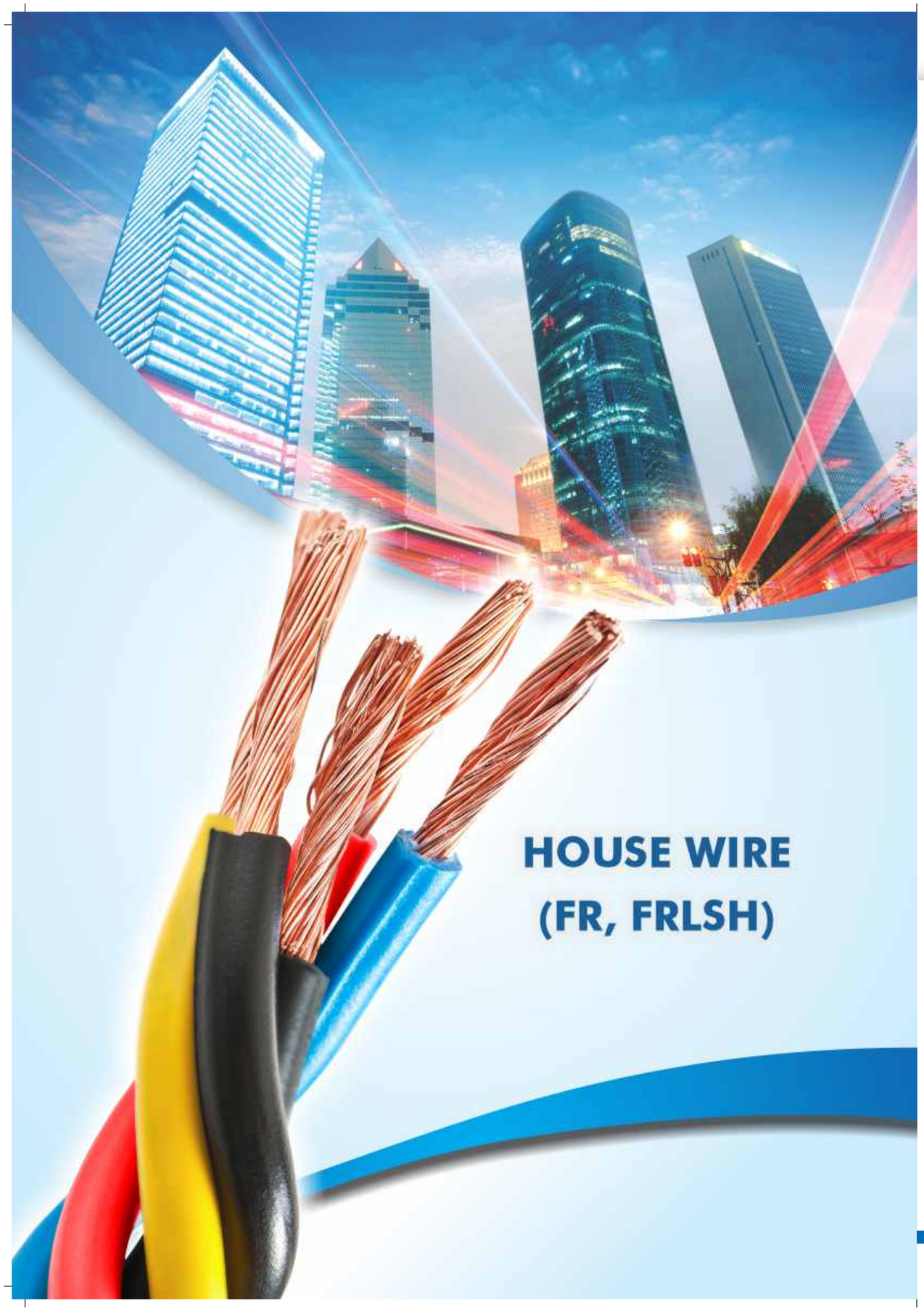
ZENIUM GROUP

# ZENIUM
## CABLES LTD.

Delivering Power to the Nation




# HOUSE WIRE (FR, FRLSH)

## HOUSE / BUILDING PVC WIRES

### ELECTRICAL WIRES

Zenium offers PVC Insulated Single Core Unsheathed Wires using more than 99.9% pure Electrolytic grade Copper within 100% conductivity. These electrolytic grade copper conductors are annealed and bunched together, as multiple strands, which offers great flexibility to make it more ideal for conduit wiring. These wires are being insulated with a Flame Retardant (FR) & Flame Retardant Low Smoke & Halogen Free (FRLSH) PVC Compound with high insulation resistance. The insulation process is carried out on highly efficient and speedy extrusion lines, for higher accuracy in performance. These wires are as per IS : 694 : 2010

### FLAME RETARDANT (FR)

ZENIUM-FR wires have high oxygen and temperature index, that prevents the spreading of fire even at high temperatures. ZENIUM-FR wires are manufactured using 99.97% pure, electrolytic grade, bright annealed bare copper within 100% conductivity. These wires are insulated with flame retardant-FR PVC compound with a high oxygen and temperature index, specially formulated and manufactured in house.

### FLAME RETARDANT LOW SMOKE & HALOGEN FREE (FRLSH)

In case of fire, conventional PVC insulated wires give out thick black smoke and toxic fumes of hydrochloric acid gas. This impairs visibility and hampers rescue operations. ZENIUM FRLSH on the contrary, not only emits very little smoke and toxic gases, but also retards the spreading of fire. It is thus ideal of concealed and conduit wiring in multi-storied high rise buildings such as hotels, banks, hospitals, factories, commercial complexes and residential apartments etc.,

## TABLE 1.1

**FR, FRLS, HFFR MULTI STRAND, SINGLE CORE, UNSHEATHED WIRES IN VOLTAGE 1100 V**

| Nominal Area of Copper Conductor | Number / Nominal Diameter of Strands | Thickness of Insulation (Nominal) | Approx. Overall Diameter of Wire | Current Carrying Capacity 2 Cables Single Phase | D. C. Resistance 20° C |
|---|---|---|---|---|---|
| | | | | Unenclosed clipped directly to a surface or on cable trays | |
| Sq.mm | mm | mm | mm | Amps | Ohms / km |
| 0.5 | 16/0.20 | 0.6 | 2.1 | 4 | 39 |
| 0.75 | 24/0.20 | 0.6 | 2.3 | 8 | 26 |
| 1 | 14/0.30 | 0.7 | 2.7 | 13 | 18.1 |
| 1.5 | 22/0.30 | 0.7 | 3 | 18 | 12.1 |
| 2.5 | 36/0.30 | 0.8 | 3.6 | 24 | 7.41 |
| 4 | 56/0.30 | 0.8 | 4.1 | 32 | 4.95 |
| 6 | 84/0.30 | 0.8 | 4.6 | 41 | 3.3 |
| 10 | 80/0.40 | 1.0 | 6.1 | 51 | 1.91 |
| 16 | 126/0.40 | 1.0 | 7 | 69 | 1.21 |
| 25 | 196/0.40 | 1.2 | 8.6 | 89 | 0.78 |
| 35 | 276/0.40 | 1.2 | 9.7 | 113 | 0.554 |
| 50 | 396/0.40 | 1.4 | 11.5 | 153 | 0.386 |
| 70 | 360/0.50 | 1.4 | 13 | 238 | 0.272 |
| 95 | 475/0.50 | 1.6 | 15.1 | 289 | 0.206 |
| 120 | 608/0.50 | 1.6 | 16.6 | 339 | 0.161 |
| 150 | 750/0.50 | 1.8 | 18.5 | 394 | 0.129 |
| 185 | 925/0.50 | 2 | 20.4 | 461 | 0.106 |
| 240 | 1221/0.50 | 2.2 | 23.2 | 555 | 0.0801 |
| 300 | 1525/0.50 | 2.4 | 26 | 649 | 0.0641 |
| 400 | 2013/0.50 | 2.6 | 30 | 771 | 0.0486 |
| 500 | 2310/0.50 | 2.8 | 33 | 818 | 0.0384 |
| 630 | 3090/0.50 | 2.8 | 38 | 916 | 0.0287 |

Standard Colours : Red, Yellow, Blue, Black & Green (For Earthing). Packed in 90 / 180 Mts. Length.


# Single Core Switchgear Wires (Flexible / Stranded Copper)

Zenium Cables PVC Insulated single core cables with flexible/stranded conductors are manufactured with most stringent quality control to ensure total safety, prevention of shock hazards, less possibility of fires and complete assurance for a perfect system. These are used for indoor fixed installations in dry locations where particular flexibility is required. For building installations they can be laid in conduits over or under the walls as well as in steel brackets. These wires are ideal for any industrial/ Equipment / appliances application. The flexible cords with copper conductors for electric power and lighting including **WEATHERPROOF** cables upto 1100 volts are also manufactured here.

**TABLE 2.1**

## SINGLE CORE FLEXIBLE SWITCHGEAR WIRES AS PER IS 694 : 2010

| Conductor Area | No. of Strand | Thickness of PVC Insulation | Approx Overall Diameter | Max DC Resistance at 20°C | Current Carrying Capacity |
|---|---|---|---|---|---|
| Sq. mm | Nos | mm | mm | Ohm/Km | Amps |
| 0.5 | 16 | 0.6 | 2.20 | 39 | 4 |
| 0.75 | 24 | 0.6 | 2.40 | 26 | 7 |
| 1 | 32 | 0.6 | 2.55 | 19.5 | 12 |
| 1.5 | 48 | 0.6 | 3.10 | 13.3 | 15 |
| 2.5 | 80 | 0.7 | 3.60 | 7.98 | 20 |
| 4 | 56 | 0.8 | 4.00 | 4.95 | 23 |
| 6 | 84 | 0.8 | 4.70 | 3.3 | 35 |
| 10 | 80 | 1.0 | 6.40 | 1.91 | 46 |
| 16 | 126 | 1.0 | 7.10 | 1.21 | 62 |
| 25 | 196 | 1.2 | 9.55 | 0.78 | 80 |

| Conductor Area | No. of Strand | Thickness of PVC Insulation | Approx Overall Resistance Diameter | Max DC Resistance at 20°C | Current Carrying Capacity |
|---|---|---|---|---|---|
| Sq. mm | Nos | mm | mm | Ohm/Km | Amps |
| 35 | 276 | 1.2 | 10.8 | 0.554 | 102 |
| 50 | 396 | 1.4 | 12.9 | 0.386 | 138 |
| 70 | 354 | 1.4 | 14.9 | 0.272 | 170 |
| 95 | 484 | 1.6 | 17.25 | 0.206 | 210 |
| 120 | 608 | 1.6 | 18.95 | 0.161 | 235 |
| 150 | 750 | 1.8 | 21.1 | 0.129 | 295 |
| 185 | 925 | 2.0 | 23.8 | 0.106 | 330 |
| 240 | 1221 | 2.2 | 27.15 | 0.0801 | 400 |
| 300 | 1525 | 2.4 | 30.2 | 0.0641 | 475 |
| 400 | 2013 | 2.6 | 34.35 | 0.0486 | 550 |

## SINGLE CORE STRANDED SWITCHGEAR WIRES AS PER IS 694 : 2010

| Conductor Area | No. of Strand | Thickness of PVC Insulation | Approx Overall Diameter | Max DC Resistance at 20°C | Current Carrying Capacity |
|---|---|---|---|---|---|
| Sq. mm | Nos | mm | mm | Ohm/Km | Amps |
| 1.0 | 7 | 0.6 | 2.65 | 18.10 | 12 |
| 1.5 | 7 | 0.7 | 3.10 | 12.10 | 15 |
| 2.5 | 7 | 0.8 | 3.70 | 7.41 | 20 |
| 4.0 | 7 | 0.8 | 4.25 | 4.61 | 23 |
| 6.0 | 7 | 0.8 | 4.85 | 3.08 | 35 |
| 10 | 7 | 1.0 | 6.15 | 1.83 | 46 |
| 16 | 7 | 1.0 | 7.20 | 1.15 | 62 |
| 25 | 7 | 1.2 | 8.95 | 0.727 | 80 |
| 35 | 7 | 1.2 | 11.0 | 0.524 | 102 |

| Conductor Area | No.of Strand | Thickness of PVC Insulation | Approx Overall Resistance Diameter | Max DC Resistance at 20°C | Current Carrying Capacity |
|---|---|---|---|---|---|
| Sq. mm | Nos | mm | mm | Ohm/Km | Amps |
| 50 | 19 | 1.4 | 12.10 | 0.387 | 138 |
| 70 | 19 | 1.4 | 13.80 | 0.268 | 170 |
| 95 | 19 | 1.6 | 16.00 | 0.193 | 210 |
| 120 | 37 | 1.6 | 17.60 | 0.153 | 236 |
| 150 | 37 | 1.8 | 19.65 | 0.124 | 295 |
| 185 | 37 | 2.0 | 21.80 | 0.0991 | 330 |
| 240 | 61 | 2.2 | 24.70 | 0.0754 | 400 |
| 300 | 61 | 2.4 | 27.45 | 0.0601 | 475 |
| 400 | 61 | 2.6 | 31.60 | 0.0470 | 550 |

The above data is approximate and subject to manufacturing tolerance

# Single Core Switchgear Wires (Flexible / Stranded Copper)

## TABLE 2.2

**ZENIUM PVC INSULATED SINGLE CORE INDUSTRIAL FLEXIBLE CABLES 1100 V.**

Zenium PVC insulated Single Core Cables with flexible / stranded conductors are manufactured with most stringent quality control to ensure total safety, prevention of shock hazards. These are used for indoor fixed installations in dry locations where flexibility of cable is the key factor. These cables are ideal for Industrial / Equipments / Appliances . These cables being manufactured as per IS 694 : 2010.

| Conductor Area | No. & Size of each Strand | Thickness of PVC Insulation | Approx Overall Diameter | Max DC Resistance at 20°C | Current Carrying Capacity |
|---|---|---|---|---|---|
| Sq. mm | Nos/Dia | mm | mm | Ohm/Km | Amps |
| 0.5 | 16/0.2 | 0.6 | 2.1 | 39 | 4 |
| 0.75 | 24/0.2 | 0.6 | 2.27 | 26 | 7 |
| 1 | 32/0.2 | 0.6 | 2.44 | 19.5 | 12 |
| 1.5 | *30/0.25 | 0.6 | 2.66 | 13.3 | 16 |
| 2.5 | **50/0.25 | 0.7 | 3.27 | 7.98 | 22 |
| 4 | 56/0.3 | 0.8 | 3.99 | 4.95 | 29 |
| 6 | 84/0.3 | 0.8 | 4.52 | 3.3 | 37 |
| 10 | 80/0.4 | 1.0 | 5.9 | 1.91 | 51 |
| 16 | 126/0.4 | 1.0 | 7 | 1.21 | 68 |
| 25 | 196/0.4 | 1.2 | 8.77 | 0.78 | 86 |
| 35 | 276/0.4 | 1.2 | 9.67 | 0.554 | 110 |
| 50 | 396/0.4 | 1.4 | 11.44 | 0.386 | 145 |
| 70 | 360/0.5 | 1.4 | 13.44 | 0.272 | 215 |
| 95 | 475/0.5 | 1.6 | 15.46 | 0.206 | 260 |
| 120 | 608/0.5 | 1.6 | 17.16 | 0.161 | 305 |
| 150 | 750/0.5 | 1.8 | 19.08 | 0.129 | 355 |
| 185 | 925/0.5 | 2.0 | 21.2 | 0.106 | 415 |
| 240 | 1210/0.5 | 2.2 | 24.12 | 0.0801 | 500 |
| 300 | 1527/0.5 | 2.4 | 27.04 | 0.0641 | 585 |
| 400 | 2013/0.5 | 2.6 | 30.5 | 0.0486 | 695 |

*This size can be supplied in 48/0.2 Construction. **This size can be supplied in 80/0.2 Construction.

## TABLE 2.3

**ZENIUM PVC INSULATED AND SHEATHED MULTICORE FLEXIBLE CABLES, 450 / 750 V.**

| Conductor Area | No. & Size of each Strand | Thickness of PVC Insulation | Max DC Resist. at 20°C | Thickness of PVC Outer Sheath (mm) | | | Approximate Overall Diameter (mm) | | | Current Ratings in Amps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sq.mm | Nos/Dia | mm | Ohm/Km | 2 Core | 3 Core | 4 Core | 2 Core | 3 Core | 4 Core | 2 Core | 3 Core | 4 Core |
| 0.5 | 16/0.2 | 0.6 | 39 | 0.9 | 0.9 | 0.9 | 6.08 | 6.40 | 6.96 | 4 | 3 | 3 |
| 0.75 | 24/0.2 | 0.6 | 26 | 0.9 | 0.9 | 0.9 | 6.44 | 6.8 | 7.39 | 7 | 6 | 6 |
| 1 | 32/0.2 | 0.6 | 19.5 | 0.9 | 0.9 | 0.9 | 6.78 | 7.17 | 7.8 | 12 | 10 | 10 |
| 1.5 | *30/0.25 | 0.6 | 13.3 | 0.9 | 0.9 | 1.0 | 7.22 | 7.65 | 8.34 | 16 | 14 | 14 |
| 2.5 | **50/0.25 | 0.7 | 7.98 | 1.0 | 1.0 | 1.0 | 8.64 | 9.16 | 10.01 | 20 | 18 | 18 |
| 4 | 56/0.3 | 0.8 | 4.95 | 1.0 | 1.0 | 1.0 | 10.08 | 10.85 | 11.98 | 27 | 24 | 24 |
| 6 | 84/0.3 | 0.8 | 3.30 | 1.1 | 1.1 | 1.2 | 11.36 | 12.20 | 13.46 | 34 | 30 | 30 |
| 10 | 80/0.4 | 1.0 | 1.91 | 1.2 | 1.2 | 1.3 | 14.5 | 15.30 | 17.25 | 44 | 39 | 39 |
| 16 | 126/0.4 | 1.0 | 1.21 | 1.3 | 1.3 | 1.4 | 16.84 | 17.70 | 19.88 | 61 | 55 | 55 |
| 25 | 196/0.4 | 1.2 | 0.78 | 1.4 | 1.5 | 1.6 | 21.48 | 22.1 | 24.58 | 69 | 60 | 60 |
| 35 | 276/0.4 | 1.2 | 0.554 | 1.5 | 1.6 | 1.7 | 22.07 | 24.85 | 26.98 | 88 | 77 | 77 |
| 50 | 396/0.4 | 1.4 | 0.386 | 1.6 | 1.7 | 1.8 | 27.04 | 28.89 | 31.86 | 116 | 102 | 102 |
| 70 | 360/0.5 | 1.4 | 0.272 | 2.2 | 2.2 | 2.2 | 31.48 | 33.65 | 37.15 | 155 | 140 | 140 |
| 95 | 475/0.5 | 1.6 | 0.206 | 2.4 | 2.4 | 2.4 | 35.94 | 38.43 | 42.45 | 190 | 165 | 165 |

*This size can be supplied in 48/0.2 Construction. The above data is approximate and subject to manufacturing tolerance **This size can be supplied in 80/0.2 Construction.

# Multicore Flexible Copper Cables

## TABLE 2.4

ZENIUM PVC INSULATED FLEXIBLE WIRES & CABLES
ZENIUM MULTICORE ROUND FLEXIBLE CABLES (6 Cores to 30 Cores ) Generally as per IS : 694/2010

| Area in Sq. mm | 0.5 | 0.75 | 1.0 | 1.5 | 2.5 | 4.0 |
|---|---|---|---|---|---|---|
| General Construction No./Dia | 16/0.2 | 24/0.2 | 32/0.2 | *30/0.25 | **50/0.25 | 56/0.3 |
| Conductor Dia in mm | 0.94 | 1.2 | 1.34 | 1.64 | 2.08 | 2.61 |
| Avg Insu. Thickness in mm | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.8 |
| Core Dia in mm | 2.2 | 2.5 | 2.6 | 2.9 | 3.5 | 4.3 |

| No. of Cores | | | | | | |
|---|---|---|---|---|---|---|
| 6 | Avg Sheath Thickness in mm | 0.9 | 1.0 | 1.0 | 1.0 | 1.1 | 1.2 |
| | App. Overall Dia in mm | 8.17 | 8.91 | 9.42 | 10.8 | 12.13 | 14.5 |
| 7 | Avg Sheath Thickness in mm | 0.9 | 1.0 | 1.0 | 1.0 | 1.1 | 1.2 |
| | App. Overall Dia in mm | 8.17 | 8.91 | 9.42 | 10.8 | 12.13 | 14.71 |
| 8 | Avg Sheath Thickness in mm | 1.0 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 |
| | App. Overall Dia in mm | 9.01 | 9.82 | 10.38 | 11.11 | 13.55 | 15.93 |
| 10 | Avg Sheath Thickness in mm | 1.0 | 1.1 | 1.1 | 1.1 | 1.3 | 1.4 |
| | App. Overall Dia in mm | 10.46 | 11.4 | 12.8 | 12.96 | 15.82 | 18.9 |
| 12 | Avg Sheath Thickness in mm | 1.0 | 1.1 | 1.1 | 1.1 | 1.3 | 1.4 |
| | App. Overall Dia in mm | 10.79 | 11.76 | 12.47 | 13.39 | 16.14 | 19.54 |
| 14 | Avg Sheath Thickness in mm | 1.1 | 1.1 | 1.1 | 1.2 | 1.3 | 1.4 |
| | App. Overall Dia in mm | 11.74 | 12.33 | 13.8 | 14.25 | 17.16 | 20.76 |
| 16 | Avg Sheath Thickness in mm | 1.1 | 1.2 | 1.2 | 1.2 | 1.4 | 1.5 |
| | App. Overall Dia in mm | 12.14 | 13.19 | 14 | 15.02 | 18.31 | 21.91 |
| 19 | Avg Sheath Thickness in mm | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.5 |
| | App. Overall Dia in mm | 12.77 | 13.87 | 14.94 | 16.4 | 19.29 | 23.11 |
| 24 | Avg Sheath Thickness in mm | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 |
| | App. Overall Dia in mm | 15.06 | 16.36 | 17.58 | 18.9 | 22.98 | 27.2 |
| 30 | Avg Sheath Thickness in mm | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 |
| | App. Overall Dia in mm | 16.17 | 17.29 | 18.38 | 19.99 | 23.9 | 28.94 |
| | Max Conductor Resistance in Ohm/Km at 20°C | 39 | 26 | 19.5 | 13.3 | 7.98 | 4.95 |
| | Recommended Current Rating in Amps | 4 | 7 | 12 | 16 | 22 | 29 |

* This size can be supplied in 48/0.2 Construction. ** This size can be supplied in 80/0.2 Constructions

The above data is approximate and subject to manufacturing tolerance


# Submersible 3 Core Flat Cables

### 3 CORE FLAT CABLES FOR SUBMERSIBLE PUMPS & MOTORS.

Zenium 3 Core Flat Cables provides the energy to submersible pumps & motors. They have been manufactured keeping in mind the difficult conditions, they are expected to work efficiently. Each Conductor of bright annealed electrolytic copper are drawn, annealed and bunch together to ensure proper flexibility and uniform resistance. All three conductors are insulated with a special PVC Compound. The cores are laid up in flat parallel position and being insulated again by special PVC.

