

National Electrical Code Allowable Ampacities of Insulated Conductors Rated 0-2000 Volts

As Excerpted from the 2002 National Electrical Code

Ampacities of Not More Than Three Current-Carrying Conductors in Raceway, Cable or Earth. Based on Ambient Temperature of 30°C (86°F)

| SIZE AWG OR kcmil | Copper Conductors | | | Aluminum Conductors | | | SIZE AWG OR kcmil | | |
|----------------------------|---------------------------------|---------------------|---------------------------------------|--|----------|--------------------|----------------------------|---------------------------------------|--|
| | Temperature Rating of Conductor | | | Temperature Rating of Conductor | | | | | |
| | 60°C | 75°C | 90°C | 60°C | 75°C | 90°C | | | |
| | TYPES | TYPES | TYPES | TYPES | TYPES | TYPES | | | |
| TW UF | RHW THW THWN | THHW XHHW USE | RHH RHW-2 XHHW XHHW-2 XHH | THHW THWN-2 THW-2 THHN USE-2 | TW UF | RHW THW THWN | THHW XHHW USE | RHH RHW-2 XHHW XHHW-2 XHH | THHW THWN-2 THW-2 THHN USE-2 |
| 14** | 20 | 20 | 25 | - | - | - | - | | |
| 12** | 25 | 25 | 30 | 20 | 20 | 25 | 12** | | |
| 10** | 30 | 35 | 40 | 25 | 30 | 35 | 10** | | |
| 8 | 40 | 50 | 55 | 30 | 40 | 45 | 8 | | |
| 6 | 55 | 65 | 75 | 40 | 50 | 60 | 6 | | |
| 4 | 70 | 85* | 95* | 55 | 65 | 75 | 4 | | |
| 3 | 85 | 100* | 110* | 65 | 75 | 85 | 3 | | |
| 2 | 95 | 115* | 130* | 75 | 90* | 100* | 2 | | |
| 1 | 110 | 130* | 150* | 85 | 100* | 115* | 1 | | |
| 1/0 | 125 | 150* | 170* | 100 | 120* | 135* | 1/0 | | |
| 2/0 | 145 | 175* | 195* | 115 | 135* | 150* | 2/0 | | |
| 3/0 | 165 | 200* | 225* | 130 | 155* | 175* | 3/0 | | |
| 4/0 | 195 | 230* | 260* | 150 | 180* | 205* | 4/0 | | |
| 250 | 215 | 255* | 290* | 170 | 205* | 230* | 250 | | |
| 300 | 240 | 285 | 320 | 190 | 230* | 255* | 300 | | |
| 350 | 260 | 310* | 350* | 210 | 250* | 280* | 350 | | |
| 400 | 280 | 335* | 380* | 225 | 270 | 305 | 400 | | |
| 500 | 320 | 380 | 430 | 260 | 310* | 350* | 500 | | |
| 600 | 355 | 420 | 475 | 285 | 340* | 385* | 600 | | |
| 700 | 385 | 460 | 520 | 310 | 375 | 420 | 700 | | |
| 750 | 400 | 475 | 535 | 320 | 385 | 435 | 750 | | |
| 800 | 410 | 490 | 555 | 330 | 395 | 450 | 800 | | |
| 900 | 435 | 520 | 585 | 355 | 425 | 480 | 900 | | |
| 1000 | 455 | 545 | 615 | 375 | 445 | 500 | 1000 | | |
| 1250 | 495 | 590 | 665 | 405 | 485 | 545 | 1250 | | |
| 1500 | 520 | 625 | 705 | 435 | 520 | 585 | 1500 | | |
| 1750 | 545 | 650 | 735 | 455 | 545 | 615 | 1750 | | |
| 2000 | 560 | 665 | 750 | 470 | 560 | 630 | 2000 | | |

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(Notes to Accompany Table)

NOTE 1:

| Temp. | Type and Location |
|-------|---|
| | Type TW, wet or dry |
| | Type UF, wet or dry, or corrosive locations |
| | Types RHW, THW, THWN, USE, THHW, XHHW, wet or dry |
| | Types RHH, THHN, XHHW, XHH, dry and damp locations. |
| | Type THHW, dry locations. |
| | Types THWN-2, XHHW-2, THW-2, RHW-2, USE-2, wet or dry |

NOTE 2:

Max. size of Type UF is 4/0 AWG.

