

LT XLPE POWER CABLES

Power cables with XLPE insulation for Power Transmission. Voltage grade 650/1100 Volts (U_0/U) provided with ISI marking IS 7098(PT-I), with or without FR/FRLS properties. Conforming to standard specifications to IS 7098 (PT-I).

Configuration

Single core upto 1000 sq. mm. Multi-core upto 400 sq. mm x $3\frac{1}{2}$ cores.

Construction

Conductor

Aluminium/Copper Solid/Stranded Circular/Compacted/ Sector-shaped conductor.

Insulation

XLPE (Cross Linked Polyethylene)

Mechanical Protection

Galvanized steel wire/strips/double helical steel tape. Aluminium wire armouring for single core cable.

Inner & outer sheath

PVC Black /Grey or as per requirement.



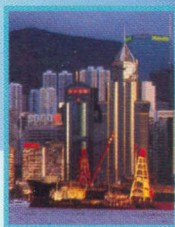


**PARAMOUNT - 1 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, PVC SHEATHED,
UNARMoured (A₂XY)/ ARMoured (A₂XW_aY & A₂XF_aY) /CABLE - 650/1100 VOLTS AS PER IS : 7098 (Pt - I)/88**

UNARMoured CABLES					ARMoured CABLES								
Nominal Area of Conductor (mm ²)	Nominal Thickness of XLPE Insulation (mm)	Nominal Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. Weight of Cable (Kg/Km)	Single layer round wire armoured					Single layer flat strip armoured			
					Nominal Thickness of XLPE Insulation (mm)	Nominal diameter of Round Wire (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)	Nominal thickness of flat strip (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)
10	0.7	1.8	9.5	90	1.0	1.4	1.24	13.0	180	-	-	-	-
16	0.7	1.8	10.5	110	1.0	1.4	1.24	14.0	210	-	-	-	-
25	0.9	1.8	12.0	150	1.2	1.4	1.24	15.5	260	-	-	-	-
35	0.9	1.8	13.5	180	1.2	1.4	1.24	17.0	310	-	-	-	-
50	1.0	1.8	14.5	230	1.3	1.4	1.24	18.0	360	-	-	-	-
70	1.1	1.8	16.5	300	1.4	1.4	1.24	20.0	450	-	-	-	-
95	1.1	1.8	18.0	380	1.4	1.6	1.40	22.5	590	0.8	1.4	21.0	520
120	1.2	1.8	19.5	460	1.5	1.6	1.40	24.0	680	0.8	1.4	22.5	610
150	1.4	2.0	22.5	580	1.7	1.6	1.40	26.0	810	0.8	1.4	24.5	730
185	1.6	2.0	24.0	700	1.9	1.6	1.40	28.0	940	0.8	1.4	26.0	850
240	1.7	2.0	26.5	880	2.0	1.6	1.40	30.5	1150	0.8	1.4	29.0	1050
300	1.8	2.0	29.5	1070	2.1	1.6	1.56	33.0	1400	0.8	1.56	31.5	1290
400	2.0	2.2	33.5	1370	2.4	2.0	1.56	38.0	1800	0.8	1.56	35.5	1600
500	2.2	2.2	36.5	1660	2.6	2.0	1.56	41.0	2130	0.8	1.56	38.5	1910
630	2.4	2.2	40.5	2100	2.8	2.0	1.72	45.5	2670	0.8	1.72	43.0	2420
800	2.6	2.4	46.0	2670	3.1	2.0	1.88	51.0	3320	0.8	1.72	49.0	3030
1000	2.8	2.6	50.5	3310	3.3	2.5	2.04	56.5	4170	0.8	1.88	53.0	3670

**PARAMOUNT - 2 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, PVC SHEATHED,
UNARMoured (A₂XY)/ ARMoured (A₂XWY & A₂XFY) /CABLE - 650/1100 VOLTS AS PER IS : 7098 (Pt - I)/88**

