



INDIA'S MOST CERTIFIED CABLE COMPANY





































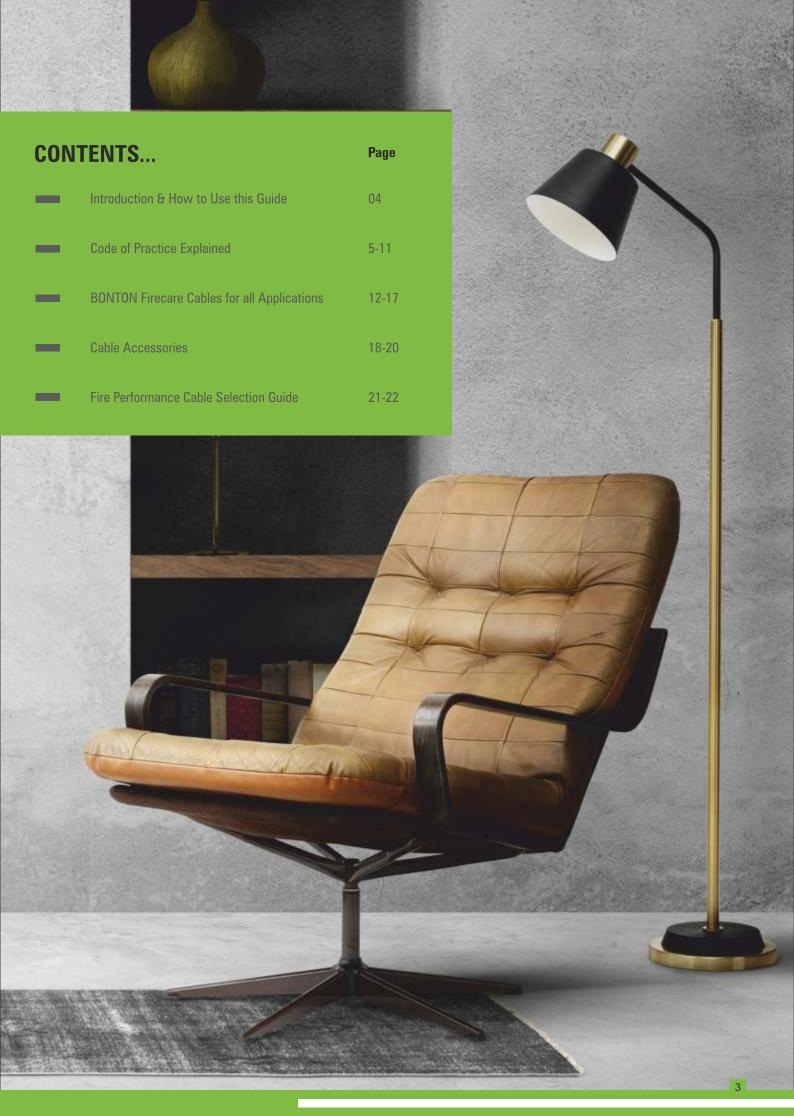








A STATE OF THE STA





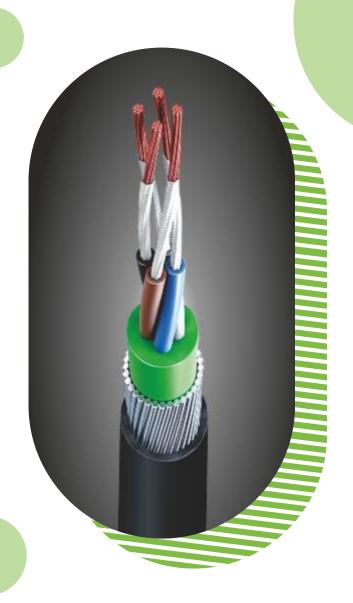
INTRODUCTION; TOTAL FIRE SOLUTIONS

POWER AND CONTROL CABLE SYSTEM FOR LIFE SAFETY AND FIRE-FIGHTING APPLICATIONS

Maintaining circuit integrity and limiting hazardous smoke and fume emissions during a fire is vital for life safety and critical to this is cable performance. Making the right cable choice and installing it in accordance with best guide will help you through the selection process.

