

Finolex



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An IS / ISO 9001 Company

LT CROSS-LINKED POLYETHYLENE (XLPE) POWER CABLES



LT 'FINVUL-X' CROSS-LINKED POLYETHYLENE (XLPE) INSULATED POWER CABLES

Finolex has developed a special grade XLPE compound 'FINVUL-X' to be used as the insulating material suitable for LT (upto 1100 volts) applications. This is a thermoset type of polymer enriched with crosslinking agent. This is extruded over the conductor using modern extruders and is thoroughly crosslinked under controlled conditions. This XLPE insulation overcomes the drawbacks of PVC, hitherto extensively used as an insulating material, without losing any of PVC's desirable properties.

Following are the advantages of 'FINVUL-X' insulated cables over that of PVC Insulated cables:

- **Higher Current Rating :**

Withstands continuous conductor temperature of 90°C, whereas PVC withstands only 70°C, which means higher current carrying capacity.

- **Higher Overload Capacity :**

'FINVUL-X' cables can operate even at 130°C, during emergency, unlike PVC Cables which cannot operate beyond 120°C. Thus in an emergency, the entire system need not go out of commission if some of the cables fail, because the other cables in parallel can carry a higher load.

- **Higher Short Circuit Rating :**

Can withstand conductor temperatures of upto 250°C during a short circuit – PVC cannot withstand more than 160°C.

- **Lighter in Weight, Smaller Bending Radius :**

Lighter weight, smaller bending radius than PVC enables installation of 'FINVUL-X' cables even in cramped space conditions. The cables require less support, thus lowering installation costs.

- **Lower Di-electric Constant and Power Factor :**

Results in saving in power losses which means saving in costs, particularly for higher voltage.


- **Better Impact, Abrasion, Corrosion Resistance :**

Safer than PVC Cables against mechanical damage,abrasion and corrosion.

- **Easier Jointing and Termination :**

Requires no special skills or equipment for jointing and termination.

COMPARISON OF PROPERTIES

| | FINVUL-X | PVC |  | |
|---|----------|------------------|--|------------------|
| Dielectric Constant | 2.35 | 6 to 8 | | |
| Dielectric strength | KV/mm | 22 | | 14 |
| Volume Resistivity at 27°C | Ohm-cm | 10 ¹⁴ | | 10 ¹³ |
| Thermal Resistivity | °C cm/W | 350 | | 600 |
| Power Factor at maximum conductor temperature | | 0.008 | | 0.1 |
| Normal conductor operating temperature | °C | 90 | | 70 |
| Emergency overload temperature | °C | 130 | | 120 |
| Maximum short circuit temperature | °C | 250 | | 160 |

QUALITY ASSURANCE

- At Finolex, Quality Assurance is ensured through planned, stage-wise quality checks. These quality checks are made starting from the raw material right through every stage of manufacturing.
- In particular, the property and specified test for XLPE compound is checked and the absence of contamination in the compound is noted against each batch of material received.

TABLE 1 : FINVUL-X 1100 V Grade Single Core, Aluminium Conductor, XLPE Insulated, Unarmoured / Armoured, PVC Jacketed Cables

