

LSOH Flexible Cables

Low Voltage (300/500 V)

3182B, 3183B, 3184B

Piresafe™ Flex



Cable Approvals

Key Applications

- > Supply leads for medium duty domestic and office appliances, lighting fittings and portable appliances . Used in a wide range of public access buildings and industrial complexes where improved public safety and environmental control are desirable

Key Features

- > Piresafe Flex is a flexible cable, which when burnt produces very low quantities of smoke and virtually no acidic gases thus safeguarding human life and protecting equipment

- > All Prysmian cables are manufactured under an ISO 9001 Quality System certified by BASEC

- > Plain annealed copper, flexible stranded circular conductor, complying with BS EN 60228 Class 5

- > LSOH insulation

- blue-brown
- blue-brown-green/yellow
- brown-black-grey-green/yellow

- > Flexible LSOH® sheath

- > Colour - Normally white but other colours are available on request



Conductor

Insulation

Core Identification

Sheath



Temperature Range
-15 to +70°C



Bending Radius
Fixed r=4D
Flexing r=6D



Mechanical Impact
Medium



Fire Performance
BSEN60332-1-2



Flexibility
Flexible



Halogen Free
BSEN50267-2-1



Low smoke emissions
BSEN50268-2

Piresafe™ Flex

Cable Details

Nominal cross sectional area	Conceptual construction	Approximate conductor diameter	Nominal overall diameter	Approximate cable weight	Minimum bending radius (Flexing)	Maximum conductor resistance at 20°C	Current rating DC or single phase AC	Volt drop DC or single phase AC	Current rating three phase AC	Volt drop three phase AC
mm ²	no./mm	mm ²	mm	kg/km	mm	ohms/km	Amps	mV/A/m	Amps	mV/A/m
Two Core										
0.75	24/0.20	1.14	6.2	59	40	26.0	6	62	-	-
1.0	32/0.20	1.32	6.6	67	40	19.5	10	46	-	-
1.5	30/0.25	1.6	7.6	90	45	13.3	16	32	-	-
2.5	50/0.25	2.05	9.1	141	55	7.98	25	19	-	-
Three Core										
0.75	24/0.20	1.14	6.6	69	40	26.0	6	62	-	-
1.0	32/0.20	1.32	7	80	45	19.5	10	46	-	-
1.5	30/0.25	1.6	8.2	113	50	13.3	16	32	-	-
2.5	50/0.25	2.05	9.8	176	60	7.98	25	19	-	-
Four Core										
0.75	24/0.20	1.14	7.0	83	45	26.0	6	62	6	54
1.0	32/0.20	1.32	7.8	101	50	19.5	10	46	10	40
1.5	30/0.25	1.6	9.2	141	55	13.3	16	32	16	27
2.5	50/0.25	2.05	10.8	214	80	7.98	25	19	20	16

Temperature rating factors

Ambient Temperature °C	30	35	40	45	50	55
Rating factor	1.00	0.91	0.82	0.71	0.58	0.41

Pirelli Cables and Systems S.A.



Far East Office

1011, Great Eagle Centre, 23 Harbour Road, Wanchai, Hong Kong Tel: (852) 2311 1554 Fax: (852) 2366 1227

24th December, 2002

BBC Cable Engineering Company Limited

Unit 1-2, 18/F, Oterprise Square

26 Nathan Road

Kowloon

Hong Kong

Dear Sir,

KCRC – West Rail – Yuen Long Station
Pirelli Multicore LSOH Flexible Cable

This is to inform that our 3183B cable traded as “PIRESAFE FLEX”, is generally complied with BS 7211 having 300/500 volt rated, class 5 flexible copper conductor, LSOH insulation and LSOH sheath.

Yours faithfully,

Pirelli Cables and Systems S.A.

Stephen Lam

Area Marketing Manager

Far East office

Pirelli Cables and Systems S.A.

Far East Office

1011, Great Eagle Centre, 23 Harbour Road, Wanchai, Hong Kong Tel: (852) 2311 1554 Fax: (852) 2366 1227



11th January, 2002

BBC Cable Engineering Company Limited

Unit 1-2, 18/F, Oterprise Square

26 Nathan Road

Kowloon

Hong Kong

Dear Sir,

HKHA – Tin Shui Wai Area 105 - Phase 2

Pirelli LSOH Multicore Flexible Cable

This is to inform the "PIRESAFE FLEX" which is designated as 3183B with BS standard, is a LSOH multicore flexible cable complying with the following fire performance standards.

- BS 4066-1 (flammability test)
- BS 6425-1 (halogen content test)
- BS 7622 (smoke emission test)

Yours faithfully,

Pirelli Cables and Systems S.A.

A handwritten signature in black ink, appearing to read "Stephen Lam".

