

When safety cannot be compromised...

**exZhellent-D** LSF BS7211

**exZhellent-M** LSF BS6724

# Introduction

The General Cable range of **exZhellent** products have been developed in response to the ever increasing demand from the marketplace for cables to exhibit high levels of safety, especially when there is a possible Fire Hazard risk.

Fire damage accounts for a high level of replacement costs each and every year, associated to both structural replacements and the provision of damaged equipment. The Fire risk is not restricted to buildings and equipment, but the risk to life is especially important.

In the event of a large scale fire hazard the electrical wiring of a building, can act as a vehicle to propagate the fire hazard from area to area, and in certain industrial installations these areas can be classified as areas where there is a permanent risk of explosion.

During a fire hazard, conventional cable manufacturing materials such as PVC, exhibit burning characteristics that produce dense black smoke and harmful hydrogen chloride gas, which when in contact with water from a sprinkler system, results in a corrosive acid, which is extremely harmful to personnel and sensitive equipment.

The evolution of thick dense smoke in the event of a fire hazard scenario will cause panic in heavily populated locations, therefore, hindering a controlled shutdown of operations and a quick and effective evacuation of the location.

The General Cable solution to the effects of a Fire Hazard, is the **exZhellent** range of Armoured Power Cables, and Conduit Wiring Cables. General Cable **exZhellent** range of cables have been designed and constructed to offer effective operation in areas where, in the event of a fire hazard, smoke and fume emission, endanger life and sensitive equipment.

The grades of materials used on the **exZhellent** range of cables are halogen free, and when subjected to

flames will emit low levels of smoke.

These features ensure that a safe evacuation of personnel can be undertaken, also ensuring that the routes of exit remain visible at all times during the fire. Maintaining visibility also ensures that the fire-fighters can get to the source of the flames quickly and efficiently, therefore, ensuring that systems can be brought under control and shutdown with the minimum of delay.

The **exZhellent** range of Armoured Power Cables and Conduit Wiring Cables, provide increased safety in Fire Hazard situations.

Every cable in the GENERAL CABLE **exZhellent** Range meets the relevant performance standards for fire resistancy low smoke and fume properties and is manufactured at factories which have been awarded the Certificate of Assessed Quality Management by BASEC.



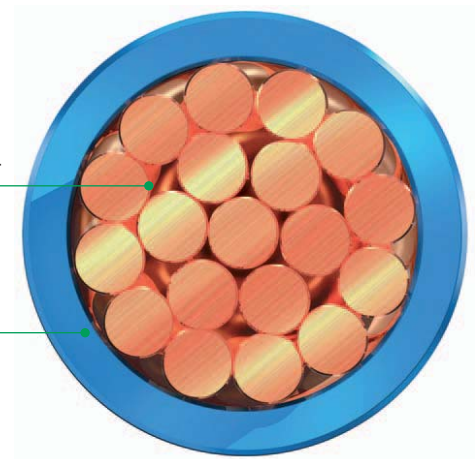
# LSF Conduit Wiring Cable 450/750V

**exZhellent-D**



Annealed Copper Conductor Class 2

LSF Sheathed



Annealed Copper Conductor

LSF Sheathed

APPROVED BY:





## Range and Dimensions

GENERAL CABLE CODE	CROSS SECTION Area sqmm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	BENDING RADIUS mm	CONDUCTOR	2 CABLES, 1ph a.c.		3 or 4 CABLES, 3ph a.c.		SHORT CIRCUIT
					MAX. D.C. RESISTANCE AT 20°C ohms/km	CURRENT RATING amp	VOLT DROP a / m Mv	CURRENT RATING amp	VOLT DROP a / m Mv	RATING 1 Sec kA
1812106	1x1,5	2,85	25	20	12.1	22	31	19	27	0,21
1812107	1x2,5	3,44	35	25	7.41	30	19	26	16	0,36
1812108	1x4	3,9	50	25	4.61	40	12	35	10	0,57
1812109	1x6	4,55	65	30	3.08	51	7.9	45	6.8	0,85
1812110	1x10	5,75	110	35	1.83	71	4.7	63	4	1.42
1812111	1x16	6,65	165	40	1.15	95	2.9	85	2.5	2.27
1812112	1x25	8,15	255	50	0.727	126	1.9	111	1.65	3.55
1812113	1x35	9,2	345	55	0.524	156	1.35	138	1.15	4.97
1812114	1x50	10,7	470	65	0.387	189	1.05	168	0.9	7.10
1812115	1x70	12,3	665	75	0.268	240	0.75	214	0.65	9.94
1812116	1x95	14,4	910	90	0.193	290	0.58	259	0.5	12.78
1812117	1x120	15,95	1145	100	0.153	336	0.48	299	0.42	17.04
1812118	1x150	17,7	1400	110	0.124	375	0.43	328	0.37	21.30
1812119	1x185	19,7	1755	120	0.0991	426	0.37	370	0.32	26.27
1812120	1x240	22,4	2310	135	0.0754	500	0.33	433	0.29	34.08
1812121	1x300	25,3	2905	155	0.0601	573	0.31	493	0.27	42.60
1812122	1x400	28	3685	170	0.047	683	0.29	584	0.25	56.80

