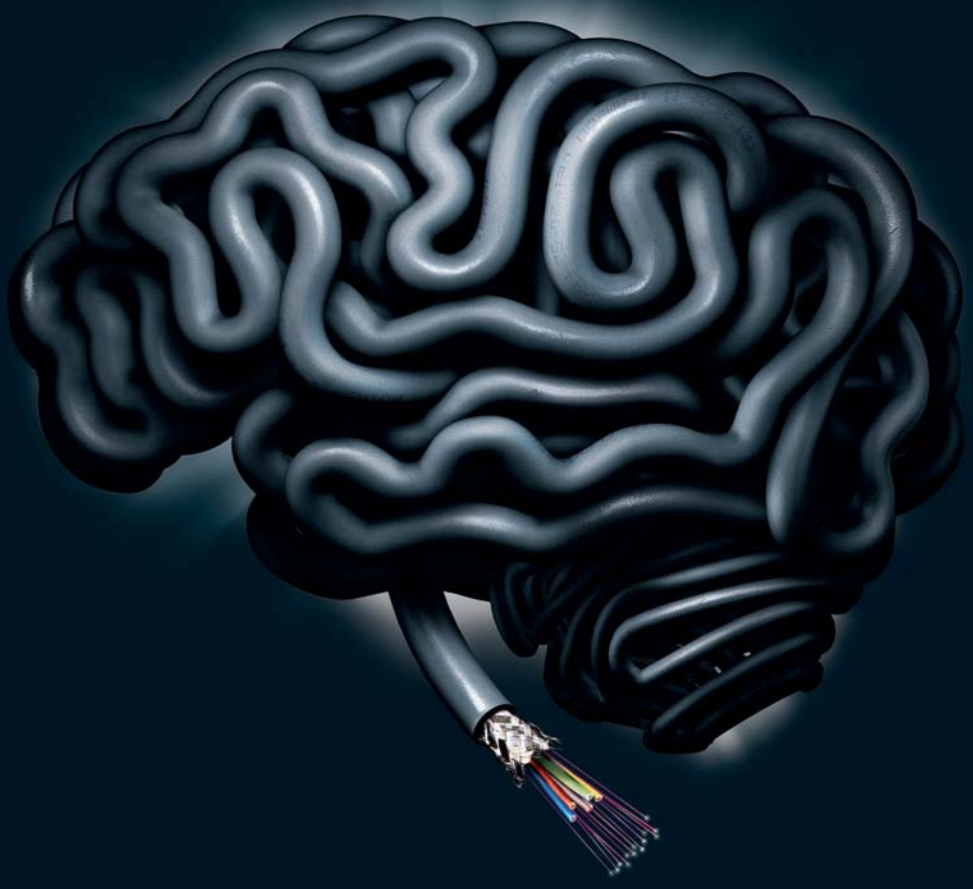
YOUR ENERGY, OUR SYSTEMS, ANYWHERE...

Fire Performance

2010



PRYSMIAN
CABLES & SYSTEMS

FIRE PERFORMANCE

PRYSMIAN – TECHNICAL MANUALS

COMMUNICATION

CONSTRUCTION

DATA & INSTRUMENTATION

FIBRE TO THE PREMISES

FIRE PERFORMANCE

FLEXIBLE CABLES

MEDIUM VOLTAGE

MINING & INDUSTRIAL

OVERHEAD CONDUCTORS

CONTENTS **Page No.**

PRYSMIAN CABLES & SYSTEMS

INTRODUCTION

Prysmian Cables & Systems is a leader in the development of cables that reduce the risk and danger to people and property in fire situations. For years, Prysmian has invested in fire research and associated technology. The result of this research is a range of fire performance cables that cater to the needs of different fire safety standards and applications.

The MIMS (mineral insulated metal sheath) range is the ultimate in fire survival cables (circuit integrity in a fire situation). This range will not propagate flame, produces no smoke and does not emit hazardous or acidic gas. In addition, the MIMS range offers high impact resistance/mechanical strength, has superior EMI/EMC performance and is non-ageing. MIMS is the only cable with approved characteristics for Earth Sheath Return (ESR) wiring that reduces wiring cost in high rise buildings by approximately 25%.

