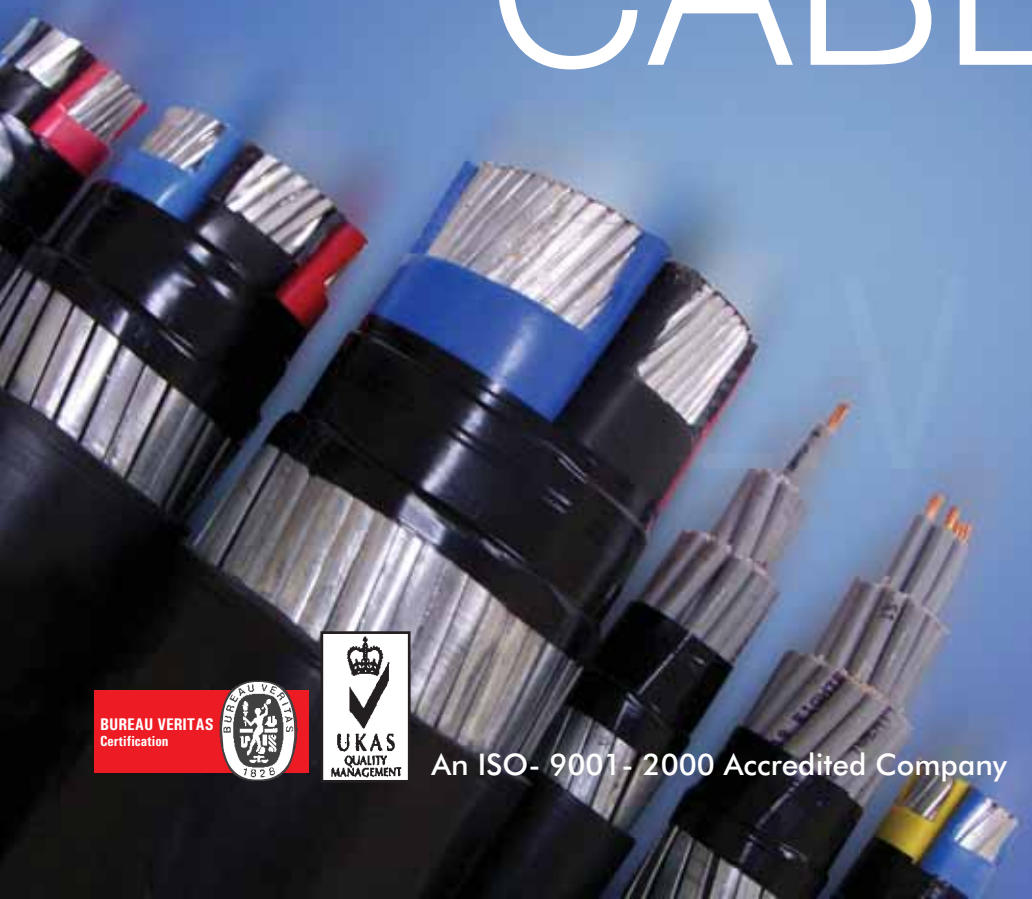


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# PVC INSULATED POWER AND CONTROL CABLES



An ISO- 9001 - 2000 Accredited Company

IS 1554  
(PT 1):1988



CM/L 6358174

## PVC INSULATED POWER AND CONTROL CABLES AS PER IS: 1554 (PART - 1) –1988

SBEE have manufacturing facility at Bangalore, India with state-of-the-art machine with latest technology and faster machine speeds from wire drawing to cable testing, from purchase to despatch. SBEE PVC insulated & sheathed cables offered with copper & aluminium conductors unarmoured and armoured with galvanized steel wire /strip. These cables are suitable for heavy - duty power control and instrumentation application in power generation utilities, industrial distribution, chemical & fertilizer industries & mining Installation. SBEE cables also design & manufacture cables for specialized application. These cables are marked as 1.1KV grade a per IS: 1554 (PART - 1) 1988

### CONDUCTOR :-

The conductors of power cables are made from electrical purity aluminium, and those of control cables are of annealed high conductivity copper. Power cables with copper conductor can also be supplied against order. All conductors conform to IS: 8130-1984

| COPPER               | ALUMINIUM             | CONSTRUCTION   | FLEXIBILITY                                 |
|----------------------|-----------------------|----------------|---|
|                      | 1.5 Sq. mm            | Solid          | Class - 1                                   |
| 1.5 sq mm to 6 sq mm | 2.5 sq mm to 10 sq mm | Solid/Stranded | Class -1 for Solid<br>Class -2 for Stranded |
| 10 sq mm & above     | 6 sq. mm & above      | Stranded       | Class - 2                                   |

### INSULATION

High quality PVC compound applied over conductor by extrusion. General Purpose PVC insulation with maximum operating temperature of 70 degC and heat resisting PVC with maximum operating temperature of 85 degC are used for 1.1kv cables. Heat Resistance PVC upto 105 degC can be available on request.

The Insulation and Outer sheathing compounds shall be conforming to IS: 5831 – 1984 as per the requirement of IS: 1554 (PART - 1) 1988.

### LAYING UP OF THE CORES

In twin, three and multicore cables, the cores are laid up together with a suitable lay; the outermost Layer is having right hand lay and the successive layers are laid with opposite lay; where necessary, the interstices shall be filled with non - hygroscopic material.

### CORE IDENTIFICATION

Colour Scheme: Cores are identified by colour scheme of PVC insulation. The following colour scheme is normally adopted:

- 1 Core - Red, Black, Yellow, Blue or natural (non pigmented)
  - 2 Core - Red and Black
  - 3 Core - Red, Yellow and Blue
  - 4 Core - Red, Yellow, Blue & Black (Reduced Neutral core in three and half core is Black.)
  - 5 Core - Red, Yellow, Blue, Black & Grey
  - 6 Cores & Above - Two adjacent cores (counting and directional) in each layer are coloured blue and yellow respectively and remaining cores are Grey.
- Alternatively core with number printing can be offered.

**INNER SHEATH :** For all cables having two or more core, extruded sheath of PVC Compound or wrapping of thermoplastic or proofed tapes applies a common covering (Inner Sheath) over the laid up cores.

**ARMOURING :** For multicore cables armouring is applied over the Inner sheath. In case of cable where fictitious diameter over inner sheath does not exceed 13mm, the armour consist of galvanized round steel wires. For single core armoured cables, non- magnetic armouring is provided over the insulation. The direction of lay of armour is left hand in case of double armoured wire. This requirement is applicable to inner layer of armouring, the outer layer of armour is applied with right hand lay and there is a separator of PVC tape between the layer of armour strip wires.

**OUTER SHEATH :** Outer sheath is extruded over the armouring. In case of multi-core unarmoured cables, it is extruded over the laid up cores.

For unarmoured single core cables, it is extruded over the insulation. This is always black in colour for best resistance to outdoor exposure. Any other colour can be Available on request.

**IDENTIFICATION :** Our brand name SBEE along with voltage is embossed on the outer sheath through out the length of the cable at regular intervals, Cables with heat resisting PVC insulation are identified by letters "HR" embossed on the outer sheath; Our brand SBEE, Voltage Grade, Cross Sectional Area, year of manufacturing & number of core are printed on the drums.

**CABLE CODE :** As per IS: 1554 (part -1) 1988, the product is coded by alphabets.

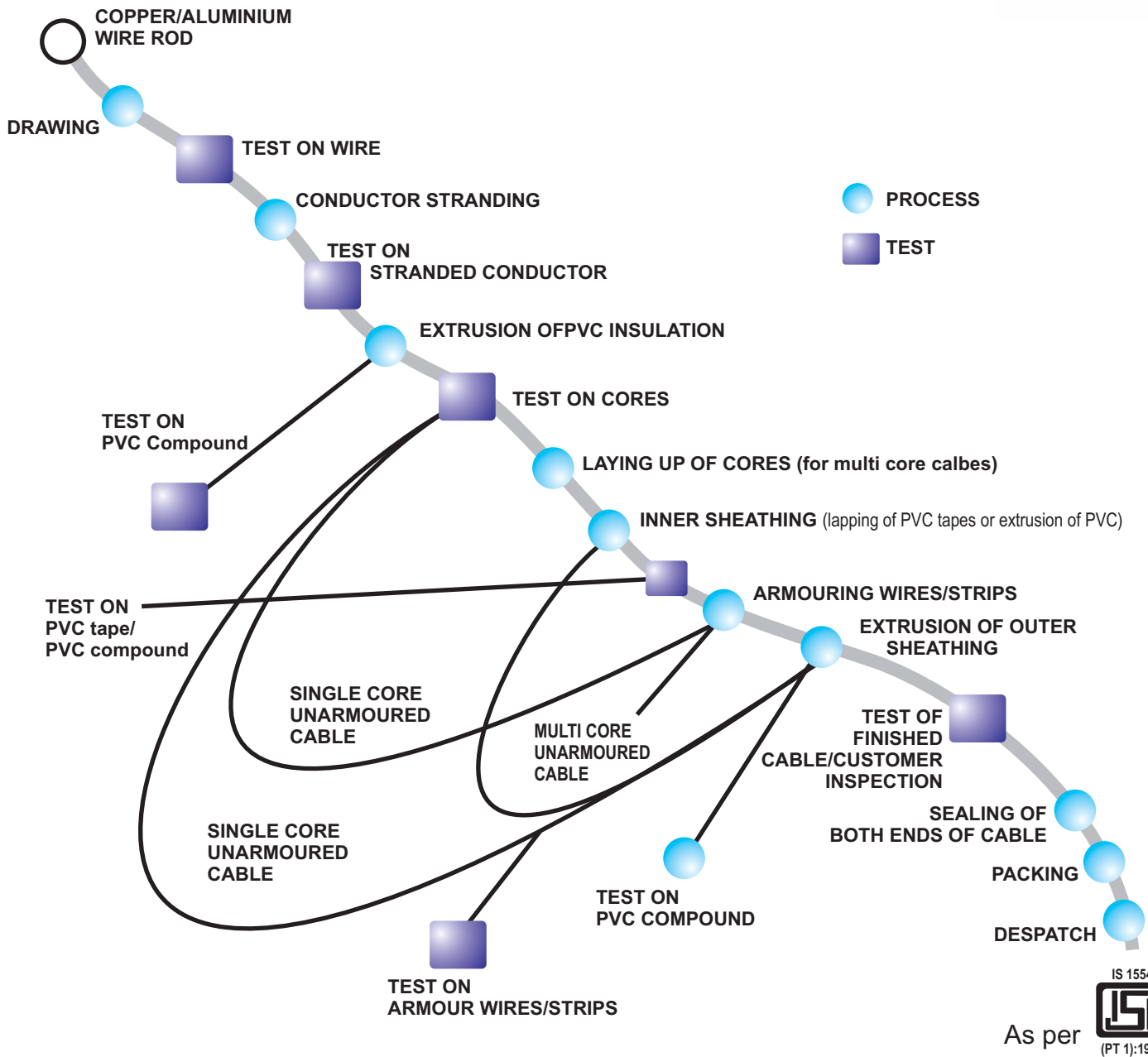
|                                |    |
|--------------------------------|----|
| Aluminium                      | A  |
| PVC Insulation                 | Y  |
| Steel Round Wire Armour        | W  |
| Steel strip Armour             | F  |
| Steel Double Round Wire Armour | WW |
| Steel Double strip Armour      | FF |
| PVC Outer Sheath               | Y  |
| Aluminium Wire Armour          | AW |

No code letter is required when conductor material is copper. This product code is stenciled on the surface of the drum flange.

**FRLS CABLES :** In the recent past, the growing awareness of hazards due to fire incidence in power plants, high rise buildings, cable galleries etc, had resulted in the development of FRLS cables. The characteristics of FRLS cable are the following:-

- 1 Flame Retardance
- 2 Low Smoke Emission
- 3 Low Acid Gas Emission

# Cable Manufacturing Process



**PRIME**  
MARKET SEGMENT

- Airports
- Automobile
- Building & Construction Industries
- Cement Industries
- Chemical & Process Industries
- Fertilizer Industries
- Hydro Power Generation
- Information Technology Industries
- Mining
- Nuclear Power Generation
- Ordnance Factories & Defence Installations
- Petrochemical Industries / LPG Plants
- Petroleum Refineries & Port Terminals
- Power Electricity Distribution Industries
- Railways
- Steel Plants & Industries
- Thermal Power Generation
- Turnkey Electrical Contractors
- Wind Power Generation

**TABLE-1 IS:1554 PART-1 - 1988 CONDUCTOR DATA, COPPER & ALUMINIUM CONDUCTOR FOR SINGLE CORE & MULTICORE CABLES CONFIRMING TO IS: 8130 (1984)**

| NOMINAL CROSS SECTIONAL AREA | MINIMUM NUMBER OF WIRES IN THE STRANDED CONDUCTOR (CLASS - 2) |           |  |           | MAXIMUM DC RESISTANCE AT 20 deg C |                     |
|------------------------------|---|-----------|--|-----------|-----------------------------------|---------------------|
|                              | CIRCULAR CONDUCTOR (NON COMPACTED)                            |           | CIRCULAR COMPACTED OR SHAPED CONDUCTOR |           | PLAIN COPPER CONDUCTOR            | ALUMINIUM CONDUCTOR |
| sq.mm                        | COPPER  | ALUMINIUM | COPPER                                 | ALUMINIUM | Ohm/km                            | Ohm/km              |
| 1.5                          | 3   | 3         | –                                      | –         | 12.1                              | 18.1                |
| 2.5                          | 3   | 3         | –                                      | –         | 7.41                              | 12.1                |
| 4                            | 7   | 3         | –                                      | –         | 4.61                              | 7.41                |
| 6                            | 7   | 3         | –                                      | –         | 3.08                              | 4.61                |
| 10                           | 7   | 7         | 6                                      | –         | 1.83                              | 3.08                |
| 16                           | 7   | 7         | 6                                      | 6         | 1.15                              | 1.91                |
| 25                           | 7   | 7         | 6                                      | 6         | 0.727                             | 1.2                 |
| 35                           | 7   | 7         | 6                                      | 6         | 0.524                             | 0.868               |
| 50                           | 19  | 19        | 6                                      | 6         | 0.387                             | 0.641               |
| 70                           | 19  | 19        | 12                                     | 12        | 0.268                             | 0.443               |
| 95                           | 19  | 19        | 15                                     | 15        | 0.193                             | 0.32                |
| 120                          | 37  | 37        | 18                                     | 15        | 0.153                             | 0.253               |
| 150                          | 37  | 37        | 18                                     | 15        | 0.124                             | 0.206               |
| 185                          | 37  | 37        | 30                                     | 30        | 0.0991                            | 0.164               |
| 240                          | 61  | 37        | 34                                     | 30        | 0.0754                            | 0.125               |
| 300                          | 61  | 61        | 34                                     | 30        | 0.0601                            | 0.1                 |
| 400                          | 61  | 61        | 53                                     | 53        | 0.047                             | 0.0778              |
| 500                          | 61  | 61        | 53                                     | 53        | 0.0366                            | 0.0605              |
| 630                          | 91  | 91        | 53                                     | 53        | 0.0283                            | 0.0469              |
| 800                          | 91  | 91        | 53                                     | 53        | 0.0221                            | 0.0367              |
| 1000                         | 91  | 91        | 53                                     | 53        | 0.0176                            | 0.0291              |

