# Cable Designation

## Table 1. Symbols of number of core and main use

| | | | |
|---|---|---|---|
| **FA-** | Flame retardant (IEC 60332-3 Cat A) | **T** | Three core for power and lighting |
| **FR-** | Fire resistance (IEC 60331) | **F** | Four core for power and lighting |
| **FRA-** | Flame retardant & Fire resistant (IEC 60332-3 Cat A & IEC 60331) | **M** | Multi core for control and signal |
| **S** | Single core for power and lighting | **TT** | Telephone and instrumentation |
| **D** | Double core for power and lighting | **P** | Portable or flexible |

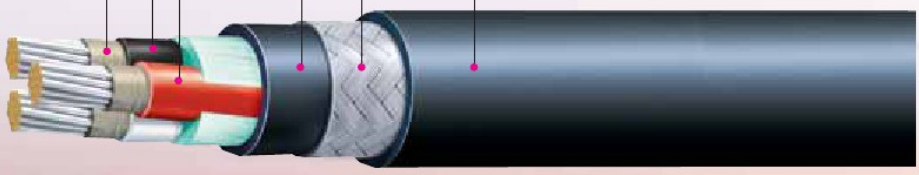
## Table 2. Symbols of material

| Insulation | Sheath | Armoring | Protective covering | Others |
|---|---|---|---|---|
| **P** : EP Rubber | **Y** : PVC | **C** : Steel wire | **Y** : PVC | **S** : Common shield |
| **Y** : PVC | | **CB** : Copper alloy wire | | **-S** : Individual shield |
| **C** : XLPE | | | | **E** : Earth wire |
| | | | | **(C)** : Cold type |

**Note** 1. For Telephone cable, the insulation symbols are omitted.
2. In case of copper alloy wire braid, the letter shall be CB instead of letter C.
ex) : 0.6/1KV SPYCB , 0.6/1KV SPYCBY
3. In case of cable with earth wire, letter E shall be suffixed to symbol.
ex) : 0.6/1kV TPYE

**0.6/1kV FRA- TPYCY**

① ② ③ ④ ⑤ ⑥ ⑦



① Voltage ② Fire Resistant Layer ③ No. of Conductor(Three) ④ Insulation(EPR)
⑤ Sheath(PVC) ⑥ Armor(Galvanized steel wire) ⑦ Protective covering(PVC)

# High Voltage Power Cable


## CABLE DESIGNATION

3.6/6kV SPYCB(Y), TPYC(Y), FA-SPYCB(Y), FA-TPYC(Y)
6/10kV SPYCB(Y), TPYC(Y), FA-SPYCB(Y), FA-TPYC(Y)
8.7/15kV SPYCB(Y), TPYC(Y), FA-SPYCB(Y), FA-TPYC(Y)

## APPLICATION STANDARD

- Design guide : IEC 60092-350, -354
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40 ℃/-35 ℃) (Cold Type)
- Max. conductor temperature : 90 ℃

## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | T(S) | - Stranded tinned annealed copper wires as per IEC 60228, Class 2 |
| 2. Conductor screen | | - Semi-conducting layer (tape/compound) |
| 3. Insulation | P | - EPR as per IEC 60092-351 |
| 4. Insulation screen | | - Non-metallic part : Semi-conducting layer(tape/compound)<br>- Metallic part : Copper tape<br>- A suitable separator tape(s) may be applied over the metallic part |
| 5. Cabling | | - Three insulation screened conductors shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 6. Sheath | Y | - ST2(PVC) as per IEC 60092-359. |
| 7. Armor | C<br>(CB) | - Braid of copper alloy wires (-CB type) or galvanized steel wires (-C type)<br>- Coverage density is minimum 90% |
| 8. Paint | | - The red paint shall be painted uniformly on the steel wire braid<br>-" CB" Type or Protective covering Type, paint is dispensable |
| 9. Protective covering | Y | - ST2 (PVC) as per IEC 60092-359<br>- Outer sheath color : Red |
| 10. Core identification | | - 3C : Red, Yellow, Blue |

Note. Cold type cable can be supplied. (Cold type abbreviation "(C)" is added at the end of designation.)

## CABLE TYPE 3.6/6kV (FA-)SPYCB, 3.6/6kV (FA-)SPYCBY

| No. of Cores | Conductor | | | (FA-)SPYCB | | (FA-)SPYCBY | | | Conductor Resistance (at 20℃) (Max.) | Cable Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | Dia. | Nominal overall dia. | Toler-ance | Nominal overall dia. | Nominal dia. | Toler-ance | | (FA-)SPYCB approx. | (FA-)SPYCBY approx. |
| No. | mm² | No./mm | mm | | ±mm | mm | mm | ±mm | Ω/km | kg/km | kg/km |
| 1 | 10 | 7/1.35 | 4.05 | 17.2 | 0.7 | 1.0 | 19.4 | 0.9 | 1.840 | 540 | 620 |
| | 16 | 7/1.70 | 5.10 | 18.4 | 0.7 | 1.1 | 20.8 | 0.9 | 1.160 | 640 | 740 |
| | 25 | 7/2.14 | 6.42 | 19.7 | 0.8 | 1.1 | 22.1 | 1.0 | 0.734 | 770 | 880 |
| | 35 | 7/2.52 | 7.56 | 21.1 | 0.8 | 1.1 | 23.5 | 1.0 | 0.529 | 920 | 1,040 |
| | 50 | 19/1.78 | 8.90 | 22.4 | 0.9 | 1.2 | 25.0 | 1.1 | 0.391 | 1,090 | 1,220 |
| | 70 | 19/2.14 | 10.70 | 24.4 | 1.0 | 1.2 | 27.0 | 1.1 | 0.270 | 1,360 | 1,510 |
| | 95 | 19/2.52 | 12.60 | 26.5 | 1.1 | 1.3 | 29.3 | 1.2 | 0.195 | 1,690 | 1,86 |
| | 120 | 37/2.03 | 14.21 | 28.1 | 1.1 | 1.3 | 30.9 | 1.2 | 0.154 | 1,990 | 2,160 |
| | 50 | 37/2.25 | 15.75 | 29.9 | 1.2 | 1.3 | 32.7 | 1.3 | 0.126 | 2,320 | 2,510 |
| | 185 | 37/2.52 | 17.64 | 32.4 | 1.3 | 1.4 | 35.4 | 1.4 | 0.100 | 2,830 | 3,050 |
| | 240 | 61/2.25 | 20.25 | 35.5 | 1.4 | 1.5 | 38.7 | 1.5 | 0.0762 | 3,520 | 3,780 |
| | 300 | 61/2.52 | 22.68 | 38.5 | 1.5 | 1.6 | 41.9 | 1.6 | 0.0607 | 4,250 | 4,550 |
| | 400 | 61/2.90 | 26.10 | 42.5 | 1.7 | 1.7 | 46.1 | 1.7 | 0.0475 | 5,370 | 5,720 |
| | 500 | 61/3.20 | 28.80 | 46.0 | 1.8 | 1.8 | 49.8 | 1.8 | 0.0369 | 6,390 | 6,800 |
| | 630 | 91/3.00 | 33.00 | 50.4 | 2.0 | 1.9 | 54.4 | 1.9 | 0.0286 | 8,010 | 8,490 |

## CABLE TYPE 3.6/6kV (FA-)TPYC, 3.6/6kV (FA-)TPYCY

| No. of Cores | Conductor | | | (FA-)TPYC | | (FA-)TPYCY | | Conductor Resistance (at 20℃) (Max.) | Cable Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | Dia. | Nominal overall dia. | Toler-ance | Nominal overall dia. | Toler-ance | | (FA-)TPYC approx. | (FA-)TPYCY approx. |
| No. | mm² | No./mm | mm | | ±mm | mm | ±mm | Ω/km | kg/km | kg/km |
| 3 | 10 | 7/1.35 | 4.05 | 33.5 | 1.3 | 36.5 | 1.4 | 1.840 | 1,620 | 1,850 |
| | 16 | 7/1.70 | 5.10 | 35.8 | 1.4 | 39.0 | 1.5 | 1.160 | 1,930 | 2,190 |
| | 25 | 7/2.14 | 6.42 | 38.8 | 1.6 | 42.2 | 1.6 | 0.734 | 2,370 | 2,680 |
| | 35 | 7/2.52 | 7.56 | 41.6 | 1.7 | 45.0 | 1.7 | 0.529 | 2,830 | 3,160 |
| | 50 | 19/1.78 | 8.90 | 44.6 | 1.8 | 48.2 | 1.7 | 0.391 | 3,370 | 3,750 |
| | 70 | 19/2.14 | 10.70 | 48.9 | 2.0 | 52.7 | 1.9 | 0.270 | 4,260 | 4,690 |
| | 95 | 19/2.52 | 12.60 | 53.2 | 2.1 | 57.2 | 2.0 | 0.195 | 5,290 | 5,790 |
| | 120 | 37/2.03 | 14.21 | 57.0 | 2.3 | 61.2 | 2.1 | 0.154 | 6,270 | 6,840 |
| | 150 | 37/2.25 | 15.75 | 60.7 | 2.4 | 65.1 | 2.3 | 0.126 | 7,310 | 7,950 |
| | 185 | 37/2.52 | 17.64 | 64.9 | 2.6 | 69.5 | 2.4 | 0.100 | 8,680 | 9,390 |
| | 240 | 61/2.25 | 20.25 | 71.6 | 2.9 | 76.6 | 2.6 | 0.0762 | 10,860 | 11,720 |
| | 300 | 61/2.52 | 22.68 | 78.2 | 3.1 | 83.6 | 2.8 | 0.0607 | 13,210 | 14,230 |

## CABLE TYPE 6/10KV (FA-)SPYCB, 6/10KV (FA-)SPYCBY

| No. of Cores | Conductor | | | (FA-)SPYCB | | (FA-)SPYCBY | | Conductor Resistance (at 20℃) (Max.) | Cable Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | Dia. | Nominal overall dia. | Toler-ance | Nominal overall dia. | Toler-ance | | (FA-)SPYCB approx. | (FA-)SPYCBY approx. |
| No. | mm² | No./mm | mm | | ±mm | mm | ±mm | Ω/km | kg/km | kg/km |
| 1 | 16 | 7/1.70 | 5.10 | 20.2 | 0.8 | 22.6 | 1.0 | 1.160 | 730 | 840 |
| | 25 | 7/2.14 | 6.42 | 21.7 | 0.9 | 24.1 | 1.0 | 0.734 | 890 | 1,000 |
| | 35 | 7/2.52 | 7.56 | 22.9 | 0.9 | 25.5 | 1.1 | 0.529 | 1,030 | 1,160 |
| | 50 | 19/1.78 | 8.90 | 24.4 | 1.0 | 27.0 | 1.1 | 0.391 | 1,210 | 1,350 |
| | 70 | 19/2.14 | 10.70 | 26.4 | 1.1 | 29.2 | 1.2 | 0.270 | 1,490 | 1,660 |
| | 95 | 19/2.52 | 12.60 | 28.3 | 1.1 | 31.1 | 1.2 | 0.195 | 1,820 | 2,000 |
| | 120 | 37/2.03 | 14.21 | 30.1 | 1.2 | 33.1 | 1.3 | 0.154 | 2,130 | 2,340 |
| | 150 | 37/2.25 | 15.75 | 32.4 | 1.3 | 35.4 | 1.4 | 0.126 | 2,560 | 2,780 |
| | 185 | 37/2.52 | 17.64 | 34.2 | 1.4 | 37.4 | 1.4 | 0.100 | 2,980 | 3,240 |
| | 240 | 61/2.25 | 20.25 | 37.1 | 1.5 | 40.3 | 1.5 | 0.0762 | 3,670 | 3,940 |
| | 300 | 61/2.52 | 22.68 | 39.7 | 1.6 | 43.1 | 1.6 | 0.0607 | 4,360 | 4,680 |
| | 400 | 61/2.90 | 26.10 | 43.5 | 1.7 | 47.1 | 1.7 | 0.0475 | 5,470 | 5,840 |
| | 500 | 61/3.20 | 28.80 | 46.4 | 1.9 | 50.2 | 1.8 | 0.0369 | 6,430 | 6,840 |
| | 630 | 91/3.00 | 33.00 | 50.8 | 2.0 | 54.8 | 1.9 | 0.0286 | 8,060 | 8,540 |

## CABLE TYPE 6/10KV (FA-)TPYC, 6/10KV (FA-)TPYCY

| No. of Cores | Conductor | | | (FA-)TPYC | | (FA-)TPYCY | | Conductor Resistance (at 20℃) (Max.) | Cable Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | Dia. | Nominal overall dia. | Toler-ance | Nominal overall dia. | Toler-ance | | (FA-)TPYC approx. | (FA-)TPYCY approx. |
| No. | mm² | No./mm | mm | | ±mm | mm | ±mm | Ω/km | kg/km | kg/km |
| 3 | 16 | 7/1.70 | 5.10 | 39.9 | 1.6 | 43.3 | 1.6 | 1.160 | 2,260 | 2,580 |
| | 25 | 7/2.14 | 6.42 | 43.1 | 1.7 | 46.7 | 1.7 | 0.734 | 2,750 | 3,120 |
| | 35 | 7/2.52 | 7.56 | 45.9 | 1.8 | 49.5 | 1.8 | 0.529 | 3,230 | 3,620 |
| | 50 | 19/1.78 | 8.90 | 48.9 | 2.0 | 52.7 | 1.9 | 0.391 | 3,800 | 4,230 |
| | 70 | 19/2.14 | 10.70 | 53.0 | 2.1 | 57.0 | 2.0 | 0.270 | 4,690 | 5,190 |
| | 95 | 19/2.52 | 12.60 | 57.4 | 2.3 | 61.6 | 2.1 | 0.195 | 5,780 | 6,350 |
| | 120 | 37/2.03 | 14.21 | 61.1 | 2.4 | 65.5 | 2.3 | 0.154 | 6,770 | 7,410 |
| | 150 | 37/2.25 | 15.75 | 64.9 | 2.6 | 69.5 | 2.4 | 0.126 | 7,860 | 8,570 |
| | 185 | 37/2.52 | 17.64 | 69.0 | 2.8 | 73.8 | 2.5 | 0.100 | 9,230 | 10,020 |
| | 240 | 61/2.25 | 20.25 | 75.2 | 3.0 | 80.4 | 2.7 | 0.0762 | 11,400 | 12,340 |
| | 300 | 61/2.52 | 22.68 | 81.0 | 3.2 | 86.4 | 2.9 | 0.0607 | 13,660 | 14,710 |

