

# XLPE-Insulated Cables

600/1000V Single-Core

XLPE Insulated, Unarmoured & Armoured, PVC Sheathed Cable

Description: CU/XLPE/PVC or CU/XLPE/PVC/AWA/PVC-AT

Model Code: XP or XPAP-AT



Application : This cable is primarily used for main power supply. It can be installed in cable ducts, in cable trunking, on cable trays and on cable ladders and in switchgears

Voltage rating : 600/1000V

Construction : Plain annealed copper, XLPE insulated, unarmoured or aluminum wires armoured, PVC or Anti-termite PVC (for armoured cable only) compound sheathed cable

Insulation colour : Natural

Sheath colour : Black

Specification : IEC60502-1

Operating Temperature: 90°C

Conductor			Insulation Thickness (mm)	Unarmoured Cable			Armoured Cable		
Nominal Area (mm <sup>2</sup> )	No./Dia. Of Strand (no./mm)	Max. Diam. Of Conductor (mm)		Part No.	Approx. Overall Diam. (mm)	Approx. Weight (kg/km)	Part No.	Approx. Overall Diam. (mm)	Approx. Weight (kg/km)
1.5	7/0.53	1.59	0.7	<b>07018541</b>	6.1	50	-	-	-
2.5	7/0.67	2.01	0.7	<b>08018541</b>	6.5	62	-	-	-
4	7/0.85	2.55	0.7	<b>09018541</b>	7.0	81	-	-	-
6	7/1.04	3.12	0.7	<b>10018541</b>	7.5	100	-	-	-
10	7/1.35	4.05	0.7	<b>11018541</b>	8.5	150	-	-	-
16	7/1.70	5.10	0.7	<b>12018541</b>	9.5	200	-	-	-
25	7/2.14	6.42	0.9	<b>13018541</b>	11.5	310	-	16.5	470
35	19/1.53	7.65	0.9	<b>14018541</b>	12.5	420	-	17.8	581
50	19/1.78	8.90	1.0	<b>15018541</b>	14.0	550	<b>15018544</b>	20.5	800
70	19/2.14	10.70	1.1	<b>16018541</b>	16.3	770	<b>16018544</b>	22.2	1036
95	19/2.52	12.60	1.1	<b>17018541</b>	18.2	1040	<b>17018544</b>	23.9	1321
120	37/2.03	14.21	1.2	<b>18018541</b>	20.0	1300	<b>18018544</b>	26.0	1640
150	37/2.25	15.75	1.4	<b>19018541</b>	22.0	1580	<b>19018544</b>	27.8	1956
185	37/2.52	17.64	1.6	<b>20018541</b>	24.5	1970	<b>20018544</b>	30.0	2376
240	61/2.25	20.25	1.7	<b>21018541</b>	27.5	2520	<b>21018544</b>	33.3	3005
300	61/2.52	22.68	1.8	<b>22018541</b>	30.5	3150	<b>22018544</b>	36.2	3654
400	61/2.85	25.65	2.0	<b>23018541</b>	34.0	4000	<b>23018544</b>	41.2	4718
500	61/3.20	28.80	2.2	<b>24018541</b>	38.6	5000	<b>24018544</b>	46.4	5850
630	127/2.52	32.76	2.4	<b>25018541</b>	43.5	6500	<b>25018544</b>	52.0	7350
800	127/2.85	37.05	2.6	<b>26018541</b>	48.5	8200	<b>26018544</b>	58.0	9460
1000	127/3.20	41.60	2.8	<b>27018541</b>	53.6	10000	<b>27018544</b>	63.0	11700

**Current rating and voltage drop**

For Unarmoured Cable, please refer to Tables 12 & 13 (Page 50)

For Armoured Cable, please refer to Tables 14 & 15 (Page 51)

# Current Rating and Voltage Drop



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

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

Single-Core Cables with XLPE (or LSZH) Insulation, with or without PVC (or LSZH) Outersheath 450/750V or 600/1000V

**Table 12 : Current-Carrying Capacities (Amp)**  
[CU/LSZH, CU/XLPE/PVC, CU/XLPE/LSZH, CU/MT/LSZH or CU/MT/XLPE/LSZH Cables]

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

BS EN 50525-3-41 (BS 7211)  
IEC60502-1

Conductor cross-sectional area	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, single-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, single-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. or flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	Horizontal flat spaced 2 cables, single-phase a.c. or d.c. or 3 cables three phase	Vertical flat spaced 2 cables, single-phase a.c. or d.c. or 3 cables three phase	Trefoil 3 cables, trefoil 3-phase a.c.
1	2	3	4	5	6	7	8	9	10	11	12
mm <sup>2</sup>	A	A	A	A	A	A	A	A	A	A	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	39	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	183	163	138
35	125	111	156	138	176	161	195	176	226	203	171
50	149	135	189	168	228	209	239	215	274	246	209
70	189	170	240	214	293	268	308	279	351	318	270
95	228	205	290	259	355	326	375	341	426	389	330
120	263	235	336	299	413	379	436	398	495	453	385
150	300	270	375	328	476	436	505	461	570	524	445
185	341	306	426	370	545	500	579	530	651	600	511
240	400	358	500	433	644	590	686	630	769	711	606
300	459	410	573	493	743	681	794	730	886	824	701
400	-	-	684	584	868	793	915	849	1065	994	820
500	-	-	783	666	990	904	1044	973	1228	1150	936
630	-	-	900	764	1130	1033	1191	1115	1423	1338	1069
800	-	-	-	-	1288	1179	1358	1275	1580	1485	1214
1000	-	-	-	-	1443	1323	1520	1436	1775	1671	1349