**TABLE - 2 IS :1554 PART1 - 1988  
CALCULATED VALUE OF A.C.RESISTANCE OF CONDUCTOR (Ohm/km)  
AT MAXIMUM OPERATING CONDUCTOR TEMPERATURE**

| Nominal Cross Sectional Area | PVC Cables (70 degC) |        | HR PVC Cables (85 degC) |        |
|------------------------------|----------------------|--------|-------------------------|--------|
|                              | ALUMINIUM            | COPPER | ALUMINIUM               | COPPER |
| sq.mm                        | ALUMINIUM            | COPPER | ALUMINIUM               | COPPER |
| 1.5                          | 21.72                | 14.52  | 22.81                   | 15.25  |
| 2.5                          | 14.52                | 8.892  | 15.25                   | 9.34   |
| 4                            | 8.892                | 5.532  | 9.34                    | 5.81   |
| 6                            | 5.530                | 3.696  | 5.81                    | 3.88   |
| 10                           | 3.696                | 2.196  | 3.88                    | 2.31   |
| 16                           | 2.292                | 1.380  | 2.41                    | 1.45   |
| 25                           | 1.440                | 0.873  | 1.51                    | 0.916  |
| 35                           | 1.042                | 0.629  | 1.09                    | 0.661  |
| 50                           | 0.769                | 0.465  | 0.808                   | 0.488  |
| 70                           | 0.532                | 0.322  | 0.559                   | 0.338  |
| 95                           | 0.384                | 0.232  | 0.404                   | 0.244  |
| 120                          | 0.304                | 0.184  | 0.318                   | 0.193  |
| 150                          | 0.248                | 0.150  | 0.259                   | 0.156  |
| 185                          | 0.197                | 0.119  | 0.209                   | 0.129  |
| 240                          | 0.152                | 0.0904 | 0.159                   | 0.095  |
| 300                          | 0.122                | 0.0721 | 0.126                   | 0.076  |
| 400                          | 0.0934               | 0.0664 | 0.098                   | 0.059  |
| 500                          | 0.0726               | 0.0439 | 0.076                   | 0.046  |
| 630                          | 0.0563               | 0.0339 | 0.059                   | 0.0356 |



**TABLE - 3 IS :1554 PART1 - 1988**

**APPROXIMATE REACTANCE AT 50Hz (Ohm/km) AND CAPACITANCE (micro farads/km) 1.1KV PVC AND HR PVC CABLES**

| Nominal Area of Conductor | REACTANCE                         |            |           | Nominal Area Of Conductor | CAPACITANCE                       |       |          | THREE, THREE & HALF AND FOUR CORE |
|---------------------------|-----------------------------------|------------|-----------|---------------------------|-----------------------------------|-------|----------|-----------------------------------|
|                           | PVC AND HR PVC CABLES SINGLE CORE |            | MULTICORE |                           | PVC AND HR PVC CABLES SINGLE CORE |       | TWO CORE |                                   |
|                           | sq.mm                             | Unarmoured |           |                           | Armoured                          | sq.mm |          |                                   |
| 1.5                       | 0.157                             | –          | 0.11      | 1.5                       | 0.43                              | –     | 0.12     | 0.35                              |
| 2.5                       | 0.145                             | –          | 0.106     | 2.5                       | 0.52                              | –     | 0.13     | 0.41                              |
| 4                         | 0.136                             | –          | 0.102     | 4                         | 0.57                              | –     | 0.14     | 0.46                              |
| 6                         | 0.128                             | –          | 0.0962    | 6                         | 0.67                              | –     | 0.16     | 0.52                              |
| 10                        | 0.118                             | 0.137      | 0.0908    | 10                        | 0.83                              | 0.67  | 0.18     | 0.63                              |
| 16                        | 0.110                             | 0.128      | 0.0859    | 16                        | 0.97                              | 0.80  | 0.19     | 0.82                              |
| 25                        | 0.107                             | 0.122      | 0.0849    | 25                        | 1.0                               | 0.83  | 0.22     | 0.86                              |
| 35                        | 0.106                             | 0.116      | 0.0823    | 35                        | 1.15                              | 0.95  | 0.24     | 0.98                              |
| 50                        | 0.0973                            | 0.11       | 0.0765    | 50                        | 1.26                              | 0.95  | 0.24     | 1.00                              |
| 70                        | 0.0924                            | 0.107      | 0.0769    | 70                        | 1.32                              | 1.12  | 0.26     | 1.16                              |
| 95                        | 0.09                              | 0.103      | 0.0766    | 95                        | 1.36                              | 1.17  | 0.26     | 1.18                              |
| 120                       | 0.088                             | 0.0989     | 0.0741    | 120                       | 1.49                              | 1.28  | 0.28     | 1.31                              |
| 150                       | 0.0862                            | 0.096      | 0.0743    | 150                       | 1.52                              | 1.32  | 0.28     | 1.28                              |
| 185                       | 0.0857                            | 0.095      | 0.0742    | 185                       | 1.47                              | 1.30  | 0.28     | 1.30                              |
| 240                       | 0.0837                            | 0.0929     | 0.0737    | 240                       | 1.54                              | 1.37  | 0.28     | 1.34                              |
| 300                       | 0.0828                            | 0.0922     | 0.0733    | 300                       | 1.60                              | 1.40  | 0.29     | 1.37                              |
| 400                       | 0.081                             | 0.0893     | 0.0729    | 400                       | 1.70                              | 1.50  | 0.29     | 1.43                              |
| 500                       | 0.0807                            | 0.089      | 0.0732    | 500                       | 1.63                              | 1.46  | 0.29     | 1.41                              |
| 630                       | 0.0803                            | 0.0876     | 0.0731    | 630                       | 1.64                              | 1.45  | 0.29     | 1.42                              |
| 800                       | 0.0782                            | 0.0862     | –         | 800                       | 1.87                              | 1.65  | –        | –                                 |
| 1000                      | 0.0772                            | 0.0849     | –         | 1000                      | 2.05                              | 1.76  | –        | –                                 |

**TABLE - 4 IS :1554 PART1 - 1988 DIMENSIONS AND WEIGHTS 1100VOLTS SINGLE CORE PVC INSULATED UNARMOURED AND ARMURED WITH ALUMINIUM CONDUCTOR**

| Nominal Area of Conductor | Form of Conductor | UNARMOURED                      |                                   |                                 |                       | Nominal Thickness of Insulation of Armoured Cable | AL ROUND WIRE ARMURED          |                                   |                                 |                       | AL FLAT ARMURED                 |                                   |                                 |                       | Normal Delivery Length (mtrs) |
|---------------------------|-------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|---|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                           |                   | Nominal Thickness of Insulation | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |   | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
|                           |                   |                                 |                                   |                                 |                       |   |                                |                                   |                                 |                       |                                 |                                   |                                 |                       |                               |
| 4                         | So. Ci.           | 1.0                             | 1.8                               | 8.5                             | 76                    | 1.3   | 1.4                            | 1.24                              | 10.5                            | 215                   |                                 |                                   |                                 |                       | 1000                          |
| 4                         | St. Ci.           | 1.0                             | 1.8                               | 8.8                             | 80                    | 1.3   | 1.4                            | 1.24                              | 10.9                            | 226                   |                                 |                                   |                                 |                       | 1000                          |
| 6                         | So. Ci.           | 1.0                             | 1.8                               | 9.0                             | 88                    | 1.3   | 1.4                            | 1.24                              | 11.5                            | 240                   |                                 |                                   |                                 |                       | 1000                          |
| 6                         | St. Ci.           | 1.0                             | 1.8                               | 9.2                             | 92                    | 1.3   | 1.4                            | 1.24                              | 11.7                            | 255                   |                                 |                                   |                                 |                       | 1000                          |
| 10                        | So. Ci.           | 1.0                             | 1.8                               | 10.0                            | 109                   | 1.3   | 1.4                            | 1.24                              | 13                              | 282                   |                                 |                                   |                                 |                       | 1000                          |
| 10                        | St. Ci.           | 1.0                             | 1.8                               | 10.5                            | 115                   | 1.3   | 1.4                            | 1.24                              | 12.9                            | 300                   |                                 |                                   |                                 |                       | 1000                          |
| 16                        | Co. Ci.           | 1.0                             | 1.8                               | 11.0                            | 145                   | 1.3   | 1.4                            | 1.24                              | 13.8                            | 359                   |                                 |                                   |                                 |                       | 1000                          |
| 25                        | Co. Ci.           | 1.2                             | 1.8                               | 12.5                            | 197                   | 1.5   | 1.4                            | 1.24                              | 15.5                            | 454                   |                                 |                                   |                                 |                       | 1000                          |
| 35                        | Co. Ci.           | 1.2                             | 1.8                               | 13.5                            | 240                   | 1.5   | 1.4                            | 1.24                              | 16.5                            | 527                   |                                 |                                   |                                 |                       | 1000                          |
| 50                        | Co. Ci.           | 1.4                             | 1.8                               | 15.1                            | 301                   | 1.7   | 1.4                            | 1.24                              | 18.2                            | 650                   |                                 |                                   |                                 |                       | 1000                          |

**TABLE - 4 IS :1554 PART1 - 1988 DIMENSIONS AND WEIGHTS, 1100VOLTS SINGLE CORE PVC INSULATED UNARMoured AND ARMoured WITH ALUMINIUM CONDUCTOR**

| Nominal Area of Conductor | Form of Conductor | UNARMoured                      |                                   |                                 |                       | Nominal Thickness of Insulation of Armoured Cable | AL ROUND WIRE ARMoured         |                                   |                                 |                       | AL FLAT ARMoured                |                                   |                                 |                       | Normal Delivery Length (mtrs) |
|---------------------------|-------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|---|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                           |                   | Nominal Thickness Of Insulation | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |   | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
| sq.mm                     |                   | (mm)                            | (mm)                              | (mm)                            | (kg/km)               | (mm)  | (mm)                           | (mm)                              | (mm)                            | (kg/km)               | (mm)                            | (mm)                              | (mm)                            | (kg/km)               |                               |
| 70                        | So. Cr.           | 1.4                             | 1.8                               | 16.5                            | 392                   | 1.7   | 1.4                            | 1.4                               | 20.2                            | 785                   |                                 |                                   |                                 |                       | 1000                          |
| 95                        | St. Cr            | 1.6                             | 1.8                               | 18.7                            | 505                   | 1.9   | 1.6                            | 1.4                               | 22.7                            | 1025                  | 4.0x0.80                        | 1.4                               | 21.5                            | 832                   | 1000                          |
| 120                       | So. Cr.           | 1.6                             | 2.0                               | 21.2                            | 620                   | 1.9   | 1.6                            | 1.4                               | 24.0                            | 1176                  | 4.0x0.80                        | 1.4                               | 23.0                            | 963                   | 1000                          |
| 150                       | So. Cr.           | 1.8                             | 2.0                               | 22.4                            | 749                   | 2.1   | 1.6                            | 1.4                               | 25.7                            | 1364                  | 4.0x0.80                        | 1.4                               | 24.5                            | 1128                  | 1000                          |
| 185                       | St. Cr.           | 2.0                             | 2.0                               | 24.5                            | 896                   | 2.3   | 1.6                            | 1.4                               | 28.2                            | 1574                  | 4.0x0.80                        | 1.4                               | 27.0                            | 1315                  | 1000                          |
| 240                       | Co. Cr.           | 2.2                             | 2.0                               | 27.4                            | 1115                  | 2.5   | 1.6                            | 1.56                              | 31.4                            | 1900                  | 4.0x0.80                        | 1.4                               | 30.0                            | 1587                  | 1000                          |
| 300                       | Co. Cr.           | 2.4                             | 2.0                               | 30.1                            | 1356                  | 2.7   | 1.6                            | 1.56                              | 33.9                            | 2233                  | 4.0x0.80                        | 1.56                              | 32.7                            | 1907                  | 1000                          |
| 400                       | Co. Cr.           | 2.6                             | 2.2                               | 34.0                            | 1754                  | 3.0   | 2.0                            | 1.56                              | 38.2                            | 2980                  | 4.0x0.80                        | 1.56                              | 36.7                            | 2360                  | 500                           |
| 500                       | Co. Cr.           | 3.0                             | 2.2                               | 37.6                            | 2158                  | 3.4   | 2.0                            | 1.72                              | 42.4                            | 3554                  | 4.0x0.80                        | 1.56                              | 40.7                            | 2883                  | 500                           |
| 630                       | Co. Cr.           | 3.4                             | 2.4                               | 42.4                            | 2671                  | 3.9   | 2.0                            | 1.88                              | 47.4                            | 4198                  | 4.0x0.80                        | 1.72                              | 45.7                            | 3415                  | 500                           |
| 800                       | Co. Cr.           | 3.4                             | 2.4                               | 48.0                            | 3278                  | 3.9   | 2.0                            | 1.88                              | 52.5                            | 5022                  | 4.0x0.80                        | 1.88                              | 50.5                            | 4168                  | 500                           |
| 1000                      | Co. Cr.           | 3.4                             | 2.6                               | 52.1                            | 3964                  | 3.9   | 2.5                            | 2.04                              | 57.5                            | 6318                  | 4.0x0.80                        | 2.04                              | 54.5                            | 4916                  | 500                           |