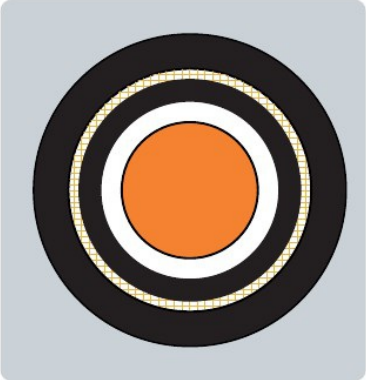
## CABLE TYPE 8.7/15kV (FA-)SPYCB, 8.7/15kV (FA-)SPYCBY

| No. of Cores | Conductor | | | (FA-)SPYCB | | (FA-)SPYCBY | | Conductor Resistance (at 20℃) (Max.) | Cable Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | Dia. | Nominal overall dia. | Toler-ance | Nominal overall dia. | Toler-ance | | FA-SPYCB approx. | FA-SPYCBY approx. |
| No. | mm² | No./mm | mm | | ±mm | mm | ±mm | Ω/km | kg/km | kg/km |
| 1 | 25 | 7/2.14 | 6.42 | 24.1 | 1.0 | 26.7 | 1.1 | 0.734 | 1,030 | 1,170 |
| | 35 | 7/2.52 | 7.56 | 25.3 | 1.0 | 27.9 | 1.1 | 0.529 | 1,180 | 1,330 |
| | 50 | 19/1.78 | 8.90 | 26.8 | 1.1 | 29.6 | 1.2 | 0.391 | 1,370 | 1,540 |
| | 70 | 19/2.14 | 10.70 | 28.6 | 1.1 | 31.4 | 1.2 | 0.270 | 1,650 | 1,830 |
| | 95 | 19/2.52 | 12.60 | 30.7 | 1.2 | 33.7 | 1.3 | 0.195 | 2,000 | 2,210 |
| | 120 | 37/2.03 | 14.21 | 33.0 | 1.3 | 36.0 | 1.4 | 0.154 | 2,410 | 2,640 |
| | 150 | 37/2.25 | 15.75 | 34.6 | 1.4 | 37.8 | 1.4 | 0.126 | 2,750 | 3,000 |
| | 185 | 37/2.52 | 17.64 | 36.6 | 1.5 | 39.8 | 1.5 | 0.100 | 3,200 | 3,470 |
| | 240 | 61/2.25 | 20.25 | 39.5 | 1.6 | 42.9 | 1.6 | 0.0762 | 3,900 | 4,210 |
| | 300 | 61/2.52 | 22.68 | 42.1 | 1.7 | 45.7 | 1.7 | 0.0607 | 4,610 | 4,960 |
| | 400 | 61/2.90 | 26.10 | 45.9 | 1.8 | 49.5 | 1.8 | 0.0475 | 5,740 | 6,130 |
| | 500 | 61/3.20 | 28.80 | 48.8 | 2.0 | 52.6 | 1.9 | 0.0369 | 6,710 | 7,150 |
| | 630 | 91/3.00 | 33.00 | 53.2 | 2.1 | 57.2 | 2.0 | 0.0286 | 8,370 | 8,870 |

## CABLE TYPE 8.7/15kV (FA-)TPYC, 8.7/15kV (FA-)TPYCY

| No. of Cores | Conductor | | | (FA-)TPYC | | (FA-)TPYCY | | Conductor Resistance (at 20℃) (Max.) | Cable Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | Dia. | Nominal overall dia. | Toler-ance | Nominal overall dia. | Toler-ance | | FA-TPYC approx. | FA-TPYCY approx. |
| No. | mm² | No./mm | mm | | ±mm | mm | ±mm | Ω/km | kg/km | kg/km |
| 3 | 25 | 7/2.14 | 6.42 | 48.0 | 1.9 | 51.8 | 1.9 | 0.734 | 3,230 | 3,650 |
| | 35 | 7/2.52 | 7.56 | 50.8 | 2.0 | 54.8 | 1.9 | 0.529 | 3,730 | 4,210 |
| | 50 | 19/1.78 | 8.90 | 54.0 | 2.2 | 58.2 | 2.0 | 0.391 | 4,350 | 4,890 |
| | 70 | 19/2.14 | 10.70 | 58.1 | 2.3 | 62.5 | 2.2 | 0.270 | 5,280 | 5,890 |
| | 95 | 19/2.52 | 12.60 | 62.6 | 2.5 | 67.2 | 2.3 | 0.195 | 6,420 | 7,110 |
| | 120 | 37/2.03 | 14.21 | 66.2 | 2.6 | 71.0 | 2.4 | 0.154 | 7,440 | 8,200 |
| | 150 | 37/2.25 | 15.75 | 70.1 | 2.8 | 75.1 | 2.6 | 0.126 | 8,580 | 9,420 |
| | 185 | 37/2.52 | 17.64 | 74.2 | 3.0 | 79.4 | 2.7 | 0.100 | 9,990 | 10,920 |
| | 240 | 61/2.25 | 20.25 | 80.4 | 3.2 | 85.8 | 2.9 | 0.0762 | 12,220 | 13,260 |
| | 300 | 61/2.52 | 22.68 | 86.0 | 3.4 | 91.8 | 3.1 | 0.0607 | 14,490 | 15,700 |

# Power & Lighting Cable




## CABLE DESIGNATION

0.6/1kV SPYC, SPYCY, FA-SPYC, FA-SPYCY
0.6/1kV SPYCB, SPYCBY, FA-SPYCB, FA-SPYCBY

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃ /-35℃) (Cold Type)
- Max. conductor temperature : 85℃(In case of applying IEC Std., 90℃)

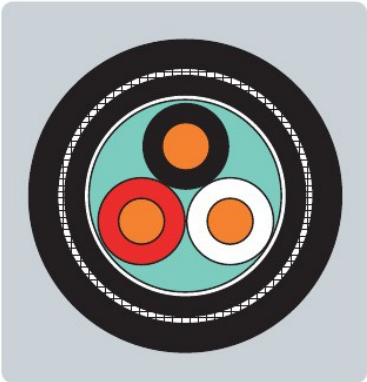
## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | S | - Stranded tinned annealed copper wires as per JIS C 3410 |
| | | - Suitable tape(S) may be applied on the conductor |
| 2. Insulation | P | - EPR as per JIS C 3410 |
| 3. Sheath | Y | - PVC as per JIS C 3410 |
| 4. Armor | C (CB) | - Braid of copper alloy wires (-CB type) or galvanized steel wires (-C type) |
| | | - Coverage density is minimum 90% |
| 5. Paint | | - The white paint shall be painted uniformly on the steel wire braid |
| | | - "CB" Type or Protective covering Type, paint is dispensable |
| 6. Protective Covering | Y | - PVC as per JIS C 3410 |
| | | - Outer sheath color : Black |

Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** 0.6/1kV (FA-)SPYC, 0.6/1kV (FA-)SPYCY, 0.6/1kV (FA-)SPYCB, 0.6/1kV (FA-)SPYCBY

| No.of Cores | Conductor | | | Nominal dia. over sheath | (FA-)SPYC (FA-)SPYCB | (FA-)SPYCY (FA-)SPYCBY | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | | Nominal Dia. | Nominal Dia. | | | (FA-)SPYC (FA-)SPYCB | (FA-)SPYCY (FA-)SPYCBY |
| No. | mm² | No./mm | mm | mm | mm | mm | Ω/km | MΩ-km | kg/km | kg/km |
| 1 | 1.5 | 7/0.52 | 1.56 | 5.9 | 7.2±0.4 | 9.0±0.4 | 12.2 | 1,300 | 100 | 135 |
| | 2.5 | 7/0.67 | 2.01 | 6.3 | 7.6±0.4 | 9.4±0.4 | 7.56 | 1,100 | 120 | 150 |
| | 4 | 7/0.85 | 2.55 | 6.9 | 8.2±0.4 | 10.0±0.4 | 4.70 | 900 | 140 | 175 |
| | 6 | 7/1.04 | 3.12 | 7.4 | 8.7±0.4 | 10.5±0.4 | 3.11 | 800 | 170 | 205 |
| | 10 | 7/1.35 | 4.05 | 8.6 | 9.9±0.4 | 11.7±0.5 | 1.84 | 700 | 225 | 270 |
| | 16 | 7/1.70 | 5.10 | 9.6 | 10.9±0.4 | 12.9±0.5 | 1.16 | 600 | 300 | 350 |
| | 25 | 7/2.14 | 6.42 | 11.5 | 12.8±0.5 | 14.8±0.6 | 0.734 | 500 | 425 | 485 |
| | 35 | 7/2.52 | 7.56 | 12.7 | 14.0±0.6 | 16.2±0.6 | 0.529 | 450 | 535 | 605 |
| | 50 | 19/1.78 | 8.90 | 14.6 | 15.9±0.6 | 18.1±0.7 | 0.391 | 450 | 695 | 775 |
| | 70 | 19/2.14 | 10.70 | 17.2 | 18.5±0.7 | 20.9±0.8 | 0.270 | 450 | 960 | 1,080 |
| | 95 | 19/2.52 | 12.60 | 19.3 | 20.6±0.8 | 23.0±0.9 | 0.195 | 400 | 1,250 | 1,360 |
| | 120 | 37/2.03 | 14.20 | 20.9 | 22.2±0.9 | 24.8±1.0 | 0.154 | 350 | 1,510 | 1,650 |
| | 150 | 37/2.25 | 15.80 | 23.1 | 24.4±1.0 | 27.0±1.1 | 0.125 | 350 | 1,830 | 1,980 |
| | 185 | 37/2.52 | 17.60 | 25.5 | 26.8±1.1 | 29.9±1.2 | 0.100 | 350 | 2,250 | 2,420 |
| | 240 | 61/2.25 | 20.30 | 28.8 | 30.1±1.2 | 33.1±1.3 | 0.0762 | 350 | 2,910 | 3,110 |
| | 300 | 61/2.52 | 22.70 | 31.8 | 33.6±1.3 | 36.6±1.5 | 0.0607 | 350 | 3,680 | 3,910 |




## CABLE DESIGNATION

0.6/1kV D(T,F,5,6,10)PY, FA-D(T,F,5,6,10)PY
0.6/1kV D(T,F,5,6,10)PYC, FA-D(T,F,5,6,10)PYC
0.6/1kV D(T,F,5,6,10)PYCY, FA-D(T,F,5,6,10)PYCY
0.6/1kV D(T)PYE, D(T)PYCE, D(T)PYCYE

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type)
- Max. conductor temperature : 85℃ (In case of applying IEC Std., 90℃)

## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | D(T,F,5,6,10) | - Stranded tinned annealed copper wires as per JIS C 3410 |
| 2. Insulation | P | - EPR as per JIS C 3410 |
| 3. Cabling | | - Insulated conductors shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 4. Sheath | Y | - PVC as per JIS C 3410 |
| 5. Armor | C | - Braid of galvanized steel wires<br>- Coverage density is minimum 90% |
| 6. Paint | | - The white paint shall be painted uniformly on the steel wire braid<br>- Protective covering Type, paint is dispensable |
| 7. Protective Covering | Y | - PVC as per JIS C 3410<br>- Outer sheath color : Black |
| 8. Core identification | | See nested table |

| No. of cores | Without Earth core | With Earth core |
|---|---|---|
| 2C | Black, White | - |
| 3C/ 2C+E | Black, White, Red | Black, White, G/Y |
| 4C/ 3C+E | Black, White, Red, Green | Black, White, Red, G/Y |
| 5C and over | Black No. on white insulation | Black No. on white insulation, G/Y |

Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** **0.6/1kV (FA-)DPY, 0.6/1kV (FA-)DPYC, 0.6/1kV (FA-)DPYCY**

| No.of Cores | Conductor | | | (FA-)DPY | | (FA-)DPYC | | (FA-)DPYCY | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | | | (FA-)DPY | (FA-)DPYC | (FA-)DPYCY |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2 | 1.5 | 7/0.52 | 1.56 | 10.4 | 0.5 | 11.7 | 0.5 | 13.7 | 0.5 | 12.2 | 1,300 | 120 | 205 | 260 |
| | 2.5 | 7/0.67 | 2.01 | 11.5 | 0.5 | 12.8 | 0.5 | 14.8 | 0.6 | 7.56 | 1,100 | 155 | 250 | 310 |
| | 4 | 7/0.85 | 2.55 | 12.6 | 0.6 | 13.9 | 0.6 | 15.9 | 0.6 | 4.70 | 900 | 200 | 300 | 365 |
| | 6 | 7/1.04 | 3.12 | 13.9 | 0.6 | 15.2 | 0.6 | 17.4 | 0.7 | 3.11 | 800 | 255 | 370 | 445 |
| | 10 | 7/1.35 | 4.05 | 15.8 | 0.7 | 17.1 | 0.7 | 19.3 | 0.8 | 1.84 | 700 | 360 | 490 | 575 |
| | 16 | 7/1.70 | 5.10 | 18.1 | 0.8 | 19.4 | 0.8 | 21.8 | 0.9 | 1.16 | 600 | 515 | 660 | 765 |
| | 25 | 7/2.14 | 6.42 | 21.7 | 0.9 | 23.0 | 0.9 | 25.6 | 1.0 | 0.734 | 500 | 770 | 945 | 1,080 |
| | 35 | 7/2.52 | 7.56 | 24.2 | 1.0 | 25.5 | 1.0 | 28.1 | 1.1 | 0.529 | 450 | 1,010 | 1,200 | 1,350 |
| | 50 | 19/1.78 | 8.90 | 28.1 | 1.2 | 29.4 | 1.2 | 32.2 | 1.3 | 0.391 | 450 | 1,360 | 1,580 | 1,770 |
| | 70 | 19/2.14 | 10.70 | 33.3 | 1.4 | 35.1 | 1.4 | 38.5 | 1.5 | 0.270 | 450 | 1,930 | 2,300 | 2,570 |
| | 95 | 19/2.52 | 12.60 | 37.3 | 1.6 | 391 | 1.6 | 42.7 | 1.6 | 0.195 | 400 | 2,550 | 2,960 | 3,280 |
| | 120 | 37/2.03 | 14.20 | 40.9 | 1.6 | 42.7 | 1.6 | 46.5 | 1.7 | 0.154 | 350 | 3,150 | 3,600 | 3,970 |
| | 150 | 37/2.25 | 15.80 | 45.0 | 1.7 | 46.8 | 1.7 | 50.8 | 1.8 | 0.126 | 350 | 3,840 | 4,330 | 4,750 |
| | 185 | 37/2.52 | 17.60 | 50.0 | 1.9 | 51.8 | 1.9 | 56.0 | 1.9 | 0.100 | 350 | 4,780 | 5,330 | 5,810 |

**CABLE TYPE** **0.6/1kV (FA-)DPYE, 0.6/1kV (FA-)DPYCE, 0.6/1kV (FA-)DPYCYE**

| No.of Cores | Conductor | | | (FA-)DPYE | | (FA-)DPYCE | | (FA-)DPYCYE | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | | | (FA-)DPYE | (FA-)DPYCE | (FA-)DPYCYE |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2+Earth | 1.5 | 7 / 0.52 | 1.56 | 11.2 | 0.5 | 12.5 | 0.5 | 14.5 | 0.6 | 12.2 | 1,300 | 150 | 245 | 300 |
| | 2.5 | 7 / 0.67 | 2.0 | 12.2 | 0.5 | 13.5 | 0.5 | 15.5 | 0.6 | 7.56 | 1,100 | 195 | 295 | 355 |
| | 4 | 7 / 0.85 | 2.55 | 13.4 | 0.6 | 14.7 | 0.6 | 16.9 | 5.7 | 4.70 | 900 | 255 | 365 | 440 |
| | 6 | 7 / 1.04 | 3.12 | 14.8 | 0.6 | 16.4 | 0.6 | 18.3 | 0.7 | 3.11 | 800 | 355 | 455 | 535 |
| | 10 | 7 / 1.35 | 4.05 | 17.0 | 0.7 | 18.3 | 0.7 | 20.7 | 0.8 | 1.84 | 700 | 485 | 625 | 725 |
| | 16 | 7 / 1.70 | 5.10 | 19.5 | 0.8 | 20.8 | 0.8 | 23.2 | 0.9 | 1.16 | 600 | 700 | 855 | 970 |
| | 25 | 7 / 2.14 | 6.42 | 23.4 | 1.0 | 24.7 | 1.0 | 27.3 | 1.1 | 0.734 | 500 | 1,060 | 1,240 | 1,390 |
| | 35 | 7 / 2.52 | 7.56 | 26.1 | 1.1 | 27.4 | 1.1 | 30.2 | 1.2 | 0.529 | 450 | 1,390 | 1,600 | 1.770 |
| | 50 | 19 / 1.78 | 8.90 | 30.2 | 1.3 | 32.0 | 1.3 | 35.0 | 1.4 | 0.391 | 450 | 1,870 | 2,200 | 2,420 |
| | 70 | 19 / 2.14 | 10.70 | 35.8 | 1.5 | 37.6 | 1.5 | 41.0 | 1.6 | 0.270 | 450 | 2,660 | 3,060 | 3,350 |
| | 95 | 19 / 2.52 | 12.60 | 40.1 | 1.6 | 41.9 | 1.6 | 45.5 | 1.7 | 0.195 | 400 | 3,530 | 3,980 | 4,320 |

