

LOW SMOKE HALOGEN FREE (LSHF) FIRE RESISTANT CABLES

Voltage Rating (Uo/U) : 300/500V, 450/750V or 600/1000V

Standards Complied

MAIN CABLE SPECIFICATION	FIRE TESTS	FLAME RETARDANT TEST	TEST ON ACID GAS EVOLVED	SMOKE DENSITY TEST
BS 6724				
BS 7211	SS 299 CAT CWZ	BS EN 50265		
BS 7629	BS 6387 CAT CWZ	BS EN 50266	BS EN 50267	BS EN 50268
BS 7846	IEC 60331	IEC 60332-1	IEC 60754	IEC 61034
IEC 60502-1	AS/NZS 3013	IEC 60332-3		
AS/NZS 5000-1				

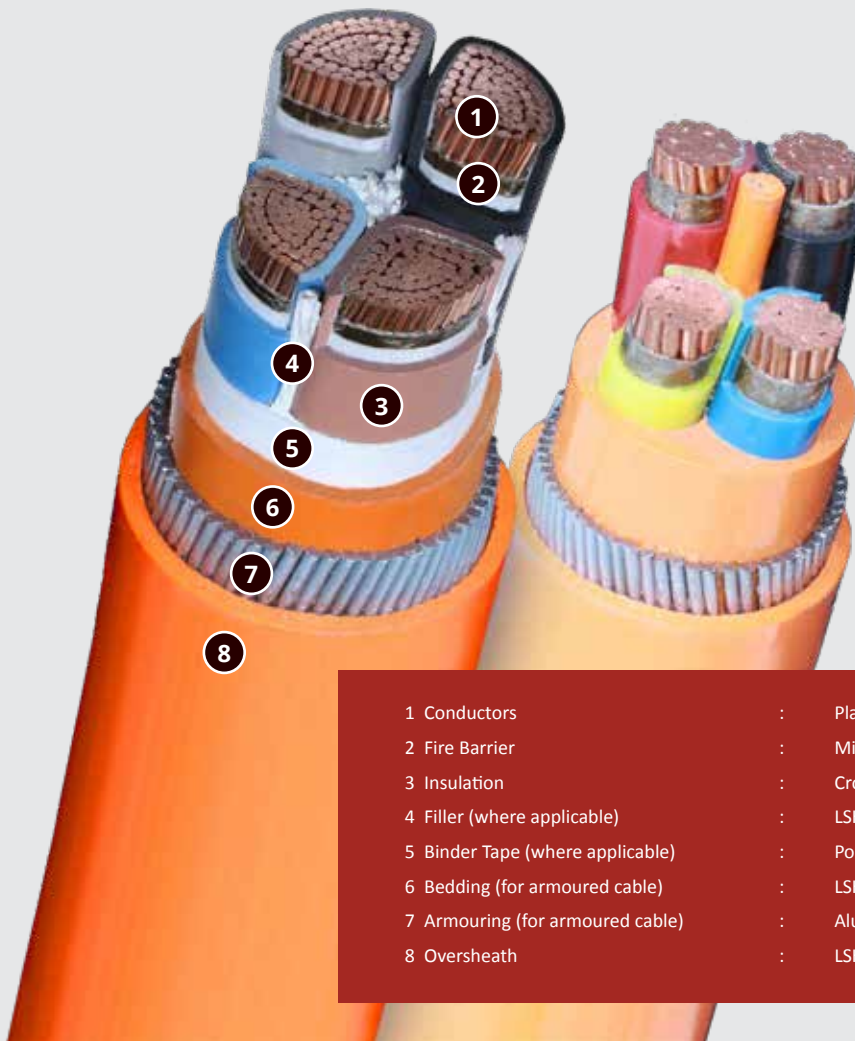
Colours of Identification

INSULATION:

