

Ampacities and Mechanical Properties of Rectangular Copper Busbars: Table 1. Ampacities of Copper No. 110

Ampacities of Copper No. 110 Busbars - Ampacities in the table below are for bus bars having an emissivity of 0.4. This was observed on samples exposed for 60 days in an industrial environment, and it is probably identical to that of bus bars in service.

Dimensions, In.	Area		Weight Per Foot, Lb	DC Resistance at 20° C, Microhms Per Ft
	Square In.	Circular Mils, Thousands		
1/16 x 1/2	0.0312	39.7	0.121	264.0
1/16 x 3/4	0.0469	59.7	0.181	175.0
1/16 x 1	0.0625	79.6	0.241	132.0
1/16 x 1 1/2	0.0938	119	0.362	87.7
1/16 x 2	0.125	159	0.483	65.8
1/8 x 1/2	0.0625	79.6	0.241	132.0
1/8 x 3/4	0.0938	119	0.362	87.7
1/8 x 1	0.125	159	0.483	65.8
1/8 x 1 1/2	0.188	239	0.726	43.8
1/8 x 2	0.250	318	0.966	32.9
1/8 x 2 1/2	0.312	397	1.21	26.4
1/8 x 3	0.375	477	1.45	21.9
1/8 x 3 1/2	0.438	558	1.69	18.8
1/8 x 4	0.500	636	1.93	16.5
3/16 x 1/2	0.0938	119	0.362	87.7
3/16 x 3/4	0.141	179	0.545	58.4
3/16 x 1	0.188	239	0.726	43.8
3/16 x 1 1/2	0.281	358	1.09	29.3
3/16 x 2	0.375	477	1.45	21.9
3/16 x 2 1/2	0.469	597	1.81	17.5
3/16 x 3	0.562	715	2.17	14.6
3/16 x 3 1/2	0.656	835	2.53	12.5
3/16 x 4	0.750	955	2.90	11.0
1/4 x 1/2	0.125	159	0.483	65.8
1/4 x 3/4	0.188	239	0.726	43.8
1/4 x 1	0.250	318	0.966	32.9
1/4 x 1 1/2	0.375	477	1.45	21.9
1/4 x 2	0.500	637	1.93	16.5
1/4 x 2 1/2	0.625	796	2.41	13.2
1/4 x 3	0.750	955	2.90	11.0
1/4 x 3 1/2	0.875	1,110	3.38	9.40
1/4 x 4	1.00	1,270	3.86	8.23
1/4 x 5	1.25	1,590	4.83	6.58
1/4 x 6	1.50	1,910	5.80	5.49
1/4 x 8	2.00	2,550	7.73	4.11
1/4 x 10	2.50	3,180	9.66	3.29
1/4 x 12	3.00	3,820	11.6	2.74
3/8 x 3/4	0.281	358	1.09	29.3
3/8 x 1	0.375	477	1.45	21.9
3/8 x 1 1/2	0.562	715	2.17	14.6
3/8 x 2	0.750	955	2.90	11.0
3/8 x 2 1/2	0.938	1,190	3.62	8.77
3/8 x 3	1.12	1,430	4.35	7.35
3/8 x 3 1/2	1.31	1,670	5.06	6.28
3/8 x 4	1.50	1,910	5.80	5.49
3/8 x 5	1.88	2,390	7.26	4.38
3/8 x 6	2.25	2,860	8.69	3.66
3/8 x 8	3.00	3,820	11.6	2.74
3/8 x 10	3.75	4,770	14.5	2.19
3/8 x 12	4.50	5,730	17.4	1.83

Dimensions, In.	Area		Weight Per Foot, Lb	DC Resistance at 20° C, Microhms Per Ft
	Square In.	Circular Mils, Thousands		
1/2 x 1	0.500	637	1.93	16.5
1/2 x 1 1/2	0.750	955	2.90	11.0
1/2 x 2	1.00	1,270	3.86	8.23
1/2 x 2 1/2	1.25	1,590	4.83	6.58
1/2 x 3	1.50	1,910	5.80	5.49
1/2 x 3 1/2	1.75	2,230	6.76	4.70
1/2 x 4	2.00	2,550	7.73	4.11
1/2 x 5	2.50	3,180	9.66	3.29
1/2 x 6	3.00	3,820	11.6	2.74
1/2 x 8	4.00	5,090	15.5	2.06
1/2 x 10	5.00	6,360	19.3	1.65
1/2 x 12	6.00	7,640	23.2	1.37
3/4 x 4	3.00	3,820	11.6	2.74
3/4 x 5	3.75	4,770	14.5	2.19
3/4 x 6	4.50	5,730	17.4	1.83
3/4 x 8	6.00	7,640	23.2	1.37
3/4 x 10	7.50	9,550	29.0	1.10
3/4 x 12	9.00	11,500	34.8	0.914

