Aluminum Extrusion Alloys: Number and Characteristics	Major Alloying Elements (Percent)	Temper and Thickness[1]-in.		Tensile Strength-ksi				Elongation[2] percent min in 2 in. or 4D[3]
				Ultimate		Yield		
				min	max	min	max	
1060								
Softest alloy available.Primarily used for sheathing tube for the wire and cable industry.	99.60% min. Aluminum	-0 -H112	All All	8.5 8.5	14.0 ..	2.5 2.5	.. ..	25 25
1100								
Commercially pure aluminum. Used in a variety of applications where strength is not a priority. Corrosion resistant and formable. Can be anodized and polished.	99.00% min. Aluminum Cu .05-0.20	-0 -H112	All All	11.0 11.0	15.5 ..	3.0 3.0	.. ..	25 .. (for extruded wire, rod, bar) 25 (for extruded tube)
1350								
Developed especially for electrical conductor use with a minimum conductivity of 61-62% IACS. Used in both solid and tubular forms.	99.50% min. Aluminum	-0 -H111	.375-1.000 All	8.5 8.5	14.0 ..	.. 3.5	.. ..	..
2014								
Used in structural members in aircraft and transportation equipment. Excellent for resistance and spot welding.	Cu 3.9 - 5.0 Si 0.50-1.2 Mn 0.40-1.2 Mg 0.20-0.8	-0	All	..	30.0	..	18.0	12
		-T4,T4510 & T4511[5,7]	All	50.0	..	35.0	..	12
		-T42[4,8]	All	50.0	..	29.0	..	12
		-T6, T6510[5] & T6511[5]	Up thru 0.499 0.500-0.749 0.750 & over[11] 0.750 & over[12]	60.0 64.0 68.0 68.0	.. ..	53.0 58.0 60.0 58.0	.. ..	7 7 7 6
		-T62[4,8]	Up thru 0.749 0.750 & over[11] 0.750 & over[12]	60.0 60.0 60.0	.. .. ..	53.0 53.0 53.0	.. .. ..	7 7 6
2024								
Principally used for structural members in aircraft construction. Similar to 2014 in strength and behavior. Can be spot welded.	Cu 3.8 - 4.9 Mg 1.2 - 1.8 Mn 0.30-0.9	-0	All	..	35.0	..	19.0	12
		-T3, T3510[5,7] & T3511[5,7]	Up thru 0.249 0.250-0.749 0.750-1.499 1.500 & over[11] 1.500 & over[12]	57.0 60.0 65.0 70.0 68.0	.. ..	42.0 44.0 46.0 52.0[14] 48.0[15]	.. ..	12[16] 12[16] 10 10 8
		-T42[4,8]	Up thru 0.749 0.750-1.499 1.500 & over[11] 1.500 & over[12]	57.0 57.0 57.0 57.0	.. ..	38.0 38.0 38.0 38.0	.. ..	12 10 10 8
		-T81,T8510[5] & T8511[5]	0.050-0.249 0.250-1.499 1.500 & over[13]	64.0 66.0 66.0	.. .. ..	56.0 58.0 58.0	.. ..	4 5 5
3003								
Good corrosion resistance, formability, and weldability. Used in chemical equipment, furniture, condensers, heat exchangers, and pressure vessels.	Mn 1.0 - 1.5 Cu 0.05-0.20	-0 H112	All All	14.0 14.0	19.0 ..	5.0 5.0	.. ..	25 .. (for extruded wire, rod, bar) 25 (for extruded tube)
5083								
Designed for welded structures requiring maximum joint strength or subject to vibration and fatigue. 12 Good corrosion resistance.	Mg 4.0 - 4.9 Mn 0.40 - 1.0 Cr 0.05-0.25	-0 -H111 -H112	Up thru 5.000[13] Up thru 5.000[13] Up thru 5.000[13]	39.0 40.0 39.0	51.0	16.0 24.0 16.0	.. .. ..	14 12

Aluminum Extrusion Alloys: Number and Characteristics	Major Alloying Elements (Percent)	Temper and Thickness[1]-in.		Tensile Strength-ksi				Elongation[2] percent min in 2 in. or 4D[3]
				Ultimate		Yield		
				min	max	min	max	
5086								
Similar to 5083; has slightly lower mechanical properties.	Mg 3.5 - 4.5 Mn 0.20-0.7 Cr 0.05-0.25	-0 -H111 -H112	Up thru 5.000[13] Up thru 5.000[13] Up thru 5.000[13]	35.0 36.0 35.0	46.0	14.0 21.0 14.0	.. .. ..	14[13a] 12[13a] 12[13a]
5154								
Excellent corrosion resistance and weldability. Used for welded structures, storage tanks, pressure vessels, salt water service.	Mg 3.1 - 3.9 Cr 0.15-0.35 Si 0.25 Fe 0.40	-0 -H112	All All	30.0 30.0	41.0 ..	11.0 11.0	.. ..	.. ..
