

**THE POWER IS WITHIN.....
LOW VOLTAGE XLPE CABLE / PVC CABLE**



**LT POWER CABLE / CONTROL CABLE / AERIAL BUNCH
CABLE / CABLE TRAY**



LOW VOLTAGE XLPE CABLES

Low Voltage XLPE Cables are manufactured according to IS:7098 (Part -I), up to and including the latest amendments. All cables have the ISI Certification.

XLPE, as insulation has the following superior features:

- Low dielectric loss.
- Higher power rating and higher emergency overload rating.
- Superior short circuit rating.
- Much better insulation resistance
- Higher resistance to moisture
- Capacity to withstand localized hot spot temperature, very vital to steel plants, power stations, etc.
- Resistant to chemicals and corrosive gases, etc.
- Exhibits better properties, such as resistance to vibration, impact, ageing and hot deformation.
- Termination and jointing methods are very easy, simple and non-expensive as compared to other cables.

DESIGN AND CONSTRUCTION

CONDUCTORS

The conductors of power cables are made from electrical purity aluminium, and those of control cables are of annealed high conductivity copper. However, copper conductor power cables can also be supplied against orders. All conductors conform to IS:8130-1984.

INSULATION

High quality Cross Linked Polyethylene (XLPE) unfilled insulating compound is used for XLPE Cables.

LAYING UP

In multicore cables, cores are laid up as per the above color scheme and interstices are filled up wherever necessary to make the laid up cable circular.

INNER SHEATH

For all cables having two or more cores, a common covering (inner sheath) is applied over the laid up cores either by extruded sheath of PVC Compound or wrapping of thermoplastic or proofed tapes.

ARMOURING

For multi-core cables, armouring is applied over the inner sheath. In case of cables where the fictitious diameter over the inner sheath does not exceed 13mm., the armour consists of galvanised round steel wires; above this size, normally the armour is of galvanised formed steel wires. Any metallic, non-metallic wire/strip can be available on request.

OUTER SHEATH

Outer sheath is extruded over the armouring. Outer sheath PVC is Antirodent, Antitermite and Ultra Violet resistant. In case of multi-core unarmoured cables, over the inner sheath, whereas, in case of unarmoured single-core cables, it is extruded over the insulation. This is always black in colour for best resistance to outdoor exposure. Any other colour can be available on request.

CORE IDENTIFICATION

Colour Scheme: Cores are identified by the colour scheme of insulation. The following colour scheme is normally adopted:

- 1 Core red, black, yellow, blue or natural (non pigmented)
- 2 Core red and black
- 3 Core red, yellow and blue
- 4 Core red, yellow, blue and black (also 3½ core reduced neutral is black)
- 5 Core red, yellow, blue, black and grey

For cables having more than 5 cores:

Two adjacent cores (counting and direction core) in each layer are coloured blue and yellow respectively and the remaining cores are grey.

Alternatively, cores with number printing can be offered.

TESTING AND QUALITY ASSURANCE

The various tests carried out on Low Voltage cables are classified in three different groups: • Routine Tests • Type Tests and • Acceptance Tests.

ROUTINE TESTS

The following tests constitute Routine Tests which are carried out on each and every length of cable as per relevant IS specification before it leaves the factory.

(A) Conductor Resistance Test

The Test ensures that conductor resistance is within the specified limit, thereby verifying that the continuity of conductor is maintained throughout the cable length and that the conductor has the required electrical section. D.C. resistance is measured at room temperature and is then corrected to standard reference temperature of 20°C.

(B) High Voltage Test

The test ensures that insulation will safely withstand the rated voltage with permissible variation in normal operation.



TYPE TESTS

These tests are carried out on samples taken from each production lot as per relevant IS specification. They are carried out to prove conformity as regards the general qualities and design to the specification of particular type of cables.

ACCEPTANCE TESTS

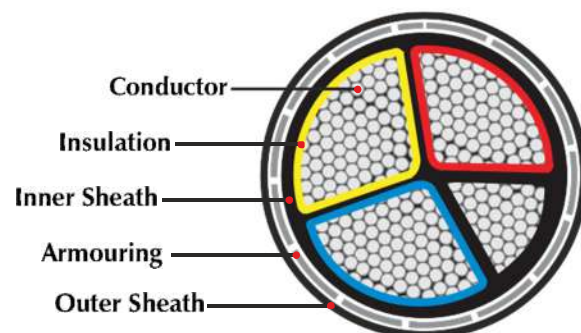
These tests are again carried out as per relevant IS specification in the presence of the concerned Inspecting Authority for testing, approval and release of material offered for inspection.

PACKING

Cables are normally supplied in wooden drums. Special drums are also provided on request. While installing LT PVC/LT XLPE cables, the following minimum bending radii should be observed in order so that the cable, especially insulation, may not undergo damage. Wherever possible larger bending radii should be used.

CABLES EXPOSED TO SUN

On account of heating of the exposed core due to solar radiation, the rating of the cable installed out-doors and not shielded from the sun is less than if so shielded. To reduce the effect of solar radiation, it is recommended that the cores should be shielded from the direct rays of the Sun without restricting the ventilation.



SHORT CIRCUIT RATING OF XLPE CABLES:

Thermally admissible short circuit current are depicted in the graph below:-

Full load conductor temperature prior to short circuit : 90 °C

Maximum short circuit conductor temperature : 250 °C

Formula $I_k = 0.094 A / \sqrt{t}$

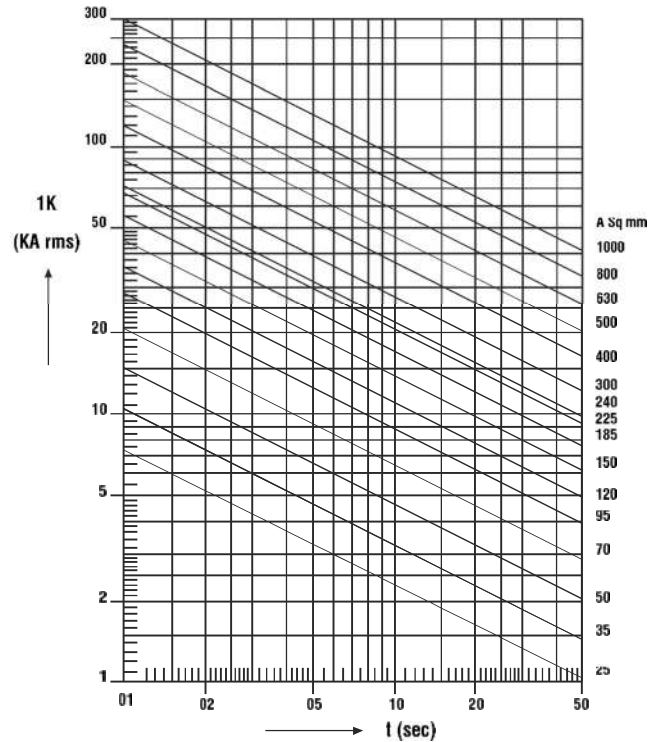
I_k : Short Circuit Current In KA (rms)

t : Duration of short circuit in seconds

A: Area of aluminum conductor in mm²

Short circuit ratings of cables for one-second duration is given in Table 13.

For any other duration of t seconds divide the value given in the respective table by (\sqrt{t}) .