Stephen Lam

Area Marketing Manager

Far East office



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 HAMPSHIRE
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SCD QUALITY PLAN
 No. EQ\208\PIRESAFE

PIRESAFE FLEXIBLE CABLE

**QUALITY PLAN FOR FLEXIBLE CABLES HAVING LOW EMISSION
 OF SMOKE AND CORROSIVE GASES WHEN AFFECTED BY FIRE.**

FORWARD

THIS QUALITY PLAN DETAILS THE TEST REQUIREMENTS FOR A RANGE OF CABLES FOR ELECTRIC POWER AND LIGHTING WHICH ARE FLEXIBLE, AND EMIT VERY LOW LEVELS OF SMOKE AND CORROSIVE GASES WHEN AFFECTED BY FIRE.

THE IMPROVED PERFORMANCE UNDER FIRE CONDITIONS IS ASSESSED ON THE BASIS OF TESTS WHICH MEASURE THE EMISSION OF SMOKE AND CORROSIVE GASES AND FLAME PROPAGATION UNDER DEFINED CONDITIONS.

THE CABLES ARE INTENDED FOR USE AS ORDINARY DUTY FLEXIBLE CABLE.

THE CABLES ARE RATED AT 300/500V

DESCRIPTION

PLAIN COPPER CONDUCTORS XLPE INSULATED, TWISTED, LSOH FILLED AND SHEATHED.

SPECIFICATIONS

PIRESAFE FLEX

MACHINE ROUTING

8110 / 8030 INSULATION
 8041 LAY UP
 8030 FINAL SHEATH
 8078 / 79 CABLE COILING
 QAD FINAL TEST

Pirelli Issue Status			Reason For Issue
Issue	Compiled	Date	
1	J.Barstow	May 2004	Draft for approval.

Approved By:

Agreed By:

.....
 [Quality Engineer, Special Cables]

.....
 [Manufacturing Manager, Special Cables]

DISTRIBUTION:

QUALITY ENGINEER - SPECIAL CABLES.
 TEST SECTION - SPECIAL CABLES.

ORIGINAL.
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QUALITY PLAN FOR MANUFACTURE, INSPECTION AND TEST

Quality Plan No : EIQ208\PIRESAFE Issue: Number 1. Date: May 2004.	Scope: Flexible cables of rated voltage 300/500V, which when assessed by tests specified in this Standard, produce low levels of smoke and corrosive products under exposure to fire. The cables are suitable for operation at a maximum sustained conductor temperature of 70°C. Specifications: PIRESAFE FLEX	Customer Surveillance : H - Hold 1 - W - Witness 2 - R - Review 3 - C - Copy of Document Required
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Act. No.	Stage	Activity	Freq. / Sample	Sample By	Test Method / Procedure	Acceptance Criteria	Acceptance Authority	Record Document	Surveillance		
									1	2	3
1.0	Design	Design Review	100 %	Design Engineer	EIE\701	Design conforms to specification and customer requirements.	Design Engineer	Manufacturing Detail			
2.0	Material	Verification of Material.	100 %	Buying & Stores	PU-UK-03 & EIE\600-4	In accordance with Pirelli Approved Materials / Supplier list.	Buyer & Stores	Purchase Order			
3.0	Conductor Manufacture (0.75 – 4.0mm²)										
3.1	Purchased	Plain annealed copper strand.	100%	Buying/ Stores	BS6360	BS6360 Class 5.	Buyer/ Stores	Purchase Order			
4.0	Insulation Manufacture										
4.1	8110 – Insulation	Line Green/Yellow Insulation Thickness Diameter Conductor Resistance Spark Test Marking Cable Flaking Wet Ends Check	1 in 3 + 1 st off After input Change 100 % " " "	Operator	PI 8000 – 367 PI 8000 – 386 Manufacturing Detail Visual	PI 8000 – 367 PI 8000 – 386 Manufacturing Detail Visual	Operator Operator	Machine Database Machine Database			
4.2	8030 – Insulation	Line All other colours Insulation Thickness Diameter Conductor Resistance <=25mm ² Spark Test Marking Cable Flaking Wet Ends Check	1 in 3 + 1 st off After input Change 100 % " " "	Operator	PI 8000 – 367 PI 8000 – 386 Manufacturing Detail Visual	PI 8000 – 367 PI 8000 – 386 Manufacturing Detail Visual	Operator	Machine Database			
5.0	Lay-Up Manufacture										
5.1	8041 – Godderidge	Double Twist Laying-up Machine Conductor Resistance Spark Test Lay Length / Direction Tension of Input Cores Core Rotation (Colour / Number) Cable Diameter	100 % " " " " "	Operator	PI 8000 – 386 Manufacturing Detail	PI 8000 – 386 Manufacturing Detail	Operator	Machine Database			