UNARMoured CABLES						ARMoured CABLES							
Nominal Area of Conductor (mm ²)	Nominal Thickness of XLPE Insulation (mm)	Minimum Thickness of PVC inner Sheath (mm)	Nominal Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. Weight of Cable (Kg/Km)	Single layer round wire armoured				Single layer flat strip armoured			
						Nominal diameter of Round Wire (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)	Nominal thickness of flat strip (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)
10	0.7	0.3	1.8	16.5	270	1.4	1.24	19.5	610	-	-	-	-
16	0.7	0.3	1.8	18.5	340	1.4	1.40	21.5	720	-	-	-	-
25	0.9	0.3	2.0	19.0	340	1.6	1.40	22.5	740	0.8	1.40	20.5	600
35	0.9	0.3	2.0	21.0	410	1.6	1.40	24.0	900	0.8	1.40	22.5	700
50	1.0	0.3	2.0	23.0	510	1.6	1.40	26.5	1060	0.8	1.40	25.0	840
70	1.1	0.3	2.0	26.5	670	1.6	1.56	29.5	1320	0.8	1.40	28.0	1040
95	1.1	0.4	2.2	29.5	860	2.0	1.56	33.0	1760	0.8	1.56	30.5	1280
120	1.2	0.4	2.2	32.5	1050	2.0	1.56	36.0	2040	0.8	1.56	33.0	1520
150	1.4	0.4	2.2	35.5	1260	2.0	1.72	39.5	2360	0.8	1.72	37.0	1800
185	1.6	0.5	2.4	40.0	1700	2.0	1.88	44.0	2920	0.8	1.72	41.0	2280
240	1.7	0.5	2.6	44.5	2120	2.5	2.04	49.5	3830	0.8	1.88	45.5	2760
300	1.8	0.6	2.8	49.5	2560	2.5	2.20	54.0	4450	0.8	2.04	50.5	3280
400	2.0	0.6	3.0	55.0	3160	2.5	2.36	59.0	5270	0.8	2.36	56.5	4010
500	2.2	0.7	3.4	61.5	3920	3.15	2.68	67.0	6910	0.8	2.52	62.5	4820
630	2.4	0.7	3.6	68.5	4910	3.15	2.84	76.5	8230	0.8	2.68	69.0	5920

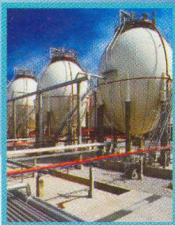


**PARAMOUNT - 3 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, PVC SHEATHED,
UNARMoured (A₂XY) / ARMoured (A₂XWY & A₂XFY) / CABLE - 650/1100 VOLTS AS PER IS : 7098 (Pt - I)/88**

			UNARMoured CABLES			ARMoured CABLES							
						Single layer round wire armoured				Single layer flat strip armoured			
Nominal Area of Conductor (mm ²)	Nominal Thickness of XLPE Insulation (mm)	Minimum Thickness of PVC inner Sheath (mm)	Nominal Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. Weight of Cable (Kg/Km)	Nominal diameter of Round Wire (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)	Nominal thickness of flat strip (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)
10	0.7	0.3	1.8	17.5	250	1.40	1.24	20.0	630	-	-	-	-
16	0.7	0.3	1.8	19.5	310	1.60	1.40	23.0	810	0.8	1.24	21.0	590
25	0.9	0.3	2.0	21.0	440	1.60	1.40	24.0	940	0.8	1.40	22.5	730
35	0.9	0.3	2.0	22.5	540	1.60	1.40	26.0	1090	0.8	1.40	24.5	870
50	1.0	0.3	2.0	25.5	680	1.60	1.56	29.0	1320	0.8	1.40	27.0	1050
70	1.1	0.4	2.2	29.5	920	2.00	1.56	33.5	1840	0.8	1.56	30.5	1360
95	1.1	0.4	2.2	33.0	1170	2.00	1.56	37.0	2180	0.8	1.56	34.0	1660
120	1.2	0.4	2.2	36.0	1430	2.00	1.72	40.0	2580	0.8	1.56	37.0	1970
150	1.4	0.5	2.4	40.0	1760	2.00	1.88	44.0	3030	0.8	1.72	41.5	2360
185	1.6	0.5	2.6	44.5	2180	2.50	2.04	49.5	3960	0.8	1.88	46.5	2850
240	1.7	0.6	2.8	50.5	2790	2.50	2.20	55.0	4790	0.8	2.04	51.0	3550
300	1.8	0.6	3.0	55.0	3420	2.50	2.36	60.0	5630	0.8	2.20	56.0	4250
400	2.0	0.7	3.2	62.0	4310	3.15	2.68	68.0	7510	0.8	2.52	66.0	5300
500	2.2	0.7	3.6	69.0	5370	3.15	2.84	74.5	8860	0.8	2.68	69.5	6410
630	2.4	0.7	3.8	77.0	6810	4.00	3.00	84.5	11760	0.8	2.84	78.0	7980

**PARAMOUNT - 3½ CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, PVC SHEATHED,
UNARMoured (A₂XY) / ARMoured (A₂XWY & A₂XFY) / CABLE - 650/1100 VOLTS AS PER IS : 7098 (Pt - I)/88**

