

FR-H, FR-XH,
FR-XAH (ARMOURED)

Fire Resistant Power Cables

single core

**FR-H
single core**



**FR-XH
single core**



**FR-XAH
(ARMOURED)
single core**



**FR-H
single core**

**FR-XH
single core**

**FR-XAH
(ARMOURED)
single core**

<p>Conductor : Fire Barrier : Insulation : Bedding : Armouring : Sheath : Colour :</p> <p>Reference Standard : Test Standard :</p> <p>Voltage Uo/U : Conductor Stranding : Operating Temperature : Minimum Bending Radius :</p>	<p>Plain Annealed Copper Mica Tape (a) XL-LSZH Compound or (b) XLEVA Compound N.A. N.A. N.A. Insulation: Orange or Various</p> <p>BS 7211 / In-House IEC 60331 BS 6387 (C, W, Z), SS 299 (C) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XL-LSZH Compound (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound N.A. N.A. LSZH Compound Insulation: Natural Sheath - Orange IEC 60502 / BS 7846 IEC 60331 BS 6387 (C, W, Z), SS 299 (C,W,Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound LSZH Compound Aluminium Wire LSZH Compound Insulation: Natural Sheath - Orange IEC 60502 / BS 7846 IEC 60331 BS 6387 (C, W, Z), SS 299 (C,W,Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 10D for armoured cable</p>
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Fire Resistant Power Cables
single core

**FR-H, FR-XH,
FR-XAH (ARMOURED)**

Fire Resistant Power Cables FR-H, FR-XH, FR-XAH (ARMOURED)

Table 1

SIZE		FR-H			FR-XH			FR-XAH			
Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Insulated, Non-Sheathed		Radial Thickness of Insulation (mm)	Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)		Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
1 x 1.5	7 / 0.53	0.7	4.1	30	0.7	6.4	54	-	-	-	-
1 x 2.5	7 / 0.67	0.8	4.5	41	0.7	6.8	67	-	-	-	-
1 x 4	7 / 0.85	0.8	5.0	58	0.7	7.4	86	-	-	-	-
1 x 6	7 / 1.04	0.8	5.6	79	0.7	7.9	109	-	-	-	-
1 x 10	7 / 1.35	1.0	6.9	127	0.7	8.9	155	-	-	-	-
1 x 16	7 / 1.70	1.0	8.0	187	0.7	9.9	219	-	-	-	-
1 x 25	7 / 2.14	1.2	9.6	289	0.9	11.6	324	-	-	-	-
1 x 35	7 / 2.52	1.2	10.8	387	0.9	12.8	424	-	-	-	-
1 x 50	19 / 1.78	1.4	12.7	520	1.0	14.3	554	13.6	1.25	19.7	800
1 x 70	19 / 2.14	1.4	14.4	726	1.1	16.3	770	15.6	1.25	21.7	1045
1 x 95	19 / 2.52	1.6	16.7	996	1.1	18.4	1038	17.5	1.25	23.6	1336
1 x 120	37 / 2.03	1.6	18.2	1237	1.2	20.2	1292	18.6	1.6	25.4	1618
1 x 150	37 / 2.25	1.8	20.1	1517	1.4	22.4	1582	21.3	1.6	28.1	1984
1 x 185	37 / 2.52	2.0	22.4	1896	1.6	24.7	1961	23.6	1.6	30.4	2404
1 x 240	61 / 2.25	2.2	25.4	2472	1.7	27.7	2543	26.4	1.6	33.4	3033
1 x 300	61 / 2.52	2.4	28.0	3086	1.8	30.5	3160	29.2	1.6	36.6	3732
1 x 400	61 / 2.85	2.6	31.3	3921	2.0	34.1	4011	32.6	2.0	41.0	4745
1 x 500	61 / 3.20	2.8	34.8	4915	2.2	37.8	5021	36.2	2.0	44.7	5826
1 x 630	127 / 2.52	2.8	38.6	6266	2.4	42.6	6447	41.0	2.0	49.7	7378
1 x 800	127 / 2.85	-	-	-	2.6	47.5	8179	45.7	2.5	55.8	9406
1 x 1000	127 / 3.20	-	-	-	2.8	52.6	10239	51.0	2.5	61.5	11682

Note: For FR-H cables, Cross-Linked LSZH Compound will be used as the insulation material.

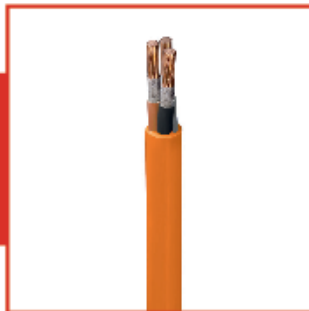
FR-XH,
FR-XSH (ARMOURED)

Fire Resistant Power Cables

2-4 cores,
5 cores & above

FR-XH
2-4 cores,
5 cores & above

FR-XSH
(ARMOURED)
2-4 cores,
5 cores & above



FR-XH
2-4 cores,
5 cores & above

FR-XSH
(ARMOURED)
2-4 cores,
5 cores & above

<p>Conductor : Fire Barrier : Insulation : Bedding : Armouring : Sheath : Colour :</p> <p>Reference Standard : Test Standard :</p> <p>Voltage U₀/U : Conductor Stranding : Operating Temperature : Minimum Bending Radius :</p>	<p>Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound N.A. N.A. LSZH Compound Insulation: 2 Cores - Red & Black or Brown & Blue 3 Cores - Red, Yellow & Blue or Brown, Black & Grey 4 Cores - Red, Yellow, Blue & Black or Brown, Black, Grey & Blue 5 Cores - Red, Yellow, Blue, Black & Green/Yellow or Brown, Black, Grey, Blue & Green/Yellow Above 5 Cores - White with Black numberings</p> <p>Sheath - Orange IEC 60502 / BS 7846 IEC 60331 BS 6387 (C, W, Z), SS 299 (C, W, Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound LSZH Compound Galvanized Steel Wire LSZH Compound Insulation: 2 Cores - Red & Black or Brown & Blue 3 Cores - Red, Yellow & Blue or Brown, Black & Grey 4 Cores - Red, Yellow, Blue & Black or Brown, Black, Grey & Blue 5 Cores - Red, Yellow, Blue, Black & Green/Yellow or Brown, Black, Grey, Blue & Green/Yellow Above 5 Cores - White with Black numberings</p> <p>Sheath - Orange IEC 60502 / BS 7846 IEC 60331 BS 6387 (C, W, Z), SS 299 (C, W, Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 10D for armoured cable</p>
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Fire Resistant Power Cables

2-3 Cores

FR-XH, FR-XSH (ARMOURED)

Fire Resistant Power Cables FR-XH, FR-XSH (ARMOURED)

Table 2

SIZE		Radial Thickness of Insulation (mm)	FR-XH		FR-XSH			
Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)		Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
2 X 1.5	7 / 0.53	0.7	11.8	150	9.3	0.9	14.7	398
2 X 2.5	7 / 0.67	0.7	12.2	184	10.2	0.9	15.6	451
2 X 4	7 / 0.85	0.7	13.0	234	11.2	0.9	16.6	522
2 X 6	7 / 1.04	0.7	13.8	295	12.4	0.9	17.8	610
2 X 10	7 / 1.35	0.7	15.6	414	14.2	1.25	20.3	880
2 X 16	7 / 1.70	0.7	17.7	575	16.3	1.25	22.4	1102
2 X 25	7 / 2.14	0.9	21.2	849	19.1	1.6	25.9	1483
2 X 35	7 / 2.52	0.9	23.5	1100	22.1	1.6	28.9	1971
3 X 1.5	7 / 0.53	0.7	12.5	172	9.9	0.9	15.3	434
3 X 2.5	7 / 0.67	0.7	13.2	215	10.8	0.9	16.2	502
3 X 4	7 / 0.85	0.7	13.9	280	12.0	0.9	17.4	588
3 X 6	7 / 1.04	0.7	15.6	359	13.2	1.25	19.3	802
3 X 10	7 / 1.35	0.7	16.6	515	15.2	1.25	21.3	1018
3 X 16	7 / 1.70	0.7	18.9	729	17.5	1.25	23.6	1293
3 X 25	7 / 2.14	0.9	22.6	1090	21.2	1.6	28.0	1926
3 X 35	7 / 2.52	0.9	25.0	1427	23.8	1.6	30.6	2371
3 X 50 (S)	19 / 1.78	1.0	27.2	1638	24.8	1.6	33.0	2756
3 X 70 (S)	19 / 2.14	1.1	30.9	2286	28.6	2.0	37.9	3817
3 X 95 (S)	19 / 2.52	1.1	34.3	3078	31.7	2.0	41.5	4865
3 X 120 (S)	37 / 2.03	1.2	37.6	3836	34.7	2.0	44.8	5849
3 X 150 (S)	37 / 2.25	1.4	41.7	4677	38.8	2.5	50.3	7311
3 X 185 (S)	37 / 2.52	1.6	46.1	6172	42.8	2.5	54.8	9104
3 X 240 (S)	61 / 2.25	1.7	51.4	7567	47.5	2.5	59.8	10922
3 X 300 (S)	61 / 2.52	1.8	55.3	9383	51.5	2.5	64.4	13151
3 X 400 (S)	61 / 2.85	2.0	70.6	13744	68.0	2.5	79.5	17810
3 X 500 (S)	61 / 3.20	2.2	78.5	17194	75.9	3.15	89.3	22822

Note: (S) - Sectoral Stranded Conductors.

FR-XH, FR-XSH (ARMOURED)

Fire Resistant Power Cables

4 CORES,
5 CORES & ABOVE

Fire Resistant Power Cables FR-XH, FR-XSH (ARMOURED)

Table 3

SIZE		Radial Thickness of Insulation (mm)	FR-XH		FR-XSH			
Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)		Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
4 x 1.5	7 / 0.53	0.7	13.4	202	10.8	0.9	16.2	490
4 x 2.5	7 / 0.67	0.7	14.4	255	11.8	0.9	17.2	571
4 x 4	7 / 0.85	0.7	15.7	336	13.8	0.9	19.2	780
4 x 6	7 / 1.04	0.7	17.1	437	14.5	1.25	20.6	930
4 x 10	7 / 1.35	0.7	18.1	635	16.7	1.25	22.8	1193
4 x 16	7 / 1.70	0.7	20.7	908	19.3	1.6	26.1	1693
4 x 25	7 / 2.14	0.9	24.9	1365	23.5	1.6	30.3	2332
4 x 35	7 / 2.52	0.9	27.6	1797	26.2	1.6	33.2	2885
4 x 50 (S)	19 / 1.78	1.0	31.0	2173	28.2	1.6	36.7	3427
4 x 70 (S)	19 / 2.14	1.1	34.8	3032	32.2	2.0	42.0	4788
4 x 95 (S)	19 / 2.52	1.1	38.9	4105	35.8	2.0	45.9	6117
4 x 120 (S)	37 / 2.03	1.2	42.4	5110	39.4	2.5	51.1	7784
4 x 150 (S)	37 / 2.25	1.4	47.2	6209	43.8	2.5	55.8	8262
4 x 185 (S)	37 / 2.52	1.6	52.1	8223	48.2	2.5	60.8	11522
4 x 240 (S)	61 / 2.25	1.7	58.0	10076	53.9	2.5	67.1	14018
4 x 300 (S)	61 / 2.52	1.8	63.2	12522	58.8	2.5	72.3	16865
4 x 400 (S)	61 / 2.85	2.0	79.0	17680	76.3	3.15	90.0	23368
4 x 500 (S)	61 / 3.20	2.2	87.8	22119	84.7	3.15	99.0	28436
5 x 1.5	7 / 0.53	0.7	14.9	267	12.2	0.9	17.0	476
5 x 2.5	7 / 0.67	0.7	16.0	336	14.1	0.9	18.8	589
5 x 4	7 / 0.85	0.7	17.4	441	15.5	0.9	20.4	720
5 x 6	7 / 1.04	0.7	19.0	571	17.1	1.25	22.7	986
5 x 10	7 / 1.35	0.7	21.5	826	19.5	1.25	25.3	1305
5 x 16	7 / 1.7	0.7	24.3	1176	22.6	1.60	29.3	1904
5 x 25	7 / 2.14	0.9	29.0	1762	27.5	1.60	34.4	2619
5 x 35	7 / 2.52	0.9	32.1	2316	30.5	1.60	37.6	3260
5 x 50	19 / 1.78	1.0	36.6	3096	34.9	2.0	43.0	4420
5 x 70	19 / 2.14	1.1	42.4	4344	40.3	2.0	48.8	5835
7 x 1.5	7 / 0.53	0.7	16.3	346	13.4	0.9	18.2	669
10 x 1.5	7 / 0.53	0.7	20.4	492	11.3	1.25	23.0	885
12 x 1.5	7 / 0.53	0.7	21.1	552	17.9	1.25	23.6	958
19 x 1.5	7 / 0.53	0.7	24.6	790	21.2	1.25	27.1	1252
27 x 1.5	7 / 0.53	0.7	29.3	1090	26.1	1.6	32.9	1839
37 x 1.5	7 / 0.53	0.7	32.8	1417	29.4	1.6	36.2	2214
48 x 1.5	7 / 0.53	0.7	37.6	1811	33.9	1.6	40.9	2696
7 x 2.5	7 / 0.67	0.7	17.6	441	15.5	0.9	21.0	717
10 x 2.5	7 / 0.67	0.7	22.1	629	20.1	1.25	26.0	1113
12 x 2.5	7 / 0.67	0.7	22.8	712	20.8	1.25	26.7	1211
19 x 2.5	7 / 0.67	0.7	26.7	1035	25.1	1.6	31.9	1825
27 x 2.5	7 / 0.67	0.7	31.9	1437	30.4	1.6	37.4	2353
37 x 2.5	7 / 0.67	0.7	35.8	1883	34.3	1.6	41.3	2884
48 x 2.5	7 / 0.67	0.7	41.2	2435	40.0	2.0	48.2	3913
7 x 4	7 / 0.85	0.7	19.2	584	17.0	1.25	22.7	994
10 x 4	7 / 0.85	0.7	24.3	838	22.5	1.25	29.1	1542
12 x 4	7 / 0.85	0.7	25.1	957	23.3	1.6	29.9	1670
19 x 4	7 / 0.85	0.7	29.4	1410	27.6	1.6	34.4	2244
27 x 4	7 / 0.85	0.7	35.2	1968	33.5	1.6	40.7	2946
37 x 4	7 / 0.85	0.7	39.7	2619	38.2	2.0	46.4	4047
48 x 4	7 / 0.85	0.7	46.0	3410	44.1	2.0	52.5	4950

