



Tirupati Plastomatics Pvt. Ltd.

Quality you can trust...

Medium Voltage Electric Cable
3.3kv to 33kv



Quality you can trust...

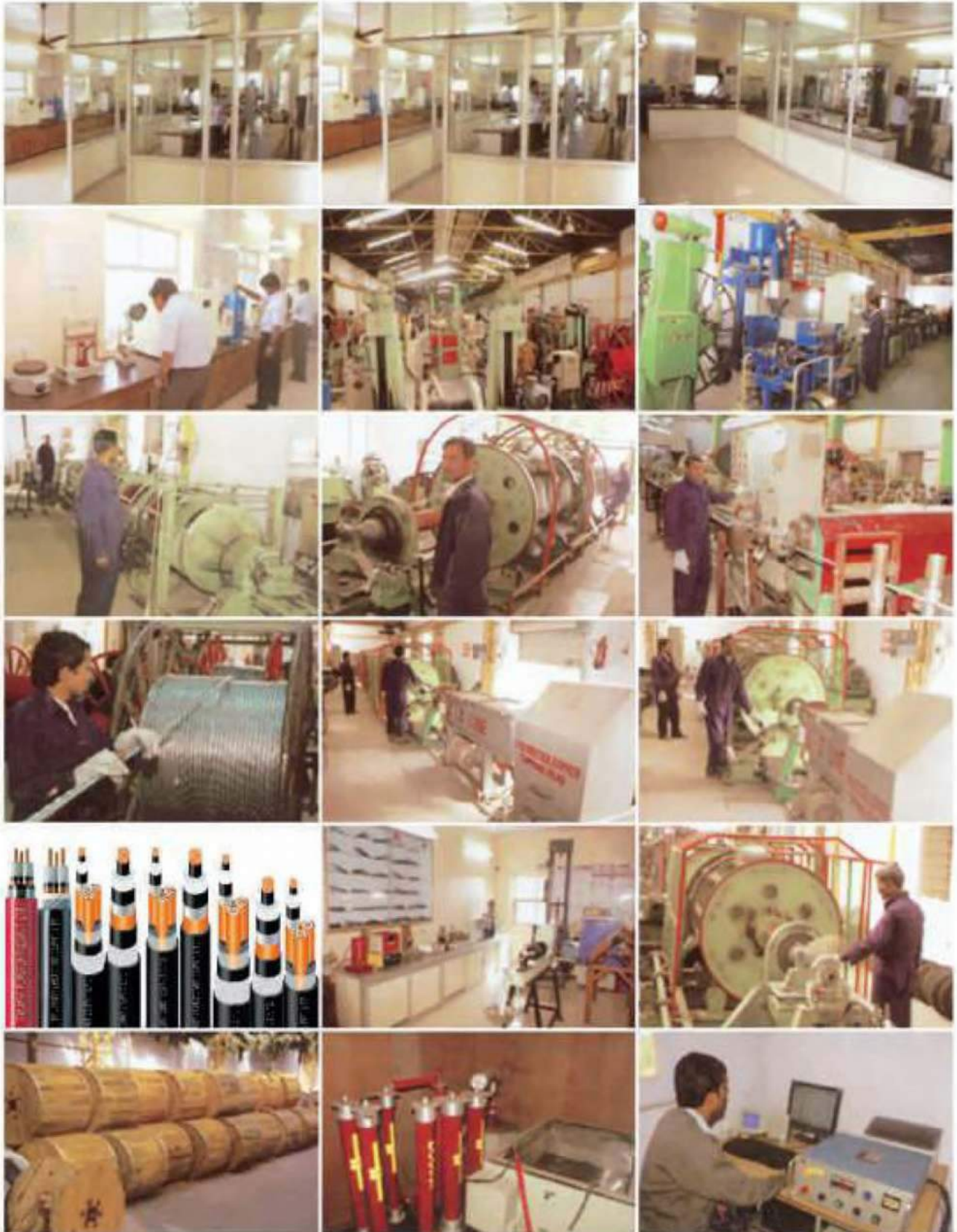
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Brand Name:
Gemini Cables



A VIEW OF STATE OF ART

PLANT AND OUR MANUFACTURING PROCESS & FACILITIES



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CERTIFICATES

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SABS

Permit to Apply Certification Mark

2009-2010 Declaration of the Director, IEC
 (As per the Government of India, New Delhi, India)
 (The Government of India, New Delhi, India)

**TIRUPATI
 PLASTOMATICS PVT LTD
 RAJASTHAN, INDIA**

To apply the certification mark



in request of the mark specification:

**SANS ISO7-2:2007, 3:2007, 4:2009 & 4:2007
 TO ELECTRIC CABLES WITH EXTRUDED
 SOLID DIELECTRIC INSULATION FROM FUSED
 INSTALLATIONS (300/500 V TO 1 000/300 V)
 PART 2: WIRING CABLES
 PART 3: PVC DISTRIBUTION CABLES
 PART 4: XLPE DISTRIBUTION CABLES
 PART 5: SERVICE CABLES**

This permit, including addendum 1 to 5, shall then be integrated with Standard

- 1. is issued without objection
- 2. is subject to the payment of permit fee
- 3. is subject to the payment of annual compliance fee
- 4. is subject to the payment of annual compliance fee
- 5. is subject to the payment of annual compliance fee

upon the payment of the annual compliance fee, the permit shall be valid for the period of 12 months from the date of issue of the permit. The permit shall be valid for the period of 12 months from the date of issue of the permit.

Permit Number: **0041/14159**

Effective Date: **18 November 2010**

Expiry Date: **17 November 2012**

Date of Integrated Registration: **17 November 2010**

Director






SABS

[illegible]

Introduction

ABOUT

Tirupati Plastomatics Pvt. Ltd. A flagship company of Gemini Group of industries Jaipur India. The founder of the company Mr. R.S. Gemini who is managing director & a well known industrialist & a renowned social worker. Tirupati Plastomatics enjoys Status of an ISO-9001:2008, ISO 14001:2004, OHSAS-18001, BIS, SMEC Australia, Scott Wilson-UK & SABS certified Company having a group turnover of Rs. 250.00 crores US\$ 53.76 Million. The company is one of the leading manufacturer of all kind of Manufacturing and Supply of PVC/XLPE LT & HT (up to 33kV) Fire Retardant/Polyethylene Insulated, Aluminium/Aluminium Alloy/Copper Conductor Cables, Unsheathed/Sheathed, Armoured/Unarmoured, Screened/Unscreened Type Including Power, Control, Submersible, Telecom, Coaxial, Radio Frequency, Computer, HF, VHF, UHF, Railway Signalling (Indoor/Outdoor) Aerial Bunched LT & HT (Up to 33kV), PIJF Cables for Telecommunication Including (4/6 Quad) and Dry (4 Quad) Cable, ACSR, AAC & AAAC Conductor (up to 400 kV) with own technical know-how for last] 11 years being widely used by Indian railways, utility service providers & private turnkey project executors in electricity distribution, transmission & generation. Tirupati has a dedicated & well experienced team of techno commercial experts.

In addition to serving Indian railways & electricity boards, Tirupati has also entered into overseas markets and have executed orders of aerial bunched cables, LV underground cables & AAA conductors, ACSR conductors as per IEC/VDE/DIN/SABS/ASTM/NF/BS specification to EDM, Mozambique, Mazare-E-Sharif power projects in Afghanistan and to South African customers.

MISSION

Guided by the philosophy 'create the best to be followed by the rest', Tirupati Plastomatics aims at building a zero-defect product, which will give value satisfaction to its huge clientele. Tirupati Plastomatics strongly believes that learning and improving is a continuous process for the total growth of the company.

VISION

Tirupati Plastomatics Pvt. Ltd., the name for dedication, devotion, discipline, discrimination and determination has made a substantial growth plan with Rupees 1000 Crores turnover projection by 2015.

Awards & Recognition

- Arch of Excellence Award 2002, All India Organizational Confederation, New Delhi.
- Award from Business Initiative Development Board 2004, New Delhi.
- Indian Achiever Award of Industrial Excellence for year 2008.



Mr. R.S. Gemini, Managing Director, receiving award presented by Business Initiative Development Organization in the year 2002.



Mr. Salman Khurshid, Central Minister for External Affairs presenting the "RASHTRIYA GAURAV AWARD 2004" to Managing Director of our Company.



Mr. Ravi Gemini (Director) receiving "Indian Achiever Award of Industrial Excellence" from Dr. Murali Manohar Joshi (Former Union Minister) for year 2008.

POLICY

Grow with customer by providing full customer satisfaction through quality product, support, timely deliveries & new development, operate safe, healthy & clean environment. Comply with statutory requirements, all applicable environment, health & safety legislation, prevention of ill health and injury, interests of all stakeholders, prevention of pollution, and continual improvement in the effectiveness and performance of Integrated Management System by improving process work practices and risk minimization through objective driven targets. Integrate quality safety, health & environmental matters in all existing activities and future planning. Create & enhance awareness among employees, society and other stakeholders about environment protection, minimization of waste, wise use of energy, water & other natural resources, improve skill & competence of our employees and contractors so as to enable them to demonstrate their involvement, for sound IMS performance.

Medium Voltage Cables to IEC 60502-2 (Design and Construction)

Single-core or three core cables consist of the following components:

Conductor

Conductors are made of copper or aluminum. Conductor design is usually circular stranded, and compacted. Our conductor design is in compliance with the requirements of IEC 60228 and BS 6360 Specification.

Insulation

Triple extrusion of inner semi-conductor (conductor screen), XLPE insulation, and outer semi-conductor (insulation screen) is applied. XLPE insulation is Water cured. XLPE insulation material is as per the requirements of IEC 60502-2 or as per customer's requirements.

Metallic screen

The metallic screen is usually made of copper wires or copper tape. Radial water sealing such as AL-Pe laminate and longitudinal water sealing may be applied upon customer's request.

Assembly

All cable cores are laid-up together with usage of non-hygroscopic filler material. These fillers are temperature compatible with all different cable layers such insulation, bedding and sheath.

Armouring

Armour material can be either Aluminum for single core cables or Steel for multi-core cables. Armour can be either wires or tapes. Our cable armouring is in compliance with the requirements of IEC 60502-2 and BS 6622.

Outer sheath/ Jacket

Our cables sheaths are made of an extruded layer of PVC or PE material and are in compliance with the requirements of IEC 60502-2 and BS 7655 Specification. We are also capable of providing cable sheaths with special requirements to be:

- Termite retardant
- Oil & Gasoline retardant
- Ozone/ acid/ alkali retardent
- Flame retardant and in compliance with requirements of IEC 60332-1 and IEC 61034-2
- Low smoke Halogen Free and in compliance with requirements of BS 7211 and BS 6724

Testing of medium Voltage Power Cables

We Tirupati Plastomatics Cable Company, are capable of performing all standard routine tests and sample tests that are normally carried out in accordance to IEC 6 0502-2 standards. We have all necessary equipment for such tests such as high voltage labs and special ovens.

We are also capable of performing tests in accordance with international or national requirements as agree upon with customers.

Routine Tests

- Measurements of the Electrical Resistance of Conductors
- Partial Discharge Test.
- High Voltage Test

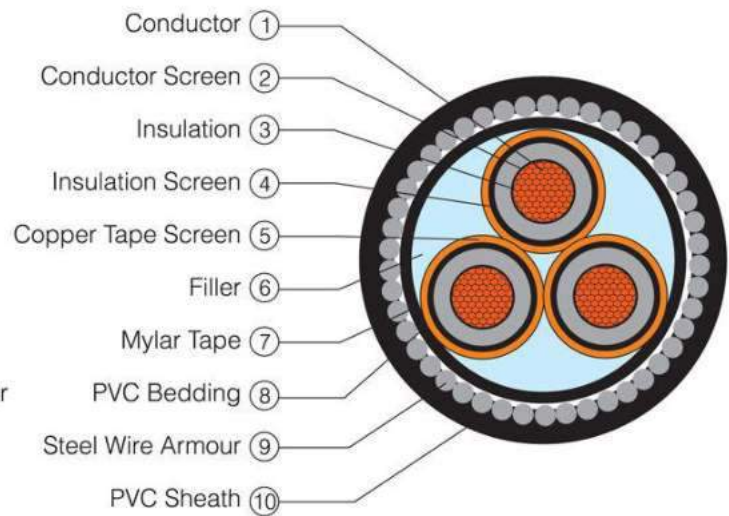
Sample Tests

- Conductor Examination
- Check of Dimensions
- Hot Set Test for XLPE Insulations

Medium Voltage Cables



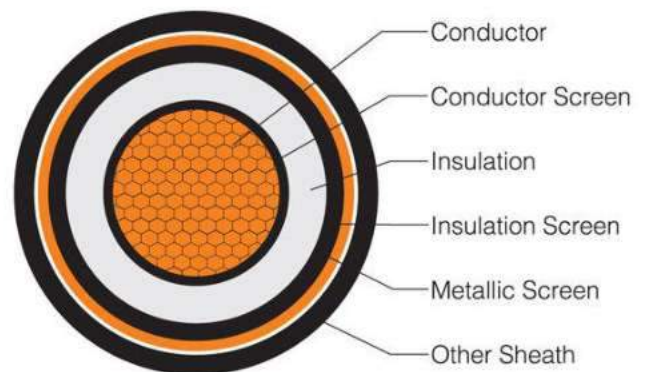
Conductor
Conductor Screen
Insulation
Insulation Screen
Metallic Screen
Filler
PVC Bedding
Galvanized Steel wire Armour
(for Galvanized Steel Tape)
Other sheath



3 Cores XLPE Cable



Conductor
Conductor Screen
Insulation
Insulation Screen
Metallic Screen
Galvanized Steel Tape Armour
Other Sheath



1 Core XLPE Cable

General Information

Selecting A Power Cables

The following factor are important when selecting a suitable cable construction which required to transport electrical energy from the power station to the consumer:

- Maximum operating voltage
- Insulation level
- Frequency
- Load to be carried
- Magnitude and duration of possible overload
- Magnitude and duration of short-circuit current
- Voltage drop
- Length of line
- Mode for installation underground (direct or in ducts) in air
- Chemical and physical properties of soil
- Max. and min. ambient air temperature - and soil temperatures
- Specification and requirement to be met

Voltage

The standard rated voltage of a cable is denoted by $U_0/U(U_m)$, where

U_0 : is the rated power-frequency voltage between conductor and earth or metallic screen.

U : is the rated power-frequency voltage between conductors.

U_m : is the maximum continuously permissible operating voltage of a cable at any time or in any part of the network.

U_0/U	KV	3.6/6	6/10	8.7/15	12/20	18/30
U_m	KV	7.2	12	17.5	24	36

Note :

Cable design for 6/10 and 18/30 kV is applicable for 6.35/11 and 19/33 kV respectively.

Standards

The cable described in this catalogue are all standard types, and their performance has been proved in operation, Construction and test are in accordance with the recommendation of IEC publications where applicable.

Power cables in accordance to other standards (e.g. BS, VDE, NEMA) can be manufactured upon customer's request.

Variation in Production and Delivery option

The provide data is approximate and subject to manufacturing tolerance Delivery length tolerance is $\pm 5\%$

Jacket Marking

Standards embossed outer jacket marking consisting of :

- 1 - Name of manufacturer
- 2 - Type designation, size of conductor, rated voltage and standard.
- 3 - Continuous length marking every meter.
- 4 - Year of manufacture.

Laying Information

Minimum Bending Radius During Installation

During laying, the bending radius should not be smaller than values given below.

The radius depends on the outer diameter (Do) of the cable.

XLPE insulated cables for 6.0 up to 30 kV

Types of Cable	Minimum Radius	
	During Laying	Adjacent to joints or terminations
Single-core		
- Unarmored	20 D _o	15 D _o
- Armoured	20 D _o	12 D _o
Three-core		
- Unarmored	15 D _o	12 D _o
- Armoured	12 D _o	10 D _o

Maximum Tensile Forces During Laying

Means of pulling	Types of cable	Formula	Factor
With the pulling head attached to the conductors	All types of cable	$P = \sigma \cdot A$	$\sigma = 50\text{N/mm}^2$ (Copper conductor) $\sigma = 30\text{N/mm}^2$ (Alum. conductor)
With the pulling stocking	Un-armoured cables	$P = \sigma \cdot A$	$\sigma = 50\text{N/mm}^2$ (Copper conductor) $\sigma = 30\text{N/mm}^2$ (Alum. conductor)
	Armoured cables	$P = k \cdot d^2$	$K = 9/\text{mm}^2$

P = Pull in N

A = Total cross section area in mm² of all conductors (but not screen or concentric conductor)

d = Outside diameter of the cable in mm

s = Permissible tensile stress of conductor in N/mm²

k = Empirically derived factor on N/mm²

Electrical Parameters of the Cables

DC Resistance of Conductor

The Maximum DC resistance values of conductors at 20°C are as per "IEC 60228" standard.

DC resistance per unit length of the conductor at other conductor temperature are given by:

$$R = R_0 [1 + \alpha_{20^\circ\text{C}} (t - 20^\circ\text{C})]$$

where :

R = DC resistance at temperature t °C (Ω/km)

R₀ = DC resistance at temperature 20°C (Ω/km) (given in the relative tables for each type of cable)

t = Conductor temperature °C

α_{20°C} = Temperature coefficient at 20°C (1/°C)

For copper conductor α_{20°C} = 0.00393

For aluminum conductor α_{20°C} = 0.00403

A.C. Resistance of Conductor

The AC Resistance per unit length of the conductor (effective resistance) at its maximum operating temperature is made up to the DC resistance at this temperature and the extra resistance which takes into account additional losses caused by the current displacement in the conductor (Skin effect and Proximity effect). The AC resistance is given in the given in the relative tables for each type of cable.

Inductance

The values of the inductance for both multicore and three single core cables have been calculated based on the following presumption equation.

$$L = K + 0.2 \ln (2S/d) \text{ (mH/km)}$$

where:

K = a constant relating to the conductor formation (mH/km)

D = the conductor diameter (mm)

S = axial spacing between conductors for cables in trefoil formation (mm)

= 1.26 x axial spacing between conductors for cables in flat formation (mm)

The values for inductance of single core cables have been calculated based on one cable diameter between cables in flat formation

Operation Capacitance

The Values of operating capacitance for cables have been calculated based on the following presumption :

$$C = \frac{\epsilon_r}{18 \ln (D/d)} \text{ µf/km}$$

where :

ε_r = Relative permativity of insulation

D = External diameter of insulation (mm)

d = Conductor diameter (mm)

Operating temperature for XLPE insulated cables:

90°C for continuous normal operation

105°C for emergency overload conditions

250°C for short circuit conditions

Charging Current

The charging current is the capacitive current which flows when AC voltage is applied to the cable as a result of the capacitance between the conductors and metallic screen. The value can be derived from the equation.

$$I_c = U_o \omega C 10^{-6}$$

where:

U_o = Voltage between phase and earth (V)

$\omega = 2\pi f$ (rad/s)

f = Frequency (Hz)

C = Capacitance to neutral ($\mu F/Km$)

Dielectric Losses

The dielectric losses of an AC cable are proportional to the capacitance, the frequency, the phase voltage and dielectric power factor. They are given by:

$$D = (2\pi f C U_o^2 \tan \delta) 10^{-6} \text{ (watt/m/phase)}$$

where:

f = Frequency Hz

C = Capacitance to neutral ($\mu F/Km$)

U_o = Voltage between phase and earth (V)

$\tan \delta$ = Dielectric power factor

Voltage Drop

when current flows in a cable conductor, there is a voltage drop between the ends of the conductor which is the product of the impedance. The following equations should be used to calculate the voltage drop:

1- Single phase system

$$V_d = 2 (R \cos \phi + X \sin \phi) \text{ (Volt/ amp/ meter)}$$

2- Three phase system

$$V_d = \sqrt{3} (R \cos \phi + X \sin \phi) \text{ (Volt/ amp/ meter)}$$

where:

V_d = Voltage drop (V/am/m)

R = AC resistance of conductor at a maximum conductor temperature (Ω/km)

X = Inductive reactance of cable (Ω/km)

$\cos \phi$ = power factor of load

Cable Short Circuit Current Capacity

The permissible short-circuit as presented in tables 11 to 13 are calculated in accordance with IEC 724, 1982. Which are based on the following conditions:

1- Short circuit starts from the maximum operating temperature.

2- Maximum temperature during short circuit

XLPE = 250°C

PVC = 160°C

3- Maximum short circuit current duration is 5 seconds The short circuit current (I) shall be calculated from the formula.

$$I^2 = (K^2 S^2 / T) \ln \left[\frac{\theta_1 + \beta}{\theta_2 + \beta} \right] \text{ (A)}$$

where:

I = Short circuit current (A.)