- 1-core: Natural. (Orange for Non-sheathed)
- 2-core: (Brown & Blue) or (Red & Black)
- 3-core: (Brown, Blue, Green / Yellow) or (Brown, Black, Grey) or (Red, Yellow, Blue)
- 4-core: (Brown, Black, Grey, Blue) or (Red, Yellow, Blue, Black)
- 5-core and above: White core with Black number or (Brown, Black, Grey, Blue, Green / Yellow)

OVER SHEATH:

- Orange



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|----------------------------------|---|---|
| 1 Conductors | : | Plain annealed stranded copper conductor. |
| 2 Fire Barrier | : | Mica tape. |
| 3 Insulation | : | Cross-linked PE or LSHF compound. |
| 4 Filler (where applicable) | : | LSHF or Polypropylene yarn. |
| 5 Binder Tape (where applicable) | : | Polyester (mylar) tape/ non-woven polyester tape. |
| 6 Bedding (for armoured cable) | : | LSHF compound, type LTS 1 or ST8. |
| 7 Armouring (for armoured cable) | : | Aluminium wires or Galvanized steel wires. |
| 8 Oversheath | : | LSHF compound, type LTS 1, LTS 4 or ST8. |

Table FR1

600/1000V SINGLE-CORE CU/MICA/XLPE/LSHF FIRE RESISTANT & RETARDANT CABLE (MODEL: XL-FR-600S)
 SPEC : REFER IEC 60502, IEC 60331, IEC 60332-3, IEC 60754, IEC 61034, BS6387, & SS 299

CONDUCTOR			Nom. Thick. of Insulation mm	Nom. Thick. of Sheath kg/km	Approx. OD of Cable mm	Approx. Weight of Cable
Size mm ²	No./Dia. of Wire mm	Approx. Dia. mm				XL-FR-600S kg/km
1.5	7/0.53CR	1.59	0.7	1.4	7.1	60
2.5	7/0.67CR	2.01	0.7	1.4	7.5	70
4	7/0.85CR	2.55	0.7	1.4	8.1	90
6	7/1.04CR	3.12	0.7	1.4	8.6	115
10	7/1.35CR	4.05	0.7	1.4	9.6	165
16	7/1.70CR	5.10	0.7	1.4	10.6	230
25	7/2.14CR	6.42	0.9	1.4	12.3	357
35	7/2.52CP	7.10	0.9	1.4	13.6	425
50	19/1.78CP	8.40	1.0	1.4	15.0	555
70	19/2.14CP	9.90	1.1	1.4	17.0	765
95	19/2.52CP	11.80	1.1	1.5	19.2	1035
120	37/2.03CP	13.20	1.2	1.5	21.5	1280
150	37/2.25CP	14.80	1.4	1.6	23.7	1575
185	37/2.52CP	16.40	1.6	1.6	26.0	1945
240	37/2.88CP	19.00	1.7	1.7	29.0	2525
300	61/2.52CP	21.20	1.8	1.8	31.8	3135
400	61/2.85CP	23.70	2.0	1.9	35.4	3970
500	61/3.20CP	27.00	2.2	2.0	39.2	5055
630	91/2.97CP*	31.20	2.4	2.2	44.0	6515
800	127/2.85CR	37.10	2.6	2.3	48.9	8270
1000	127/3.20CR	41.60	2.8	2.4	54.1	10340

Table FR2

450/750V SINGLE-CORE CU/MICA/EVA FIRE RESISTANT & RETARDANT CABLE (MODEL: E-FR-450S)
 600/1000V SINGLE-CORE CU/MICA/EVA FIRE RESISTANT & RETARDANT CABLE (MODEL: E-FR-600S)
 SPEC : REFER BS 7211, 6387, SS 299, IEC 60331, 60332-3, 60754 & 61034