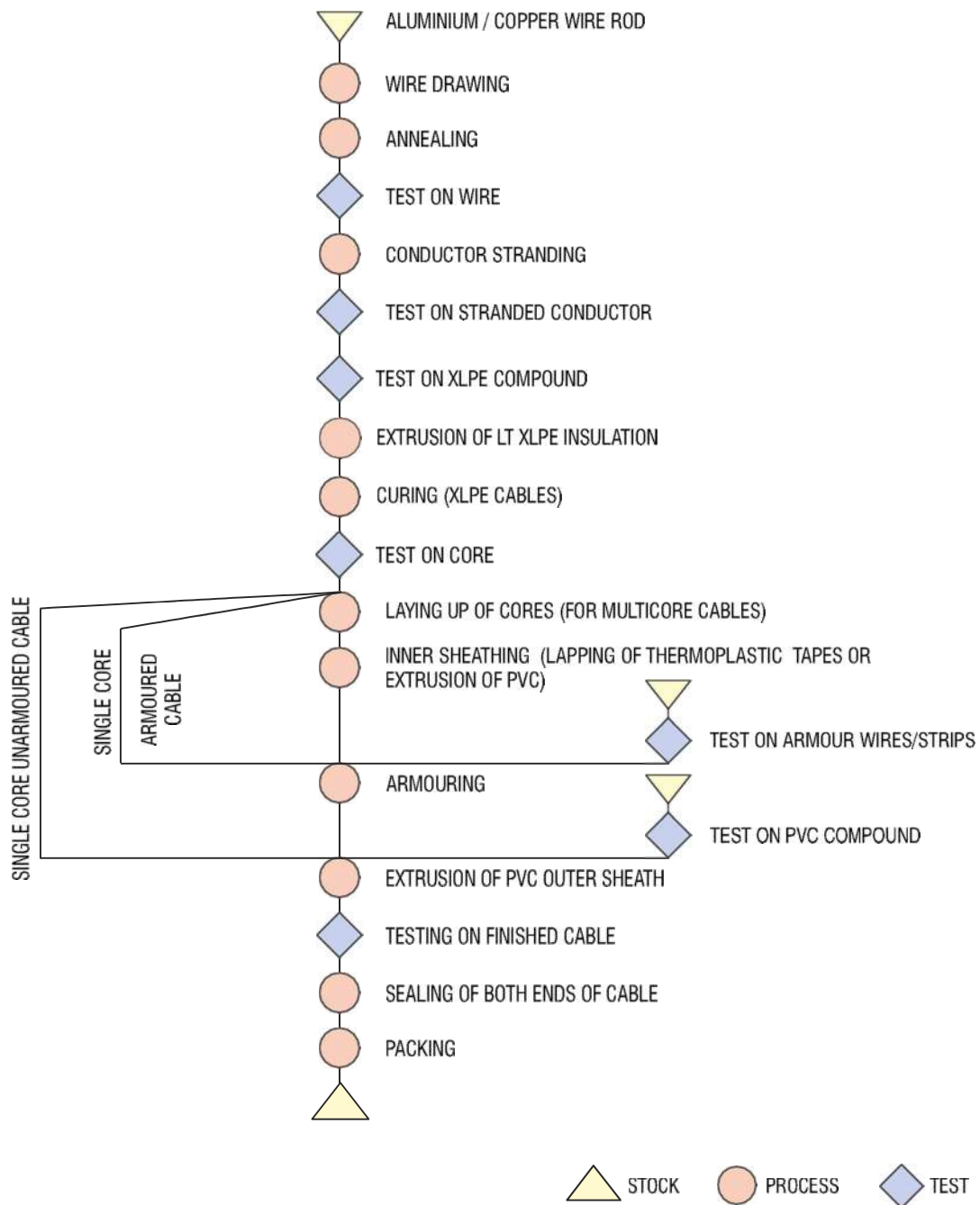


OPERATING CHARACTERISTICS:

The construction data and current rating of cables with aluminum conductor are shown in tables. These are based on standard conditions of installations as provided below:

Maximum continuous operating conductor temperature for XLPE Cables	= 90 °C
Standard ground temperature	= 30 °C
Ambient air temperature	= 40 °C
Thermal Resistivity of soil	= 150 °C
Depth of laying (for cables laid direct in ground)	= 0.75 m for cables up to 1.1 KV

Flow Chart for Manufacturing Processes & Quality Control Checks for Cables Conforming to IS: 7098 (Part - I)





1.1 KV SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMoured / UN-ARMoured, PVC OUTER SHEATH CABLES CONFORMING TO IS:7098 (Part - I)

TABLE - 1

Nominal size of conductor	UN-ARMoured CABLES A2XY				ARMoured CABLES								
	Nominal thickness of insulation	Nominal thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Single Layer - Wire (A2XWY)					Single Layer - Strip (A2XFaY)			
					Nominal thickness of insulation	Nominal diameter of armour wire	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Nominal thickness of armour strip	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable
Sq. mm	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km
4	0.7	1.8	9.0	70	1.0	1.4	1.24	11.5	120	-	-	-	-
6	0.7	1.8	10.0	80	1.0	1.4	1.24	12.5	140	-	-	-	-
10	0.7	1.8	11.0	100	1.0	1.4	1.24	13.0	160	-	-	-	-
16	0.7	1.8	12.0	120	1.0	1.4	1.24	14.0	200	-	-	-	-
25	0.9	1.8	14.0	170	1.2	1.4	1.24	16.0	260	-	-	-	-
35	0.9	1.8	15.0	210	1.2	1.4	1.24	17.0	300	-	-	-	-
50	1.0	1.8	16.0	260	1.3	1.4	1.24	18.0	360	-	-	-	-
70	1.1	1.8	18.0	340	1.4	1.4	1.24	20.0	460	-	-	-	-
95	1.1	1.8	20.0	420	1.4	1.6	1.40	22.0	580	0.8	1.40	20.0	520
120	1.2	1.8	22.0	510	1.5	1.6	1.40	24.0	690	0.8	1.40	22.0	610
150	1.4	2.0	24.0	640	1.7	1.6	1.40	25.5	800	0.8	1.40	24.0	710
185	1.6	2.0	26.0	770	1.9	1.6	1.40	28.0	960	0.8	1.40	26.5	870
240	1.7	2.0	29.0	970	2.0	1.6	1.40	30.5	1190	0.8	1.40	29.0	1060
300	1.8	2.0	31.5	1160	2.1	1.6	1.56	33.0	1400	0.8	1.56	31.5	1290
400	2.0	2.2	35.0	1480	2.4	2.0	1.56	38.0	1770	0.8	1.56	35.0	1610
500	2.2	2.2	39.0	1840	2.6	2.0	1.56	41.0	2210	0.8	1.56	39.0	1980
630	2.4	2.2	44.0	2300	2.8	2.0	1.72	45.5	2690	0.8	1.72	43.0	2490
800	2.6	2.4	48.0	3000	3.1	2.0	1.88	51.0	3460	0.8	1.72	48.0	3230
1000	2.8	2.6	52.0	3670	3.3	2.5	2.04	56.0	4430	0.8	1.88	54.0	3930

1.1 KV TWO CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMoured / UN-ARMoured, PVC OUTER SHEATH CABLES CONFORMING TO IS:7098 (Part - I)