T = Duration of short circuit (second)

K = Constant for the material of the conductor

S = Area of conductor (mm^2)

θ_1 = Final temperature (°C)

θ_2 = Initial temperature (°C)

β = Reciprocal of the temperature

coefficient of resistance (α) of the conductor

CURRENT RATINGS

1- RECOMMENDATIONS FOR CURRENT RATINGS

The current rating of power cables is defined by the maximum intensity of current (in amperes), which can flow continuously through the cable, under permanent loading conditions, without any risk of damaging the insulation or deterioration of its electrical properties.

- Current carrying capacities have been calculated in accordance with IEC 60287 (calculation of the continuous current rating of cables).

- The values given in the tables are valid for one circuit in three phase system under conditions specified. For grouping cables rating factors must be used.

- It is to be observed that the current carrying capacities presented in TPPL technical data sheets are intended as a guide to assist operating engineers in selecting cables for safety and reliability.

- Basic assumptions and conditions of installation:

* Ambient ground temperature :	20°C
* Ambient air temperature :	30°C
* Depth of cable burial :	1.0 m
* Thermal resistivity of soil :	120°C.Cm/W

- Cables in air are assumed to be protected from direct solar radiation.

- Single core cables are installed as indicated in the technical information tables. Spacing between cables in flat formation is assumed to be one cable diameter.

- For three and four-core cables, it is usual to assume the same current carrying capacity for four cores cables as for three-core cables. Our calculated values are based actually on three core cables. These values are suitable with enough accuracy also for four cores cables in most cases. Only for large four cores cables in air the values may be found to be too conservative, due to the large cable surface and consequent high heat dissipation factor.

- The inner diameter of ducts has been assumed to be least 1.5 times the diameter of the cables.

- To obtain the maximum current carrying capacity of a cable operating at different conditions from the standards, you have to multiply the values of the current given in the technical information for the corresponding cable by the rating factors mentioned in the tables from 1 to 10, as follow:

$$I_a = K_i I_s \text{ in amperes}$$

where:

I_a : Current rating at actual operating conditions (amperes)

I_s : Current rating at standard operating conditions (amperes)

K_i : Rating factor given in the tables 1 to 10.

It has to be noted that K_t is the total rating factor : $K_t = K_1 \dots K_2 \dots K_n$

You may have a multiplication of so many partial rating factors, as many as the difference of laying and operating conditions from standard conditions.

Table 1**RATING FACTORS K FOR VARIATION IN GROUND TEMPERATURE**

GROUND TEMPERATURE °C	20	25	30	35	40	45	50	55
PVC cables rated 70°C	1.00	0.95	0.90	0.84	0.78	0.71	0.63	0.54
PVC cables rated 85°C	1.00	0.96	0.92	0.87	0.83	0.78	0.73	0.67
XLPE cables rated 90°C	1.00	0.96	0.92	0.88	0.84	0.79	0.75	0.70

Table 2**RATING FACTORS K FOR VARIATION IN AIR TEMPERATURE**

AIR TEMPERATURE °C	25	30	35	40	45	50	55
PVC cables rated 70°C	1.07	1.00	0.93	0.87	0.79	0.70	0.61
PVC cables rated 85°C	1.04	1.00	0.95	0.90	0.85	0.80	0.74
XLPE cables rated 90°C	1.04	1.00	0.96	0.91	0.87	0.82	0.76

Table 3**RATING FACTORS K FOR VARIATION IN GROUND DEPTH**

DEPTH OF LAYING (m)	0.6	0.7	0.8	0.9	1.0	1.1	1.2
k	1.05	1.03	1.02	1.01	1.00	0.99	0.98

Table 4**RATING FACTORS K FOR VARIATION IN SOIL RESISTIVITY**

SOIL RESISTIVITY (oC.cm/W)	80	90	100	110	120	150	200	250
k	1.17	1.12	1.07	1.00	0.91	0.91	0.80	0.73

Table 5**TREFOIL OR FLAT FORMATION DERATING FACTORS FOR THREE SINGLE CORE CABLES LAID DIRECT IN GROUND**

NUMBER OF CIRCUIT	TREFOIL FORMATION				FLAT FORMATION	
	TOUCHING		SPACING = 0.15 M		SPACING = 0.30 M	
	TREFOIL	FLAT	TREFOIL	FLAT	TREFOIL	FLAT
2	0.77	0.80	0.82	0.85	0.88	0.91
3	0.66	0.69	0.73	0.76	0.80	0.83
4	0.60	0.63	0.68	0.71	0.74	0.77
5	0.56	0.59	0.64	0.67	0.72	0.75
6	0.53	0.57	0.61	0.64	0.70	0.73

Table 6**TREFOIL OR FLAT FORMATION DERATING FACTORS FOR MULTI-CORE CABLES LAID DIRECT IN GROUND**

NUMBER OF CABLES	TREFOIL FORMATION				FLAT FORMATION	
	TOUCHING		SPACING = 0.15 M		SPACING = 0.30 M	
	TREFOIL	FLAT	TREFOIL	FLAT	TREFOIL	FLAT
2	0.81	0.81	0.87	0.87	0.91	0.91
3	0.69	0.70	0.76	0.78	0.82	0.84
4	0.62	0.63	0.72	0.74	0.77	0.81
5	0.58	0.60	0.66	0.70	0.73	0.78
6	0.54	0.56	0.63	0.67	0.70	0.76

Table 7**FLAT FORMATION DERATING FACTORS FOR THREE SINGLE CORE CABLES LAID IN FREE AIR**

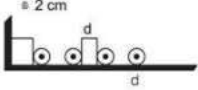
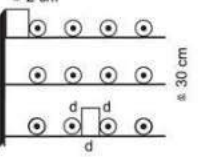
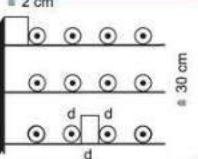
Clearance = Cable diameter (d) Clearance = from the wall 2 Cm		Number of circuit			
		1	2	3	
Laid on the Floor		0.92	0.89	0.88	
Laid of cables troughs (circulation of air is restricted)	Number of troughs 1	0.92	0.89	0.88	
	2	0.87	0.84	0.83	
	3	0.84	0.82	0.81	
	6	0.82	0.80	0.79	
Laid on cable racks	Number of racks 1	1.00	0.97	0.96	
	2	0.97	0.94	0.93	
	3	0.96	0.93	0.92	
	6	0.94	0.91	0.90	
Arranged near the wall		0.94	0.91	0.89	
Arranged on the wall		0.89	0.86	0.84	

Table 8**TREFOIL TOUCHING FORMATION DERATING FACTORS FOR THREE SINGLE CORE CABLES LAID IN FREE AIR**

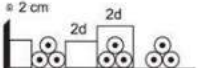
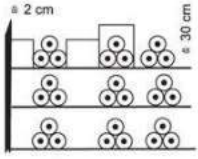
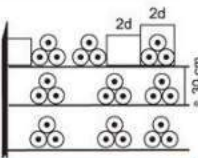
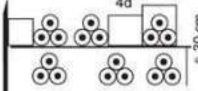
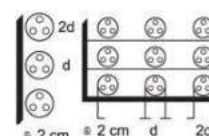
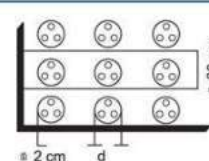
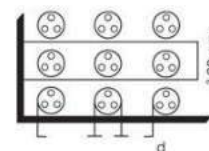
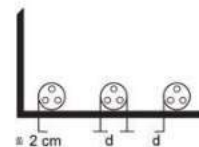
Clearance = 2 (d) Clearance from the wall 2 cm		Number of circuit			
		1	2	3	
Laid on the Floor		0.95	0.90	0.88	
Laid of cables troughs (circulation of air is restricted)	Number of troughs 1	0.95	0.90	0.88	
	2	0.90	0.85	0.83	
	3	0.88	0.83	0.81	
	6	0.86	0.81	0.79	
Laid on cable racks	Number of racks 1	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	
Arrangements for which reduction of the current is not necessary					

Table 9**HORIZONTAL OR VERTICAL FORMATION DERATING FACTORS FOR MULTI-CORE CABLES LAID IN FREE AIR**

Clearance = Cable diameter (d) Clearance from the wall 2 cm		Number of Cables						
		1	2	3	4	5	6	9
Laid on the Floor		0.95	0.90	0.88	0.85	0.84		
Laid of cables troughs (circulation of air is restricted)	Number of troughs							
	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		
Laid on cable racks	Number of racks							
	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		
Arranged near the wall		1.00	0.93	0.90	0.87	0.86		
Arrangements for which reduction of the current is not necessary		Clearance from the wall $\geq 2\text{cm}$			Clearance between cables $\geq 2d$			

**Table 10****DERATING FACTORS FOR MULTI-CORE CABLES TOUCHING AND IN CONTACT WITH THE WALL IN FREE AIR**

Clearance touching troughs and contact with wall		Number of Cables						
		1	2	3	4	5	6	9
Laid on the Floor		0.90	0.84	0.80	0.75	0.73		
Laid of cables troughs (circulation of air is restricted)	Number of troughs							
	1	0.95	0.84	0.80	0.75	0.73		
	2	0.95	0.80	0.76	0.71	0.69		
	3	0.95	0.78	0.74	0.70	0.68		
	6	0.95	0.76	0.72	0.68	0.66		
Laid on cable racks	Number of racks							
	1	0.95	0.84	0.80	0.75	0.73		
	2	0.95	0.80	0.76	0.71	0.69		
	3	0.95	0.78	0.74	0.70	0.68		
	6	0.95	0.76	0.72	0.68	0.66		
Arranged on the wall		0.95	0.78	0.73	0.68	0.66		



Table 11 (90/250 °C)

SHORT CIRCUIT CURRENT FOR COPPER CONDUCTORS - XLPE INSULATED (KA)										
Area (mm ²)	TIME (S)									
	0.1	0.2	0.3	0.4	0.5	1	2	3	4	5
16	7.24	5.12	4.18	3.62	3.24	2.29	1.62	1.32	1.14	1.02
25	11.31	8.00	6.53	5.66	5.06	3.58	2.53	2.07	1.79	1.60
35	15.84	11.20	9.14	7.92	7.08	5.01	3.54	2.89	2.50	2.24
50	22.62	16.00	13.06	11.31	10.11	7.15	5.06	4.13	3.58	3.20
70	31.67	22.40	18.29	15.84	14.16	10.02	7.08	5.78	5.01	4.48
95	42.98	30.39	24.82	21.49	19.22	13.59	9.61	7.85	6.80	6.08
120	54.30	38.39	31.34	27.15	24.28	17.17	12.14	9.91	8.59	7.68
150	67.87	47.99	39.19	33.94	30.35	21.46	15.18	12.39	10.73	9.60
185	83.71	59.19	48.33	41.85	37.43	26.47	18.72	15.28	13.24	11.94
240	108.59	76.79	62.70	54.30	48.56	34.34	24.28	19.83	17.17	15.36
300	135.74	95.98	78.37	67.87	60.71	42.93	30.35	24.78	21.46	19.20

Table 12 (90/250 °C)

SHORT CIRCUIT CURRENT FOR ALUMINUM CONDUCTORS - XLPE INSULATED (KA)										
Area (mm ²)	TIME (S)									
	0.1	0.2	0.3	0.4	0.5	1	2	3	4	5
16	4.78	3.38	2.76	2.39	2.14	1.51	1.07	0.87	0.76	0.68
25	7.47	5.28	4.31	3.73	3.34	2.36	1.67	1.36	1.18	1.06
35	10.46	7.40	6.04	5.23	4.68	3.31	2.34	1.91	1.65	1.48
50	14.94	10.56	8.63	7.47	6.68	4.72	3.34	2.73	2.36	2.11
70	20.91	14.79	12.08	10.46	9.35	6.61	4.68	3.82	3.31	2.96
95	28.38	20.07	16.39	14.19	12.69	8.98	6.35	5.18	4.49	4.01
120	35.85	25.35	20.70	17.93	16.03	11.34	8.02	6.55	5.67	5.07
150	44.82	31.69	25.88	22.41	20.04	14.17	10.02	8.18	7.09	6.34
185	55.28	39.09	31.91	27.64	24.72	17.48	12.36	10.09	8.74	7.82
240	71.71	50.71	41.40	35.85	32.07	22.68	16.03	13.09	11.34	10.14
300	89.64	63.38	51.75	44.82	40.09	28.35	20.04	16.37	14.17	12.68

Table 13 (90/250 °C)

SHORT CIRCUIT CURRENT FOR COPPER SCREEN (KA)										
Area (mm ²)	TIME (S)									
	0.1	0.2	0.3	0.4	0.5	1	2	3	4	5
16	7.24	5.12	4.18	3.62	3.24	2.29	1.62	1.32	1.14	1.02
25	11.31	8.00	6.53	5.66	5.06	3.58	2.53	2.07	1.79	1.60
35	15.84	11.20	9.14	7.92	7.08	5.01	3.54	2.89	2.50	2.24

Single Core Cable

For installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 3.6/6 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Annealed copper wires or (copper tape)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
1x25	2.5	1.5	20.3	640
1x35	2.5	1.6	21.6	764
1x50	2.5	1.6	22.3	897
1x70	2.5	1.6	24.5	1126
1x95	2.5	1.7	25.4	1403
1x120	2.5	1.8	28.0	1657
1x150	2.5	1.8	29.6	2033
1x185	2.5	1.9	31.8	2387
1x240	2.6	1.9	34.4	2978
1x300	2.8	2.0	36.6	3610
1x400	3.0	2.2	40.5	4499
1x500	3.2	2.3	44.5	5497
1x630	3.2	2.4	47.9	7108

2. Electrical Data

Cross section Area	mm ²	25	35	50	70	95	120	150	185	240	300	400	500	630
Screen Area	mm ²	16	16	16	16	16	16	25	25	25	25	35	35	35
DC Resist at 20°C	Ω / km	0.727	0.524	0.387	0.268	0.193	1.53	0.124	0.0991	0.0754	0.0601	0.0470	0.366	0.028
Ac Resist at 90°C	Ω / km	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1290	0.099	0.0812	0.0657	0.0538	0.045
Inductance														
Flat Formation	mh/ km	0.495	0.467	0.440	0.417	0.400	0.384	0.380	0.368	0.355	0.349	0.345	0.338	0.328
Trefoil Formation	mh/ km	0.449	0.421	0.394	0.371	0.353	0.338	0.331	0.322	0.420	0.303	0.299	0.292	0.283
Capacitance	μF/ km	0.269	0.306	0.337	0.385	0.430	0.472	0.514	0.558	0.606	0.617	0.646	0.672	0.751
Charging current	A/ km	0.365	0.415	0.457	0.522	0.583	0.640	0.697	0.758	0.823	0.838	0.876	0.912	1.019
Dielectric losses	W/m	0.011	0.012	0.013	0.015	0.017	0.018	0.020	0.022	0.024	0.024	0.025	0.026	0.029
Current Ampacity														
Cable in ground	A	170	195	235	265	305	345	395	455	500	560	635	710	790
Cable in free air	A	180	210	245	285	355	410	470	540	630	720	840	960	1100
Short circuit current														
Conductor S.C (1 Sec)	KA	5.01	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2	71.5	90.0
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07	5.07

Three Core Cable

For installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 3.6/6 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or copper wires)
Bedding	: PVC compound (or LSHF or PE)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
3 x 25	2.5	2.1	39.8	1943
3 x 35	2.5	2.2	42.7	2360
3 x 50	2.5	2.3	45.5	2885
3 x 70	2.5	2.4	49.6	3649
3 x 95	2.5	2.5	53.0	4587
3 x 120	2.5	2.6	56.9	5484
3 x 150	2.5	2.7	60.4	6461
3 x 185	2.5	2.8	64.6	7635
3 x 240	2.6	3.0	70.1	9639
3 x 300	2.8	3.2	75.4	11806
3 x 400	3.0	3.5	83.6	14654
3 x 500	3.2	3.7	90.3	17897

2. Electrical Data

Cross section Area	mm ²	16	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Ω / km	1.150	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.04700	0.0366
Ac Resist at 90°C	Ω / km	1.466	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1290	0.099	0.0812	0.0657	0.0538
Inductance	mH / km	0.422	0.402	0.379	0.422	0.330	0.310	0.300	0.290	0.280	0.270	0.266	0.261	0.256
Capacitance	μF / km	0.241	0.269	0.306	0.337	0.385	0.430	0.472	0.514	0.558	0.606	0.617	0.646	0.672
Charging current	A / km	0.314	0.365	0.415	0.457	0.522	0.583	0.640	0.697	0.758	0.823	0.838	0.876	0.912
Dielectric losses	W/m	0.010	0.011	0.012	0.013	0.015	0.017	0.018	0.020	0.022	0.024	0.024	0.025	0.026
Current Ampacity														
Cable in ground	A	115	160	191	224	255	300	340	385	435	495	555	625	700
Cable in free air	A	120	172	203	235	275	335	390	445	510	580	665	760	890
Short circuit current														
Conductor S.C (1 Sec)	KA	2.3	3.57	5.0	7.15	10.0	13.5	17.17	21.4	26.4	34.4	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/STA/PVC, 3.6/6 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or copper wires)
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized steel tape
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Tape Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x16	2.5	0.5	2.1	39.6	2097
3x25	2.5	0.5	2.2	41.4	2580
3x50	2.5	0.5	2.2	44.0	3014
3x70	2.5	0.5	2.3	47.3	4456
3x95	2.5	0.5	2.5	51.2	5449
3x95	2.5	0.5	2.6	54.7	6415
3x120	2.5	0.5	2.7	58.7	7444
3x150	2.5	0.5	2.8	62.3	8683
3x185	2.5	0.5	2.9	66.1	9420
3x240	2.6	0.5	3.1	71.0	10794
3x300	2.8	0.5	3.3	77.1	13069
3x400	3.0	0.8	3.6	87.6	16566
3x500	3.2	0.8	3.8	95.2	19895

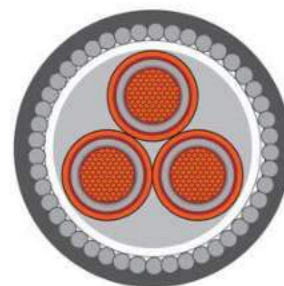
2. Electrical Data

Cross section Area	mm ²	16	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Ω / km	1.150	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Ω / km	1.466	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1290	0.099	0.0812	0.0657	0.0538
Inductance	mH/ km	0.422	0.400	0.366	0.342	0.323	0.310	0.300	0.290	0.280	0.270	0.266	0.261	0.256
Capacitance	μF/ km	0.241	0.269	0.306	0.337	0.385	0.430	0.472	0.514	0.558	0.606	0.617	0.646	0.672
Charging current	A/ km	0.314	0.365	0.415	0.457	0.522	0.583	0.640	0.697	0.758	0.823	0.838	0.876	0.912
Dielectric losses	W/m	0.010	0.011	0.012	0.013	0.015	0.017	0.018	0.020	0.022	0.024	0.024	0.025	0.026
Current Ampacity														
Cable in ground	A	114	157	187	219	248	297	336	379	425	485	540	612	680
Cable in free air	A	120	170	198	230	281	335	390	445	495	575	650	745	860
Short circuit current														
Conductor S.C (1 Sec)	KA	2.3	3.57	5.0	7.15	10.0	13.5	17.17	21.4	26.4	34.4	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/SWA/PVC, 3.6/6 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or copper wires)
Armoring	: Galvanized steel Wire
Bedding	: PVC compound (or LSHF or PE)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x16	2.5	2.00	2.2	40.9	2952
3x25	2.5	2.00	2.3	43.5	3404
3x35	2.5	2.50	2.3	46.6	3928
3x50	2.5	2.50	2.5	49.8	5037
3x70	2.5	2.50	2.6	53.9	5972
3x95	2.5	2.50	2.8	58.0	7084
3x120	2.5	2.50	2.8	64.9	8165
3x150	2.5	2.50	2.9	65.4	9273
3x185	2.5	2.50	3.1	69.9	10357
3x240	2.6	3.15	3.2	75.5	12938
3x300	2.8	3.15	3.5	82.8	16493
3x400	3.0	3.15	3.7	89.9	19858
3x500	3.2	3.15	4.0	98.4	23192