HOW TO USE THIS GUIDE

- 1. UNDERSTANDING CODES OF PRACTICE Codes of practice represent current best installation guidance. Pages 4 to 11 list prominent Codes of Practice complete with applications, conformance information and requirements for installers in each application. This information is furthe summarized in tables on pages 22-23.
- 2. SPECIFYING THE RIGHT CABLE EVERY TIME Make the right cable choice every time with this 'Total Fire Solutions' visual guide of BONTON's range of Fire Performance Cables. Individual products are summarised on pages 12-17, so you can be sure you are choosing the best option whatever the location and application, every time.



CODES OF PRACTICE

British Standard Codes of Practice are published to encourage best practice in their area of relevance. They will refer to relevant cable standards and may call up additional performance requirements not included in the generic cable manufacturing standard. Compliance with the code of practice will assure performance of the system.

Trade bodies may also produce codes for their members to abide by, although these may not involve wider consultation with consumer interest groups or other industry stakeholders.

Building regulations reference a series of approved documents to give more detailed guidance for particular situations. Approved document B of the Building Regulations deals with Fire Safety in Buildings. Volume two section 5.38 covers protected power circuits and requires that a protected circuit should consist of cable meeting at least of the requirements for category Ph30 of BS EN 50200. Where circuits are required to operate for longer than 30 minutes, reference should be made to the following codes of practice;

BS 9999 Power Supplies
BS 7346 Smoke, Heat and Exhaust Ventilation Systems
BS 8519 Power and Control Systems
BS 5839 Fire Alarms Systems
BS 5266 Emergency Lighting







BS 9999 gives guidance and recommends measures to control or mitigate the effect of fire in the design, management and use of buildings. It applies to the design of new buildings and to the alteration, extension and change to use of existing buildings.

POWER SUPPLIES

It recommends that protected primary and secondary power supplies should be either Mineral Insulated Cable or cables meeting the objectives of BS 7346-6 or BS 8491.

BS CODES OF PRACTICE BS 9999



BS CODES OF PRACTICE BS 7346

BS 7346 deals with cable and introduced new tests to assess cable performance under simultaneous conditions of fire, direct mechanical impact and water impact from fire fighting jets i.e. Conditions expected in an actual fire situations. These test methods have been reproduced as BS 8491 and BS 7346-6 has been withdrawn. The requirement of BS 7346-6 are now embodies within BS 8519.

BS 7346 specifies the requirements for smoke, heat and exhaust ventilation systems.

BONTON's new Fireprotek impact Power Cable designed and manufactured to BS 7846.





Smoke, Heat and Exhaust Ventilation Systems



BS CODES OF PRACTICE BS 8519

BS 8519 provides recommendations for the selection and installation of fire resistant power and control system cables for life safety and fire fighting applications.

Some of the topics contained in BS 8519 include:

- * Fire survival times
- * Power supplies
- * Dual circuits/diverse routes
- * Fire protective enclosures
- * Automatic change over devices
- * Motor control panels
- * Fire protective enclosures for cables
- * Effects of fire temperature on cable size
- * Use of circuit protective conductors (CPCs)
- * Cable installation practice
- * Cable support systems
- * Inverters
- * Multizoned smoke ventilation systems
- * Junction boxes
- * Areas of special fire risk

BS 8519 incorporates and expands upon the requirements of BS 7346-6, the code of practice for Smoke, Heat and Exhaust Ventilation Systems (now withdrawn), to provide a more comprehensive coverage of fire engineering systems and highlights many of the factors which are need to be considered by engineers designing systems and selecting cables to meet life safety and fire fighting objectives.

