

1

Power and Wiring Cables

2

Multi-Core XLPE/LSF/SWA/LSF Power and Control Cable

600/1000 and 1900/3300V

3

4



5

6

Application

7

LSF insulated, armoured and sheathed, multi-core power cable. Especially for use in areas where fire would create dense smoke and toxic fumes causing a major threat to life and equipment.

8

Specifications

9

- In accordance with BS6724.
- **Conductors:** Stranded Class 2 copper conductors.
- **Insulation:** XLPE insulation Type GP8 to BS7655.
- **Core identification:**
 - 2 core - brown, blue
 - 3 core - brown, black, grey
 - 4 core - brown, black, grey, blue
 - 5 core - brown, black, grey, blue, green/yellow
- **Inner Sheath:** LSF inner sheath Type LTS1 to BS7655.
- **Outer Sheath:** Black LSF outer sheath Type LTS1 to BS7655.
- Flame retardant to BS EN 60332-3-24 & IEC60332-3-24 Cat. C as a minimum.
- **Temperature Rating:** 90°C maximum conductor operating temperature.
- **Voltage Rating:** 600/1000 & 1900/3300V.

NB:1900/3300V only available in 3 core.

10

11

12

13

14

15

16

17

18

19

Multi-Core XLPE/LSF/SWA/LSF Power & Control Cable

600/1000 and 1900/3300V

| Anixter Number | Number of Cores | Nominal Conductor Area mm ² | Insulation Thickness mm | Diameter Under Armour mm | Armour Wire Size mm | Nominal O/D mm | Approx Weight kg/km | Min Bending Radius (fixed bend) mm |
|-------------------------|-----------------|--|-------------------------|--------------------------|---------------------|----------------|---------------------|------------------------------------|
| 600/1000V Cables | | | | | | | | |
| BS6724-2C-0015 | 2 | 1.5* | 0.6 | 7.7 | 0.9 | 12.1 | 310 | 80 |
| BS6724-2C-0025 | 2 | 2.5* | 0.7 | 9.0 | 0.9 | 13.6 | 360 | 90 |
| BS6724-2C-0040 | 2 | 4* | 0.7 | 10.1 | 0.9 | 14.7 | 420 | 90 |
| BS6724-2C-0060 | 2 | 6* | 0.7 | 11.3 | 0.9 | 15.9 | 500 | 100 |
| BS6724-2C-0100 | 2 | 10* | 0.7 | 13.2 | 0.9 | 18.0 | 800 | 110 |
| BS6724-2C-0160 | 2 | 16† | 0.7 | 14.7 | 1.25 | 20.4 | 940 | 120 |
| BS6724-2C-0250 | 2 | 25\\ | 0.9 | 14.7 | 1.25 | 20.4 | 1250 | 170 |
| BS6724-2C-0350 | 2 | 35 | 0.9 | 16.7 | 1.6 | 23.3 | 1720 | 190 |
| BS6724-2C-0500 | 2 | 50 | 1.0 | 19.0 | 1.6 | 25.8 | 1800 | 210 |
| BS6724-2C-0700 | 2 | 70 | 1.1 | 22.0 | 1.6 | 29.0 | 2330 | 240 |
| BS6724-2C-0950 | 2 | 95 | 1.1 | 25.1 | 2.0 | 33.1 | 3170 | 270 |
| BS6724-2C-1200 | 2 | 120 | 1.2 | 27.9 | 2.0 | 36.1 | 3810 | 290 |
| BS6724-2C-1500 | 2 | 150 | 1.4 | 30.9 | 2.0 | 39.3 | 4530 | 320 |
| BS6724-2C-1850 | 2 | 185 | 1.6 | 34.9 | 2.5 | 44.7 | 5860 | 360 |
| BS6724-2C-2400 | 2 | 240 | 1.7 | 39.0 | 2.5 | 49.0 | 7300 | 400 |
| BS6724-2C-3000 | 2 | 300 | 1.8 | 43.3 | 2.5 | 53.5 | 8790 | 430 |
| BS6724-2C-4000 | 2 | 400 | 2.0 | 48.4 | 2.5 | 59.0 | 10770 | 480 |
| | | | | | | | | |
| BS6724-3C-0015 | 3 | 1.5* | 0.6 | 8.2 | 0.9 | 12.6 | 340 | 80 |
| BS6724-3C-0025 | 3 | 2.5* | 0.7 | 9.5 | 0.9 | 14.1 | 400 | 90 |
| BS6724-3C-0040 | 3 | 4* | 0.7 | 10.7 | 0.9 | 15.3 | 500 | 100 |
| BS6724-3C-0060 | 3 | 6* | 0.7 | 12.0 | 0.9 | 16.6 | 770 | 100 |
| BS6724-3C-0100 | 3 | 10* | 0.7 | 14.0 | 1.25 | 19.5 | 900 | 120 |
| BS6724-3C-0160 | 3 | 16† | 0.7 | 15.9 | 1.25 | 21.6 | 1180 | 130 |
| BS6724-3C-0250 | 3 | 25† | 0.9 | 20.1 | 1.6 | 26.7 | 1720 | 170 |
| BS6724-3C-0350 | 3 | 35† | 0.9 | 22.6 | 1.6 | 29.4 | 2130 | 180 |
| BS6724-3C-0500 | 3 | 50 \\ | 1.0 | 21.7 | 1.6 | 28.5 | 2380 | 230 |
| BS6724-3C-0700 | 3 | 70 | 1.1 | 25.2 | 1.6 | 32.2 | 3150 | 260 |
| BS6724-3C-0950 | 3 | 95 | 1.1 | 28.8 | 2.0 | 37.0 | 4320 | 300 |
| BS6724-3C-1200 | 3 | 120 | 1.2 | 32.0 | 2.0 | 40.4 | 5200 | 330 |
| BS6724-3C-1500 | 3 | 150 | 1.4 | 35.9 | 2.5 | 45.5 | 6630 | 370 |
| BS6724-3C-1850 | 3 | 185 | 1.6 | 40.0 | 2.5 | 49.8 | 7980 | 400 |
| BS6724-3C-2400 | 3 | 240 | 1.7 | 44.9 | 2.5 | 55.1 | 9960 | 450 |
| BS6724-3C-3000 | 3 | 300 | 1.8 | 49.8 | 2.5 | 60.2 | 12060 | 490 |
| BS6724-3C-4000 | 3 | 400 | 2.0 | 55.8 | 2.5 | 66.6 | 14980 | 540 |

*Circular stranded conductors.