2. Electrical Data

Cross section Area	mm ²	16	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Δ / km	1.150	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Δ / km	1.466	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1290	0.099	0.0812	0.0657	0.0538
Inductance	mH/ km	0.422	0.400	0.366	0.342	0.323	0.309	0.296	0.288	0.280	0.270	0.266	0.261	0.256
Capacitance	μF/ km	0.241	0.269	0.306	0.337	0.385	0.430	0.472	0.514	0.558	0.606	0.617	0.646	0.672
Charging current	A/ km	0.314	0.365	0.415	0.457	0.522	0.583	0.640	0.697	0.758	0.823	0.838	0.876	0.912
Dielectric losses	W/m	0.010	0.011	0.012	0.013	0.015	0.017	0.018	0.020	0.022	0.024	0.024	0.025	0.026
Current Ampacity														
Cable in ground	A	114	158	188	220	249	298	337	380	426	485	541	613	681
Cable in free air	A	120	172	199	230	282	336	392	447	495	575	650	746	862
Short circuit current														
Conductor S.C (1 Sec)	KA	2.3	3.57	5.0	7.15	10.0	13.5	17.17	21.4	26.4	34.4	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Single Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 6/10 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Annealed Copper Wire (or Copper Tape)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
1x25	3.4	1.6	22.4	722
1x35	3.4	1.6	23.8	835
1x50	3.4	1.7	25.0	990
1x70	3.4	1.7	26.6	1211
1x95	3.4	1.8	27.4	1505
1x120	3.4	1.8	29.9	1752
1x150	3.4	1.9	31.4	2144
1x185	3.4	1.9	33.9	2495
1x240	3.4	2.0	35.5	3091
1x300	3.4	2.1	38.7	3706
1x400	3.4	2.2	41.9	4632
1x500	3.4	2.3	45.0	5605
1x630	3.4	2.4	49.8	7149

2. Electrical Data

Cross section Area	mm ²	25	35	50	70	95	120	150	185	240	300	400	500	630
Screen Area	mm ²	16	16	16	16	16	16	25	25	25	25	35	35	35
DC Resist at 20°C	Ω / km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283
Ac Resist at 90°C	Ω / km	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1290	0.099	0.0812	0.0657	0.0538	0.0452
Inductance														
Flat Formation	mH / km	0.512	0.483	0.474	0.433	0.417	0.400	0.393	0.382	0.367	0.352	0.347	0.340	0.330
Trefoil Formation	mH / km	0.466	0.437	0.410	0.385	0.368	0.352	0.344	0.334	0.319	0.310	0.302	0.294	0.282
Capacitance	μF / km	0.213	0.240	0.264	0.299	0.332	0.363	0.394	0.427	0.479	0.520	0.577	0.636	0.711
Charging current	A / km	0.482	0.544	0.596	0.676	0.751	0.822	0.892	0.966	1.083	1.176	1.306	1.439	1.607
Dielectric losses	W/m	0.023	0.026	0.029	0.032	0.036	0.039	0.043	0.046	0.052	0.056	0.063	0.069	0.077
Current Ampacity														
Cable in ground	A	170	195	235	265	305	345	395	455	500	560	635	710	790
Cable in free air	A	180	210	245	285	355	410	470	540	630	720	840	960	1100
Short circuit current														
Conductor S.C (1 Sec)	KA	3.57	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2	71.5	90.0
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	3.58	2.29	3.58	3.58	5.07	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 6/10 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or copper wires)
Bedding	: PVC compound (or LSHF or PE)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
3x16	3.4	2.2	41.1	1807
3x25	3.3	2.2	43.2	2213
3x35	3.4	2.3	46.5	2686
3x50	3.4	2.4	49.2	3181
3x70	3.4	2.5	53.0	3973
3x95	3.4	2.7	57.2	5012
3x120	3.4	2.8	60.5	5877
3x150	3.4	2.9	64.1	6876
3x185	3.4	3.0	66.9	8073
3x240	3.4	3.1	73.0	10112
3x300	3.4	3.3	78.5	12121
3x400	3.4	3.5	85.1	14860
3x500	3.4	3.7	91.6	18013



2. Electrical Data

Cross section Area	mm ²	16	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Ω / km	1.150	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Ω / km	1.466	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1291	0.099	0.0814	0.0659	0.0543
Inductance	mH / km	0.447	0.413	0.387	0.362	0.341	0.325	0.312	0.302	0.300	0.280	0.274	0.265	0.259
Capacitance	μF / km	0.192	0.213	0.240	0.264	0.299	0.332	0.363	0.394	0.427	0.479	0.520	0.577	0.636
Charging current	A / km	0.314	0.482	0.544	0.596	0.676	0.751	0.822	0.892	0.966	1.083	1.176	1.306	1.439
Dielectric losses	W/m	0.019	0.023	0.026	0.029	0.032	0.036	0.039	0.043	0.046	0.052	0.056	0.063	0.069
Current Ampacity														
Cable in ground	A	115	161	180	210	253	302	340	387	430	493	555	628	700
Cable in free air	A	120	173	199	230	275	335	390	447	505	578	665	758	890
Short circuit current														
Conductor S.C (1 Sec)	KA	2.3	3.57	5.0	7.15	10.0	13.5	17.17	21.4	26.4	34.4	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/ STA/ PVC, 6/10 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or copper wire)
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized steel tape
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Tape Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x16	3.4	0.5	2.3	43.1	2423
3x25	3.4	0.5	2.4	45.4	2910
3x35	3.4	0.5	2.4	48.0	3439
3x50	3.4	0.5	2.5	51.3	3992
3x70	3.4	0.5	2.6	55.2	4843
3x95	3.4	0.5	2.7	59.4	5921
3x120	3.4	0.5	2.8	62.7	6850
3x150	3.4	0.5	2.9	66.0	7902
3x185	3.4	0.5	3.1	69.0	9163
3x240	3.4	0.5	3.2	76.2	11341
3x300	3.4	0.5	3.4	79.9	13440
3x400	3.4	0.5	3.6	88.4	17082
3x500	3.4	0.5	3.8	95.0	20399

2. Electrical Data

Cross section Area	mm ²	16	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Ω / km	1.150	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Ω / km	1.466	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1291	0.099	0.0814	0.0659	0.0543
Inductance	mH/ km	0.447	0.413	0.387	0.362	0.341	0.326	0.312	0.302	0.300	0.281	0.274	0.265	0.259
Capacitance	μF/ km	0.192	0.213	0.240	0.264	0.299	0.332	0.363	0.394	0.427	0.479	0.520	0.577	0.636
Charging current	A/ km	0.569	0.482	0.544	0.596	0.676	0.751	0.822	0.892	0.966	1.038	1.176	1.306	1.439
Dielectric losses	W/m	0.019	0.023	0.026	0.029	0.032	0.036	0.039	0.043	0.046	0.054	0.056	0.063	0.069
Current Ampacity														
Cable in ground	A	115	159	175	205	250	295	335	380	420	482	540	612	682
Cable in free air	A	125	172	195	232	232	340	390	446	495	570	650	745	863
Short circuit current														
Conductor S.C (1 Sec)	KA	2.3	3.57	5.0	7.15	10.0	13.5	17.11	21.4	26.4	34.3	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Three Core Cable

For Installations outdoor in ground and ducts, and indoor on trays, in walls, and in ducts.

Type	: CU/XLPE/SWA/PVC, 6/10 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or copper wire)
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized steel wires
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x16	3.4	2.00	2.4	45.7	3415
3x25	3.4	2.00	2.4	49.0	4293
3x35	3.4	2.50	2.6	51.4	4904
3x50	3.4	2.50	2.7	54.5	5535
3x70	3.4	2.50	2.8	58.9	6492
3x95	3.4	2.50	2.8	62.8	7684
3x120	3.4	2.50	2.9	65.6	8728
3x150	3.4	2.50	3.0	70.7	9897
3x185	3.4	2.50	3.2	73.5	11308
3x240	3.4	3.15	3.4	81.4	14832
3x300	3.4	3.15	3.6	87.0	17097
3x400	3.4	3.15	3.8	92.5	20268
3x500	3.4	3.15	4.0	99.6	23783

2. Electrical Data

Cross section Area	mm ²	16	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Δ / km	1.150	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Δ / km	1.466	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1290	0.0999	0.0814	0.0659	0.0543
Inductance	mH/ km	0.447	0.413	0.387	0.362	0.341	0.326	0.312	0.302	0.294	0.281	0.274	0.265	0.259
Capacitance	μF/ km	0.192	0.213	0.240	0.264	0.299	0.332	0.363	0.394	0.427	0.479	0.520	0.577	0.636
Charging current	A/ km	0.314	0.482	0.544	0.596	0.676	0.751	0.822	0.892	0.966	1.083	1.176	1.306	1.439
Dielectric losses	W/m	0.019	0.023	0.026	0.029	0.032	0.036	0.039	0.043	0.046	0.052	0.056	0.063	0.069
Current Ampacity														
Cable in ground	A	115	160	175	205	245	295	330	375	418	470	525	590	640
Cable in free air	A	125	172	199	230	285	336	392	446	487	568	635	735	820
Short circuit current														
Conductor S.C (1 Sec)	KA	2.3	3.57	5.0	7.15	10.0	13.5	17.11	21.4	26.4	34.3	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07



Single Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 8.7/15 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Annealed Copper Wires (or LSHF or PE)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data



Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
1x25	4.5	1.7	24.4	797
1x35	4.5	1.7	25.6	915
1x50	4.5	1.7	26.0	1054
1x70	4.5	1.8	28.5	1293
1x95	4.5	1.8	30.2	1586
1x120	4.5	1.9	31.2	1857
1x150	4.5	2.0	34.0	2255
1x185	4.5	2.0	35.2	2537
1x240	4.5	2.1	38.5	3214
1x300	4.5	2.2	40.6	3848
1x400	4.5	2.3	43.1	4774
1x500	4.5	2.4	47.3	5766
1x630	4.5	2.5	51.1	7324

2. Electrical Data

Cross section Area	mm ²	25	35	50	70	95	120	150	185	240	300	400	500	630
Screen Area	mm ²	16	16	16	16	16	16	25	25	25	25	35	35	35
DC Resist at 20°C	Ω / km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283
Ac Resist at 90°C	Ω / km	0.927	0.668	0.495	0.342	0.247	0.196	0.160	0.1286	0.0992	0.0806	0.0651	0.0532	0.0455
Inductance	mH / km	0.534	0.504	0.475	0.451	0.432	0.416	0.407	0.396	0.380	0.371	0.361	0.352	0.339
Flat Formation														
Trefoil Formation	mH / km	0.486	0.457	0.427	0.402	0.394	0.386	0.358	0.348	0.332	0.322	0.314	0.304	0.291
Capacitance	μF / km	0.175	0.196	0.213	0.240	0.266	0.289	0.313	0.338	0.377	0.408	0.452	0.496	0.553
Charging current	A / km	0.572	0.641	0.699	0.788	0.871	0.949	1.026	1.108	1.236	1.339	1.481	1.628	1.813
Dielectric losses	W/m	0.040	0.045	0.049	0.055	0.061	0.066	0.071	0.077	0.086	0.093	0.103	0.113	0.126
Current Ampacity														
Cable in ground	A	150	180	210	255	305	345	390	430	500	560	635	710	790
Cable in free air	A	165	200	240	300	360	415	475	540	635	730	840	960	1100
Short circuit current														
Conductor S.C (1 Sec)	KA	3.57	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2	71.5	90.0
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	3.58	2.29	3.58	3.58	5.07	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 8.7/15 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper Tape (or Copper Tape)
Bedding	: PVC compound (or LSHF or PE)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	
1x25	4.5	2.4	48.0	2633
1x35	4.5	2.5	51.1	3080
1x50	4.5	2.6	54.1	3604
1x70	4.5	2.7	58.5	4473
1x95	4.5	2.8	62.2	5462
1x120	4.5	2.9	64.8	6343
1x150	4.5	3.0	69.1	7361
1x185	4.5	3.1	73.1	8660
1x240	4.5	3.3	78.0	10701
1x300	4.5	3.5	82.9	12752
1x400	4.5	3.7	90.1	15547
1x500	4.5	3.9	97.2	18821



2. Electrical Data

Cross section Area	mm ²	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Δ / km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Δ / km	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1288	0.0995	0.0810	0.0655	0.0538
Inductance	mH / km	0.438	0.411	0.384	0.360	0.345	0.330	0.319	0.309	0.296	0.287	0.278	0.270
Capacitance	μF / km	0.175	0.196	0.213	0.240	0.266	0.289	0.313	0.338	0.377	0.408	0.452	0.496
Charging current	A / km	0.572	0.641	0.699	0.788	0.871	0.949	1.026	1.108	1.236	1.339	1.481	1.628
Dielectric losses	W/m	0.040	0.045	0.049	0.055	0.061	0.066	0.071	0.077	0.086	0.093	0.103	0.113
Current Ampacity													
Cable in ground	A	148	175	205	250	300	340	380	425	493	555	630	695
Cable in free air	A	160	195	230	280	340	390	440	505	585	665	765	885
Short circuit current													
Conductor S.C (1 Sec)	KA	3.57	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.3	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/STA/PVC, 8.7/15 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized Steel Tape
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Tape Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	
3x25	4.5	0.5	2.5	50.2	3447
3x35	4.5	0.5	2.6	53.3	3946
3x50	4.5	0.5	2.7	56.6	4509
3x70	4.5	0.5	2.8	60.1	5460
3x95	4.5	0.5	2.9	64.5	6508
3x120	4.5	0.5	3.0	67.2	7449
3x150	4.5	0.5	3.1	71.3	8527
3x185	4.5	0.5	3.2	75.4	9901
3x240	4.5	0.5	3.4	81.1	12038
3x300	4.5	0.8	3.6	87.3	14953
3x400	4.5	0.8	3.8	93.5	17922
3x500	4.5	0.8	4.0	99.9	21393

2. Electrical Data

Cross section Area	mm ²	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Ω / km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Ω / km	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1288	0.0995	0.0810	0.0655	0.0538
Inductance	mH / km	0.438	0.411	0.384	0.360	0.345	0.330	0.319	0.309	0.296	0.287	0.278	0.270
Capacitance	μF / km	0.175	0.196	0.213	0.240	0.266	0.289	0.313	0.338	0.377	0.408	0.452	0.496
Charging current	A / km	0.572	0.641	0.699	0.788	0.871	0.949	1.026	1.108	1.236	1.339	1.481	1.628
Dielectric losses	W/m	0.040	0.045	0.049	0.055	0.061	0.066	0.071	0.077	0.086	0.093	0.103	0.113
Current Ampacity													
Cable in ground	A	146	175	205	245	295	330	370	415	482	540	610	675
Cable in free air	A	160	195	232	285	345	395	450	500	590	660	750	860
Short circuit current													
Conductor S.C (1 Sec)	KA	3.57	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.3	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/SWA/PVC, 8.7/15 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized Steel Wires
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x25	4.5	2.50	2.6	54.2	4942
3x35	4.5	2.50	2.7	57.3	5559
3x50	4.5	2.50	2.8	59.4	6169
3x70	4.5	2.50	2.9	64.0	7261
3x95	4.5	2.50	3.0	66.9	8425
3x120	4.5	2.50	3.1	71.2	9445
3x150	4.5	3.15	3.2	74.6	10638
3x185	4.5	3.15	3.4	81.3	13322
3x240	4.5	3.15	3.6	86.1	15731
3x300	4.5	3.15	3.7	91.0	18030
3x400	4.5	3.15	4.0	98.2	21248
3x500	4.5	3.15	4.1	104.2	24919



2. Electrical Data

Cross section Area	mm ²	25	35	50	70	95	120	150	185	240	300	400	500
Screen Area	mm ²	16	16	16	16	16	16	25	25	25	25	35	35
DC Resist at 20°C	Δ / km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366
Ac Resist at 90°C	Δ / km	0.927	0.668	0.494	0.342	0.247	0.196	0.160	0.1288	0.0995	0.0810	0.0655	0.0538
Inductance	mh/ km	0.438	0.411	0.384	0.360	0.345	0.330	0.319	0.309	0.296	0.287	0.278	0.270
Capacitance	μF/ km	0.175	0.196	0.213	0.240	0.266	0.289	0.313	0.338	0.377	0.408	0.452	0.496
Charging current	A/ km	0.572	0.641	0.699	0.788	0.871	0.949	1.026	1.108	1.236	1.339	1.481	1.628
Dielectric losses	W/m	0.040	0.045	0.049	0.055	0.061	0.066	0.071	0.077	0.086	0.093	0.103	0.113
Current Ampacity													
Cable in ground	A	160	175	205	245	295	333	370	415	470	525	640	690
Cable in free air	A	172	199	235	285	345	395	445	505	570	635	735	820
Short circuit current													
Conductor S.C (1 Sec)	KA	5	5.0	7.15	10.0	13.5	17.1	21.4	26.47	34.4	42.9	57.2	71.5
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07

Single Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 12/20 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Annealed Copper wires (or Copper Tape)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
1x35	5.5	1.8	27.5	1024
1x50	5.5	1.8	28.6	1171
1x70	5.5	1.9	30.6	1424
1x95	5.5	1.9	32.8	1710
1x120	5.5	2.0	34.5	1984
1x150	5.5	2.0	36.6	2368
1x185	5.5	2.1	37.6	2721
1x240	5.5	2.2	41.0	3370
1x300	5.5	2.2	42.9	3981
1x400	5.5	2.3	45.6	4932
1x500	5.5	2.4	48.4	5911
1x630	5.5	2.5	53.5	7504

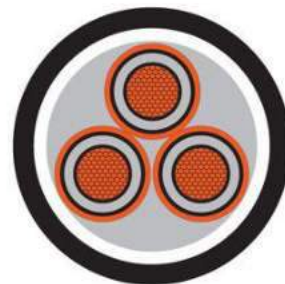
2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300	400	500	630
Screen Area	mm ²	16	16	16	16	16	25	25	25	25	35	35	35
DC Resist at 20°C	Δ / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.366	0.0283
Ac Resist at 90°C	Δ / km	0.668	0.494	0.342	0.247	0.196	0.160	0.1286	0.0990	0.0806	0.0641	0.0530	0.0440
Inductance	mh/ km	0.521	0.491	0.466	0.446	0.429	0.419	0.408	0.391	0.380	0.370	0.358	0.347
Flat Formation													
Trefoil Formation	mh/ km	0.472	0.443	0.417	0.398	0.381	0.371	0.359	0.343	0.333	0.323	0.310	0.300
Capacitance	ΔF/ km	0.170	0.185	0.207	0.228	0.247	0.267	0.287	0.319	0.345	0.381	0.417	0.464
Charging current	A/ km	0.769	0.835	0.936	1.031	1.119	1.207	1.300	1.445	1.561	1.723	1.889	2.089
Dielectric losses	W/m	0.074	0.080	0.090	0.099	0.107	0.116	0.125	0.139	0.150	0.165	0.181	0.201
Current Ampacity													
Cable in ground	A	175	210	255	305	345	385	430	500	560	630	710	795
Cable in free air	A	200	240	300	360	415	475	540	640	730	840	960	1105
Short circuit current													
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2	71.5	90.0
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 12/20 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or Copper Wire)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
3x35	5.5	2.6	56.6	3539
3x50	5.5	2.7	59.5	4075
3x70	5.5	2.8	63.1	4908
3x95	5.5	3.0	66.5	5954
3x120	5.5	3.1	70.3	6858
3x150	5.5	3.2	74.4	7986
3x185	5.5	3.3	76.9	9229
3x240	5.5	3.5	82.9	11303
3x300	5.5	3.6	88.1	13345
3x400	5.5	3.9	95.0	16276

2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300	400
Screen Area	mm ²	16	16	16	16	16	25	25	25	25	35
DC Resist at 20°C	Ω / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
Ac Resist at 90°C	Ω / km	0.668	0.402	0.342	0.247	0.196	0.160	0.1286	0.0993	0.0806	0.0652
Inductance	mH / km	0.429	0.410	0.378	0.361	0.344	0.333	0.323	0.308	0.299	0.289
Capacitance	μF / km	0.170	0.185	0.207	0.228	0.247	0.267	0.287	0.319	0.345	0.381
Charging current	A / km	0.769	0.835	0.936	1.031	1.119	1.207	1.300	1.445	1.561	1.723
Dielectric losses	W/m	0.074	0.080	0.090	0.099	0.107	0.116	0.125	0.139	0.150	0.165
Current Ampacity											
Cable in ground	A	175	205	250	300	340	380	425	490	555	625
Cable in free air	A	195	240	285	350	395	450	510	600	680	775
Short circuit current											
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07



Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/STA/PVC, 12/20 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized Steel Tape
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Tape Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x35	5.5	0.5	2.7	58.0	4454
3x50	5.5	0.5	2.8	61.5	5032
3x70	5.5	0.5	2.9	65.4	5933
3x95	5.5	0.5	3.0	68.0	7011
3x120	5.5	0.5	3.1	72.4	7972
3x150	5.5	0.5	3.3	76.5	9204
3x185	5.5	0.5	3.4	80.0	10507
3x240	5.5	0.5	3.6	87.1	13463
3x300	5.5	0.5	3.7	91.5	15632
3x400	5.5	0.5	4.0	98.6	18797

