## 【Allowable ampacity】

Allowable ampacity (A) general wiring　table 310.15 (B) (16) (17) Allowable ampacity 30℃

| Size | Single insulated wires | | three of them (b) | |
|---|---|---|---|---|
| | 75℃ | 90℃ | 75℃ | 90℃ |
| 18 AWG | — | 18 | — | 14 |
| 16 AWG | — | 24 | — | 18 |
| 14 AWG | 30 | 35 | 20 | 25 |
| 12 AWG | 35 | 40 | 25 | 30 |
| 10 AWG | 50 | 55 | 35 | 40 |
| 8 AWG | 70 | 80 | 50 | 55 |
| 6 AWG | 95 | 105 | 65 | 75 |
| 4 AWG | 125 | 140 | 85 | 95 |
| 2 AWG | 170 | 190 | 115 | 130 |
| 1 AWG | 195 | 220 | 130 | 145 |
| 1/0 AWG | 230 | 260 | 150 | 170 |
| 2/0 AWG | 265 | 300 | 175 | 195 |
| 3/0 AWG | 310 | 350 | 200 | 225 |
| 4/0 AWG | 360 | 405 | 230 | 260 |
| 300MCM | 445 | 500 | 285 | 320 |
| 400MCM | 545 | 615 | 335 | 380 |
| 500MCM | 620 | 700 | 380 | 430 |

NFPA79 table 12.5.1 Allowable ampacity 30℃

| Size | three of them (b) | |
|---|---|---|
| | 75℃ | 90℃ |
| 30 AWG | 0.5 | 0.5 |
| 28 AWG | 0.8 | 0.8 |
| 26 AWG | 1 | 1 |
| 24 AWG | 2 | 2 |
| 22 AWG | 3 | 3 |
| 20 AWG | 5 | 5 |
| 18 AWG | 7 | 14 |
| 16 AWG | 10 | 18 |
| 14 AWG | 20 | 25 |
| 12 AWG | 25 | 30 |
| 10 AWG | 35 | 40 |
| 8 AWG | 50 | 55 |
| 6 AWG | 65 | 75 |
| 4 AWG | 85 | 95 |
| 2 AWG | 115 | 130 |
| 1 AWG | 130 | 150 |
| 1/0 AWG | 150 | 170 |
| 2/0 AWG | 175 | 195 |
| 3/0 AWG | 200 | 225 |
| 4/0 AWG | 230 | 260 |
| 300 MCM | 285 | 320 |
| 400 MCM | 335 | 380 |
| 500 MCM | 380 | 430 |

## 【Ambient temperature correction factor】

Extract it than table 310.15 (B) (2) (a)

| Ambient temperature (℃) | Temperature rating of conductor | |
|---|---|---|
| | 75℃ | 90℃ |
| 10以下 | 1.20 | 1.15 |
| 11～15 | 1.15 | 1.12 |
| 16～20 | 1.11 | 1.08 |
| 21～25 | 1.05 | 1.04 |
| 26～30 | 1.00 | 1.00 |
| 31～35 | 0.94 | 0.96 |
| 36～40 | 0.88 | 0.91 |
| 41～45 | 0.82 | 0.87 |
| 46～50 | 0.75 | 0.82 |
| 51～55 | 0.67 | 0.76 |
| 56～60 | 0.58 | 0.71 |
| 61～65 | 0.47 | 0.65 |
| 66～70 | 0.33 | 0.58 |
| 71～75 | — | 0.50 |
| 76～80 | — | 0.41 |
| 81～85 | — | 0.29 |

NFPA79 table 12.5.5 (a)

| Ambient temperature (℃) | Temperature rating | |
|---|---|---|
| | 75℃ | 90℃ |
| 21～25 | 1.05 | 1.04 |
| 26～30 | 1 | 1 |
| 31～35 | 0.94 | 0.96 |
| 36～40 | 0.88 | 0.91 |
| 41～45 | 0.82 | 0.87 |
| 46～50 | 0.75 | 0.82 |
| 51～55 | 0.67 | 0.76 |
| 56～60 | 0.58 | 0.71 |
| 61～70 | 0.33 | 0.58 |
| 71～80 | — | 0.41 |