**TABLE - 5 IS :1554 PART1 - 1988 DIMENSIONS AND WEIGHTS 1100VOLTS TWO CORE PVC INSULATED UNARMoured AND ARMoured WITH ALUMINIUM CONDUCTOR**

| Nominal Area of Conductor | Form of Conductor | UNARMoured                      |                                   |                                   |                                 |                       | ROUND WIRE ARMoured            |                                   |                                 |                       | FLAT STRIP ARMoured             |                                   |                                 |                       | Normal Delivery Length (mtrs) |
|---------------------------|-------------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                           |                   | Nominal Thickness Of Insulation | Nominal Thickness of Inner Sheath | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
| sq.mm                     |                   | (mm)                            | (mm)                              | (mm)                              | (mm)                            | (kg/km)               | (mm)                           | (mm)                              | (mm)                            | (kg/km)               | (mm)                            | (mm)                              | (mm)                            | (kg/km)               |                               |
| 4                         | So. Cr.           | 1.0                             | 0.3                               | 1.8                               | 13.5                            | 156                   | 1.4                            | 1.24                              | 14.5                            | 377                   |                                 |                                   |                                 |                       | 1000                          |
| 4                         | St. Cr.           | 1.0                             | 0.3                               | 1.8                               | 13.6                            | 164                   | 1.4                            | 1.24                              | 15.0                            | 398                   |                                 |                                   |                                 |                       | 1000                          |
| 6                         | So. Cr.           | 1.0                             | 0.3                               | 1.8                               | 14.0                            | 181                   | 1.4                            | 1.24                              | 16.0                            | 424                   |                                 |                                   |                                 |                       | 1000                          |
| 6                         | St. Cr.           | 1.0                             | 0.3                               | 1.8                               | 14.5                            | 192                   | 1.4                            | 1.24                              | 16.5                            | 456                   |                                 |                                   |                                 |                       | 1000                          |
| 10                        | So. Cr.           | 1.0                             | 0.3                               | 1.8                               | 15.5                            | 226                   | 1.4                            | 1.24                              | 17.5                            | 508                   |                                 |                                   |                                 |                       | 1000                          |
| 10                        | St. Cr.           | 1.0                             | 0.3                               | 1.8                               | 16.0                            | 240                   | 1.4                            | 1.24                              | 18.0                            | 543                   |                                 |                                   |                                 |                       | 1000                          |
| 16                        | St. Sh.           | 1.0                             | 0.3                               | 1.8                               | 18.5                            | 304                   | 1.6                            | 1.4                               | 21.0                            | 734                   | 4.0x0.8                         | 1.4                               | 19.4                            | 577                   | 1000                          |
| 25                        | St. Sh.           | 1.2                             | 0.3                               | 2.0                               | 20.0                            | 434                   | 1.6                            | 1.4                               | 22.5                            | 935                   | 4.0x0.8                         | 1.4                               | 20.7                            | 746                   | 1000                          |
| 35                        | St. Sh.           | 1.2                             | 0.3                               | 2.0                               | 21.5                            | 526                   | 1.6                            | 1.4                               | 24.0                            | 1091                  | 4.0x0.8                         | 1.4                               | 22.2                            | 878                   | 1000                          |
| 50                        | St. Sh.           | 1.4                             | 0.3                               | 2.0                               | 24.0                            | 685                   | 1.6                            | 1.56                              | 26.7                            | 1373                  | 4.0x0.8                         | 1.4                               | 25.1                            | 1101                  | 1000                          |
| 70                        | St. Sh.           | 1.4                             | 0.4                               | 2.0                               | 26.3                            | 865                   | 1.6                            | 1.56                              | 29.3                            | 1636                  | 4.0x0.8                         | 1.56                              | 27.6                            | 1364                  | 500                           |
| 95                        | St. Sh            | 1.6                             | 0.4                               | 2.2                               | 30.6                            | 1139                  | 2.0                            | 1.56                              | 33.7                            | 2258                  | 4.0x0.8                         | 1.56                              | 31.2                            | 1687                  | 500                           |
| 120                       | St. Sh.           | 1.6                             | 0.4                               | 2.2                               | 32.7                            | 1345                  | 2.0                            | 1.72                              | 36.2                            | 2618                  | 4.0x0.8                         | 1.56                              | 33.6                            | 1953                  | 500                           |
| 150                       | St. Sh.           | 1.8                             | 0.5                               | 2.4                               | 36.6                            | 1679                  | 2.0                            | 1.72                              | 39.5                            | 3037                  | 4.0x0.8                         | 1.72                              | 37.0                            | 2350                  | 500                           |
| 185                       | St. Sh.           | 2.0                             | 0.5                               | 2.4                               | 40.0                            | 1994                  | 2.0                            | 1.88                              | 43.5                            | 3531                  | 4.0x0.8                         | 1.88                              | 41.0                            | 2772                  | 500                           |
| 240                       | St. Sh.           | 2.2                             | 0.6                               | 2.6                               | 44.0                            | 2538                  | 2.5                            | 2.04                              | 48.7                            | 4741                  | 4.0x0.8                         | 2.04                              | 45.5                            | 3408                  | 500                           |
| 300                       | St. Sh.           | 2.4                             | 0.7                               | 2.8                               | 50.0                            | 3144                  | 2.5                            | 2.2                               | 54.2                            | 3580                  | 4.0x0.8                         | 2.2                               | 50.5                            | 4111                  | 500                           |
| 400                       | St. Sh.           | 2.6                             | 0.7                               | 3.2                               | 55.0                            | 4057                  | 3.15                           | 2.52                              | 62.5                            | 7572                  | 4.0x0.8                         | 2.36                              | 57.0                            | 5068                  | 500                           |
| 500                       | St. Sh.           | 3.0                             | 0.7                               | 3.4                               | 65.0                            | 5001                  | 3.15                           | 2.84                              | 71.5                            | 8990                  | 4.0x0.8                         | 2.68                              | 66.5                            | 6171                  | 500                           |
| 630                       | St. Sh.           | 3.4                             | 0.7                               | 3.8                               | 73.5                            | 6159                  | 4.0                            | 3.0                               | 81.5                            | 11656                 | 4.0x0.8                         | 2.84                              | 74.0                            | 7330                  | 500                           |

**TABLE - 6 IS : 1554 PART - 1 -1988 DIMENSIONS AND WEIGHTS 1100VOLTS THREE CORE PVC INSULATED UNARMoured AND ARMoured WITH ALUMINIUM CONDUCTOR**

| Nominal Area of Conductor | Form of Conductor | UNARMoured                      |                                   |                                   |                                 |                       | ROUND WIRE ARMoured            |                                   |                                 |                       | FLAT STRIP ARMoured             |                                   |                                 |                       | Normal Delivery Length (mtrs) |
|---------------------------|-------------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                           |                   | Nominal Thickness Of Insulation | Nominal Thickness of Inner Sheath | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
| sq.mm                     |                   | (mm)                            | (mm)                              | (mm)                              | (mm)                            | (kg/km)               | (mm)                           | (mm)                              | (mm)                            | (kg/km)               | (mm)                            | (mm)                              | (mm)                            | (kg/km)               |                               |
| 4                         | So. Cr.           | 1.0                             | 0.3                               | 1.8                               | 13.5                            | 197                   | 1.4                            | 1.24                              | 17.5                            | 436                   |                                 |                                   |                                 |                       | 1000                          |
| 4                         | St. Cr.           | 1.0                             | 0.3                               | 1.8                               | 14.0                            | 196                   | 1.4                            | 1.24                              | 17.7                            | 460                   |                                 |                                   |                                 |                       | 1000                          |
| 6                         | So. Cr.           | 1.0                             | 0.3                               | 1.8                               | 14.5                            | 220                   | 1.4                            | 1.24                              | 18.5                            | 495                   |                                 |                                   |                                 |                       | 1000                          |
| 6                         | St. Cr.           | 1.0                             | 0.3                               | 1.8                               | 16.5                            | 233                   | 1.4                            | 1.24                              | 18.8                            | 529                   |                                 |                                   |                                 |                       | 1000                          |
| 10                        | So. Cr.           | 1.0                             | 0.3                               | 1.8                               | 16.9                            | 281                   | 1.4                            | 1.4                               | 20.5                            | 611                   |                                 |                                   |                                 |                       | 1000                          |
| 10                        | St. Cr.           | 1.0                             | 0.3                               | 1.8                               | 18.0                            | 297                   | 1.4                            | 1.4                               | 21.0                            | 654                   |                                 |                                   |                                 |                       | 1000                          |
| 16                        | St. Sh.           | 1.0                             | 0.3                               | 1.8                               | 17.9                            | 384                   | 1.6                            | 1.4                               | 21.2                            | 866                   | 4.0x0.8                         | 1.4                               | 19.5                            | 677                   | 1000                          |
| 25                        | St. Sh.           | 1.2                             | 0.3                               | 2.0                               | 18.6                            | 554                   | 1.6                            | 1.4                               | 24.0                            | 1119                  | 4.0x0.8                         | 1.4                               | 22.3                            | 890                   | 500                           |
| 35                        | St. Sh.           | 1.2                             | 0.3                               | 2.0                               | 21.8                            | 681                   | 1.6                            | 1.4                               | 26.2                            | 1318                  | 4.0x0.8                         | 1.4                               | 24.0                            | 1060                  | 500                           |
| 50                        | St. Sh.           | 1.4                             | 0.3                               | 2.0                               | 23.1                            | 901                   | 1.6                            | 1.56                              | 29.6                            | 1676                  | 4.0x0.8                         | 1.56                              | 27.9                            | 1372                  | 500                           |
| 70                        | St. Sh.           | 1.4                             | 0.4                               | 2.2                               | 27.0                            | 1179                  | 2.0                            | 1.56                              | 33.3                            | 2269                  | 4.0x0.8                         | 1.56                              | 30.9                            | 1685                  | 500                           |
| 95                        | St. Sh.           | 1.6                             | 0.4                               | 2.2                               | 34.0                            | 1520                  | 2.0                            | 1.72                              | 37.7                            | 2819                  | 4.0x0.8                         | 1.56                              | 34.8                            | 2110                  | 500                           |
| 120                       | St. Sh.           | 1.6                             | 0.4                               | 2.2                               | 37.0                            | 1809                  | 2.0                            | 1.72                              | 40.5                            | 3250                  | 4.0x0.8                         | 1.72                              | 37.8                            | 2496                  | 500                           |
| 150                       | St. Sh.           | 1.8                             | 0.5                               | 2.4                               | 41.0                            | 2258                  | 2.0                            | 1.88                              | 44.0                            | 3857                  | 4.0x0.8                         | 1.88                              | 41.9                            | 3016                  | 500                           |
| 185                       | St. Sh.           | 2.0                             | 0.5                               | 2.6                               | 45.0                            | 2752                  | 2.5                            | 2.04                              | 49.5                            | 4983                  | 4.0x0.8                         | 1.88                              | 45.7                            | 3541                  | 500                           |
| 240                       | St. Sh.           | 2.2                             | 0.6                               | 2.8                               | 50.9                            | 3501                  | 2.5                            | 2.2                               | 55.0                            | 6015                  | 4.0x0.8                         | 2.2                               | 52.0                            | 4429                  | 500                           |
| 300                       | St. Sh.           | 2.4                             | 0.7                               | 3.0                               | 56.0                            | 4335                  | 2.5                            | 2.36                              | 60.5                            | 7144                  | 4.0x0.8                         | 2.36                              | 56.8                            | 5364                  | 500                           |
| 400                       | St. Sh.           | 2.6                             | 0.7                               | 3.4                               | 63.4                            | 5602                  | 3.15                           | 2.68                              | 69.0                            | 9618                  | 4.0x0.8                         | 2.52                              | 64.0                            | 6678                  | 500                           |
| 500                       | St. Sh.           | 3.0                             | 0.7                               | 3.6                               | 72.5                            | 6931                  | 3.15                           | 3.0                               | 79.5                            | 11459                 | 4.0x0.8                         | 2.84                              | 74.0                            | 8177                  | 250                           |
| 630                       | St. Sh.           | 3.4                             | 0.7                               | 4.0                               | 82.0                            | 8556                  | 4.0                            | 3.0                               | 89.5                            | 14656                 | 4.0x0.8                         | 3.0                               | 84.0                            | 9802                  | 250                           |