TABLE - 2

Nominal size of conductor	Nominal thickness of insulation	Minimum thickness of inner sheath	UN-ARMoured CABLES A2XY			ARMoured CABLES							
			Nominal thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Single Layer - Wire (A2XWY)				Single Layer - Strip (A2XFaY)			
						Nominal diameter of armour wire	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Nominal thickness of armour strip	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable
Sq. mm	mm	mm	mm	mm	Kg /Km	mm	mm	mm	Kg /Km	mm	mm	mm	Kg /Km
4	0.7	0.3	1.8	13.5	130	1.40	1.24	15.0	380	-	-	-	-
6	0.7	0.3	1.8	15.0	150	1.40	1.24	16.0	440	-	-	-	-
10	0.7	0.3	1.8	16.0	190	1.40	1.24	17.0	450	-	-	-	-
16	0.7	0.3	1.8	15.0	230	1.40	1.40	17.0	480	-	-	-	-
25	0.9	0.3	2.0	18.0	340	1.60	1.40	20.0	670	0.8	1.40	18.0	530
35	0.9	0.3	2.0	19.5	410	1.60	1.40	21.0	780	0.8	1.40	19.5	590
50	1.0	0.3	2.0	21.5	510	1.60	1.40	23.0	930	0.8	1.40	21.5	740
70	1.1	0.3	2.0	25.0	700	1.60	1.56	26.0	1180	0.8	1.56	24.5	960
95	1.1	0.4	2.2	27.5	880	2.00	1.56	29.5	1590	0.8	1.56	27.0	1160
120	1.2	0.4	2.2	29.5	1060	2.00	1.56	32.0	1840	0.8	1.56	29.5	1380
150	1.4	0.4	2.2	33.0	1320	2.00	1.72	35.0	2170	0.8	1.72	33.0	1660
185	1.6	0.5	2.4	37.0	1600	2.00	1.88	39.0	2590	0.8	1.72	36.0	1990
240	1.7	0.5	2.6	42.0	2090	2.50	2.04	44.0	3470	0.8	1.88	44.0	2450
300	1.8	0.6	2.8	45.0	2500	2.50	2.20	48.0	4040	0.8	2.04	44.0	2970
400	2.0	0.6	3.0	51.0	3230	2.50	2.36	53.0	4860	0.8	2.36	50.0	3700
500	2.2	0.7	3.4	56.0	4030	3.15	2.68	60.0	6540	0.8	2.52	55.5	4600
630	2.4	0.7	3.6	62.0	5090	3.15	2.84	65.5	7760	0.8	2.68	60.5	5620

● Above data are approximate and subject to manufacturing tolerance. ● Conductor constructions are indicative only and will be such that requirement of conductor resistance is complied as per relevant IS standards. ● Approximate weight of cables are only for the purpose of transportation. ● Packing length tolerance +/- 5%. ● Longer lengths as per customer requirement.



1.1 KV THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMoured / UN-ARMoured, PVC OUTER SHEATH CABLES CONFORMING TO IS:7098 (Part - I)

TABLE - 3

Nominal size of conductor	Nominal thickness of insulation	Minimum thickness of inner sheath	UN-ARMoured CABLES A2XY			ARMoured CABLES							
			Nominal thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Single Layer - Wire (A2XWY)				Single Layer - Strip (A2XFY)			
						Nominal diameter of armour wire	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Nominal thickness of armour strip	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable
Sq. mm	mm	mm	mm	mm	Kg /Km	mm	mm	mm	Kg /Km	mm	mm	mm	Kg /Km
4	0.7	0.3	1.8	14.0	160	1.40	1.24	15.0	400	-	-	-	-
6	0.7	0.3	1.8	15.5	190	1.40	1.24	16.5	490	-	-	-	-
10	0.7	0.3	1.8	17.0	240	1.40	1.24	18.5	570	-	-	-	-
16	0.7	0.3	1.8	17.0	300	1.60	1.40	19.0	670	0.8	1.24	17.5	500
25	0.9	0.3	2.0	20.5	450	1.60	1.40	22.5	870	0.8	1.40	20.5	670
35	0.9	0.3	2.0	22.0	550	1.60	1.40	24.0	1000	0.8	1.40	22.5	800
50	1.0	0.3	2.0	25.0	690	1.60	1.56	26.5	1250	0.8	1.40	25.0	990
70	1.1	0.4	2.2	28.5	960	2.00	1.56	31.0	1760	0.8	1.56	28.5	1310
95	1.1	0.4	2.2	31.0	1210	2.00	1.56	34.0	2090	0.8	1.56	31.5	1610
120	1.2	0.4	2.2	34.0	1470	2.00	1.72	36.5	2470	0.8	1.56	34.0	1910
150	1.4	0.5	2.4	38.0	1830	2.00	1.88	41.0	2960	0.8	1.72	38.0	2310
185	1.6	0.5	2.6	42.0	2270	2.50	2.04	45.5	3830	0.8	1.88	42.0	2820
240	1.7	0.6	2.8	47.0	2900	2.50	2.20	50.0	4660	0.8	2.04	47.0	3500
300	1.8	0.6	3.0	52.0	3550	2.50	2.36	55.0	5460	0.8	2.20	51.0	4200
400	2.0	0.7	3.2	59.0	4510	3.15	2.68	63.0	7370	0.8	2.52	58.0	5320
500	2.2	0.7	3.6	65.0	5650	3.15	2.84	69.0	8820	0.8	2.68	64.0	6550
630	2.4	0.7	3.8	72.0	7180	4.00	3.00	77.5	11570	0.8	2.84	71.0	8090

1.1 KV 3 1/2 CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMoured / UN-ARMoured, PVC OUTER SHEATH CABLES CONFORMING TO IS:7098 (Part - I)

TABLE - 4

Nominal size of conductor	Nominal thickness of insulation Main/Neutral	Minimum thickness of inner sheath	UN-ARMoured CABLES A2XY			ARMoured CABLES							
			Nominal thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Single Layer - Wire (A2XWY)				Single Layer - Strip (A2XFY)			
						Nominal diameter of armour wire	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable	Nominal thickness of armour strip	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of Aluminium cable
Sq. mm	mm	mm	mm	mm	Kg /Km	mm	mm	mm	Kg /Km	mm	mm	mm	Kg /Km
25	0.9/0.7	0.3	2.0	21.5	510	1.60	1.40	23.5	930	0.8	1.40	21.5	740
35	0.9/0.7	0.3	2.0	23.0	610	1.60	1.40	25.0	1070	0.8	1.40	23.0	860
50	1.0/0.9	0.3	2.0	26.0	780	1.60	1.56	28.0	1320	0.8	1.40	26.0	1070
70	1.1/0.9	0.4	2.2	30.0	1080	2.00	1.56	32.5	1880	0.8	1.56	30.0	1400
95	1.1/1.0	0.4	2.2	33.0	1380	2.00	1.56	35.5	2270	0.8	1.56	33.0	1740
120	1.2/1.1	0.4	2.2	36.5	1700	2.00	1.72	39.5	2720	0.8	1.72	37.0	2130
150	1.4/1.1	0.5	2.4	40.5	2060	2.00	1.88	43.0	3190	0.8	1.72	40.5	2520
185	1.6/1.1	0.5	2.6	45.0	2580	2.50	2.04	48.5	4160	0.8	1.88	45.0	3060
240	1.7/1.2	0.6	2.8	51.0	3300	2.50	2.20	54.0	5060	0.8	2.04	50.0	3840
300	1.8/1.4	0.6	3.0	56.0	4040	2.50	2.36	59.0	5970	0.8	2.20	55.5	4630
400	2.0/1.6	0.7	3.4	63.0	5170	3.15	2.68	67.0	7970	0.8	2.52	62.5	5800
500	2.2/1.7	0.7	3.6	69.5	6510	3.15	2.84	73.5	9580	0.8	2.68	69.0	7190
630	2.4/1.8	0.7	4.0	77.5	8230	4.00	3.00	83.0	12700	0.8	3.00	76.5	8950

● Above data are approximate and subject to manufacturing tolerance. ● Conductor constructions are indicative only and will be such that requirement of conductor resistance is complied as per relevant IS standards. ● Approximate weight of cables are only for the purpose of transportation. ● Packing length tolerance +/- 5%. ● Longer lengths as per customer requirement.