			UNARMoured CABLES				ARMoured CABLES							
							Single layer round wire armoured				Single layer flat strip armoured			
Nominal Area of Conductor (M/N) (mm ²)	Nominal Thickness of XLPE Insulation (Main) (mm)	Nominal Thickness of XLPE Insulation (Neutral) (mm)	Minimum Thickness of PVC inner Sheath (mm)	Nominal Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. Weight of Cable (Kg/Km)	Nominal diameter of Round Wire (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of wire (mm)	Approx. weight of wire (Kg/Km)	Nominal thickness of flat strip (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)
25/16	0.7	0.9	0.3	2.0	22.5	510	1.60	1.40	25.5	1060	0.8	1.40	24.0	830
35/16	0.7	0.9	0.3	2.0	24.5	610	1.60	1.40	27.0	1210	0.8	1.40	24.6	970
50/25	0.9	1.0	0.3	2.0	28.0	790	1.60	1.56	31.0	1490	0.8	1.40	29.5	1200
70/35	0.9	1.1	0.4	2.2	32.5	1060	2.00	1.56	36.0	2070	0.8	1.56	33.5	1540
95/50	1.0	1.1	0.4	2.2	36.0	1360	2.00	1.56	39.5	2470	0.8	1.56	37.0	1900
120/70	1.1	1.2	0.4	2.2	39.5	1680	2.00	1.72	43.5	2960	0.8	1.72	41.0	2310
150/70	1.1	1.4	0.5	2.4	44.0	2020	2.00	1.88	47.0	3420	0.8	1.72	45.5	2680
185/95	1.1	1.6	0.5	2.6	49.0	2510	2.50	2.04	54.0	4470	0.8	1.88	50.5	3260
240/120	1.2	1.7	0.6	2.8	55.5	3210	2.50	2.20	60.0	5420	0.8	2.04	56.3	4060
300/150	1.4	1.8	0.6	3.0	61.0	3940	2.50	2.36	60.5	6390	0.8	2.20	62.0	4860
400/185	1.6	2.0	0.7	3.4	68.5	5010	3.15	2.68	74.5	8500	0.8	2.52	70.0	6060
500/240	1.7	2.2	0.7	3.6	76.0	6210	3.15	2.84	82.0	10030	0.8	2.68	76.5	7370
630/300	1.8	2.4	0.7	4.0	86.0	7900	4.00	3.00	93.0	13330	0.8	3.00	86.5	9210



**PARAMOUNT - 4CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, PVC SHEATHED,
UNARMoured (A₂XY) / ARMoured (A₂XWY & A₂XFY) / CABLE - 650/1100 VOLTS AS PER IS : 7098 (Pt - I)/88**

UNARMoured CABLES					ARMoured CABLES								
					Single layer round wire armoured					Single layer flat strip armoured			
Nominal Area of Conductor (mm ²)	Nominal Thickness of XLPE Insulation (mm)	Minimum Thickness of PVC inner Sheath (mm)	Nominal Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. Weight of Cable (Kg/Km)	Nominal diameter of Round Wire (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of wire (mm)	Approx. weight of wire (Kg/Km)	Nominal thickness of flat strip (mm)	Minimum Thickness of PVC outer Sheath (mm)	Approx. overall diameter of Cable (mm)	Approx. weight of Cable (Kg/Km)
10	0.7	0.3	1.8	19.0	300	1.40	1.40	22.0	720	-	-	-	-
16	0.7	0.3	1.8	21.0	370	1.60	1.40	24.5	850	0.8	1.40	23.0	670
25	0.9	0.3	2.0	23.5	540	1.60	1.40	26.5	1110	0.8	1.40	25.0	880
35	0.9	0.3	2.0	25.5	680	1.60	1.40	29.0	1310	0.8	1.40	27.0	1050
50	1.0	0.3	2.0	29.0	860	1.60	1.56	32.0	1590	0.8	1.56	31.0	1320
70	1.1	0.4	2.2	33.5	1170	2.00	1.56	37.0	2220	0.8	1.56	34.5	1670
95	1.1	0.4	2.2	37.5	1500	2.00	1.72	41.0	2700	0.8	1.56	38.5	2070
120	1.2	0.5	2.4	42.0	1870	2.00	1.88	45.0	3210	0.8	1.72	43.0	2330
150	1.4	0.5	2.6	46.5	2300	2.50	2.04	51.0	4150	0.8	1.88	47.5	3000
185	1.6	0.5	2.8	51.5	2840	2.50	2.20	56.0	4910	0.8	2.04	52.0	3620
240	1.7	0.6	3.0	58.0	3650	2.50	2.36	62.0	5970	0.8	2.20	58.5	4530
300	1.8	0.7	3.2	64.0	4490	3.15	2.52	70.0	7750	0.8	2.36	64.5	5470
400	2.0	0.7	3.6	72.0	5690	3.15	2.84	77.5	9300	0.8	2.68	72.5	6780
500	2.2	0.7	3.8	79.5	7020	4.00	3.00	87.0	12150	0.8	2.84	80.5	8230
630	2.4	0.7	4.0	89.5	8910	4.00	3.00	96.0	14600	0.8	3.00	90.0	10280