2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300	400
Screen Area	mm ²	16	16	16	16	16	25	25	25	25	35
DC Resist at 20°C	Ω / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
Ac Resist at 90°C	Ω / km	0.668	0.494	0.342	0.247	0.196	0.160	0.1286	0.0992	0.0806	0.0652
Inductance	mH/ km	0.429	0.402	0.378	0.361	0.350	0.333	0.323	0.308	0.300	0.289
Capacitance	μF/ km	0.170	0.185	0.207	0.228	0.247	0.267	0.287	0.319	0.345	0.381
Charging current	A/ km	0.769	0.835	0.936	1.031	1.119	1.207	1.300	1.445	1.561	1.723
Dielectric losses	W/m	0.074	0.080	0.090	0.099	0.107	0.116	0.125	0.139	0.150	0.165
Current Ampacity											
Cable in ground	A	175	205	245	295	330	370	415	485	540	610
Cable in free air	A	195	240	285	350	395	450	500	590	685	750
Short circuit current											
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/SWA/PVC, 12/20 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or Copper Wires)
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized Steel Wires
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x35	5.5	2.50	2.8	62.2	6199
3x50	5.5	2.50	3.0	64.7	6862
3x70	5.5	2.50	3.0	68.6	7873
3x95	5.5	2.50	3.1	72.3	9069
3x120	5.5	2.50	3.3	75.0	10146
3x150	5.5	3.15	3.4	81.2	12635
3x185	5.5	3.15	3.6	85.0	14146
3x240	5.5	3.15	3.7	91.6	16545
3x300	5.5	3.15	3.8	96.1	18864
3x400	5.5	3.15	4.1	102.1	22248

2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300	400
Screen Area	mm ²	16	16	16	16	16	25	25	25	25	35
DC Resist at 20°C	Ω / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
Ac Resist at 90°C	Ω / km	0.668	0.494	0.342	0.247	0.196	0.159	0.1286	0.0992	0.0806	0.0652
Inductance	mH/ km	0.430	0.402	0.378	0.361	0.350	0.333	0.323	0.308	0.300	0.289
Capacitance	μF/ km	0.170	0.185	0.207	0.228	0.247	0.267	0.287	0.319	0.345	0.381
Charging current	A/ km	0.769	0.835	0.936	1.031	1.119	1.207	1.300	1.445	1.561	1.723
Dielectric losses	W/m	0.074	0.080	0.090	0.099	0.107	0.116	0.125	0.139	0.150	0.165
Current Ampacity											
Cable in ground	A	175	205	245	295	330	370	410	470	520	585
Cable in free air	A	200	235	290	350	400	450	500	590	660	725
Short circuit current											
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07



Single Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 18/30 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper wires (or Copper Tape)
Bedding	: PVC compound (or LSHF or PE)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
1x35	8.0	1.9	32.1	1253
1x50	8.0	2.0	34.4	1431
1x70	8.0	2.0	35.2	1680
1x95	8.0	2.1	37.1	2000
1x120	8.0	2.1	39.4	2264
1x150	8.0	2.2	41.6	2683
1x185	8.0	2.2	43.2	3066
1x240	8.0	2.3	45.5	3707
1x300	8.0	2.4	47.2	4357
1x400	8.0	2.5	51.6	5324
1x500	8.0	2.6	54.5	6345
1x630	8.0	2.7	59.3	7963



2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300	400	500	630
Screen Area	mm ²	16	16	16	16	16	25	25	25	25	35	35	35
DC Resist at 20°C	▲ / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283
Ac Resist at 90°C	▲ / km	0.668	0.494	0.342	0.247	0.196	0.160	0.1286	0.0990	0.0806	0.0641	0.0530	0.0440
Inductance													
Flat Formation	mh/ km	0.555	0.525	0.497	0.477	0.458	0.447	0.433	0.414	0.404	0.393	0.381	0.366
Trefoil Formation	mh/ km	0.509	0.477	0.450	0.429	0.411	0.399	0.386	0.368	0.356	0.343	0.332	0.320
Capacitance	▲F/ km	0.133	0.143	0.159	0.174	0.192	0.201	0.216	0.238	0.256	0.281	0.306	0.340
Charging current	A/ km	0.903	0.974	1.081	1.181	1.274	1.366	1.464	1.161	1.737	1.906	2.600	2.300
Dielectric losses	W/m	0.130	0.140	0.156	0.170	0.183	0.197	0.221	0.233	0.250	0.270	0.300	0.330
Current Ampacity													
Cable in ground	A	176	210	257	305	346	387	432	500	563	630	712	795
Cable in free air	A	205	243	305	368	419	479	545	645	732	845	965	1105
Short circuit current													
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9	57.2	71.5	90.0
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58	5.07	5.07	5.07

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/PVC, 18/30 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or Copper Wire)
Bedding	: PVC compound (or LSHF or PE)
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	kg/km
3x35	8.0	3.0	68.4	4620
3x50	8.0	3.1	69.9	5206
3x70	8.0	3.2	75.1	6175
3x95	8.0	3.3	77.9	7251
3x120	8.0	3.5	82.5	8252
3x150	8.0	3.6	85.3	9360
3x185	8.0	3.7	89.4	10663
3x240	8.0	3.8	95.1	12781
3x300	8.0	4.0	100.2	15046



2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300
Screen Area	mm ²	16	16	16	16	16	25	25	25	25
DC Resist at 20°C	Ω / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Ac Resist at 90°C	Ω / km	0.668	0.494	0.342	0.247	0.196	0.159	0.1286	0.0993	0.0806
Inductance	mH / km	0.470	0.441	0.423	0.404	0.389	0.376	0.364	0.348	0.338
Capacitance	μF / km	0.133	0.143	0.159	0.174	0.188	0.201	0.216	0.238	0.256
Charging current	A / km	0.903	0.974	1.081	1.181	1.274	1.366	1.464	1.616	1.737
Dielectric losses	W/m	0.130	0.140	0.156	0.170	0.183	0.197	0.211	0.233	0.250
Current Ampacity										
Cable in ground	A	177	205	252	302	340	380	429	494	555
Cable in free air	A	200	240	290	360	405	455	520	610	690
Short circuit current										
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/ STA/PVC, 18/30 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or Copper Wire)
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized steel tapes
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Tape Thickness	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x35	8.0	0.5	3.1	71.0	5786
3x50	8.0	0.5	3.2	73.7	6403
3x70	8.0	0.5	3.3	77.9	7456
3x95	8.0	0.5	3.4	80.6	8595
3x120	8.0	0.8	3.6	85.5	10419
3x150	8.0	0.8	3.7	89.8	11625
3x185	8.0	0.8	3.8	92.6	13019
3x240	8.0	0.8	4.0	98.5	15343
3x300	8.0	0.8	4.1	103.3	17692



2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300
Screen Area	mm ²	16	16	16	16	16	25	25	25	25
DC Resist at 20°C	Ω / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Ac Resist at 90°C	Ω / km	0.668	0.494	0.342	0.247	0.196	0.159	0.1286	0.0993	0.0806
Inductance	mH/ km	0.470	0.449	0.423	0.404	0.389	0.376	0.364	0.348	0.338
Capacitance	μF/ km	0.133	0.143	0.159	0.174	0.188	0.201	0.216	0.238	0.256
Charging current	A/ km	0.903	0.974	1.081	1.181	1.274	1.366	1.464	1.616	1.737
Dielectric losses	W/m	0.130	0.140	0.156	0.170	0.183	0.197	0.211	0.233	0.250
Current Ampacity										
Cable in ground	A	174	204	245	295	335	370	420	483	540
Cable in free air	A	199	235	287	350	400	450	505	590	655
Short circuit current										
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58

Three Core Cable

For Installations outdoor in ground, in ducts and indoor on trays.

Type	: CU/XLPE/SWA/PVC, 18/30 KV
Standard	: IEC 60502-2
Conductor	: Circular stranded Compacted copper (or Aluminum)
Conductor Screen	: Bonded semiconducting material
Insulation	: XLPE material
Insulation Screen	: Strippable semiconducting material (or Bonded)
Metallic Screen	: Copper tape (or Copper Wire)
Bedding	: PVC compound (or LSHF or PE)
Armoring	: Galvanized Steel Wires
Jacketing	: PVC compound (or LSHF or PE)



TECHNICAL INFORMATION

1. Weight and Dimension Data

Nominal Cross Section	Nominal Insulation Thickness	Steel Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Approx. Cable Weight
n x mm ²	mm	mm	mm	mm	kg/ km
3x35	8.0	2.50	3.2	73.5	7862
3x50	8.0	3.15	3.4	78.2	9721
3x70	8.0	3.15	3.5	82.4	10909
3x95	8.0	3.15	3.6	85.9	12283
3x120	8.0	3.15	3.7	90.2	13390
3x150	8.0	3.15	3.8	93.3	14719
3x185	8.0	3.15	3.9	97.2	16238
3x240	8.0	3.15	4.1	102.0	18792
3x300	8.0	3.15	4.2	107.1	21303

2. Electrical Data

Cross section Area	mm ²	35	50	70	95	120	150	185	240	300
Screen Area	mm ²	16	16	16	16	16	25	25	25	25
DC Resist at 20°C	Δ / km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Ac Resist at 90°	Δ / km	0.668	0.494	0.342	0.247	0.196	0.159	0.1286	0.0993	0.0806
Inductance	mH/ km	0.470	0.449	0.423	0.404	0.389	0.376	0.364	0.348	0.338
Capacitance	μF/ km	0.133	0.143	0.159	0.174	0.188	0.201	0.216	0.238	0.256
Charging current	A/ km	0.903	0.974	1.081	1.181	1.274	1.366	1.464	1.616	1.737
Dielectric losses	W/m	0.130	0.140	0.156	0.170	0.183	0.197	0.211	0.233	0.250
Current Ampacity										
Cable in ground	A	174	204	245	295	330	370	420	470	520
Cable in free air	A	200	235	290	350	400	488	500	585	655
Short circuit current										
Conductor S.C (1 Sec)	KA	5.0	7.15	10.0	13.5	17.1	21.4	26.4	34.4	42.9
Screen S.C (1 Sec)	KA	2.29	2.29	2.29	2.29	2.29	3.58	3.58	3.58	3.58



General Characteristics

Medium Voltage Electric Cable - 6,6kV to 33kV to SANS 1339

Mechanical and electrical properties of XLPE measured on the cable	Result	Requirement
Tensile strength at 20 °C MPa (N/mm ²)	Mean 15	12,5
Elongation at break at 20 °C (%)	Mean 350	200
Volume resistivity at 20 °C - 90 °C Ohm/cm	10 ¹⁶	10 ¹⁴
Dielectric power factor at 20 °C	10.10 ⁻⁴	30.10 ⁻⁴
Dielectric power factor at 95 °C	20.10 ⁻⁴	60.10 ⁻⁴

The performance of the cable at low temperatures is determined by the properties of the sheath material, the cold flexibility of which is adequate down to - 15 °C. This does not apply to temperatures during installation of the cables.

Working temperatures

- Conductor temperature for continuous operation 90 °C.
- Conductor temperature during emergency loads of 130 °C (up to 33kV).
Maximum duration of 8 hours continuously, with a maximum total of 125 hours/annum.
- Conductor temperature after short-circuit 250 °C.
- Screen and armouring temperature after short-circuit 200 °C (PVC sheath assumed).

Bending radii	Single-core	3-core	D = Overall cable diameter (mm)
Recommended	17 x D	15 x D	
Minimum	15 x D	12 x D	
At sealing ends	12 x D	10 x D	

Current rating

Explanation of the tables.

Conditions, under which the values mentioned in the tables apply, are :

- One three-phase circuit, continuously fully loaded.
- Single-core cables in trefoil formation touching and in flat formation respectively with axial separation of 150 mm and regular transposition.
- Conductor temperature 90 °C
- Depth of laying 800 mm
- Ambient temperature 30 °C in free air (Shaded)
- Absence of Other heat sources.
- Ground temperature 25 °C.
- Soil thermal resistivity 1.2 K.m/W.
- Solidly bonded at both ends.

Remarks

In certain types of soil, a conductor operating temperature of 90 °C for cables laid direct or in pipes may result in drying of the soil where a critical temperature of 55 °C is exceeded. Various alternatives have been recommended, eg:

- Restricting the sheath temperatures to 55 °C (by reducing conductor temperature);
- Rating the cable for fully dried out soil (thermal resistivity 3 K.m/W) (both methods a & b causes substantial reductions in current ratings);
- Using a back-fill of stable thermal resistivity not exceeding 1.5 K.m/W and rated accordingly for a conductor temperature of 90 °C.

d) Using the CIGRE method (Electra No.104, January 1986, Pages 11-22) of calculating a revised current rating assuming a partially dried out soil model.

Tirupati Plastomatics Power Cables Technical Division will be pleased to advise on ratings and backfills necessary for your requirements.

Tirupati Plastomatics Cables Technical Division will be pleased to advise on ratings on ratings and backfills necessary for your requirements.

Note :

The nominal data supplied in this publication has been compiled with every attempt at accuracy with the sole purpose of providing for the reader a convenient and practical directive without commitment.

All dimensions are in line with SANS 1339, unless otherwise stated.

Manufacturing Range

Medium Voltage Electric Cable - 6,6kV to 33kV to SANS 1339

Type	Specification	No. of Cores	Voltage (kV)	Conductor Sizes (mm ²)
'Tirupati' Type A	XLPE insulated, individually copper tape screened, PVC bedded, steel wire armoured, PVC sheathed	3	3,8/6,6 - 6,35/11	cu: 25-400 alu: 50-400
			8,7/15 - 12,7/22	cu: 25-240 alu: 50-240
			19/33	cu: 50-240 alu: 50-240
'Tirupati' Type A	XLPE insulated, copper tape screened, PVC bedded, aluminium wire armoured, PVC sheathed	1	3,8/6,6 - 12,7/22	cu: 25-630 alu: 50-630
			19/33	cu: 50-500 alu: 50-500
'Tirupati' Type B	XLPE insulated, individually copper tapes screened, unarmoured, PVC sheathed	3	3,8/6,6 - 6,35/11	cu: 25-400 alu: 50-400
			8,7/15 - 12,7/22	cu: 25-240 alu: 50-240
			19/33	cu: 25-240 alu: 50-240
'Tirupati' Type B	XLPE insulated, copper (single) taped screened, unarmoured, PVC sheathed	1	3,8/6,6 - 12,7/22	cu: 25-630 alu: 50-630
			19/33	cu: 50-500 alu: 50-500
'Tirupati' special type	XLPE insulated, individually copper tape screened, equalising cu tape, with or without steel wire armour, PVC sheathed	3	3,8/6,6 - 6,35/11	cu: 25-400 alu: 50-400
			8,7/15 - 12,7/22	cu: 25-240 alu: 50-240
			19/33	cu: 50-240

Standard drum lengths :

300 metres - longer lengths can be manufactured if required.

* Note : The maximum and minimum conductor size above are our standard.

Please enquire if smaller or larger than the standard size is required.

Cables and dimensions are in accordance with SANS 1339, except for the 87/15kV cables.

No data is given in this brochure for cables above 33kV.

Type of Cables

Medium Voltage Electric Cable - 6,6kV to 33kV



TIRUPATI TYPE A



TIRUPATI TYPE A

Tirupati Plastomatics TYPE A

Cables are designed to carry high earth fault currents comparable with system symmetrical fault currents.

3 Core Type A cables are supplied with galvanised steel wire armouring.

Single-core cables are normally supplied armoured with a single layer of aluminium wires.



**TIRUPATI TYPE A
CROSS SECTION
(Three Core)**



**TIRUPATI TYPE A
CROSS SECTION
(Single Core)**



TIRUPATI TYPE B



TIRUPATI TYPE B

TIRUPATI PLASTOMATICS TYPE B

Cables are designed to carry limited earth fault currents of 1000 A for one second.

Higher currents may be carried where the total earth fault clearance time is less than one second, provided that the product of the square of the current in amperes and the clearance time in seconds does not exceed 10^5 .



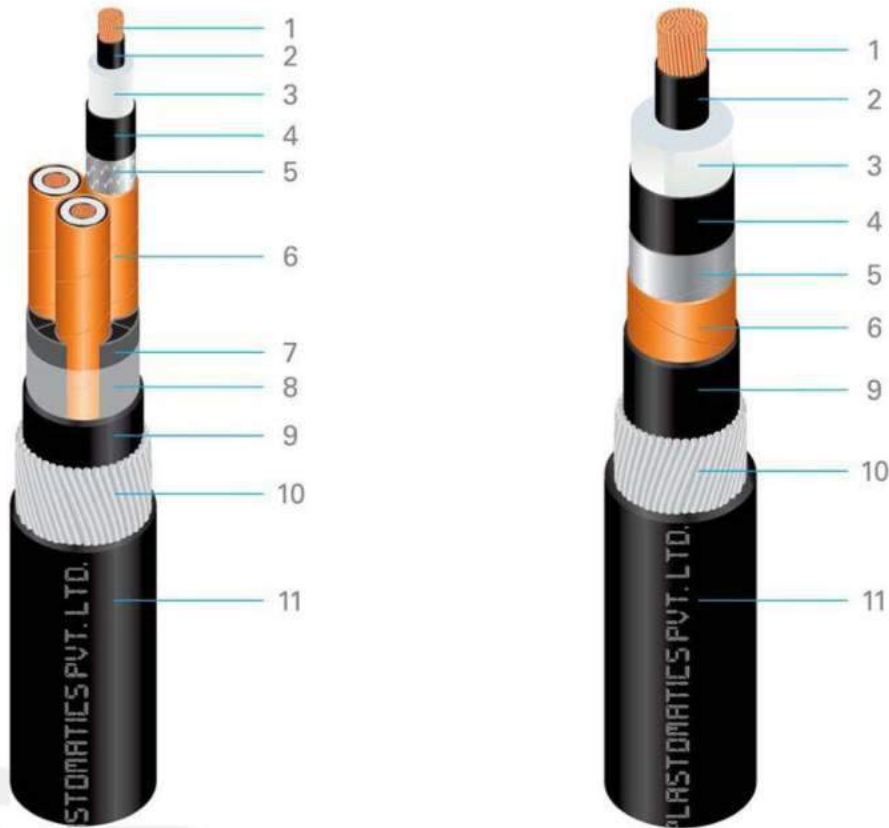
**TIRUPATI TYPE B
CROSS SECTION
(Three Core)**



**TIRUPATI TYPE B
CROSS SECTION
(Single Core)**

Construction

Medium voltage Electric Cable - 6,6kV to 33kV



Construction of the cables

- 1 Conductor - aluminium or copper
- 2 Conductor screen - extruded semi conductive layer integral with:
- 3 Insulation - XLPE
- 4 Core screen - extruded free strippable semi-conductive layer
- 5 Semi-conductive numbered tape * *
- 6 Metallic earth screen - copper tape (s)
- 7 Fillers - pre-formed plastic material *
- 8 Binder tape
- 9 Inner sheath (bedding)
- 10 Armouring (Steel wire or Aluminium wire)
- 11 Outer sheath

* Other materials may be used when required.

** Core identification : alternative printed numbers on each core - 1,2 and 3 or Colour Strips.

Properties and applications

Medium voltage Electric Cable - 6,6kV to 33kV

Due to the fact that Tirupati Plastomatics XLPE insulation is resistant to high temperatures, it is also obvious that higher temperatures are permissible in the cable.

For XLPE, continuous conductor temperatures up to 90 °C are permissible, whilst for some hours a temperature of 130 °C is permissible. In case of short-circuit the conductor can withstand considerably higher temperature (up to 250°C).

This important specific characteristic, in contrast with those generally applicable to plastics, give XLPE insulated cables the following advantages:

- suitable for a sustained conductor temperature of 90° C as a result of which a high current carrying capacity is obtained.
- suitable up to 125 hours/annum, (no event being longer than 8 hours continuously) at conductor temperature of 130 °C so that emergency loads can be tolerated
- no drainage problems
- clean handling
- relatively low cost per installed kVA

In addition to the normal application as underground cables, the following specific possibilities can be indicated:

- installation in buildings (vertical mounting)
- installation in routes with great difference in height
- installation in substations and power stations

This high current-carrying capacity can profitably be used in those cases where higher temperatures do not occur for too long or too often, viz. as a result of daily or yearly winter peaks. Normally improved thermal dissipation during the night or colder weather improves the thermal stability of the installation.

