

BUS BAR AMPACITY TABLE AMPACITIES OF COPPER BUS BARS ALLOY UNS C11000

| Dimension, In. | Area | | Weight Per Ft in Lb. | DC Resistance at 20°C, Microhms/Ft. | 30°C Rise | | 50°C Rise | | 65°C Rise | |
|----------------|--------|--------------------------------|----------------------|---|---------------------------------|---------------------------|---------------------------------|---------------------------|---------------------------------|---------------------------|
| | Sq. In | MCM (Thousand Circ Mils) | | | Skin Effect Ratio at 90°C | 60 Hz Ampacity Amp* | Skin Effect Ratio at 90°C | 60 Hz Ampacity Amp* | Skin Effect Ratio at 90°C | 60 Hz Ampacity Amp* |
| 1/16 x 1/2 | .0312 | 39.7 | .121 | 264.0 | 1.00 | 103 | 1.00 | 136 | 1.00 | 157 |
| 1/16 x 3/4 | .0469 | 59.7 | .181 | 175.0 | 1.00 | 145 | 1.00 | 193 | 1.00 | 225 |
| 1/16 x 1 | .0625 | 79.6 | .241 | 132 | 1.00 | 187 | 1.00 | 250 | 1.00 | 285 |
| 1/16 x 1 1/2 | .0938 | 119 | .362 | 87.7 | 1.00 | 270 | 1.00 | 355 | 1.00 | 410 |
| 1/16 x 2 | .125 | 159 | .483 | 65.8 | 1.01 | 345 | 1.01 | 460 | 1.01 | 530 |
| | | 1 | | 1 | | | 1 | | | |
| 1/8 x 1/2 | .0625 | 79.6 | .241 | 132 | 1.00 | 153 | 1.00 | 205 | 1.00 | 235 |
| 1/8 x 3/4 | .0938 | 119 | .362 | 87.7 | 1.00 | 215 | 1.00 | 285 | 1.00 | 325 |
| 1/8 x 1 | .125 | 159 | .483 | 65.8 | 1.01 | 270 | 1.01 | 360 | 1.01 | 415 |
| 1/8 x 1 1/2 | .188 | 239 | .726 | 43.8 | 1.01 | 385 | 1.01 | 510 | 1.01 | 590 |
| 1/8 x 2 | .250 | 318 | .966 | 32.9 | 1.02 | 495 | 1.02 | 660 | 1.02 | 760 |
| 1/8 x 2 1/2 | .312 | 397 | 1.21 | 26.4 | 1.02 | 600 | 1.02 | 800 | 1.02 | 920 |
| 1/8 x 3 | .375 | 477 | 1.45 | 21.9 | 1.03 | 710 | 1.03 | 940 | 1.03 | 1100 |
| 1/8 x 3 1/2 | .438 | 558 | 1.69 | 18.8 | 1.04 | 810 | 1.03 | 1100 | 1.03 | 1250 |
| 1/8 x 4 | .500 | 636 | 1.93 | 16.5 | 1.04 | 900 | 1.04 | 1200 | 1.04 | 1400 |
| | | | | | | | | | | |
| 3/16 x 1/2 | .0938 | 119 | .362 | 87.7 | 1.00 | 195 | 1.00 | 260 | 1.00 | 300 |
| 3/16 x 3/4 | .141 | 179 | .545 | 58.4 | 1.01 | 270 | 1.01 | 360 | 1.01 | 415 |
| 3/16 x 1 | .188 | 239 | .726 | 43.8 | 1.01 | 340 | 1.01 | 455 | 1.01 | 520 |
| 3/16 x 1 1/2 | .281 | 358 | 1.09 | 29.3 | 1.02 | 480 | 1.02 | 630 | 1.02 | 730 |
| 3/16 x 2 | .375 | 477 | 1.45 | 21.9 | 1.03 | 610 | 1.03 | 810 | 1.03 | 940 |
| 3/16 x 2 1/2 | .469 | 597 | 1.81 | 17.5 | 1.04 | 740 | 1.04 | 980 | 1.03 | 1150 |
| 3/16 x 3 | .562 | 715 | 2.17 | 14.6 | 1.05 | 870 | 1.05 | 1150 | 1.04 | 1350 |
| 3/16 x 3 1/2 | .656 | 835 | 2.53 | 12.5 | 1.07 | 990 | 1.06 | 1300 | 1.06 | 1500 |
| 3/16 x 4 | .750 | 955 | 2.90 | 11.0 | 1.09 | 1100 | 1.08 | 1450 | 1.07 | 1700 |
| 1/4 x 1/2 | .125 | 159 | .483 | 65.8 | 1.01 | 240 | 1.01 | 315 | 1.01 | 360 |
| 1/4 x 3/4 | .188 | 239 | .726 | 43.8 | 1.01 | 320 | 1.01 | 425 | 1.01 | 490 |
| 1/4 x 1 | .250 | 318 | .966 | 32.9 | 1.02 | 400 | 1.02 | 530 | 1.02 | 620 |
| 1/4 x 1 1/2 | .375 | 477 | 1.45 | 21.9 | 1.03 | 560 | 1.03 | 740 | 1.03 | 860 |
| 1/4 x 2 | .500 | 637 | 1.93 | 16.5 | 1.04 | 710 | 1.04 | 940 | 1.04 | 1100 |
| 1/4 x 2 1/2 | .625 | 796 | 2.41 | 13.2 | 1.06 | 850 | 1.06 | 1150 | 1.06 | 1300 |
| 1/4 x 3 | .750 | 955 | 2.90 | 11.0 | 1.08 | 990 | 1.08 | 1300 | 1.07 | 1550 |
| 1/4 x 3 1/2 | .875 | 1110 | 3.38 | 9.40 | 1.10 | 1150 | 1.09 | 1500 | 1.09 | 1750 |
| 1/4 x 4 | 1.00 | 1270 | 3.86 | 8.23 | 1.12 | 1250 | 1.11 | 1700 | 1.10 | 1950 |
| 1/4 x 5 | 1.25 | 1590 | 4.83 | 6.58 | 1.16 | 1500 | 1.15 | 2000 | 1.14 | 2350 |
| 1/4 x 6 | 1.50 | 1910 | 5.80 | 5.49 | 1.18 | 1750 | 1.17 | 2350 | 1.17 | 2700 |