CONDUCTOR			450/750V E-FR-450S			600/1000V E-FR-600S		
Size mm ²	No./Dia. of Wire mm	Approx. Dia. mm	Nom. Thick. of Insulation mm	Approx. OD of Cable mm	Approx. Weight of Cable kg/km	Nom. Thick. of Insulation mm	Approx. OD of Cable mm	Approx. Weight of Cable kg/km
1.5	7/0.53CR	1.59	0.7	4.2	28	0.8	4.4	30
2.5	7/0.67CR	2.01	0.8	4.8	40	0.8	4.8	40
4	7/0.85CR	2.55	0.8	5.3	58	1.0	5.7	65
6	7/1.04CR	3.12	0.8	5.9	80	1.0	6.3	85
10	7/1.35CR	4.05	1.0	7.2	130	1.0	7.2	130
16	7/1.70CR	5.10	1.0	8.3	190	1.0	8.3	190
25	7/2.14CR	6.42	1.2	10.0	301	1.2	10.0	301
35	7/2.52CP	7.10	1.2	11.3	380	1.2	11.3	380
50	19/1.78CP	8.40	1.4	12.9	510	1.4	12.9	510
70	19/2.14CP	9.90	1.4	14.7	715	1.4	14.7	715
95	19/2.52CP	11.80	1.6	17.0	980	1.6	17.0	980
120	37/2.03CP	13.20	1.6	19.2	1,220	1.6	19.2	1220
150	37/2.25CP	14.80	1.8	21.1	1,500	1.8	21.1	1500
185	37/2.52CP	16.40	2.0	23.4	1,870	2.0	23.4	1870
240	37/2.88CP	19.00	2.2	26.5	2,445	2.2	26.5	2445
300	61/2.52CP	21.20	2.4	29.3	3,050	2.4	29.3	3050
400	61/2.85CP	23.70	2.6	32.7	3,880	2.6	32.7	3880
500	61/3.20CP	27.00	2.8	36.3	4,950	2.8	36.3	4950
630	91/2.97CP*	31.20	2.8	40.2	6,325	2.8	40.2	6325

NOTES : CR=circular stranded conductor

CP=circular compacted stranded conductor (*630mm² shall be 89/3.0mm or 91/2.97mm)

Current Rating & Volt Drop refer to Table T1 & T1a

Model: E-FR-450S & E-FR-600S are suitable for 90°C or up to 110°C operating temperature.

Table FR3

600/1000V MULTI-CORE CU/MICA/XLPE/LSHF FIRE RESISTANT & FLAME RETARDANT CABLE (MODEL: XL-FR-600M)
SPEC : REFER IEC 60502, 60331, 60332-3, 60754, 61034, BS 6387, & SS 299