Notwithstanding these claims for higher sustained current ratings, where higher than normal ambient temperatures are obtained, (as in enclosed cable ducts or in ground which may dry out progressively under a sustained buried cable load) care should be taken when selecting the conductor material and area. Refer to remarks (a) and (b) under General Characteristics.

In the current rating tables, the values in brackets next to the continuous current values, indicates the outer sheath temperature in °C, expected when the cable is fully loaded under the stated conditions of installation.

TIRUPATI Type A - Three Core

XLPE insulated, copper tape screened, PVC bedded, galvanised steel wire armoured and PVC sheathed.



Constructional Data (nominal values)			Copper and Aluminium Conductors						Electrical Properties						Current Ratings					
Con- ductor Size	Diameter Over Conductor	XLPE Insulation Thickness	Diameter Over Bedding	SWA** Diameter	Diameter Overall	Cable Mass		D.C. Resistance at 20°C	A.C. Resistance at 90°C at 50 Hz		Reactance per phase	Capaci- tance per phase at 50 Hz	Ground 25°C		Ducts 25°C		Air 30°C			
						cu	al		cu	al			cu	al	cu	al	cu	al		
Rated Voltage 3.8/6.6kV																				
(mm ²)	(mm)	(mm)	(mm)	(mm)	(mm)	cu	al	(Ω/km)	cu	al	(Ω/km)	(nF/km)	cu	al	cu	al	(A)			
25	5.9	2.5	33.3	2.0	41.5	3730		0.727	0.927		0.117	249	140		115		150			
35	7.0	2.5	35.6	2.0	44.0	4230		0.524	0.668		0.111	275	170		135		185			
50	8.2	2.5	38.2	2.5	48.0	5320	4430	0.387	0.641	0.822	0.106	304	200	155	160	120	220			
70	9.8	2.5	41.8	2.5	51.5	6395	5045	0.268	0.443	0.568	0.100	345	240	190	195	150	270			
95	11.5	2.5	45.7	2.5	55.5	7590	5755	0.193	0.320	0.247	0.410	0.095	389	225	230	180	330			
120	13.0	2.5	49.0	2.5	59.3	6850	6345	0.153	0.253	0.196	0.325	0.092	424	325	260	205	375			
150	14.4	2.5	52.1	2.5	62.5	9900	6995	0.124	0.206	0.159	0.265	0.089	460	365	290	230	425			
185	16.1	2.5	56.0	3.15	68.0	12080	8510	0.099	0.164	0.128	0.211	0.087	502	405	325	255	485			
240	18.7	2.6	62.2	3.15	74.5	14240	9870	0.075	0.125	0.098	0.161	0.084	549	460	370	295	565			
300	21.4	2.8	69.2	3.15	82.0	17320	11470	0.060	0.100	0.079	0.130	0.083	577	510	420	330	640			
Rated Voltage 6.35/11kV																				
25	5.9	3.4	37.4	2.5	47.0	4655		0.727	0.927		0.124	201	140		115		155			
35	7.0	3.4	39.6	2.5	49.5	5215		0.524	0.668		0.118	221	170		135		185			
50	8.2	3.4	42.3	2.5	52.0	5895	5015	0.387	0.641	0.822	0.113	242	200	155	160	125	220			
70	9.8	3.4	45.8	2.5	55.5	6995	5635	0.268	0.443	0.568	0.106	273	240	190	195	150	275			
95	11.5	3.4	49.8	2.5	60.0	8170	6340	0.193	0.320	0.247	0.410	0.100	306	225	230	180	330			
120	13.0	3.4	53.1	2.5	64.0	9370	7045	0.153	0.253	0.196	0.325	0.097	333	255	260	205	380			
150	14.4	3.4	56.2	3.15	68.5	11240	8350	0.124	0.206	0.159	0.265	0.094	360	285	290	230	430			
185	16.1	3.4	60.0	3.15	72.5	12775	9240	0.099	0.164	0.128	0.211	0.091	392	410	320	255	495			
240	18.7	3.4	65.9	3.15	78.5	14955	10580	0.075	0.125	0.098	0.161	0.088	440	470	370	295	570			
300	21.4	3.4	72.0	3.15	85.0	17865	12070	0.060	0.100	0.079	0.130	0.085	491	520	420	330	650			

Constructional Data (nominal values)				Copper and Aluminium Conductors				Electrical Properties					Current Ratings						
Con- ductor Size	Diameter Over Conductor	XLPE Insulation Thickness	Diameter Over Bedding	SWA** Diameter	Diameter Overall	Cable Mass		D.C. Resistance at 20°C		A.C. Resistance at 90°C at 50 Hz		Reactance per phase	Capaci- tance per phase at 50 Hz	Ground 25°C		Ducts 25°C		Air 30°C	
						cu	al	(kg/km)	(Ω/km)	cu	al			(Ω/km)	cu	al	(A)	cu	al
*Rated Voltage 8.7/15kV																			
25	5.9	4.5	42.2	2.50	52.5	5 380		0.727		0.927	164	140		115		155			
35	7.0	4.5	44.5	2.50	55.3	5 915		0.524		0.668	179	170		135		190			
50	8.2	4.5	47.1	2.50	57.5	6 630	5 745	0.387	0.641	0.494	0.822	0.113	195	200	155	160	125	225	175
70	9.8	4.5	50.9	2.50	61.5	7 830	6 465	0.268	0.443	0.342	0.568	0.108	219	240	190	195	150	280	220
95	11.5	4.5	54.9	3.15	67.5	9 725	7 865	0.193	0.320	0.247	0.410	0.107	244	290	225	230	180	335	260
120	13.0	4.5	57.9	3.15	70.0	10 835	8 530	0.153	0.253	0.196	0.325	0.103	264	325	255	260	205	385	300
150	14.4	4.5	61.2	3.15	74.0	12 180	9 295	0.124	0.206	0.159	0.265	0.100	284	360	285	290	230	440	340
185	16.1	4.5	64.1	3.15	78.0	13 800	10 195	0.099	0.164	0.128	0.211	0.097	308	410	320	325	255	490	390
240	18.7	4.5	70.9	3.55	87.0	16 760	12 350	0.075	0.125	0.098	0.161	0.093	345	470	370	370	295	580	460
*Rated Voltage 12.7/22 KV																			
25	5.9	5.5	46.7	2.50	57.5	6 060		0.727		0.927	143	145		115		160			
35	7.0	5.5	49.0	2.50	59.3	6 600		0.524		0.668	156	170		135		190			
50	8.2	5.5	51.5	2.50	62.0	7 250	6 390	0.387	0.641	0.494	0.822	0.126	170	200	155	160	125	230	180
70	9.8	5.5	55.2	2.50	67.2	9 155	7 815	0.268	0.443	0.342	0.568	0.119	189	245	190	195	150	280	220
95	11.5	5.5	59.2	3.15	72.0	10 445	8 625	0.193	0.320	0.247	0.410	0.112	210	290	225	230	180	340	265
120	13.0	5.5	62.2	3.15	75.8	11 650	9 340	0.153	0.253	0.196	0.325	0.108	227	325	255	260	205	385	305
150	14.4	5.5	66.5	3.15	78.3	13 005	10 115	0.124	0.206	0.159	0.265	0.104	243	360	285	290	230	435	340
185	16.1	5.5	69.4	3.15	83.0	14 645	11 060	0.099	0.164	0.128	0.211	0.101	263	410	320	325	255	500	395
240	18.7	5.5	75.2	3.55	91.5	17 545	13 150	0.075	0.125	0.098	0.161	0.097	293	470	370	370	295	580	460
*Rated Voltage 19/33kV																			
50	8.2	8.0	62.8	3.15	76.0	9 980	9 145	0.387	0.641	0.494	0.822	0.139	133	200	155	160	125	230	180
70	9.8	8.0	66.4	3.15	79.0	11 280	9 910	0.268	0.443	0.342	0.568	0.131	147	245	190	195	150	285	220
95	11.5	8.0	70.3	3.55	86.3	13 280	11 375	0.193	0.320	0.247	0.410	0.123	162	290	225	230	180	345	270
120	13.0	8.0	73.6	3.55	89.8	14 655	12 275	0.153	0.253	0.196	0.325	0.119	173	325	255	260	205	390	310
150	14.4	8.0	76.7	3.55	92.8	15 945	13 020	0.124	0.206	0.159	0.265	0.115	185	360	285	290	230	450	350
185	16.1	8.0	80.6	3.55	97.1	17 620	14 060	0.099	0.164	0.128	0.211	0.111	199	410	320	325	255	510	400
240	18.7	8.0	86.6	3.55	103.3	20 060	15 700	0.075	0.125	0.098	0.161	0.106	220	460	370	370	295	590	470

TIRUPATI Type A - Single Core

XLPE insulated, copper tape screened, PVC bedded, aluminium wire armoured and PVC sheathed.



Constructional Data (nominal values)				Copper and Aluminium Conductors						Electrical Properties										Current Ratings															
Con- ductor Size	Diam. Over Con- ductor	XLPE Insu- lation Thick- ness	Diam. Over Bedding	AWA** Diam.	Diam. Overall	Cable Mass		D.C. Resistance at 20°C		A.C. Resistance at 90°C at 50 Hz		Reactance per phase at 50 Hz		Capaci- tance per phase at 50 Hz		Ground 25°C					Ducts 25°C					Air 30°C									
						cu	al	cu	al	cu	al	cu	al	TRF	FLT	[nF/km]	Trefoil		Flat #		Trefoil		Flat #		Trefoil		Flat #								
																	(kg/km)	(Ω/km)	(Ω/km)	(Ω/km)	cu	al	cu	al	cu	al	cu	al	cu	al	cu	al	cu	al	cu
Rated Voltage 3.8/6.6kV																																			
*25	5.9	2.5	16.5	1.6	23.5	943		0.727		0.927		0.133	0.285	249	140	165		115		130		160		185											
*35	7.0	2.5	17.6	1.6	24.0	1075		0.524		0.668		0.127	0.275	275	170	195		135		160		190		220											
50	8.2	2.5	18.7	1.6	25.5	1240	955	0.387	0.641	0.494	0.822	0.121	0.266	304	200	155	230	180	160	125	185	145	230	180	260	205									
70	9.8	2.5	20.3	1.6	27.0	1535	1090	0.268	0.443	0.342	0.568	0.114	0.255	345	245	190	275	220	195	150	220	175	285	220	320	250									
95	11.5	2.5	22.1	1.6	28.5	1855	1255	0.193	0.320	0.247	0.410	0.107	0.245	389	290	225	325	260	230	180	260	210	350	270	385	305									
120	13.0	2.5	23.5	1.6	30.5	2150	1390	0.153	0.253	0.196	0.325	0.103	0.238	424	325	255	360	290	260	205	290	235	400	310	440	350									
150	14.4	2.5	24.9	1.6	32.0	2500	1555	0.124	0.206	0.159	0.265	0.101	0.232	460	360	285	395	320	290	230	315	255	450	355	480	400									
185	16.1	2.5	26.7	2.0	33.0	3025	1885	0.099	0.164	0.128	0.211	0.098	0.225	502	405	320	440	355	325	260	345	285	510	410	535	440									
240	18.7	2.6	29.5	2.0	38.0	3605	2175	0.075	0.125	0.098	0.161	0.095	0.217	549	460	370	480	400	370	295	385	320	600	475	610	510									
300	21.5	2.8	32.6	2.0	41.5	4430	2535	0.060	0.100	0.079	0.130	0.092	0.210	577	520	410	520	440	420	330	410	350	680	550	670	560									
400	24.3	3.0	36.5	2.0	45.0	5480	3085	0.047	0.078	0.063	0.102	0.091	0.203	604	580	470	560	490	470	380	450	390	790	640	750	640									
500	26.5	3.2	39.3	2.5	49.5	6775	3735	0.037	0.061	0.051	0.080	0.089	0.199	616	650	540	605	540	520	430	490	425	900	735	850	720									
Rated Voltage 6.35/11kV																																			
*25	5.9	3.4	18.1	1.6	24.5	1035		0.727		0.927		0.139	0.286	201	140	165		115		130		160		185											
*35	7.0	3.4	19.4	1.6	26.0	1175		0.524		0.668		0.132	0.276	221	170	195		135		155		195		220											
50	8.2	3.4	20.5	1.6	27.0	1345	1060	0.387	0.641	0.494	0.822	0.126	0.267	242	200	160	230	180	160	125	185	145	230	180	260	205									
70	9.8	3.4	22.4	1.6	29.5	1675	1215	0.268	0.443	0.342	0.568	0.118	0.256	273	245	190	275	220	195	150	220	175	290	225	320	255									
95	11.5	3.4	23.9	1.6	30.5	1980	1375	0.193	0.320	0.247	0.410	0.112	0.245	306	290	230	325	260	230	180	260	210	350	275	385	305									
120	13.0	3.4	25.3	1.6	32.4	2285	1530	0.153	0.253	0.196	0.325	0.109	0.239	333	325	255	360	290	260	205	290	230	400	315	440	350									
150	14.4	3.4	26.7	2.0	35.5	2765	1815	0.124	0.206	0.159	0.265	0.105	0.233	360	365	285	395	320	290	230	315	255	460	355	480	390									
185	16.1	3.4	28.5	2.0	37.0	3200	2015	0.099	0.164	0.128	0.211	0.102	0.226	392	410	320	430	355	325	260	345	285	520	405	540	435									
240	18.7	3.4	31.1	2.0	39.5	3755	2320	0.075	0.125	0.098	0.161	0.098	0.218	440	460	370	480	400	370	295	380	320	600	475	610	500									
300	21.5	3.4	33.8	2.0	42.2	4545	2640	0.060	0.100	0.079	0.130	0.095	0.210	491	520	410	510	440	420	330	420	350	680	550	670	560									
400	24.3	3.4	37.3	2.0	46.0	5595	3185	0.047	0.078	0.063	0.102	0.092	0.204	544	580	470	560	490	470	380	450	390	790	640	750	640									
500	26.5	3.4	39.7	2.5	50.0	6820	3795	0.037	0.061	0.051	0.080	0.090	0.199	585	650	540	610	540	520	430	490	425	900	735	850	720									

Constructional Data (nominal values)			Copper and Aluminium Conductors					Electrical Properties				Current Ratings											
Con- ductor Size	Diam. Over Con- ductor	XLPE Insu- lation Thick- ness	Diam. Over Bedding	AWA** Diam.	Diam. Overall	Cable Mass	D.C. Resistance at 20°C	A.C. Resistance at 90°C at 50 Hz	Reactance per phase at 50 Hz	Capaci- tance per phase at 50 Hz	Ground 25°C				Ducts 25°C				Air 30°C				
											(A)		(A)		(A)		(A)		(A)				
											Trefoil	Flat #	Trefoil	Flat #	Trefoil	Flat #	Trefoil	Flat #	Trefoil	Flat #			
(mm²)	(mm)	(mm)	(mm)	(mm)	(mm)	cu	al	cu	al	cu	al	cu	al	cu	al	cu	al	cu	al	cu	al		

TIRUPATI Type B - Three Core

XLPE insulated, copper tape screened, and PVC sheathed.



Constructional Data (nominal values)			Copper and Aluminium Conductors				Electrical Properties					Current Ratings						
Con- ductor Size	Diameter Over Conductor	XLPE Insulation Thickness	Diameter Overall	Cable Mass		D.C. Resistance at 20°C		A.C. Resistance at 90°C at 50 Hz		Reactance per phase	Capaci- tance per phase at 50 Hz	Ground 25°C		Ducts 25°C		Air 30°C		
				cu	al	cu	al	(Ω/km)	cu			al	(Ω/km)	cu	al	(A)	cu	al
Rated Voltage 3.8/6.6kV																		
25	5.9	2.5	35.0	2265		0.727		0.927		0.117	249	145		115		150		
35	7.0	2.5	37.5	2675		0.524		0.668		0.111	275	175		140		180		
50	8.2	2.5	40.5	3160	2235	0.387	0.641	0.494	0.822	0.106	304	205	160	160	125	215	170	
70	9.8	2.5	44.0	4060	2655	0.268	0.443	0.342	0.568	0.100	345	250	190	200	155	270	210	
95	11.5	2.5	47.5	4770	2895	0.193	0.320	0.247	0.410	0.095	389	295	230	235	180	330	255	
120	13.0	2.5	51.0	5665	3295	0.153	0.253	0.196	0.325	0.092	424	335	260	270	210	380	295	
150	14.4	2.5	54.0	6695	3750	0.124	0.206	0.159	0.265	0.089	460	375	290	300	235	430	340	
185	16.1	2.5	58.5	7925	4280	0.099	0.164	0.128	0.211	0.087	502	425	330	340	260	495	390	
240	18.7	2.6	64.5	9605	5165	0.075	0.125	0.098	0.161	0.084	549	490	380	390	305	590	460	
300	21.4	2.8	71.5	12060	6175	0.060	0.100	0.079	0.130	0.083	577	550	430	440	345	680	535	
Rated Voltage 6.35/11kV																		
25	5.9	3.4	39.5	4545		0.727		0.927		0.124	201	145		115		150		
35	7.0	3.4	41.5	2965		0.524		0.668		0.118	221	175		140		185		
50	8.2	3.4	44.5	3475	2560	0.387	0.641	0.494	0.822	0.113	242	205	160	160	125	220	170	
70	9.8	3.4	48.0	4385	3005	0.268	0.443	0.342	0.568	0.106	273	250	190	200	155	275	210	
95	11.5	3.4	52.0	5140	3305	0.193	0.320	0.247	0.410	0.100	306	295	230	235	180	335	260	
120	13.0	3.4	55.0	6055	3685	0.153	0.253	0.196	0.325	0.097	333	335	260	270	210	395	300	
150	14.4	3.4	58.5	7090	4155	0.124	0.206	0.159	0.265	0.094	360	375	290	300	235	440	340	
185	16.1	3.4	62.5	8360	4745	0.099	0.164	0.128	0.211	0.091	392	425	330	340	260	500	390	
240	18.7	3.4	68.0	9990	5575	0.075	0.125	0.098	0.161	0.088	440	490	380	390	305	590	465	
300	21.4	3.4	74.5	12380	6470	0.060	0.100	0.079	0.130	0.085	491	550	430	440	345	680	535	

Constructional Data (nominal values)				Copper and Aluminium Conductors				Electrical Properties						Current Ratings					
Con- ductor Size	Diameter Over Conductor	XLPE Insulation Thickness	Diameter Overall	Cable Mass		D.C. Resistance at 20°C		A.C. Resistance at 90°C at 50 Hz		Reactance per phase	Capaci- tance per phase at 50 Hz	Ground 25°C		Ducts 25°C		Air 30°C			
				cu	al	cu	al	cu	al			(Ω/km)	(Ω/km)	cu	al	cu	al	cu	al
(mm²)	(mm)	(mm)	(mm)	Rated Voltage 8.7/15 kV															
25	5.9	4.5	44.0	2770		0.727		0.927		0.133	164	145		115		150			
35	7.0	4.5	46.5	3185		0.524		0.668		0.126	179	175		140		180			
50	8.2	4.5	49.0	3705	2780	0.387	0.641	0.494	0.822	0.120	195	205	160	160	125	215	170		
70	9.8	4.5	53.0	4635	3215	0.268	0.443	0.342	0.568	0.113	219	250	190	200	155	270	210		
95	11.5	4.5	57.0	5585	3720	0.193	0.320	0.247	0.410	0.107	244	295	230	235	180	330	255		
120	13.0	4.5	60.5	6505	4150	0.153	0.253	0.196	0.325	0.103	264	335	260	270	210	380	295		
150	14.4	4.5	63.5	7565	4750	0.124	0.206	0.159	0.265	0.100	284	375	290	300	235	430	340		
185	16.1	4.5	67.5	8835	5195	0.099	0.164	0.128	0.211	0.097	308	425	330	340	260	495	390		
240	18.7	4.5	73.5	10575	6115	0.075	0.125	0.098	0.161	0.093	345	490	380	390	305	590	460		
Rated Voltage 12.7/22 kV																			
25	5.9	5.5	49.0	3200		0.727		0.927		0.140	143	145		115		150			
35	7.0	5.5	51.5	3615		0.524		0.668		0.132	156	175		140		180			
50	8.2	5.5	54.0	4165	3230	0.387	0.641	0.494	0.822	0.126	170	205	160	160	125	215	180		
70	9.8	5.5	57.5	5095	6695	0.268	0.443	0.342	0.568	0.119	189	250	190	200	155	270	220		
95	11.5	5.5	62.0	6085	4195	0.193	0.320	0.247	0.410	0.112	210	295	230	235	180	330	265		
120	13.0	5.5	65.0	7045	4695	0.153	0.253	0.196	0.325	0.108	227	335	260	270	210	380	310		
150	14.4	5.5	68.5	8155	5230	0.124	0.206	0.159	0.265	0.104	243	375	290	300	235	430	350		
185	16.1	5.5	72.5	9455	5785	0.099	0.164	0.128	0.211	0.101	263	425	330	340	260	495	400		
240	18.7	5.5	78.5	11215	6765	0.075	0.125	0.098	0.161	0.097	293	490	380	390	305	590	470		
Rated Voltage 19/33 kV																			
50	8.2	8.0	65.5	5310	4360	0.387	0.641	0.494	0.822	0.139	133	205	160	160	125	230	180		
70	9.8	8.0	65.5	6305	4875	0.268	0.443	0.342	0.568	0.131	147	250	190	200	155	290	225		
95	11.5	8.0	74.0	7345	6460	0.193	0.320	0.247	0.410	0.123	162	295	230	235	180	350	270		
120	13.0	8.0	77.0	8380	6005	0.153	0.253	0.196	0.325	0.119	173	335	260	270	210	400	310		
150	14.4	8.0	80.0	9510	6555	0.124	0.206	0.159	0.265	0.115	185	375	290	300	235	455	355		
185	16.1	8.0	84.0	10885	7235	0.099	0.164	0.128	0.211	0.111	199	425	330	340	260	520	405		
240	18.7	8.0	90.5	12710	8250	0.075	0.125	0.098	0.161	0.106	220	490	380	390	305	610	480		

