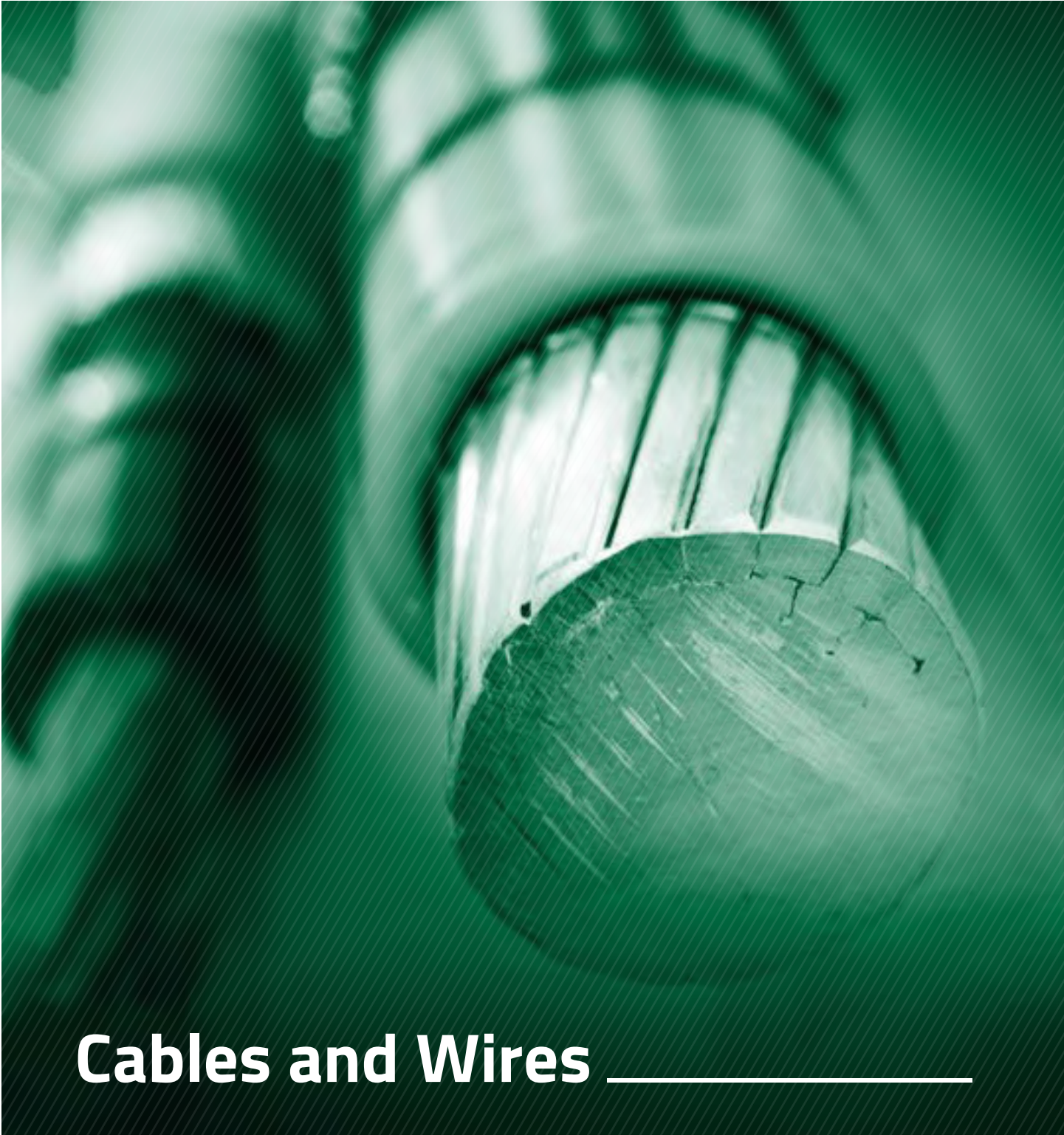




Connecting globally



**Cables and Wires** \_\_\_\_\_

# Copper Cable Company Limited

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Copper Cable Company is the UK subsidiary of TELE-FONIKA Kable S.A., with offices and a warehouse centrally located in Leicestershire.

A major supplier to the UK and Eire of housewiring, low voltage, power and fire resistant cables for use in domestic, commercial offices, public buildings and utilities. In addition, we provide bespoke flexible rubber cable solutions for critical temporary power, submersible pumps and trailing cable applications.

For the telecommunications sector we supply copper and fibre data cables.

For all your cable requirements we have stock available for immediate despatch from our East Midlands warehouse, for larger quantity shipments we can also deliver directly from our factories where substantial stocks are held.

You can trust TELE-FONIKA Kable S.A., our factory management systems are approved to ISO9001 for Quality, to ISO14001 for the protection of the Environment and OHSAS18001 for Occupational Health & Safety:



## BASEC, LPCB Approvals

For your safety and peace of mind, our cables have been tested, verified and approved by the independent third party laboratories, including BASEC and LPCB:



# Leading producer of cables and cable systems

---

TELE–FONIKA Kable Group has been present on the domestic and international cable industry market for more than 25 years. A stable development strategy based on a full diversification of outlets enabled the consolidation of our company in the world's leading cable companies with significant development potential.

Services and products provided by TF Kable find numerous applications in the most important industry sectors – they include more than 25,000 proven standard construction. Furthermore, they include a specialist assortment tailored to the individual needs of business partners.

Additionally, our production facilities (in Poland, Serbia and Ukraine), Bukowno-Poland recycling plant and commercial companies demonstrate a significant development potential. They are responsible for the geo-regional distribution of products, as well as modern fire test laboratory in the Krakow-Wielicka plant. This laboratory performs several hundred pre-tests of flammability per year. There is also a laboratory of high and extra high voltages in Bydgoszcz.

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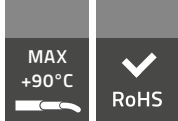
Edition I

**TF**  
*Kable*

**FLAME-X<sup>950</sup>**

# Fire Performance Cables





BS 6387, IEC 60331-21  
Cert No. 814c

# FLAME-X 950 SERIES 1

## (FLAME-X 950 Single) 600/1000V

BS 8573,

Single core non-sheathed fire resistant cable having low emission of smoke and corrosive gases when affected by fire

### APPLICATIONS

For use in fixed installations, where cable is protected by conduit or trunking. Fire resistant cables intended to provide circuit integrity in case of fire.

Standard length cable packing: 100 m in coils or on spools, or 500 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|                     |  |
|---------------------|--|
| Conductors:         | Circular or compacted circular, stranded, annealed copper conductor, class 2 acc. to BS EN 60228 |
| Primary insulation: | Fire resistant mica tape with a glass cloth  |
| Insulation:         | Special thermosetting LSOH compound of EI5 type acc. to BS EN 50363-5                            |



### CHARACTERISTICS

|  |   |
|--|---|
| Core identification:                         | Green/yellow, blue, black, brown, grey, red, yellow.<br>Other colours are available on special request. |
| Maximum conductor operating temperature:     | +90°C   |
| Lowest installation temperature:             | -5°C  |
| Maximum short-circuit conductor temperature: | +250°C  |
| Minimum bending radius:                      | 6 × D<br>D – overall diameter of the cable  |

## Fire performance

|                                    |                                       |   |
|------------------------------------|---------------------------------------|---|
| Fire resistance:                   | IEC 60331-21<br>BS 6387 <sup>1)</sup> | Circuit integrity - tested 90 min. at 950°C<br>Category <b>C</b> – resistance to fire: 3 h at 950°C<br>Category <b>W</b> – resistance to fire with water: 15 min at 650°C plus 15 min with water spray<br>Category <b>Z</b> – resistance to fire with mechanical shock: 15 min at 950°C |
| Flame propagation:                 | BS EN 60332-1-2                       |   |
| Smoke density:                     | BS EN 61034-2                         |   |
| Corrosive and acid gases emission: | BS EN 60754-1 <sup>2)</sup>           | HCl content < 0.5%<br>pH ≥ 4.3 & conductivity ≤ 10 μSmm <sup>-1</sup>   |

<sup>1)</sup> Category C, W, Z for cables up to and including 95 mm<sup>2</sup>. Category C for cables above and including 120 mm<sup>2</sup>.

<sup>2)</sup> BS EN 60754-1 & BS EN 60754-2 standards replace BS EN 50267-2-1

## Approvals

|      |  |
|------|--|
| LPCB | 1,5 mm <sup>2</sup> to 500 mm <sup>2</sup> single-core |
|------|--|

## Technical and Electrical Characteristic

| Nominal cross-sectional area of conductor | Radial thickness of insulation | Approximate overall diameter | Approximate net weight | Maximum resistance of conductor at temperature 20°C |
|---|--------------------------------|------------------------------|------------------------|---|
| mm <sup>2</sup>                           | mm                             | mm                           | mm                     | Ω/km  |
| 1.5                                       | 0.7                            | 3.90                         | 25.3                   | 12.1  |
| 2.5                                       | 0.8                            | 4.60                         | 38                     | 7.41  |
| 4   | 0.8                            | 5.10                         | 53                     | 4.61  |
| 6   | 0.8                            | 5.40                         | 71                     | 3.08  |
| 10  | 1.0                            | 6.70                         | 116                    | 1.83  |
| 16  | 1.0                            | 7.80                         | 173                    | 1.15  |
| 25  | 1.2                            | 9.60                         | 270                    | 0.727   |
| 35  | 1.2                            | 10.60                        | 361                    | 0.524   |
| 50  | 1.4                            | 12.30                        | 490                    | 0.387   |
| 70  | 1.4                            | 13.70                        | 683                    | 0.268   |
| 95  | 1.6                            | 16.10                        | 942                    | 0.193   |
| 120                                       | 1.6                            | 17.50                        | 1171                   | 0.153   |
| 150                                       | 1.8                            | 19.50                        | 1445                   | 0.124   |



| Nominal cross-sectional area of conductor | Radial thickness of insulation | Approximate overall diameter | Approximate net weight | Maximum resistance of conductor at temperature 20°C |
|---|--------------------------------|------------------------------|------------------------|---|
| mm <sup>2</sup>                           | mm                             | mm                           | mm                     | Ω/km  |
| 185                                       | 2.0                            | 21.40                        | 1800                   | 0.0991  |
| 240                                       | 2.2                            | 24.3                         | 2338                   | 0.0754  |
| 300                                       | 2.4                            | 26.50                        | 2918                   | 0.0601  |
| 400                                       | 2.6                            | 29.60                        | 3766                   | 0.0470  |
| 500                                       | 2.8                            | 33.20                        | 4810                   | 0.0366  |

## Current Ratings and Voltage Drop

| Nominal cross-sectional area of conductor | Short circuit current ratings (1 sec) | Current Rating*<br>Two cables, single phase A.C. or D.C. | Current Rating*<br>Three or four cables, three phase A.C. | Voltage Drop** Two cables D.C. | Voltage Drop**<br>Two cables, single phase A.C. | Voltage Drop**<br>Three or four cables, three phase A.C. |
|---|---------------------------------------|--|---|--------------------------------|---|--|
| mm <sup>2</sup>                           | Amps                                  | Amps   | Amps  | mV/A/m                         | mV/A/m  | mV/A/m   |
| 1.5                                       | 210                                   | 22   | 19  | 31                             | 31  | 27   |
| 2.5                                       | 350                                   | 30   | 26  | 19                             | 19  | 16   |
| 4   | 570                                   | 40   | 35  | 12                             | 12  | 10   |
| 6   | 850                                   | 51   | 45  | 7.9                            | 7.9   | 6.8  |
| 10  | 1400                                  | 71   | 63  | 4.7                            | 4.7   | 4.0  |
| 16  | 2200                                  | 95   | 85  | 2.9                            | 2.9   | 2.5  |
| 25  | 3600                                  | 126  | 111   | 1.85                           | 1.90  | 1.65   |
| 35  | 5000                                  | 156  | 138   | 1.35                           | 1.35  | 1.15   |
| 50  | 6800                                  | 189  | 168   | 0.99                           | 1.05  | 0.90   |
| 70  | 9800                                  | 240  | 214   | 0.68                           | 0.75  | 0.65   |
| 95  | 13600                                 | 290  | 259   | 0.49                           | 0.58  | 0.50   |
| 120                                       | 17200                                 | 336  | 299   | 0.39                           | 0.48  | 0.42   |
| 150                                       | 21100                                 | 375  | 328   | 0.32                           | 0.43  | 0.37   |
| 185                                       | 26500                                 | 426  | 370   | 0.25                           | 0.37  | 0.32   |
| 240                                       | 34900                                 | 500  | 433   | 0.190                          | 0.33  | 0.29   |
| 300                                       | 43700                                 | 573  | 493   | 0.155                          | 0.31  | 0.27   |
| 400                                       | 55900                                 | 683  | 584   | 0.120                          | 0.29  | 0.25   |
| 500                                       | 70600                                 | 783  | 666   | 0.093                          | 0.28  | 0.24   |

\* Installation reference method 3 (enclosed in conduit on a wall or in trunking etc.,) as per BS 7671, Appendix 4, Conductor operating temperature 90°C, Ambient temperature 30°C

\*\* Installation reference methods 3 and 4 (enclosed in conduit, etc., in or on a wall) as per BS 7671, Appendix 4, Conductor operating temperature 90°C, Ambient temperature 30°C

## Correction Factors for Ambient Temperature

|                         |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ambient Temperature, °C | 25   | 30   | 35   | 40   | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   | 85   |
| Correction Factor       | 1.02 | 1.00 | 0.96 | 0.91 | 0.87 | 0.82 | 0.76 | 0.71 | 0.65 | 0.58 | 0.50 | 0.41 | 0.29 |

## Correction Factors for Groups

|                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Number of Circuits | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 12   | 14   | 16   | 18   |
| Correction Factor  | 0.80 | 0.70 | 0.65 | 0.60 | 0.57 | 0.54 | 0.52 | 0.50 | 0.48 | 0.45 | 0.43 | 0.41 | 0.39 |

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BS 7846  
Cert No. 814a, 814f

# FLAME-X 950 SERIES 2

## (Flame-X 950 Standard) 300/500V

BS 7629-1, BS 6387, BS 5839-1

Fire resistant screened cables having low emission of smoke and corrosive gases when affected by fire

### APPLICATIONS

Installations emergency lighting and evacuation systems, fire and smoke detection systems, air-conditioning and alarm systems, automatic elevator doors, computer control rooms, offshore and marine emergency systems, emergency evacuation communicators.

Standard length cable packing: 500 or 1,000 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|   |   |
|---|---|
| Conductors:                               | Plain annealed copper solid class 1 (for 1 - 2.5 mm <sup>2</sup> ) and stranded class 2 ( for 4 mm <sup>2</sup> ) acc. to BS EN 60228   |
| Uninsulated circuit protective conductor: | Tinned annealed copper of the same nominal cross-sectional area and of the same class as the insulated conductors   |
| Drain wire:                               | Tinned annealed copper wires class 2 acc. to BS EN 60228 ( for cables with 7, 12, 19 – cores)   |
| Insulation:                               | Special cross-linked heat resistant compound type EI2 acc. to BS EN 50363-1   |
| Optional binder:                          | Non hygroscopic halogen free tape   |
| Screen:                                   | Aluminium/polyester laminated tape and uninsulated circuit protective conductor or drain wire   |
| Outer sheath:                             | Thermoplastic zero halogen low smoke compound type LTS 3 acc. to BS 7655-6.1  |
| Colour of sheath:                         | Red or white (other colours are permissible when agreed with the manufacturer)  |
| Core identification:                      | 2 core + ECC: brown, blue<br>3 core + ECC: brown, black, grey<br>4 core + ECC: blue, brown, black, grey<br>7, 12, 19 – core + Drain wire: numbering or for identification by colour: in each layer: brown (starting core), black (reference core) |



# CHARACTERISTICS

|  |                                     |
|--|-------------------------------------|
| Maximum conductor operating temperature:   | +70°C                               |
| Minimum operating temperature (for fixed application) after installation without movement: | -40°C                               |
| Lowest installation temperature:   | 0°C                                 |
| Maximum short-circuit conductor temperature:   | +250°C                              |
| Minimum bending radius:  | 6 × D; (D - overall cable diameter) |

## Fire performance

|                                  |  |
|----------------------------------|--|
| Resistance to fire:              | BS 6387 Category <b>C</b> – resistance to fire: 3 h at 950°C (IEC 60331)<br><br>Category <b>W</b> – resistance to fire with water: 15 min at 650°C plus 15 min with water spray<br><br>Category <b>Z</b> – resistance to fire with mechanical shock: 15 min at 950°C<br><br>BS EN 50200 Class PH30 (resistance to fire, with mechanical shock and with water: 30 min)<br><br>BS 5839-1:2002 Clause 26.2d PH 30 Standard fire resistant cable |
| Flame propagation:               | BS EN 60332-1-2 (IEC 60332-1-2) and BS EN 50266-2-2 (IEC 60332-3-22)   |
| Smoke density:                   | BS EN 61034-2 (IEC 61034-2)  |
| Gases evolved during combustion: | BS EN 50267-2-1 (IEC 61034-2): < 0.5% acid gas<br>BS EN 50267-2-2 (IEC 60754-2): pH ≥ 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>  |

## Approvals

|       |   |
|-------|---|
| LPCB  | 1,0 1.5, 2.5, 4 mm <sup>2</sup> – 2-core, 3-core, 4-core, 1.0, 1.5, 2.5 mm <sup>2</sup> – 7-core, 12-core, 1.5 mm <sup>2</sup> – 19-core                      |
| BASEC | 1.0 mm <sup>2</sup> – 2-core, 1.5, 2.5, 4 mm <sup>2</sup> – 2-core, 3-core, 4-core, 1.5, 2.5 mm <sup>2</sup> – 7-core, 12-core, 1.5 mm <sup>2</sup> – 19-core |

# Technical and Electrical Characteristic

| Number and cross-sectional area of conductor | Conductor class | Nominal cross-sectional area of protective conductor ECC | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum ECC conductor resistance at 20°C |
|--|-----------------|--|------------------------------|----------------------------------|--|--|
| <b>n × mm<sup>2</sup></b>                    |                 | <b>mm<sup>2</sup></b>                                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                              |
| 2 × 1 RE + ECC                               | 1               | 1  | 6.9                          | 65                               | 18.1   | 18.2                                     |
| 2 × 1.5 RE + ECC                             | 1               | 1.5  | 7.8                          | 86                               | 12.1   | 12.2                                     |
| 2 × 1.5 RM + ECC*                            | 2               | 1.5  | 8.2                          | 91                               | 12.1   | 12.2                                     |
| 2 × 2.5 RE + ECC                             | 1               | 2.5  | 9.2                          | 126                              | 7.41   | 7.56                                     |
| 2 × 2.5 RM + ECC*                            | 2               | 2.5  | 9.7                          | 134                              | 7.41   | 7.56                                     |
| 2 × 4 RM + ECC                               | 2               | 4  | 10.9                         | 187                              | 4.61   | 4.70                                     |
| 2 × 6 RM + ECC*                              | 2               | 6  | 12.0                         | 251                              | 3.08   | 3.11                                     |
| 3 × 1 RE + ECC**                             | 1               | 1  | 7.3                          | 81                               | 18.1   | 18.2                                     |
| 3 × 1.5 RE + ECC                             | 1               | 1.5  | 8.3                          | 108                              | 12.1   | 12.2                                     |
| 3 × 2.5 RE + ECC                             | 1               | 2.5  | 9.7                          | 160                              | 7.41   | 7.56                                     |
| 3 × 4 RM + ECC                               | 2               | 4  | 11.6                         | 239                              | 4.61   | 4.70                                     |
| 4 × 1 RE + ECC**                             | 1               | 1  | 8.2                          | 102                              | 18.1   | 18.2                                     |
| 4 × 1.5 RE + ECC                             | 1               | 1.5  | 9.5                          | 138                              | 12.1   | 12.2                                     |
| 4 × 1.5 RM + ECC*                            | 1               | 1.5  | 10.2                         | 147                              | 12.1   | 12.2                                     |
| 4 × 2.5 RE + ECC                             | 1               | 2.5  | 11.5                         | 205                              | 7.41   | 7.56                                     |
| 4 × 4 RM + ECC                               | 2               | 4  | 14.6                         | 310                              | 4.61   | 4.70                                     |
| 7 × 1 RE**                                   | 1               | 0.5  | 10.4                         | 150                              | 18.1   | 36.7                                     |
| 7 × 1.5 RE                                   | 1               | 0.5  | 12.0                         | 207                              | 12.1   | 36.7                                     |
| 7 × 2.5 RE                                   | 1               | 0.5  | 13.9                         | 300                              | 7.41   | 36.7                                     |
| 12 × 1 RE**                                  | 1               | 0.5  | 13.6                         | 247                              | 18.1   | 36.7                                     |
| 12 × 1.5 RE                                  | 1               | 0.5  | 15.5                         | 333                              | 12.1   | 36.7                                     |
| 12 × 2.5 RE                                  | 1               | 0.5  | 18.3                         | 496                              | 7.41   | 36.7                                     |
| 19 × 1 RE*                                   | 1               | 0.5  | 15.7                         | 356                              | 18.1   | 36.7                                     |
| 19 × 1.5 RE                                  | 1               | 0.5  | 18.1                         | 496                              | 12.1   | 36.7                                     |

\* based on norm. without certificate    \*\* without standards

# Current Ratings and Voltage Drop

Ambient air temperature: 30°C. Conductor operating temperature: 70°C.  
Installation as specified in Appendix 4 of BS 7671 IEE Wiring Regulations

## Reference Method 1

(clipped direct )

| Nominal area of conductor | 1 two core cable*<br>single phase A.C. or D.C. |                                 | 1 three-core<br>or 1 four-core cable*.<br>three-phase A.C. |                                 |
|---------------------------|--|---------------------------------|--|---------------------------------|
|                           | Current rating                                 | Volts drop per ampere par metre | Current rating   | Volts drop per ampere par metre |
| mm <sup>2</sup>           | A  | mV/m                            | A  | mV/m                            |
| 1.0                       | 15   | 44                              | 13.5   | 38                              |
| 1.5                       | 19.5   | 29                              | 17.5   | 25                              |
| 2.5                       | 27   | 18                              | 24   | 15                              |
| 4.0                       | 36   | 11                              | 32   | 9.5                             |
| 6.0                       | 46   | 7.3                             | 41   | 6.4                             |

## Reference Method 3

(enclosed in conduit on a wall or ceiling, or in trunking)

| Nominal area of conductor | 1 two core cable*<br>single phase A.C. or D.C. |                                 | 1 three-core<br>or 1 four-core cable*.<br>three-phase A.C. |                                 |
|---------------------------|--|---------------------------------|--|---------------------------------|
|                           | Current rating                                 | Volts drop per ampere par metre | Current rating   | Volts drop per ampere par metre |
| mm <sup>2</sup>           | A  | mV/m                            | A  | mV/m                            |
| 1.0                       | 13   | 44                              | 11.5   | 38                              |
| 1.5                       | 16.5   | 29                              | 15   | 25                              |
| 2.5                       | 23   | 18                              | 20   | 15                              |
| 4.0                       | 30   | 11                              | 27   | 9.5                             |
| 6.0                       | 38   | 7.3                             | 34   | 6.4                             |

\* with protective conductor

## Rating factors for ambient temperature

| Ambient temperature, °C | 25   | 30   | 35   | 40   | 45   | 50   |
|-------------------------|------|------|------|------|------|------|
| Rating factor           | 1.03 | 1.00 | 0.94 | 0.87 | 0.79 | 0.71 |

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BS 7846  
Cert No. 814b, 814g

# FLAME-X 950 SERIES 2e

## (Flame-X 950 Enhanced) 300/500V

BS 7629-1, BS 6387, BS 5839-1

“Enhanced” grade fire resistant electric cables having low emission of smoke and corrosive gases when affected by fire

### APPLICATIONS

For use in installations emergency lighting and evacuation systems, fire and smoke detection systems, air-conditioning and alarm systems, automatic elevator doors, computer control rooms, emergency evacuation communicators. Recommended for systems, in particular building types, in which cables might need to operate correctly during a fire for periods in excess of those normally required for single phase evacuation of a building. Cables meeting the enhanced requirement should be used in buildings greater than 30 m in height, or with four or more evacuation zones, or for example hospitals, where there are progressive horizontal evacuation arrangements, or where a risk assessment identifies a possible need.

Standard length cable packing

500 or 1,000 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|  |  |
|--|--|
| <b>Conductors:</b>                               | Plain annealed copper solid class 1 (for 1 – 2.5 mm <sup>2</sup> ) and stranded class 2 (for 4 mm <sup>2</sup> ) acc. to BS EN 60228 and special request |
| <b>Primary insulation:</b>                       | Fire resistant mica tape with a glass cloth  |
| <b>Insulation:</b>                               | Special cross-linked heat resistant compound type E12 acc. to BS EN 50363-1  |
| <b>Screen:</b>                                   | Helically applied aluminium / polyester tape and uninsulated circuit protective conductor  |
| <b>Uninsulated circuit protective conductor:</b> | Tinned annealed copper conductor of the same nominal cross-sectional area and of the same class as the insulated conductors                              |
| <b>Outer sheath:</b>                             | Thermoplastic zero halogen low smoke compound type LTS 3 acc. to BS 7655-6.1   |
| <b>Colour of sheath:</b>                         | Red or white.<br>Other colours are available on special request.   |
| <b>Core identification:</b>                      | 2 core + ECC: brown, blue<br>3 core + ECC: brown, black, grey<br>4 core + ECC: blue, brown, black, grey  |



# CHARACTERISTICS

|  |                                     |
|--|-------------------------------------|
| Maximum conductor operating temperature:   | +70°C                               |
| Minimum operating temperature (for fixed application) after installation without movement: | -40°C                               |
| Lowest installation temperature:   | 0°C                                 |
| Maximum short-circuit conductor temperature:   | +250°C                              |
| Minimum bending radius:  | 6 × D; (D - overall cable diameter) |

## Fire performance

|                                  |  |
|----------------------------------|--|
| Resistance to fire:              | Complies with the PH 120 ENHANCED fire resistant cable described in Clause 26.2 of BS 5839-1<br>BS 6387 Category <b>C</b> – resistance to fire: 3 h at 950°C (IEC 60331)<br>Category <b>W</b> – resistance to fire with water: 15 min at 650°C plus 15 min with water spray<br>Category <b>Z</b> – resistance to fire with mechanical shock: 15 min at 950°C<br><br>EN 50200 - PH 120<br>BS 8434-2 - 120 min |
| Flame propagation:               | BS EN 60332-1-2 (IEC 60332-1-2) and BS EN 50266-2-2 (IEC 60332-3-22)   |
| Smoke density:                   | BS EN 61034-2 (IEC 61034-2)  |
| Gases evolved during combustion: | BS EN 50267-2-1 (IEC 61034-2): < 0.5% acid gas<br>BS EN 50267-2-2 (IEC 60754-2): pH <sup>3</sup> 4.3; conductivity ≤ 10 μSmm <sup>-1</sup>   |

## Approvals

|       |   |
|-------|---|
| LPCB  | 1.0, 1.5, 2.5, 4 mm <sup>2</sup> – 2-core, 3-core, 4-core                           |
| BASEC | 1.0 mm <sup>2</sup> – 2-core, 1.5, 2.5, 4 mm <sup>2</sup> – 2-core, 3-core, 4-core, |



## Technical and Electrical Characteristic

| Number and cross-sectional area of conductor | Conductor class | Nominal cross-sectional area of protective conductor ECC | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at 20°C | Maximum ECC conductor resistance at 20°C |
|--|-----------------|--|------------------------------|----------------------------------|--------------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    |                 | <b>mm<sup>2</sup></b>                                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                          | <b>Ω/km</b>                              |
| 2 × 1 RE + ECC                               | 1               | 1  | 8.1                          | 77                               | 18.1                                 | 18.2                                     |
| 2 × 1.5 RE + ECC                             | 1               | 1.5  | 9.0                          | 99                               | 12.1                                 | 12.2                                     |
| 2 × 1.5 RM + ECC*                            | 2               | 1.5  | 9.4                          | 104                              | 12.1                                 | 12.2                                     |
| 2 × 2.5 RE + ECC                             | 1               | 2.5  | 10.4                         | 142                              | 7.41                                 | 7.56                                     |
| 2 × 2.5 RM + ECC*                            | 2               | 2.5  | 10.9                         | 148                              | 7.41                                 | 7.56                                     |
| 2 × 4 RM + ECC                               | 2               | 4  | 12.1                         | 202                              | 4.61                                 | 4.70                                     |
| 3 × 1 RE + ECC**                             | 1               | 1  | 8.6                          | 96                               | 18.1                                 | 18.2                                     |
| 3 × 1.5 RE + ECC                             | 1               | 1.5  | 9.6                          | 126                              | 12.1                                 | 12.2                                     |
| 3 × 2.5 RE + ECC                             | 1               | 2.5  | 11.0                         | 180                              | 7.41                                 | 7.56                                     |
| 3 × 4 RM + ECC                               | 2               | 4  | 12.9                         | 258                              | 4.61                                 | 4.70                                     |
| 4 × 1 RE + ECC**                             | 1               | 1  | 9.5                          | 121                              | 18.1                                 | 18.2                                     |
| 4 × 1.5 RE + ECC                             | 1               | 1.5  | 10.8                         | 159                              | 12.1                                 | 12.2                                     |
| 4 × 2.5 RE + ECC                             | 1               | 2.5  | 12.8                         | 230                              | 7.41                                 | 7.56                                     |
| 4 × 2.5 RM + ECC*                            | 2               | 2.5  | 13.7                         | 242                              | 7.41                                 | 7.56                                     |
| 4 × 4 RM + ECC                               | 2               | 4  | 15.9                         | 333                              | 4.61                                 | 4.70                                     |

\* based on norm, without certificate    \*\* without standards

# Current Ratings and Voltage Drop

Ambient air temperature: 30°C. Conductor operating temperature: 70°C.  
Installation as specified in Appendix 4 of BS 7671 IEE Wiring Regulations

## Reference Method 1

(clipped direct)

| Nominal area of conductor | 1 two core cable*<br>single phase<br>A.C. or D.C. |                                 | 1 three-core<br>or 1 four-core cable*.<br>three-phase A.C. |                                 |
|---------------------------|---|---------------------------------|--|---------------------------------|
|                           | Current rating                                    | Volts drop per ampere par metre | Current rating   | Volts drop per ampere par metre |
| mm <sup>2</sup>           | A   | mV/m                            | A  | mV/m                            |
| 1.0                       | 15  | 44                              | 13.5   | 38                              |
| 1.5                       | 19.5  | 29                              | 17.5   | 25                              |
| 2.5                       | 27  | 18                              | 24   | 15                              |
| 4.0                       | 36  | 11                              | 32   | 9.5                             |

## Reference Method 3

(enclosed in conduit on a wall or ceiling, or in trunking)

| Nominal area of conductor | 1 two core cable*<br>single phase<br>A.C. or D.C. |                                 | 1 three-core<br>or 1 four-core cable*.<br>three-phase A.C. |                                 |
|---------------------------|---|---------------------------------|--|---------------------------------|
|                           | Current rating                                    | Volts drop per ampere par metre | Current rating   | Volts drop per ampere par metre |
| mm <sup>2</sup>           | A   | mV/m                            | A  | mV/m                            |
| 1.0                       | 13  | 44                              | 11.5   | 38                              |
| 1.5                       | 16.5  | 29                              | 15   | 25                              |
| 2.5                       | 23  | 18                              | 20   | 15                              |
| 4.0                       | 30  | 11                              | 27   | 9.5                             |

\* with protective conductor

## Rating factors for ambient temperature

| Ambient temperature, °C | 25   | 30   | 35   | 40   | 45   | 50   |
|-------------------------|------|------|------|------|------|------|
| Rating factor           | 1.03 | 1.00 | 0.94 | 0.87 | 0.79 | 0.71 |

## Correction factors for groups

| Number of cables in grouping | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
|------------------------------|------|------|------|------|------|------|------|------|------|
| Rating factor                | 0.80 | 0.70 | 0.65 | 0.60 | 0.57 | 0.54 | 0.52 | 0.50 | 0.48 |

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BS 6387, IEC 60331-21  
Cert No. 1354b, 1354d

# FLAME-X 950 SERIES 3

## 600/1000V

Based on BS 7846, BS 6387

Fire resistant security power cable having low emission of smoke and corrosive gases when affected by fire

### APPLICATIONS

Fire resistant cables for use in fixed installations in industrial areas, public buildings (as for example power plants, hospitals, shopping centres, theatres) and similar applications where maintenance of power supply during a fire is required for a defined period of time.

#### Standard length cable packing

500 or 1,000 m on drums.  
Other forms of packing and delivery are available on request.