| Nom. Cross Sectional Area Sq.mm | Unarmoured | | | Armoured | | | | Max. DC Conductor Resistance at 20°C Ohm/km | A.C. Current Rating | | | |
|---------------------------------|--------------------------------------|-------------------------|------------------------------|---------------------------------|-------------------------------------|-------------------------|----------------------|--|---------------------|---------------|---------------|---------------|
| | Nom. Thickness of XLPE Insulation mm | Approx. Overall Dia. mm | Approx. Overall Weight kg/km | Nom. Thickness of Insulation mm | Nom. Dia of Alu. Wire for Armour mm | Approx. Overall Dia. mm | Approx. Weight kg/km | | In Air | | In Ground | |
| | | | | | | | | | 2 Cables Amps | 3 Cables Amps | 2 Cables Amps | 3 Cables Amps |
| 10 | 0.70 | 9.70 | 106 | 1.00 | 1.40 | 12.10 | 176 | 3.0800 | 60 | 53 | 69 | 59 |
| 16 | 0.70 | 10.70 | 134 | 1.00 | 1.40 | 13.20 | 211 | 1.9100 | 82 | 73 | 90 | 76 |
| 25 | 0.90 | 12.30 | 185 | 1.20 | 1.40 | 14.80 | 276 | 1.2000 | 108 | 99 | 116 | 97 |
| 35 | 0.90 | 13.40 | 223 | 1.20 | 1.40 | 15.90 | 321 | 0.8680 | 136 | 122 | 139 | 116 |
| 50 | 1.00 | 15.00 | 277 | 1.30 | 1.40 | 17.50 | 387 | 0.6410 | 163 | 149 | 162 | 139 |
| 70 | 1.10 | 17.20 | 363 | 1.40 | 1.40 | 19.70 | 487 | 0.4430 | 208 | 190 | 199 | 171 |
| 95 | 1.10 | 18.70 | 444 | 1.40 | 1.60 | 21.90 | 617 | 0.3200 | 258 | 235 | 241 | 204 |
| 120 | 1.20 | 20.50 | 538 | 1.50 | 1.60 | 23.60 | 726 | 0.2530 | 303 | 276 | 273 | 231 |
| 150 | 1.40 | 22.70 | 666 | 1.70 | 1.60 | 25.50 | 850 | 0.2060 | 348 | 321 | 305 | 259 |
| 185 | 1.60 | 24.90 | 797 | 1.90 | 1.60 | 27.70 | 999 | 0.1640 | 407 | 371 | 347 | 292 |
| 240 | 1.70 | 27.30 | 985 | 2.00 | 1.60 | 30.10 | 1208 | 0.1250 | 488 | 447 | 407 | 342 |
| 300 | 1.80 | 30.10 | 1186 | 2.10 | 1.60 | 33.20 | 1452 | 0.1000 | 569 | 515 | 458 | 384 |
| 400 | 2.00 | 33.80 | 1511 | 2.40 | 2.00 | 37.50 | 1869 | 0.0778 | 669 | 606 | 518 | 440 |
| 500 | 2.20 | 37.20 | 1867 | 2.60 | 2.00 | 40.90 | 2261 | 0.0605 | 786 | 705 | 592 | 500 |
| 630 | 2.40 | 40.70 | 2321 | 2.80 | 2.00 | 44.70 | 2789 | 0.0469 | 922 | 823 | 666 | 565 |
| 800 | 2.60 | 46.40 | 2938 | 3.10 | 2.00 | 50.50 | 3473 | 0.0367 | 1067 | 949 | 750 | 629 |
| 1000 | 2.80 | 50.70 | 3638 | 3.30 | 2.50 | 55.70 | 4364 | 0.0291 | 1220 | 1076 | 833 | 704 |

TABLE 2 : FINVUL-X 1100 V Grade Two Core, Aluminium Conductor, XLPE Insulated, Unarmoured / Armoured, PVC Jacketed Cables

| Nom. Cross Sectional Area Sq.mm | Nom. Thickness of XLPE Insulation mm | Unarmoured | | Armoured | | | | Max. DC Conductor Resistance at 20°C Ohm/km | A.C. Current Rating | |
|---------------------------------|--------------------------------------|-------------------------|------------------------------|---------------------------|------------|-------------------------|----------------------|--|---------------------|----------------|
| | | Approx. Overall Dia. mm | Approx. Overall Weight kg/km | Nom. Steel Armour Size mm | | Approx. Overall Dia. mm | Approx. Weight kg/km | | In Air Amps | In Ground Amps |
| | | | | Round Wire | Flat Strip | | | | | |
| 10 | 0.70 | 17.30 | 132 | 1.40 | | 18.10 | 530 | 3.08 | 67 | 71 |
| 16 | 0.70 | 19.00 | 147 | 1.40 | | 20.40 | 643 | 1.91 | 88 | 91 |
| 25 | 0.90 | 19.60 | 166 | | 4 x 0.8 | 19.30 | 582 | 1.200 | 117 | 120 |
| 35 | 0.90 | 21.20 | 181 | | 4 x 0.8 | 20.90 | 680 | 0.868 | 145 | 143 |
| 50 | 1.00 | 23.70 | 204 | | 4 x 0.8 | 23.40 | 821 | 0.641 | 176 | 167 |
| 70 | 1.10 | 27.10 | 236 | | 4 x 0.8 | 27.10 | 1054 | 0.443 | 221 | 204 |
| 95 | 1.10 | 30.00 | 286 | | 4 x 0.8 | 29.40 | 1271 | 0.320 | 271 | 245 |
| 120 | 1.20 | 32.70 | 314 | | 4 x 0.8 | 32.10 | 1495 | 0.253 | 315 | 278 |
| 150 | 1.40 | 34.50 | 333 | | 4 x 0.8 | 34.30 | 1769 | 0.206 | 362 | 315 |
| 185 | 1.60 | 38.30 | 401 | | 4 x 0.8 | 37.90 | 2101 | 0.164 | 420 | 356 |
| 240 | 1.70 | 42.20 | 476 | | 4 x 0.8 | 41.40 | 2534 | 0.125 | 497 | 407 |
| 300 | 1.80 | 46.70 | 566 | | 4 x 0.8 | 46.30 | 3079 | 0.100 | 578 | 463 |
| 400 | 2.00 | 52.30 | 678 | | 4 x 0.8 | 51.80 | 3834 | 0.0778 | 678 | 528 |