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| 3/8 x 3/4 | .281 | 358 | 1.09 | 29.3 | 1.02 | 415 | 1.02 | 550 | 1.02 | 630 |
|-------------|------|------|------|------|------|------|------|------|------|------|
| 3/8 x 1 | .375 | 477 | 1.45 | 21.9 | 1.03 | 510 | 1.03 | 680 | 1.03 | 790 |
| 3/8 x 1 1/2 | .562 | 715 | 2.17 | 14.6 | 1.05 | 710 | 1.04 | 940 | 1.04 | 1100 |
| 3/8 x 2 | .750 | 955 | 2.90 | 11.0 | 1.08 | 880 | 1.08 | 1150 | 1.07 | 1350 |
| 3/8 x 2 1/2 | .938 | 1190 | 3.62 | 8.77 | 1.12 | 1050 | 1.10 | 1400 | 1.09 | 1600 |
| 3/8 x 3 | 1.12 | 1430 | 4.35 | 7.35 | 1.15 | 1200 | 1.14 | 1600 | 1.13 | 1850 |
| 3/8 x 3 1/2 | 1.31 | 1670 | 5.06 | 6.38 | 1.18 | 1350 | 1.16 | 1800 | 1.15 | 2100 |
| 3/8 x 4 | 1.50 | 1910 | 5.80 | 5.49 | 1.20 | 1500 | 1.19 | 2000 | 1.18 | 2350 |
| 3/8 x 5 | 1.88 | 2390 | 7.26 | 4.38 | 1.24 | 1800 | 1.23 | 2400 | 1.22 | 2800 |
| 3/8 x 6 | 2.25 | 2860 | 8.69 | 3.66 | 1.27 | 2100 | 1.26 | 2800 | 1.24 | 3250 |
| | | | | | | | | | | |
| 1/2 x 1 | .500 | 637 | 1.93 | 16.5 | 1.04 | 620 | 1.04 | 820 | 1.04 | 940 |
| 1/2 x 1 1/2 | .750 | 955 | 2.90 | 11.0 | 1.08 | 830 | 1.08 | 1100 | 1.07 | 1250 |
| 1/2 x 2 | 1.00 | 1270 | 3.86 | 8.23 | 1.12 | 1000 | 1.11 | 1350 | 1.10 | 1550 |
| 1/2 x 2 1/2 | 1.25 | 1590 | 4.83 | 6.58 | 1.16 | 1200 | 1.15 | 1600 | 1.14 | 1850 |
| 1/2 x 3 | 1.50 | 1910 | 5.80 | 5.49 | 1.20 | 1400 | 1.19 | 1850 | 1.18 | 2150 |
| 1/2 x 3 1/2 | 1.75 | 2230 | 6.76 | 4.70 | 1.24 | 1550 | 1.22 | 2100 | 1.21 | 2400 |
| 1/2 x 4 | 2.00 | 2550 | 7.73 | 4.11 | 1.26 | 1700 | 1.25 | 2300 | 1.24 | 2650 |
| 1/2 x 5 | 2.50 | 3180 | 9.66 | 3.29 | 1.32 | 2050 | 1.30 | 2750 | 1.29 | 3150 |
| 1/2 x 6 | 3.00 | 3820 | 11.6 | 2.74 | 1.36 | 2400 | 1.34 | 3150 | 1.33 | 3650 |
| 1/2 x 8 | 4.00 | 5090 | 15.5 | 2.06 | 1.42 | 3000 | 1.40 | 4000 | 1.39 | 4600 |

^{*} Applicable to typical in-service conditions (indoors, 40° C ambient temperature), horizontal run on edge, and free from external magnetic influences. Furnished by Copper Development Association Inc.



