

ARTICLE 310: Conductors for General Wiring

NEC Table 310.77 and 310.79

Table 310.77 Ampacities of Three Single-Insulated Copper Conductors in Underground Electrical Ducts (Three Conductors per Electrical Duct) Based on Ambient Earth Temperature of 20°C (68°F), Electrical Duct Arrangement per Figure 310.60, 100 Percent Load Factor, Thermal Resistance (RHO) of 90, Conductor Temperatures of 90°C (194°F) and 105°C (221°F)

| Conductor Size (AWG or kcmil) | Temperature Rating of Conductor | | | |
|--|---------------------------------|---------------------------|------------------------------|---------------------------|
| | 2001 – 5000 Volts Ampacity | | 5001 – 35,000 Volts Ampacity | |
| | 90°C (194°F) Type MV-90 | 105°C (221°F) Type MV-105 | 90°C (194°F) Type MV-90 | 105°C (221°F) Type MV-105 |
| One Circuit (See Figure 310.60, Detail 1.) | | | | |
| 8 | 64 | 69 | — | — |
| 6 | 85 | 92 | 90 | 97 |
| 4 | 110 | 120 | 115 | 125 |
| 2 | 145 | 155 | 155 | 165 |
| 1 | 170 | 180 | 175 | 185 |
| 1/0 | 195 | 210 | 200 | 215 |
| 2/0 | 220 | 235 | 230 | 245 |
| 3/0 | 250 | 270 | 260 | 275 |
| 4/0 | 290 | 310 | 295 | 315 |
| 250 | 320 | 345 | 325 | 345 |
| 350 | 385 | 415 | 390 | 415 |
| 500 | 470 | 505 | 465 | 500 |
| 750 | 585 | 630 | 565 | 610 |
| 1000 | 670 | 720 | 640 | 690 |
| Three Circuits (See Figure 310.60, Detail 2.) | | | | |
| 8 | 56 | 60 | — | — |
| 6 | 73 | 79 | 77 | 83 |
| 4 | 95 | 100 | 99 | 105 |
| 2 | 125 | 130 | 130 | 135 |
| 1 | 140 | 150 | 145 | 155 |
| 1/0 | 160 | 175 | 165 | 175 |
| 2/0 | 185 | 195 | 185 | 200 |
| 3/0 | 210 | 225 | 210 | 225 |
| 4/0 | 235 | 255 | 240 | 255 |
| 250 | 260 | 280 | 260 | 280 |
| 350 | 315 | 335 | 310 | 330 |
| 500 | 375 | 405 | 370 | 395 |
| 750 | 460 | 495 | 440 | 475 |
| 1000 | 525 | 565 | 495 | 535 |
| Six Circuits (See Figure 310.60, Detail 3.) | | | | |
| 8 | 48 | 52 | — | — |
| 6 | 62 | 67 | 64 | 68 |
| 4 | 80 | 86 | 82 | 88 |
| 2 | 105 | 110 | 105 | 115 |
| 1 | 115 | 125 | 120 | 125 |
| 1/0 | 135 | 145 | 135 | 145 |
| 2/0 | 150 | 160 | 150 | 165 |
| 3/0 | 170 | 185 | 170 | 185 |
| 4/0 | 195 | 210 | 190 | 205 |
| 250 | 210 | 225 | 210 | 225 |
| 350 | 250 | 270 | 245 | 265 |
| 500 | 300 | 325 | 290 | 310 |
| 750 | 365 | 395 | 350 | 375 |
| 1000 | 410 | 445 | 390 | 415 |

Table 310.79 Ampacities of Three Insulated Copper Conductors Cabled Within an Overall Covering (Three-Conductor Cable) in Underground Electrical Ducts (One Cable per Electrical Duct) Based on Ambient Earth Temperature of 20°C (68°F), Electrical Duct Arrangement per Figure 310.60, 100 Percent Load Factor, Thermal Resistance (RHO) of 90, Conductor Temperatures of 90°C (194°F) and 105°C (221°C)

| Conductor Size (AWG or kcmil) | Temperature Rating of Conductor | | | |
|--|---------------------------------|---------------------------|------------------------------|---------------------------|
| | 2001 – 5000 Volts Ampacity | | 5001 – 35,000 Volts Ampacity | |
| | 90°C (194°F) Type MV-90 | 105°C (221°F) Type MV-105 | 90°C (194°F) Type MV-90 | 105°C (221°F) Type MV-105 |
| One Circuit (See Figure 310.60, Detail 1.) | | | | |
| 8 | 59 | 64 | — | — |
| 6 | 78 | 84 | 88 | 95 |
| 4 | 100 | 110 | 115 | 125 |
| 2 | 135 | 145 | 150 | 160 |
| 1 | 155 | 165 | 170 | 185 |
| 1/0 | 175 | 190 | 195 | 210 |
| 2/0 | 200 | 220 | 220 | 235 |
| 3/0 | 230 | 250 | 250 | 270 |
| 4/0 | 265 | 285 | 285 | 305 |
| 250 | 290 | 315 | 310 | 335 |
| 350 | 355 | 380 | 375 | 400 |
| 500 | 430 | 460 | 450 | 485 |
| 750 | 530 | 570 | 545 | 585 |
| 1000 | 600 | 645 | 615 | 660 |
| Three Circuits (See Figure 310.60, Detail 2.) | | | | |
| 8 | 53 | 57 | — | — |
| 6 | 69 | 74 | 75 | 81 |
| 4 | 89 | 96 | 97 | 105 |
| 2 | 115 | 125 | 125 | 135 |
| 1 | 135 | 145 | 140 | 155 |
| 1/0 | 150 | 165 | 160 | 175 |
| 2/0 | 170 | 185 | 185 | 195 |
| 3/0 | 195 | 210 | 205 | 220 |
| 4/0 | 225 | 240 | 230 | 250 |
| 250 | 245 | 265 | 255 | 270 |
| 350 | 295 | 315 | 305 | 325 |
| 500 | 355 | 380 | 360 | 385 |
| 750 | 430 | 465 | 430 | 465 |
| 1000 | 485 | 520 | 485 | 515 |
| Six Circuits (See Figure 310.60, Detail 3.) | | | | |
| 8 | 46 | 50 | — | — |
| 6 | 60 | 65 | 63 | 68 |
| 4 | 77 | 83 | 81 | 87 |
| 2 | 98 | 105 | 105 | 110 |
| 1 | 110 | 120 | 115 | 125 |
| 1/0 | 125 | 135 | 130 | 145 |
| 2/0 | 145 | 155 | 150 | 160 |
| 3/0 | 165 | 175 | 170 | 180 |
| 4/0 | 185 | 200 | 190 | 200 |
| 250 | 200 | 220 | 205 | 220 |
| 350 | 240 | 270 | 245 | 275 |
| 500 | 290 | 310 | 290 | 305 |
| 750 | 350 | 375 | 340 | 365 |
| 1000 | 390 | 420 | 380 | 405 |

Technical Reference