

# Wrought Aluminum Alloys

Alloy Group	Alloy Designation	Applications	Chemical Composition Limits (wt. %)										Others	Typical Temper	Mechanical Properties							Density		Weldability	Machinability	Corrosion Resistance	Conductivity
			Cu	Si	Fe	Mn	Mg	Zn	Cr	Ti	Pb, Bi	Al			UTS (kg/mm2)	UTS KSI	UTS MPA	YTS (kg/mm2)	YTS KSI	YTS MPA	Elongation %	G/CM3	LN/IN3				
Al	1050	Chemical equipment, sheet metal work, coiled tubing.	0.05	0.25	0.40	0.05	0.05	0.05	-	-	-	99.50min	-	H14	11	16	108	10	14	98	10	2.71	.0979	A	D	A	A
	1100		0.05-0.20	Si+ Fe 1.0 max	0.05	-	0.10	-	-	-	-	99.00min	-	H14	11	10	16	108	1-10	14	98	1-10	2.70	.0975	D	A	A
Al-Cu	2011	Screw machine products, truck frame, aircraft structure, jet engine impellers, aircraft engine cylinder heads.	5.0-5.6	0.40	0.70	-	-	0.30	-	-	0.20-0.60 each	rem	-	T3	38	54	373	30	43	294	12	2.83	.1022	D	A	D	D
	2014		3.9-5.0	0.50-1.2	0.70	0.40-1.2	0.20-0.80	0.25	0.10	0.15	-	rem	-	T6	48	68	471	42	60	412	12	2.80	.1012	C	B	D	D
	2017		3.5-4.5	0.20-0.80	0.70	0.40-1.0	0.40-0.80	0.25	0.10	0.15	-	rem	-	T4	43	61	422	28	40	275	12	2.79	.1008	B	B	D	D
	2024		3.8-4.9	0.50	0.50	0.30-0.90	1.2-1.8	0.25	0.10	0.15	-	rem	-	T4	49	70	481	37	53	363	10	2.78	.1004	C	B	D	D
	2218		3.5-4.5	0.90	1.0	0.20	1.2-1.8	0.25	0.10	-	-	rem	Ni1.7-2.3	T72	34	48	333	26	37	255	11	2.80	.1012	C	B	D	D
2224	3.8-4.4	0.12	0.15	30-0.90	1.2-1.8	0.25	0.10	0.15	-	rem																	
Al-Mn	3003	Cooking utensils, chemical equipment.	0.05-0.20	0.60	0.70	1.0-1.5	-	0.10	-	-	-	rem	-	H14	15	21	147	14	20	137	8-16	2.73	.0986	A	D	A	B
Al-Si	4032	Pistons.	0.50-1.3	11.0-13.5	1.0	-	0.80-1.3	0.25	0.10	-	-	rem	Ni0.5-1.3	T6	38	54	373	32	46	314	9	2.68	.0968	B	B	C	D
Al-Mg	5052	Architectural cable sheathing, welded pressure vessels, hydraulic tubes, transportation equipment.	0.10	0.25	0.40	0.10	2.2-2.8	0.10	0.15-0.35	-	-	rem	-	H14 H34	26	37	255	21	30	206	10	2.68	.0968	A	C	A	D
	5056		0.10	0.25	0.40	0.05-0.20	4.5-5.6	0.10	0.05-0.20	-	-	rem	-	H12 H32	31	44	304	15	21	147	35	2.64	.0954	A	C	A	D
	5083		0.10	0.40	0.40	0.40-1.0	4.0-4.9	0.25	0.05-0.25	0.15	-	rem	-	H112	31	44	304/td>	19	27	186	16	2.66	.0961	A	C	A	D
	5086		0.10	0.40	0.50	0.20-.70	3.5-4.5	0.25	0.05-0.25	0.15	-	rem	-	H32 H116	29	41	284	21	30	206	12	2.66	.0961	A	C	A	D
Al-Mg-Si	6061	Heavy duty structure, furniture, architectural, heavy duty welded structure, pipe line.	0.15-0.40	0.40-0.80	0.70	0.15	0.80-1.2	0.25	0.04-0.35	0.15	-	rem	-	T6	31	44	304	28	40	275	12	2.70	.0975	A	C	B	C
	6063		0.10	0.20-0.60	0.35	0.10	0.45-0.9	0.10	0.10	0.10	-	rem	-	T5	19	27	186	14	20	137	22	2.69	.0972	A	C	A	A
	6070		0.15-0.40	1.0-1.7	0.50	0.40-1.0	0.50-1.2	0.25	0.10	0.15	-	rem	-	T6	32	45	314	17	24	167	20	2.71	.0979	A	C	B	C
	6151		0.35	0.60-1.2	1.0	0.20	0.45-0.80	0.25	0.15-0.35	0.15	-	rem	-	T6	31	44	304	26	37	255	14	2.70	.0975	A	C	B	C
	6262		0.15-0.40	0.40-0.80	0.70	0.15	0.80-1.2	0.25	0.04-0.14	0.15	0.40-0.7 each	rem	-	T9	40	57	392	38	54	373	10/td>	2.71	.0979	B	B	B	C
	6351		0.10	0.70-1.3	0.50	0.40-0.80	0.40-0.80	0.20	-	0.20	-	rem	-	T6	31	44	304	28	40	275	14	2.71	.0979	A	D	A	C
6463	0.20	0.20-0.60	0.15	0.05	0.45-0.90	0.05	-	-	-	rem	-	T6	24	34	235	21	30	206	12	2.69	.0972	A	C	A	B		
Al-Zn	7001	High strength structure, aircraft structure, bat.	1.6-2.6	0.35	0.40	0.20	2.6-3.4	6.8-8.0	0.18-0.35	0.20	-	rem	-	0	69	98	677	15	21	147	14	2.84	.1026	D	B	C	C
	7003		0.20	0.30	0.35	0.30	0.50-1.0	5.0-6.5	0.20	0.20	-	rem	Zr0.5-0.25	T5	32	46	314	26	37	255	15						
	7050		2.0-2.6	0.12	0.15	0.10	1.9-2.6	5.7-6.7	0.04	0.06	-	rem	Zr0.08-0.15	T73	49	70	481	42	60	412	8	2.83	.1022	C	B	A	C
	7075		1.2-2.0	0.40	0.50	0.30	2.1-2.9	5.1-6.1	0.18-0.28	0.20	-	rem	-	T6	55	78	539	49	70	481	6	2.80	.1012	D	B	C	C
	7178		1.6-2.4	0.40	0.50	0.30	2.4-3.1	6.3-7.3	0.18-0.35	0.20	-	rem	-	T6	62	88	608	55	78	539	11	2.83	.1022	D	B	C	D
	7475		1.2-1.9	0.10	0.12	0.06	1.9-2.6	5.2-6.2	0.18-0.25	0.06	-	rem	-	T61	56	80	549	52	74	510	12	2.80	.1012	D	B	C	C
Al-Li	2090		2.4-3.0	0.10	0.12	0.05	0.25	0.10	0.05	0.15	Zr0.08-0.15	rem	Li1.9-2.6	T8	58	83	568	54	77	530	7	2.59	.0936				

(% Maximum, except where indicated as range)

Rating	Weldability	Machinability	Corrosion Resistance	Conductivity
A	Readily Weldable	Excellent	Superior	55-63
B	Weldable in Most Applications	Good-to-Excellent	Good	50-55
C	Limited Weldability	Good	Common	40-50
D	Welding Not Recommended	Not Good	Bad	30-40