



**FIRE RESISTANT CABLES**



**FP400®**

# FIRE RESISTANT CABLES

**FP400®**  
**BS7846-F2**

**FP400®**



## APPROVALS

## INSTALLATION



Certificate No 077b  
Certificate No 517b



- > Prysmian FP400® is the original fire resistant armoured cable providing an easy to install and terminate, robust fire resistant wiring system. In addition to maintaining circuit integrity during a fire, FP400® produces very low levels of smoke and virtually no (less than 0.5%) acidic gases, thus safeguarding human life and protecting equipment.

FP400® handles like a standard armoured cable and can be installed just as easily. No special tools or accessories are needed for installation or termination of FP400®, which ensures that substantial installation cost savings, compared with MICC, can be achieved through its use.

FP400® is suitable for indoor or outdoor installation requiring a robust armoured cable, including direct burial, trough, fixed direct, tray or ladder.

Prysmian FP400® complies with BS7846 Category F2 which ensures that it complies with the requirements for "protected power circuits" given in the 2000 edition of Approved Document B Fire safety of The Building Regulations 2000.

- > Prysmian FP400® is British Approvals Service for Cables (BASEC) approved to BS7846 Category F2. It is also Loss Prevention Certification Board (LPCB) listed as a fire resistant cable and approved to BS6387 Category CWZ, at an enhanced voltage of 600/1000V.

Witnessed ad-hoc tests have demonstrated the ability of FP400® to achieve fire resistant properties in excess of those required by BS6387 Category CWZ and on the basis of these tests Prysmian FP400® has been approved for many projects where previously only MICC had been approved.

Additional tests have demonstrated the ability of FP400® to achieve a 60 minute rating (PH60) to BS EN50200 and a 30 minute rating to BS8434-1. These tests demonstrate that FP400® also meets the requirements for use in "standard" installations in accordance with BS5839-1:2002 for fire detection and alarm systems, and "Cables with inherently high resistance to attack by fire" in accordance with BS5266-1:2005 for emergency lighting.

All Prysmian FP400® cables are manufactured under an ISO 9001 Quality System certified by BASEC and LPCB.

- > Prysmian FP400® may be considered as a low smoke armoured cable to BS6724 for the purposes of installation and should be installed in accordance with BS7671/IEE Wiring Regulations or any other appropriate national regulations. Although standard armour cable fixings and glands may be used, it is important to ensure that, when the cable is required to maintain circuit integrity in a fire, any fixing used to support the cable can also withstand that fire. The use of the appropriate BICON® gland or cleat is recommended.

## CABLE CHARACTERISTICS



Temperature Range  
-25 to +90°C



Bending Radius  
Circular conductor r=6D  
Shaped conductor r=8D



Mechanical Impact  
Very Good



Fire Performance  
BSEN60332-1-2  
BSEN50266-2-4



Flexibility  
Rigid



Halogen Free  
BSEN50267-2-1



Low Smoke Emissions  
BS EN 1034-2



Fire Resistant  
BS6387  
Category  
CWZ

# FP 400°

# FIRE RESISTANT CABLES

## KEY APPLICATIONS

- > Essential safety circuits associated with fire detection, fire alarm, emergency lighting and particularly for power supplies to building equipment used in safety systems.

## CABLE DESCRIPTION:

### CONDUCTOR

Plain annealed copper stranded (class 2) conductor for ease of handling.

### PRIMARY INSULATION

Mineral ceramic (Mica/Glass) fire resistant tape

### SECONDARY INSULATION

90°C cross - linked insulation

## CORE IDENTIFICATION:

### HARMONISED CORE IDENTIFICATION:

- ○ brown-blue
- ○ ○ brown-black-grey
- ○ ○ blue-brown-black-grey
- 7-48 cores white with printed numbers

### NON HARMONISED CORE IDENTIFICATION:

- ○ red-black
- ○ ○ red-yellow-blue
- ○ ○ black-red-yellow-blue
- Non harmonised colours to special order.