5454								
Used in marine, transportation, ordnance and cryogenic industries. Medium strength weldable alloy with excellent corrosion resistance.	Mg 2.4 - 3.0 Mn .50 - 1.0 Cr 0.05 - 0.20	-0 -H111 -H112	Up thru 5.000[13] Up thru 5.000[13] Up thru 5.000[13]	31.0 33.0 31.0	41.0	12.0 19.0 12.0	.. .. ..	14[13a] 12[13a] 12[13a]
6005								
Mechanical properties similar to 6061. Used in structural applications.	Si 0.6 - 0.9 Mg 0.40-0.6	-T1	Up thru 0.500	25.0	..	15.0	..	16
		-T5	Up thru 0.124 0.125-1.000	38.0 38.0	.. ..	35.0 35.0	.. ..	8 10
6060								
Has better extrudability than 6063. The minimum mechanical properties (with the exception of minimum welded properties), response to finishing processes, and corrosion resistance are similar to 6063.	Si 0.30-0.6 Mg 0.35-0.6 Fe 0.10-0.30	-T51[19]	Up thru .125	22.0	..	16.0	..	8
		-T61[19]	Up thru 1.000 Up thru .124 0.125-1.000	22.0 30.0 30.0	30.0	16.0 25.0 25.0	25.0	8 8 10
6061								
Most versatile of heat-treatable group. Will take considerable forming in T4. Good corrosion resistance. Used in transportation and structural applications.	Mg 0.8 - 1.2 Si 0.40-0.8 Cu 0.15-0.40 Cr 0.04-0.35	-0 -T1 -T4,T4510[5,7] and T4511[5,7] -T42[4,8] -T51 -T6,T62,[4,8] T6510[5] and T6511[5]	All Up thru 0.625 All All Up thru 0.625 Up thru 0.249 0.250 and over	.. 26.0 26.0 26.0 35.0 38.0 38.0	22.0	.. 14.0 16.0 12.0 30.0 35.0 35.0	16.0	16 16 16 16 8 8 10
6063								
The most popular extrusion alloy. Takes a good surface finish, is corrosion-resistant, and can be heat-treated for strength.	Mg 0.45-0.9 Si 0.20-0.6	-0	All	..	19.0	..	..	18
		-T1	Up thru 0.500 0.501-1.000	17.0 16.0	.. ..	9.0 8.0	.. ..	12 12
		-T4 and T42[4,8]	Up thru 0.500 0.501-1.000	19.0 18.0	.. ..	10.0 9.0	.. ..	14 14
		-T5	Up thru 0.500 0.501-1.000	22.0 21.0	.. ..	16.0 15.0	.. ..	8 8
		-T52	Up thru 1.000	22.0	30.0	16.0	25.0	8
		-T6 and T62[4,8]	Up thru 0.124 0.125-1.000	30.0 30.0	.. ..	25.0 25.0	.. ..	8 10

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				Ultimate		Yield		
				min	max	min	max	
6101								
High strength bus conductors; good extrudability, weldability, brazeability, good resistance to stress corrosion cracking with average machinability.	Si 0.30-0.7 Mg 0.35-0.8	-H111	0.250 - 2.000	12.0	..	8.0	..	..
		-T6	0.125 - 0.500	29.0	..	25.0	..	15
		-T61	0.125 - 0.749	20.0	..	15.0	..	
			0.750 - 1.499	18.0	..	11.0	..	19
			1.500 - 2.000	15.0	..	8.0	..	
		-T63	0.125 - 1.000	27.0	..	22.0	..	17
		-T64	0.125 - 1.000	15.0	..	8.0	..	20
		-T65	0.125 - 0.749	25.0	32.0	20.0	27.0	..