TABLE 3 : FINVUL-X 1100 V Grade Three Core, Aluminium Conductor, XLPE Insulated, Unarmoured / Armoured, PVC Jacketed Cables

| Nom. Cross Sectional Area Sq.mm | Nom. Thickness of XLPE Insulation mm | Unarmoured | | Armoured | | | | Max. DC Conductor Resistance at 20°C Ohm/km | A.C. Current Rating | |
|---------------------------------|--------------------------------------|-------------------------|------------------------------|---------------------------|------------|-------------------------|----------------------|--|---------------------|----------------|
| | | Approx. Overall Dia. mm | Approx. Overall Weight kg/km | Nom. Steel Armour Size mm | | Approx. Overall Dia. mm | Approx. Weight kg/km | | In Air Amps | In Ground Amps |
| | | | | Round Wire | Flat Strip | | | | | |
| 10 | 0.70 | 18.20 | 294 | 1.40 | | 18.9 | 659 | 3.08 | 53 | 57 |
| 16 | 0.70 | 18.40 | 372 | | 4 X 0.8 | 18.2 | 540 | 1.91 | 70 | 78 |
| 25 | 0.90 | 21.50 | 528 | | 4 X 0.8 | 21.2 | 727 | 1.200 | 95 | 97 |
| 35 | 0.90 | 23.50 | 640 | | 4 X 0.8 | 23.2 | 863 | 0.868 | 117 | 116 |
| 50 | 1.00 | 26.70 | 819 | | 4 X 0.8 | 26.0 | 1053 | 0.641 | 140 | 134 |
| 70 | 1.10 | 31.10 | 1101 | | 4 X 0.8 | 30.5 | 1386 | 0.443 | 176 | 167 |
| 95 | 1.10 | 33.60 | 1359 | | 4 X 0.8 | 33.0 | 1671 | 0.320 | 221 | 199 |
| 120 | 1.20 | 36.80 | 1633 | | 4 X 0.8 | 36.2 | 1982 | 0.253 | 258 | 227 |
| 150 | 1.40 | 39.30 | 1995 | | 4 X 0.8 | 38.9 | 2386 | 0.206 | 294 | 255 |
| 185 | 1.60 | 43.50 | 2428 | | 4 X 0.8 | 43.0 | 2854 | 0.164 | 339 | 287 |
| 240 | 1.70 | 48.10 | 3043 | | 4 X 0.8 | 47.7 | 3528 | 0.125 | 402 | 333 |
| 300 | 1.80 | 53.80 | 3760 | | 4 X 0.8 | 52.8 | 4232 | 0.100 | 461 | 375 |
| 400 | 2.00 | 59.80 | 4723 | | 4 X 0.8 | 59.3 | 5318 | 0.0778 | 542 | 426 |

TABLE 4 : FINVUL-X 1100 V Grade 3.5 Core, Aluminium Conductor, XLPE Insulated, Unarmoured / Armoured, PVC Jacketed Cables