Fault rating - kA for 1 sec (Copper)

Medium voltage Electric Cable - 6,6kV to 33kV

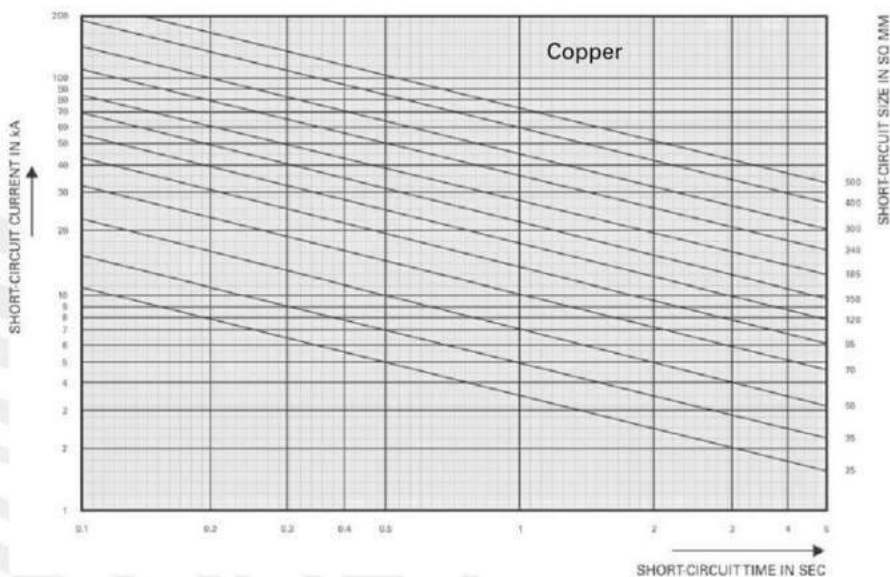
Earth Fault

TYPE A - SINGLE CORE ALUMINIUM WIRE ARMOUR *				
Conductor Size (mm ²)	Rated Voltage kV			
	3,8/6,6 kV	6,35/11 kV	12,7/22 kV	19/33 kV
95	11,5	12,4	14,5	17,2
120	12,1	13,3	15,1	22,7
150	12,7	13,9	16,0	23,6
185	13,6	14,5	16,0	24,5
240	14,8	15,7	22,2	25,4
300	16,0	16,6	23,6	26,8
400	22,7	23,1	25,4	36,0
500	24,5	24,5	26,8	38,2

* Applicable to PVC sheathed cable

Symmetrical Faults

Maximum permissible short-circuit current rating for Tirupati Plastomatics XLPE cables up to 33kV Copper conductors



Max. conductor temperature at the beginning of short-circuit is 90 °C.

Max. conductor temperature at the end of short-circuit is 250 °C.

The graphs are calculated with the formula:

$$I_k = \frac{q}{\sqrt{t}} \cdot K, \text{ where:}$$

$$I_k = \text{max. permissible short-circuit current (A)}$$

$$q = \text{conductor size (mm}^2\text{)}$$

$$t = \text{duration of short-circuit process (s)}$$

K = copper constant of 143 for conductor temperature rising from 90 °C to 250 °C

Note: In case the cable does not carry full load, consequently the conductor temperature is below 90°C, this K-factor can be adjusted as follows:

$$K = 143 + \frac{90 - t_c}{20} \times 11$$

Where t_c = conductor temperature at start of short-circuit.

Fault rating - kA for 1 sec (Aluminium)

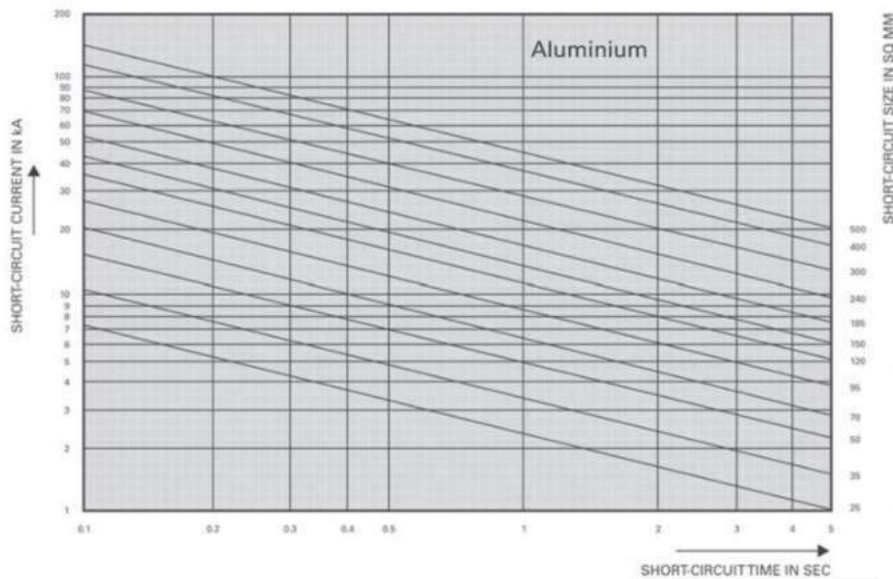
Medium voltage Electric Cable - 6,6kV to 33kV

Earth Fault

Conductor Size (mm ²)	TYPE A - 3-Core Rated Voltage kV			
	3,8/6,6 kV	6,35/11 kV	12,7/22 kV	19/33 kV
25	7,4	10,4	16,5	
35	11,1	12,2	17,2	
50	12,0	13,1	19,7	21,3
70	12,9	17,6	20,8	28,1
95	17,3	18,7	25,0	29,4
120	18,3	19,7	25,9	30,3
150	19,4	20,8	27,2	31,6
185	20,8	25,0	28,6	33,0
240	25,5	26,8	30,3	34,7
300	27,2	28,6	32,1	

Symmetrical Faults

Maximum permissible short-circuit current rating for Tirupati Plastomatics XLPE cables up to 33kV Aluminium conductors



Max. conductor temperature at the beginning of short-circuit is 90 °C.

Max. conductor temperature at the end of short-circuit is 250 °C.

The graphs are calculated with the formula:

$$I_k = \frac{q}{\sqrt{t}} \cdot K, \text{ where:}$$

I_k = max. permissible short-circuit current (A)

q = conductor size (mm²)

t = duration of short-circuit process (s)

K = copper constant of 92 for conductor temperature rising from 90 °C to 250 °C

Note: In case the cable does not carry full load, consequently the conductor temperature is below 90 °C, this K-factor can be adjusted as follows:

$$K = 92 + \frac{90 - t_c}{20} \times 7$$

Where t_c = conductor temperature at start of short-circuit.

Rating Factors

Medium voltage Electric Cable - 6,6kV to 33kV

Tirupati cable in ground

RATING FACTORS FOR DEPTH OF LAYING	
Depth of Laying (mm)	Factor
500 - 800	1,0
850 - 1000	0,97
1050 - 1200	0,95
1250 - 1400	0,93
1450 - 1600	0,92

RATING FACTORS FOR GROUND TEMPERATURE		
Ground Temperature	Conductor Temperature	
°C	90 °C	65 °C
25	1,00	1,00
30	0,96	0,94
35	0,92	0,87
40	0,88	0,79

RATING FACTORS FOR THERMAL RESISTIVITY OF GROUND	
Thermal Resistivity K.m/Ω	Rating Factor
0,7	1,23
1,0	1,08
1,2	1,00
1,5	0,90
2,0	0,80
2,5	0,72
3,0	0,66

GROUP RATINGS FOR 3-CORE TIRUPATI CABLES IN FLAT FORMATION IN GROUND			
No. of cables in same trench	Spacing		
	Touching	0,25 m	0,7 m
2	0,79	0,85	0,87
3	0,69	0,75	0,79
4	0,63	0,68	0,75
5	0,58	0,64	0,72
6	0,55	0,60	0,69
8	0,50	0,56	0,66
10	0,46	0,53	0,64

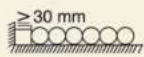
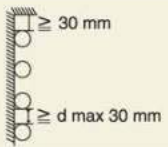
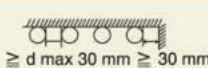
Tirupati cable in ground

RATING FACTORS FOR AMBIENT AIR TEMPERATURE					
Conductor Temp. °C	Air temperature °C				
	30	35	40	45	50
90	1,0	0,95	0,89	0,84	0,78

Rating Factors

Medium voltage Electric Cable - 6,6kV to 33kV

Tirupati Plastomatics XLPE cable on trays, ladders or building structures

Type of laying			No. of ladders or trays	Number of cables		
				1	2	3
				Rating factors		
On metal tray	touching		1	0.97	0.85	0.74
			2	0.97	0.83	0.71
	with spacing		1	0.97	0.96	0.93
			2	0.97	0.94	0.90
On metal ladder	touching		1	1.00	0.86	0.74
			2	1.00	0.82	0.71
	with spacing		1	1.00	1.00	1.00
			2	1.00	1.00	1.00
On floor	touching			0.94	0.80	0.86
	with spacing			0.94	0.90	0.87
On floor	touching			0.94	0.80	0.86
	with spacing			0.94	0.90	0.87
In ceiling	touching			0.89	0.76	0.57
	with spacing			0.89	0.81	0.77

High Voltage Cables to IS : 7098 (Part - 2)

TABLE 1 - 3.8/6.6 KV HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length:
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Kg/Km		Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Kg/Km	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable.	In Ground at 30° C.	In Duct at 30° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.	
35	2.8	2.0	20.3	453	0.30	4 x 0.8	1.40	21.3	553	1.6	1.40	22.8	624	120	105	145	500	
50	2.8	2.0	21.4	502	0.30	4 x 0.8	1.40	22.2	605	1.6	1.40	23.1	705	140	125	170	500	
70	2.8	2.0	23.2	604	0.30	4 x 0.8	1.40	24.2	752	1.6	1.40	25.9	803	175	155	215	500	
95	2.8	2.0	24.7	753	0.30	4 x 0.8	1.40	25.4	847	1.6	1.40	26.8	954	205	180	260	500	
120	2.8	2.0	26.2	846	0.30	4 x 0.8	1.40	27.3	947	1.6	1.40	29.3	1055	235	205	305	500	
150	2.8	2.0	27.3	952	0.30	4 x 0.8	1.40	28.8	1105	1.6	1.56	30.8	1203	260	230	345	500	
185	2.8	2.0	29.0	1103	0.30	4 x 0.8	1.56	31.3	1253	1.6	1.56	32.9	1402	295	260	395	500	
240	2.8	2.2	32.2	1347	0.40	4 x 0.8	1.56	32.8	1503	2.0	1.56	35.9	1704	340	300	470	500	
300	3.0	2.2	34.7	1548	0.40	4 x 0.8	1.56	36.4	1755	2.0	1.56	38.4	2005	385	335	540	500	
400	3.3	2.2	38.7	1953	0.40	4 x 0.8	1.56	40.4	2204	2.0	1.72	42.9	2455	440	380	630	500	
500	3.5	2.4	42.2	2405	0.50	4 x 0.8	1.72	43.8	2652	2.0	1.88	46.8	2954	495	430	730	500	
630	3.5	2.4	45.8	2855	0.50	4 x 0.8	1.88	47.9	3204	2.0	1.88	49.8	3453	560	480	840	500	
800	3.5	2.6	50.5	3453	0.50	4 x 0.8	1.88	51.3	3752	2.5	2.04	55.3	4304	620	530	960	500	
1000	3.6	2.8	55.3	4247	0.60	4 x 0.8	2.04	56.8	4604	2.5	2.20	60.8	5155	680	580	1070	500	

TABLE 2 - 3.8/6.6 KV (E) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMOURED CABLE				Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMOURED CABLE				ALUMINIUM ROUND WIRE ARMOURED CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length:
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip		Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable.	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.		
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.	
35	2.8	2.0	20.5	675	0.30	4 x 0.8	1.40	21.3	755	1.6	1.40	22.8	854	155	140	185	500	
50	2.8	2.0	21.3	853	0.30	4 x 0.8	1.40	22.4	904	1.6	1.40	23.7	1005	185	160	220	500	
70	2.8	2.0	23.4	1055	0.30	4 x 0.8	1.40	24.5	1153	1.6	1.40	25.6	1254	225	195	275	500	
95	2.8	2.0	24.2	1304	0.30	4 x 0.8	1.40	25.8	1452	1.6	1.40	27.2	1553	265	235	340	500	
120	2.8	2.0	25.8	1603	0.30	4 x 0.8	1.40	27.3	1701	1.6	1.40	29.3	1805	300	265	390	500	
150	2.8	2.0	27.4	1905	0.30	4 x 0.8	1.40	28.8	2055	1.6	1.56	30.8	2152	335	295	440	500	
185	2.8	2.0	29.4	2252	0.30	4 x 0.8	1.56	31.4	2403	1.6	1.56	32.8	2553	380	330	510	500	
240	2.8	2.2	32.3	2853	0.40	4 x 0.8	1.56	32.8	3005	2.0	1.56	35.6	3204	435	380	600	500	
300	3.0	2.2	34.8	3454	0.40	4 x 0.8	1.56	35.8	3604	2.0	1.56	37.3	3853	490	425	680	500	
400	3.3	2.2	38.8	4455	0.40	4 x 0.8	1.56	40.4	4653	2.0	1.72	42.8	4954	550	480	790	500	
500	3.5	2.4	42.3	5503	0.50	4 x 0.8	1.72	43.3	5755	2.0	1.88	46.7	6055	610	530	910	500	
630	3.5	2.4	45.8	6754	0.50	4 x 0.8	1.88	47.8	7102	2.0	1.88	50.3	7353	680	580	1030	500	
800	3.5	2.6	50.2	8455	0.50	4 x 0.8	1.88	51.4	8703	2.5	2.04	55.4	9252	740	630	1140	500	
1000	3.6	2.8	54.8	10452	0.60	4 x 0.8	2.04	56.8	10805	2.5	2.20	60.8	11355	790	670	1250	500	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 3 - 6.35/11 KV 6.6/6.6 KV (UE) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE			Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable		Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	3.6	2.0	21.7	554	0.30	4 x 0.8	1.40	23.2	653	1.6	1.40	24.2	753	120	105	145	500
50	3.6	2.0	22.8	603	0.30	4 x 0.8	1.40	24.3	704	1.6	1.40	25.3	805	140	125	170	500
70	3.6	2.0	24.8	705	0.30	4 x 0.8	1.40	25.7	805	1.6	1.40	27.4	954	175	155	215	500
95	3.6	2.0	25.8	802	0.30	4 x 0.8	1.40	27.8	955	1.6	1.40	29.3	1053	205	180	260	500
120	3.6	2.0	27.7	953	0.30	4 x 0.8	1.40	29.3	1055	1.6	1.56	31.5	1204	235	205	305	500
150	3.6	2.0	29.4	1055	0.30	4 x 0.8	1.56	30.8	1203	1.6	1.56	32.4	1352	260	230	345	500
185	3.6	2.2	31.8	1254	0.40	4 x 0.8	1.56	33.3	1404	2.0	1.56	35.3	1603	295	260	395	500
240	3.6	2.2	35.4	1455	0.40	4 x 0.8	1.56	35.3	1602	2.0	1.56	38.5	1855	340	300	470	500
300	3.6	2.2	36.3	1654	0.40	4 x 0.8	1.56	37.4	1854	2.0	1.56	40.3	2104	385	335	540	500
400	3.6	2.2	39.2	2005	0.40	4 x 0.8	1.72	40.8	2255	2.0	1.72	43.8	2555	440	380	630	500
500	3.6	2.4	42.7	2455	0.50	4 x 0.8	1.72	44.5	2653	2.0	1.88	46.7	3003	495	430	730	500
630	3.6	2.4	46.3	2903	0.50	4 x 0.8	1.88	47.7	3205	2.0	1.88	50.2	3454	560	480	840	500
800	3.6	2.6	50.2	3504	0.50	4 x 0.8	1.88	51.7	3805	2.5	2.04	55.4	4302	620	530	960	500
1000	3.6	2.8	55.3	4252	0.60	4 x 0.8	2.04	56.2	4604	2.5	2.20	60.8	5155	680	580	1070	500

TABLE 4 - 6.35/11 KV 6.6/6.6 KV (UE) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE			Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable		Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	3.6	2.0	21.8	755	0.30	4 x 0.8	1.40	23.3	852	1.6	1.40	24.4	952	155	140	185	500
50	3.6	2.0	23.4	904	0.30	4 x 0.8	1.40	24.4	1005	1.6	1.40	25.0	1115	185	160	220	500
70	3.6	2.0	24.8	1152	0.30	4 x 0.8	1.40	25.8	1253	1.6	1.40	27.2	1354	225	195	275	500
95	3.6	2.0	26.3	1405	0.30	4 x 0.8	1.40	27.7	1555	1.6	1.40	29.8	1653	265	235	340	500
120	3.6	2.0	28.5	1654	0.30	4 x 0.8	1.40	29.4	1801	1.6	1.56	31.5	1955	300	265	390	500
150	3.6	2.0	28.8	1953	0.30	4 x 0.8	1.56	30.8	2152	1.6	1.56	32.7	2251	335	295	440	500
185	3.6	2.2	31.7	2405	0.40	4 x 0.8	1.56	32.8	2554	2.0	1.56	33.5	2752	380	330	510	500
240	3.6	2.2	34.7	2903	0.40	4 x 0.8	1.56	34.7	3103	2.0	1.56	38.8	3354	435	380	600	500
300	3.6	2.2	36.3	3502	0.40	4 x 0.8	1.56	37.3	3705	2.0	1.56	40.7	3955	490	425	680	500
400	3.6	2.2	39.4	4505	0.40	4 x 0.8	1.72	40.7	4752	2.0	1.72	44.2	5053	550	480	790	500
500	3.6	2.4	42.8	5503	0.50	4 x 0.8	1.72	44.4	5801	2.0	1.88	46.4	6102	610	530	910	500
630	3.6	2.4	46.4	6804	0.50	4 x 0.8	1.88	47.8	7104	2.0	1.88	50.3	7354	680	580	1030	500
800	3.6	2.6	50.3	8452	0.50	4 x 0.8	1.88	51.6	8753	2.5	2.04	55.5	9255	740	630	1140	500
1000	3.6	2.8	55.4	10451	0.60	4 x 0.8	2.04	56.7	10805	2.5	2.20	60.8	11353	790	670	1250	500