MIMS cables provide reliable electrical wiring for mains power, lighting, control and emergency services for hotels, highrise commercial buildings, hospitals, tunnels, railways, in fact, wherever public safety is of utmost importance. The cables are also highly recommended for use in potentially hazardous situations such as oil refineries, gas and chemical plants (for situations corrosive to copper, a serving over bare copper sheathed cable should be used). These cables are also ideal for use in high temperature areas – power stations, steel works; or where hygiene is essential – food processing plants, breweries and dairies. The MIMS cable range is made to order and further details can be obtained in your request for quotation.

Firestop is a range of polymeric fire performance cables designed to minimise the evolution of smoke, acidic and dangerous gases, while maintaining circuit integrity in a fire situation. The range has been developed in response to major fire code reform and is type tested to AS/NZS 5000.1 (where applicable) and AS/NZS 3013. Firestop cables are typically used in highrise buildings and other densely occupied places. They are used where power supply to essential circuits like water pumps, lift motors, emergency lighting, fire alarms and other automation and control systems is critical in the event of a fire.

Afumex™ is a range of cables which give off minimal amounts of smoke and acidic gases. Afumex™ cables are designed to reduce hazards associated with fire, making them ideal for buildings that are regularly occupied such as multi-storey dwellings, office blocks, hotels and educational institutions. The Afumex™ range is also ideal for certain applications in buildings where large numbers of people congregate without being familiar with the layout e.g. cinemas, theatres, shopping centres and also tunnel applications.

The focus of Prysmian research and development has been to reduce potential hazards by developing materials that will not propagate flame, contribute less smoke and emit by-products that are less corrosive. These performance criteria are part of Australian and International Standards that Prysmian 's range of Fire Performance cables are tested to conform to.

IN A FIRE OUR CABLES BUY VITAL TIME, AND TIME SAVES LIVES.

CABLE USAGE CHARACTERISTICS

AMBIENT TEMPERATURE
Maximum operating temperature
Minimum operating temperature

MINIMUM BENDING RADIUS
Minimum bending radius of installed cables

MECHANICAL IMPACT RESISTANCE
1 Light impact
2 Moderate impact
3 Heavy impact
4 Very heavy impact

RESISTANCE TO SOLAR RADIATION AND WEATHER

Excellent	Permanent
Very good	Frequent
Good	Occasional
Acceptable	Accidental
Poor	None

RESISTANCE TO WATER

Negligible	No humidity
Water drops	Occasional condensation
Spray	Water run off
Splashes	Exposed to water splashes
Heavy sea	Exposed to waves
Immersion	Temporarily covered by water
Submersion	Permanently covered by water

CHEMICAL RESISTANCE

Excellent	Permanent
Very good	Frequent
Good	Occasional
Acceptable	Accidental
Poor	None

BEHAVIOUR IN FLAME AND FIRE

Reaction To Fire	Resistant To Fire
C1 Fire retardant	Level 1 – Ultimate fire survival
C2 Flame retardant	Level 2 – Two hours fire survival
C3 No fire performance	Level 3 – Restrained spread & self extinguishing

LOW SMOKE EMISSION
AS/NZS 4507

FLEXIBILITY

Rigid	Flexible
Semi-rigid	Very flexible

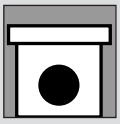
HALOGEN FREE
AS/NZS 4507

In accordance with research, new material developments and changes in relevant standards, published details may change without notice.

LAYING CONDITIONS

MINIMUM BENDING RADIUS DURING INSTALLATION

MINIMUM INSTALLATION TEMPERATURE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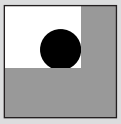

IN FREE AIR


IN GROUND


IN GROUND WITH PROTECTION


IN DUCT


IN CONDUIT


DOMESTIC APPLIANCES


OUTDOOR APPLIANCES


MACHINES


FESTOON


MOBILE EQUIPEMENT


INTERNAL WIRING


SUBMERGED


INDUSTRIAL EQUIPEMENT


OVERHEAD AERIAL


EXTERNAL BUILDING

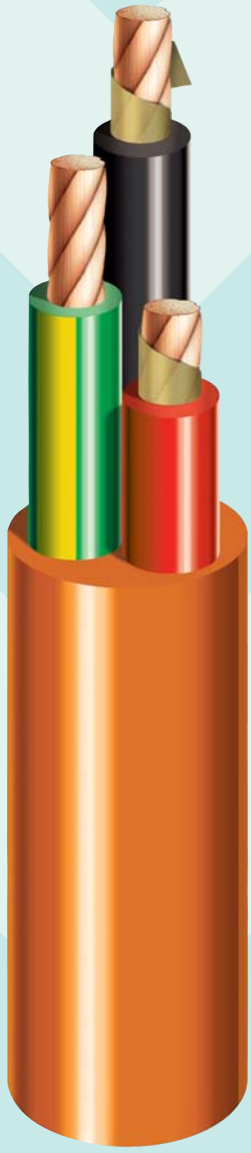
PRYSMIAN CABLES & SYSTEMS

FIRESTOP FS90 0.6/1kV

MULTICORE CABLE

FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

CABLE DESIGN



CONDUCTOR:
Stranded plain annealed copper
Maximum continuous operating temperature: 90°C