CONDUCTOR RESISTANCE

Nominal Area of Conductor (Sq.mm)	Max D.C. Resistance at 20°C (ohm/km)	Approx A.C. Resistance at operating Temp 90°C (ohm/km)	Short circuit current for 1 sec
10	3.08	3.95	0.94
16	1.91	2.45	1.50
25	1.20	1.539	2.35
35	0.868	1.113	3.29
50	0.641	0.822	4.70
70	0.443	0.568	6.58
95	0.320	0.410	8.93
120	0.253	0.325	11.30
150	0.206	0.265	14.1
185	0.164	0.212	17.4
240	0.125	0.162	22.6
300	0.100	0.130	28.2
400	0.0778	0.102	37.6
500	0.0605	0.081	47.0
630	0.0469	0.064	59.2
800	0.0367	0.0526	75.2
1000	0.0291	0.0438	94.0



**CURRENT RATING (A.C) FOR TWO SINGLE - CORE
1100 VOLTS ALUMINIUM CONDUCTOR XLPE
INSULATED UNARMoured OR NON-MAGNETIC
ARMoured CABLES**

Nominal Area of Conductor mm ²	Cable laid direct in ground Amp.	In Air Amp
10	69	60
16	90	82
25	116	108
35	139	136
50	162	163
70	199	208
95	241	258
120	273	303
150	305	348
185	347	407
240	407	488
300	458	569
400	518	669
500	592	786
630	666	922
800	750	1067
1000	833	1220

**CURRENT RATING (A.C) FOR THREE SINGLE -
CORE 1100 VOLTS ALUMINIUM CONDUCTOR XLPE
INSULATED UNARMoured OR NON-MAGNETIC
ARMoured CABLES**

Nominal Area of Conductor mm ²	Cable laid direct in ground Amp.	In Air Amp
10	59	53
16	76	73
25	97	99
35	116	122
50	139	149
70	171	190
95	204	235
120	231	276
150	259	321
185	292	371
240	342	447
300	384	515
400	440	606
500	500	705
630	565	823
800	629	949
1000	704	1076

**CURRENT RATING (A.C) FOR TWO-CORE 1100VOLTS
ALUMINIUM CONDUCTOR XLPE INSULATED
UNARMoured OR G.I WIRE/STRIP ARMoured CABLES**

Nominal Area of Conductor mm ²	Cable laid direct in ground Amp.	In Air Amp
10	71	67
16	91	88
25	120	117
35	143	145
50	167	176
70	204	221
95	245	271
120	278	316
150	315	362
185	356	420
240	407	497
300	463	578
400	528	678
500	592	786
630	676	913

**CURRENT RATING (A.C) FOR THREE- CORE, FOUR CORE
1100 VOLTS ALUMINIUM CONDUCTOR XLPE INSULATED
UNARMoured OR G.I WIRE/STRIP ARMoured CABLES**

Nominal Area of Conductor mm ²	Cable laid direct in ground Amp.	In Air Amp
10	57	53
16	73	70
25	97	95
35	116	117
50	134	140
70	167	176
95	199	221
120	227	258
150	255	294
185	287	339
240	333	402
300	375	461
400	426	542
500	481	624
630	537	723



Basic Assumption for Current Rating For XLPE Cables

- Max conductor temperature 90°C
- Thermal Resistivity of XLPE 350°C cm/W
- Thermal Resistivity of Soil 150°C cm/W
- Ground Temperature 30°C
- Ambient Air Temperature 40°C
- Depth of laying 75cm

METHOD OF INSTALLATION

I. Single Core Cables

- a) Two Cables in horizontal touching
- b) Two Cables in trefoil formation touching

I. Multi Core Cables -- Installed singly

Table-1
Rating Factors For Variation In Ambient Air Temperature

Ambient Temperature °C	25	30	35	40	45	50	55	60
Rating Factor	1.18	1.12	1.06	1.00	0.94	0.88	0.81	0.74

Table-2
Rating Factors For Variation In Soil Temperature For Cables In Ground

Ground Temperature °C	15	20	25	30	35	40
Rating Factor	1.12	1.08	1.04	1.00	0.96	0.91

