield strength	288.0	MPa	Experimental Measured Screening	patent example Alloy A / profile A1, explicitly AA6008-T7; mono-chamber hollow extrusion approximately 40 x 55 mm with wall thickness close to 2.5 mm; tensile-specimen orientation and test temperature not stated
Elongation	14.7	%	Experimental Measured Screening	patent example Alloy A / profile A1, explicitly AA6008-T7; mono-chamber hollow extrusion approximately 40 x 55 mm with wall thickness close to 2.5 mm; tensile-specimen orientation and test temperature not stated
Axial crush displacement	125.0	mm	Experimental Test Condition	patent example Alloy A / profile A1, explicitly AA6008-T7; mono-chamber hollow extrusion approximately 40 x 55 mm with wall thickness close to 2.5 mm; tensile-specimen orientation and test temperature not stated
Axial crush displacement speed	320.0	mm/min	Experimental Test Condition	patent example Alloy A / profile A1, explicitly AA6008-T7; mono-chamber hollow extrusion approximately 40 x 55 mm with wall thickness close to 2.5 mm; tensile-specimen orientation and test temperature not stated

Property	Value	Unit	Type	Applies to
Reported crush distance, exclusive lower bound	100.0	mm	Experimental Observed Lower Bound Exclusive	patent example Alloy A / profile A1, explicitly AA6008-T7; mono-chamber hollow extrusion approximately 40 x 55 mm with wall thickness close to 2.5 mm; tensile-specimen orientation and test temperature not stated
Maximum observed crack length, exclusive upper bound	5.0	mm	Experimental Observed Upper Bound Exclusive	patent example Alloy A / profile A1, explicitly AA6008-T7; mono-chamber hollow extrusion approximately 40 x 55 mm with wall thickness close to 2.5 mm; tensile-specimen orientation and test temperature not stated

Composition

Property	Value	Unit	Type	Applies to
Silicon mass fraction	0.6	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Magnesium mass fraction	0.53	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Manganese mass fraction	0.08	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Iron mass fraction	0.24	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Copper mass fraction	0.14	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Chromium mass fraction	0.009	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Zinc mass fraction	0.03	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Titanium mass fraction	0.024	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3
Vanadium mass fraction	0.071	wt%	Experimental Reported Composition Screening	patent example Alloy A; the same analyzed composition applies to profiles A-1, A-2 and A-3

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