CATEGORIES OF CABLE

			Applicable fire test	Applicable product*
Life Safety (LS)	LS 30 mins	Category 1 Power	BS 8491 30 mins	BONTON MICC Fireprotek Impact Power
		Category 1 Control	BS EN 50200 Ph30 30 mins annex E	BONTON MICC Fireprotek Power BONTON
	LS 60 mins	Category 2 Power	BS 8491 60 mins	BONTON MICC Fireprotek Impact Power
		Category 2 Control	BS EN 50200 Ph60 & 120 mins to BS 8434-2	BONTON MICC Fireprotek Power BONTON E
Fire Fighting (FF)	FF 120 mins	Category 3 Power	BS 8491 120 mins	BONTON MICC Fireprotek Impact Power
		Category 3 Control	BS EN 50200 Ph120 & BS 8519 annex B	BONTON MICC Fireprotek Power BONTON E



Choice depends upon the level of mechanical protection required.

It should be noted that both Approved document B of the Building Regulations and BS 9999 the codes of Practice for fire safety in the design, management and use of buildings refer to BS 7346-6 which BS 8519 replaces.

BS 8519 contains six categories of cables, three for power cables and three for control cables each subdivided into escape/survival times of 30, 60 or 120 minutes and each having a specific requirements in respect of fire performance.



BS CODES OF PRACTICE BS 5839

BS 5839 provides recommendations for the planning, design, installation, commissioning and maintenance of fire detection and alarm systems in and around buildings. Section 26 recommends cables conform to one of the following:

BS 60702-1	BONTON MICC
BS 7629	BONTON
BS 7846	Fire Care Power & Fire Care Impact Power

It defines two classes of cables, clause 26.2d standard grade and clause 26.2e enhanced grade.

Clause 26.2d standard grade cable calls up fire tests BS EN 50200 Ph30 incorporating fire, impact and water testing. It is intended for use as a 30 minute fire rated cable for use in life safety applications where it would be expected a building could be evacuated in under 30 mins (single stage evacuation) or in applications where a risk assessment would suggest a cable would not need to operate for longer than 30 minutes in the event of a fire.

Clause 26.2e enhanced grade cable calls up fire tests BS EN 50200 Ph 120 and BS 8434-2 incorporating fire, impact and water testing. It is intended for use as a 120 minute fire rated cable for use in life safety application in complex buildings where there may be multi stage evacuation or in applications where a risk assessment would suggest that cable would not need to operate for longer than 120 minutes in the event of a fire.



BS 5266 Is The Code Of Practice For The Emergency Lighting Of Premises.

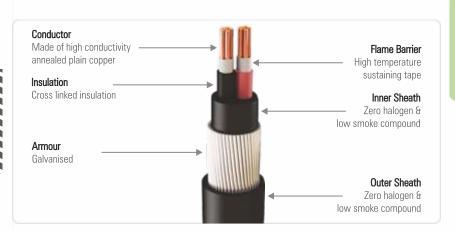
It gives guidance on the provision and operation of emergency lighting circuits for most premises but excluding dwellings. It recommends that cables connected to the standby powers supply should adequately resist the effects of fire alone for a period of 60 minutes when assessed to the requirements of BS EN 50200 Ph60. The cables should also be able to withstand the effects of mechanical damage but there is no test specified for this, it is left to the system designer to assess the risk and provide appropriate protection. This can be achieved either through the use of cables which have inherently high resistance to mechanical damage (BONTON Mineral Insulated cable, Fireprotek Power or Fireprotek Impact Power) or by the use of less robust 'soft skin' cables with additional mechanical protection.

BS 7629	BONTON
BS 7846	Fire Care Power and Fire Care Impact Power

BONTON Mineral Insulated Cables and Fire Care Single core cables used in conduit are also suitable for emergency lighting applications.