**CABLE TYPE** **0.6/1kV (FA-)TPY, 0.6/1kV (FA-)TPYC, 0.6/1kV (FA-)TPYCY**

| No.of Cores | Conductor | | | (FA-)TPY | | (FA-)TPYC | | (FA-)TPYCY | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | | | (FA-)TPY | (FA-)TPYC | (FA-)TPYCY |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 3 | 1.5 | 7 / 0.52 | 1.56 | 11.2 | 0.5 | 12.5 | 0.5 | 14.5 | 0.6 | 12.2 | 1,300 | 150 | 245 | 300 |
| | 2.5 | 7 / 0.67 | 2.01 | 12.2 | 0.5 | 13.5 | 0.5 | 15.5 | 0.6 | 7.56 | 1,100 | 195 | 295 | 355 |
| | 4 | 7 / 0.85 | 2.55 | 13.4 | 0.6 | 14.7 | 0.6 | 16.9 | 0.7 | 4.70 | 900 | 255 | 365 | 440 |
| | 6 | 7 / 1.04 | 3.12 | 14.8 | 0.6 | 16.4 | 0.6 | 18.3 | 0.7 | 3.11 | 800 | 355 | 455 | 535 |
| | 10 | 7 / 1.35 | 4.05 | 17.0 | 0.7 | 18.3 | 0.7 | 20.7 | 0.8 | 1.84 | 700 | 485 | 625 | 725 |
| | 16 | 7 / 1.70 | 5.10 | 19.5 | 0.8 | 20.8 | 0.8 | 23.2 | 0.9 | 1.16 | 600 | 700 | 855 | 970 |
| | 25 | 7 / 2.14 | 6.42 | 23.4 | 1.0 | 24.7 | 1.0 | 27.3 | 1.1 | 0.734 | 500 | 1,060 | 1,240 | 1,390 |
| | 35 | 7 / 2.52 | 7.56 | 26.1 | 1.1 | 27.4 | 1.1 | 30.2 | 1.2 | 0.529 | 450 | 1,390 | 1,600 | 1,770 |
| | 50 | 19 / 1.78 | 8.90 | 30.2 | 1.3 | 32.0 | 1.3 | 35.0 | 1.4 | 0.391 | 450 | 1,870 | 2,200 | 2,420 |
| | 70 | 19 / 2.14 | 10.70 | 35.8 | 1.5 | 37.6 | 1.5 | 41.0 | 1.6 | 0.270 | 450 | 2,660 | 3,060 | 3,350 |
| | 95 | 19 / 2.52 | 12.60 | 40.1 | 1.6 | 41.9 | 1.6 | 45.5 | 1.7 | 0.195 | 400 | 3,530 | 3,980 | 4,320 |
| | 120 | 37 / 2.03 | 14.20 | 44.0 | 1.7 | 45.8 | 1.7 | 49.6 | 1.8 | 0.154 | 350 | 4,370 | 4,860 | 5,250 |
| | 150 | 37 / 2.25 | 15.80 | 48.4 | 1.8 | 50.2 | 1.8 | 54.2 | 1.9 | 0.126 | 350 | 5,340 | 5,870 | 6,340 |
| | 185 | 37 / 2.52 | 17.60 | 53.7 | 1.9 | 55.5 | 1.9 | 59.7 | 2.0 | 0.100 | 350 | 6,640 | 7,230 | 7,780 |

**CABLE TYPE** **0.6/1kV (FA-)TPYE, 0.6/1kV (FA-)TPYCE, 0.6/1kV (FA-)TPYCYE**

| No.of Cores | Conductor | | | (FA-)TPYE | | (FA-)TPYCE | | (FA-)TPYCYE | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | | | (FA-)TPYE | (FA-)TPYCE | (FA-)TPYCYE |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 3+Earth | 1.5 | 7 / 0.52 | 1.56 | 12.0 | 0.5 | 13.5 | 0.5 | 15.5 | 0.6 | 12.2 | 1,300 | 210 | 310 | 370 |
| | 2.5 | 7 / 0.67 | 2.01 | 12.9 | 0.6 | 14.4 | 0.6 | 16.6 | 0.7 | 7.56 | 1,100 | 260 | 370 | 440 |
| | 4 | 7 / 0.85 | 2.55 | 14.5 | 0.6 | 16.0 | 0.6 | 18.2 | 0.7 | 4.70 | 900 | 350 | 470 | 550 |
| | 6 | 7 / 1.04 | 3.12 | 15.9 | 0.7 | 17.4 | 0.7 | 19.6 | 0.8 | 3.11 | 800 | 450 | 590 | 670 |
| | 10 | 7 / 1.35 | 4.05 | 18.3 | 0.8 | 19.8 | 0.8 | 22.2 | 0.9 | 1.84 | 700 | 660 | 810 | 920 |
| | 16 | 7 / 1.70 | 5.10 | 21.0 | 0.9 | 22.5 | 0.9 | 25.1 | 1.0 | 1.16 | 600 | 940 | 1,120 | 1,250 |
| | 25 | 7 / 2.14 | 6.42 | 25.8 | 1.1 | 27.3 | 1.1 | 30.1 | 1.2 | 0.734 | 500 | 1,450 | 1,660 | 1,840 |
| | 35 | 7 / 2.52 | 7.56 | 28.6 | 1.2 | 30.1 | 1.2 | 33.1 | 1.3 | 0.529 | 450 | 1,900 | 2,140 | 2,340 |
| | 50 | 19 / 1.78 | 8.90 | 33.4 | 1.4 | 35.4 | 1.4 | 38.6 | 1.5 | 0.391 | 450 | 2,580 | 2,940 | 3,200 |
| | 70 | 19 / 2.14 | 10.70 | 39.1 | 1.6 | 41.1 | 1.6 | 44.5 | 1.6 | 0.270 | 450 | 3,630 | 4,050 | 4,370 |
| | 90 | 19 / 2.52 | 12.60 | 44.1 | 1.6 | 46.1 | 1.6 | 49.9 | 1.7 | 0.195 | 400 | 4,840 | 5,310 | 5,720 |
| | 120 | 37 /2.03 | 14.20 | 48.1 | 1.8 | 50.1 | 1.8 | 54.1 | 1.9 | 0.154 | 350 | 5,950 | 6,460 | 6.930 |
| | 150 | 37 / 2.25 | 15.80 | 53.4 | 1.9 | 55.4 | 1.9 | 59.6 | 2.1 | 0.126 | 350 | 7,310 | 7,870 | 8,420 |
| | 185 | 37 / 2.52 | 17.60 | 59.1 | 2.1 | 61.1 | 2.1 | 65.5 | 2.3 | 0.100 | 350 | 9,080 | 9,700 | 10,340 |

**CABLE TYPE** **0.6/1kV (FA-)FPY, 0.6/1kV (FA-)FPYC, 0.6/1kV (FA-)FPYCY**

| No.of Cores | Conductor | | | (FA-)FPY | | (FA-)FPYC | | (FA-)FPYCY | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | Nominal Dia. | Tolerance | | | (FA-)FPY | (FA-)FPYC | (FA-)FPYCY |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 4 | 1.5 | 7 / 0.52 | 1.56 | 12.0 | 0.5 | 13.5 | 0.5 | 15.5 | 0.6 | 12.2 | 1,300 | 210 | 310 | 370 |
| | 2.5 | 7 / 0.67 | 2.01 | 12.9 | 0.6 | 14.4 | 0.6 | 16.6 | 0.7 | 7.56 | 1,100 | 260 | 370 | 440 |
| | 4 | 7 / 0.85 | 2.55 | 14.5 | 0.6 | 16.0 | 0.6 | 18.2 | 0.7 | 4.70 | 900 | 350 | 470 | 550 |
| | 6 | 7 / 1.04 | 3.12 | 15.9 | 0.7 | 17.4 | 0.7 | 19.6 | 0.8 | 3.11 | 800 | 450 | 590 | 670 |
| | 10 | 7 / 1.35 | 4.05 | 18.3 | 0.8 | 19.8 | 0.8 | 22.2 | 0.9 | 1.84 | 700 | 660 | 810 | 920 |
| | 16 | 7 / 1.70 | 5.10 | 21.0 | 0.9 | 22.5 | 0.9 | 25.1 | 1.0 | 1.16 | 600 | 940 | 1,120 | 1,250 |
| | 25 | 7 / 2.14 | 6.42 | 25.8 | 1.1 | 27.3 | 1.1 | 30.1 | 1.2 | 0.734 | 500 | 1,450 | 1,660 | 1,840 |
| | 35 | 7 / 2.52 | 7.56 | 28.6 | 1.2 | 30.1 | 1.2 | 33.1 | 1.3 | 0.529 | 450 | 1,900 | 2,140 | 2,340 |
| | 50 | 19 / 1.78 | 8.90 | 33.4 | 1.4 | 35.4 | 1.4 | 38.6 | 1.5 | 0.391 | 450 | 2,580 | 2,940 | 3,200 |
| | 70 | 19 / 2.14 | 10.70 | 39.1 | 1.6 | 41.1 | 1.6 | 44.5 | 1.6 | 0.270 | 450 | 3,630 | 4,050 | 4.370 |
| | 95 | 19 / 2.52 | 12.60 | 44.1 | 1.6 | 46.1 | 1.6 | 49.9 | 1.7 | 0.195 | 400 | 4,840 | 5,310 | 5,720 |
| | 120 | 37 / 2.03 | 14.20 | 48.1 | 1.8 | 50.1 | 1.8 | 54.1 | 1.9 | 0.154 | 350 | 5,950 | 6,460 | 6,930 |
| | 150 | 37 / 2.25 | 15.80 | 53.4 | 1.9 | 55.4 | 1.9 | 59.6 | 2.1 | 0.126 | 350 | 7,310 | 7,870 | 8,420 |
| | 185 | 37 / 2.52 | 17.60 | 59.1 | 2.1 | 61.1 | 2.1 | 65.5 | 2.3 | 0.100 | 350 | 9,080 | 9,700 | 10,340 |

**CABLE TYPE** **0.6/1kV (FA-)5PY, 0.6/1kV (FA-)5PYC, 0.6/1kV (FA-)5PYCY**

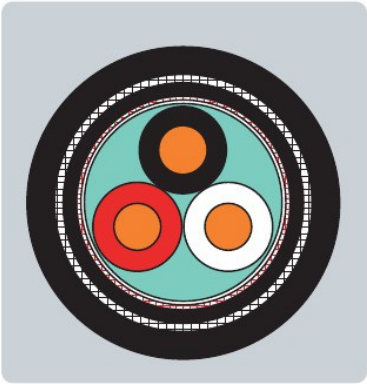
| No.of Cores | Conductor | | | (FA-)5PY | | (FA-)5PYC | | (FA-)5PYCY | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)5PY | (FA-)5PYC | (FA-)5PYCY |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 5 | 1.5 | 7 / 0.52 | 1.56 | 13.0 | 0.5 | 14.5 | 0.6 | 16.7 | 0.7 | 12.2 | 1,300 | 230 | 340 | 410 |
| | 2.5 | 7 / 0.67 | 2.01 | 14.3 | 0.6 | 15.8 | 0.6 | 18.0 | 0.7 | 7.56 | 1,100 | 290 | 700 | 470 |
| | 4 | 7 / 0.85 | 2.55 | 15.8 | 0.6 | 17.3 | 0.7 | 19.5 | 0.8 | 4.70 | 900 | 390 | 510 | 580 |
| | 6 | 7 / 1.04 | 3.12 | 17.6 | 0.7 | 19.1 | 0.8 | 21.5 | 0.9 | 3.11 | 800 | 520 | 650 | 730 |
| | 10 | 7 / 1.35 | 4.05 | 20.5 | 0.8 | 21.8 | 0.9 | 24.2 | 1.0 | 1.84 | 700 | 760 | 910 | 1,000 |
| | 16 | 7 / 1.70 | 5.10 | 23.3 | 0.9 | 24.8 | 1.0 | 27.4 | 1.1 | 1.16 | 600 | 1,100 | 1,270 | 1,370 |

**CABLE TYPE** **0.6/1kV (FA-)6PY, 0.6/1kV (FA-)6PYC, 0.6/1kV (FA-) 6PYCY**

| No.of Cores | Conductor | | | (FA-)6PY | | (FA-)6PYC | | (FA-)6PYCY | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)6PY | (FA-)6PYC | (FA-)6PYCY |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 6 | 1.5 | 7 / 0.52 | 1.56 | 14.3 | 0.7 | 15.8 | 0.8 | 18.0 | 0.8 | 12.2 | 1,300 | 280 | 390 | 480 |
| | 2.5 | 7 / 0.67 | 2.01 | 15.5 | 0.8 | 17.0 | 0.8 | 19.2 | 0.9 | 7.56 | 1,100 | 360 | 470 | 570 |
| | 4 | 7 / 0.85 | 2.55 | 17.4 | 0.8 | 18.9 | 0.9 | 21.3 | 0.9 | 4.70 | 900 | 490 | 610 | 730 |
| | 6 | 7 / 1.04 | 3.12 | 19.0 | 0.9 | 20.5 | 0.9 | 22.9 | 1.0 | 3.11 | 800 | 630 | 770 | 900 |

**CABLE TYPE** **0.6/1kV (FA-)10PY, 0.6/1kV (FA-)10PYC, 0.6/1kV (FA-)10PYCY**

| No.of Cores | Conductor | | | (FA-)10PY | | (FA-)10PYC | | (FA-)10PYCY | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)10PY | (FA-)10PYC | (FA-)10PYCY |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 10 | 1.5 | 7 / 0.52 | 1.56 | 18.3 | 0.8 | 19.8 | 0.9 | 22.2 | 1.0 | 12.2 | 1,300 | 450 | 600 | 710 |
| | 2.5 | 7 / 0.67 | 2.01 | 20.1 | 0.9 | 21.6 | 0.9 | 24.0 | 10 | 7.56 | 1,100 | 590 | 750 | 870 |
| | 4 | 7 / 0.85 | 2.55 | 22.5 | 1.0 | 24.0 | 1.0 | 26.6 | 1.1 | 4.70 | 900 | 800 | 980 | 1,120 |




## CABLE DESIGNATION

0.6/1kV SPYCBS, FA-SPYCBS
0.6/1kV SPYCBYS, FA-SPYCBYS
0.6/1kV DPYS, TPYS, FA-DPYS, FA-TPYS
0.6/1kV DPYCS, TPYCS, FA-DPYCS, FA-TPYCS
0.6/1kV DPYCYS, TPYCYS, FA-DPYCYS, FA-TPYCYS

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type)
- Max. conductor temperature : 85℃ (In case of applying IEC Std., 90℃)

## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | S(D,T) | - Stranded tinned annealed copper wires as per JIS C 3410 |
| 2. Insulation | P | - EPR as per JIS C 3410 |
| 3. Cabling | | - Insulated conductors shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 4. Common shield | S | - Tinned copper wire braid |
| 5. Sheath | Y | - PVC as per JIS C 3410 |
| 6. Armor | C<br>(CB) | - Braid of copper alloy wires (-CB type) or galvanized steel wires (-C type)<br>- Coverage density is minimum 90% |
| 7. Paint | | - The white paint shall be painted uniformly on the steel wire braid<br>- Protective covering Type, paint is dispensable |
| 8. Protective Covering | Y | - PVC as per JIS C 3410<br>- Outer sheath color : Black |
| 9. Core identification | | No. of cores / Insulation Color<br>1C / Black<br>2C / Black, White<br>3C / Black, White, Red |

Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** **0.6/1kV (FA-)SPYCBS, 0.6/1kV (FA-)SPYCBYS**

| No.of Cores | Conductor | | | Nominal dia. over sheath | (FA-)SPYCBS | | (FA-)SPYCBYS | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)SPYCBS | (FA-)SPYCBYS |
| No. | mm² | No./mm | mm | mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km |
| 1 | 1.5 | 7 / 0.52 | 1.56 | 6.6 | 8.1 | 0.5 | 9.9 | 0.6 | 12.2 | 1,300 | 130 | 170 |
| | 2.5 | 7 / 0.67 | 2.01 | 7.0 | 8.5 | 0.6 | 10.3 | 0.6 | 7.56 | 1,100 | 150 | 190 |
| | 4 | 7 / 0.85 | 2.55 | 7.6 | 9.1 | 0.6 | 10.9 | 0.6 | 4.70 | 900 | 180 | 220 |
| | 6 | 7 / 1.04 | 3.12 | 8.2 | 9.7 | 0.6 | 11.5 | 0.6 | 3.11 | 800 | 210 | 260 |
| | 10 | 7 / 1.35 | 4.05 | 9.4 | 10.9 | 0.6 | 12.9 | 0.7 | 1.84 | 700 | 280 | 340 |
| | 16 | 7 / 1.70 | 5.10 | 10.4 | 11.9 | 0.7 | 13.9 | 0.7 | 1.16 | 600 | 350 | 420 |
| | 25 | 7 / 2.14 | 6.42 | 12.4 | 13.9 | 0.7 | 15.9 | 0.8 | 0.734 | 500 | 500 | 570 |
| | 35 | 7 / 2.52 | 7.56 | 13.6 | 15.1 | 0.8 | 17.3 | 0.8 | 0.529 | 450 | 620 | 710 |
| | 50 | 19 / 1.78 | 8.90 | 15.6 | 17.1 | 0.8 | 19.3 | 0.9 | 0.391 | 450 | 790 | 900 |
| | 70 | 19 / 2.14 | 10.70 | 18.0 | 19.5 | 0.9 | 21.9 | 1.0 | 0.270 | 450 | 1,070 | 1,190 |
| | 95 | 19 / 2.52 | 12.60 | 20.1 | 21.6 | 0.9 | 24.0 | 1.0 | 0.195 | 400 | 1,370 | 1,510 |
| | 120 | 37 / 2.03 | 14.20 | 21.8 | 23.3 | 1.0 | 25.9 | 1.1 | 0.154 | 350 | 1,660 | 1,820 |

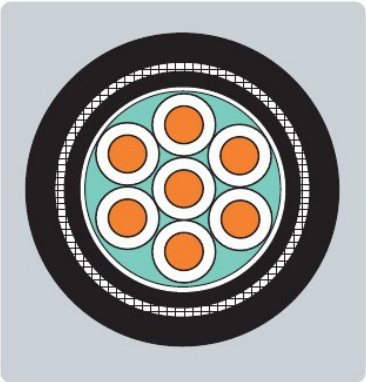
**CABLE TYPE** **0.6/1kV (FA-)DPYS, 0.6/1kV (FA-) DPYCS, 0.6/1kV (FA-)DPYCYS**

| No.of Cores | Conductor | | | (FA-)DPYS | | (FA-)DPYCS | | (FA-)DPYCYS | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)DPYS | (FA-)DPYCS | (FA-)DPYCYS |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2 | 1.5 | 7 / 0.52 | 1.56 | 11.3 | 0.5 | 12.6 | 0.5 | 14.6 | 0.6 | 12.2 | 1,300 | 170 | 265 | 325 |
| | 2.5 | 7 / 0.67 | 2.01 | 12.2 | 0.5 | 13.5 | 0.5 | 15.5 | 0.6 | 7.56 | 1,100 | 200 | 310 | 375 |
| | 4 | 7 / 0.85 | 2.55 | 13.4 | 0.6 | 14.7 | 0.6 | 16.9 | 0.7 | 4.70 | 900 | 260 | 380 | 455 |
| | 6 | 7 / 1.04 | 3.12 | 14.6 | 0.6 | 16.1 | 0.6 | 18.3 | 0.7 | 3.11 | 800 | 320 | 450 | 530 |
| | 10 | 7 . 1.35 | 4.05 | 16.5 | 0.7 | 18.0 | 0.7 | 20.4 | 0.8 | 1.84 | 700 | 430 | 580 | 680 |
| | 16 | 7 / 1.70 | 5.10 | 18.8 | 0.8 | 20.3 | 0.8 | 22.7 | 0.9 | 1.16 | 600 | 590 | 760 | 860 |
| | 25 | 7 / 2.14 | 6.42 | 22.6 | 1.0 | 24.1 | 1.0 | 26.7 | 1.1 | 0.734 | 500 | 880 | 1,080 | 1,210 |
| | 35 | 7 / 2.52 | 7.56 | 25.1 | 1.1 | 26.6 | 1.1 | 29.4 | 1.2 | 0.529 | 450 | 1.130 | 1,350 | 1.510 |
| | 50 | 19 / 1.78 | 8.90 | 29.0 | 1.2 | 30.5 | 1.2 | 33.5 | 1.3 | 0.391 | 450 | 1,480 | 1,730 | 1,940 |
| | 70 | 19 / 2.14 | 10.70 | 33.9 | 1.4 | 35.9 | 1.4 | 39.1 | 1.6 | 0.270 | 450 | 2,070 | 2,440 | 2,700 |
| | 95 | 19 / 2.52 | 12.60 | 38.2 | 1.6 | 40.2 | 1.6 | 43.6 | 1.7 | 0.195 | 400 | 2,750 | 3,170 | 3,470 |
| | 120 | 37 / 2,03 | 14.21 | 41.8 | 1.8 | 43.8 | 1.8 | 47.4 | 1.9 | 0.154 | 350 | 3,360 | 3,820 | 4,170 |

**CABLE TYPE** **0.6/1kV (FA-)TPYS, 0.6/1kV (FA-)TPYCS, 0.6/1kV (FA-)TPYCYS**

| No.of Cores | Conductor | | | (FA-)TPYS | | (FA-)TPYCS | | (FA-)TPYCYS | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)TPYS | (FA-)TPYCS | (FA-)TPYCYS |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 3 | 1.5 | 7 / 0.52 | 1.56 | 11.9 | 0.5 | 13.2 | 0.5 | 15.2 | 0.6 | 12.2 | 1,300 | 200 | 305 | 365 |
| | 2.5 | 7 / 0.67 | 2.01 | 12.9 | 0.6 | 14.2 | 0.6 | 16.4 | 0.7 | 7.56 | 1,100 | 250 | 360 | 430 |
| | 4 | 7 / 0.85 | 2.55 | 14.4 | 0.6 | 15.7 | 0.6 | 17.9 | 0.7 | 4.70 | 900 | 330 | 455 | 535 |
| | 6 | 7 / 1.04 | 3.12 | 15.5 | 0.7 | 17.0 | 0.7 | 19.2 | 0.8 | 3.11 | 800 | 400 | 540 | 620 |
| | 10 | 7 / 1.35 | 4.05 | 17.7 | 0.8 | 19.2 | 0.8 | 21.6 | 0.9 | 1.84 | 700 | 570 | 730 | 830 |
| | 16 | 7 / 1.70 | 5.10 | 20.1 | 0.9 | 21.6 | 0.9 | 24.0 | 1.0 | 1.16 | 600 | 790 | 970 | 1,080 |
| | 25 | 7 / 2.14 | 6.42 | 24.0 | 1.0 | 25.5 | 1.0 | 28.1 | 1.1 | 0.734 | 500 | 1,170 | 1,380 | 1,520 |
| | 35 | 7 / 2.52 | 7.56 | 26.8 | 1.1 | 28.3 | 1.1 | 31.1 | 1.2 | 0.529 | 450 | 1,520 | 1,750 | 1,920 |
| | 50 | 19 / 1.78 | 8.90 | 31.2 | 1.3 | 33.2 | 1.3 | 36.2 | 1.4 | 0.391 | 450 | 2,040 | 2,390 | 2,610 |
| | 70 | 19 / 2.14 | 10.70 | 36.6 | 1.5 | 38.6 | 1.5 | 42.0 | 1.7 | 0.270 | 450 | 2,880 | 3,290 | 3,580 |
| | 95 | 19 / 2.52 | 12.60 | 40.9 | 1.7 | 42.9 | 1.7 | 46.5 | 1.9 | 0.195 | 400 | 3,770 | 4,220 | 4,570 |
| | 120 | 37 / 2.03 | 14.21 | 44.7 | 1.9 | 46.7 | 1.9 | 50.5 | 2.0 | 0.154 | 350 | 4,630 | 5,120 | 5,520 |

# Control & Signal Cable




## CABLE DESIGNATION

250V MPY, MPYE, FA-MPY, FA-MPYE
250V MPYC, MPYCE, FA-MPYC, FA-MPYCE
250V MPYCY, MPYCYE, FA-MPYCY, FA-MPYCYE

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type)
- Max. conductor temperature : 85℃(In case of applying IEC Std., 90℃)

## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | M | - Stranded tinned annealed copper wires as per JIS C 3410 |
| 2. Insulation | P | - EPR as per JIS C 3410 |
| 3. Cabling | | - Insulated conductors shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 4. Sheath | Y | - PVC as per JIS C 3410 |
| 5. Armor | C | - Braid of galvanized steel wires<br>- Coverage density is minimum 90% |
| 6. Paint | | - The white paint shall be painted uniformly on the steel wire braid<br>- Protective covering Type, paint is dispensable |
| 7. Protective Covering | Y | - PVC as per JIS C 3410<br>- Outer sheath color : Black |
| 8. Core identification | | Without Earth core: Black No. on white insulation<br>With Earth core: Black No. on white insulation, G/Y |

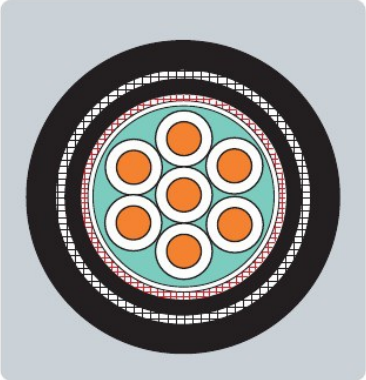
Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** **250V (FA-)MPY, 250V (FA-)MPYC, 250V (FA-)MPYCY**

| No.of Cores | Conductor | | | (FA-)MPY | | (FA-)MPYC | | (FA-)MPYCY | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)MPY | (FA-)MPYC | (FA-)MPYCY |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2 | 1.0 | 7/0.43 | 1.29 | 8.7 | 0.4 | 10.0 | 0.4 | 12.0 | 0.5 | 18.2 | 1,200 | 85 | 155 | 205 |
| 4 | | | | 9.9 | 0.4 | 11.2 | 0.4 | 13.2 | 0.5 | | | 125 | 205 | 260 |
| 5 | | | | 10.3 | 0.5 | 11.8 | 0.5 | 13.8 | 0.6 | | | 160 | 240 | 300 |
| 7 | | | | 11.9 | 0.5 | 13.2 | 0.5 | 15.2 | 0.6 | | | 190 | 290 | 350 |
| 9 | | | | 13.2 | 0.7 | 14.7 | 0.7 | 16.9 | 0.8 | | | 260 | 370 | 440 |
| 12 | | | | 15.5 | 0.7 | 16.8 | 0.7 | 19.0 | 0.8 | | | 315 | 445 | 530 |
| 16 | | | | 16.5 | 0.8 | 18.0 | 0.8 | 20.4 | 0.9 | | | 410 | 550 | 650 |
| 19 | | | | 18.3 | 0.8 | 19.6 | 0.8 | 22.0 | 0.9 | | | 465 | 615 | 720 |
| 23 | | | | 19.6 | 0.9 | 21.1 | 0.9 | 23.5 | 1.0 | | | 580 | 740 | 860 |
| 27 | | | | 22.1 | 0.9 | 23.4 | 0.9 | 26.0 | 1.0 | | | 665 | 840 | 980 |
| 33 | | | | 22.9 | 1.0 | 24.4 | 1.0 | 27.0 | 1.2 | | | 800 | 990 | 1,130 |
| 37 | | | | 24.8 | 1.0 | 26.1 | 1.0 | 28.9 | 1.2 | | | 870 | 1,070 | 1,240 |
| 44 | | | | 28.0 | 1.2 | 29.3 | 1.2 | 32.1 | 1.3 | | | 1,160 | 1,290 | 1,470 |
| 77 | | | | 35.8 | 1.5 | 37.6 | 1.5 | 41.0 | 1.6 | | | 1,790 | 2,180 | 2,470 |

**CABLE TYPE** **250V (FA-)MPYE, 250V (FA-)MPYCE, 250V (FA-)MPYCYE**

| No.of Cores | Conductor | | | (FA-)MPYE | | (FA-)MPYCE | | (FA-)MPYCYE | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | Nominal Dia. | Toler-ance | | | (FA-)MPYE | (FA-)MPYCE | (FA-)MPYCYE |
| No. | mm² | No./mm | mm | mm | ±mm | mm | ±mm | mm | ±mm | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2 + Earth | 1.0 | 7/0.43 | 1.29 | 9.0 | 0.4 | 10.5 | 0.5 | 12.5 | 0.5 | 18.2 | 1,200 | 120 | 190 | 230 |
| 4 + Earth | | | | 10.8 | 0.5 | 12.3 | 0.5 | 14.3 | 0.6 | | | 170 | 250 | 310 |
| 7 + Earth | | | | 12.6 | 0.5 | 14.1 | 0.6 | 16.3 | 0.7 | | | 230 | 330 | 400 |
| 12 + Earth | | | | 15.6 | 0.6 | 17.1 | 0.7 | 19.3 | 0.8 | | | 360 | 480 | 560 |
| 19 + Earth | | | | 18.5 | 0.7 | 20.0 | 0.8 | 22.4 | 0.9 | | | 520 | 660 | 760 |
| 27 + Earth | | | | 21.5 | 0.9 | 23.0 | 0.9 | 25.6 | 1.0 | | | 700 | 860 | 990 |
| 37 + Earth | | | | 24.4 | 1.0 | 25.9 | 1.0 | 28.5 | 1.2 | | | 910 | 1,100 | 1,240 |
| 44 + Earth | | | | 27.3 | 1.1 | 28.8 | 1.2 | 31.6 | 1.3 | | | 1,100 | 1,300 | 1,480 |




## CABLE DESIGNATION

250V MPYS, FA-MPYS
250V MPYCS, FA-MPYCS
250V MPYCYS, FA-MPYCYS

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40 ℃/-35 ℃) (Cold Type)
- Max. conductor temperature : 85 ℃ (In case of applying IEC Std., 90 ℃)

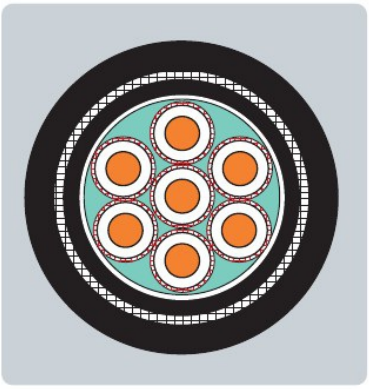
## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | M | - Stranded tinned annealed copper wires as per JIS C 3410 |
| 2. Insulation | P | - EPR as per JIS C 3410 |
| 3. Cabling | | - Insulated conductors shall be cabled |
| | | - Flame retardant & non-hygroscopic fillers may be used |
| | | - Suitable tape(s) may be applied on the cabled core |
| | | - A Filler may be applied to obtain a circular Cable |
| 4. Common shield | S | - Tinned copper wire braid |
| 5. Sheath | Y | - PVC as per JIS C 3410 |
| 6. Armor | C | - Braid of galvanized steel wires |
| | | - Coverage density is minimum 90% |
| 7. Paint | | - The white paint shall be painted uniformly on the steel wire braid |
| | | - Protective covering Type, paint is dispensable |
| 8. Protective Covering | Y | - PVC as per JIS C 3410 |
| | | - Outer sheath color : Black |
| 9. Core identification | | - Black No. on white insulation |

Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** 250V (FA-)MPYS, 250V (FA-)MPYCS, 250V (FA-)MPYCYS

| No.of Cores | Conductor | | | (FA-) MPYC | (FA-) MPYCS | (FA-) MPYCYS | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | | | | | (FA-) MPYC | (FA-) MPYCS | (FA-) MPYCYS |
| No. | mm² | No./mm | mm | mm | | | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2 | 1.0 | 7/0.43 | 1.29 | 9.4 ±0.4 | 10.7 ±0.4 | 12.7 ±0.5 | 18.2 | 1,200 | 135 | 205 | 255 |
| 4 | | | | 10.6 ±0.5 | 11.9 ±0.5 | 13.9 ±0.6 | | | 190 | 260 | 315 |
| 5 | | | | 11.0 ±0.6 | 12.5 ±0.6 | 14.5 ±0.6 | | | 220 | 290 | 340 |
| 7 | | | | 12.6 ±0.6 | 13.9 ±0.6 | 15.9 ±0.6 | | | 270 | 355 | 420 |
| 9 | | | | 14.2 ±0.7 | 15.7 ±0.7 | 17.9 ±0.7 | | | 345 | 430 | 510 |
| 12 | | | | 16.3 ±0.7 | 17.6 ±0.7 | 19.8 ±0.8 | | | 430 | 540 | 625 |
| 16 | | | | 17.5 ±0.8 | 19.0 ±0.8 | 21.4 ±0.9 | | | 520 | 630 | 740 |
| 19 | | | | 19.3 ±0.8 | 20.6 ±0.8 | 23.0 ±0.9 | | | 600 | 735 | 850 |
| 23 | | | | 20.4 ±0.9 | 21.9 ±0.9 | 24.3 ±1.0 | | | 690 | 830 | 940 |
| 27 | | | | 23.0 ±1.0 | 24.3 ±1.0 | 26.9 ±1.1 | | | 840 | 995 | 1,140 |
| 33 | | | | 23.8 ±1.1 | 25.3 ±1.1 | 27.9 ±1.2 | | | 950 | 1,100 | 1,250 |
| 37 | | | | 25.7 ±1.1 | 27.0 ±1.1 | 29.8 ±1.2 | | | 1,070 | 1,240 | 1,410 |
| 44 | | | | 28.9 ±1.2 | 30.2 ±1.2 | 33.2 ±1.3 | | | 1,290 | 1,480 | 1,680 |
| 77 | | | | 36.7 ±1.6 | 38.7 ±1.6 | 42.1 ±1.6 | | | 2,300 | 2,480 | 2,790 |




## CABLE DESIGNATION

250V MPY-S, FA-MPY-S
250V MPYC-S, FA-MPYC-S
250V MPYCY-S, FA-MPYCY-S

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40 ℃/-35 ℃) (Cold Type)
- Max. conductor temperature : 85 ℃ (In case of applying IEC Std., 90 ℃)

## CONSTRUCTION

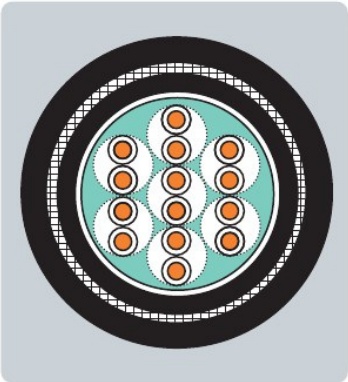
| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | M | - Stranded tinned annealed copper wires as per JIS C 3410 |
| 2. Insulation | P | - EPR as per JIS C 3410 |
| 3. Individual shield | -S | - Tinned copper wire braid |
| | | - Suitable tape(S) may be applied under individual shield |
| 4. Cabling | | - Insulated conductors shall be cabled |
| | | - Flame retardant & non-hygroscopic fillers may be used |
| | | - Suitable tape(s) may be applied on the cabled core |
| | | - A Filler may be applied to obtain a circular Cable |
| 5. Sheath | Y | - PVC as per JIS C 3410 |
| 6. Armor | C | - Braid of galvanized steel wires |
| | | - Coverage density is minimum 90% |
| 7. Paint | | - The white paint shall be painted uniformly on the steel wire braid |
| | | - Protective covering Type, paint is dispensable |
| 8. Protective Covering | Y | - PVC as per JIS C 3410 |
| | | - Outer sheath color : Black |
| 9. Core identification | | - Black No. on white insulation |

Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** 250V (FA-)MPY-S, 250V (FA-)MPYC-S, 250V (FA-)MPYCY-S

| No.of Cores | Conductor | | | (FA-) MPY-S | (FA-) MPYC-S | (FA-) MPYCY-S | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. | Nominal Dia. | | | | | (FA-) MPY-S | (FA-) MPYC-S | (FA-) MPYCY-S |
| No. | mm² | No./mm | mm | mm | | | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2 | 1.0 | 7/0.43 | 1.29 | 9.9 ±0.4 | 11.2 ±0.4 | 13.2 ±0.5 | 18.2 | 1,200 | 150 | 210 | 260 |
| 4 | | | | 11.6 ±0.5 | 12.9 ±0.5 | 14.9 ±0.6 | | | 230 | 300 | 360 |
| 5 | | | | 12.2 ±0.6 | 13.7 ±0.6 | 15.7 ±0.7 | | | 270 | 340 | 400 |
| 7 | | | | 13.9 ±0.6 | 15.2 ±0.6 | 17.4 ±0.7 | | | 350 | 435 | 515 |
| 9 | | | | 15.5 ±0.8 | 17.0 ±0.8 | 19.2 ±0.9 | | | 440 | 510 | 590 |
| 12 | | | | 18.2 ±0.8 | 19.5 ±0.8 | 21.9 ±0.9 | | | 570 | 685 | 795 |
| 16 | | | | 19.8 ±0.9 | 21.3 ±0.9 | 23.7 ±1.0 | | | 690 | 800 | 920 |
| 19 | | | | 21.5 ±0.9 | 22.8 ±0.9 | 25.4 ±1.0 | | | 840 | 980 | 1,120 |
| 23 | | | | 23.1 ±1.0 | 24.6 ±1.0 | 27.2 ±1.1 | | | 940 | 1,070 | 1,210 |
| 27 | | | | 26.0 ±1.1 | 27.3 ±1.1 | 30.1 ±1.2 | | | 1,200 | 1,360 | 1,540 |
| 33 | | | | 27.2 ±1.2 | 28.7 ±1.2 | 31.5 ±1.2 | | | 1,300 | 1,450 | 1,640 |
| 37 | | | | 29.2 ±1.2 | 30.5 ±1.2 | 33.5 ±1.3 | | | 1,600 | 1,760 | 1,970 |
| 44 | | | | 33.2 ±1.4 | 35.0 ±1.4 | 38.4 ±1.5 | | | 2,000 | 2,240 | 2,500 |
| 77 | | | | 42.0 ±1.6 | 44.0 ±1.6 | 47.6 ±1.7 | | | 3,100 | 3,350 | 3,720 |

# Telephone & Instrumentation Cable




## CABLE DESIGNATION

250V TTY, FA-TTY
250V TTYC, FA-TTYC
250V TTYCY, FA-TTYCY

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40 ℃/-35 ℃) (Cold Type)
- Max. conductor temperature : 60 ℃ (In case of applying IEC Std., 70 ℃)

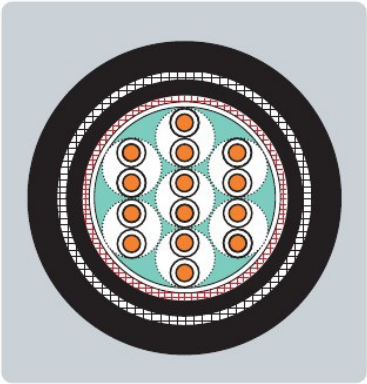
## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | TT | - Stranded plain annealed copper wires as per JIS C 3410 |
| 2. Insulation | | - PVC as per JIS C 3410 |
| 3. Twisting | | - Two Insulated cores shall be twisted together to form a pair |
| 4. Cabling | | - Twisted pairs shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 5. Sheath | Y | - PVC as per JIS C 3410 |
| 6. Armor | C | - Braid of galvanized steel wires<br>- Coverage density is minimum 90% |
| 7. Paint | | - The white paint shall be painted uniformly on the steel wire braid<br>- Protective covering Type, paint is dispensable |
| 8. Protective Covering | Y | - PVC as per JIS C 3410<br>- Outer sheath color : Black |
| 9. Core identification | | - Printed pair number and Alphabet letter on the white insulation<br>ex) 4P : (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B)<br>- 1T, 1Q cable shall be identified by the black number on the white insulation |

Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** 250V (FA-)TTY, 250V (FA-)TTYC, 250V (FA-)TTYCY

| No.of pair, Triad or Quad | No.of Cores | Conductor | | | (FA-) TTY | (FA-) TTYC | (FA-) TTYCY | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal Area | Strand | DIA. | Nominal Dia. | | | | | (FA-) TTY | (FA-) TTYC | (FA-) TTYCY |
| | | mm² | No./mm | mm | mm | | | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 1 | 2 | 0.75 | 7/0.37 | 1.11 | 7.9 ±0.4 | 9.2 ±0.4 | 11.0 ±0.4 | 26.0 | 300 | 70 | 130 | 170 |
| 1T | 3 | | | | 8.6 ±0.4 | 9.9 ±0.4 | 11.7 ±0.5 | | | 85 | 155 | 205 |
| 1Q | 4 | | | | 9.3 ±0.4 | 10.6 ±0.4 | 12.6 ±0.5 | | | 105 | 180 | 230 |
| 2 | 4 | | | | 12.2 ±0.5 | 13.7 ±0.5 | 15.7 ±0.6 | | | 160 | 260 | 320 |
| 3 | 6 | | | | 12.9 ±0.6 | 14.4 ±0.6 | 16.6 ±0.7 | | | 190 | 300 | 370 |
| 4 | 8 | | | | 14.2 ±0.6 | 15.5 ±0.6 | 17.7 ±0.7 | | | 205 | 320 | 400 |
| 7 | 14 | | | | 16.9 ±0.7 | 18.2 ±0.7 | 20.6 ±0.8 | | | 310 | 440 | 545 |
| 10 | 20 | | | | 21.7 ±0.9 | 23.0 ±0.9 | 25.6 ±1.0 | | | 465 | 640 | 775 |
| 14 | 28 | | | | 23.5 ±1.0 | 24.8 ±1.0 | 27.4 ±1.1 | | | 585 | 770 | 920 |
| 19 | 38 | | | | 26.4 ±1.1 | 27.7 ±1.1 | 30.5 ±1.2 | | | 755 | 965 | 1,140 |
| 24 | 48 | | | | 31.9 ±1.3 | 33.7 ±1.3 | 36.7 ±1.5 | | | 1,030 | 1,380 | 1,610 |
| 30 | 60 | | | | 34.0 ±1.4 | 35.8 ±1.4 | 39.2 ±1.6 | | | 1,220 | 1,590 | 1,860 |
| 37 | 74 | | | | 36.9 ±1.5 | 38.7 ±1.5 | 42.3 ±1.6 | | | 1,450 | 1,860 | 2,170 |
| 48 | 96 | | | | 42.8 ±1.7 | 44.6 ±1.7 | 48.4 ±1.8 | | | 1,910 | 2,380 | 2,760 |




## CABLE DESIGNATION

250V TTYS, FA- TTYS
250V TTYCS, FA- TTYCS
250V TTYCYS, FA- TTYCYS

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40 ℃/-35 ℃) (Cold Type)
- Max. conductor temperature : 60 ℃(In case of applying IEC Std., 70 ℃)

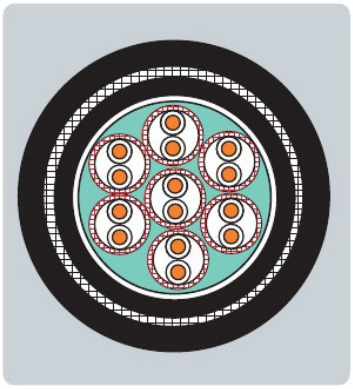
## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | TT | - Stranded plain annealed copper wires as per JIS C 3410 |
| 2. Insulation | | - PVC as per JIS C 3410 |
| 3. Twisting | | - Two Insulated cores shall be twisted together to form a pair |
| 4. Cabling | | - Twisted pairs shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 5. Common shield | S | - Tinned copper wire braid |
| 6. Sheath | Y | - PVC as per JIS C 3410 |
| 7. Armor | C | - Braid of galvanized steel wires<br>- Coverage density is minimum 90% |
| 8. Paint | | - The white paint shall be painted uniformly on the steel wire braid<br>- Protective covering Type, paint is dispensable |
| 9. Protective Covering | Y | - PVC as per JIS C 3410<br>- Outer sheath color : Black |
| 10. Core identification | | - Printed pair number and Alphabet letter on the white insulation<br>ex) 4P : (1A,1B), (2A,2B), (3A,3B), (4A,4B)<br>- 1T, 1Q cable shall be identified by the black number on the white insulation |

Note. Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** 250V (FA-)TTYS, 250V (FA-)TTYCS, 250V (FA-)TTYCYS

| No.of pair, Triad or Quad | No.of Cores | Conductor | | | (FA-) TTYS | (FA-) TTYCS | (FA-) TTYCYS | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal Area | Strand | DIA. | Nominal Dia. | | | | | (FA-) TTYS | (FA-) TTYCS | (FA-) TTYCYS |
| | | mm² | No./mm | mm | mm | | | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 1 | 2 | 0.75 | 7/0.37 | 1.11 | 8.8 ±0.4 | 10.1 ±0.4 | 12.1 ±0.5 | 26.0 | 300 | 120 | 180 | 230 |
| 1T | 3 | | | | 9.3 ±0.4 | 10.6 ±0.4 | 12.6 ±0.5 | | | 140 | 205 | 255 |
| 1Q | 4 | | | | 10.0 ±0.5 | 11.3 ±0.5 | 13.3 ±0.5 | | | 160 | 230 | 285 |
| 2 | 4 | | | | 12.9 ±0.6 | 14.4 ±0.6 | 16.6 ±0.7 | | | 200 | 310 | 380 |
| 3 | 6 | | | | 13.7 ±0.6 | 15.2 ±0.6 | 17.4 ±0.7 | | | 240 | 360 | 430 |
| 4 | 8 | | | | 15.0 ±0.7 | 16.3 ±0.7 | 18.5 ±0.7 | | | 300 | 405 | 490 |
| 7 | 14 | | | | 17.7 ±0.8 | 19.0 ±0.8 | 21.4 ±0.9 | | | 420 | 545 | 650 |
| 10 | 20 | | | | 22.8 ±1.0 | 24.1 ±1.0 | 26.7 ±1.1 | | | 640 | 800 | 945 |
| 14 | 28 | | | | 24.4 ±1.0 | 25.7 ±1.0 | 28.3 ±1.1 | | | 770 | 935 | 1.090 |
| 19 | 38 | | | | 27.5 ±1.2 | 28.8 ±1.2 | 31.6 ±1.3 | | | 970 | 1,160 | 1,340 |
| 24 | 48 | | | | 33.1 ±1.4 | 34.9 ±1.4 | 38.3 ±1.5 | | | 1,290 | 1,600 | 1,860 |
| 30 | 60 | | | | 35.5 ±1.5 | 37.3 ±1.5 | 40.7 ±1.6 | | | 1,620 | 1,950 | 2,230 |
| 37 | 74 | | | | 38.4 ±1.6 | 40.2 ±1.6 | 43.8 ±1.7 | | | 1,890 | 2,250 | 2,570 |
| 48 | 96 | | | | 44.3 ±1.7 | 46.1 ±1.7 | 50.1 ±1.8 | | | 2,420 | 2,830 | 3,240 |




## CABLE DESIGNATION

250V TTY-S, FA- TTY-S
250V TTYC-S, FA- TTYC-S
250V TTYCY-S, FA- TTYCY-S

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40 ℃ /-35 ℃) (Cold Type)
- Max. conductor temperature : 60 ℃(In case of applying IEC Std., 70 ℃)