\Shaped stranded conductors on 25sqmm & above (2 core), 50sqmm & above (3 & 4 core)

† Circular or circular compacted stranded conductors.

Continued overleaf. . .

1

Power and Wiring Cables

2

Multi-Core XLPE/LSF/SWA/LSF Power & Control Cable

600/1000 and 1900/3300V (continued)

3

| Anixter Number | Number of Cores | Nominal Conductor Area mm ² | Insulation Thickness mm | Diameter Under Armour mm | Armour Wire Size mm | Nominal O/D mm | Approx Weight kg/km | Min Bending Radius (fixed bend) mm |
|----------------|-----------------|--|-------------------------|--------------------------|---------------------|----------------|---------------------|------------------------------------|
| BS6724-4C-0015 | 4 | 1.5* | 0.6 | 8.9 | 0.9 | 13.3 | 390 | 90 |
| BS6724-4C-0025 | 4 | 2.5* | 0.7 | 10.4 | 0.9 | 15.0 | 470 | 90 |
| BS6724-4C-0040 | 4 | 4* | 0.7 | 11.8 | 0.9 | 16.4 | 580 | 100 |
| BS6724-4C-0060 | 4 | 6* | 0.7 | 13.2 | 1.25 | 18.7 | 820 | 120 |
| BS6724-4C-0100 | 4 | 10* | 0.7 | 15.6 | 1.25 | 21.1 | 1060 | 130 |
| BS6724-4C-0160 | 4 | 16† | 0.7 | 17.7 | 1.25 | 23.4 | 1410 | 140 |
| BS6724-4C-0250 | 4 | 25† | 0.9 | 22.3 | 1.6 | 28.9 | 2090 | 180 |
| BS6724-4C-0350 | 4 | 35† | 0.9 | 25.1 | 1.6 | 31.9 | 2590 | 200 |
| BS6724-4C-0500 | 4 | 50 \\ | 1.0 | 25.0 | 1.6 | 32.0 | 2960 | 260 |
| BS6724-4C-0700 | 4 | 70 | 1.1 | 29.5 | 2.0 | 37.7 | 4240 | 310 |
| BS6724-4C-0950 | 4 | 95 | 1.1 | 33.3 | 2.0 | 41.7 | 5410 | 340 |
| BS6724-4C-1200 | 4 | 120 | 1.2 | 37.5 | 2.5 | 47.1 | 6980 | 380 |
| BS6724-4C-1500 | 4 | 150 | 1.4 | 41.6 | 2.5 | 51.4 | 8320 | 420 |
| BS6724-4C-1850 | 4 | 185 | 1.6 | 46.4 | 2.5 | 56.6 | 10080 | 460 |
| BS6724-4C-2400 | 4 | 240 | 1.7 | 52.6 | 2.5 | 63.0 | 12690 | 510 |
| BS6724-4C-3000 | 4 | 300 | 1.8 | 58.0 | 2.5 | 68.8 | 15420 | 560 |
| | | | | | | | | |
| A3-03-C007 | 7 | 1.5* | 0.6 | 10.6 | 0.9 | 15.2 | 490 | 100 |
| A3-03-C012 | 12 | 1.5* | 0.6 | 13.9 | 1.25 | 19.4 | 830 | 120 |
| A3-03-C019 | 19 | 1.5* | 0.6 | 16.5 | 1.25 | 22.2 | 1070 | 140 |
| A3-03-C027 | 27 | 1.5* | 0.6 | 20.1 | 1.6 | 26.7 | 1580 | 170 |
| A3-03-C037 | 37 | 1.5* | 0.6 | 22.4 | 1.6 | 29.0 | 1880 | 180 |
| | | | | | | | | |
| A3-P3-C007 | 7 | 2.5* | 0.7 | 12.5 | 0.9 | 17.1 | 600 | 110 |
| A3-P3-C012 | 12 | 2.5* | 0.7 | 16.7 | 1.25 | 22.4 | 1020 | 140 |
| A3-P3-C019 | 19 | 2.5* | 0.7 | 20.0 | 1.6 | 26.6 | 1530 | 160 |
| A3-P3-C027 | 27 | 2.5* | 0.7 | 23.9 | 1.6 | 30.7 | 1960 | 190 |
| A3-P3-C037 | 37 | 2.5* | 0.7 | 27.0 | 1.6 | 33.8 | 2370 | 210 |
| | | | | | | | | |
| A3-Q3-C007 | 7 | 4* | 0.7 | 14.2 | 1.25 | 19.7 | 830 | 120 |
| A3-Q3-C012 | 12 | 4* | 0.7 | 19.3 | 1.6 | 25.7 | 1440 | 160 |
| A3-Q3-C019 | 19 | 4* | 0.7 | 22.7 | 1.6 | 29.3 | 1930 | 180 |
| A3-Q3-C027 | 27 | 4* | 0.7 | 27.4 | 1.6 | 34.4 | 2530 | 210 |
| A3-Q3-C037 | 37 | 4* | 0.7 | 31.2 | 2.0 | 39.2 | 3470 | 240 |

