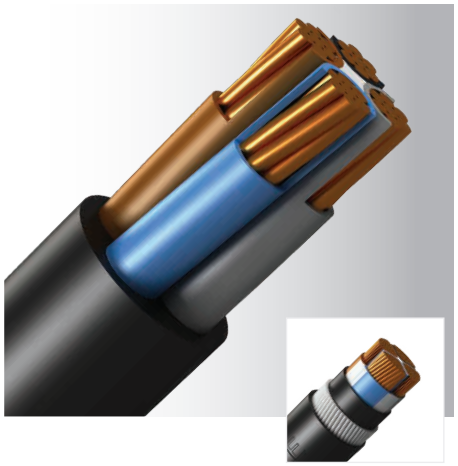
LSZH Flame Retardant Cables

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV



Application :	This cable is mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE compound insulated, unarmoured or galvanized steel wires armoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	2-Core: Brown, Blue; 3-Core: Brown, Black, Grey; Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Grey, Blue; Brown, Black, Grey, Green/Yellow; 5-Core: Brown, Black, Grey, Blue, Green/Yellow; (Other colour upon request)
Sheath colour :	Black (Other colour upon request)
Specification :	IEC 60502-1, BS 6724, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07026777**	10.1	130	**07026791**	14.5	362
2.5	0.7	**08026777**	11.0	165	**08026791**	15.5	410
4	0.7	**09026777**	12.0	215	**09026791**	16.5	490
6	0.7	**10026777**	13.1	270	**10026791**	18.0	580
10	0.7	**11026777**	16.0	390	**11026791**	20.8	800
16	0.7	**12026777**	18.0	495	**12026791**	22.9	1050
25 (cs)	0.9	**13026777**	21.2	726	**13026791**	26.7	1473
35 (cs)	0.9	**14026777**	23.4	944	**14026791**	29.0	1780
50 (cs)	1.0	**15026777**	25.8	1257	**15026791**	32.4	2188
70 (cs)	1.1	**16026777**	30.4	1724	**16026791**	36.3	2805
95 (cs)	1.1	**17026777**	34.0	2299	**17026791**	41.2	3827
120 (cs)	1.2	**18026777**	37.0	2848	**18026791**	44.2	4488
150 (cs)	1.4	**19026777**	41.0	3479	**19026791**	48.2	5277
185 (cs)	1.6	**20026777**	45.8	4323	**20026791**	54.4	6860
240 (cs)	1.7	**21026777**	51.8	5608	**21026791**	60.4	8445
300 (cs)	1.8	**22026777**	57.4	6948	**22026791**	66.3	10132
400 (cs)	2.0	**23026777**	65.0	8854	**23026791**	74.0	12388

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor

LSZH Flame Retardant Cables

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV

3-CORE [3C]
(Brown, Black, Grey) (3-phase, three wire)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07036809**	10.5	145	**07036824**	15.0	390
2.5	0.7	**08036809**	11.4	190	**08036824**	16.0	435
4	0.7	**09036809**	12.8	250	**09036824**	17.0	550
6	0.7	**10036809**	14.0	320	**10036824**	18.5	660
10	0.7	**11036809**	16.9	480	**11036824**	21.7	900
16	0.7	**12036809**	19.0	645	**12036824**	24.0	1260
25 (cs)	0.9	**13036809**	22.5	968	**13036824**	28.0	1772
35 (cs)	0.9	**14036809**	25.0	1278	**14036824**	30.5	2175
50 (cs)	1.0	**15036809**	27.4	1688	**15036824**	33.7	2700
70 (cs)	1.1	**16036809**	32.6	2365	**16036824**	40.0	3805
95 (cs)	1.1	**17036809**	36.5	3197	**17036824**	44.0	4831
120 (cs)	1.2	**18036809**	39.7	3982	**18036824**	47.5	5772
150 (cs)	1.4	**19036809**	44.0	4872	**19036824**	53.2	7344
185 (cs)	1.6	**20036809**	49.2	6074	**20036824**	58.2	8813
240 (cs)	1.7	**21036809**	55.6	7903	**21036824**	65.0	11050
300 (cs)	1.8	**22036809**	61.6	9822	**22036824**	71.0	13312
400 (cs)	2.0	**23036809**	70.0	12624	**23036824**	80.5	17317