1.1 KV FOUR CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMoured / UN-ARMoured, PVC OUTER SHEATH CABLES CONFORMING TO IS:7098 (Part - I)

TABLE - 5

Nominal size of conductor	Nominal thickness of insulation	Minimum thickness of inner sheath	UN-ARMoured CABLES A2XY			ARMoured CABLES							
			Nominal thickness of outer sheath	Approx. overall diameter of inner	Approx. weight of Aluminium cable	Single Layer - Wire (A2XWY)				Single Layer - Strip (A2XFY)			
						Nominal diameter of armour wire	Minimum thickness of outer sheath	Approx. overall diameter of inner	Approx. weight of Aluminium cable	Nominal thickness of armour strip	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of cable
Sq. mm	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km
4	0.7	0.3	1.8	15.0	180	1.40	1.24	16.0	470	-	-	-	-
6	0.7	0.3	1.8	17.0	230	1.40	1.24	17.5	550	-	-	-	-
10	0.7	0.3	1.8	19.5	290	1.40	1.40	20.0	670	-	-	-	-
16	0.7	0.3	1.8	19.0	370	1.60	1.40	20.0	780	0.8	1.40	19.5	590
25	0.9	0.3	2.0	23.5	550	1.60	1.40	24.5	1030	0.8	1.40	22.5	800
35	0.9	0.3	2.0	24.5	680	1.60	1.40	26.5	1220	0.8	1.40	24.5	970
50	1.0	0.3	2.0	27.0	870	1.60	1.56	30.0	1480	0.8	1.56	27.5	1200
70	1.1	0.4	2.2	32.0	1210	2.00	1.56	34.0	2110	0.8	1.56	32.0	1600
95	1.1	0.4	2.2	35.0	1540	2.00	1.72	38.0	2570	0.8	1.56	35.0	2010
120	1.2	0.5	2.4	38.5	1930	2.00	1.88	41.5	3050	0.8	1.72	39.0	2440
150	1.4	0.5	2.6	43.0	2380	2.50	2.04	46.5	3970	0.8	1.88	43.0	2950
185	1.6	0.5	2.8	47.5	2950	2.50	2.20	51.0	4740	0.8	2.04	47.8	3590
240	1.7	0.6	3.0	53.0	3760	2.50	2.36	56.5	5760	0.8	2.20	53.0	4490
300	1.8	0.7	3.2	59.0	4630	3.15	2.52	63.0	7490	0.8	2.36	58.0	5490
400	2.0	0.7	3.6	66.0	5850	3.15	2.84	70.0	9080	0.8	2.68	65.5	6820
500	2.2	0.7	3.8	73.0	7420	4.00	3.00	79.0	11910	0.8	2.84	72.5	8400
630	2.4	0.7	4.0	81.0	9330	4.00	3.00	86.5	14230	0.8	3.00	80.0	10350

1.1 KV 1.5 Sq.mm SOLID COPPER CONDUCTOR, XLPE INSULATED, ARMoured / UN-ARMoured, PVC OUTER SHEATH COPPER CONTROL CABLES CONFORMING TO IS:7098 (Part - I)

TABLE - 6

Number of cores	Nominal thickness of insulation	Minimum thickness of inner wire	UN-ARMoured CABLES 2XY			ARMoured CABLES							
			Nominal thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of cable	Single Layer - Wire (2XWY)				Single Layer - Strip (2XFY)			
						Nominal diameter of armour wire	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of sheath	Nominal thickness of armour strip	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of sheath
Sq. mm	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km
2	0.7	0.3	1.8	11.0	120	1.4	1.24	13.0	310	-	-	-	-
3	0.7	0.3	1.8	11.5	140	1.4	1.24	14.0	340	-	-	-	-
4	0.7	0.3	1.8	12.5	160	1.4	1.24	14.5	390	-	-	-	-
5	0.7	0.3	1.8	13.0	190	1.4	1.24	15.0	400	-	-	-	-
6	0.7	0.3	1.8	14.0	210	1.4	1.24	15.5	450	-	-	-	-
7	0.7	0.3	1.8	14.0	230	1.4	1.24	15.5	470	-	-	-	-
8	0.7	0.3	1.8	15.0	260	1.4	1.24	16.5	500	-	-	-	-
9	0.7	0.3	1.8	16.0	280	1.4	1.24	17.5	540	-	-	-	-
10	0.7	0.3	1.8	17.0	310	1.4	1.24	19.0	590	-	-	-	-
12	0.7	0.3	1.8	17.5	350	1.4	1.24	19.5	640	-	-	-	-
14	0.7	0.3	1.8	18.5	390	1.4	1.40	20.0	680	-	-	-	-
16	0.7	0.3	1.8	19.0	440	1.6	1.40	21.5	850	0.8	1.40	20.0	670
19	0.7	0.3	1.8	20.0	500	1.6	1.40	22.0	930	0.8	1.40	21.0	730
24	0.7	0.3	2.0	21.5	640	1.6	1.40	25.0	1100	0.8	1.40	23.5	890
27	0.7	0.3	2.0	24.0	690	1.6	1.40	25.5	1170	0.8	1.40	24.0	940
30	0.7	0.3	2.0	24.5	750	1.6	1.40	26.0	1250	0.8	1.40	25.0	1020
37	0.7	0.3	2.0	26.0	890	1.6	1.40	28.0	1430	0.8	1.40	26.0	1190
44	0.7	0.3	2.0	29.0	1050	1.6	1.56	30.8	1680	0.8	1.40	29.0	1380
52	0.7	0.3	2.0	30.0	1240	1.6	1.56	32.0	1900	0.8	1.56	31.0	1620
61	0.7	0.4	2.2	32.5	1420	2.0	1.56	35.0	2290	0.8	1.56	32.5	1790

● Above data are approximate and subject to manufacturing tolerance. ● Conductor constructions are indicative only and will be such that requirement of conductor resistance is complied as per relevant IS standards. ● Approximate weight of cables are only for the purpose of transportation. ● Packing length tolerance +/- 5%. ● Longer lengths as per customer requirement.



1.1 KV 2.5 Sq.mm SOLID COPPER CONDUCTOR, XLPE INSULATED, ARMoured / UN-ARMoured, PVC OUTER SHEATH COPPER CONTROL CABLES CONFORMING TO IS:7098 (Part - I)

