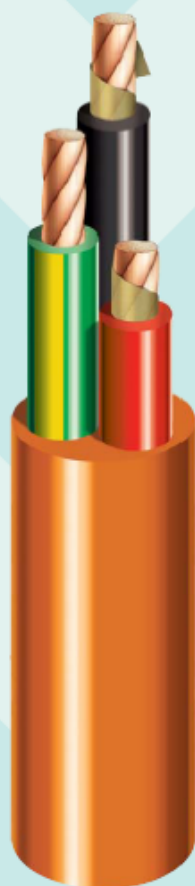


FIRESTOP FS90 0.6/1kV

CABLE DESIGN



INSTALLATION CONDITIONS

MULTICORE CABLE FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

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)



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.

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

CABLE DESIGN



INSTALLATION CONDITIONS

FIRE ALARM CABLE

FIRE PERFORMANCE CABLE TO
AS/NZS 5000.1

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



INDUSTRIAL
EQUIPMENT



IN FREE
AIR



IN
DUCT



EXTERNAL
BUILDING



INTERNAL
WIRING



120

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.

F590 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

CABLE DESIGN



INSTALLATION CONDITIONS

FLAT FIRE ALARM CABLE

FIRE PERFORMANCE CABLE TO
AS/NZS 5000.1

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



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.

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 Dimensions	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 S008

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



120

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.

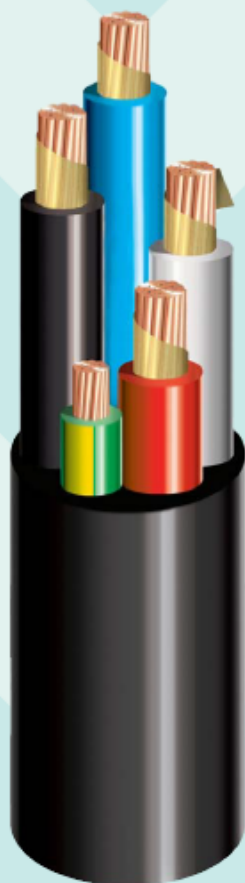
FS 110 SINGLE CORE – FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

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	WSS1W
161CFS110	16	1	10.9	25	WSS2W
251CFS110	25	1	13.1	38	WSS2W
351CFS110	35	1	14.2	47	WSS2W
501CFS110	50	1	16.0	62	WSS2W
701CFS110	70	1	17.6	82	WSS2W
951CFS110	95	1	20.2	112	WSS2W
1201CFS110	120	1	21.7	136	WSS2W
1501CFS110	150	1	24.0	167	WSS2W
1851CFS110	185	1	26.5	208	WSS2W
2401CFS110	240	1	30.0	269	WSS2W
3001CFS110	300	1	33.0	334	WSS2W
4001CFS110	400	1	36.4	419	WSS2W
5001CFS110	500*	1	38.1	526	WSS2W
6301CFS110	630*	1	42.1	662	WSS2W

* Compacted conductor

FIRESTOP FS110 0.6/1kV

CABLE DESIGN



INSTALLATION CONDITIONS

MULTICORE CABLE FIRE PERFORMANCE CABLE TO AS/NZS 5000.1

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 120mm²)

SHEATH:

HF-110-R

Colour: Black



INDUSTRIAL
EQUIPMENT



IN FREE
AIR



IN
DUCT



EXTERNAL
BUILDING



INTERNAL
WIRING



120

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.

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 mm ²	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) – F5110

Nominal Conductor Area mm ²	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) – F590

Nominal Conductor Area mm ²	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 mm ²	Spaced A	Unenclosed		Enclosed Metallic Wiring Enclosure in Air A	Underground Ducts	
		Spaced from Surface A	Touching 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 mm ²	Spaced A	Unenclosed		Enclosed Metallic Wiring Enclosure in Air A	Underground Ducts	
		Spaced from Surface A	Touching 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 – FS 110

Nominal Conductor Area mm ²	Unenclosed		Enclosed Metallic Wiring Enclosure in Air A	Underground Ducts A
	Spaced from Surface	Touching		
	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 – FS 110

Nominal Conductor Area mm ²	Unenclosed		Enclosed Metallic Wiring Enclosure in Air A	Underground Ducts A
	Spaced from Surface	Touching		
	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 mm ²	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 mm ²	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