INSULATION:
Mica glass tape flame barrier, X-90 XLPE
Colours: Red, White, Blue, Black, Green/Yellow (cables with five or more cores are White with contrasting printed numbering)

SHEATH:
HFS-90-TP
Colours: Orange (if earth is included in cable), Red (if earth is not included in cable)

INSTALLATION CONDITIONS

INDUSTRIAL EQUIPMENT

IN FREE AIR

IN DUCT

INTERNAL WIRING

12D

CABLE CHARACTERISTICS

Semi-Rigid

8D

Level 1-2

Water Spray

Acceptable

+90°C -25°C

Level 2

Acceptable

Halogen Free

Low Smoke Emission

Power supply to essential circuits such as water pumps, lift motors, emergency lighting, smoke extraction fans, automation and control systems where circuit integrity is essential in the event of a fire.

PRYSMIAN CABLES & SYSTEMS

FS90 MULTICORE – FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

Product Code	Nominal C.S.A. mm^2	No. of Cores	Nominal O.D. mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
1.02CFS90	1.0	2	11.3	16	WS51W
1.52CFS90	1.5	2	11.9	18	WS52W
2.52CFS90	2.5	2	12.9	22	WS52W
1.52CEFS90	1.5	2 + E	11.9	19	WS52W
2.52CEFS90	2.5	2 + E	13.4	25	WS52W
42CEFS90	4	2 + E	14.2	29	WS52W
62CEFS90	6	2 + E	15.3	35	WS52W
1.03CFS90	1.0	3	11.9	17	WS51W
1.53CFS90	1.5	3	12.5	20	WS52W
2.53CFS90	2.5	3	13.6	25	WS52W
1.53CEFS90	1.5	3 + E	13.4	23	WS52W
2.53CEFS90	2.5	3 + E	14.6	29	WS52W
43CEFS90	4	3 + E	15.6	35	WS52W
63CEFS90	6	3 + E	16.8	43	WS52W
1.04CFS90	1.0	4	12.9	20	WS51W
1.54CFS90	1.5	4	13.6	23	WS52W
2.54CFS90	2.5	4	14.8	30	WS52W
1.54CEFS90	1.5	4 + E	14.6	26	WS52W
2.54CEFS90	2.5	4 + E	16.0	34	WS52W
44CEFS90	4	4 + E	16.8	42	WS52W
64CEFS90	6	4 + E	18.5	53	WS52W
1.56CFS90	1.5	6	16.1	28	WS52W
1.56CEFS90	1.5	6 + E	16.1	29	WS52W
2.56CEFS90	2.5	6 + E	17.6	39	WS52W
1.57CFS90	1.5	7	16.1	29	WS52W
1.510CEFS90	1.5	10 + E	20.2	42	WS52W
2.510CEFS90	2.5	10 + E	22.2	57	WS52W
1.520CEFS90	1.5	20 + E	25.7	72	WS52W
2.520CEFS90	2.5	20 + E	28.4	99	WS52W

FIRESTOP FS90 250/440V

FIRE ALARM CABLE

FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

CABLE DESIGN

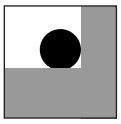
CONDUCTOR:
Stranded plain annealed copper
Maximum continuous operating temperature: 90°C

INSULATION:
Mica glass tape flame barrier, X-90 XLPE
Colours: Red, White

SHEATH:
HFS-90-TP
Colour: Red

INSTALLATION CONDITIONS

INDUSTRIAL EQUIPMENT

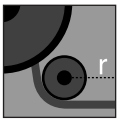


IN FREE AIR

IN DUCT

EXTERNAL BUILDING

INTERNAL WIRING



12D

CABLE CHARACTERISTICS

Semi-Rigid

8D

Level 1

Water Spray

Acceptable

+90°C -25°C

Level 2

Acceptable

Halogen Free

Low Smoke Emission

Power supply to essential circuits such as fire alarms and other fire detection systems.