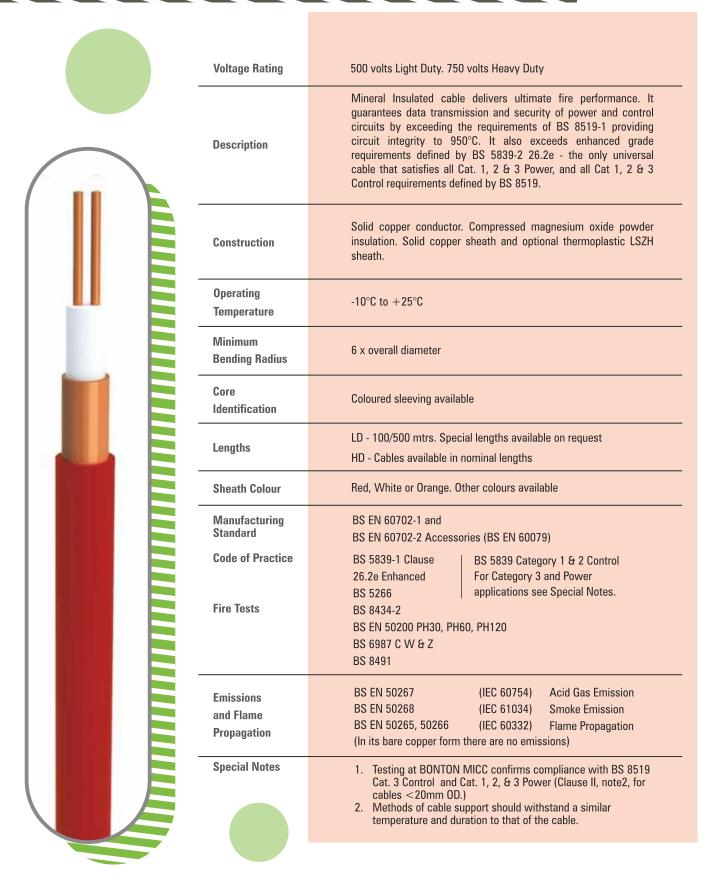
The following pages outline the full range of BONTON Fireprotek cables, with information on installation, construction and key technical details for easy reference.