## TABLE 3.1

### TECHNICAL DATA:
### 3 CORE FLAT CABLES AS PER IS-694:2010

| Nominal area of Conductor | No./Dia of Strands | Insulation Thickness (Nominal) | Sheath Thickness (Nominal) | SHEATH | | Max Conductor Resistance @ 20°C (Max) | Current Carrying Capacity At 40°C |
|---|---|---|---|---|---|---|---|
| | | | | Approx Overall Dimension | | | |
| | | | | Width (W) | Height (H) | | |
| Sq.mm | mm | mm | mm | mm | mm | Ohm/Km | Amps |
| 1.5** | 22/0.3 | 0.6 | 0.9 | 10.1 | 4.7 | 12.1 | 13 |
| 2.5** | 36/0.3 | 0.7 | 1.0 | 12.2 | 5.5 | 7.41 | 18 |
| 4 | 56/0.3 | 0.8 | 1.0 | 14.6 | 6.5 | 4.95 | 24 |
| 6 | 84/0.3 | 1.0 | 1.1 | 16.2 | 7 | 3.3 | 31 |
| 10 | 140/0.3 | 1.0 | 1.4 | 20.2 | 8.5 | 1.91 | 42 |
| 16 | 126/0.4 | 1.0 | 1.4 | 23.4 | 9.7 | 1.21 | 57 |
| 25 | 196/0.4 | 1.2 | 2 | 28.5 | 11.7 | 0.78 | 72 |
| 35 | 276/0.4 | 1.2 | 2 | 32.1 | 13 | 0.554 | 90 |
| 50 | 396/0.4 | 1.4 | 2.2 | 38.8 | 15.5 | 0.386 | 115 |
| 70 | 360/0.5 | 1.4 | 2.2 | 43.4 | 17 | 0.272 | 143 |
| 95 | 475/0.5 | 1.6 | 2.4 | 49.6 | 19.1 | 0.206 | 165 |

**The strand diameter is nominal, however the construction of conductor is as per the requirement of conductor resistance as per IS 8130; 1984.**

## TABLE 3.2

### HP Vs Current : The full load current for submersible pump motors, 3 phase, 50 Cycles, 415-425 V

| HP | 5 | 7.5 | 10 | 12.5 | 15.5 | 17.5 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|
| Amp | 7.5 | 11 | 14.9 | 18.9 | 25.2 | 25.2 | 28.4 | 35.6 |

| HP | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 |
|---|---|---|---|---|---|---|---|---|
| AMP | 42.3 | 50.4 | 58.1 | 62.1 | 67.5 | 73.8 | 81 | 87.3 |

The above data is approximate and subject to manufacturing tolerance


# Braided / Shielded & Instrumentation Cables

Zenium Cables Manufactures multi-core screened (Shielded / braided) flexible cables used for low noise signal cables and control purposes. These cables are generally confirming to PAS - 5308 and are manufactured with flexible copper conductors, PVC insulation, Tinned copper braided / shielded with overall PVC sheath. These cables are especially developed for defence, Telecommunication and electronic applications. Very feeble signals can be transmitted with least interference

**INSTRUMENTATION CABLES** Zenium manufactures multi-pair / triad instrumentation cables for use inside plants and electrical equipments where there is low frequency. These cables consists of annealed copper conductor draw from bright electrolytic grade copper PVC / POLYETHEYLENE / XLPE insulated, individually, or overall shielded with BOPP & AL MYLAR Tape, Tinned copper drain wire & overall PVC sheath. Here bunched conductors are insulated with various specially formulated and developed compounds with high resistance & low capacitance values.

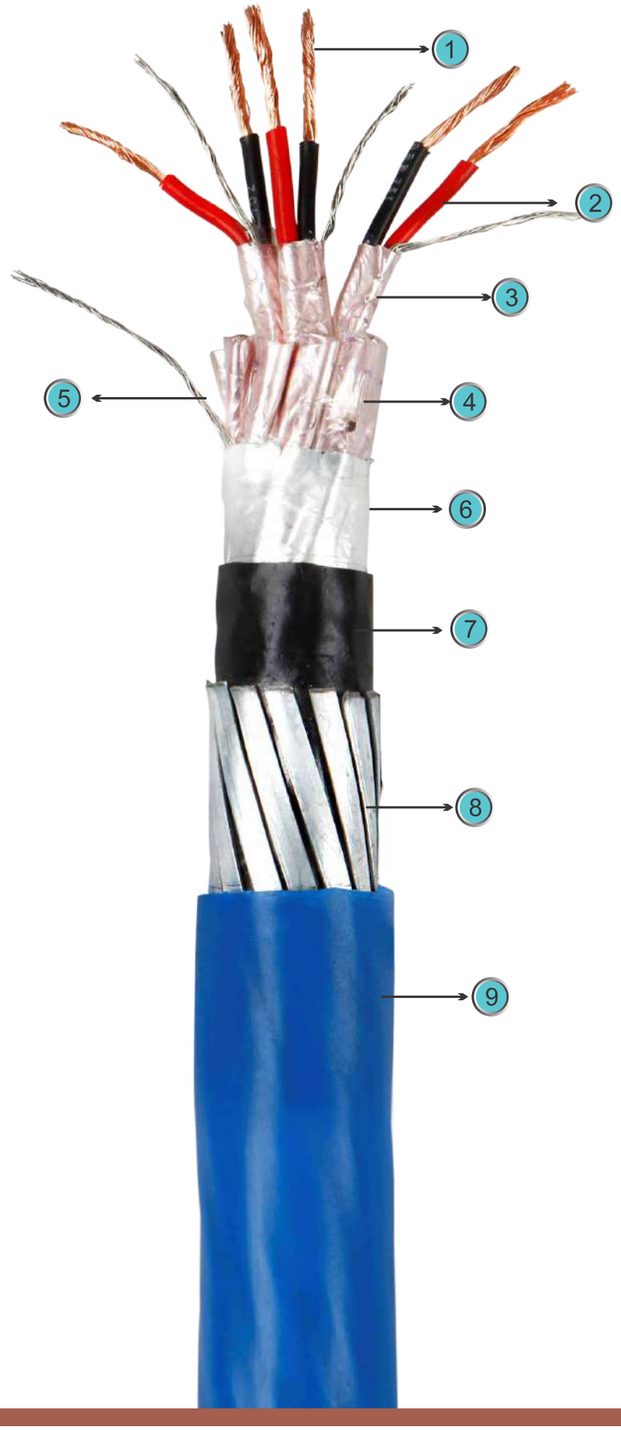
**TABLE 4.1**

## BRAIDED / SHIELDED MULTICORE CABLES 300 / 500 V Generally Confirming to PAS-5308 / Pt. 2

| Nominal area of cond. | Approx. No. of Cond/Dia of wires | Max. D.C. resistance at 20°C | Current Carrying Capacity | Thickness of PVC Insulation (Nom.) | 2 CORE | | | 3 CORE | | | 4 CORE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Thickness of PVC Outer sheath | Approx. Overall Diameter | Approx. Net Wt. of Cable | Thickness of PVC Outer sheath | Approx. Overall Diameter | Approx. Net Wt. of Cable | Thickness of PVC Outer sheath | Approx. Overall Diameter | Approx. Net Wt. of Cable |
| mm² | mm | Ohm/Km | Amps | mm | mm | mm | Kg/Km | mm | mm | Kg/Km | mm | mm | Kg/Km |
| 0.5 | 16/0.2 | 39.0 | 04 | 0.6 | 0.9 | 8.25 | 96 | 0.9 | 8.5 | 104 | 0.9 | 9.15 | 122 |
| 0.75 | 24/0.2 | 26.0 | 07 | 0.6 | 0.9 | 8.65 | 107 | 0.9 | 8.95 | 119 | 0.9 | 9.60 | 139 |
| 1.0 | 32/0.2 | 19.5 | 12 | 0.6 | 0.9 | 9.00 | 119 | 0.9 | 9.3 | 132 | 0.9 | 10.00 | 156 |
| 1.5 | 48/0.2 | 13.3 | 15 | 0.6 | 0.9 | 9.50 | 137 | 0.9 | 9.9 | 156 | 1.0 | 10.70 | 186 |
| 2.5 | 80/0.2 | 7.98 | 20 | 0.7 | 1.0 | 11.00 | 188 | 1.0 | 11.5 | 217 | 1.0 | 12.50 | 262 |
| 4.0 | 56/0.3 | 4.95 | 23 | 0.8 | 1.0 | 12.30 | 240 | 1.0 | 13.0 | 287 | 1.0 | 14.30 | 356 |
| 6.0 | 84/0.3 | 3.30 | 35 | 0.8 | 1.1 | 13.60 | 306 | 1.1 | 14.3 | 368 | 1.2 | 16.00 | 468 |
| 10.0 | 80/0.4 | 1.91 | 46 | 1.0 | 1.2 | 16.60 | 472 | 1.2 | 17.3 | 566 | 1.3 | 19.30 | 719 |
| 16.0 | 126/0.4 | 1.21 | 62 | 1.0 | 1.3 | 19.30 | 671 | 1.3 | 20.2 | 815 | 1.4 | 22.50 | 1036 |
| 25.0 | 196/0.4 | 0.78 | 80 | 1.2 | 1.4 | 24.40 | 1029 | 1.5 | 25.8 | 1261 | 1.6 | 28.80 | 1602 |
| 35.0 | 276/0.4 | 0.554 | 102 | 1.2 | 1.5 | 27.10 | 1320 | 1.6 | 28.6 | 1626 | 1.7 | 32.00 | 2081 |
| 50.0 | 396/0.4 | 0.386 | 138 | 1.4 | 1.6 | 31.70 | 1823 | 1.7 | 33.5 | 2257 | 1.8 | 37.60 | 2904 |

The above data is approximate and subject to manufacturing tolerance

## Hi Shield Protective Layers




### TYPICAL CONSTRUCTION:

1 APC / ATC conductor.

2 PVC/Low Density Polyethylene/Cross-linked Polyethylene (XLPE) insulation.

3 Individual pair screen (optional).

4 Polyester tape.

5 Tinned solid / bunched copper drain wire.

6 Aluminium/Polymer foil tape,

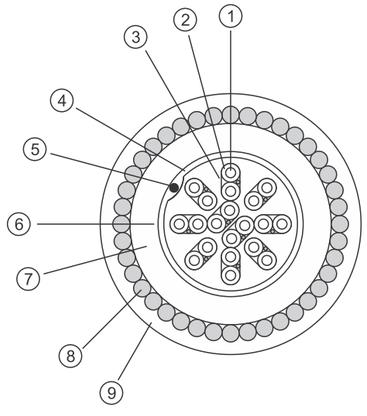
- Impermeable to moisture.
- Protection against EMI.

7 Extruded Inner Sheath

- Resistant to inorganic chemicals.

8 Galvanised steel wire / strip

9 FRLSH/Fire retardant PVC.




## PVC Insulated as per PAS 5308 Part 2

This specification covers multicore and multipair cables used in the provision of communication services and the interconnection of electrical equipment and instruments, particularly in and around process plants, where transducer generated signals are transmitted through marshalled circuits to panels, controllers and associated devices.

Cables as per PAS-5308 Part 1 are widely used throughout the petroleum industry, while Part 2 are more common to the chemical and petrochemical industries.

Type 1 unarmoured cables are generally for indoor applications.

Type 2 armoured cables are suitable for burial underground.

These cables are designed for use in intrinsically safe systems. However it must be noted that cables used when installing an intrinsically safe system are required to conform to any relevant requirement on the certification documents, either for the system or for the intrinsically safe and associated apparatus forming parts of the system. Cables should also be suitable for the environment in which they are going to be used.

### AVAILABILITY:

Cables in this range are manufactured as per customer's order. Alternative constructions e.g. other conductor sizes or pair combinations, generally to this specification, can also be produced to order, as can a range of thermocouple, extension and compensating cables. Specifications to suit individual customer requirements, based on the as per PAS 5308 part 2 specification, can also be manufactured. Our technical personnel are available to provide information and assistance in designing cables for your specific installation and operating requirements.

ZERO HALOGEN, LOW SMOKE

For applications where minimal smoke and acid gas emissions are critical, Zenium India's proprietary compounds are rated Zero Halogen, Low Smoke to BSEN 50267 (IEC 754) and BSEN 61034.

Where any of these options are ordered customers should specify if the compound is required on the bedding (where applicable), the sheath, or both (where applicable).

Zenium offer designs utilising these materials that can comply with the appropriate category for the cable size in BSEN 60332-3.

Please contact us to discuss your particular requirements.

# Technical Data of XLPE Insulated

| | POLYETHYLENE | | PVC | |
|---|---|---|---|---|
| Maximum conductor operating temp: | +70°C | | +70°C | |
| Minimum ambient temp: | -20°C after installation and only when cable is in a fixed position | | -15°C after installation and only when cable is in a fixed position | |
| * Maximum working voltage: | 300/500V r.m.s. | | 300/500V r.m.s. | |
| Test voltage: | 1000V r.m.s. between conductors and between conductors and screen/armour | | 1000V r.m.s. between conductors and between conductors and screen/armour. | |
| Maximum D.C. conductor resistance W/km AT 20° C | Conductor size | APC | Conductor size | ATC |
| | 0.5mm² Class 1 | 36.00 | 0.5mm² Class 1 | 36.70 |
| | 0.5mm² Class 5 | 39.00 | 0.5mm² Class 5 | 40.10 |
| | 1.0mm² Class 1 | 18.10 | 1.0mm² Class 1 | 18.20 |
| | 1.5mm² Class 2 | 12.10 | 1.5mm² Class 2 | 12.20 |
| Minimum insulation resistance | Individual cores - 5000 MW/km<br>Between individual screens-1MW/km at 20°C | | Individual cores-36.5 MW/km<br>Between individual screens-1MW/km at 20°C | |
| Maximum mutual capacitance | Cables without individual pair screens, 0.5mm² and 1.0mm² - 75pF/m,1.5mm² - 85pF/m. All cables with individual pair screens and 1 or 2 pair cables collectively screened-115 pF/m, except 7/0.53mm (1.5mm²)-120 pF/m. | | Pair or adjacent cores - 250 pF/m at 1KHz | |
| Maximum capacitance unbalance | 250 pF/M at 1KHz | | | |
| Maximum capacitance conductor To screen: | 400 pF/M | | | |
| Maximum L/R ratio | Conductor size | µH/W | Conductor size | µH/W |
| | 0.5mm² | 25 | 0.5mm² | 25 |
| | 1.0mm² | 25 | 1.0mm² | 25 |
| | 1.5mm² | 40 | 1.5mm² | 40 |
| Minimum bending radius | 10 x overall diameter | | | |

Cables using this composite sheath should not be connected to a low impedance source i.e. the mains power voltage supply.

The new HI-SHIELD system is also suitable for applications requiring termite and rodent protection.

# XLPE Insulated

**MAXIMUM CONDUCTOR OPERATING TEMP:** +70°C

**MINIMUM AMBIENT TEMP:**

-20°C after installation and only when cable is in a fixed position.

**MAXIMUM WORKING VOLTAGE:** 300/500V r.m.s.

**TEST VOLTAGE:**

1000V r.m.s. between conductors and between conductors and screen/armour.

**MAXIMUM CONDUCTOR D.C. RESISTANCE:** W/km at 20°C

| | Conductor Size | APC | ATC |
|---|---|---|---|
| 1/0.80mm | (0.5mm²) Class 1 | 36.0 | 36.7 |
| 16/0.20mm | (0.5mm²) Class 5 | 39.0 | 40.1 |
| 1/1.13mm | (1.0mm²) Class 1 | 18.10 | 18.20 |
| 7/0.53mm | (1.5mm²) Class 2 | 12.10 | 12.20 |

**MINIMUM INSULATION RESISTANCE:**

Individual conductors - 5000 MW/km at 20°C. Between individual screens - 1 MW/km

**MAXIMUM MUTUAL CAPACITANCE AT 1KHZ:** Cables without individual pair screens, 0.5mm² and 1.0mm² - 75 pF/m, 1.5mm² - 85 pF/m. All cables with individual pair screens and 1 or 2 pair cables collectively screened, 115 pF/m.

**MAXIMUM CAPACITANCE UNBALANCE:** 250pF/M at 1kHz

**MAXIMUM L/R RATIO:**

| Conductor Size | µH/W |
|---|---|
| 0.5mm² | 25 |
| 1.0mm² | 25 |
| 1.5mm² | 40 |

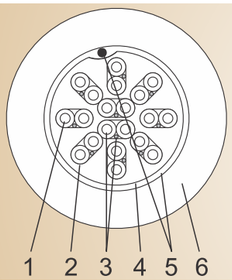
**SPREAD OF FLAME:**

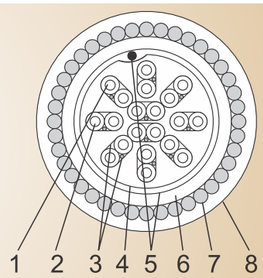
Type 1 complies with EN50265, IEC 60332-1. Type 2 complies as type 1 additionally with EN 50266-2-4, IEC 60332-3C. Type 3 complies as Type 2

**MINIMUM BENDING RADIUS:**

Type 1 - 7 x overall diameter. Type 2 - 8 x overall diameter.

## CONSTRUCTION :




Type 1

1 Plain annealed copper wire conductors to BSEN 60228.

2 Polyethylene insulation to BSEN 50290-2-23 (L/MD) or LPE to BSEN 50290-2-29

3 Individual pair screen (optional):-

a) Aluminium/polyester tape, metallic side down, in contact with minimum 0.5mm² tinned copper drain wire.

b) Polyester isolating tape(s) numbered for identification

4 Polyester binder tape.

5 Collective screen (optional) - Aluminium/polyester tape, metallic side down, in contact with minimum 0.5mm² tinned copper drain wire.

6 Type TM1 PVC sheath to BSEN 50290-2-22.

Type 2

1 Plain annealed copper wire conductors to BSEN 60228.

2 Polyethylene insulation to BSEN 50290-2-23 (L/MD) or PE to BSEN 50290-2-29

3 Individual pair screen (optional):-

a) Aluminium/polyester tape, metallic side down, in contact with minimum 0.5mm² tinned copper drain wire.

b) Polyester isolating tape(s) numbered for identification

4 Polyester binder tape.

5 Collective screen (optional) - Aluminium/polyester tape, metallic side down, in contact with minimum 0.5mm² tinned copper drain wire.

6 Polythene bedding conforming to BSEN 50290-2-24 grade LD.

7 Single layer galvanised steel wire armour to BS EN 10257-1

8 Type TM1 PVC sheath to BSEN 50290-2-22.

**PHYSICAL DATA**

A: Pairs - Unscreened pairs: Are identified by means of coloured insulation in the sequence as per PAS 5308

# PVC Insulated as per PAS 5308 Part 2

## TECHNICAL DATA :

**MAXIMUM CONDUCTOR OPERATING TEMP**: +70°C.

**MINIMUM AMBIENT TEMP:** -15°C after installation and only when cable is in a fixed position.

**MAXIMUM WORKING VOLTAGE:** 300/500V r.m.s.

**TEST VOLTAGE:** 1000V r.m.s. between conductors and between conductors and screen/armour.

**MAXIMUM CONDUCTOR D.C. RESISTANCE:** W/km at 20°C

| Conductor Size | APC | ATC |
|---|---|---|
| 16/0.20mm (0.5mm$^2$) | 39.0 | 40.10 |
| 24/0.20mm (0.75mm$^2$) | 26.0 | 26.70 |
| 7/0.53mm (1.5mm$^2$) | 12.1 | 12.20 |

**MINIMUM INSULATION RESISTANCE:** Individual conductors - 25 MOhm/km @20°C. Between individual screens - 1 MOhm/Km @20°C

**MAXIMUM MUTUAL CAPACITANCE AT 1KHZ:**

Pair of adjacent cores - 250 pF/m at 1kHz.

**MAXIMUM CAPACITANCE TO SCREEN:** 450pF/m at 1kHz

**MAXIMUM L/R RATIO:**

| Conductor Size | µH/W |
|---|---|
| 0.5mm$^2$ | 25 |
| 1.0mm$^2$ | 25 |
| 1.5mm$^2$ | 40 |

**SPREAD OF FLAME:**

Type 1 complies with EN 50265, IEC 60332-1. Type 2 complies as type 1 additionally with EN50266 NMV 1.5, IEC 60332-3C.

**MINIMUM BENDING RADIUS:**

Type 1 - 8 x overall diameter. Type 2 - 10 x overall diameter.

## CONSTRUCTION :


**Type 1**

1 Plain annealed copper conductors to BSEN 60228.

2 Type TI1 PVC insulation to BSEN 50290-2-21.

3 Individual pair screen (optional)-

a) Aluminium/polyester tape, metallic side down, in contact with minimum 0.5mm$^2$ tinned copper drain wire.

b) Polyester isolating tape(s) numbered for identification.

4 Polyester binder tape.

5 Collective screen (optional) - Aluminium / polyester tape, metallic side down, in contact with minimum 0.5mm$^2$ tinned copper drain wire.

6 Type TM1 PVC sheath to BSEN 50290-2-22.

**Type 2**

1 Plain annealed copper wire conductors to BSEN 60228.

2 Type TI1 PVC insulation to BSEN 50290-2-21.

3 Individual pair screen (optional)-

a) Aluminium/polyester tape, metallic side down, in contact with minimum 0.5mm2 tinned copper drain wire.

b) Polyester isolating tape(s) numbered for identification

4 Polyester binder tape.

5 Collective screen (optional) - Aluminium / polyester tape, metallic side down, in contact with minimum 0.5mm$^2$ tinned copper drain wire.

6 Type TM1 PVC bedding conforming to BSEN 50290-2-22.

7 Single layer galvanised steel wire armour to BS EN 10257-1.

8 Type TM1 PVC sheath to BSEN 50290-2-22.

**PHYSICAL DATA**
A: Pairs - Unscreened pairs: Are identified by means of coloured insulation in the sequence as per PAS 5308

# XLPE Insulated

## POLYETHYLENE INSULATED AS PER PAS 5308 PART 1

This specification covers multipair cables used in the provision of voice and data services and the interconnection of electrical equipment and instruments, particularly in and around process plants, where transducer generated signals are transmitted through marshalled circuits to panels, controllers and associated devices.

Cables as per PAS- 5308 Part 1 are widely used throughout the petroleum industry, while Part 2 are more common to the chemical and petrochemical industries.

Type 1 unarmoured cables are generally for indoor applications.

Type 2 armoured cables are suitable for burial underground.

These cables are designed for use in Group II intrinsically safe systems. However it must be noted that cables used when installing an intrinsically safe system are required to conform to any relevant requirement on the certification documents, either for the system or for the intrinsically safe and associated apparatus forming parts of the system.

Cables should also be suitable for the environment in which they are going to be used.

**AVAILABILITY:**

Cables in this range are manufactured as per customer's order. Reduced propagation or with reduced HCL emission PVC sheaths can be supplied when requested. Alternative constructions e.g. other conductor sizes or pair/core combinations, generally to this specification, can also be produced to order.

Specifications to suit individual customer requirements, based on the PAS 5308 Part1 specification, can also be manufactured. Our technical personnel are available to provide information and assistance in designing cables for your specific installation and operating requirements.

ZERO HALOGEN, LOW SMOKE

For applications where minimal smoke and acid gas emissions are critical, Zenium's proprietary compounds are rated Zero Halogen, Low Smoke to BSEN 50267 (IEC 60754) and BSEN 61034.