PRYSMIAN CABLES & SYSTEMS

FS90 FIRE ALARM – FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

Product Code	Nominal C.S.A. mm^2	No. of Cores	Nominal O.D. mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
.752CFA90	0.75	2C	8.0	9.0	WS51W
1.02CFA90	1.0	2C	8.5	10.0	WS51W
1.52CFA90	1.5	2C	9.0	11.5	WS51W

FIRESTOP FS90 250/440V & 0.6/1kV

FLAT FIRE ALARM CABLE

FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

CABLE DESIGN

CONDUCTOR:
Stranded plain annealed copper
Maximum continuous operating temperature: 75°C

INSULATION:
Mica glass tape flame barrier, X-90 XLPE
Colours: Red, Black

SHEATH:
HFS-90-TP
Colour: Red

INSTALLATION CONDITIONS

INDUSTRIAL EQUIPMENT | IN FREE AIR | IN DUCT | INTERNAL WIRING | 12D

CABLE CHARACTERISTICS

Semi-Rigid | 8D | Level 1 | Water Spray | Acceptable | +75°C -20°C | Level 2 | Acceptable | Halogen Free | Low Smoke Emission

Power supply to essential circuits such as emergency lighting, fire alarms and other automation and control systems.

N1502

PRYSMIAN CABLES & SYSTEMS

FS90 FIRE ALARM FLAT – FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

Product Code	Nominal C.S.A. mm^2	No. of Cores	Approx. Overall Dimentions	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
*1.02CFF90LD (250/440)	1.0	2	5.5 x 9.0	7.2	WS51W
*1.52CFF90LD (250/440)	1.5	2	5.7 x 9.6	8.5	WS51W
*1.02CFF90HD (600/1000)	1.0	2	7.7 x 11.2	10.3	WS52W
*1.52CFF90HD (600/1000)	1.5	2	8.0 x 11.8	12.0	WS52W

Flat Firestop is available in both 0.6/1kV and 250/440V voltage classes. This choice allows the contractor to install the least expensive cable whilst still meeting the requirements of AS/NZS 3000.

Flat Firestop is smaller in overall size than circular cables of equal conductor cross sectional area. This allows more cables to be installed in conduits (in conduits outside fire hazard zones).

*Complies to AS/ACIF SØØ8

FIRESTOP FS110 0.6/1kV

SINGLE CORE CABLE

FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

CABLE DESIGN

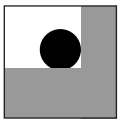
CONDUCTOR:
Stranded plain annealed copper
Maximum continuous operating temperature: 110°C

INSULATION:
Mica glass tape flame barrier, R-HF-110
Colour: Natural

SHEATH:
HF-110-R
Colour: Black

INSTALLATION CONDITIONS

INDUSTRIAL EQUIPMENT

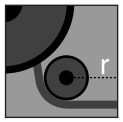


IN FREE AIR

IN DUCT

EXTERNAL BUILDING

INTERNAL WIRING



12D

CABLE CHARACTERISTICS

Semi-Rigid

8D

Level 2

Water Spray

Good

+110°C -30°C

Level 2

Good

Halogen Free

Low Smoke Emission

Power supply to essential circuits such as mains, sub mains and other areas where circuit integrity is essential in the event of a fire.

PRYSMIAN CABLES & SYSTEMS

FS110 SINGLE CORE – FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

Product Code	Nominal C.S.A. mm^2	No. of Cores	Nominal O.D. mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
101CFS110	10	1	9.9	19	WS51W
161CFS110	16	1	10.9	25	WS52W
251CFS110	25	1	13.1	38	WS52W
351CFS110	35	1	14.2	47	WS52W
501CFS110	50	1	16.0	62	WS52W
701CFS110	70	1	17.6	82	WS52W
951CFS110	95	1	20.2	112	WS52W
1201CFS110	120	1	21.7	136	WS52W
1501CFS110	150	1	24.0	167	WS52W
1851CFS110	185	1	26.5	208	WS52W
2401CFS110	240	1	30.0	269	WS52W
3001CFS110	300	1	33.0	334	WS52W
4001CFS110	400	1	36.4	419	WS52W
5001CFS110	500*	1	38.1	526	WS52W
6301CFS110	630*	1	42.1	662	WS52W