4 Cores

5 Cores & above

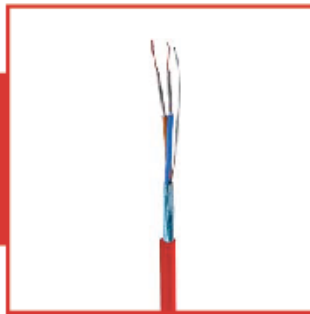
Note: Other conductor sizes & core configurations are available upon request.
: Braided Armoured Cables are available upon request.
: (S) - Sectoral Stranded Conductors.

Fire Resistant Cables

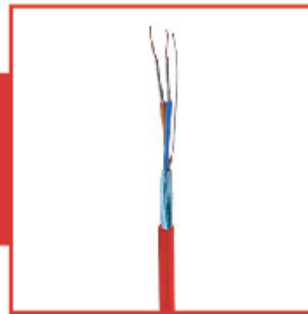
2-4 CORES

FRA-XOL, FRA-XOL(E)

**FRA-XOL
(STANDARD)
2-4 CORES**



**FRA-XOL(E)
(ENHANCED)
2-4 CORES**



**FRA-XOL
(STANDARD)
2-4 cores**

**FRA-XOL(E)
(ENHANCED)
2-4 cores**

<p>Conductor : Fire Barrier : Insulation :</p> <p>Overall Screen :</p> <p>Sheath : Colour :</p> <p>Reference Standard : Circuit Integrity :</p> <p>Flame Propagation : Acid Gas Emission : Smoke Emission : Voltage Uo/U : Conductor Stranding : Operating Temperature :</p> <p>Minimum Bending Radius :</p>	<p>Plain Annealed Copper Mica Tape (a) EIS Compound or (b) XLEVA Compound Aluminium / Polyester Tape with full size tinned annealed copper circuit protective conductor LSZH Compound Insulation: 2 Cores - Red & Black or Brown & Blue 3 Cores - Red, Yellow & Blue or Brown, Black & Grey 4 Cores - Red, Yellow, Blue & Black or Brown, Black, Grey & Blue</p> <p>Sheath - Red or White BS7629-1 / In-house BS EN 50200:2006 PH 30 BS EN 50200:2006 Annex E 30min BS 5839-1:2002+A2:2008 Clause 26.2d BS 6387 Cat C.W.Z. BS EN 60332-1-2, BS EN 60332-3C BS EN 50267-2-1, IEC 60754-1 BS EN 61034-2, IEC 61034-2 300 / 500V Class 1 or Class 2 (a) Max 90°C for EIS (b) Max 110°C for XLEVA 6D</p>	<p>Plain Annealed Copper Mica Tape EIS Compound Aluminium / Polyester Tape with full size tinned annealed copper circuit protective conductor LSZH Compound Insulation: 2 Cores - Red & Black or Brown & Blue 3 Cores - Red, Yellow & Blue or Brown, Black & Grey 4 Cores - Red, Yellow, Blue & Black or Brown, Black, Grey & Blue</p> <p>Sheath - Red or White BS7629-1 BS EN 50200:2006 PH 120 BS EN 50200:2006 Annex E 120min BS 5839-1:2002+A2:2008 Clause 26.2E BS 8434-2 120 min BS 6387 Cat C.W.Z. BS EN 60332-1-2, BS EN 60332-3C BS EN 50267-2-1, IEC 60754-1 BS EN 61034-2, IEC 61034-2 300 / 500V Class 1 or Class 2 Max 90°C for EIS 6D</p>
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FRA-XOL, FRA-XOL(E)

Fire Resistant Cables

2-4 CORES

Fire Resistant Cables FRA-XOL, FRA-XOL(E)

Table 4

SIZE		Radial Thickness of Insulation (mm)	FRA-XOL		No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	FRA-XOL(E)		
Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)		Standard				Enhanced		
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	
2 x 1.0	7 / 0.43	0.6	9.0	99	1 / 1.13	0.6	8.7	102	2 Cores
2 x 1.5	7 / 0.53	0.7	10.0	122	1 / 1.38	0.7	9.5	124	
2 x 2.5	7 / 0.67	0.8	11.5	163	1 / 1.78	0.8	10.9	167	
2 x 4	7 / 0.85	0.8	12.6	209	7 / 0.85	0.8	12.7	222	
3 x 1.0	7 / 0.43	0.6	9.6	127	1 / 1.13	0.6	9.2	130	3 Cores
3 x 1.5	7 / 0.53	0.7	10.7	160	1 / 1.38	0.7	10.2	161	
3 x 2.5	7 / 0.67	0.8	12.2	215	1 / 1.78	0.8	11.6	219	
3 x 4	7 / 0.85	0.8	13.4	280	7 / 0.85	0.8	13.5	294	
4 x 1.0	7 / 0.43	0.6	10.7	163	1 / 1.13	0.6	10.3	165	4 Cores
4 x 1.5	7 / 0.53	0.7	11.9	206	1 / 1.38	0.7	11.3	206	
4 x 2.5	7 / 0.67	0.8	13.6	278	1 / 1.78	0.8	13.0	280	
4 x 4	7 / 0.85	0.8	15.0	362	7 / 0.85	0.8	15.1	378	

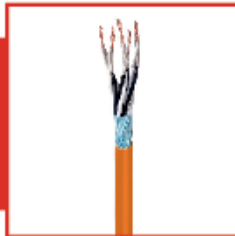
Note: Other conductor sizes & core configurations are available upon request.

Fire Resistant Instrumentation Cables

single & multi-pair,
multi-core

FR-XOL, FR-XOSL (ARMOURED)

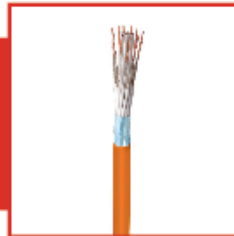
**FR-XOL
single &
multi-pair**



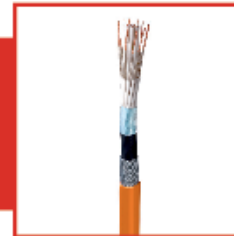
**FR-XOSL
(ARMOURED)
single &
multi-pair**



**FR-XOL
multi-core**



**FR-XOSL
(ARMOURED)
multi-core**



**FR-XOL
single & multi-pair**

**FR-XOSL
(ARMOURED)
single & multi-pair**

**FR-XOL
multi-core**

**FR-XOSL
(ARMOURED)
multi-core**

Conductor : Fire Barrier : Insulation : Overall Screen : Bedding : Armouring : Sheath : Colour : Reference Standard : Test Standard : Voltage (Uo/U) : Conductor Stranding : Operating Temperature : Minimum Bending Radius :	Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire N.A. N.A. LSZH Compound Insulation: White and Black with numberings Sheath - Orange BS EN 50288-7* IEC 60331 BS 6387 (C, W, Z), SS 299 (C, W, Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-1 IEC 60754-2, BS 6425-2, BS EN 50267-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 300 / 500V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 3D for unarmoured cable	Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire LSZH Compound Galvanized Steel Wire LSZH Compound Insulation: White and Black with numberings Sheath - Orange BS EN 50288-7* IEC 60331 BS 6387 (C, W, Z), SS 299 (C, W, Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-1 IEC 60754-2, BS 6425-2, BS EN 50267-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 300 / 500V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 100 for armoured cable	Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire N.A. N.A. LSZH Compound Insulation: White with Black numberings Sheath - Orange BS EN 50288-7* IEC 60331 BS 6387 (C, W, Z), SS 299 (C, W, Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-1 IEC 60754-2, BS 6425-2, BS EN 50267-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 300 / 500V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 3D for unarmoured cable	Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire LSZH Compound Galvanized Steel Wire LSZH Compound Insulation: White with Black numberings Sheath - Orange BS EN 50288-7* IEC 60331 BS 6387 (C, W, Z), SS 299 (C, W, Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-1 IEC 60754-2, BS 6425-2, BS EN 50267-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 300 / 500V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 100 for armoured cable
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Note * : Previously known as BS 5306.

FR-XOL, FR-XOSL (ARMOURED)

Fire Resistant Instrumentation Cables single & multi-pair

Fire Resistant Instrumentation Cables FR-XOL, FR-XOSL (ARMOURED)

Table 5

SIZE		Radial Thickness of Insulation (mm)	FR-XOL		FR-XOSL			
Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)		Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
1P x 1.0	7 / 0.43	0.6	9.9	95	10.0	0.9	14.6	364
2P x 1.0	7 / 0.43	0.6	15.9	178	15.8	1.25	21.5	717
5P x 1.0	7 / 0.43	0.6	20.7	340	20.4	1.25	26.1	1022
10P x 1.0	7 / 0.43	0.6	29.6	632	28.9	1.25	35.0	1587
15P x 1.0	7 / 0.43	0.6	34.3	891	33.4	1.6	40.4	2224
20P x 1.0	7 / 0.43	0.6	38.7	1151	37.6	1.6	44.6	2624
30P x 1.0	7 / 0.43	0.6	45.9	1648	45.0	2.0	53.2	3839
50P x 1.0	7 / 0.43	0.6	59.2	2681	57.7	2.5	67.3	6028
1P x 1.5	7 / 0.53	0.6	10.5	110	10.6	0.9	15.4	408
2P x 1.5	7 / 0.53	0.6	16.9	218	16.8	1.25	22.5	784
5P x 1.5	7 / 0.53	0.6	22.3	442	21.8	1.25	27.7	1146
10P x 1.5	7 / 0.53	0.6	31.9	786	31.0	1.25	37.1	1789
15P x 1.5	7 / 0.53	0.6	37.0	1112	35.9	1.6	42.9	2525
20P x 1.5	7 / 0.53	0.6	41.7	1440	40.4	1.6	47.6	3031
30P x 1.5	7 / 0.53	0.6	49.7	2095	48.4	2.0	56.8	4442
50P x 1.5	7 / 0.53	0.6	64.1	3402	62.6	2.5	72.6	7097
1P x 2.5	7 / 0.67	0.7	11.9	147	11.8	0.9	16.6	468
2P x 2.5	7 / 0.67	0.7	19.3	279	19.0	1.25	24.0	912
5P x 2.5	7 / 0.67	0.7	25.5	576	24.8	1.25	30.9	1403
10P x 2.5	7 / 0.67	0.7	36.5	1081	35.4	1.6	42.6	2496
15P x 2.5	7 / 0.67	0.7	42.6	1561	41.5	1.6	48.9	3239
20P x 2.5	7 / 0.67	0.7	48.0	2023	46.7	2	55.1	4283
30P x 2.5	7 / 0.67	0.7	57.2	2947	55.9	2.5	65.7	6265
50P x 2.5	7 / 0.67	0.7	73.9	4824	72.2	3.15	84.1	10129

Note : Other conductor class, core, triad and quad configurations are available upon request.
: Braided Screen and / or armoured cables are available upon request.