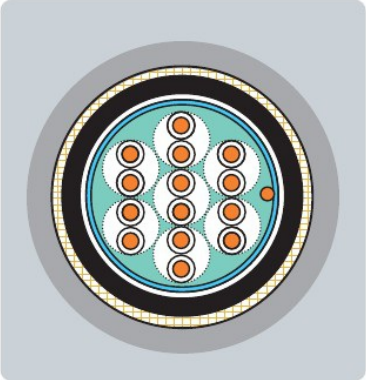
## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | TT | - Stranded plain annealed copper wires as per JIS C 3410 |
| 2. Insulation | | - PVC as per JIS C 3410 |
| 3. Twisting | | - Two Insulated cores shall be twisted together to form a pair |
| 4. Individual shield | -S | - Tinned copper wire braid<br>- Suitable tape(S) may be applied under individual shield |
| 5. Cabling | | - Twisted pairs shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 6. Sheath | Y | - PVC as per JIS C 3410 |
| 7. Armor | C | - Braid of galvanized steel wires<br>- Coverage density is minimum 90% |
| 8. Paint | | - The white paint shall be painted uniformly on the steel wire braid<br>- Protective covering Type, paint is dispensable |
| 9. Protective Covering | Y | - PVC as per JIS C 3410<br>- Outer sheath color : Black |
| 10. Core identification | | - Printed pair number and Alphabet letter on the white insulation<br>ex) 4P : (1A,1B), (2A,2B), (3A,3B), (4A,4B) |

**Note.** Fire resistant type FR(A) & Cold type cable ("(C)") can be supplied.

**CABLE TYPE** 250V (FA-)TTY-S, 250V (FA-)TTYC-S, 250V (FA-)TTYCY-S

| No.of pair, Triad or Quad | No.of Cores | Conductor | | | (FA-) TTY-S | (FA-) TTYC-S | (FA-) TTYCY-S | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight (Approx.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal Area | Strand | DIA. | Nominal Dia. | | | | | (FA-) TTY-S | (FA-) TTYC-S | (FA-) TTYCY-S |
| | | mm² | No./mm | mm | mm | | | Ω/km | MΩ-km | kg/km | kg/km | kg/km |
| 2 | 4 | 0.75 | 7/0.37 | 1.11 | 14.1 ±0.6 | 15.6 ±0.6 | 17.8 ±0.7 | 26.0 | 300 | 200 | 320 | 400 |
| 3 | 6 | | | | 15.2 ±0.7 | 16.7 ±0.7 | 18.9 ±0.8 | | | 260 | 380 | 360 |
| 4 | 8 | | | | 17.4 ±0.7 | 18.7 ±0.7 | 21.1 ±0.8 | | | 370 | 490 | 595 |
| 7 | 14 | | | | 20.9 ±0.9 | 22.2 ±0.9 | 24.8 ±1.0 | | | 550 | 690 | 825 |
| 10 | 20 | | | | 27.4 ±1.1 | 28.7 ±1.1 | 31.5 ±1.3 | | | 880 | 1,070 | 1,250 |
| 14 | 28 | | | | 29.8 ±1.2 | 31.1 ±1.2 | 34.1 ±1.4 | | | 1,190 | 1,400 | 1,610 |
| 19 | 38 | | | | 33.6 ±1.4 | 35.4 ±1.4 | 38.8 ±1.6 | | | 1,470 | 1,780 | 2,050 |
| 24 | 48 | | | | 39.8 ±1.6 | 41.6 ±1.6 | 45.2 ±1.7 | | | 1,930 | 2,300 | 2,640 |
| 30 | 60 | | | | 42.4 ±1.7 | 44.2 ±1.7 | 48.0 ±1.8 | | | 2,280 | 2,680 | 3,060 |
| 37 | 74 | | | | 46.0 ±1.8 | 47.8 ±1.8 | 51.8 ±1.9 | | | 2,740 | 3,170 | 3,600 |
| 48 | 96 | | | | 53.3 ±1.9 | 55.1 ±1.9 | 59.5 ±2.0 | | | 3,590 | 4,090 | 4,630 |




## CABLE DESIGNATION

250V RCOP(OS)

## APPLICATION STANDARD

- Design guide : IEC 60092-350, -376
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40 ℃/-35 ℃) (Cold Type)
- Max. conductor temperature : 90 ℃

## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | | - Stranded tinned annealed copper wires as per IEC 60228, Class 2 |
| 2. Insulation | R | - EPR as per IEC 60092-351 |
| 3. Twisting | | - Two/Three Insulated cores shall be twisted together to form a pair/triad |
| 4. Cabling | | - Twisted pairs/triads shall be cabled |
| | | - Flame retardant & non-hygroscopic fillers may be used |
| | | - Suitable tape(s) may be applied on the cabled core |
| | | - A Filler may be applied to obtain a circular Cable |
| 5. Collective screen | (OS) | - AL/PS tape + Tinned copper drain wire (0.75mm²) |
| | | - A suitable tape may be applied on the collective screen |
| 6. Inner sheath | C | - SE1 as per IEC 60092-359 |
| 7. Armor | O | - Braid of plain annealed copper wires |
| | | - Coverage density is minimum 90% |
| 8. Outer sheath | P | - ST2 (PVC) as per IEC 60092-359 |
| | | - Outer sheath color : Grey (for Non-IS Type) or Blue (for IS Type) |
| 9. Core identification | | - Printed pair/triad number and Alphabet letter on the white insulation |
| | | ex) 4P : (1A,1B), (2A,2B), (3A,3B), (4A,4B) |
| | | 2T : (1A,1B,1C), (2A,2B,2C) |

Note. Fire resistant type FR & Cold type cable ("(C)") can be supplied.

**(PAIR TYPE)**

**CABLE TYPE** **250V RCOP(OS)**

| No. of Pairs | Conductor | | | Nominal Dia. inner sheath | Overall diameter | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight Approx. |
|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. (ca.) | | Nominal | Tolerance | | | |
| No. | SQMM | No./mm | mm | mm | mm | ±mm | Ω/km | MΩ-km | kg/km |
| 1Q | 1.0 | 7/0.43 | 1.29 | 9.0 | 12.8 | 0.8 | 19.3 | 1,050 | 290 |
| 2P | | | | 11.7 | 15.5 | 0.9 | | | 360 |
| 4P | | | | 13.5 | 17.3 | 1.0 | | | 470 |
| 5P | | | | 15.1 | 19.1 | 1.1 | | | 550 |
| 6P | | | | 16.3 | 20.3 | 1.1 | | | 620 |
| 7P | | | | 16.3 | 20.3 | 1.1 | | | 650 |
| 8P | | | | 17.3 | 21.3 | 1.2 | | | 710 |
| 10P | | | | 19.6 | 23.8 | 1.3 | | | 850 |
| 12P | | | | 20.4 | 24.6 | 1.3 | | | 940 |
| 14P | | | | 21.4 | 25.6 | 1.3 | | | 1,040 |
| 16P | | | | 22.9 | 27.3 | 1.4 | | | 1,160 |
| 19P | | | | 24.2 | 28.6 | 1.4 | | | 1,300 |
| 20P | | | | 24.7 | 29.1 | 1.5 | | | 1,350 |
| 24P | | | | 27.5 | 32.1 | 1.6 | | | 1,590 |
| 30P | | | | 30.8 | 36.0 | 1.7 | | | 2,000 |
| 37P | | | | 33.1 | 38.3 | 1.8 | | | 2,310 |

*. 1 Quad cable shall be twisted quad formation

**(TRIAD TYPE)**

**CABLE TYPE** **250V RCOP(OS)**

| No. of Triads | Conductor | | | Nominal Dia. inner sheath | Overall diameter | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight Approx. |
|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. (ca.) | | Nominal | Tolerance | | | |
| No. | SQMM | No./mm | mm | mm | mm | ±mm | Ω/km | MΩ-km | kg/km |
| 2T | 1.0 | 7/0.43 | 1.29 | 13.0 | 16.8 | 1.0 | 19.3 | 1,050 | 430 |
| 4T | | | | 15.1 | 19.1 | 1.1 | | | 580 |
| 5T | | | | 16.8 | 20.8 | 1.1 | | | 680 |
| 6T | | | | 19.1 | 23.3 | 1.2 | | | 810 |
| 7T | | | | 19.1 | 23.3 | 1.2 | | | 860 |
| 8T | | | | 20.4 | 24.6 | 1.3 | | | 940 |
| 10T | | | | 23.2 | 27.6 | 1.4 | | | 1,130 |
| 12T | | | | 24.7 | 29.1 | 1.5 | | | 1,280 |
| 14T | | | | 25.7 | 30.1 | 1.5 | | | 1,410 |
| 16T | | | | 27.5 | 32.1 | 1.6 | | | 1,590 |
| 19T | | | | 29.8 | 34.4 | 1.7 | | | 1,810 |
| 20T | | | | 30.3 | 35.5 | 1.7 | | | 1,980 |
| 24T | | | | 33.1 | 38.3 | 1.8 | | | 2,280 |
| 30T | | | | 36.7 | 42.1 | 2.0 | | | 2,730 |
| 37T | | | | 40.2 | 45.8 | 2.1 | | | 3,260 |


## CABLE DESIGNATION

250V RCOP(IS)

## APPLICATION STANDARD

- Design guide : IEC 60092-350, -376
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type)
- Max. conductor temperature : 90℃

## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | | - Stranded tinned annealed copper wires as per IEC 60228, Class 2 |
| 2. Insulation | R | - EPR as per IEC 60092-351 |
| 3. Twisting | | - Two/Three Insulated cores shall be twisted together to form a pair/triad |
| 4. Individual screen | (IS) | - AL/PS tape + Tinned copper drain wire (0.75mm²)<br>- A suitable tape may be applied on the individual screen |
| 5. Cabling | | - Twisted pairs/triads shall be cabled<br>- Flame retardant & non-hygroscopic fillers may be used<br>- Suitable tape(s) may be applied on the cabled core<br>- A Filler may be applied to obtain a circular Cable |
| 6. Inner sheath | C | - SE1 as per IEC 60092-359 |
| 7. Armor | O | - Braid of plain annealed copper wires<br>- Coverage density is minimum 90% |
| 8. Outer sheath | P | - ST2 (PVC) as per IEC 60092-359<br>- Outer sheath color : Grey (for Non-IS Type) or Blue (for IS Type) |
| 9. Core identification | | - Printed pair/triad number and Alphabet letter on the white insulation<br>ex) 4P : (1A,1B), (2A,2B), (3A,3B), (4A,4B)<br>2T : (1A,1B,1C), (2A,2B,2C) |

Note. Fire resistant type FR & Cold type cable ("(C)") can be supplied.

**(PAIR TYPE)**

**CABLE TYPE** **250V RCOP(IS)**

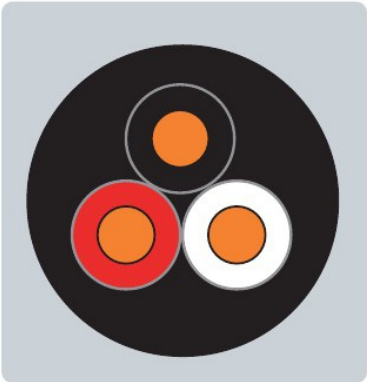
| No. of Pairs | Conductor | | | Nominal Dia inner sheath | Overall diameter | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight Approx. |
|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. (ca.) | | Nominal | Toler ance | | | |
| No. | SQMM | No./mm | mm | mm | mm | ±mm | Ω/km | MΩ–km | kg/km |
| 1P | 1.0 | 7 / 0.43 | 1.29 | 8.0 | 11.8 | 0.8 | 19.3 | 1,050 | 230 |
| 2P | | | | 12.3 | 16.1 | 0.9 | | | 380 |
| 4P | | | | 14.5 | 18.3 | 1.0 | | | 520 |
| 5P | | | | 16.3 | 20.3 | 1.1 | | | 620 |
| 6P | | | | 16.9 | 20.9 | 1.1 | | | 680 |
| 7P | | | | 16.9 | 20.9 | 1.1 | | | 720 |
| 8P | | | | 18.7 | 22.9 | 1.2 | | | 830 |
| 10P | | | | 21.4 | 25.6 | 1.3 | | | 990 |
| 12P | | | | 22.2 | 26.4 | 1.4 | | | 1,100 |
| 14P | | | | 23.3 | 27.7 | 1.4 | | | 1,220 |
| 16P | | | | 25.2 | 29.6 | 1.5 | | | 1,370 |
| 19P | | | | 25.7 | 30.1 | 1.5 | | | 1,510 |
| 20P | | | | 26.5 | 30.9 | 1.5 | | | 1,590 |
| 24P | | | | 30.2 | 35.2 | 1.7 | | | 1,980 |
| 30P | | | | 32.9 | 38.1 | 1.8 | | | 2,350 |
| 37P | | | | 34.8 | 40.2 | 1.9 | | | 2,750 |

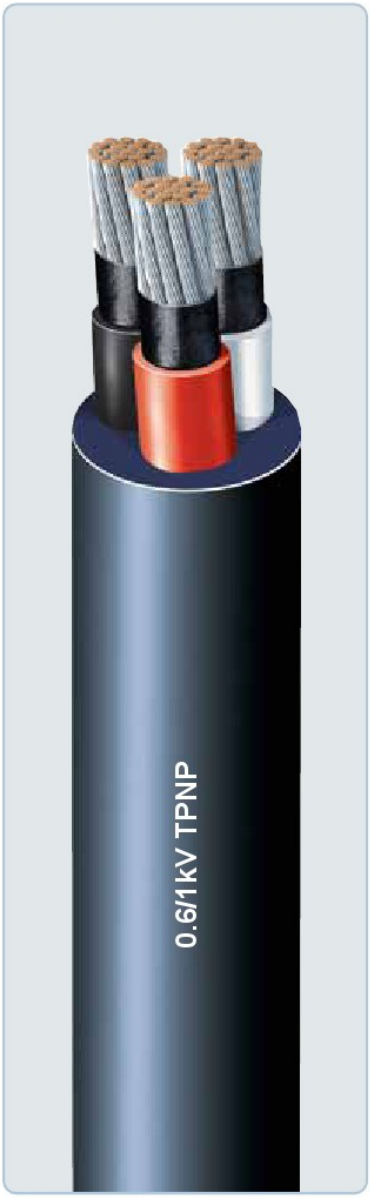
**(TRIAD TYPE)**

**CABLE TYPE** **250V RCOP(IS)**

| No. of Triads | Conductor | | | Nominal Dia. inner sheath | Overall diameter | | Conductor Resistance (at20℃) (Max.) | Insulation Resistance (at20℃) (Min.) | Cable Weight Approx. |
|---|---|---|---|---|---|---|---|---|---|
| | Nominal Area | Strand | DIA. (ca.) | | Nominal | Tolerance | | | |
| No. | SQMM | No./mm | mm | mm | mm | ±mm | Ω/km | MΩ–km | kg/km |
| 1T | 1.0 | 7 / 0.43 | 1.29 | 8.4 | 12.2 | 0.8 | 19.3 | 1,050 | 260 |
| 2T | | | | 13.3 | 17.1 | 1.0 | | | 440 |
| 4T | | | | 15.7 | 19.7 | 1.1 | | | 640 |
| 5T | | | | 17.3 | 21.3 | 1.2 | | | 740 |
| 6T | | | | 19.7 | 23.9 | 1.3 | | | 880 |
| 7T | | | | 19.7 | 23.9 | 1.3 | | | 940 |
| 8T | | | | 21.3 | 25.5 | 1.3 | | | 1,050 |
| 10T | | | | 24.2 | 28.6 | 1.4 | | | 1,270 |
| 12T | | | | 25.6 | 30.0 | 1.5 | | | 1,430 |
| 14T | | | | 26.9 | 31.5 | 1.6 | | | 1,610 |
| 16T | | | | 28.5 | 33.1 | 1.6 | | | 1,780 |
| 19T | | | | 31.0 | 36.2 | 1.7 | | | 2,150 |
| 20T | | | | 31.5 | 3.7 | 1.8 | | | 2,230 |
| 24T | | | | 34.6 | 40.0 | 1.9 | | | 2,630 |
| 30T | | | | 38.4 | 44.0 | 2.1 | | | 3,160 |
| 37T | | | | 41.9 | 47.5 | 2.2 | | | 3,720 |