## Current Ratings

The following ratings apply to cables bunched and enclosed in conduit on a wall, or enclosed in trunking, and are based upon an ambient temperature of 30°C.

## Available in the following colours

Brown, Black, Grey, Blue. Other colours available on request.

## Construction

These cables are primarily intended for installation in conduit or trunking. The crosslinked LSF insulation permits handling in temperatures below 0°C, but to avoid risk of damage they should be installed only when both cables and ambient temperatures are above minus 10°C and have been so for the previous 24 hours.

Stranded plain annealed copper conductors\*, insulated with crosslinked Low Smoke and Fume compound, in accordance with BS 7211, voltage grade 450/750V. \*Flexible conductors also available.

## Rating Factors

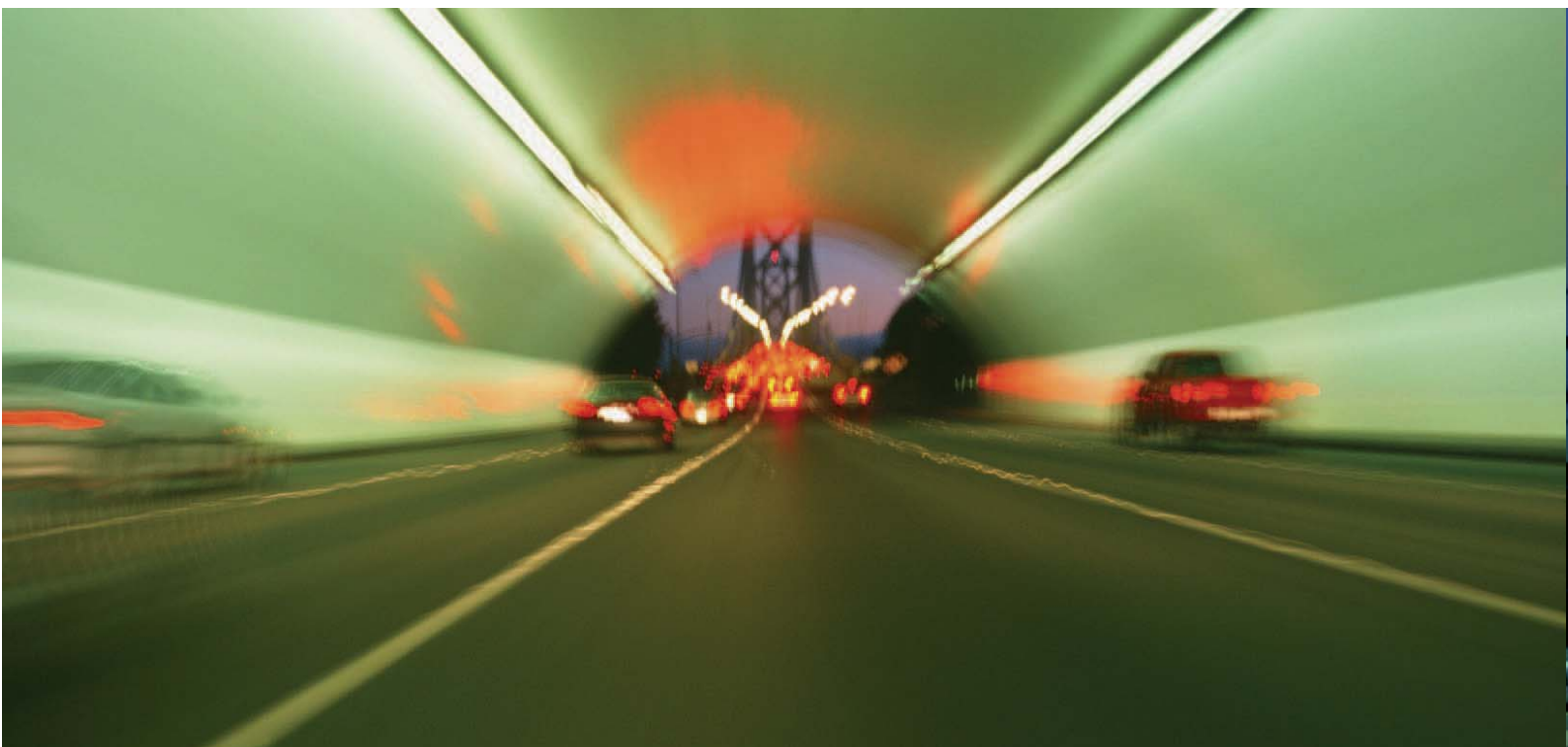
Temperature: For ambient temperatures higher than 30°C the following correction factors must be applied.