Fire Resistant Instrumentation Cables

multi-core

FR-XOL, FR-XOSL (ARMOURED)

Fire Resistant Instrumentation Cables FR-XOL, FR-XOSL (ARMOURED)

Table 6

SIZE	Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	FR-XOL		FR-XOSL			
				Unarmoured		Armoured			
				Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
2C x 1.0	7 / 0.43	0.6	9.9	101	10.0	0.9	14.6	368	
3C x 1.0	7 / 0.43	0.6	10.4	127	10.5	0.9	15.1	407	
4C x 1.0	7 / 0.43	0.6	11.4	155	11.5	0.9	16.1	463	
7C x 1.0	7 / 0.43	0.6	13.7	243	13.6	0.9	18.2	594	
12C x 1.0	7 / 0.43	0.6	18.1	392	17.8	1.25	23.3	971	
19C x 1.0	7 / 0.43	0.6	21.3	583	20.8	1.25	26.3	1250	
24C x 1.0	7 / 0.43	0.6	25.0	724	24.5	1.25	30.2	1517	
37C x 1.0	7 / 0.43	0.6	28.8	1062	28.1	1.25	33.8	1954	
2C x 1.5	7 / 0.53	0.6	10.5	117	10.6	0.9	15.2	403	
3C x 1.5	7 / 0.53	0.6	11.1	150	11.2	0.9	15.8	450	
4C x 1.5	7 / 0.53	0.6	12.3	191	12.2	0.9	16.8	508	
7C x 1.5	7 / 0.53	0.6	14.6	293	14.5	1.25	19.8	769	
12C x 1.5	7 / 0.53	0.6	19.3	477	19.0	1.25	24.5	1093	
19C x 1.5	7 / 0.53	0.6	22.8	716	22.3	1.25	28.0	1445	
24C x 1.5	7 / 0.53	0.6	27.0	904	26.3	1.25	32.0	1745	
37C x 1.5	7 / 0.53	0.6	31.1	1331	30.2	1.25	36.1	2288	
2C x 2.5	7 / 0.67	0.7	11.9	155	11.8	0.9	16.4	464	
3C x 2.5	7 / 0.67	0.7	12.6	201	12.5	0.9	17.1	524	
4C x 2.5	7 / 0.67	0.7	13.8	250	13.7	0.9	18.3	602	
7C x 2.5	7 / 0.67	0.7	16.6	399	16.3	1.25	21.8	929	
12C x 2.5	7 / 0.67	0.7	22.1	654	21.6	1.25	27.3	1359	
19C x 2.5	7 / 0.67	0.7	26.1	986	25.4	1.25	31.1	1792	
24C x 2.5	7 / 0.67	0.7	31.1	1261	30.0	1.25	35.9	2200	
37C x 2.5	7 / 0.67	0.7	35.8	1860	34.5	1.6	41.3	3174	

Note : Other conductor class, core, braid and quad configurations are available upon request.
: Braided Screen and / or armoured cables are available upon request.

FR-XIOL, FR-XIOSL (ARMOURED)

Fire Resistant Instrumentation Cables multi-pair

FR-XIOL multi-pair



FR-XIOSL [ARMOURED] multi-pair



FR-XIOL multi-pair

FR-XIOSL (ARMOURED) multi-pair

<p>Conductor :</p> <p>Fire Barrier :</p> <p>Insulation :</p> <p>Individual Screen:</p> <p>Overall Screen :</p> <p>Bedding :</p> <p>Armouring :</p> <p>Sheath :</p> <p>Colour :</p> <p>Reference Standard :</p> <p>Test Standard :</p> <p>Voltage Uo/U :</p> <p>Conductor Stranding :</p> <p>Operating Temperature :</p> <p>Minimum Bending Radius :</p>	<p>Plain Annealed Copper</p> <p>Mica Tape</p> <p>(a) XLPE Compound or (b) XLEVA Compound</p> <p>Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire</p> <p>Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire</p> <p>N.A.</p> <p>LSZH Compound</p> <p>Insulation: White and Black with numberings</p> <p>Sheath - Orange</p> <p>BS EN 50288-7*</p> <p>IEC 60331</p> <p>BS 6387 (C, W, Z), SS 299 (C, W, Z)</p> <p>IEC 60332-3, BS 4066-3, BS EN 50266-2-2</p> <p>IEC 60754-1, BS 6425-1, BS EN 50267-2-1</p> <p>IEC 60754-2, BS 6425-2, BS EN 50267-2-2</p> <p>IEC 61034-2, BS 7622-2, BS EN 61034-2</p> <p>300 / 500V</p> <p>Class 2</p> <p>(a) Max 90°C for XLPE (b) Max 110°C for XLEVA</p> <p>8D for unarmoured cable</p>	<p>Plain Annealed Copper</p> <p>Mica Tape</p> <p>(a) XLPE Compound or (b) XLEVA Compound</p> <p>Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire</p> <p>Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire</p> <p>LSZH Compound</p> <p>Galvanized Steel Wire</p> <p>LSZH Compound</p> <p>Insulation: White and Black with numberings</p> <p>Sheath - Orange</p> <p>BS EN 50288-7*</p> <p>IEC 60331</p> <p>BS 6387 (C, W, Z), SS 299 (C, W, Z)</p> <p>IEC 60332-3, BS 4066-3, BS EN 50266-2-2</p> <p>IEC 60754-1, BS 6425-1, BS EN 50267-2-1</p> <p>IEC 60754-2, BS 6425-2, BS EN 50267-2-2</p> <p>IEC 61034-2, BS 7622-2, BS EN 61034-2</p> <p>300 / 500V</p> <p>Class 2</p> <p>(a) Max 90°C for XLPE (b) Max 110°C for XLEVA</p> <p>10D for armoured cable</p>
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Note * : Previously known as BS 5306.

Fire Resistant Instrumentation Cables FR-XIOL, FR-XIOSL (ARMOURED)

Table 7

SIZE		Radial Thickness of Insulation (mm)	FR-XIOL		FR-XIOSL			
Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)		Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
2P x 1.0	7 / 0.43	0.6	16.4	204	16.1	1.25	21.8	747
5P x 1.0	7 / 0.43	0.6	21.3	393	20.8	1.25	26.7	1095
10P x 1.0	7 / 0.43	0.6	30.5	731	29.6	1.25	35.7	1107
15P x 1.0	7 / 0.43	0.6	35.4	1033	34.3	1.6	41.3	2406
20P x 1.0	7 / 0.43	0.6	39.8	1335	38.5	1.6	45.7	2875
30P x 1.0	7 / 0.43	0.6	47.5	1941	46.2	2.0	54.4	4184
50P x 1.0	7 / 0.43	0.6	61.1	3148	59.6	2.5	69.4	6693
2P x 1.5	7 / 0.53	0.6	17.5	236	15.1	1.25	22.9	816
5P x 1.5	7 / 0.53	0.6	22.8	466	22.3	1.25	28.2	1218
10P x 1.5	7 / 0.53	0.6	32.8	889	31.7	1.25	38.0	1932
15P x 1.5	7 / 0.53	0.6	38.1	1260	36.8	1.6	44.0	2735
20P x 1.5	7 / 0.53	0.6	42.9	1632	41.8	2.0	50.0	3677
30P x 1.5	7 / 0.53	0.6	51.1	2375	49.6	2.0	58.0	4774
50P x 1.5	7 / 0.53	0.6	66.0	3889	64.1	2.5	74.1	7683
2P x 2.5	7 / 0.67	0.7	19.9	309	19.4	1.25	25.3	958
5P x 2.5	7 / 0.67	0.7	26.0	623	25.3	1.25	31.4	1470
10P x 2.5	7 / 0.67	0.7	37.4	1192	36.1	1.6	43.3	2625
15P x 2.5	7 / 0.67	0.7	43.7	1721	42.4	2	50.6	3769
20P x 2.5	7 / 0.67	0.7	49.1	2230	47.6	2	56.0	4529
30P x 2.5	7 / 0.67	0.7	58.8	3278	57.1	2.5	67.1	6670
50P x 2.5	7 / 0.67	0.7	75.8	5351	73.7	3.15	85.6	10724

Note : Other conductor class, core, triad and quad configurations are available upon request.
: Braided Screen and / or armoured cables are available upon request.

FRT-H, FRT-XH, FRT-XAH (ARMOURED)

Flame Retardant Power Cables

SINGLE CORE

**FRT-H
single core**



**FRT-XH
single core**



**FRT-XAH
(ARMOURED)
single core**



**FRT-H
single core**

**FRT-XH
single core**

**FRT-XAH
(ARMOURED)
single core**

<p>Conductor :</p> <p>Insulation :</p> <p>Bedding :</p> <p>Armouring :</p> <p>Sheath :</p> <p>Colour :</p> <p>Reference Standard :</p> <p>Test Standard :</p> <p>Voltage Uo/U :</p> <p>Conductor Stranding :</p> <p>Operating Temperature :</p> <p>Minimum Bending Radius :</p>	<p>Plain Annealed Copper (a) XL-LSZH Compound or (b) XLEVA Compound N.A. N.A. N.A. Insulation: Red, Blue, Black, Brown, Grey, Green/Yellow BS 7211 / In-house IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XL-LSZH Compound (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper (a) XLPE Compound or (b) XLEVA Compound N.A. N.A. LSZH Compound Insulation: Natural Sheath - Black IEC 60502 IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper (a) XLPE Compound or (b) XLEVA Compound LSZH Compound Aluminium Wire LSZH Compound Insulation: Natural Sheath - Black IEC 60502 / BS 6724 IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 10D for armoured cable</p>
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Flame Retardant Power Cables

SINGLE CORE

FRT-H, FRT-XH, FRT-XAH (ARMOURED)

Flame Retardant Power Cables FRT-H, FRT-XH, FRT-XAH (ARMOURED)

Table 8

SIZE		FRT-H			FRT-XH			FRT-XAH			
Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Insulated, Non-Sheathed		Radial Thickness of Insulation (mm)	Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)		Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
1 x 1.5	7 / 0.53	0.7	3.1	22	0.7	6.0	48	-	-	-	-
1 x 2.5	7 / 0.67	0.8	3.7	34	0.7	6.4	63	-	-	-	-
1 x 4	7 / 0.85	0.8	4.3	50	0.7	7.0	78	-	-	-	-
1 x 6	7 / 1.04	0.8	4.8	70	0.7	7.5	105	-	-	-	-
1 x 10	7 / 1.35	1.0	6.2	116	0.7	8.5	151	-	-	-	-
1 x 16	7 / 1.70	1.0	7.2	174	0.7	9.5	211	-	-	-	-
1 x 25	7 / 2.14	1.2	9.0	276	0.9	11.2	315	-	-	-	-
1 x 35	7 / 2.52	1.2	10.0	366	0.9	12.4	416	-	-	-	-
1 x 50	19 / 1.78	1.4	11.9	502	1.0	14.0	569	-	-	-	-
1 x 70	19 / 2.14	1.4	13.7	706	1.1	16.0	792	15.4	1.25	21.5	960
1 x 95	19 / 2.52	1.6	16.0	974	1.1	18.0	1068	17.3	1.25	23.4	1240
1 x 120	37 / 2.03	1.6	17.6	1213	1.2	20.0	1325	19.1	1.6	25.9	1650
1 x 150	37 / 2.25	1.8	19.6	1492	1.4	22.0	1627	21.1	1.6	27.9	1970
1 x 185	37 / 2.52	2.0	21.8	1868	1.6	24.4	2021	23.2	1.6	30.1	2390
1 x 240	61 / 2.25	2.2	24.4	2443	1.7	27.5	2617	26.2	1.6	33.2	3040
1 x 300	61 / 2.52	2.4	27.7	3055	1.8	30.3	3252	28.8	1.6	35.8	3790
1 x 400	61 / 2.85	2.6	31.1	3888	2.0	33.9	4131	32.7	2.0	40.9	4790
1 x 500	61 / 3.20	2.8	34.6	4880	2.2	37.6	5175	36.2	2.0	44.6	5880
1 x 630	127 / 2.52	2.8	38.6	6229	2.4	42.4	6631	40.6	2.0	49.2	7400
1 x 800	127 / 2.85	-	-	-	2.6	47.3	8412	45.7	2.5	55.7	9500
1 x 1000	127 / 3.20	-	-	-	2.8	52.4	10530	50.6	2.5	61.0	11750

Note: For FRT-H cables, Cross-Linked LSZH Compound will be used as the insulation material.