| Nom. Cross Sectional Area Sq.mm | Nom. Thickness of XLPE Insulation mm main core | Unarmoured | | Armoured | | | Max. DC Conductor Resistance at 20°C Ohm/km | A.C. Current Rating | |
|---------------------------------|--|----------------------------|---------------------------------|---------------------------|----------------------------|-------------------------|--|---------------------|-----------|
| | | Approx. Overall Dia. mm | Approx. Overall Weight kg/km | Nom. Steel Armour Size mm | Approx. Overall Dia. mm | Approx. Weight kg/km | | In Air | In Ground |
| | | | | | | | | Amps | Amps |
| 25 | 0.90 | 23.10 | 604.00 | 4 X 0.8 | 22.8 | 821.0 | 1.200 | 95 | 97 |
| 35 | 0.90 | 25.20 | 719.00 | 4 X 0.8 | 24.9 | 961.0 | 0.868 | 117 | 116 |
| 50 | 1.00 | 28.80 | 940.00 | 4 X 0.8 | 28.1 | 1195.0 | 0.641 | 140 | 134 |
| 70 | 1.10 | 33.60 | 1258.00 | 4 X 0.8 | 33.0 | 1569.0 | 0.443 | 176 | 167 |
| 95 | 1.10 | 36.40 | 1560.00 | 4 X 0.8 | 35.8 | 1903.0 | 0.320 | 221 | 199 |
| 120 | 1.20 | 39.20 | 1896.00 | 4 X 0.8 | 39.0 | 2303.0 | 0.253 | 258 | 227 |
| 150 | 1.40 | 43.30 | 2284.00 | 4 X 0.8 | 42.9 | 2720.0 | 0.206 | 294 | 255 |
| 185 | 1.60 | 48.00 | 2800.00 | 4 X 0.8 | 47.5 | 3276.0 | 0.164 | 339 | 287 |
| 240 | 1.70 | 53.10 | 3506.00 | 4 X 0.8 | 52.7 | 4048.0 | 0.125 | 402 | 333 |
| 300 | 1.80 | 59.30 | 4343.00 | 4 X 0.8 | 58.4 | 4872.0 | 0.100 | 461 | 375 |
| 400 | 2.00 | 66.40 | 5492.00 | 4 X 0.8 | 65.6 | 6101.0 | 0.0778 | 542 | 426 |

TABLE 5 : FINVUL-X 1100 V Grade 4 Core, Aluminium Conductor, XLPE Insulated, Unarmoured / Armoured, PVC Jacketed Cables

| Nom. Cross Sectional Area Sq.mm | Nom. Thickness of XLPE Insulation mm | Unarmoured | | Armoured | | | Max. DC Conductor Resistance at 20°C Ohm/km | A.C. Current Rating | | |
|---------------------------------|--------------------------------------|----------------------------|---------------------------------|---------------------------|------------|----------------------------|--|-------------------------|--------|-----------|
| | | Approx. Overall Dia. mm | Approx. Overall Weight kg/km | Nom. Steel Armour Size mm | | Approx. Overall Dia. mm | | Approx. Weight kg/km | In Air | In Ground |
| | | | | Round Wire | Flat Strip | | | | Amps | Amps |
| 10 | 0.70 | 19.70 | 367.0 | | | 21.10 | 713.0 | 3.08 | 53 | 57 |
| 16 | 0.70 | 20.00 | 449.0 | | 4 X 0.8 | 20.20 | 853.0 | 1.91 | 70 | 78 |
| 25 | 0.90 | 24.00 | 652.0 | | 4 X 0.8 | 23.70 | 882.0 | 1.200 | 95 | 97 |
| 35 | 0.90 | 26.20 | 798.0 | | 4 X 0.8 | 26.00 | 1055.0 | 0.868 | 117 | 116 |
| 50 | 1.00 | 29.60 | 1002.0 | | 4 X 0.8 | 29.70 | 1317.0 | 0.641 | 140 | 134 |
| 70 | 1.10 | 35.10 | 1387.0 | | 4 X 0.8 | 34.60 | 1717.0 | 0.443 | 176 | 167 |
| 95 | 1.10 | 38.10 | 1726.0 | | 4 X 0.8 | 37.60 | 2091.0 | 0.320 | 221 | 199 |
| 120 | 1.20 | 42.30 | 2123.0 | | 4 X 0.8 | 42.00 | 2550.0 | 0.253 | 258 | 227 |
| 150 | 1.40 | 45.20 | 2597.0 | | 4 X 0.8 | 44.80 | 3042.0 | 0.206 | 294 | 255 |
| 185 | 1.60 | 50.60 | 3203.0 | | 4 X 0.8 | 49.70 | 3647.0 | 0.164 | 339 | 287 |
| 240 | 1.70 | 55.80 | 4016.0 | | 4 X 0.8 | 55.00 | 4523.0 | 0.125 | 402 | 333 |
| 300 | 1.80 | 62.00 | 4900.0 | | 4 X 0.8 | 61.40 | 5482.0 | 0.100 | 461 | 375 |
| 400 | 2.00 | 69.40 | 6223.0 | | 4 X 0.8 | 68.60 | 6846.0 | 0.0778 | 542 | 426 |

Note : 1. Cables with copper conductor as well as with round wire armoured can also be supplied on request.