### CONSTRUCTION

|                            |   |
|----------------------------|---|
| <b>Conductors:</b>         | Circular, circular compacted or shaped, stranded, annealed copper conductor, class 2 acc. to BS EN 60228  |
| <b>Primary insulation:</b> | A suitable wrapping of mica tape with a glass cloth   |
| <b>Insulation:</b>         | Cable 1 to 16 mm <sup>2</sup> - special thermosetting low smoke zero halogen compound type EI5 acc. to BS 50363-5<br>Cable 25 to 1,000 mm <sup>2</sup> - cross-linked polyethylene (XLPE) of GP8 type acc. to BS 7655-1.3 |
| <b>Bedding:</b>            | Special low smoke zero halogen filling compound (only 2, 3, 4 cores)  |
| <b>Outer sheath:</b>       | Thermoplastic LSOH compound of LTS1 type acc. to BS 7655-6.1  |

### CHARACTERISTICS

|                             |  |                          |
|-----------------------------|--|--------------------------|
| <b>Nominal voltage:</b>     | 0.6/1kV  |                          |
| <b>Colour of sheath:</b>    | Black. Other colours are available on special request. |                          |
| <b>Core identification:</b> | with green-yellow                                      | without green-yellow     |
|                             | 1 core: green-yellow                                   | black                    |
|                             | 2 core: -  | brown, blue              |
|                             | 3 core: green-yellow, blue, brown                      | brown, black, grey       |
|                             | 4 core: green-yellow, brown, black, grey               | blue, brown, black, grey |

|  |   |
|--|---|
| Maximum conductor operating temperature:                           | +90°C   |
| Lowest installation temperature:                                   | 0°C   |
| Minimum operating temperature after installation without movement: | -40°C   |
| Maximum short-circuit conductor temperature:                       | +250°C  |
| Minimum bending radius:  | 6 × D for cables with circular copper conductors and 8 × D for cables with shaped copper conductors;<br>D – overall diameter of the cable |

## Fire performance

|  |   |  |
|--|---|--|
| Fire resistance:<br>(additional TF test) | BS 7846 p. 17.4.2   | Category <b>F2</b>   |
|  | IEC 60331-21  | Circuit integrity - tested 90 min. at 950°C  |
|  | BS 6387 <sup>1)</sup>   | Category <b>C</b> – resistance to fire: 3 h at 950°C   |
|  |   | Category <b>W</b> – resistance to fire with water:<br>15 min at 650°C plus 15 min with water spray |
|  |   | Category <b>Z</b> – resistance to fire with mechanical shock:<br>15 min at 950°C                   |
| Flame propagation:                       | BS EN 60332-1-2   |  |
|  | BS EN 60332-3-24  |  |
| Smoke density:                           | BS EN 61034-2   |  |
| Corrosive and acid gases emission:       | BS EN 60754-1 <sup>2)</sup> HCl content < 0.5%                              |  |
|  | BS EN 60754-2 <sup>2)</sup> pH ≥ 4.3 & conductivity ≤ 10 μSmm <sup>-1</sup> |  |

1) Category C, W, Z for cables up to and including 500 mm<sup>2</sup>.

2) BS EN 60754-1 & BS EN 60754-2 standards replace BS EN 50267-2-1

## Approvals

|      |  |
|------|--|
| LPCB | 1 mm <sup>2</sup> to 1,000 mm <sup>2</sup> 1-core and 1 mm <sup>2</sup> to 16 mm <sup>2</sup> 2-core, 3-core, 4-core |
|------|--|

# Technical and Electrical Characteristic

| Number and CSA of conductor | Nominal thickness of insulation | Nominal thickness of bedding | Nominal thickness of outer sheath | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C | Current rating single-phase A.C. or D.C.* |            | Voltage Drop D.C.* | Voltage Drop single-phase A.C.* | Short circuit rating (1 sec) |
|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--------------------------|------------------------------|--------------------------------------|---|------------|--------------------|---------------------------------|------------------------------|
|                             |                                 |                              |                                   |                          |                              |                                      | Clipped direct                            | Free Air   |                    |                                 |                              |
| <b>n × mm<sup>2</sup></b>   | <b>mm</b>                       | <b>mm</b>                    | <b>mm</b>                         | <b>mm</b>                | <b>kg/km</b>                 | <b>Ω/km</b>                          | <b>Amp</b>                                | <b>Amp</b> | <b>mV/A/m</b>      | <b>mV/A/m</b>                   | <b>kA</b>                    |
| 1 × 1 RM                    | 0.7                             | -                            | 1.4                               | 6.4                      | 53                           | 18.1                                 | 19  | -          | 46                 | 46                              | 0.14                         |
| 1 × 1.5 RM                  | 0.7                             | -                            | 1.4                               | 6.7                      | 61                           | 12.1                                 | 25  | -          | 31                 | 31                              | 0.21                         |
| 1 × 2.5 RM                  | 0.7                             | -                            | 1.4                               | 7.2                      | 74                           | 7.41                                 | 34  | -          | 19                 | 19                              | 0.35                         |
| 1 × 4 RM                    | 0.7                             | -                            | 1.4                               | 7.7                      | 93                           | 4.61                                 | 46  | -          | 12                 | 12                              | 0.57                         |
| 1 × 6 RM                    | 0.7                             | -                            | 1.4                               | 8                        | 113                          | 3.08                                 | 59  | -          | 7.9                | 7.9                             | 0.85                         |
| 1 × 10 RM                   | 0.7                             | -                            | 1.5                               | 9.1                      | 162                          | 1.83                                 | 81  | -          | 4.7                | 4.7                             | 1.4                          |
| 1 × 16 RM                   | 0.7                             | -                            | 1.5                               | 10.2                     | 225                          | 1.15                                 | 109                                       | -          | 2.9                | 2.9                             | 2.2                          |
| 1 × 25 RM                   | 0.9                             | -                            | 1.6                               | 12.2                     | 325                          | 0.727                                | 143                                       | 135        | 1.85               | 1.85                            | 3.5                          |
| 1 × 35 RM                   | 0.9                             | -                            | 1.7                               | 13.4                     | 426                          | 0.524                                | 176                                       | 169        | 1.35               | 1.35                            | 5                            |
| 1 × 50 RM                   | 0.9                             | -                            | 1.8                               | 15.1                     | 563                          | 0.387                                | 228                                       | 207        | 0.99               | 1                               | 7.1                          |
| 1 × 70 RM                   | 1.1                             | -                            | 1.9                               | 16.9                     | 777                          | 0.268                                | 298                                       | 268        | 0.68               | 0.71                            | 10                           |
| 1 × 95 RM                   | 1.1                             | -                            | 2                                 | 19.1                     | 1042                         | 0.193                                | 355                                       | 328        | 0.49               | 0.52                            | 13.5                         |
| 1 × 120 RM                  | 1.2                             | -                            | 2.1                               | 20.9                     | 1294                         | 0.153                                | 413                                       | 383        | 0.39               | 0.43                            | 17.1                         |
| 1 × 150 RM                  | 1.4                             | -                            | 2.2                               | 23.1                     | 1586                         | 0.124                                | 476                                       | 444        | 0.32               | 0.36                            | 21.4                         |
| 1 × 185 RM                  | 1.6                             | -                            | 2.4                               | 25.4                     | 1971                         | 0.099                                | 545                                       | 510        | 0.25               | 0.3                             | 26.4                         |
| 1 × 240 RM                  | 1.7                             | -                            | 2.6                               | 28.3                     | 2527                         | 0.075                                | 644                                       | 607        | 0.19               | 0.25                            | 34.3                         |
| 1 × 300 RM                  | 1.8                             | -                            | 2.6                               | 30.5                     | 3120                         | 0.060                                | 743                                       | 703        | 0.155              | 0.22                            | 42.9                         |
| 1 × 400 RM                  | 2                               | -                            | 2.8                               | 34                       | 4013                         | 0.047                                | 868                                       | 823        | 0.12               | 0.2                             | 57.2                         |
| 1 × 500 RM                  | 2.2                             | -                            | 3                                 | 38                       | 5109                         | 0.037                                | 990                                       | 946        | 0.093              | 0.185                           | 71.5                         |
| 1 × 630 RM                  | 2.4                             | -                            | 3.2                               | 43                       | 6477                         | 0.028                                | 1130                                      | 1088       | 0.072              | 0.175                           | 90.1                         |
| 1 × 800 RM                  | 2.6                             | -                            | 3.4                               | 48.1                     | 8163                         | 0.022                                | 1288                                      | 1214       | 0.056              | 0.17                            | 114.4                        |
| 1 × 1000 RM                 | 2.8                             | -                            | 3.6                               | 52                       | 10100                        | 0.018                                | 1443                                      | 1349       | 0.045              | 0.165                           | 134                          |
| 2 × 1 RM                    | 0.7                             | 0.8                          | 1.4                               | 11.7                     | 185                          | 18.1                                 | 19  | 21         | 46                 | 46                              | 0.14                         |
| 2 × 1.5 RM                  | 0.7                             | 0.8                          | 1.4                               | 12.2                     | 208                          | 12.1                                 | 24  | 26         | 31                 | 31                              | 0.21                         |
| 2 × 2.5 RM                  | 0.7                             | 0.8                          | 1.4                               | 13.1                     | 249                          | 7.41                                 | 33  | 36         | 19                 | 19                              | 0.35                         |
| 2 × 4 RM                    | 0.7                             | 0.8                          | 1.4                               | 14.1                     | 304                          | 4.61                                 | 45  | 49         | 12                 | 12                              | 0.57                         |
| 2 × 6 RM                    | 0.7                             | 0.8                          | 1.4                               | 14.9                     | 361                          | 3.08                                 | 58  | 63         | 7-Sep              | 7.9                             | 0.85                         |

| Number and CSA of conductor | Nominal thickness of insulation | Nominal thickness of bedding | Nominal thickness of outer sheath | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C | Current rating single-phase A.C. or D.C.* |            | Voltage Drop D.C.* | Voltage Drop single-phase A.C.* | Short circuit rating (1 sec) |
|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--------------------------|------------------------------|--------------------------------------|---|------------|--------------------|---------------------------------|------------------------------|
|                             |                                 |                              |                                   |                          |                              |                                      | Clipped direct                            | Free Air   |                    |                                 |                              |
| <b>n × mm<sup>2</sup></b>   | <b>mm</b>                       | <b>mm</b>                    | <b>mm</b>                         | <b>mm</b>                | <b>kg/km</b>                 | <b>Ω/km</b>                          | <b>Amp</b>                                | <b>Amp</b> | <b>mV/A/m</b>      | <b>mV/A/m</b>                   | <b>kA</b>                    |
| 2 × 10 RM                   | 0.7                             | 0.8                          | 1.5                               | 16.9                     | 497                          | 1.83                                 | 80  | 86         | 4.7                | 4.7                             | 1.4                          |
| 2 × 16 RM                   | 0.7                             | 0.8                          | 1.5                               | 18.9                     | 670                          | 1.15                                 | 107                                       | 115        | 2.9                | 2.9                             | 2.2                          |
| 3 × 1 RM                    | 0.7                             | 0.8                          | 1.4                               | 12.2                     | 203                          | 18.1                                 | 17  | 18         | -                  | 40                              | 0.14                         |
| 3 × 1.5 RM                  | 0.7                             | 0.8                          | 1.4                               | 12.8                     | 231                          | 12.1                                 | 22  | 23         | -                  | 27                              | 0.21                         |
| 3 × 2.5 RM                  | 0.7                             | 0.8                          | 1.4                               | 13.8                     | 281                          | 7.41                                 | 30  | 32         | -                  | 16                              | 0.35                         |
| 3 × 4 RM                    | 0.7                             | 0.8                          | 1.4                               | 14.9                     | 350                          | 4.61                                 | 40  | 42         | -                  | 10                              | 0.57                         |
| 3 × 6 RM                    | 0.7                             | 0.8                          | 1.4                               | 15.7                     | 423                          | 3.08                                 | 52  | 54         | -                  | 6.8                             | 0.85                         |
| 3 × 10 RM                   | 0.7                             | 0.8                          | 1.5                               | 17.8                     | 593                          | 1.83                                 | 71  | 75         | -                  | 4                               | 1.4                          |
| 3 × 16 RM                   | 0.7                             | 0.8                          | 1.6                               | 20.2                     | 826                          | 1.15                                 | 96  | 100        | -                  | 2.5                             | 2.2                          |
| 4 × 1 RM                    | 0.7                             | 0.8                          | 1.4                               | 13.2                     | 233                          | 18.1                                 | 17  | 18         | -                  | 40                              | 0.14                         |
| 4 × 1.5 RM                  | 0.7                             | 0.8                          | 1.4                               | 13.9                     | 268                          | 12.1                                 | 22  | 23         | -                  | 27                              | 0.21                         |
| 4 × 2.5 RM                  | 0.7                             | 0.8                          | 1.4                               | 14.9                     | 328                          | 7.41                                 | 30  | 32         | -                  | 16                              | 0.35                         |
| 4 × 4 RM                    | 0.7                             | 0.8                          | 1.4                               | 16.2                     | 414                          | 4.61                                 | 40  | 42         | -                  | 10                              | 0.57                         |
| 4 × 6 RM                    | 0.7                             | 0.8                          | 1.5                               | 17.2                     | 513                          | 3.08                                 | 52  | 54         | -                  | 6.8                             | 0.85                         |
| 4 × 10 RM                   | 0.7                             | 0.8                          | 1.5                               | 19.4                     | 718                          | 1.83                                 | 71  | 76         | -                  | 4                               | 1.4                          |
| 4 × 16 RM                   | 0.7                             | 0.8                          | 1.6                               | 22.1                     | 1010                         | 1.15                                 | 96  | 100        | -                  | 2.5                             | 2.2                          |

## Rating factors for air temperature

| Ambient air temperature, °C | 25   | 30  | 35   | 40   | 45   | 50   | 55   | 60   |
|-----------------------------|------|-----|------|------|------|------|------|------|
| Rating factors              | 1.02 | 1.0 | 0.96 | 0.91 | 0.87 | 0.82 | 0.76 | 0.71 |

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BS 7846  
 Cert No. 814d; 1354c

# FLAME-X 950 SERIES 4

## 600/1000V

BS 7846 - F2

Armoured fire resistant electric power and control cable having low emission of smoke and corrosive gases when affected by fire

### APPLICATIONS

Fire resistant armoured cables for use in fixed installations in industrial areas, public buildings (as for example power plants, hospitals, shopping centres, theatres) and similar applications where maintenance of power supply during a fire is required for a defined period of time.

|                                |   |
|--------------------------------|---|
| Standard length cable packing: | 500 or 1,000 m on drums.<br>Other forms of packing and delivery are available on request. |
|--------------------------------|---|

### CONSTRUCTION

|                     |  |
|---------------------|--|
| Conductors:         | Circular, circular compacted or shaped, stranded, annealed copper conductor, class 2 acc. to BS EN 60228 |
| Primary insulation: | A suitable wrapping of mica tape with a glass cloth  |
| Insulation:         | Cross-linked polyethylene (XLPE) of GP8 type acc. to BS 7655-1.3   |
| Bedding:            | Special low smoke zero halogen (LSOH) compound   |
| Armour:             | Single layer of galvanized steel wires applied helically over the bedding                                |
| Outer sheath:       | Thermoplastic halogen free compound (LSOH) of LTS1 type acc. to BS 7655-6.1                              |



### CHARACTERISTICS

|  |   |
|--|---|
| Colour of sheath:                        | Black. Other colours are available on special request.                                      |
| Core identification:                     | 2 – core: brown, blue<br>3 – core: brown, black, grey<br>4 – core: blue, brown, black, grey |
| Maximum conductor operating temperature: | +90°C   |

|  |  |
|--|--|
| Lowest installation temperature:                                   | 0°C  |
| Minimum operating temperature after installation without movement: | -40°C  |
| Maximum short-circuit conductor temperature:                       | +250°C   |
| Fire resistance:   | Category F2 acc. to BS 7846, BS 6387 – Category C, W, Z  |
| Flame propagation:   | BS EN 60332-1-2, EN 60332-3-24   |
| Low smoke emission:  | BS EN 61034-2  |
| Low corrosive and acid gas emission:                               | BS EN 60754-1, HCl content < 0.5%<br>BS EN 60754-2, pH ≥ 4.3 & conductivity ≤ 10 µSmm-1  |
| Minimum bending radius:  | 6 × D for cables with circular copper conductors<br>and 8 × D for cables with shaped copper conductors;<br>D – overall diameter of the cable |

## Approvals

|       |  |
|-------|--|
| BASEC | 25 mm <sup>2</sup> to 400 mm <sup>2</sup> 2-core, 3-core, 4-core and 1,5 mm <sup>2</sup> to 16 mm <sup>2</sup> 2-core, 3-core, 4-core  |
| LPCB  | 1,5 mm <sup>2</sup> to 400 mm <sup>2</sup> 2-core, 3-core, 4-core and 1,5 mm <sup>2</sup> to 16 mm <sup>2</sup> 2-core, 3-core, 4-core |

## Technical and Electrical Characteristic

| Number and CSA of conductor | Nominal thickness of insulation | Nominal thickness of outer sheath | Nominal diameter of armour wires | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C | Current rating single-phase A.C. or D.C.* |            | Voltage Drop D.C.* | Voltage Drop single-phase A.C.* |
|-----------------------------|---------------------------------|-----------------------------------|----------------------------------|--------------------------|------------------------------|--------------------------------------|---|------------|--------------------|---------------------------------|
|                             |                                 |                                   |                                  |                          |                              |                                      | Clipped direct                            | Free Air   |                    |                                 |
| <b>n × mm<sup>2</sup></b>   | <b>mm</b>                       | <b>mm</b>                         | <b>mm</b>                        | <b>mm</b>                | <b>kg/km</b>                 | <b>Ω/km</b>                          | <b>Amp</b>                                | <b>Amp</b> | <b>mV/A/m</b>      | <b>mV/A/m</b>                   |
| 2 × 1.5                     | 0.6                             | 1.3                               | 0.9                              | 12.8                     | 346                          | 12.1                                 | 27  | 29         | 31.0               | 31.0                            |
| 2 × 2.5                     | 0.7                             | 1.4                               | 0.9                              | 14.3                     | 420                          | 7.41                                 | 36  | 39         | 19.0               | 19.0                            |
| 2 × 4                       | 0.7                             | 1.4                               | 0.9                              | 15.3                     | 491                          | 4.61                                 | 49  | 52         | 12.0               | 12.0                            |
| 2 × 6                       | 0.7                             | 1.4                               | 0.9                              | 16.1                     | 554                          | 3.08                                 | 62  | 66         | 7.9                | 7.9                             |
| 2 × 10                      | 0.7                             | 1.5                               | 0.9                              | 18.1                     | 712                          | 1.83                                 | 85  | 90         | 4.7                | 4.7                             |
| 2 × 16                      | 0.7                             | 1.5                               | 1.25                             | 20.8                     | 1032                         | 1.15                                 | 110                                       | 115        | 2.9                | 2.9                             |
| 2 × 25                      | 0.9                             | 1.6                               | 1.25                             | 24.8                     | 1421                         | 0.727                                | 146                                       | 152        | 1.85               | 1.90                            |
| 2 × 25                      | 0.9                             | 1.6                               | 1.25                             | 20.8                     | 1097                         | 0.727                                | 146                                       | 152        | 1.85               | 1.90                            |



| Number and CSA of conductor | Nominal thickness of insulation | Nominal thickness of outer sheath | Nominal diameter of armour wires | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C | Current rating single-phase A.C. or D.C. * |            | Voltage Drop D.C.* | Voltage Drop single-phase A.C.* |
|-----------------------------|---------------------------------|-----------------------------------|----------------------------------|--------------------------|------------------------------|--------------------------------------|--|------------|--------------------|---------------------------------|
|                             |                                 |                                   |                                  |                          |                              |                                      | Clipped direct                             | Free Air   |                    |                                 |
| <b>n × mm<sup>2</sup></b>   | <b>mm</b>                       | <b>mm</b>                         | <b>mm</b>                        | <b>mm</b>                | <b>kg/km</b>                 | <b>Ω/km</b>                          | <b>Amp</b>                                 | <b>Amp</b> | <b>mV/A/m</b>      | <b>mV/A/m</b>                   |
| 2 × 35                      | 0.9                             | 1.7                               | 1.6                              | 28.2                     | 1944                         | 0.524                                | 180  | 188        | 1.35               | 1.35                            |
| 2 × 35                      | 0.9                             | 1.7                               | 1.6                              | 23.5                     | 1494                         | 0.524                                | 180  | 188        | 1.35               | 1.35                            |
| 2 × 50                      | 1.0                             | 1.8                               | 1.6                              | 25.7                     | 1830                         | 0.387                                | 219  | 228        | 0.98               | 1.00                            |
| 2 × 70                      | 1.1                             | 1.9                               | 1.6                              | 28.7                     | 2370                         | 0.268                                | 279  | 291        | 0.67               | 0.69                            |
| 2 × 95                      | 1.1                             | 2.0                               | 2.0                              | 32.6                     | 3239                         | 0.193                                | 338  | 354        | 0.49               | 0.52                            |
| 2 × 120                     | 1.2                             | 2.1                               | 2.0                              | 35.1                     | 3823                         | 0.153                                | 392  | 410        | 0.39               | 0.42                            |
| 2 × 150                     | 1.4                             | 2.2                               | 2.0                              | 38.1                     | 4534                         | 0.124                                | 451  | 472        | 0.31               | 0.35                            |
| 2 × 185                     | 1.6                             | 2.4                               | 2.5                              | 42.9                     | 5856                         | 0.0991                               | 515  | 539        | 0.25               | 0.29                            |
| 2 × 240                     | 1.7                             | 2.5                               | 2.5                              | 46.7                     | 7155                         | 0.0754                               | 607  | 636        | 0.195              | 0.24                            |
| 2 × 300                     | 1.8                             | 2.6                               | 2.5                              | 50.7                     | 8555                         | 0.0601                               | 698  | 732        | 0.155              | 0.21                            |
| 3 × 1.5                     | 0.6                             | 1.3                               | 0.9                              | 13.4                     | 377                          | 12.1                                 | 210  | 23         | 25                 | 27.0                            |
| 3 × 2.5                     | 0.7                             | 1.4                               | 0.9                              | 15                       | 465                          | 7.41                                 | 350  | 31         | 33                 | 16.0                            |
| 3 × 4                       | 0.7                             | 1.4                               | 0.9                              | 16.1                     | 544                          | 4.61                                 | 570  | 42         | 44                 | 10.0                            |
| 3 × 6                       | 0.7                             | 1.4                               | 0.9                              | 16.9                     | 628                          | 3.08                                 | 850  | 53         | 56                 | 6.8                             |
| 3 × 10                      | 0.7                             | 1.5                               | 1.25                             | 19.7                     | 944                          | 1.83                                 | 1400                                       | 73         | 78                 | 4.0                             |
| 3 × 16                      | 0.7                             | 1.6                               | 1.25                             | 22.1                     | 1215                         | 1.15                                 | 2200                                       | 94         | 99                 | 2.5                             |
| 3 × 25                      | 0.9                             | 1.7                               | 1.6                              | 27.5                     | 1887                         | 0.727                                | 3575                                       | 124        | 131                | 1.65                            |
| 3 × 25                      | 0.9                             | 1.7                               | 1.6                              | 25                       | 1637                         | 0.727                                | 3575                                       | 124        | 131                | 1.65                            |
| 3 × 35                      | 0.9                             | 1.8                               | 1.6                              | 30                       | 2314                         | 0.524                                | 5005                                       | 154        | 162                | 1.15                            |
| 3 × 35                      | 0.9                             | 1.8                               | 1.6                              | 27.4                     | 2025                         | 0.524                                | 5005                                       | 154        | 162                | 1.15                            |
| 3 × 50                      | 1.0                             | 1.8                               | 1.6                              | 29.8                     | 2472                         | 0.387                                | 7150                                       | 187        | 197                | 0.87                            |
| 3 × 70                      | 1.1                             | 1.9                               | 1.6                              | 33.5                     | 3237                         | 0.268                                | 10010                                      | 238        | 251                | 0.60                            |
| 3 × 95                      | 1.1                             | 2.1                               | 2.0                              | 38                       | 4434                         | 0.193                                | 13585                                      | 289        | 304                | 0.45                            |
| 3 × 120                     | 1.2                             | 2.2                               | 2.0                              | 41.1                     | 5287                         | 0.153                                | 17160                                      | 335        | 353                | 0.37                            |
| 3 × 150                     | 1.4                             | 2.3                               | 2.5                              | 46.5                     | 6768                         | 0.124                                | 21450                                      | 386        | 406                | 0.30                            |
| 3 × 185                     | 1.6                             | 2.4                               | 2.5                              | 50.4                     | 8094                         | 0.0991                               | 26455                                      | 441        | 463                | 0.26                            |
| 3 × 240                     | 1.7                             | 2.6                               | 2.5                              | 55.4                     | 10053                        | 0.0754                               | 34320                                      | 520        | 546                | 0.21                            |
| 3 × 300                     | 1.8                             | 2.7                               | 2.5                              | 60.2                     | 11949                        | 0.0601                               | 42900                                      | 599        | 628                | 0.185                           |

| Number and CSA of conductor | Nominal thickness of insulation | Nominal thickness of outer sheath | Nominal diameter of armour wires | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C | Current rating single-phase A.C. or D.C. * |            | Voltage Drop D.C.* | Voltage Drop single-phase A.C.* |
|-----------------------------|---------------------------------|-----------------------------------|----------------------------------|--------------------------|------------------------------|--------------------------------------|--|------------|--------------------|---------------------------------|
|                             |                                 |                                   |                                  |                          |                              |                                      | Clipped direct                             | Free Air   |                    |                                 |
| <b>n × mm<sup>2</sup></b>   | <b>mm</b>                       | <b>mm</b>                         | <b>mm</b>                        | <b>mm</b>                | <b>kg/km</b>                 | <b>Ω/km</b>                          | <b>Amp</b>                                 | <b>Amp</b> | <b>mV/A/m</b>      | <b>mV/A/m</b>                   |
| 3 × 400                     | 2.0                             | 2.9                               | 2.5                              | 66.8                     | 14895                        | 0.0470                               | 57200                                      | 673        | 728                | 0.165                           |
| 4 × 1.5                     | 0.6                             | 1.3                               | 0.9                              | 14.4                     | 422                          | 12.1                                 | 210  | 23         | 25                 | 27.0                            |
| 4 × 2.5                     | 0.7                             | 1.4                               | 0.9                              | 16.1                     | 522                          | 7.41                                 | 350  | 31         | 33                 | 16.0                            |
| 4 × 4                       | 0.7                             | 1.4                               | 0.9                              | 17.4                     | 628                          | 4.61                                 | 570  | 42         | 44                 | 10.0                            |
| 4 × 6                       | 0.7                             | 1.5                               | 1.25                             | 19.1                     | 848                          | 3.08                                 | 850  | 53         | 56                 | 6.8                             |
| 4 × 10                      | 0.7                             | 1.5                               | 1.25                             | 21.3                     | 1091                         | 1.83                                 | 1400                                       | 73         | 78                 | 4.0                             |
| 4 × 16                      | 0.7                             | 1.6                               | 1.25                             | 24                       | 1440                         | 1.15                                 | 2200                                       | 94         | 99                 | 2.5                             |
| 4 × 25                      | 0.9                             | 1.7                               | 1.6                              | 29.9                     | 2240                         | 0.727                                | 3575                                       | 124        | 131                | 1.65                            |
| 4 × 25                      | 0.9                             | 1.7                               | 1.6                              | 27.7                     | 2028                         | 0.727                                | 3575                                       | 124        | 131                | 1.65                            |
| 4 × 35                      | 0.9                             | 1.8                               | 1.6                              | 32.6                     | 2769                         | 0.524                                | 5005                                       | 154        | 162                | 1.15                            |
| 4 × 35                      | 0.9                             | 1.8                               | 1.6                              | 30.3                     | 2491                         | 0.524                                | 5005                                       | 154        | 162                | 1.15                            |
| 4 × 50                      | 1.0                             | 1.9                               | 1.6                              | 33.3                     | 3111                         | 0.387                                | 7150                                       | 187        | 197                | 0.87                            |
| 4 × 70                      | 1.1                             | 2.1                               | 2.0                              | 38.9                     | 4418                         | 0.268                                | 10010                                      | 238        | 251                | 0.60                            |
| 4 × 95                      | 1.1                             | 2.2                               | 2.0                              | 42.6                     | 5607                         | 0.193                                | 13585                                      | 289        | 304                | 0.45                            |
| 4 × 120                     | 1.2                             | 2.3                               | 2.5                              | 47.9                     | 7216                         | 0.153                                | 17160                                      | 335        | 353                | 0.37                            |
| 4 × 150                     | 1.4                             | 2.4                               | 2.5                              | 51.9                     | 8559                         | 0.124                                | 21450                                      | 386        | 406                | 0.30                            |
| 4 × 185                     | 1.6                             | 2.6                               | 2.5                              | 56.6                     | 10275                        | 0.0991                               | 26455                                      | 441        | 463                | 0.26                            |
| 4 × 240                     | 1.7                             | 2.7                               | 2.5                              | 62.4                     | 12855                        | 0.0754                               | 34320                                      | 520        | 546                | 0.21                            |
| 4 × 300                     | 1.8                             | 2.9                               | 2.5                              | 67.4                     | 15307                        | 0.0601                               | 42900                                      | 599        | 628                | 0.185                           |
| 4 × 400                     | 2.0                             | 3.2                               | 3.15                             | 77.0                     | 19826                        | 0.0470                               | 57200                                      | 673        | 728                | 0.165                           |

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BS 7846  
Cert No. 1354a

# FLAME-X 950 SERIES 6

## 600/1000V

BS 7846 - F120

Armoured fire resistant electric power and control cable having low emission of smoke and corrosive gases when affected by fire

### APPLICATIONS

Enhanced fire resistant armoured cables for use in life safety and fire fighting systems of public buildings (hospitals, shopping centres, theatres, stadiums) and similar applications where maintenance of power supply during a fire is critical.