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07036365**	10.5	145	**07036014**	15.0	390
2.5	0.7	**08036365**	11.4	190	**08036014**	16.0	435
4	0.7	**09036365**	12.8	250	**09036014**	17.0	550
6	0.7	**10036365**	14.0	320	**10036014**	18.5	660
10	0.7	**11036365**	16.9	480	**11036014**	21.7	900
16	0.7	**12036365**	19.0	645	**12036014**	24.0	1260
25 (cs)	0.9	**13036365**	22.5	968	**13036014**	28.0	1772
35 (cs)	0.9	**14036365**	25.0	1278	**14036014**	30.5	2175
50 (cs)	1.0	**15036365**	27.4	1688	**15036014**	33.7	2700
70 (cs)	1.1	**16036365**	32.6	2365	**16036014**	40.0	3805
95 (cs)	1.1	**17036365**	36.5	3197	**17036014**	44.0	4831
120 (cs)	1.2	**18036365**	39.7	3982	**18036014**	47.5	5772
150 (cs)	1.4	**19036365**	44.0	4872	**19036014**	53.2	7344
185 (cs)	1.6	**20036365**	49.2	6074	**20036014**	58.2	8813
240 (cs)	1.7	**21036365**	55.6	7903	**21036014**	65.0	11050
300 (cs)	1.8	**22036365**	61.6	9822	**22036014**	71.0	13312
400 (cs)	2.0	**23036365**	70.0	12533	**23036014**	80.5	17317

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor

LSZH Flame Retardant Cables

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV

4-CORE [4C]
(Brown, Black, Grey, Blue) (3-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07046790**	11.5	180	**07046819**	15.5	430
2.5	0.7	**08046790**	12.5	230	**08046819**	16.5	495
4	0.7	**09046790**	14.0	315	**09046819**	18.0	610
6	0.7	**10046790**	15.0	395	**10046819**	20.0	810
10	0.7	**11046790**	18.4	590	**11046819**	23.2	1120
16	0.7	**12046790**	21.0	860	**12046819**	27.0	1480
25 (cs)	0.9	**13046790**	25.0	1265	**13046819**	30.8	2160
35 (s)	0.9	**14046789**	25.0	1625	**14046011**	30.5	2480
50 (s)	1.0	**15046789**	28.0	2200	**15046011**	34.0	3180
70 (s)	1.1	**16046789**	32.0	3050	**16046011**	39.5	4500
95 (s)	1.1	**17046789**	36.0	4110	**17046011**	44.0	5775
120 (s)	1.2	**18046789**	40.3	5915	**18046011**	50.0	7450
150 (s)	1.4	**19046789**	44.6	6350	**19046011**	54.5	8830
185 (s)	1.6	**20046789**	50.5	7985	**20046011**	59.0	10805
240 (s)	1.7	**21046789**	58.0	10595	**21046011**	68.0	13630
300 (s)	1.8	**22046789**	64.0	13220	**22046011**	73.0	16530
400 (s)	2.0	**23046789**	73.0	16805	**23046011**	85.0	21840

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07046374**	11.5	180	**07046839**	15.5	430
2.5	0.7	**08046374**	12.5	230	**08046839**	16.5	495
4	0.7	**09046374**	14.0	315	**09046839**	18.0	610
6	0.7	**10046374**	15.0	395	**10046839**	20.0	810
10	0.7	**11046374**	18.4	590	**11046839**	23.2	1120
16	0.7	**12046374**	21.4	860	**12046839**	27.0	1480
25 (cs)	0.9	**13046374**	25.0	1265	**13046839**	30.8	2160
35 (cs)	0.9	**14046374**	27.4	1665	**14046839**	33.8	2690
50 (cs)	1.0	**15046374**	31.4	2200	**15046839**	36.7	3365
70 (cs)	1.1	**16046374**	36.0	3100	**16046839**	43.7	4795
95 (cs)	1.1	**17046374**	41.3	4190	**17046839**	48.6	6095
120 (cs)	1.2	**18046374**	45.0	5060	**18046839**	53.2	7580
150 (cs)	1.4	**19046374**	49.6	6380	**19046839**	58.0	9190
185 (cs)	1.6	**20046374**	55.5	7920	**20046839**	64.0	11050
240 (cs)	1.7	**21046374**	62.7	10060	**21046839**	72.0	13780
300 (cs)	1.8	**22046374**	69.5	12500	**22046839**	78.4	16520
400 (cs)	2.0	**23046374**	78.6	16480	**23046839**	89.4	22120