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

Multi-Core XLPE/LSF/SWA/LSF Power & Control Cable

600/1000 and 1900/3300V (continued)

| Anixter Number | Number of Cores | Nominal Conductor Area mm ² | Insulation Thickness mm | Diameter Under Armour mm | Armour Wire Size mm | Nominal O/D mm | Approx Weight kg/km | Min Bending Radius (fixed bend) mm |
|-----------------------------------|-----------------|--|-------------------------|--------------------------|---------------------|----------------|---------------------|------------------------------------|
| 600/1000V Five Core Cables | | | | | | | | |
| BS6724-5C-0015N | 5 | 1.5* | 0.6 | 9.7 | 0.9 | 14.3 | 380 | 90 |
| BS6724-5C-0025N | 5 | 2.5* | 0.7 | 11.5 | 0.9 | 16.1 | 500 | 100 |
| BS6724-5C-0040N | 5 | 4* | 0.7 | 13.0 | 0.9 | 17.8 | 617 | 110 |
| BS6724-5C-0060N | 5 | 6* | 0.7 | 14.5 | 1.25 | 20.0 | 875 | 120 |
| BS6724-5C-0100N | 5 | 10* | 0.7 | 17.2 | 1.25 | 22.9 | 1180 | 140 |
| BS6724-5C-0160N | 5 | 16† | 0.7 | 20.0 | 1.6 | 26.6 | 1720 | 160 |
| BS6724-5C-0250 | 5 | 25† | 0.9 | 24.7 | 1.6 | 31.5 | 2400 | 190 |
| BS6724-5C-0350 | 5 | 35† | 0.9 | 27.8 | 1.6 | 34.8 | 2930 | 210 |
| BS6724-5C-0500 | 5 | 50† | 1.0 | 32.4 | 2.0 | 40.4 | 4050 | 250 |
| BS6724-5C-0700 | 5 | 70† | 1.1 | 37.9 | 2.0 | 46.3 | 5320 | 280 |
| BS6724-5C-0950 | 5 | 95† | 1.1 | 42.7 | 2.5 | 52.5 | 7280 | 320 |
| BS6724-5C-1200 | 5 | 120† | 1.2 | 46.3 | 2.5 | 56.5 | 8745 | 340 |
| 1900/3300V Cables | | | | | | | | |
| A2-AZ-0250 | 3 | 25† | 2.0 | 25.4 | 1.6 | 32.2 | 2100 | 200 |
| A2-AZ-0350 | 3 | 35† | 2.0 | 28.0 | 1.6 | 35.0 | 2520 | 210 |
| A2-AZ-0500 | 3 | 50\\ | 2.0 | 26.7 | 2.0 | 34.7 | 3030 | 280 |
| A2-AZ-0700 | 3 | 70 | 2.0 | 29.8 | 2.0 | 38.0 | 3810 | 310 |
| A2-AZ-0950 | 3 | 95 | 2.0 | 33.0 | 2.5 | 41.4 | 4730 | 340 |
| A2-AZ-1200 | 3 | 120 | 2.0 | 36.1 | 2.5 | 45.7 | 6020 | 360 |
| A2-AZ-1500 | 3 | 150 | 2.0 | 38.7 | 2.5 | 48.5 | 6980 | 390 |
| A2-AZ-1850 | 3 | 185 | 2.0 | 41.9 | 2.5 | 51.9 | 8250 | 420 |
| A2-AZ-2400 | 3 | 240 | 2.0 | 46.7 | 2.5 | 56.9 | 10200 | 460 |
| A2-AZ-3000 | 3 | 300 | 2.0 | 50.8 | 2.5 | 61.2 | 12210 | 490 |
| A2-AZ-4000 | 3 | 400 | 2.0 | 55.8 | 2.5 | 66.6 | 15160 | 540 |

N.B. Part numbers for 5 core cable ending in a letter N, e.g. BS6724-5C-0015N, indicate that the cable has number printed cores. All cables containing 7, 12, 19, 27 and 37 cores also have number printed core identification.

* Circular stranded conductors

† Circular or circular compacted stranded conductors.

\\ Cables having conductors of nominal area 50sqmm and above have shaped stranded conductors (with the exception of 5 core cables)

For more technical information see page 1:68 (See 1:76 for technical information on 1900/3300V cables).

For conductor and armour resistances refer page 19:31.

For Gross Cross-Sectional area of armour refer to page 19:34.

For conductor short-circuit ratings refer to page 19:28.

For armour short-circuit ratings refer to page 19:36.

Technical Information

- Multi-core XLPE/PVC/SWA/PVC 600/1000V
- Multi-core XLPE/LSF/SWA/LSF 600/1000V
- Multi-core XLPE/LC/PVC/SWA/PVC 600/1000V

CURRENT CARRYING CAPACITY (Amperes)

| Direct Burial | | | In Single-Way Duct | | |
|------------------------|--------|------------|------------------------|--------|------------|
| Nominal Conductor Area | 2 Core | 3 & 4 Core | Nominal Conductor Area | 2 Core | 3 & 4 Core |
| mm ² | Arm'd | Arm'd | mm ² | Arm'd | Arm'd |
| 1.5 | 38 | 32 | 1.5 | 31 | 26 |
| 2.5 | 49 | 42 | 2.5 | 41 | 34 |
| 4 | 65 | 55 | 4 | 53 | 45 |
| 6 | 81 | 69 | 6 | 67 | 56 |
| 10 | 109 | 92 | 10 | 89 | 75 |
| 16 | 141 | 119 | 16 | 115 | 96 |
| 25 | 183 | 152 | 25 | 148 | 124 |
| 35 | 219 | 182 | 35 | 178 | 149 |
| 50 | 259 | 217 | 50 | 211 | 177 |
| 70 | 317 | 266 | 70 | 260 | 218 |
| 95 | 381 | 319 | 95 | 313 | 263 |
| 120 | 433 | 363 | 120 | 357 | 300 |
| 150 | 485 | 406 | 150 | 401 | 338 |
| 185 | 547 | 458 | 185 | 455 | 382 |
| 240 | 632 | 529 | 240 | 527 | 442 |
| 300 | 708 | 592 | 300 | 592 | 496 |
| 400 | 799 | 667 | 400 | 669 | 570 |

Standard depth of laying 0.5m

Thermal resistivity of soil 1.2°C m/W

Standard ground temperature 15°C

Ambient air temperature 25°C

Maximum conductor temperature 90°C

2 core - single phase a.c. 3 & 4 core - three phase a.c.