FRT-XH, FRT-XSH (ARMOURED)

Flame Retardant Power Cables

2-4 cores,
5 cores & ABOVE

FRT-XH
2-4 cores,
5 cores & above

FRT-XSH (ARMOURED)
2-4 cores,
5 cores & above



FRT-XH
2-4 cores,
5 cores & above

FRT-XSH (ARMOURED)
2-4 cores,
5 cores & above

<p>Conductor :</p> <p>Insulation :</p> <p>Bedding :</p> <p>Armouring :</p> <p>Sheath :</p> <p>Colour :</p> <p>Reference Standard :</p> <p>Test Standard :</p> <p>Voltage Uo/U :</p> <p>Conductor Stranding :</p> <p>Operating Temperature :</p> <p>Minimum Bending Radius :</p>	<p>Plain Annealed Copper (a) XLPE Compound or (b) XLEVA Compound N.A. N.A. LSZH Compound Insulation: 2 Cores - Red & Black or Brown & Blue 3 Cores - Red, Yellow & Blue or Brown, Black & Grey 4 Cores - Red, Yellow, Blue & Black or Brown, Black, Grey & Blue 5 Cores - Red, Yellow, Blue, Black & Green/Yellow or Brown, Black, Grey, Blue & Green/Yellow Above 5 Cores - White with Black numberings Sheath - Black IEC 60502 / BS 6724 IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper (a) XLPE Compound or (b) XLEVA Compound LSZH Compound Galvanized Steel Wire LSZH Compound Insulation: 2 Cores - Red & Black or Brown & Blue 3 Cores - Red, Yellow & Blue or Brown, Black & Grey 4 Cores - Red, Yellow, Blue & Black or Brown, Black, Grey & Blue 5 Cores - Red, Yellow, Blue, Black & Green/Yellow or Brown, Black, Grey, Blue & Green/Yellow Above 5 Cores - White with Black numberings Sheath - Black IEC 60502 / BS 6724 IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 10D for armoured cable</p>
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Flame Retardant Power Cables
2-4 cores

**FRT-XH,
FRT-XSH (ARMOURED)**

Flame Retardant Power Cables FRT-XH, FRT-XSH (ARMOURED)

Table 9

SIZE	Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	FRT-XH		FRT-XSH				
				Unarmoured		Armoured				
				Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)	
2 x 1.5	7 / 0.53	0.7	10.0	126	8.5	0.9	13.9	350	2 Cores	
2 x 2.5	7 / 0.67	0.7	10.8	158	9.3	0.9	14.7	400		
2 x 4	7 / 0.85	0.7	11.9	205	10.4	0.9	15.8	475		
2 x 6	7 / 1.04	0.7	13.0	264	11.5	0.9	16.9	560		
2 x 10	7 / 1.35	0.7	14.9	378	13.4	1.25	19.5	810		
2 x 16	7 / 1.70	0.7	17.0	534	15.5	1.25	21.6	980		
2 x 25	7 / 2.14	0.9	20.4	650	18.9	1.6	25.7	1410		
2 x 35	7 / 2.52	0.9	22.7	880	21.2	1.6	28.0	1930		
3 x 1.5	7 / 0.53	0.7	10.5	145	9.0	0.9	14.4	390		3 Cores
3 x 2.5	7 / 0.67	0.7	11.4	185	9.9	0.9	15.3	450		
3 x 4	7 / 0.85	0.7	12.5	247	11.0	0.9	16.4	540		
3 x 6	7 / 1.04	0.7	13.8	323	11.6	1.25	17.7	745		
3 x 10	7 / 1.35	0.7	15.8	474	14.3	1.25	20.4	950		
3 x 16	7 / 1.70	0.7	18.0	682	16.5	1.25	23.0	1250		
3 x 25	7 / 2.14	0.9	21.7	910	20.2	1.6	27.0	1840		
3 x 35	7 / 2.52	0.9	24.0	1180	22.4	1.6	29.2	2050		
3 x 50 (S)	19 / 1.78	1.0	25.5	1600	24.2	1.6	31.2	2590		
3 x 70 (S)	19 / 2.14	1.1	29.0	2240	28.2	2.0	36.2	3560		
3 x 95 (S)	19 / 2.52	1.1	33.5	3050	31.7	2.0	40.1	4590		
3 x 120 (S)	37 / 2.03	1.2	37.5	3800	36.0	2.0	44.6	5810		
3 x 150 (S)	37 / 2.25	1.4	40.5	4640	39.5	2.5	49.5	6920		
3 x 185 (S)	37 / 2.52	1.6	45.0	5870	43.3	2.5	53.5	8340		
3 x 240 (S)	61 / 2.25	1.7	50.5	7670	48.4	2.5	59.0	10450		
3 x 300 (S)	61 / 2.52	1.8	57.0	9460	54.4	2.5	65.4	12700		
3 x 400 (S)	61 / 2.85	2.0	63.0	11945	57.8	2.5	70.0	15326		
4 x 1.5	7 / 0.53	0.7	11.3	169	10.0	0.9	15.4	430	4 Cores	
4 x 2.5	7 / 0.67	0.7	12.3	220	10.8	0.9	16.2	505		
4 x 4	7 / 0.85	0.7	13.6	297	12.1	0.9	17.5	710		
4 x 6	7 / 1.04	0.7	15.0	392	13.5	1.25	19.6	855		
4 x 10	7 / 1.35	0.7	17.2	585	15.7	1.25	21.8	1120		
4 x 16	7 / 1.70	0.7	19.7	851	18.2	1.6	25.0	1600		
4 x 25	7 / 2.14	0.9	23.9	1200	22.4	1.6	29.2	2160		
4 x 35	7 / 2.52	0.9	25.0	1600	24.4	1.6	31.4	2560		
4 x 50 (S)	19 / 1.78	1.0	28.0	2200	28.0	1.6	35.2	3180		
4 x 70 (S)	19 / 2.14	1.1	32.0	3050	32.2	2.0	40.6	4490		
4 x 95 (S)	19 / 2.52	1.1	37.0	4070	36.0	2.0	44.6	5725		
4 x 120 (S)	37 / 2.03	1.2	42.0	5915	38.0	2.5	50.0	7550		
4 x 150 (S)	37 / 2.25	1.4	46.0	6350	42.8	2.5	53.0	8555		
4 x 185 (S)	37 / 2.52	1.6	50.0	7890	48.4	2.5	59.0	10560		
4 x 240 (S)	61 / 2.25	1.7	57.0	10400	55.0	2.5	66.0	13180		
4 x 300 (S)	61 / 2.52	1.8	63.0	12810	59.6	2.5	71.0	16100		
4 x 400 (S)	61 / 2.85	2.0	71.0	15869	66.1	3.15	79.4	20715		
4 x 500 (S)	61 / 3.20	2.2	78.0	20300	74.6	3.15	88.5	25347		

(S) - Sectoral Stranded Conductors.

FRT-XH, FRT-XSH (ARMOURED)

Flame Retardant Power Cables

5 cores & above

Flame Retardant Power Cables FRT-XH, FRT-XSH (ARMOURED)

Table 10

SIZE	Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	FRT-XH		FRT-XSH			
				Unarmoured		Armoured			
				Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
5 x 1.5	7 / 0.53	0.7	11.3	184	9.9	0.9	14.5	402	
7 x 1.5	7 / 0.53	0.7	12.4	225	11.2	0.9	16.0	490	
10 x 1.5	7 / 0.53	0.7	15.6	325	14.3	1.25	20.0	761	
12 x 1.5	7 / 0.53	0.7	16.2	370	14.8	1.25	20.5	827	
19 x 1.5	7 / 0.53	0.7	19.0	516	17.4	1.6	24.0	1186	
27 x 1.5	7 / 0.53	0.7	22.7	712	21.3	1.6	28.1	1537	
37 x 1.5	7 / 0.53	0.7	25.5	941	23.9	1.6	30.7	1856	
48 x 1.5	7 / 0.53	0.7	29.0	1186	27.5	1.6	34.6	2276	
5 x 2.5	7 / 0.67	0.7	12.8	237	11.2	0.9	15.8	496	
7 x 2.5	7 / 0.67	0.7	13.8	303	12.4	0.9	17.2	602	
10 x 2.5	7 / 0.67	0.7	17.5	426	15.9	1.25	21.8	943	
12 x 2.5	7 / 0.67	0.7	18.1	489	16.5	1.25	22.4	1020	
19 x 2.5	7 / 0.67	0.7	21.3	725	19.9	1.6	26.7	1498	
27 x 2.5	7 / 0.67	0.7	25.5	1004	23.9	1.6	30.9	1933	
37 x 2.5	7 / 0.67	0.7	28.7	1334	26.9	1.6	33.9	2372	
48 x 2.5	7 / 0.67	0.7	32.9	1706	31.3	2.0	39.6	3252	
5 x 4	7 / 0.85	0.7	14.2	324	12.6	1.25	18.2	712	
7 x 4	7 / 0.85	0.7	15.5	422	14.1	1.25	19.8	871	
10 x 4	7 / 0.85	0.7	19.7	597	18.5	1.25	24.4	1213	
12 x 4	7 / 0.85	0.7	20.3	690	19.1	1.6	25.7	1462	
19 x 4	7 / 0.85	0.7	24.0	1037	22.6	1.6	29.4	1931	
27 x 4	7 / 0.85	0.7	28.8	1445	27.2	1.6	34.4	2532	
37 x 4	7 / 0.85	0.7	32.5	1932	31.1	2.0	39.3	3448	
48 x 4	7 / 0.85	0.7	37.3	2479	35.7	2.0	44.2	4273	

5 cores & above

Note: Other conductor sizes & core configurations are available upon request.
: Braided Armoured Cables are available upon request.

Flame Retardant Instrumentation Cables

single & multi-pair,
multi-core

FRT-XOL, FRT-XOSL (ARMOURED)

**FRT-XOL
single &
multi-pair**



**FRT-XOSL
(ARMOURED)
single &
multi-pair**



**FRT-XOL
multi-core**



**FRT-XOSL
(ARMOURED)
multi-core**



**FRT-XOL
single & multi-pair**

**FRT-XOSL
(ARMOURED)
single & multi-pair**

**FRT-XOL
multi-core**

**FRT-XOSL
(ARMOURED)
multi-core**

Conductor :	Plain Annealed Copper	Plain Annealed Copper	Plain Annealed Copper	Plain Annealed Copper
Insulation :	(a) XLPE Compound or (b) XLEVA Compound	(a) XLPE Compound or (b) XLEVA Compound	(a) XLPE Compound or (b) XLEVA Compound	(a) XLPE Compound or (b) XLEVA Compound
Overall Screen :	Aluminium / Polyester Tape with 0.5mm ² (7/0.3mm) Tinned Drain Wire	Aluminium / Polyester Tape with 0.5mm ² (7/0.3mm) Tinned Drain Wire	Aluminium / Polyester Tape with 0.5mm ² (7/0.3mm) Tinned Drain Wire	Aluminium / Polyester Tape with 0.5mm ² (7/0.3mm) Tinned Drain Wire
Bedding :	N.A.	LSZH Compound	N.A.	LSZH Compound
Armouring :	N.A.	Galvanized Steel Wire	N.A.	Galvanized Steel Wire
Sheath :	LSZH Compound	LSZH Compound	LSZH Compound	LSZH Compound
Colour :	Insulation: White and Black with numberings	Insulation: White and Black with numberings	Insulation: White with Black numberings	Insulation: White with Black numberings
Reference Standard :	Sheath - Black BS EN 50238-7*	Sheath - Black BS EN 50238-7*	Sheath - Black BS EN 50238-7*	Sheath - Black BS EN 50238-7*
Test Standard :	IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2	IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2	IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2	IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2
Voltage Uo/U :	300 / 500V	300 / 500V	300 / 500V	300 / 500V
Conductor Stranding :	Class 2	Class 2	Class 2	Class 2
Operating Temperature :	(a) Max 90°C for XLPE (b) Max 110°C for XLEVA	(a) Max 90°C for XLPE (b) Max 110°C for XLEVA	(a) Max 90°C for XLPE (b) Max 110°C for XLEVA	(a) Max 90°C for XLPE (b) Max 110°C for XLEVA
Minimum Bending Radius :	8D for unarmoured cable	10D for armoured cable	8D for unarmoured cable	10D for armoured cable

Note * : Previously known as BS 5308.