6105								
Good medium to high strength with average machinability and good corrosion resistance.	Si 0.60-1.0 Mg 0.45-0.8	-T1	Up thru .500	25.0	..	15.0	..	16
		-T5	Up thru .500	38.0	..	35.0	..	8
6262								
Best machining of all extrusion alloys. Good corrosion resistance.	Mg 0.8 - 1.2 Si 0.40-0.8 Pb 0.40-0.7 Bi 0.40-0.7 Cu 0.15-0.4 Cr 0.04-0.14	-T6,T62,[4,8] T6510[5] and T6511[5]	All	38.0	..	35.0	..	10
6351								
Mechanical properties similar to 6061. Used in structural applications. Will take considerable forming in T4. Good corrosion resistance. Used in transportation and general structures.	Si 0.7 - 1.3 Mg 0.40 -0.8 Mn 0.40 -0.8	-T1	Up thru 0.499[17]	26.0	..	13.0	..	15
		-T4	Up thru 0.749[17]	32.0	..	19.0	..	16
		-T5	Up thru 0.249[17]	38.0	..	35.0	..	8
			0.250-1.000[17]	38.0	..	35.0	..	10
		-T51	0.125-1.00[17]	36.0	..	33.0	..	10
		-T54	Up thru 0.500[17]	30.0	..	20.0	..	10
		-T6	Up thru 0.124	42.0	..	37.0	..	8
			0.125-0.749	42.0	..	37.0	..	10
6463								
Designed to accept a bright finish through anodizing or polishing. Decorative trim applications; machinable and heat-treatable.	Mg 0.45-0.9 Si 0.20-0.6 High purity version of 6063	-T1	Up thru 0.500[17]	17.0	..	9.0	..	12
		-T5	Up thru 0.500[17]	22.0	..	16.0	..	8
			Up thru 0.124[17]	30.0	..	25.0	..	8
		-T6 and T62[4,8]	0.125-0.500[17]	30.0	..	25.0	..	10
7005								
Used in automotive and other transportation applications where added strength is required.	Zn 4.0 - 5.0 Mg 1.0 - 1.8 Mn 0.20-0.7 Cr 0.06-0.20 Zr 0.08-0.20 Ti 0.01-0.06	-T53	All	50.0	..	44.0	..	10
7050								
Used in applications requiring high strength and stress corrosion resistance.	Zn 5.7-6.7 Mg 1.9-2.6 Cu 2.0-2.6 Zr 0.08-0.15	-T73510[9] & T73511[9]	up thru 5.000[13]	70.0	..	60.0	..	8
		-T74510[20] & T74511[20]	up thru 5.000[13]	73.0	..	63.0	..	7
		-T76510[21] & T76511[21]	up thru 0.499[13]	77.0	..	68.0	..	7
		-T76510[21] & T76511[21]	0.500-5.000[13]	79.0	..	69.0	..	7

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				Ultimate		Yield		
				min	max	min	max	
7075								
Used for aircraft structural members, when extra strength is required. Can be spot welded.	Zn 5.1 - 6.1 Mg 2.1 - 2.9 Cu 1.2 - 2.0 Cr 0.18-0.28	-0	All	..	40.0	..	24.0	10
		-T6, T62,[4,8] T6510[5] & T6511[5]	Up thru 0.249	78.0	..	70.0	..	7
			0.250 - 0.499	81.0	..	73.0	..	7
			0.500 - 1.499	81.0	..	72.0	..	7
			1.500 - 2.999	81.0	..	72.0	..	7
			3.000 - 4.499[17]	81.0	..	71.0	..	7
			3.000 - 4.499[18]	78.0	..	70.0	..	6
			4.500 - 5.000[13]	78.0	..	68.0	..	6
		-T73,[9] T73510[5,9] & T73511[5,9]	0.062-0.249[17]	68.0	..	58.0	..	7
			0.250-1.499[11]	70.0	..	61.0	..	8
			1.500-2.999[11]	69.0	..	59.0	..	8
			3.000-4.499[17]	68.0	..	57.0	..	7
			3.000-4.499[18]	65.0	..	55.0	..	7
		-T76,[10] T76510[5,10] & T76511[5,10]	Up thru 0.249	73.0	..	63.0	..	7
			0.050-0.124	74.0	..	64.0	..	7
			0.125-0.249[17]	74.0	..	64.0	..	7
			0.250-0.499[17]	75.0	..	65.0	..	7
			0.500-1.000[17]	75.0	..	65.0	..	7
			1.001-2.000[17]	75.0	..	65.0	..	7
			2.001-3.000[17]	74.0	..	64.0	..	7
			3.001-4.000[17]	74.0	..	63.0	..	7
7178								
Used primarily for aircraft structural members where high strength is required but where impact loading is not experienced.	Zn 6.3 - 7.3 Mg 2.4 - 3.1 Cu 1.6 - 2.4 Cr 0.18-0.28	-0 [13]	All [13]	..	40.0	..	24.0	10
		-T6,T6510[5] & T6511[5]	Up thru 0.061[17]	82.0	..	76.0	..	..
			0.062-0.249 [17]	84.0	..	76.0	..	5
			0.250-1.499 [11]	87.0	..	78.0	..	5
			1.500-2.499 [11]	86.0	..	77.0	..	5
			1.500-2.499 [12]	84.0	..	75.0	..	5
			2.500-2.999 [13]	82.0	..	71.0	..	5
		-T62[4,8]	Up thru 0.061[17]	79.0	..	73.0	..	..
			0.062-0.249 [17]	82.0	..	74.0	..	5
			0.250-1.499 [11]	86.0	..	77.0	..	5
			1.500-2.499 [11]	86.0	..	77.0	..	5
			1.500-2.499 [12]	84.0	..	75.0	..	5
			2.500-2.999 [13]	82.0	..	71.0	..	5
		-T76,[10] T76510[5,10] & T76511[5,10]	0.125-0.249 [17]	76.0	..	66.0	..	7
			0.250-0.499 [17]	77.0	..	67.0	..	7
			0.500-1.000 [17]	77.0	..	67.0	..	7
7475								
Typically used for shell casings, aircraft, and structures.	Zn 5.7 Mg 2.2 Cu 1.6 Cr 0.22	-T62	1.001-2.000	75.0	..	66.0	..	7