Standard length cable packing: 500 or 1,000 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|                            |   |
|----------------------------|---|
| <b>Conductors:</b>         | Circular, circular compacted or shaped stranded, annealed copper conductor, class 2 acc. to BS EN 60228 |
| <b>Primary insulation:</b> | Fire resistant mica tape with a glass cloth   |
| <b>Insulation:</b>         | Cross-linked polyethylene (XLPE) of GP8 type acc. to BS 7655-1.3  |
| <b>Cable core:</b>         | Insulated conductors twisted together wrapped by fire resistance tape (optional also by polyester film) |
| <b>Bedding:</b>            | Thermoplastic zero halogen low smoke compound (LSOH) wrapped by fire resistance tape                    |
| <b>Armour:</b>             | Galvanized steel wires applied helically (optional polyester film over the armour)                      |
| <b>Outer sheath:</b>       | Thermoplastic zero halogen low smoke compound of LTS1 type acc. to BS 7655-6.1                          |



# CHARACTERISTICS

|  |  |
|--|--|
| Colour of sheath:  | Black. Other colours are available on special request.   |
| Core identification:   | 2 – core: brown, blue<br>3 – core: brown, black, grey<br>4 – core: blue, brown, black, grey                                |
| Maximum conductor operating temperature                            | +90°C  |
| Lowest installation temperature:                                   | 0°C  |
| Minimum operating temperature after installation without movement: | -40°C  |
| Maximum short-circuit conductor temperature:                       | +250°C   |
| Minimum bending radius:  | 6 × D for cables with circular copper conductors<br>8 × D for cables with shaped copper conductors<br>D – overall diameter |

## Fire performance

|                                    |                             |   |
|------------------------------------|-----------------------------|---|
| Fire resistance:                   | BS 8491                     | Category F120                                   |
|                                    | BS 8519                     | Category 1, 2 and 3                             |
| Flame propagation:                 | BS EN 60332-1-2             |   |
|                                    | BS EN 60332-3-24            |   |
| Smoke density:                     | BS EN 61034-2               |   |
| Corrosive and acid gases emission: | BS EN 60754-1 <sup>1)</sup> | HCl content < 0.5%                              |
|                                    | BS EN 60754-2 <sup>1)</sup> | pH ≥ 4.3 & conductivity ≤ 10 μSmm <sup>-1</sup> |

1) BS EN 60754-1 & BS EN 60754-2 standards replace BS EN 50267-2-1

## Approvals

|       |  |
|-------|--|
| BASEC | 4 mm <sup>2</sup> to 16 mm <sup>2</sup> 3-core, 4-core and 25 mm <sup>2</sup> to 400 mm <sup>2</sup> 2-core, 3-core, 4-core; |
| LPCB  | 4 mm <sup>2</sup> to 16 mm <sup>2</sup> 3-core, 4-core and 25 mm <sup>2</sup> to 400 mm <sup>2</sup> 3-core, 4-core          |

# Technical and Electrical Characteristic

| Number and CSA of conductor | Nominal thickness of insulation | Nominal thickness of outer sheath | Nominal diameter of armour wires | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C | Current rating single-phase A.C. or D.C.* |            | Voltage Drop D.C.* | Voltage Drop single-phase A.C.* |
|-----------------------------|---------------------------------|-----------------------------------|----------------------------------|--------------------------|------------------------------|--------------------------------------|---|------------|--------------------|---------------------------------|
|                             |                                 |                                   |                                  |                          |                              |                                      | Clipped direct                            | Free Air   |                    |                                 |
| <b>n × mm<sup>2</sup></b>   | <b>mm</b>                       | <b>mm</b>                         | <b>mm</b>                        | <b>mm</b>                | <b>kg/km</b>                 | <b>Ω/km</b>                          | <b>Amp</b>                                | <b>Amp</b> | <b>mV/A/m</b>      | <b>mV/A/m</b>                   |
| 2 × 4 RM                    | 0.7                             | 1.4                               | 1.25                             | 20.1                     | 712                          | 4.61                                 | 49  | 52         | 12.0               | 12.0                            |
| 2 × 6 RM                    | 0.7                             | 1.4                               | 1.25                             | 20.1                     | 744                          | 3.08                                 | 62  | 66         | 7.9                | 7.9                             |
| 2 × 10 RM                   | 0.7                             | 1.5                               | 1.25                             | 20.9                     | 839                          | 1.83                                 | 85  | 90         | 4.7                | 4.7                             |
| 2 × 16 RM                   | 0.7                             | 1.5                               | 1.25                             | 22.9                     | 1027                         | 1.15                                 | 110                                       | 115        | 2.9                | 2.9                             |
| 2 × 25 RM                   | 0.9                             | 1.6                               | 1.25                             | 26.4                     | 1425                         | 0.727                                | 146                                       | 152        | 1.85               | 1.90                            |
| 2 × 35 RM                   | 0.9                             | 1.7                               | 1.6                              | 29.8                     | 1929                         | 0.524                                | 180                                       | 188        | 1.35               | 1.35                            |
| 2 × 50 SM                   | 1.0                             | 1.8                               | 1.6                              | 27.1                     | 1963                         | 0.387                                | 219                                       | 228        | 0.98               | 1.00                            |
| 2 × 70 SM                   | 1.1                             | 1.9                               | 1.6                              | 31.0                     | 2552                         | 0.268                                | 279                                       | 291        | 0.67               | 0.69                            |
| 2 × 95 SM                   | 1.1                             | 2.0                               | 2.0                              | 34.0                     | 3392                         | 0.193                                | 338                                       | 354        | 0.49               | 0.52                            |
| 2 × 120 SM                  | 1.2                             | 2.1                               | 2.0                              | 36.5                     | 4014                         | 0.153                                | 392                                       | 410        | 0.39               | 0.42                            |
| 2 × 150 SM                  | 1.4                             | 2.2                               | 2.0                              | 39.5                     | 4717                         | 0.124                                | 451                                       | 472        | 0.31               | 0.35                            |
| 2 × 185 SM                  | 1.6                             | 2.4                               | 2.5                              | 44.3                     | 6069                         | 0.0991                               | 515                                       | 539        | 0.25               | 0.29                            |
| 2 × 240 SM                  | 1.7                             | 2.5                               | 2.5                              | 48.1                     | 7390                         | 0.0754                               | 607                                       | 636        | 0.195              | 0.24                            |
| 2 × 300 SM                  | 1.8                             | 2.6                               | 2.5                              | 52.1                     | 8772                         | 0.0601                               | 698                                       | 732        | 0.155              | 0.21                            |
| 2 × 400 SM                  | 2.0                             | 2.8                               | 2.5                              | 59.6                     | 11120                        | 0.047                                | 787                                       | 847        | 0.120              | 0.19                            |
| 3 × 4 RM                    | 0.7                             | 1.4                               | 1.25                             | 20.2                     | 832                          | 4.61                                 | 570                                       | 42         | 44                 | 10.0                            |
| 3 × 6 RM                    | 0.7                             | 1.4                               | 1.25                             | 20.1                     | 803                          | 3.08                                 | 850                                       | 53         | 56                 | 6.8                             |
| 3 × 10 RM                   | 0.7                             | 1.5                               | 1.25                             | 21.8                     | 985                          | 1.83                                 | 1400                                      | 73         | 78                 | 4.0                             |
| 3 × 16 RM                   | 0.7                             | 1.6                               | 1.25                             | 24.2                     | 1241                         | 1.15                                 | 2200                                      | 94         | 99                 | 2.5                             |
| 3 × 25 RM                   | 0.9                             | 1.7                               | 1.6                              | 29.1                     | 1930                         | 0.727                                | 3575                                      | 124        | 131                | 1.65                            |
| 3 × 35 RM                   | 0.9                             | 1.8                               | 1.6                              | 31.6                     | 2328                         | 0.524                                | 5005                                      | 154        | 162                | 1.15                            |
| 3 × 50 SM                   | 1.0                             | 1.8                               | 1.6                              | 31.2                     | 2629                         | 0.387                                | 7150                                      | 187        | 197                | 0.87                            |
| 3 × 70 SM                   | 1.1                             | 1.9                               | 1.6                              | 34.9                     | 3394                         | 0.268                                | 10010                                     | 238        | 251                | 0.60                            |
| 3 × 95 SM                   | 1.1                             | 2.1                               | 2.0                              | 39.4                     | 4617                         | 0.193                                | 13585                                     | 289        | 304                | 0.45                            |
| 3 × 120 SM                  | 1.2                             | 2.2                               | 2.0                              | 42.5                     | 5486                         | 0.153                                | 17160                                     | 335        | 353                | 0.37                            |
| 3 × 150 SM                  | 1.4                             | 2.3                               | 2.5                              | 47.9                     | 7003                         | 0.124                                | 21450                                     | 386        | 406                | 0.30                            |
| 3 × 185 SM                  | 1.6                             | 2.4                               | 2.5                              | 51.8                     | 8352                         | 0.0991                               | 26455                                     | 441        | 463                | 0.26                            |

| Number and CSA of conductor | Nominal thickness of insulation | Nominal thickness of outer sheath | Nominal diameter of armour wires | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C | Current rating single-phase A.C. or D.C.* |            | Voltage Drop D.C.* | Voltage Drop single-phase A.C.* |
|-----------------------------|---------------------------------|-----------------------------------|----------------------------------|--------------------------|------------------------------|--------------------------------------|---|------------|--------------------|---------------------------------|
|                             |                                 |                                   |                                  |                          |                              |                                      | Clipped direct                            | Free Air   |                    |                                 |
| <b>n × mm<sup>2</sup></b>   | <b>mm</b>                       | <b>mm</b>                         | <b>mm</b>                        | <b>mm</b>                | <b>kg/km</b>                 | <b>Ω/km</b>                          | <b>Amp</b>                                | <b>Amp</b> | <b>mV/A/m</b>      | <b>mV/A/m</b>                   |
| 3 × 240 SM                  | 1.7                             | 2.6                               | 2.5                              | 56.8                     | 10299                        | 0.0754                               | 34320                                     | 520        | 546                | 0.21                            |
| 3 × 300 SM                  | 1.8                             | 2.7                               | 2.5                              | 61.6                     | 12262                        | 0.0601                               | 42900                                     | 599        | 628                | 0.185                           |
| 3 × 400 SM                  | 2.0                             | 2.9                               | 2.5                              | 68.9                     | 15520                        | 0.0470                               | 57200                                     | 673        | 728                | 0.165                           |
| 4 × 4 RM                    | 0.7                             | 1.4                               | 1.25                             | 20.1                     | 869                          | 4.61                                 | 570                                       | 42         | 44                 | 10.0                            |
| 4 × 6 RM                    | 0.7                             | 1.5                               | 1.25                             | 21.2                     | 906                          | 3.08                                 | 850                                       | 53         | 56                 | 6.8                             |
| 4 × 10 RM                   | 0.7                             | 1.5                               | 1.25                             | 23.4                     | 1140                         | 1.83                                 | 1400                                      | 73         | 78                 | 4.0                             |
| 4 × 16 RM                   | 0.7                             | 1.6                               | 1.25                             | 26.1                     | 1466                         | 1.15                                 | 2200                                      | 94         | 99                 | 2.5                             |
| 4 × 25 RM                   | 0.9                             | 1.7                               | 1.6                              | 31.5                     | 2261                         | 0.727                                | 3575                                      | 124        | 131                | 1.65                            |
| 4 × 35 RM                   | 0.9                             | 1.8                               | 1.6                              | 34.2                     | 2752                         | 0.524                                | 5005                                      | 154        | 162                | 1.15                            |
| 4 × 50 SM                   | 1.0                             | 1.9                               | 1.6                              | 34.7                     | 3271                         | 0.387                                | 7150                                      | 187        | 197                | 0.87                            |
| 4 × 70 SM                   | 1.1                             | 2.1                               | 2.0                              | 40.3                     | 4605                         | 0.268                                | 10010                                     | 238        | 251                | 0.60                            |
| 4 × 95 SM                   | 1.1                             | 2.2                               | 2.0                              | 44.0                     | 5789                         | 0.193                                | 13585                                     | 289        | 304                | 0.45                            |
| 4 × 120 SM                  | 1.2                             | 2.3                               | 2.5                              | 49.3                     | 7460                         | 0.153                                | 17160                                     | 335        | 353                | 0.37                            |
| 4 × 150 SM                  | 1.4                             | 2.4                               | 2.5                              | 53.3                     | 8785                         | 0.124                                | 21450                                     | 386        | 406                | 0.30                            |
| 4 × 185 SM                  | 1.6                             | 2.6                               | 2.5                              | 58.0                     | 10528                        | 0.0991                               | 26455                                     | 441        | 463                | 0.26                            |
| 4 × 240 SM                  | 1.7                             | 2.7                               | 2.5                              | 63.8                     | 13141                        | 0.0754                               | 34320                                     | 520        | 546                | 0.21                            |
| 4 × 300 SM                  | 1.8                             | 2.9                               | 2.5                              | 68.8                     | 15622                        | 0.0601                               | 42900                                     | 599        | 628                | 0.185                           |

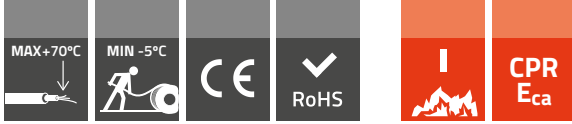
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**TF**  
*Kable*

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# Wiring Cables





# 6491X/H07V-U

# 6491X/H07V-R

## 450/750V

BS EN 50525-2-31

Single core PVC insulated non sheathed cables for general purposes

## APPLICATIONS

Installation in surface mounted or embedded conduits, or similar closed systems.  
Suitable for fixed protected installation in, or on, lighting or controlgear for voltages up to 1000V a.c. or, up to 750V d.c. to earth.

Standard length cable packing:

50 m or 100 m in rings or on spools, or 500 m on drums.  
Other forms of packing and delivery are available on request.

## CONSTRUCTION

Conductors:

Annealed copper conductor class 1 solid (H07V-U),  
class 2 stranded (H07V-R)

Primary insulation:

PVC compound type T1 1

Colour of insulation:

green/yellow, blue, black, brown, grey, orange, pink, red,  
turquoise, violet, white

## CHARACTERISTICS

|  |        |
|--|--------|
| Maximum conductor operating temperature:           | +70°C  |
| Lowest ambient temperature for fixed installation: | -40°C  |
| Lowest installation temperature:                   | -5°C   |
| Maximum short-circuit conductor temperature:       | +160°C |
| Test voltage:                                      | 2500V  |





## Fire performance

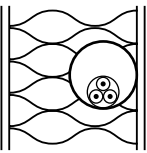
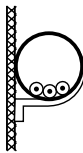
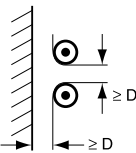
|  |              |
|--|--------------|
| Flame retardant:                             | EN 60332-1-2 |
| CPR – class reaction to fire (acc EN 50575): | Eca          |

## Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Minimum insulation resistance at temperature 70°C |
|--|------------------------------|----------------------------------|--|---|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>MΩ.km</b>                                      |
| <b>H07V-U</b>                                |                              |                                  |  |   |
| 1,5  | 2,7                          | 20                               | 12,1   | 0,011   |
| 2,5  | 3,3                          | 31                               | 7,41   | 0,010   |
| 4  | 3,7                          | 45                               | 4,61   | 0,0087  |
| 6  | 4,2                          | 63                               | 3,08   | 0,0074  |
| 10   | 5,4                          | 105                              | 1,83   | 0,0072  |
| <b>H07V-R</b>                                |                              |                                  |  |   |
| 1,5  | 3,0                          | 21                               | 12,1   | 10  |
| 2,5  | 3,6                          | 33                               | 7,41   | 0,0099  |
| 4  | 4,1                          | 48                               | 4,61   | 0,0082  |
| 6  | 4,5                          | 66                               | 3,08   | 0,0070  |
| 10   | 5,8                          | 110                              | 1,83   | 0,0067  |
| 16   | 6,8                          | 167                              | 1,15   | 0,0056  |
| 25   | 8,5                          | 262                              | 0,727  | 0,0053  |
| 35   | 9,6                          | 353                              | 0,524  | 0,0046  |
| 50   | 11,3                         | 480                              | 0,387  | 0,0046  |
| 70   | 12,6                         | 672                              | 0,268  | 0,0040  |
| 95   | 15,0                         | 932                              | 0,193  | 0,0039  |
| 120  | 16,4                         | 1158                             | 0,153  | 0,0035  |
| 150  | 18,4                         | 1432                             | 0,124  | 0,0035  |
| 185  | 20,3                         | 1789                             | 0,0991   | 0,0035  |
| 240  | 23,2                         | 2325                             | 0,0754   | 0,0034  |

# Current ratings acc. to IEC 60364-5-523

Permissible operating temperature at conductor: 70°C; ambient temperature: 30°C

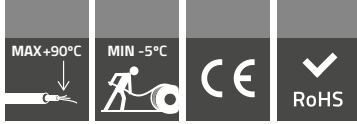
| Cross-sectional area of conductor |  |      |  |      |  |
|-----------------------------------|---|------|---|------|---|
|                                   | Single core cables in insulating tubes, in a thermally insulated walls            |      | Single core cables in insulating tubes on a wall                                  |      | In open air *   |
| Number of loaded cores            | 2   | 3    | 2   | 3    | 1   |
| Cross-section, mm <sup>2</sup>    | Current ratings in Ampere (A)   |      |   |      |   |
|                                   | 1   | -    | -   | -    | -   |
| 1,5                               | 14,5  | 13,5 | 17,5  | 15,5 | 24  |
| 2,5                               | 19,5  | 18   | 24  | 21   | 32  |
| 4                                 | 26  | 24   | 32  | 28   | 42  |
| 6                                 | 34  | 31   | 41  | 36   | 54  |
| 10                                | 46  | 42   | 57  | 50   | 73  |
| 16                                | 61  | 56   | 76  | 68   | 98  |
| 25                                | 80  | 73   | 101   | 89   | 129   |
| 35                                | 99  | 89   | 125   | 110  | 158   |
| 50                                | 119   | 108  | 151   | 134  | 198   |
| 70                                | 151   | 136  | 192   | 171  | 245   |
| 95                                | 182   | 164  | 232   | 207  | 292   |
| 120                               | 210   | 188  | 269   | 239  | 344   |
| 150                               | 240   | 216  | -   | -    | 391   |
| 185                               | 273   | 245  | -   | -    | 448   |
| 240                               | 321   | 286  | -   | -    | 528   |

\* Current rating acc. to VDE 0298-4, ambient temperature: 30°C

## Convention factors for deviating ambient temperature

| Ambient Temperature, °C | 10   | 15   | 20   | 25   | 30   | 35   | 40   | 45   | 50   | 55   | 60   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Conversion factors      | 1,22 | 1,17 | 1,12 | 1,06 | 1,00 | 0,94 | 0,87 | 0,79 | 0,71 | 0,61 | 0,50 |

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# 6491B/H07Z-U 6491B/H07Z-R

## 450/750V

BS EN 50525-3-41

Single core non-sheathed cables with low emission of smoke and corrosive gases

### APPLICATIONS

Single core, non-sheathed cables are suitable particularly for situations in which low emission of smoke and corrosive gases is required in the case of burning. Single core, non-sheathed cables are intended for installation in surface mounted or embedded conduits, or similar closed systems. Suitable for fixed protected installation in, or on, lighting and control gear for voltages up to 1000 V a.c. or, up to 750V d.c. to earth

Standard length cable packing

50 m or 100 m in rings or on spools, or 500 m on drums. Other forms of packing and delivery are available on request.

### CONSTRUCTION

Conductors:

annealed copper conductor class 1 solid (H07Z-U), class 2 stranded (H07Z-R) acc. to EN 60228

Insulation:

special thermosetting low smoke zero halogen compound type EI5 acc. to EN 50363-5

Colour of insulation:

green/yellow, blue, black, brown, grey, orange, pink, red, turquoise, violet, white



### CHARACTERISTICS

|  |   |
|--|---|
| Maximum conductor operating temperature:           | +90°C   |
| Lowest ambient temperature for fixed installation: | -40°C   |
| Lowest installation temperature:                   | -5°C  |
| Maximum short-circuit conductor temperature:       | +250°C  |
| Test voltage:                                      | 2500V   |
| Flame propagation                                  | EN 60332-1-2, EN 60332-3-24   |
| Smoke emission:                                    | EN 61034-2  |
| Corrosive and acid gas emission of insulation:     | BS EN 60754-2, pH $\geq$ 4,3 & conductivity $\leq$ 10 $\mu$ Smm <sup>-1</sup><br>BS EN 60754-1, HCL $\leq$ 0,5% |

# Approvals

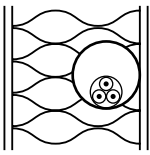
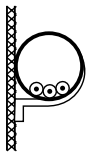
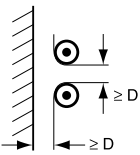
BASEC

## Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Minimum insulation resistance at temperature 90°C |
|--|------------------------------|----------------------------------|--|---|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>MΩ.km</b>                                      |
| <b>H07Z-U</b>                                |                              |                                  |  |   |
| 1,5  | 2,8                          | 19                               | 12,1   | 0,011   |
| 2,5  | 3,3                          | 30                               | 7,41   | 0,010   |
| 4  | 3,8                          | 45                               | 4,61   | 0,0085  |
| 6  | 4,3                          | 63                               | 3,08   | 0,0070  |
| 10   | 5,5                          | 105                              | 1,83   | 0,0070  |
| <b>H07Z-R</b>                                |                              |                                  |  |   |
| 1,5  | 3,0                          | 21                               | 12,1   | 0,010   |
| 2,5  | 3,6                          | 32                               | 7,41   | 0,0090  |
| 4  | 4,1                          | 47                               | 4,61   | 0,0077  |
| 6  | 4,7                          | 67                               | 3,08   | 0,0065  |
| 10   | 6,0                          | 111                              | 1,83   | 0,0065  |
| 16   | 7,0                          | 168                              | 1,15   | 0,0050  |
| 25   | 8,7                          | 263                              | 0,727  | 0,0050  |
| 35   | 9,8                          | 356                              | 0,524  | 0,0043  |
| 50   | 11,6                         | 478                              | 0,387  | 0,0043  |
| 70   | 13,3                         | 674                              | 0,268  | 0,0035  |
| 95   | 15,6                         | 932                              | 0,193  | 0,0035  |
| 120  | 17,2                         | 1155                             | 0,153  | 0,0032  |
| 150  | 18,4                         | 1421                             | 0,124  | 0,0032  |
| 185  | 20,3                         | 1774                             | 0,0991   | 0,0032  |
| 240  | 23,2                         | 2307                             | 0,0754   | 0,0032  |
| 300  | 25,4                         | 2886                             | 0,0601   | 0,0030  |

# Current ratings acc. to IEC 60364-5-523

Permissible operating temperature at conductor: 90°C; ambient temperature: 30°C

| Cross-sectional area of conductor |  |     |  |     |  |
|-----------------------------------|---|-----|---|-----|---|
|                                   | Single core cables in insulating tubes, in a thermally insulated walls            |     | Single core cables in insulating tubes on a wall                                  |     | In open air *   |
| Number of loaded cores            | 2   | 3   | 2   | 3   | 1   |
| Cross-section, mm <sup>2</sup>    | Current ratings in Ampere (A)   |     |   |     |   |
| 1,5                               | 19  | 17  | 23  | 20  | 24  |
| 2,5                               | 26  | 23  | 31  | 28  | 32  |
| 4                                 | 35  | 31  | 42  | 37  | 42  |
| 6                                 | 45  | 40  | 54  | 48  | 54  |
| 10                                | 61  | 54  | 75  | 66  | 73  |
| 16                                | 81  | 73  | 100   | 88  | 98  |
| 25                                | 106   | 95  | 133   | 117 | 129   |
| 35                                | 131   | 117 | 164   | 144 | 158   |
| 50                                | 158   | 141 | 198   | 175 | 198   |
| 70                                | 200   | 179 | 253   | 222 | 245   |
| 95                                | 241   | 216 | 306   | 269 | 292   |
| 120                               | 278   | 249 | 354   | 312 | 344   |
| 150                               | 318   | 285 | -   | -   | 391   |
| 185                               | 362   | 324 | -   | -   | 448   |
| 240                               | 424   | 380 | -   | -   | 528   |
| 300                               | 486   | 435 | -   | -   | 608   |

\* Current rating acc. to VDE 0298-4, ambient temperature: 30°C

## Convention factors for deviating ambient temperature

| Ambient Temperature, °C | 10   | 15   | 20   | 25   | 35   | 40   | 45   | 50   | 55   | 60   | 65   |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Conversion factors      | 1,15 | 1,12 | 1,08 | 1,04 | 0,96 | 0,91 | 0,87 | 0,82 | 0,76 | 0,71 | 0,65 |

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# 6241Y, 6242Y, 6243Y

## 300/500V

BS 6004:2012 table 4

PVC insulated and PVC sheathed flat cable with circuit protective conductor (CPC)

### APPLICATIONS

for fixed installation in dry or damp premises. Suitable for installation in walls, on boards and in channels or embedded in plaster.

|                               |   |
|-------------------------------|---|
| Standard length cable packing | 100 m coils or 500 m on drums.<br>Other forms of packing and delivery are available on request. |
|-------------------------------|---|

### CONSTRUCTION

|             |   |
|-------------|---|
| Conductors: | Annealed copper, solid class 1 (RE) or stranded conductor class 2 (RM)<br>acc. to BS EN 60228 |
| Insulation: | Special PVC compound type T11 acc. to BS EN 50363-3   |
| Sheath:     | Special PVC compound type 6 acc. to BS 7655-4.2   |

### CHARACTERISTICS

|  |  |
|--|--|
| Colour of sheath:                                  | grey, white or other agreed  |
| Core identification:                               | single core: brown or blue<br>twin core: brown and blue, or for 2 x 1,0 and 2 x 1,5 cables, brown and brown<br>3-core: brown, black (centre core) and grey |
| Maximum conductor operating temperature:           | +70°C  |
| Lowest ambient temperature for fixed installation: | -30°C  |
| Lowest installation temperature:                   | -5°C   |
| Maximum short-circuit conductor temperature:       | +160°C   |
| Minimum bending radius:                            | 6 x D, D – overall diameter  |
| Test voltage:                                      | 2000V  |



# Reaction to fire

|  |              |
|--|--------------|
| Flame retardant:                                 | EN 60332-1-2 |
| CPR – reaction to fire class (acc. to EN 50575): | Eca          |

# Approvals

BASEC

# Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Number of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Cross-sectional area of protective conductor | Approximate overall dimensions | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|------------------------------|---------------------------------|-----------------------------|--|--------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>n</b>                     | <b>mm</b>                       | <b>mm</b>                   | <b>mm<sup>2</sup></b>                        | <b>mm x mm</b>                 | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 1x1RE  | 1                            | 0,6                             | 0,9                         | 1RE  | 4,1x5,2                        | 43                               | 18,1/18,1  |
| 1x1,5RE                                      | 1                            | 0,7                             | 0,9                         | 1RE  | 4,6x5,7                        | 52                               | 12,1/18,1  |
| 2x1RE  | 1                            | 0,6                             | 0,9                         | 1RE  | 4,1x7,5                        | 65                               | 18,1/18,1  |
| 2x1,5RE                                      | 1                            | 0,7                             | 0,9                         | 1RE  | 4,8x8,4                        | 83                               | 12,1/18,1  |
| 2x2,5RE                                      | 1                            | 0,8                             | 1,0                         | 1,5RE  | 5,3x10,0                       | 121                              | 7,41/12,1  |
| 2x4RM  | 7                            | 0,8                             | 1,0                         | 1,5RE  | 6,1x11,6                       | 156                              | 4,61/12,1  |
| 2x6RM  | 7                            | 0,8                             | 1,1                         | 2,5RE  | 6,7x12,9                       | 222                              | 3,08/7,41  |
| 2x10RM                                       | 7                            | 1,0                             | 1,2                         | 4RM  | 8,2x16,5                       | 357                              | 1,83/4,61  |
| 2x16RM                                       | 7                            | 1,0                             | 1,3                         | 6RM  | 9,4x19,1                       | 516                              | 1,15/3,08  |
| 3x1RE  | 1                            | 0,6                             | 0,9                         | 1RE  | 4,1x9,8                        | 88                               | 18,1/18,1  |
| 3x1,5RE                                      | 1                            | 0,7                             | 0,9                         | 1RE  | 4,6x11,2                       | 113                              | 12,1/18,1  |
| 3x2,5RE                                      | 1                            | 0,8                             | 1,0                         | 1,5RE  | 5,3x13,4                       | 167                              | 7,41/12,1  |
| 3x4RM  | 7                            | 0,8                             | 1,1                         | 1,5RE  | 6,1x15,7                       | 233                              | 4,61/12,1  |
| 3x6RM  | 7                            | 0,8                             | 1,1                         | 2,5RE  | 6,7x17,4                       | 311                              | 3,08/7,41  |
| 3x10RM                                       | 7                            | 1,0                             | 1,2                         | 4RM  | 8,2x22,2                       | 501                              | 1,83/4,61  |
| 3x16RM                                       | 7                            | 1,0                             | 1,3                         | 6RM  | 9,4x25,9                       | 727                              | 1,15/3,08  |

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# 6241B, 6242B, 6243B

## 300/500V

BS 7211:2012 table 5

Thermosetting insulated and LSOH sheathed flat cable with circuit protective conductor (CPC), low smoke halogen free

### APPLICATIONS

for fixed installation in dry or damp premises. Suitable for installation in walls, on a wall or ceiling, or embedded in plaster. Particularly for situations in which low emission of smoke and corrosive gases is required in the case of burning. These cable are not intended to provide circuit integrity in case of fire.

Standard length cable packing

100 m coils or 500 m on drums.

Other forms of packing and delivery are available on request.

### CONSTRUCTION

|             |   |
|-------------|---|
| Conductors: | Annealed copper, solid class 1 (RE) or stranded conductor class 2 (RM)<br>acc. to BS EN 60228 |
| Insulation: | Thermosetting compound XLPE type GP8 acc. to BS 7655-1.3                                      |
| Sheath:     | LSOH compound type LTS2 acc. to BS 7655-6.1   |

### CHARACTERISTICS

|  |  |
|--|--|
| Colour of sheath:                                  | white or other agreed  |
| Core identification:                               | single core: brown or blue<br>twin core: brown and blue, or for 2 x 1,0 and 2 x 1,5 cables, brown and brown<br>3-core: brown, black (centre core) and grey |
| Maximum conductor operating temperature:           | +90°C  |
| Lowest ambient temperature for fixed installation: | -30°C  |
| Lowest installation temperature:                   | -5°C   |
| Maximum short-circuit conductor temperature:       | +250°C   |
| Minimum bending radius:                            | 6 × D, D – overall diameter  |
| Test voltage:                                      | 2000V  |





## Fire performance

|  |   |
|--|---|
| Flame retardant:                             | EN 60332-1-2, EN 60332-3-24   |
| CPR – class reaction to fire (acc EN 50575): | Dca-s2,d1,a1  |
| Corrosive and acid gas emission:             | BS EN 60754-2, pH $\geq$ 4,3 & conductivity $\leq$ 10 $\mu$ Smm <sup>-1</sup><br>BS EN 60754-1, HCL $\leq$ 0,5% |
| Smoke emission:                              | BS EN 61034-2   |

## Approvals

BASEC

## Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Number of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Cross-sectional area of protective conductor | Approximate overall dimensions | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|------------------------------|---------------------------------|-----------------------------|--|--------------------------------|----------------------------------|--|
| n × mm <sup>2</sup>                          | n                            | mm                              | mm                          | mm <sup>2</sup>                              | mm x mm                        | kg/km                            | Ω/km   |
| 1x1RE  | 1                            | 0,7                             | 0,9                         | 1RE  | 4,3x5,7                        | 42                               | 18,1/18,1  |
| 1x1,5RE                                      | 1                            | 0,7                             | 0,9                         | 1RE  | 4,6x5,7                        | 48                               | 12,1/18,1  |
| 2x1RE  | 1                            | 0,7                             | 0,9                         | 1RE  | 4,3x7,9                        | 64                               | 18,1/18,1  |
| 2x1,5RE                                      | 1                            | 0,7                             | 0,9                         | 1RE  | 4,6x8,4                        | 76                               | 12,1/18,1  |
| 2x2,5RE                                      | 1                            | 0,7                             | 1,0                         | 1,5RE  | 5,1x9,6                        | 107                              | 7,41/12,1  |
| 2x4RM  | 7                            | 0,7                             | 1,0                         | 1,5RE  | 5,9x11,2                       | 148                              | 4,61/12,1  |
| 2x6RM  | 7                            | 0,7                             | 1,1                         | 2,5RE  | 6,5x12,5                       | 202                              | 3,08/7,41  |
| 2x10RM                                       | 7                            | 0,7                             | 1,2                         | 4RM  | 7,6x15,3                       | 313                              | 1,83/4,61  |
| 2x16RM                                       | 7                            | 0,7                             | 1,3                         | 6RM  | 8,8x17,9                       | 464                              | 1,15/3,08  |
| 3x1RE  | 1                            | 0,7                             | 0,9                         | 1RE  | 4,3x10,4                       | 85                               | 18,1/18,1  |
| 3x1,5RE                                      | 1                            | 0,7                             | 0,9                         | 1RE  | 4,6x11,2                       | 103                              | 12,1/18,1  |
| 3x2,5RE                                      | 1                            | 0,7                             | 1,0                         | 1,5RE  | 5,1x12,8                       | 141                              | 7,41/12,1  |

# Electrical Characteristics

| Number and cross-sectional area of conductor | Current rating single-phase A.C. or D.C. *       |  |                |  | Voltage Drop DC | Voltage Drop single-phase AC |
|--|--|--|----------------|--|-----------------|------------------------------|
|  | Enclosed in conduit in thermally insulating wall | Enclosed in conduit on a wall or in trunking | Clipped direct | Free air or on a perforated cable tray etc, horizontal or vertical |                 |                              |
| <b>n × mm<sup>2</sup></b>                    | <b>Amp</b>                                       | <b>Amp</b>                                   | <b>Amp</b>     | <b>Amp</b>   | <b>mV/A/m</b>   | <b>mV/A/m</b>                |
| 1x1RE  | 14,5   | 17   | 19             | 21   | 46              | 46                           |
| 1x1,5RE                                      | 18,5   | 22   | 24             | 26   | 31              | 31                           |
| 2x1RE  | 14,5   | 17   | 19             | 21   | 46              | 46                           |
| 2x1,5RE                                      | 18,5   | 22   | 24             | 26   | 31              | 31                           |
| 2x2,5RE                                      | 25   | 30   | 33             | 36   | 19              | 19                           |
| 2x4RM  | 33   | 40   | 45             | 49   | 12              | 12                           |
| 2x6RM  | 42   | 51   | 58             | 63   | 7,9             | 7,9                          |
| 2x10RM                                       | 57   | 69   | 80             | 86   | 4,7             | 4,7                          |
| 2x16RM                                       | 76   | 91   | 107            | 115  | 2,9             | 2,9                          |
| 3x1RE  | 13   | 15   | 17             | 18   | -               | 40                           |
| 3x1,5RE                                      | 16,5   | 19,5   | 22             | 23   | -               | 27                           |
| 3x2,5RE                                      | 22   | 26   | 30             | 32   | -               | 16                           |

\*acc to BS 7671 table 4E2A & 4E2B

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# 6181Y

## 300/500V

Double Insulated Surface Wiring Cable

### APPLICATIONS

Fixed Installation in dry or damp areas for domestic and light industrial wiring

Standard length cable packing

500 m or 1000 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|             |  |
|-------------|--|
| Conductors: | Annealed copper, solid class 1 (RE) or stranded conductor class 2 (RM) acc. to BS EN 60228 |
| Insulation: | Special PVC compound type T11 acc. to BS EN 50363-3  |
| Sheath:     | Special PVC compound type 6 acc. to BS 7655-4.2  |



### CHARACTERISTICS

|  |  |
|--|--|
| Colour of sheath:                                  | grey, blue, brown, white or other agreed |
| Core identification:                               | brown or blue                            |
| Maximum conductor operating temperature:           | +70°C                                    |
| Lowest ambient temperature for fixed installation: | -30°C                                    |
| Lowest installation temperature:                   | -5°C                                     |
| Maximum short-circuit conductor temperature:       | +160°C                                   |
| Minimum bending radius:                            | 6 × D, D – overall diameter              |
| Test voltage:                                      | 2000V                                    |