**TABLE - 7 IS : 1554 PART - 1 -1988 DIMENSIONS AND WEIGHTS, 1100VOLTS THREE AND A HALF CORE PVC INSULATED UNARMoured AND ARMoured WITH ALUMINIUM CONDUCTOR**

| Nominal Area of Conductor | Nominal Thickness of Insulation |              | Minimum Thickness of Inner Sheath | UNARMoured                        |                                 |                       | ROUND WIRE ARMoured            |                                   |                                 |                       | FLAT STRIP ARMoured             |                                   |                                 |                       | Normal Delivery Length (mtrs) |
|---------------------------|---------------------------------|--------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                           | Power Core                      | Neutral Core |                                   | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
| sq.mm                     | mm                              | mm           | (mm)                              | (mm)                              | (mm)                            | (kg/km)               | (mm)                           | (mm)                              | (mm)                            | (kg/km)               | (mm)                            | (mm)                              | (mm)                            | (kg/km)               |                               |
| 25/16                     | 1.2                             | 1.0          | 0.3                               | 2.0                               | 23.8                            | 657                   | 1.6                            | 1.4                               | 26.0                            | 1294                  | 4.0x0.8                         | 1.4                               | 24.2                            | 1026                  | 500                           |
| 35/16                     | 1.2                             | 1.0          | 0.3                               | 2.0                               | 25.3                            | 787                   | 1.6                            | 1.4                               | 27.8                            | 1505                  | 4.0x0.8                         | 1.4                               | 26.1                            | 1204                  | 500                           |
| 50/25                     | 1.4                             | 1.2          | 0.3                               | 2.0                               | 28.5                            | 1052                  | 1.6                            | 1.56                              | 32.0                            | 1926                  | 4.0x0.8                         | 1.56                              | 29.4                            | 1570                  | 500                           |
| 70/35                     | 1.4                             | 1.2          | 0.4                               | 2.2                               | 32.9                            | 1375                  | 2.0                            | 1.56                              | 36.1                            | 2603                  | 4.0x0.8                         | 1.56                              | 33.5                            | 1932                  | 500                           |
| 95/50                     | 1.6                             | 1.4          | 0.4                               | 2.2                               | 36.5                            | 1785                  | 2.0                            | 1.72                              | 40.5                            | 3248                  | 4.0x0.8                         | 1.56                              | 37.0                            | 2434                  | 500                           |
| 120/70                    | 1.6                             | 1.4          | 0.5                               | 2.4                               | 39.8                            | 2213                  | 2.0                            | 1.88                              | 43.5                            | 3839                  | 4.0x0.8                         | 1.72                              | 40.3                            | 2930                  | 500                           |
| 150/70                    | 1.8                             | 1.4          | 0.5                               | 2.4                               | 44.0                            | 2623                  | 2.0                            | 1.88                              | 47.8                            | 4426                  | 4.0x0.8                         | 1.88                              | 41.5                            | 3457                  | 500                           |
| 185/95                    | 2.0                             | 1.6          | 0.5                               | 2.6                               | 48.0                            | 3226                  | 2.5                            | 2.04                              | 52.8                            | 5741                  | 4.0x0.8                         | 2.04                              | 49.0                            | 4139                  | 500                           |
| 240/120                   | 2.2                             | 1.6          | 0.6                               | 3.0                               | 55.0                            | 4161                  | 2.5                            | 2.36                              | 59.6                            | 6985                  | 4.0x0.8                         | 2.2                               | 55.4                            | 5121                  | 500                           |
| 300/150                   | 2.4                             | 1.8          | 0.6                               | 3.2                               | 60.5                            | 5106                  | 3.15                           | 2.52                              | 66.5                            | 9128                  | 4.0x0.8                         | 2.36                              | 60.9                            | 6167                  | 500                           |
| 400/185                   | 2.6                             | 2.0          | 0.7                               | 3.4                               | 68.0                            | 6508                  | 3.15                           | 2.68                              | 74.0                            | 11033                 | 4.0x0.8                         | 2.68                              | 68.9                            | 7752                  | 500                           |
| 500/240                   | 3.0                             | 2.2          | 0.7                               | 3.8                               | 79.0                            | 8172                  | 4.0                            | 3.0                               | 87.0                            | 14631                 | 4.0x0.8                         | 2.84                              | 80.0                            | 9460                  | 500                           |
| 630/300                   | 3.4                             | 2.4          | 0.7                               | 4.0                               | 89.0                            | 9996                  | 4.0                            | 3.0                               | 95.5                            | 16868                 | 4.0x0.8                         | 3.0                               | 90.5                            | 11367                 | 250                           |

**TABLE - 8 (IS : 1554 (PART - 1) -1988) DIMENSIONS AND WEIGHTS 1100VOLTS FOUR CORE PVC INSULATED UNARMoured AND ARMoured WITH ALUMINIUM CONDUCTOR**

| Nominal Area of Conductor | Form of Conductor | Nominal Thickness of Insulation | Minimum Thickness of Inner Sheath | UNARMoured                        |                                 |                               | ROUND WIRE ARMoured            |                                   |                                 |                       | FLAT STRIP ARMoured             |                                   |                                 |                       | Normal Delivery Length (Mtrs) |      |
|---------------------------|-------------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-------------------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|------|
|                           |                   |                                 |                                   | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable (kg/km) | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |      |
| sq.mm                     |                   | mm                              | (mm)                              | (mm)                              | (mm)                            | (kg/km)                       | (mm)                           | (mm)                              | (mm)                            | (mm)                  | (mm)                            | (mm)                              | (mm)                            | (mm)                  | (kg/km)                       |      |
| 4                         | Solid Circular    | 1.0                             | 0.3                               | 1.8                               | 16.5                            | 227                           | 1.4                            | 1.24                              | 18.5                            | 511                   |                                 |                                   |                                 |                       |                               | 1000 |
| 4                         | stranded Circular | 1.0                             | 0.3                               | 1.8                               | 16.8                            | 239                           | 1.4                            | 1.24                              | 18.9                            | 540                   |                                 |                                   |                                 |                       |                               | 1000 |
| 6                         | Solid Circular    | 1.0                             | 0.3                               | 1.8                               | 17.5                            | 269                           | 1.4                            | 1.24                              | 20.0                            | 583                   |                                 |                                   |                                 |                       |                               | 1000 |
| 6                         | stranded Circular | 1.0                             | 0.3                               | 1.8                               | 17.7                            | 286                           | 1.4                            | 1.24                              | 20.3                            | 623                   |                                 |                                   |                                 |                       |                               | 1000 |
| 10                        | Solid Circular    | 1.0                             | 0.3                               | 1.8                               | 19.5                            | 347                           | 1.4                            | 1.4                               | 22.5                            | 725                   | 4.0x0.8                         | 1.4                               | 21.0                            | 613                   | 1000                          |      |
| 10                        | stranded Circular | 1.0                             | 0.3                               | 1.8                               | 19.8                            | 367                           | 1.4                            | 1.4                               | 22.8                            | 775                   | 4.0x0.8                         | 1.4                               | 21.2                            | 654                   | 1000                          |      |
| 16                        | stranded Shaped   | 1.0                             | 0.3                               | 2.0                               | 21.1                            | 498                           | 1.6                            | 1.4                               | 23.9                            | 1030                  | 4.0x0.8                         | 1.4                               | 22.4                            | 815                   | 1000                          |      |
| 25                        | stranded Shaped   | 1.2                             | 0.3                               | 2.0                               | 24.2                            | 695                           | 1.6                            | 1.4                               | 26.4                            | 1343                  | 4.0x0.8                         | 1.4                               | 24.9                            | 1082                  | 500                           |      |
| 35                        | stranded Shaped   | 1.2                             | 0.3                               | 2.0                               | 26.4                            | 860                           | 1.6                            | 1.56                              | 28.9                            | 1612                  | 4.0x0.8                         | 1.4                               | 27.0                            | 1297                  | 500                           |      |
| 50                        | stranded Shaped   | 1.4                             | 0.4                               | 2.2                               | 30.7                            | 1195                          | 1.6                            | 1.56                              | 33.7                            | 2058                  | 4.0x0.8                         | 1.56                              | 31.2                            | 1710                  | 500                           |      |
| 70                        | stranded Shaped   | 1.4                             | 0.4                               | 2.2                               | 34                              | 1503                          | 2.0                            | 1.56                              | 37.0                            | 2780                  | 4.0x0.8                         | 1.56                              | 34.5                            | 2087                  | 500                           |      |
| 95                        | stranded Shaped   | 1.6                             | 0.4                               | 2.4                               | 39                              | 1989                          | 2.0                            | 1.72                              | 42.0                            | 3435                  | 4.0x0.8                         | 1.72                              | 39.5                            | 2662                  | 500                           |      |
| 120                       | stranded Shaped   | 1.6                             | 0.5                               | 2.4                               | 42                              | 2395                          | 2.0                            | 1.88                              | 45.5                            | 4046                  | 4.0x0.8                         | 1.88                              | 43.0                            | 3184                  | 500                           |      |
| 150                       | stranded Shaped   | 1.8                             | 0.5                               | 2.6                               | 46                              | 2955                          | 2.5                            | 2.04                              | 50.4                            | 5268                  | 4.0x0.8                         | 1.88                              | 47.0                            | 3781                  | 500                           |      |
| 185                       | stranded Shaped   | 2.0                             | 0.6                               | 2.8                               | 51.4                            | 3630                          | 2.5                            | 2.2                               | 55.7                            | 6185                  | 4.0x0.8                         | 2.04                              | 52.3                            | 4537                  | 500                           |      |
| 240                       | stranded Shaped   | 2.2                             | 0.6                               | 3.0                               | 57.9                            | 4578                          | 2.5                            | 2.36                              | 62.2                            | 7259                  | 4.0x0.8                         | 2.36                              | 58.9                            | 5640                  | 500                           |      |
| 300                       | stranded Shaped   | 2.4                             | 0.7                               | 3.4                               | 64.4                            | 5735                          | 3.15                           | 2.68                              | 69.5                            | 9825                  | 4.0x0.8                         | 2.52                              | 65.0                            | 6847                  | 500                           |      |
| 400                       | stranded Shaped   | 2.8                             | 0.7                               | 3.6                               | 71.8                            | 7452                          | 3.15                           | 2.84                              | 77.4                            | 12096                 | 4.0x0.8                         | 2.84                              | 72.3                            | 8769                  | 500                           |      |
| 500                       | stranded Shaped   | 3.0                             | 0.7                               | 4.0                               | 84                              | 9144                          | 4.0                            | 3                                 | 91.5                            | 15622                 | 4.0x0.8                         | 3.0                               | 85.5                            | 10493                 | 500                           |      |
| 630                       | stranded Shaped   | 3.4                             | 0.7                               | 4.0                               | 94.5                            | 11087                         | 4.0                            | 3                                 | 102.0                           | 18073                 | 4.0x0.8                         | 3.0                               | 95.5                            | 12546                 | 500                           |      |



**TABLE - 9 IS : 1554 PART - 1 -1988 DIMENSIONS AND WEIGHTS 1100V 1.5 Sq.mm (SOLID), PVC INULATED UNARMoured AND ARMoured MULTICORE CONTROL CABLES, WITH COPPER CONDUCTOR**

| Number of Cores | Nominal Thickness of Insulation | Minimum Thickness of Inner Sheath | UNARMoured                        |                                 |                       | ROUND WIRE ARMoured            |                                   |                                 |                       | FLAT STRIP ARMoured             |                                   |                                 |                       | Normal Delivery Length (Mtrs) |
|-----------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                 |                                 |                                   | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
|                 |                                 |                                   | (mm)                              | (mm)                            | (kg/km)               | (mm)                           | (mm)                              | (mm)                            | (mm)                  | (mm)                            | (mm)                              | (mm)                            | (mm)                  |                               |
| 2               | 0.8                             | 0.3                               | 1.8                               | 11.5                            | 122                   | 1.4                            | 1.24                              | 14.0                            | 295                   |                                 |                                   |                                 |                       | 1000                          |
| 3               | 0.8                             | 0.3                               | 1.8                               | 12.0                            | 149                   | 1.4                            | 1.24                              | 14.5                            | 334                   |                                 |                                   |                                 |                       | 1000                          |
| 4               | 0.8                             | 0.3                               | 1.8                               | 13.0                            | 178                   | 1.4                            | 1.24                              | 15.5                            | 382                   |                                 |                                   |                                 |                       | 1000                          |
| 5               | 0.8                             | 0.3                               | 1.8                               | 14.0                            | 208                   | 1.4                            | 1.24                              | 16.0                            | 433                   |                                 |                                   |                                 |                       | 1000                          |
| 6               | 0.8                             | 0.3                               | 1.8                               | 15.0                            | 238                   | 1.4                            | 1.24                              | 17.0                            | 486                   |                                 |                                   |                                 |                       | 1000                          |
| 7               | 0.8                             | 0.3                               | 1.8                               | 15.0                            | 260                   | 1.4                            | 1.24                              | 17.0                            | 507                   |                                 |                                   |                                 |                       | 1000                          |
| 8               | 0.8                             | 0.3                               | 1.8                               | 16.0                            | 295                   | 1.4                            | 1.24                              | 18.0                            | 575                   |                                 |                                   |                                 |                       | 1000                          |
| 9               | 0.8                             | 0.3                               | 1.8                               | 17.0                            | 327                   | 1.4                            | 1.24                              | 19.0                            | 634                   |                                 |                                   |                                 |                       | 1000                          |
| 10              | 0.8                             | 0.3                               | 1.8                               | 18.0                            | 354                   | 1.4                            | 1.4                               | 20.5                            | 689                   |                                 |                                   |                                 |                       | 1000                          |
| 12              | 0.8                             | 0.3                               | 1.8                               | 18.5                            | 401                   | 1.6                            | 1.4                               | 21.5                            | 803                   | 4.0x0.80                        | 1.24                              | 19.5                            | 631                   | 1000                          |
| 14              | 0.8                             | 0.3                               | 1.8                               | 19.0                            | 452                   | 1.6                            | 1.4                               | 22.5                            | 876                   | 4.0x0.80                        | 1.4                               | 21.0                            | 709                   | 1000                          |
| 16              | 0.8                             | 0.3                               | 1.8                               | 20.0                            | 503                   | 1.6                            | 1.4                               | 23.5                            | 953                   | 4.0x0.80                        | 1.4                               | 21.5                            | 776                   | 1000                          |
| 19              | 0.8                             | 0.3                               | 2.0                               | 21.5                            | 594                   | 1.6                            | 1.4                               | 24.0                            | 1053                  | 4.0x0.80                        | 1.4                               | 22.5                            | 866                   | 1000                          |
| 21              | 0.8                             | 0.3                               | 2.0                               | 22.5                            | 648                   | 1.6                            | 1.4                               | 25.5                            | 1135                  | 4.0x0.80                        | 1.4                               | 23.5                            | 937                   | 500                           |
| 24              | 0.8                             | 0.3                               | 2.0                               | 24.5                            | 734                   | 1.6                            | 1.4                               | 27.5                            | 1278                  | 4.0x0.80                        | 1.4                               | 25.5                            | 1058                  | 500                           |
| 27              | 0.8                             | 0.3                               | 2.0                               | 25.0                            | 803                   | 1.6                            | 1.4                               | 28.0                            | 1361                  | 4.0x0.80                        | 1.4                               | 26.0                            | 1135                  | 500                           |
| 30              | 0.8                             | 0.3                               | 2.0                               | 26.0                            | 876                   | 1.6                            | 1.4                               | 28.5                            | 1455                  | 4.0x0.80                        | 1.4                               | 27.0                            | 1221                  | 500                           |
| 33              | 0.8                             | 0.3                               | 2.0                               | 27.0                            | 950                   | 1.6                            | 1.4                               | 29.5                            | 1554                  | 4.0x0.80                        | 1.4                               | 28.0                            | 1310                  | 500                           |
| 37              | 0.8                             | 0.3                               | 2.0                               | 28.0                            | 1048                  | 1.6                            | 1.4                               | 30.5                            | 1676                  | 4.0x0.80                        | 1.4                               | 29.0                            | 1421                  | 500                           |
| 44              | 0.8                             | 0.3                               | 2.0                               | 31.0                            | 1227                  | 1.6                            | 1.56                              | 34.0                            | 1967                  | 4.0x0.80                        | 1.56                              | 32.5                            | 1677                  | 500                           |
| 52              | 0.8                             | 0.4                               | 2.2                               | 33.0                            | 1456                  | 2.0                            | 1.56                              | 36.5                            | 2420                  | 4.0x0.80                        | 1.56                              | 34.0                            | 1903                  | 500                           |
| 61              | 0.8                             | 0.4                               | 2.2                               | 34.5                            | 1670                  | 2.0                            | 1.56                              | 38.0                            | 2698                  | 4.0x0.80                        | 1.56                              | 36.0                            | 2148                  | 500                           |