Table-3
Rating Factors For Variation In Thermal Resistivity Of Soil

Thermal Resistivity (°C- cm/W)	70	100	120	150	200	250	300
Rating Factor	1.36	1.19	1.11	1.00	0.88	0.80	0.73

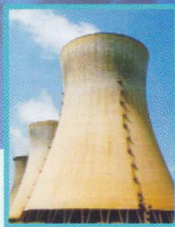


Table- 4
Rating Factor For Depth Of Laying

Depth of Laying	Size		
	Up to 25 mm ²	Above 25 up to 300 mm ²	Above 300 mm ²
75	1.00	1.00	1.00
90	0.99	0.98	0.97
105	0.98	0.97	0.96
120	0.97	0.96	0.95
150	0.96	0.94	0.92
180 or more	0.95	0.93	0.91

Table- 6
Cable Laid In Trefoil Ducts In Horizontal Formation

No.of Trefoils in group	Spacing between trefoils		
	Touching	45 cm.	60 cm.
2	0.87	0.9	0.91
3	0.79	0.83	0.86
4	0.74	0.79	0.82
5	0.71	0.76	0.8

Table- 5
Group Rating Factor For Single Core Cables Laid In Trefoil Formation

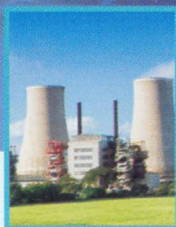
Cable laid in ground in Horizontal formation				
No.of Trefoils in group	Spacing between trefoils			
	Touching	15 cm.	30 cm.	45 cm.
2	0.78	0.81	0.85	0.88
3	0.68	0.71	0.77	0.81
4	0.61	0.65	0.72	0.76
5	0.56	0.61	0.68	0.73

Table-7
Cable Laid On Racks/ Tray In Covered Trench With Removable Covers Where Air Circulation Is Restricted, Trefoil Are Separated By Two Cables Dia Horizontally And The Trays Are Intiers With 30 cm. Gap Between Them.

No.of Racks/ trays in tiers	No.of trefoil in Horizontal formation		
	1	2	3
1	0.95	0.90	0.88
2	0.90	0.85	0.83
3	0.88	0.83	0.81
6	0.86	0.81	0.79

Table-8
Cable Laid As Per Table No.7 But In Open Air

No.of Racks/ trays in tiers	No.of trefoil in Horizontal formation		
	1	2	3
1	1.00	0.98	0.96
2	1.00	0.95	0.93
3	1.00	0.94	0.92
6	1.00	0.93	0.90



GROUP RATING FACTOR FOR MULTICORE CABLES

Table-9

Cable Laid Inside Concrete With Removable Covers, On Cable Trays Where Air Circulation Is Restricted. The Cable Space By One Cable Diameter And The Trays In Tiers By 300mm. The Clearance Of The Cable From The Wall Is 25 mm.

No. of Cables in tier	No. of Cables				
	1	2	3	6	9
1	0.95	0.90	0.88	0.85	0.84
2	0.90	0.85	0.83	0.81	0.80
3	0.88	0.83	0.81	0.79	0.78
6	0.86	0.81	0.79	0.77	0.76

Table-10

Cable Laid On Cable Trays Exposed To Air, The Cable Space By One Cable Diameter And The Trays In Tiers By 300 mm. The Clearance Between The Wall And The Cable Is 25 mm.

No. of Cables in tier	No. of Cables				
	1	2	3	6	9
1	1.00	0.98	0.96	0.93	0.92
2	1.00	0.95	0.93	0.90	0.89
3	1.00	0.94	0.92	0.89	0.88
6	1.00	0.93	0.90	0.87	0.86

Table-11

Cable Laid On Cable Trays Exposed To Air, The Cable Touching And Trays In Tiers By 300 mm. The Clearance Between The Wall And The Cable Is 25 mm.

No. of trays	No. of Cables				
	1	2	3	6	9
1	1.00	0.84	0.80	0.75	0.73
2	1.00	0.80	0.76	0.71	0.69
3	1.00	0.78	0.74	0.70	0.68
6	1.00	0.76	0.72	0.68	0.66

Table-12

Cable laid direct in ground in horizontal formation

No. of trays	No. of Cables				
	1	2	3	6	9
2	1.00	0.84	0.80	0.75	0.73
3	1.00	0.80	0.76	0.71	0.69
4	1.00	0.78	0.74	0.70	0.68
6	1.00	0.76	0.72	0.68	0.66

Technical details for cables with copper conductor can be supplied on Request.

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