Note : For rating factors of ambient temperature other than 30°C please refer to Table 27  
For rating factors of ground temperature other than 15°C please refer to Table 30

**Table 13 : Voltage Drop (Per Amp Per Meter)**  
[CU/LSZH, CU/XLPE/PVC, CU/XLPE/LSZH, CU/MT/LSZH or CU/MT/XLPE/LSZH Cables]

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

BS EN 50525-3-41 (BS 7211)  
IEC60502-1

Size of Conductor	2 cables d.c.	2 cables, single-phase a.c.				3 or 4 cables, 3-phase a.c.					
		Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)		Reference Methods 1 and 11 (clipped direct or on trays touching)		Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)		Reference Methods 1, 11 and 12 (in trefoil)		Reference Methods 1 and 11 (flat and touching)	
1	2	3		4		5		6		7	
mm <sup>2</sup>	mV/A/m	mV/A/m	A/m	mV/A/m	A/m	mV/A/m	A/m	mV/A/m	A/m	mV/A/m	A/m
1.5	31	31	-	27	-	27	-	27	-	27	-
2.5	19	19	-	16	-	16	-	16	-	16	-
4	12	12	-	10	-	10	-	10	-	10	-
6	7.8	7.9	-	6.8	-	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	-
25	1.85	1.85	0.31	1.90	1.85	1.90	1.85	1.60	0.27	1.65	1.60
35	1.35	1.35	0.29	1.35	1.35	0.180	1.35	1.15	0.25	1.15	1.150
50	0.99	1.00	0.29	1.05	0.99	0.180	1.00	0.87	0.25	0.90	0.860
70	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.60	0.24	0.65	0.590
95	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.44	0.23	0.50	0.430
120	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.35	0.23	0.42	0.340
150	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.29	0.23	0.37	0.280
185	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.23	0.23	0.32	0.220
240	0.19	0.21	0.26	0.33	0.20	0.160	0.25	0.185	0.22	0.29	0.170
300	0.155	0.175	0.25	0.31	0.16	0.160	0.22	0.150	0.22	0.27	0.140
400	0.12	0.140	0.25	0.29	0.13	0.155	0.20	0.125	0.22	0.25	0.110
500	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.10	0.22	0.24	0.090
630	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.088	0.21	0.23	0.074
800	0.056	-	-	-	0.072	0.150	0.170	-	-	-	0.062
1000	0.045	-	-	-	0.063	0.150	0.165	-	-	-	0.055

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

# Current Rating and Voltage Drop

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



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Single Core Cables with XLPE or LSZH Insulation, Armoured, PVC or LSZH Outersheath 600/1000V

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

Conductor Operating Temperature :90°C

Ambient Temperature :30°C

Ground Temperature :15°C

Depth of Laying :0.5m

BS 6724  
IEC60502-1  
Soil Thermal Resistivity :1.2 k•m/W

Conductor cross-sectional area	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 single-phase a.c. or d.c. flat and touching	3 or 4 cables 3-phase a.c. flat and touching	2 cables single-phase a.c. flat and touching	3 or 4 cables 3-phase a.c. flat and touching	3 cables 3-phase a.c. trefoil touching	2 cables single-phase a.c. or d.c. ducts touching	3 cables 3-phase a.c. trefoil touching	2 cables single-phase a.c. or d.c. touching	3 cables 3-phase a.c. trefoil touching
1	2	3	4	5	6	7	8	9	10
mm <sup>2</sup>	A	A	A	A	A	A	A	A	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	389
150	488	437	516	462	463	445	405	510	435
185	557	496	587	524	529	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	767	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

Note : For rating factors of ambient temperature other than 30°C please refer to Table 27  
For rating factors of ground temperature other than 15°C please refer to Table 30

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

Conductor Operating Temperature :90°C

Ambient Temperature :30°C

Ground Temperature :15°C

Depth of Laying :0.5m

BS 6724  
IEC60502-1  
Soil Thermal Resistivity :1.2 k•m/W

Conductor cross-sectional area	2 cables d.c.	2 cables single-phase a.c.			3 or 4 cables three-phase a.c.						2 cables single-phase a.c.		3 or 4 cables, 3-phase a.c. touching	
		Reference Method 1 & 11 (touching)			Reference Method 1, 11 & 12 (in trefoil touching)			Reference Method 1 & 11 (flat touching)			In ducts	In ground	In ducts	In ground
1	2	3			4			5			6	7	8	9
mm <sup>2</sup>	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m	mV/A/m	mV/A/m	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	0.6	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	0.195	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	0.092	0.145	0.170	0.135	0.195	0.24	0.30	0.19	0.26	0.17
800	0.056	0.090	0.160	0.190	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  
x = reactance  
z = impedance