No. of Core	CONDUCTOR			Nom. Thick. of Insulation mm	Nom. Thick. of Sheath mm	Approx. OD of Cable mm	Approx. Weight of Cable
	Size mm ²	No./Dia. of Wire No./mm	Approx. Dia. mm				XL-FR-600M kg/km
2	1.5	7/0.53 CR	1.59	0.7	1.8	12.0	190
	2.5	7/0.67 CR	2.01	0.7	1.8	12.5	225
	4	7/0.85 CR	2.55	0.7	1.8	14.0	295
	6	7/1.04 CR	3.12	0.7	1.8	15.0	360
	10	7/1.35 CR	4.05	0.7	1.8	17.0	490
	16	7/1.70 CR	5.10	0.7	1.8	19.0	665
	25	7/2.14 CR	6.42	0.9	1.8	22.0	935
	35	7/2.52 CP	7.10	0.9	1.8	24.0	1185
	50	19/1.78 CP	8.40	1.0	1.8	27.0	1545
	70	19/2.14 CP	9.90	1.1	1.8	30.5	2090
	95	19/2.52 CP	11.80	1.1	1.9	34.5	2780
	120	37/2.03 SS	-	1.2	2.0	38.0	3445
	150	37/2.25 SS	-	1.4	2.2	42.5	4255
	185	37/2.52 SS	-	1.6	2.3	46.5	5245
	240	37/2.88 SS	-	1.7	2.5	52.5	6780
	300	61/2.52 SS	-	1.8	2.6	57.5	8340
	400	61/2.85 SS	-	2.0	2.9	64.0	10525
3	1.5	7/0.53 CR	1.59	0.7	1.8	12.5	215
	2.5	7/0.67 CR	2.01	0.7	1.8	13.5	265
	4	7/0.85 CR	2.55	0.7	1.8	15.0	350
	6	7/1.04 CR	3.12	0.7	1.8	16.0	435
	10	7/1.35 CR	4.05	0.7	1.8	18.0	600
	16	7/1.70 CR	5.10	0.7	1.8	20.5	835
	25	7/2.14 CR	6.42	0.9	1.8	23.5	1185
	35	7/2.52 CP	7.10	0.9	1.8	25.5	1520
	50	19/1.78 CP	8.40	1.0	1.8	29.0	1995
	70	19/2.14 CP	9.90	1.1	1.9	33.0	2745
	95	19/2.52 CP	11.80	1.1	2.0	37.0	3660
	120	37/2.03 SS	-	1.2	2.1	41.0	4560
	150	37/2.25 SS	-	1.4	2.3	45.5	5630
	185	37/2.52 SS	-	1.6	2.4	50.0	6945
	240	37/2.88 SS	-	1.7	2.6	56.5	8995
	300	61/2.52 SS	-	1.8	2.7	62.0	11100
	400	61/2.85 SS	-	2.0	3.0	69.0	14045
4	1.5	7/0.53 CR	1.59	0.7	1.8	13.5	260
	2.5	7/0.67 CR	2.01	0.7	1.8	14.5	320
	4	7/0.85 CR	2.55	0.7	1.8	16.5	425
	6	7/1.04 CR	3.12	0.7	1.8	17.5	535
	10	7/1.35 CR	4.05	0.7	1.8	20.0	750
	16	7/1.70 CR	5.10	0.7	1.8	22.5	1040
	25	7/2.14 CR	6.42	0.9	1.8	26.0	1495
	35	7/2.52 CP	7.10	0.9	1.8	28.5	1930
	50	19/1.78 CP	8.40	1.0	1.8	32.0	2535
	70	19/2.14 CP	9.90	1.1	2.0	36.5	3510
	95	19/2.52 CP	11.80	1.1	2.1	41.5	4710
	120	37/2.03 SS	-	1.2	2.3	45.5	5885
	150	37/2.25 SS	-	1.4	2.4	50.5	7230
	185	37/2.52 SS	-	1.6	2.6	56.0	8955
	240	37/2.88 SS	-	1.7	2.8	63.0	11615
	300	61/2.52 SS	-	1.8	3.0	69.0	14360
	400	61/2.85 SS	-	2.0	3.3	77.0	18175

NOTES : CR=circular stranded conductor
CP=circular compacted stranded conductor
Current Rating & Volt Drop refer to Table T2 & T2a

Table FR4

300/500V MULTI-CORE CU/MICA/XLPE/LSHF FIRE RESISTANT & RETARDANT CABLE (MODEL: XL-FR-300M)

SPEC : REFER BS 7629, BS 6387, SS 299, IEC 60331, IEC 60332-3, IEC 60754, & IEC 61034

No. of Core	CONDUCTOR			Nom. Thick. of Insulation mm	Nom. Thick. of Sheath mm	Approx. OD of Cable mm	Approx. Weight of Cable kg/km
	Size mm ²	No./Dia. of Wire No./mm	Approx. Dia. mm				
2	1.5	7/0.53CR	1.59	0.7	0.9	9.0	115
	2.5	7/0.67CR	2.01	0.8	1.0	10.5	160
	4.0	7/0.85CR	2.55	0.8	1.1	12.0	220
3	1.5	7/0.53CR	1.59	0.7	1.0	10.0	140
	2.5	7/0.67CR	2.01	0.8	1.1	11.5	195
	4.0	7/0.85CR	2.55	0.8	1.1	12.5	265
4	1.5	7/0.53CR	1.59	0.7	1.0	11.0	170
	2.5	7/0.67CR	2.01	0.8	1.1	12.5	240
	4.0	7/0.85CR	2.55	0.8	1.2	14.0	335