### BEDDING

Extruded LSOH bedding compound.

### ARMOUR

Single layer of galvanised steel wires.

### SHEATH

Robust LSOH sheath. Colour - black.  
Other colours to special order

## INSTALLATION

Minimum recommended installation temperature 0°C.  
Suitable for indoor and outdoor installations. For external exposure the use of a Black sheath is recommended.

Should be installed in accordance with BS7671/IEE Wiring Regulations or any other appropriate national regulations.

Suitable for direct burial, trough, tray, ladder or other installations requiring a robust armoured cable.

## BENDING RADIUS

A minimum internal radius of bend of 6 x cable diameter is recommended during installations for cables having circular conductors and 8 x cable diameter for cables having shaped conductors.

## ACCESSORIES

No special accessories are required for the installation of FP400°.

Standard brass armoured cable glands and cast iron cleats may be used.

When the cable is required to maintain circuit integrity in a fire, it is important that any accessory used to support the cable can also withstand that fire. The use of the appropriate BICON® gland or cleat is recommended.

## CURRENT RATINGS

The tabulated ratings are based upon a 30°C ambient temperature and a 90°C operating temperature.  
For other ambient temperatures or where cables are grouped together, the following rating factors should be applied.

### Rating factors for Ambient temperatures

| Ambient Temperature °C | 25   | 30   | 35   | 40   | 45   | 50   | 55   | 60   |
|------------------------|------|------|------|------|------|------|------|------|
| Rating factor          | 1.02 | 1.00 | 0.96 | 0.91 | 0.87 | 0.82 | 0.76 | 0.71 |

### Rating factors for grouping of cables

| Installation Method   |          | Number of circuits or multi-core cables |      |      |      |      |      |      |      |
|---|----------|---|------|------|------|------|------|------|------|
|   |          | 2                                       | 3    | 4    | 5    | 6    | 7    | 8    | 9    |
| Single layer clipped to a non-metallic surface                                  | Touching | 0.85                                    | 0.79 | 0.75 | 0.73 | 0.72 | 0.72 | 0.71 | 0.70 |
|   | Spaced*  | 0.94                                    | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Single layer multicore on a perforated metal cable tray, vertical or horizontal | Touching | 0.88                                    | 0.82 | 0.77 | 0.75 | 0.73 | 0.73 | 0.72 | 0.72 |
|   | Spaced*  | 0.91                                    | 0.89 | 0.88 | 0.87 | 0.87 | -    | -    | -    |

\* Spaced by a clearance between adjacent surfaces of at least one cable diameter.

Where the horizontal clearance between adjacent cables exceeds 2 cable diameters no correction factor need be applied

Note. Standard conditions of grouping as stated in BS7671 IEE Wiring Regs apply

# FP 400®

# FIRE RESISTANT CABLES

| Nominal cross sectional area<br>mm <sup>2</sup> | Approximate overall diameter<br>mm | Approximate diameter under armour<br>mm | Nominal diameter of armour wires<br>mm | Approximate cable weight<br>kg/km | Maximum conductor resistance at 20°C<br>ohms/km | Short Circuit rating (1 sec)<br>of conductor<br>KA | Current rating<br>Three phase AC<br>Clipped direct<br>Amps | Current rating<br>Three phase AC<br>Free Air<br>Amps | Volt drop<br>Three phase AC<br>mV/A/m |
|---|------------------------------------|---|--|-----------------------------------|---|--|--|--|---------------------------------------|
|---|------------------------------------|---|--|-----------------------------------|---|--|--|--|---------------------------------------|

