# VFD Cable Selection Guide

## Motor Properties
## AWG Size Selection Chart Per NEC

| DRIVE HP | 230 V 3ø AWG | 460 V 3ø AWG | 575 V 3ø AWG | DRIVE HP | 230 V 3ø AWG | 460 V 3ø AWG | 575 V 3ø AWG |
|---|---|---|---|---|---|---|---|
| 1/2 - 3 | 14 | 14 | 14 | 60 | 4/0 | 1 | 2 |
| 5 | 14 | 14 | 14 | 75 | 300 KCMIL | 1/0 | 1 |
| 7 1/2 | 10 | 14 | 14 | 100 | 500 KCMIL | 3/0 | 1/0 |
| 10 | 8 | 14 | 14 | 125 | * | 4/0 | 3/0 |
| 15 | 6 | 10 | 12 | 150 | * | 300 KCMIL | 4/0 |
| 20 | 4 | 8 | 10 | 200 | * | 500 KCMIL | 300 KCMIL |
| 25 | 2 | 6 | 8 | 250 | * | * | 500 KCMIL |
| 30 | 1 | 6 | 8 | 300 | * | * | * |
| 40 | 2/0 | 4 | 6 | 350 | * | * | * |
| 50 | 3/0 | 2 | 4 | 400 - 500 | * | * | * |

Note: The above table references the suggested wire AWG to use based on Horse Power (HP) and the Full Load Current (FLC) times 125% per NEC Art. 430-122 (A). Amperes (FLC) were determined from NEC Art. 430-250:

For Example: For a 5 HP and 460 Volt motor, the FLC is 7.6A x 125% = 9.5A. The right AWG wire for 9.5A is 14 per NEC Art. 310.15. See page 666, for Table 310.15(B)(16).

## VOLTAGE DROP FACTORS, VOLTS AT FLC @ 20˚C

| DRIVE HP | 230 V 3ø AWG | 460 V 3ø AWG | 575 V 3ø AWG | DRIVE HP | 230 V 3ø AWG | 460 V 3ø AWG | 575 V 3ø AWG |
|---|---|---|---|---|---|---|---|
| 1/2 | .017 | .008 | .007 | 30 | .020 | .032 | .042 |
| 3/4 | .025 | .012 | .010 | 40 | .021 | .027 | .033 |
| 1 | .032 | .016 | .013 | 50 | .023 | .020 | .026 |
| 1 1/2 | .046 | .023 | .019 | 60 | .016 | .019 | .018 |
| 2 | .052 | .026 | .021 | 75 | .012 | .020 | .019 |
| 3 | .074 | .037 | .030 | 100 | .011 | .022 | .021 |
| 5 | .050 | .058 | .046 | 125 | .008 | .047 | .022 |
| 7 1/2 | .047 | .058 | .069 | 150 | .008 | .041 | .015 |
| 10 | .036 | .072 | .084 | 200 | .006 | .011 | .013 |
| 15 | .034 | .045 | .053 | 250 | N/A | .010 | .011 |
| 20 | .028 | .038 | .047 | 300 | N/A | .008 | .009 |
| 25 | .020 | .028 | .036 | 350 | N/A | .008 | .009 |

Note: The above table references the voltage drop over distances. It was determined by using selection criteria of Motor Properties Table. In order to determine the voltage drop, multiply the length by the data above.

For Example: For a 5 HP and 460V motor, P/N 701404 would be used. For a distance of 200 feet, your voltage drop would be 200 x .058 = 11.6volts.


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