BS CODES OF PRACTICE BS 5266



MINERAL INSULATED BONTON MICC MANUFACTURED AND DISIGNED TO EN BS 60702-1



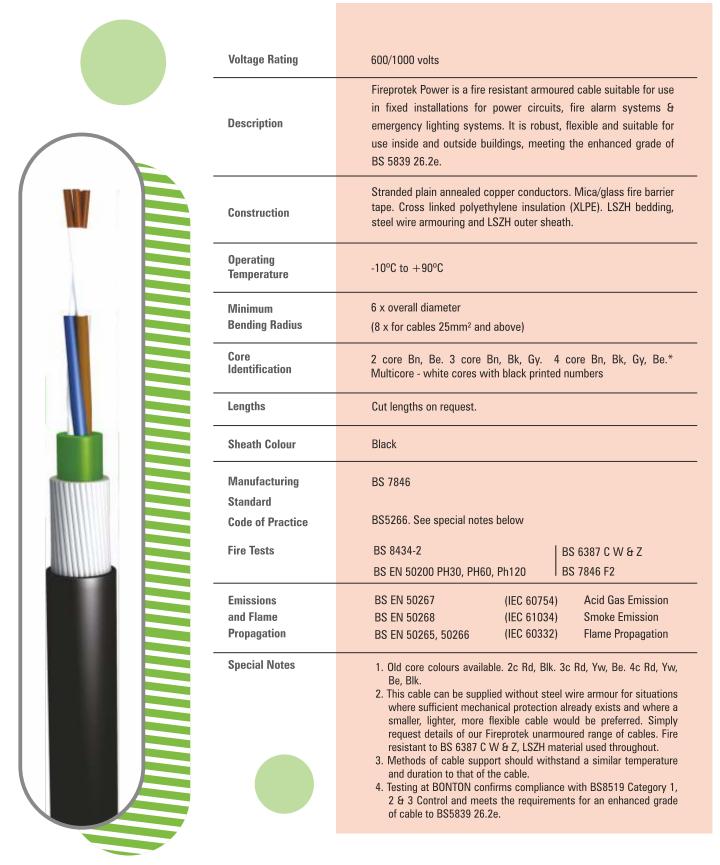


BONTON FIRE CARE IMPACT POWER MANUFACTURED AND DESIGNED TO BS 7846

Voltage Rating	600 / 1000 volts				
Description	Fireprotek Impact Power cables are similar in construction to armoured cables, but provide additional protection to smaller cable sizes to ensure the best possible mechanical protection from a polymeric cable. Designed to meet the application of fire, direct impact and water jet as specified in BS8491, making them suitable for use as 120 minute rated category 3 power cables under BS 8519.				
Construction	Stranded plain annealed copper conductors. Mica/glass fire barrier tape. Cross linked polyethylene insulation (XLPE). LSZH bedding, steel wire armouring and LSZH outer sheath.				
Operating Temperature	-10°C to +90°C				
Minimum Bending Radius	6 x overall diameter (8 x for cables 25mm² and above)				
Core Identification	2 core Bn, Be. 3 core Bn, Bk, Gy. 4 core Bn, Bk, Gy, Be				
Lengths	Cut lengths on request.				
Sheath Colour	Black				
Manufacturing Standard	BS 7846				
Code of Practice	BS 5839-1 Clause BS 7346, BS 8519 Category 1, 2, 3 Control and Category 1, 2, 3 Power BS 5266 BS 9999				
Fire Tests	BS 8434-2 BS EN 50200 PH30, PH60, PH120 Bs6387 C W & Z BS 8491				
Emissions and Flame Propagation	BS EN 50267 (IEC 60754) Acid Gas Emission BS EN 50268 (IEC 61034) Smoke Emission BS EN 50265, 50266 (IEC 60332) Flame Propagation (In its bare copper form there are no emissions)				
Special Notes	1. Old core colours available. 2c Rd, Blk. 3c Rd, Yw, Be. 4c Rd, Yw, Be, Blk.				
	Methods of cable support should withstand a similar temperature and duration to that of the cable.				