2. BIS licence number CM/L-1486562

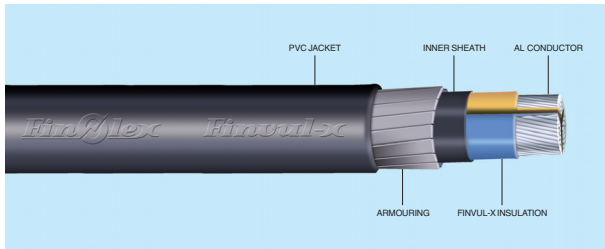
RECOMMENDATIONS FOR STORAGE AND INSTALLATION OF CABLES

For easy and convenient installation for desired performance :

- Cable drums should be stored on a plain vibration-free ground, without any hard stones projecting above the surface. The drums should preferably be stored in the shade.
- Drums should be stored and kept in such a way that the bottom end of the cable does not get damaged.
- Cable drums should not be stored one above the other.
- Drums should be rotated only in the direction marked on the drum.
- While laying the cable in a trench, the cable end should be pulled with a pulling eye only after mounting the drum on the jacks. Do not keep the drum on its flange while pulling the cable. This will result in the twist in the cable.
- Drums should be checked for continuity and cross continuity to ensure that there is no internal damage to the cable during transportation.
- Insulation resistance should be measured with 500 V megger between the cores and all the cores to earth (Armour).
- After the cable is installed, before commissioning, it should be tested for DC high voltage test. The recommended voltage and duration of the test between each core and metallic armour (earth) is 3 KVDC for 5 minutes. During High Voltage test, all the electrical equipment related to the cable installation must be earthed and adequate clearance should be maintained from other equipments at work, to prevent flash over.
- Where the cable is to be joined with an existing cable, the sequence of cores at the two ends to be joined should be in the opposite direction i.e., if at one end it is in the clockwise direction, at the other end it should be in the anti-clockwise direction. This is necessary to avoid the crossing of cores while jointing. This will also decide the direction in which the cable is to be pulled.
- The minimum bending radius of the cable should not be less than the values indicated below. Wherever possible 25% higher value should be adopted.
 - 15 x overall diameter: Single core cables as per table 1
 - 12 x overall diameter: Multicore cables as per tables 2, 3, 4 and 5
- Avoid excessively high temperature when sealing joints of cable. Cool the sealant to about 100°C before pouring.

All information given herein is in good faith. Finotex shall not be liable for any damages arising out of incorrect use or interpretation.

TYPICAL CABLE CONSTRUCTION



CONDUCTOR :

Conductors are made from Electrolytic grade high pure aluminium conforming to IS 8130/1984 and are compact circular or compact sector shaped. Copper conductor cables can also be offered against specific request.

INSULATION :

FINVUL-X cables are specially manufactured with high dielectric grade cross-linked polyethylene for insulation and is applied by extrusion process.

CORE IDENTIFICATION :

The cores are identified by different colours :

| | |
|---------------------|---|
| Single core | Red/natural |
| Two core | Red, black |
| Three core | Red, yellow, blue |
| Four core | Red, yellow, blue, black |
| Three and half core | Red, yellow, blue and reduced neutral core in black |

LAYING UP :

In multicore cables, cores are laid up as per the above colour scheme.

INNER SHEATH :

Laid up cores are bedded over with thermoplastic material for protection against mechanical damage.

ARMOURING :

Armouring is provided over the inner sheath to guard against mechanical damage. Armouring is generally of galvanised steel wires or strips. In single core cables, used in AC system, armouring is by non-magnetic hard drawn aluminium wires. Round steel wires are used where the diameter over the inner sheath does not exceed 13 mm, above 13 mm, flat steel strip armour is used. Round wire of different sizes can also be provided against specific request.

PVC JACKET :

Specially formulated heat resistant black PVC compound ST2 type as per IS 5831:1984 and is extruded to form the jacket. Finolex also offers specially formulated Flame Retardant Low Smoke (FRLS) compound for jacket used in fire hazardous environment.