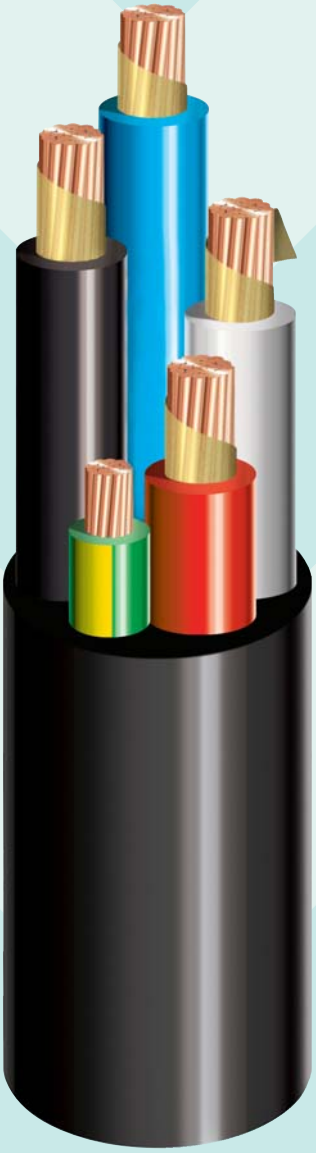
* Compacted conductor

FIRESTOP FS110 0.6/1kV

MULTICORE CABLE

FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

CABLE DESIGN



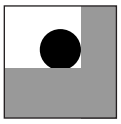
CONDUCTOR:
Stranded plain annealed copper
Maximum continuous operating temperature: 110°C

INSULATION:
Mica glass tape flame barrier, R-HF-110
Colours: Red, White, Blue, Black, Green/Yellow (with Green only in cables above 120mm^2)

SHEATH:
HF-110-R
Colour: Black

INSTALLATION CONDITIONS

INDUSTRIAL EQUIPMENT

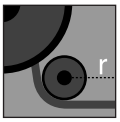


IN FREE AIR

IN DUCT

EXTERNAL BUILDING

INTERNAL WIRING



12D

CABLE CHARACTERISTICS

Semi-Rigid

8D

Level 2

Water Spray

Good

+110°C -30°C

Level 2

Good

Halogen Free

Low Smoke Emission

Essential circuits such as smoke extraction fans, lift motors, emergency power supplies and mains.

PRYSMIAN CABLES & SYSTEMS

FS110 MULTICORE – FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

Product Code	Nominal C.S.A. mm^2	No. of Cores	Nominal O.D. mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
103CEFS110	10	3 + E	20.1	75	WS52W
163CEFS110	16	3 + E	22.4	100	WS52W
253CEFS110	25	3 + E	27.0	144	WS52W
353CEFS110	35	3 + E	29.2	183	WS52W
503CEFS110	50	3 + E	33.3	244	WS52W
703CEFS110	70	3 + E	37.4	325	WS52W
953CEFS110	95	3 + E	42.3	429	WS52W
1203CEFS110	120	3 + E	46.0	527	WS52W
1503CEFS110	150	3 + E	51.1	651	WS52W
1853CEFS110	185	3 + E	56.4	818	WS52W
2403CEFS110	240	3 + E	63.8	1066	WS52W
104CEFS110	10	4 + E	22.2	94	WS52W
164CEFS110	16	4 + E	24.8	126	WS52W
254CEFS110	25	4 + E	30.0	183	WS52W
354CEFS110	35	4 + E	33.0	222	WS52W
504CEFS110	50	4 + E	37.4	315	WS52W
704CEFS110	70	4 + E	42.0	419	WS52W
954CEFS110	95	4 + E	47.2	550	WS52W
1204CEFS110	120	4 + E	51.2	676	WS52W
1504CEFS110	150	4 + E	57.2	837	WS52W
1854CEFS110	185	4 + E	63.7	1063	WS52W
2404CEFS110	240	4 + E	72.2	1386	WS52W