FRT-XOL, FRT-XOSL (ARMOURED)

Flame Retardant Instrumentation Cables

single & multi-pair

Flame Retardant Instrumentation Cables FRT-XOL, FRT-XOSL (ARMOURED) Table 11

SIZE	Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	FRT-XOL		FRT-XOSL			
				Unarmoured		Armoured			
				Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
1P x 0.5	7 / 0.3	0.6	7.0	57	7.1	0.9	11.7	255	
2P x 0.5	7 / 0.3	0.6	10.6	97	10.7	0.9	15.5	395	
5P x 0.5	7 / 0.3	0.6	13.6	176	13.5	0.9	18.3	539	
10P x 0.5	7 / 0.3	0.6	19.2	321	18.7	1.25	24.4	941	
15P x 0.5	7 / 0.3	0.6	22.0	434	21.5	1.25	27.4	1156	
20P x 0.5	7 / 0.3	0.6	24.7	558	24.0	1.25	30.1	1360	
30P x 0.5	7 / 0.3	0.6	29.2	794	28.3	1.25	34.4	1720	
50P x 0.5	7 / 0.3	0.6	37.4	1271	36.1	1.6	43.3	2688	
1P x 0.75	7 / 0.37	0.6	7.4	65	7.5	0.9	12.1	276	
2P x 0.75	7 / 0.37	0.6	11.5	118	11.4	0.9	16.2	426	
5P x 0.75	7 / 0.37	0.6	14.8	218	14.5	1.25	20.2	710	
10P x 0.75	7 / 0.37	0.6	20.7	388	20.2	1.25	26.1	1062	
15P x 0.75	7 / 0.37	0.6	23.9	545	23.2	1.25	29.1	1306	
20P x 0.75	7 / 0.37	0.6	26.9	702	26.0	1.25	32.1	1554	
30P x 0.75	7 / 0.37	0.6	31.8	1002	30.7	1.25	37.0	2006	
50P x 0.75	7 / 0.37	0.6	40.7	1607	39.6	1.6	47.0	3206	
1P x 1.0	7 / 0.43	0.6	7.8	73	7.9	0.9	12.5	291	
2P x 1.0	7 / 0.43	0.6	12.2	134	12.1	0.9	16.9	461	
5P x 1.0	7 / 0.43	0.6	15.7	253	15.4	1.25	21.1	771	
10P x 1.0	7 / 0.43	0.6	22.0	455	21.5	1.25	27.4	1171	
15P x 1.0	7 / 0.43	0.6	25.4	642	24.7	1.25	30.8	1468	
20P x 1.0	7 / 0.43	0.6	28.6	831	27.7	1.25	33.8	1733	
30P x 1.0	7 / 0.43	0.6	34.1	1210	32.8	1.6	39.8	2488	
50P x 1.0	7 / 0.43	0.6	43.6	1942	42.3	2.0	50.7	3991	
1P x 1.5	7 / 0.53	0.6	8.4	87	8.5	0.9	13.1	320	
2P x 1.5	7 / 0.53	0.6	13.2	162	13.1	0.9	17.9	512	
5P x 1.5	7 / 0.53	0.6	17.1	318	16.8	1.25	22.5	885	
10P x 1.5	7 / 0.53	0.6	24.3	594	23.6	1.25	29.7	1383	
15P x 1.5	7 / 0.53	0.6	28.1	843	27.2	1.25	33.3	1732	
20P x 1.5	7 / 0.53	0.6	31.6	1094	30.5	1.25	36.8	2086	
30P x 1.5	7 / 0.53	0.6	37.7	1596	36.2	1.6	43.4	3011	
50P x 1.5	7 / 0.53	0.6	48.4	2596	46.7	2	55.3	4834	
1P x 2.5	7 / 0.67	0.7	9.6	116	9.7	0.9	14.5	386	
2P x 2.5	7 / 0.67	0.7	15.6	228	15.3	1.25	21.0	745	
5P x 2.5	7 / 0.67	0.7	20.3	458	19.8	1.25	25.7	1119	
10P x 2.5	7 / 0.67	0.7	29.1	878	28.0	1.25	34.3	1795	
15P x 2.5	7 / 0.67	0.7	33.7	1251	32.4	1.6	39.6	2535	
20P x 2.5	7 / 0.67	0.7	37.9	1625	36.8	1.6	44.2	3122	
30P x 2.5	7 / 0.67	0.7	45.1	2373	43.6	2	52.0	4459	
50P x 2.5	7 / 0.67	0.7	58.2	3893	56.3	2.5	66.3	7160	

Note : Other conductor class, core, braid and quad configurations are available upon request.
: Braided Screen and / or armoured cables are available upon request.

Flame Retardant Instrumentation Cables

multi-core

FRT-XOL, FRT-XOSL (ARMOURED)

Flame Retardant Instrumentation Cables FRT-XOL, FRT-XOSL (ARMOURED)

Table 12

SIZE		Radial Thickness of Insulation (mm)	FRT-XOL		FRT-XOSL			
Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)		Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
2C x 0.5	7 / 0.3	0.6	6.9	57	7.1	0.9	11.6	254
3C x 0.5	7 / 0.3	0.6	7.3	68	7.5	0.9	12.0	278
4C x 0.5	7 / 0.3	0.6	7.8	80	8.0	0.9	12.5	304
7C x 0.5	7 / 0.3	0.6	9.1	113	9.3	0.9	14.0	375
12C x 0.5	7 / 0.3	0.6	11.9	177	11.9	0.9	16.6	498
19C x 0.5	7 / 0.3	0.6	13.9	257	13.7	0.9	18.6	624
24C x 0.5	7 / 0.3	0.6	16.1	315	15.9	0.9	20.8	739
37C x 0.5	7 / 0.3	0.6	18.5	452	18.1	1.25	23.9	1062
2C x 0.75	7 / 0.37	0.6	7.3	65	7.5	0.9	12.0	276
3C x 0.75	7 / 0.37	0.6	7.7	79	7.9	0.9	12.4	297
4C x 0.75	7 / 0.37	0.6	8.3	94	8.5	0.9	13.0	327
7C x 0.75	7 / 0.37	0.6	9.7	136	9.9	0.9	14.6	413
12C x 0.75	7 / 0.37	0.6	12.7	215	12.7	0.9	17.4	558
19C x 0.75	7 / 0.37	0.6	15.0	316	14.8	1.25	20.4	820
24C x 0.75	7 / 0.37	0.6	17.6	399	17.2	1.25	23.0	981
37C x 0.75	7 / 0.37	0.6	20.0	566	19.6	1.25	25.4	1224
2C x 1.0	7 / 0.43	0.6	7.7	72	7.9	0.9	12.4	291
3C x 1.0	7 / 0.43	0.6	8.1	89	8.3	0.9	12.8	315
4C x 1.0	7 / 0.43	0.6	8.8	107	9.0	0.9	13.7	361
7C x 1.0	7 / 0.43	0.6	10.5	164	10.5	0.9	15.2	449
12C x 1.0	7 / 0.43	0.6	13.5	253	13.5	0.9	18.4	626
19C x 1.0	7 / 0.43	0.6	15.9	375	15.7	1.25	21.3	905
24C x 1.0	7 / 0.43	0.6	18.6	473	18.2	1.25	24.0	1083
37C x 1.0	7 / 0.43	0.6	21.4	688	20.8	1.25	26.6	1375
2C x 1.5	7 / 0.53	0.6	8.3	87	8.5	0.9	13.0	319
3C x 1.5	7 / 0.53	0.6	8.7	109	8.9	0.9	13.6	363
4C x 1.5	7 / 0.53	0.6	9.5	133	9.7	0.9	14.4	403
7C x 1.5	7 / 0.53	0.6	11.4	207	11.4	0.9	16.1	515
12C x 1.5	7 / 0.53	0.6	14.9	334	14.7	1.25	20.3	837
19C x 1.5	7 / 0.53	0.6	17.6	497	17.2	1.25	23.0	1080
24C x 1.5	7 / 0.53	0.6	20.6	627	20.0	1.25	25.8	1288
37C x 1.5	7 / 0.53	0.6	23.7	918	22.9	1.25	28.9	1670
2C x 2.5	7 / 0.67	0.7	9.5	115	9.7	0.9	14.4	385
3C x 2.5	7 / 0.67	0.7	10.3	154	10.3	0.9	15.0	433
4C x 2.5	7 / 0.67	0.7	11.2	190	11.2	0.9	15.9	496
7C x 2.5	7 / 0.67	0.7	13.4	301	13.2	0.9	18.1	660
12C x 2.5	7 / 0.67	0.7	17.7	489	17.3	1.25	23.1	1073
19C x 2.5	7 / 0.67	0.7	20.9	734	20.3	1.25	26.1	1396
24C x 2.5	7 / 0.67	0.7	24.6	925	23.8	1.25	29.8	1702
37C x 2.5	7 / 0.67	0.7	28.3	1364	27.3	1.25	33.5	2256

Note : Other conductor class, core, triad and quad configurations are available upon request.
: Braided Screen and / or armoured cables are available upon request.

FRT-XIOL, FRT-XIOSL (ARMOURED)

Flame Retardant Instrumentation Cables multi-pair

FRT-XIOL multi-pair



FRT-XIOSL (ARMOURED) multi-pair



FRT-XIOL multi-pair

FRT-XIOSL (ARMOURED) multi-pair

<p>Conductor : Insulation : Individual Screen : Overall Screen : Bedding : Armouring : Sheath : Colour : Reference Standard : Test Standard : Voltage Uo/U : Conductor Stranding : Operating Temperature : Minimum Bending Radius :</p>	<p>Plain Annealed Copper (a) XLPE Compound or (b) XLEVA Compound Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire N.A. N.A. LSZH Compound Insulation: White and Black with numberings Sheath - Black BS EN 50288-7*</p> <p>IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 300 / 500V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper (a) XLPE Compound or (b) XLEVA Compound Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire Aluminium / Polyester Tape with 0.5mm² (7/0.3mm) Tinned Drain Wire LSZH Compound Galvanized Steel Wire LSZH Compound Insulation: White and Black with numberings Sheath - Black BS EN 50288-7*</p> <p>IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 300 / 500V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 10D for armoured cable</p>
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Note * : Previously known as BS 5308.

Flame Retardant Instrumentation Cables

MULTI-PAIR

FRT-XIOL, FRT-XIOSL (ARMOURED)

Flame Retardant Instrumentation Cables FRT-XIOL, FRT-XIOSL (ARMOURED) Table 13

SIZE	Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	FRT-XIOL		FRT-XIOSL			
				Unarmoured		Armoured			
				Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
2P x 0.5	7 / 0.3	0.6	11.2	120	11.1	0.9	15.9	417	
5P x 0.5	7 / 0.3	0.6	14.3	223	14.0	0.9	19.0	595	
10P x 0.5	7 / 0.3	0.6	20.1	410	19.4	1.25	25.3	1045	
15P x 0.5	7 / 0.3	0.6	23.0	563	22.3	1.25	28.4	1311	
20P x 0.5	7 / 0.3	0.6	25.9	728	25.0	1.25	31.1	1541	
30P x 0.5	7 / 0.3	0.6	30.8	1058	29.5	1.25	35.8	2006	
50P x 0.5	7 / 0.3	0.6	39.3	1696	38.0	1.6	45.4	3211	
2P x 0.75	7 / 0.37	0.6	11.9	136	11.8	0.9	16.6	454	
5P x 0.75	7 / 0.37	0.6	15.3	260	15.0	1.25	20.7	763	
10P x 0.75	7 / 0.37	0.6	21.6	482	20.9	1.25	26.8	1166	
15P x 0.75	7 / 0.37	0.6	25.0	680	24.1	1.25	30.2	1467	
20P x 0.75	7 / 0.37	0.6	28.1	879	27.0	1.25	33.3	1757	
30P x 0.75	7 / 0.37	0.6	33.4	1278	31.9	1.6	39.1	2519	
50P x 0.75	7 / 0.37	0.6	42.8	2072	41.1	1.6	48.7	3687	
2P x 1.0	7 / 0.43	0.6	12.5	151	12.4	0.9	17.2	484	
5P x 1.0	7 / 0.43	0.6	16.1	295	15.8	1.25	21.5	823	
10P x 1.0	7 / 0.43	0.6	22.9	551	22.2	1.25	28.3	1288	
15P x 1.0	7 / 0.43	0.6	26.5	781	25.6	1.25	31.7	1617	
20P x 1.0	7 / 0.43	0.6	29.8	1013	28.7	1.25	35.0	1951	
30P x 1.0	7 / 0.43	0.6	35.4	1476	33.9	1.6	41.1	2793	
50P x 1.0	7 / 0.43	0.6	45.5	2400	43.8	2.0	52.4	4488	
2P x 1.5	7 / 0.53	0.6	13.8	189	13.5	0.9	18.5	552	
5P x 1.5	7 / 0.53	0.6	17.8	372	17.3	1.25	22.3	953	
10P x 1.5	7 / 0.53	0.6	25.2	696	24.3	1.25	30.4	1494	
15P x 1.5	7 / 0.53	0.6	29.2	990	28.1	1.25	34.4	1905	
20P x 1.5	7 / 0.53	0.6	33.0	1302	31.5	1.6	38.7	2525	
30P x 1.5	7 / 0.53	0.6	39.2	1896	37.7	1.6	45.1	3388	
50P x 1.5	7 / 0.53	0.6	50.3	3080	48.6	2	57.4	5432	
2P x 2.5	7 / 0.67	0.7	16.2	257	15.7	1.25	20.7	776	
5P x 2.5	7 / 0.67	0.7	21.0	518	20.3	1.25	26.2	1189	
10P x 2.5	7 / 0.67	0.7	30.0	991	28.7	1.25	35.0	1913	
15P x 2.5	7 / 0.67	0.7	34.8	1414	33.7	1.6	41.1	2787	
20P x 2.5	7 / 0.67	0.7	39.3	1857	37.8	1.6	45.4	3373	
30P x 2.5	7 / 0.67	0.7	46.7	2706	44.8	2	53.6	4855	
50P x 2.5	7 / 0.67	0.7	60.1	4427	58.2	2.5	68.6	7893	

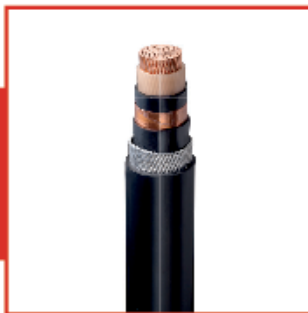
Note : Other conductor class, core, triad and quad configurations are available upon request.
: Braided Screen and / or armoured cables are available upon request.