Ratings do not apply if the cable is protected by a semi-enclosed fuse to BS3036.

For further guidance refer to the BS7671 (IEE Wiring Regulations - latest edition) and ERA publication 69-30 Part 5.

3 & 4 core ratings also apply to 5 core cables.

Technical Information

| Air | | |
|------------------------|--------|------------|
| Nominal Conductor Area | 2 Core | 3 & 4 Core |
| mm ² | Arm'd | Arm'd |
| 1.5 | 31 | 26 |
| 2.5 | 41 | 35 |
| 4 | 55 | 47 |
| 6 | 70 | 59 |
| 10 | 95 | 82 |
| 16 | 126 | 107 |
| 25 | 164 | 140 |
| 35 | 202 | 172 |
| 50 | 244 | 209 |
| 70 | 306 | 263 |
| 95 | 378 | 324 |
| 120 | 437 | 376 |
| 150 | 499 | 430 |
| 185 | 576 | 495 |
| 240 | 680 | 584 |
| 300 | 775 | 666 |
| 400 | 892 | 766 |

For cables of five core and above it is assumed only two cores are loaded simultaneously (i.e. live and neutral) and the two core rating should be taken. In instances where several cores are loaded simultaneously, the following rating factors should be applied to the two core current rating:

| Number of cores | 2 | 3 | 4 | 5 | 6 | 7 | 10 | 12 |
|-----------------|-----|------|------|------|------|------|------|------|
| Factor | 1.0 | 0.87 | 0.78 | 0.72 | 0.67 | 0.63 | 0.56 | 0.53 |

| Number of cores | 14 | 19 | 24 | 27 | 30 | 37 | 44 | 46 | 48 |
|-----------------|------|------|------|-----|------|------|------|------|------|
| Factor | 0.51 | 0.45 | 0.42 | 0.4 | 0.39 | 0.36 | 0.34 | 0.33 | 0.33 |

Technical Information

- XLPE/PVC/SWA/PVC
- XLPE/LSF/SWA/LSF
- XLPE/LC/PVC/SWA/PVC 600/1000V

Conductor operating temperature 90°C

NB. for ambient air and ground temperatures other than those specified the following rating factors should be applied:

Cables Laid in Air

| | | | | | | | |
|---------------------|-----|------|------|------|------|------|------|
| Ambient air temp °C | 25 | 30 | 35 | 40 | 45 | 50 | 55 |
| Rating factor | 1.0 | 0.96 | 0.92 | 0.88 | 0.83 | 0.78 | 0.73 |

Cables laid direct in ground and in single-way ducts

| | | | | | | | |
|----------------|------|-----|------|------|------|------|------|
| Ground temp °C | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| Rating factor | 1.03 | 1.0 | 0.97 | 0.93 | 0.89 | 0.86 | 0.82 |

VOLTAGE DROP (per Ampere per metre):

| Conductor Cross Sectional Area | 2 Core Cable d.c. | 2 Core Cable Single Phase a.c. | | | 3, 4 or 5 Core Cable Three Phase a.c. | | |
|--------------------------------|-------------------|--------------------------------|-------|-------|---------------------------------------|-------|-------|
| 1 | 2 | 3 | | | 4 | | |
| mm ² | mV | mV | | | mV | | |
| 1.5 | 31 | 31 | | | 27 | | |
| 2.5 | 19 | 19 | | | 16 | | |
| 4 | 12 | 12 | | | 10 | | |
| 6 | 7.9 | 7.9 | | | 6.8 | | |
| 10 | 4.7 | 4.7 | | | 4.0 | | |
| 16 | 2.9 | 2.9 | | | 2.5 | | |
| | | r | x | z | r | x | z |
| 25 | 1.85 | 1.85 | 0.160 | 1.90 | 1.60 | 0.140 | 1.65 |
| 35 | 1.35 | 1.35 | 0.155 | 1.35 | 1.15 | 0.135 | 1.15 |
| 50 | 0.98 | 0.99 | 0.155 | 1.00 | 0.86 | 0.135 | 0.87 |
| 70 | 0.67 | 0.67 | 0.150 | 0.69 | 0.59 | 0.130 | 0.60 |
| 95 | 0.49 | 0.50 | 0.150 | 0.52 | 0.43 | 0.130 | 0.45 |
| 120 | 0.39 | 0.40 | 0.145 | 0.42 | 0.34 | 0.130 | 0.37 |
| 150 | 0.31 | 0.32 | 0.145 | 0.35 | 0.28 | 0.125 | 0.30 |
| 185 | 0.25 | 0.26 | 0.145 | 0.29 | 0.22 | 0.125 | 0.26 |
| 240 | 0.195 | 0.20 | 0.140 | 0.24 | 0.175 | 0.125 | 0.21 |
| 300 | 0.155 | 0.16 | 0.140 | 0.21 | 0.140 | 0.120 | 0.185 |
| 400 | 0.120 | 0.13 | 0.145 | 0.195 | 0.115 | 0.125 | 0.170 |

Technical Information

- Multi-core PCU/XLPE/PVC 600/1000V to BS5467
- Multi-core PCU/XLPE/PVC/SWA/PVC 600/1000V to BS5467
- Multi-core PCU/XLPE/LSF/SWA/LSF 600/1000V to BS6724
- Multi-core PCU/XLPE/LC/PVC/SWA/PVC 600/1000V