Where any of these options are ordered customers should specify if the compound is required on the bedding (where applicable), the sheath, or both (where applicable).

Zenium offer designs utilising these materials that can comply with the appropriate category for the cable size in BSEN 60332-3). Please contact us to discuss your particular requirements.


# Current Ratings of PVC & XLPE Cables

Assumption for Current Ratings for PVC & XLPE cables:

| | |
|---|---|
| max. conductor temperature | **70°C** (for PVC insulated cables) |
| | **90°C** (for XLPE insulated cable) |
| ambient temperature | **40°C** |
| round temperature | **30°C** |
| thermal Resistivity of soil | **150°C** - cm/watt |
| thermal Resistivity of | **650°C** - cm/watt (for PVC) |
| Dielectric | **350°C** - cm/watt (for XLPE) |
| Depth of laying | **75 cm** - upto 1.1 K.V. Cables |
| | **90 cm** - 3.3 to 11 K.V. Cables |
| | **105 cm** - 11 to 33 K.V. Cables |

## Method of Installation :

Recommended to lay cable as per configuration method below:

## SINGLE CORE CABLES

**Laid direct in the ground**

1) Three in close trefoil formation, or

2) Two touching in horizontal formation.

**Ducts**

3) Three in trefoil formation, or

4) Two in horizontal formation.

**In Air**

5) Two single core cable are installed one above the other fixed to a vertical wall as follows, the distance between the wall & the surface of the cable being 25mm in each case.

i) Cable of sizes up to & including 185 $mm^2$ are installed at a distance between centers of twice the overall diameter of the cable.

ii) Cables of sizes 240 $mm^2$ and above are installed at a distance between centrist of 90mm.

Note: The rating for two cables may be applied with safety in cases where such cables are installed in horizontal formation, on brackets fixed to a wall, either spaced as indicated above or touching throughout.

6) Three single core cables are installed in trefoil formation touching.

**TWIN & MULTI CORE CABLES**

**Installed single in the ground**

**Installed single in the air**

## Rating Factors

The current ratings given in various tables are based on certain assumed conditions as above. In actual practice, these conditions may be different. Therefore, to determine the current rating, the tabulated ratings shall be multiplied with appropriate rating factors.

## Circuit Protection

1. PVC insulated cables should not be operated, even for comparatively short durations, at temperature appreciably higher than that permissible for continuous operation, since the PVC insulation is liable to soften at higher temperatures and sustain serious damage.
2. It is, therefore, essential that such cables shall be continuously operated at the rated currents given in the tables only if they are suitably protected against excess currents arising out of the fault conditions. It is assumed that duration of such faults does not exceed four hours and protection is considered to be adequate if the minimum current at which the protective device is designed to operate does not exceed 1.5* times the tabulated ratings for cables laid in air or in ducts, and not more than 1.3* times the tabulated values for cable laid direct in the ground.
3. If by the nature of the circuit protection, it is not possible to operate the cable at the rated current under the foregoing provisions, the cable required for a given continuous load current shall be chosen to have a rating as given in the tables which shall be not less than:

   a) The given continuous load current and

   b) For cables in air or in ducts, 0.57* of the minimum current at which the excess current protection is designed to operate, or For cables laid direct in the ground, 0.77* of the minimum current at which excess current protection is designed to operate.

## Examples:

1. A 3-core aluminium conductored cable of size 185 $mm^2$ laid direct in the ground can carry a continuous load current of 235 amperes (tabulated rating) if the excess current protection is designed to operate when current exceeds 1.3 x 235 = 305 amperes.
2. For a continuous load current of 100 amperes per phase, a 3-core copper conductored cable of size 35$mm^2$ installed in air (tabulated rating 110 amperes) is adequate if the excess current protection is designed to operate when current exceeds 1.5 x 110 = 165 amperes. If the excess current protection is designed to operate when current exceeds say 200 amperes, a cable with a tabulated rating not less than 0.67 x 200 = 135 Amperes will be necessary, that is , cable with size 50 $mm^2$.

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.1

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 1 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | With Al'm Cond. A2XY | With Cu Cond. 2XY |
| sqmm | No's | No's | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 0.70 | 1.80 | 7 | 70 | 90 |
| 6 | 1/3 | 1/3 | 0.70 | 1.80 | 8 | 80 | 110 |
| 10 | 1/7 | 6 | 0.70 | 1.80 | 9 | 90 | 160 |
| 16 | 6 | 6 | 0.70 | 1.80 | 10 | 130 | 250 |
| 25 | 6 | 6 | 0.90 | 1.80 | 11 | 150 | 350 |
| 35 | 6 | 6 | 0.90 | 1.80 | 12 | 200 | 400 |
| 50 | 6 | 6 | 1.00 | 1.80 | 14 | 250 | 550 |
| 70 | 12 | 12 | 1.10 | 1.80 | 16 | 350 | 750 |
| 95 | 15 | 15 | 1.10 | 1.80 | 18 | 450 | 1000 |
| 120 | 15 | 18 | 1.20 | 180 | 19 | 500 | 1250 |
| 150 | 15 | 18 | 1.40 | 2.00 | 21 | 650 | 1500 |
| 185 | 30 | 30 | 1.60 | 2.00 | 24 | 800 | 1850 |
| 240 | 30 | 34 | 1.70 | 2.00 | 26 | 950 | 2400 |
| 300 | 30 | 34 | 1.80 | 2.00 | 29 | 1150 | 2950 |
| 400 | 53 | 53 | 2.00 | 2.20 | 33 | 1500 | 3750 |
| 500 | 53 | 53 | 2.20 | 2.20 | 36 | 1850 | 4750 |
| 630 | 53 | 53 | 2.40 | 2.20 | 40 | 2350 | 6100 |
| 800 | 53 | 53 | 2.60 | 2.40 | 44 | 2900 | 7750 |
| 1000 | 53 | 53 | 2.80 | 2.60 | 48 | 3600 | 9650 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.136 | 0.29 | — | — | — | 48 | 47 | 45 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.128 | 0.34 | 48 | 45 | 45 | 60 | 59 | 57 | 0.564 | 0.858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.118 | 0.42 | 62 | 62 | 61 | 80 | 78 | 77 | 0.940 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.0108 | 0.50 | 81 | 80 | 83 | 104 | 102 | 106 | 1.50 | 2.28 |
| 25 | 1.20 | 0.727 | 1.54 | 0.931 | 0.102 | 0.52 | 99 | 90 | 115 | 130 | 115 | 145 | 2.35 | 3.57 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.097 | 0.60 | 117 | 110 | 135 | 155 | 140 | 175 | 3.29 | 5.00 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.092 | 0.63 | 138 | 125 | 170 | 185 | 165 | 215 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.088 | 0.68 | 168 | 155 | 210 | 225 | 200 | 270 | 6.58 | 10.01 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.085 | 0.79 | 204 | 185 | 255 | 265 | 235 | 330 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.235 | 0.197 | 0.082 | 0.79 | 230 | 210 | 300 | 300 | 265 | 380 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.082 | 0.79 | 265 | 230 | 342 | 335 | 300 | 430 | 14.10 | 21.45 |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.082 | 0.79 | 295 | 260 | 385 | 380 | 335 | 495 | 17.39 | 26.46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.079 | 0.84 | 340 | 300 | 450 | 435 | 385 | 590 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.078 | 0.86 | 390 | 335 | 519 | 490 | 430 | 670 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.077 | 0.88 | 450 | 380 | 605 | 550 | 480 | 780 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.076 | 0.90 | 500 | 430 | 700 | 610 | 530 | 900 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.075 | 0.94 | 555 | 485 | 809 | 680 | 590 | 1020 | 59.22 | 90.09 |
| 800 | 0.0367 | 0.0221 | 0.0530 | 0.0319 | 0.075 | 0.97 | 625 | 530 | 935 | 740 | 630 | 1140 | 75.20 | 114.40 |
| 1000 | 0.0291 | 0.0176 | 0.0444 | 0.0268 | 0.068 | 1.01 | 690 | 570 | 1065 | 780 | 660 | 1250 | 94.00 | 143.00 |

The above data is approximate and subject to manufacturing tolerance



## TABLE 5.2

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 1 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Flat Strip Armoured (A2XFaY / 2XFaY) | | | | | Round Wire Armoured (A2XWaY / 2XWaY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | | | | | | | With Al'm Cond. A2XFaY | With Cu Cond. 2XFaY | | | | With Al'm Cond. A2XWaY | With Cu Cond. 2XWaY |
| sqmm | Aluminium No's | Copper No's | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 10 | 120 | 150 |
| 6 | 1/3 | 1/3 | 1.00 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 11 | 130 | 170 |
| 10 | 1/7 | 6 | 1.00 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 12 | 150 | 220 |
| 16 | 6 | 6 | 1.00 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 12 | 200 | 300 |
| 25 | 6 | 6 | 1.20 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 14 | 250 | 400 |
| 35 | 6 | 6 | 1.20 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 300 | 500 |
| 50 | 6 | 6 | 1.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 360 | 650 |
| 70 | 12 | 12 | 1.40 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 18 | 450 | 850 |
| 95 | 15 | 15 | 1.40 | 4 X 0.80 | 1.40 | 19 | 500 | 1100 | 1.60 | 1.40 | 21 | 600 | 1150 |
| 120 | 15 | 18 | 1.50 | 4 X 0.80 | 1.40 | 21 | 600 | 1300 | 1.60 | 1.40 | 22 | 700 | 1400 |
| 150 | 15 | 18 | 1.70 | 4 X 0.80 | 1.40 | 23 | 700 | 1600 | 1.60 | 1.40 | 24 | 800 | 1650 |
| 185 | 30 | 30 | 1.90 | 4 X 0.80 | 1.40 | 25 | 900 | 1950 | 1.60 | 1.40 | 26 | 950 | 2050 |
| 240 | 30 | 34 | 2.00 | 4 X 0.80 | 1.40 | 27 | 1050 | 2500 | 1.60 | 1.40 | 29 | 1150 | 2600 |
| 300 | 30 | 34 | 2.10 | 4 X 0.80 | 1.56 | 30 | 1300 | 3100 | 1.60 | 1.56 | 32 | 1400 | 3200 |
| 400 | 53 | 53 | 2.40 | 4 X 0.80 | 1.56 | 34 | 1650 | 3900 | 2.00 | 1.56 | 36 | 1850 | 4100 |
| 500 | 53 | 53 | 2.60 | 4 X 0.80 | 1.56 | 37 | 2000 | 4900 | 2.00 | 1.56 | 40 | 2200 | 5100 |
| 630 | 53 | 53 | 2.80 | 4 X 0.80 | 1.72 | 42 | 2520 | 6300 | 2.00 | 1.72 | 44 | 2750 | 6500 |
| 800 | 53 | 53 | 3.10 | 4 X 0.80 | 1.72 | 46 | 3150 | 7950 | 2.00 | 1.80 | 49 | 3450 | 8250 |
| 1000 | 53 | 53 | 3.30 | 4 X 0.80 | 1.88 | 50 | 3850 | 9850 | 2.50 | 2.04 | 54 | 4300 | 10300 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.152 | 0.22 | — | — | — | 48 | 47 | 45 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.144 | 0.26 | 45 | 45 | 40 | 60 | 59 | 57 | 0.56 | .858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.133 | 0.31 | 59 | 62 | 53 | 80 | 78 | 77 | 0.94 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.122 | 0.40 | 76 | 80 | 73 | 104 | 102 | 106 | 1.50 | 2.29 |
| 25 | 1.20 | 0.727 | 1.54 | 0.931 | 0.116 | 0.40 | 99 | 90 | 115 | 130 | 115 | 145 | 2.35 | 3.58 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.110 | 0.47 | 117 | 110 | 140 | 155 | 140 | 175 | 3.29 | 5.01 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.103 | 0.50 | 138 | 125 | 170 | 185 | 165 | 215 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.099 | 0.55 | 168 | 155 | 210 | 225 | 200 | 270 | 6.58 | 10.01 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.097 | 0.64 | 204 | 185 | 255 | 265 | 235 | 330 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.325 | 0.197 | 0.093 | 0.67 | 230 | 210 | 300 | 300 | 265 | 380 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.091 | 0.67 | 265 | 230 | 342 | 335 | 300 | 430 | 14.10 | 21.45 |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.090 | 0.67 | 295 | 260 | 385 | 380 | 335 | 495 | 17.39 | 26.46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.086 | 0.72 | 340 | 300 | 450 | 435 | 385 | 590 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.085 | 0.75 | 390 | 335 | 519 | 490 | 430 | 670 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.085 | 0.75 | 450 | 380 | 605 | 550 | 480 | 780 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.083 | 0.77 | 500 | 430 | 700 | 610 | 530 | 900 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.082 | 0.81 | 555 | 485 | 809 | 680 | 590 | 1020 | 59.22 | 90.09 |
| 800 | 0.0367 | 0.0221 | 0.0530 | 0.0319 | 0.081 | 0.88 | 625 | 530 | 935 | 740 | 630 | 1140 | 75.20 | 114.40 |
| 1000 | 0.0291 | 0.0176 | 0.0444 | 0.0268 | 0.081 | 0.88 | 690 | 570 | 1065 | 780 | 660 | 1250 | 94.00 | 143.00 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.3

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 2 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. A2XY | With Cu Cond. 2XY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 0.70 | 0.30 | 1.80 | 12 | 180 | 240 |
| 6 | 1/3 | 1/3 | 0.70 | 0.30 | 1.80 | 13 | 220 | 300 |
| 10 | 1/7 | 6 | 0.70 | 0.30 | 1.80 | 15 | 280 | 420 |
| 16 | 6 | 6 | 0.70 | 0.30 | 1.80 | 14 | 250 | 450 |
| 25 | 6 | 6 | 0.90 | 0.30 | 2.00 | 18 | 400 | 700 |
| 35 | 6 | 6 | 0.90 | 0.30 | 2.00 | 19 | 450 | 900 |
| 50 | 6 | 6 | 1.00 | 0.30 | 2.00 | 21 | 600 | 1150 |
| 70 | 12 | 12 | 1.10 | 0.30 | 2.00 | 24 | 750 | 1550 |
| 95 | 15 | 15 | 1.10 | 0.40 | 2.20 | 27 | 950 | 2100 |
| 120 | 15 | 18 | 1.20 | 0.40 | 2.20 | 29 | 1150 | 2550 |
| 150 | 15 | 18 | 1.40 | 0.40 | 2.20 | 31 | 1350 | 3100 |
| 185 | 30 | 30 | 1.60 | 0.50 | 2.40 | 35 | 1700 | 3850 |
| 240 | 30 | 34 | 1.70 | 0.50 | 2.60 | 40 | 2150 | 5000 |
| 300 | 30 | 34 | 1.80 | 0.60 | 2.80 | 43 | 2650 | 6200 |
| 400 | 53 | 53 | 2.00 | 0.60 | 3.00 | 48 | 3300 | 7850 |
| 500 | 53 | 53 | 2.20 | 0.70 | 3.40 | 54 | 4200 | 10000 |
| 630 | 53 | 53 | 2.40 | 0.70 | 3.80 | 59 | 5200 | 12750 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.098 | 0.11 | 34 | 28 | 30 | 44 | 37 | 39 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.090 | 0.13 | 43 | 37 | 40 | 55 | 47 | 50 | 0.567 | 0.858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.084 | 0.16 | 57 | 48 | 53 | 74 | 61 | 67 | 0.940 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.080 | 0.18 | 78 | 61 | 70 | 94 | 78 | 85 | 1.50 | 2.29 |
| 25 | 1.20 | 0.727 | 1.54 | 0.931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.01 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.45 |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 26.46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 461 | 460 | 390 | 590 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

LT XLPE Power Cables

## TABLE 5.4

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 2 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (A2XFY / 2XFY) | | | | | Round Wire Armoured (A2XWY / 2XWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | Aluminium | Copper | | | | | | With Al'm Cond. A2XFY | With Cu Cond. 2XFY | | | | With Al'm Cond. A2XWY | With Cu Cond. 2XWY |
| sqmm | No's | No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 14 | 370 | 470 |
| 6 | 1/3 | 1/3 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 460 | 550 |
| 10 | 1/7 | 6 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 17 | 530 | 700 |
| 16 | 6 | 6 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.40 | 17 | 550 | 750 |
| 25 | 6 | 6 | 0.90 | 0.30 | 4 X 0.80 | 1.40 | 18 | 550 | 850.0 | 1.60 | 1.40 | 20 | 750 | 1050 |
| 35 | 6 | 6 | 0.90 | 0.30 | 4 X 0.80 | 1.40 | 20 | 650 | 1050.0 | 1.60 | 1.40 | 21 | 850 | 1250 |
| 50 | 6 | 6 | 1.00 | 0.30 | 4 X 0.80 | 1.40 | 22 | 750 | 1350.0 | 1.60 | 1.40 | 23 | 1000 | 1550 |
| 70 | 12 | 12 | 1.10 | 0.30 | 4 X 0.80 | 1.56 | 25 | 1000 | 1800.0 | 1.60 | 1.56 | 26 | 1250 | 2050 |
| 95 | 15 | 15 | 1.10 | 0.40 | 4 X 0.80 | 1.56 | 27 | 1250 | 2350.0 | 2.00 | 1.56 | 30 | 1700 | 2800 |
| 120 | 15 | 18 | 1.20 | 0.40 | 4 X 0.80 | 1.56 | 30 | 1450 | 2850.0 | 2.00 | 1.56 | 32 | 1950 | 3350 |
| 150 | 15 | 18 | 1.40 | 0.40 | 4 X 0.80 | 1.72 | 32 | 1700 | 3450.0 | 2.00 | 1.72 | 35 | 2250 | 4000 |
| 185 | 30 | 30 | 1.60 | 0.50 | 4 X 0.80 | 1.72 | 35 | 2050 | 4200.0 | 2.00 | 1.88 | 38 | 2700 | 4850 |
| 240 | 30 | 34 | 1.70 | 0.50 | 4 X 0.80 | 1.88 | 40 | 2550 | 5400.0 | 2.50 | 2.04 | 44 | 3550 | 6350 |
| 300 | 30 | 34 | 1.80 | 0.60 | 4 X 0.80 | 2.04 | 43 | 3000 | 6550.0 | 2.50 | 2.20 | 47 | 4100 | 7650 |
| 400 | 53 | 53 | 2.00 | 0.60 | 4 X 0.80 | 2.36 | 49 | 4000 | 8300.0 | 2.50 | 2.36 | 52 | 4950 | 9500 |
| 500 | 53 | 53 | 2.20 | 0.70 | 4 X 0.80 | 2.52 | 54 | 4650 | 10450.0 | 3.15 | 2.68 | 59 | 6500 | 12300 |
| 630 | 53 | 53 | 2.40 | 0.70 | 4 X 0.80 | 2.68 | 60 | 5700 | 13200.0 | 3.15 | 2.84 | 64 | 7800 | 15350 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.098 | 0.11 | 34 | 28 | 30 | 44 | 37 | 39 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.090 | 0.13 | 43 | 37 | 40 | 55 | 47 | 50 | 0.564 | 0.858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.084 | 0.16 | 57 | 48 | 53 | 74 | 61 | 67 | 0.940 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.080 | 0.18 | 78 | 61 | 70 | 94 | 78 | 85 | 1.50 | 2.29 |
| 25 | 1.20 | 0.727 | 1.54 | 0.931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.1 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.4526. |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 461 | 460 | 390 | 590 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.5

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. A2XY | With Cu Cond. 2XY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 0.70 | 0.30 | 1.80 | 13 | 200 | 280 |
| 6 | 1/3 | 1/3 | 0.70 | 0.30 | 1.80 | 14 | 250 | 360 |
| 10 | 1/7 | 6 | 0.70 | 0.30 | 1.80 | 16 | 310 | 510 |
| 16 | 6 | 6 | 0.70 | 0.30 | 1.80 | 17 | 350 | 650 |
| 25 | 6 | 6 | 0.90 | 0.30 | 2.00 | 20 | 500 | 950 |
| 35 | 6 | 6 | 0.90 | 0.30 | 2.00 | 22 | 600 | 1250 |
| 50 | 6 | 6 | 1.00 | 0.30 | 2.00 | 24 | 800 | 1600 |
| 70 | 12 | 12 | 1.10 | 0.40 | 2.20 | 28 | 1050 | 2250 |
| 95 | 15 | 15 | 1.10 | 0.40 | 2.20 | 31 | 1300 | 3000 |
| 120 | 15 | 18 | 1.20 | 0.40 | 2.20 | 34 | 1600 | 3700 |
| 150 | 15 | 18 | 1.40 | 0.50 | 2.40 | 38 | 1950 | 4550.70 |
| 185 | 30 | 30 | 1.60 | 0.50 | 2.60 | 42 | 2450 | 5650 |
| 240 | 30 | 34 | 1.70 | 0.60 | 2.80 | 47 | 3100 | 7350 |
| 300 | 30 | 34 | 1.80 | 0.60 | 3.00 | 52 | 3800 | 9100 |
| 400 | 53 | 53 | 2.00 | 0.70 | 3.20 | 58 | 4750 | 11550 |
| 500 | 53 | 53 | 2.20 | 0.70 | 3.60 | 65 | 6000 | 14750 |
| 630 | 53 | 53 | 2.40 | 0.70 | 3.80 | 73 | 7500 | 18800 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.098 | 0.11 | 34 | 28 | 30 | 44 | 37 | 39 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.090 | 0.13 | 43 | 37 | 40 | 55 | 47 | 50 | 0.567 | 0.858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.084 | 0.16 | 57 | 48 | 53 | 74 | 61 | 67 | 0.940 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.080 | 0.18 | 78 | 61 | 70 | 94 | 78 | 85 | 1.50 | 2.29 |
| 25 | 1.20 | 0.727 | 1.54 | 0.931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.01 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.45 |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 26.46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 461 | 460 | 390 | 590 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