## Fire performance

|  |              |
|--|--------------|
| Flame retardant:                             | EN 60332-1-2 |
| CPR – class reaction to fire (acc EN 50575): | Eca          |

## Approvals

BASEC

## Technical and Electrical Characteristics

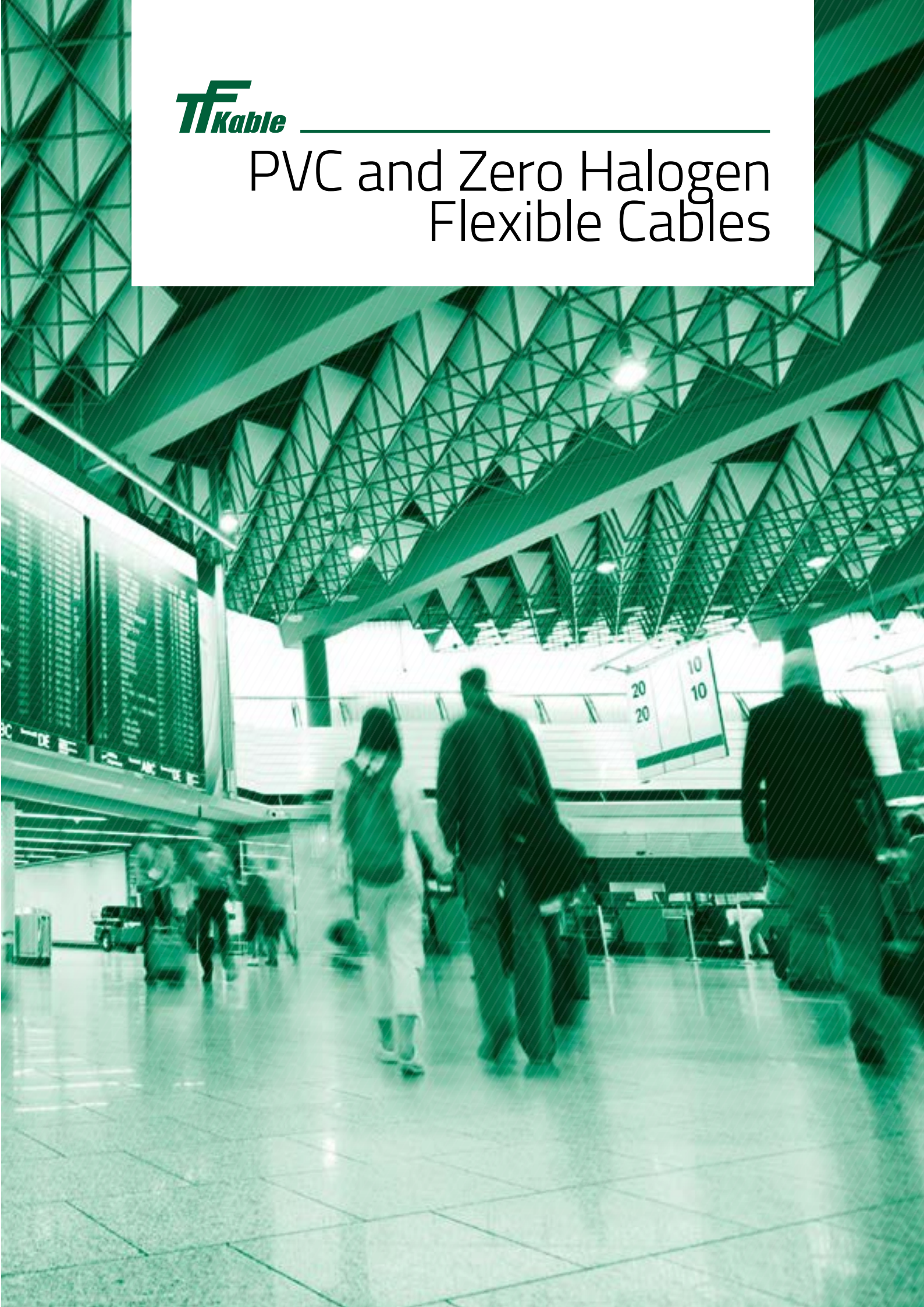
| Number and cross-sectional area of conductor | Class of conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--------------------|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    |                    | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 1x1RE  | 1                  | 0,6                             | 0,8                         | 3,9                          | 26                               | 18,1   |
| 1x1,5RE                                      | 1                  | 0,7                             | 0,8                         | 4,4                          | 34                               | 12,1   |
| 1x2,5RE                                      | 1                  | 0,8                             | 0,8                         | 4,9                          | 47                               | 7,41   |
| 1x4RM  | 2                  | 0,8                             | 0,9                         | 5,9                          | 71                               | 4,61   |
| 1x6RM  | 2                  | 0,8                             | 0,9                         | 6,3                          | 90                               | 3,08   |
| 1x10RM                                       | 2                  | 1,0                             | 0,9                         | 7,6                          | 140                              | 1,83   |
| 1x16RM                                       | 2                  | 1,0                             | 1,0                         | 8,8                          | 206                              | 1,15   |
| 1x25RM                                       | 2                  | 1,2                             | 1,1                         | 10,7                         | 314                              | 0,727  |
| 1x35RM                                       | 2                  | 1,2                             | 1,1                         | 11,8                         | 411                              | 0,524  |

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**TF***Kable*

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# PVC and Zero Halogen Flexible Cables





# 218-Y, H03VV-F, 03VV-F\* 219-Y, H03VVH2-F, 03VVH2-F\* 300/300V

BS EN 50525-2-11

PVC insulated and sheathed flexible cords

## APPLICATIONS

In domestic premises, kitchens, offices; for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing

500 or 1000 m on drums.  
Other forms of packing and delivery are available on request.

## CONSTRUCTION

Conductors:

Annealed copper, class 5 flexible conductor acc. to EN 60228

Insulation:

PVC type T12

Sheath:

PVC type TM2



## CHARACTERISTICS

Colour of sheath:

white, black, grey

Core identification:

2-core: blue, brown  
3-core: green-yellow, blue, brown  
4-core: green-yellow, brown, black, grey  
5-core\*: green-yellow, blue, brown, black, grey

Maximum conductor operating temperature:

+70°C

Lowest ambient temperature for fixed installation:

-40°C

Lowest installation temperature:

-5°C

Maximum short-circuit conductor temperature:

+150°C

Minimum bending radius:

6 × D, D – overall diameter

Test voltage:

2000V

\*based on norm

## Fire performance

|   |              |
|---|--------------|
| Flame retardant:                              | EN 60332-1-2 |
| CPR – class reaction to fire (acc. EN 50575): | Eca          |

## Approvals

BASEC

## Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| n × mm <sup>2</sup>                          | mm                                     | mm                              | mm                          | mm                           | kg/km                            | Ω/km   |
| <b>H03VV-F, O3VV-F*</b>                      |  |                                 |                             |                              |                                  |  |
| 2x0,5  | 0,21                                   | 0,5                             | 0,6                         | 5,0                          | 34                               | 39,0   |
| 2x0,75                                       | 0,21                                   | 0,5                             | 0,6                         | 5,4                          | 41                               | 26,0   |
| 2x1*   | 0,21                                   | 0,5                             | 0,6                         | 5,6                          | 47                               | 19,5   |
| 2x1,5*                                       | 0,25                                   | 0,5                             | 0,9                         | 6,8                          | 70                               | 13,3   |
| 3x0,5  | 0,21                                   | 0,5                             | 0,6                         | 5,3                          | 40                               | 39,0   |
| 3x0,75                                       | 0,21                                   | 0,5                             | 0,6                         | 5,7                          | 50                               | 26,0   |
| 3x1*   | 0,21                                   | 0,5                             | 0,6                         | 5,9                          | 58                               | 19,5   |
| 3x1,5*                                       | 0,25                                   | 0,5                             | 0,9                         | 7,2                          | 85                               | 13,3   |
| 4x0,5  | 0,21                                   | 0,5                             | 0,6                         | 5,8                          | 49                               | 39,0   |
| 4x0,75                                       | 0,21                                   | 0,5                             | 0,6                         | 6,3                          | 61                               | 26,0   |
| 5x0,5*                                       | 0,21                                   | 0,5                             | 0,7                         | 6,56                         | 62                               | 26,0   |
| 5x0,75*                                      | 0,21                                   | 0,5                             | 0,7                         | 7,1                          | 79                               | 26,0   |
| <b>H03VVH2-F, O3VVH2-F*</b>                  |  |                                 |                             |                              |                                  |  |
| 2x0,5  | 0,21                                   | 0,5                             | 0,6                         | 3,1 x 5,1                    | 25                               | 39,0   |
| 2x0,75                                       | 0,21                                   | 0,5                             | 0,6                         | 3,3 x 5,4                    | 31                               | 26,0   |
| 2x1*   | 0,21                                   | 0,5                             | 0,6                         | 3,4 x 5,6                    | 36                               | 19,5   |
| 2x1,5*                                       | 0,25                                   | 0,6                             | 0,8                         | 4,3 x 7,0                    | 55                               | 13,3   |

\*based on norm

# Current rating

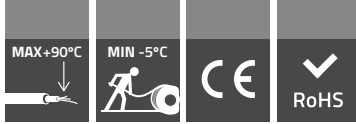
| Cross-section   | Current ratings |             |
|-----------------|-----------------|-------------|
|                 | Single phase    | Three phase |
| mm <sup>2</sup> | A               | A           |
| 0,5             | 3               | 3           |
| 0,75            | 6               | 6           |

These values apply to the majority of cases. Further information should be sought in unusual cases e.g.:

- when high ambient temperatures are involved, ie. above 30°C
  - where long lengths are used
  - where ventilation is restricted
- where the cords are used for other purposes, eg. internal wiring of apparatus.

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# 209-Y, H03V2V2-F, 03V2V2-F\* H03V2V2H2-F 300/300V

BS EN 50525-2-11

Heat resistant PVC insulated and sheathed flexible cords

## APPLICATIONS

In domestic premises, kitchens, offices; in high ambient temperatures for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing

500 or 1000 m on drums.  
Other forms of packing and delivery are available on request.

## CONSTRUCTION

|             |  |
|-------------|--|
| Conductors: | Annealed copper, class 5 flexible conductor acc. to EN 60228 |
| Insulation: | Heat resistant PVC 90°C type T13                             |
| Sheath:     | Heat resistant PVC 90°C type TM3                             |



## CHARACTERISTICS

|   |  |
|---|--|
| Colour of sheath:   | white, black, grey   |
| Core identification:  | 2-core: blue, brown<br>3-core: green-yellow, blue, brown<br>4-core: green-yellow, brown, black, grey |
| Maximum conductor operating temperature:                          | +90°C  |
| Lowest ambient temperature for fixed installation:                | -30°C  |
| Lowest installation temperature:                                  | -5°C   |
| Maximum short-circuit conductor temperature:                      | +150°C   |
| Minimum bending radius:   | 6 × D, D – overall diameter  |
| Max. permissible tensile stress with cable grip for Cu-conductor: | 50 N/mm <sup>2</sup>   |
| Test voltage:   | 2000V  |

# Fire performance

Flame retardant:

EN 60332-1-2

## Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| <b>H03V2V2-F, 03V2V2-F*</b>                  |                              |                                  |  |
| 2 × 0.5                                      | 5                            | 34                               | 39   |
| 2 × 0.75                                     | 5.4                          | 42                               | 26   |
| 2 × 1*                                       | 5.6                          | 48                               | 19.5   |
| <b>H03V2V2-F, 03V2V2-F*</b>                  |                              |                                  |  |
| 3 × 0.5                                      | 5.3                          | 41                               | 39   |
| 3 × 0.75                                     | 5.7                          | 50                               | 26   |
| 3 × 1*                                       | 5.9                          | 58                               | 19.5   |
| 4 × 0.5                                      | 5.8                          | 49                               | 39   |
| 4 × 0.75                                     | 6.3                          | 62                               | 26   |
| 4 × 1*                                       | 6.7                          | 75                               | 19.5   |
| <b>H03V2V2H2-F</b>                           |                              |                                  |  |
| 2 × 0.5                                      | 3.1 × 5.0                    | 26                               | 39   |
| 2 × 0.75                                     | 3.3 × 5.4                    | 32                               | 26   |

\*based on norm

## Current rating

| Cross-section         | Current ratings |             |
|-----------------------|-----------------|-------------|
|                       | Single phase    | Three phase |
| <b>mm<sup>2</sup></b> | <b>A</b>        | <b>A</b>    |
| 0,5                   | 3               | 3           |
| 0,75                  | 6               | 6           |
| 1                     | 10              | 10          |

For ambient temperature 30°C

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# 318-Y, H05VV-F, 05VV-F\* 319-Y, H05VVH2-F, 05VVH2-F\* 300/500V

BS EN 50525-2-11,

PVC insulated and sheathed flexible cords

## APPLICATIONS

In domestic premises, kitchens, offices; for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing

500 or 1000 m on drums.  
Other forms of packing and delivery are available on request.

## CONSTRUCTION

|             |  |
|-------------|--|
| Conductors: | Annealed copper, class 5 flexible conductor acc. to EN 60228 |
| Insulation: | PVC type T12   |
| Sheath:     | PVC type TM2   |

## CHARACTERISTICS

|  |  |
|--|--|
| Colour of sheath:                                  | white, black-UV resistant, grey  |
| Core identification:                               | 2-core: blue, brown<br>3-core: green-yellow, blue, brown<br>4-core: green-yellow, brown, black, grey<br>5-core*: green-yellow, blue, brown, black, grey<br>6 and more: green-yellow, + core black with white numbering |
| Maximum conductor operating temperature:           | +70°C  |
| Lowest ambient temperature for fixed installation: | -40°C  |
| Lowest installation temperature:                   | -5°C   |
| Maximum short-circuit conductor temperature:       | +150°C   |
| Minimum bending radius:                            | 6 × D, D – overall diameter  |
| Test voltage:                                      | 2000V  |



## Fire performance

|   |              |
|---|--------------|
| Flame retardant:                              | EN 60332-1-2 |
| CPR – class reaction to fire (acc. EN 50575): | Eca          |

## Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| n × mm <sup>2</sup>                          | mm                                     | mm                              | mm                          | mm                           | kg/km                            | Ω/km   |
| <b>H05VV-F, 05VV-F*</b>                      |  |                                 |                             |                              |                                  |  |
| 2x0,5*                                       | 0,21                                   | 0,6                             | 0,8                         | 5,8                          | 43                               | 39,0   |
| 2x0,75                                       | 0,21                                   | 0,6                             | 0,8                         | 6,2                          | 51                               | 26,0   |
| 2x1  | 0,21                                   | 0,6                             | 0,8                         | 6,4                          | 57                               | 19,5   |
| 2x1,5  | 0,26                                   | 0,7                             | 0,8                         | 7,4                          | 78                               | 13,3   |
| 2x2,5  | 0,26                                   | 0,8                             | 1,0                         | 9,2                          | 122                              | 7,98   |
| 2x4  | 0,31                                   | 0,8                             | 1,1                         | 10,3                         | 165                              | 4,95   |
| 2x6*   | 0,31                                   | 0,8                             | 1,2                         | 11,7                         | 223                              | 3,30   |
| 3x0,5*                                       | 0,21                                   | 0,6                             | 0,8                         | 6,1                          | 50                               | 39,0   |
| 3x0,75                                       | 0,21                                   | 0,6                             | 0,8                         | 6,6                          | 61                               | 26,0   |
| 3x1  | 0,21                                   | 0,6                             | 0,8                         | 6,8                          | 69                               | 19,5   |
| 3x1,5  | 0,26                                   | 0,7                             | 0,9                         | 8,1                          | 98                               | 13,3   |
| 3x2,5  | 0,26                                   | 0,8                             | 1,1                         | 9,9                          | 153                              | 7,98   |
| 3x4  | 0,31                                   | 0,8                             | 1,2                         | 11,1                         | 209                              | 4,95   |
| 3x6*   | 0,31                                   | 0,8                             | 1,2                         | 12,4                         | 279                              | 3,30   |
| 4x0,5*                                       | 0,21                                   | 0,6                             | 0,8                         | 6,7                          | 60                               | 39,0   |
| 4x0,75                                       | 0,21                                   | 0,6                             | 0,8                         | 7,2                          | 73                               | 26,0   |
| 4x1  | 0,21                                   | 0,6                             | 0,9                         | 7,6                          | 87                               | 19,5   |
| 4x1,5  | 0,26                                   | 0,7                             | 1                           | 9,0                          | 124                              | 13,3   |
| 4x2,5  | 0,26                                   | 0,8                             | 1,1                         | 10,8                         | 187                              | 7,98   |
| 4x4  | 0,31                                   | 0,8                             | 1,2                         | 12,2                         | 257                              | 4,95   |
| 4x6*   | 0,31                                   | 0,8                             | 1,3                         | 13,8                         | 351                              | 3,30   |

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                              | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 5x0,5*                                       | 0,21                                   | 0,6                             | 0,8                         | 7,3                          | 73                               | 39,0   |
| 5x0,75                                       | 0,21                                   | 0,6                             | 0,9                         | 8,0                          | 93                               | 26,0   |
| 5x1  | 0,21                                   | 0,6                             | 0,9                         | 8,3                          | 106                              | 19,5   |
| 5x1,5  | 0,26                                   | 0,7                             | 1,1                         | 10,0                         | 156                              | 13,3   |
| 5x2,5  | 0,26                                   | 0,8                             | 1,2                         | 12,1                         | 235                              | 7,98   |
| 5x4  | 0,31                                   | 0,8                             | 1,4                         | 13,7                         | 329                              | 4,95   |
| 5x6*   | 0,31                                   | 0,8                             | 1,3                         | 15,1                         | 434                              | 3,30   |
| 6x1*   | 0,21                                   | 0,6                             | 1,0                         | 9,2                          | 130                              | 19,5   |
| 6x1,5*                                       | 0,21                                   | 0,7                             | 1,1                         | 10,9                         | 185                              | 13,3   |
| 7*0,5*                                       | 0,21                                   | 0,6                             | 0,8                         | 5,8                          | 43                               | 39,0   |
| 7x0,75*                                      | 0,21                                   | 0,6                             | 1,0                         | 8,9                          | 118                              | 26,0   |
| 7x1*   | 0,21                                   | 0,6                             | 1,0                         | 9,2                          | 136                              | 19,5   |
| 7x1,5*                                       | 0,26                                   | 0,7                             | 1,2                         | 11,1                         | 199                              | 13,3   |
| 7x4*   | 0,31                                   | 0,8                             | 1,3                         | 14,8                         | 409                              | 4,95   |
| 8x1,5*                                       | 0,26                                   | 0,7                             | 1,2                         | 11,8                         | 222                              | 13,3   |
| 10x1*  | 0,21                                   | 0,6                             | 1,2                         | 12,0                         | 203                              | 19,5   |
| 10x1,5*                                      | 0,26                                   | 0,7                             | 1,3                         | 14,2                         | 287                              | 13,3   |
| 12x1,5*                                      | 0,26                                   | 0,7                             | 1,3                         | 14,7                         | 325                              | 13,3   |
| 15x1,5*                                      | 0,26                                   | 0,7                             | 1,3                         | 16,2                         | 402                              | 13,3   |
| 16x1*  | 0,21                                   | 0,6                             | 1,3                         | 13,8                         | 297                              | 19,5   |
| 16x1,5*                                      | 0,26                                   | 0,7                             | 1,3                         | 16,2                         | 415                              | 13,3   |
| 19x1*  | 0,21                                   | 0,6                             | 1,3                         | 14,6                         | 337                              | 19,5   |
| 19x1,5*                                      | 0,26                                   | 0,7                             | 1,3                         | 17,1                         | 473                              | 13,3   |
| 24x1*  | 0,21                                   | 0,6                             | 1,3                         | 16,9                         | 423                              | 19,5   |
| 24x1,5*                                      | 0,26                                   | 0,7                             | 1,5                         | 20,4                         | 611                              | 13,3   |
| <b>H05VVH2-F, 05VVH2-F*</b>                  |  |                                 |                             |                              |                                  |  |
| 2x0,75                                       | 0,21                                   | 0,6                             | 0,8                         | 3,9 x 6,2                    | 39                               | 26,0   |

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                              | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 2x1  | 0,21                                   | 0,6                             | 0,8                         | 4,0 x 6,4                    | 44                               | 19,5   |
| 2x1,5*                                       | 0,26                                   | 0,8                             | 0,8                         | 4,7 x 7,8                    | 63                               | 13,3   |
| 2x2,5*                                       | 0,26                                   | 0,8                             | 1,0                         | 5,6 x 8,8                    | 90                               | 7,98   |

\*based on norm

## Current rating

| Cross-section         | Current ratings |             |
|-----------------------|-----------------|-------------|
|                       | Single phase    | Three phase |
| <b>mm<sup>2</sup></b> | <b>A</b>        | <b>A</b>    |
| 0,5                   | 3               | 3           |
| 0,75                  | 6               | 6           |
| 1                     | 10              | 10          |
| 1,5                   | 16              | 16          |
| 2,5                   | 25              | 20          |
| 4                     | 32              | 25          |

These values apply to the majority of cases. Further information should be sought in unusual cases eg.:

- when high ambient temperatures are involved, ie. above 30°C
- where long lengths are used
- where ventilation is restricted

where the cords are used for other purposes, eg. internal wiring of apparatus.

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MAX +90°C

MIN -5°C



# 309-Y, H05V2V2-F, 05V2V2-F\*

## 300/500V

BS EN 50525-2-11

Heat resistant PVC insulated and sheathed flexible cords

## APPLICATIONS

In domestic premises, kitchens, offices; in high ambient temperatures for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing

500 or 1000 m on drums.  
Other forms of packing and delivery are available on request.

## CONSTRUCTION

Conductors:

Annealed copper, class 5 flexible conductor acc. to EN 60228

Insulation:

Heat resistant PVC 90°C type T13

Sheath:

Heat resistant PVC 90°C type TM3



## CHARACTERISTICS

Colour of sheath:

white, black-UV resistant, grey

Core identification:

2-core: blue, brown  
3-core: green-yellow, blue, brown  
4-core: green-yellow, brown, black, grey  
5-core\*: green-yellow, blue, brown, black, grey  
6 and more: green-yellow, + black with white numbering

Maximum conductor operating temperature:

+90°C

Lowest ambient temperature for fixed installation:

-30°C

Lowest installation temperature:

-5°C

Maximum short-circuit conductor temperature:

+150°C

Minimum bending radius:

6 × D, D – overall diameter

Max. permissible tensile stress with cable grip  
for Cu-conductor:

50 N/mm<sup>2</sup>

Test voltage:

2000V

# Fire performance

Flame retardant:

EN 60332-1-2

## Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| <b>H05V2V2-F, 05V2V2-F*</b>                  |                              |                                  |  |
| 2x0,5*                                       | 5,8                          | 44                               | 39   |
| 2x0,75                                       | 6,2                          | 52                               | 26   |
| 2x1  | 6,4                          | 58                               | 19,5   |
| 2x1,5  | 7,4                          | 80                               | 13,3   |
| 2x2,5  | 9,2                          | 124                              | 7,98   |
| 2x4  | 10,3                         | 168                              | 4,95   |
| 3x0,5*                                       | 6,1                          | 51                               | 39   |
| 3x0,75                                       | 6,6                          | 62                               | 26   |
| 3x1  | 6,8                          | 70                               | 19,5   |
| 3x1,5  | 8,1                          | 100                              | 13,3   |
| 3x2,5  | 9,9                          | 155                              | 7,98   |
| 3x4  | 11,1                         | 212                              | 4,95   |
| 4x0,5*                                       | 6,7                          | 61                               | 39   |
| 4x0,75                                       | 7,2                          | 74                               | 26   |
| 4x1  | 7,6                          | 88                               | 19,5   |
| 4x1,5  | 9,0                          | 125                              | 13,3   |
| 4x2,5  | 10,8                         | 189                              | 7,98   |
| 4x4  | 12,2                         | 260                              | 4,95   |
| 4x6*   | 13,8                         | 355                              | 3,3  |
| 5x0,5*                                       | 7,3                          | 74                               | 39   |
| 5x0,75                                       | 8,0                          | 94                               | 26   |
| 5x1  | 8,3                          | 108                              | 19,5   |
| 5x1,5  | 10,0                         | 158                              | 13,3   |



| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 5x2,5  | 12,1                         | 237                              | 7,98   |
| 5x4  | 13,7                         | 332                              | 4,95   |
| 5x6*   | 15,1                         | 438                              | 3,3  |
| 6x0,5*                                       | 8,3                          | 94                               | 39   |
| 6x0,75*                                      | 8,9                          | 115                              | 26   |
| 7x1*   | 9,2                          | 138                              | 19,5   |
| <b>H05V2V2H2-F</b>                           |                              |                                  |  |
| 2x0,75                                       | 3,9 x 6,2                    | 39                               | 26,0   |
| 2x1  | 4,0 x 6,4                    | 45                               | 19,5   |

\*based on norm

## Current rating

| Cross-section         | Current ratings |             |
|-----------------------|-----------------|-------------|
|                       | Single phase    | Three phase |
| <b>mm<sup>2</sup></b> | <b>A</b>        | <b>A</b>    |
| 0,5                   | 3               | 3           |
| 0,75                  | 6               | 6           |
| 1                     | 10              | 10          |
| 1,5                   | 16              | 16          |
| 2,5                   | 25              | 20          |
| 4                     | 32              | 25          |

These values apply to the majority of cases. Further information should be sought in unusual cases eg.:

- when high ambient temperatures are involved, ie. above 30°C
- where long lengths are used
- where ventilation is restricted

where the cords are used for other purposes, eg. internal wiring of apparatus.

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MIN -25°C



RoHS

# 318(\*)A

## 300/500V

BS 6004:2012

PVC insulated and sheathed flexible cords, low temperature arctic grade

### APPLICATIONS

The cables are suitable for use on ELV systems (110 V centre tapped) on building sites in the UK; use with temporary traffic light systems when suitably protected; indoor use at low voltage (230 V). The cables are not suitable for outdoor use at voltages greater than 110 V ELV. Yellow sheath for ELV and site services, etc. Blue sheath for temporary traffic lights, etc.

Standard length cable packing

500 or 1000 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

Conductors:

Annealed copper, class 5 flexible conductor acc. to EN 60228

Insulation:

Special PVC compound

Sheath:

Special PVC compound resistant to low temperature



### CHARACTERISTICS

|   |  |
|---|--|
| Core identification:                                      | 2-core: blue, brown<br>3-core: green-yellow, blue, brown<br>4-core: green-yellow, brown, black, grey<br>or green-yellow, blue, brown, black<br>5-core*: green-yellow, blue, brown, black, grey |
| Colour of sheath:   | yellow or blue   |
| Maximum continuous conductor operating:                   | +60°C  |
| Maximum conductor short circuit (max. allowable time 5s): | +160°C   |
| Maximum cable surface:                                    | +50°C  |
| Maximum storage:  | +40°C  |
| Minimum installation and handling:                        | -25°C  |
| Minimum bending radius:                                   | 7.5 × D, D – overall diameter  |
| Test voltage (50Hz):                                      | 2000V  |

# Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                              | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 2 x 0.5                                      | 0.21                                   | 0.6                             | 0.8                         | 5.8                          | 43                               | 39   |
| 2 x 0.75                                     | 0.21                                   | 0.6                             | 0.8                         | 6.2                          | 52                               | 26   |
| 2 x 1  | 0.21                                   | 0.6                             | 0.8                         | 6.4                          | 58                               | 19.5   |
| 2 x 1.5                                      | 0.26                                   | 0.7                             | 0.8                         | 7.4                          | 79                               | 13.3   |
| 2 x 2.5                                      | 0.26                                   | 0.8                             | 1                           | 9.2                          | 123                              | 7.98   |
| 2 x 4  | 0.31                                   | 0.8                             | 1.1                         | 10.3                         | 166                              | 4.95   |
| 3 x 0.75                                     | 0.21                                   | 0.6                             | 0.8                         | 6.6                          | 61                               | 26   |
| 3 x 1  | 0.21                                   | 0.6                             | 0.8                         | 6.8                          | 69                               | 19.5   |
| 3 x 1.5                                      | 0.26                                   | 0.7                             | 0.9                         | 8.1                          | 99                               | 13.3   |
| 3 x 2.5                                      | 0.26                                   | 0.8                             | 1.1                         | 9.9                          | 154                              | 7.98   |
| 3 x 4  | 0.31                                   | 0.8                             | 1.2                         | 11.1                         | 210                              | 4.95   |
| 3 x 6*                                       | 0.31                                   | 0.8                             | 1.2                         | 12.4                         | 280                              | 3.3  |
| 4 x 0.75                                     | 0.21                                   | 0.6                             | 0.8                         | 7.2                          | 74                               | 26   |
| 4 x 1  | 0.21                                   | 0.6                             | 0.9                         | 7.6                          | 88                               | 19.5   |
| 4 x 1.5                                      | 0.26                                   | 0.7                             | 1                           | 9                            | 124                              | 13.3   |
| 4 x 2.5                                      | 0.26                                   | 0.8                             | 1.1                         | 10.8                         | 188                              | 7.98   |
| 4 x 4  | 0.31                                   | 0.8                             | 1.2                         | 12.2                         | 259                              | 4.95   |
| 5 x 0.75                                     | 0.21                                   | 0.6                             | 0.9                         | 8                            | 93                               | 26   |
| 5 x 1  | 0.21                                   | 0.6                             | 0.9                         | 8.3                          | 107                              | 19.5   |
| 5 x 1.5                                      | 0.26                                   | 0.7                             | 1.1                         | 10                           | 156                              | 13.3   |
| 5 x 2.5                                      | 0.26                                   | 0.8                             | 1.2                         | 12.1                         | 236                              | 7.98   |
| 5 x 4  | 0.31                                   | 0.8                             | 1.4                         | 13.7                         | 330                              | 4.95   |
| 4 x 0.75                                     | 0.21                                   | 0.6                             | 0.8                         | 7.2                          | 74                               | 26   |
| 4 x 1  | 0.21                                   | 0.6                             | 0.9                         | 7.6                          | 88                               | 19.5   |
| 4 x 1.5                                      | 0.26                                   | 0.7                             | 1                           | 9                            | 124                              | 13.3   |
| 4 x 2.5                                      | 0.26                                   | 0.8                             | 1.1                         | 10.8                         | 188                              | 7.98   |
| 4 x 4  | 0.31                                   | 0.8                             | 1.2                         | 12.2                         | 259                              | 4.95   |

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>mm</b>                              | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 5 × 0.75                                     | 0.21                                   | 0.6                             | 0.9                         | 8                            | 93                               | 26   |
| 5 × 1  | 0.21                                   | 0.6                             | 0.9                         | 8.3                          | 107                              | 19.5   |
| 5 × 1.5                                      | 0.26                                   | 0.7                             | 1.1                         | 10                           | 156                              | 13.3   |
| 5 × 2.5                                      | 0.26                                   | 0.8                             | 1.2                         | 12.1                         | 236                              | 7.98   |
| 5 × 4  | 0.31                                   | 0.8                             | 1.4                         | 13.7                         | 330                              | 4.95   |

\*based on norm

## Current rating

| Cross-section         | Current ratings |             |
|-----------------------|-----------------|-------------|
|                       | Single phase    | Three phase |
| <b>mm<sup>2</sup></b> | <b>A</b>        | <b>A</b>    |
| 0,75                  | 6               | 6           |
| 1                     | 10              | 10          |
| 1,5                   | 16              | 16          |
| 2,5                   | 25              | 20          |
| 4                     | 32              | 25          |

For ambient temperature 30°C

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# 318-B, H05Z1Z1-F, 05Z1Z1-F 300/500V

EN 50525-3-11

Halogen-free thermoplastic insulated and sheathed flexible cords

## APPLICATIONS

In domestic premises, kitchens, offices; for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing

500 or 1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|             |   |
|-------------|---|
| Conductors: | annealed copper, class 5 flexible conductor acc. to EN 60228    |
| Insulation: | thermoplastic halogen-free compound type TI6 acc. to EN 50363-7 |
| Sheath:     | thermoplastic halogen-free compound type TM7 acc. to EN 50363-8 |



## CHARACTERISTICS

|  |                                      |   |
|--|--------------------------------------|---|
| Colour of sheath:                                  | white, black, grey                   |   |
| Core identification:                               | acc. to HD 308 S2                    |   |
|  | without a green-yellow core          | with a green-yellow core                        |
| 2-core:  | blue, brown                          | –   |
| 3-core:  | brown, black, grey                   | green-yellow, blue, brown                       |
| 4-core:  | blue, brown, black, grey             | green-yellow, brown, black, grey                |
| 5-core:  | blue, brown, black, grey, black      | green-yellow, blue, brown, black, grey          |
| 7 cores:   | all cores black with white numbering | green-yellow + cores black with white numbering |
| Maximum operating temperature:                     | +70°C                                |   |
| Lowest ambient temperature for fixed installation: | -40°C                                |   |

|  |  |
|--|--|
| Lowest installation temperature:             | -5°C   |
| Maximum short-circuit conductor temperature: | +150°C   |
| Minimum bending radius:                      | 7,5 x D, D – overall diameter                  |
| Test voltage:                                | 2000V  |
| Flame retardant:                             | EN 60332-1-2                                   |
| Smoke emission:                              | EN 61034-2                                     |
| Gases evolved during combustion:             | EN 50267-2-2 pH ≥ 4,3; conductivity ≤ 10 µS/mm |