AMBIENT TEMPERATURE °C									
35	40	45	50	55	60	65	70	75	80
CORRECTION FACTOR									
0,90	0,91	0,87	0,82	0,76	0,71	0,65	0,58	0,50	0,41

Grouping: The following correction factors must be applied to uniform groups of equally loaded in a conduit on a wall, or in trunking.

NUMBER OF CIRCUITS													
2	3	4	5	6	7	8	9	10	12	14	16	18	20
CORRECTION FACTOR													
0,80	0,70	0,65	0,60	0,57	0,54	0,52	0,50	0,48	0,45	0,43	0,41	0,39	0,38

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## LSF Conduit Wiring Cables in accordance with BS7211

### Performance Characteristics

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■ Voltage Grade	450/750v
■ Maximum Operating Temperature	90°C
■ Constructional Standard	BS 7211
■ Conductor	BS 6360
■ Insulation	BS 7655
■ Core Identification	BS 7671

### Fire Performance Characteristics

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■ Flame Retardancy (single wire/cable)	BS EN 60332-1-2 / IEC 60332-1
■ Flame Propagation (bunched wires/cables)	BS EN 50266 / IEC 60332-3
■ Smoke Emission	BS EN 61034-2 / IEC 61034
■ Corrosivity and Acid Gas Emission	BS EN 50267-2-2 / IEC 60754-1 and IEC 60754-2



# LSF 600 / 1000V

**exZhellent-M**



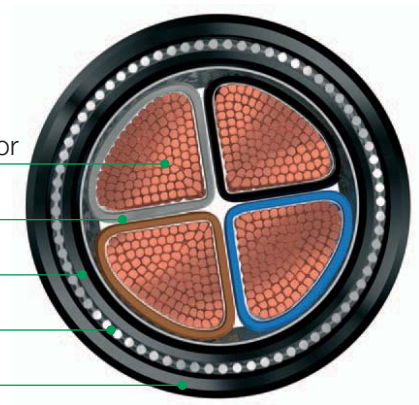
Annealed Copper Conductor Class 2

XLPE Insulation

LSF Bedded

Single Wire Armour

LSF Sheathed



Annealed Copper Conductor

XLPE Insulation

LSF Bedded

Single Wire Armour

LSF Sheathed

AVAILABLE COLOURS	X2	X3	X4	X5
WITH EARTH CONDUCTOR				
WITHOUT EARTH CONDUCTOR				

Other colours available upon request.