**TABLE - 10 IS : 1554 PART - 1 -1988 DIMENSIONS AND WEIGHTS 1100V 1.5 Sq.mm (STRANDED), PVC INULATED UNARMoured AND ARMoured MULTICORE CONTROL, CABLE WITH COPPER CONDUCTOR**

| Number of Cores | Nominal Thickness of Insulation | Minimum Thickness of Inner Sheath | UNARMoured                        |                                 |                       | ROUND WIRE ARMoured            |                                   |                                 |                       | FLAT STRIP ARMoured             |                                   |                                 |                       | Normal Delivery Length (Mtrs) |
|-----------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                 |                                 |                                   | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
|                 |                                 |                                   | (mm)                              | (mm)                            | (kg/km)               | (mm)                           | (mm)                              | (mm)                            | (mm)                  | (mm)                            | (mm)                              | (mm)                            | (mm)                  |                               |
| 2               | 0.8                             | 0.3                               | 1.8                               | 12.0                            | 130                   | 1.4                            | 1.24                              | 14.5                            | 313                   |                                 |                                   |                                 |                       | 1000                          |
| 3               | 0.8                             | 0.3                               | 1.8                               | 12.5                            | 157                   | 1.4                            | 1.24                              | 15.0                            | 353                   |                                 |                                   |                                 |                       | 1000                          |
| 4               | 0.8                             | 0.3                               | 1.8                               | 13.5                            | 187                   | 1.4                            | 1.24                              | 16.0                            | 404                   |                                 |                                   |                                 |                       | 1000                          |
| 5               | 0.8                             | 0.3                               | 1.8                               | 14.5                            | 219                   | 1.4                            | 1.24                              | 16.5                            | 458                   |                                 |                                   |                                 |                       | 1000                          |
| 6               | 0.8                             | 0.3                               | 1.8                               | 15.5                            | 250                   | 1.4                            | 1.24                              | 18.0                            | 514                   |                                 |                                   |                                 |                       | 1000                          |
| 7               | 0.8                             | 0.3                               | 1.8                               | 15.5                            | 273                   | 1.4                            | 1.24                              | 18.0                            | 536                   |                                 |                                   |                                 |                       | 1000                          |
| 8               | 0.8                             | 0.3                               | 1.8                               | 16.5                            | 309                   | 1.4                            | 1.24                              | 19.0                            | 609                   |                                 |                                   |                                 |                       | 1000                          |
| 9               | 0.8                             | 0.3                               | 1.8                               | 17.5                            | 343                   | 1.4                            | 1.24                              | 20.0                            | 671                   |                                 |                                   |                                 |                       | 1000                          |
| 10              | 0.8                             | 0.3                               | 1.8                               | 19.0                            | 371                   | 1.4                            | 1.4                               | 21.5                            | 729                   |                                 |                                   |                                 |                       | 1000                          |
| 12              | 0.8                             | 0.3                               | 1.8                               | 19.5                            | 421                   | 1.6                            | 1.4                               | 22.5                            | 850                   | 4.0x0.80                        | 1.24                              | 20.5                            | 667                   | 1000                          |
| 14              | 0.8                             | 0.3                               | 1.8                               | 20.0                            | 473                   | 1.6                            | 1.4                               | 23.5                            | 926                   | 4.0x0.80                        | 1.4                               | 21.5                            | 748                   | 1000                          |
| 16              | 0.8                             | 0.3                               | 1.8                               | 21.0                            | 527                   | 1.6                            | 1.4                               | 24.0                            | 1007                  | 4.0x0.80                        | 1.4                               | 22.5                            | 819                   | 1000                          |
| 19              | 0.8                             | 0.3                               | 2.0                               | 22.5                            | 623                   | 1.6                            | 1.4                               | 25.5                            | 1112                  | 4.0x0.80                        | 1.4                               | 23.5                            | 912                   | 1000                          |
| 21              | 0.8                             | 0.3                               | 2.0                               | 23.5                            | 679                   | 1.6                            | 1.4                               | 26.5                            | 1198                  | 4.0x0.80                        | 1.4                               | 25.0                            | 987                   | 500                           |
| 24              | 0.8                             | 0.3                               | 2.0                               | 26.0                            | 769                   | 1.6                            | 1.4                               | 28.5                            | 1350                  | 4.0x0.80                        | 1.4                               | 27.0                            | 1115                  | 500                           |
| 27              | 0.8                             | 0.3                               | 2.0                               | 26.5                            | 841                   | 1.6                            | 1.4                               | 29.0                            | 1436                  | 4.0x0.80                        | 1.4                               | 27.5                            | 1195                  | 500                           |
| 30              | 0.8                             | 0.3                               | 2.0                               | 27.5                            | 917                   | 1.6                            | 1.4                               | 30.0                            | 1535                  | 4.0x0.80                        | 1.4                               | 28.5                            | 1285                  | 500                           |
| 33              | 0.8                             | 0.3                               | 2.0                               | 28.0                            | 994                   | 1.6                            | 1.4                               | 31.0                            | 1639                  | 4.0x0.80                        | 1.4                               | 29.5                            | 1378                  | 500                           |
| 37              | 0.8                             | 0.3                               | 2.0                               | 29.0                            | 1093                  | 1.6                            | 1.4                               | 32.0                            | 1766                  | 4.0x0.80                        | 1.4                               | 30.5                            | 1494                  | 500                           |
| 44              | 0.8                             | 0.3                               | 2.0                               | 32.5                            | 1284                  | 1.6                            | 1.56                              | 35.5                            | 2073                  | 4.0x0.80                        | 1.56                              | 34.0                            | 1764                  | 500                           |
| 52              | 0.8                             | 0.4                               | 2.2                               | 34.5                            | 1523                  | 2.0                            | 1.56                              | 38.0                            | 2552                  | 4.0x0.80                        | 1.56                              | 35.5                            | 2001                  | 500                           |
| 61              | 0.8                             | 0.4                               | 2.2                               | 36.0                            | 1746                  | 2.0                            | 1.56                              | 40.0                            | 2844                  | 4.0x0.80                        | 1.56                              | 37.5                            | 2257                  | 500                           |

**TABLE - 11 IS : 1554 PART - 1 -1988 DIMENSIONS AND WEIGHTS, 1100V 2.5 Sq.mm (SOLID) PVC INULATED UNARMORED AND ARMORED MULTICORE CONTROL CABLE WITH COPPER CONDUCTOR**

| Number of Cores | Nominal Thickness of Insulation | Minimum Thickness of Inner Sheath | UNARMORED                         |                                 |                       | ROUND WIRE ARMORED             |                                   |                                 |                       | FLAT STRIP ARMORED              |                                   |                                 |                       | Normal Delivery Length (Mtrs) |
|-----------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                 |                                 |                                   | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
|                 |                                 |                                   | (mm)                              | (mm)                            | (kg/km)               | (mm)                           | (mm)                              | (mm)                            | (mm)                  | (mm)                            | (mm)                              | (mm)                            | (mm)                  |                               |
| 2               | 0.9                             | 0.3                               | 1.8                               | 13.0                            | 159                   | 1.4                            | 1.24                              | 15.0                            | 363                   |                                 |                                   |                                 |                       | 1000                          |
| 3               | 0.9                             | 0.3                               | 1.8                               | 13.5                            | 197                   | 1.4                            | 1.24                              | 15.5                            | 416                   |                                 |                                   |                                 |                       | 1000                          |
| 4               | 0.9                             | 0.3                               | 1.8                               | 14.5                            | 241                   | 1.4                            | 1.24                              | 16.5                            | 483                   |                                 |                                   |                                 |                       | 1000                          |
| 5               | 0.9                             | 0.3                               | 1.8                               | 15.5                            | 284                   | 1.4                            | 1.24                              | 18.0                            | 552                   |                                 |                                   |                                 |                       | 1000                          |
| 6               | 0.9                             | 0.3                               | 1.8                               | 16.5                            | 328                   | 1.4                            | 1.24                              | 19.0                            | 623                   |                                 |                                   |                                 |                       | 1000                          |
| 7               | 0.9                             | 0.3                               | 1.8                               | 16.5                            | 361                   | 1.4                            | 1.24                              | 19.0                            | 657                   |                                 |                                   |                                 |                       | 1000                          |
| 8               | 0.9                             | 0.3                               | 1.8                               | 18.0                            | 411                   | 1.4                            | 1.4                               | 20.5                            | 760                   |                                 |                                   |                                 |                       | 1000                          |
| 9               | 0.9                             | 0.3                               | 1.8                               | 19.0                            | 457                   | 1.6                            | 1.4                               | 22.5                            | 898                   | 4.0x0.80                        | 1.4                               | 20.5                            | 726                   | 1000                          |
| 10              | 0.9                             | 0.3                               | 1.8                               | 20.5                            | 498                   | 1.6                            | 1.4                               | 23.5                            | 960                   | 4.0x0.80                        | 1.4                               | 22.0                            | 779                   | 1000                          |
| 12              | 0.9                             | 0.3                               | 2.0                               | 21.5                            | 588                   | 1.6                            | 1.4                               | 24.0                            | 1050                  | 4.0x0.80                        | 1.4                               | 19.5                            | 863                   | 1000                          |
| 14              | 0.9                             | 0.3                               | 2.0                               | 22.5                            | 664                   | 1.6                            | 1.4                               | 25.0                            | 1153                  | 4.0x0.80                        | 1.4                               | 21.0                            | 955                   | 1000                          |
| 16              | 0.9                             | 0.3                               | 2.0                               | 23.5                            | 743                   | 1.6                            | 1.4                               | 26.0                            | 1261                  | 4.0x0.80                        | 1.4                               | 21.5                            | 1052                  | 1000                          |
| 19              | 0.9                             | 0.3                               | 2.0                               | 24.5                            | 855                   | 1.6                            | 1.4                               | 27.5                            | 1404                  | 4.0x0.80                        | 1.4                               | 25.5                            | 1183                  | 1000                          |
| 21              | 0.9                             | 0.3                               | 2.0                               | 26.0                            | 935                   | 1.6                            | 1.4                               | 28.5                            | 1518                  | 4.0x0.80                        | 1.4                               | 27.0                            | 1284                  | 500                           |
| 24              | 0.9                             | 0.3                               | 2.0                               | 28.5                            | 1061                  | 1.6                            | 1.56                              | 31.5                            | 1736                  | 4.0x0.80                        | 1.4                               | 29.5                            | 1452                  | 500                           |
| 27              | 0.9                             | 0.3                               | 2.0                               | 29.0                            | 1167                  | 1.6                            | 1.56                              | 32.0                            | 1858                  | 4.0x0.80                        | 1.4                               | 30.0                            | 1568                  | 500                           |
| 30              | 0.9                             | 0.3                               | 2.0                               | 30.0                            | 1278                  | 1.6                            | 1.56                              | 33.0                            | 1996                  | 4.0x0.80                        | 1.56                              | 31.5                            | 1716                  | 500                           |
| 33              | 0.9                             | 0.3                               | 2.0                               | 31.0                            | 1389                  | 1.6                            | 1.56                              | 34.0                            | 2139                  | 4.0x0.80                        | 1.56                              | 32.5                            | 1847                  | 500                           |
| 37              | 0.9                             | 0.4                               | 2.2                               | 32.5                            | 1579                  | 2.0                            | 1.56                              | 36.0                            | 2550                  | 4.0x0.80                        | 1.56                              | 34.0                            | 2032                  | 500                           |
| 44              | 0.9                             | 0.4                               | 2.2                               | 36.0                            | 1857                  | 2.0                            | 1.56                              | 40.0                            | 2960                  | 4.0x0.80                        | 1.56                              | 37.5                            | 2374                  | 500                           |
| 52              | 0.9                             | 0.4                               | 2.2                               | 38.0                            | 2143                  | 2.0                            | 1.72                              | 42.0                            | 3328                  | 4.0x0.80                        | 1.56                              | 39.0                            | 2685                  | 500                           |
| 61              | 0.9                             | 0.4                               | 2.2                               | 40.0                            | 2471                  | 2.0                            | 1.72                              | 44.0                            | 3738                  | 4.0x0.80                        | 1.56                              | 41.5                            | 3050                  | 500                           |