QUALITY PLAN FOR MANUFACTURE, INSPECTION AND TEST

Quality Plan No : EQI208/PIRESAFE Issue: Number 1. Date: May 2004.	Scope: Flexible cables of rated voltage 300/500V, which when assessed by tests specified in this Standard, produce low levels of smoke and corrosive products under exposure to fire. The cables are suitable for operation at a maximum sustained conductor temperature of 70°C. Specifications: PIRESAFE FLEX	Customer Surveillance : H - Hold 1 - W - Witness 2 - R - Review 3 - C - Copy of Document Required
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Act. No.	Stage	Activity	Freq. / Sample	Sample By	Test Method / Procedure	Acceptance Criteria	Acceptance Authority	Record Document	Surveillance		
									1	2	3
		Cable Flaking	-		Visual	Visual					
6.0		Final Sheath Manufacture									
6.0	8030 – Insulation	Line All other colours Insulation Thickness Diameter Conductor Resistance <=25mm ² Spark Test Marking Cable Flaking Wet Ends Check	1 in 3 + 1 st off After input Change 100 % " "	Operator	PI 8000 – 367 PI 8000 – 386 Manufacturing Detail Visual	PI 8000 – 367 PI 8000 – 386 Manufacturing Detail Visual	Operator	Machine Database			
7.0		Packing Manufacture									
7.1	8078 – Coiling Machine	Spark Test Lump / Neck down Cable Labelling Insulation / Sheath Application Cable Winding Cable Marking	100 % " " " "	Operator	Manufacturing Detail PI 8078 - 459 Visual Manufacturing Detail	Manufacturing Detail PI 8078 - 459 Visual Manufacturing Detail	Operator	Machine Database			
7.2	8079 – Coiling Machine	Spark Test Lump / Neck down Cable Labelling Insulation / Sheath Application Cable Winding Cable Marking	100 % " " " "	Operator	Manufacturing Detail PI 8079 - 459 Visual Manufacturing Detail	Manufacturing Detail PI 8079 - 459 Visual Manufacturing Detail	Operator	Machine Database			
8.0		Final Test – PIRESAFE									
8.1	Routine Test	Cable Marking Conductor Resistance Voltage test on complete cable Core Identification Overall Diameter	100 % " " " "	Test Section	Visual and Measurement BS6360 Class 2 Piresafe Clause 12.2 Visual BSEN 60811-1-1	Piresafe flex clause 9.1 BS6360 Class 2 2000v for 5 minutes Piresafe Clause 6 Piresafe Clause 13.4	Test Section	Test Sheet			
8.2	Sample Test	Insulation Thickness	One Per Test	Test Section	Piresafe Clause 5.3	Piresafe Clause 5.3 & BSEN 60811	Test Section	Test Sheet			



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Act. No.	Stage	Activity	Freq. / Sample	Sample By	Test Method / Procedure	Acceptance Criteria	Acceptance Authority	Record Document	Surveillance		
									1	2	3
8.3	Type Test	Ovality	Sheet	"	Piresafe Clause 13.5	Piresafe 13.5 15% max	Test Section	Test Sheet			
		Application	"	"	Piresafe Clause 5.2	Visual examination					
		Final Sheath Thickness	"	"	Piresafe Clause 8.3	Piresafe Clause 13 & BSEN 60811					
		Voltage test on complete cable	Annually	"	Piresafe Clause 13.6	Piresafe Clause 13.6					
		Voltage test on cores	"	"	Piresafe Clause 13.7	Piresafe Clause 13.7					
		Insulation Resistance	"	"	Piresafe Clause 13.8	Piresafe Clause 13.8					
		Final Sheath Thickness	"	"	Piresafe Clause 8.3	Piresafe Clause 13 & BSEN 60811					
		Single Wire Propagation Test	Annually	FTL	Piresafe Clause 13.11	BSEN 50265-2-1					
		Smoke Emission	"	"	Piresafe Clause 13.1	BSEN 50268-2					
		Insulation Material	Contract Specific	Test Section	"						
Two pulley flex test	Or	"	"								
Compatibility	Significant	"	"	Piresafe Clause 5.1	Piresafe Clause 5.1/ 14.3 & BS7211 annex D						
Corrosive and Acid Gas on Insulation	Product changes	"	"	BSEN50267-2-1	Piresafe Clause 5.5: HCl level 0.5% maximum						
Final Sheath Physicals	"	"	"	Piresafe Clause 8.1	Piresafe Table 1 & BS EN 60811						
Corrosive and Acid Gas on Insulation	"	"	"	BSEN50267-2-1	Piresafe Clause 5.5 HCl level 0.5% maximum						
Corrosive and Acid Gas on Oversheath	"	"	"	BSEN50267-2-1	Piresafe Clause 8.4 HCl level 0.5% maximum						