Dimensions, In.	30 °C Rise		50 °C Rise		65 °C Rise	
	Skin Effect Ratio at 70° C	60-Hz Ampacity, *Amp	Skin Effect Ratio at 90° C	60-Hz Ampacity, *Amp	Skin Effect Ratio at 105° C	60-Hz Ampacity, *Amp
1/16 x 1/2	1.00	103	1.00	136	1.00	157
1/16 x 3/4	1.00	145	1.00	193	1.00	225
1/16 x 1	1.00	187	1.00	250	1.00	285
1/16 x 1 1/2	1.00	270	1.00	355	1.00	410
1/16 x 2	1.01	345	1.01	460	1.01	530
1/8 x 1/2	1.00	153	1.00	205	1.00	235
1/8 x 3/4	1.00	215	1.00	285	1.00	325
1/8 x 1	1.01	270	1.01	360	1.01	415
1/8 x 1 1/2	1.01	385	1.01	510	1.01	590
1/8 x 2	1.02	495	1.02	660	1.02	760
1/8 x 2 1/2	1.02	600	1.02	800	1.02	920
1/8 x 3	1.03	710	1.03	940	1.03	1,100
1/8 x 3 1/2	1.04	810	1.03	1,100	1.03	1,250
1/8 x 4	1.04	910	1.04	1,200	1.04	1,400
3/16 x 1/2	1.00	195	1.00	260	1.00	300
3/16 x 3/4	1.01	270	1.01	360	1.01	415
3/16 x 1	1.01	340	1.01	455	1.01	520
3/16 x 1 1/2	1.02	480	1.02	630	1.02	730
3/16 x 2	1.03	610	1.03	810	1.03	940
3/16 x 2 1/2	1.04	740	1.04	980	1.03	1,150
3/16 x 3	1.05	870	1.05	1,150	1.04	1,350
3/16 x 3 1/2	1.07	990	1.06	1,300	1.06	1,500
3/16 x 4	1.09	1,100	1.08	1,450	1.07	1,700
1/4 x 1/2	1.01	240	1.01	315	1.01	360
1/4 x 3/4	1.01	320	1.01	425	1.01	490
1/4 x 1	1.02	400	1.02	530	1.02	620
1/4 x 1 1/2	1.03	560	1.03	740	1.03	860
1/4 x 2	1.04	710	1.04	940	1.04	1,100
1/4 x 2 1/2	1.06	850	1.06	1,150	1.06	1,300
1/4 x 3	1.08	990	1.08	1,300	1.07	1,550
1/4 x 3 1/2	1.10	1,150	1.09	1,500	1.09	1,750
1/4 x 4	1.12	1,250	1.11	1,700	1.10	1,950
1/4 x 5	1.16	1,500	1.15	2,000	1.14	2,350
1/4 x 6	1.18	1,750	1.17	2,350	1.17	2,700
1/4 x 8	1.23	2,250	1.22	3,000	1.21	3,450
1/4 x 10	1.27	2,700	1.26	3,600	1.25	4,200

Dimensions, In.	30 °C Rise		50 °C Rise		65 °C Rise	
	Skin Effect Ratio at 70° C	60-Hz Ampacity,* Amp	Skin Effect Ratio at 90° C	60-Hz Ampacity, *Amp	Skin Effect Ratio at 105° C	60-Hz Ampacity, *Amp
1/4 x 12	1.31	3,150	1.30	4,200	1.28	4,900
3/8 x 3/4	1.02	415	1.02	550	1.02	630
3/8 x 1	1.03	510	1.03	680	1.03	790
3/8 x 1 1/2	1.05	710	1.04	940	1.04	1,100
3/8 x 2	1.08	880	1.08	1,150	1.07	1,350
3/8 x 2 1/2	1.12	1,050	1.10	1,400	1.09	1,600
3/8 x 3	1.15	1,200	1.14	1,600	1.13	1,850
3/8 x 3 1/2	1.18	1,350	1.16	1,800	1.15	2,100
3/8 x 4	1.20	1,500	1.19	2,000	1.18	2,350
3/8 x 5	1.24	1,800	1.23	2,400	1.22	2,800
3/8 x 6	1.27	2,100	1.26	2,800	1.24	3,250
3/8 x 8	1.33	2,650	1.31	3,550	1.30	4,100
3/8 x 10	1.38	3,200	1.36	4,300	1.35	4,900
3/8 x 12	1.42	3,700	1.40	5,000	1.38	5,800
1/2 x 1	1.04	620	1.04	820	1.04	940
1/2 x 1 1/2	1.08	830	1.08	1,100	1.07	1,250
1/2 x 2	1.12	1,000	1.11	1,350	1.10	1,550
1/2 x 2 1/2	1.16	1,200	1.15	1,600	1.14	1,850
1/2 x 3	1.20	1,400	1.19	1,850	1.18	2,150
1/2 x 3 1/2	1.24	1,550	1.22	2,100	1.21	2,400
1/2 x 4	1.26	1,700	1.25	2,300	1.24	2,650
1/2 x 5	1.32	2,050	1.30	2,750	1.29	3,150
1/2 x 6	1.36	2,400	1.34	3,150	1.33	3,650
1/2 x 8	1.42	3,000	1.40	4,000	1.39	4,600
1/2 x 10	1.47	3,600	1.45	4,800	1.44	5,500
1/2 x 12	1.52	4,200	1.51	5,600	1.50	6,400
3/4 x 4	1.42	2,050	1.40	2,750	1.38	3,150
3/4 x 5	1.48	2,400	1.46	3,250	1.44	3,750
3/4 x 6	1.52	2,800	1.50	3,750	1.48	4,300
3/4 x 8	1.60	3,500	1.58	4,700	1.56	5,400
3/4 x 10	1.67	4,200	1.64	5,600	1.62	6,500
3/4 x 12	1.72	4,900	1.69	6,500	1.67	7,500

* Applicable to typical in-service conditions (indoors, 40°C ambient temperature), horizontal run on edge, and free from external magnetic influences.

Excerpt From: Copper Development Association, Inc