FRT-XCAH (ARMOURED),
FRT-XCSH (ARMOURED),
FRT-XCH

Flame Retardant Screened Cables

SINGLE CORE,
3 CORES+3 EARTH & 4 CORES

FRT-XCAH
(ARMOURED)
SINGLE CORE



FRT-XCSH
(ARMOURED)
4 CORES



FRT-XCH
3 CORES +
3 EARTH



FRT-XCAH
(ARMOURED)
single core

FRT-XCSH
(ARMOURED)
4 cores

FRT-XCH
3 cores + 3 earth

<p>Conductor : Insulation : Bedding : Screen : Separation Sheath: Armouring : Sheath : Colour :</p> <p>Reference Standard : Test Standard :</p> <p>Voltage Uo/U : Conductor Stranding : Operating Temperature : Minimum Bending Radius :</p>	<p>Plain Annealed Copper XLPE Compound LSZH Compound Copper Tapes LSZH Compound Aluminium Wire LSZH Compound Insulation: Natural</p> <p>Sheath - Black IEC 60502 IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 12D for 70mm² to 1000mm²</p>	<p>Plain Annealed Copper XLPE Compound LSZH Compound Copper Tapes LSZH Compound Galvanised Steel Wire LSZH Compound Insulation: Red, Yellow, Blue & Green / Yellow or Brown, Black, Grey & Green / Yellow</p> <p>Sheath - Black IEC 60502 IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 12D for 1.5mm² to 300mm²</p>	<p>Plain Annealed Copper XLPE Compound LSZH Compound Copper Tapes N.A. N.A. LSZH Compound Insulation: Red, Yellow, Blue & Green / Yellow (x3) or Brown, Black, Grey & Green / Yellow (x3)</p> <p>Sheath - Black IEC 60502 IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 10D for unarmoured cable</p>
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VSD / EMC CABLES

Flame Retardant Screened Cables

SINGLE CORE

FRT-XCAH (ARMOURED)

Flame Retardant Screened Cables FRT-XCAH (ARMOURED)

Table 14

SIZE		FRT-XCAH						
Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Radial Thickness of Sheath (mm)	Armoured				
				Diameter Under Screen (mm)	Diameter Over Bedding (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
70	19 / 2.14	1.1	1.8	15.2	17.6	20.10	23.9	1400
95	19 / 2.52	1.1	1.8	17.1	19.5	22.00	25.8	1700
120	37 / 2.03	1.2	1.8	19.0	20.8	24.00	27.8	2000
150	37 / 2.25	1.4	1.8	21.0	22.8	26.00	29.8	2400
185	37 / 2.52	1.6	1.8	23.2	25.0	28.20	32.0	2800
240	61 / 2.25	1.7	1.9	26.1	27.9	31.10	35.1	3500
300	61 / 2.52	1.8	2.0	28.7	30.5	33.70	37.9	4200
400	61 / 2.85	2.0	2.1	32.5	34.3	38.30	42.7	5400
500	61 / 3.20	2.2	2.2	36.0	37.8	41.80	46.4	6500
630	127 / 2.52	2.4	2.3	40.4	42.2	46.20	51.0	8200
800	127 / 2.85	2.6	2.5	45.5	47.3	52.30	57.5	10400
1000	127 / 3.20	2.8	2.7	50.4	52.2	57.20	62.4	13000

This range of screened cables drastically reduce interferences from electrical noise, especially in Variable Speed Drive (VSD) applications and are manufactured with fixed conductors.

An additional trait of these cables are that they are designed to be Low Smoke, Zero Halogen and Flame Retardant. Applicable standards include IEC 60754, IEC 60332-3 and IEC 61034.

VSD / EMC CABLES

FRT-XCSH (ARMOURED)

Flame Retardant Screened Cables

4 CORES

Flame Retardant Screened Cables FRT-XCSH (ARMOURED)

Table 15

SIZE	FRT-XCSH								
	Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Radial Thickness of Sheath (mm)	Armoured				Approx. Weight (kg/km)
					Diameter Under Screen (mm)	Diameter Over Bedding (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	
4 x 1.5	7 / 0.53	0.7	1.8	9.7	12.1	13.90	17.7	640	
4 x 2.5	7 / 0.67	0.7	1.8	10.7	13.1	14.90	18.7	730	
4 x 4	7 / 0.85	0.7	1.8	12.0	14.4	16.20	20.0	870	
4 x 6	7 / 1.04	0.7	1.8	13.4	15.8	18.30	22.1	1180	
4 x 10	7 / 1.35	0.7	1.8	15.6	18.0	20.50	24.3	1490	
4 x 16	7 / 1.70	0.7	1.8	18.1	20.5	23.70	27.5	2070	
4 x 25	7 / 2.14	0.9	1.8	22.3	24.1	27.30	31.1	2790	
4 x 35	7 / 2.52	0.9	1.8	25.0	26.8	30.00	33.8	2940	
4 x 50 (S)	19 / 1.78	1.0	2.0	27.8	29.6	32.80	37.0	3500	
4 x 70 (S)	19 / 2.14	1.1	2.2	31.6	33.4	37.40	42.0	5000	
4 x 95 (S)	19 / 2.52	1.1	2.3	35.4	37.2	41.20	46.0	6300	
4 x 120 (S)	37 / 2.03	1.2	2.5	39.0	40.8	45.80	51.0	8200	
4 x 150 (S)	37 / 2.25	1.4	2.6	42.0	43.8	48.80	54.2	9600	
4 x 185 (S)	37 / 2.52	1.6	2.8	47.8	49.6	54.60	60.4	11500	
4 x 240 (S)	61 / 2.25	1.7	3.0	54.0	55.8	60.80	67.0	14400	
4 x 300 (S)	61 / 2.52	1.8	3.0	58.0	59.8	64.80	71.4	17200	

(S): Sectoral Stranded Conductors.

These cables are designed specifically to suit the broad spectrum of requirements of Variable Speed Drives and also include features for reducing the transmission of electromagnetic interference.

This range of screened cables drastically reduce interferences from electrical noise, especially in Variable Speed Drive (VSD) applications and are manufactured with fixed conductors.

With shield conductivity of 1/10th of phase conductor conductivity, this range of VSD cables effectively restrain radiated and conducted radio-frequency emissions.

An additional trait of these cables are that they are designed to be Low Smoke, Zero Halogen and Flame Retardant. Applicable standards include IEC 60754, IEC 60332-3 and IEC 61034.

VSD / EMC CABLES

Flame Retardant Screened Cables

FRT-XCH

3 CORES +
3 EARTH

Flame Retardant Screened Cables FRT-XCH

Table 16

SIZE					FRT-XCH	
Nominal Conductor Area (mm ²)	No. & Diameter of Wires (no./mm)	Combined Earth Size (mm ²)	Radial Thickness of Insulation (mm)	Radial Thickness of Sheath (mm)	Unarmoured	
					Cable Overall Diameter (mm)	Approx. Weight (kg/km)
3 x 1.5	7 / 0.53	4.5 (3 x 1.5)	0.7	1.8	13.6	325
3 x 2.5	7 / 0.67	4.5 (3 x 1.5)	0.7	1.8	14.8	380
3 x 4	7 / 0.85	4.5 (3 x 1.5)	0.7	1.8	15.8	440
3 x 6	7 / 1.04	7.5 (3 x 2.5)	0.7	1.8	16.9	550
3 x 10	7 / 1.35	12 (3 x 4)	0.7	1.8	18.6	750
3 x 16	7 / 1.70	18 (3 x 6)	0.7	1.8	20.8	1000
3 x 25	7 / 2.14	30 (3 x 10)	0.9	1.8	24.0	1470
3 x 35	7 / 2.52	30 (3 x 10)	0.9	1.8	25.6	1890
3 x 50	19 / 1.78	30 (3 x 10)	1.0	1.9	31.1	2300
3 x 70	19 / 2.14	48 (3 x 16)	1.1	2.0	34.6	3200
3 x 95	19 / 2.52	48 (3 x 16)	1.1	2.2	39.3	4200
3 x 120	37 / 2.03	75 (3 x 25)	1.2	2.3	44.0	5400
3 x 150	37 / 2.25	75 (3 x 25)	1.4	2.5	49.0	6400
3 x 185	37 / 2.52	105 (3 x 35)	1.6	2.6	54.0	7900
3 x 240	61 / 2.25	150 (3 x 50)	1.7	2.8	61.0	10200
3 x 300	61 / 2.52	150 (3 x 50)	1.8	3.0	67.0	12300

These cables are designed specifically to suit the broad spectrum of requirements of Variable Speed Drives and also include features for reducing the transmission of electromagnetic interference. These range of cables are able to reduce capacitance of power conductors and have an electrically balanced construction which includes split earths and a copper screen.

This range of screened cables drastically reduce interferences from electrical noise, especially in Variable Speed Drive (VSD) applications and are manufactured with fixed conductors.

With shield conductivity of 1/10th of phase conductor conductivity, this range of VSD cables effectively restrain radiated and conducted radio-frequency emissions.

An additional trait of this cables are that they are designed to be Low Smoke, Zero Halogen and Flame Retardant. Applicable standards include IEC 60754, IEC 60332-3 and IEC 61034.

VSD / EMC CABLES

Schedule of Installation Methods of Cables

(including reference methods)

Schedule of Installation Methods of Cables (Including Reference Methods) Technical Table 1.1

Installation Method	Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
Description		
OPEN AND CLIPPED DIRECT:		
Sheathed cables clipped direct to or lying on a non-metallic surface.		Method 1
CABLES EMBEDDED DIRECT IN BUILDING MATERIALS:		
Sheathed cables embedded directly in masonry, brickwork, concrete, plaster or the like (other than thermally insulating materials).		Method 1
IN CONDUIT:		
Single core non-sheathed cables in metallic or non-metallic conduit on a wall or ceiling.		Method 3
† Single core non-sheathed cables in metallic or non-metallic conduit in a thermally insulating wall or above a thermally insulating ceiling, the conduit being in contact with a thermally conductive surface on one side.		Method 4
Multi-core cables having non-metallic sheath, in metallic or non-metallic conduit on a wall or ceiling.		Method 3

† The wall is assumed to consist of an outer weatherproof skin, thermal insulation and an inner skin of plasterboard or wood-like material having a coefficient of heat transfer not less than $10 \text{ W/m}^2\text{K}$. The conduit is fixed so as to be close to, but not necessarily touching, the inner skin. Heat from the cables is assumed to escape through the inner skin only.



(including reference methods)

Schedule of Installation Methods of Cables

Schedule of Installation Methods of Cables (Including Reference Methods) Technical Table 1.2

Installation Method	Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
Description		
ON TRAYS:		
<p>Sheathed cables on a perforated cable tray, bunched and unenclosed. A perforated cable tray is considered as a tray in which the holes occupy at least 30% of the surface area.</p>		Method 11
IN FREE AIR, ON CLEATS, BRACKETS OR A LADDER:		
<p>Sheathed single-core cables in free air (any supporting metalwork under the cables occupying less than 10% of the plan area):</p> <p>Two or three cables vertically one above the other, minimum distance between cable surfaces equal to the overall cable diameter (D_c); distance from the wall not less than $0.5 D_c$.</p> <p>Two or three cables horizontally, with spacings as above.</p> <p>Three cables in trefoil, distance between wall and surface of nearest cable $0.5D_c$, or nearest cables $0.75D_c$.</p>		Method 12
<p>Sheathed multi-core cables on ladder or brackets, separation greater than $2D_c$.</p> <p>Sheathed multi-core cables in free air distance between wall and cable surface not less than $0.3D_c$.</p> <p>Any supporting metalwork under the cables occupying less than 10% of the plan area.</p>		Method 13
<p>Cables suspended from or incorporating a catenary wire.</p>		Method 12 or 13, as appropriate

Correction Factors for Ambient Temperature & Group Installation

For Ambient Temperature													Technical Table 2.1		
For Ambient Temperature	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
In Air			1.02	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41	0.29
In Ground	1.00	0.97	0.93	0.89	0.86	0.82	0.77	0.73							

Notes: Conductor Temperature 90°

For Group		Correction Factor (C _g)														Technical Table 2.2		
Reference Methods of Installation		Number of Circuits or Multi-Core Cables																
		2	3	4	5	6	7	8	9	10	12	14	16	18	20			
Enclosed (Method 3 or 4) or bunched and clipped direct to a non-metallic surface (Method 1)		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			
Single layer clipped to a non-metallic surface (Method 1)	Touching	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	-	-	-	-	-	-			
	Spaced*	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Single layer multi-cores on a perforated metal cable tray, vertical or horizontal (Method 11)	Touching	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	0.70	-	-	-	-			
	Spaced*	0.91	0.89	0.88	0.87	0.87	-	-	-	-	-	-	-	-	-			
Single layer single core on a perforated metal cable tray, touching (Method 11)	Horizontal	0.90	0.85	-	-	-	-	-	-	-	-	-	-	-	-			
	Vertical	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-			
Single layer multi-cores touching on ladder supports (Method 13)		0.86	0.82	0.80	0.79	0.78	0.78	0.78	0.77	-	-	-	-	-	-			

* 'Spaced' means a clearance between adjacent surfaces of at least one cable diameter (D_c).