## Technical and Electrical Characteristic

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                              | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 2x0,75                                       | 0,21                                   | 0,6                             | 0,8                         | 6,2                          | 54                               | 26,0   |
| 2x1  | 0,21                                   | 0,6                             | 0,8                         | 6,4                          | 60                               | 19,5   |
| 2x1,5  | 0,26                                   | 0,7                             | 0,8                         | 7,4                          | 82                               | 13,3   |
| 2x2,5  | 0,26                                   | 0,8                             | 1,0                         | 9,2                          | 128                              | 7,98   |
| 2x4  | 0,31                                   | 0,8                             | 1,1                         | 10,3                         | 173                              | 4,95   |
| 3x0,75                                       | 0,21                                   | 0,6                             | 0,8                         | 6,6                          | 64                               | 26,0   |
| 3x1  | 0,21                                   | 0,6                             | 0,8                         | 6,7                          | 72                               | 19,5   |
| 3x1,5  | 0,26                                   | 0,7                             | 0,9                         | 8,0                          | 103                              | 13,3   |
| 3x2,5  | 0,26                                   | 0,8                             | 1,1                         | 9,9                          | 160                              | 7,98   |
| 3x4  | 0,31                                   | 0,8                             | 1,2                         | 11,1                         | 217                              | 4,95   |
| 3x6*   | 0,31                                   | 0,8                             | 1,2                         | 12,4                         | 286                              | 3,3  |
| 4x0,75                                       | 0,21                                   | 0,6                             | 0,8                         | 7,2                          | 77                               | 26,0   |
| 4x1  | 0,21                                   | 0,6                             | 0,9                         | 7,6                          | 91                               | 19,5   |
| 4x1,5  | 0,26                                   | 0,7                             | 1,0                         | 9,0                          | 129                              | 13,3   |
| 4x2,5  | 0,26                                   | 0,8                             | 1,1                         | 10,8                         | 195                              | 7,98   |
| 4x4  | 0,31                                   | 0,8                             | 1,2                         | 12,2                         | 267                              | 4,95   |
| 4x6*   | 0,31                                   | 0,8                             | 1,3                         | 13,8                         | 365                              | 3,3  |

| Number and cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                              | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 5x0,75                                       | 0,21                                   | 0,6                             | 0,9                         | 8,0                          | 97                               | 26,0   |
| 5x1  | 0,21                                   | 0,6                             | 0,9                         | 8,3                          | 111                              | 19,5   |
| 5x1,5  | 0,26                                   | 0,7                             | 1,1                         | 10,0                         | 162                              | 13,3   |
| 5x2,5  | 0,26                                   | 0,8                             | 1,2                         | 12,1                         | 244                              | 7,98   |
| 5x4  | 0,31                                   | 0,8                             | 1,4                         | 13,1                         | 340                              | 4,95   |
| 6x0,75*                                      | 0,21                                   | 0,6                             | 1,0                         | 8,9                          | 120                              | 26,0   |
| 6x1*   | 0,21                                   | 0,6                             | 1,0                         | 9,2                          | 137                              | 19,5   |
| 6x1,5*                                       | 0,26                                   | 0,7                             | 1,0                         | 10,7                         | 189                              | 13,3   |
| 7x0,75*                                      | 0,21                                   | 0,6                             | 1,0                         | 8,9                          | 125                              | 26,0   |
| 7x1*   | 0,21                                   | 0,6                             | 1,0                         | 9,2                          | 143                              | 19,5   |
| 7x1,5*                                       | 0,26                                   | 0,7                             | 1,2                         | 11,1                         | 209                              | 13,3   |

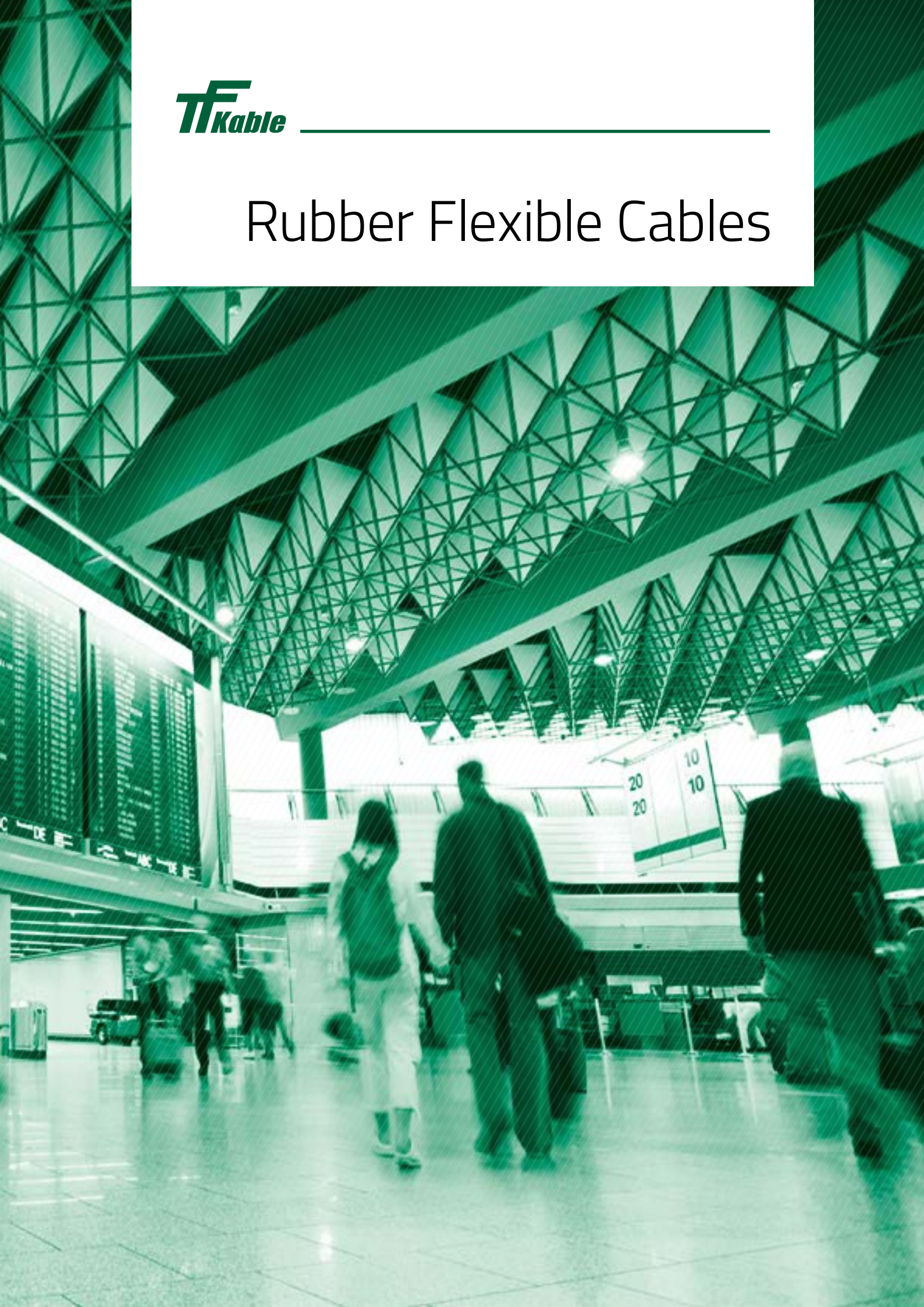
\*based on norm

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**TF***Kable*

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# Rubber Flexible Cables







# 318\*TQ, H05BN4-F

EN 50525-2-21

Flexible rubber insulated and sheathed cables

## APPLICATIONS

For general use in hot situations and heating appliances in domestic premises, kitchens, offices. For general use in domestic premises, kitchens, offices and for supplying appliances where the cables are subjected to low mechanical stresses (eg. vacuum cleaners, cooking appliances, soldering irons, toasters). Other industrial applications

Standard length cable packing

1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|                        |   |
|------------------------|---|
| Conductors             | Annealed flexible stranded tin coated or bare copper class 5 to EN 60228. |
| Separator              | If needed a suitable tape separator between the conductor and insulation. |
| Insulation             | Ethylene-propylene rubber (EPR) type EI7 in acc. to EN 50363-1.           |
| Circuit identification | Colour coding of power conductors comply to HD 308 , DIN VDE 0293- 308    |
| Twin                   | Blue and brown  |
| 3-core                 | Green-yellow, blue, brown   |
| 4-core                 | Green-yellow, brown, black, grey  |
| 5-core                 | Green-yellow, blue, brown black, grey                                     |
| Above 5-core           | Green-yellow, other cores black with white numbering                      |
| Outer jacket           | A synthetic thermosetting compound type EM7 in acc. to EN 50363-2-1.      |
| Colour of outer jacket | Black or colours can be provided  |



## Features

- Excellent flexibility
- Flame retardant
- Temperature range -40 °C to +90 °C
- UV, sunlight , oil resistant
- Ink jet printed for easy identification
- Other industrial applications

# Approvals

BBJ HAR

| Size  | Maximum diameter of wire | Nominal thickness of insulation | Nominal thickness of jacket | Approx. O.D. of cable | Approx. weight of cable | Maximum resistivity of conductor 20°C |
|---|--------------------------|---------------------------------|-----------------------------|-----------------------|-------------------------|---------------------------------------|
| <b>n x mm<sup>2</sup></b>   | <b>mm</b>                | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>             | <b>kg/km</b>            | <b>Ω/km</b>                           |
| 2 x 0,75  | 0,21                     | 0,6                             | 0,8                         | 6,2                   | 57                      | 26,7                                  |
| 2 x 1   | 0,21                     | 0,6                             | 0,9                         | 6,6                   | 61                      | 20,0                                  |
| 3 x 0,75  | 0,21                     | 0,6                             | 0,9                         | 6,8                   | 65                      | 26,7                                  |
| 3 x 1   | 0,21                     | 0,6                             | 0,9                         | 7,0                   | 74                      | 20,0                                  |
| <b>Based on EN 50525-2-21, BS6500 without certification as 05BN4-F, 318TQ</b> |                          |                                 |                             |                       |                         |                                       |
| 2x1,5   | 0,26                     | 0,8                             | 1,0                         | 8,2                   | 94                      | 13,7                                  |
| 2x2,5   | 0,26                     | 0,9                             | 1,1                         | 9,8                   | 136                     | 8,21                                  |
| 3x1,5   | 0,26                     | 0,8                             | 1,0                         | 8,7                   | 111                     | 13,7                                  |
| 3x2,5   | 0,26                     | 0,9                             | 1,1                         | 10,3                  | 166                     | 8,21                                  |
| 4x0,75  | 0,21                     | 0,6                             | 0,9                         | 7,4                   | 77                      | 26,7                                  |
| 4x1   | 0,21                     | 0,6                             | 0,9                         | 7,6                   | 89                      | 20,0                                  |
| 4x1,5   | 0,26                     | 0,8                             | 1,1                         | 9,7                   | 141                     | 13,7                                  |
| 4x2,5   | 0,26                     | 0,9                             | 1,2                         | 11,5                  | 209                     | 8,21                                  |
| 5x0,75  | 0,21                     | 0,6                             | 1,0                         | 8,2                   | 97                      | 26,7                                  |
| 5x1   | 0,21                     | 0,6                             | 1,0                         | 8,5                   | 111                     | 20,0                                  |
| 5x1,5   | 0,26                     | 0,8                             | 1,1                         | 10,6                  | 171                     | 13,7                                  |
| 5x2,5   | 0,26                     | 0,9                             | 1,3                         | 12,8                  | 259                     | 8,21                                  |
| 7 x 1,0   | 0,21                     | 0,6                             | 1,9                         | 11,9                  | 199                     | 20,0                                  |
| 7 x 1,5   | 0,26                     | 0,8                             | 2,6                         | 15,1                  | 324                     | 13,7                                  |
| 8 x 1,5   | 0,26                     | 0,8                             | 2,9                         | 17,2                  | 397                     | 13,7                                  |
| 8 x 2,5   | 0,26                     | 0,9                             | 3,1                         | 20,1                  | 557                     | 8,21                                  |
| 10 x 2,5  | 0,26                     | 0,9                             | 3,1                         | 21,5                  | 631                     | 8,21                                  |
| 12 x 1,0  | 0,21                     | 0,6                             | 2,6                         | 15,4                  | 331                     | 20,0                                  |
| 12 x 1,5  | 0,26                     | 0,8                             | 2,9                         | 18,9                  | 493                     | 13,7                                  |
| 12 x 2,5  | 0,26                     | 0,9                             | 3,1                         | 22,1                  | 684                     | 8,21                                  |
| 19 x 1,0  | 0,21                     | 0,6                             | 3,2                         | 19,3                  | 519                     | 20,0                                  |
| 19 x 1,5  | 0,26                     | 0,8                             | 3,4                         | 23,5                  | 758                     | 13,7                                  |



# 638\*P / H07RN-F

## 450/750V

EN 50525-2-21

Flexible rubber insulated and sheathed cables

### APPLICATIONS

Heavy-duty flexible cables for medium mechanical stress in dry and wet, suitable for large boiling installations, heating plates. Inspections lamps, electrical tools such as drills circular saws. Domestic electric tools, transportable motors etc. Other industrial applications. Cable may be rated at 600/1000V when installed with mechanical protection

Standard length cable packing

1000m on drums.

Other forms of packing and delivery are available on request

### CONSTRUCTION

|                        |   |   |
|------------------------|---|---|
| Conductors             | annealed copper stranded circular compacted conductor class 2(RM) acc. to BS EN 60228 |   |
| Separator              | If needed a suitable tape separator between the conductor and insulation              |   |
| Insulation             | Ethylene-propylene rubber (EPR) type EI4 in acc. to EN 50363-1                        |   |
| Circuit identification | Colour coding of power conductors comply to HD 308, DIN VDE 0293- 308                 |   |
|                        | Number of cores   |   |
|                        | G (earth core)  | x (without earth core)  |
|                        | 2   | Blue and brown  |
|                        | 3   | Brown, Black, Grey<br>Blue, Brown, Black <sup>a</sup>   |
|                        | 4   | Blue, Brown, Black, Grey<br>Green-yellow, brown, black, grey<br>Green-yellow, Blue, Brown, Black <sup>a</sup> |
|                        | 5   | Blue, Brown, Black, Grey, Black<br>Green-yellow, blue, brown, black, grey                                     |
|                        | >5  | Black with white numbering<br>Green-yellow, other cores black with white numbering                            |
|                        | a for certain applications only   |   |
| Internal jacket        | A synthetic thermosetting compound type EM3 in acc. to EN 50363-2-1                   |   |
| Outer jacket           | A synthetic thermosetting compound type EM2 in acc. to EN 50363-2-1                   |   |
| Colour of outer jacket | Black or colours can be provided  |   |
| Flame propagation      | EN 60332-1-2:2004, IEC 60332-1-2:2004   |   |



| Minimum bending radius:   | For cable diameter D (mm) |            |             |        |
|---|---------------------------|------------|-------------|--------|
|   | D < 8                     | 8 < D < 12 | 12 < D < 20 | D > 20 |
| For fixed installation:   | 3 D                       | 3 D        | 4 D         | 4 D    |
| At inlet of portable appliance or mobile equipment. No mechanical load on cable | 4 D                       | 4 D        | 5 D         | 6 D    |
| Under mechanical load   | 6 D                       | 6 D        | 6 D         | 8 D    |

## Features

- Maximum conductor operating temperature: +60°C
- Maximum conductor temperature during short circuit: +250°C
- Lowest ambient temperature for fixed installation: -40°C
- Lowest ambient temperature for mobile installation: -25°C
- UV, sunlight, oil resistant

## Approvals

BBJ HAR

| SIZE                | Number x maximum diameter of wire | Nominal thickness of insulation | Nominal thickness of jacket |                                   | Approx. O.D. of cable | Voltage drop | Approx. weight of cable | Maximum conductor resistance at 20°C |
|---------------------|-----------------------------------|---------------------------------|-----------------------------|-----------------------------------|-----------------------|--------------|-------------------------|--------------------------------------|
|                     |                                   |                                 | Single                      | Double layer<br>Internal    Outer |                       |              |                         |                                      |
| n x mm <sup>2</sup> | mm                                | mm                              | mm                          | mm                                | mm                    | V/A/km       | kg/km                   | Ω/km                                 |
| 1 x 1*              | 29x0,2                            | 0,8                             | 1,4                         | —                                 | 5,6                   | —            | 43                      | 20,0                                 |
| 1 x 1,5             | 28x0,26                           | 0,8                             | 1,4                         | —                                 | 5,9                   | 23,73        | 49                      | 13,7                                 |
| 1 x 2,5             | 45x0,26                           | 0,9                             | 1,4                         | —                                 | 6,6                   | 14,22        | 66                      | 8,21                                 |
| 1 x 4               | 51x0,31                           | 1,0                             | 1,5                         | —                                 | 7,3                   | 8,82         | 89                      | 5,09                                 |
| 1 x 6               | 76x0,31                           | 1,0                             | 1,6                         | —                                 | 7,9                   | 5,88         | 114                     | 3,39                                 |
| 1 x 10              | 74x0,41                           | 1,2                             | 1,8                         | —                                 | 9,8                   | 3,38         | 178                     | 1,95                                 |
| 1 x 16              | 116x0,41                          | 1,2                             | 1,9                         | —                                 | 11,5                  | 2,16         | 248                     | 1,24                                 |
| 1 x 25              | 180x0,41                          | 1,4                             | 2,0                         | —                                 | 12,9                  | 1,39         | 356                     | 0,795                                |
| 1 x 35              | 254x0,41                          | 1,4                             | 2,2                         | —                                 | 14,7                  | 0,99         | 471                     | 0,565                                |
| 1 x 50              | 364x0,41                          | 1,6                             | 2,4                         | —                                 | 16,8                  | 0,70         | 657                     | 0,393                                |
| 1 x 70              | 514x0,51                          | 1,6                             | 2,6                         | —                                 | 19,3                  | 0,51         | 881                     | 0,277                                |
| 1 x 95              | 684x0,51                          | 1,8                             | 2,8                         | —                                 | 21,9                  | 0,40         | 1156                    | 0,210                                |
| 1 x 120             | 870x0,51                          | 1,8                             | 3,0                         | —                                 | 23,7                  | 0,33         | 1411                    | 0,164                                |
| 1 x 150             | 1092x0,51                         | 2,0                             | 3,2                         | —                                 | 26,0                  | 0,28         | 1762                    | 0,132                                |
| 1 x 185             | 1325x0,51                         | 2,2                             | 3,4                         | —                                 | 29,1                  | 0,24         | 2145                    | 0,108                                |
| 1 x 240             | 1752x0,51                         | 2,4                             | 3,5                         | —                                 | 31,2                  | 0,20         | 2720                    | 0,0817                               |

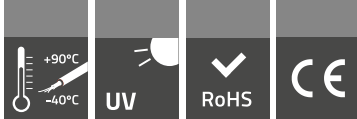
| SIZE                | Number x<br>maximum<br>diameter of<br>wire | Nominal<br>thickness<br>of<br>insulation | Nominal thickness of jacket |              |       | Approx.<br>O.D. of<br>cable | Voltage<br>drop | Approx.<br>weight of<br>cable | Maximum<br>conductor<br>resistance<br>at 20°C |
|---------------------|--|--|-----------------------------|--------------|-------|-----------------------------|-----------------|-------------------------------|---|
|                     |  |  | Single                      | Double layer |       |                             |                 |                               |   |
|                     |  |  |                             | Internal     | Outer |                             |                 |                               |   |
| n x mm <sup>2</sup> | mm   | mm                                       | mm                          | mm           | mm    | V/A/km                      | kg/km           | Ω/km                          |   |
| 1 x 300             | 2203x0,51                                  | 2,6                                      | 3,6                         | —            | —     | 35,7                        | 0,19            | 3321                          | 0,0654  |
| 1 x 400             | 2904x0,51                                  | 2,8                                      | 3,8                         | —            | —     | 38,4                        | 0,17            | 4196                          | 0,0495  |
| 1 x 500             | 3679x0,61                                  | 3,0                                      | 4,0                         | —            | —     | 43,5                        | 0,16            | 5431                          | 0,0391  |
| 1 x 630             | 4880x0,61                                  | 3,0                                      | 4,1                         | —            | —     | 48,4                        | 0,15            | 6878                          | 0,0292  |
| 2 x 4               | 51x0,31                                    | 1,0                                      | 1,8                         | —            | —     | 12,1                        | 10,18           | 227                           | 5,09  |
| 2 x 6               | 76x0,31                                    | 1,0                                      | 2,0                         | —            | —     | 13,7                        | 6,78            | 301                           | 3,39  |
| 2 x 10              | 74x0,41                                    | 1,2                                      | —                           | 1,2          | 1,9   | 18,9                        | 3,90            | 559                           | 1,95  |
| 2 x 16              | 116x0,41                                   | 1,2                                      | —                           | 1,3          | 2,0   | 21,6                        | 2,49            | 765                           | 1,24  |
| 2 x 25              | 180x0,41                                   | 1,4                                      | —                           | 1,4          | 2,2   | 25,3                        | 1,60            | 1092                          | 0,795   |
| 2 x 35              | 254x0,41                                   | 1,4                                      | —                           | 1,5          | 2,3   | 28,2                        | 0,99            | 1399                          | 0,565   |
| 2 x 50              | 364x0,41                                   | 1,6                                      | —                           | 1,7          | 2,5   | 32,4                        | 0,79            | 1890                          | 0,393   |
| 3 x 4               | 51x0,31                                    | 1,0                                      | 1,9                         | —            | —     | 13,0                        | 8,82            | 269                           | 5,09  |
| 3 x 4 + 2,5*        | 51x0,31                                    | 1,0                                      | 2,0                         | —            | —     | 14,9                        | —               | 332                           | 5,09  |
| 3 x 6               | 76x0,31                                    | 1,0                                      | 2,1                         | —            | —     | 15,0                        | 5,87            | 390                           | 3,39  |
| 3 x 6 + 4*          | 76x0,31                                    | 1,0                                      | 2,3                         | —            | —     | 16,9                        | —               | 448                           | 3,39  |
| 3 x 10              | 74x0,41                                    | 1,2                                      | —                           | 1,3          | 2,0   | 20,2                        | 3,38            | 684                           | 1,95  |
| 3 x 10 + 6*         | 74x0,41                                    | 1,2                                      | 3,4                         | —            | —     | 22,1                        | —               | 765                           | 1,95  |
| 3 x 16              | 116x0,41                                   | 1,2                                      | —                           | 1,4          | 2,1   | 23,1                        | 2,15            | 944                           | 1,24  |
| 3 x 16 + 10*        | 116x0,41                                   | 1,2                                      | —                           | 1,4          | 2,2   | 25,2                        | —               | 1064                          | 1,24  |
| 3 x 25              | 180x0,41                                   | 1,4                                      | —                           | 1,5          | 2,3   | 27,1                        | 1,38            | 1355                          | 0,795   |
| 3 x 25 + 16*        | 180x0,41                                   | 1,4                                      | —                           | 1,6          | 2,5   | 30,0                        | —               | 1566                          | 0,795   |
| 3 x 35              | 254x0,41                                   | 1,4                                      | —                           | 1,6          | 2,5   | 29,3                        | 0,99            | 1726                          | 0,565   |
| 3 x 35 + 16*        | 254x0,41                                   | 1,4                                      | —                           | 1,7          | 2,7   | 33,1                        | —               | 1986                          | 0,565   |
| 3 x 35 + 25*        | 254x0,41                                   | 1,4                                      | —                           | 1,7          | 2,7   | 33,1                        | —               | 2083                          | 0,565   |
| 3 x 50              | 364x0,41                                   | 1,6                                      | —                           | 1,8          | 2,7   | 35,2                        | 0,69            | 2452                          | 0,393   |
| 3 x 50 + 16*        | 364x0,41                                   | 1,6                                      | —                           | 1,9          | 2,9   | 39,0                        | —               | 2739                          | 0,393   |
| 3 x 50 + 25*        | 364x0,41                                   | 1,6                                      | —                           | 1,9          | 2,9   | 39,0                        | —               | 2799                          | 0,393   |
| 4 x 0,75*           | 22X0,21                                    | 0,8                                      | 1,5                         | —            | —     | 9,5                         | —               | 123                           | 26,7  |
| 4 x 4               | 51x0,31                                    | 1,0                                      | 2,0                         | —            | —     | 14,3                        | 8,82            | 340                           | 5,09  |
| 4 x 6               | 76x0,31                                    | 1,0                                      | 2,3                         | —            | —     | 16,3                        | 5,87            | 463                           | 3,39  |
| 4 x 10              | 74x0,41                                    | 1,2                                      | —                           | 1,4          | 2,0   | 22,1                        | 3,38            | 831                           | 1,95  |
| 4 x 16              | 116x0,41                                   | 1,2                                      | —                           | 1,4          | 2,2   | 25,3                        | 2,15            | 1166                          | 1,24  |
| 4 x 25              | 180x0,41                                   | 1,4                                      | —                           | 1,6          | 2,5   | 30,1                        | 1,38            | 1711                          | 0,795   |
| 4 x 35              | 254x0,41                                   | 1,4                                      | —                           | 1,7          | 2,7   | 32,5                        | 0,99            | 2190                          | 0,565   |
| 4 x 50              | 364x0,41                                   | 1,6                                      | —                           | 1,9          | 2,9   | 38,6                        | 0,69            | 2960                          | 0,393   |

| SIZE                      | Number x<br>maximum<br>diameter of<br>wire | Nominal<br>thickness<br>of<br>insulation | Nominal thickness of jacket |              |           | Approx.<br>O.D. of<br>cable | Voltage<br>drop | Approx.<br>weight of<br>cable | Maximum<br>conductor<br>resistance<br>at 20°C |
|---------------------------|--|--|-----------------------------|--------------|-----------|-----------------------------|-----------------|-------------------------------|---|
|                           |  |  | Single                      | Double layer |           |                             |                 |                               |   |
|                           |  |  |                             | Internal     | Outer     |                             |                 |                               |   |
| <b>n x mm<sup>2</sup></b> | <b>mm</b>                                  | <b>mm</b>                                | <b>mm</b>                   | <b>mm</b>    | <b>mm</b> | <b>V/A/km</b>               | <b>kg/km</b>    | <b>Ω/km</b>                   |   |
| 5 x 4                     | 51x0,31                                    | 1,0                                      | 2,2                         | —            | —         | 15,9                        | 8,82            | 426                           | 5,09  |
| 5 x 6                     | 76x0,31                                    | 1,0                                      | 2,5                         | —            | —         | 18,1                        | 5,87            | 579                           | 3,39  |
| 5 x 10                    | 74x0,41                                    | 1,2                                      | —                           | 1,4          | 2,2       | 24,3                        | 3,38            | 1024                          | 1,95  |
| 5 x 16                    | 116x0,41                                   | 1,2                                      | —                           | 1,5          | 2,4       | 28,7                        | 2,15            | 1440                          | 1,24  |
| 5 x 25                    | 180x0,41                                   | 1,4                                      | —                           | 1,7          | 2,7       | 33,3                        | 1,38            | 2006                          | 0,795   |
| 5 x 25 + 1,5*             | 180x0,41                                   | 1,4                                      | —                           | 1,7          | 2,7       | 33,4                        | —               | 2047                          | 0,795   |
| 5 x 35                    | 254x0,41                                   | 1,4                                      | —                           | 1,8          | 2,8       | 37,0                        | 0,99            | 2581                          | 0,565   |
| 5 x 50                    | 364x0,41                                   | 1,6                                      | —                           | 2,1          | 3,1       | 43,3                        | 0,69            | 3658                          | 0,393   |

\*Based on EN 50525-2-21 - as 07RN-F

\*\* Based on EN 50525-2-21 - as 07RN-F, special colour coding

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# 638\*TQ / H07BN4-F 450/750V

EN 50525-2-21

Heat resisting 90°C epr insulated and cpe sheathed flexible cable, 450/750V

## APPLICATIONS

For general use in hot situations and heating applications. Heavy-duty flexible cables for medium mechanical stress in dry and wet, suitable for large boiling installations, heating plates, inspection lamps, electrical tools such as drills, circular saws, domestic electric tools, transportable motors etc. Other industrial applications. Cable may be rated at 600/1000V when installed with mechanical protection.

Standard length cable packing

1000m on drums. Other forms of packing and delivery are available on request.

## CONSTRUCTION

|   |   |            |             |        |
|---|---|------------|-------------|--------|
| Conductors  | Annealed flexible stranded tin coated or bare copper class 5 to EN 60228, IEC 60228 |            |             |        |
| Separator   | If needed a suitable tape separator between the conductor and insulation            |            |             |        |
| Insulation  | Ethylene-propylene rubber (EPR) type EI7  |            |             |        |
| Circuit identification  | Colour coding of power conductors comply to HD 308                                  |            |             |        |
| Twin  | Blue and brown  |            |             |        |
| 3-core  | Green-yellow, blue, brown   |            |             |        |
| 4-core  | Green-yellow, brown, black, grey  |            |             |        |
| 5-core  | Green-yellow, blue, brown, black, grey  |            |             |        |
| Above 5-core  | Green-yellow, other cores black with white numbering                                |            |             |        |
| Outer jacket  | A synthetic thermosetting compound type EM7   |            |             |        |
| Colour of outer jacket  | Black or colours can be provided  |            |             |        |
| Flame propagation   | EN 60332-1-2:2004, IEC 60332-1-2:2004   |            |             |        |
| Minimum bending radius:   | For cable diameter D (mm)   |            |             |        |
|   | D < 8   | 8 < D < 12 | 12 < D < 20 | D > 20 |
| For fixed installation:   | 3 D   | 3 D        | 4 D         | 4 D    |
| At inlet of portable appliance or mobile equipment. No mechanical load on cable | 4 D   | 4 D        | 5 D         | 6 D    |
| Under mechanical load   | 6 D   | 6 D        | 6 D         | 8 D    |



# Features

- Maximum conductor operating temperature: +90°C
- Maximum conductor temperature during short circuit: +250°C
- Lowest ambient temperature for fixed installation: -40°C
- Lowest ambient temperature for mobile installation: -25°C
- UV, sunlight, oil resistant

| Number and cross-sectional area of conductor | Maximum diameter of wires | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight | Maximum resistance of conductor at 20°C |
|--|---------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                 | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>           | <b>Ω/km</b>                             |
| 1 x 1,5                                      | 0,26                      | 0,8                             | 1,4                         | 5,9                          | 50                     | 13,7                                    |
| 1 x 2,5                                      | 0,26                      | 0,9                             | 1,4                         | 6,6                          | 65                     | 8,21                                    |
| 1 x 4  | 0,31                      | 1,0                             | 1,5                         | 7,5                          | 89                     | 5,09                                    |
| 1 x 6  | 0,31                      | 1,0                             | 1,6                         | 8,4                          | 118                    | 3,39                                    |
| 1 x 10                                       | 0,41                      | 1,2                             | 1,8                         | 10,1                         | 179                    | 1,95                                    |
| 1 x 16                                       | 0,41                      | 1,2                             | 1,9                         | 11,5                         | 248                    | 1,24                                    |
| 1 x 25                                       | 0,41                      | 1,4                             | 2,0                         | 13,2                         | 354                    | 0,795                                   |
| 1 x 35                                       | 0,41                      | 1,4                             | 2,2                         | 14,7                         | 460                    | 0,565                                   |
| 1 x 50                                       | 0,41                      | 1,6                             | 2,4                         | 17,2                         | 640                    | 0,393                                   |
| 1 x 70                                       | 0,51                      | 1,6                             | 2,6                         | 19,3                         | 877                    | 0,277                                   |
| 1 x 95                                       | 0,51                      | 1,8                             | 2,8                         | 22,2                         | 1138                   | 0,210                                   |
| 1 x 120                                      | 0,51                      | 1,8                             | 3,0                         | 23,7                         | 1399                   | 0,164                                   |
| 1 x 150                                      | 0,51                      | 2,0                             | 3,2                         | 26,4                         | 1732                   | 0,132                                   |
| 1 x 185                                      | 0,51                      | 2,2                             | 3,4                         | 29,4                         | 2102                   | 0,108                                   |
| 1 x 240                                      | 0,51                      | 2,4                             | 3,5                         | 31,5                         | 2657                   | 0,0817                                  |
| 1 x 300                                      | 0,51                      | 2,6                             | 3,6                         | 35,7                         | 3296                   | 0,0654                                  |
| 1 x 400                                      | 0,51                      | 2,8                             | 3,8                         | 38,3                         | 4205                   | 0,0495                                  |
| 1 x 500                                      | 0,61                      | 3,0                             | 4,0                         | 43,8                         | 5285                   | 0,0391                                  |
| 1 x 630                                      | 0,61                      | 3,0                             | 4,1                         | 48,4                         | 6837                   | 0,0292                                  |
| 2 x 4  | 0,31                      | 1,0                             | 1,8                         | 13,0                         | 236                    | 5,09                                    |
| 2 x 6  | 0,31                      | 1,0                             | 2,0                         | 14,2                         | 292                    | 3,39                                    |
| 2 x 10                                       | 0,41                      | 1,2                             | 3,1                         | 19,3                         | 561                    | 1,95                                    |
| 2 x 16                                       | 0,41                      | 1,2                             | 3,3                         | 22,0                         | 719                    | 1,24                                    |
| 2 x 25                                       | 0,41                      | 1,4                             | 3,6                         | 25,7                         | 1026                   | 0,795                                   |
| 3 x 4  | 0,31                      | 1,0                             | 1,9                         | 13,9                         | 295                    | 5,09                                    |



| Number and cross-sectional area of conductor | Maximum diameter of wires | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight | Maximum resistance of conductor at 20°C |
|--|---------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                 | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>           | <b>Ω/km</b>                             |
| 3 x 6  | 0,31                      | 1,0                             | 2,1                         | 15,4                         | 359                    | 3,39                                    |
| 3 x 10                                       | 0,41                      | 1,2                             | 3,3                         | 20,7                         | 648                    | 1,95                                    |
| 3 x 16                                       | 0,41                      | 1,2                             | 3,5                         | 23,5                         | 908                    | 1,24                                    |
| 3 x 25                                       | 0,41                      | 1,4                             | 3,8                         | 27,5                         | 1302                   | 0,795                                   |
| 3 x 35                                       | 0,41                      | 1,4                             | 4,1                         | 29,7                         | 1633                   | 0,565                                   |
| 3 x 50                                       | 0,41                      | 1,6                             | 4,5                         | 35,7                         | 2310                   | 0,393                                   |
| 4 x 4  | 0,31                      | 1,0                             | 2,0                         | 14,9                         | 337                    | 5,09                                    |
| 4 x 6  | 0,31                      | 1,0                             | 2,3                         | 16,9                         | 456                    | 3,39                                    |
| 4 x 16                                       | 0,41                      | 1,2                             | 3,6                         | 25,7                         | 1119                   | 1,24                                    |
| 4 x 25                                       | 0,41                      | 1,4                             | 4,1                         | 30,5                         | 1642                   | 0,795                                   |
| 4 x 35                                       | 0,41                      | 1,4                             | 4,4                         | 32,9                         | 2092                   | 0,565                                   |
| 4 x 50                                       | 0,41                      | 1,6                             | 4,8                         | 39,5                         | 2965                   | 0,393                                   |

\*Based on EN 50525-2-21 - as 07BN4-F, special colour coding can be provided

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# 0361 TQ

Based on BS-EN 50525-2-81, BS638 Part 4

EPR/CPE insulated welding cables

## APPLICATIONS

Secondary voltage resistance welding leads. Leads for motors, generators, batteries.  
For use in underground and open mines. Other industrial applications.

