

Common Aluminum Alloy Physical Property

Alloy	Grade NO.	Typical status	Chemical composition W%										Mechanical property			Density g/cm ³	Hardness HB	Weldability	Machinability	Corrosion resistance	Electrical conductivity
			Cu	Si	Fe	Mn	Mg	Zn	Cr	Ti	Pb+Bi	AL	Tensile strength Kg/mm ²	Yield strength Kg/mm ²	Elastic modulus %						
Al	1050	H14	0.05		0.40	0.05	0.05	0.05	/	/	/	Remainin g	11	10	10	2.70	26	A	D	A	A
	1100	H14	0.05-0.2	Si+Fe ≤1.0		0.05	/	0.10	/	/	/	Remainin g	11		1.0-10	2.71	32	A	D	A	A
Al-Cu	2011	T3	5.0-6.0	0.40	0.70	/	/	0.30	/	/	0.2-0.6	Remainin g	38	30	12	2.82	95	D	A	D	D
	2014	T6	3.9-5.0	0.5-1.2	0.70	0.4-1.2	0.2-0.8	0.25	0.10	0.15	/	Remainin g	48	42		2.80	135	C	B	D	D
	2017	T4	3.5-4.5	0.2-0.8	0.70	0.4-1.0	0.4-0.8	0.25	0.10	0.15	/	Remainin g	43	28		2.79	105	B	B	D	D
	2024	T4	3.8-4.9	0.50	0.50	0.3-0.9	1.2-1.8	0.25	0.10	0.15	/	Remainin g	49	37	10	2.77	120	C	B	D	D
Al-Mn	3003	H14	0.05-0.2	0.60	0.70	1.0-1.5	/	0.10	/	/	/	Remainin g	15	14	8.0-16	2.73	40	A	D	A	B
	5052	H34	0.10	0.70	0.40	0.10	2.2-2.8	0.10	0.15-0.35	/	/	Remainin g	26	21	10	2.68	68	A	C	A	D
	5083	H112	0.10	0.40	0.40	0.4-1.0	4.0-4.9	0.25	0.05-0.25	0.15	/	Remainin g	31	19	16	2.66		A	C	A	D
	5086	H32	0.10	0.40	0.50	0.2-0.7	3.5-4.5	0.25	0.05-0.25	0.15	/	Remainin g	29	21	12	2.66		A	C	A	D
Al-Mg-Si	6061	T6	0.15-0.4	0.4-0.8	0.70	0.15	0.8-1.2	0.25	0.04-0.25	0.15	/	Remainin g	31	28	12	2.70		A	C	B	C
	6063	T5	0.15-0.4	0.2-0.6	0.35	0.10	0.45-0.9	0.10	0.10	0.10	/	Remainin g	19	14	22	2.69	95	A	C	A	A
	6262	T9	0.15-0.4	0.4-0.8	0.70	0.15	0.8-1.2	0.25	0.04-0.14	0.15	0.4-0.7	Remainin g	40	38	10	2.71	60	B	B	B	C
Al-Zn	7050	T73	2.0-2.6	0.12	0.15	0.10	1.9-2.6	5.7-6.7	0.40	0.06	/	Remainin g	49	42	8	2.83	120	C	B	A	C
	7075	T6	1.2-2.0	0.40	0.50	0.30	2.1-2.9	5.1-6.1	0.40	0.06	/	Remainin g	55	49	6	2.80	150	D	B	C	C



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Grade	Weldability	Machinability	Corrosion resistance	Electrical conductivity
A	easy to weld	Excellent	Very good	55-63
B	weldable in most of applications	Very good	Good	50-55
C	Welding is restrained	Good	Average	40-50
D	Welding is not recommended	Not good	Bad	30-40

Common Questions on Aluminum Alloy Physical & Mechanical Properties

Q: Which aluminum alloy series offers the highest tensile strength according to the property list?

A: The **Al-Zn series (7000 series)** provides the highest mechanical strength. Specifically, **7075 T6** reaches a tensile strength of **55 Kg/mm²** and a yield strength of **49 Kg/mm²**, making it ideal for high-stress aerospace applications.

Q: How does the machinability of **2011 T3** compare to **5052 H34**?

A: Based on the machinability ratings (where A is excellent), **2011 T3** is rated **A** for high machinability, while **5052 H34** is rated **C**, meaning its machining performance is more restrained. 2011 is specifically designed for screw machine products.

Q: What are the corrosion resistance and weldability ratings for the **5000 series (Al-Mn/Al-Mg)**?

A: The **5000 series**, including **5052, 5083, and 5086**, all feature an **A** rating for both **corrosion resistance** and **weldability**. This makes them the preferred choice for marine environments and structures requiring high-quality welded joints.

Q: What is the electrical conductivity of pure aluminum grade **1050 H14**?

A: According to the technical data, **1050 H14** has an excellent electrical conductivity rating of **A**, with a specific value ranging between **IACS**.

This high conductivity, combined with a density of **2.70 g/cm³**, makes it perfect for electrical conductors.