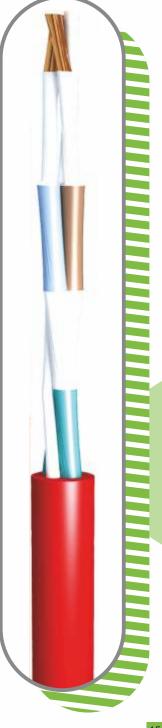


BONTON FIRE CARE POWER MANUFACTURED AND DESIGNED TO BS 7846

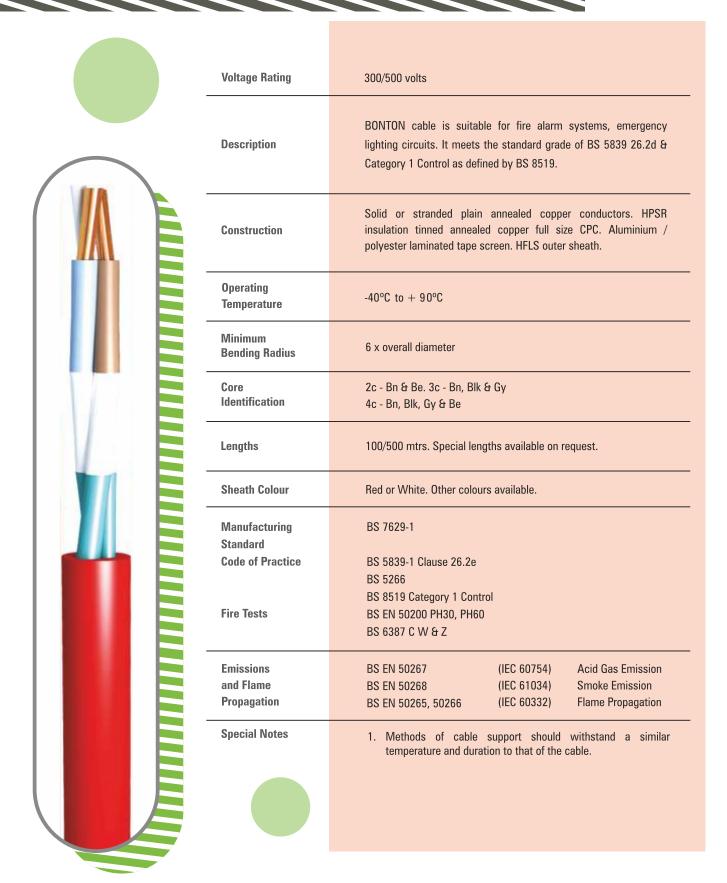


BONTON ENHANCED E MANUFACTURED AND DESIGNED TO BS 7629

Voltage Rating	300/500 volts					
Description	BONTON Enhanced cable is suitable for fire alarm systems, emergency lighting circuits & Category 1, 2 & 3 Control circuits as defined in BS 8519. Glass Micatape is applied over the conductor. HPSR insulation is further provided to ensure best possible fire performance. It meets the enhanced grade of BS 5839 26.2e.					
Construction	Solid or stranded plain annealed copper conductors. Tinned annealed copper full size CPC. Glass micatape (fire barrier)/HPSR insulation/Al/Polyester Laminated tape screen. HFLS outer sheath.					
Operating Temperature	-40°C to + 90°C					
Minimum Bending Radius	6 x overall diameter					
Core Identification	2c - Bn & Be. 3c - Bn, Blk & Gy 4c - Bn, Blk, Gy & Be					
Lengths	100/500 mtrs. Special lengths available on request.					
Sheath Colour	Red or White. Other colours available.					
Manufacturing Standard Code of Practice Fire Tests	BS 7629-1 BS 5839-1 Clause BS 8519 Category 1 & 2 Control For Category 3 Control, see Special Notes.					
BS EN 50200 PH30, Ph60, Ph120 BS 6387 C W & Z						
Emissions and Flame Propagation	BS EN 50267 (IEC 60754) Acid Gas Emission BS EN 50268 (IEC 61034) Smoke Emission BS EN 50265, 50266 (IEC 60332) Flame Propagation					
Special Notes	 Testing at BONTON Cables has confirmed that the cable complies with Bs8519 Category 3 Control. Methods of cable support should withstand a similar temperature and duration to that of the cable. 					

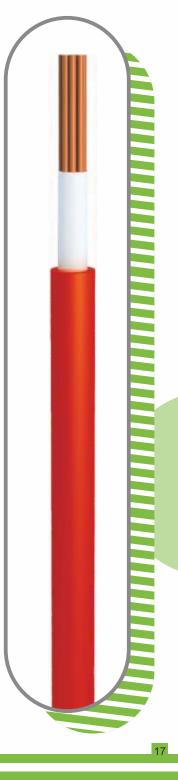


BONTON MANUFACTURED AND DESIGNED TO BS 7629



FIRE CARE SINGLE CORE A FIRE RESISTANT HFLS CONDUIT WIRE

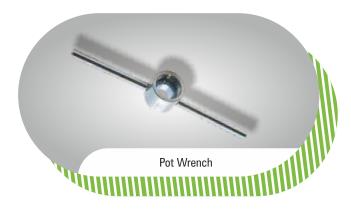
Voltage Rating	600/1000 volts				
Description	Fireprotek Singlecore is designed to be installed in metal conduit. For use in alarm and emergency lighting circuits for new installations or upgrading existing conduit systems to fire performance standards. Elastomeric insulation gives high mechanical strength, excellent flexibility and resistance to abrasion.				
Construction	Stranded plain annealed copper conductors. Mica/glass fire barrier tape. Elastomeric HFLS outer sheath.				
Operating Temperature	-10°C to + 90°C				
Minimum Bending Radius	6 x overall diameter				
Core Identification	Bn, Blk, Gy, Be, Rd, Oe, Yw & Gn/Yw. Other colours available on request.				
Lengths	100/500 mtrs. Special lengths available on request.				
Sheath Colour	NA				
Manufacturing Standard	BS 7211 (Generally to, fire resistant)				
Fire Tests	BS 6387 C, W, Z and IEC 60331-21 when tested in a steel conduit at a temperature of 950° C and an increased voltage of 600/1000 volts.				
Emissions and Flame Propagation	BS EN 50267 (IEC 60754) Acid Gas Emission BS EN 50268 (IEC 61034) Smoke Emission BS EN 50265,50266 (IEC 60332) Flame Propagation				
Special Notes	Methods of cable support should withstand a similar temperature and duration to that of the cable.				