LT XLPE Power Cables

## TABLE 5.6

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (A2XFY / 2XFY) | | | | | Round Wire Armoured (A2XWY / 2XWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | Aluminium | Copper | | | | | | With Al'm Cond. A2XFY | With Cu Cond. 2XFY | | | | With Al'm Cond. A2XWY | With Cu Cond. 2XWY |
| sqmm | No's | No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 400 | 490 |
| 6 | 1/3 | 1/3 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 460 | 580 |
| 10 | 1/7 | 6 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 17 | 540 | 750 |
| 16 | 6 | 6 | 0.70 | 0.30 | 4 X 0.80 | 1.24 | 18 | 550 | 850.0 | 1.60 | 1.40 | 20 | 700 | 1000 |
| 25 | 6 | 6 | 0.90 | 0.30 | 4 X 0.80 | 1.40 | 20 | 700 | 1150.0. | 1.60 | 1.40 | 22 | 900 | 1350 |
| 35 | 6 | 6 | 0.90 | 0.30 | 4 X 0.80 | 1.40 | 22 | 850 | 1450.0 | 1.60 | 1.40 | 24 | 1050 | 1700 |
| 50 | 6 | 6 | 1.00 | 0.30 | 4 X 0.80 | 1.40 | 25 | 1000 | 1850.0 | 1.60 | 1.56 | 27 | 1300 | 2100 |
| 70 | 12 | 12 | 1.10 | 0.40 | 4 X 0.80 | 1.56 | 29 | 1350 | 2550.0 | 2.00 | 1.56 | 31 | 1800 | 3000 |
| 95 | 15 | 15 | 1.10 | 0.40 | 4 X 0.80 | 1.56 | 31 | 1600 | 3300.0 | 2.00 | 1.56 | 34 | 2150 | 3800 |
| 120 | 15 | 18 | 1.20 | 0.40 | 4 X 0.80 | 1.56 | 34 | 1900 | 4000.0 | 2.00 | 1.72 | 37 | 2550 | 4650 |
| 150 | 15 | 18 | 1.40 | 0.50 | 4 X 0.80 | 1.72 | 38 | 2350 | 4950.0 | 2.00 | 1.88 | 41 | 3000 | 5600 |
| 185 | 30 | 30 | 1.60 | 0.50 | 4 X 0.80 | 1.88 | 42 | 2850 | 6050.0 | 2.50 | 2.04 | 46 | 3950 | 7150 |
| 240 | 30 | 34 | 1.70 | 0.60 | 4 X 0.80 | 2.04 | 47 | 3500 | 7750.0 | 2.50 | 2.20 | 51 | 4800 | 9000 |
| 300 | 30 | 34 | 1.80 | 0.60 | 4 X 0.80 | 2.20 | 52 | 4250 | 9500.0 | 2.50 | 2.36 | 56 | 5600 | 10900 |
| 400 | 53 | 53 | 2.00 | 0.70 | 4 X 0.80 | 2.52 | 59 | 5350 | 12250.0 | 3.15 | 2.68 | 64 | 7450 | 14200 |
| 500 | 53 | 53 | 2.20 | 0.70 | 4 X 0.80 | 2.68 | 65 | 6550 | 15300.0 | 3.15 | 2.84 | 70 | 8900 | 17600 |
| 630 | 53 | 53 | 2.40 | 0.70 | 4 X 0.80 | 2.84 | 73 | 8150 | 19450.0 | 4.00 | 3.00 | 79 | 11800 | 23100 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.098 | 0.11 | 34 | 28 | 30 | 44 | 37 | 39 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.090 | 0.13 | 43 | 37 | 40 | 55 | 47 | 50 | 0.564 | 0.858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.084 | 0.16 | 57 | 48 | 53 | 74 | 61 | 67 | 0.940 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.080 | 0.18 | 78 | 61 | 70 | 94 | 78 | 85 | 1.50 | 2.29 |
| 25 | 1.20 | 0.727 | 1.54 | 0.931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.1 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.45 |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 26.46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 461 | 460 | 390 | 590 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.7

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3.5 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. | With Cu Cond. |
| | | | | | | | A2XY | 2XY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 3X25+16 | 6/6 | 6/6 | 0.90/0.70 | 0.30 | 2.00 | 21 | 600 | 1150 |
| 3X35+16 | 6/6 | 6/6 | 0.90/0.70 | 0.30 | 2.00 | 24 | 700 | 1400 |
| 3X50+25 | 6/6 | 6/6 | 1.00/0.90 | 0.30 | 2.00 | 26 | 900 | 1850 |
| 3X70+35 | 12/6 | 12/6 | 1.10/0.90 | 0.40 | 2.20 | 30 | 1200 | 2600 |
| 3X95+50 | 15/6 | 15/6 | 1.10/1.00 | 0.40 | 2.20 | 34 | 1500 | 3450 |
| 3X120+70 | 15/12 | 18/12 | 1.20/1.10 | 0.40 | 2.20 | 37 | 1800 | 4350 |
| 3X150+70 | 12/12 | 18/12 | 1.40/1.10 | 0.50 | 2.40 | 41 | 2250 | 5250 |
| 3X185+95 | 30/15 | 30/15 | 1.60/1.10 | 0.50 | 2.60 | 46 | 2800 | 6600 |
| 3X240+120 | 30/15 | 34/18 | 1.70/1.20 | 0.60 | 2.80 | 50 | 3550 | 8500 |
| 3X300+150 | 30/15 | 34/18 | 1.80/1.40 | 0.60 | 3.00 | 55 | 4300 | 10500 |
| 3X400+185 | 53/30 | 53/30 | 2.00/1.60 | 0.70 | 3.40 | 62 | 5450 | 13350 |
| 3X500+240 | 53/30 | 53/34 | 2.20/1.70 | 0.70 | 3.60 | 72 | 6900 | 17050 |
| 3X630+300 | 53/30 | 53/34 | 2.40/1.80 | 0.70 | 4.00 | 80 | 8700 | 21750 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 3X25+16 | 1.20 | 0.727 | 1.54 | 0.931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 3X35+16 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 3X50+25 | 0641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 3X70+35 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.01 |
| 3X95+50 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 3X120+70 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 3X150+70 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.45 |
| 3X185+95 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 26.46 |
| 3X240+120 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 3X300+150 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 461 | 460 | 390 | 590 | 28.20 | 42.90 |
| 3X400+185 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 3X500+240 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 3X630+300 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

LT XLPE Power Cables

## TABLE 5.8

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3.5 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (A2XFY / 2XFY) | | | | | Round Wire Armoured (A2XWY / 2XWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | Aluminium | Copper | | | | | | With Al'm Cond. | With Cu Cond. | | | | With Al'm Cond. | With Cu Cond. |
| | | | | | | | | A2XFY | 2XFY | | | | A2XWY | 2XWY |
| sqmm | No's | No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 3x25+16 | 6/6 | 6/6 | 0.90/0.70 | 0.30 | 4 X 0.80 | 1.40 | 22 | 800 | 1350 | 1.60 | 1.40 | 23 | 1000 | 1550 |
| 3x35+16 | 6/6 | 6/6 | 0.90/0.70 | 0.30 | 4 X 0.80 | 1.40 | 24 | 950 | 1650 | 1.60 | 1.40 | 26 | 1200 | 1900 |
| 3x50+25 | 6/6 | 6/6 | 1.00/0.90 | 0.30 | 4 X 0.80 | 1.40 | 27 | 1150 | 2150 | 1.60 | 1.56 | 28 | 1450 | 2400 |
| 3x70+35 | 12/6 | 12/6 | 1.10/0.90 | 0.40 | 4 X 0.80 | 1.56 | 31 | 1500 | 2850 | 2.00 | 1.56 | 33 | 2000 | 3400 |
| 3x92+50 | 15/6 | 15/6 | 1.10/1.00 | 0.40 | 4 X 0.80 | 1.56 | 34 | 1850 | 3800 | 2.00 | 1.56 | 36 | 2400 | 4350 |
| 3x120+70 | 15/12 | 18/12 | 1.20/1.10 | 0.40 | 4 X 0.80 | 1.72 | 38 | 2250 | 4750 | 2.00 | 1.72 | 40 | 2900 | 5400 |
| 3x150+70 | 15/12 | 18/12 | 1.40/1.10 | 0.50 | 4 X 0.80 | 1.72 | 41 | 2650 | 5600 | 2.00 | 1.88 | 44 | 3400 | 6400 |
| 3x185+95 | 30/15 | 30/15 | 1.60/1.10 | 0.50 | 4 X 0.80 | 1.88 | 46 | 3200 | 7000 | 2.50 | 2.04 | 50 | 4450 | 8200 |
| 3x240+120 | 30/15 | 34/18 | 1.70/1.20 | 0.60 | 4 X 0.80 | 2.04 | 50 | 4000 | 8900 | 2.50 | 2.20 | 54 | 5250 | 10200 |
| 3x300+150 | 30/15 | 34/18 | 1.80/1.40 | 0.60 | 4 X 0.80 | 2.20 | 55 | 4800 | 11000 | 2.50 | 2.36 | 59 | 6200 | 12400. |
| 3x400+185 | 53/30 | 53/30 | 2.00/1.60 | 0.70 | 4 X 0.80 | 2.52 | 62 | 5950 | 13850 | 3.15 | 2.68 | 66 | 8200 | 16050 |
| 3x500+240 | 53/30 | 53/34 | 2.20/1.70 | 0.70 | 4 X 0.80 | 2.68 | 72 | 7500 | 17650 | 3.15 | 2.84 | 77 | 10150 | 20250 |
| 3x630+300 | 53/30 | 53/34 | 2.40/1.80 | 0.70 | 4 X 0.80 | 3.00 | 80 | 9300 | 22400 | 4.00 | 3.00 | 86 | 13250 | 26300 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 3X25+16 | 1.20 | 0.727 | 1.54 | 0.931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 3X35+16 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 3X50+25 | 0641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 3X70+35 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.01 |
| 3X95+50 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 3X120+70 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 3X150+70 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.45 |
| 3X185+95 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 26.46 |
| 3X240+120 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 3X300+150 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 461 | 460 | 390 | 590 | 28.20 | 42.90 |
| 3X400+185 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 3X500+240 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 3X630+300 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.9

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 4 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. A2XY | With Cu Cond. 2XY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 0.70 | 0.30 | 1.80 | 14 | 230 | 340 |
| 6 | 1/3 | 1/3 | 0.70 | 0.30 | 1.80 | 15 | 290 | 430 |
| 10 | 1/7 | 6 | 0.70 | 0.30 | 1.80 | 17 | 360 | 630 |
| 16 | 6 | 6 | 0.70 | 0.30 | 1.80 | 19 | 450 | 800 |
| 25 | 6 | 6 | 0.90 | 0.30 | 2.00 | 22 | 600 | 1200 |
| 35 | 6 | 6 | 0.90 | 0.30 | 2.00 | 24 | 750 | 1600 |
| 50 | 6 | 6 | 1.00 | 0.30 | 2.00 | 27 | 950 | 2000 |
| 70 | 12 | 12 | 1.10 | 0.40 | 2.20 | 31 | 1300 | 2900 |
| 95 | 15 | 15 | 1.10 | 0.40 | 2.20 | 35 | 1700 | 3900 |
| 120 | 15 | 1 | 1.20 | 0.50 | 2.40 | 39 | 2100 | 4900 |
| 150 | 15 | 18 | 1.40 | 0.50 | 2.60 | 43 | 2550 | 6000 |
| 185 | 30 | 30 | 1.60 | 0.50 | 2.80 | 48 | 3150 | 7450 |
| 240 | 30 | 34 | 1.70 | 0.60 | 3.00 | 54 | 4000 | 9700 |
| 300 | 30 | 34 | 1.80 | 0.70 | 3.20 | 61 | 4950 | 12050 |
| 400 | 53 | 53 | 2.00 | 0.70 | 3.60 | 68 | 6250 | 15350 |
| 500 | 53 | 53 | 2.20 | 0.70 | 3.80 | 75 | 7800 | 19450 |
| 630 | 53 | 53 | 2.40 | 0.70 | 4.00 | 84 | 9800 | 24850 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 90° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.098 | 0.11 | 34 | 28 | 30 | 44 | 37 | 39 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.090 | 0.13 | 43 | 37 | 40 | 55 | 47 | 50 | 0.567 | 0.858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.084 | 0.16 | 57 | 48 | 53 | 74 | 61 | 67 | 0.940 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.080 | 0.18 | 78 | 61 | 70 | 94 | 78 | 85 | 1.50 | 2.29 |
| 25 | 1.20 | 0.727 | 1.54 | 0.931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.01 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.45 |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 26.46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 461 | 460 | 390 | 590 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

LT XLPE Power Cables

## TABLE 5.10

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 4 CORE, ALUMINIUM / COPPER CONDUCTOR, XLPE INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (A2XFY / 2XFY) | | | | | Round Wire Armoured (A2XWY / 2XWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | Aluminium | Copper | | | | | | With Al'm Cond. A2XFY | With Cu Cond. 2XFY | | | | With Al'm Cond. A2XWY | With Cu Cond. 2XWY |
| sqmm | No's | No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 440 | 560 |
| 6 | 1/3 | 1/3 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 17 | 520 | 670 |
| 10 | 1/7 | 6 | 0.70 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.40 | 19 | 620 | 900 |
| 16 | 6 | 6 | 0.70 | 0.30 | 4 X 0.80 | 1.40 | 20 | 650 | 1000 | 1.60 | 1.40 | 21 | 850 | 1200 |
| 25 | 6 | 6 | 0.90 | 0.30 | 4 X 0.80 | 1.40 | 22 | 850 | 1450 | 1.60 | 1.40 | 24 | 1100 | 1700 |
| 35 | 6 | 6 | 0.90 | 0.30 | 4 X 0.80 | 1.40 | 25 | 1000 | 1850 | 1.60 | 1.40 | 26 | 1300 | 2100 |
| 50 | 6 | 6 | 1.00 | 0.30 | 4 X 0.80 | 1.56 | 28 | 1300 | 2400 | 1.60 | 1.56 | 29 | 1550 | 2700 |
| 70 | 12 | 12 | 1.10 | 0.40 | 4 X 0.80 | 1.56 | 32 | 1650 | 3250 | 2.00 | 1.56 | 34 | 2200 | 3800 |
| 95 | 15 | 15 | 1.10 | 0.40 | 4 X 0.80 | 1.56 | 35 | 2000 | 4250 | 2.00 | 1.72 | 38 | 2700 | 4900 |
| 120 | 15 | 18 | 1.20 | 0.50 | 4 X 0.80 | 1.72 | 39 | 2500 | 5300 | 2.00 | 1.88 | 42 | 3200 | 6000 |
| 150 | 15 | 18 | 1.40 | 0.50 | 4 X 0.80 | 1.88 | 43 | 2950 | 6400 | 2.50 | 2.04 | 47 | 4100 | 7550 |
| 185 | 30 | 30 | 1.60 | 0.50 | 4 X 0.80 | 2.04 | 48 | 3600 | 7950 | 2.50 | 2.20 | 52 | 4850 | 9150 |
| 240 | 30 | 34 | 1.70 | 0.60 | 4 X 0.80 | 2.20 | 54 | 4500 | 10200 | 2.50 | 2.36 | 58 | 5950 | 11600 |
| 300 | 30 | 34 | 1.80 | 0.70 | 4 X 0.80 | 2.36 | 61 | 5500 | 12600 | 3.15 | 2.52 | 66 | 7750 | 14850 |
| 400 | 53 | 53 | 2.00 | 0.70 | 4 X 0.80 | 2.68 | 68 | 6850 | 15900 | 3.15 | 2.84 | 73 | 9350 | 18400 |
| 500 | 53 | 53 | 2.20 | 0.70 | 4 X 0.80 | 2.84 | 75 | 8500 | 20100 | 4.00 | 3.00 | 82 | 12400 | 24000 |
| 630 | 53 | 53 | 2.40 | 0.70 | 4 X 0.80 | 3.00 | 84 | 10550 | 25650 | 4.00 | 3.00 | 91 | 14750 | 30000 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 9.48 | 5.90 | 0.098 | 0.11 | 34 | 28 | 30 | 44 | 37 | 39 | 0.376 | 0.572 |
| 6 | 4.61 | 3.08 | 5.90 | 3.94 | 0.090 | 0.13 | 43 | 37 | 40 | 55 | 47 | 50 | .564 | 0.858 |
| 10 | 3.08 | 1.83 | 3.94 | 2.34 | 0.084 | 0.16 | 57 | 48 | 53 | 74 | 61 | 67 | 0.940 | 1.43 |
| 16 | 1.91 | 1.15 | 2.44 | 1.47 | 0.080 | 0.18 | 78 | 61 | 70 | 94 | 78 | 85 | 1.50 | 2.29 |
| 25 | 1.20 | 0.727 | 1.54 | 0.0931 | 0.080 | 0.20 | 95 | 80 | 99 | 120 | 100 | 125 | 2.35 | 3.58 |
| 35 | 0.868 | 0.524 | 1.11 | 0.671 | 0.080 | 0.23 | 116 | 94 | 117 | 145 | 120 | 155 | 3.29 | 5.01 |
| 50 | 0.641 | 0.387 | 0.820 | 0.495 | 0.078 | 0.24 | 140 | 110 | 140 | 170 | 145 | 190 | 4.70 | 7.15 |
| 70 | 0.443 | 0.268 | 0.567 | 0.343 | 0.077 | 0.26 | 170 | 140 | 176 | 210 | 175 | 235 | 6.58 | 10.01 |
| 95 | 0.320 | 0.193 | 0.411 | 0.248 | 0.074 | 0.29 | 200 | 165 | 221 | 250 | 210 | 290 | 8.93 | 13.59 |
| 120 | 0.253 | 0.153 | 0.325 | 0.197 | 0.072 | 0.29 | 225 | 185 | 258 | 285 | 240 | 330 | 11.28 | 17.16 |
| 150 | 0.206 | 0.1240 | 0.265 | 0.159 | 0.072 | 0.29 | 255 | 210 | 294 | 315 | 270 | 375 | 14.10 | 21.45 |
| 185 | 0.164 | 0.0991 | 0.211 | 0.127 | 0.072 | 0.29 | 285 | 235 | 339 | 355 | 300 | 435 | 17.39 | 26.46 |
| 240 | 0.125 | 0.0754 | 0.162 | 0.0976 | 0.072 | 0.31 | 325 | 270 | 402 | 410 | 350 | 510 | 22.56 | 34.32 |
| 300 | 0.100 | 0.0601 | 0.130 | 0.0778 | 0.071 | 0.33 | 370 | 305 | 460 | 460 | 390 | 590 | 28.20 | 42.90 |
| 400 | 0.0778 | 0.0470 | 0.1023 | 0.0618 | 0.070 | 0.33 | 435 | 350 | 542 | 520 | 440 | 670 | 37.60 | 57.20 |
| 500 | 0.0605 | 0.0366 | 0.0808 | 0.0489 | 0.070 | 0.34 | 481 | 405 | 624 | 580 | 480 | 750 | 47.00 | 71.50 |
| 630 | 0.0469 | 0.0283 | 0.0648 | 0.0391 | 0.069 | 0.36 | 537 | 470 | 723 | 680 | 575 | 875 | 59.22 | 90.09 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.11

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 1.5 SQMM COPPER CONDUCTOR, XLPE INSULATED ARMOURED / UN-ARMOURED CABLES

| No. of Cores | Minimum Inner Sheath Thickness | Unarmoured (2XY ) | | | | | Flat Strip Armoured (2XFY) | | | | | | Round Wire Armoured (2XWY) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Dimen-sion of Armour Strip | Minimum Inner Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Nominal Dia of Armour Wire | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | |
| | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. |
| sqmm | mm | mm | mm | mm | Kg/km | Kg/km | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | Kg/km | Kg/km |
| 2 | 0.30 | 1.80 | 10 | 10 | 150 | 150 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 12 | 13 | 320 | 350 |
| 3 | 0.30 | 1.80 | 11 | 11 | 170 | 200 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 13 | 13 | 330 | 350 |
| 4 | 0.30 | 1.80 | 12 | 12 | 200 | 200 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 14 | 14 | 370 | 400 |
| 5 | 0.30 | 1.80 | 12 | 13 | 230 | 250 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 14 | 15 | 420 | 450 |
| 6 | 0.30 | 1.80 | 13 | 14 | 260 | 300 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 16 | 460 | 500 |
| 7 | 0.30 | 1.80 | 13 | 14 | 250 | 250 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 16 | 470 | 500 |
| 10 | 0.30 | 1.80 | 16 | 16 | 340 | 350 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 18 | 19 | 640 | 650 |
| 12 | 0.30 | 1.80 | 17 | 17 | 380 | 400 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.40 | 19 | 20 | 750 | 800 |
| 14 | 0.30 | 1.80 | 17 | 18 | 420 | 450 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.40 | 20 | 21 | 800 | 850 |
| 16 | 0.30 | 1.80 | 18 | 19 | 470 | 500 | 4 x 0.80 | 1.40 | 19 | 20 | 660 | 700 | 1.60 | 1.40 | 21 | 22 | 860 | 900 |
| 19 | 0.30 | 1.80 | 19 | 20 | 550 | 550 | 4 x 0.80 | 1.40 | 20 | 21 | 750 | 750 | 1.60 | 1.40 | 21 | 22 | 940 | 1000 |
| 24 | 0.30 | 2.00 | 22 | 23 | 680 | 700 | 4 x 0.80 | 1.40 | 23 | 24 | 920 | 950 | 1.60 | 1.40 | 24 | 25 | 1140 | 1200 |
| 27 | 0.30 | 2.00 | 23 | 24 | 730 | 750 | 4 x 0.80 | 1.40 | 23 | 24 | 970 | 1000 | 1.60 | 1.40 | 25 | 26 | 1210 | 1300 |
| 30 | 0.30 | 2.00 | 23 | 25 | 800 | 850 | 4 x 0.80 | 1.40 | 24 | 25 | 1030 | 1100 | 1.60 | 1.40 | 25 | 27 | 1290 | 1350 |
| 37 | 0.30 | 2.00 | 25 | 26 | 940 | 1000 | 4 x 0.80 | 1.40 | 25 | 27 | 1200 | 1250 | 1.60 | 1.40 | 27 | 29 | 1510 | 1600 |
| 40 | 0.30 | 2.00 | 26 | 27 | 1030 | 1080 | 4 x 0.80 | 1.40 | 26 | 28 | 1310 | 1380 | 1.60 | 1.40 | 28 | 29 | 1590 | 1680 |
| 44 | 0.30 | 2.00 | 28 | 30 | 1130 | 1170 | 4 x 0.80 | 1.40 | 28 | 30 | 1420 | 1490 | 1.60 | 1.56 | 31 | 32 | 1760 | 1850 |
| 52 | 0.30 | 2.00 | 29 | 31 | 1290 | 1340 | 4 x 0.80 | 1.56 | 30 | 32 | 1640 | 1710 | 1.60 | 1.56 | 32 | 33 | 1950 | 2050 |
| 61 | 0.40 | 2.20 | 31 | 33 | 1520 | 1580 | 4 x 0.80 | 1.56 | 32 | 34 | 1860 | 1940 | 2.00 | 1.56 | 34 | 36 | 2410 | 2520 |

| Number of Cores | Max. Conductor D.C. Resistance at 20 ℃ | Approx. Conductor A.C. Resistance | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating for XLPE Insulation | | | Short Curcuit Current Rating for 1 Second Duration |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ground | Duct | Air | |
| No's | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km0 | Amps | Amps | Amps | K.amps |
| 2 | 12.10 | 15.49 | 0.102 | 0.09 | 33 | 29 | 29 | 0.215 |
| 3 | 12.10 | 15.49 | 0.102 | 0.09 | 25 | 22 | 22 | 0.215 |
| 4 | 12.10 | 15.49 | 0.102 | 0.09 | 25 | 22 | 22 | 0.215 |
| 5 | 12.10 | 15.49 | 0.102 | 0.09 | 24 | 21 | 21 | 0.215 |
| 6 | 12.10 | 15.49 | 0.102 | 0.09 | 22 | 19 | 19 | 0.215 |
| 7 | 12.10 | 15.49 | 0.102 | 0.09 | 21 | 18 | 18 | 0.215 |
| 10 | 12.10 | 15.49 | 0.102 | 0.09 | 18 | 16 | 16 | 0.215 |
| 12 | 12.10 | 15.49 | 0.102 | 0.09 | 17 | 15 | 15 | 0.215 |
| 14 | 12.10 | 15.49 | 0.102 | 0.09 | 16 | 14 | 14 | 0.215 |
| 16 | 12.10 | 15.49 | 0.102 | 0.09 | 16 | 14 | 14 | 0.215 |
| 19 | 12.10 | 15.49 | 0.102 | 0.09 | 15 | 13 | 13 | 0.215 |
| 24 | 12.10 | 15.49 | 0.102 | 0.09 | 13 | 12 | 12 | 0.215 |
| 27 | 12.10 | 15.49 | 0.102 | 0.09 | 13 | 11 | 11 | 0.215 |
| 30 | 12.10 | 15.49 | 0.102 | 0.09 | 12 | 11 | 11 | 0.215 |
| 37 | 12.10 | 15.49 | 0.102 | 0.09 | 11 | 10 | 10 | 0.215 |
| 40 | 12.10 | 15.49 | 0.102 | 0.09 | 11 | 9 | 9 | 0.215 |
| 44 | 12.10 | 15.49 | 0.102 | 0.09 | 11 | 9 | 9 | 0.215 |
| 52 | 12.10 | 15.49 | 0.102 | 0.09 | 10 | 9 | 9 | 0.215 |
| 61 | 12.10 | 15.49 | 0.102 | 0.09 | 9 | 8 | 8 | 0.215 |