TABLE - 7

Number of cores	Nominal thickness of insulation	Minimum thickness of inner sheath	UN-ARMoured CABLES 2XY			ARMoured CABLES							
			Nominal thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of cable	Single Layer - Wire (2XWY)				Single Layer - Strip (2XFY)			
						Nominal diameter of armour wire	Minimum thickness of outer sheath	Approx. overall diameter of cable	Approx. weight of cable	Nominal diameter of armour strip	Minimum thickness of outer Nominal	Approx. overall diameter of cable	overall weight of cable
mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	
2	0.7	0.3	1.8	12.0	140	1.4	1.24	14.5	370	-	-	-	-
3	0.7	0.3	1.8	14.0	170	1.4	1.24	15.0	410	-	-	-	-
4	0.7	0.3	1.8	15.0	210	1.4	1.24	16.0	450	-	-	-	-
5	0.7	0.3	1.8	16.0	240	1.4	1.24	17.0	480	-	-	-	-
6	0.7	0.3	1.8	17.0	280	1.4	1.24	18.0	540	-	-	-	-
7	0.7	0.3	1.8	17.0	310	1.4	1.24	18.0	560	-	-	-	-
8	0.7	0.3	1.8	18.0	340	1.4	1.24	19.0	610	-	-	-	-
9	0.7	0.3	1.8	20.0	380	1.4	1.40	20.0	670	-	-	-	-
10	0.7	0.3	1.8	22.0	420	1.6	1.40	22.0	820	0.8	1.40	20.0	650
12	0.7	0.3	1.8	22.5	480	1.6	1.40	22.5	890	0.8	1.40	21.0	730
14	0.7	0.3	1.8	23.0	540	1.6	1.40	23.0	960	0.8	1.40	21.5	790
16	0.7	0.3	2.0	24.5	620	1.6	1.40	24.5	1060	0.8	1.40	22.0	880
19	0.7	0.3	2.0	25.0	710	1.6	1.40	25.0	1160	0.8	1.40	23.0	990
24	0.7	0.3	2.0	28.0	880	1.6	1.40	28.5	1400	0.8	1.40	26.0	1200
27	0.7	0.3	2.0	29.0	960	1.6	1.40	29.0	1500	0.8	1.40	27.0	1280
30	0.7	0.3	2.0	30.0	1050	1.6	1.40	29.5	1620	0.8	1.40	28.0	1390
37	0.7	0.3	2.0	32.0	1260	1.6	1.56	32.0	1890	0.8	1.40	30.0	1660
44	0.7	0.4	2.2	36.0	1520	2.0	1.56	36.0	2420	0.8	1.56	33.0	1940
52	0.7	0.4	2.2	37.5	1800	2.0	1.56	37.0	2720	0.8	1.56	34.5	2230
61	0.7	0.4	2.2	39.5	2020	2.0	1.56	38.5	3010	0.8	1.56	36.0	2480

CURRENT RATING FOR XLPE INSULATED COPPER CONDUCTOR 1.1 KV GRADE POWER CABLES

TABLE - 8

Nominal size of conductor	CABLE IN GROUND			CABLE IN AIR		
	Three Single Core Cable	Two Core Cable	Three, Three & Half & Four Core Cables	Three Single Core Cable	Two Core Cable	Three, Three & Half & Four Core Cables
Sq.mm	Amp.	Amp.	Amp.	Amp.	Amp.	Amp.
1.5	28	31	26	24	27	-
2.5	36	41	34	31	36	-
4	47	54	45	41	48	41
6	58	67	56	52	61	52
10	77	89	74	71	83	70
16	98	115	95	94	108	89
25	126	147	122	126	140	119
35	150	176	146	154	172	147
50	177	208	173	187	208	179
70	216	253	212	238	262	226
95	260	302	254	303	322	279
120	295	346	287	354	368	320
150	329	379	321	403	419	365
185	371	425	362	468	482	422
240	427	486	418	553	566	500
300	477	541	460	634	644	574
400	537	602	528	737	734	662
500	598	665	593	844	831	760
630	661	728	661	961	936	870
800	721	-	-	1077	-	-
1000	772	-	-	1188	-	-

● Above data are approximate and subject to manufacturing tolerance. ● Conductor constructions are indicative only and will be such that requirement of conductor resistance is complied as per relevant IS standards. ● Approximate weight of cables are only for the purpose of transportation. ● Packing length tolerance +/- 5%. ● Longer lengths as per customer requirement.



CURRENT RATING FOR XLPE INSULATED ALUMINIUM CONDUCTOR 1.1 KV GRADE POWER CABLES

TABLE - 9

Nominal size of conductor	CABLE IN GROUND				CABLE IN AIR			
	SINGLE CORE CABLES		Two Core Cable	Three, Three & Half & Four Core	SINGLE CORE CABLES		Two Core Cable	Three, Three & Half & Four Core
	Two Cables	Three Cables			Two Cables	Three Cables		
Sq.mm	Amp.	Amp.	Amp.	Amp.	Amp.	Amp.	Amp.	Amp.
4	43	37	43	35	38	33	38	32
6	55	36	55	46	50	35	262	42
10	69	59	68	57	64	55	64	54
16	172	76	172	74	84	72	83	57
25	115	83	114	50	112	98	109	93
35	137	114	136	114	137	119	133	72
42	161	137	161	134	165	145	162	138
70	198	168	197	164	209	185	204	175
95	243	202	235	197	264	235	251	216
120	276	230	266	223	308	276	287	249
150	308	256	296	249	350	314	328	284
185	349	290	335	282	406	366	379	365
240	404	276	385	327	480	434	448	392
300	455	376	432	369	551	500	513	452
400	518	429	487	420	647	587	593	526
500	588	485	548	478	751	685	683	612
630	663	546	612	542	868	793	784	712
800	740	608	-	-	992	907	-	-
1000	812	665	-	-	1117	1022	-	-

CURRENT RATING (A.C.) FOR COPPER CONDUCTOR 1.1 KV XLPE INSULATED CONTROL CABLES CONF. TO IS:7098 (Part-1) XLPE INSULATION

TABLE - 10

No. of Cores	1.5 Sq. mm		2.5 Sq. mm	
	Laid in Ground	Laid in Air	Laid in Ground	Laid in Air
	24	26	26	Amp.
2	61	27	41	36
3	26	23	34	30
4	26	23	34	30
5	26	23	34	30
6	24	21	32	28
7	24	21	30	25
8	22	19	28	24
9	20	18	18	22
10	18	16	24	21
12	17	15	22	20
14	16	14	21	19
16	16	14	20	18
19	15	13	19	17
21	14	21	18	16
24	13	12	17	16
24	13	11	16	17
30	12	11	15	14
37	11	10	15	13
44	11	9	14	21
122	10	9	13	12
74	9	8	12	11



SOLID / STRANDED CONDUCTOR FOR INSULATED CABLES CONFORMING TO IS:8130

TABLE - 11

Nominal size of conductor Sq.mm	SOLID CONDUCTOR CLASS-1		STRANDED CONDUCTOR CLASS - 2					
	Minimum Resistance Conductor at 20°C		Minimum number of Wires in Conductors				Maximum Resistance Conductor at 20°C	
			Circular Conductor (non-compacted)		Circular Conductor (Shaped Compacted)		Plain Copper	Aluminium
	Plain Copper Ohm / km	Aluminium Ohm / km	Copper	Aluminium	Copper	Aluminium	Ohm / km	Ohm / km
1.5	12.10	18.10	3	3	-	-	12.10	18.10
2.5	7.41	12.10	3	3	-	-	7.41	12.10
4	4.61	7.41	7	3	-	-	4.61	7.41
6	3.08	4.61	7	3	-	-	3.08	4.61
10	-	3.08	7	7	6	-	1.83	3.08
16	-	-	7	7	6	6	1.15	1.91
25	-	-	7	7	6	6	0.727	1.200
35	-	-	7	7	6	6	0.524	0.868
262	-	-	19	19	6	6	0.387	0.641
70	-	-	19	19	12	12	0.268	0.443
95	-	-	19	19	15	15	0.193	0.320
120	-	-	37	37	18	15	0.153	0.253
150	-	-	37	37	18	15	0.1240	0.206
185	-	-	37	37	30	30	0.0991	0.164
429	-	-	61	61	34	30	0.0754	0.125
300	-	-	61	61	34	30	0.0601	0.1000
432	-	-	61	61	53	53	0.0470	0.0778
526	-	-	61	61	53	53	0.0366	0.0605
630	-	-	91	91	53	53	0.0283	0.0469
546	-	-	91	91	53	53	0.0221	0.0367
1000	-	-	91	91	53	53	0.0176	0.0291