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| Required Ampacity* | Bus Bar Dimension, Inches** | | | | | | |
|-----------------------|---|--|---------------------------------------|--|--|--|--|
| | 30°C Rise | 50°C Rise | 65°C Rise | | | | |
| 100-149 | 1/16 x 1/2 1/16 x 3/4 | 1/16 x 1/2 | | | | | |
| 150-199 | 1/16 x 1 1/8 x 1/2 3/16 x 1/2 | 1/16 x 3/4 | 1/16 x 1/2 | | | | |
| 200-249 | 1/8 x 3/4 1/4 x 1/2 | 1/8 x 1/2 | 1/16 x 3/4 1/8 x 1/2 | | | | |
| 250-299 | 1/16 x 1 1/2 1/8 x 1 3/16 x 3/4 | 1/16 x 1 1/8 x 3/4 3/16 x 1/2 | 1/16 x 1 | | | | |
| 300-349 | 1/16 x 2 3/16 x 1 1/4 x 3/4 | 1/4 x 1/2 | 1/8 x 3/4 3/16 x 1/2 | | | | |
| 350-399 | 1/8 x 1 1/2 | 1/8 x 1 3/16 x 3/4 | 1/4 x 1/2 | | | | |
| 400-449 | 1/4 x 1 3/8 x 3/4 | 1/4 x 3/4 | 1/16 x 1 1/2 1/8 x 1 3/16 x 3/4 | | | | |
| 450-499 | 1/8 x 2 3/16 x 1 1/2 | 1/16 x 2 3/16 x 1 | 1/4 × 3/4 | | | | |
| 500-599 | 1/4 x 1 1/2 3/8 x 1 | 1/8 x 1 1/2 1/4 x 1 3/8 x 3/4 | 1/16 x 2 1/8 x 1 1/2 3/16 x 1 | | | | |
| 600-699 | 1/8 x 2 1/2 3/16 x 2 1/2 x 1 | 1/8 x 2 3/16 x 1 1/2 3/8 x 1 | 1/4 x 1 3/8 x 3/4 | | | | |
| 700-799 | 1/8 x 3 3/16 x 2 1/2 1/4 x 2 3/8 1 1/2 | 1/4 x 1 1/2 | 1/8 x 2 3/16 x 1 1/2 3/8 x 1 | | | | |
| 800-899 | 1/8 x 3 1/2 3/16 x 3 1/4 x 2 1/2 3/8 x 2 | 1/8 x 2 1/2 3/16 x 2 1/2 x 1 | 1/4 x 1 1/2 | | | | |
| 900-999 | 3/16 x 3 1/2 1/4 x 3 | 3/16 x 2 1/2 1/4 x 2 3/8 x 1 1/2 | 3/16 x 2 1/2 x1 | | | | |



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| 1000-1249 | 3/16 x 4 1/4 x 3 1/2 3/8 x 2 1/2 3/8 x 3 1/2 x 2 1/2 x 2 1/2 | 1/8 x 4 3/16 x 3 1/4 x 2 1/2 3/8 x 2 | 1/8 x 3 3/16 x 2 1/2 1/4 x 2 3/8 x 1 1/2 |
|-----------|---|---|---|
| 1250-1499 | 1/4 x 4 3/8 x 3 1/2 1/2 x 3 | 3/16 x 3 1/2 3/16 x 4 1/4 x 3 3/8 x 2 1/2 1/2 x 2 | 1/8 x 4 3/16 x 3 1/4 2 1/2 3/8 x 2 |
| 1500-1749 | 1/4 x 5 3/8 x 4 1/2 x 3 1/2 1/2 x 4 | 1/4 x 3 1/2 1/4 x 4 3/8 x 3 1/2 x 2 1/2 | 3/16 x 3 1/2 3/16 x 4 1/4 x 3 3/8 x 2 1/2 1/2 x 2 |
| 1750-1999 | 1/4 x 6 3/8 x 5 | 3/8 x 3 1/2 1/2 x 3 | 1/4 x 3 1/2 1/4 x 4 3/8 x 3 1/2 x 2 1/2 |
| 2000-2499 | 1/4 x 8 3/8 x 6 1/2 x 5 1/2 x 6 | 1/4 x 6 3/8 x 5 1/2 x 4 | 1/4 x 5 3/8 x 4 1/2 x 3 1/2 |
| 2500-2999 | 1/4 x 10 3/8 x 8 | 3/8 x 6 1/2 x 5 | 1/4 x 6 3/8 x 5 1/2 x 4 |

^{*} For 60 Hz current.

Furnished by Copper Development Association Inc.

^{**} Table gives bus bar cross section which will probably be large enough for ampacities within each range. Knowing required ampacity, determine possible bus bar dimensions from the table. Then check previous table to verify that size selected has the necessary ampacity. Example: Assume that required ampacity is 185 amps at 30° C rise. Table 2 indicates that $1/16 \times 1$ in. size would probably be adequate. This is confirmed by Table 1 which lists the ampacity of $1/6 \times 1$ in. bus bar as 187 amps.