The above data is approximate and subject to manufacturing tolerance

LT XLPE Control Cables

## TABLE 5.12

Ref. Spec. : IS: 7098 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 2.5 SQMM COPPER CONDUCTOR, XLPE INSULATED ARMOURED / UN-ARMOURED CABLES

| No. of Cores | Minimum Inner Sheath Thickness | Unarmoured (2XY ) | | | | | Flat Strip Armoured (2XFY) | | | | | | Round Wire Armoured (2XWY) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Dimen-sion of Armour Strip | Minimum Inner Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Nominal Dia of Armour Wire | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | |
| | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. |
| sqmm | mm | mm | mm | mm | Kg/km | Kg/km | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | Kg/km | Kg/km |
| 2 | 0.30 | 1.80 | 11 | 12 | 180 | 200 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 13 | 13 | 370 | 400 |
| 3 | 0.30 | 1.80 | 12 | 12 | 210 | 220 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 14 | 14 | 390 | 410 |
| 4 | 0.30 | 1.80 | 13 | 13 | 250 | 270 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 15 | 440 | 460 |
| 5 | 0.30 | 1.80 | 14 | 14 | 300 | 310 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 16 | 500 | 520 |
| 6 | 0.30 | 1.80 | 15 | 15 | 350 | 360 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 17 | 560 | 580 |
| 7 | 0.30 | 1.80 | 15 | 15 | 330 | 340 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 17 | 590 | 610 |
| 10 | 0.30 | 1.80 | 18 | 19 | 450 | 470 | 4 x 0.80 | 1.24 | 19 | 20 | 650 | 690 | 1.60 | 1.40 | 20 | 21 | 850 | 880 |
| 12 | 0.30 | 1.80 | 19 | 20 | 530 | 550 | 4 x 0.80 | 1.40 | 19 | 20 | 700 | 750 | 1.60 | 1.40 | 21 | 22 | 920 | 950 |
| 14 | 0.30 | 1.80 | 20 | 21 | 590 | 610 | 4 x 0.80 | 1.40 | 20 | 21 | 790 | 830 | 1.60 | 1.40 | 22 | 23 | 1000 | 1030 |
| 16 | 0.30 | 2.00 | 21 | 22 | 660 | 680 | 4 x 0.80 | 1.40 | 21 | 22 | 880 | 900 | 1.60 | 1.40 | 23 | 24 | 1080 | 130 |
| 19 | 0.30 | 2.00 | 22 | 23 | 750 | 780 | 4 x 0.80 | 1.40 | 22 | 23 | 970 | 1010 | 1.60 | 1.40 | 24 | 25 | 1200 | 1260 |
| 24 | 0.30 | 2.00 | 25 | 26 | 930 | 960 | 4 x 0.80 | 1.40 | 25 | 27 | 1190 | 1240 | 1.60 | 1.40 | 27 | 29 | 1480 | 1540 |
| 27 | 0.30 | 2.00 | 25 | 27 | 1020 | 1050 | 4 x 0.80 | 1.40 | 26 | 27 | 1300 | 1320 | 1.60 | 1.40 | 28 | 29 | 1580 | 1640 |
| 30 | 0.30 | 2.00 | 26 | 28 | 1110 | 1150 | 4 x 0.80 | 1.40 | 27 | 28 | 1410 | 1470 | 1.60 | 1.40 | 29 | 30 | 1690 | 1770 |
| 37 | 0.30 | 2.00 | 29 | .30 | 1370 | 1410 | 4 x 0.80 | 1.40 | 30 | 31 | 1690 | 1720 | 1.60 | 1.56 | 31 | 32 | 1980 | 2050 |
| 40 | 0.30 | 2.00 | 29 | 31 | 1450 | 1500 | 4 x 0.80 | 1.56 | 31 | 32 | 1800 | 1870 | 1.60 | 1.56 | 32 | 33 | 2110 | 2210 |
| 44 | 0.40 | 2.20 | 32 | 34 | 1630. | 1690 | 4 x 0.80 | 1.56 | 32 | 34 | 1990 | 2070 | 2.00 | 1.56 | 35 | 37 | 2520 | 2650 |
| 52 | 0.40 | 2.20 | 33 | 35 | 1870 | 1940 | 4 x 0.80 | 1.56 | 34 | 36 | 2250 | 2340 | 2.00 | 1.56 | 36 | 38 | 2810 | 2920 |
| 61 | 0.40 | 2.20 | 35 | 37 | 2150 | 2220 | 4 x 0.80 | 1.56 | 36 | 38 | 3160 | 2640 | 2.00 | 1.56 | 38 | 40 | 3160 | 3280 |

| Number of Cores | Max. Conductor D.C. Resistance at 20 ℃ | Approx. Conductor A.C. Resistance | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating for XLPE Insulation | | | Short Curcuit Current Rating for 1 Second Duration |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ground | Duct | Air | |
| No's | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | K.amps |
| 2 | 7.41 | 9.48 | 0.100 | 0.10 | 39 | 32 | 32 | 0.358 |
| 3 | 7.41 | 9.48 | 0.100 | 0.10 | 34 | 30 | 30 | 0.358 |
| 4 | 7.41 | 9.48 | 0.100 | 0.10 | 34 | 30 | 30 | 0.358 |
| 5 | 7.41 | 9.48 | 0.100 | 0.10 | 31 | 28 | 28 | 0.358 |
| 6 | 7.41 | 9.48 | 0.100 | 0.10 | 29 | 26 | 26 | 0.358 |
| 7 | 7.41 | 9.48 | 0.100 | 0.10 | 27 | 25 | 25 | 0.358 |
| 10 | 7.41 | 9.48 | 0.100 | 0.10 | 24 | 21 | 21 | 0.358 |
| 12 | 7.41 | 9.48 | 0.100 | 0.10 | 22 | 20 | 20 | 0.358 |
| 14 | 7.41 | 9.48 | 0.100 | 0.10 | 21 | 19 | 19 | 0.358 |
| 16 | 7.41 | 9.48 | 0.100 | 0.10 | 20 | 18 | 18 | 0.358 |
| 19 | 7.41 | 9.48 | 0.100 | 0.10 | 19 | 17 | 17 | 0.358 |
| 24 | 7.41 | 9.48 | 0.100 | 0.10 | 17 | 16 | 16 | 0.358 |
| 27 | 7.41 | 9.48 | 0.100 | 0.10 | 16 | 16 | 16 | 0.358 |
| 30 | 7.41 | 9.48 | 0.100 | 0.10 | 16 | 14 | 14 | 0.358 |
| 37 | 7.41 | 9.48 | 0.100 | 0.10 | 15 | 13 | 13 | 0.358 |
| 40 | 7.41 | 9.48 | 0.100 | 0.10 | 14 | 13 | 13 | 0.358 |
| 44 | 7.41 | 9.48 | 0.100 | 0.10 | 14 | 13 | 13 | 0.358 |
| 52 | 7.41 | 9.48 | 0.100 | 0.10 | 13 | 12 | 12 | 0.358 |
| 61 | 7.41 | 9.48 | 0.100 | 0.10 | 12 | 11 | 11 | 0.358 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.13

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 1 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Nominal Outer sheath | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | With Al'm Cond. | With Cu Cond. |
| | | | | | | AYY | YY |
| sqmm | No's | No's | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | 1.80 | 8 | 80 | 100 |
| 6 | 1/3 | 1/3 | 1.00 | 1.80 | 9 | 90 | 120 |
| 10 | 1/7 | 1/3 | 1.00 | 1.80 | 10 | 110 | 170 |
| 16 | 6 | 6 | 1.00 | 1.80 | 10 | 150 | 250 |
| 25 | 6 | 6 | 1.20 | 1.80 | 12 | 200 | 350 |
| 35 | 6 | 6 | 1.20 | 1.80 | 13 | 250 | 450 |
| 50 | 6 | 6 | 1.40 | 1.80 | 15 | 300 | 600 |
| 70 | 12 | 12 | 1.40 | 1.80 | 16 | 400 | 800 |
| 95 | 15 | 15 | 1.60 | 1.80 | 18 | 500 | 1050 |
| 120 | 15 | 18 | 1.60 | 2.00 | 20 | 600 | 1300 |
| 150 | 15 | 18 | 1.80 | 2.00 | 22 | 700 | 1600 |
| 185 | 30 | 34 | 2.00 | 2.00 | 24 | 850 | 1950 |
| 240 | 30 | 34 | 2.20 | 2.00 | 27 | 1100 | 2500 |
| 300 | 30 | 34 | 2.40 | 2.00 | 30 | 1300 | 3100 |
| 400 | 53 | 53 | 2.60 | 2.20 | 34 | 1700 | 3950 |
| 500 | 53 | 53 | 3.00 | 2.20 | 37 | 2100 | 5000 |
| 630 | 53 | 53 | 3.40 | 2.40 | 42 | 2700 | 6450 |
| 800 | 53 | 53 | 3.40 | 2.40 | 46 | 3250 | 8050 |
| 1000 | 53 | 53 | 3.40 | 2.60 | 50 | 3950 | 9950 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.140 | 0.58 | — | — | — | 39 | 38 | 35 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.127 | 0.68 | 39 | 37 | 35 | 49 | 48 | 44 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 13.70 | 2.20 | 0.118 | 0.83 | 51 | 51 | 47 | 65 | 64 | 60 | 0.760 | 1.15 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.110 | 1.01 | 66 | 65 | 64 | 85 | 83 | 82 | 1.22 | 1.84 |
| 25 | 1.20 | 0.727 | 1.44 | 0.87 | 0.105 | 1.05 | 86 | 84 | 84 | 110 | 110 | 110 | 1.90 | 2.88 |
| 35 | 0.868 | 0.524 | 1.04 | 0.63 | 0.100 | 1.22 | 100 | 100 | 105 | 130 | 125 | 130 | 2.66 | 4.03 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.098 | 1.22 | 120 | 115 | 130 | 155 | 150 | 165 | 3.80 | 5.75 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.091 | 1.43 | 140 | 135 | 155 | 190 | 175 | 205 | 5.32 | 8.05 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.088 | 1.47 | 175 | 155 | 190 | 220 | 200 | 245 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.086 | 1.62 | 195 | 170 | 220 | 250 | 220 | 280 | 9.12 | 13.80 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.085 | 1.62 | 220 | 190 | 250 | 280 | 245 | 320 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.084 | 1.62 | 240 | 210 | 290 | 305 | 260 | 370 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.082 | 1.72 | 270 | 225 | 335 | 345 | 285 | 425 | 18.20 | 27.30 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.080 | 1.74 | 295 | 245 | 380 | 375 | 310 | 475 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.080 | 1.81 | 325 | 275 | 435 | 400 | 335 | 550 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.079 | 1.86 | 345 | 295 | 480 | 425 | 355 | 590 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.02830. | 0.0610 | 0.368 | 0.077 | 1.87 | 390 | 320 | 550 | 470 | 375 | 660 | 47.90 | 72.50 |
| 800 | 0.0367 | 0.0221 | 0.0503 | 0.0303 | 0.077 | 1.98 | 450 | 380 | 610 | 530 | 425 | 725 | 60.80 | 92.00 |
| 1000 | 0.0291 | 0.0176 | 0.0422 | 0.0255 | 0.076 | 2.20 | 500 | 415 | 680 | 590 | 740 | 870 | 76.00 | 115.00 |

The above data is approximate and subject to manufacturing tolerance

LT PVC Power Cables

## TABLE 5.14

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 1 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Flat Strip Armoured (AYFaY / YFaY) | | | | | Round Wire Armoured (AYWaY / YWaY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | Aluminium | Copper | | | | | With Al'm Cond. | With Cu Cond. | | | | With Al'm Cond. | With Cu Cond. |
| | | | | | | | AYFaY | YFaY | | | | AYWaY | YWaY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 11 | 130 | 160 |
| 6 | 1/3 | 1/3 | 1.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 12 | 150 | 190 |
| 10 | 1/7 | 6 | 1.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 13 | 170 | 240 |
| 16 | 6 | 6 | 1.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 13 | 250 | 300 |
| 25 | 6 | 6 | 1.50 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 300 | 450 |
| 35 | 6 | 6 | 1.50 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 350 | 550 |
| 50 | 6 | 6 | 1.70 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 17 | 400 | 700 |
| 70 | 12 | 12 | 1.70 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.40 | 19 | 500 | 900 |
| 95 | 15 | 15 | 1.90 | 4 X 0.80 | 1.40 | 20 | 600 | 1150 | 1.60 | 1.40 | 22 | 700 | 1250 |
| 120 | 15 | 18 | 1.90 | 4 X 0.80 | 1.40 | 22 | 700 | 1400 | 1.60 | 1.40 | 23 | 800 | 1450 |
| 150 | 15 | 18 | 2.10 | 4 X 0.80 | 1.40 | 23 | 800 | 1700 | 1.60 | 1.40 | 25 | 900 | 1750 |
| 185 | 30 | 30 | 2.30 | 4 X 0.80 | 1.40 | 25 | 1000 | 2050 | 1.60 | 1.40 | 27 | 1050 | 2150 |
| 240 | 30 | 34 | 2.50 | 4 X 0.80 | 1.40 | 28 | 1200 | 2600 | 1.60 | 1.56 | 30 | 1350 | 2750 |
| 300 | 30 | 34 | 2.70 | 4 X 0.80 | 1.56 | 31 | 1500 | 3250 | 1.60 | 1.56 | 33 | 1600 | 3350 |
| 400 | 53 | 53 | 3.00 | 4 X 0.80 | 1.56 | 35 | 1850 | 4100 | 2.00 | 1.56 | 38 | 2050 | 4300 |
| 500 | 53 | 53 | 3.40 | 4 X 0.80 | .56 | 39 | 2300 | 5150 | 2.00 | 1.72 | 42 | 2550 | 5400 |
| 630 | 53 | 53 | 3.90 | 4 X 0.80 | 1.72 | 44 | 2900 | 6650 | 2.00 | 1.88 | 46 | 3200 | 6950 |
| 800 | 53 | 53 | 3.90 | 4 X 0.80 | 1.88 | 48 | 3550 | 8350 | 2.00 | 1.88 | 51 | 3800 | 8600 |
| 1000 | 53 | 53 | 3.90 | 4 X 0.80 | 2.04 | 51 | 4250 | 10250 | 2.50 | 2.04 | 55 | 4700 | 10700 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.157 | 0.48 | 31 | 30 | 27 | 39 | 38 | 35 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.148 | 0.56 | 39 | 37 | 35 | 49 | 48 | 44 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 13.70 | 2.20 | 0.138 | 0.67 | 51 | 51 | 47 | 65 | 64 | 60 | 0.760 | 1.15 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.128 | 0.81 | 66 | 65 | 64 | 85 | 83 | 82 | 1.22 | 1.84 |
| 25 | 1.20 | 0.727 | 1.44 | 0.87 | 0.120 | 0.87 | 86 | 84 | 84 | 110 | 110 | 110 | 1.90 | 2.88 |
| 35 | 0.868 | 0.524 | 1.04 | 0.63 | 0.114 | 1.00 | 100 | 100 | 105 | 130 | 125 | 130 | 2.66 | 4.03 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.110 | 1.03 | 120 | 115 | 130 | 155 | 150 | 165 | 3.80 | 5.75 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.103 | 1.21 | 140 | 135 | 155 | 190 | 175 | 205 | 5.32 | 8.05 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.101 | 1.27 | 175 | 155 | 190 | 220 | 200 | 245 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.096 | 1.42 | 195 | 170 | 220 | 250 | 220 | 280 | 9.12 | 13.80 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.094 | 1.42 | 220 | 190 | 250 | 280 | 45 | 32 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.092 | 1.44 | 240 | 210 | 290 | 305 | 260 | 370 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.090 | 1.53 | 270 | 225 | 335 | 345 | 285 | 425 | 18.20 | 27.60 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.088 | 1.56 | 295 | 245 | 380 | 375 | 310 | 475 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.088 | 1.59 | 325 | 275 | 435 | 400 | 335 | 550 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.087 | 1.67 | 345 | 295 | 480 | 425 | 355 | 590 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.02830. | 0.0610 | 0.368 | 0.086 | 1.67 | 390 | 320 | 550 | 470 | 375 | 660 | 47.88 | 72.50 |
| 800 | 0.0367 | 0.0221 | 0.0503 | 0.0303 | 0.083 | 1.75 | 450 | 380 | 610 | 530 | 423 | 725 | 60.80 | 92.00 |
| 1000 | 0.0291 | 0.0176 | 0.0422 | 0.0255 | 0.082 | 1.94 | 500 | 415 | 680 | 590 | 471 | 870 | 76.00 | 115.00 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.15

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 2 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Min. Inner Sheath Thickness | Nominal Outer sheath | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. AYY | With Cu Cond. YY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | 0.30 | 1.80 | 13 | 230 | 280 |
| 6 | 1/3 | 1/3 | 1.00 | 0.30 | 1.80 | 15 | 270 | 350 |
| 10 | 1/7 | 6 | 1.00 | 0.30 | 1.80 | 16 | 330 | 480 |
| 16 | 6 | 6 | 1.00 | 0.30 | 1.80 | 16 | 350 | 500 |
| 25 | 6 | 6 | 1.20 | 0.30 | 2.00 | 19 | 450 | 750 |
| 35 | 6 | 6 | 1.20 | 0.30 | 2.00 | 20 | 550 | 950 |
| 50 | 6 | 6 | 1.40 | 0.30 | 2.00 | 23 | 700 | 1250 |
| 70 | 12 | 12 | 1.40 | 0.30 | 2.00 | 25 | 850 | 1650 |
| 95 | 15 | 15 | 1.60 | 0.40 | 2.20 | 29 | 1150 | 2250 |
| 120 | 15 | 18 | 1.60 | 0.40 | 2.20 | 31 | 1300 | 2700 |
| 150 | 15 | 18 | 1.80 | 0.40 | 2.40 | 33 | 1600 | 3300 |
| 185 | 30 | 30 | 2.00 | 0.50 | 2.40 | 36 | 1900 | 4100 |
| 240 | 30 | 34 | 2.20 | 0.50 | 2.60 | 42 | 2450 | 5250 |
| 300 | 30 | 34 | 2.40 | 0.60 | 2.80 | 45 | 2950 | 6500 |
| 400 | 53 | 53 | 2.60 | 0.70 | 3.20 | 51 | 3800 | 8300 |
| 500 | 53 | 53 | 3.00 | 0.70 | 3.40 | 57 | 4750 | 10550 |
| 630 | 53 | 53 | 3.40 | 0.70 | 3.80 | 64 | 6000 | 13500 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.098 | 0.23 | 32 | 27 | 27 | 41 | 35 | 35 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.096 | 0.28 | 40 | 34 | 35 | 50 | 44 | 45 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 3.70 | 2.20 | 0.091 | 0.34 | 55 | 45 | 47 | 70 | 58 | 60 | 0.760 | 1.150 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.085 | 0.40 | 70 | 58 | 59 | 90 | 75 | 78 | 1.22 | 1.840 |
| 25 | 1.20 | 0.727 | 1.44 | 0.870 | 0.083 | 0.42 | 90 | 76 | 78 | 115 | 97 | 105 | 1.90 | 2.880 |
| 35 | 0.868 | 0.524 | 1.04 | 0.630 | 0.082 | 0.48 | 110 | 92 | 99 | 140 | 120 | 125 | 2.66 | 4.030 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.082 | 0.49 | 135 | 115 | 125 | 165 | 145 | 155 | 3.80 | 5.750 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 160 | 140 | 150 | 205 | 180 | 195 | 5.32 | 8.050 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 190 | 170 | 185 | 240 | 215 | 230 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 210 | 190 | 210 | 275 | 235 | 265 | 9.12 | 13.080 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 240 | 210 | 240 | 310 | 270 | 305 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 275 | 240 | 275 | 350 | 300 | 350 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 320 | 275 | 325 | 405 | 345 | 410 | 18.20 | 27.60 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 355 | 305 | 365 | 450 | 385 | 465 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 385 | 345 | 420 | 490 | 485 | 530 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 425 | 280 | 475 | 540 | 460 | 605 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 465 | 415 | 540 | 640 | 550 | 785 | 47.90 | 72.55 |

