
Aluminium 5005 Data Sheet

5005 Overview

Alloy 5005 is a non-heat treatable rolled product supplied as either sheet or coil and is the softest of the 5000 series alloys making this alloy very suitable for forming and welding. It has excellent corrosion resistance properties and is suitable for a broad range of applications.

5005 Mass Conversion Factor: Kilograms (kg) per mm per square metre = 2.70kg

Anodising

5005 is ideal for anodising though streaks known as “barcoding” can appear in some cases. If your application requires visual perfection without blemish “Anodised Quality 5005” (AQ) can be ordered providing a guaranteed level of protection against anodising barcoding. AQ can be ordered on indent for consistent or project requirements. Please consult your BlueScope Distribution representative for further details.

Common Applications

5005 is used for most general fabrication requirements where the product is to be constructed from sheet or coil. It is one of the most commonly consumed alloys in Australia as it is versatile, soft and ductile making it ideal for architectural applications, general componentry, food appliances and sheet metal work.

Welding

5005 has excellent weldability by all standard methods especially with GMAW (MIG) and GTAW (TIG). Filler alloy 4043 and 5356 are common filler alloys dependant on alloy joining combinations.

Machining

Machinability of 5005 is poor on soft tempers though improves as the tempers increase. Accuracy of machining is managed with high speeds, ample lubrication, sharp tools, positive rakes, adequate clearance and continuous cutting.

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

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Other	
									Each	Total
5005	0.30	0.70	0.20	0.2	0.5-1.1	0.10	0.25	-	0.05	0.15
5052	0.25	0.40	0.10	0.10	2.2-2.8	0.15-0.35	0.1	-	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	
5005-O	1.2	6.3	105	145	35	-	21
5005-H14	1.2	6.3	145	185	115	-	3
5005-H34	1.2	6.3	140	180	105	-	5
3003-H14	1.2	6.3	140	180	115	-	5
5052-H32	0.63	50	215	265	160	-	5-11
5052-H38	0.63	3.20	270	-	220	-	4

Bend radii

Recommended Minimum Bend Radii for 90-Degree Cold Forming of Sheet of 5005 (Reference test method - ASTM E290) Thickness (t)

Temper	0.8mm	1.6mm	3.2mm	4.8mm	6.0mm
O	0t	0t	0t	½t	1t
H14	0t	0t	1t	1½t	1½t
H34	0t	0t	1t	1½t	1½t

Bend radii listed are minimum recommendations only for bending sheets without fracture. Application method based on cold forming in a standard press brake with air bend dies. Alternative types of bending operations may require larger radii or smaller radii. Tooling quality and design may vary radii outcomes.

Standards Referenced

AS/NZS 1734:1997 Reconfirmed 2020 – Aluminium and aluminium alloys – Flat sheet, coiled sheet and plate

ASTM B209M - 14 – Aluminum and Aluminum Alloy Sheet and Plate

ASTM E290 – Bend Radii reference test method