NOTES : CR=circular stranded conductor

Current Rating & Volt Drop refer to Table T2 & T2a

Table FR5

600/1000V SINGLE-CORE CU/MICA/XLPE/AWA/LSHF FIRE RESISTANT & RETARDANT CABLE (MODEL: XAL-FR-600S)

SPEC : REFER IEC 60502, BS 6387, SS 299, IEC 60332-3, IEC 60754 & IEC 61034

CONDUCTOR			Nom. Thick. of Insulation mm	Nom. Thick. of Bedding mm	Nom. Dia. of Armour Wire mm	Nom. Thick. of Sheath mm	Approx. OD of Cable mm	Approx. Weight of Cable kg/km
Size mm ²	No./Dia. of Wire No./mm	Approx. Dia. mm						
50	19/1.78CP	8.40	1.0	1.0	1.25	1.8	20.2	837
70	19/2.14CP	9.90	1.1	1.0	1.25	1.8	22.0	1090
95	19/2.52CP	11.80	1.1	1.0	1.60	1.8	24.5	1435
120	37/2.03CP	13.20	1.2	1.0	1.60	1.8	26.1	1718
150	37/2.25CP	14.80	1.4	1.0	1.60	1.8	28.5	2034
185	37/2.52CP	16.40	1.6	1.0	1.60	1.8	30.5	2450
240	37/2.88CP	19.00	1.7	1.0	1.60	1.9	33.5	3089
300	61/2.52CP	21.20	1.8	1.0	1.60	1.9	35.6	3738
400	61/2.85CP	23.70	2.0	1.2	2.00	2.1	40.5	4808
500	61/3.20CP	27.00	2.2	1.2	2.00	2.2	44.0	5908
630	91/2.97CP*	31.20	2.4	1.2	2.00	2.3	46.9	7368
800	127/2.85CR	37.05	2.6	1.4	2.50	2.5	57.0	9619
1000	127/3.20CR	41.60	2.8	1.4	2.50	2.7	62.5	11845

NOTES : CP=circular compacted stranded conductor (*630mm² shall be 89/3.0mm or 91/2.97mm)

CR=circular stranded conductor

Current Rating & Volt Drop refer to Table T3 & T3a

Table FR6

600/1000V MULTI-CORE CU/MICA/XLPE/SWA/LSHF FIRE RESISTANT & FLAME RETARDANT CABLE (MODEL: XSL-FR-600M)
SPEC : REFER BS 7846, BS 6387, SS 299, IEC 60331, IEC 60332-3, IEC 60754, IEC 61034