## Low smoke and fume armoured cables

GENERAL CABLE CODE	CROSS SECTION mm <sup>2</sup>	NOMINAL DIAMETER UNDER ARMOUR mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm	MAXIMUM CURRENT RATING AIR 30°C A	VOLTAGE DROP A/V.km	MAX. DC RESISTANCE 20°C Ohms/km	SHORT CIRCUIT RATING (1 sec) kA
7364114	1x50	11,5	17,7	695	180	198	0,80	0,387	7,1
7364115	1x70	13,3	19,5	915	195	248	0,59	0,268	9,9
7364116	1x95	14,9	21,3	1.190	215	308	0,47	0,193	13,5
7364117	1x120	16,8	23,2	1.460	235	358	0,39	0,153	17,0
7364118	1x150	19,0	25,6	1.780	400	413	0,33	0,124	21,3
7364119	1x185	20,8	27,6	2.170	280	484	0,28	0,0991	26,3
7364120	1x240	23,2	30,0	2.740	300	567	0,24	0,0754	34,1
7364121	1x300	25,8	32,8	3.385	330	655	0,21	0,0601	42,6
7364122	1x400	29,3	37,3	4.365	375	770	0,18	0,0470	56,8
7364123	1x500	33,7	41,9	5.500	420	825	0,16	0,0366	71,0
7364124	1x630	37,9	46,3	6.990	465	950	0,14	0,0283	89,5
7364125	1x800	43,5	53,3	0.195	535	1.063	0,13	0,0221	113,6
7364126	1x1000	49,2	59,2	11.420	595	1.195	0,11	0,0176	142,0

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GENERAL CABLE CODE	CROSS SECTION mm <sup>2</sup>	NOMINAL DIAMETER UNDER ARMOUR mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm	MAXIMUM CURRENT RATING AIR 30°C A	VOLTAGE DROP A/V.km	MAX. DC RESISTANCE 20°C Ohms/km	SHORT CIRCUIT RATING (1 sec) kA
7364206	2x1,5	6,9	11,3	240	115	28	23,6	12,1	0,21
7364207	2x2,5	8,1	12,7	300	130	36	14,2	7,41	0,36
7364208	2x4	9,0	13,4	365	135	48	8,84	4,61	0,57
7364209	2x6	10,2	14,6	440	150	64	5,92	3,08	0,85
7364210	2x10	11,9	16,3	570	165	87	3,46	1,83	1,42
7364211	2x16	13,7	18,8	830	190	113	2,22	1,15	2,27
7364212	2x25	16,7	22,4	1.195	225	152	1,46	0,727	3,55
7364213	2x35	18,8	25,4	1.600	255	187	1,06	0,524	4,97
7365214	2x50	17,5	24,3	1.690	245	220	0,76	0,387	7,1
7365215	2x70	20,1	27,1	2.205	275	281	0,56	0,268	9,9
7365216	2x95	23,1	31,1	3.000	315	341	0,44	0,193	13,5
7365217	2x120	25,9	34,1	3.655	345	396	0,36	0,153	17,0
7365218	2x150	29,0	37,4	4.350	375	457	0,30	0,124	21,3
7365219	2x185	31,8	41,6	5.570	420	525	0,26	0,0991	26,3
7365220	2x240	35,5	45,5	6.880	455	627	0,22	0,0754	34,1
7365221	2x300	39,7	49,9	8.415	500	341	0,19	0,0601	42,6
7365222	2x400	44,5	55,1	10.545	555	832	0,16	0,0470	56,8

## Low smoke and fume armoured cables

GENERAL CABLE CODE	CROSS SECTION mm <sup>2</sup>	NOMINAL DIAMETER UNDER ARMOUR mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm	MAXIMUM CURRENT RATING AIR 30°C A	VOLTAGE DROP A/V.km	MAX. DC RESISTANCE 20°C Ohms/km	SHORT CIRCUIT RATING (1 sec) kA
7364306	3x1,5	7,3	11,7	260	120	19	23,6	12,1	0,21
7364307	3x2,5	8,6	13,0	330	130	28	14,2	7,41	0,36
7364308	3x4	9,6	14,0	405	140	37	8,84	4,61	0,57
7364309	3x6	10,8	15,3	495	155	48	5,92	3,08	0,85
7364310	3x10	12,7	17,8	755	180	67	3,46	1,83	1,42
7364311	3x16	14,7	19,8	1.000	200	90	2,22	1,15	2,27
7364312	3x25	18,3	24,9	1.585	250	12	1,46	0,727	3,55
7364313	3x35	19,0	25,8	1.835	260	143	1,06	0,524	4,97
7365314	3x50	21,5	28,3	2.310	285	176	0,76	0,387	7,1
7365315	3x70	24,8	31,8	3.050	320	220	0,56	0,268	9,9
7365316	3x95	28,4	36,6	4.185	370	275	0,44	0,193	13,5
7365317	3x120	32,0	40,4	5.115	405	319	0,36	0,153	17,0
7365318	3x150	36,3	45,9	6.525	460	369	0,30	0,124	21,3
7365319	3x185	39,4	49,2	7.795	495	424	0,26	0,0991	26,3
7365320	3x240	44,0	54,2	9.720	545	506	0,22	0,0754	34,1
7365321	3x300	49,3	59,7	11.975	600	275	0,19	0,0601	42,6
7365322	3x400	55,4	66,2	15.035	665	671	0,16	0,0470	56,8