Standard length cable packing

1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|                        |   |
|------------------------|---|
| Conductors             | Fully annealed flexible stranded tinned copper Class 6 or 5 (above 120 mm <sup>2</sup> ) per BS 6360. |
| Separator              | A suitable tape separator between the conductor and insulation.                                       |
| Internal layer         | Ethylene Propylene Rubber (EPR) Type EI7 to BS 7655.  |
| Outer jacket           | CPE compound exceed Type EM5 to BS 7655.  |
| Colour of outer jacket | Black or colours can be provided.   |



## Features

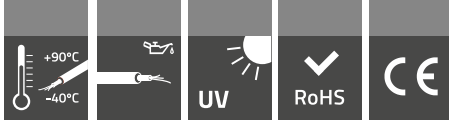
- Heat resistance.
- Excellent flexibility.
- Ozone, sun, weather resistant.
- Temperature range -40°C to +90 °C.
- Oil resistant, flame retardant.
- Ink jet printed for easy identification.

# Selection Data

| SIZE            | Conductor Stranding | Nominal Thickness EPR /CPE layer | Approx. weight | Approx. O.D. |
|-----------------|---------------------|----------------------------------|----------------|--------------|
| mm <sup>2</sup> | Nxmm                | mm                               | kg/km          | mm           |
| 6               | 179x0.2             | 0.7/1.3                          | 96             | 7.2          |
| 10              | 301x0.2             | 0.7/1.3                          | 137            | 8.1          |
| 16              | 462x0.2             | 0.7/1.3                          | 199            | 9.4          |
| 25              | 723x0.2             | 0.7/1.3                          | 276            | 10.2         |
| 35              | 1035x0.2            | 0.7/1.3                          | 380            | 11.6         |
| 50              | 1480x0.2            | 0.8/1.4                          | 519            | 13.2         |
| 70              | 2060x0.2            | 0.8/1.6                          | 722            | 15.3         |
| 95              | 2738x0.2            | 0.9/1.7                          | 942            | 17.5         |
| 120             | 1548x0.3            | 1.0/1.8                          | 1190           | 19.2         |
| 150             | 1092x0.4            | 1.0/2.0                          | 1489           | 21.9         |
| 185             | 1319x0.4            | 1.1/2.1                          | 1797           | 24.4         |
| 240             | 1752x0.4            | 1.2/2.2                          | 2330           | 26.5         |

| Conductor size  | Voltage Drop                                |           |           | Current rating for single cycle operation over max period of 5 min |          |          |
|-----------------|---|-----------|-----------|--|----------|----------|
|                 | Voltage Drop per 100 A per 10 m of cable at |           |           |  |          |          |
| mm <sup>2</sup> | 20°C<br>V                                   | 60°C<br>V | 85°C<br>V | 100%<br>A  | 60%<br>A | 35%<br>A |
| 10              | 1,95  | 2,26      | 2,45      | 100  | 108      | 122      |
| 16              | 1,24  | 1,43      | 1,56      | 135  | 175      | 230      |
| 25              | 0,795                                       | 0,92      | 0,998     | 180  | 230      | 300      |
| 35              | 0,565                                       | 0,654     | 0,709     | 225  | 290      | 370      |
| 50              | 0,393                                       | 0,455     | 0,493     | 285  | 365      | 480      |
| 70              | 0,277                                       | 0,321     | 0,348     | 355  | 460      | 600      |
| 95              | 0,21  | 0,243     | 0,264     | 430  | 560      | 730      |
| 120             | 0,164                                       | 0,19      | 0,206     | 500  | 650      | 850      |
| 150             | 0,132                                       | 0,153     | 0,166     | 580  | 750      | 980      |
| 185             | 0,108                                       | 0,125     | 0,136     | 665  | 860      | 1120     |
| 240             | -   | -         | -         | 780  | 975      | 1250     |

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# H01N2-D, H01N2-E

## 100/100V

EN 50525-2-81

CPE insulated welding cables

## APPLICATIONS

Designed for welding equipment and accessories. Suitable for use in dry and damp conditions, outdoors and indoors. Retain their high flexibility even under influence of ozone, light, oxygen, protective gases, oil and petrol; resistant to flame propagation. Other industrial applications.

Standard length cable packing

1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|                      |  |
|----------------------|--|
| Conductor            | Bare or tinned copper stranded conductors                  |
| Separator            | Paper or polyester separator longitudinally over conductor |
| Insulation           | Flame retardant oil resistant thermosetting compound       |
| Colour of insulation | Black or colours can be provided                           |
| Flame propagation    | IEC 60332-1-2:2004, EN 60332-1-2:2004                      |



## Features

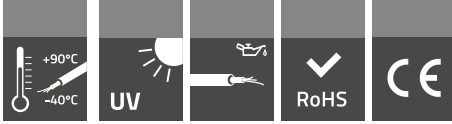
- Excellent flexibility
- Flame retardant
- Temperature range: -25°C to +85°C. For fixed installation lowest temperature is -40°C
- Maximum short-circuit conductor temperature: +250°C
- Pulling strength: the maximum static pulling strength may not exceed 15 N/mm<sup>2</sup>
- Minimum bending radius: 6 x D; D – overall diameter of cable
- UV, sunlight, oil resistant
- Ink jet printed for easy identification

## Approvals

BBJ HAR

| Nominal cross-sectional area of conductor | Maximum diameter of wires in conductor | Nominal thickness of insulation | Approximate overall diameter | Approximate weight | Maximum Conductor Resistance at 20°C (untinned wires) |
|---|--|---------------------------------|------------------------------|--------------------|---|
| mm <sup>2</sup>                           | mm                                     | mm                              | mm                           | kg/km              | Ohm/km  |
| <b>H01N2-D</b>                            |  |                                 |                              |                    |   |
| 10  | 0,21                                   | 2,0                             | 8,0                          | 141                | 1,91  |
| 16  | 0,21                                   | 2,0                             | 8,9                          | 197                | 1,21  |
| 25  | 0,21                                   | 2,0                             | 10,1                         | 281                | 0,780   |
| 35  | 0,21                                   | 2,0                             | 11,4                         | 379                | 0,554   |
| 50  | 0,21                                   | 2,2                             | 13,5                         | 524                | 0,386   |
| 70  | 0,21                                   | 2,4                             | 15,3                         | 735                | 0,272   |
| 95  | 0,21                                   | 2,6                             | 17,5                         | 955                | 0,206   |
| 120                                       | 0,51                                   | 2,8                             | 19,7                         | 1213               | 0,161   |
| 150                                       | 0,51                                   | 3,0                             | 21,8                         | 1500               | 0,129   |
| 185                                       | 0,51                                   | 3,2                             | 24,3                         | 1821               | 0,106   |
| 240                                       | 0,51                                   | 3,4                             | 26,5                         | 2330               | 0,0801  |
| <b>H01N2-E</b>                            |  |                                 |                              |                    |   |
| 10  | 0,16                                   | 1,2                             | 6,7                          | 116                | 1,91  |
| 16  | 0,16                                   | 1,2                             | 7,7                          | 167                | 1,21  |
| 25  | 0,16                                   | 1,2                             | 8,9                          | 246                | 0,780   |
| 35  | 0,16                                   | 1,2                             | 10,3                         | 338                | 0,554   |
| 50  | 0,16                                   | 1,5                             | 12,4                         | 487                | 0,386   |
| 70  | 0,16                                   | 1,5                             | 14,1                         | 671                | 0,272   |
| 95  | 0,16                                   | 1,8                             | 16,7                         | 895                | 0,206   |
| 120                                       | 0,21                                   | 1,8                             | 18,2                         | 1122               | 0,161   |
| 150                                       | 0,21                                   | 1,8                             | 20,0                         | 1381               | 0,129   |
| 185                                       | 0,21                                   | 1,8                             | 21,5                         | 1720               | 0,106   |
| 240                                       | 0,21                                   | 2,0                             | 24,6                         | 2272               | 0,0801  |

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# COIL LEAD TYPE 4C

BS 6195:2006

Single Conductor Rubber Insulated Flexible Cables

## APPLICATIONS

Highly flexible heat resisting single core cable, suitable applications include temporary and permanent wiring, connections to electrical equipment terminations, panel wiring, motors, generators and transformers

Standard length cable packing

500 m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|                           |  |
|---------------------------|--|
| Conductors                | Annealed tinned copper conductor class 5 acc. to BS EN 60228 |
| Separator                 | If needed a suitable tape separator under insulation         |
| Internal insulation layer | EPR thermosetting compound type 4                            |
| Outer insulation layer    | Based on chlorinated polyethylene thermosetting compound     |
| Colour of outer sheath    | Black  |



## Features

- Excellent flexibility
- Ozone, sun, weather resistant
- Temperature range : For flexible -25 up to 90 0C , for installation -40 up to 90 0 C
- Minimum bending radius: 6 x D ; D – overall diameter of cable
- Oil resistant, flame retardant
- Voltage category : 0,6/1 kV
- Voltage Test :6 kV, Table H.2 of BS 6195:2006

| Number and cross-sectional area of conductor | Radial thickness of insulation Voltage Category C | Maximum overall diameter | Approx. Weight | Current Rating Single Cable In free air* |
|--|---|--------------------------|----------------|--|
| mm <sup>2</sup>                              | mm  | mm                       | kg/km          | A  |
| 1x1,5  | 1.4   | 5.2                      | 30             | 30                                       |
| 1x2,5  | 1.4   | 5.6                      | 41             | 40                                       |
| 1x4  | 1.4   | 6.3                      | 57             | 54                                       |
| 1x6  | 1.5   | 7.5                      | 80             | 72                                       |
| 1x10   | 1.5   | 8.5                      | 120            | 100                                      |
| 1x16   | 1.5   | 9.6                      | 178            | 135                                      |
| 1x25   | 1.6   | 11.4                     | 260            | 179                                      |
| 1x35   | 1.6   | 12.8                     | 350            | 225                                      |
| 1x50   | 1.7   | 14.8                     | 498            | 283                                      |
| 1x70   | 1.8   | 17.2                     | 687            | 354                                      |
| 1x95   | 2.0   | 19.7                     | 906            | 425                                      |
| 1x120  | 2.2   | 21.9                     | 1148           | 501                                      |
| 1x150  | 2.3   | 24.1                     | 1420           | 578                                      |
| 1x185  | 2.4   | 26.3                     | 1721           | 659                                      |
| 1x240  | 2.4   | 28.3                     | 2225           | 795                                      |
| 1x300  | 2.6   | 33.0                     | 2800           | 923                                      |
| 1x400  | 2.8   | 37.4                     | 3662           | 1120                                     |

\* Ambient temperature: 30°C

## Conductor operating temperature: 90°C

Based on standard

| Number and cross-sectional area of conductor | Radial thickness of insulation Voltage Category C | Nominal / Maximum overall diameter | Approx. Weight |
|--|---|------------------------------------|----------------|
| mm <sup>2</sup>                              | mm  | mm                                 | kg/km          |
| 1x500  | 3.2   | 36.2 / 37.0*                       | 4590           |
| 1x630  | 3.8   | 41.8 / 44.0 *                      | 6152           |
| 1x800  | 4.4   | 47.6 / 48.6                        | 8155           |

\*) special requirements

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**TF***Kable*

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# Armoured Power Cables







# XLPE/PVC/SWA/PVC

## 600/1000V

BS5467

XLPE insulated, PVC sheathed, round wire armoured cables

### APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.

Standard length cable packing

500 or 1000 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|                    |  |
|--------------------|--|
| <b>Conductors:</b> | Annealed copper solid class 1(RE), circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to BS EN 60228                                       |
| <b>Insulation:</b> | Cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3  |
| <b>Bedding:</b>    | PVC compound   |
| <b>Armour:</b>     | For single-core cables - single layer of aluminium wires applied spirally over the bedding (AWA) for two or more cores cables – single layer of galvanized steel wires applied spirally over the bedding (SWA) |
| <b>Sheath:</b>     | Black PVC compound Type 9 acc. to BS 7655-4.2  |



### CHARACTERISTICS

|  |  |
|--|--|
| <b>Colour of sheath:</b>   | black                                  |
| <b>Core identification:</b><br><i>Other colors available at customer request</i> |  |
| 2-core:  | brown, blue                            |
| 3-core:  | brown, black, grey                     |
| 4-core:  | blue, brown, black, grey               |
| 5-core:  | green-yellow, blue, brown, black, grey |
| auxiliary cables:  | white with black numbering             |

|  |   |
|--|---|
| Maximum conductor operating temperature:           | +90°C   |
| Lowest ambient temperature for fixed installation: | -30°C   |
| Lowest installation temperature:                   | 0°C   |
| Maximum short-circuit conductor temperature:       | +250°C  |
| Minimum bending radius:                            | 6 x D for cables with circular copper conductors and 8 x D for cables with shaped copper conductors;<br><br>D – overall diameter of the cable |
| Test voltage:                                      | 3,5kV   |

## Fire performance

Flame retardant: BS EN 60332-1-2

CPR – class reaction to fire (acc EN 50575): Eca

## Approvals

XLPE/PVC/SWA/PVC: BASEC

## XLPE/PVC/SWA/PVC 600/1000V

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                       |
| 2x1,5RM                                      | 11,5                         | 256                              | 12,1   | 10,2                              |
| 2x2,5RM                                      | 13                           | 324                              | 7,41   | 8,8                               |
| 2x4RM  | 14                           | 386                              | 4,61   | 7,9                               |
| 2x6RM  | 14,7                         | 444                              | 3,08   | 7                                 |
| 2x10RM                                       | 16,8                         | 595                              | 1,83   | 6                                 |
| 2x16RM                                       | 19,5                         | 879                              | 1,15   | 3,7                               |
| 2x25RM                                       | 23,1                         | 1214                             | 0,727  | 3,2                               |
| 2x35SM                                       | 21,6                         | 1300                             | 0,524  | 2,6                               |
| 2x35RM                                       | 26,5                         | 1667                             | 0,524  | 2,2                               |

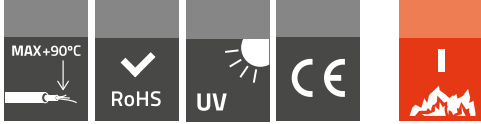
| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                       |
| 2x50SM                                       | 23,7                         | 1610                             | 0,387  | 2,3                               |
| 2x50RM                                       | 29,9                         | 2106                             | 0,387  | 2                                 |
| 2x70SM                                       | 27,6                         | 2145                             | 0,268  | 2                                 |
| 2x70RM                                       | 34,4                         | 2957                             | 0,268  | 1,4                               |
| 2x95SM                                       | 30,5                         | 2922                             | 0,193  | 1,4                               |
| 2x95RM                                       | 38,5                         | 3769                             | 0,193  | 1,2                               |
| 2x120SM                                      | 33                           | 3496                             | 0,153  | 1,3                               |
| 2x120RM                                      | 41,7                         | 4473                             | 0,153  | 1,1                               |
| 2x150SM                                      | 36                           | 4170                             | 0,124  | 1,2                               |
| 2x185SM                                      | 40,9                         | 5464                             | 0,0991   | 0,82                              |
| 2x240SM                                      | 44,6                         | 6753                             | 0,0754   | 0,73                              |
| 2x300SM                                      | 50,3                         | 8256                             | 0,0601   | 0,67                              |
| 3x1,5RM                                      | 12                           | 279                              | 12,1   | 9,5                               |
| 3x2,5RM                                      | 13,5                         | 356                              | 7,41   | 8,2                               |
| 3x4RM  | 14,6                         | 436                              | 4,61   | 7,5                               |
| 3x6RM  | 15,4                         | 511                              | 3,08   | 6,7                               |
| 3x10RM                                       | 18,3                         | 786                              | 1,83   | 4                                 |
| 3x16RM                                       | 20,7                         | 1048                             | 1,15   | 3,5                               |
| 3x25RM                                       | 25,6                         | 1631                             | 0,727  | 2,3                               |
| 3x25SM                                       | 23,2                         | 1417                             | 0,727  | 2,5                               |
| 3x35RM                                       | 28,1                         | 2029                             | 0,524  | 2,1                               |
| 3x35SM                                       | 25,3                         | 1773                             | 0,524  | 2,3                               |
| 3x35RM                                       | 28,1                         | 2029                             | 0,524  | 2,1                               |
| 3x50SM                                       | 27,6                         | 2208                             | 0,387  | 2                                 |
| 3x50RM                                       | 31,5                         | 2561                             | 0,387  | 1,8                               |
| 3x70SM                                       | 31,3                         | 2935                             | 0,268  | 1,8                               |
| 3x70RM                                       | 36,2                         | 3619                             | 0,268  | 1,3                               |
| 3x95SM                                       | 35,8                         | 4055                             | 0,193  | 1,3                               |
| 3x95RM                                       | 41,2                         | 4704                             | 0,193  | 1,2                               |
| 3x120SM                                      | 38,9                         | 4895                             | 0,153  | 1,2                               |
| 3x120RM                                      | 45,9                         | 6110                             | 0,153  | 0,76                              |
| 3x150SM                                      | 44,2                         | 6353                             | 0,124  | 0,78                              |
| 3x185SM                                      | 48,2                         | 7625                             | 0,0991   | 0,71                              |
| 3x240SM                                      | 53,1                         | 9529                             | 0,0754   | 0,63                              |
| 3x300SM                                      | 57,9                         | 11446                            | 0,0601   | 0,58                              |

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                       |
| 4x1,5RM                                      | 12,7                         | 313                              | 12,1   | 8,8                               |
| 4x2,5RM                                      | 14,4                         | 406                              | 7,41   | 7,7                               |
| 4x4RM  | 15,7                         | 503                              | 4,61   | 6,8                               |
| 4x6RM  | 17,4                         | 689                              | 3,08   | 4,3                               |
| 4x10RM                                       | 19,6                         | 923                              | 1,83   | 3,7                               |
| 4x16RM                                       | 22,3                         | 1252                             | 1,15   | 3,1                               |
| 4x25SM                                       | 25,6                         | 1765                             | 0,727  | 2,3                               |
| 4x25RM                                       | 27,7                         | 1936                             | 0,727  | 2,1                               |
| 4x35SM                                       | 27,9                         | 2197                             | 0,524  | 2                                 |
| 4x35RM                                       | 30,4                         | 2448                             | 0,524  | 1,9                               |
| 4x50SM                                       | 30,9                         | 2787                             | 0,387  | 1,8                               |
| 4x50RM                                       | 35,6                         | 3396                             | 0,387  | 1,3                               |
| 4x70SM                                       | 36,4                         | 4017                             | 0,268  | 1,2                               |
| 4x70RM                                       | 39,8                         | 4438                             | 0,268  | 1,2                               |
| 4x95SM                                       | 40                           | 5137                             | 0,193  | 1,1                               |
| 4x95RM                                       | 46,1                         | 6232                             | 0,193  | 0,76                              |
| 4x120SM                                      | 45,3                         | 6738                             | 0,153  | 0,76                              |
| 4x120RM                                      | 50,1                         | 7469                             | 0,153  | 0,69                              |
| 4x150SM                                      | 49,4                         | 8032                             | 0,124  | 0,68                              |
| 4x185SM                                      | 54                           | 9723                             | 0,0991   | 0,61                              |
| 4x240SM                                      | 59,9                         | 12247                            | 0,0754   | 0,54                              |
| 4x300SM                                      | 64,9                         | 14690                            | 0,0601   | 0,49                              |
| 4x400SM                                      | 75,5                         | 19575                            | 0,047  | 0,35                              |
| 5x1,5RM                                      | 13,7                         | 362                              | 12,1   | 8,2                               |
| 5x2,5RM                                      | 15,4                         | 464                              | 7,41   | 6,8                               |
| 5x4RM  | 17                           | 585                              | 4,61   | 6,2                               |
| 5x6RM  | 18,7                         | 798                              | 3,08   | 3,9                               |
| 5x10RM                                       | 21,4                         | 1096                             | 1,83   | 3,4                               |
| 5x16RM                                       | 25,4                         | 1630                             | 1,15   | 2,2                               |
| 5x25RM                                       | 30,1                         | 2301                             | 0,727  | 1,8                               |
| 5x35RM                                       | 33,2                         | 2906                             | 0,524  | 1,6                               |
| 5x50RM                                       | 38,6                         | 4009                             | 0,387  | 1,1                               |
| 5x70RM                                       | 43,2                         | 5286                             | 0,268  | 0,94                              |
| 7x1,5RM                                      | 14,7                         | 405                              | 12,1   | 7,5                               |
| 7x2,5RM                                      | 16,6                         | 525                              | 7,41   | 6,3                               |
| 7x4RM  | 19                           | 767                              | 4,61   | 4                                 |

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                       |
| 12x1,5RM                                     | 18,9                         | 672                              | 12,1   | 4                                 |
| 12x2,5RM                                     | 21,7                         | 890                              | 7,41   | 3,5                               |
| 12x4RM                                       | 25                           | 1284                             | 4,61   | 2,3                               |
| 19x1,5RM                                     | 21,5                         | 887                              | 12,1   | 3,5                               |
| 19x2,5RM                                     | 26                           | 1346                             | 7,41   | 2,3                               |
| 19x4RM                                       | 28,6                         | 1726                             | 4,61   | 2                                 |
| 27x1,5RM                                     | 26,1                         | 1291                             | 12,1   | 2,3                               |
| 27x2,5RM                                     | 30,2                         | 1740                             | 7,41   | 1,9                               |
| 37x1,5RM                                     | 28,5                         | 1572                             | 12,1   | 2                                 |
| 37x2,5RM                                     | 33,1                         | 2133                             | 7,41   | 1,7                               |

\* *Based on norm*

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# XLPE/PVC/AWA/PVC

## 600/1000V

BS5467

XLPE insulated, PVC sheathed, round wire armoured cables

## APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.

Standard length cable packing

500 or 1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|             |  |
|-------------|--|
| Conductors: | annealed copper solid class 1(RE), circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to BS EN 60228 |
| Insulation: | cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3  |
| Bedding:    | PVC compound   |
| Armour:     | single layer of aluminium wires applied spirally over the bedding (AWA)  |
| Sheath:     | black PVC compound Type 9 acc. to BS 7655-4.2  |



## CHARACTERISTICS

|   |   |
|---|---|
| Colour of sheath:   | black   |
| Core identification:<br><i>Other colors available at customer request</i> | 1-core: brown or blue   |
| Maximum conductor operating temperature:                                  | +90°C   |
| Lowest ambient temperature for fixed installation:                        | -30°C   |
| Lowest installation temperature:  | 0°C   |
| Maximum short-circuit conductor temperature:                              | +250°C  |
| Minimum bending radius:   | 6 x D for cables with circular copper conductors<br><br>D – overall diameter of the cable |
| Test voltage:   | 3,5kV   |

# Fire performance

Flame retardant: BS EN 60332-1-2

## Technical and Electrical Characteristic

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                       |
| 1x150RM                                      | 26                           | 1820                             | 0,124  | 0,42                              |
| 1x185RM                                      | 28,1                         | 2219                             | 0,0991   | 0,38                              |
| 1x240RM                                      | 30,8                         | 2784                             | 0,0754   | 0,34                              |
| 1x300RM                                      | 33                           | 3401                             | 0,0601   | 0,31                              |
| 1x400RM                                      | 37,5                         | 4423                             | 0,047  | 0,22                              |
| 1x500RM                                      | 41,3                         | 5547                             | 0,0366   | 0,2                               |
| 1x630RM                                      | 45,7                         | 6937                             | 0,0283   | 0,18                              |
| 1x800RM                                      | 52,6                         | 8896                             | 0,0221   | 0,13                              |
| 1x1000RM                                     | 56,3                         | 10865                            | 0,0176   | 0,12                              |

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# XLPE/LSOH/SWA/LSOH

## 600/1000V

BS6724

XLPE insulated, LSOH sheathed, round wire armoured cables

## APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.

Standard length cable packing

500 or 1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|             |  |
|-------------|--|
| Conductors: | annealed copper conductor, circular compacted stranded class 2 acc. to BS EN 60228 |
| Insulation: | cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3                        |
| Bedding:    | LSOH (special low smoke zero halogen compound)                                     |
| Armour:     | single layer of galvanized steel wires applied spirally over the bedding (SWA)     |
| Sheath:     | LSOH compound type LTS1 acc. to BS 7655-6.1  |



## CHARACTERISTICS

|  |  |
|--|--|
| Colour of sheath:                                  | black                                  |
| Core identification:                               | HD 308 S2                              |
| <i>Other colors available at customer request</i>  |  |
| 2-core:  | brown, blue                            |
| 3-core:  | brown, black, grey                     |
| 4-core:  | blue, brown, black, grey               |
| 5-core:  | green-yellow, blue, brown, black, grey |
| auxiliary cables:                                  | white with black numbering             |
| Maximum conductor operating temperature:           | +90°C                                  |
| Lowest ambient temperature for fixed installation: | -40°C                                  |
| Lowest installation temperature:                   | 0°C                                    |



|  |  |
|--|--|
| Maximum short-circuit conductor temperature: | +250°C   |
| Smoke emission:                              | BS EN 61034-2                                    |
| Corrosive and acid gas emission:             | BS EN 60754-1, HCL ≤ 0,5%                        |
| Minimum bending radius:                      | 6 x D for cables with circular copper conductors |
|  | D – overall diameter of the cable                |
| Test voltage:                                | 3.5kV  |

## Fire performance

|  |                                   |
|--|-----------------------------------|
| Flame retardant:                             | BS EN 60332-1-2, BS EN 60332-3-24 |
| CPR – class reaction to fire (acc EN 50575): | Dca-s1b,d0,a1                     |

## Approvals

BASEC

## XLPE/LSOH/SWA/LSOH

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| n x mm <sup>2</sup>                          | mm                           | kg/km                            | Ω/km   | Ω/km                              |
| 2x1,5RM                                      | 11,1                         | 244                              | 12,1   | 10,2                              |
| 2x2,5RM                                      | 12,6                         | 310                              | 7,41   | 8,8                               |
| 2x4RM  | 13,6                         | 372                              | 4,61   | 7,9                               |
| 2x6RM  | 14,3                         | 429                              | 3,08   | 7                                 |
| 2x10RM                                       | 16,4                         | 579                              | 1,83   | 6                                 |
| 2x16RM                                       | 19,1                         | 857                              | 1,15   | 3,7                               |
| 2x25RM                                       | 23,1                         | 1224                             | 0,727  | 3,7                               |
| 2x35RM                                       | 26,5                         | 1679                             | 0,524  | 2,6                               |
| 3x1,5RM                                      | 11,6                         | 271                              | 12,1   | 9,5                               |
| 3x2,5RM                                      | 13,1                         | 346                              | 7,41   | 8,2                               |
| 3x4RM  | 14,2                         | 421                              | 4,61   | 7,5                               |
| 3x6RM  | 15                           | 500                              | 3,08   | 6,7                               |
| 3x10RM                                       | 17,9                         | 774                              | 1,83   | 4                                 |
| 3x16RM                                       | 20,3                         | 1035                             | 1,15   | 3,5                               |

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| n x mm <sup>2</sup>                          | mm                           | kg/km                            | Ω/km   | Ω/km                              |
| 3x25RM                                       | 25,6                         | 1641                             | 0,727  | 2,5                               |
| 3x35RM                                       | 28,1                         | 2041                             | 0,524  | 2,3                               |
| 3x35SM                                       | 25,3                         | 1781                             | 0,524  | 2,3                               |
| 3x50SM                                       | 27,6                         | 2217                             | 0,387  | 2                                 |
| 3x70SM                                       | 31,3                         | 2945                             | 0,268  | 1,8                               |
| 3x95SM                                       | 35,8                         | 4069                             | 0,193  | 1,3                               |
| 3x120SM                                      | 38,9                         | 4910                             | 0,153  | 1,2                               |
| 3x150SM                                      | 44,2                         | 6372                             | 0,124  | 0,78                              |
| 3x185SM                                      | 48,2                         | 7646                             | 0,0991   | 0,71                              |
| 3x240SM                                      | 53,1                         | 9555                             | 0,0754   | 0,63                              |
| 4x1,5RM                                      | 12,3                         | 304                              | 12,1   | 8,8                               |
| 4x2,5RM                                      | 14                           | 392                              | 7,41   | 7,7                               |
| 4x4RM  | 15,3                         | 487                              | 4,61   | 6,8                               |
| 4x6RM  | 17                           | 677                              | 3,08   | 4,3                               |
| 4x10RM                                       | 19,2                         | 910                              | 1,83   | 3,7                               |
| 4x16RM                                       | 21,9                         | 1228                             | 1,15   | 3,1                               |
| 4x25RM                                       | 27,7                         | 1947                             | 0,727  | 2,3                               |
| 4x25SM                                       | 25,6                         | 1772                             | 0,727  | 2,3                               |
| 4x35RM                                       | 30,4                         | 2461                             | 0,524  | 2                                 |
| 4x35SM                                       | 27,9                         | 2206                             | 0,524  | 2                                 |
| 4x50SM                                       | 30,9                         | 2798                             | 0,387  | 1,8                               |
| 4x70SM                                       | 36,4                         | 4031                             | 0,268  | 1,2                               |
| 4x95SM                                       | 40                           | 5153                             | 0,193  | 1,1                               |
| 4x120SM                                      | 45,3                         | 6757                             | 0,153  | 0,76                              |
| 4x150SM                                      | 49,4                         | 8054                             | 0,124  | 0,68                              |
| 4x185SM                                      | 54                           | 9748                             | 0,0991   | 0,61                              |
| 4x240SM                                      | 59,9                         | 12278                            | 0,0754   | 0,54                              |
| 4x300SM                                      | 64,9                         | 14725                            | 0,0601   | 0,49                              |
| 4x400SM                                      | 75,5                         | 19621                            | 0,047  | 0,35                              |
| 5x1,5RM                                      | 13,3                         | 348                              | 12,1   | 8,2                               |
| 5x2,5RM                                      | 15                           | 453                              | 7,41   | 6,8                               |
| 5x4RM  | 16,6                         | 574                              | 4,61   | 6,2                               |
| 5x6RM  | 18,3                         | 786                              | 3,08   | 3,9                               |
| 5x10RM                                       | 21                           | 1073                             | 1,83   | 3,4                               |
| 5x16RM                                       | 25                           | 1614                             | 1,15   | 2,2                               |
| 5x25RM                                       | 30,1                         | 2313                             | 0,727  | 1,8                               |
| 5x35RM                                       | 33,2                         | 2920                             | 0,524  | 1,6                               |