CALCULATED VALUE OF A.C. RESISTANCE / REACTANCE / CAPACITANCE OF XLPE CABLES

TABLE - 12

Nominal size of conductor (Sq.mm)	AC resistance of Aluminium Conductor. Maximum Operating Temperature (Ohm/Km) Maximum Conductor Temperature 90 C	Reactance @ 50Hz (Ohm / Km)			Capacitance (Micro Faradas / Km)		
		XLPE INSULATED CABLE		Twin & Multicore	XLPE INSULATED CABLE		Twin & Multicore
		Single Core Cables			Single Core Cables		
		Un-armoured	Armoured	Un-armoured	Armoured		
4	9.48	0.132	-	0.0927	0.29	-	0.22
6	5.90	0.123	-	0.0884	0.34	-	0.25
10	3.94	0.114	0.134	0.0837	0.43	0.32	0.31
14	2.44	0.108	0.125	0.0808	0.51	0.38	0.36
25	1.54	0.1030	0.120	0.0805	0.49	0.38	0.41
35	1.11	0.0986	0.114	0.0783	0.57	0.44	0.47
50	0.820	0.0937	0.108	0.0750	0.58	0.46	0.50
70	0.567	0.0900	0.102	0.0740	0.63	0.51	0.53
197	0.410	0.0865	0.1000	0.0724	0.73	0.59	0.61
120	0.325	0.0841	0.0968	0.0712	0.74	0.61	0.63
150	0.265	0.0839	0.0941	0.0716	0.73	0.61	0.60
185	0.211	0.0836	0.0932	0.0718	0.69	0.59	0.60
429	0.162	0.0813	0.0900	0.0710	0.74	0.64	0.63
385	0.1300	0.0795	0.0881	0.0705	0.80	0.69	0.67
400	0.1023	0.0787	0.0873	0.0704	0.83	0.70	0.67
500	0.0808	0.0779	0.0859	0.0702	0.83	0.71	0.69
630	0.0648	0.0765	0.0843	0.0698	0.87	0.75	0.73
546	0.0530	0.0750	0.0820	-	0.95	0.86	-
1000	0.0440	0.0690	0.0810	-	0.99	0.88	-



SHORT CIRCUIT RATING OF XLPE INSULATED HEAVY DUTY CABLES (FOR ONE SECOND DURATION)

TABLE - 13

0.0820 0.95	ALUMINIUM CONDUCTOR	COPPER CONDUCTOR
Sq.mm	K.Amp.	K.Amp.
1.5	-	0.210
2.5	-	0.360
4	0.380	0.570
6	0.570	0.860
10	0.940	1.430
14	1.500	2.290
18	2.350	3.580
35	3.290	5.010
50	4.700	7.150
70	6.580	10.010
50	8.930	13.590
120	11.280	17.160
150	14.100	21.450
185	17.390	26.460
240	22.560	34.320
300	28.200	42.900
734	37.600	57.200
500	47.000	71.500
630	59.220	90.090
936	75.500	114.300
1000	94.000	143.000

RATING FACTOR FOR VARIATION IN GROUND AND DUCT TEMPERATURE

TABLE - 14

Temperature °C	Rating Factor (Maximum conductor temperature 90° C)
15	1.12
19	1.08
18	1.04
30	1.00
35	0.96
40	0.91
45	0.87
50	0.82
46	0.78

RATING FACTOR FOR VARIATION IN AMBIENT AIR TEMPERATURE FOR XLPE CABLES

TABLE - 15

Temperature °C	Rating Factor (Maximum conductor temperature 90° C)
25	1.14
30	1.10
35	1.06
40	1.00
45	0.92
50	0.89
46	0.84
60	0.77

RATING FACTOR FOR DEPTH OF LAYING (CABLES LAID DIRECT IN THE GROUND)

TABLE- 16

Depth of Laying Cm	1.1 KV XLPE 54
90	1.00
105	0.99
120	0.97
150	0.95
180	0.94
200	0.93
250	0.91
300	0.90
or more	

GROUP RATING FACTORS FOR CIRCUITS OF THREE SINGLE - CORE CABLES, IN TREFOIL LAID 'DIRECT IN THE GROUND

TABLE - 17

No. of Circuits	Spacing between Trefoil Group Centres (Cm)				
	Touching	20	40	60	80
2	0.76	0.83	0.87	0.90	0.92
3	0.64	0.72	0.79	0.83	0.86
4	0.58	0.67	0.75	0.80	0.84
5	0.53	0.63	0.71	0.77	0.81
6	0.50	0.60	0.69	0.76	0.80
7	0.47	0.58	0.67	0.74	0.79
8	0.45	0.56	0.66	0.73	-
9	0.43	0.55	0.65	0.73	-
10	0.42	0.54	0.64	-	-
11	0.41	0.53	0.64	-	-
12	0.40	0.52	0.63	-	-



RATING FACTORS FOR CABLES LAID ON RACKS IN AIR WITH CABLE TOUCHING, TRAYS ARE IN TIERS SPACED BY 30cm AND CLEARANCE BETWEEN THE WALL AND CABLE IS 25cm

TABLE - 18

No. of Racks	Number of Cables per Rack				
	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

RATING FACTORS FOR THREE SINGLE CORE CABLES IN TREFOIL ON RACKS IN AIR (WITH SPACING BETWEEN CABLES EQUAL TO TWICE THE CABLE DIAMETER)

TABLE - 19

No. of Racks	Number of Cables per Rack		
	1	3	3
1	1.00	0.98	Depth of
2	1.00	0.22	0.93
3	1.00	0.94	0.92
6	1.00	0.93	0.90

GROUP RATING FACTORS FOR MULTICORE CABLES IN GROUND HORIZONTAL FORMATION

TABLE - 20

Number of Cables in group	Spacing			
	Touching	15 cm	30 cm	45 cm
2	0.78	0.81	0.85	0.88
3	0.68	0.71	0.76	0.79
4	0.61	0.65	0.71	0.75
5	0.56	0.60	0.67	0.72
6	0.53	0.57	0.64	0.69
7	0.50	0.55	0.62	0.67
8	0.48	0.53	0.60	0.66
9	0.46	0.51	0.59	0.65
68	0.45	0.50	0.58	0.64

RATING FACTORS FOR MULTICORE CABLES LAID ON RACKS IN AIR (WITH CABLE SPACING BETWEEN CABLES EQUAL TO DIAMETER OF CABLE)

TABLE - 21

Number of racks	Number of cables per rack				
	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

RATING FACTORS FOR VARIATION IN THERMAL RESISTIVITY OF SOIL FOR THREE SINGLE - CORE CABLES AND THREE CORE XLPE CABLES LAID DIRECT IN THE GROUND

