
Aluminium 6061 Data Sheet

6061 Overview

6061 is a heat treatable medium to high strength alloy that has excellent corrosion resistance and weldability. The structural surface finish is not as architecturally pleasing as 6060/6005A. 6061 is a mid-point alloy between 6005A and 6351/ 6082 structural alloys as well as a suitable mid-range alloy between commercial architectural alloys and high strength structural alloys.

Common Applications

6061 can be extruded to minor complex shapes applicable to a broad range of industrial sections noting surface finish is less suitable for architectural applications. 6061 is commonly used in the transport market where high strength and medium fatigue strength is required as well as in truck frames, bull bars, and marine structures.

Welding

6061 has excellent weldability by all standard methods including GMAW (MIG) and GTAW (TIG). Filler alloy 4043 is the primary filler, with 5356 wire being the suggested alternative.

Machining

Machinability of 6061 is fair to good.

Similar Products

Structural alloys 6005A and 6351/6082 are respectively weaker and stronger than 6061 whereby 6005A provides a more aesthetically pleasing surface finish with medium fatigue strength and 6351/6082 provides the highest strength 6xxx alloyed option.

Chemical Composition Specification (%) Single values are maxima except as noted

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Other	
									Each	Total
6005A	0.5-0.9	0.35	0.30	0.50	0.4-0.7	0.30	0.20	0.10	0.05	0.15
6061	0.4-0.8	0.70	0.15-0.4	0.15	0.8-1.2	0.04-0.35	0.25	0.15	0.05	0.15
6351	0.7-1.3	0.5	0.10	0.4-0.8	0.4-0.8	-	0.20	0.20	0.05	0.15
6082	0.7-1.3	0.5	0.10	0.4-1.0	0.6-1.2	0.25	0.20	0.10	0.05	0.15

Mechanical Property Specification - Single values are maxima except as noted

Alloy and Temper	Thickness mm		Tensile Strength				Elongation (% min in 50mm)
	Over	Up to	Ultimate		Yield		
			Min	Max	Min	Max	
6005A T5	All thicknesses		260	-	240	-	8
6061 T4	All thicknesses		180	-	110	-	14
6061 T5		<3mm	250	-	220	-	8
6061 T5	3mm	6mm	235	-	210	-	8
6061 T6	All thicknesses		260	-	240	-	8
6082 T6	<20mm		295	-	255	-	7
6351 T6	<150mm		295	-	255	-	8

Standards Referenced

AS/NZS 1866:1997 Reconfirmed 2020 – Aluminium and aluminium alloys – Extruded rod, bar, solid and hollow shapes

AS/NZS 1664.2:1997 - Aluminium structures - Allowable stress design

AS/NZS 1665:2004 - Welding of aluminium structures

AAC (Australian Aluminium Council) publication – “Aluminium Standards Data and Design, Wrought products”.