CABLE SELECTION

SINGLE CORE CABLES – FS110

Nominal Conductor Area mm²	Resistance		Reactance at 50 Hz Trefoil Ω/km	Impedance Trefoil Touching at 110°C Ω/km	Voltage Drop	
	D.C. at 20°C Ω/km	A.C. at 110°C Ω/km			110°C Three Phase Laid Flat Touching mV/A.m.	110°C Three Phase Trefoil Touching mV/A.m.
10	1.8300	2.4800	0.1230	2.480	4.300	4.300
16	1.1500	1.5600	0.1140	1.560	2.710	2.700
25	0.7270	0.9840	0.1090	0.990	1.720	1.720
35	0.5240	0.7100	0.1040	0.718	1.250	1.240
50	0.3870	0.5240	0.0988	0.533	0.929	0.924
70	0.2680	0.3630	0.0941	0.375	0.657	0.650
95	0.1930	0.2620	0.0924	0.278	0.491	0.481
120	0.1530	0.2090	0.0889	0.226	0.403	0.392
150	0.1240	0.1700	0.0885	0.191	0.344	0.331
185	0.0991	0.1360	0.0878	0.162	0.296	0.280
240	0.0754	0.1050	0.0861	0.136	0.252	0.235
300	0.0601	0.0846	0.0852	0.120	0.227	0.208
400	0.0470	0.0677	0.0841	0.108	0.208	0.187
500*	0.0366	0.0547	0.0830	0.0994	0.195	0.172
630*	0.0283	0.0448	0.0809	0.0925	0.184	0.160

To obtain single phase voltage drop value, multiply three phase trefoil figure by 1.155.

*Compacted conductor

CABLE SELECTION

MULTICORE CABLES (WITH OR WITHOUT EARTH) – FS110

Nominal Conductor Area mm²	Resistance		Reactance at 50 Hz Ω/km	Impedance Ω/km	Voltage Drop	
	D.C. at 20°C Ω/km	A.C. at 110°C Ω/km			Single Phase mV/A.m.	Three Phase mV/A.m.
10	1.8300	2.480	0.0967	2.480	4.95	4.290
16	1.1500	1.560	0.0913	1.560	3.12	2.700
25	0.7270	0.984	0.0895	0.988	1.98	1.710
35	0.5240	0.710	0.0863	0.715	1.43	1.240
50	0.3870	0.524	0.0829	0.531	1.06	0.920
70	0.2680	0.364	0.0798	0.373	0.745	0.645
95	0.1930	0.262	0.0790	0.274	0.549	0.475
120	0.1530	0.209	0.0765	0.223	0.445	0.385
150	0.1240	0.170	0.0765	0.186	0.372	0.322
185	0.0991	0.136	0.0762	0.156	0.313	0.271
240	0.0754	0.105	0.0751	0.129	0.259	0.224

MULTICORE CABLES (WITH OR WITHOUT EARTH) – FS90

Nominal Conductor Area mm²	Resistance		Reactance at 50 Hz Ω/km	Impedance Ω/km	Voltage Drop	
	D.C. at 20°C Ω/km	A.C. at 90°C Ω/km			Single Phase mV/A.m.	Three Phase mV/A.m.
1.0	21.20	27.00	0.1140	27.0	54.1	46.8
1.5	13.60	17.30	0.1070	17.3	34.7	30.0
2.5	07.41	9.45	0.0988	9.45	18.9	16.4
4	04.61	5.88	0.0930	5.88	11.8	10.2
6	03.08	3.93	0.0884	3.93	7.86	6.8

CABLE SELECTION
CURRENT CARRYING CAPACITY (A)

TWO (2) SINGLE CORE CABLES – FS110

Nominal Conductor Area mm²	Unenclosed			Enclosed	Underground Ducts	
	Spaced A	Spaced from Surface A	Touching A	Metallic Wiring Enclosure in Air A	One Duct A	Two Ducts A
10	103	99	81	78	88	97
16	137	131	107	104	115	127
25	183	175	143	137	148	163
35	225	214	176	165	177	195
50	276	261	215	205	214	236
70	349	328	272	255	262	288
95	434	406	339	321	321	352
120	505	471	394	369	366	400
150	581	540	454	430	420	448
185	673	624	527	493	477	517
240	806	743	630	594	561	600
300	934	857	730	-	648	694
400	1094	998	853	-	738	790
500	1278	1155	990	-	837	921
630	1498	1334	1146	-	973	1045

THREE (3) SINGLE CORE CABLES – FS110

Nominal Conductor Area mm²	Unenclosed			Enclosed	Underground Ducts	
	Spaced A	Spaced from Surface A	Touching A	Metallic Wiring Enclosure in Air A	One Duct A	Two Ducts A
10	99	86	81	71	77	88
16	132	114	107	93	99	115
25	177	153	143	125	130	148
35	218	188	176	151	155	176
50	267	230	215	182	184	212
70	339	291	272	234	230	259
95	422	363	339	285	277	315
120	492	422	394	337	322	357
150	565	486	453	382	362	400
185	656	564	526	449	415	461
240	786	674	629	548	492	533
300	912	780	727	626	556	617
400	1069	910	847	718	631	700
500	1248	1053	981	865	736	815
630	1462	1217	1132	983	827	920

