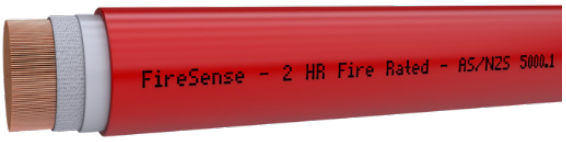
PRODUCT DATA SHEET

Single Core
2HR Fire Rated Cable

FEATURES

- ✓ 2HR Fire Rated
- ✓ 110°C continuous operation
- ✓ WS52W AS/NZS 3013 Rating
- ✓ AS/NZS 5000.1
- ✓ AS/CA S008
- ✓ RCM Certified
- ✓ Flame retardant
- ✓ Flexible Class 6 conductors (10mm & above)
- ✓ Single Double Insulated
- ✓ ActivFire Certified
- ✓ Low smoke zero halogen (PVC Free) Third Party Accredited



PRODUCT DESCRIPTION

FireSense fire rated cables have been specifically designed for use within the Fire Alarm and Mechanical/Electrical industries.

Our cables are constructed from the highest quality cross linked polymers available and are designed to be easy to install, strip and terminate.

FireSense fire rated cables have been independently tested and approved by Warrington Fire to the requirements of AS/NZS 3013 for both fire and mechanical cable properties. All FireSense cables are certified 2 hour fire rated and are the only fire rated cables in Australia to have ActivFire Certification.

All FireSense fire rated series cables are made from LSZH materials and have received third party PVC Free Certification from GECA (Good Environmental Choice Australia).

FireSense fire rated cables have been tested and approved to electrical standards AS/NZS 5000.1 by respective industry testing authorities. It is a mandatory requirement of AS/NZS 3000:2007 Appendix H and AS/NZS 1668.1 that cables be approved to AS/NZS 3013 and carry a 2HR fire rating.

FireSense cables are manufactured using 100% pure, annealed conductors for ease of stripping and termination while achieving the highest possible electrical performance. FireSense's highly specialised insulation and outersheath materials meet the stringent Impact and Cutting test requirements of AS/NZS 3013 yet allow for ease of stripping and cable placement on trays saving valuable installation time on site.

FireSense Single Core cable use Class 6 flexible conductors making for a more flexible cable which is much easier to install.

It is recommended that FireSense stainless steel cable ties be used for fixing cable to tray every 1.0 metre when mounted horizontally and every 0.6 metres when mounted vertically. When fixing to catenary wire our recommendation is as follows:

If cable bunch is ≥ 25mm diameter cables should be supported with stainless steel ties every 300mm.
If cable bunch is < 25mm diameter cables should be supported with stainless steel ties every 600mm.

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ORDERING INFORMATION

Part Number	No. of Cores	Cross Section (mm^2)	Conductor Class	Approx Overall Dia (mm)	Operating Temperature (^0C)	AS/NZS 3013 Rating
FR-6-1C	1	6	Class 6	10.6	-25 to + 110	WS52W
FR-10-1C	1	10	Class 6	11.8	-25 to + 110	WS52W
FR-16-1C	1	16	Class 6	12.8	-25 to + 110	WS52W
FR-25-1C	1	25	Class 6	14.2	-25 to + 110	WS52W
FR-35-1C	1	35	Class 6	16	-25 to + 110	WS52W
FR-50-1C	1	50	Class 6	18	-25 to + 110	WS52W
FR-70-1C	1	70	Class 6	20	-25 to + 110	WS52W
FR-95-1C	1	95	Class 6	23	-25 to + 110	WS52W
FR-120-1C	1	120	Class 6	25	-25 to + 110	WS52W
FR-150-1C	1	150	Class 6	28	-25 to + 110	WS52W
FR-185-1C	1	185	Class 6	30	-25 to + 110	WS52W
FR-240-1C	1	240	Class 6	33	-25 to + 110	WS52W
FR-300-1C	1	300	Class 6	35	-25 to + 110	WS52W
FR-400-1C	1	400	Class 6	41	-25 to + 110	WS52W
FR-500-1C	1	500	Class 6	46	-25 to + 110	WS52W

TECHNICAL SPECIFICATIONS

Conductors	Stranded Annealed Copper
Flame Barrier	Mica Tape
Insulation	Flame Retardant, Low Smoke, Zero Halogen (X-HF-110)
Sheath	Flame Retardant, Low Smoke, Zero Halogen (HFS-110-TP)*
Voltage Rating	0.6/1kV
Operating Temperature	-25° to +110°C
Insulation Color	White
Sheath Color	Red

* Please note: LSZH HFS-110-TP sheath material is UV stabilised but red colour may be subject to fading over time if exposed to direct sunlight.