## Three Core

|     |      |      |      |       |        |      |     |     |       |
|-----|------|------|------|-------|--------|------|-----|-----|-------|
| 1.5 | 13.4 | 8.8  | 0.9  | 340   | 12.1   | 0.20 | 23  | 25  | 27    |
| 2.5 | 14.8 | 10.2 | 0.9  | 430   | 7.41   | 0.35 | 31  | 33  | 16    |
| 4   | 16.1 | 11.5 | 0.9  | 510   | 4.61   | 0.57 | 42  | 44  | 10    |
| 6   | 17.4 | 12.8 | 0.9  | 620   | 3.08   | 0.86 | 53  | 56  | 6.8   |
| 10  | 20.3 | 14.8 | 1.25 | 930   | 1.83   | 1.4  | 73  | 78  | 4.0   |
| 16  | 22.8 | 17.1 | 1.25 | 1210  | 1.15   | 2.2  | 94  | 99  | 2.5   |
| 25  | 27.4 | 20.8 | 1.6  | 1800  | 0.727  | 3.6  | 124 | 131 | 1.65  |
| 35  | 29.2 | 22.4 | 1.6  | 2100  | 0.524  | 5.0  | 154 | 162 | 1.15  |
| 50  | 33.0 | 26.2 | 1.6  | 2600  | 0.387  | 7.1  | 187 | 197 | 0.87  |
| 70  | 37.0 | 30.0 | 1.6  | 3400  | 0.268  | 10.0 | 238 | 251 | 0.60  |
| 95  | 40.6 | 32.4 | 2.0  | 4500  | 0.193  | 13.6 | 289 | 304 | 0.45  |
| 120 | 43.8 | 35.4 | 2.0  | 5500  | 0.153  | 17.2 | 335 | 353 | 0.37  |
| 150 | 48.0 | 38.4 | 2.5  | 6900  | 0.124  | 21.4 | 386 | 406 | 0.30  |
| 185 | 52.0 | 42.2 | 2.5  | 8200  | 0.0991 | 26.5 | 441 | 463 | 0.26  |
| 240 | 57.1 | 46.9 | 2.5  | 10200 | 0.0754 | 34.3 | 520 | 546 | 0.21  |
| 300 | 63.0 | 52.6 | 2.5  | 12200 | 0.0601 | 42.9 | 599 | 628 | 0.185 |
| 400 | 69.5 | 58.7 | 2.5  | 15000 | 0.0470 | 57.2 | 673 | 728 | 0.165 |

## Four Core

|     |      |      |      |       |        |      |     |     |       |
|-----|------|------|------|-------|--------|------|-----|-----|-------|
| 1.5 | 14.3 | 9.7  | 0.9  | 390   | 12.1   | 0.20 | 23  | 25  | 27    |
| 2.5 | 16.0 | 11.4 | 0.9  | 490   | 7.41   | 0.35 | 31  | 33  | 16    |
| 4   | 17.3 | 12.7 | 0.9  | 590   | 4.61   | 0.57 | 42  | 44  | 10    |
| 6   | 19.6 | 14.1 | 1.25 | 830   | 3.08   | 0.86 | 53  | 56  | 6.8   |
| 10  | 21.8 | 16.3 | 1.25 | 1040  | 1.83   | 1.4  | 73  | 78  | 4.0   |
| 16  | 24.6 | 18.9 | 1.25 | 1370  | 1.15   | 2.2  | 94  | 99  | 2.5   |
| 25  | 29.1 | 22.5 | 1.6  | 2100  | 0.727  | 3.6  | 124 | 131 | 1.65  |
| 35  | 32.2 | 25.4 | 1.6  | 2500  | 0.524  | 5.0  | 154 | 162 | 1.15  |
| 50  | 35.0 | 28.0 | 1.6  | 3200  | 0.387  | 7.1  | 187 | 197 | 0.87  |
| 70  | 40.2 | 32.0 | 2.0  | 4500  | 0.268  | 10.0 | 238 | 251 | 0.60  |
| 95  | 44.0 | 35.6 | 2.0  | 5600  | 0.193  | 13.6 | 289 | 304 | 0.45  |
| 120 | 48.4 | 38.8 | 2.5  | 7200  | 0.153  | 17.2 | 335 | 353 | 0.37  |
| 150 | 52.5 | 42.7 | 2.5  | 8500  | 0.124  | 21.4 | 386 | 406 | 0.30  |
| 185 | 57.1 | 46.9 | 2.5  | 10300 | 0.0991 | 26.5 | 441 | 463 | 0.26  |
| 240 | 62.7 | 52.3 | 2.5  | 12800 | 0.0754 | 34.3 | 520 | 546 | 0.21  |
| 300 | 69.6 | 58.8 | 2.5  | 15600 | 0.0601 | 42.9 | 599 | 628 | 0.185 |
| 400 | 78.0 | 65.3 | 3.15 | 20400 | 0.0470 | 57.2 | 673 | 728 | 0.165 |