GENERAL CABLE CODE	CROSS SECTION mm <sup>2</sup>	NOMINAL DIAMETER UNDER ARMOUR mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm	MAXIMUM CURRENT RATING AIR 30°C A	VOLTAGE DROP A/V.km	MAX. DC RESISTANCE 20°C Ohms/km	SHORT CIRCUIT RATING (1 sec) kA
7364406	4x1,5	8,0	12,4	300	125	19	23,6	12,1	0,21
7364407	4x2,5	9,4	13,8	380	140	28	14,2	7,41	0,36
7364408	4x4	10,6	15,0	470	150	37	8,84	4,61	0,57
7364409	4x6	12,0	17,1	660	175	48	5,92	3,08	0,85
7364410	4x10	14,1	19,2	915	195	67	3,46	1,83	1,42
7364411	4x16	16,2	21,3	1.215	215	90	2,22	1,15	2,27
7364412	4x25	20,3	26,9	1.900	270	121	1,46	0,727	3,55
7364413	4x35	22,8	29,6	2.415	300	149	1,06	0,524	4,97
7365414	4x50	24,2	31,2	2.895	315	176	0,76	0,387	7,1
7365415	4x70	28,5	36,7	4.125	370	220	0,56	0,268	9,9
7365416	4x95	32,1	40,5	5.295	405	286	0,44	0,193	13,5
7365417	4x120	36,6	46,2	6.895	465	319	0,36	0,153	17,0
7365418	4x150	41,1	50,9	8.255	510	369	0,30	0,124	21,03
7365419	4x185	44,6	54,8	9.910	550	424	0,26	0,0991	26,3
7365420	4x240	50,3	60,7	12.505	610	506	0,22	0,0754	34,1
7365421	4x300	55,9	66,7	15.455	670	275	0,19	0,0601	42,6
7365422	4x400	63,3	76,0	20.430	760	671	0,16	0,0470	56,8

## exZhellent-M

GENERAL CABLE CODE	CROSS SECTION mm <sup>2</sup>	NOMINAL DIAMETER UNDER ARMOUR mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm	MAXIMUM CURRENT RATING AIR 30°C A	VOLTAGE DROP A/V.km	MAX. DC RESISTANCE 20°C Ohms/km	SHORT CIRCUIT RATING (1 sec) kA
7364506	5x1,5	8,8	13,2	340	135	19	23,6	12,1	0,21
7364507	5x2,5	10,4	14,8	440	150	28	14,2	7,41	0,36
7364508	5x4	11,7	16,1	550	165	37	8,84	4,61	0,57
7364509	5x6	13,2	18,3	775	185	48	5,92	3,08	0,85
7364510	5x10	15,6	20,7	1.065	210	67	3,46	1,83	1,42
7364511	5x16	18,5	24,3	1.575	245	90	2,22	1,15	2,27
7364512	5x25	22,5	29,3	2.270	295	121	1,46	0,727	3,55
7364513	5x35	25,4	32,4	2.890	325	149	1,06	0,524	4,97
7364514	5x50	29,3	37,3	3.970	375	182	0,76	0,387	7,10
7364515	5x70	34,1	42,5	5.290	425	231	0,56	0,268	9,94

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# Electrical Characteristics

## LSF Armoured Wiring Cables in accordance with BS6724

### Performance Characteristics

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■ Voltage Grade	600/1000V
■ Maximum Operating Temperature	90°C
■ Constructional Standard	BS 6724
■ Conductor	BS 6360
■ Insulation	BS 7655
■ Sheath	BS 7655
■ Core Identification	BS 7671





## Fire Performance Characteristics

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■ Flame Retardancy (single wire/cable)	BS-EN 60332-1-2 / IEC 60332-1
■ Flame Propagation (bunched wire/cables)	BS-EN 50266 / IEC 60332-3
■ Smoke Emission	BS-EN 61034-2 / IEC 61034
■ Corrosivity and Acid Gas Emission	BS-EN 50267-2-2 / IEC 60754-1 and IEC 60754-2

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FIRE  
EXIT