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor
(s) : Sector Shaped Stranded Conductor

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable

Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV

5-CORE [5G]
(Brown, Black, Grey, Blue, Green/Yellow) (3-phase, neutral and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07056275**	12.8	208	**07056363**	16.8	455
2.5	0.7	**08056275**	13.9	263	**08056363**	17.8	540
4	0.7	**09056275**	15.4	355	**09056363**	20.0	795
6	0.7	**10056275**	16.9	465	**10056363**	21.8	956
10	0.7	**11056275**	19.8	700	**11056363**	24.8	1272
16	0.7	**12056275**	22.5	1020	**12056363**	28.6	1845
25 (cs)	0.9	**13056275**	27.0	1530	**13056363**	32.6	2500
35 (cs)	0.9	**14056275**	30.0	2035	**14056363**	36.2	3140
50 (cs)	1.0	**15056275**	33.7	2720	**15056363**	41.5	4300
70 (cs)	1.1	**16056275**	39.6	3825	**16056363**	46.8	5585
95 (cs)	1.1	**17056275**	45.0	5185	**17056363**	53.0	7675
120 (cs)	1.2	**18056275**	49.2	6320	**18056363**	57.6	9125
150 (cs)	1.4	**19056275**	54.5	7800	**19056363**	63.0	10824
185 (cs)	1.6	**20056275**	61.1	9800	**20056363**	70.0	13211
240 (cs)	1.7	**21056275**	69.2	12520	**21056363**	79.2	17466

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor

Current Rating and Voltage Drop

XLPE (or LSZH) Insulated Cables
Multi-Core, Unarmoured

KEYSTONE CABLE
tel (65) 6367 0107 **fax** (65) 6365 2963
www.keystone-cable.com

Multi-Core Cables with XLPE (or LSZH) Insulation, PVC (or LSZH) Outersheath 300/500V or 0.6/1kV

Table 14 : Current-Carrying Capacities (Amp)
[CU/XLPE/PVC, CU/XLPE/LSZH or CU/MT/XLPE/LSZH Cables]

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

IEC 60502-1

Conductor Cross-sectional Area	Reference Method 4 (enclosed in an conduit insulated wall etc)	Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray), or Reference Method 13 (in free air)	
	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.
1	2	3	4	5	6	7	8
mm^2	A	A	A	A	A	A	A
1.5	16.5	22	19.5	24	22	26	23
2.5	22	30	26	33	30	36	32
4	30	40	35	45	40	49	42
6	38	51	44	58	52	63	54
10	51	69	60	80	71	86	75
16	68	91	80	107	96	115	100
25	89	119	105	138	119	149	127
35	109	146	128	171	147	185	158
50	130	175	154	209	179	225	192
70	164	221	194	269	229	289	246
95	197	265	233	328	278	352	298
120	227	305	268	382	322	410	346
150	259	334	300	441	371	473	399
185	295	384	340	506	424	542	456
240	346	459	398	599	500	641	538
300	396	532	455	693	576	741	621
400	472	625	536	803	667	865	741

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Table 15 : Voltage Drop (Per Amp Per Meter)
[CU/XLPE/PVC, CU/XLPE/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature : 90°C

IEC 60502-1

Conductor Cross-sectional Area	2-core cable, d.c.	2-core cable, 1-phase a.c.			3-core or 4-core cables, 3-phase a.c.		
1	2	3			4		
mm^2	mV/A/m	mV/A/m			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	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
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	0.200	0.140	0.24	0.175	0.125	0.21
300	0.155	0.160	0.140	0.21	0.140	0.120	0.185
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165

Note : r = resistive component; x = reactive component; z = impedance value

Current Rating and Voltage Drop

XLPE (or LSZH) Insulated Cables
Multi-Core, Armoured

KEYSTONE CABLE
tel (65) 6367 0107 **fax** (65) 6365 2963
www.keystone-cable.com

Multi-Core Cables with XLPE (or LSZH) Insulation, Armoured, PVC or LSZH Outersheath 0.6/1kV

Table 16 : Current-Carrying Capacities (Amp)