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 5 - 11 / 11 KV (UE) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Minimum Thickness of Inner Sheath	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
70	5.5	2.0	28.7	855	0.30	4 x 0.8	1.56	30.3	1055	1.6	1.56	31.4	1154	175	155	215	500
95	5.5	2.0	30.2	983	0.30	4 x 0.8	1.56	32.5	1204	2.0	1.56	34.2	1355	205	180	260	500
120	5.5	2.2	32.3	1152	0.40	4 x 0.8	1.56	33.8	1303	2.0	1.56	36.4	1502	235	205	305	500
150	5.5	2.2	33.8	1264	0.40	4 x 0.8	1.56	35.4	1455	2.0	1.56	37.3	1655	260	230	345	500
185	5.5	2.2	35.7	1433	0.40	4 x 0.8	1.56	36.8	1601	2.0	1.56	39.5	1851	295	260	395	500
240	5.5	2.2	37.7	1655	0.40	4 x 0.8	1.56	38.5	1852	2.0	1.72	41.8	2153	340	300	470	500
300	5.5	2.2	39.8	1902	0.40	4 x 0.8	1.72	41.7	2154	2.0	1.72	44.3	2405	385	335	540	500
400	5.5	2.4	42.9	2305	0.50	4 x 0.8	1.72	45.3	2603	2.0	1.88	47.4	2904	440	380	630	500
500	5.5	2.4	45.6	2703	0.50	4 x 0.8	1.88	48.4	3005	2.5	2.04	52.3	3505	495	430	730	500
630	5.5	2.6	50.3	3204	0.50	4 x 0.8	1.88	51.8	3504	2.5	2.04	55.4	4052	560	480	840	500
800	5.5	2.8	54.4	3885	0.60	4 x 0.8	2.04	56.4	4202	2.5	2.2	60.5	4801	620	530	960	500
1000	5.5	2.8	59.2	4604	0.60	4 x 0.8	2.2	61.3	5003	2.5	2.36	65.2	5653	680	580	1070	500

TABLE 6 - 11 / 11 KV (UE) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Minimum Thickness of Inner Sheath	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
70	5.5	2.0	28.2	1305	0.30	4 x 0.8	1.56	29.7	1505	1.6	1.56	31.7	1604	225	195	275	500
95	5.5	2.0	30.3	1553	0.30	4 x 0.8	1.56	32.4	1803	2.0	1.56	34.2	1955	265	235	340	500
120	5.5	2.2	31.8	1905	0.40	4 x 0.8	1.56	33.3	2054	2.0	1.56	36.3	2253	300	265	390	500
150	5.5	2.2	33.2	2202	0.40	4 x 0.8	1.56	35.1	2402	2.0	1.56	37.4	2602	335	295	440	500
185	5.5	2.2	35.8	2601	0.40	4 x 0.8	1.56	37.3	2755	2.0	1.56	39.5	3004	380	330	510	500
240	5.5	2.2	37.3	3154	0.40	4 x 0.8	1.56	39.4	3351	2.0	1.72	42.2	3653	435	380	600	500
300	5.5	2.2	39.4	3755	0.40	4 x 0.8	1.72	41.8	4003	2.0	1.72	44.3	4255	490	425	680	500
400	5.5	2.4	43.5	4803	0.50	4 x 0.8	1.72	45.4	5105	2.0	1.88	47.4	5405	550	480	790	500
500	5.5	2.4	46.2	5804	0.50	4 x 0.8	1.88	48.3	6104	2.5	2.04	52.5	6603	610	530	910	500
630	5.5	2.6	50.3	7103	0.50	4 x 0.8	1.88	51.7	7403	2.5	2.04	55.3	7952	680	580	1030	500
800	5.5	2.8	54.4	8855	0.60	4 x 0.8	2.04	56.2	9152	2.5	2.2	60.4	9755	740	630	1140	500
1000	5.5	2.8	59.3	10804	0.60	4 x 0.8	2.2	61.4	11205	2.5	2.36	65.2	11854	790	670	1250	500

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 7 - 12.7 / 22 KV HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Minimum Thickness of Inner Sheath	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
95	6.0	2.2	32.4	1105	0.40	4 x 0.8	1.56	33.2	1255	2.0	1.56	36.2	1454	205	180	270	500
120	6.0	2.2	34.5	1202	0.40	4 x 0.8	1.56	35.4	1402	2.0	1.56	37.8	1605	230	200	310	500
150	6.0	2.2	35.2	1353	0.40	4 x 0.8	1.56	36.3	1534	2.0	1.56	39.2	1753	260	225	350	500
185	6.0	2.2	37.3	1505	0.40	4 x 0.8	1.56	38.5	1703	2.0	1.72	41.4	2002	290	255	400	500
240	6.0	2.2	39.5	1751	0.40	4 x 0.8	1.56	40.8	1951	2.0	1.72	43.3	2253	335	290	470	500
300	6.0	2.2	41.4	2005	0.40	4 x 0.8	1.72	43.4	2255	2.0	1.72	45.4	2505	380	325	540	500
400	6.0	2.4	44.8	2404	0.50	4 x 0.8	1.88	47.3	2704	2.0	1.88	49.5	3001	430	370	630	500
500	6.0	2.6	47.7	2852	0.50	4 x 0.8	1.88	50.2	3102	2.5	2.04	53.8	3652	485	420	730	500
630	6.0	2.6	51.8	3303	0.50	4 x 0.8	2.04	54.5	3703	2.5	2.04	57.2	4155	550	470	840	500
800	6.0	2.8	56.3	4005	0.60	4 x 0.8	2.04	58.3	4352	2.5	2.20	61.5	5004	610	520	950	500
1000	6.0	3.0	61.2	4804	0.60	4 x 0.8	2.2	62.1	5154	2.5	2.36	66.4	5803	660	560	1060	500

TABLE 8 - 12.7 / 22 KV HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Minimum Thickness of Inner Sheath	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
95	6.0	2.2	32.2	1655	0.40	4 x 0.8	1.56	32.7	1853	2.0	1.56	36.2	2054	265	230	345	500
120	6.0	2.2	34.4	1953	0.40	4 x 0.8	1.56	34.8	2152	2.0	1.56	37.7	2355	300	260	400	500
150	6.0	2.2	35.3	2257	0.40	4 x 0.8	1.56	36.3	2455	2.0	1.56	39.4	2703	330	290	450	500
185	6.0	2.2	36.6	2653	0.40	4 x 0.8	1.56	38.5	2854	2.0	1.72	41.5	3155	375	325	510	500
240	6.0	2.2	38.3	3205	0.40	4 x 0.8	1.56	40.8	3455	2.0	1.72	43.3	3752	430	370	600	500
300	6.0	2.2	40.8	3854	0.40	4 x 0.8	1.72	43.2	4102	2.0	1.72	45.4	4354	480	415	690	500
400	6.0	2.4	44.8	4905	0.50	4 x 0.8	1.88	46.8	5203	2.0	1.88	49.5	5503	540	465	790	500
500	6.0	2.6	47.7	5952	0.50	4 x 0.8	1.88	50.3	6204	2.5	2.04	53.8	6755	600	520	910	500
630	6.0	2.6	51.8	7203	0.50	4 x 0.8	2.04	54.4	7605	2.5	2.04	57.3	8052	660	570	1020	500
800	6.0	2.8	56.3	8955	0.60	4 x 0.8	2.04	57.8	9303	2.5	2.20	61.4	9904	720	620	1140	500
1000	6.0	3.0	61.2	11004	0.60	4 x 0.8	2.20	62.7	11355	2.5	2.36	66.5	12005	760	660	1240	500

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 9 - 19 / 33 KV HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable			Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable.	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.	
95	8.0	2.2	37.8	1405	0.40	4 x 0.8	1.56	39.3	1602	2.0	1.72	41.8	1905	200	180	270	500	
120	8.0	2.2	39.4	1553	0.40	4 x 0.8	1.72	41.2	1804	2.0	1.72	43.2	2054	230	200	310	500	
150	8.0	2.2	40.3	1704	0.40	4 x 0.8	1.72	42.5	1955	2.0	1.72	44.7	2203	260	225	350	500	
185	8.0	2.4	43.4	1905	0.50	4 x 0.8	1.72	44.8	2203	2.0	1.88	47.3	2501	290	255	400	500	
240	8.0	2.4	45.1	2202	0.50	4 x 0.8	1.88	47.7	2505	2.0	1.88	49.8	2764	335	290	470	500	
300	8.0	2.6	48.5	2504	0.50	4 x 0.8	1.88	48.5	2754	2.0	2.04	52.2	3103	380	325	540	500	
400	8.0	2.6	51.3	2903	0.50	4 x 0.8	2.04	52.8	3255	2.0	2.04	55.3	3555	430	370	630	500	
500	8.0	2.8	54.2	3405	0.60	4 x 0.8	2.04	56.3	3705	2.5	2.2	60.4	4254	485	420	730	500	
630	8.0	2.8	57.4	3902	0.60	4 x 0.8	2.2	60.4	4303	2.5	2.36	63.5	4903	550	470	840	500	
800	8.0	3.0	62.3	4605	0.60	4 x 0.8	2.36	64.3	5054	2.5	2.36	67.3	5605	610	520	950	500	
1000	8.0	3.2	67.5	5452	0.70	4 x 0.8	2.36	69.4	5903	2.5	2.52	72.8	6553	660	560	1060	500	

TABLE 10 - 19 / 33 KV HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMOURED CABLE				Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMOURED CABLE				ALUMINIUM ROUND WIRE ARMOURED CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip		Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.		
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.	
95	8.8	2.2	37.7	2005	0.40	4 x 0.8	1.56	39.2	2205	2.0	1.72	41.8	2555	265	230	345	500	
120	8.8	2.2	39.3	2303	0.40	4 x 0.8	1.72	41.3	2553	2.0	1.72	43.3	2803	300	260	400	500	
150	8.8	2.2	40.5	2602	0.40	4 x 0.8	1.72	42.5	2854	2.0	1.72	44.8	3102	330	290	450	500	
185	8.8	2.4	43.4	3055	0.50	4 x 0.8	1.72	44.8	3305	2.0	1.88	47.5	3655	375	325	510	500	
240	8.8	2.4	45.2	3654	0.50	4 x 0.8	1.88	47.4	4003	2.0	1.88	49.8	4254	430	370	600	500	
300	8.8	2.6	48.5	4353	0.50	4 x 0.8	1.88	49.3	4605	2.0	2.04	52.4	4951	480	415	690	500	
400	8.8	2.6	51.4	5355	0.50	4 x 0.8	2.04	52.2	5702	2.0	2.04	55.3	6052	540	465	790	500	
500	8.8	2.8	54.3	6454	0.60	4 x 0.8	2.04	56.4	6803	2.5	2.20	60.2	7354	600	520	910	500	
630	8.8	2.8	57.8	7003	0.60	4 x 0.8	2.20	60.5	8205	2.5	2.36	63.4	8805	660	570	1020	500	
800	8.8	3.0	62.7	9555	0.60	4 x 0.8	2.36	64.3	10003	2.5	2.36	67.3	10603	720	620	1140	500	
1000	8.8	3.2	67.4	11604	0.70	4 x 0.8	2.36	69.4	12104	2.5	2.52	72.8	12752	760	660	1240	500	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 11 - 33 / 33 KV (UE) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMOURED CABLE				Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMOURED CABLE				ALUMINIUM ROUND WIRE ARMOURED CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable			Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable.	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.	
120	9.5	2.2	41.8	1705	0.40	4 x 0.8	1.72	43.2	2005	2.00	1.72	45.7	2253	230	200	310	500	
150	9.5	2.4	43.2	1903	0.40	4 x 0.8	1.72	44.7	2153	2.00	1.88	47.8	2502	260	225	350	500	
185	9.5	2.4	45.3	2104	0.50	4 x 0.8	1.72	46.8	2404	2.00	1.88	49.8	2704	290	255	400	500	
240	9.5	2.4	47.7	2352	0.50	4 x 0.8	1.88	49.2	2705	2.50	2.04	53.3	3205	335	290	470	500	
300	9.5	2.6	50.4	2653	0.50	4 x 0.8	1.88	51.3	3002	2.50	2.04	55.2	3502	380	325	540	500	
400	9.5	2.6	53.2	3104	0.50	4 x 0.8	2.04	55.4	3455	2.50	2.20	58.7	4003	430	370	630	500	
500	9.5	2.8	56.8	3603	0.60	4 x 0.8	2.04	58.3	3953	2.50	2.20	62.2	4552	485	420	730	500	
630	9.5	3.0	60.4	4205	0.60	4 x 0.8	2.20	61.7	4554	2.50	2.36	65.3	5205	550	470	840	500	
800	9.5	3.0	64.3	4853	0.60	4 x 0.8	2.36	66.4	5305	3.15	2.52	71.2	6204	610	520	950	500	
1000	9.5	3.2	69.5	5705	0.70	4 x 0.8	2.52	71.2	6253	3.15	2.68	76.4	7255	660	560	1060	500	

TABLE 12 - 33 / 33 KV (UE) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMOURED CABLE				Minimum Thickness of Inner Sheath	ALUMINIUM STRIP ARMOURED CABLE				ALUMINIUM ROUND WIRE ARMOURED CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip		Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.		
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.	
120	9.5	2.2	41.8	2453	0.40	4 x 0.8	1.72	43.2	2752	2.00	1.72	45.8	3005	300	260	400	500	
150	9.5	2.4	43.3	2854	0.40	4 x 0.8	1.72	44.8	3055	2.00	1.88	47.2	3402	330	290	450	500	
185	9.5	2.4	45.4	3255	0.50	4 x 0.8	1.72	46.7	3503	2.00	1.88	49.4	3851	375	325	510	500	
240	9.5	2.4	47.7	3852	0.50	4 x 0.8	1.88	49.2	4204	2.50	2.04	53.5	4654	430	370	600	500	
300	9.5	2.6	50.2	4555	0.50	4 x 0.8	1.88	51.1	4851	2.50	2.04	55.3	5353	480	415	690	500	
400	9.5	2.6	53.4	5603	0.50	4 x 0.8	2.04	55.3	5955	2.50	2.20	58.7	6505	540	465	790	250	
500	9.5	2.8	56.2	6704	0.60	4 x 0.8	2.04	58.4	7054	2.50	2.20	62.2	7652	600	520	910	250	
630	9.5	3.0	60.3	8105	0.60	4 x 0.8	2.20	61.8	8453	2.50	2.36	65.7	9105	660	570	1020	250	
800	9.5	3.0	64.4	9803	0.60	4 x 0.8	2.36	66.3	10254	3.15	2.52	71.2	11203	720	620	1140	250	
1000	9.5	3.2	68.8	11902	0.70	4 x 0.8	2.52	71.2	12455	3.15	2.68	76.3	13452	760	660	1240	200	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 13 - 1.9 / 3.3 KV (E) & 3.3/3.3 KV (UE) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	2.2	0.4	2.2	38.5	1502	4 x 0.8	1.56	37.2	1955	2.0	1.72	40.4	2605	115	97	125	500
50	2.2	0.4	2.2	40.2	1703	4 x 0.8	1.72	39.7	2204	2.0	1.72	42.2	2903	130	115	150	500
70	2.2	0.5	2.4	44.7	2155	4 x 0.8	1.72	44.5	2653	2.0	1.88	47.2	3451	160	140	190	500
95	2.2	0.5	2.6	48.3	2604	4 x 0.8	1.80	47.8	3152	2.5	2.04	51.3	4404	190	165	230	500
120	2.2	0.5	2.6	52.2	3001	4 x 0.8	2.04	51.3	3651	2.5	2.04	55.7	5002	220	190	260	500
150	2.2	0.6	2.8	55.7	3503	4 x 0.8	2.04	54.7	4105	2.5	2.20	58.8	5555	245	210	295	500
185	2.2	0.6	3.0	60.3	4155	4 x 0.8	2.20	59.2	4804	2.5	2.36	63.4	6353	275	240	335	500
240	2.2	0.7	3.0	65.5	4904	4 x 0.8	2.36	64.7	5752	2.5	2.36	68.2	7354	315	275	395	500
300	2.2	0.7	3.2	70.7	5853	4 x 0.8	2.52	70.5	6655	3.15	2.68	75.3	9255	355	310	450	500
400	2.2	0.7	3.6	78.3	7302	4 x 0.8	2.68	76.7	8102	3.15	2.84	82.4	11002	400	350	520	500

TABLE 14 - 1.9 / 3.3 KV (E) & 3.3/3.3 KV (UE) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	2.2	0.4	2.2	38.2	2152	4 x 0.8	1.56	37.2	2605	2.00	1.72	40.2	3255	145	125	165	500
50	2.2	0.4	2.2	40.4	2653	4 x 0.8	1.72	39.7	3153	2.00	1.72	42.1	3803	170	150	195	500
70	2.2	0.5	2.4	44.8	3455	4 x 0.8	1.72	44.2	3954	2.00	1.88	47.2	4755	210	180	240	500
95	2.2	0.5	2.6	48.7	4354	4 x 0.8	1.80	47.3	4951	2.50	2.04	51.4	6152	250	215	295	500
120	2.2	0.5	2.6	52.2	5252	4 x 0.8	2.04	51.2	5902	2.50	2.04	55.7	72001	280	240	335	500
150	2.2	0.6	2.8	55.3	6303	4 x 0.8	2.04	54.6	6905	2.50	2.20	58.6	8355	310	270	380	500
185	2.2	0.6	3.0	60.5	7602	4 x 0.8	2.2	59.2	8252	2.50	2.36	63.2	9803	350	305	430	500
240	2.2	0.7	3.0	65.4	9354	4 x 0.8	2.36	64.7	10253	2.50	2.36	68.3	11804	400	350	500	500
300	2.2	0.7	3.2	70.2	11405	4 x 0.8	2.52	70.3	12254	3.15	2.68	75.4	14855	445	390	510	500
400	2.2	0.7	3.6	78.4	14753	4 x 0.8	2.68	76.2	15555	3.15	2.84	82.5	18452	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 15 - 3.8 / 6.6 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	2.8	0.4	2.2	40.2	1603	4 x 0.8	1.72	40.2	2202	2.00	1.72	43.2	2805	115	97	125	500
50	2.8	0.5	2.4	43.4	1954	4 x 0.8	1.72	42.7	2504	2.00	1.88	45.7	3203	130	115	150	500
70	2.8	0.5	2.6	47.5	2352	4 x 0.8	1.88	47.3	3003	2.00	1.88	49.8	3704	160	140	190	500
95	2.8	0.5	2.6	51.2	2805	4 x 0.8	1.88	50.8	3402	2.50	2.04	54.2	4705	190	165	230	500
120	2.8	0.5	2.8	55.3	3303	4 x 0.8	2.04	55.2	4005	2.50	2.20	58.1	5402	220	190	260	500
150	2.8	0.6	2.8	58.4	3801	4 x 0.8	2.20	58.4	4502	2.50	2.20	61.4	5905	245	210	295	500
185	2.8	0.6	3.0	63.1	4402	4 x 0.8	2.20	62.3	5154	2.50	2.36	66.3	6703	275	240	335	500
240	2.8	0.7	3.2	68.3	5304	4 x 0.8	2.36	67.8	6103	3.15	2.52	73.5	8604	315	275	395	500
300	3.0	0.7	3.4	74.5	6305	4 x 0.8	2.52	73.8	7165	3.15	2.68	78.3	9903	355	310	450	500
400	3.3	0.7	3.8	83.2	8003	4 x 0.8	2.84	82.2	9002	4.00	3.00	89.2	13205	400	350	520	500

TABLE 16 - 3.8 / 6.6 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	2.8	0.4	2.2	40.4	2255	4 x 0.8	1.72	40.0	2855	2.00	1.72	43.0	3460	145	125	165	500
50	2.8	0.5	2.4	43.2	2852	4 x 0.8	1.72	42.5	3400	2.00	1.88	45.5	4150	170	150	195	500
70	2.8	0.5	2.6	47.5	3654	4 x 0.8	1.88	47.5	4260	2.00	1.88	49.5	5010	210	180	240	500
95	2.8	0.5	2.6	51.3	4553	4 x 0.8	1.88	50.5	5210	2.50	2.04	54.0	6500	250	215	295	500
120	2.8	0.5	2.8	55.5	5505	4 x 0.8	2.04	55.0	6210	2.50	2.20	58.5	7600	280	240	335	500
150	2.8	0.6	2.8	58.3	6552	4 x 0.8	2.20	58.0	7260	2.50	2.20	61.0	8700	310	270	380	500
185	2.8	0.6	3.0	63.5	7854	4 x 0.8	2.20	65.0	8610	2.50	2.36	66.0	10160	350	305	430	500
240	2.8	0.7	3.2	68.3	9801	4 x 0.8	2.36	67.0	10560	3.15	2.52	73.5	13060	400	350	500	500
300	3.0	0.7	3.4	74.4	11902	4 x 0.8	2.52	73.5	12760	3.15	2.68	79.0	15450	445	390	510	500
400	3.3	0.7	3.8	83.5	15405	4 x 0.8	2.84	82.5	16410	3.15	3.00	89.5	20660	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 17 - 6.35 / 11 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	3.6	0.5	2.4	43.7	1952	4 x 0.8	1.72	44.2	2252	2.00	1.88	45.7	3255	115	97	125	500
50	3.6	0.5	2.6	46.2	2254	4 x 0.8	1.72	46.7	2853	2.50	2.04	49.8	4003	130	115	150	500
70	3.6	0.5	2.6	50.3	2655	4 x 0.8	1.88	50.6	3305	2.50	2.04	53.2	4602	160	140	190	500
95	3.6	0.6	2.8	54.7	3153	4 x 0.8	1.88	54.8	3854	2.50	2.20	58.3	5254	190	165	230	500
120	3.6	0.6	2.8	58.3	3602	4 x 0.8	2.04	58.2	4402	2.50	2.20	61.8	5853	220	190	260	500
150	3.6	0.6	3.0	61.2	4105	4 x 0.8	2.20	61.3	4901	2.50	2.36	64.2	6453	245	210	295	500
185	3.6	0.7	3.2	66.4	4853	4 x 0.8	2.20	66.5	5653	3.15	2.52	71.4	8103	275	240	335	500
240	3.6	0.7	3.4	71.8	5702	4 x 0.8	2.36	71.7	6604	3.15	2.68	76.3	9255	315	275	395	500
300	3.6	0.7	3.6	76.7	6655	4 x 0.8	2.52	76.6	7602	3.15	2.84	81.5	10403	355	310	450	250
400	3.6	0.7	3.8	83.2	8104	4 x 0.8	2.84	83.2	9105	4.00	3.00	90.3	13454	400	350	520	250