## 【Current reduction rate that adapt wiring road or more than 4 lines cable's conductor】

Extract it than table 310.15 (B) (3) (a)

| Number of conductor | Current reduction rate (%) as above table (b) |
|---|---|
| 4～6 | 80 |
| 7～9 | 70 |
| 10～20 | 50 |
| 21～30 | 45 |
| 31～40 | 40 |
| 41以上 | 35 |

NFPA79 Extract it than table 12.5.5 (b)

| Number of conductor | Current reduction rate (%) as above table (b) |
|---|---|
| 4～6 | 80 |
| 7～9 | 70 |
| 10～20 | 50 |
| 21～30 | 45 |
| 31～40 | 40 |
| 41以上 | 35 |

## 【Adjustment factor at many articles in the air construction】

Adjustment factor adapted 1 to 12 line at many articles in the air construction　**Extract it than JCS 0168-1 : 2004**

| Line number | Adjustment factor of current $\eta_0$ | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 6 | 4 |
| Layout / Space of center | ○ | ○ ○ (S) | ○ ○ ○ (S S) | ○ ○ ○ ○ ○ ○ (S S S S S) | ○ ○ ○ ○ (S, S) |
| S= $d_5$ | 1.00 | 0.85 | 0.80 | 0.70 | 0.70 |
| S=2$d_5$ | | 0.95 | 0.95 | 0.90 | 0.90 |
| S=3$d_5$ | | 1.00 | 1.00 | 0.95 | 0.95 |

| Line number | Adjustment factor of current $\eta_0$ | | | |
|---|---|---|---|---|
| | 6 | 8 | 9 | 12 |
| Layout / Space of center | ○ ○ ○ ○ ○ ○ (S S S S) | ○ ○ ○ ○ ○ ○ ○ ○ (S S S S) | ○ ○ ○ ○ ○ ○ ○ ○ ○ (S S S S) | ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ (S S S S) |
| S= $d_5$ | 0.60 | — | — | — |
| S=2$d_5$ | 0.90 | 0.85 | 0.80 | 0.80 |
| S=3$d_5$ | 0.95 | 0.90 | 0.85 | 0.85 |

Adjustment factor at many articles in the air construction of other than above table

| Space of center layout | Step (n) | Adjustment factor of current $\eta_0$ | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | | | | | 3 | | | | |
| | Column (m) | 7～20 | 4 | 5 | 6 | 7 | 8～20 | 3 | 4 | 5 | 6 | 7 |
| S= $d_5$ | | 0.70 | 0.60 | 0.56 | 0.53 | 0.51 | 0.50 | 0.48 | 0.41 | 0.37 | 0.34 | 0.32 |
| S=2$d_5$ | | 0.80 | — | 0.73 | 0.72 | 0.71 | 0.70 | — | — | 0.68 | 0.66 | 0.65 |

| Space of center layout | Step (n) | Adjustment factor of current $\eta_0$ | | | | | |
|---|---|---|---|---|---|---|---|
| | | 3 | | | | | |
| | Column (m) | 8 | 9～10 | 11～12 | 13～15 | 16～19 | 20 |
| S= $d_5$ | | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |
| S=2$d_5$ | | 0.65 | 0.64 | 0.63 | 0.62 | 0.61 | 0.60 |

Moved bending test is carried out along the Electrical Appliance and Material Safety Law (Appendix first Supplementary Table twenty-sixth). Method will be as follows. Mount a sample of about 3m taked from the finished product.This according to the type of the cable Table 2, (with the moving carriage fitted with a diameter pulleys) in Table 2 attached in FIG.6. At that time, the portion between the pulleys to move the bending test apparatus is set to be horizontal. Then, hang a weight of mass shown in <Table 2> at both ends thereof. At a rate of per second about 0.33m to move the truck, reciprocating a distance of more than 0.5m to the left or right. At that time, not rise to a short circuit between the lines, no crack about surface of the insulation and the exterior, and other abnormalities that there is no.

Figure.6

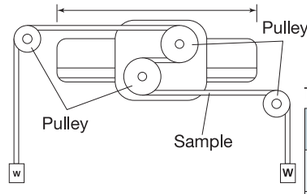


Table.2

| Sample | Mass of sinker | Diameter of pulley |
|---|---|---|
| Power cable | 1.5kg | 120mm |
| Signal cable | 1.0kg | 80mm |