[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature : 90°C — BS 6724
Ambient Temperature : 30°C — IEC 60502-1
Ground Temperature : 15°C — Depth of Laying : 0.5m — Soil Thermal Resistivity : 1.2 k•m/W

Conductor Cross-sectional Area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable tray) or Reference Method 13 (in free air)		In single-way ducts		Laid direct in ground	
	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm^2	A	A	A	A	A	A	A	A
1.5	27	23	29	25	-	23	-	28
2.5	36	31	39	33	-	30	-	36
4	49	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	590	495	700	590
400	787	673	847	728	660	560	790	670

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)
For rating factors of ground temperature other than 15°C, please refer to Table 26 (Page 66)

Table 17 : Voltage Drop (Per Amp Per Meter)

[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature : 90°C — BS 6724 IEC 60502-1

Conductor Cross-sectional Area	2-core cable, d.c.	2-core cables, 1-phase a.c.			3-core or 4-core cables, 3-phase a.c.			2-core cables, 1-phase a.c.	3-core or 4-core cables, 3-phase a.c.
								In ducts or in ground	In ducts or in ground
1	2	3			4			5	6
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m	mV/A/m
1.5	31.0	31.0			27.0			31.0	25.0
2.5	19.0	19.0			16.0			19.0	15.0
4	12.0	12.0			10.0			12.0	9.7
6	7.9	7.9			6.8			7.9	6.5
10	4.7	4.7			4.0			4.7	3.9
16	2.9	2.9			2.5			2.9	2.6
		r	x	z	r	x	z		
25	1.850	1.850	0.160	1.900	1.600	0.140	1.650	1.900	1.600
35	1.350	1.350	0.155	1.350	1.150	0.135	1.150	1.350	1.200
50	0.980	0.990	0.155	1.000	0.860	0.135	0.870	1.000	0.870
70	0.670	0.670	0.150	0.690	0.590	0.130	0.600	0.690	0.610
95	0.490	0.500	0.150	0.520	0.430	0.130	0.450	0.520	0.450
120	0.390	0.400	0.145	0.420	0.340	0.130	0.370	0.420	0.360
150	0.310	0.320	0.145	0.350	0.280	0.125	0.300	0.350	0.300
185	0.250	0.260	0.145	0.290	0.220	0.125	0.260	0.290	0.250
240	0.195	0.200	0.140	0.240	0.175	0.125	0.210	0.240	0.210
300	0.155	0.160	0.140	0.210	0.140	0.120	0.185	0.210	0.190
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165	0.190	0.180

Note : r = resistive component; x = reactive component; z = impedance value

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

Table 25 : Correction Factor for Ambient Air Temperature Other Than 30°C to be Applied to the Current-Carrying Capacities for Cables in Free Air

Ambient Temperature	Insulation				
	PVC	XLPE	HT-PVC	Rubber	Rubber
(°C)	(70°C)	(90°C)	(90°C)	(85°C)	(60°C)
10	1.22	1.15	-	-	-
15	1.17	1.12	-	-	-
20	1.12	1.08	-	-	-
25	1.06	1.04	1.03	1.02	-
30	1.00	1.00	1.00	1.00	1.00
35	0.94	0.96	0.97	0.95	0.91
40	0.87	0.91	0.94	0.90	0.82
45	0.79	0.87	0.91	0.85	0.71
50	0.71	0.82	0.87	0.80	0.58
55	0.61	0.76	0.84	0.74	0.41
60	0.50	0.71	0.80	0.67	-
65	0.35	0.65	0.76	0.60	-
70	-	0.58	0.71	0.52	-
75	-	0.50	0.61	0.43	-
80	-	0.41	0.50	0.30	-
85	-	0.29	0.35	-	-

Table 26 : Correction Factor for Ambient Ground Temperature Other Than 15°C to be Applied to the Current-Carrying Capacities for Cables in Ducts or in Ground

Ground Temperature	Insulation	
	PVC	XLPE
(°C)	(70°C)	(90°C)
10	1.04	1.03
15	1.00	1.00
20	0.95	0.97
25	0.90	0.93
30	0.85	0.89
35	0.80	0.86
40	0.74	0.82
45	0.67	0.77
50	0.60	0.73
55	-	0.68
60	-	0.63
65	-	0.58