- Notes:
- The factors in the table are applicable to groups of cables all of one size. The value of current derived from application of the appropriate factors is the maximum current to be carried by any of the cables in the group.
 - If, due to known operating conditions, a cable is expected to carry not more than 30% of its grouped rating, it may be ignored for the purpose of obtaining the rating factor for the rest of the group.

For example, a group of N loaded cables would normally require a group reduction factor of C_g applied to the tabulated I. However, if M cables in the group carry loads which are not greater than 0.3 C_g x I amperes, the other cables can be sized by using the group rating factor corresponding to (N-M) cables.
 - When cables having differing conductor operating temperatures are grouped together, the current rating shall be based on the lowest operating temperature of any cable in the group.
 - Where the horizontal clearance between adjacent cables exceeds 2 x D_c, no correction factor need be applied.



SINGLE CORE

Current Rating and Voltage Drop

Technical Table 3.1 & 3.2 – 1-Core Cables having XLPE, E15 or XL-LSZH Insulation, Unarmoured, With or Without Sheath (Copper Conductor) 450/750V or 600/1000V

Size of Conductor	Current-Carrying Capacities (Amp)						Technical Table 3.1		
	Reference Method 4 (enclosed in conduit in thermally insulating wall etc)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray, horizontal or vertical)	Reference Method 12 (free air)	
	2 cables 1-phase ac or dc	3 or 4 cables 3-phase ac	2 cables 1-phase ac or dc	3 or 4 cables 3-phase ac	2 cables 1-phase ac or dc flat & touching	3 or 4 cables 3-phase ac flat & touching or trefoil	2 cables 1-phase ac or dc flat & touching	3 or 4 cables 3-phase ac flat & touching trefoil	3 cables trefoil 3-phase ac
1 mm ²	2 A	3 A	4 A	5 A	6 A	7 A	8 A	9 A	10 A
1.5	18	17	22	19	25	23	-	-	-
2.5	24	23	30	26	34	31	-	-	-
4	33	30	40	35	46	41	-	-	-
6	43	38	51	45	59	54	-	-	-
10	58	53	71	63	81	74	-	-	-
16	76	70	95	85	109	99	-	-	-
25	100	91	126	111	143	130	158	140	138
35	124	111	158	138	178	161	195	176	171
50	149	135	189	168	228	209	293	215	209
70	189	170	240	214	293	268	308	279	270
95	228	205	290	259	355	326	375	341	330
120	263	235	336	299	413	379	436	398	385
150	300	270	375	328	476	436	505	461	445
185	341	306	426	370	545	500	579	530	511
240	400	358	500	433	644	590	686	630	606
300	499	410	573	493	743	681	794	730	701
400	-	-	683	584	868	793	915	849	820
500	-	-	783	666	990	904	1044	973	936
630	-	-	900	764	1130	1033	1191	1115	1069
800	-	-	-	-	1288	1179	1358	1275	1214
1000	-	-	-	-	1443	1323	1520	1436	1349

Ambient Temperature: 30°C
Conductor Operating Temperature: 90°C

Size of Conductor	Voltage Drop (Per Amp Per Meter)										Technical Table 3.2		
	2 Cables dc	2 Cables, 1-phase ac				3 or 4 Cables, 3-phase ac							
		2 mV/A/m	Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall)		Reference Methods 1 & 11 (clipped direct or on trays touching)	Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall)	Reference Methods 1, 11 & 12 (in trefoil)		Reference Methods 1 & 11 (flat and touching)				
1 mm ²	2 mV/A/m	3 mV/A/m	4 mV/A/m		5 mV/A/m	6 mV/A/m		7 mV/A/m					
1.5	31	31	31		27	27		27					
2.5	19	19	19		16	16		16					
4	12	12	12		10	10		10					
6	7.8	7.9	7.9		6.8	6.8		6.8					
10	4.7	4.7	4.7		4.0	4.0		4.0					
16	2.9	2.9	2.9		2.5	2.5		2.5					
		r	x	z	r	x	z	r	x	z			
25	1.85	1.85	0.31	1.80	1.85	0.27	1.65	1.60	0.165	1.60	1.60	0.18	1.60
35	1.35	1.35	0.29	1.35	1.35	0.25	1.15	1.15	0.155	1.15	1.15	0.18	1.15
50	0.99	1.00	0.29	1.05	0.99	0.25	0.90	0.86	0.159	0.87	0.86	0.18	0.87
70	0.68	0.70	0.28	0.75	0.68	0.24	0.65	0.59	0.150	0.61	0.59	0.175	0.62
95	0.49	0.51	0.27	0.58	0.49	0.23	0.50	0.43	0.145	0.45	0.43	0.170	0.46
120	0.39	0.41	0.26	0.48	0.39	0.23	0.42	0.34	0.140	0.37	0.34	0.165	0.38
150	0.32	0.33	0.26	0.43	0.32	0.23	0.37	0.28	0.140	0.31	0.28	0.165	0.32
185	0.25	0.27	0.26	0.37	0.23	0.23	0.32	0.22	0.140	0.26	0.22	0.165	0.28
240	0.19	0.21	0.26	0.33	0.20	0.22	0.29	0.17	0.140	0.22	0.17	0.165	0.24
300	0.155	0.179	0.25	0.31	0.16	0.22	0.27	0.14	0.140	0.199	0.135	0.160	0.21
400	0.12	0.14	0.25	0.29	0.13	0.22	0.25	0.11	0.135	0.175	0.110	0.160	0.195
500	0.093	0.10	0.25	0.27	0.086	0.21	0.23	0.09	0.135	0.160	0.088	0.160	0.180
630	0.072	0.072	0.25	0.27	0.072	0.21	0.23	0.074	0.135	0.150	0.071	0.160	0.170
800	0.056	-	-	-	0.056	-	-	0.062	0.130	0.145	0.059	0.155	0.165
1000	0.045	-	-	-	0.045	-	-	0.055	0.130	0.140	0.050	0.155	0.165

Note: r = conductor resistance at operating temperature
z = impedance, x = reactance

Current Rating and Voltage Drop

multi-core

Technical Table 4.1 & 4.2 – Multi-Core Cables having XLPE, E15 or XL-LSZH Insulation, Unarmoured, (Copper Conductor) 300/500V or 600/1000V

Current-Carrying Capacity (Amp)					Technical Table 4.1			
Size of Conductor	Reference Method 4 (enclosed in conduit and in insulated wall etc)		Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking etc)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray) or Reference Method 13 (free air)	
	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac
1 mm ²	2 A	3 A	4 A	5 A	6 A	7 A	8 A	9 A
1.5	18.5	16.5	22	19.5	24	22	26	23
2.5	25	22	30	26	33	30	36	32
4	33	30	40	35	45	40	48	42
6	42	38	51	44	58	52	63	54
10	57	51	69	60	80	71	86	75
16	76	68	91	80	107	96	115	100
25	99	89	119	105	138	119	149	127
35	121	109	146	128	171	147	185	158
50	145	130	175	154	209	178	225	192
70	183	164	221	194	269	229	289	246
95	220	197	265	233	328	278	352	298
120	253	227	305	268	382	322	410	346
150	290	259	334	300	441	371	473	399
185	329	295	384	340	506	424	542	456
240	386	346	459	398	599	500	641	538
300	442	396	532	455	693	576	741	621
400			625	536	803	667	865	741

Ambient Temperature: 30°C
Conductor Operating Temperature: 90°C

Voltage Drop (Per Amp Per Meter)					Technical Table 4.2				
Size of Conductor	2-core cable, dc			2-core cables 1-phase ac			3 or 4-core cables 3-phase, ac		
	1 (mm ²)	2 (mV/A/m)		3 (mV/A/m)			4 (mV/A/m)		
1.5		31		31			27		
2.5		19		19			16		
4		12		12			10		
6		7.9		7.9			6.8		
10		4.7		4.7			4.0		
16		2.9		2.9			2.5		
				r	x	z	r	x	z
25		1.85		1.85	0.16	1.9	1.6	0.14	1.65
35		1.35		1.35	0.166	1.36	1.15	0.136	1.16
50		0.98		0.99	0.155	1.00	0.86	0.135	0.87
70		0.67		0.67	0.150	0.69	0.59	0.130	0.60
95		0.49		0.50	0.150	0.52	0.43	0.130	0.45
120		0.39		0.40	0.145	0.42	0.34	0.130	0.37
150		0.31		0.32	0.145	0.35	0.28	0.125	0.30
185		0.25		0.26	0.145	0.29	0.22	0.125	0.26
240		0.195		0.20	0.140	0.24	0.175	0.125	0.21
300		0.155		0.16	0.140	0.21	0.140	0.120	0.185
400		0.120		0.13	0.140	0.19	0.115	0.120	0.165

Note: r = conductor resistance at operating temperature
z = impedance, x = reactance



single core

Current Rating and Voltage Drop

Technical Table 5.1 & 5.2 – 1-Core Cables having XLPE, E15 or XL-LSZH Insulation, Armoured, (Copper Conductor) 600/ 1000V

Current-Carrying Capacity (Amp) Technical Table 5.1

Size of Conductor	Reference Method 1 (clipped direct)		Reference Method 11 (on perforated cable tray)		Reference Method 12 (free air)	In single way ducts		Laid direct in ground	
	2 cables 1 phase ac or dc flat & touching	3 or 4 cables 3-phase ac flat & touching	2 cables 1 phase ac or dc flat & touching	3 or 4 cables 3-phase ac flat & touching	3 cables 3-phases ac trefoil touching	2 cables 1-phases ac or dc ducts touching	3 cables 3-phases ac, trefoil ducts touching	2 cables 1-phase ac or dc touching	3 cables 3-phase ac trefoil touching
	2 A	3 A	4 A	5 A	6 A	7 A	8 A	9 A	10 A
50	237	220	253	232	222	255	235	275	235
70	303	277	322	293	285	310	280	340	290
95	367	333	389	352	346	365	330	405	345
120	425	383	449	405	402	410	370	460	390
150	488	437	516	462	463	445	405	510	435
185	557	496	587	524	528	485	440	580	490
240	656	579	689	612	625	550	500	670	560
300	755	662	792	700	720	610	550	750	630
400	853	717	899	787	815	640	580	830	700
500	962	791	1016	851	918	690	620	910	770
630	1082	861	1146	935	1027	750	670	1000	840
800	1170	904	1246	987	1119	828	735	1117	931
1000	1261	961	1345	1055	1214	919	811	1254	1038

Ambient Temperature: 30°C
 Ground Temperature: 15°C
 Conductor Operating Temperature: 90°C

Voltage Drop (Per Amp Per Meter) Technical Table 5.2

Size of Conductor	2 Cables dc	2 Cables, 1-phase ac			3 or 4 Cables, 3-phase ac						2 Cables, 1-phase ac		3 or 4 Cables, 3-phase ac, touching	
		Reference Methods 1 & 11 (touching)			Reference Methods 1,11 or 12 (in trefoil touching)			Reference Methods 1 & 11 (flat & touching)			In ducts		In ground	
		3 mV/A/m			4 mV/A/m			5 mV/A/m			6 mV/A/m	7 mV/A/m	8 mV/A/m	9 mV/A/m
		r	x	z	r	x	z	r	x	z				
50	0.98	0.99	0.21	1	0.86	0.18	0.87	0.84	0.25	0.88	1.10	0.99	0.93	0.86
70	0.67	0.68	0.20	0.71	0.59	0.17	0.62	0.60	0.25	0.65	0.80	0.70	0.70	0.61
95	0.49	0.51	0.195	0.55	0.44	0.17	0.47	0.46	0.24	0.52	0.65	0.53	0.56	0.46
120	0.39	0.41	0.190	0.45	0.35	0.165	0.39	0.38	0.24	0.44	0.55	0.43	0.48	0.37
150	0.31	0.33	0.185	0.38	0.29	0.160	0.33	0.31	0.23	0.39	0.50	0.37	0.43	0.32
185	0.25	0.27	0.185	0.33	0.23	0.160	0.28	0.26	0.23	0.34	0.45	0.31	0.39	0.27
240	0.196	0.21	0.180	0.28	0.18	0.155	0.24	0.21	0.22	0.30	0.40	0.26	0.35	0.23
300	0.155	0.17	0.175	0.25	0.145	0.150	0.21	0.17	0.22	0.28	0.37	0.24	0.32	0.21
400	0.115	0.145	0.170	0.22	0.125	0.150	0.195	0.160	0.21	0.27	0.35	0.21	0.30	0.19
500	0.093	0.125	0.170	0.21	0.105	0.145	0.180	0.145	0.20	0.25	0.33	0.20	0.28	0.18
630	0.073	0.105	0.165	0.195	0.082	0.145	0.170	0.135	0.195	0.24	0.30	0.19	0.26	0.17
800	0.056	0.09	0.160	0.180	0.086	0.140	0.165	0.130	0.180	0.23	0.28	0.18	0.24	0.16
1000	0.045	0.092	0.155	0.180	0.080	0.135	0.155	0.125	0.170	0.21	0.26	0.17	0.22	0.15