**TABLE - 12 IS : 1554 PART - 1 -1988 DIMENSIONS AND WEIGHTS, 1100V 2.5 Sq.mm (STRANDED) PVC INULATED UNARMORED AND ARMORED MULTICORE CONTROL CABLE WITH COPPER CONDUCTOR**

| Number of Cores | Nominal Thickness of Insulation | Minimum Thickness of Inner Sheath | UNARMORED                         |                                 |                       | ROUND WIRE ARMORED             |                                   |                                 |                       | FLAT STRIP ARMORED              |                                   |                                 |                       | Normal Delivery Length (Mtrs) |
|-----------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|--------------------------------|-----------------------------------|---------------------------------|-----------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------|-------------------------------|
|                 |                                 |                                   | Nominal Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Diameter of Round Wire | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable | Nominal Dimension of Flat Strip | Minimum Thickness of Outer Sheath | Appx. Overall Diameter of cable | Appx. Weight of Cable |                               |
|                 |                                 |                                   | (mm)                              | (mm)                            | (kg/km)               | (mm)                           | (mm)                              | (mm)                            | (mm)                  | (mm)                            | (mm)                              | (mm)                            | (mm)                  |                               |
| 2               | 0.9                             | 0.3                               | 1.8                               | 13.5                            | 166                   | 1.4                            | 1.24                              | 15.5                            | 382                   |                                 |                                   |                                 |                       | 1000                          |
| 3               | 0.9                             | 0.3                               | 1.8                               | 14.0                            | 207                   | 1.4                            | 1.24                              | 16.0                            | 438                   |                                 |                                   |                                 |                       | 1000                          |
| 4               | 0.9                             | 0.3                               | 1.8                               | 15.0                            | 252                   | 1.4                            | 1.24                              | 17.5                            | 509                   |                                 |                                   |                                 |                       | 1000                          |
| 5               | 0.9                             | 0.3                               | 1.8                               | 16.0                            | 298                   | 1.4                            | 1.24                              | 18.5                            | 582                   |                                 |                                   |                                 |                       | 1000                          |
| 6               | 0.9                             | 0.3                               | 1.8                               | 17.5                            | 343                   | 1.4                            | 1.24                              | 19.5                            | 657                   |                                 |                                   |                                 |                       | 1000                          |
| 7               | 0.9                             | 0.3                               | 1.8                               | 17.5                            | 378                   | 1.4                            | 1.24                              | 19.5                            | 692                   |                                 |                                   |                                 |                       | 1000                          |
| 8               | 0.9                             | 0.3                               | 1.8                               | 18.5                            | 431                   | 1.4                            | 1.4                               | 21.5                            | 802                   |                                 |                                   |                                 |                       | 1000                          |
| 9               | 0.9                             | 0.3                               | 1.8                               | 20.0                            | 478                   | 1.6                            | 1.4                               | 23.0                            | 947                   | 4.0x0.80                        | 1.4                               | 21.5                            | 764                   | 1000                          |
| 10              | 0.9                             | 0.3                               | 1.8                               | 21.5                            | 521                   | 1.6                            | 1.4                               | 24.5                            | 1012                  | 4.0x0.80                        | 1.4                               | 23.0                            | 821                   | 1000                          |
| 12              | 0.9                             | 0.3                               | 2.0                               | 22.5                            | 615                   | 1.6                            | 1.4                               | 25.0                            | 1106                  | 4.0x0.80                        | 1.4                               | 23.5                            | 908                   | 1000                          |
| 14              | 0.9                             | 0.3                               | 2.0                               | 23.5                            | 696                   | 1.6                            | 1.4                               | 26.0                            | 1214                  | 4.0x0.80                        | 1.4                               | 24.5                            | 1005                  | 1000                          |
| 16              | 0.9                             | 0.3                               | 2.0                               | 24.5                            | 778                   | 1.6                            | 1.4                               | 27.5                            | 1328                  | 4.0x0.80                        | 1.4                               | 25.5                            | 1106                  | 1000                          |
| 19              | 0.9                             | 0.3                               | 2.0                               | 26.0                            | 895                   | 1.6                            | 1.4                               | 28.5                            | 1479                  | 4.0x0.80                        | 1.4                               | 27.0                            | 1244                  | 1000                          |
| 21              | 0.9                             | 0.3                               | 2.0                               | 27.0                            | 979                   | 1.6                            | 1.4                               | 30.0                            | 1599                  | 4.0x0.80                        | 1.4                               | 28.0                            | 1349                  | 500                           |
| 24              | 0.9                             | 0.3                               | 2.0                               | 29.5                            | 1111                  | 1.6                            | 1.56                              | 33.0                            | 1828                  | 4.0x0.80                        | 1.4                               | 31.0                            | 1527                  | 500                           |
| 27              | 0.9                             | 0.3                               | 2.0                               | 30.5                            | 1222                  | 1.6                            | 1.56                              | 33.5                            | 1956                  | 4.0x0.80                        | 1.4                               | 31.5                            | 1649                  | 500                           |
| 30              | 0.9                             | 0.3                               | 2.0                               | 31.5                            | 1338                  | 1.6                            | 1.56                              | 34.5                            | 2101                  | 4.0x0.80                        | 1.56                              | 33.0                            | 1803                  | 500                           |
| 33              | 0.9                             | 0.3                               | 2.0                               | 31.5                            | 1454                  | 1.6                            | 1.56                              | 35.5                            | 2251                  | 4.0x0.80                        | 1.56                              | 34.0                            | 1941                  | 500                           |
| 37              | 0.9                             | 0.3                               | 2.2                               | 34.5                            | 1653                  | 2.0                            | 1.56                              | 38.0                            | 2684                  | 4.0x0.80                        | 1.56                              | 35.5                            | 2135                  | 500                           |
| 44              | 0.9                             | 0.4                               | 2.2                               | 38.5                            | 1944                  | 2.0                            | 1.56                              | 42.0                            | 3111                  | 4.0x0.80                        | 1.56                              | 39.5                            | 2493                  | 500                           |
| 52              | 0.9                             | 0.4                               | 2.2                               | 40.0                            | 2243                  | 2.0                            | 1.72                              | 44.0                            | 3502                  | 4.0x0.80                        | 1.56                              | 41.0                            | 2820                  | 500                           |
| 61              | 0.9                             | 0.4                               | 2.2                               | 42.5                            | 2585                  | 2.0                            | 1.72                              | 46.5                            | 3929                  | 4.0x0.80                        | 1.56                              | 43.5                            | 3201                  | 500                           |



**TABLE - 13 IS : 1554 PART - 1 -1988**  
**CONTINUOUS CURRENT RATING FOR TWO SINGLE CORE, 650/1100 V UNARMoured OR NON - MAGNETIC PVC CABLES**

| Nominal Area of Conductor | Laid Direct in the Ground |          | In Ducts |          | In the Air |          |
|---------------------------|---------------------------|----------|----------|----------|------------|----------|
|                           | Copper                    | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                    | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 25                        | 21       | 23       | 19       | 24         | 18       |
| 2.5                       | 35                        | 28       | 31       | 25       | 32         | 25       |
| 4                         | 46                        | 36       | 42       | 33       | 43         | 32       |
| 6                         | 57                        | 44       | 54       | 42       | 54         | 41       |
| 10                        | 75                        | 59       | 72       | 56       | 72         | 56       |
| 16                        | 94                        | 75       | 92       | 71       | 92         | 72       |
| 25                        | 125                       | 97       | 120      | 93       | 125        | 99       |
| 35                        | 150                       | 120      | 140      | 110      | 155        | 120      |
| 50                        | 180                       | 145      | 165      | 130      | 190        | 150      |
| 70                        | 220                       | 170      | 200      | 155      | 235        | 185      |
| 95                        | 265                       | 205      | 230      | 180      | 275        | 215      |
| 120                       | 300                       | 230      | 255      | 200      | 310        | 240      |
| 150                       | 340                       | 265      | 280      | 220      | 345        | 270      |
| 185                       | 380                       | 300      | 305      | 240      | 390        | 305      |
| 240                       | 420                       | 335      | 340      | 270      | 445        | 350      |
| 300                       | 465                       | 370      | 370      | 295      | 500        | 395      |
| 400                       | 500                       | 410      | 405      | 335      | 570        | 455      |
| 500                       | 540                       | 435      | 430      | 355      | 610        | 490      |
| 630                       | 590                       | 485      | 465      | 395      | 680        | 560      |
| 800                       | 645                       | 530      | 505      | 430      | 780        | 640      |
| 1000                      | 705                       | 580      | 555      | 470      | 900        | 740      |

**TABLE - 14 IS : 1554 PART - 1 -1988**  
**CONTINUOUS RATINGS FOR THREE SINGLE CORE, 650/1100 V, UNARMoured OR NON - MAGNETIC ARMoured PVC CABLES**

| Nominal Area of Conductor | Laid Direct in the Ground |          | In Ducts |          | In the Air |          |
|---------------------------|---------------------------|----------|----------|----------|------------|----------|
|                           | Copper                    | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                    | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 22                        | 17       | 21       | 17       | 20         | 15       |
| 2.5                       | 30                        | 24       | 29       | 24       | 27         | 21       |
| 4                         | 39                        | 31       | 38       | 30       | 35         | 27       |
| 6                         | 49                        | 39       | 48       | 37       | 44         | 35       |
| 10                        | 65                        | 51       | 64       | 51       | 60         | 47       |
| 16                        | 85                        | 66       | 83       | 65       | 82         | 64       |
| 25                        | 110                       | 86       | 110      | 84       | 110        | 84       |
| 35                        | 130                       | 100      | 125      | 100      | 130        | 105      |
| 50                        | 155                       | 120      | 150      | 115      | 165        | 130      |
| 70                        | 190                       | 140      | 175      | 135      | 205        | 155      |
| 95                        | 220                       | 175      | 200      | 155      | 245        | 190      |
| 120                       | 250                       | 195      | 220      | 170      | 280        | 220      |
| 150                       | 280                       | 220      | 245      | 190      | 320        | 250      |
| 185                       | 305                       | 240      | 260      | 210      | 370        | 290      |
| 240                       | 345                       | 270      | 285      | 225      | 425        | 335      |
| 300                       | 375                       | 295      | 310      | 245      | 475        | 380      |
| 400                       | 400                       | 325      | 335      | 275      | 550        | 435      |
| 500                       | 425                       | 345      | 355      | 295      | 590        | 480      |
| 630                       | 470                       | 390      | 375      | 320      | 660        | 550      |
| 800                       | 530                       | 440      | 410      | 350      | 770        | 640      |
| 1000                      | 590                       | 490      | 450      | 385      | 865        | 720      |

**TABLE - 15 IS : 1554 PART - 1 -1988**  
**CURRENT RATINGS FOR TWIN CORE, 650/1100V ARMoured OR UNARMoured PVC CABLES**

| Nominal Area of Conductor | Laid Direct in the Ground |          | In Ducts |          | In the Air |          |
|---------------------------|---------------------------|----------|----------|----------|------------|----------|
|                           | Copper                    | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                    | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 23                        | 18       | 20       | 16       | 20         | 16       |
| 2.5                       | 32                        | 25       | 27       | 21       | 27         | 21       |
| 4                         | 41                        | 32       | 35       | 27       | 35         | 27       |
| 6                         | 50                        | 40       | 44       | 34       | 45         | 35       |
| 10                        | 70                        | 55       | 58       | 45       | 60         | 47       |
| 16                        | 90                        | 70       | 75       | 58       | 78         | 59       |
| 25                        | 115                       | 90       | 97       | 76       | 105        | 78       |
| 35                        | 140                       | 110      | 120      | 92       | 125        | 99       |
| 50                        | 165                       | 135      | 145      | 115      | 155        | 125      |
| 70                        | 205                       | 160      | 180      | 140      | 195        | 150      |
| 95                        | 240                       | 190      | 215      | 170      | 230        | 185      |
| 120                       | 275                       | 210      | 235      | 190      | 265        | 210      |
| 150                       | 310                       | 240      | 270      | 210      | 305        | 240      |
| 185                       | 350                       | 275      | 300      | 240      | 350        | 275      |
| 240                       | 405                       | 320      | 345      | 275      | 410        | 325      |
| 300                       | 450                       | 355      | 385      | 305      | 465        | 365      |
| 400                       | 490                       | 385      | 425      | 345      | 530        | 420      |
| 500                       | 520                       | 415      | 460      | 365      | 575        | 455      |
| 630                       | 565                       | 460      | 510      | 405      | 655        | 520      |

**TABLE - 16 IS : 1554 PART - 1 -1988**  
**CURRENT RATINGS FOR THREE, THREE AND A HALF AND FOUR CORE, 650/1100V ARMoured OR UNARMoured PVC CABLES**

| Nominal Area of Conductor | Laid Direct in the Ground |          | In Ducts |          | In the Air |          |
|---------------------------|---------------------------|----------|----------|----------|------------|----------|
|                           | Copper                    | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                    | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 21                        | 16       | 17       | 14       | 17         | 13       |
| 2.5                       | 27                        | 21       | 24       | 18       | 24         | 18       |
| 4                         | 36                        | 28       | 30       | 23       | 30         | 23       |
| 6                         | 45                        | 35       | 38       | 30       | 39         | 30       |
| 10                        | 60                        | 46       | 50       | 39       | 52         | 40       |
| 16                        | 77                        | 60       | 64       | 50       | 66         | 51       |
| 25                        | 99                        | 76       | 81       | 63       | 90         | 70       |
| 35                        | 120                       | 92       | 99       | 77       | 110        | 86       |
| 50                        | 145                       | 110      | 125      | 95       | 135        | 105      |
| 70                        | 175                       | 135      | 150      | 115      | 165        | 130      |
| 95                        | 210                       | 165      | 175      | 140      | 200        | 155      |
| 120                       | 240                       | 185      | 195      | 155      | 230        | 180      |
| 150                       | 270                       | 210      | 225      | 175      | 265        | 205      |
| 185                       | 300                       | 235      | 255      | 200      | 305        | 240      |
| 240                       | 345                       | 275      | 295      | 235      | 355        | 280      |
| 300                       | 385                       | 305      | 335      | 260      | 400        | 315      |
| 400                       | 425                       | 335      | 360      | 290      | 455        | 375      |
| 500                       | 470                       | 370      | 405      | 320      | 540        | 425      |
| 630                       | 515                       | 405      | 445      | 350      | 610        | 480      |