MINERAL ACCESSORIES















FIREPROTEK ACCESSORIES



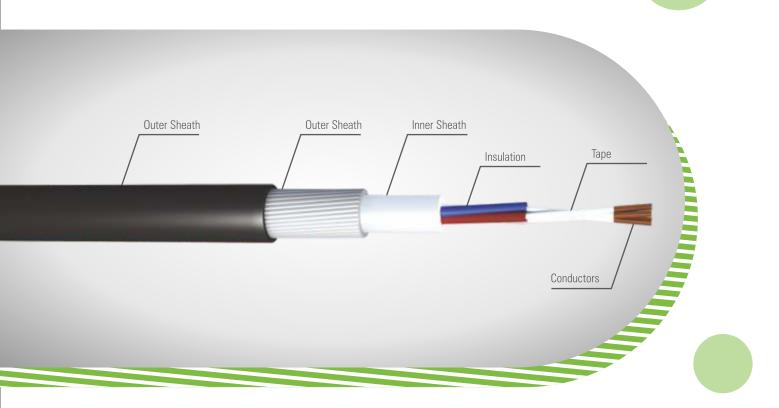
MAXIMUM SPACING OF FIXINGS

Overall Diameter of	BONTON Cavicel 114H BONTON Cavicel 114E		Fireprotek Power Fireprotek Impact Power		Mineral Insulated Cable		
Cable (mm)	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	
Up to 9	250	400	-	-	600	800	
>9 to 15	300	400	350	450	900	1200	
>15 to 20	-	-	400	550	1500	2000	
>20 to 40	-	-	450	600	2000	3000	
>40 to 60	-	-	800	900	-	-	
>60	-	-	1200	1600	-	-	

Notes

Methods of cable support should withstand a similar temperature and duration to that of the cable. Cables manufactured by BONTON are supported by BONTON clips during fire tests to ensure this criteria is met.

The spacing stated for horizontal runs ma be applied also to runs at an angle of more than 30 degrees from the vertical. For runs at an angle of 30 degrees or less from the vertical, the vertical spacings are applicable.



FIRE PERFORMANCE CABLE SELECTION GUIDE

- Ÿ Mineral Cable
- Ÿ Fireprotek Singlecore
- ÿ BONTON Cavicel 114E
- Ÿ Fireprotek Power
- ÿ BONTON Cavicel 114H
- Ÿ Fireprotek Impact Power

Codes of Practice	Employee 12.1 ct							
	Emergency Lighting	BS 5266 BS 5839 Standard grade						
	Fire Alarm	BS 5839 Enhanced grade	•	•			•	
	Smoke, Heat & Exhaust	•						
	Ventilation Systems (SHEVS)	BS 7346-6	•					
	Power and Control	BS 8519 Category 1 Control	•	•	•		•	
		BS 8519 Category 2 Control	•	•			•	
		BS 8519 Category 3 Control	•	•			•	
		BS 8519 Category 1 Power	•					
		BS 8519 Category 2 Power	•					
		BS 8519 Category 3 Power	•					
	General	BS 9999	•					
Manufacturing Standards								
		BS EN 60702-1	•					
		BS 7629		•	•			
		Gen BS 7211				•		
		BS 7846					•	
Fire Resistance Tests								
		BS 6387 C W & Z	•	•	•	•	•	
		BS EN 50200 PH30	•	•	•		•	
		BS EN 50200 PH60	•	•	•		•	
		BS EN 50200 PH120	•	•	•		•	
		BS 8434-2	•	•			•	
		BS 8519 Annex B	•	•			•	
		BS 7846 F2	•				•	
		BS 7846 F30, F60, F120	•					
		BS 8491	•					
Fire Reaction Tests								
	Low smoke zero halogen	BS EN 50267, (IEC 60754) BS EN 50268, (IEC 61034)	•	•	•	•	•	

