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Aluminium 6005A Data Sheet

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6005A Overview

6005A is an architecturally pleasing structural alloy suitable for most industrial and commercial applications. While being the lowest in strength, 6005A is considered the most versatile of the structural alloys (6005A, 6061, 6082 and 6351). 6005A is a medium strength, general purpose, aesthetically attractive, heat treatable alloy with excellent corrosion resistance and weldability. 6005A is typically ordered as temper T5 for general purpose applications. 6005A is the most suitable structural alloy for complex shapes and thin walls with a smooth surface finish.

Common Applications

6005A can be extruded to semi complex shapes applicable to a range of industrial and commercial applications where superior surface finish and structural integrity is important. It is commonly used for light structural applications including defence, transport, pontoons, pylons, tubes and hollows, marine, automotive and rail.

Welding

6005A 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 6005A is fair to good.

Similar Products

Alloy 6060 or 6063 can be substituted for 6005A providing a weaker yet architecturally pleasing solution whereas 6061, a medium strength structural alloy with reduced surface finish, can provide an improved structural solution.

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	0.4-0.80	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)
			Ultimate		Yield		
	Over	Up to	Min	Max	Min	Max	
6005A T4	All Thicknesses		180	-	110	-	14
6005A T5	All Thicknesses		260	-	240	-	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”.