**TABLE - 17 IS : 1554 PART - 1 -1988**  
CURRENT RATINGS FOR TWO SINGLE CORE, 650/1100 V UNARMoured OR NON - MAGNETIC ARMoured HRPVC CABLES

| Nominal Area of Conductor | Laid Direct in the Ground |          | In Ducts |          | In the Air |          |
|---------------------------|---------------------------|----------|----------|----------|------------|----------|
|                           | Copper                    | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                    | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 29                        | 24       | 26       | 22       | 29         | 22       |
| 2.5                       | 40                        | 32       | 35       | 29       | 38         | 30       |
| 4                         | 52                        | 41       | 48       | 38       | 52         | 38       |
| 6                         | 65                        | 50       | 62       | 48       | 65         | 49       |
| 10                        | 86                        | 67       | 82       | 64       | 86         | 67       |
| 16                        | 107                       | 86       | 105      | 81       | 110        | 86       |
| 25                        | 143                       | 111      | 137      | 106      | 150        | 119      |
| 35                        | 171                       | 137      | 160      | 125      | 186        | 144      |
| 50                        | 205                       | 165      | 188      | 148      | 228        | 180      |
| 70                        | 251                       | 194      | 228      | 177      | 282        | 222      |
| 95                        | 302                       | 234      | 262      | 205      | 330        | 258      |
| 120                       | 342                       | 262      | 291      | 228      | 372        | 288      |
| 150                       | 388                       | 302      | 319      | 251      | 414        | 324      |
| 185                       | 433                       | 342      | 348      | 274      | 468        | 366      |
| 240                       | 479                       | 382      | 388      | 308      | 534        | 420      |
| 300                       | 530                       | 422      | 422      | 336      | 600        | 474      |
| 400                       | 570                       | 467      | 462      | 382      | 684        | 546      |
| 500                       | 616                       | 496      | 490      | 405      | 732        | 588      |
| 630                       | 673                       | 553      | 530      | 450      | 816        | 672      |
| 800                       | 735                       | 604      | 576      | 490      | 936        | 768      |
| 1000                      | 804                       | 661      | 633      | 536      | 1080       | 888      |

**TABLE - 18 (IS : 1554 (PART - 1) -1988)**  
CURRENT RATINGS FOR THREE SINGLE CORE, 650/1100 VOLTS UNARMoured OR NON - MAGNETIC ARMoured HR PVC CABLE

| Nominal Area of Conductor | Laid Direct in the Ground - HR PVC |          | In Ducts |          | In the Air |          |
|---------------------------|------------------------------------|----------|----------|----------|------------|----------|
|                           | Copper                             | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                             | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 25                                 | 19       | 24       | 19       | 24         | 18       |
| 2.5                       | 34                                 | 27       | 33       | 27       | 32         | 25       |
| 4                         | 44                                 | 35       | 43       | 34       | 42         | 32       |
| 6                         | 56                                 | 44       | 55       | 42       | 53         | 42       |
| 10                        | 74                                 | 58       | 73       | 58       | 72         | 56       |
| 16                        | 97                                 | 75       | 95       | 74       | 98         | 77       |
| 25                        | 125                                | 98       | 125      | 96       | 132        | 101      |
| 35                        | 148                                | 114      | 143      | 114      | 156        | 126      |
| 50                        | 177                                | 137      | 171      | 131      | 198        | 156      |
| 70                        | 217                                | 160      | 200      | 154      | 246        | 186      |
| 95                        | 251                                | 200      | 228      | 177      | 294        | 228      |
| 120                       | 285                                | 222      | 251      | 194      | 336        | 264      |
| 150                       | 319                                | 251      | 279      | 217      | 384        | 300      |
| 185                       | 348                                | 274      | 296      | 239      | 444        | 348      |
| 240                       | 393                                | 308      | 325      | 257      | 510        | 402      |
| 300                       | 428                                | 336      | 353      | 279      | 570        | 456      |
| 400                       | 456                                | 371      | 382      | 314      | 660        | 522      |
| 500                       | 485                                | 393      | 405      | 336      | 708        | 576      |
| 630                       | 536                                | 445      | 428      | 365      | 792        | 660      |
| 800                       | 604                                | 502      | 467      | 399      | 924        | 768      |
| 1000                      | 673                                | 559      | 513      | 439      | 1038       | 864      |

**TABLE - 19 (IS : 1554 (PART - 1) -1988)**  
CURRENT RATINGS FOR TWIN CORE, 650/1100 VOLTS ARMoured OR UNARMoured HR PVC CABLES

| Nominal Area of Conductor | Laid Direct in the Ground |          | In Ducts |          | In the Air |          |
|---------------------------|---------------------------|----------|----------|----------|------------|----------|
|                           | Copper                    | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                    | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 26                        | 21       | 23       | 18       | 24         | 19       |
| 2.5                       | 36                        | 29       | 31       | 24       | 32         | 25       |
| 4                         | 47                        | 36       | 40       | 31       | 42         | 32       |
| 6                         | 57                        | 46       | 50       | 39       | 54         | 42       |
| 10                        | 80                        | 63       | 66       | 51       | 72         | 56       |
| 16                        | 103                       | 80       | 86       | 66       | 94         | 71       |
| 25                        | 131                       | 103      | 111      | 87       | 126        | 94       |
| 35                        | 160                       | 125      | 137      | 105      | 150        | 119      |
| 50                        | 188                       | 154      | 165      | 131      | 186        | 150      |
| 70                        | 234                       | 182      | 205      | 160      | 234        | 180      |
| 95                        | 274                       | 217      | 245      | 194      | 276        | 222      |
| 120                       | 314                       | 239      | 268      | 217      | 318        | 252      |
| 150                       | 353                       | 274      | 308      | 239      | 366        | 288      |
| 185                       | 399                       | 314      | 342      | 274      | 420        | 330      |
| 240                       | 462                       | 365      | 393      | 314      | 492        | 390      |
| 300                       | 513                       | 405      | 439      | 348      | 558        | 438      |
| 400                       | 559                       | 439      | 485      | 393      | 636        | 504      |
| 500                       | 593                       | 473      | 524      | 416      | 690        | 546      |
| 630                       | 644                       | 524      | 581      | 462      | 786        | 624      |

**TABLE - 20 (IS : 1554 (PART - 1)**  
CURRENT RATINGS FOR THREE, THREE AND A HALF AND FOUR CORE, 650/1100V ARMoured OR UNARMoured HR PVC CABLES

| Nominal Area of Conductor | Laid Direct in the Ground |          | In Ducts |          | In the Air |          |
|---------------------------|---------------------------|----------|----------|----------|------------|----------|
|                           | Copper                    | Aluminum | Copper   | Aluminum | Copper     | Aluminum |
|                           | Sq. mm                    | Amps     | Amps     | Amps     | Amps       | Amps     |
| 1.5                       | 24                        | 18       | 19       | 16       | 20         | 16       |
| 2.5                       | 31                        | 24       | 27       | 21       | 29         | 22       |
| 4                         | 41                        | 32       | 34       | 26       | 36         | 28       |
| 6                         | 51                        | 40       | 43       | 34       | 47         | 36       |
| 10                        | 68                        | 52       | 57       | 44       | 62         | 48       |
| 16                        | 88                        | 68       | 73       | 57       | 79         | 61       |
| 25                        | 113                       | 87       | 92       | 72       | 108        | 84       |
| 35                        | 137                       | 105      | 113      | 88       | 132        | 103      |
| 50                        | 165                       | 125      | 143      | 108      | 162        | 126      |
| 70                        | 200                       | 154      | 171      | 131      | 198        | 156      |
| 95                        | 239                       | 188      | 200      | 160      | 240        | 186      |
| 120                       | 274                       | 211      | 222      | 177      | 276        | 216      |
| 150                       | 308                       | 239      | 257      | 200      | 318        | 246      |
| 185                       | 342                       | 268      | 291      | 228      | 366        | 288      |
| 240                       | 393                       | 314      | 336      | 268      | 426        | 336      |
| 300                       | 439                       | 348      | 382      | 296      | 480        | 378      |
| 400                       | 485                       | 382      | 410      | 331      | 546        | 450      |
| 500                       | 536                       | 422      | 462      | 365      | 648        | 510      |
| 630                       | 587                       | 462      | 507      | 399      | 752        | 576      |

**TABLE - 21 (IS : 1554 (PART - 1) -1988)**  
**SHORT CIRCUIT RATINGS OF CONDUCTOR FOR ONE**  
**SECOND DURATION (Kilo Amps)**

| Nominal Area of Conductor<br>Sq. mm | PVC Cables |           | HR PVC Cables |           |
|-------------------------------------|------------|-----------|---------------|-----------|
|                                     | Copper     | Aluminium | Copper        | Aluminium |
| 1.5                                 | 0.172      | 0.114     | 0.156         | 0.103     |
| 2.5                                 | 0.287      | 0.189     | 0.26          | 0.172     |
| 4                                   | 0.460      | 0.303     | 0.417         | 0.276     |
| 6                                   | 0.690      | 0.455     | 0.625         | 0.414     |
| 10                                  | 1.150      | 0.758     | 1.04          | 0.69      |
| 16                                  | 1.840      | 1.21      | 1.67          | 1.10      |
| 25                                  | 2.870      | 1.89      | 2.60          | 1.72      |
| 35                                  | 4.02       | 2.65      | 3.65          | 2.41      |
| 50                                  | 5.75       | 3.79      | 5.21          | 3.45      |
| 70                                  | 8.05       | 5.30      | 7.29          | 4.83      |
| 95                                  | 10.92      | 7.20      | 9.90          | 6.55      |
| 120                                 | 13.79      | 9.09      | 12.50         | 8.28      |
| 150                                 | 17.24      | 11.36     | 15.63         | 10.35     |
| 185                                 | 21.26      | 14.02     | 19.27         | 12.78     |
| 240                                 | 27.59      | 18.18     | 25.0          | 16.55     |
| 300                                 | 34.48      | 22.73     | 31.25         | 20.69     |
| 400                                 | 45.98      | 30.30     | 41.67         | 27.59     |
| 500                                 | 57.47      | 37.88     | 52.08         | 34.48     |
| 630                                 | 72.41      | 47.73     | 65.63         | 43.45     |
| 800                                 | 91.95      | 60.61     | 83.33         | 55.13     |
| 1000                                | 114.94     | 75.76     | 104.17        | 68.97     |

**TABLE-22 (IS - 1554 (PART 1) -1988)**  
**RATING FACTORS, FOR AIR AND GROUND TEMPERATURE**

a) RATING FACTOR FOR VARIATION IN AMBIENT AIR TEMPERATURE

| AMBIENT TEMP deg C       | 25   | 30   | 35   | 40 | 45   | 50   |
|--------------------------|------|------|------|----|------|------|
| RATING FACTOR FOR PVC    | 1.25 | 1.16 | 1.09 | 1  | 0.9  | 0.81 |
| RATING FACTOR FOR HR PVC | 1.15 | 1.1  | 1.05 | 1  | 0.94 | 0.88 |

a) RATING FACTOR FOR VARIATION IN GROUND TEMPERATURE

| AMBIENT TEMP deg C       | 25   | 30   | 35   | 40 | 45   | 50   |
|--------------------------|------|------|------|----|------|------|
| RATING FACTOR FOR PVC    | 1.25 | 1.16 | 1.09 | 1  | 0.9  | 0.81 |
| RATING FACTOR FOR HR PVC | 1.15 | 1.1  | 1.05 | 1  | 0.94 | 0.88 |

**TABLE - 23 (IS -1554 (PART -1) -1988)**  
**FOR DEPTH OF LAYING (CABLES LAID DIRECT IN THE GROUND)**

| Depth of Laying<br>cm | SIZE<br>Upto & Including 1.1kv |                                  |                 |
|-----------------------|--------------------------------|----------------------------------|-----------------|
|                       | Upto 25 Sq.mm                  | Above 25 Sq.mm<br>Upto 300 Sq.mm | Above 300 Sq.mm |
| 75                    | 1                              | 1                                | 1               |
| 90                    | 0.99                           | 0.98                             | 0.97            |
| 105                   | 0.98                           | 0.97                             | 0.96            |
| 120                   | 0.97                           | 0.96                             | 0.95            |
| 150                   | 0.96                           | 0.94                             | 0.92            |
| 180 or more           | 0.95                           | 0.93                             | 0.91            |

**TABLE - 24 IS -1554 PART -1 -1988. RATING FACTOR FOR VARIATION IN THERMAL RESISTIVITY OF SOIL**  
**(TWIN AND MULTICORE CABLES LAID DIRECT IN THE GROUND)**

| Nominal Area of Conductor<br>Sq. mm | For value of thermal resistivity of soil in deg C cm/w |      |     |      |      |      |
|-------------------------------------|--|------|-----|------|------|------|
|                                     | 100  | 120  | 150 | 200  | 250  | 300  |
| 1.5                                 | 1.1  | 1.05 | 1.0 | 0.92 | 0.86 | 0.81 |
| 2.5                                 | 1.1  | 1.05 | 1.0 | 0.92 | 0.86 | 0.81 |
| 4                                   | 1.1  | 1.05 | 1.0 | 0.92 | 0.86 | 0.81 |
| 6                                   | 1.1  | 1.05 | 1.0 | 0.92 | 0.86 | 0.81 |
| 10                                  | 1.1  | 1.06 | 1.0 | 0.92 | 0.85 | 0.8  |
| 16                                  | 1.12   | 1.06 | 1.0 | 0.91 | 0.84 | 0.79 |
| 25                                  | 1.14   | 1.08 | 1.0 | 0.91 | 0.84 | 0.78 |
| 35                                  | 1.15   | 1.08 | 1.0 | 0.91 | 0.84 | 0.77 |
| 50                                  | 1.15   | 1.08 | 1.0 | 0.91 | 0.84 | 0.77 |
| 70                                  | 1.15   | 1.08 | 1.0 | 0.9  | 0.83 | 0.76 |
| 95                                  | 1.15   | 1.08 | 1.0 | 0.9  | 0.83 | 0.76 |
| 120                                 | 1.17   | 1.09 | 1.0 | 0.9  | 0.82 | 0.76 |
| 150                                 | 1.17   | 1.09 | 1.0 | 0.9  | 0.82 | 0.76 |
| 185                                 | 1.18   | 1.09 | 1.0 | 0.89 | 0.81 | 0.75 |
| 240                                 | 1.18   | 1.09 | 1.0 | 0.89 | 0.81 | 0.75 |
| 300                                 | 1.18   | 1.09 | 1.0 | 0.89 | 0.81 | 0.75 |
| 400                                 | 1.19   | 1.1  | 1.0 | 0.89 | 0.81 | 0.75 |
| 500                                 | 1.19   | 1.10 | 1.0 | 0.89 | 0.81 | 0.75 |
| 630                                 | 1.19   | 1.10 | 1.0 | 0.89 | 0.81 | 0.75 |