ELECTRICAL CHARACTERISTICS

| Conductor Size mm ² | Maximum d.c. Conductor Resistance @ 20°C ohms/km | Maximum a.c. Conductor Resistance @ 90°C ohms/km | Reactance @ 50Hz ohms/km | Impedance @ 90°C, 50Hz ohms/km |
|-----------------------------------|--|--|-----------------------------|--------------------------------------|
| 1.5 | 12.1 | 15.4 | 0.103 | 15.4 |
| 2.5 | 7.41 | 9.45 | 0.101 | 9.45 |
| 4.0 | 4.61 | 5.88 | 0.0929 | 5.88 |
| 6.0 | 3.08 | 3.93 | 0.0885 | 3.93 |
| 10 | 1.83 | 2.33 | 0.0835 | 2.33 |
| 16 | 1.15 | 1.47 | 0.0815 | 1.47 |
| 25 | 0.727 | 0.927 | 0.0818 | 0.931 |
| 35 | 0.524 | 0.668 | 0.0771 | 0.672 |
| 50 | 0.387 | 0.494 | 0.0765 | 0.500 |
| 70 | 0.268 | 0.342 | 0.0754 | 0.350 |
| 95 | 0.193 | 0.247 | 0.0727 | 0.257 |
| 120 | 0.153 | 0.197 | 0.0723 | 0.210 |
| 150 | 0.124 | 0.160 | 0.0728 | 0.176 |
| 185 | 0.0991 | 0.128 | 0.073 | 0.147 |
| 240 | 0.0754 | 0.0989 | 0.0722 | 0.122 |
| 300 | 0.0601 | 0.0802 | 0.0717 | 0.108 |
| 400 | 0.047 | 0.0656 | 0.0715 | 0.0970 |

Technical Information

- 1.9/3.3 kV 1 core & 3 cores XLPE Insulated, Armoured Cables BS5467 & BS6724

For further guidance refer to the BS7671 (IEE Wiring Regulations - latest edition) and ERA 69-30Part 5.

For ambient air and ground temperatures other than those specified, the following factors should be applied.

Cables laid in air

| | | | | | | | |
|---------------------|-----|------|------|------|------|------|------|
| Ambient air temp °C | 25 | 30 | 35 | 40 | 45 | 50 | 55 |
| Rating factor | 1.0 | 0.96 | 0.92 | 0.88 | 0.83 | 0.78 | 0.73 |

Cables laid direct in ground and in single-way ducts

| | | | | | | | |
|----------------|------|-----|------|------|------|------|------|
| Ground temp °C | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| Rating factor | 1.03 | 1.0 | 0.97 | 0.93 | 0.89 | 0.86 | 0.82 |

CURRENT CARRYING CAPACITY (Amperes)

Single Core 1900/3300V 50Hz

| Direct Buried - BS5467 | | | | In Single-Way Duct - BS5467 | | |
|------------------------|---------|-------------------|--------|-----------------------------|----------|-------|
| Nominal Conductor Area | Trefoil | 3 Cables Touching | Spaced | Nominal Conductor | 3 Cables | |
| | Arm'd | Arm'd | Arm'd | | Trefoil | Flat |
| mm ² | Arm'd | Arm'd | Arm'd | mm ² | Arm'd | Arm'd |
| 50 | 222 | 221 | 230 | 50 | 219 | 220 |
| 70 | 271 | 269 | 279 | 70 | 264 | 265 |
| 95 | 324 | 321 | 331 | 95 | 310 | 311 |
| 120 | 366 | 361 | 369 | 120 | 342 | 342 |
| 150 | 409 | 402 | 409 | 150 | 376 | 376 |
| 185 | 460 | 449 | 454 | 185 | 414 | 414 |
| 240 | 528 | 513 | 512 | 240 | 464 | 463 |
| 300 | 589 | 568 | 560 | 300 | 506 | 504 |
| 400 | 651 | 619 | 595 | 400 | 535 | 532 |
| 500 | 720 | 677 | 641 | 500 | 579 | 574 |
| 630 | 789 | 733 | 684 | 630 | 624 | 618 |
| 800 | 831 | 763 | 703 | 800 | 650 | 644 |
| 1000 | 880 | 802 | 735 | 1000 | 689 | 682 |

Technical Information

CURRENT CARRYING CAPACITY (Amperes)

3 Core 1900/3300V 50Hz XLPE/PVC/SWA/PVC, XLPE/LSF/SWA/LSF

| Direct Buried - BS5467 | | In Single-Way Duct - BS5467 | | Air - BS5467 & BS6724 | |
|------------------------|--------|-----------------------------|--------|------------------------|--------|
| Nominal Conductor Area | 3 Core | Nominal Conductor Area | 3 Core | Nominal Conductor Area | 3 Core |
| mm ² | Arm'd | mm ² | Arm'd | mm ² | Arm'd |
| 16 | 114 | 16 | 96 | 16 | 112 |
| 25 | 147 | 25 | 124 | 25 | 149 |
| 35 | 175 | 35 | 147 | 35 | 177 |
| 50 | 207 | 50 | 174 | 50 | 213 |
| 70 | 254 | 70 | 214 | 70 | 268 |
| 95 | 304 | 95 | 257 | 95 | 328 |
| 120 | 345 | 120 | 293 | 120 | 380 |
| 150 | 387 | 150 | 328 | 150 | 432 |
| 185 | 436 | 185 | 371 | 185 | 496 |
| 240 | 502 | 240 | 428 | 240 | 583 |
| 300 | 563 | 300 | 480 | 300 | 667 |
| 400 | 633 | 400 | 549 | 400 | 765 |

XLPE/PVC/AWA/PVC XLPE/LSF/AWA/LSF

| Air - BS5467 & 6724 | | | |
|------------------------|---------|--------------------------|---------------------|
| Nominal Conductor Area | Trefoil | 3 Cables Vertical Spaced | Horizontally Spaced |
| mm ² | Arm'd | Arm'd | Arm'd |
| 50 | 240 | 277 | 299 |
| 70 | 300 | 345 | 372 |
| 95 | 368 | 420 | 452 |
| 120 | 428 | 478 | 513 |
| 150 | 487 | 536 | 576 |
| 185 | 556 | 604 | 648 |
| 240 | 656 | 695 | 745 |
| 300 | 747 | 771 | 826 |
| 400 | 851 | 829 | 887 |
| 500 | 963 | 906 | 968 |
| 630 | 1084 | 983 | 1049 |
| 800 | 1178 | 1030 | 1098 |
| 1000 | 1278 | 1096 | 1168 |