Circular conductor 1.5 – 35mm<sup>2</sup>.

Shaped conductor 50mm<sup>2</sup> and above.

Installation methods for current rating in accordance with BS7671/IEE Wiring Regulations.

The tabulated ratings are based upon a 30°C ambient temperature and 90°C operating temperature.

## LOW VOLTAGE 600/1000V

| Nominal cross sectional area<br>mm <sup>2</sup> | Approximate overall diameter<br>mm | Approximate diameter under armour<br>mm | Nominal diameter of armour wires<br>mm | Approximate cable weight<br>kg/km | Maximum conductor resistance at 20°C<br>ohms/km | Current rating DC or Single phase AC<br>Clipped direct Amps | Current rating DC or Single phase AC<br>Free Air Amps | Volt drop DC<br>mV/A/m | Volt drop Single phase AC<br>mV/A/m |
|---|------------------------------------|---|--|-----------------------------------|---|---|---|------------------------|-------------------------------------|
| Two Core  |                                    |   |  |                                   |   |   |   |                        |                                     |
| 1.5   | 12.9                               | 8.3                                     | 0.9                                    | 310                               | 12.1  | 27  | 29  | 31                     | 31                                  |
| 2.5   | 14.1                               | 9.6                                     | 0.9                                    | 380                               | 7.41  | 36  | 39  | 19                     | 19                                  |
| 4   | 15.2                               | 10.6                                    | 0.9                                    | 450                               | 4.61  | 49  | 52  | 12                     | 12                                  |
| 6   | 16.4                               | 12.0                                    | 0.9                                    | 530                               | 3.08  | 62  | 66  | 7.9                    | 7.9                                 |
| 10  | 18.6                               | 14.0                                    | 0.9                                    | 630                               | 1.83  | 85  | 90  | 4.7                    | 4.7                                 |
| 16  | 21.4                               | 15.9                                    | 0.9                                    | 920                               | 1.15  | 110   | 115   | 2.9                    | 2.9                                 |
| 25  | 23.7                               | 18.3                                    | 1.25                                   | 1200                              | 0.727   | 146   | 152   | 1.85                   | 1.9                                 |
| 35  | 27.2                               | 20.9                                    | 1.6                                    | 1600                              | 0.524   | 180   | 188   | 1.35                   | 1.35                                |
| 50  | 28.0                               | 21.2                                    | 1.6                                    | 2000                              | 0.387   | 219   | 228   | 0.98                   | 1.00                                |
| 70  | 30.7                               | 23.7                                    | 1.6                                    | 2400                              | 0.268   | 279   | 291   | 0.67                   | 0.69                                |
| 95  | 35.3                               | 27.3                                    | 2.0                                    | 3300                              | 0.193   | 338   | 354   | 0.49                   | 0.52                                |
| 120   | 36.6                               | 28.4                                    | 2.0                                    | 3800                              | 0.153   | 392   | 410   | 0.39                   | 0.42                                |
| 150   | 39.3                               | 30.9                                    | 2.0                                    | 4400                              | 0.124   | 451   | 472   | 0.31                   | 0.35                                |
| 185   | 44.2                               | 34.4                                    | 2.5                                    | 5700                              | 0.0991  | 515   | 539   | 0.25                   | 0.29                                |
| 240   | 48.0                               | 38.0                                    | 2.5                                    | 7200                              | 0.0754  | 607   | 636   | 0.195                  | 0.24                                |
| 300   | 51.8                               | 41.6                                    | 2.5                                    | 8300                              | 0.0601  | 698   | 732   | 0.155                  | 0.21                                |
| 400   | 55.9                               | 45.3                                    | 2.5                                    | 10500                             | 0.0470  | 787   | 847   | 0.120                  | 0.19                                |