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                       |
| 5x50RM                                       | 38,6                         | 4028                             | 0,387  | 1,1                               |
| 5x70RM                                       | 43,2                         | 5309                             | 0,268  | 0,94                              |
| 7x1,5RM                                      | 14,3                         | 390                              | 12,1   | 7,5                               |
| 7x2,5RM                                      | 16,2                         | 509                              | 7,41   | 6,3                               |
| 7x4RM  | 18,6                         | 745                              | 4,61   | 4                                 |
| 12x1,5RM                                     | 18,5                         | 660                              | 12,1   | 4                                 |
| 12x2,5RM                                     | 21,3                         | 876                              | 7,41   | 3,5                               |
| 12x4RM                                       | 24,6                         | 1253                             | 4,61   | 2,3                               |
| 19x1,5RM                                     | 21,1                         | 863                              | 12,1   | 3,5                               |
| 19x2,5RM                                     | 25,6                         | 1329                             | 7,41   | 2,3                               |
| 19x4RM                                       | 28,2                         | 1692                             | 4,61   | 2                                 |
| 27x1,5RM                                     | 25,7                         | 1274                             | 12,1   | 2,3                               |
| 27x2,5RM                                     | 29,8                         | 1720                             | 7,41   | 1,9                               |
| 27x4RM                                       | 33,2                         | 2238                             | 4,61   | 1,7                               |
| 37x1,5RM                                     | 28,1                         | 1539                             | 12,1   | 2                                 |
| 37x2,5RM                                     | 32,7                         | 2112                             | 7,41   | 1,7                               |

\*Based on norm

Current ratings for multicore XLPE/PVC/SWA/PVC & XLPE/LSOH/SWA/LSOH cables  
Cable installed in free air, ambient air temperature 30°C.

| Nominal area of conductor | Single core       |                             |                |                             | Two core       |                             | Three and four core |                             |
|---------------------------|-------------------|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|---------------------|-----------------------------|
|                           | Two cables spaced |                             | Current rating | Volt drop per amp per metre | Current rating | Volt drop per amp per metre | Current rating      | Volt drop per amp per metre |
|                           | Current rating    | Volt drop per amp per metre |                |                             |                |                             |                     |                             |
| mm <sup>2</sup>           | A                 | mV                          | A              | mV                          | A              | mV                          | A                   | mV                          |
| 1,5                       | -                 | -                           | -              | -                           | 29             | 31                          | 25                  | 27                          |
| 2,5                       | -                 | -                           | -              | -                           | 39             | 19                          | 33                  | 16                          |
| 4                         | -                 | -                           | -              | -                           | 52             | 12                          | 44                  | 10                          |
| 6                         | -                 | -                           | -              | -                           | 66             | 7,9                         | 56                  | 6,8                         |
| 10                        | -                 | -                           | -              | -                           | 90             | 4,7                         | 78                  | 4,0                         |
| 16                        | -                 | -                           | -              | -                           | 115            | 2,9                         | 99                  | 2,5                         |
| 25                        | -                 | -                           | -              | -                           | 152            | 1,90                        | 131                 | 1,65                        |

| Nominal area of conductor | Single core       |                             |  |                | Two core       |                             | Three and four core |                             |
|---------------------------|-------------------|-----------------------------|--|----------------|----------------|-----------------------------|---------------------|-----------------------------|
|                           | Two cables spaced |                             |  |                | Current rating | Volt drop per amp per metre | Current rating      | Volt drop per amp per metre |
|                           | Current rating    | Volt drop per amp per metre |  | Current rating |                |                             |                     |                             |
| mm <sup>2</sup>           | A                 | mV                          |  | A              | mV             | A                           | mV                  |                             |
| 35                        | –                 | –                           |  | –              | –              | 188                         | 1,35                |                             |
| 50                        | 266               | 1,00                        |  | 222            | 0,87           | 228                         | 1,00                |                             |
| 70                        | 337               | 0,75                        |  | 285            | 0,62           | 291                         | 0,69                |                             |
| 95                        | 412               | 0,60                        |  | 346            | 0,47           | 354                         | 0,52                |                             |
| 120                       | 477               | 0,51                        |  | 402            | 0,39           | 410                         | 0,42                |                             |
| 150                       | 539               | 0,45                        |  | 463            | 0,33           | 472                         | 0,35                |                             |
| 185                       | 614               | 0,40                        |  | 529            | 0,28           | 359                         | 0,29                |                             |
| 240                       | 714               | 0,35                        |  | 625            | 0,24           | 636                         | 0,24                |                             |
| 300                       | 805               | 0,32                        |  | 720            | 0,21           | –                           | –                   |                             |
| 400                       | 889               | 0,30                        |  | 815            | 0,195          | –                           | –                   |                             |
| 500                       | 989               | 0,29                        |  | 918            | 0,180          | –                           | –                   |                             |

Cable laid direct in ground / run in single way ducts.  
Ground temperature 15°C. Ground thermal resistivity 1,2 Km/W, depth of laying 0,5 m.  
All circuits thermally independent. Single core cables solidly bonded.

| Nominal area of conductor | Single core       |         |                             |         |                               |         |                             |         | Two core       |                             | Three and four core |                             |         |           |
|---------------------------|-------------------|---------|-----------------------------|---------|-------------------------------|---------|-----------------------------|---------|----------------|-----------------------------|---------------------|-----------------------------|---------|-----------|
|                           | Two cables spaced |         |                             |         | Three cables trefoil touching |         |                             |         | Current rating | Volt drop per amp per metre | Current rating      | Volt drop per amp per metre |         |           |
|                           | Current rating    |         | Volt drop per amp per metre |         | Current rating                |         | Volt drop per amp per metre |         |                |                             |                     | In ground                   | In duct | In ground |
|                           | In ground         | In duct | In ground                   | In duct | In ground                     | In duct | In ground                   | In duct |                |                             |                     |                             |         |           |
| mm <sup>2</sup>           | A                 |         | mV                          |         | A                             |         | mV                          |         | A              | mV                          | A                   | mV                          |         |           |
| 1,5                       | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 38             | 31                          | 31                  | 32                          | 26      | 27        |
| 2,5                       | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 49             | 41                          | 19                  | 42                          | 34      | 17        |
| 4                         | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 65             | 53                          | 12                  | 55                          | 45      | 10        |
| 6                         | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 81             | 67                          | 7,90                | 69                          | 56      | 6,80      |
| 10                        | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 109            | 89                          | 4,70                | 92                          | 75      | 4,10      |
| 16                        | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 141            | 115                         | 2,90                | 119                         | 96      | 2,50      |
| 25                        | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 183            | 148                         | 1,90                | 152                         | 124     | 1,65      |
| 35                        | –                 | –       | –                           | –       | –                             | –       | –                           | –       | 219            | 178                         | 1,35                | 182                         | 149     | 1,15      |
| 50                        | 274               | 252     | 1,00                        | 1,10    | 231                           | 231     | 0,87                        | 0,93    | 259            | 211                         | 1,00                | 217                         | 177     | 0,87      |
| 70                        | 337               | 305     | 0,71                        | 0,80    | 284                           | 278     | 0,62                        | 0,70    | 317            | 260                         | 0,69                | 266                         | 218     | 0,60      |
| 95                        | 403               | 360     | 0,55                        | 0,65    | 340                           | 327     | 0,47                        | 0,56    | 381            | 313                         | 0,52                | 319                         | 263     | 0,45      |

| Nominal<br>area of conductor | Single core       |            |                                |            |                               |            |                                |            | Two core          |                                      |                   | Three and four core                  |     |      |
|------------------------------|-------------------|------------|--------------------------------|------------|-------------------------------|------------|--------------------------------|------------|-------------------|--------------------------------------|-------------------|--------------------------------------|-----|------|
|                              | Two cables spaced |            |                                |            | Three cables trefoil touching |            |                                |            | Current<br>rating | Volt<br>drop<br>per amp<br>per metre | Current<br>rating | Volt<br>drop<br>per amp<br>per metre |     |      |
|                              | Current<br>rating |            | Volt drop per<br>amp per metre |            | Current<br>rating             |            | Volt drop per<br>amp per metre |            |                   |                                      |                   |                                      |     |      |
|                              | In<br>ground      | In<br>duct | In<br>ground                   | In<br>duct | In<br>ground                  | In<br>duct | In<br>ground                   | In<br>duct | In<br>ground      | In<br>duct                           |                   |                                      |     |      |
| mm <sup>2</sup>              | A                 | mV         |                                | A          | mV                            |            | A                              | mV         |                   | A                                    | mV                |                                      |     |      |
| 120                          | 458               | 404        | 0,45                           | 0,55       | 386                           | 366        | 0,39                           | 0,48       | 433               | 357                                  | 0,42              | 363                                  | 300 | 0,37 |
| 150                          | 510               | 439        | 0,38                           | 0,50       | 431                           | 396        | 0,33                           | 0,43       | 485               | 401                                  | 0,35              | 406                                  | 338 | 0,30 |
| 185                          | 574               | 486        | 0,33                           | 0,45       | 485                           | 437        | 0,28                           | 0,39       | 547               | 455                                  | 0,29              | 458                                  | 382 | 0,26 |
| 240                          | 661               | 546        | 0,28                           | 0,40       | 558                           | 489        | 0,24                           | 0,35       | 632               | 527                                  | 0,24              | 529                                  | 442 | 0,21 |
| 300                          | 739               | 597        | 0,26                           | 0,37       | 623                           | 534        | 0,21                           | 0,32       | -                 | -                                    | -                 | -                                    | -   | -    |
| 400                          | 820               | 638        | 0,22                           | 0,35       | 691                           | 567        | 0,195                          | 0,30       | -                 | -                                    | -                 | -                                    | -   | -    |
| 500                          | 910               | 694        | 0,21                           | 0,33       | 765                           | 615        | 0,180                          | 0,28       | -                 | -                                    | -                 | -                                    | -   | -    |

#### Rating factors for air temperature

| Ambient temperature, °C | 25   | 30  | 35   | 40   | 45   | 50   | 55   |
|-------------------------|------|-----|------|------|------|------|------|
| Rating factor           | 1,02 | 1,0 | 0,96 | 0,91 | 0,87 | 0,82 | 0,76 |

#### Rating factors for ground temperature

| Ground temperature, °C | 15  | 20   | 25   | 30   | 35   | 40   | 45   |
|------------------------|-----|------|------|------|------|------|------|
| Rating factor          | 1,0 | 0,97 | 0,93 | 0,89 | 0,86 | 0,82 | 0,76 |

#### Rating factors for depth of laying (to centre of cable or trefoil group of cables)

| Depth of laying [m] | 0,50  | 0,60 | 0,80 | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,50 | 3,00 |      |
|---------------------|---|------|------|------|------|------|------|------|------|------|------|
| Rating factor       | up to 50 mm <sup>2</sup>                    | 1,00 | 0,99 | 0,97 | 0,95 | 0,94 | 0,93 | 0,92 | 0,91 | 0,90 | 0,89 |
|                     | 70 mm <sup>2</sup><br>– 300 mm <sup>2</sup> | 1,00 | 0,98 | 0,96 | 0,93 | 0,92 | 0,90 | 0,89 | 0,88 | 0,87 | 0,85 |
|                     | above<br>300 mm <sup>2</sup>                | 1,00 | 0,97 | 0,94 | 0,92 | 0,89 | 0,87 | 0,86 | 0,86 | 0,84 | 0,82 |

#### Rating factors for variation in thermal resistivity of soil (average values)

| Size of cable [mm <sup>2</sup> ] | Soil thermal resistivity in Km/W |      |      |      |      |      |
|----------------------------------|----------------------------------|------|------|------|------|------|
|                                  | 0,8                              | 0,9  | 1,0  | 1,5  | 2,0  | 2,5  |
| Single core cables up to 150     | 1,15                             | 1,11 | 1,06 | 0,91 | 0,81 | 0,73 |
| from 185 to 300                  | 1,17                             | 1,12 | 1,07 | 0,90 | 0,80 | 0,72 |
| from 400 to 630                  | 1,17                             | 1,12 | 1,07 | 0,90 | 0,79 | 0,71 |
| Multicores cables up to 16       | 1,09                             | 1,06 | 1,04 | 0,93 | 0,84 | 0,77 |
| from 25 to 150                   | 1,12                             | 1,09 | 1,05 | 0,92 | 0,82 | 0,75 |
| from 185 to 400                  | 1,14                             | 1,10 | 1,06 | 0,92 | 0,81 | 0,74 |

## Group rating factors for circuits of three single core cables, in trefoil and laid flat touching, horizontal formation

(average values)



| Number of circuits | Spacing  |           |       |      |      |      |
|--------------------|----------|-----------|-------|------|------|------|
|                    | Touching |           | 0,15* | 0,30 | 0,45 | 0,60 |
|                    | Trefoil  | Laid flat | m     |      |      |      |
| 2                  | 0,77     | 0,80      | 0,82  | 0,88 | 0,90 | 0,93 |
| 3                  | 0,65     | 0,68      | 0,72  | 0,79 | 0,83 | 0,87 |
| 4                  | 0,59     | 0,63      | 0,67  | 0,75 | 0,81 | 0,85 |
| 5                  | 0,55     | 0,58      | 0,63  | 0,72 | 0,78 | 0,83 |
| 6                  | 0,52     | 0,56      | 0,60  | 0,70 | 0,77 | 0,82 |

\* This spacing will not be possible for some of the larger diameter cables.

## Group ratings for multicore cables in horizontal formation

(average values)



| Number of cables in group | Spacing  |      |      |      |      |      |
|---------------------------|----------|------|------|------|------|------|
|                           | Touching |      | 0,15 | 0,30 | 0,45 | 0,60 |
|                           | m        |      |      |      |      |      |
| 2                         | 0,81     | 0,87 | 0,91 | 0,93 | 0,94 |      |
| 3                         | 0,70     | 0,78 | 0,84 | 0,87 | 0,90 |      |
| 4                         | 0,63     | 0,74 | 0,81 | 0,86 | 0,89 |      |
| 5                         | 0,59     | 0,70 | 0,78 | 0,83 | 0,87 |      |
| 6                         | 0,55     | 0,67 | 0,76 | 0,82 | 0,86 |      |

## Cables installed in ducts

The term ducts applies to single earthenware, fibre or ferrous pipes.

Rating factors for ground temperature. Note: same as for direct in ground.

Rating factors for depth of laying (to centre of duct or trefoil group of ducts – average values)

| Depth of laying [m] |             | 0,50 | 0,60 | 0,80 | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,50 | 3,00 |
|---------------------|-------------|------|------|------|------|------|------|------|------|------|------|
| Rating factor       | single core | 1,00 | 0,98 | 0,95 | 0,93 | 0,90 | 0,89 | 0,88 | 0,87 | 0,86 | 0,85 |
|                     | multicore   | 1,00 | 0,99 | 0,97 | 0,96 | 0,95 | 0,94 | 0,94 | 0,93 | 0,92 | 0,91 |

Rating factor for variation in thermal resistivity of soil (average values)

| Size of cable [mm <sup>2</sup> ] | Soil thermal resistivity in Km/W |      |      |      |      |      |
|----------------------------------|----------------------------------|------|------|------|------|------|
|                                  | 0,8                              | 0,9  | 1,0  | 1,5  | 2,0  | 2,5  |
| Single core cables up to 150     | 1,08                             | 1,06 | 1,04 | 0,94 | 0,86 | 0,80 |
| from 185 to 300                  | 1,01                             | 1,07 | 1,04 | 0,93 | 0,85 | 0,78 |
| from 380 to 1000                 | 1,11                             | 1,08 | 1,05 | 0,93 | 0,83 | 0,76 |
| Multicore cables up to 16        | 1,03                             | 1,02 | 1,02 | 0,97 | 0,91 | 0,87 |
| from 25 to 150                   | 1,05                             | 1,03 | 1,02 | 0,95 | 0,89 | 0,83 |
| from 185 to 400                  | 1,07                             | 1,05 | 1,03 | 0,94 | 0,86 | 0,81 |

Group rating factors for single core cables in trefoil single way ducts, horizontal formation

(average values)



| Number of circuits | Spacing  |      |      |
|--------------------|----------|------|------|
|                    | Touching | 0,45 | 0,60 |
|                    | Trefoil  | m    |      |
| 2                  | 0,86     | 0,90 | 0,93 |
| 3                  | 0,77     | 0,83 | 0,87 |
| 4                  | 0,73     | 0,81 | 0,85 |
| 5                  | 0,70     | 0,78 | 0,83 |
| 6                  | 0,68     | 0,77 | 0,82 |

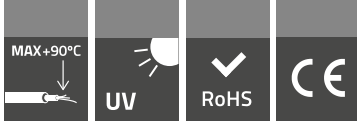
Group ratings for multicore cables in single way ducts, horizontal formation

(average values)



| Number of cables in group | Spacing  |      |      |      |
|---------------------------|----------|------|------|------|
|                           | Touching | 0,30 | 0,45 | 0,60 |
|                           | m        |      |      |      |
| 2                         | 0,90     | 0,93 | 0,95 | 0,96 |
| 3                         | 0,82     | 0,87 | 0,90 | 0,93 |
| 4                         | 0,78     | 0,85 | 0,89 | 0,91 |
| 5                         | 0,75     | 0,82 | 0,87 | 0,90 |
| 6                         | 0,72     | 0,81 | 0,86 | 0,90 |

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# XLPE/LSOH/AWA/LSOH

## 600/1000V

BS 6724:2016

XLPE insulated, LSOH sheathed, round wire armoured cables

## APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.

Note: Operation of cables armoured with ferromagnetic materials is permissible only in direct-current circuits.

Standard length cable packing

500 or 1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|             |   |
|-------------|---|
| Conductors: | annealed copper circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to BS EN 60228 |
| Insulation: | cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3   |
| Bedding:    | LSOH (special low smoke zero halogen compound)  |
| Armour:     | for single-core cables - single layer of aluminium wires applied spirally over the bedding (AWA)  |
| Sheath:     | LSOH compound type LTS1 acc. to BS 7655-6.1   |



## CHARACTERISTICS

|   |                                    |
|---|------------------------------------|
| Colour of sheath:   | black                              |
| Core identification:<br><i>Other colors available at customer request</i> | HD 308 S2<br>1-core: brown or blue |
| Maximum conductor operating temperature:                                  | +90°C                              |
| Lowest ambient temperature for fixed installation:                        | -40°C                              |
| Lowest installation temperature:  | 0°C                                |
| Maximum short-circuit conductor temperature:                              | +250°C                             |
| Smoke emission:   | BS EN 61034-2                      |



|                                  |  |
|----------------------------------|--|
| Corrosive and acid gas emission: | BS EN 60754-1, HCL ≤ 0,5%                        |
| Minimum bending radius:          | 6 x D for cables with circular copper conductors |
|                                  | D – overall diameter of the cable                |
| Test voltage:                    | 3.5kV  |

## Fire performance

Flame retardant: BS EN 60332-1-2, BS EN 60332-3-24

## XLPE/LSOH/AWA/LSOH

| Number and cross-sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C | Maximum armour resistance at 20°C |
|--|------------------------------|----------------------------------|--|-----------------------------------|
| <b>n x mm<sup>2</sup></b>                    | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      | <b>Ω/km</b>                       |
| 1x150RM                                      | 26                           | 1828                             | 0,124  | 0,42                              |
| 1x185RM                                      | 28,1                         | 2228                             | 0,0991   | 0,38                              |
| 1x240RM                                      | 30,8                         | 2794                             | 0,0754   | 0,34                              |
| 1x300RM                                      | 33                           | 3412                             | 0,0601   | 0,31                              |
| 1x400RM                                      | 37,5                         | 4436                             | 0,047  | 0,22                              |
| 1x500RM                                      | 41,3                         | 5563                             | 0,0366   | 0,2                               |
| 1x630RM                                      | 45,7                         | 6956                             | 0,0283   | 0,18                              |
| 1x800RM                                      | 52,6                         | 8920                             | 0,0221   | 0,13                              |
| 1x1000RM                                     | 56,3                         | 10891                            | 0,0176   | 0,12                              |

Current ratings for single core XLPE/PVC/SWA/PVC & XLPE/LSOH/SWA/LSOH cables  
Cable installed in free air, ambient air temperature 30°C.

| Nominal area of conductor | Single core       |                             |                               |                             |
|---------------------------|-------------------|-----------------------------|-------------------------------|-----------------------------|
|                           | Two cables spaced |                             | Three cables trefoil touching |                             |
|                           | Current rating    | Volt drop per amp per metre | Current rating                | Volt drop per amp per metre |
| <b>mm<sup>2</sup></b>     | <b>A</b>          | <b>mV</b>                   | <b>A</b>                      | <b>mV</b>                   |
| 50                        | 266               | 1,00                        | 222                           | 0,87                        |
| 70                        | 337               | 0,75                        | 285                           | 0,62                        |

| Nominal area of conductor | Single core       |                             |                               |                             |
|---------------------------|-------------------|-----------------------------|-------------------------------|-----------------------------|
|                           | Two cables spaced |                             | Three cables trefoil touching |                             |
|                           | Current rating    | Volt drop per amp per metre | Current rating                | Volt drop per amp per metre |
| mm <sup>2</sup>           | A                 | mV                          | A                             | mV                          |
| 95                        | 412               | 0,60                        | 346                           | 0,47                        |
| 120                       | 477               | 0,51                        | 402                           | 0,39                        |
| 150                       | 539               | 0,45                        | 463                           | 0,33                        |
| 185                       | 614               | 0,40                        | 529                           | 0,28                        |
| 240                       | 714               | 0,35                        | 625                           | 0,24                        |
| 300                       | 805               | 0,32                        | 720                           | 0,21                        |
| 400                       | 889               | 0,30                        | 815                           | 0,195                       |
| 500                       | 989               | 0,29                        | 918                           | 0,180                       |

## Current ratings

Cable laid direct in ground / run in single way ducts.

Ground temperature 15°C. Ground thermal resistivity 1,2 K·m/W, depth of laying 0,5 m.

All circuits thermally independent. Single core cables solidly bonded.

| Nominal area of conductor | Single core       |                             |                               |                             | Two core       |                |                |                | Three and four core |                |                |                |           |         |
|---------------------------|-------------------|-----------------------------|-------------------------------|-----------------------------|----------------|----------------|----------------|----------------|---------------------|----------------|----------------|----------------|-----------|---------|
|                           | Two cables spaced |                             | Three cables trefoil touching |                             | Current rating |                | Current rating |                | Current rating      |                | Current rating |                |           |         |
|                           | Current rating    | Volt drop per amp per metre | Current rating                | Volt drop per amp per metre | Current rating | Current rating | Current rating | Current rating | Current rating      | Current rating | Current rating | Current rating |           |         |
|                           | In ground         | In duct                     | In ground                     | In duct                     |                |                |                |                |                     |                |                |                | In ground | In duct |
| mm <sup>2</sup>           | A                 | mV                          | A                             | mV                          | A              | A              | A              | A              | A                   | A              | A              | A              |           |         |
| 50                        | 274               | 252                         | 1,00                          | 1,10                        | 231            | 231            | 0,87           | 0,93           | 259                 | 211            | 1,00           | 217            | 177       | 0,87    |
| 70                        | 337               | 305                         | 0,71                          | 0,80                        | 284            | 278            | 0,62           | 0,70           | 317                 | 260            | 0,69           | 266            | 218       | 0,60    |
| 95                        | 403               | 360                         | 0,55                          | 0,65                        | 340            | 327            | 0,47           | 0,56           | 381                 | 313            | 0,52           | 319            | 263       | 0,45    |
| 120                       | 458               | 404                         | 0,45                          | 0,55                        | 386            | 366            | 0,39           | 0,48           | 433                 | 357            | 0,42           | 363            | 300       | 0,37    |
| 150                       | 510               | 439                         | 0,38                          | 0,50                        | 431            | 396            | 0,33           | 0,43           | 485                 | 401            | 0,35           | 406            | 338       | 0,30    |
| 185                       | 574               | 486                         | 0,33                          | 0,45                        | 485            | 437            | 0,28           | 0,39           | 547                 | 455            | 0,29           | 458            | 382       | 0,26    |
| 240                       | 661               | 546                         | 0,28                          | 0,40                        | 558            | 489            | 0,24           | 0,35           | 632                 | 527            | 0,24           | 529            | 442       | 0,21    |
| 300                       | 739               | 597                         | 0,26                          | 0,37                        | 623            | 534            | 0,21           | 0,32           | -                   | -              | -              | -              | -         | -       |
| 400                       | 820               | 638                         | 0,22                          | 0,35                        | 691            | 567            | 0,195          | 0,30           | -                   | -              | -              | -              | -         | -       |
| 500                       | 910               | 694                         | 0,21                          | 0,33                        | 765            | 615            | 0,180          | 0,28           | -                   | -              | -              | -              | -         | -       |

## Rating factors for air temperature

| Ambient air temperature, °C | 25   | 30  | 35   | 40   | 45   | 50   | 55   |
|-----------------------------|------|-----|------|------|------|------|------|
| Rating factor               | 1,02 | 1,0 | 0,96 | 0,91 | 0,87 | 0,82 | 0,76 |

## Rating factors for ground temperature

| Ground temperature, °C | 15  | 20   | 25   | 30   | 35   | 40   | 45   |
|------------------------|-----|------|------|------|------|------|------|
| Rating factor          | 1,0 | 0,97 | 0,93 | 0,89 | 0,86 | 0,82 | 0,76 |

## Rating factors for depth of laying

(to centre of cable or trefoil group of cables)

| Depth of laying [m] | 0,50                      | 0,60 | 0,80 | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,50 | 3,00 |      |
|---------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|
| Rating factor       | up to 50 mm <sup>2</sup>  | 1,00 | 0,99 | 0,97 | 0,95 | 0,94 | 0,93 | 0,92 | 0,91 | 0,90 | 0,89 |
|                     | 70-300 mm <sup>2</sup>    | 1,00 | 0,98 | 0,96 | 0,93 | 0,92 | 0,90 | 0,89 | 0,88 | 0,87 | 0,85 |
|                     | above 300 mm <sup>2</sup> | 1,00 | 0,97 | 0,94 | 0,92 | 0,89 | 0,87 | 0,86 | 0,86 | 0,84 | 0,82 |

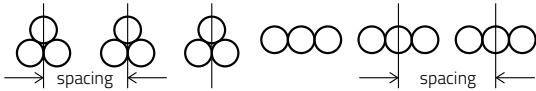
## Rating factors for variation in thermal resistivity of soil

(average values)

| Size of cable [mm <sup>2</sup> ] | Soil thermal resistivity in K·m/W |      |      |      |      |      |
|----------------------------------|-----------------------------------|------|------|------|------|------|
|                                  | 0,8                               | 0,9  | 1,0  | 1,5  | 2,0  | 2,5  |
| Single core cables up to 150     | 1,15                              | 1,11 | 1,06 | 0,91 | 0,81 | 0,73 |
| from 185 to 300                  | 1,17                              | 1,12 | 1,07 | 0,90 | 0,80 | 0,72 |
| from 400 to 630                  | 1,17                              | 1,12 | 1,07 | 0,90 | 0,79 | 0,71 |
| Multicores cables up to 16       | 1,09                              | 1,06 | 1,04 | 0,93 | 0,84 | 0,77 |
| from 25 to 150                   | 1,12                              | 1,09 | 1,05 | 0,92 | 0,82 | 0,75 |
| from 185 to 400                  | 1,14                              | 1,10 | 1,06 | 0,92 | 0,81 | 0,74 |

## Group rating factors for circuits of three single core cables, in trefoil and laid flat touching, horizontal formation

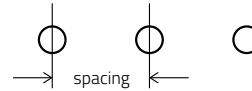
(average values)



| Number of circuits | Spacing  |           |       |      |      |      |
|--------------------|----------|-----------|-------|------|------|------|
|                    | Touching | m         |       |      |      |      |
|                    | Trefoil  | Laid flat | 0,15* | 0,30 | 0,45 | 0,60 |
| 2                  | 0,77     | 0,80      | 0,82  | 0,88 | 0,90 | 0,93 |
| 3                  | 0,65     | 0,68      | 0,72  | 0,79 | 0,83 | 0,87 |
| 4                  | 0,59     | 0,63      | 0,67  | 0,75 | 0,81 | 0,85 |
| 5                  | 0,55     | 0,58      | 0,63  | 0,72 | 0,78 | 0,83 |
| 6                  | 0,52     | 0,56      | 0,60  | 0,70 | 0,77 | 0,82 |

## Group ratings for multicore cables in horizontal formation

(average values)



| Number of cables in group | Spacing  |      |      |      |      |
|---------------------------|----------|------|------|------|------|
|                           | Touching | m    |      |      |      |
|                           | 0,15     | 0,30 | 0,45 | 0,60 |      |
| 2                         | 0,81     | 0,87 | 0,91 | 0,93 | 0,94 |
| 3                         | 0,70     | 0,78 | 0,84 | 0,87 | 0,90 |
| 4                         | 0,63     | 0,74 | 0,81 | 0,86 | 0,89 |
| 5                         | 0,59     | 0,70 | 0,78 | 0,83 | 0,87 |
| 6                         | 0,55     | 0,67 | 0,76 | 0,82 | 0,86 |

\* This spacing will not be possible for some of the larger diameter cables.

## Cables installed in ducts

The term ducts applies to single earthenware, fibre or ferrous pipes.  
Rating factors for ground temperature. Note: same as for direct in ground.

## Rating factors for depth of laying

(to centre of duct or trefoil group of ducts – average values)

| Depth of laying [m] |             | 0,50 | 0,60 | 0,80 | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,50 | 3,00 |
|---------------------|-------------|------|------|------|------|------|------|------|------|------|------|
| Rating factor       | single core | 1,00 | 0,98 | 0,95 | 0,93 | 0,90 | 0,89 | 0,88 | 0,87 | 0,86 | 0,85 |
|                     | multicore   | 1,00 | 0,99 | 0,97 | 0,96 | 0,95 | 0,94 | 0,94 | 0,93 | 0,92 | 0,91 |

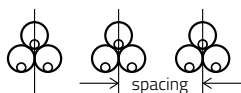
## Rating factors for variation in thermal resistivity of soil

(average values)

| Size of cable [mm <sup>2</sup> ] | Soil thermal resistivity in K-m/W |      |      |      |      |      |
|----------------------------------|-----------------------------------|------|------|------|------|------|
|                                  | 0,8                               | 0,9  | 1,0  | 1,5  | 2,0  | 2,5  |
| Single core cables up to 150     | 1,08                              | 1,06 | 1,04 | 0,94 | 0,86 | 0,80 |
| from 185 to 300                  | 1,01                              | 1,07 | 1,04 | 0,93 | 0,85 | 0,78 |
| from 380 to 1000                 | 1,11                              | 1,08 | 1,05 | 0,93 | 0,83 | 0,76 |
| Multicore cables up to 16        | 1,03                              | 1,02 | 1,02 | 0,97 | 0,91 | 0,87 |
| from 25 to 150                   | 1,05                              | 1,03 | 1,02 | 0,95 | 0,89 | 0,83 |
| from 185 to 400                  | 1,07                              | 1,05 | 1,03 | 0,94 | 0,86 | 0,81 |

### Group rating factors for single core cables in trefoil single way ducts, horizontal formation

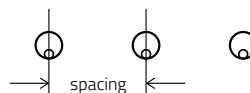
(average values)



| Number of circuits | Spacing  |      |      |
|--------------------|----------|------|------|
|                    | Touching | 0,45 | 0,60 |
|                    |          | m    |      |
| 2                  | 0,86     | 0,90 | 0,93 |
| 3                  | 0,77     | 0,83 | 0,87 |
| 4                  | 0,73     | 0,81 | 0,85 |
| 5                  | 0,70     | 0,78 | 0,83 |
| 6                  | 0,68     | 0,77 | 0,82 |

### Group ratings for multicore cables in single way ducts, horizontal formation

(average values)



| Number of cables in group | Spacing  |      |      |      |
|---------------------------|----------|------|------|------|
|                           | Touching | 0,30 | 0,45 | 0,60 |
|                           |          | m    |      |      |
| 2                         | 0,90     | 0,93 | 0,95 | 0,96 |
| 3                         | 0,82     | 0,87 | 0,90 | 0,93 |
| 4                         | 0,78     | 0,85 | 0,89 | 0,91 |
| 5                         | 0,75     | 0,82 | 0,87 | 0,90 |
| 6                         | 0,72     | 0,81 | 0,86 | 0,90 |

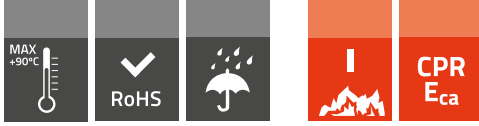
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**TKable**

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# Unarmoured Power Cables



# 6181XY

## 600/1000V

BS 7889

XLPE Insulated and PVC Sheathed Single-Core Cable

### APPLICATIONS

Fixed Installation in dry or damp areas for domestic and light industrial wiring.