MINERAL ACCESSORIES

System	Code of Practice	Application	Cable	Choice considerations
Conduit Wiring		Conduit Wiring	Fireprotek Singlecore	To be installed in conduit
Fire Alarm	BS 5839	26.2d Standard grade cable	BONTON Cavicel 114H	Protection may be required
		26.2e Enhanced grade cable	BONTON Cavicel 114E Fireprotek Power BONTON MICC	Protection may be required Inherently protected Small, lightweight, protected
Emergency Lighting	BS 5266	Emergency escape / route lighting	BONTON Cavicel 114H	Protection may be required
Power and Control	BS 8519	Category 1 Control	BONTON MICC Fireprotek Power BONTON Cavicel 114E BONTON Cavicel 114H	Small, lightweight, protected Inherently protected Protection may be required Protection may be required
		Category 2 Control	BONTON MICC Fireprotek Power BONTON Cavicel 114E	Small, lightweight, protected Inherently protected Protection may be required
		Category 3 Control	BONTON MICC Fireprotek Power BONTON Cavicel 114E	Small, lightweight, protected Inherently protected Protection may be required
		Category 1 Power	BONTON MICC Fireprotek Impact Power	Small, lightweight, protected Inherently protected
		Category 2 Power	BONTON MICC Fireprotek Impact Power	Small, lightweight, protected Inherently protected
		Category 3 Power	BONTON MICC Fireprotek Impact Power	Small, lightweight, protected Inherently protected







Branch Offices
Northern Region

Chandigarh : Plot No. 1-A, 35 Feet Road, New Patanjali, Opp. Ajanta Pharma, VIII. Pabhat, Zirakpur -140603

Tel.: 0176 - 2503906, +91 88720 64720

Ludhiana: BXX-3369, Sandhu Tower-2, 2nd Floor, Ferozpur Road, Gurudev Nagar, Ludhiana (Punjab)-141 001

Jaipur: 327-A, 3rd Floor Ganpati Plaza M.I. Road, Jaipur, Rajasthan - 302001 Tel.: 0141 - 4018060, +91 98292 04080

Lucknow: 210, 2nd Floor, Saran Chamber-II, 5, Park Road, Lucknow (U.P) - 226001
Tel.: 0522 - 4103417, +91 73793 33388

Haridwar: Akashdeep Enclave Phase 2, Near Delhi Flat Delhi Road Roorkee District Haridwar - 247667, Mob.: 8191004004

Central Region

Indore: A-52, New Siyaganj,

Patthar godown road, Indore, M.P. - 452003

Tel.: +91 98270 11260

Central Western Region

Mumbai: We Work, 5th Floor, Spectrum Tower, Mindspace, Chincholi Bunder Road, Malad (West), Mumbai- 400064

Mob: +91 9649352700

Goa: Guirim, Sorvem Waddo, Bardez, Goa - 403507 Southern Region

Bangalore: RR Nagar, Bangalore- 560098

Mob: +91 8026722905

Kochi: 44/533, St Martin road, Palarivattom, Kochi, Kerala -682025 Tel.: 484 - 4058309, +91 97455 44303

Secunderabad: Plot No: 18-B, Banjara Nagar Colony, Tirumalagiri Telangana, Secunderabad - 500015

Tel.: 040 - 40267506

Chennai: Plot No-5, Harinery Sree Srinivasa Avenue, Kanchi Nagar Extn. Vinayagapuram, Kolathur, Chennai - 600099, Tamilnadu

Tel: +91 99440 10660

Pune: 13/1/124, Parmar Niwas, Near Dake Chowk, Behind Kulkarni Building Sukhsagar Nagar, Katraj Pune, 411046 Maharashtra

Eastern Region

Kolkata: Room No. F-8, 1st Floor, Tirreti Bazaar, 22, Rabindra Sarai, Kolkatta - 700012

Tel.: +91 97485 40227

Bonton Cables (India) Pvt. Ltd.

Head Office: Epitome Building No. - 5, 18 Floor, Tower-B, DLF Cyber City, Gurugram -122002 (Haryana) Tel.: +91 81302 99001,

+91 81302 99003

Works:

Plant 1: A-115 RIICO Industrial Area, Phase-1, Bhiwadi — 301019 Dist. Alwar, Rajasthan (INDIA)

Plant 2: A-6A Kaharani Industrial Area, Bhiwadi — 301019 Dist. Alwar, Rajasthan (INDIA)