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ELECTRICAL CHARACTERISTICS

Part Number	DC Resistance (Ω / Km)	AC Resistance @ 50Hz (Ω / Km at °C) As per AS 3008 Table 34/37				Current Carrying Capacity Unenclosed (Amps) As per AS 3008 Table 9			
	20°C	45°C	75°	90°	110°	Spaced	Touching	Exposed	Underground Wiring Enclosure
FR-6-1C	3.30	3.38	3.75	3.93	4.17	70	57	48	55
FR-10-1C	1.91	2.01	2.23	2.33	2.48	99	80	67	76
FR-16-1C	1.21	1.26	1.40	1.47	1.56	130	105	88	91
FR-25-1C	0.78	0.799	0.884	0.927	0.984	173	139	116	121
FR-35-1C	0.554	0.609	0.674	0.707	0.750	214	172	143	151
FR-50-1C	0.386	0.424	0.470	0.493	0.523	270	217	179	188
FR-70-1C	0.272	0.300	0.332	0.348	0.369	340	273	224	229
FR-95-1C	0.206	0.227	0.252	0.264	0.280	410	329	269	268
FR-120-1C	0.161	0.178	0.197	0.207	0.219	487	390	317	316
FR-150-1C	0.129	0.144	0.159	0.166	0.176	562	450	365	357
FR-185-1C	0.106	0.119	0.131	0.137	0.145	644	516	417	404
FR-240-1C	0.0801	0.0912	0.100	0.105	0.111	775	620	499	481
FR-300-1C	0.0641	0.0745	0.0817	0.0853	0.0898	895	714	572	542
FR-400-1C	0.0486	0.0587	0.0640	0.0666	0.0699	1079	855	682	648
FR-500-1C	0.0384	0.0487	0.0527	0.0548	0.0571	1260	990	786	729

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ELECTRICAL CHARACTERISTICS CONTINUED

Part Number	Calculations Trefoil @ 50Hz @ 20°C		3 Phase Voltage Drop @ 50Hz (mV/A.m at °C) As per AS 3008 Table 46			
	Inductance mH	Reactance Ω / Km	45°	75°	90°	110°
FR-6-1C	0.375	0.1180	6.28	6.95	7.29	7.74
FR-10-1C	0.343	0.1077	3.64	4.03	4.22	4.48
FR-16-1C	0.328	0.1029	2.31	2.56	2.68	7.74
FR-25-1C	0.309	0.0970	1.50	1.65	1.73	1.84
FR-35-1C	0.287	0.0901	1.070	1.180	1.730	1.840
FR-50-1C	0.277	0.0870	0.754	0.831	0.869	0.921
FR-70-1C	0.266	0.0835	0.543	0.596	0.622	0.658
FR-95-1C	0.258	0.0809	0.424	0.463	0.483	0.509
FR-120-1C	0.255	0.0802	0.344	0.373	0.388	0.408
FR-150-1C	0.253	0.0795	0.291	0.313	0.325	0.340
FR-185-1C	0.251	0.0788	0.254	0.272	0.280	0.293
FR-240-1C	0.246	0.0773	0.215	0.227	0.233	0.242
FR-300-1C	0.241	0.0756	0.194	0.203	0.207	0.213
FR-400-1C	0.241	0.0757	0.175	0.180	0.183	0.187
FR-500-1C	0.238	0.0749	0.164	0.167	0.169	0.172

Permissable Thermal Short Circuit Current (kA) for 1 second @ 110°C with Insulation Max. Temperature of 250°C in accordance with AS/NZS 3008.1.1:2009 clause 5.3: ($I^2t = K^2S^2$)

Conductor Size (mm^2)	6	10	16	25	35	50	70	95
Short Circuit Current (kA)	0.792	1.32	2.112	3.3	4.62	6.6	9.24	12.54

Conductor Size (mm^2)	120	150	185	240	300	400	500	630
Short Circuit Current (kA)	15.84	19.8	24.42	31.68	39.6	52.8	66	83.16

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WEIGHT PER METRE

Please note: the below measurements are approximate only and do not account for the weight of the drum.