Standard depth of laying 0.8m
 Thermal resistivity of soil 1.2°C m/W
 Standard ground temperature 15°C
 Ambient air temperature 25°C
 Maximum conductor temperature 90°C

Technical Information

- Multi-core PCU/XLPE/PVC 1900/3300V to BS5467
- Multi-core PCU/XLPE/PVC/SWA/PVC 1900/3300V to BS5467
- Multi-core PCU/XLPE/LSF/SWA/LSF 1900/3300V to BS6724

ELECTRICAL CHARACTERISTICS

| Conductor Size mm ² | Maximum d.c. Conductor Resistance @ 20°C ohms/km | Maximum a.c. Conductor Resistance @ 90°C ohms/km | Reactance @ 50Hz ohms/km | Impedance @ 90°C, 50Hz ohms/km |
|-----------------------------------|--|--|-----------------------------|--------------------------------------|
| 16 | 1.15 | 1.47 | 0.104 | 1.47 |
| 25 | 0.727 | 0.927 | 0.094 | 0.932 |
| 35 | 0.524 | 0.668 | 0.091 | 0.674 |
| 50 | 0.387 | 0.494 | 0.088 | 0.502 |
| 70 | 0.268 | 0.342 | 0.084 | 0.352 |
| 95 | 0.193 | 0.247 | 0.081 | 0.260 |
| 120 | 0.153 | 0.197 | 0.079 | 0.212 |
| 150 | 0.124 | 0.160 | 0.077 | 0.178 |
| 185 | 0.0991 | 0.128 | 0.076 | 0.149 |
| 240 | 0.0754 | 0.0989 | 0.074 | 0.124 |
| 300 | 0.0601 | 0.0802 | 0.073 | 0.108 |
| 400 | 0.047 | 0.0656 | 0.0717 | 0.0972 |

Armour Resistances

Max. DC Resistance of Conductor & Armour for 2, 3, 4 & 5 Core XLPE Insulated Cables Having Steel Wire Armour

XLPE/PVC/SWA/PVC Cables to BS5467

XLPE/LSF/SWA/LSF Cables to BS6724

MICA/XLPE/LSF/SWA/LSF Cables to BS7846

| Nominal Conductor Area | Max Resistance per Km of Cable @ 20°C | | | | | |
|------------------------|---------------------------------------|--|----------------------|---------|---------------------|---------------------|
| | Copper Conductor (plain) | Steel Wire Armour Cables with Stranded Copper Conductors | | | | |
| | | Two Core 600/1000V | Three Core 600/1000V | | Four Core 600/1000V | Five-core 600/1000V |
| mm ² | ohms/km | ohms/km | ohms/km | ohms/km | ohms/km | ohms/km |
| 1.5 | 12.1 | 10.2 | 9.5 | - | 8.8 | 8.2 |
| 2.5 | 7.41 | 8.8 | 8.2 | - | 7.7 | 6.8 |
| 4.0 | 4.61 | 7.9 | 7.5 | - | 6.8 | 6.2 |
| 6.0 | 3.08 | 7.0 | 6.7 | - | 4.3 | 3.9 |
| 10 | 1.83 | 6.0 | 4.0 | - | 3.7 | 3.4 |
| 16 | 1.15 | 3.7 | 3.5 | 1.9 | 3.1 | 3.2 |
| 25 | 0.727 | 3.7 | 2.5 | 1.7 | 2.3 | 1.8 |
| 35 | 0.524 | 2.6 | 2.3 | 1.8 | 2.0 | 1.6 |
| 50 | 0.387 | 2.3 | 2.0 | 1.3 | 1.8 | 1.1 |
| 70 | 0.268 | 2.0 | 1.8 | 1.2 | 1.2 | 0.94 |
| 95 | 0.193 | 1.4 | 1.3 | 1.1 | 1.1 | — |
| 120 | 0.153 | 1.3 | 1.2 | 0.76 | 0.76 | — |
| 150 | 0.124 | 1.2 | 0.78 | 0.71 | 0.68 | — |
| 185 | 0.0991 | 0.82 | 0.71 | 0.65 | 0.61 | — |
| 240 | 0.0754 | 0.73 | 0.63 | 0.59 | 0.54 | — |
| 300 | 0.0601 | 0.67 | 0.58 | 0.55 | 0.49 | — |
| 400 | 0.0470 | 0.59 | 0.52 | 0.50 | 0.35 | — |

Armour Resistances

Max. DC Resistance of Conductor & Armour for Auxiliary XLPE Insulated Cables Having Steel Wire Armour

XLPE/PVC/SWA/PVC Cables to BS5467

XLPE/LSF/SWA/LSF Cables to BS6724 600/1000V

MICA/XLPE/LSF/SWA/LSF Cables to BS7846 600/1000V

| Nominal Conductor Area | Max Resistance per Km of Cable @ 20°C | | | | | |
|------------------------|---------------------------------------|-------------------|-----|-----|-----|-----|
| | Copper Conductor (plain) | Steel Wire Armour | | | | |
| | | Number of Cores* | | | | |
| | | 7 | 12 | 19 | 27 | 37 |
| mm ² | ohms/km | ohms/km | | | | |
| 1.5 | 12.1 | 7.5 | 4.0 | 3.5 | 2.3 | 2.0 |
| 2.5 | 7.41 | 6.3 | 3.5 | 2.3 | 1.9 | 1.7 |
| 4.0 | 4.61 | 4.0 | 2.3 | 2.0 | 1.7 | 1.2 |

* For non-preferred sizes, the maximum resistance shall not be greater than that of the next lowest preferred number of cores.

