Aluminum Alloy Characteristics

ALUMINUM ALLOY CHARACTERISTICS

	Alloy	Temper	Gen'l. Availability: Flat Sheet	Coil Sheet	Cut to Length Sheet	Plate	Typical Characteristics®: Corrosion Resistance	Cold Workability	Machinability	Brazability	Weldability: Gas	Arc	Resistance, spot and seam	Specified Mechanical Properties (Where range is shown, property varies with specific width and/or thickness dimensions): Tensile Strength - Ksi: Ultimate Minimum	Ultimate Maximum	Yield Minimum	Yield Maximum	Elongation in 2" or 4 times diameter -percent minimum: Sheet	Plate
Non-Heat Treatable Alloys	1100	O	x	x	x	-	A	A	D	A	A	A	B	11	15.5	3.5[1]	-	15-30	-
		H14	X	X	X	-	A	A	C	A	A	A	A	16	21	14[1]	-	3-9	-
		F	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
	3003	O	X	X	X	-	A	A	D	A	A	A	B	14	19	5[1]	-	14-25	-
		H14	X	X	X	-	A	B	C	A	A	A	A	20	26	17[1]	-	1-7	-
		F	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
	5052	O	X	X	X	-	A	A	D	C	A	A	B	25	31	9.5[1]	-	15-20	-
		H32	X	X	X	X	A	B	C	C	A	A	A	31	38	23[1]	-	4-9	11-12
		H34	X	X	X	-	A	B	C	C	A	A	A	34	41	26[1]	-	3-7	-
Heat-Treatable Alloys	Bare 2024	O[3]	X	-	-	X	C	B	D	D	D	C	B	-	32	-	14	12	12
		T3	X	-	-	-	C	C	B	D	D	C	A	63-64	-	42	-	10-15	-
		T351	-	-	-	X	C	C	B	D	D	C	A	56-64	-	40-41	-	-	4-12
		T42[2]	-	-	-	-	C	C	B	D	D	C	A	58-62	-	38	-	12-15	4-12
	Alclad 2024	O[3]	X	X	-	X	A	B	D	D	D	C	B	-	30-32	-	14	10-12	12
		T3	X	-	-	-	A	D	B	D	D	C	A	58-63	-	39-40	-	10-15	-
		T351	-	-	-	X	A	D	B	D	D	C	A	56-63	-	40-41	-	-	4-8
		T42[2]	-	-	-	-	A	D	B	D	D	C	A	55-61	-	34-38	-	10-15	4-12
	6061	O[3][1]	X	X	-	X	A	A	D	A	A	A	B	-	22	12	12	10-18	16-18
		T4	X	-	-	-	A	C	C	A	A	A	A	30	-	16	-	10-16	-
		T6	X	-	-	-	A	C	C	A	A	A	A	42	-	35	-	4-10	-
		T651	-	-	-	X	A	C	C	A	A	A	A	40-42	-	35	-	-	6-10
		T42[2]	-	-	-	-	A	C	C	A	A	A	A	30	-	14	-	10-16	16-18
	Bare 7075	O[1]	X	-	-	-	C	D	D	D	D	D	B	-	40	-	21	10	-
		T6	X	-	-	-	C	D	B	D	D	D	B	76-77	-	65-66	-	7-8	-
		T651	-	-	-	X	C	D	B	D	D	D	B	67-77	-	53-66	-	-	2-8
	Alclad 7075	O[1]	X	X	-	-	A	B	C	D	D	D	B	-	36-39	-	20-21	9-10	-
		T6	X	-	-	-	A	D	B	D	D	D	B	68-75	-	58-64	-	5-8	-

Ratings A, B, C, D are relative in decreasing order of merit. weldability and brazability ratings are specifically defined as:

A - Generally weldable by all commercial procedures and methods.
B - Weldable with special technique or specific applications which justify preliminary trials or testing to develop welding procedure and weld performance.
C -Limited weldability because of crack sensitivity or loss on resistance to corrosion, and all mechanical properties.
D - No commonly used welding methods have so far been developed.

1 - These yield strengths not determined unless specifically requested.
2 - Although sheet and plate are not sold in this temper, material heat treated from any temper by the user should attain the mechanical properties applicable to this temper.
3 - Annealed (0 temper) material shall, upon heat treatment, be capable of developing the mechanical properties applicable to T 42 temper material.
4 - Annealed (0 temper) material shall, upon heat treatment and aging, be capable of developing the mechanical properties applicable to T 67 temper material.

<u>Aluminum Bending Process:</u> One of aluminum’ s most remarkable attributes is its formability, and one of the primary methods for shaping this metal to your desired configuration is through bending. During the aluminum bending process, mechanical force is employed to transform the material into various shapes. However, it’ s important to note that not all aluminum alloys and temper conditions are equally suited for bending.