# Portable and Flexible Cable






## CABLE DESIGNATION

0.6/1kV DPNP, 0.6/1kV TPNP, 0.6/1kV FPNP

## APPLICATION STANDARD

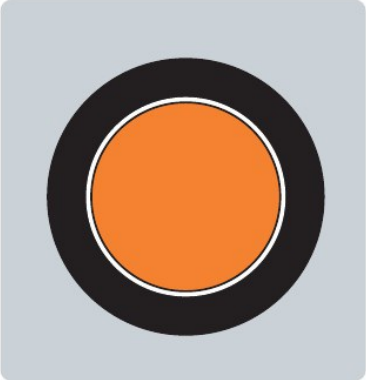
- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
- Max. conductor temperature : 85 ℃(In case of applying IEC Std., 90 ℃)

## CONSTRUCTION

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | D(T,F) | - Bunch stranded tinned annealed copper wires as per JIS C 3410 |
| 2. Insulation | P | - EPR as per JIS C 3410 |
| 3. Cabling | | - Insulated conductors shall be cabled<br>- Suitable tape(s) may be applied on the cabled core |
| 4. Sheath | NP | - PCP as per JIS C 3410<br>- Outer sheath color : Black |
| 4. Core identification | | No. of cores / Insulation Color<br>2C / Black, White<br>3C / Black, White, Red<br>4C / Black, White, Red, Green |

**CABLE TYPE** 0.6/1kV DPNP, 0.6/1kV TPNP, 0.6/1kV FPNP

| No.of Cores | Conductor Size | | Diameter | Nominal Overall diameter DPNP, TPNP, FPNP | | Insulation Resistance (20℃) | Weight (Approx.) |
|---|---|---|---|---|---|---|---|
| | mm² | Stranding | mm | mm | ±mm | MΩ · km | kg/km |
| 2 | 0.75 | 24/0.20 | 1.13 | 9.7 | 0.4 | 1,600 | 130 |
| | 1 | 32/0.20 | 1.27 | 9.9 | 0.4 | 1500 | 135 |
| | 1.5 | 30/0.25 | 1.58 | 10.8 | 0.4 | 1,300 | 165 |
| | 2.5 | 49/0.25 | 2.02 | 11.8 | 0.5 | 1100 | 205 |
| | 4 | 55/0.30 | 2.57 | 13.1 | 0.5 | 900 | 265 |
| | 6 | 82/0.30 | 3.14 | 14.5 | 0.6 | 800 | 340 |
| 3 | 0.75 | 24/0.20 | 1.13 | 10.2 | 0.4 | 1,600 | 145 |
| | 1 | 32/0.20 | 1.27 | 10.7 | 0.4 | 1,500 | 160 |
| | 1.5 | 30/0.25 | 1.58 | 11.4 | 0.5 | 1,300 | 190 |
| | 2.5 | 49/0.25 | 2.02 | 12.5 | 0.5 | 1,100 | 240 |
| | 4 | 55/0.30 | 2.57 | 14.1 | 0.6 | 800 | 325 |
| | 6 | 82/0.30 | 3.14 | 15.6 | 0.6 | 900 | 420 |
| 4 | 0.75 | 24/0.20 | 1.13 | 11.3 | 0.5 | 1,600 | 175 |
| | 1 | 32/0.20 | 1.27 | 11.8 | 0.5 | 1,500 | 200 |
| | 1.5 | 30/0.25 | 1.58 | 12.2 | 0.5 | 1,300 | 225 |
| | 2.5 | 49/0.25 | 2.02 | 14.1 | 0.6 | 1,100 | 310 |
| | 4 | 55/0.30 | 2.57 | 15.6 | 0.6 | 900 | 405 |
| | 6 | 82/0.30 | 3.14 | 17.2 | 0.7 | 800 | 525 |




## CABLE DESIGNATION

0.6/1kV SYP
0.6/1kV SCP

## APPLICATION STANDARD

- Design guide : JIS C 3410(1999)
- Flame retardant : IEC 60332-1
- Max. conductor temperature : 75 ℃ (0.6/1kV SYP)
  85 ℃ (0.6/1kV SCP)

## Construction

| Classification | Code | Construction Detail |
|---|---|---|
| 1. Conductor | S | - Bunch stranded plain or tinned annealed copper wires as per JIS C 3410 |
| | | - A suitable tape may be applied on conductor |
| 2. Insulation | YP | - PVC as per JIS C 3410 |
| | CP | - FR-XLPE as per JIS C 3410 |

**CABLE TYPE 0.6/1kV SYP**

| Conductor Size | | Diameter | Nominal Overall diameter | | Insulation Resistance (20℃) | Weight (Approx.) |
|---|---|---|---|---|---|---|
| mm² | Stranding | mm | mm | ±mm | MΩ · km | kg/km |
| 0.75 | 24/0.20 | 1.13 | 3.8 | 0.4 | 400 | 21 |
| 1 | 32/0.20 | 1.27 | 3.9 | 0.4 | 370 | 24 |
| 1.5 | 30/0.25 | 1.58 | 4.2 | 0.4 | 320 | 30 |
| 2.5 | 49/0.25 | 2.02 | 4.7 | 0.4 | 280 | 41 |
| 4 | 22/0.30 | 2.57 | 5.2 | 0.4 | 230 | 60 |
| 6 | 82/0.30 | 3.14 | 5.8 | 0.4 | 200 | 80 |
| 10 | 80/0.04 | 4.13 | 6.8 | 0.4 | 170 | 125 |
| 16 | 7/18/0.40 | 5.88 | 8.7 | 0.4 | 130 | 195 |

**CABLE TYPE 0.6/1kV SCP**

| Conductor Size | | Diameter | Nominal Overall diameter | | Insulation Resistance (20℃) | Weight (Approx.) |
|---|---|---|---|---|---|---|
| mm² | Stranding | mm | mm | ±mm | MΩ · km | kg/km |
| 1.5 | 30 / 0.25 | 1.58 | 3.7 | 0.4 | 70 | 26 |
| 2.5 | 49 / 0.25 | 2.02 | 4.3 | 0.4 | 70 | 38 |
| 4 | 55 / 0.30 | 2.57 | 4.8 | 0.4 | 60 | 55 |
| 6 | 82 / 0.30 | 3.14 | 5.3 | 0.4 | 50 | 75 |
| 10 | 80 / 0.40 | 4.13 | 6.6 | 0.4 | 40 | 125 |
| 16 | 7/18/0.40 | 5.88 | 8.3 | 0.4 | 30 | 190 |
| 25 | 7/28/0.40 | 7.32 | 10.0 | 0.4 | 30 | 280 |
| 35 | 7/39/0.40 | 8.67 | 11.8 | 0.5 | 30 | 390 |
| 50 | 19/21/0.40 | 10.3 | 13.4 | 0.5 | 30 | 550 |
| 70 | 19/19/0.50 | 12.2 | 15.7 | 0.6 | 30 | 770 |
| 95 | 19/25/0.50 | 14.0 | 17.7 | 0.7 | 30 | 1,000 |

# Technical Data & Installation Information

## 1. Maximum working voltage and test voltage

| Nominal voltage (V) | Maximum working voltage (V) | | (Test voltage) V/min. |
|---|---|---|---|
| | a.c | d.c | |
| 250V | 250V | 450V | 1500/5 |
| 0.6/1kV | 0.6/1kV | 0.9/1.5kV | 3500/5 |

## 2. Current rating

1) Current ratings in continuous service for single cables. (ambient temperature 45°)

Note) 1 - The current ratings (I), have been calculated for each nominal Cross-sectional area (A), with the formula:

$$I = \alpha \cdot A^{0.625}$$

Where $\alpha$ is a coefficient related to the maximum permissible service temperature of the conductor as follows:

| Maximum permissible temperature of the conductor | | 60 ℃ | 70 ℃ | 85 ℃ | 90 ℃ | 95 ℃ |
|---|---|---|---|---|---|---|
| Values of $\alpha$ for nominal cross-section area | $\geq$ 2.5mm$^2$ | 9.5 | 12 | 16 | 17 | 18 |
| | $<$ 2.5mm$^2$ | 8 | 11.5 | 16 | 18 | 20 |

2) Multi-core cable correction factor.

| Core number | Correction factor | Core number | Correction factor |
|---|---|---|---|
| 2 | 0.85 | 19 | 0.4 |
| 3~4 | 0.7 | 27 | 0.3 |
| 7 | 0.55 | 37 | 0.25 |
| 12 | 0.45 | 44 | 0.2 |

3) Ambient temperature correction factor.

| Max. conductor temperature | Correction factor for various ambient air temperatures | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ℃ | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
| 60 | 1.29 | 1.15 | 1.00 | 0.82 | - | - | - | - | - | - | - |
| 65 | 1.22 | 1.12 | 1.00 | 0.87 | 0.71 | - | - | - | - | - | - |
| 70 | 1.18 | 1.10 | 1.00 | 0.89 | 0.77 | 0.63 | - | - | - | - | - |
| 75 | 1.15 | 1.08 | 1.00 | 0.91 | 0.82 | 0.71 | 0.58 | - | - | - | - |
| 80 | 1.13 | 1.07 | 1.00 | 0.93 | 0.85 | 0.76 | 0.65 | 0.53 | - | - | - |
| 85 | 1.12 | 1.06 | 1.00 | 0.94 | 0.87 | 0.79 | 0.71 | 0.61 | 0.50 | - | - |
| 90 | 1.10 | 1.05 | 1.00 | 0.94 | 0.88 | 0.82 | 0.74 | 0.67 | 0.58 | 0.47 | - |

## 4) Current rating of EP rubber insulated cable

Table 1. Current ratings of power cable

| No. of cores | Nominal Sectional area mm² | Ambient temperature (40℃) | | | Ambient temperature (45℃) | | | Ambient temperature (50℃) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Continuos Rating | Short time rating | | Continuos Rating | Short time rating | | Continuos Rating | Short time rating | |
| | | | 30 min | 1 hour | | 30 min | 1 hour | | 30 min | 1 hour |
| 1 | 1.5 | 21 | 22 | 22 | 20 | 21 | 21 | 19 | 20 | 20 |
| | 2.5 | 30 | 31 | 31 | 28 | 30 | 30 | 26 | 28 | 28 |
| | 4 | 42 | 43 | 43 | 38 | 40 | 40 | 36 | 38 | 38 |
| | 6 | 51 | 54 | 54 | 48 | 51 | 51 | 45 | 48 | 48 |
| | 10 | 71 | 75 | 75 | 67 | 71 | 71 | 63 | 67 | 67 |
| | 16 | 95 | 101 | 101 | 90 | 96 | 95 | 85 | 90 | 90 |
| | 25 | 127 | 136 | 135 | 120 | 128 | 127 | 113 | 121 | 119 |
| | 35 | 154 | 165 | 163 | 145 | 156 | 154 | 136 | 147 | 144 |
| | 50 | 191 | 208 | 202 | 180 | 196 | 191 | 169 | 184 | 179 |
| | 70 | 239 | 264 | 253 | 225 | 249 | 239 | 212 | 234 | 225 |
| | 95 | 292 | 331 | 311 | 275 | 312 | 293 | 259 | 293 | 276 |
| | 120 | 339 | 391 | 364 | 320 | 369 | 343 | 301 | 347 | 322 |
| | 150 | 387 | 457 | 418 | 365 | 431 | 394 | 343 | 405 | 371 |
| | 185 | 440 | 534 | 479 | 415 | 503 | 452 | 390 | 473 | 425 |
| | 240 | 519 | - | - | 490 | - | - | 461 | - | - |
| | 300 | 594 | - | - | 560 | - | - | 526 | - | - |
| 2 | 1.5 | 18 | 19 | 19 | 17 | 18 | 18 | 16 | 17 | 17 |
| | 2.5 | 25 | 27 | 27 | 24 | 25 | 25 | 23 | 24 | 24 |
| | 4 | 34 | 37 | 36 | 32 | 35 | 34 | 31 | 33 | 33 |
| | 6 | 43 | 47 | 46 | 41 | 44 | 43 | 39 | 43 | 41 |
| | 10 | 60 | 66 | 64 | 57 | 63 | 60 | 55 | 60 | 58 |
| | 16 | 81 | 91 | 86 | 77 | 86 | 81 | 73 | 82 | 78 |
| | 25 | 108 | 126 | 116 | 102 | 119 | 110 | 98 | 114 | 105 |
| | 35 | 131 | 156 | 142 | 123 | 147 | 134 | 118 | 142 | 128 |
| | 50 | 162 | 203 | 179 | 153 | 191 | 169 | 147 | 183 | 162 |
| | 70 | 202 | 266 | 229 | 191 | 251 | 216 | 184 | 241 | 207 |
| | 95 | 248 | 345 | 289 | 234 | 325 | 273 | 224 | 312 | 262 |
| | 120 | 288 | 417 | 345 | 272 | 394 | 325 | 261 | 379 | 312 |
| | 150 | 329 | 496 | 404 | 310 | 468 | 381 | 298 | 449 | 366 |
| | 185 | 374 | 593 | 475 | 353 | 559 | 448 | 339 | 537 | 430 |
| 3 | 1.5 | 15 | 16 | 16 | 14 | 15 | 15 | 13 | 14 | 14 |
| | 2.5 | 21 | 22 | 22 | 20 | 21 | 21 | 19 | 20 | 20 |
| | 4 | 28 | 30 | 30 | 27 | 29 | 28 | 26 | 28 | 27 |
| | 6 | 36 | 39 | 38 | 34 | 37 | 36 | 32 | 35 | 34 |
| | 10 | 50 | 55 | 53 | 47 | 52 | 50 | 45 | 50 | 48 |
| | 16 | 67 | 76 | 71 | 63 | 72 | 67 | 60 | 69 | 65 |
| | 25 | 89 | 106 | 96 | 84 | 100 | 91 | 81 | 96 | 87 |
| | 35 | 108 | 131 | 118 | 102 | 124 | 111 | 97 | 119 | 107 |
| | 50 | 134 | 172 | 149 | 126 | 162 | 141 | 121 | 156 | 135 |
| | 70 | 167 | 225 | 191 | 158 | 212 | 180 | 151 | 204 | 173 |
| | 95 | 204 | 293 | 243 | 193 | 276 | 229 | 185 | 265 | 220 |
| | 120 | 237 | 355 | 290 | 224 | 335 | 273 | 215 | 321 | 262 |
| | 150 | 271 | 422 | 340 | 256 | 399 | 321 | 245 | 383 | 308 |
| | 185 | 308 | 505 | 401 | 291 | 476 | 379 | 279 | 457 | 363 |

**Note**

1. The value in Table1. are for 6 cables or less bunched or laid together in that formation.
   When more than 6 cables and bunched or laid close together, 3 correction factor 0.85 should be applied to the value given in table.
2. In case of a,c, the frequency is 60Hz

Table 2. Current ratings of multi-core, EPR insulated cable

| No. of core | Ambient temperature | | |
|---|---|---|---|
| | 40 ℃ | 45 ℃ | 50 ℃ |
| 2 | 14 | 14 | 13 |
| 4 | 12 | 11 | 11 |
| 7 | 9 | 9 | 9 |
| 12 | 7 | 7 | 7 |
| 19 | 6 | 6 | 5 |
| 27 | 5 | 5 | 5 |
| 37 | 4 | 4 | 4 |
| 44 | 3 | 3 | 3 |
| 77 | 3 | 3 | 3 |

Note 1. The current rating value in Table 2. are for 6 cables or less bunched or laid together in that formation.
When more than 6 cables and bunched or laid close together, a correction factor 0.85 should be applied to the value given in table 2.
2. In case of a.c, the frequency is 60Hz

