

# Converting Copper to Aluminum using an Ampacity Chart



Ampacity Conversion Chart			Copper C110			30° C Rise	50° C Rise	65° C Rise	Aluminum 6101			30° C Rise	50° C Rise	65° C Rise
Flat Bar Size in Inches	Sq. In	Circ Mills Thousands	Weight Per Ft in Lb.	DC Resistance at 20° C, Microhms/Ft	60 Hz Ampacity Amp*			Weight Per Ft in Lb.	DC Resistance at 20° C, Microhms/Ft	60 Hz Ampacity Amp**				
1/16 x 1/2	0.0312	39.7	0.121	264	103	136	157	0.037	494	58	76	88		
1/16 x 3/4	0.0469	59.7	0.181	175	145	193	225	0.055	327	81	108	126		
1/16 x 1	0.0625	79.6	0.242	132	187	250	285	0.073	247	105	140	160		
1/16 x 1 1/2	0.0938	119	0.362	87.7	270	355	410	0.110	164	151	199	230		
1/16 x 2	0.125	159	0.483	65.8	345	460	530	0.146	123	193	258	297		
1/8 x 1/2	0.0625	79.6	0.241	132	153	205	235	0.073	247	86	115	132		
1/8 x 3/4	0.0938	119	0.362	87.7	215	285	325	0.110	164	120	160	182		
1/8 x 1	0.125	159	0.483	65.8	270	360	415	0.146	123	151	202	232		
1/8 x 1 1/2	0.188	239	0.726	43.8	385	510	590	0.220	82	216	286	330		
1/8 x 2	0.25	318	0.966	32.9	495	660	760	0.293	62	277	370	426		
1/8 x 2 1/2	0.312	397	1.210	26.4	600	800	920	0.365	49	336	448	515		
1/8 x 3	0.375	477	1.450	21.9	710	940	1100	0.439	41	398	526	616		
1/8 x 3 1/2	0.438	558	1.690	18.8	810	1100	1250	0.512	35	454	616	700		
1/8 x 4	0.5	636	1.930	16.5	900	1200	1400	0.585	31	504	672	784		
3/16 x 1/2	0.09375	119	0.362	87.7	195	260	300	0.110	164	109	146	168		
3/16 x 3/4	0.141	179	0.545	58.4	270	360	415	0.165	109	151	202	232		
3/16 x 1	0.188	239	0.726	43.8	340	455	520	0.220	82	190	255	291		
3/16 x 1 1/2	0.281	358	1.090	29.3	480	630	730	0.329	55	269	353	409		
3/16 x 2	0.375	477	1.450	21.9	610	810	940	0.439	41	342	454	526		
3/16 x 2 1/2	0.469	597	1.810	17.5	740	980	1150	0.549	33	414	549	644		
3/16 x 3	0.562	715	2.170	14.6	870	1150	1350	0.658	27	487	644	756		
3/16 x 3 1/2	0.656	835	2.530	12.5	990	1300	1500	0.768	23	554	728	840		
3/16 x 4	0.75	955	2.900	11	1100	1450	1700	0.878	21	616	812	952		
1/4 x 1/2	0.125	159	0.483	65.8	240	315	360	0.146	123	134	176	202		
1/4 x 3/4	0.188	239	0.726	43.8	320	425	490	0.220	82	179	238	274		
1/4 x 1	0.25	318	0.966	32.9	400	530	620	0.293	62	224	297	347		
1/4 x 1 1/2	0.375	477	1.450	21.9	560	740	880	0.439	41	314	414	482		
1/4 x 2	0.5	637	1.930	16.5	710	940	1100	0.585	31	398	526	616		
1/4 x 2 1/2	0.625	796	2.410	13.2	850	1150	1300	0.731	25	476	644	728		
1/4 x 3	0.75	955	2.900	11	990	1300	1550	0.878	21	554	728	868		
1/4 x 3 1/2	0.875	1110	3.380	9.4	1150	1500	1750	1.024	18	644	840	980		
1/4 x 4	1	1270	3.860	8.23	1250	1700	1950	1.170	15	700	952	1092		
1/4 x 5	1.25	1590	4.830	6.58	1500	2000	2350	1.463	12	840	1120	1316		
1/4 x 6	1.5	1910	5.800	5.49	1750	2350	2700	1.755	10	980	1316	1512		
3/8 x 3/4	0.281	368	1.090	29.3	415	550	630	0.329	55	232	308	353		
3/8 x 1	0.375	477	1.450	21.9	510	680	790	0.439	41	286	381	442		
3/8 x 1 1/2	0.562	715	2.170	14.6	710	940	1100	0.658	27	398	526	616		
3/8 x 2	0.75	955	2.900	11	880	1150	1350	0.878	21	493	644	756		
3/8 x 2 1/2	0.938	1190	3.620	8.77	1050	1400	1600	1.097	16	5.88	784	896		
3/8 x 3	1.12	1430	4.350	7.35	1200	1600	1850	1.310	14	672	896	1036		
3/8 x 3 1/2	1.31	1670	5.060	6.38	1350	1800	2100	1.533	12	756	1008	1176		
3/8 x 4	1.5	1910	5.8	5.49	1500	2000	2350	1.755	10	840	1120	1316		
3/8 x 5	1.88	2390	7.26	4.38	1800	2400	2800	2.2	8	1008	1344	1568		
3/8 x 6	2.25	2860	8.69	3.66	2100	2800	3250	2.633	7	1176	1568	1820		
1/2 x 1	0.5	637	1.93	16.5	620	820	940	0.585	31	347	459	526		
1/2 x 1 1/2	0.75	955	2.9	11	830	1100	1250	0.878	21	465	616	700		
1/2 x 2	1	1270	3.86	8.23	1000	1350	1550	1.17	15	560	756	868		
1/2 x 2 1/2	1.25	1590	4.83	6.58	1200	1600	1850	1.463	12	672	896	1036		
1/2 x 3	1.5	1910	5.8	5.49	1400	1850	2150	1.755	10	784	1036	1204		
1/2 x 3 1/2	1.75	2230	6.76	4.7	1550	2100	2400	2.048	9	868	1176	1344		
1/2 x 4	2	2550	7.73	4.11	1700	2300	2650	2.34	8	952	1288	1484		
1/2 x 5	2.5	3180	9.66	3.29	2050	2750	3150	2.925	6	1148	1540	1764		
1/2 x 6	3	3820	11.6	2.74	2400	3150	3650	3.51	5	1344	1764	2044		
1/2 x 8	4	5090	15.5	2.06	3000	4000	4600	4.68	4	1680	2240	2576		

\* Source: Copper Development Organization [https://www.copper.org/applications/electrical/busbar/bus\\_table1.html](https://www.copper.org/applications/electrical/busbar/bus_table1.html)

\*\* Source: Aluminum Association <https://www.aluminum.org/sites/default/files/aecd13.pdf>

Note: Ratings depend upon configuration, air flow, ambient temp, etc. The values depicted are an approximation. Controlled testing is always required to validate.

Other considerations:

Forming the busbar (aluminum has a tendency to crack with very tight radius)

Electroplating the busbar (white rust on aluminum, oxidation is an issue with aluminum)

Configuration of the busbar (vertical or horizontal configuration)