**TABLE - 25 IS - 1554 PART - 1 -1988 RATING FACTOR**

| Nominal Area of Conductor | TWO CABLES TOUCHING, FOR VALUES OF THERMAL RESISTIVITY OF SOIL IN degC cm/w |      |     |      |      |      | THREE CABLES TREFOIL TOUCHING, FOR VALUES THERMAL RESISTIVITY OF SOIL IN degC cm/w |      |     |      |      |      |      |
|---------------------------|---|------|-----|------|------|------|--|------|-----|------|------|------|------|
|                           | sq.mm   | 100  | 120 | 150  | 200  | 250  | 300  | 100  | 120 | 150  | 200  | 250  | 300  |
| 1.5                       | 1.15  | 1.08 | 1   | 0.91 | 0.84 | 0.78 | 1.18   | 1.09 | 1   | 0.9  | 0.82 | 0.76 | 0.76 |
| 2.5                       | 1.15  | 1.08 | 1   | 0.91 | 0.84 | 0.78 | 1.18   | 1.09 | 1   | 0.9  | 0.82 | 0.76 | 0.76 |
| 4                         | 1.15  | 1.08 | 1   | 0.91 | 0.84 | 0.78 | 1.18   | 1.09 | 1   | 0.9  | 0.82 | 0.76 | 0.76 |
| 6                         | 1.15  | 1.08 | 1   | 0.91 | 0.84 | 0.78 | 1.18   | 1.09 | 1   | 0.9  | 0.82 | 0.76 | 0.76 |
| 10                        | 1.15  | 1.08 | 1   | 0.9  | 0.83 | 0.77 | 1.18   | 1.09 | 1   | 0.89 | 0.81 | 0.74 | 0.74 |
| 16                        | 1.17  | 1.09 | 1   | 0.9  | 0.83 | 0.77 | 1.19   | 1.09 | 1   | 0.89 | 0.81 | 0.74 | 0.74 |
| 25                        | 1.18  | 1.09 | 1   | 0.9  | 0.82 | 0.76 | 1.19   | 1.09 | 1   | 0.88 | 0.8  | 0.74 | 0.74 |
| 35                        | 1.18  | 1.09 | 1   | 0.9  | 0.82 | 0.75 | 1.2  | 1.09 | 1   | 0.88 | 0.8  | 0.74 | 0.74 |
| 50                        | 1.18  | 1.09 | 1   | 0.9  | 0.82 | 0.75 | 1.2  | 1.09 | 1   | 0.88 | 0.8  | 0.74 | 0.74 |
| 70                        | 1.19  | 1.09 | 1   | 0.89 | 0.81 | 0.74 | 1.21   | 1.1  | 1   | 0.88 | 0.8  | 0.74 | 0.74 |
| 95                        | 1.19  | 1.09 | 1   | 0.89 | 0.81 | 0.74 | 1.22   | 1.1  | 1   | 0.88 | 0.8  | 0.74 | 0.74 |
| 120                       | 1.21  | 1.1  | 1   | 0.89 | 0.8  | 0.74 | 1.22   | 1.1  | 1   | 0.88 | 0.79 | 0.74 | 0.74 |
| 150                       | 1.21  | 1.1  | 1   | 0.89 | 0.8  | 0.74 | 1.22   | 1.1  | 1   | 0.88 | 0.79 | 0.73 | 0.73 |
| 185                       | 1.21  | 1.1  | 1   | 0.89 | 0.8  | 0.74 | 1.22   | 1.1  | 1   | 0.88 | 0.79 | 0.73 | 0.73 |
| 240                       | 1.21  | 1.1  | 1   | 0.89 | 0.8  | 0.74 | 1.22   | 1.1  | 1   | 0.88 | 0.79 | 0.73 | 0.73 |
| 300                       | 1.21  | 1.1  | 1   | 0.89 | 0.8  | 0.74 | 1.22   | 1.1  | 1   | 0.88 | 0.79 | 0.72 | 0.72 |
| 400                       | 1.21  | 1.1  | 1   | 0.88 | 0.8  | 0.74 | 1.24   | 1.11 | 1   | 0.88 | 0.79 | 0.72 | 0.72 |
| 500                       | 1.21  | 1.1  | 1   | 0.88 | 0.8  | 0.74 | 1.24   | 1.11 | 1   | 0.88 | 0.79 | 0.72 | 0.72 |
| 630                       | 1.22  | 1.1  | 1   | 0.88 | 0.8  | 0.74 | 1.24   | 1.11 | 1   | 0.88 | 0.79 | 0.72 | 0.72 |

**TABLE - 26 IS : 1554 PART - 1 -1988 GROUP RATING FACTORS**

**A) FOR SINGLECORE CABLE LAID IN TREFOIL FORMATION**

| NO OF TREFOIL IN GROUPS | SPACING BETWEEN TREFOILS |        |        |        |
|-------------------------|--------------------------|--------|--------|--------|
|                         | TOUCHING                 | 15 cms | 30 cms | 45 cms |
| 2                       | 0.78                     | 0.81   | 0.85   | 0.88   |
| 3                       | 0.68                     | 0.71   | 0.77   | 0.81   |
| 4                       | 0.61                     | 0.65   | 0.72   | 0.76   |
| 5                       | 0.56                     | 0.61   | 0.68   | 0.73   |

**B) CABLES LAID IN TREFOIL DUCT IN HORIZONTAL FORMATION**

| NO OF TREFOIL IN GROUPS | SPACING BETWEEN TREFOILS |        |       |
|-------------------------|--------------------------|--------|-------|
|                         | TOUCHING                 | 45 cms | 60cms |
| 2                       | 0.87                     | 0.9    | 0.91  |
| 3                       | 0.79                     | 0.83   | 0.86  |
| 4                       | 0.74                     | 0.79   | 0.82  |
| 5                       | 0.71                     | 0.76   | 0.8   |

C) cables laid in racks / trays in covered trench with removable covers where air circulation is restricted, trefoils are separated by two cable dia horizontally and the trays are in tiers with 30 cm. Gap between them.

| NO OF RACK / TRAYS IN TIERS | NO OF TREFOIL IN HORIZONTAL FORMATION |      |      |
|-----------------------------|---------------------------------------|------|------|
|                             | 1                                     | 2    | 3    |
| 1                           | 0.95                                  | 0.9  | 0.88 |
| 2                           | 0.9                                   | 0.85 | 0.83 |
| 3                           | 0.88                                  | 0.83 | 0.81 |
| 6                           | 0.86                                  | 0.81 | 0.79 |

**D) CABLES LAID AS IN 'C' BUT IN OPEN AIR**

|   |   |      |      |
|---|---|------|------|
| 1 | 1 | 0.98 | 0.96 |
| 2 | 1 | 0.95 | 0.93 |
| 3 | 1 | 0.94 | 0.92 |
| 6 | 1 | 0.93 | 0.9  |

**TABLE - 27 IS : 1554 PART - 1 -1988**

**GROUP RATING FACTORS FOR MULTICORE CABLES**

A) Cables Laid Inside concrete trench with removable covers, on cable trays where air circulation is restricted. the cables spaced by one cable diameter and tray in tiers by 300 mm. The Clearance of The Cable from the wall is 25 mm.

| No. of Cable Traces In Tier | No. of Cable |      |      |      |      |
|-----------------------------|--------------|------|------|------|------|
|                             | 1            | 2    | 3    | 6    | 9    |
| 1                           | 0.95         | 0.9  | 0.88 | 0.85 | 0.84 |
| 2                           | 0.9          | 0.85 | 0.83 | 0.81 | 0.8  |
| 3                           | 0.88         | 0.83 | 0.81 | 0.79 | 0.78 |
| 6                           | 0.86         | 0.81 | 0.79 | 0.77 | 0.76 |

B) Cable Laid on cable tray exposed to air, the cable spaced by one cable diameter and Trays in tier by 300 mm. The clearance between the wall and the cable is 25mm.

| No. of Cable Traces In Tier | No. of Cable |      |      |      |      |
|-----------------------------|--------------|------|------|------|------|
|                             | 1            | 2    | 3    | 6    | 9    |
| 1                           | 1            | 0.98 | 0.96 | 0.93 | 0.92 |
| 2                           | 1            | 0.95 | 0.93 | 0.9  | 0.89 |
| 3                           | 1            | 0.94 | 0.92 | 0.89 | 0.88 |
| 6                           | 1            | 0.93 | 0.9  | 0.87 | 0.86 |

C) Cables Laid on cable cable trays exposed to air, the cables touching and trays in tiers by 300 mm. The clearance between the wall and the cable 25 mm.

| No. of Trays | No. of Cable Per Tray |      |      |      |      |
|--------------|-----------------------|------|------|------|------|
|              | 1                     | 2    | 3    | 6    | 9    |
| 1            | 1                     | 0.84 | 0.8  | 0.75 | 0.73 |
| 2            | 1                     | 0.8  | 0.76 | 0.71 | 0.69 |
| 3            | 1                     | 0.78 | 0.74 | 0.7  | 0.68 |
| 6            | 1                     | 0.76 | 0.72 | 0.68 | 0.66 |



**TABLE - 27 IS : 1554 PART - 1 -1988**

D) CABLES LAID DIRECT IN GROUND IN HORIZONTAL FORMATION

| NO OF TREFOIL IN GROUPS | SPACING BETWEEN TREFOILS |        |        |        |
|-------------------------|--------------------------|--------|--------|--------|
|                         | TOUCHING                 | 15 cms | 30 cms | 45 cms |
| 1                       | 0.79                     | 0.82   | 0.87   | 0.9    |
| 3                       | 0.69                     | 0.75   | 0.79   | 0.83   |
| 4                       | 0.62                     | 0.69   | 0.74   | 0.79   |
| 5                       | 0.58                     | 0.65   | 0.72   | 0.76   |
| 6                       | 0.54                     | 0.61   | 0.69   | 0.75   |

E) CABLES LAID IN SINGLE WAY DUCT/PIPES IN HORIZONTAL FORMATION

| NO OF TREFOIL IN GROUPS | SPACING BETWEEN TREFOILS |        |        |        |
|-------------------------|--------------------------|--------|--------|--------|
|                         | TOUCHING                 | 30 cms | 45 cms | 60 cms |
| 1                       | 0.88                     | 0.9    | 0.92   | 0.94   |
| 3                       | 0.82                     | 0.84   | 0.87   | 0.89   |
| 4                       | 0.77                     | 0.8    | 0.84   | 0.87   |
| 5                       | 0.74                     | 0.78   | 0.82   | 0.85   |
| 6                       | 0.71                     | 0.76   | 0.81   | 0.84   |

### GUIDE LINES FOR CABLE LAYING

- 1) Recommended minimum bending radius of 1.1kv Grade Cable for Fixed Installation.  
Single Core - 15 D  
Multi Core – 12 D  
Where 'D' is overall Diameter of cable.
- 2) Maximum Permissible Tensile strength for cable
  - a) For Cables pulled with Stocking  
ARMoured CABLES  $P = 9 D^2$   
UNARMoured CABLES  $P = 5 D^2$   
Where P = pulling force in Newtons  
D = outer Diameter of cable in mm.
  - b) For Cables pulled by pulling eye: - If the cables are pulled by gripping the conductor directly with pulling eye, the Maximum permissible Tensile stress depends on the Material of the Conductor and their cross section as given below: -  
For Aluminium Conductors = 30 N /mm<sup>2</sup>  
For Copper Conductors = 50 N /mm<sup>2</sup>

### HANDLING AND STORAGE OF CABLE DRUMS

- a) The cable drum or coils must not be dropped or thrown from railway wagons or trucks during unloading operation. A RAMP or Crane may be used for unloading cable drums. If neither of them is available, a temporary ramps with inclination. 1 : 3 to 1: 4  
  
Approximately should be constructed, the cable drum should then be rolled over the ramp by means of ropes and winches, additionally a sand bed at the root of the ramp may placed to avoid rolling back of cable drums.
- b) The arrows painted on the flange of the drum indicate the direction in which the drum should be rolled. The cable will unwind and become loose if the drum is rolled in the opposite direction.
- c) The site chosen for storage of cable drums should be well drained and should preferably have a concrete surface / firm surface which will not cause the drums to sink and thus lead to flange rot and extremely difficult in moving the drums & in turn avoid damage to the cable.
- d) All Drums should be stored in such a manner as to leave sufficient space between them for air circulation. It is desirable for the drums to stand on battens placed directly under the Flanges. During storage the drum should be rolled to an angle of 90° once every three months.
- e) In no case should the drums be stored flat i.e., with flange horizontally placed.
- f) Overhead covering is not essential unless the storage is for a long period. The cable should however, be protected from direct rays of the sun by leaving the outer battens or by providing some form of sun shielding.
- g) Do not rewind cable to another drum whose barrel diameter is less than the existing drum diameter.

**NOTE: All data given in this catalogue is approximate and are subject to manufacturing tolerance  
Delivery length tolerance  $\pm 5\%$  length more than normal as per customer request.  
All figures given in various tables are indicative only.**



Dealer

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