

Alloy 6061

6000 series | Reference sheet | Data checked 14 October 2026

A heat-treatable structural alloy used for profiles, rod, bar and tube. Its strength and forming behaviour depend on the supplied temper.

Scope: Selected reference facts; incomplete alloy coverage

This reference sheet is not a material certificate, procurement specification or source of design allowables. Values apply only to their listed form, temper and condition. Confirm current requirements with the supplier and governing standard.

Forms and tempers

Forms: Extruded profiles; Rod and bar; Tube and pipe; Sheet and plate

Tempers in record: O, T1, T4, T6, T651, T6511

Selected physical properties

Density: 2700 kg/m³

Temper: Not specified | Form: Sheet, coil, plate | Condition: 20 °C

Basis: typical | Verification: cross-checked-rounded | Source: kaiser6061 | Corroboration: hydro6061 | Checked: 2026-10-14

Normalization: Kaiser 2700 kg/m³ retained; Hydro 0.098 lb/in³ reconciled within its displayed rounding interval.

Thermal conductivity: 167 W/(m·K)

Temper: T6 / T651 | Form: Sheet, coil, plate | Condition: 20 °C

Basis: typical | Verification: single-source | Source: kaiser6061 | Checked: 2026-10-14

Linear thermal expansion: 23.6 µm/(m·K)

Temper: Not specified | Form: Sheet, coil, plate | Condition: 20-100 °C average

Basis: typical | Verification: single-source | Source: kaiser6061 | Checked: 2026-10-14

Selected mechanical properties

T6 / T6511 | Extrusion

Tensile strength	Yield / proof strength	Thickness / specimen scope
260 MPa	240 MPa	≤6.30 mm

Condition: Supplier reference; thickness of tensile specimen section; not a certificate or design allowable

Basis: source-minimum | Verification: single-source | Source: hydro6061 | Checked: 2026-10-14

T6 / T651 | Sheet, coil, plate

Tensile strength	Yield / proof strength	Thickness / specimen scope
310 MPa	276 MPa	0.500 inch diameter tensile specimen; material thickness unspecified

Condition: Supplier reference; thickness of tensile specimen section; not a certificate or design allowable

Basis: typical | Verification: single-source | Source: kaiser6061 | Checked: 2026-10-14

Alloy 6061 / Composition and sources

Selected chemistry

Element	Published limit / value	Provenance
Si	0.4-0.8 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Fe	Maximum 0.7 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Cu	0.15-0.4 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Mn	Maximum 0.15 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Mg	0.8-1.2 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Cr	0.04-0.35 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Zn	Maximum 0.25 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Ti	Maximum 0.15 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Other each	Maximum 0.05 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Other total	Maximum 0.15 wt %	Basis: composition-limit Verification: single-source Source: hydro6061 Checked: 2026-10-14
Al	Remainder	Basis: remainder Verification: single-source Source: hydro6061 Checked: 2026-10-14

This is selected chemistry, not a complete composition specification. Unlisted elements must not be assumed to be zero.

Applications and selection guidance

Applications: Machinery; Transportation; General fabrication

Consider softer tempers before severe forming. Welding can lower strength near the joint; use properties appropriate to the welded condition. Compare 6063 when exposed surface appearance drives selection.

Source register

hydro6061 | Hydro • 6061 extrusions

Revision / access scope: 2019/01 (February 2019) | Checked: 2026-10-14

https://www.hydro.com/globalassets/01-products--services/extruded-profiles/americas/ena-resources/alloy-data-sheets/hydro_2019_data_sheet_6061.pdf

kaiser6061 | Kaiser • 6061 sheet, coil and plate

Revision / access scope: 05/06 | Checked: 2026-10-14

https://online.kaiseraluminum.com/depot/PublicProductInformation/Document/1015/Kaiser_Aluminum_6061_Sheet_Coil_and_Plate.pdf

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