The above data is approximate and subject to manufacturing tolerance

LT PVC Power Cables

## TABLE 5.16

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 2 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (AYFY / YFY) | | | | | Round Wire Armoured (AYWY / YWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | Aluminium | Copper | | | | | | With Al'm Cond. AYFY | With Cu Cond. YFY | | | | With Al'm Cond. AYWY | With Cu Cond. YWY |
| sqmm | No's | No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 460 | 520 |
| 6 | 1/3 | 1/3 | 1.00 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 530 | 620 |
| 10 | 1/7 | 6 | 1.00. | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 18 | 620 | 780 |
| 16 | 6 | 6 | 1.00 | 0.30 | 4 X 0.80 | 1.40 | 17 | 500 | 700.0 | 1.60 | 1.40 | 18 | 700 | 850 |
| 25 | 6 | 6 | 1.20 | 0.30 | 4 X 0.80 | 1.40 | 19 | 600 | 950.0 | 1.60 | 1.40 | 21 | 850 | 1150 |
| 35 | 6 | 6 | 1.20 | 0.30 | 4 X 0.80 | 1.40 | 21 | 750 | 1150.0 | 1.60 | 1.40 | 22 | 950 | 1350 |
| 50 | 6 | 6 | 1.40 | 0.30 | 4 X 0.80 | 1.40 | 23 | 900 | 1450.0 | 1.60 | 1.56 | 25 | 1200 | 1750 |
| 70 | 12 | 12 | 1.40 | 0.30 | 4 X 0.80 | 1.56 | 26 | 1100 | 1900.0 | 1.60 | 1.56 | 27 | 1400 | 2200 |
| 95 | 15 | 15 | 1.60 | 0.40 | 4 X 0.80 | 1.56 | 29 | 1400 | 2500.0 | 2.00 | 1.56 | 32 | 1900 | 3000 |
| 120 | 15 | 18 | 1.60 | 0.40 | 4 X 0.80 | 1.56 | 31 | 1600 | 3000.0 | 2.00 | 1.72 | 34 | 2150 | 3550 |
| 150 | 15 | 18 | 1.80 | 0.40 | 4 X 0.80 | 1.72 | 34 | 1900 | 3650.0 | 2.00 | 1.72 | 36 | 2500 | 4200 |
| 185 | 30 | 30 | 2.00 | 0.50 | 4 X 0.80 | 1.88 | 37 | 2300 | 4450.0 | 2.00 | 1.88 | 40 | 2950 | 5100 |
| 240 | 30 | 34 | .2.20 | 0.50 | 4 X 0.80 | 2.04 | 42 | 2850 | 5700.0 | 2.50 | 2.04 | 46 | 3850 | 6700 |
| 300 | 30 | 34 | 2.40 | 0.60 | 4 X 0.80 | 2.20 | 46 | 3400 | 6950.0 | 2.50 | 2.20 | 49 | 4550 | 8100 |
| 400 | 53 | 53 | 2.60 | 0.70 | 4 X 0.80 | 2.36 | 51 | 4200 | 8750.0 | .3.15 | 2.52 | 56 | 6050 | 10600 |
| 500 | 53 | 53 | 3.00 | 0.70 | 4 X 0.80 | 2.68 | 57 | 5250 | 11050.0 | 3.15 | 2.84 | 62 | 7350 | 13150 |
| 630 | 53 | 53 | 3.40 | 0.70 | 4 X 0.80 | 2.84 | 64 | 6550 | 14050.0 | 4.00 | 3.00 | 70 | 9750 | 17250 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.098 | 0.23 | 32 | 27 | 27 | 41 | 35 | 35 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.096 | 0.28 | 40 | 34 | 35 | 50 | 44 | 45 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 3.70 | 2.20 | 0.091 | 0.34 | 55 | 45 | 47 | 70 | 58 | 60 | 0.760 | 1.150 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.085 | 0.40 | 70 | 58 | 59 | 90 | 75 | 78 | 1.22 | 1.840 |
| 25 | 1.20 | 0.727 | 1.44 | 0.870 | 0.083 | 0.42 | 90 | 76 | 78 | 115 | 97 | 105 | 1.90 | 2.880 |
| 35 | 0.868 | 0.524 | 1.04 | 0.630 | 0.082 | 0.48 | 110 | 92 | 99 | 140 | 120 | 125 | 2.66 | 4.030 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.082 | 0.49 | 135 | 115 | 125 | 165 | 145 | 155 | 3.80 | 5.750 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 160 | 140 | 150 | 205 | 180 | 195 | 5.32 | 8.050 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 190 | 170 | 185 | 240 | 215 | 230 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 210 | 190 | 210 | 275 | 235 | 265 | 9.12 | 13.080 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 240 | 210 | 240 | 310 | 270 | 305 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 275 | 240 | 275 | 350 | 300 | 350 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 320 | 275 | 325 | 405 | 345 | 410 | 18.20 | 27.60 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 355 | 305 | 365 | 450 | 385 | 465 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 385 | 345 | 420 | 490 | 485 | 530 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 425 | 280 | 475 | 540 | 460 | 605 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 465 | 415 | 540 | 640 | 550 | 785 | 47.90 | 72.50 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.17

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Min. Inner Sheath Thickness | Nominal Outer sheath | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. AYY | With Cu Cond. YY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | 0.30 | 1.80 | 14 | 250 | 330 |
| 6 | 1/3 | 1/3 | 1.00 | 0.30 | 1.80 | 15 | 310 | 420 |
| 10 | 1/7 | 1/3 | 1.00 | 0.30 | 1.80 | 16 | 370 | 580 |
| 16 | 6 | 6 | 1.00 | 0.30 | 1.80 | 18 | 450 | 700 |
| 25 | 6 | 6 | 1.20 | 0.30 | 2.00 | 21 | 600 | 1050 |
| 35 | 6 | 6 | 1.20 | 0.30 | 2.00 | 23 | 700 | 1350 |
| 50 | 6 | 6 | 1.40 | 0.30 | 2.00 | 26 | 900 | 1750 |
| 70 | 12 | 12 | 1.40 | 0.40 | 2.20 | 29 | 1200 | 2400 |
| 95 | 15 | 15 | 1.60 | 0.40 | 2.20 | 33 | 1500 | 3200 |
| 120 | 15 | 18 | 1.60 | 0.40 | 2.20 | 36 | 1800 | 3900 |
| 150 | 15 | 18 | 1.80 | 0.50 | 2.40 | 40 | 2200 | 4800 |
| 185 | 30 | 34 | 2.00 | 0.50 | 2.60 | 43 | 2700 | 5950 |
| 240 | 30 | 34 | 2.20 | 0.60 | 2.80 | 49 | 3550 | 7750 |
| 300 | 30 | 34 | 2.40 | 0.60 | 3.00 | 54 | 4200 | 9600 |
| 400 | 53 | 53 | 2.60 | 0.70 | 3.40 | 61 | 5350 | 12200 |
| 500 | 53 | 53 | 3.00 | 0.70 | 3.60 | 69 | 6750 | 15500 |
| 630 | 53 | 53 | 3.40 | 0.70 | 4.00 | 77 | 8550 | 19900 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.098 | 0.23 | 28 | 23 | 23 | 36 | 30 | 30 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.096 | 0.28 | 35 | 30 | 30 | 45 | 38 | 39 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 3.70 | 2.20 | 0.091 | 0.34 | 46 | 39 | 40 | 60 | 50 | 52 | 0.760 | 1.15 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.085 | 0.40 | 60 | 50 | 51 | 77 | 64 | 66 | 1.22 | 1.84 |
| 25 | 1.20 | 0.727 | 1.44 | 0.870 | 0.083 | 0.42 | 76 | 63 | 70 | 99 | 81 | 90 | 1.90 | 2.88 |
| 35 | 0.868 | 0.524 | 1.04 | 0.630 | 0.082 | 0.48 | 92 | 77 | 86 | 120 | 99 | 110 | 2.66 | 4.03 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.082 | 0.49 | 110 | 95 | 105 | 145 | 125 | 135 | 3.80 | 5.75 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 135 | 115 | 130 | 175 | 150 | 165 | 5.32 | 8.05 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 165 | 140 | 155 | 210 | 175 | 200 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 185 | 155 | 180 | 240 | 195 | 230 | 9.12 | 13.80 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 210 | 175 | 205 | 270 | 225 | 265 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 235 | 200 | 240 | 300 | 255 | 305 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 275 | 235 | 280 | 345 | 295 | 355 | 18.20 | 27.60 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 305 | 260 | 315 | 385 | 335 | 400 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 335 | 290 | 375 | 425 | 360 | 435 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 370 | 320 | 425 | 470 | 390 | 520 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 405 | 350 | 480 | 555 | 470 | 675 | 47.90 | 72.50 |

The above data is approximate and subject to manufacturing tolerance

LT PVC Power Cables

## TABLE 5.18

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (AYFY / YFY) | | | | | Round Wire Armoured (AYWY / YWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | | | | | | | | With Al'm Cond. AYFY | With Cu Cond. YFY | | | | With Al'm Cond. AYWY | With Cu Cond. YWY |
| sqmm | Aluminium No's | Copper No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 460 | 540 |
| 6 | 1/3 | 1/3 | 1.00 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 17 | 530 | 650 |
| 10 | 1/3 | 6 | 1.00 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.40 | 19 | 620 | 840 |
| 16 | 6 | 6 | 1.00 | 0.30 | 4 X 0.80 | 1.40 | 19 | 600 | 900.0 | 1.60 | 1.40 | 21 | 850 | 1100 |
| 25 | 6 | 6 | 1.20 | 0.30 | 4 X 0.80 | 1.40 | 22 | 800 | 1250.0 | 1.60 | 1.40 | 23 | 1050 | 1500 |
| 35 | 6 | 6 | 1.20 | 0.30 | 4 X 0.80 | 1.40 | 23 | 950 | 1550.0 | 1.60 | 1.40 | 25 | 1200 | 1800 |
| 50 | 6 | 6 | 1.40 | 0.30 | 4 X 0.80 | 1.56 | 27 | 1200 | 2050.0 | 1.60 | 1.56 | 28 | 1500 | 2300 |
| 70 | 12 | 12 | 1.40 | 0.40 | 4 X 0.80 | 1.56 | 30 | 1500 | 2700.0 | 2.00 | 1.56 | 32 | 2000 | 3200 |
| 95 | 15 | 15 | 1.60 | 0.40 | 4 X 0.80 | 1.56 | 33 | 1850 | 3550..0 | 2.00 | 1.72 | 36 | 2450 | 4150 |
| 120 | 15 | 18 | 1.60 | 0.40 | 4 X 0.80 | 1.72 | 36 | 2200 | 4300.0 | 2.00 | 1.72 | 39 | 2800 | 4900 |
| 150 | 15 | 18 | 1.80 | 0.50 | 4 X 0.80 | 1.88 | 40 | 2650 | 5250.0 | 2.00 | 1.88 | 43 | 3350 | 5900 |
| 185 | 30 | 30 | 2.00 | 0.50 | 4 X 0.80 | 1.88 | 44 | 3150 | 6400.0 | 2.50 | 2.04 | 48 | 4300 | 7500 |
| 240 | 30 | 34 | 2.20 | 0.60 | 4 X 0.80 | 2.20 | 50 | 4000 | 8250.0 | 2.50 | 2.20 | 53 | 5250 | 9450 |
| 300 | 30 | 34 | 2.40 | 0.60 | 4 X 0.80 | 2.36 | 55 | 4800 | 10150.0 | 2.50 | 2.36 | 58 | 6150 | 11450 |
| 400 | 53 | 53 | 2.60 | 0.70 | 4 X 0.80 | 2.52 | 61 | 5950 | 12750.0 | 3.15 | 2.68 | 66 | 8200 | 14950 |
| 500 | 53 | 53 | 3.00 | 0.70 | 4 X 0.80 | 2.84 | 69 | 7450 | 16200.0 | 3.15 | 3.00 | 74 | 10000 | 18700 |
| 630 | 53 | 53 | 3.40 | 0.70 | 4 X 0.80 | 3.00 | 77 | 9300 | 20600.0 | 4.00 | 3.00 | 84 | 13150 | 24400 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.098 | 0.23 | 28 | 23 | 23 | 36 | 30 | 30 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.096 | 0.28 | 35 | 30 | 30 | 45 | 38 | 39 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 3.70 | 2.20 | 0.091 | 0.34 | 46 | 39 | 40 | 60 | 50 | 52 | 0.760 | 1.15 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.085 | 0.40 | 60 | 50 | 51 | 77 | 64 | 66 | 1.22 | 1.84 |
| 25 | 1.20 | 0.727 | 1.44 | 0.870 | 0.083 | 0.42 | 76 | 63 | 70 | 99 | 81 | 90 | 1.90 | 2.88 |
| 35 | 0.868 | 0.524 | 1.04 | 0.630 | 0.082 | 0.48 | 92 | 77 | 86 | 120 | 99 | 110 | 2.66 | 4.03 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.082 | 0.49 | 110 | 95 | 105 | 145 | 125 | 135 | 3.80 | 5.75 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 135 | 115 | 130 | 175 | 150 | 165 | 5.32 | 8.05 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 165 | 140 | 155 | 210 | 175 | 200 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 185 | 155 | 180 | 240 | 195 | 230 | 9.12 | 13.80 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 210 | 175 | 205 | 270 | 225 | 265 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 235 | 200 | 240 | 300 | 255 | 305 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 275 | 235 | 280 | 345 | 295 | 355 | 18.20 | 27.60 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 305 | 260 | 315 | 385 | 335 | 400 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 335 | 290 | 375 | 425 | 360 | 435 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 370 | 320 | 425 | 470 | 390 | 520 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 405 | 350 | 480 | 555 | 470 | 675 | 47.90 | 72.50 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.19

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3.5 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. AYY | With Cu Cond. YY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 3X25+16 | 6/6 | 6/6 | 1.20/1.00 | 0.30 | 2.00 | 23 | 700 | 1250 |
| 3X35+16 | 6/6 | 6/6 | 1.20/1.00 | 0.30 | 2.00 | 25 | 800 | 1550 |
| 3X50+25 | 6/6 | 6/6 | 1.40/1.20 | 0.30 | 2.20 | 28 | 1050 | 2050 |
| 3X70+35 | 12/6 | 12/6 | 1.40/1.20 | 0.40 | 2.20 | 32 | 1400 | 2800 |
| 3X95+50 | 15/6 | 15/6 | 1.60/1.40 | 0.40 | 2.20 | 36 | 1800 | 3700 |
| 3X120+70 | 15/12 | 18/12 | 1.60/1.40 | 0.50 | 2.40 | 39 | 2200 | 4700 |
| 3X150+70 | 12/12 | 18/12 | 1.80/1.40 | 0.50 | 2.40 | 43 | 2550 | 5550 |
| 3X185+95 | 30/15 | 30/15 | 2.00/1.60 | 0.50 | 2.40 | 47 | 3150 | 6900 |
| 3X240+120 | 30/15 | 34/18 | 2.20/1.60 | 0.60 | 3.00 | 53 | 4050 | 8950 |
| 3X300+150 | 30/15 | 34/18 | 2.40/1.80 | 0.60 | 3.20 | 58 | 4900 | 11100 |
| 3X400+185 | 53/30 | 53/30 | 2.60/2.00 | 0.70 | 3.40 | 64 | 6150 | 14000 |
| 3X500+240 | 53/30 | 53/34 | 3.00/2.20 | 0.70 | 3.80 | 76 | 7900 | 18050 |
| 3X630+300 | 53/30 | 53/34 | 3.40/2.40 | 0.70 | 4.00 | 84 | 9900 | 22950 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 3X25+16 | 1.20 | 0.727 | 1.44 | 0.87 | 0.083 | 0.42 | 76 | 63 | 70 | 99 | 81 | 90 | 1.90 | 2.88 |
| 3X35+16 | 0.868 | 0.524 | 1.04 | 0.63 | 0.082 | 0.48 | 92 | 77 | 86 | 120 | 99 | 110 | 2.66 | 4.03 |
| 3X50+25 | 0641 | 0.387 | 0769 | 0.464 | 0.082 | 0.49 | 110 | 95 | 105 | 145 | 125 | 135 | 3.80 | 5.75 |
| 3X70+35 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 135 | 115 | 130 | 175 | 150 | 165 | 5.32 | 8.05 |
| 3X95+50 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 165 | 140 | 155 | 210 | 175 | 200 | 7.22 | 10.90 |
| 3X120+70 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 185 | 155 | 180 | 240 | 195 | 230 | 9.12 | 13.80 |
| 3X150+70 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 210 | 175 | 205 | 270 | 225 | 265 | 11.40 | 17.30 |
| 3X185+95 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 235 | 200 | 240 | 300 | 255 | 305 | 14.10 | 21.30 |
| 3X240+120 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 275 | 235 | 280 | 345 | 295 | 355 | 18.20 | 27.60 |
| 3X300+150 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 305 | 260 | 315 | 385 | 335 | 400 | 22.80 | 34.50 |
| 3X400+185 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 335 | 290 | 375 | 425 | 360 | 435 | 30.40 | 46.00 |
| 3X500+240 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 370 | 320 | 425 | 470 | 390 | 520 | 38.00 | 57.50 |
| 3X630+300 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 405 | 350 | 480 | 555 | 470 | 675 | 47.90 | 72.50 |

The above data is approximate and subject to manufacturing tolerance

LT PVC Power Cables

## TABLE 5.20

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 3.5 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (AYFY / YFY) | | | | | Round Wire Armoured (AYWY / YWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | Aluminium | Copper | | | | | | With Al'm Cond. A2XFY | With Cu Cond. 2XFY | | | | With Al'm Cond. AYWY | With Cu Cond. YWY |
| sqmm | No's | No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 3x25+16 | 6/6 | 6/6 | 1.20/1.00 | 0.30 | 4 X 0.80 | 1.40 | 23 | 900 | 1450 | 1.60 | 1.40 | 25 | 1150 | 1700 |
| 3x35+16 | 6/6 | 6/6 | 1.20/1.00 | 0.30 | 4 X 0.80 | 1.40 | 25 | 1050 | 1800 | 1.60 | 1.40 | 27 | 1350 | 2050 |
| 3x50+25 | 6/6 | 6/6 | 1.40/1.20 | 0.30 | 4 X 0.80 | 1.56 | 29 | 1350 | 2350 | 2.00 | 1.56 | 30 | 1650 | 2600 |
| 3x70+35 | 12/6 | 12/6 | 1.40/1.20 | 0.40 | 4 X 0.80 | 1.56 | 32 | 1700 | 3100 | 2.00 | 1.56 | 34 | 2200 | 3600 |
| 3x92+50 | 15/6 | 15/6 | 1.60/1.40 | 0.40 | 4 X 0.80 | 1.56 | 36 | 2150 | 4050 | 2.00 | 1.72 | 39 | 2800 | 4750 |
| 3x120+70 | 15/12 | 18/12 | 1.60/1.40 | 0.50 | 4 X 0.80 | 1.72 | 40 | 2550 | 5050 | 2.00 | 1.88 | 42 | 3300 | 5750 |
| 3x150+70 | 15/12 | 18/12 | 1.80/1.40 | 0.50 | 4 X 0.80 | 1.88 | 44 | 3000 | 6000 | 2.00 | 1.88 | 46 | 3750 | 6700 |
| 3x185+95 | 30/15 | 30/15 | 2.00/1.60 | 0.50 | 4 X 0.80 | 2.04 | 48 | 3650 | 7400 | 2.50 | 2.04 | 51 | 4850 | 8650 |
| 3x240+120 | 30/15 | 34/18 | 2.20/1.60 | 0.60 | 4 X 0.80 | 2.20 | 53 | 4500 | 9400 | 2.50 | 2.36 | 57 | 5850 | 10800 |
| 3x300+150 | 30/15 | 34/18 | 2.40/1.80 | 0.60 | 4 X 0.80 | 2.36 | 58 | 5450 | 11650 | 3.15 | 2.52 | 63 | 7600 | 13800 |
| 3x400+185 | 53/30 | 53/30 | 2.60/2.00 | 0.70 | 4 X 0.80 | 2.68 | 64 | 6750 | 14600 | 3.15 | 2.68 | 69 | 9000 | 16850 |
| 3X500+240 | 53/30 | 53/34 | 3.00/2.20 | 0.70 | 4 X 0.80 | 2.84 | 76 | 8550 | 18700 | 4 | 3.00 | 83 | 12400 | 22500 |
| 3X630+300 | 53/30 | 53/34 | 3.40/2.40 | 0.70 | 4 X 0.80 | 3.00 | 84 | 10600 | 23700 | 4 | 3.00 | 91 | 14750 | 27800 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 3X25+16 | 1.20 | 0.727 | 1.44 | 0.87 | 0.083 | 0.42 | 76 | 63 | 70 | 99 | 81 | 90 | 1.90 | 2.88 |
| 3X35+16 | 0.868 | 0.524 | 1.04 | 0.63 | 0.082 | 0.48 | 92 | 77 | 86 | 120 | 99 | 110 | 2.66 | 4.03 |
| 3X50+25 | 0641 | 0.387 | 0769 | 0.464 | 0.082 | 0.49 | 110 | 95 | 105 | 145 | 125 | 135 | 3.80 | 5.75 |
| 3X70+35 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 135 | 115 | 130 | 175 | 150 | 165 | 5.32 | 8.05 |
| 3X95+50 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 165 | 140 | 155 | 210 | 175 | 200 | 7.22 | 10.90 |
| 3X120+70 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 185 | 155 | 180 | 240 | 195 | 230 | 9.12 | 13.80 |
| 3X150+70 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 210 | 175 | 205 | 270 | 225 | 265 | 11.40 | 17.30 |
| 3X185+95 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 235 | 200 | 240 | 300 | 255 | 305 | 14.10 | 21.30 |
| 3X240+120 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 275 | 235 | 280 | 345 | 295 | 355 | 18.20 | 27.60 |
| 3X300+150 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 305 | 260 | 315 | 385 | 335 | 400 | 22.80 | 34.50 |
| 3X400+185 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 335 | 290 | 375 | 425 | 360 | 435 | 30.40 | 46.00 |
| 3X500+240 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 370 | 320 | 425 | 470 | 390 | 520 | 38.00 | 57.50 |
| 3X630+300 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 405 | 350 | 480 | 555 | 470 | 675 | 47.90 | 72.50 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.21

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 4 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED UN-ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | Approx. Weight of Cable | |
|---|---|---|---|---|---|---|---|---|
| | Aluminium | Copper | | | | | With Al'm Cond. | With Cu Cond. |
| | | | | | | | AYY | YY |
| sqmm | No's | No's | mm | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | 0.30 | 1.80 | 15 | 290 | 400 |
| 6 | 1/3 | 1/3 | 1.00 | 0.30 | 1.80 | 17 | 350 | 510 |
| 10 | 1/7 | 6 | 1.00 | 0.30 | 1.80 | 19 | 440 | 710 |
| 16 | 6 | 6 | 1.00 | 0.30 | 2.00 | 21 | 550 | 950 |
| 25 | 6 | 6 | 1.20 | 0.30 | 2.00 | 23 | 750 | 1350 |
| 35 | 6 | 6 | 1.20 | 0.30 | 2.00 | 26 | 900 | 1700 |
| 50 | 6 | 6 | 1.40 | 0.40 | 2.20 | 29 | 1200 | 2300 |
| 70 | 12 | 12 | 1.40 | 0.40 | 2.20 | 32 | 1500 | 3100 |
| 95 | 15 | 15 | 1.60 | 0.40 | 2.40 | 37 | 2000 | 4200 |
| 120 | 15 | 18 | 1.60 | 0.50 | 2.40 | 41 | 2400 | 5150 |
| 150 | 15 | 18 | 1.80 | 0.50 | 2.60 | 45 | 2900 | 6350 |
| 185 | 30 | 30 | 2.00 | 0.60 | 2.80 | 50 | 3600 | 7900 |
| 240 | 30 | 34 | 2.20 | 0.60 | 3.00 | 56 | 4550 | 10200 |
| 300 | 30 | 34 | 2.40 | 0.70 | 3.40 | 64 | 5650 | 12750 |
| 400 | 53 | 53 | 2.60 | 0.70 | 3.60 | 70 | 7000 | 16100 |
| 500 | 53 | 53 | 3.00 | 0.70 | 4.00 | 79 | 8950 | 20550 |
| 630 | 53 | 53 | 3.40 | 0.70 | 4.00 | 89 | 11200 | 26250 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.098 | 0.23 | 28 | 23 | 23 | 36 | 30 | 30 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.096 | 0.28 | 35 | 30 | 30 | 45 | 38 | 39 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 3.70 | 2.20 | 0.091 | 0.34 | 46 | 39 | 40 | 60 | 50 | 52 | 0.760 | 1.150 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.085 | 0.40 | 60 | 50 | 51 | 77 | 64 | 66 | 1.22 | 1.840 |
| 25 | 1.20 | 0.727 | 1.44 | 0.870 | 0.083 | 0.42 | 76 | 63 | 70 | 99 | 81 | 90 | 1.90 | 2.880 |
| 35 | 0.868 | 0.524 | 1.04 | 0.630 | 0.082 | 0.48 | 92 | 77 | 86 | 120 | 99 | 110 | 2.66 | 4.030 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.082 | 0.49 | 110 | 95 | 105 | 145 | 125 | 135 | 3.80 | 5.750 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 135 | 115 | 130 | 175 | 150 | 165 | 5.32 | 8.050 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 165 | 140 | 155 | 210 | 175 | 200 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 185 | 155 | 180 | 240 | 195 | 230 | 9.12 | 13.080 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 210 | 175 | 205 | 270 | 225 | 265 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 235 | 200 | 240 | 300 | 155 | 305 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 275 | 235 | 280 | 345 | 195 | 355 | 18.20 | 27.60 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 305 | 260 | 315 | 385 | 335 | 400 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 335 | 290 | 375 | 425 | 360 | 435 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 370 | 320 | 425 | 470 | 390 | 520 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 405 | 350 | 480 | 555 | 470 | 675 | 47.90 | 72.50 |