|            |      |      |      |     |      |      |      |    |    |
|------------|------|------|------|-----|------|------|------|----|----|
| Seven Core |      |      |      |     |      |      |      |    |    |
| 1.5        | 16.4 | 11.8 | 0.9  | 500 | 12.1 | 27 * | 29 * | 31 | 31 |
| 2.5        | 18.3 | 13.7 | 0.9  | 640 | 7.41 | 36 * | 39 * | 19 | 19 |
| 4          | 20.8 | 15.3 | 1.25 | 910 | 4.61 | 49 * | 52 * | 12 | 12 |

|             |      |      |      |      |      |      |      |    |    |
|-------------|------|------|------|------|------|------|------|----|----|
| Twelve Core |      |      |      |      |      |      |      |    |    |
| 1.5         | 21.2 | 15.7 | 1.25 | 850  | 12.1 | 27 * | 29 * | 31 | 31 |
| 2.5         | 24.0 | 18.3 | 1.25 | 1090 | 7.41 | 36 * | 39 * | 19 | 19 |
| 4           | 27.3 | 20.9 | 1.6  | 1550 | 4.61 | 49 * | 52 * | 12 | 12 |

|               |      |      |      |      |      |      |      |    |    |
|---------------|------|------|------|------|------|------|------|----|----|
| Nineteen Core |      |      |      |      |      |      |      |    |    |
| 1.5           | 24.2 | 18.5 | 1.25 | 1120 | 12.1 | 27 * | 29 * | 31 | 31 |
| 2.5           | 28.6 | 22.0 | 1.6  | 1650 | 7.41 | 36 * | 39 * | 19 | 19 |

|                   |      |      |     |      |      |      |      |    |    |
|-------------------|------|------|-----|------|------|------|------|----|----|
| Twenty-seven Core |      |      |     |      |      |      |      |    |    |
| 1.5               | 29.4 | 22.8 | 1.6 | 1650 | 12.1 | 27 * | 29 * | 31 | 31 |
| 2.5               | 33.4 | 26.6 | 1.6 | 2150 | 7.41 | 36 * | 39 * | 19 | 19 |

|                   |      |      |     |      |      |      |      |    |    |
|-------------------|------|------|-----|------|------|------|------|----|----|
| Thirty-seven Core |      |      |     |      |      |      |      |    |    |
| 1.5               | 32.2 | 25.6 | 1.6 | 2000 | 12.1 | 27 * | 29 * | 31 | 31 |
| 2.5               | 36.7 | 29.9 | 1.6 | 2650 | 7.41 | 36 * | 39 * | 19 | 19 |

\*The tabulated rating is as a two core cable and may be used where the number of cores carrying current does not exceed its square root of the total number of cores.

**UK Sales enquiries**

Tel: 0845 767 8345

Fax: 023 8029 5465

**UK Technical helpline**

Tel: 0845 767 8345

Fax: 023 8029 5002

**Prysmian Cables & Systems Limited**

Chickenhall Lane

Eastleigh

Hampshire

SO50 6YU

United Kingdom

For further information please see  
our dedicated FP website:  
[www.fpcables.co.uk](http://www.fpcables.co.uk)

[www.prysmian.co.uk](http://www.prysmian.co.uk)

member of  
**voltimum**  
.co.uk

**Overseas Sales enquiries**

Tel: +44 23 8029 5481

Fax: +44 23 8029 5465

**Overseas Technical helpline**

Tel: +44 23 8029 5481

Fax: +44 23 8029 5002

**Information hotline**

Tel: +44 (0) 23 8029 5029

Fax: +44 (0) 23 8029 5437

[cables.marketing.uk@prysmian.com](mailto:cables.marketing.uk@prysmian.com)