

BS7870-4.10 11kV Stranded Copper Conductor

CABLE CHARACTERISTICS



Bending radius
 $r=20D$

CABLE DESCRIPTION

1.CONDUCTOR

Compact circular stranded copper conductor complying with BS6360 Class 2.

2. CONDUCTOR SCREEN

Extruded semi-conducting compound bonded to the insulation and applied in the same operation as the insulation.

3.INSULATION

Extruded cross-linked polyethylene (XLPE) suitable for operation at a conductor temperature of 90°C.

4.INSULATION SCREEN

Extruded semi-conducting compound applied in the same operation as the insulation. Cold strippable screens are supplied as standard but fully bonded screens may be provided if specified.

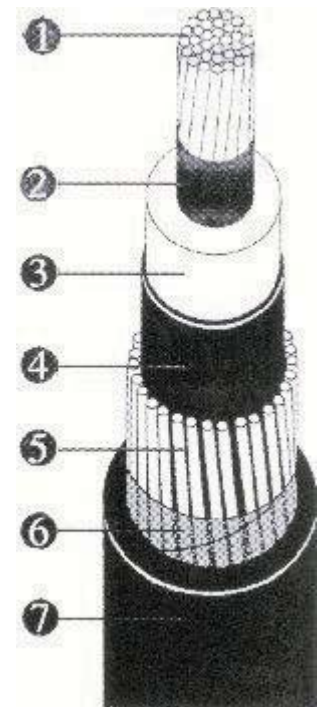
5.METALLIC SCREEN

Circular copper wires applied helically to provide an earth fault current path. Nominal screen area, as stated in table, supplied as standard unless otherwise specified.

6.BINDER TAPE

7.OVERSHEATH

Extruded red medium density polyethylene (MDPE) is supplied as standard.



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Constructional Data

| Cross-sectional area mm ² | Minimum average thickness of insulation mm | Nominal diameter over insulation mm | Nominal area of copper wire screen mm ² | Minimum average thickness of overshath mm | Nominal overall diameter of cable mm | Nominal drum length m |
|--------------------------------------|--|-------------------------------------|--|---|--------------------------------------|-----------------------|
| 70 | 3.4 | 18.8 | 35 | 1.7 | 27.0 | 1000 |
| 95 | 3.4 | 20.5 | 35 | 1.8 | 29.0 | 1000 |
| 120 | 3.4 | 22.0 | 35 | 1.8 | 30.6 | 500 |
| 150 | 3.4 | 23.3 | 35 | 1.9 | 32.2 | 500 |
| 185 | 3.4 | 25.1 | 35 | 1.9 | 34.0 | 500 |
| 240 | 3.4 | 27.3 | 35 | 2.0 | 36.6 | 500 |
| 300 | 3.4 | 29.6 | 35 | 2.1 | 39.1 | 500 |
| 400 | 3.4 | 32.3 | 35 | 2.2 | 42.4 | 500 |
| 500 | 3.4 | 35.2 | 35 | 2.3 | 45.7 | 500 |
| 630 | 3.4 | 38.6 | 35 | 2.4 | 49.6 | 300 |

Installation Data

| Cross-sectional area mm ² | Approximate Cable weight Kg/m | Minimum bending radius mm | Nominal internal diameter of ducts mm |
|--------------------------------------|-------------------------------|---------------------------|---------------------------------------|
| 70 | 1.3 | 550 | 100 |
| 95 | 1.5 | 600 | 100 |
| 120 | 1.8 | 650 | 100 |
| 150 | 2.1 | 650 | 100 |
| 185 | 2.5 | 700 | 100 |
| 240 | 3.1 | 750 | 100 |
| 300 | 3.7 | 800 | 100 |
| 400 | 4.7 | 850 | 100 |
| 500 | 5.7 | 950 | 100 |
| 630 | 7.0 | 1000 | 100 |

Electrical Data

| Cross-sectional area mm ² | Maximum DC resistance of conductor at 20°C $\mu\Omega/m$ | Maximum AC resistance of conductor at 90°C $\mu\Omega/m$ | Reactance at 50Hz $\mu\Omega/m$ | Impedance at 50Hz $\mu\Omega/m$ | Maximum Capacitance pF/m | Maximum charging current at normal voltage and frequency mA/m |
|--------------------------------------|--|--|---------------------------------|---------------------------------|--------------------------|---|
| 70 | 268 | 343 | 121 | 363 | 288 | 0.58 |
| 95 | 193 | 248 | 114 | 272 | 323 | 0.65 |
| 120 | 153 | 196 | 110 | 225 | 353 | 0.71 |
| 150 | 124 | 159 | 107 | 192 | 380 | 0.76 |
| 185 | 99.1 | 128 | 104 | 164 | 416 | 0.83 |
| 240 | 75.4 | 98 | 100 | 140 | 460 | 0.92 |
| 300 | 60.1 | 80 | 96.9 | 126 | 506 | 1.01 |
| 400 | 47 | 64 | 94 | 113 | 561 | 1.12 |
| 500 | 36.6 | 51 | 91.3 | 105 | 619 | 1.24 |
| 630 | 28.3 | 42 | 88.5 | 98 | 687 | 1.37 |

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Ratings

| Cross-sectional area mm ² | Current Ratings | | | Short Circuit Ratings | |
|---|-------------------------------|--------------------------|---------------------|--|---|
| | Laid direct in ground Amps | Drawn into ducts Amps | Laid in air Amps | 1 second short circuit rating of conductor kA | 1 second short circuit rating of copper wire screen kA |
| 70 | 270 | 270 | 310 | 9.8 | 6.1 |
| 95 | 320 | 320 | 375 | 13.3 | 6.1 |
| 120 | 360 | 360 | 430 | 17.2 | 6.1 |
| 150 | 410 | 400 | 490 | 21.2 | 6.1 |
| 185 | 460 | 440 | 560 | 26.6 | 6.1 |
| 240 | 530 | 505 | 660 | 34.9 | 6.1 |
| 300 | 600 | 560 | 760 | 43.8 | 6.1 |
| 400 | 680 | 610 | 880 | 57.3 | 6.1 |
| 500 | 750 | 680 | 1000 | 72.3 | 6.1 |
| 630 | 830 | 750 | 1140 | 91.2 | 6.1 |

Current Rating Conditions:

| | |
|----------------------------|-----------|
| Ground Temperature | 15°C |
| Depth of Burial | 0.8m |
| Ambient temperature (air) | 25°C |
| Thermal Resistance of Soil | 1.2°C m/W |

Single core cables in trefoil, bonded and earthed at both ends.