The above data is approximate and subject to manufacturing tolerance

LT PVC Power Cables

## TABLE 5.22

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 4 CORE, ALUMINIUM / COPPER CONDUCTOR, PVC INSULATED ARMOURED CABLES

| Size (Cross sectional Area) | Minimum No. of Strand in Conductor | | Nominal Insulation Thickness | Minimum Inner Sheath Thickness | Flat Strip Armoured (AYFY / YFY) | | | | | Round Wire Armoured (AYWY / YWY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nominal Armour Strip Dimension | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | | Nominal Dia of Armor Wire | Minimum Outer Sheath Thickness | Approx. overall Dia of Cable | Approx. Weight of Cable | |
| | | | | | | | | With Al'm Cond. | With Cu Cond. | | | | With Al'm Cond. | With Cu Cond. |
| | | | | | | | | AYFY | YFY | | | | AYWY | YWY |
| | Aluminium | Copper | | | | | | | | | | | | |
| sqmm | No's | No's | mm | mm | mm | mm | mm | Kg/Km | Kg/Km | mm | mm | mm | Kg/Km | Kg/Km |
| 4 | 1/3 | 1/3 | 1.00 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 17 | 520 | 620 |
| 6 | 1/3 | 1/3 | 1.00 | 0.30 | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 19 | 610 | 770 |
| 10 | 1/7 | 6 | 1.00 | 0.30 | 4 X 0.80 | 1.40 | 19 | 600 | 850 | 1.60 | 1.40 | 21 | 790 | 1060 |
| 16 | 6 | 6 | 1.00 | 0.30 | 4 X 0.80 | 1.40 | 21 | 750 | 1100 | 1.60 | 1.40 | 23 | 950 | 1350 |
| 25 | 6 | 6 | 1.20 | 0.30 | 4 X 0.80 | 1.40 | 24 | 950 | 1550 | 1.60 | 1.40 | 25 | 1200 | 1800 |
| 35 | 6 | 6 | 1.20 | 0.30 | 4 X 0.80 | 1.40 | 26 | 1150 | 2000 | 1.60 | 1.56 | 28 | 1450 | 2300 |
| 50 | 12 | 6 | 1.40 | 0.40 | 4 X 0.80 | 1.56 | 30 | 1450 | 2550 | 2.00 | 1.56 | 32 | 2000 | 3100 |
| 70 | 15 | 12 | 1.40 | 0.40 | 4 X 0.80 | 1.56 | 33 | 1850 | 3450 | 2.00 | 1.56 | 35 | 2400 | 4000 |
| 95 | 15 | 15 | 1.60 | 0.40 | 4 X 0.80 | 1.72 | 38 | 2350 | 4600 | 2.00 | 1.72 | 40 | 3000 | 5250 |
| 120 | 15 | 18 | 1.60 | 0.50 | 4 X 0.80 | 1.88 | 41 | 2800 | 5650 | 2.00 | 1.88 | 44 | 3500 | 6350 |
| 150 | 30 | 18 | 1.80 | 0.50 | 4 X 0.80 | 1.88 | 45 | 3300 | 6800 | 2.50 | 2.04 | 49 | 4500 | 7950 |
| 185 | 30 | 30 | 2.00 | 0.60 | 4 X 0.80 | 2.04 | 50 | 4000 | 8350 | 2.50 | 2.20 | 54 | 5350 | 9700 |
| 240 | 30 | 34 | 2.20 | 0.60 | 4 X 0.80 | 2.36 | 57 | 5100 | 10800 | 2.50 | 2.36 | 60 | 6500 | 12250 |
| 300 | 53 | 34 | 2.40 | 0.70 | 4 X 0.80 | 2.52 | 64 | 6200 | 13300 | 3.15 | 2.68 | 69 | 8500 | 15700 |
| 400 | 53 | 53 | 2.60 | 0.70 | 4 X 0.80 | 2.84 | 71 | 7650 | 16750 | 3.15 | 2.84 | 75 | 10200 | 19350 |
| 500 | 53 | 53 | 3.00 | 0.70 | 4 X 0.80 | 3.00 | 79 | 9600 | 21300 | 4.00 | 3.00 | 85 | 13550 | 25300 |
| 630 | 53 | 53 | 3.40 | 0.70 | 4 X 0.80 | 3.00 | 89 | 11700 | 27050 | 4.00 | 3.00 | 95 | 16350 | 31450 |

| Size (Cross sectional Area) | Max. Conductor D.C. Resistance at 20° C | | Approx. Conductor A.C. Resistance at 70° C | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | For Aluminium Conductor | | | For Copper Conductor | | | | |
| | Aluminium | Copper | Aluminium | Copper | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| sqmm | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 4 | 7.41 | 4.61 | 8.89 | 5.53 | 0.098 | 0.23 | 28 | 23 | 23 | 36 | 30 | 30 | 0.304 | 0.460 |
| 6 | 4.61 | 3.08 | 5.53 | 3.70 | 0.096 | 0.28 | 35 | 30 | 30 | 45 | 38 | 39 | 0.456 | 0.690 |
| 10 | 3.08 | 1.83 | 3.70 | 2.20 | 0.091 | 0.34 | 46 | 39 | 40 | 60 | 50 | 52 | 0.760 | 1.150 |
| 16 | 1.91 | 1.15 | 2.29 | 1.38 | 0.085 | 0.40 | 60 | 50 | 51 | 77 | 64 | 66 | 1.22 | 1.840 |
| 25 | 1.20 | 0.727 | 1.44 | 0.870 | 0.083 | 0.42 | 76 | 63 | 70 | 99 | 81 | 90 | 1.90 | 2.880 |
| 35 | 0.868 | 0.524 | 1.04 | 0.630 | 0.082 | 0.48 | 92 | 77 | 86 | 120 | 99 | 110 | 2.66 | 4.030 |
| 50 | 0.641 | 0.387 | 0.769 | 0.464 | 0.082 | 0.49 | 110 | 95 | 105 | 145 | 125 | 135 | 3.80 | 5.750 |
| 70 | 0.443 | 0.268 | 0.532 | 0.322 | 0.076 | 0.56 | 135 | 115 | 130 | 175 | 150 | 165 | 5.32 | 8.050 |
| 95 | 0.320 | 0.193 | 0.384 | 0.232 | 0.076 | 0.58 | 165 | 140 | 155 | 210 | 175 | 200 | 7.22 | 10.90 |
| 120 | 0.253 | 0.153 | 0.304 | 0.184 | 0.075 | 0.63 | 185 | 155 | 180 | 240 | 195 | 230 | 9.12 | 13.080 |
| 150 | 0.206 | 0.1240 | 0.247 | 0.1488 | 0.074 | 0.63 | 210 | 175 | 205 | 270 | 225 | 265 | 11.40 | 17.30 |
| 185 | 0.164 | 0.0991 | 0.197 | 0.1189 | 0.074 | 0.64 | 235 | 200 | 240 | 300 | 155 | 305 | 14.10 | 21.30 |
| 240 | 0.125 | 0.0754 | 0.151 | 0.0912 | 0.073 | 0.67 | 275 | 235 | 280 | 345 | 195 | 355 | 18.20 | 27.60 |
| 300 | 0.100 | 0.0601 | 0.122 | 0.0733 | 0.073 | 0.68 | 305 | 260 | 315 | 385 | 335 | 400 | 22.80 | 34.50 |
| 400 | 0.0778 | 0.0470 | 0.0961 | 0.0580 | 0.072 | 0.70 | 335 | 290 | 375 | 425 | 360 | 435 | 30.40 | 46.00 |
| 500 | 0.0605 | 0.0366 | 0.0759 | 0.0459 | 0.072 | 0.70 | 370 | 320 | 425 | 470 | 390 | 520 | 38.00 | 57.50 |
| 630 | 0.0469 | 0.0283 | 0.0610 | 0.0368 | 0.072 | 0.70 | 405 | 350 | 480 | 555 | 470 | 675 | 47.90 | 72.50 |

The above data is approximate and subject to manufacturing tolerance

## TABLE 5.23

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 1.5 SQMM COPPER CONDUCTOR, PVC INSULATED, ARMOURED / UN-ARMOURED CONTROL CABLES

| No. of Cores | Minimum Inner Sheath Thickness | Unarmoured (2XY ) | | | | | Flat Strip Armoured (2XFY) | | | | | | Round Wire Armoured (2XWY) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Dimension of Armour Strip | Minimum Inner Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Nominal Dia of Armour Wire | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | |
| | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. |
| sqmm | mm | mm | mm | mm | Kg/km | Kg/km | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | Kg/km | Kg/km |
| 2 | 0.30 | 1.80 | 11 | 11 | 160 | 170 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 13 | 13 | 340 | 360 |
| 3 | 0.30 | 1.80 | 11 | 12 | 190 | 200 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 13 | 14 | 360 | 380 |
| 4 | 0.30 | 1.80 | 12 | 13 | 220 | 230 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 14 | 14 | 400 | 420 |
| 5 | 0.30 | 1.80 | 13 | 14 | 260 | 270 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 15 | 460 | 480 |
| 6 | 0.30 | 1.80 | 14 | 15 | 300 | 310 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 16 | 510 | 530 |
| 7 | 0.30 | 1.80 | 14 | 15 | 280 | 300 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 16 | 530 | 550 |
| 10 | 0.30 | 1.80 | 17 | 18 | 380 | 400 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.40 | 19 | 20 | 700 | 740 |
| 12 | 0.30 | 1.80 | 18 | 18 | 430 | 450 | 4 x 0.80 | 1.24 | 18 | 19 | 620 | 640 | 1.60 | 1.40 | 20 | 21 | 810 | 850 |
| 14 | 0.30 | 1.80 | 18 | 19 | 490 | 500 | 4 x 0.80 | 1.40 | 19 | 20 | 680 | 730 | 1.60 | 1.40 | 21 | 22 | 880 | 940 |
| 16 | 0.30 | 2.00 | 19 | 20 | 540 | 560 | 4 x 0.80 | 1.40 | 20 | 21 | 760 | 780 | 1.60 | 1.40 | 22 | 23 | 970 | 1000 |
| 19 | 0.30 | 2.00 | 20 | 21 | 630 | 660 | 4 x 0.80 | 1.40 | 21 | 22 | 830 | 880 | 1.60 | 1.40 | 23 | 24 | 1060 | 1110 |
| 24 | 0.30 | 2.00 | 23 | 25 | 780 | 820 | 4 x 0.80 | 1.40 | 24 | 25 | 1020 | 1070 | 1.60 | 1.40 | 25 | 27 | 1220 | 1340 |
| 27 | 0.30 | 2.00 | 24 | 25 | 850 | 890 | 4 x 0.80 | 1.40 | 24 | 26 | 1110 | 1150 | 1.60 | 1.40 | 26 | 27 | 1360 | 1430 |
| 30 | 0.30 | 2.00 | 25 | 26 | 930 | 970 | 4 x 0.80 | 1.40 | 25 | 27 | 1180 | 1250 | 1.60 | 1.40 | 27 | 28 | 1450 | 1520 |
| 37 | 0.30 | 2.00 | 27 | 28 | 1100 | 1150 | 4 x 0.80 | 1.40 | 27 | 28 | 1380 | 1450 | 1.60 | 1.40 | 29 | 30 | 1690 | 1740 |
| 40 | 0.30 | 2.00 | 27 | 29 | 1170 | 1220 | 4 x 0.80 | 1.40 | 28 | 29 | 1460 | 1530 | 1.60 | 1.56 | 30 | 31 | 1780 | 1870 |
| 44 | 0.40 | 2.20 | 30 | 31 | 1290 | 1350 | 4 x 0.80 | 1.56 | 30 | 32 | 1630 | 1710 | 1.60 | 1.56 | 32 | 34 | 1950 | 2040 |
| 52 | 0.40 | 2.20 | 31 | 33 | 1520 | 1590 | 4 x 0.80 | 1.56 | 32 | 33 | 1850 | 1940 | 2.00 | 1.56 | 34 | 36 | 2390 | 2510 |
| 61 | 0.40 | 2.20 | 33 | 35 | 1740 | 1820 | 4 x 0.80 | 1.56 | 34 | 35 | 2090 | 2210 | 2.00 | 1.56 | 36 | 38 | 2660 | 2780 |

| No. of Cores | Max. Conductor D.C. Resistance at 20° C | Approx. Conductor A.C. Resistance | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | For General Purpose Insulation | | | For Heat Resistance Insulation | | | | |
| | | At 70°C | At 85°C | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| No's | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 2 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 23 | 20 | 20 | 26 | 24 | 24 | 0.173 | 0.156 |
| 3 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 21 | 17 | 17 | 24 | 21 | 21 | 0.173 | 0.156 |
| 4 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 21 | 17 | 17 | 24 | 21 | 21 | 0.173 | 0.156 |
| 5 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 21 | 17 | 17 | 24 | 21 | 21 | 0.173 | 0.156 |
| 6 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 15 | 13 | 13 | 17 | 16 | 16 | 0.173 | 0.156 |
| 7 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 14 | 13 | 13 | 16 | 15 | 15 | 0.173 | 0.156 |
| 10 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 13 | 11 | 11 | 15 | 13 | 13 | 0.173 | 0.156 |
| 12 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 12 | 10 | 10 | 14 | 12 | 12 | 0.173 | 0.156 |
| 14 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 11 | 10 | 10 | 13 | 12 | 12 | 0.173 | 0.156 |
| 16 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 11 | 9 | 9 | 13 | 11 | 11 | 0.173 | 0.156 |
| 19 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 10 | 9 | 9 | 11 | 11 | 11 | 0.173 | 0.156 |
| 24 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 9 | 8 | 8 | 10 | 10 | 10 | 0.173 | 0.156 |
| 27 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 9 | 8 | 8 | 10 | 10 | 10 | 0.173 | 0.156 |
| 30 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 9 | 7 | 7 | 10 | 8 | 8 | 0.173 | 0.156 |
| 37 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 8 | 7 | 7 | 9 | 8 | 8 | 0.173 | 0.156 |
| 40 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 8 | 7 | 7 | 9 | 8 | 8 | 0.173 | 0.156 |
| 44 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 7 | 7 | 7 | 8 | 7 | 7 | 0.173 | 0.156 |
| 52 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 6 | 6 | 6 | 7 | 7 | 7 | 0.173 | 0.156 |
| 61 | 12.10 | 14.52 | 15.20 | 0.112 | 0.20 | 6 | 6 | 6 | 7 | 7 | 7 | 0.173 | 0.156 |

The above data is approximate and subject to manufacturing tolerance

LT PVC Control Cables

## TABLE 5.24

Ref. Spec. : IS: 1554 Part1

### TECHNICAL DETAILS FOR ZENIUM 1.1 KV
### 2.5 SQMM SOLID COPPER CONDUCTOR, PVC INSULATED, ARMOURED / UN-ARMOURED CONTROL CABLES

| No. of Cores | Minimum Inner Sheath Thickness | Unarmoured (2XY ) | | | | | Flat Strip Armoured (2XFY) | | | | | | Round Wire Armoured (2XWY) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Dimension of Armour Strip | Minimum Inner Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | | Nominal Dia of Armour Wire | Minimum Outer Sheath Thickness | Approx. Overall Dia of Cable | | Approx. Weight of Cable | |
| | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. | | | Solid Cond. | Std. Cond. | Solid Cond. | Std. Cond. |
| sqmm | mm | mm | mm | mm | Kg/km | Kg/km | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | Kg/km | Kg/km |
| 2 | 0.30 | 1.80 | 12 | 13 | 210 | 220 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 14 | 14 | 410 | 440 |
| 3 | 0.30 | 1.80 | 13 | 13 | 250 | 260 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 15 | 15 | 430 | 450 |
| 4 | 0.30 | 1.80 | 14 | 14 | 300 | 310 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 16 | 16 | 500 | 520 |
| 5 | 0.30 | 1.80 | 15 | 15 | 360 | 360 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 17 | 17 | 570 | 590 |
| 6 | 0.30 | 1.80 | 16 | 16 | 400 | 420 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 18 | 18 | 630 | 660 |
| 7 | 0.30 | 1.80 | 16 | 16 | 390 | 400 | N/A | N/A | N/A | N/A | N/A | N/A | 1.40 | 1.24 | 18 | 18 | 670 | 700 |
| 10 | 0.30 | 1.80 | 20 | 20 | 530 | 550 | 4 x 0.80 | 1.40 | 20 | 21 | 750 | 790 | 1.60 | 1.40 | 22 | 23 | 960 | 1010 |
| 12 | 0.30 | 2.00 | 21 | 21 | 620 | 650 | 4 x 0.80 | 1.40 | 21 | 22 | 820 | 870 | 1.60 | 1.40 | 23 | 24 | 1040 | 1100 |
| 14 | 0.30 | 2.00 | 21 | 22 | 700 | 730 | 4 x 0.80 | 1.40 | 22 | 23 | 920 | 970 | 1.60 | 1.40 | 24 | 24 | 1150 | 1190 |
| 16 | 0.30 | 2.00 | 22 | 23 | 780 | 810 | 4 x 0.80 | 1.40 | 23 | 24 | 1020 | 1050 | 1.60 | 1.40 | 25 | 26 | 1240 | 1300 |
| 19 | 0.30 | 2.00 | 24 | 25 | 890 | 930 | 4 x 0.80 | 1.40 | 24 | 25 | 1130 | 1190 | 1.60 | 1.40 | 26 | 27 | 1390 | 1450 |
| 24 | 0.30 | 2.00 | 27 | 29 | 1110 | 1150 | 4 x 0.80 | 1.40 | 28 | 29 | 1400 | 1470 | 1.60 | 1.56 | 30 | 31 | 1720 | 1790 |
| 27 | 0.30 | 2.00 | 28 | 29 | 1210 | 1260 | 4 x 0.80 | 1.40 | 28 | 30 | 1510 | 1580 | 1.60 | 1.56 | 30 | 32 | 1840 | 1920 |
| 30 | 0.30 | 2.00 | 29 | 30 | 1320 | 1380 | 4 x 0.80 | 1.56 | 30 | 31 | 1670 | 1750 | 1.60 | 1.56 | 31 | 33 | 1980 | 2060 |
| 37 | 0.40 | 2.20 | 32 | 33 | 1630 | 1700 | 4 x 0.80 | 1.56 | 32 | 34 | 1960 | 2050 | 2.00 | 1.56 | 34 | 36 | 2520 | 2620 |
| 40 | 0.40 | 2.20 | 33 | 34 | 1730. | 1800 | 4 x 0.80 | 1.56 | 33 | 35 | 2080 | 2160 | 2.00 | 1.56 | 36 | 37 | 2620 | 2740 |
| 44 | 0.40 | 2.20 | 35 | 37 | 1900 | 1980 | 4 x 0.80 | 1.56 | 36 | 37 | 2300 | 2380 | 2.00 | 1.56 | 38 | 40 | 2900 | 3020 |
| 52 | 0.40 | 2.20 | 37 | 38 | 2190 | 2280 | 4 x 0.80 | 1.56 | 37 | 39 | 2600 | 2700 | 2.00 | 1.72 | 40 | 42 | 3260 | 3400 |
| 61 | 0.40 | 2.20 | 39 | 41 | 2520 | 2620 | 4 x 0.80 | 1.56 | 40 | 41 | 2950 | 3050 | 2.00 | 1.72 | 42 | 44 | 3640 | 3810 |

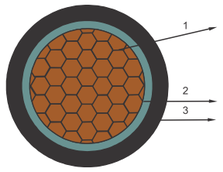
| No. of Cores | Max. Conductor D.C. Resistance at 20° C | Approx. Conductor A.C. Resistance | | Reactance of Cable at 50 Hz (Approx) | Capacitance of Cable ( Approx ) | Normal Current Rating | | | | | | Short Curcuit Current Rating for 1 Second Duration | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | For General Purpose Insulation | | | For Heat Resistance Insulation | | | | |
| | | At 70°C | At 85°C | | | Ground | Duct | Air | Ground | Duct | Air | Aluminium | Copper |
| No's | Ohm/Km | Ohm/Km | Ohm/Km | Ohm/Km | µF/Km | Amps | Amps | Amps | Amps | Amps | Amps | K.amps | K.amps |
| 2 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 32 | 27 | 27 | 38 | 32 | 32 | 0.288 | 0.260 |
| 3 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 27 | 24 | 24 | 30 | 28 | 28 | 0.288 | 0.260 |
| 4 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 27 | 24 | 24 | 30 | 28 | 28 | 0.288 | 0.260 |
| 5 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 27 | 24 | 24 | 30 | 28 | 28 | 0.288 | 0.260 |
| 6 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 21 | 18 | 18 | 24 | 21 | 21 | 0.288 | 0.260 |
| 7 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 20 | 17 | 17 | 22 | 20 | 20 | 0.288 | 0.260 |
| 10 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 18 | 15 | 15 | 20 | 16 | 16 | 0.288 | 0.260 |
| 12 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 17 | 14 | 14 | 19 | 16 | 16 | 0.288 | 0.260 |
| 14 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 16 | 13 | 13 | 18 | 15 | 15 | 0.288 | 0.260 |
| 16 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 15 | 13 | 13 | 17 | 15 | 15 | 0.288 | 0.260 |
| 19 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 14 | 12 | 12 | 16 | 14 | 14 | 0.288 | 0.260 |
| 24 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 13 | 11 | 11 | 14 | 13 | 13 | 0.288 | 0.260 |
| 27 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 12 | 10 | 10 | 13 | 12 | 12 | 0.288 | 0.260 |
| 30 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 12 | 10 | 10 | 13 | 12 | 12 | 0.288 | 0.260 |
| 37 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 11 | 9 | 19 | 12 | 10 | 10 | 0.288 | 0.260 |
| 40 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 11 | 9 | 9 | 12 | 10 | 10 | 0.288 | 0.260 |
| 44 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 10 | 9 | 9 | 11 | 10 | 10 | 0.288 | 0.260 |
| 52 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 9 | 8 | 8 | 10 | 10 | 10 | 0.288 | 0.260 |
| 61 | 7.41 | 8.89 | 9.34 | 0.107 | 0.22 | 8 | 8 | 8 | 9 | 9 | 9 | 0.288 | 0.260 |

The above data is approximate and subject to manufacturing tolerance

# PVC/XLPE UNARMOURED (YY/AYY/2XY/A2XY)

## Single Core Unarmoured

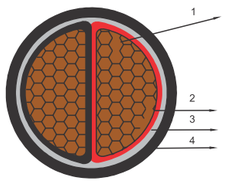
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Circular
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm and above - Stranded Compacted Circular
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Black **OR** XLPE (Cross linked polyethylene); Colour : Natural
3. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Two Core Unarmoured

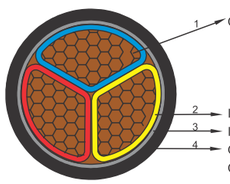
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red & Black. **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type.
4. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type.
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Three Core Unarmoured