CABLE SELECTION
CURRENT CARRYING CAPACITY (A)

TWO (2) CORE OR TWO (2) CORE WITH EARTH – FS110

Nominal Conductor Area mm²	Unenclosed		Enclosed	Underground Ducts
	Spaced from Surface	Touching	Metallic Wiring Enclosure in Air	
	A	A	A	A
10	95	89	76	85
16	126	118	102	111
25	168	158	133	144
35	206	194	166	175
50	251	236	200	208
70	317	298	256	260
95	392	367	312	313
120	455	426	368	363
150	519	486	417	409
185	598	559	486	468
240	708	662	588	554
300	815	760	670	626
400	941	878	768	711
500	1074	1000	905	819

THREE (3) OR FOUR (4) CORE CABLES WITH OR WITHOUT EARTH – FS110

Nominal Conductor Area mm²	Unenclosed		Enclosed	Underground Ducts
	Spaced from Surface	Touching	Metallic Wiring Enclosure in Air	
	A	A	A	A
10	81	76	64	71
16	107	101	86	93
25	144	135	116	122
35	177	166	140	146
50	216	202	174	177
70	272	255	217	217
95	337	314	270	267
120	391	364	311	304
150	447	416	360	346
185	515	479	411	391
240	611	567	498	463

CABLE SELECTION
CURRENT CARRYING CAPACITY (A)

TWO (2) CORE OR TWO (2) CORE WITH EARTH – FS90

Nominal Conductor Area mm²	Unenclosed		Enclosed	Underground Ducts
	Spaced from Surface	Touching	Wiring Enclosure in Air	
	A	A	A	A
1.0	18	17	13	19
1.5	24	22	17	24
2.5	34	31	24	34
4	45	42	33	45
6	57	53	42	56

THREE (3) OR FOUR (4) CORE CABLES WITH OR WITHOUT EARTH – FS90

Nominal Conductor Area mm²	Unenclosed		Enclosed	Underground Ducts
	Spaced from Surface	Touching	Wiring Enclosure in Air	
	A	A	A	A
1.0	16	14	13	16
1.5	20	19	16	20
2.5	28	26	24	29
4	38	35	30	37
6	48	45	38	46

GENERAL INFORMATION

The MIMS and Firestop cable ranges are for use where circuit integrity under fire conditions is important and where flame propagation, evolution of smoke, acid emissions and noxious gases are to be minimised to reduce the risk to personnel and equipment.

COMPLIANCE WITH APPROVALS AND STANDARDS

The Firestop cable range is manufactured to AS/NZS 5000.1 (where applicable). The Firestop range meets the requirements of the following Standards:

- AS/NZS 3000 – Australian/New Zealand Wiring Rules
- AS/NZS 3013 – Electrical installations – classification of the fire and mechanical performance of wiring system elements
- AS/NZS 4507 – Classification CI-1
- AS/NZS 2293.1 – Emergency escape lighting and exit signs for buildings – System design, installation and operation

Prysmian Cables Australia maintains Quality Certification to AS/NZS ISO 9001.

CURRENT RATINGS

Firestop FS90 are insulated with X-90 XLPE and have a maximum conductor operating temperature of 90°C. Firestop Flat FS90 are insulated with HFI-90-TP and have a maximum conductor operating temperature of 75°C. Air ambient temperature of 40°C, or ground ambient temperature of 25°C is assumed.

Firestop FS110 cables are insulated and sheathed with materials having superior thermal endurance properties. The cables are capable of operating continuously at a conductor temperature of 110°C. If intended for use in non-metallic wiring enclosure, current rating for 90°C shall be applied.

The current ratings of these cables relate to single circuits and align with AS/NZS 3008.1.1 cables for alternating voltages up to 0.6/1kV.

INSTALLATION GUIDELINES FOR FIRESTOP CABLES FS90 AND FS110

Unless stated in the standards detailed below, installation and WS rating shall be as per AS/NZS 3000.