Max. size of Types THWN and THHN - 1000 kcmil

Max. size of Type THHW is 1000 kcmil

NOTE 3:

The allowable values in the Ampacity Table are based on temperature alone and do not take voltage drop into consideration.

****** Unless specifically permitted in Section 240.4(E) through (G), the overcurrent protection shall not exceed 15 amperes for 14 AWG, 20 amperes for 12 AWG, and 30 amperes for 10 AWG copper; or 15 amperes for 12 AWG and 25 amperes for 10 AWG aluminum after any correction factors. For ambient temperature and number of conductors have been applied.

NOTE 4:

Where the number of current-carrying conductors in a raceway or cable exceeds three, or where single conductors or multi-conductor cables are stacked or bundled longer than 24 inches without maintaining spacing and are not installed in raceways, the allowable ampacity of each conductor shall be reduced as shown in the following table:

| Number of Current Carrying Conductors | Percent of Values in Table as Adjusted for Ambient Temp., if Necessary |
|---------------------------------------|--|
| 4 thru 6 | 80 |
| 7 thru 9 | 70 |
| 10 thru 20 | 50 |
| 21 thru 30 | 45 |
| 31 thru 40 | 40 |
| 41 and above* | 35 |

The above derating factors do not apply to conductors in nipples having a length not exceeding 24 inches.

NOTE 5:

For ambient temperatures other than 30°C, multiply the allowable ampacities by the appropriate factor shown below:

| Ambient Temperature °C | Conductor Temperature | | | Ambient Temperature of |
|------------------------|-----------------------|------|------|------------------------|
| | 60°C | 75°C | 90°C | |
| 21 - 25 | 1.08 | 1.05 | 1.04 | 70 - 77 |
| 26 - 30 | 1.00 | 1.00 | 1.00 | 78 - 86 |
| 31 - 35 | .91 | .94 | .96 | 87 - 95 |
| 36 - 40 | .82 | .88 | .91 | 96 - 104 |
| 41 - 45 | .71 | .82 | .87 | 105 - 113 |
| 46 - 50 | .58 | .75 | .82 | 114 - 122 |
| 51 - 55 | .41 | .67 | .76 | 123 - 131 |
| 56 - 60 | | .58 | .71 | 132 - 140 |
| 61 - 70 | | .33 | .58 | 141 - 158 |
| 71 - 80 | | | .41 | 159 - 176 |

*For dwelling units, conductors, as listed below, shall be permitted as 120/240 volt, 3 wire, single phase service-entrance conductors, service lateral conductors and feeder conductors that serve as the main power feeder to a dwelling unit and are installed in raceway or cable with or without an equipment grounding conductor. For application of this section, the main power feeder shall be the feeder(s) between the main disconnect and the lighting and appliance branch-circuit panel board(s) and the feeder conductors to a dwelling unit shall not be required to be larger than their service entrance conductors. The grounded conductor shall be permitted to be smaller than the ungrounded conductors provided the requirements of Sections 215.2, 220.22 and 230.42 are met.

RHH, RHW, THHW, THW, THWN, THHN, XHHW, USE, RHW-2, THW-2, THWN-2, XHHW-2, SE, USE-2

| Copper AWG or kcmil | Aluminum AWG or kcmil | Service or Feeder Rating (Amperes) |
|---------------------|-----------------------|------------------------------------|
| 4 | 2 | 100 |
| 3 | 1 | 110 |
| 2 | 1/0 | 125 |
| 1 | 2/0 | 150 |
| 1/0 | 3/0 | 175 |
| 2/0 | 4/0 | 200 |
| 3/0 | 250 | 225 |
| 4/0 | 300 | 250 |
| 250 | 350 | 300 |
| 350 | 500 | 350 |
| 400 | 600 | 400 |