

Prefabricated Branch Cables

0.6/1kV 2-Core ~ 5-Core

XLPE Insulated, Unarmoured or Armoured, PVC Sheathed Cable

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

Model Code: XP or XPSP-AT



Application :	This cable is used in power supply for lighting system of highways, tunnels, and bridges.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE insulated, unarmoured or galvanized steel wires armoured, PVC or anti-termite PVC (for armoured cable only) 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
Specification :	IEC 60502-1, IEC 60332-1-2
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)
2.5	0.7	0802B****	11.0	160	0802B****	15.5	400
4	0.7	0902B****	12.0	200	0902B****	16.5	475
6	0.7	1002B****	13.1	260	1002B****	17.5	570
10	0.7	1102B****	16.0	380	1102B****	20.8	800
16	0.7	1202B****	18.0	480	1202B****	22.9	1050
25 (cs)	0.9	1302B****	21.2	709	1302B****	26.7	1471
35 (cs)	0.9	1402B****	23.4	925	1402B****	29.0	1762

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)
2.5	0.7	0803B****	11.4	190	0803B****	16.0	435
4	0.7	0903B****	12.8	250	0903B****	17.0	550
6	0.7	1003B****	14.0	320	1003B****	18.5	660
10	0.7	1103B****	16.9	480	1103B****	21.7	900
16	0.7	1203B****	19.0	645	1203B****	24.0	1260
25 (cs)	0.9	1303B****	22.5	968	1303B****	28.0	1772
35 (cs)	0.9	1403B****	25.0	1278	1403B****	30.5	2175

**** Stands for branch size, please contact us for more information.

Current rating and voltage drop

For Unarmoured Cable, please refer to Table 5 & 6 (Page 27)

For Armoured Cable, please refer to Table 7 & 8 (Page 28)

(cs) : Circular Compact Stranded Conductor

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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)
2.5	0.7	0803B****	11.4	190	0803B****	16.0	435
4	0.7	0903B****	12.8	250	0903B****	17.0	550
6	0.7	1003B****	14.0	320	1003B****	18.5	660
10	0.7	1103B****	16.9	480	1103B****	21.7	900
16	0.7	1203B****	19.0	645	1203B****	24.0	1260
25 (cs)	0.9	1303B****	22.5	968	1303B****	28.0	1772
35 (cs)	0.9	1403B****	25.0	1278	1403B****	30.5	2175

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)
2.5	0.7	0804B****	12.5	230	0804B****	16.5	495
4	0.7	0904B****	14.0	315	0904B****	18.0	610
6	0.7	1004B****	15.0	395	1004B****	20.0	810
10	0.7	1104B****	18.4	590	1104B****	23.2	1120
16	0.7	1204B****	21.0	860	1204B****	27.0	1480
25 (cs)	0.9	1304B****	22.0	1265	1304B****	30.8	2160
35 (cs)	0.9	1404B****	27.4	1665	1404B****	33.8	2690

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)
2.5	0.7	0804B****	12.5	230	0804B****	16.5	495
4	0.7	0904B****	14.	315	0904B****	18.0	610
6	0.7	1004B****	15.0	395	1004B****	20.0	810
10	0.7	1104B****	18.4	590	1104B****	23.2	1120
16	0.7	1204B****	21.0	860	1204B****	27.0	1480
25 (cs)	0.9	1304B****	22.0	1265	1304B****	30.8	2160
35 (cs)	0.9	1404B****	27.4	1665	1404B****	33.8	2690

**** Stands for branch size, please contact us for more information.

Current rating and voltage drop

For Unarmoured Cable, please refer to Table 5 & 6 (Page 27)
For Armoured Cable, please refer to Table 7 & 8 (Page 28)

(cs) : Circular Compact Stranded Conductor

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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)
2.5	0.7	0805B****	13.9	263	0805B****	17.8	540
4	0.7	0905B****	15.4	355	0905B****	20.0	795
6	0.7	1005B****	16.9	465	1005B****	21.8	956
10	0.7	1105B****	19.8	700	1105B****	24.8	1272
16	0.7	1205B****	22.5	1020	1205B****	28.6	1845
25 (cs)	0.9	1305B****	27.0	1530	1305B****	32.6	2500
35 (cs)	0.9	1405B****	30.0	2035	1405B****	36.2	3140

**** Stands for branch size, please contact us for more information.

Current rating and voltage drop

For Unarmoured Cable, please refer to Table 5 & 6 (Page 27)

For Armoured Cable, please refer to Table 7 & 8 (Page 28)

(cs) : Circular Compact Stranded Conductor

Current Rating and Voltage Drop

XLPE Insulated Cables
Multi-Core, Armoured



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

Table 5 : 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 9 (Page 29)

Table 6 : 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 Insulated Cables
Multi-Core, Armoured



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

Table 7 : 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

Ambient Temperature : 30°C

Ground Temperature : 15°C

Depth of Laying : 0.5m

Soil Thermal Resistivity : 1.2 k•m/W

BS 6724

IEC 60502-1

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 9 (Page 29)

For rating factors of ground temperature other than 15°C, please refer to Table 10 (Page 29)

Table 8 : 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

Table 9 : Correction Factor for Ambient Air Temperature Other than 30°C to be Applied to the Current-Carrying Capacities for Cables in Free Air

Insulation	Ambient Temperature (°C)															
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
XLPE (90°C)	1.15	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41	0.29

Table 10 : 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

Insulation	Ground Temperature (°C)											
	10	15	20	25	30	35	40	45	50	55	60	65
XLPE (90°C)	1.03	1.00	0.97	0.93	0.89	0.86	0.82	0.77	0.73	0.67	0.63	0.58

Table 11 : Correction Factors for Ambient Temperature & Group Installation

Correction for groups of more than one circuit of single-core cables, or more than one multi-core cable

Reference Methods of Installation		Correction Factor (Cg)													
		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 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-core on a perforated metal cable tray (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-core touching on ladder supports		0.86	0.82	0.80	0.79	0.78	0.78	0.78	0.77	-	-	-	-	-	-

* Space means a clearance between adjacent surfaces of at least one cable Diam. (D_e). Where the horizontal clearance between adjacent cables exceeds 2 D_e, no correction factor need be applied

Note : 1 The factors in the table are applicable to a group of cables all of the same sizes. The value of the current derived from application of the appropriate factors is the maximum continuous current to be carried by any of the cables in the group.

2 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 Cg applied to the tabulated I_t. However, if M cables in the group carry loads which are not greater than 0.3Cg I_t amperes, the other cables can be sized by using the group rating factor corresponding to (N-M) cables.