- AS/ACIF S009:2006 – Installation requirements for customer cabling (Wiring Rules)
- AS 1530.4-2005 – Methods for fire tests on building materials,components and structures – Fire-resistance test of
- AS/NZS 1668 – The use of ventilation and airconditioning in buildings
- AS/NZS 1668.1:1998 – The use of ventilation and airconditioning in buildings – Fire and smike control in multi-compartments
- AS 1670.1 – Fire detection warning, control and intercom systems – System design, installation and commisioning – Fire
- AS/NZS 1680.2.4:1997 – Interior lighting – Industrial tasks and processes
- AS 1735.2-2001 – Lifts, escalators and moving walks – Passenger and goods lifts – Electric
- AS 2118 – Automatic fire sprinkler systems
- AS 2118.1-2006 – Automatic fire sprinkler systems – General systems
- AS 2118.2-1995 – Automatic fire sprinkler systems – Wall wetting sprinklers (Drenchers)
- AS 2118.4-1995 – Automatic fire sprinkler systems – Residential
- AS 2118.5-1995 – Automatic fire sprinkler systems – Domestic
- AS 2118.6-1995 – Automatic fire sprinkler systems – Combined sprinkler and hydrant
- AS 2067-2008 – Substations and high voltage installations exceeding 1 kV a.c.
- AS 2293 – Emergency escape lighting and exit signs
- AS 2293.1-2005 – Emergency escape lighting and exit signs for buildings – System design, installation and operation
- AS 2941-2002 – Fixed fire protection installations – Pumpset systems
- AS 2941-2008 – Fixed fire protection installations – Pumpset systems
- AS/NZS 3000:2007 – Electrical installations (known as the Australian/New Zealand Wiring Rules)
- AS/NZS 3009:1998 – Electric installations – Emergency power supplies in hospitals
- AS 3772-2008 – Pre-engineered fire protection systems for cooking equipment
- AS 4118.1.4-1994 – Fire sprinkler systems – Components – Valve monitors
- AS/NZS 4507:2006 – Cables – Classification of characteristics when exposed to fire

GENERAL INFORMATION

AS/NZS 3013

AS/NZS 3013 is an Australian/New Zealand Standard which sets out a classification system for wiring systems according to their ability to:

- maintain circuit integrity under fire conditions for a specified period and,
- maintain circuit integrity against mechanical damage of specified severity

Firestop cable systems have an AS/NZS 3013 rating of WS51W and WS52W, which indicate a two hour fire rating providing protection against light and moderate impact.

MIMS have a rating of WS52W and WS53W, which also indicates a two hour fire rating providing protection against moderate and heavy impact. In addition, the supplementary letter 'W' at the end of the rating represents the ability of the wiring system to maintain circuit integrity when subject to fire conditions followed by hosing with water.

MECHANICAL PROTECTION

Generally the Mechanical Protection offered by a wiring system using Firestop cables is a rating of WS X2 to AS/NZS 3013, ie: moderate impact. This can be improved to WS X3 which provides a level of medium impact against damage from vehicles such as cars and light commercial vehicles by:

- addition of 1.6mm sheet steel coverage with a maximum unsupported span of 100mm
- galvanised medium tube to AS1074

GUIDELINES RECOMMENDED BY PRYSMIAN CABLES & SYSTEMS

The major consideration when installing AS/NZS 3013 fire rated cable is to maintain the integrity of the circuit when exposed to fire or other mechanical damage. In order to achieve this, the following needs to be considered:

- Firestop cable is to be used in fixed applications only
- Firestop cable to be installed in areas where temperature is minus 30°C or warmer (minus 20°C or warmer for FS-90 flat cable)
- Firestop cable should be installed without joints or breaks through the fire hazard zone
- Junctions or Termination Boxes within the fire hazard zone should have a rating commensurate with the cable
- Bending radius of cable should be no less than 8 x OD set in position and 12 x OD during installation
- Firestop cables are ACA approved under classification Special Application Cable when connected to an ACA permitted fire panel
- Cables must be strapped to the cable support tray or ladder using stainless steel cable ties or other approved ways
- Direct surface mounted multicore cables may be fastened to equally rated fire walls using galvanised ferrous saddle or P-clips

Components of a wiring system can be used with Firestop Cables providing they are approved as per Wiring Systems Standard AS/NZS 3013.

RECOMMENDED FIXING DISTANCES

Vertical – not more than 0.6 metres.

Horizontal – not more than 1 metre where supported by cable tray, cable ladder or other continuous fire rated surface. Not more than 0.6m when installed on the underside of a continuous fire rated surface.

Catenary – not more than 0.3 metres.

These are considered minimum requirements, all cables or bunches over 25mm in diameter need to be supported every 300mm.

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