

CURRENT CARRYING CAPACITY AND VOLTAGE DROP

The tabulated readings below are in accordance with IEE regulations, where the cable is provided with coarse excess - current protection. In case of close excess - current protection, the factors below apply.

CONTINUOUS CONDUCTOR OPERATING TEMPERATURE; 70°C.

AMBIENT TEMPERATURE: 30°C

Cable Type: Single Core PVC Insulated Unarmoured Cable to BS 6004

| Conductor | | Bunched and Enclosed in Conduit or Trunking | | | | Clipped Direct to a surface or on a cable tray, Bunched and Unenclosed | | | |
|-----------|-----------------------|---|----------------------|-------------------------------|----------------------|--|----------------------|-------------------------------|----------------------|
| Nom. Area | No. and Dia. of Wires | 2 Cables Single - Phase A.C. or D.C. | | 3 or 4 Cables, 3 - Phase A.C. | | 2 Cables Single - Phase A.C. or D.C. | | 3 or 4 Cables, 3 - Phase A.C. | |
| | | Current Rating | Volt Drop/ AMP/Meter | Current Rating | Volt Drop/ AMP/Meter | Current Rating | Volt Drop/ AMP/Meter | Current Rating | Volt Drop/ AMP/Meter |
| Sqmm. | No./mm | A | mV. | A | mV. | A | mV. | A | mV. |
| 1.5 | 1/1.38 | 17 | 28 | 14.5 | 23 | 19 | 27 | 16 | 24 |
| 1.5 | 7/0.54 | 17 | 28 | 14.5 | 23 | 19 | 27 | 16 | 24 |
| 2.5 | 1/1.78 | 24 | 17 | 21 | 14 | 25 | 16 | 26 | 15 |
| 2.5 | 7/0.67 | 24 | 17 | 21 | 14 | 25 | 16 | 26 | 15 |
| 4 | 7/0.85 | 31 | 11 | 27 | 9.0 | 35 | 10 | 30 | 9.1 |
| 6 | 7/1.04 | 41 | 7.2 | 34 | 6.0 | 45 | 6.9 | 40 | 6.3 |
| 10 | 7/1.35 | 55 | 4.3 | 49 | 3.6 | 62 | 4.1 | 56 | 3.7 |
| 16 | 7/1.70 | 75 | 2.7 | 63 | 2.3 | 83 | 2.7 | 78 | 2.3 |
| 25 | 7/2.14 | 98 | 1.7 | 87 | 1.5 | 110 | 1.7 | 100 | 1.5 |
| 35 | 7/2.52 | 124 | 1.3 | 107 | 1.1 | 139 | 1.2 | 126 | 1.1 |
| | | A.C./D.C. | | | | A.C./D.C. | | | |
| 50 | 19/1.78 | 147 | 0.95/0.90 | 126 | 0.82 | 178 | 0.92/0.91 | 159 | 0.82 |
| 70 | 19/2.14 | 187 | 0.71/0.62 | 160 | 0.58 | 228 | 0.63/0.61 | 198 | 0.59 |
| 95 | 19/2.52 | 230 | 0.55/0.45 | 194 | 0.42 | 268 | 0.48/0.45 | 240 | 0.45 |
| 120 | 37/2.03 | 260 | 0.48/0.36 | 220 | 0.42 | 310 | 0.40/0.36 | 280 | 0.38 |
| 150 | 37/2.25 | 300 | 0.40/0.29 | 297 | 0.36 | 355 | 0.34/0.29 | 320 | 0.34 |
| 185 | 37/2.52 | 340 | 0.37/0.22 | 348 | 0.32 | 405 | 0.29/0.24 | 365 | 0.30 |
| 240 | 61/2.25 | 400 | 0.33/0.18 | 395 | 0.29 | 480 | 0.24/0.18 | 430 | 0.27 |
| 300 | 61/2.52 | 460 | 0.30/0.145 | 467 | 0.27 | 560 | 0.22/0.14 | 500 | 0.25 |
| 400 | 61/2.85 | 545 | 0.29/0.102 | 535 | 0.25 | 680 | 0.20/0.12 | 610 | 0.24 |
| 500 | 61/3.20 | 625 | 0.28/0.066 | 610 | 0.25 | 800 | 0.18/0.086 | 710 | 0.23 |

Group and ambient temperature rating factors are given below:

Correction factor for temperature

| Ambient temperature | 25°C | 35°C | 40°C | 45°C | 50°C | 55°C | 60°C | 65°C |
|--|------|------|------|------|------|------|------|------|
| Rating factor for cables having coarse excess-current protection | 1.02 | 0.97 | 0.94 | 0.91 | 0.88 | 0.77 | 0.63 | 0.63 |
| Rating factor for cables having close excess-current protection | 1.06 | 0.94 | 0.87 | 0.79 | 0.71 | 0.61 | 0.50 | 0.35 |

Correction factor for group

| Arrangement of Cables | Number of Circuit or Multi-Core Cables | | | | | | | | | | | | | |
|---|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 | 18 | 20 |
| Enclosed in conduit or trunking or bunched and clipped direct | 0.80 | 0.70 | 0.65 | 0.60 | 0.57 | 0.54 | 0.52 | 0.50 | 0.48 | 0.45 | 0.43 | 0.41 | 0.39 | 0.38 |
| Single layer clipped direct to or lying on a non-metallic surface | 0.85 | 0.79 | 0.75 | 0.73 | 0.72 | 0.72 | 0.71 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| | 0.94 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |

CURRENT CARRYING CAPACITY AND VOLTAGE DROP

| Cable Type: Flexible Cords PVC Insulated and PVC Sheathed BS 6500 | | | |
|--|---|-----------------------------------|--------------|
| Nom Cross- Sectional Area mm ² | Current Carrying Capacity D.C. or Single - Phase A.C. or 3 Phase A.C. A | Volt Drop Per Ampere Per Metre | |
| | | D.C. or Single- Phase A.C. | 3 Phase A.C. |
| | | mV | mV |
| 0.5 | 3 | 83 | 72 |
| 0.75 | 6 | 56 | 48 |
| 1.0 | 10 | 43 | 37 |
| 1.5 | 15 | 31 | 26 |
| 2.5 | 20 | 18 | 16 |
| 4 | 25 | 11 | 9.6 |

Correction factor for Ambient Temperature

| 70°C For PVC Cords | | | | | |
|---------------------------|------|------|------|------|------|
| Ambient Temperature | 35°C | 40°C | 45°C | 50°C | 55°C |
| Correction Factor | 0.96 | 0.92 | 0.87 | 0.71 | 0.50 |

SHORT CIRCUIT RATING OF SINGLE CORE PVC INSULATED UNARMoured CABLE TO BS 6004

| Conductor Size mm ² | One Second Rating A |
|--|-------------------------------|
| 1.5 | 143 |
| 2.5 | 240 |
| 4 | 382 |
| 6 | 570 |
| 10 | 960 |
| 16 | 1530 |
| 25 | 2400 |
| 35 | 3350 |
| 50 | 4600 |
| 70 | 6600 |
| 95 | 9100 |
| 120 | 11500 |
| 150 | 14200 |
| 185 | 17800 |
| 240 | 23400 |
| 300 | 29300 |
| 400 | 37500 |
| 500 | 47300 |

The above ratings are based on the following conditions:

- i) Conductor temperature before fault 70°C
- ii) Conductor temperature after fault 130°C

It is assumed that all the heat generated during the fault is retained in the conductor.

For short circuit ratings other than one second, the appropriate rating given in the above table shall be divided by the square root of the fault time in seconds.