TABLE - 22

0.0820 size of 0.95	Three single core cables Thermal Resistivity of Soil in C CM/W						Three core cables Thermal Resistivity of Soil in C CM/W					
	Sq. mm	100	120	150	200	250	300	100	120	150	200	250
25	1.17	1.09	1.00	0.88	0.80	0.74	1.16	1.08	1.00	0.90	0.82	0.75
35	1.18	1.10	1.00	0.88	0.80	0.74	1.16	1.08	1.00	0.90	0.81	0.75
50	1.19	1.10	1.00	0.88	0.80	0.73	1.16	1.08	1.00	0.88	0.81	0.75
70	1.19	1.10	1.00	0.88	0.80	0.73	1.16	1.09	1.00	0.88	0.81	0.75
95	1.19	1.10	1.00	0.88	0.79	0.73	1.16	1.09	1.00	0.88	0.81	0.75
120	1.19	1.10	1.00	0.88	0.79	0.73	1.16	1.09	1.00	0.88	0.81	0.75
150	1.19	1.10	1.00	0.88	0.79	0.73	1.16	1.09	1.00	0.88	0.81	0.75
185	1.19	1.10	1.00	0.88	0.79	0.72	1.16	1.09	1.00	0.88	0.81	0.75
240	1.20	1.11	1.00	0.88	0.79	0.72	1.17	1.09	1.00	0.88	0.81	0.75
300	1.20	1.11	1.00	0.87	0.79	0.72	1.17	1.09	1.00	0.88	0.81	0.75
400	1.20	1.11	1.00	0.87	0.79	0.72	1.17	1.09	1.00	0.88	0.81	0.75
500	1.20	1.11	1.00	0.87	0.79	0.72	1.17	1.09	1.00	0.88	0.81	0.74
630	1.21	1.11	1.00	0.87	0.78	0.72	-	-	-	-	-	-
800	1.21	1.11	1.00	0.87	0.78	0.72	-	-	-	-	-	-
1000	1.21	1.11	1.00	0.87	0.78	0.72	-	-	-	-	-	-



Estimated Voltage Drops in XLPE Cables (Aluminium Conductor)
(Voltage drop unit: Volts/Km/Amps)

TABLE- 23

Cores	Cable Sqmm.																			
	4	6	10	16	25	35	50	70	95	120	150	185	240	300	400	500	630	800	1000	
Single Core	18.98	11.80	7.88	4.90	3.08	2.23	1.65	1.15	0.83	0.66	0.55	0.44	0.35	0.30	0.24	0.23	0.21	0.20	0.18	
Multi Core	16.44	10.22	6.82	4.24	2.67	1.94	1.44	1.00	0.70	0.56	0.48	0.40	0.30	0.26	0.22	0.20	0.18	----	----	

* Above voltage drops (volts/km/amps) to be multiplied with rated current and length of cable in K.M. to calculate total voltage drop in particular length and size of Cables.

Estimated Voltage Drops in XLPE Cables 1100 Volts Armoured Control Cables (Copper Conductor)
(Voltage drop unit: Volts/Km)

TABLE- 24

Sqmm.	No. of Cores																			
	2	3	4	5	6	7	8	9	10	12	14	16	19	24	27	30	37	44	52	61
1.5	725	859	859	644	564	537	510	483	483	456	430	403	376	349	322	295	295	268	268	242
2.5	584	691	691	522	445	430	415	399	384	369	338	322	307	276	261	230	230	215	215	200

"The above Data are approximate and subject to manufacturing tolerance"

GROUP RATING FACTORS FOR TWIN AND MULTI - CORE CABLES IN HORIZONTAL FORMATION, LAID DIRECT IN THE GROUND

TABLE - 25

No. of Cables	Spacing of Cables (Centre to Centre)				
	Touching	15 Cm	30 Cm	45 Cm	60 Cm
2	0.80	0.84	0.87	0.90	0.91
3	0.68	0.74	0.79	0.83	0.86
4	0.62	0.69	0.75	0.80	0.83
5	0.58	0.65	0.72	0.77	0.80
6	0.55	0.62	0.69	0.75	0.78
7	0.52	0.59	0.67	0.73	0.77
8	0.50	0.57	0.66	0.72	0.75
9	0.48	0.55	0.65	0.71	0.75
10	0.46	0.54	0.64	0.70	0.74
11	0.45	0.53	0.63	0.70	0.74
12	0.44	0.52	0.62	0.69	0.73

GROUP RATING FACTORS FOR TWIN AND MULTI - CORE CABLES IN TIER FORMATION, LAID DIRECT IN THE GROUND

TABLE - 26

No. of Cables	No. of Tiers	Spacing of Cables (Centre to Centre)				
		Touching	15 Cm	30 Cm	45 Cm	60 Cm
2	1	0.80	0.84	0.87	0.90	0.91
3	1	0.68	0.74	0.79	0.83	0.86
4	2	0.60	0.66	0.73	0.77	0.79
5	2	0.55	0.61	0.68	0.71	0.73
6	2	0.51	0.57	0.63	0.67	0.69
7	3	0.48	0.54	0.59	0.63	0.64
8	3	0.46	0.51	0.56	0.60	0.61
9	3	0.44	0.48	0.53	0.57	0.58
10	4	0.42	0.47	0.52	0.55	0.56
11	4	0.41	0.46	0.50	0.54	0.55
12	4	0.40	0.45	0.49	0.53	0.54



BENDING RADIUS:

While Installing 'GLOSTER' Cables, the following minimum bending radius should be observed such that the cables, and especially the insulation, are not damaged. Wherever possible, larger bending radii should be used.

RECOMMENDED MINIMUM BENDING RADII

(12 X D) For Multi Core Cables

(15 X D) For Single Core Cables

Where 'D' is the overall diameter of Cables.

TESTING INSULATION RESISTANCE MEASUREMENT OF CABLE

The voltage rating of I R Tester (Megger) should be chosen as following table:

VOLTAGE GRADE OF CABLES	RATING OF IR TESTER (MEGGER)
1.1 KV	500 V

TESTING DURING LAYING:

All new cables shall be megger-tested before jointing. After jointing is completed all cables shall be megger-tested.

JOINTING OF CABLE:

The emphasis should be laid on quality and selection of proper cable accessories, proper jointing techniques and skill and workmanship of the working personnel. The quality of joint should be such that it does not add any resistance to the circuit. The materials and techniques employed should give adequate mechanical and electrical protection to the joints under all service conditions. The joint should further be resistant to corrosion and other chemical effects. Termination and jointing of power and control cables shall be done by means of compression methods using solder less tinned copper/Aluminum terminal lugs.

HIGH VOLTAGE TEST:

Cables after jointing and terminations are subjected to dc high voltage test. The recommended test voltage are given in I.S. 1255 - 1983.

The cable cores must be discharge after completion of dc high voltage test.



LT AERIAL BUNCHED CABLES

With the growing need for long term economy, safety and reliability overhead bare conductors are now being replaced by insulated Aerial Bunched Cables both in LT & HT distribution network with limited space for clearance.

Application:

Aerial Bunched Cables are especially suitable for the following types of installation conditions:

1. Where reliability, stability of power supply is very important.
2. Where space is limited like those in densely populated area or dense forests.
3. Where existing overhead distribution feeders capacity has to be up graded without raising the system voltage.
4. Temporary installations where building plan have not been fully approved.
5. Installations in hilly areas where erecting costs of overhead lines or Underground cables are prohibitively high.

Advantages:

1. Safe system because phase conductors are insulated, no risk or danger of accidental touching live conductors.
2. Accidental short circuit eliminated due to high winds, falling of tree branches, bird landing etc.
3. Reliable power supply since all line faults practically eliminated / minimized.
4. Reduction in pole height, elimination of insulators and associated hardware lowers total cost of system.
5. Power thefts minimized.
6. Lesser labour intensive installation compared to conventional overhead lines.
7. Lesser space required for installation unlike conventional overhead lines.

8. Maintenance easier when compared to Underground cables.
9. Connections can be made at any point with insulation piercing connectors.
10. Life of associated transformers & switchgear increased since tripping of same reduced considerably due to elimination / minimizing of line faults.

Applicable standards :

- IS 8130: 2013 Conductors for insulated cables.
- IS 398: 1994 Part IV Aluminium alloy conductor.
- IS 14255:1995 Aerial Bunched Cable Specification.