TESTS

In addition to all tests required as per IS 7098 (Part I) 1988, FINVUL-X cables are subjected to a number of in-house tests at every stage of production. Incoming raw material is also tested thoroughly to ensure consistency of quality. The cables are marked with ISI mark.

PRODUCT CODE :

As per IS 7098 (Part I) 1988, the codes are :

| Constituent | Code |
|--------------------------------|------|
| Aluminium conductor | A |
| FINVUL-X insulation | 2X |
| Steel round wire armour | W |
| Steel strip armour | F |
| Steel double round wire armour | WW |
| Steel double strip armour | FF |
| PVC jacket | Y |

LENGTH :

FINOLEX provides continuous length of 500 meters \pm 10% for single/multi-core armoured and unarmoured cables up to 400 sq.mm. Sizes above 400 sq.mm. are generally packed in 250 metres \pm 10%. The cables are progressive sequentially marked on every 1 meter length for ease of length measurement.

PACKING AND MARKING

FINVUL-X cables are wound on sturdy, non-returnable wooden drums built to withstand the weight of the cable as well as handling abuses. Each drum is marked with particulars required under IS 7098 (Part I) 1988.

SHORT CIRCUIT RATING

The conductor size in a cable for any type of insulation is governed by its ability to carry short circuit current of the system.

The short circuit ratings are based on the assumption that the duration of short circuit is very small, and apparently there is no heat transmitted or produced during shortcircuit, through the insulation the heat produced if any, the entire amount is absorbed by the conductor.

The short circuit current ratings (r.m.s.values) of XLPE insulated cables with aluminium conductors for one second duration are calculated on the following assumptions:

- Conductor temperature prior to short circuit 90°C
- Maximum permissible conductor temperature during short circuit 250°C
- Specific gravity of aluminium 2.703
- Specific heat of aluminium 0.22 Cal/gm°C
- Resistivity of Aluminium 28.264 ohm/km/sqmm
- Temperature coefficient of resistance at 20°C 0.00403°C

Comparative maximum shortcircuit rating of PVC and Finvul-x insulated cables for a duration of one second in kiloamps for aluminium conductor.

| Nominal area of cross section sqmm | FINVUL-X | PVC |
|------------------------------------|----------|----------|
| | kiloamps | kiloamps |
| 10 | 0.966 | 0.743 |
| 16 | 1.550 | 1.173 |
| 25 | 2.420 | 2.036 |
| 35 | 3.370 | 2.536 |
| 50 | 4.790 | 3.653 |
| 70 | 6.680 | 5.518 |
| 95 | 9.030 | 6.874 |
| 120 | 11.400 | 9.075 |
| 150 | 14.200 | 11.265 |
| 185 | 17.500 | 13.894 |
| 240 | 22.600 | 18.024 |
| 300 | 28.200 | 22.057 |
| 400 | 37.600 | 31.760 |
| 500 | 47.000 | 34.100 |
| 630 | 58.000 | 44.000 |
| 800 | 74.400 | 56.300 |
| 1000 | 93.000 | 71.000 |

Formula for calculating the short circuit rating for other durations :

$$I_t = \frac{I_1}{\sqrt{t}}$$

where: I₁ = Short Circuit current for 1 sec

I_t = Short Circuit current for t sec

t = Duration in seconds

RATING FACTORS

- Rating factors for ambient air temperature variation

| Ambient Temperature (°C) | 25 | 30 | 35 | 40 | 45 | 50 |
|--------------------------|------|------|------|-----|------|------|
| Factor | 1.18 | 1.12 | 1.06 | 1.0 | 0.94 | 0.88 |

- Rating factors for ambient ground temperature variation

| Ground Temperature (°C) | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|-------------------------|------|------|------|------|------|------|------|------|
| Factor | 1.12 | 1.08 | 1.04 | 1.00 | 0.96 | 0.91 | 0.86 | 0.81 |

- Rating factor for various depths of laying (for cables laid directly in ground)

| Depth of laying | Upto 25 mm ² | Above 25 mm ² upto 300 mm ² | Above 300 mm ² |
|-----------------|-------------------------|---|---------------------------|
| 75 cm | 1.0 | 1.0 | 1.0 |
| 90 cm | 0.99 | 0.98 | 0.97 |
| 105 cm | 0.98 | 0.97 | 0.96 |
| 120 cm | 0.97 | 0.96 | 0.95 |
| 150 cm | 0.96 | 0.94 | 0.92 |
| 180 cm or more | 0.95 | 0.93 | 0.91 |