Standard length cable packing

500 and 1000 m on spools or drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|                      |   |
|----------------------|---|
| Conductors:          | plain annealed copper stranded circular compacted conductor class 2 (RMC)<br>acc. to EN 60228, plain annealed copper stranded circular non compacted conductor class 2 (RM) acc. to EN 60228, |
| Insulation:          | XLPE compound type GP8  |
| Sheath:              | PVC compound type 9   |
| Colour of sheath:    | according with order  |
| Core identification: | brown or blue   |



### CHARACTERISTICS

|  |                       |
|--|-----------------------|
| Maximum conductor operating temperature:     | +90°C                 |
| Lowest installation temperature:             | 0°C                   |
| Maximum short-circuit conductor temperature: | +250°C                |
| Minimum bending radius:                      | 6xD D- cable diameter |

# Fire performance

|   |              |
|---|--------------|
| Flame retardant:                            | EN 60332-1-2 |
| CPR – class reaction to fire (acc EN 50575) | Eca          |

# Approvals

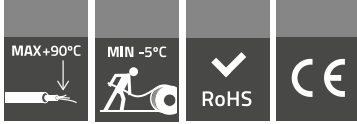
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| Conductor cross-section | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight | Maximum conductor resistance at temperature 20°C |
|-------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|--|
| mm <sup>2</sup>         | mm                              | mm                          | mm                           | kg/km                  | Ω/km   |
| 6 RMC                   | 0,7                             | 1,4                         | 7,1                          | 96                     | 3,08   |
| 6 RM                    | 0,7                             | 1,4                         | 7,3                          | 99                     | 3,08   |
| 10 RMC                  | 0,7                             | 1,4                         | 8,0                          | 139                    | 1,83   |
| 10 RM                   | 0,7                             | 1,4                         | 8,2                          | 142                    | 1,83   |
| 16 RMC                  | 0,7                             | 1,4                         | 9,0                          | 199                    | 1,15   |
| 16 RM                   | 0,7                             | 1,4                         | 9,2                          | 202                    | 1,15   |
| 25 RMC                  | 0,9                             | 1,4                         | 10,9                         | 303                    | 0,727  |
| 25 RM                   | 0,9                             | 1,4                         | 11,1                         | 307                    | 0,727  |
| 35 RMC                  | 0,9                             | 1,4                         | 12,0                         | 398                    | 0,524  |
| 35 RM                   | 0,9                             | 1,4                         | 12,2                         | 403                    | 0,524  |
| 50 RMC                  | 1,0                             | 1,4                         | 13,5                         | 524                    | 0,387  |
| 50 RM                   | 1,0                             | 1,4                         | 13,8                         | 526                    | 0,387  |
| 70 RMC                  | 1,1                             | 1,4                         | 15,0                         | 725                    | 0,268  |
| 70 RM                   | 1,1                             | 1,4                         | 15,7                         | 741                    | 0,268  |
| 95 RMC                  | 1,1                             | 1,5                         | 17,2                         | 984                    | 0,193  |
| 95 RM                   | 1,1                             | 1,5                         | 17,8                         | 991                    | 0,193  |
| 120 RMC                 | 1,2                             | 1,5                         | 18,8                         | 1221                   | 0,153  |



| Conductor cross-section | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight | Maximum conductor resistance at temperature 20°C |
|-------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|--|
| mm <sup>2</sup>         | mm                              | mm                          | mm                           | kg/km                  | Ω/km   |
| 120 RM                  | 1,2                             | 1,5                         | 19,6                         | 1226                   | 0,153  |
| 150 RMC                 | 1,4                             | 1,6                         | 21,0                         | 1506                   | 0,124  |
| 150 RM                  | 1,4                             | 1,6                         | 21,7                         | 1510                   | 0,124  |
| 185 RMC                 | 1,6                             | 1,6                         | 22,9                         | 1861                   | 0,0991   |
| 185 RM                  | 1,6                             | 1,6                         | 24,0                         | 1870                   | 0,0991   |
| 240 RMC                 | 1,7                             | 1,7                         | 25,8                         | 2404                   | 0,0754   |
| 240 RM                  | 1,7                             | 1,7                         | 26,9                         | 2422                   | 0,0754   |
| 300 RMC                 | 1,8                             | 1,8                         | 28,0                         | 2988                   | 0,0601   |
| 300 RM                  | 1,8                             | 1,8                         | 29,7                         | 2999                   | 0,0601   |
| 400 RMC                 | 2,0                             | 1,9                         | 31,3                         | 3849                   | 0,0470   |
| 400 RM                  | 2,0                             | 1,9                         | 33,2                         | 3808                   | 0,0470   |
| 500 RMC                 | 2,2                             | 2,0                         | 35,1                         | 4909                   | 0,0366   |
| 500 RM                  | 2,2                             | 2,0                         | 37,1                         | 4854                   | 0,0366   |
| 630 RMC                 | 2,4                             | 2,2                         | 39,7                         | 6241                   | 0,0283   |
| 630 RM                  | 2,4                             | 2,2                         | 42,0                         | 6311                   | 0,0283   |
| 1000 RMC                | 2,8                             | 2,4                         | 48,7                         | 9776                   | 0,0176   |

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# 6181XB

## 600/1000V

BS 8573

XLPE insulated and LSOH sheathed single-core cable

### APPLICATIONS

Fixed Installations in industrial areas, buildings and similar applications. The cables are not suitable for either direct burial in the ground or installation within cable ducts that are buried in the ground. They are designed for fixed installation only, i.e. they are not to be used where they are subject to flexing

Standard length cable packing

500 and 1000 m on spools or drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

|                      |   |
|----------------------|---|
| Conductors:          | annealed copper stranded circular compacted conductor class 2(RM) acc. to BS EN 60228 |
| Insulation:          | XLPE compound type GP8 acc to BS 7655-1.3   |
| Sheath:              | Halogen-free thermoplastic compound type LTS4 acc to 7655-6.1                         |
| Colour of sheath:    | black   |
| Core identification: | blue or brown   |



### CHARACTERISTICS

|  |                           |
|--|---------------------------|
| Maximum conductor operating temperature:           | +90°C                     |
| Lowest ambient temperature for fixed installation: | -30°C                     |
| Lowest installation temperature:                   | 5°C                       |
| Maximum short-circuit conductor temperature:       | +250°C                    |
| Minimum installation radius:                       | For cable diameter D (mm) |
|  | D ≤ 25      D > 25        |
|  | 4 D          6 D          |

## Fire performance

|  |   |
|--|---|
| Flame retardant:                               | BS EN 60332-1-2, BS EN 60332-3-24   |
| Corrosive and acid gas emission of insulation: | <b>BS EN 60754-2, pH <math>\geq</math> 4,3 &amp; conductivity <math>\leq</math> 10 mSmm-1</b><br><b>BS EN 60754-1, HCL <math>\leq</math> 0,5%</b> |
| Smoke emission:                                | BS EN 61034-2   |

| Conductor cross-section | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight | Maximum conductor resistance at temperature 20°C |
|-------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|--|
| mm <sup>2</sup>         | mm                              | mm                          | mm                           | kg/km                  | $\Omega$ /km                                     |
| 6                       | 0,7                             | 1,4                         | 7,1                          | 97                     | 3,08   |
| 10                      | 0,7                             | 1,4                         | 8,0                          | 140                    | 1,83   |
| 16                      | 0,7                             | 1,4                         | 9,0                          | 200                    | 1,15   |
| 25                      | 0,9                             | 1,4                         | 10,9                         | 305                    | 0,727  |
| 35                      | 0,9                             | 1,4                         | 12,0                         | 400                    | 0,524  |
| 50                      | 1,0                             | 1,4                         | 13,5                         | 526                    | 0,387  |
| 70                      | 1,1                             | 1,4                         | 15,0                         | 728                    | 0,268  |
| 95                      | 1,1                             | 1,5                         | 17,2                         | 988                    | 0,193  |
| 120                     | 1,2                             | 1,5                         | 18,8                         | 1225                   | 0,153  |
| 150                     | 1,4                             | 1,6                         | 21,0                         | 1510                   | 0,124  |
| 185                     | 1,6                             | 1,6                         | 22,9                         | 1867                   | 0,0991   |
| 240                     | 1,7                             | 1,7                         | 25,8                         | 2410                   | 0,0754   |
| 300                     | 1,8                             | 1,8                         | 28,0                         | 2996                   | 0,0601   |
| 400                     | 2,0                             | 1,9                         | 31,3                         | 3858                   | 0,0470   |
| 500                     | 2,2                             | 2,0                         | 35,1                         | 4920                   | 0,0366   |
| 630                     | 2,4                             | 2,2                         | 39,7                         | 6255                   | 0,0283   |
| 800                     | 2,6                             | 2,3                         | 45,0                         | 7902                   | 0,0221   |
| 1000                    | 2,8                             | 2,4                         | 48,7                         | 9794                   | 0,0176   |

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# NYY-J, O 0,6/1kV (N)YY-J, O 0,6/1kV

VDE 0276-603, VDE 0276-627, IEC 60502-1

\*based on norm

PVC insulated and PVC sheathed power and control cable

## APPLICATIONS

PVC insulated and sheathed power and auxiliary control cables for the supply of electrical energy. Special for installations in the open air, in underground and water, indoors, in cable ducts.

Standard length cable packing

1000m on drums.  
Other forms of packing and delivery are available on request.

## CONSTRUCTION

Conductors:

Annealed copper solid class 1(RE), circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to EN 60228

Insulation:

Special PVC compound type DIV4 acc. to HD 603.1

Inner covering:

Filling compound

Sheath:

Special PVC compound type DMV5 acc. to HD 603.1



## CHARACTERISTICS

Colour of sheath:

Black (other colours, included in standard RAL pallet available at customer request as (N)YY)

Core identification:

HD 308 S2 (other colours available at customer request)

**NYY-J**

**NYY-O**

|   |  |   |                                 |
|---|--|---|---------------------------------|
| 1-core:   | green-yellow   | 1-core:   | black                           |
| 2-core:   | green-yellow, black <sup>1)</sup>                    | 2-core:   | blue, brown                     |
| 3-core:   | green-yellow, black, brown                           | 3-core:   | brown, black, grey              |
| 4-core:   | green-yellow, brown, black, grey                     | 3-core*:  | blue, brown, black              |
| 4-core*:  | green-yellow, blue, brown, black                     | 4-core:   | blue, brown, black, grey        |
| 5-core:   | green-yellow, blue, brown, black, grey               | 5-core:   | blue, brown, black, grey, black |
| 7 and more:   | green-yellow, other cores black with white numbering | 7 and more:   | black with white numbering      |
| <sup>1)</sup> $\geq 10\text{mm}^2$                                |  | * For certain applications only.  |                                 |
| Maximum conductor operating temperature:                          |  | +70°C   |                                 |
| Lowest ambient temperature for fixed installation:                |  | -40°C   |                                 |
| Lowest installation temperature:                                  |  | -5°C  |                                 |
| Maximum short-circuit conductor temperature:                      |  | +160°C for cross-sectional area of conductor $\leq 300\text{mm}^2$<br>and +140°C for cross-sectional area of conductor $> 300\text{mm}^2$ |                                 |
| Minimum bending radius:   |  | 15 × D single core cables, 12 × D multicore cables,<br>D – overall diameter   |                                 |
| Max. permissible tensile stress with cable grip for Cu-conductor: |  | 50 N/mm <sup>2</sup>  |                                 |
| Test voltage:   |  | 4kV   |                                 |
| Current of short-circuit (1 sec):                                 |  | 115 × nominal cross section conductor (A)   |                                 |
| Flame retardant:  |  | EN 60332-1-2  |                                 |
| CPR – class reaction to fire (acc EN 50575):                      |  | Eca   |                                 |

## Fire performance

Standard length cable packing

1000m on drums.

Other forms of packing and delivery are available on request.

## Approvals

VDE, GOST

# Technical and Electrical Characteristics

| Number and cross-sectional area of conductor | Minimum number of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--------------------------------------|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>n</b>                             | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 2x1,5RE                                      | 1                                    | 0,8                             | 1,8                         | 9,9                          | 145                              | 12,1   |
| 2x1,5RM                                      | 7                                    | 0,8                             | 1,8                         | 10,3                         | 155                              | 12,1   |
| 2x2,5RE                                      | 1                                    | 0,8                             | 1,8                         | 10,7                         | 179                              | 7,41   |
| 2x2,5RM                                      | 7                                    | 0,8                             | 1,8                         | 11,2                         | 193                              | 7,41   |
| 2x4RE  | 1                                    | 1                               | 1,8                         | 12,4                         | 251                              | 4,61   |
| 2x4RM  | 7                                    | 1                               | 1,8                         | 13                           | 272                              | 4,61   |
| 2x6RE  | 1                                    | 1                               | 1,8                         | 13,4                         | 312                              | 3,08   |
| 2x6RM  | 6                                    | 1                               | 1,8                         | 13,7                         | 324                              | 3,08   |
| 2x10RE                                       | 1                                    | 1                               | 1,8                         | 15                           | 428                              | 1,83   |
| 2x10RM                                       | 6                                    | 1                               | 1,8                         | 15,6                         | 452                              | 1,83   |
| 2x16RE                                       | 1                                    | 1                               | 1,8                         | 16,8                         | 586                              | 1,15   |
| 2x16RM                                       | 6                                    | 1                               | 1,8                         | 17,6                         | 623                              | 1,15   |
| 3x1,5RE                                      | 1                                    | 0,8                             | 1,8                         | 10,3                         | 164                              | 12,1   |
| 3x1,5RM                                      | 7                                    | 0,8                             | 1,8                         | 10,8                         | 176                              | 12,1   |
| 3x2,5RE                                      | 1                                    | 0,8                             | 1,8                         | 11,2                         | 208                              | 7,41   |
| 3x2,5RM                                      | 7                                    | 0,8                             | 1,8                         | 11,7                         | 223                              | 7,41   |
| 3x4RE  | 1                                    | 1                               | 1,8                         | 13                           | 295                              | 4,61   |
| 3x4RM  | 7                                    | 1                               | 1,8                         | 13,7                         | 318                              | 4,61   |
| 3x6RE  | 1                                    | 1                               | 1,8                         | 14,1                         | 374                              | 3,08   |
| 3x6RM  | 6                                    | 1                               | 1,8                         | 14,5                         | 388                              | 3,08   |
| 3x10RE                                       | 1                                    | 1                               | 1,8                         | 15,8                         | 524                              | 1,83   |
| 3x10RM                                       | 6                                    | 1                               | 1,8                         | 16,4                         | 549                              | 1,83   |
| 3x16RE                                       | 1                                    | 1                               | 1,8                         | 18,1                         | 750                              | 1,15   |
| 3x16RM                                       | 6                                    | 1                               | 1,8                         | 18,6                         | 771                              | 1,15   |
| 4x1,5RE                                      | 1                                    | 0,8                             | 1,8                         | 11,1                         | 192                              | 12,1   |
| 4x1,5RM                                      | 7                                    | 0,8                             | 1,8                         | 11,5                         | 204                              | 12,1   |
| 4x2,5RE                                      | 1                                    | 0,8                             | 1,8                         | 12                           | 245                              | 7,41   |

| Number and cross-sectional area of conductor | Minimum number of wires in conductor | Nominal thickness of insulation | Nominal thickness of sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|--|--------------------------------------|---------------------------------|-----------------------------|------------------------------|----------------------------------|--|
| <b>n × mm<sup>2</sup></b>                    | <b>n</b>                             | <b>mm</b>                       | <b>mm</b>                   | <b>mm</b>                    | <b>kg/km</b>                     | <b>Ω/km</b>                                      |
| 4x2,5RM                                      | 7                                    | 0,8                             | 1,8                         | 12,6                         | 263                              | 7,41   |
| 4x4RE  | 1                                    | 1                               | 1,8                         | 14,1                         | 354                              | 4,61   |
| 4x4RM  | 7                                    | 1                               | 1,8                         | 14,8                         | 379                              | 4,61   |
| 4x6RE  | 1                                    | 1                               | 1,8                         | 15,2                         | 451                              | 3,08   |
| 4x6RM  | 6                                    | 1                               | 1,8                         | 15,7                         | 468                              | 3,08   |
| 4x10RE                                       | 1                                    | 1                               | 1,8                         | 17,1                         | 640                              | 1,83   |
| 4x10RM                                       | 6                                    | 1                               | 1,8                         | 17,9                         | 671                              | 1,83   |
| 4x16RE                                       | 1                                    | 1                               | 1,8                         | 19,3                         | 902                              | 1,15   |
| 4x16RM                                       | 6                                    | 1                               | 1,8                         | 20,3                         | 950                              | 1,15   |
| 5x1,5RE                                      | 1                                    | 0,8                             | 1,8                         | 11,9                         | 226                              | 12,1   |
| 5x1,5RM                                      | 7                                    | 0,8                             | 1,8                         | 12,4                         | 241                              | 12,1   |
| 5x2,5RE                                      | 1                                    | 0,8                             | 1,8                         | 12,9                         | 291                              | 7,41   |
| 5x2,5RM                                      | 7                                    | 0,8                             | 1,8                         | 13,6                         | 313                              | 7,41   |
| 5x4RE  | 1                                    | 1                               | 1,8                         | 15,2                         | 423                              | 4,61   |
| 5x4RM  | 7                                    | 1                               | 1,8                         | 16                           | 455                              | 4,61   |
| 5x6RE  | 1                                    | 1                               | 1,8                         | 18,1                         | 623                              | 3,08   |
| 5x6RM  | 6                                    | 1                               | 1,8                         | 17                           | 564                              | 3,08   |
| 5x10RE                                       | 1                                    | 1                               | 1,8                         | 19,1                         | 802                              | 1,83   |
| 5x10RM                                       | 6                                    | 1                               | 1,8                         | 19,5                         | 816                              | 1,83   |
| 5x16RE                                       | 1                                    | 1                               | 1,8                         | 22,1                         | 1167                             | 1,15   |
| 5x16RM                                       | 6                                    | 1                               | 1,8                         | 22,2                         | 1163                             | 1,15   |
| 7x1,5RE                                      | 1                                    | 0,8                             | 1,8                         | 12,7                         | 271                              | 12,1   |
| 7x1,5RM                                      | 7                                    | 0,8                             | 1,8                         | 13,3                         | 289                              | 12,1   |
| 7x2,5RE                                      | 1                                    | 0,8                             | 1,8                         | 13,8                         | 355                              | 7,41   |
| 7x2,5RM                                      | 7                                    | 0,8                             | 1,8                         | 14,6                         | 381                              | 7,41   |

## Current ratings\*

Operating temperature at conductor 70°C; ambient air temperature 30°C, ground temperature 20°C

| Installation                   | 1)                            |     |     | 1)            |      |    |
|--------------------------------|-------------------------------|-----|-----|---------------|------|----|
| Number of loaded cores         | 1                             | 2   | 3   | 1             | 2    | 3  |
|                                | laying in ground              |     |     | laying in air |      |    |
| Cross-section, mm <sup>2</sup> | Current ratings in Ampere (A) |     |     |               |      |    |
| 1,5                            | 41                            | 27  | 30  | 27            | 19,5 | 21 |
| 2,5                            | 55                            | 36  | 39  | 35            | 25   | 28 |
| 4                              | 71                            | 47  | 50  | 47            | 34   | 37 |
| 6                              | 90                            | 59  | 62  | 59            | 43   | 47 |
| 10                             | 124                           | 79  | 83  | 81            | 59   | 64 |
| 16                             | 160                           | 102 | 107 | 107           | 79   | 84 |

<sup>1)</sup> Rated current for direct current systems with a far-distanced return conductor.

\* based on norm

## Current ratings for control cables – HD 627 S1

| Number of loaded cores         | 3                             | 3             |
|--------------------------------|-------------------------------|---------------|
|                                | laying in ground              | laying in air |
| Cross-section, mm <sup>2</sup> | Current ratings in Ampere (A) |               |
| 1,5                            | 27                            | 19,5          |
| 2,5                            | 36                            | 25            |

The values are referred to the following basic conditions

| Laying in ground                          |           | Laying in air  |      |
|---|-----------|--|------|
| Ground temperature at installation depth: | 20°C      | Ambient temperature:   | 30°C |
| Load factor:                              | 0,7       | Load factor:   | 1,0  |
| Soil-thermal resistivity of moist area:   | 1,0 K·m/W | Arrangement: free in air, protection against direct solar radiation, no external heat sources, unrestricted dissipation of heat. |      |
| Soil-thermal resistivity of dry area:     | 2,5 K·m/W |  |      |
| Laying depth:                             | 0,7 m     |  |      |



## Correction factors for various ambient air temperatures

| Ambient temperature, °C | 10   | 15   | 20   | 25   | 30   | 35   | 40   | 45   | 50   |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Rating factor           | 1,22 | 1,17 | 1,12 | 1,06 | 1,00 | 0,94 | 0,87 | 0,79 | 0,71 |

## Conversion factors for multicore cable

The conversion factors are to be used for laying the cables in ground or in air, to the values given in above tables.

| Number of loaded cores | Laying in ground | Laying in air |
|------------------------|------------------|---------------|
| 5                      | 0,70             | 0,75          |
| 7                      | 0,60             | 0,65          |

Note: valid for cross-section 1,5 to 10 mm<sup>2</sup>

\* As defined in DIN VDE 0276-603, DIN VDE 0276-627, HD 603 S1, HD 627 S1.

Conversion factors for deviating ambient temperature defined in DIN VDE 0298 part 4.

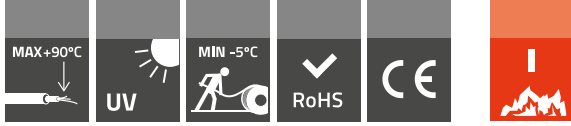
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**TF**  
*Kable*

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# Service Cables





# STRAIGHT CONCENTRIC (HYBRAL) AI/XLPE/PVC

## 600/1000V

BS 7870-3.11

XLPE insulated copper screened cable with aluminium conductor and PVC sheath

### APPLICATIONS

The cables are designed to be installed in air (indoors and/or outdoors), or may be buried directly in free draining soil or in ducts.

Standard length cable packing

250 and 500m on drums.

Other forms of packing and delivery are available on request

### CONSTRUCTION

|                       |  |
|-----------------------|--|
| Conductors:           | aluminium circular solid conductor class 1 (RE) acc. to EN 60228   |
| Insulation:           | XLPE type DIX 3 acc to BS 7870-3.11:2011<br>Colour: 1-core: black<br>3-cores: brown, black and grey                          |
| Bedding:              | synthetic tape bedding applied over the laid-up cores of 3-phase cables or as agreed between the customer and the contractor |
| Concentric conductor: | Cu bare wires wrapped helically, over concentric conductor there is a wrapping of polyester tape                             |
| Outer sheath:         | PVC type DMV 23 acc. to BS 7870-1, annex B, colour black   |



### CHARACTERISTICS

|   |                              |
|---|------------------------------|
| Maximum conductor operating temperature:                          | +90°C                        |
| Lowest ambient temperature for fixed installation:                | -30°C                        |
| Lowest installation temperature:                                  | -5°C                         |
| Maximum short-circuit conductor temperature:                      | +250°C                       |
| Minimum bending radius:   | 15 x D, D – overall diameter |
| Max. permissible tensile stress with cable grip for Cu-conductor: | 30 N/mm <sup>2</sup>         |

# Fire performance

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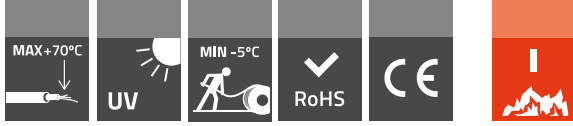
Flame retardant: EN 60332-1-2

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| Number and cross-sectional area of conductor | Nominal thickness of insulation | Nominal thickness of outer sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at 20°C<br>Phase / Neutral |
|--|---------------------------------|-----------------------------------|------------------------------|----------------------------------|---|
| mm <sup>2</sup>                              | mm                              | mm                                | mm                           | kg/km                            | Ω/km  |
| 1x25RE                                       | 0,9                             | 1,4                               | 12,2                         | 295                              | 1,2/1,3   |
| 1x35RE                                       | 0,9                             | 1,4                               | 13,7                         | 395                              | 0,868/0,91  |
| 3x25RE                                       | 0,9                             | 1,8                               | 21,7                         | 638                              | 1,2/1,3   |
| 3x35RE                                       | 0,9                             | 1,8                               | 24,8                         | 851                              | 0,868/0,91  |

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# SPLIT CONCENTRIC Cu/PVC/PVC 600/1000V

BS 7870-3.20

PVC insulated split concentric cables with copper conductors and PVC sheath.

## APPLICATIONS

The cables are designed to be installed in air (indoors and/or outdoors), or may be buried directly in free draining soil or in ducts.

Standard length cable packing

500 and 1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|                              |  |
|------------------------------|--|
| Conductors:                  | Cu circular or circular compacted stranded conductor class 2 (RM) acc. to EN 60228                         |
| Insulation:                  | PVC type T11 acc. to BS 7655-3.1, colour brown   |
| Neutral and earth conductor: | neutral and earth conductor are wrapped helically over core cable and separated from each other by fillers |
| Outer sheath:                | PVC type TM1 acc. to BS 7655-4.1 ; colour black  |



## CHARACTERISTICS

|   |                              |
|---|------------------------------|
| Maximum conductor operating temperature:                          | +70°C                        |
| Lowest ambient temperature for fixed installation:                | -30°C                        |
| Lowest installation temperature:                                  | -5°C                         |
| Maximum short-circuit conductor temperature:                      | +160°C                       |
| Minimum bending radius:   | 15 x D, D – overall diameter |
| Max. permissible tensile stress with cable grip for Cu-conductor: | 50 N/mm <sup>2</sup>         |

# Fire performance

Flame retardant: EN 60332-1-2

| Cross-sectional area of conductor | Nominal thickness of insulation | Diameter over insulation | Nominal thickness of outer sheath | Approx. overall diameter | Approx. net weight of cables | Maximum conductor resistance at 20°C<br>Phase/Neutral/Earth | Current ratings**<br>laying in ground/<br>laying in air |
|-----------------------------------|---------------------------------|--------------------------|-----------------------------------|--------------------------|------------------------------|---|---|
| mm <sup>2</sup>                   | mm                              | mm                       | mm                                | mm                       | kg/km                        | Ω/km  | A   |
| 4                                 | 0,8                             | 4,8                      | 1,4                               | 10,4                     | 202                          | 4,61/ 4,8/ 4,8  | 51/39   |
| 6*                                | 1,0                             | 6,3                      | 1,4                               | 10,8                     | 269                          | 3,08/ 3,3/ 3,2  | 63/49   |
| 10*                               | 1,0                             | 6,8                      | 1,4                               | 12,2                     | 456                          | 1,83/ 1,9/ 1,9  | 84/67   |
| 16                                | 1,0                             | 8,6                      | 1,4                               | 15,9                     | 599                          | 1,15/ 1,2/ 1,2  | 108/89  |
| 25                                | 1,2                             | 10,3                     | 1,5                               | 18,0                     | 840                          | 0,727/0,76/1,2  | 139/119   |
| 35*                               | 1,2                             | 10,4                     | 1,5                               | 18,3                     | 941                          | 0,524/0,76/1,2  | 166/146   |

\*based on BS 7870-3.20

\*\* Current ratings\*

Operating temperature at conductor 70°C; ambient air temperature 30°C, ground temperature 20°C

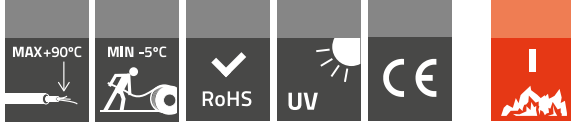
The values are referred to the following basic conditions:

| Laying in ground                          |             | Laying in air  |      |
|---|-------------|--|------|
| Ground temperature at installation depth: | 20°C        | Ambient temperature:   | 30°C |
| Load factor:                              | 0,7         | Load factor:   | 1,0  |
| Soil-thermal resistivity of moist area:   | 1,0 K - m/W | Arrangement: free in air, protection against direct solar radiation, no external heat sources, unrestricted dissipation of heat. |      |
| Soil-thermal resistivity of dry area:     | 2,5 K - m/W |  |      |
| Laying depth:                             | 0,7 m       |  |      |

## Correction factors for various ambient air temperatures

| Ambient temperature, °C | 10   | 15   | 20   | 25   | 30   | 35   | 40   | 45   | 50   |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Rating factor           | 1,22 | 1,17 | 1,12 | 1,06 | 1,00 | 0,94 | 0,87 | 0,79 | 0,71 |

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# SPLIT CONCENTRIC Cu/XLPE/PVC 600/1000V

BS 7870-3.21

XLPE insulated split concentric cables with copper conductors and PVC sheath

## APPLICATIONS

The cables are designed to be installed in air (indoors and/or outdoors), or may be buried directly in free draining soil or in ducts.

Standard length cable packing

500 and 1000m on drums.

Other forms of packing and delivery are available on request

## CONSTRUCTION

|                              |  |
|------------------------------|--|
| Conductors:                  | Cu circular or circular compacted stranded conductor class 2 (RM) acc. to EN 60228                         |
| Insulation:                  | XLPE type DIX3 acc. to BS 7880-1 Annex B, colour brown,  |
| Neutral and earth conductor: | neutral and earth conductor are wrapped helically over core cable and separated from each other by fillers |
| Outer sheath:                | PVC type DMV 23 acc. to BS 7880-1 Annex B ; colour black   |



## CHARACTERISTICS

|   |                              |
|---|------------------------------|
| Maximum conductor operating temperature:                          | +90°C                        |
| Lowest ambient temperature for fixed installation:                | -30°C                        |
| Lowest installation temperature:                                  | +5°C                         |
| Maximum short-circuit conductor temperature:                      | +250°C                       |
| Minimum bending radius:   | 15 x D, D – overall diameter |
| Max. permissible tensile stress with cable grip for Cu-conductor: | 50 N/mm <sup>2</sup>         |

## Fire performance

|                  |              |
|------------------|--------------|
| Flame retardant: | EN 60332-1-2 |
|------------------|--------------|

| Cross-sectional area of conductor | Nominal thickness of insulation | Nominal thickness of outer sheath | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at 20°C<br>Phase/Neutral/Earth |
|-----------------------------------|---------------------------------|-----------------------------------|------------------------------|----------------------------------|---|
| mm <sup>2</sup>                   | mm                              | mm                                | mm                           | kg/km                            | Ω/km  |
| 4                                 | 0,7                             | 1,4                               | 10,1                         | 180                              | 4,61/ 4,8/ 4,8  |
| 6*                                | 0,7                             | 1,4                               | 10,9                         | 257                              | 3,08/ 3,3/ 3,2  |
| 10*                               | 0,7                             | 1,4                               | 12,9                         | 365                              | 1,83/ 1,9/ 1,9  |
| 16                                | 0,7                             | 1,4                               | 15,2                         | 555                              | 1,15/ 1,2/ 1,2  |
| 25                                | 0,9                             | 1,5                               | 18,0                         | 798                              | 0,727/ 0,76/ 1,2  |
| 35*                               | 0,9                             | 1,5                               | 23,3                         | 1184                             | 0,524 / 0,524 / 0,727                                       |

\*based on BS 7870-3.21  
Current ratings\*

Operating temperature at conductor 90°C; ambient air temperature 30°C, ground temperature 20°C

| Installation                   |                               |               |
|--------------------------------|-------------------------------|---------------|
| Number of loaded cores         | 3                             | 3             |
|                                | laying in ground              | laying in air |
| Cross-section, mm <sup>2</sup> | Current ratings in Ampere (A) |               |
| 4                              | 55                            | 47            |
| 6                              | 68                            | 59            |
| 10                             | 91                            | 81            |
| 16                             | 117                           | 109           |
| 25                             | 150                           | 146           |
| 35                             | 179                           | 179           |

The values are referred to the following basic conditions:

| Laying in ground                          |           | Laying in air  |      |
|---|-----------|--|------|
| Ground temperature at installation depth: | 20°C      | Ambient temperature:   | 30°C |
| Load factor:                              | 0,7       | Load factor:   | 1,0  |
| Soil-thermal resistivity of moist area:   | 1,0 K m/W | Arrangement: free in air, protection against direct solar radiation, no external heat sources, unrestricted dissipation of heat. |      |
| Soil-thermal resistivity of dry area:     | 2,5 K m/W |  |      |
| Laying depth:                             | 0,7 m     |  |      |

Correction factors for various ambient air temperatures

| Ambient temperature, °C | 10   | 15   | 20   | 25   | 30   | 35   | 40   | 45   | 50   |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Rating factor           | 1,15 | 1,12 | 1,08 | 1,04 | 1,00 | 0,96 | 0,91 | 0,87 | 0,82 |

\* As defined in DIN VDE 0276-603, DIN VDE 0276-627, HD 603 S1, HD 627 S1.

Conversion factors for deviating ambient temperature defined in DIN VDE 0298 part 4











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