Cable	Approx weight per metre (kg)
FR-6-1C	0.17
FR-10-1C	0.22
FR-16-1C	0.29
FR-25-1C	0.38
FR-35-1C	0.460
FR-50-1C	0.640
FR-70-1C	0.830
FR-95-1C	1.115
FR-120-1C	1.336
FR-150-1C	1.798
FR-185-1C	2.308
FR-240-1C	2.857
FR-300-1C	3.104
FR-400-1C	4.08
FR-500-1C	5.066

STANDARDS COMPLIANCE

Fire & Mechanical	AS/NZS 3013
Cable Construction	AS/NZS 5000.1
ACMA Compliance	AS/CA S008
Conductors	AS/NZS 1125
Insulation	AS/NZS 3808
Sheath	AS/NZS 3808
Cable	AS/CA S008
Cable Performance	AS/NZS 4507 (RHE-3)
Vertical Flame Spread	AS/NZS 1660.5.1 (Section 6 - Category C - AS/NZS IEC 60332-3-24)
Smoke Density	AS/NZS 1660.5.2, AS/NZS IEC 61034
Halogen Gas	AS/NZS 1660.5.3, AS/NZS IEC 60754-1
Acidity of Gases	AS/NZS 1660.5.4, AS/NZS IEC 60754-2
Vertical Flame Propogation	AS/NZS 1660.5.6, AS/NZS IEC 60332-1

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MINIMUM BENDING RADIUS

The minimum bend radius is 10x Cable Diameter.

The measuring points are from outer sheath using the inner static bend radius, as indicated in Fig 1 to the right.

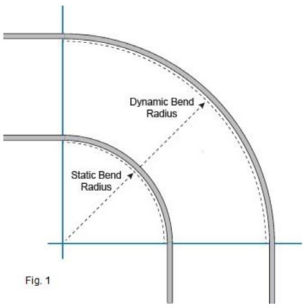

Fig. 1

APPROVALS & CERTIFICATION

Part Number	AS/NZS 3013			AS/NZS 5000.1	
	Rating	Certificate No.	Issuer	Certificate No.	Issuer
FR-6-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-10-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-16-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-25-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-35-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-50-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-70-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-95-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-120-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-150-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-185-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-240-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-300-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-400-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.
FR-500-1C	WS52W	SFC27760A-R6.0	Warrington Fire	GMA-511153	Global Mark Pty Ltd.

ActivFire Listing Number	afp-2417		
RCM Responsible Supplier	E6560	Level 3	GMA-511153
GECA Claims Authentication License Number	Fir-2021		
Bureau Veritas CoC Number	2835		

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CLASSIFICATION

AS/NZS 3013 is a classification system which defines the performance of a Wiring System (WS). The classification system prefix is 'WS' followed by two numerals and a supplementary letter W. ie

AS/NZS 3013 Fire Rated Cable Technical Information

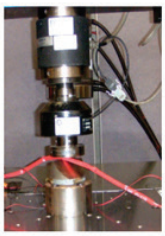
Classification of the fire and mechanical performance of wiring system elements:

AS/NZS 3013 is a classification system which defines the performance of a Wiring System (WS). The classification system prefix is 'WS' followed by two numerals and a supplementary letter W. ie.

WS	5	2	W

1	15 minutes
2	30 minutes
3	60 minutes
4	90 minutes
5	120 minutes

	Impact Test (J)	Cutting Test (kN)	Level of Protection
1	2.5	0.3	Light
2	15	1.0	Moderate
3	50	5.0	Heavy
4	500	5.0	Very Heavy
5	5000	5.0	Extremely Heavy



The 'W' suffix denotes the wiring system's capability to maintaining circuit integrity when subjected to water spray immediately following a fire.

Cables are subjected to fire at 1050°C for 120 minutes, then water sprayed for a further 3 minutes.

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