Note: r = conductor resistance at operating temperature
 z = impedance, x = reactance

Current Rating and Voltage Drop

multi-core

Technical Table 6.1 & 6.2 – Multi-Core Cables having XLPE, E15 or XL-LSZH Insulation, Armoured, (Copper Conductor) 600/ 1000V

Current-Carrying Capacity (Amp) Technical Table 6.1

Size of Conductor	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray) or Method 13 (free air)		In single way ducts		Laid direct in ground	
	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac	2-core cables 1-phase ac or dc	3 or 4-core cables 3-phase ac
	2 A	3 A	4 A	5 A	6 A	7 A	8 A	9 A
1 mm ²								
1.5	27	23	29	25		23		28
2.5	36	31	39	33		30		36
4	48	42	52	44		40		48
6	62	53	66	56		50		60
10	85	73	90	78		65		80
16	110	94	115	99	115	94	140	115
25	146	124	152	131	145	125	180	150
35	180	154	188	162	175	150	215	180
50	219	187	228	197	210	175	255	215
70	279	238	291	251	260	215	315	265
95	338	289	354	304	310	260	380	315
120	392	335	410	353	355	300	430	360
150	451	386	472	406	400	335	480	405
185	515	441	539	463	455	380	540	460
240	607	520	636	546	520	440	630	530
300	698	599	732	628	580	495	700	590
400	787	673	847	728	660	560	790	670

Ambient Temperature: 30°C
 Ground Temperature: 15°C
 Conductor Operating Temperature: 90°C

Voltage Drop (Per Amp Per Meter) Technical Table 6.2

Size of Conductor	2-Core Cables dc	2-Core Cables, 1-phase ac			3 or 4-Core Cables, 3-phase ac			2-Core Cables, 1-phase ac		3 or 4-Core Cables, 3-phase ac	
		3 mW/A/m			4 mW/A/m			In ducts	In ground	In ducts	In ground
		5	6	7	8	9	10	11	12		
1.5	31		31		27		31	31	25	25	
2.5	19		19		16		19	19	15	15	
4	12		12		10		12	12	9.7	9.7	
6	7.9		7.9		6.8		7.9	7.9	6.5	6.5	
10	4.7		4.7		4.0		4.7	4.7	3.9	3.9	
16	2.9		2.9		2.5		2.9	2.9	2.6	2.6	
		r	x	z	r	x	z				
25	1.85	1.85	0.16	1.9	1.6	0.14	1.65	1.8	1.8	1.6	1.6
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15	1.35	1.35	1.2	1.2
50	0.88	0.99	0.155	1.00	0.88	0.135	0.87	1.00	1.00	0.87	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60	0.69	0.69	0.61	0.61
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45	0.52	0.52	0.45	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37	0.42	0.42	0.36	0.36
150	0.31	0.32	0.145	0.35	0.28	0.125	0.30	0.35	0.35	0.30	0.30
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26	0.29	0.29	0.25	0.25
240	0.195	0.20	0.140	0.24	0.175	0.125	0.21	0.24	0.24	0.21	0.21
300	0.155	0.16	0.140	0.21	0.140	0.120	0.185	0.21	0.21	0.19	0.19
400	0.120	0.13	0.140	0.19	0.115	0.120	0.165	0.19	0.19	0.18	0.18

Note: r = conductor resistance at operating temperature
 z = impedance, x = reactance

Short Circuit Ratings

Short Circuit Ratings for Fire Resistant Cable

Technical Table 7.1

Cross-Sectional Area (mm ²)	Short Circuit Rating for 1 Second (kA)	Short Circuit Rating for 3 Second (kA)
1.5	0.2145	0.1238
2.5	0.3575	0.2064
4	0.5720	0.3302
6	0.8580	0.4954
10	1.4300	0.8256
16	2.2880	1.3210
25	3.5750	2.0640
35	5.0050	2.8896
50	7.1500	4.1281
70	10.0100	5.7793
95	13.5850	7.8433
120	17.1600	9.9073
150	21.4500	12.3842
185	26.4550	15.2738
240	34.3200	19.8147
300	42.8000	24.7683
400	57.2000	33.0244
500	71.5000	41.2805
630	90.0900	52.0135
800	114.4000	66.0489
1000	143.0000	82.5611

Another important factor for the determination of the conductor size is the maximum allowable current during a short circuit when the maximum allowable current during a short circuit when the maximum allowable conductor temperature is higher than during normal operation.

The maximum permissible short circuit current of XLPE cables up to 1 kV with copper conductors can be calculated with the formula:

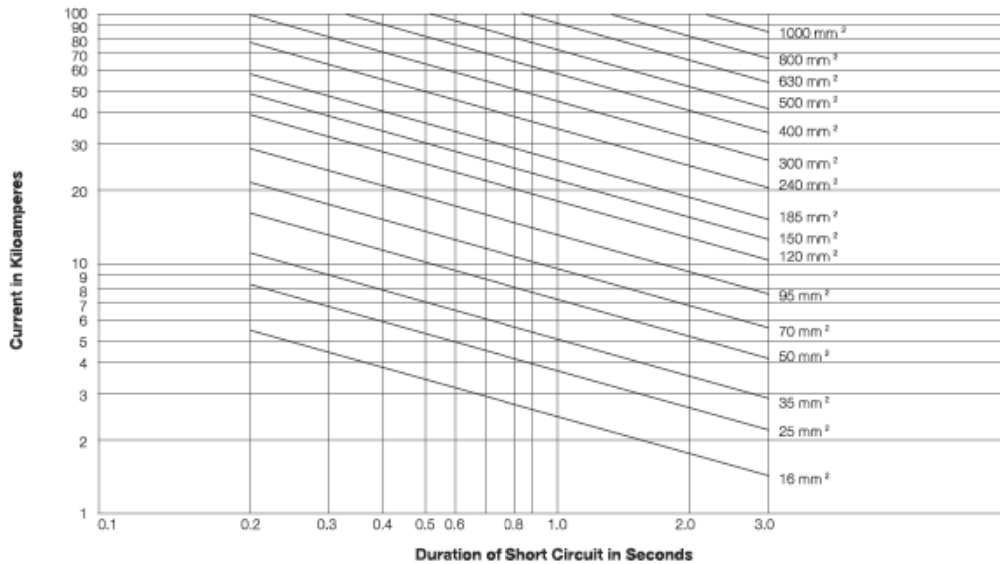
$$I = \frac{0.143S}{\sqrt{t}}$$

Where I = Short Circuit Rating (kA)
 S = Conductor Area (sq mm)
 t = Duration of Short Circuit (sec)

The above rating is calculated based on 1 second and 3 seconds.

Copper Conductors

Technical Table 7.2



The values of fault current given in the graph are based on the cable being fully loaded at the start of the short circuit (conductor temperature 90°C) and a final conductor temperature of 250°C, and it should be ensured that the accessories associated with the cable are also capable of operation at these values of fault current.

Additional Technical Information

Technical Table 8.0 – For all Cables types of FR-XOL, FR-XOSL, FR-XIOL, FR-XIOSL & FRT-XOL, FRT-XOSL, FRT-XIOL, FRT-XIOSL

FR-XOL, FR-XOSL, FR-XIOL, FR-XIOSL & FRT-XOL, FRT-XOSL, FRT-XIOL, FRT-XIOSL Technical Table 8.0

1. **Test Voltage:** 2000 Vr.m.s. for 2 minutes between each conductor in turn and all the other connected together.
2. **Maximum Class 2 DC Conductor Resistance at 20°C**

Conductor Size	Multi-core	Multi-pair
0.5 mm ²	36.0	36.7
0.75 mm ²	24.5	25.0
1.0 mm ²	18.1	18.5
1.5 mm ²	12.1	12.30
2.5 mm ²	7.41	7.55

3. Minimum Insulation Resistance at 20°C

- (a) Individual Conductor (between each conductor and remaining bunched conductors/screen and/or armour) 1000 MΩ.km
- (b) Individual Screens (between screens) 1 MΩ.km

4. Maximum Mutual Capacitance at 1 kHz (pF/m)

Cable Type	Conductor Size	0.5mm ²	0.75mm ²	1.0mm ²	1.5mm ²	2.5mm ²
Cables with or without individual pair screen		150	150	150	150	150

5. Maximum Capacitance Unbalance at 1 kHz : 500pF/500m

6. Maximum L/R Ratio (For Adjacent Cores)

Conductor Size	Multi-core / Multi-pair
0.5 mm ²	25 μH/Ω
0.75 mm ²	25 μH/Ω
1.0 mm ²	25 μH/Ω
1.5 mm ²	40 μH/Ω
2.5 mm ²	60 μH/Ω

Maximum Conductor Resistance Technical Table 9.0

Cross-Sectional Area (mm ²)	Conductor for Fixed Wiring Class 1 (solid), Class 2 (stranded)
0.5	36.0
0.75	24.5
1.0	18.1
1.5	12.1
2.5	7.41
4	4.61
6	3.08
10	1.83
16	1.15
25	0.727
35	0.524
50	0.387
70	0.268
95	0.193
120	0.153
150	0.124
185	0.0991
240	0.0754
300	0.0601
400	0.0470
500	0.0366
630	0.0283
800	0.0221
1000	0.0176

Electrical Characteristics Technical Table 10.0

Conductor Resistance Temperature Correction Factors	
Temp °C	Factor
10	1.042
11	1.037
12	1.033
13	1.029
14	1.025
15	1.020
16	1.016
17	1.012
18	1.008
19	1.004
20	1.000
21	0.996
22	0.992
23	0.988
24	0.984
25	0.980
30	0.962
35	0.943
40	0.926
45	0.909
50	0.893
55	0.877
60	0.862
65	0.847
70	0.833
75	0.820
80	0.806
85	0.794
90	0.781

Conversion Table of Conductor Size

(mm² - CM - AWG / MCM)

Technical Table 11.0

Cross-sectional Area		Conductor Size	Cross-sectional Area		Conductor Size
(mm ²)	(CM)	(AWG / MCM)	(mm ²)	(CM)	(AWG / MCM)
0.324	640	22	107.2	211600	4/0
0.519	1020	20	*120	236820	-
0.653	1290	19	127	250000	-250
0.823	1620	18	*150	296025	-
*1.0	1974	-	152	300000	300
1.04	2050	17	177	350000	350
1.31	2580	16	*185	365098	-
*1.5	2960	-	203	400000	400
1.65	3260	15	228	450000	450
2.08	4110	14	*240	473640	-
*2.5	4934	-	253	500000	500
2.63	5180	13	279	550000	550
3.31	6530	12	300	592050	-
*4.0	7894	-	304	600000	600
4.17	8230	11	329	650000	650
5.261	10380	10	355	700000	700
*6.0	11841	-	380	750000	750
6.631	13090	9	*400	789400	-
8.367	16510	8	405	800000	800
*10.0	19735	-	456	900000	900
10.55	20820	7	*500	986750	-
13.3	26240	6	507	1000000	1000
*16.6	31576	-	557	1100000	1100
16.77	33090	5	608	1200000	1200
21.15	41740	4	*630	1243305	-
*25.0	49338	-	633	1250000	1250
26.67	52620	3	659	1300000	1300
33.62	66360	2	709	1400000	1400
*35.0	69073	-	760	1500000	1500
42.41	83690	1	*800	1578800	-
*50.0	98675	-	811	1600000	1600
53.49	105600	1/0	861	1700000	1700
67.43	133100	2/0	887	1750000	1750
*70.0	138145	-	912	1800000	1800
85.01	167800	3/0	963	1900000	1900
*95.0	187483	-	*1000	1973500	-
			010	2000000	2000

Note : * British Standard
 * 127 mm² and larger is rounded off and not actual. CM area is actual.
 Conversion factors : mm² x 1973.5 = CM area, CM x 0.0005067 = mm².

AWG - America Wire Gauge. A standard measurement of the size of a conductor : 4/0 & smaller.

CM (Circular Mil) used to define cross-sectional areas of conductors. Area of circle 171000 inches in diameter. MCM - 1000 circular mils.