Table 3. Current ratings of EP rubber insulated PCP sheathed cable

| Nominal conductor area(㎟) | Single core | | | Double core | | | Three core | | |
|---|---|---|---|---|---|---|---|---|---|
| | ambient temperature | | | ambient temperature | | | ambient temperature | | |
| | 40 ℃ | 45 ℃ | 50 ℃ | 40 ℃ | 45 ℃ | 50 ℃ | 40 ℃ | 45 ℃ | 50 ℃ |
| 0.75 | 12 | 11 | 10 | 10 | 9 | 8 | 10 | 9 | 8 |
| 1 | 15 | 14 | 13 | 12 | 11 | 11 | 12 | 11 | 11 |
| 1.5 | 18 | 17 | 16 | 15 | 14 | 13 | 15 | 14 | 13 |
| 2.5 | 25 | 24 | 23 | 21 | 20 | 19 | 21 | 20 | 19 |
| 4 | 34 | 32 | 31 | 28 | 27 | 26 | 28 | 27 | 26 |
| 6 | 43 | 41 | 39 | 36 | 34 | 32 | 36 | 34 | 32 |

Note 1. In case of a.c, the frequency is 60Hz

Table 4.
Current ratings of FR-XLPE insulated switchboard wire

| Nominal conductor area(㎟) | Ambient temperature | | |
|---|---|---|---|
| | 40 ℃ | 45 ℃ | 50 ℃ |
| 1.5 | 21 | 20 | 9 |
| 2.5 | 30 | 28 | 26 |
| 4 | 40 | 38 | 36 |
| 6 | 51 | 48 | 45 |
| 10 | 71 | 67 | 63 |
| 16 | 95 | 90 | 85 |
| 25 | 127 | 120 | 113 |
| 35 | 154 | 145 | 136 |
| 50 | 191 | 180 | 169 |
| 70 | 239 | 225 | 212 |
| 95 | 292 | 275 | 259 |

Table 5. Current ratings of PVC insulated wire for controlling machines and apparatus

| Nominal conductor area(㎟) | Ambient temperature | | |
|---|---|---|---|
| | 40 ℃ | 45 ℃ | 50 ℃ |
| 0.75 | 12 | 11 | 10 |
| 1 | 14 | 13 | 12 |
| 1.5 | 18 | 17 | 15 |
| 2.5 | 26 | 24 | 22 |
| 4 | 35 | 32 | 29 |
| 6 | 44 | 41 | 37 |
| 10 | 62 | 57 | 52 |
| 16 | 82 | 76 | 69 |

Note 1. The value in Table 4. & 5. are for 6 cables of less bunched or laid together in that formation.
When more than 6 cables and bunched or laid close together, a correction factor 0.85 should be applied to the value given in table 4 & 5.
2. In case of a.c, the frequency is 60Hz

## 3. Short circuit current ratings

The short circuit currents quoted here are for cables operating normally at maximum conductor temperature of 85 ℃. EPR insulation is actually capable of withstanding short-term temperature up to 250 ℃

According to ICEA P-32-382 Curves Based on Formula

$$Is = A \times \sqrt{\frac{0.115 \log \frac{(T_2+234)}{(T_1+234)}}{t}}$$

Where Is : Short circuit current (kA)
A : Conductor area (㎟)
$T_1$ : Operating temperature ( 85 ℃)
$T_2$ : Short circuit temperature ( 250 ℃)
t : Short circuit duration (sec)

T1=85, T2=250

| Nominal area | Short circuit currents (kA) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Duration of short circuit in second | | | | | | | | | | | | | |
| mm² | 0.03 | 0.05 | 0.07 | 0.1 | 0.14 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
| 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.60 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 |
| 2.5 | 2.1 | 1.6 | 1.4 | 1.1 | 0.95 | 0.8 | 0.7 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 |
| 4 | 3.3 | 2.6 | 2.2 | 1.8 | 1.53 | 1.3 | 1.1 | 0.9 | 0.8 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 |
| 6 | 5.0 | 3.8 | 3.2 | 2.7 | 2.29 | 1.9 | 1.6 | 1.4 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 0.9 |
| 10 | 8.4 | 6.5 | 5.5 | 4.6 | 3.86 | 3.2 | 2.6 | 2.3 | 2.0 | 1.9 | 1.7 | 1.6 | 1.5 | 1.5 |
| 16 | 13.2 | 10.3 | 8.7 | 7.3 | 6.1 | 5.1 | 4.2 | 3.6 | 3.2 | 3.0 | 2.7 | 2.6 | 2.4 | 2.3 |
| 25 | 21.0 | 16.2 | 13.7 | 11.5 | 9.7 | 8.1 | 6.6 | 5.7 | 5.1 | 4.7 | 4.3 | 4.1 | 3.8 | 3.6 |
| 35 | 29.1 | 22.5 | 19.0 | 15.9 | 13.5 | 11.3 | 9.2 | 8.0 | 7.1 | 6.5 | 6.0 | 5.6 | 5.3 | 5.0 |
| 50 | 39.4 | 30.5 | 25.8 | 21.6 | 18.2 | 15.3 | 12.5 | 10.8 | 9.6 | 8.8 | 8.2 | 7.6 | 7.2 | 6.8 |
| 70 | 56.9 | 44.1 | 37.3 | 31.2 | 26.4 | 22.1 | 18.0 | 15.6 | 13.9 | 12.7 | 11.8 | 11.0 | 10.4 | 9.9 |
| 95 | 78.9 | 61.2 | 51.7 | 43.2 | 36.5 | 30.6 | 25.0 | 21.6 | 19.3 | 17.7 | 16.3 | 15.3 | 14.4 | 13.7 |
| 120 | 99.8 | 77.3 | 65.3 | 54.6 | 46.2 | 38.6 | 31.5 | 27.3 | 24.4 | 22.3 | 20.7 | 19.3 | 18.2 | 17.3 |
| 150 | 122.6 | 94.9 | 80.2 | 67.1 | 56.7 | 47.5 | 38.8 | 33.6 | 30.0 | 27.4 | 25.4 | 23.7 | 22.4 | 21.2 |
| 185 | 153.7 | 119.1 | 100.6 | 84.2 | 71.2 | 59.5 | 48.6 | 42.1 | 37.7 | 34.4 | 31.8 | 29.8 | 28.1 | 26.6 |
| 240 | 202.1 | 156.5 | 132.3 | 110.7 | 93.5 | 78.3 | 63.9 | 55.3 | 49.5 | 45.2 | 41.8 | 39.1 | 36.9 | 35.0 |
| 300 | 253.5 | 196.3 | 165.9 | 138.8 | 117.3 | 98.2 | 80.2 | 69.4 | 62.1 | 56.7 | 52.5 | 49.1 | 46.3 | 43.9 |
| 400 | 335.7 | 260.0 | 219.7 | 183.9 | 155.4 | 130.0 | 106.1 | 91.9 | 82.2 | 75.1 | 69.5 | 65.0 | 61.3 | 58.1 |
| 500 | 408.7 | 316.6 | 267.6 | 223.9 | 189.2 | 158.3 | 129.2 | 111.9 | 100.1 | 91.4 | 84.6 | 79.1 | 74.6 | 70.8 |

## 4. Electrical data(Capacitance,Inductance,Reactance,Impedance)-0.6/1kV Cable

| Nominal Area | R-dc (at 20 ℃) | R-dc (at 85 ℃) | R-ac (at 85 ℃) | single core cable | | | | Multi core cable | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Capacitance C | Inductance L | Reactance X 50Hz | Reactance X 60Hz | Capacitance C | Inductance L | Reactance X 50Hz | Reactance X 60Hz |
| mm² | Ω /km | Ω /km | Ω /km | ㎌/km | ㎃/km | Ω /km | Ω /km | ㎌/km | ㎃/km | Ω /km | Ω /km |
| 1.5 | 12.2 | 15.3 | 15.3 | 0.233 | 0.540 | 0.170 | 0.204 | 0.324 | 0.367 | 0.115 | 0.138 |
| 2.5 | 7.56 | 9.5 | 9.5 | 0.283 | 0.498 | 0.157 | 0.188 | 0.389 | 0.336 | 0.106 | 0.127 |
| 4 | 4.70 | 5.90 | 5.90 | 0.336 | 0.463 | 0.145 | 0.175 | 0.432 | 0.313 | 0.098 | 0.118 |
| 6 | 3.11 | 3.90 | 3.90 | 0.396 | 0.432 | 0.136 | 0.163 | 0.487 | 0.295 | 0.093 | 0.111 |
| 10 | 1.84 | 2.31 | 2.31 | 0.484 | 0.402 | 0.126 | 0.151 | 0.365 | 0.275 | 0.087 | 0.104 |
| 16 | 1.16 | 1.46 | 1.46 | 0.588 | 0.375 | 0.118 | 0.141 | 0.621 | 0.260 | 0.082 | 0.098 |
| 25 | 0.734 | 0.92 | 0.92 | 0.595 | 0.358 | 0.112 | 0.135 | 0.663 | 0.258 | 0.081 | 0.097 |
| 35 | 0.529 | 0.664 | 0.664 | 0.695 | 0.642 | 0.107 | 0.129 | 0.748 | 0.249 | 0.078 | 0.094 |
| 50 | 0391 | 0.491 | 0.491 | 0.689 | 0.332 | 0.104 | 0.125 | 0.748 | 0.248 | 0.078 | 0.094 |
| 70 | 0.270 | 0.339 | 0.339 | 0.723 | 0.322 | 0.101 | 0.121 | 0.811 | 0.245 | 0.077 | 0.092 |
| 95 | 0.195 | 0.245 | 0.247 | 0.836 | 0.309 | 0.097 | 0.116 | 0.898 | 0.238 | 0.075 | 0.090 |
| 120 | 0.154 | 0.193 | 0.195 | 0.931 | 0.300 | 0.094 | 0.113 | 0.942 | 0.233 | 0.073 | 0.088 |
| 150 | 0.126 | 0.158 | 0.161 | 0.924 | 0.295 | 0.093 | 0.111 | 0.942 | 0.233 | 0.073 | 0.088 |
| 185 | 0.100 | 0.126 | 0.129 | 0.929 | 0.292 | 0.092 | 0.110 | 0.973 | 0.232 | 0.073 | 0.088 |
| 240 | 0.0762 | 0.096 | 0.099 | 0.971 | 0.286 | 0.090 | 0.108 | 1.007 | 0.230 | 0.072 | 0.087 |
| 300 | 0.0607 | 0.076 | 0.081 | 0.995 | 0.283 | 0.089 | 0.107 | 1.043 | 0.229 | 0.072 | 0.086 |

## 5. Calculation of voltage drop

The following formulas are for calculation of the voltage drop in each circuit distribution.

**1) D.C. Circuit**

$$\text{Voltage drop rate} = \frac{Rdc \times 2L \times I}{V} \times 100(\%)$$

**2) A.C. Circuit**

$$\text{Voltage drop rate of three-phase A.C.} = \frac{Rac \times 2L \times I}{V} \times \partial \times 100(\%)$$

$$\text{Voltage drop rate of single-phase A.C.} = \frac{Rac \times 2L \times I}{V} \times \frac{\sqrt{3}}{2} \times \partial \times 100(\%)$$

Where
- L : Cable length (km)
- I : Current(A)
- V : Circuit Voltage(V)
- Rdc : D.C. resistance at maximum rated conductor temperature (see following table)
- Rac : A.C. resistance at maximum rated conductor temperature (see following table)
- $\partial$ : Inductive voltage drop coefficient

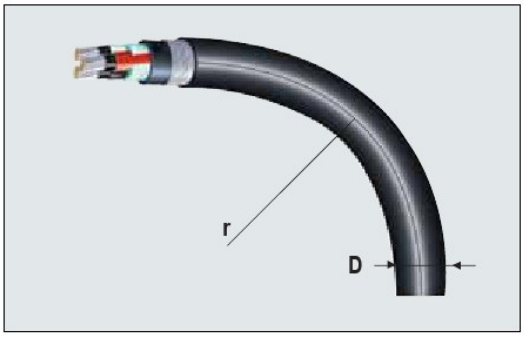
**R-dc, R-ac, Inductance and Inductive voltage drop coefficient**

| Nominal Area | R-dc (at 20℃) | R-dc (at 85℃) | R-ac (at 85℃) | Inductance (0.6/1kV) | Inductive voltage drop coefficient ($\partial$) Dielectric power factor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm² | Ω/km | Ω/km | Ω/km | mH/km | 100% | 95% | 90% | 85% | 80% | 75% | 70% |
| 1.5 | 12.2 | 15.3 | 15.3 | 0.357 | 1.00 | 0.95 | 0.91 | 0.85 | 0.81 | 0.76 | 0.71 |
| 2.5 | 7.56 | 9.49 | 9.49 | 0.332 | 1.00 | 0.95 | 0.91 | 0.86 | 0.81 | 0.76 | 0.71 |
| 4 | 4.70 | 5.90 | 5.90 | 0.309 | 1.00 | 0.96 | 0.91 | 0.86 | 0.81 | 0.76 | 0.71 |
| 6 | 3.11 | 3.90 | 3.90 | 0.292 | 1.00 | 0.96 | 0.91 | 0.86 | 0.82 | 0.77 | 0.72 |
| 10 | 1.84 | 2.31 | 2.31 | 0.272 | 1.00 | 0.96 | 0.92 | 0.87 | 0.83 | 0.78 | 0.73 |
| 16 | 1.16 | 1.46 | 1.46 | 0.258 | 1.00 | 0.97 | 0.93 | 0.89 | 0.84 | 0.79 | 0.75 |
| 25 | 0.734 | 0.922 | 0.922 | 0.254 | 1.00 | 0.98 | 0.95 | 0.90 | 0.86 | 0.82 | 0.77 |
| 35 | 0.529 | 0.664 | 0.664 | 0.246 | 1.00 | 0.99 | 0.96 | 0.92 | 0.88 | 0.84 | 0.80 |
| 50 | 0.391 | 0.491 | 0.491 | 0.245 | 1.00 | 1.01 | 0.98 | 0.95 | 0.91 | 0.87 | 0.83 |
| 70 | 0.270 | 0.339 | 0.339 | 0.237 | 1.00 | 1.03 | 1.01 | 0.99 | 0.96 | 0.92 | 0.89 |
| 95 | 0.195 | 0.245 | 0.247 | 0.235 | 1.00 | 1.06 | 1.06 | 1.04 | 1.02 | 0.99 | 0.96 |
| 120 | 0.154 | 0.193 | 0.195 | 0.230 | 1.00 | 1.09 | 1.09 | 1.08 | 1.07 | 1.04 | 1.02 |
| 150 | 0.126 | 0.158 | 0.161 | 0.231 | 1.00 | 1.12 | 1.14 | 1.13 | 1.12 | 1.11 | 1.09 |
| 185 | 0.100 | 0.126 | 0.129 | 0.230 | 1.00 | 1.16 | 1.19 | 1.20 | 1.20 | 1.19 | 1.18 |
| 240 | 0.0762 | 0.0957 | 0.0995 | 0.229 | 1.00 | 1.22 | 1.28 | 1.31 | 1.32 | 1.32 | 1.32 |
| 300 | 0.0607 | 0.0762 | 0.0808 | 0.228 | 1.00 | 1.28 | 1.36 | 1.41 | 1.44 | 1.45 | 1.46 |

## 6. Minimum bending radius

The bending radius for the installation of cables should be not less than the values given as follows:

| Type of cable | | Minimum bending radius |
|---|---|---|
| Up to 1.8/3kV | Unarmored or unbraided | |
| | D ≤ 25mm | 4 X D |
| | D > 25mm | 6 X D |
| | Metal braid screened or armored | 6 X D |
| | Tape screened | 8 X D |
| 3.6/6kV above | Single core | 12 X D |
| | 3-core | 9 X D |




NOTE) D : Overall diameter of cable