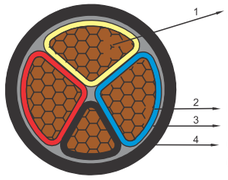
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red, Yelow & Blue **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type.
4. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type.
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Three & Half Core Unarmoured

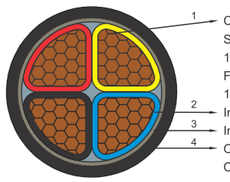
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red, Yellow, Blue & Black **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type.
4. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type.
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Four Core Unarmoured

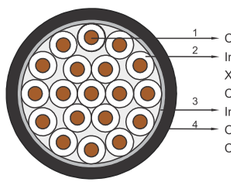
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red, Yelow, Blue & Black **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
4. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Multi Core Unarmoured

Cross-sectional view

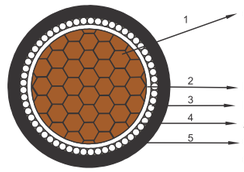



1. Conductor : Solid / Stranded Annealed Bare Copper as per Class-2 of IS: 8130; Options : Tinned
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Nominal Insulation Thickness : 0.80 mm - 1.5 sq. mm. & 0.90 mm - 2.5 sq. mm **OR** XLPE (Cross linked polyethylene); Nominal Insulation Thickness : 0.70 mm - 1.5 sq. mm & 2.5 sq. mm.
   Core Identification : Upto 5 cores : By colour coding & Above 5 cores : By colour coding / Number printing on cores as per IS : 1554 Part-1
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
4. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

# PVC/XLPE ARMOURED (YWY/YFY/AYWY/AYFY/2XWY/2XFY/A2XWY/A2XFY)

## Single Core Armoured

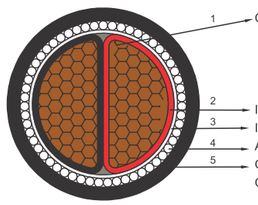
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Circular
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm and above - Stranded Compacted Circular
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Black **OR** XLPE (Cross linked polyethylene); Colour : Natural
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type (If required)
4. Armouring : Single Layer of Aluminium Round Wire / Flat Strip
5. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Two Core Armoured

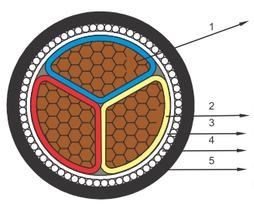
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red & Black **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
4. Armouring : Single Layer of Galvanized Steel Round Wire / Flat Strip
5. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Three Core Armoured

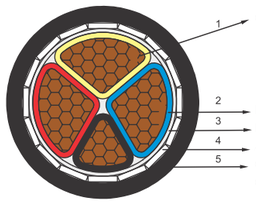
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red, Yellow & Blue **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
4. Armouring : Single Layer of Galvanized Steel Round Wire / Flat Strip
5. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Three & Half Core Armoured

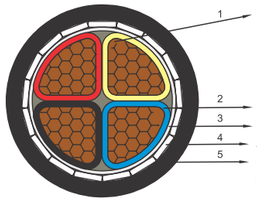
Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
   For Cu Cond. - 4 & 6 Sq.mm Solid / Stranded Non Compacted Circular, 10 Sq.mm - Stranded Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red, Yellow, Blue & Black **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
4. Armouring : Single Layer of Galvanized Steel Round Wire / Flat Strip
5. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Four Core Armoured

Cross-sectional view




1. Conductor Material : Aluminium / Copper as per Class-2 of IS: 8130
   Shape of Conductor : For Al'm Cond. - 4, 6 & 10 Sq.mm Solid / Stranded Non Compacted Circular,
   16 Sq.mm and above - Stranded Compacted Shaped
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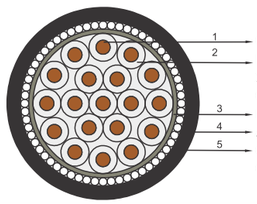
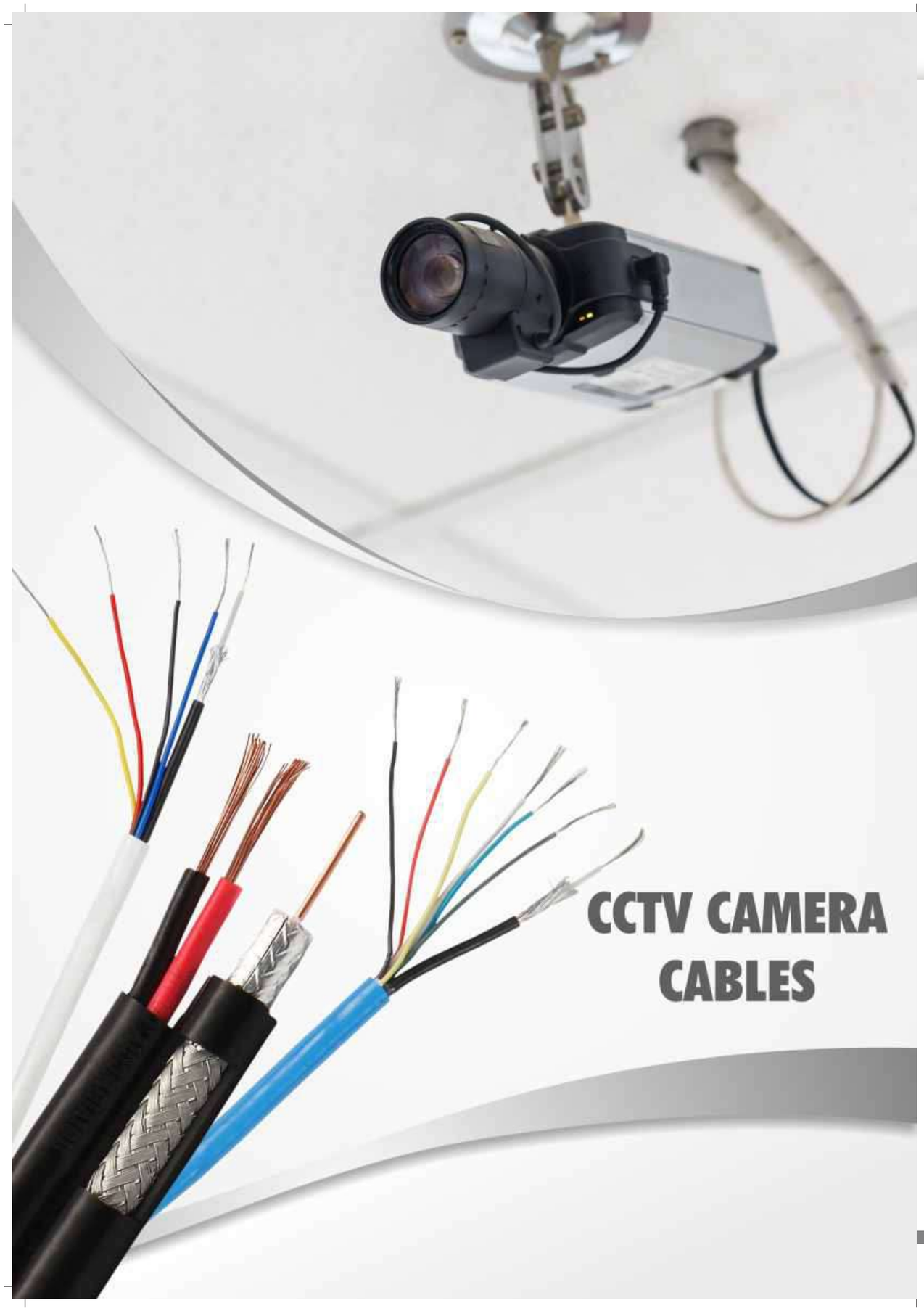
   16 Sq.mm and above - Stranded Compacted Shaped
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Colour : Red, Yellow, Blue & Black **OR** XLPE (Cross linked polyethylene)
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
4. Armouring : Single Layer of Galvanized Steel Round Wire / Flat Strip
5. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement

## Multi Core Armoured

Cross-sectional view




1. Conductor : Solid / Stranded Annealed Bare Copper as per Class-2 of IS: 8130; Options : Tinned
2. Insulation Material : PVC Type-A OR HR PVC Type-C as per IS: 5831; Nominal Insulation Thickness : 0.80 mm - 1.5 sq. mm. & 0.90 mm - 2.5 sq. mm **OR** XLPE (Cross linked polyethylene); Nominal Insulation Thickness : 0.70 mm - 1.5 sq. mm & 2.5 sq. mm.
   Core Identification : Upto 5 cores : By colour coding & Above 5 cores : By colour coding / Number printing on cores as per IS : 1554 Part-1
3. Inner Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
4. Armouring : Single Layer of Aluminium Round Wire / Flat Strip
5. Outer Sheath : PVC Type ST-1 as per IS: 5831; Options : PVC Type ST-2/FR Type/FRLS Type
   Colour of Outer Sheath : Black or any other Colour as per requirement





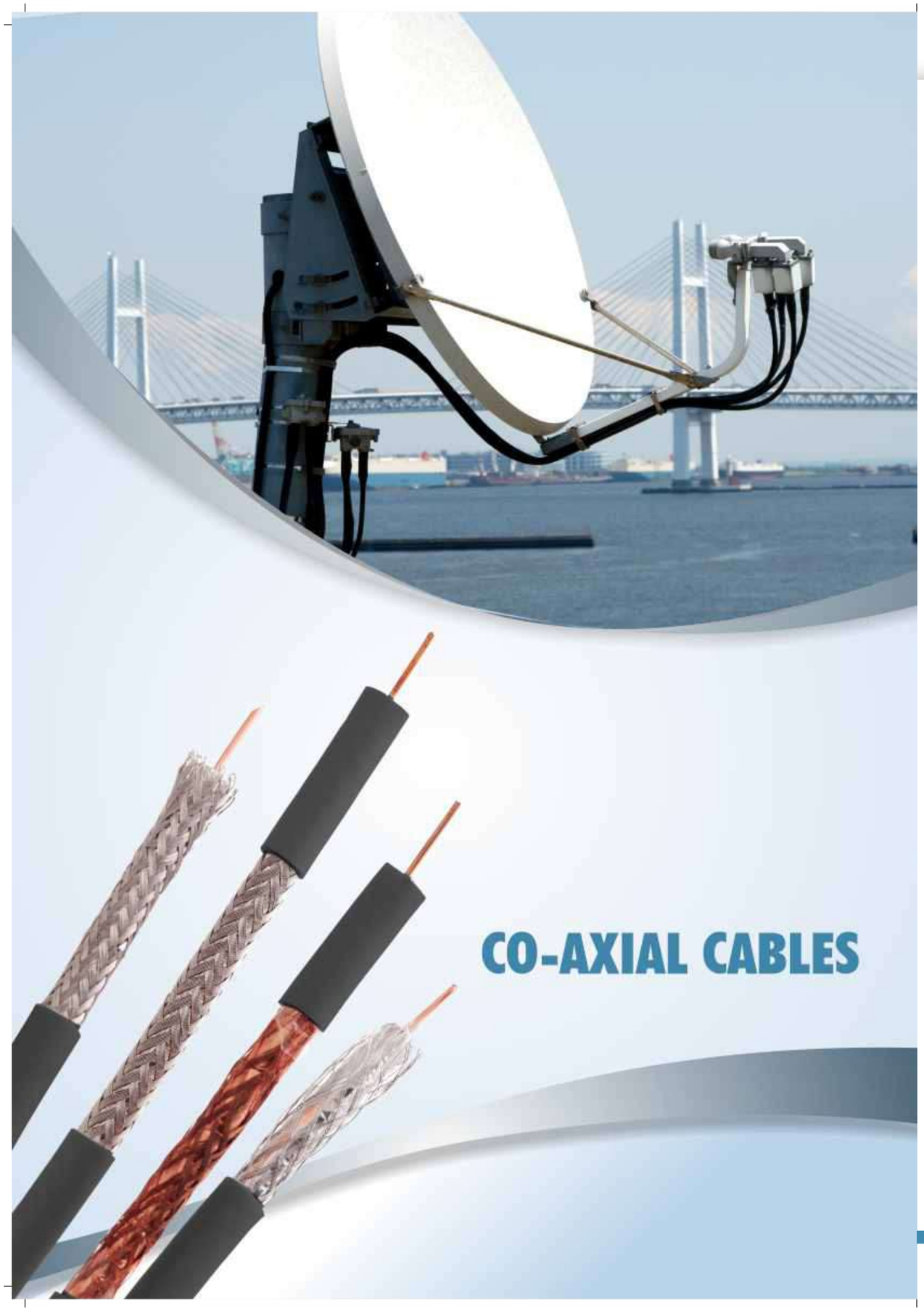

## HIGH RESOLUTION CAMERA CABLE

Zenium CCTV Cables are offered in two types namely 4 + 1 CCTV Cable and 3 + 1 CCTV Cable. Co-axial cables form the carrier for video signal and the other 4 cores or 3 cores form the carriers for power. Co-axial cables are designed to transmit the complete video frequency range with minimum distortion or attenuation, making them an excellent choice for CCTV. Zenium CCTV cables are designed to optimize the quality of video signals, which are transmitted through the co-axial cables in the CCTV cable. The co-axial cable consists of solid annealed bare copper conductor of electrolytic grade which is insulated with Nylon foamed dielectric aluminium foil taped, jelly flooded, braided with Al. Alloy and then jacketed with FR PVC. Top most quality of construction of co-axial cable in Zenium CCTV Cables ensures distortion free video signals and thus a clear picture over complete low frequency bandwidth of transmission in such applications. the impedance of co-axial cable is 75, which matches the CCTV equipment. This matching ensures adequate signal strength, no reflection and best picture quality. In CCTV the co-axial cable is of type RG-59 which has highest attenuation compared to RG-6 and RG-11. Hence, it is recommended for use only for distance upto 300 - 350 ft. Foamed PE dielectric delivers excellent electrical properties such as low capacitance and high velocity of propagation. This results in low less characteristics and reduced attenuation of the video signal. Al. Alloy braiding of 70% coverage ensures complete elimination of EMI / RFI from the video signals and provides a reduced DC resistance ground path. Jacketing with ST-3 is ideal for all in door and out door applications.

**TABLE 6.1**

| | Sr. No. | Construction | Unit | Zenium | Zenium |
|---|---|---|---|---|---|
| 1 | | **Power Cable** | | CCTV Cable 4+1 | CCTV Cable 3+1 |
| | | Cable Size | | 4C x 0.15 sq. mm. | 3C x 0.15 sq. mm. |
| | a | Conductor | | ATC | ATC |
| | | No. of Strands | nos | 14 | 14 |
| | | Strand Dia (Nominal) | mm | 0.12 | 0.12 |
| | b | Insulation | | PVC | PVC |
| | | Thickness (Nominal) | mm | 0.30 | 0.30 |
| | | Colour | | R, Y, B, BK | R, Y, B |
| 2 | | **Co-axial Cable** | | | |
| | a | Conductor | | Solid BC | Solid BC |
| | | Conductor Dia (Nominal) | mm | 0.56 | 0.56 |
| | b | Insulation | | PE | PE |
| | | Thickness (Nominal) | mm | 1.15 | 1.15 |
| | c | Braiding | | Al Alloy | Al Alloy |
| | | Wire Dia (Nominal) | mm | 0.12 | 0.12 |
| | | Braiding Coverage | % | 70 | 70 |
| | d | Co-axial Outer Sheath | | | |
| | | Colour | | Black | Black |
| | | Thickness (Nominal) | mm | 0.50 | 0.50 |
| 3 | | **Over All Outer Sheath** | | PVC ST-3 | PVC ST-3 |
| | | Colour | | White | White |
| | | Thickness (Nominal) | mm | 0.80 | 0.70 |

The above data is approximate and subject to manufacturing tolerance




# Co- Axial Cables

We have latest state-of-the-art manufacturing and testing facilities at our imported plant to manufacture co-axial cables as per internationally accepted norms. The cables are specially designed processed and tested to resist moisture, heat and humidity to suit extreme Indian Weather Conditions. A fully computerized process monitoring and quality control system ensures consistency, reliability and optimum electrical characteristics (including minimum db loss) for our digital cables giving fullest satisfaction over a long span to end-users.

## SPECIAL FEATURES

- Solid Copper Center Conductor
- Nitrogen Gas injected foam
- High Quality Aluminum Bonded Tape
- Special (HB) for internet
- Anti Corrosion and Moisture Resistant (APD)
- PVC Jacket / UV protected  RoHS.
- Meter Marked
- 3.0 Ghz. Cable
- 100% Spectrum Analyzer Tested
- Suitable for Power Pass
- Higher Bandwidth

## DIGITAL CABLE OF ADVANCE TECHNOLOGY

Our Zenium Digital brands of co-axial cables are Special International Digital Designed for transmission of high frequency signals with minimum loss for DTH, Institute, Digital Headend etc. The various configurations of our cables are solid copper center conductor and also available in Copper Clad Steel (CCS) Polyethylene produced by gas injection, polypropylene, Aluminium laminated tape to provide 100% coverage, Aluminium alloy wire braids to give additional mechanical strength, Flooding Compound (APD) to provide internal corrosion protection and PVC cover to give environmentally secured safe seal to the construction. Cables tested on 3.0 Ghz spectrum analyzer.

# Construction of Co-Axial Cable

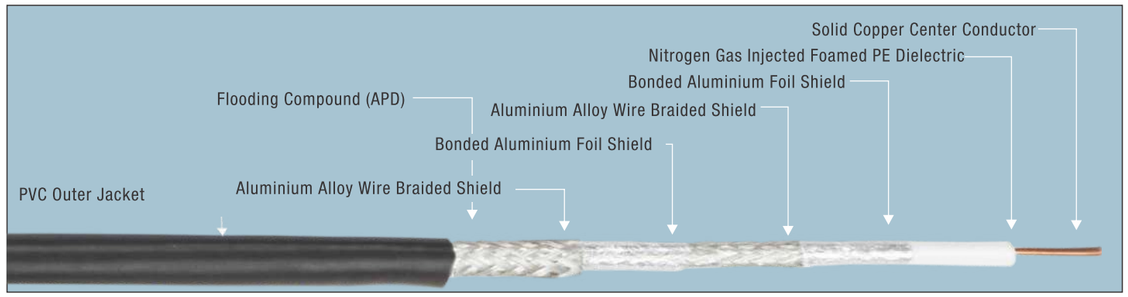
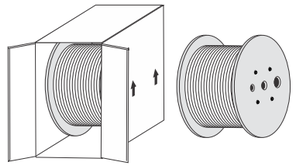


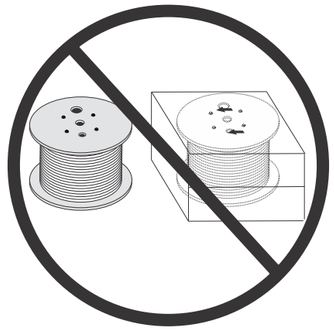

TABLE SHOWING

| Parameters | RG 59 | RG 6 | RG11 |
|---|---|---|---|
| | | | |
| A. Construction | | Standard Shield | |
| Solid Copper Center Conductor (mm) | 0.81 | 1.02 | 1.63 |
| Diameter Over Dielectric - Foam PE (mm) | 3.64 | 4.60 | 7.11 |
| Al. Bonded Tape (mm) | 3.82 | 4.75 | 7.32 |
| Al. Braid Coverage | 85% | 85% | 85% |
| Flooding Compound | Dry APD | Dry APD | Dry APD |
| Diameter Over Jacket - Black PVC (mm) | 6.20 | 6.80 | 9.90 |
| | | | |
| B. Electrical Characteristics | | | |
| Capacitance (pf / mtr. ) | 53.2 | 53.2 | 53.2 |
| Nominal impendence (± 3.0 Ohms) | 75 Ohms (± 3) | 75 Ohms (± 3) | 75 Ohms (± 3) |
| Velocity of Propagation | 85% | 85% | 85% |
| | | | |
| Attenuation [@ 68° F or 20°)] | | Maximum (db / 100m) | |
| Frequency (MHz) | | | |
| 5 | 2.52 | 1.90 | 1.18 |
| 55 | 6.16 | 5.10 | 3.14 |
| 83 | 6.92 | 5.91 | 3.81 |
| 187 | 9.20 | 9.04 | 5.58 |
| 211 | 11.77 | 9.25 | 5.92 |
| 250 | 12.75 | 10.20 | 6.48 |
| 300 | 14.00 | 11.15 | 7.07 |
| 350 | 15.25 | 12.10 | 7.50 |
| 400 | 16.05 | 13.15 | 8.38 |
| 450 | 17.42 | 14.02 | 9.01 |
| 500 | 18.10 | 14.70 | 9.57 |
| 550 | 19.40 | 15.55 | 10.12 |
| 600 | 20.12 | 16.32 | 10.82 |
| 750 | 22.27 | 18.28 | 11.98 |
| 865 | 24.02 | 19.02 | 13.68 |

The above data is approximate and subject to manufacturing tolerance

# Handling and Storage Procedures for Plywood Reels





**1. General**

**1.1** This procedure provides handling and storage practices for plywood reels of fiber optic cable.

*Failure to observe these practices may cause damage to the cable or difficulty in paying off cable from a reel during installation.*

**1.2** If this procedure is reissued, a summary of changes will appear in this paragraph.

**2. Precautions**

**2.1 Personal Protective Gear Precautions**

**WARNING:** *Follow your company's practices for wearing personal protective gear such as* safety glasses *and* safety shoes *to protect yourself from accidental injury when handling reels.*

**Caution:** *Wear* safety gloves *to protect your hands from accidental injury when handling plywood reels and using sharp-bladed tools to open corrugated boxes containing reels. Failure to do so may result in personal injury.*

**2.2 Reel PrecautionsCaution:**

*Both reel flanges should be 90°to the ground at all times- this applies to reels in cartons as well. Observe the "This End Up" arrows and text on cartons.*

**CAUTION:** Plywood reels should always be stored indoors. *Outdoor storage will result in reel damage.*

**3. Tools**

**3.1** The following tools are required for this procedure • Utility knife for opening cartons • Small adjustable wrench for tightening flange bolts

**4. Reel Handling Practices**

**4.1** Do not store, set or transport a reel on one flange, i.e., on its side, because it will cause the cable to settle to one flange thereby creating a gap between the cable and flange (Figure 2).

**4.2** Always lift a plywood reel by both flanges (Figure 3) *Do not pick up a reel by one flange.* Picking up a reel by one flange causes the flange to bow which creates a gap between the cable and flange. Over time the traverse will soften in the gap area and cause the cable to cascade.

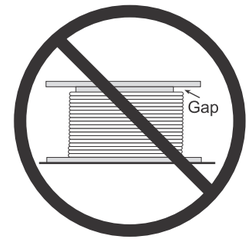



Figure 2

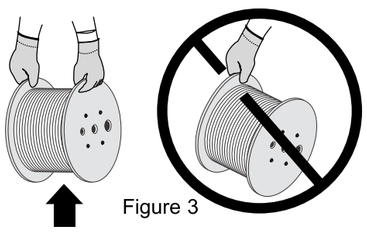


Figure 3

THE DREAM IS NOT JUST BEING KNOWN
AS A SUCCESSFUL BUSINESS HOUSE.

BUT ALSO TO BE REMEMBERED AS THE
PIONEER OF INNOVATIONS IN THE INDUSTRY.
OUR STORY HAS JUST STARTED....

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