PRYSMIAN
CABLES & SYSTEMS

FIRE RESISTANT CABLES

FP400®

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FIRE RESISTANT CABLES

FP400®
BS7846-F2

Certificate No 077b
Certificate No 517b

FP400®

> 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.

APPROVALS

> 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.

INSTALLATION

> 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
- Mechnical Impact Very Good
- Fire Performance BSEN60332-1-2 BSEN50266-2-4
- Flexibility Rigid
- Halogen Free BSEN50267-2-1
- Low Smoke Emissions BSEN61034-2
- Fire Resistant BS6387 Category CWZ

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

NON HARMONISED CORE IDENTIFICATION:
o o red-black
o o o red-yellow-blue
o o o o 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 mm²	Approximate overall diameter mm	Approximate diameter under armour mm	Nominal diameter of armour wires mm	Approximate cable weight kg/km	Maximum conductor resistance at 20°C ohms/km	Short Circuit rating (1 sec) of conductor KA	Current rating Three phase AC Clipped direct Amps	Current rating Three phase AC Free Air Amps	Volt drop Three phase AC 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	086	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 - 35mm².
Shaped conductor 50mm² 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 mm²	Approximate overall diameter mm	Approximate diameter under armour mm	Nominal diameter of armour wires mm	Approximate cable weight kg/km	Maximum conductor resistance at 20°C ohms/km	Current rating DC or Single phase AC Clipped direct Amps	Current rating DC or Single phase AC Free Air Amps	Volt drop DC mV/A/m	Volt drop Single phase AC 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.

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