Gross Cross-sectional Area of Armour for 2, 3 & 4 Core PVC Insulated Cables

PVC/PVC/SWA/PVC Cables to BS6346 and ENATS 09-6 600/1000V

| Nominal Conductor Area | Gross cross-sectional area of round armour wires | | |
|------------------------|--|-----------------|-----------------|
| | Steel Wire Armour Cables with Stranded Copper Conductors | | |
| | Two Core | Three Core | Four Core |
| mm ² | mm ² | mm ² | mm ² |
| 1.5 | 15 | 16 | 17 |
| 2.5 | 17 | 19 | 20 |
| 4.0 | 20 | 22 | 34 |
| 6.0 | 22 | 34 | 38 |
| 10 | 40 | 42 | 46 |
| 16 | 46 | 50 | 72 |

Gross Cross-Sectional Gross Cross-sectional Area of Armour for 2, 3, 4, & 5 Core XLPE Insulated Cables

XLPE/PVC/SWA/PVC Cables to BS5467 600/1000V

XLPE/LSF/SWA/LSF Cables to BS6724 600/1000V

MICA/XLPE/LSF/SWA/LSF Cables to BS7846 600/1000V

| Nominal Conductor Area | Gross cross-sectional area of round armour wires | | | |
|------------------------|--|-----------------|-----------------|-----------------|
| | Steel Wire Armour Cables with Stranded Copper Conductors | | | |
| | Two Core | Three Core | Four Core | Five Core |
| mm ² | mm ² | mm ² | mm ² | mm ² |
| 1.5 | 15 | 16 | 17 | 19 |
| 2.5 | 17 | 19 | 20 | 22 |
| 4.0 | 19 | 20 | 22 | 25 |
| 6.0 | 22 | 23 | 36 | 40 |
| 10 | 26 | 39 | 42 | 46 |
| 16 | 42 | 45 | 50 | 72 |
| 25 | 42 | 62 | 70 | 88 |
| 35 | 60 | 68 | 78 | 100 |
| 50 | 68 | 78 | 90 | 144 |
| 70 | 80 | 90 | 131 | 166 |
| 95 | 113 | 128 | 147 | — |
| 120 | 125 | 141 | 206 | — |
| 150 | 138 | 201 | 230 | — |
| 185 | 191 | 220 | 255 | — |
| 240 | 215 | 250 | 289 | — |
| 300 | 235 | 269 | 319 | — |
| 400 | 265 | 304 | 452 | — |

Gross Cross-sectional Area of Armour for Auxiliary XLPE Insulated Cables

XLPE/PVC/SWA/PVC Cables to BS5467

XLPE/LSF/SWA/LSF Cables to BS6724

MICA/XLPE/LSF/SWA/LSF Cables to BS7846

| Nominal Conductor Area | Gross cross-sectional area of round armour wires | | | | |
|------------------------|--|-----------------|-----------------|-----------------|-----------------|
| | Number of Cores | | | | |
| | 7 | 12 | 19 | 27 | 37 |
| mm ² | mm ² | mm ² | mm ² | mm ² | mm ² |
| 1.5 | 20 | 39 | 45 | 70 | 78 |
| 2.5 | 24 | 45 | 70 | 84 | 94 |
| 4.0 | 39 | 68 | 80 | 96 | 138 |

Conductor Short-Circuit Ratings

XLPE Insulated Cables

Short-Circuit Ratings

| Conductor Size mm ² | 0.2s duration kA | 1.0s duration kA | 3.0s duration kA |
|-----------------------------------|---------------------|---------------------|---------------------|
| 1.5 | 0.479 | 0.214 | 0.123 |
| 2.5 | 0.799 | 0.357 | 0.206 |
| 4.0 | 1.27 | 0.572 | 0.330 |
| 6.0 | 1.91 | 0.858 | 0.495 |
| 10 | 3.19 | 1.43 | 0.825 |
| 16 | 5.11 | 2.28 | 1.32 |
| 25 | 7.99 | 3.57 | 2.06 |
| 35 | 11.1 | 5.0 | 2.88 |
| 50 | 15.9 | 7.15 | 4.12 |
| 70 | 22.3 | 10.0 | 5.77 |
| 95 | 30.3 | 13.5 | 7.84 |
| 120 | 38.3 | 17.1 | 9.9 |
| 150 | 47.9 | 21.4 | 12.3 |
| 185 | 59.1 | 26.4 | 15.2 |
| 240 | 76.7 | 34.3 | 19.8 |
| 300 | 95.9 | 42.9 | 24.7 |
| 400 | 127 | 57.2 | 33.0 |
| 500 | 159 | 71.5 | 41.2 |
| 630 | 201 | 90.0 | 52.0 |

N.B: The above ratings assume an adiabatic temperature rise and are based on a conductor temperature of 90°C at start of short-circuit and 250°C at end of shortcircuit.

Armour Short-Circuit Ratings

Two Core XLPE/PVC/SWA/PVC 600/1000V

Two Core XLPE/LSF/SWA/LSF 600/1000V

Two Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

| Conductor Size mm ² | 0.2s duration kA | 1.0s duration kA | 3.0s duration kA |
|-----------------------------------|---------------------|---------------------|---------------------|
| 1.5 | 1.54 | 0.69 | 0.398 |
| 2.5 | 1.75 | 0.782 | 0.451 |
| 4.0 | 1.95 | 0.874 | 0.505 |
| 6.0 | 2.26 | 1.01 | 0.583 |
| 10 | 2.68 | 1.20 | 0.693 |
| 16 | 4.32 | 1.93 | 1.11 |
| 25 | 4.32 | 1.93 | 1.11 |
| 35 | 6.17 | 2.76 | 1.59 |
| 50 | 7.0 | 3.13 | 1.81 |
| 70 | 8.23 | 3.68 | 2.12 |
| 95 | 11.6 | 5.20 | 3.0 |
| 120 | 12.9 | 5.75 | 3.32 |
| 150 | 14.2 | 6.35 | 3.67 |
| 185 | 19.7 | 8.79 | 5.07 |
| 240 | 22.1 | 9.89 | 5.71 |
| 300 | 24.1 | 10.8 | 6.24 |
| 400 | 27.3 | 12.2 | 7.04 |

