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# Aluminium 6351 Data Sheet

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## 6351 Overview

6351 is a heat treatable high strength alloy with excellent corrosion resistance and excellent weldability with a structural surface finish. The higher strength of 6351 is ideal for structural applications particularly in marine, defence and transport.

## Common Applications

6351, and similarly 6082, has moderate extrudability suitable for high stress applications including recreational trailers, marine, boats, truck bodies, automotive componentry, food production equipment, bridges, cranes, trusses, defence, rail and civil structural supports.

## Welding

6351 has excellent weldability by all standard methods including GMAW (MIG) and GTAW (TIG). Filler alloy 4043 is the primary filler though 5356 wire is the suggested alternative.

## Machining

Machinability of 6351 is good in T5 and T6 tempers.

## Similar Products

Structural alloys 6005A and 6061 are alternatives to 6351 with slightly lower mechanical properties and improved surface finish aesthetics.

**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 T5	3mm	6mm	235	-	210	-	8
6061 T6	All thicknesses		260	-	240	-	8
6351 T4		<150mm	185	-	115	-	16
6351 T5	All thicknesses		260	-	240	-	8
6351 T6		<150mm	295	-	255	-	8
6082 T5		<6mm	270	-	230	-	8
6082 T6		<20mm	295	-	255	-	7

## Standards Referenced

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

AS/NZS 1665:2004 - Welding of aluminium structures

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

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