No. of Core	CONDUCTOR			Nom. Thick. of Insulation mm	Nom. Thick. of Bedding mm	Nom. Dia. of Armour Wire mm	Nom. Thick. of Sheath mm	Approx. OD of Cable mm	Approx. Weight of Cable kg/km
	Size mm ²	No./Dia. of Wire No./mm	Approx. Dia. mm						
2	1.5	7/0.53 CR	1.59	0.7	0.8	0.90	1.4	14.5	400
	2.5	7/0.67 CR	2.01	0.7	0.8	0.90	1.4	15.5	460
	4	7/0.85 CR	2.55	0.7	0.8	0.90	1.4	16.5	550
	6	7/1.04 CR	3.12	0.7	0.8	0.90	1.4	18.0	630
	10	7/1.35 CR	4.05	0.7	0.8	0.90	1.5	20.0	805
	16	7/1.70 CR	5.10	0.7	0.8	1.25	1.5	22.5	1155
	25	7/2.14 CR	6.42	0.9	0.8	1.25	1.6	26.0	1510
	35	7/2.52 CP	7.10	0.9	1.0	1.60	1.7	29.0	2045
	50	19/1.78 CP	8.40	1.0	1.0	1.60	1.8	32.0	2515
	70	19/2.14 CP	9.90	1.1	1.0	1.60	1.9	36.0	3215
	95	19/2.52 CP	11.80	1.1	1.2	2.00	2.0	41.0	4390
	120	37/2.03 SS	-	1.2	1.2	2.00	2.1	44.5	5175
	150	37/2.25 SS	-	1.4	1.2	2.00	2.2	49.0	6155
	185	37/2.52 SS	-	1.6	1.4	2.50	2.4	54.5	7920
	240	37/2.88 SS	-	1.7	1.4	2.50	2.5	60.5	9730
	300	61/2.52 SS	-	1.8	1.6	2.50	2.6	66.0	11630
	400	61/2.85 SS	-	2.0	1.6	2.50	2.8	73.0	14235
3	1.5	7/0.53 CR	1.59	0.7	0.8	0.90	1.4	15.0	440
	2.5	7/0.67 CR	2.01	0.7	0.8	0.90	1.4	16.0	505
	4	7/0.85 CR	2.55	0.7	0.8	0.90	1.4	17.5	615
	6	7/1.04 CR	3.12	0.7	0.8	0.90	1.4	19.0	720
	10	7/1.35 CR	4.05	0.7	0.8	1.25	1.5	21.5	1110
	16	7/1.70 CR	5.10	0.7	0.8	1.25	1.6	24.0	1365
	25	7/2.14 CR	6.42	0.9	1.0	1.60	1.7	28.5	2020
	35	7/2.52 CP	7.10	0.9	1.0	1.60	1.8	31.0	2430
	50	19/1.78 CP	8.40	1.0	1.0	1.60	1.8	34.0	3020
	70	19/2.14 CP	9.90	1.1	1.0	1.60	1.9	38.0	3925
	95	19/2.52 CP	11.80	1.1	1.2	2.00	2.1	43.5	5360
	120	37/2.03 SS	-	1.2	1.2	2.00	2.2	47.5	6400
	150	37/2.25 SS	-	1.4	1.4	2.50	2.3	53.0	8160
	185	37/2.52 SS	-	1.6	1.4	2.50	2.4	58.0	9725
	240	37/2.88 SS	-	1.7	1.4	2.50	2.6	64.5	12115
	300	61/2.52 SS	-	1.8	1.6	2.50	2.7	70.0	14570
	400	61/2.85 SS	-	2.0	1.6	2.50	2.9	79.0	18915
4	1.5	7/0.53 CR	1.59	0.7	0.8	0.90	1.4	16.0	500
	2.5	7/0.67 CR	2.01	0.7	0.8	0.90	1.4	17.0	580
	4	7/0.85 CR	2.55	0.7	0.8	0.90	1.4	19.0	710
	6	7/1.04 CR	3.12	0.7	0.8	1.25	1.5	21.0	975
	10	7/1.35 CR	4.05	0.7	0.8	1.25	1.5	23.5	1315
	16	7/1.70 CR	5.10	0.7	0.8	1.25	1.6	26.0	1620
	25	7/2.14 CR	6.42	0.9	1.0	1.60	1.7	31.0	2400
	35	7/2.52 CP	7.10	0.9	1.0	1.60	1.8	33.5	2930
	50	19/1.78 CP	8.40	1.0	1.0	1.60	1.9	37.5	3705
	70	19/2.14 CP	9.90	1.1	1.2	2.00	2.1	43.0	5175
	95	19/2.52 CP	11.80	1.1	1.2	2.00	2.2	48.0	6590
	120	37/2.03 SS	-	1.2	1.4	2.50	2.3	53.5	8415
	150	37/2.25 SS	-	1.4	1.4	2.50	2.4	58.5	10045
	185	37/2.52 SS	-	1.6	1.4	2.50	2.6	63.5	12015
	240	37/2.88 SS	-	1.7	1.6	2.50	2.7	71.0	15115
	300	61/2.52 SS	-	1.8	1.6	2.50	2.9	78.5	19130
	400	61/2.85 SS	-	2.0	1.8	3.15	3.2	87.0	23710

NOTES : CR=circular stranded conductor
CP=circular compacted stranded conductor
Current Rating & Volt Drop refer to Table T4 & T4a