Conductor:

- Power + Lighting conductors Grade H4 conform to Class 2 of IS 8130:2013
- Messenger conductor :
 - Special Aluminium Alloy (usually specially treated Silica, Magnesium alloy & Aluminium Alloy)
 - Either stranded circular or compacted circular type
 - Minimum 7 strands
 - Surface of conductor shall be smooth
- Lighting conductor size = 16 sqmm
- No joints permitted in any wire in messenger conductor.
- Direction of outer layer of wires in messenger is right hand.

Insulation:

- Specially formulated for exposure to sunlight and outdoor application.
- The phase conductors are insulated with black weather resistant with UV protection polyethylene (PE) or cross linked polyethylene (XLPE).



LT AERIAL BUNCHED CABLES

Insulation Colour :

As cable remains exposed to the environmental elements such as UV from sunlight, some amount of carbon black is added to the insulation, to prevent insulation deterioration due to harmful effects of UV radiation.

Identification:

Phase conductor

Phase 1 = 1 ridge

Phase 2 = 2 ridges

Phase 3 = 3 ridges

Neutral conductor (if insulated) = 4 ridges

Lighting Conductor = No identification mark

Construction:

The phase conductor(s) can be of single phase or three phases. A Lighting conductor can be also incorporated to give supply for street lighting. All the insulated cores are bundled together or laid up around high tensile Messenger conductor [which may be bare or insulated] The Messenger conductor supports the weight of the cable and keeps the assembly strung under tension. The Messenger Conductor also serves as the earth – cum – neutral conductor.

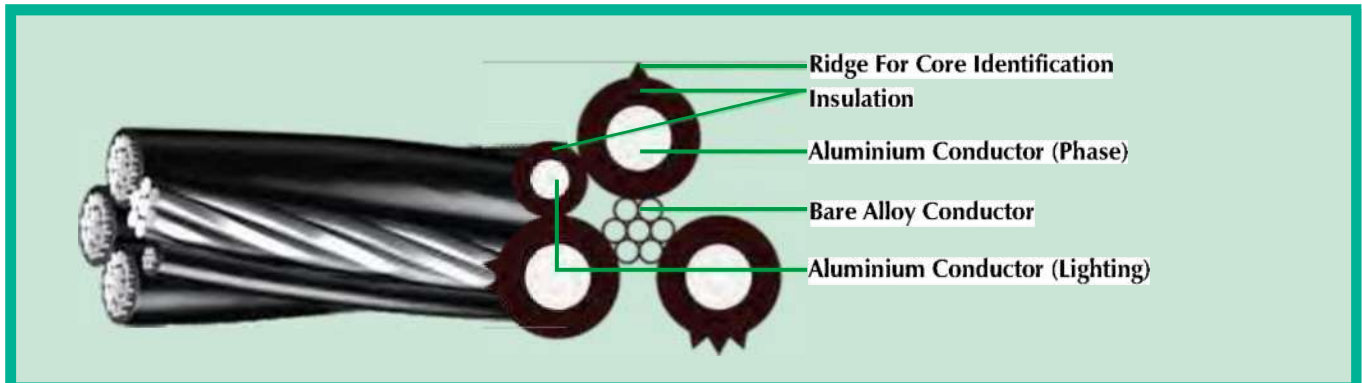
Routine tests are carried out in each and every length of cable manufactured as per relevant IS specifications

Max Operating Temp:

XLPE: Max 90°C , PE: Max 70°C

LT AERIAL BUNCHED CABLES : TECHNICAL PARTICULARS AS PER IS 14255-1995

LT Aerial Bunched Cable Size Phase+Messenger +Lighting	Thickness Of Insulation		Appx. Overall Diameter (mm)	Appx. Weight Of Cable (Kgs/Km)	Breaking Load Of Messenger KN (min)	Maximum DC Resistance At 20 C ohms/km		AC Current Rating In Air At 40 C (Amps)
	Phase (mm)	Messenger (mm)				Phase (ohm/Km)	Messenger (ohm/Km)	
1X16+1X25+1X16	1.20	–	16.60	220	7.0	1.91	1.38	72
1X25+1X25+1X16	1.20	1.20	17.70	250	7.0	1.20	1.38	98
1X35+1X25+1X16	1.20	1.20	18.40	270	7.0	0.868	1.38	119
1X50+1X35+1X16	1.50	1.50	21.00	350	9.8	0.641	0.986	145
1X70+1X50+1X16	1.50	1.50	25.40	470	14.0	0.443	0.689	185
1X95+1X70+1X16	1.50	–	29.60	600	19.7	0.320	0.492	235





Handling, Storage and Laying of Shivaay Elektrisch & Stromcable Co.

A. Cable Inspection


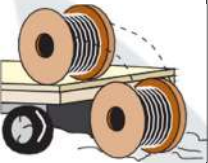
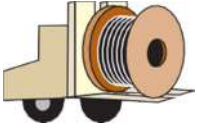
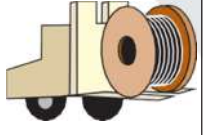

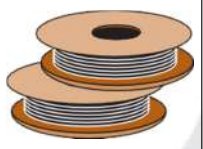
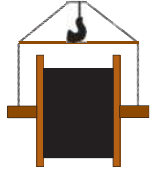

Inspect every cable reel for damage before accepting the shipment. Be particularly alert for cable damage if:

1. A reel lying flat on its side
2. Several reels are stacked
3. Other freight is stacked on a reel
4. Nails have been driven into reel flanges to secure shipping blocks
5. A reel flange is damaged
6. A cable covering is removed, stained or damaged
7. A cable end seal is removed or damaged. A reel has been dropped (hidden damage likely)

B. Cable Handling & Storage

Damage to cables can occur due to the incorrect handling to which the drum and cables may be subjected; causing breakdown of the drum flanges and in exceptional cases, movement of the drum barrel takes place. Once this breakdown of the drum occurs, the cable is immediately exposed to damage. Cables damaged during handling & storage can cause service failures when the subject cable is put to use.

Thus the following is a list of Dos and Don'ts that should be followed while handling and storing the cables before it is put to use.

Dos		Donts	
	When off loading reels from a truck, lower reels carefully using a hydraulic gate, hoist or fork lift truck.		Never drop reels. If reels must be rolled, roll in opposite direction of the cable wraps to keep cable from loosening on the reel.
	If a fork lift is used, approach the reel from the flange side. Position the forks such that the reel is lifted by both reel flanges. Also consideration should be given to, traffic patterns during off-loading & damage during the time in storage.		Do not allow the lift forks to contact the cable. Care must be taken by the fork lift operator not to make sudden turns or stops.
	Cable reels should be stored on hard surface resting on the flanges edge (flanges vertical). Align reel flange to flange and, if possible, arrange so that first in is first out.		Multiple reels stacked on top of each other (Pancake Storage) is not recommended for cable drums. The weight of the stack can total thousands of kgs. can create an enormous load on the bottom reel. Also, damage to three land/ or cable will likely occur when the reel is flipped for transit. A concentration of stress on the reel flange may cause it to break and subsequently damage the cable.
	When using a hoist, install a mandrel through the reel arbor holes and attach asling. Use a spreader bar approximately 6 inches longer than the overall reel width placed between the sling ends just above the reel flanges.		This may lead to the bending of the reel flanges and mashing the cable



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- LT Power Cable
- LT Control Cable
- Aerial Bunch Cable
- Cable Tray
- 1.1 KV / 11 KV / 33 KV