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Three Core XLPE/PVC/SWA/PVC 600/1000V

Three Core XLPE/LSF/SWA/LSF 600/1000V

Three Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

| Conductor Size mm ² | 0.2s duration kA | 1.0s duration kA | 3.0s duration kA |
|-----------------------------------|---------------------|---------------------|---------------------|
| 1.5 | 1.65 | 0.736 | 0.425 |
| 2.5 | 1.95 | 0.874 | 0.505 |
| 4.0 | 2.06 | 0.920 | 0.531 |
| 6.0 | 2.37 | 1.06 | 0.612 |
| 10 | 4.0 | 1.79 | 1.03 |
| 16 | 4.63 | 2.07 | 1.20 |
| 25 | 6.37 | 2.85 | 1.65 |
| 35 | 7.0 | 3.13 | 1.81 |
| 50 | 8.03 | 3.59 | 2.07 |
| 70 | 9.26 | 4.14 | 2.39 |
| 95 | 13.2 | 5.89 | 3.4 |
| 120 | 14.5 | 6.49 | 3.75 |
| 150 | 20.7 | 9.25 | 5.34 |
| 185 | 22.6 | 10.1 | 5.84 |
| 240 | 25.7 | 11.5 | 6.64 |
| 300 | 27.7 | 12.4 | 7.16 |
| 400 | 31.3 | 14.0 | 8.08 |

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Four Core XLPE/PVC/SWA/PVC 600/1000V

Four Core XLPE/LSF/SWA/LSF 600/1000V

Four Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

| Conductor Size mm ² | 0.2s duration kA | 1.0s duration kA | 3.0s duration kA |
|-----------------------------------|---------------------|---------------------|---------------------|
| 1.5 | 1.75 | 0.782 | 0.451 |
| 2.5 | 2.06 | 0.920 | 0.531 |
| 4.0 | 2.26 | 1.01 | 0.583 |
| 6.0 | 3.71 | 1.66 | 0.958 |
| 10 | 4.32 | 1.932 | 1.12 |
| 16 | 5.14 | 2.30 | 1.33 |
| 25 | 7.2 | 3.22 | 1.86 |
| 35 | 8.03 | 3.59 | 2.07 |
| 50 | 9.26 | 4.14 | 2.39 |
| 70 | 13.25 | 6.03 | 3.48 |
| 95 | 15.1 | 6.76 | 3.90 |
| 120 | 21.2 | 9.48 | 5.47 |
| 150 | 23.7 | 10.6 | 6.12 |
| 185 | 26.2 | 11.7 | 6.77 |
| 240 | 29.7 | 13.3 | 7.68 |
| 300 | 32.9 | 14.7 | 8.49 |
| 400 | 46.5 | 20.8 | 12.0 |

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Five Core XLPE/PVC/SWA/PVC 600/1000V

Five Core XLPE/LSF/SWA/LSF 600/1000V

Five Core MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

| Conductor Size mm ² | 0.2s duration kA | 1.0s duration kA | 3.0s duration kA |
|-----------------------------------|---------------------|---------------------|---------------------|
| 1.5 | 1.95 | 0.874 | 0.505 |
| 2.5 | 2.26 | 1.01 | 0.583 |
| 4.0 | 2.57 | 1.15 | 0.664 |
| 6.0 | 4.11 | 1.84 | 1.06 |
| 10 | 6.98 | 2.12 | 1.22 |
| 16 | 7.40 | 3.31 | 1.91 |
| 25 | 9.06 | 4.05 | 2.34 |
| 35 | 10.3 | 4.6 | 2.66 |
| 50 | 14.8 | 6.62 | 3.82 |
| 70 | 17.1 | 7.64 | 4.41 |
| 95 | – | – | – |
| 120 | – | – | – |
| 150 | – | – | – |
| 185 | – | – | – |
| 240 | – | – | – |
| 300 | – | – | – |
| 400 | – | – | – |

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.

Armour Short-Circuit Ratings

Auxiliary XLPE/PVC/SWA/PVC 600/1000V

Auxiliary XLPE/LSF/SWA/LSF 600/1000V

Auxiliary MICA/XLPE/LSF/SWA/LSF 600/1000V

Short-Circuit Ratings

| Conductor Size No. x mm ² | 0.2s duration kA | 1.0s duration kA | 3.0s duration kA |
|---|---------------------|---------------------|---------------------|
| 7 x 1.5 | 2.06 | 0.920 | 0.531 |
| 12 x 1.5 | 4.0 | 1.79 | 1.03 |
| 19 x 1.5 | 4.63 | 2.07 | 1.20 |
| 27 x 1.5 | 7.20 | 3.22 | 1.86 |
| 37 x 1.5 | 8.03 | 3.59 | 2.07 |
| | | | |
| 7 x 2.5 | 2.46 | 1.10 | 0.635 |
| 12 x 2.5 | 4.63 | 2.07 | 1.20 |
| 19 x 2.5 | 7.20 | 3.22 | 1.86 |
| 27 x 2.5 | 8.63 | 3.86 | 2.23 |
| 37 x 2.5 | 9.66 | 4.32 | 2.49 |
| | | | |
| 7 x 4.0 | 4.0 | 1.79 | 1.03 |
| 12 x 4.0 | 7.0 | 3.13 | 1.81 |
| 19 x 4.0 | 8.23 | 3.68 | 2.12 |
| 27 x 4.0 | 9.88 | 4.42 | 2.55 |
| 37 x 4.0 | 41.2 | 6.35 | 3.67 |

N.B: The above ratings assume an adiabatic temperature rise and are based on an armour temperature of 80°C at start of short-circuit and 200°C at end of short-circuit.