TABLE 18 - 6.35 / 11 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	3.6	0.5	2.4	43.7	2602	4 x 0.8	1.72	44.2	3152	2.00	1.88	45.2	3905	145	125	165	500
50	3.6	0.5	2.6	46.2	3155	4 x 0.8	1.88	46.7	3755	2.50	2.04	49.3	4953	170	150	195	500
70	3.6	0.5	2.6	50.8	3953	4 x 0.8	1.88	50.3	4601	2.50	2.04	53.6	5904	210	180	240	500
95	3.6	0.6	2.8	54.3	4951	4 x 0.8	2.04	54.1	5603	2.50	2.20	58.2	7002	250	215	295	500
120	3.6	0.6	2.8	58.4	5854	4 x 0.8	2.20	58.8	6654	2.50	2.20	61.7	8103	280	240	335	500
150	3.6	0.6	3.0	61.2	6905	4 x 0.8	2.20	61.2	7655	2.50	2.36	64.8	9255	310	270	380	500
185	3.6	0.7	3.2	66.4	8303	4 x 0.8	2.36	66.3	9103	3.15	2.52	71.2	11553	350	305	430	500
240	3.6	0.7	3.4	71.2	10202	4 x 0.8	2.52	71.1	11052	3.15	2.68	76.3	13704	400	350	500	250
300	3.6	0.7	3.6	76.7	12202	4 x 0.8	2.68	76.4	13154	3.15	2.84	81.4	15955	445	390	510	250
400	3.6	0.7	3.8	83.8	15554	4 x 0.8	2.84	83.7	16555	4.00	3.00	90.2	20903	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 19 - 11 / 11 KV (UE) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
70	5.5	0.6	3.0	59.8	3552	4 x 0.8	2.20	59.7	4305	2.50	2.36	63.2	5905	160	140	190	500
95	5.5	0.6	3.2	63.2	4104	4 x 0.8	2.36	63.2	4903	3.15	2.52	68.7	7253	190	165	230	500
120	5.5	0.7	3.2	67.3	4653	4 x 0.8	2.36	67.4	5504	3.15	2.52	72.2	8004	220	190	260	500
150	5.5	0.7	3.4	70.7	5205	4 x 0.8	2.52	70.2	6105	3.15	2.68	75.4	8653	245	210	295	500
185	5.5	0.7	3.4	74.8	5902	4 x 0.8	2.68	74.1	6952	3.15	2.84	80.3	9652	275	240	335	500
240	5.5	0.7	3.6	80.1	6853	4 x 0.8	2.84	80.2	7903	3.15	3.00	85.5	10851	315	275	395	250
300	5.5	0.7	3.8	85.2	7855	4 x 0.8	3.00	85.3	8954	4.00	3.00	91.2	13254	355	310	450	250
400	5.5	0.7	4.0	92.4	9404	4 x 0.8	3.00	92.5	10505	4.00	3.00	98.4	15202	400	350	520	250

TABLE 20 - 11 / 11 KV (UE) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
70	5.5	0.6	3.0	59.7	4905	4 x 0.8	2.20	59.2	5605	2.50	2.36	63.2	7155	210	180	240	500
95	5.5	0.6	3.2	63.2	5903	4 x 0.8	2.36	63.4	6702	3.15	2.52	68.3	9003	250	215	295	500
120	5.5	0.7	3.2	67.3	6904	4 x 0.8	2.36	67.3	7754	3.15	2.52	72.4	10254	280	240	335	500
150	5.5	0.7	3.4	70.8	8002	4 x 0.8	2.52	70.1	8902	3.15	2.68	75.5	11452	310	270	380	500
185	5.5	0.7	3.4	74.1	9301	4 x 0.8	2.68	74.2	10303	3.15	2.84	80.1	13105	350	305	430	250
240	5.5	0.7	3.6	80.2	11304	4 x 0.8	2.84	80.4	12355	3.15	3.00	85.2	15353	400	350	500	250
300	5.5	0.7	3.8	85.4	13405	4 x 0.8	3.00	85.3	14504	4.00	3.00	91.4	18852	445	390	570	250
400	5.5	0.7	4.0	92.3	16853	4 x 0.8	3.00	92.4	17952	4.00	3.00	98.5	22654	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 21 - 12.7 / 22 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
95	6.0	0.7	3.2	66.2	4455	4 x 0.8	2.36	66.2	5305	3.15	2.52	71.2	7755	190	170	230	500
120	6.0	0.7	3.4	70.1	5052	4 x 0.8	2.52	70.1	5902	3.15	2.68	75.3	8502	215	190	265	500
150	6.0	0.7	3.4	72.4	5554	4 x 0.8	2.68	72.7	6503	3.15	2.68	77.4	9204	240	215	300	250
185	6.0	0.7	3.6	77.2	6301	4 x 0.8	2.68	77.6	7251	3.15	2.84	82.2	10151	270	240	340	250
240	6.0	0.7	3.8	82.3	7303	4 x 0.8	2.84	82.8	8304	4.00	3.00	89.1	12602	310	275	400	250
300	6.0	0.7	4.0	87.2	8305	4 x 0.8	3.00	87.2	9355	4.00	3.00	93.4	13854	350	310	455	250
400	6.0	0.7	4.0	94.8	9852	4 x 0.8	3.00	94.3	10952	4.00	3.00	100.5	15803	395	355	530	250

TABLE 22 - 12.7 / 22 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
95	6.0	0.7	3.2	66.2	6205	4 x 0.8	2.36	66.2	7052	3.15	2.52	71.2	9505	245	215	300	500
120	6.0	0.7	3.4	70.1	7302	4 x 0.8	2.52	70.1	8155	3.15	2.68	75.1	10752	275	245	340	500
150	6.0	0.7	3.4	72.7	8303	4 x 0.8	2.68	72.3	9302	3.15	2.68	77.8	11954	305	275	385	250
185	6.0	0.7	3.6	77.8	9754	4 x 0.8	2.68	77.2	10704	3.15	2.84	82.3	13605	345	305	435	250
240	6.0	0.7	3.8	82.2	11752	4 x 0.8	2.84	82.8	12752	4.00	3.00	89.2	17053	395	350	510	250
300	6.0	0.7	4.0	87.1	13901	4 x 0.8	3.00	87.7	14951	4.00	3.00	93.7	19404	440	390	580	250
400	6.0	0.7	4.0	94.6	17255	4 x 0.8	3.00	94.2	18403	4.00	3.00	100.2	23252	495	440	660	200

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 23 - 19 / 33 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
95	8.8	0.7	3.6	79.1	6055	4 x 0.8	2.84	79.2	7105	3.15	3.0	84.1	10055	190	170	230	500
120	8.8	0.7	3.8	83.2	6752	4 x 0.8	2.84	83.4	7752	4.00	3.0	89.3	12102	215	190	265	500
150	8.8	0.7	4.0	86.3	7403	4 x 0.8	3.00	86.8	8403	4.00	3.0	92.2	12803	240	215	300	250
185	8.8	0.7	4.0	90.7	8154	4 x 0.8	3.00	90.2	9252	4.00	3.0	96.4	13904	270	240	340	250
240	8.8	0.7	4.0	95.8	9155	4 x 0.8	3.00	95.1	10304	4.00	3.0	101.2	15152	310	275	400	250
300	8.8	0.7	4.0	100.2	10201	4 x 0.8	3.00	100.2	11355	4.00	3.0	105.1	16455	350	310	455	250
400	8.8	0.7	4.0	106.3	11802	4 x 0.8	3.00	106.3	13102	4.00	3.0	112.3	18552	395	355	530	250

TABLE 24 - 19 / 33 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
95	8.8	0.7	3.6	79.5	7857	4 x 0.8	2.84	79.2	8904	3.15	3.0	84.4	11805	245	215	300	250
120	8.8	0.7	3.8	83.3	9008	4 x 0.8	2.84	83.4	1005	4.00	3.0	89.8	14302	275	245	340	250
150	8.8	0.7	4.0	86.8	10153	4 x 0.8	3.00	86.8	11202	4.00	3.0	92.2	15604	305	275	385	250
185	8.8	0.7	4.0	90.7	11604	4 x 0.8	3.00	90.3	12705	4.00	3.0	96.7	17301	345	305	435	250
240	8.8	0.7	4.0	95.6	13603	4 x 0.8	3.00	95.7	14753	4.00	3.0	101.3	19605	395	350	510	250
300	8.8	0.7	4.0	100.4	15755	4 x 0.8	3.00	100.2	16954	4.00	3.0	105.7	22003	440	390	580	200
400	8.8	0.7	4.0	106.8	19254	4 x 0.8	3.00	106.3	20555	4.00	3.0	112.8	26002	495	440	660	200

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

TABLE 25 - 33 / 33 KV (UE) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
120	9.5	0.7	4.0	88.2	7605	4 x 0.8	3.0	88.8	8655	4.0	3.0	94.2	12705	215	190	265	500
150	9.5	0.7	4.0	91.4	8152	4 x 0.8	3.0	91.2	9253	4.0	3.0	97.3	13453	240	215	300	250
185	9.5	0.7	4.0	95.7	8954	4 x 0.8	3.0	95.7	10104	4.0	3.0	101.5	14552	270	240	340	250
240	9.5	0.7	4.0	100.3	1005	4 x 0.8	3.0	100.1	11205	4.0	3.0	106.3	15853	310	275	400	250
300	9.5	0.7	4.0	105.2	11053	4 x 0.8	3.0	105.3	12303	4.0	3.0	110.2	17304	350	310	455	250
400	9.5	0.7	4.0	111.1	12752	4 x 0.8	3.0	111.2	14104	4.0	3.0	117.4	19355	395	355	530	250

TABLE 26 - 33 / 33 KV (UE) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

"TIRUPATI PLASTOMATICS" THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES
CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE				STEEL STRIP ARMoured CABLE				STEEL ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length.
		Minimum Thickness of Inner Sheath	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.	
Sq.mm.	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
120	9.5	0.7	4.0	88.8	9805	4 x 0.8	3.0	88.1	10855	4.0	3.0	94.2	14953	275	245	340	500
150	9.5	0.7	4.0	91.2	10952	4 x 0.8	3.0	91.2	12003	4.0	3.0	97.4	16254	305	275	385	250
185	9.5	0.7	4.0	95.6	12403	4 x 0.8	3.0	95.7	13552	4.0	3.0	101.5	18002	345	305	435	250
240	9.5	0.7	4.0	100.7	14454	4 x 0.8	3.0	100.3	15654	4.0	3.0	106.2	20305	395	350	510	250
300	9.5	0.7	4.0	105.3	16652	4 x 0.8	3.0	105.2	17905	4.0	3.0	110.8	22903	440	390	580	200
400	9.5	0.7	4.0	111.1	20153	4 x 0.8	3.0	111.8	21553	4.0	3.0	117.2	26752	495	440	660	200

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is $\pm 5\%$ Length more than normal as per customer request.

Handling, Storage and Laying of HT Cables.

A. CABLE INSPECTION

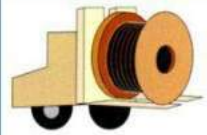
Inspect every cable reel for damage before accepting the shipment. Be particularly alert for cable damage if :

1. A reel is 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 drums 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 damaged during handling & storage can cause service failures when the subject cable is put to use.

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

Do's		Don'ts	
	When off loading reels from a truck, lower reel carefully using a hydraulic gate, hoist or forklift 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 surfaces resting on the flanges edge (Flanges vertical). Align reels 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. creating an enormous load on the bottom reel. Also, damage to the reel and/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 a sling. Use 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

C. PRE-INSTALLATION

To ensure safety during cable Installation following shall be checked prior to installation.

1. The cable selected is proper for designed application.
2. The cable has not been damaged in transit or storage.

Review all applicable state and national codes to verify that the cable chosen is appropriate for the job. Also consult your local electricity authority. Next, you must identify any existing cable damage and prevent any further damaged from occurring. This is done through proper cable inspection, handling and storage.

D. INSTALLATION & LAYING

Mechanical stresses during installation are generally more severe than those encountered while in service. Thus care should be taken as regards to the following while installation and laying of cables.

1. Tirupati Plastomatics recommend the laying and installation of cables as per IS : 1255/84.
2. Care shall be taken during laying to avoid sharp bending, and twisting.
3. Cable shall be un wound from the drum by lifting the drum on the center

4. Shaft supported both ends with suitable jacks/stands.
5. Under no circumstances the cable winding shall be lifted off a coil or drum flanges. This would cause damages.
6. Suitable protection shall be provided to the cables against mechanical damages, it includes covers, pipes etc.

E. RECOMMENDED MINIMUM BENDING RADIUS FOR HEAVY DUTY CABLES.

Single Core : $20 \times D$

Multicore : $15 \times D$

Where D = Diameter of cable in mm

F. RECOMMENDED SAFE PULLING FORCE WITH STOCKINGS :

- a) For Unarmoured Cable : $P = 5D^2$

Where P = Pulling Force

- b) For Armoured Cable : $P = 9D^2$

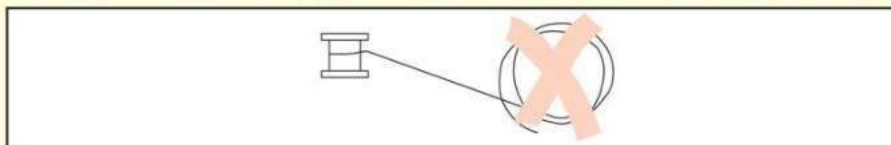
Where D = Diameter of cable in mm

G. RECOMMENDED SAFE PULLING FORCE WHEN PULLED WITH PULLING EYE :

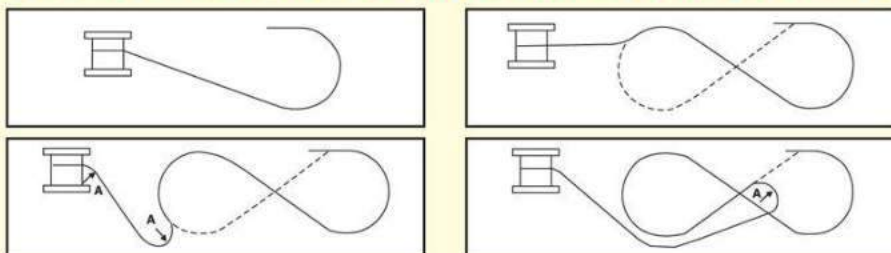
- a) For Aluminium Conductors : 30 N/mm^2

- b) For Copper Conductor : 50 N/mm^2

DO NOT ATTEMPT "COILING" OF CABLE ON THE GROUND

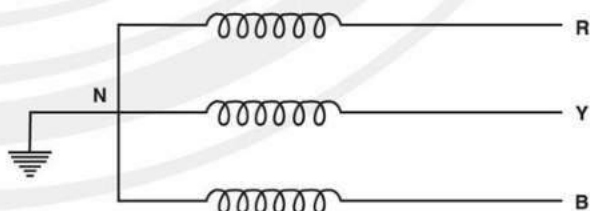


ON THE GROUND CABLE CAN BE FLAKED IN A FIGURE OF EIGHT FORMATION



EARTHED

In the initial years, the generators and transformers were having capacities of few MVA and hence fault current was also less. The star point or neutral point was solidly grounded and this is called earthed system.

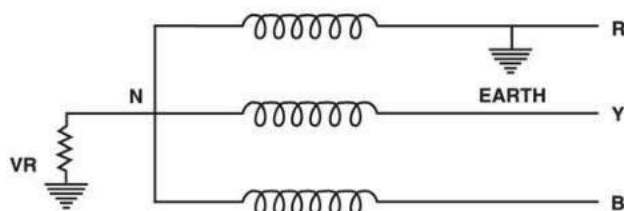


In this system if an earth fault occurs on any of the phase, the voltages of other two healthy phases with respect to the earth remain the same.

UNEARTHED SYSTEM :

Today generators of 500 MVA capacity are in commercial use. More over several mega power stations are connected to grid. Due to this, the fault level has increased tremendously. In case of an earth fault, a heavy current flows in to the fault and this may damage the costly generators and power transformers.

To reduce the fault current, the star point is connected to the earth through a resistance or a reactance as under.



In this case if an earth fault occurs on R phase, the voltage of the faulty phase with respect to the earth (R) appears across across the current limiting resistance or reactance in the earth circuit of the star point and as a result the voltage of the star point which was at earth potential under normal conditions rises to V_R . Due to this the voltages of other two healthy phases (B and Y) with respect to the earth rises by 1.7 times (Vector sum of V_R and V_B). If the insulation of these phases are not designed for these increased voltages they may develop earth fault. This is called Unearthed System.

Conversion Table

Multiply	by	to obtain	Multiply	by	to obtain
WEIGHT - Imperial			LENGTH - Imperial		
Ounce _____	28.3495	grams	Mils _____	0.001	inches
Pounds (Av) _____	453.59	grams	Mils _____	0.0254	millimeters
Pounds (Av) _____	0.45359	kilograms	Inches _____	1000	mils
Pounds (Av) _____	907.19	kilograms	Inches _____	25.40	millimeters
Tons (Long) _____	1016.05	kilograms	Inches _____	2.54	centimeters
			Feet _____	30.48	centimeters
			Feet _____	0.3048	meters
			Feet (thousand of) _____	0.3048	kilometers
			Yards _____	0.9144	meters
			Mils _____	1.6093	kilometers
WEIGHTS - Metric			LENGTH - Imperial		
Grams _____	0.03527	ounces	Millimeters _____	39.37	mils
Grams _____	0.002205	pounds	Millimeters _____	0.03937	inches
Kilograms _____	35.274	ounces	Centimeters _____	0.3937	inches
Kilograms _____	2.2046	pounds	Meters _____	39.37	inches
Kilograms _____	0.001102	tons (short)	Centimeters _____	0.032808	feet
Kilograms _____	0.0009842	tons (long)	Meters _____	39.37	inches
			Meters _____	3.2808	feet
			Meters _____	1.0936	yards
			Kilometers _____	3280.83	feet
			Kilometers _____	0.62137	mils
MISCELLANEOUS - Imperial			AREA - Imperial		
Pounds per 1000 feet _____	1.48816	kilograms per kilometer	Square mils _____	1.2732	circular mils
Pounds per mile _____	0.28185	kilograms per kilometers	Square mils _____	0.000001	square inches
Pounds per square inch _____	0.0007031	kilograms per square millimeters	Circular mils _____	0.7854	square mils
		kilograms per square centimeter	Circular mils _____	0.0000007854	square inches
Pounds per square inch _____	0.07031	kilograms per square centimeter	Circular mils _____	0.00050657	square millimeters
		meters per minute	Square inches _____	1000000	square mils
Feet per second _____	18.288	kilometers per hour	Square inches _____	1273240	Circular mils
Feet per second _____	1.09728	kilometers per hour	Square inches _____	645.16	square millimeters
Mils per hour _____	1.60935	kilometers per hour	Square inches _____	6.4516	square centimeters
Ohms per mile _____	0.62137	ohms per kilometer	Square inches _____	0.09290	square meters
Decibels per 1000 feet _____	3.28083	decibels per kilometer	Square inches _____	0.8361	square meters
Decibels per mile _____	0.62137	decibels per kilometer			
Decibels _____	0.1153	neper			
MISCELLANEOUS - Metric			AREA - Metric		
Kilograms per kilometer _____	0.67197	pounds per 1000 feet	Square millimeters _____	1973.52	circular mils
Kilograms per kilometer _____	3.54795	pounds per mile	Square millimeters _____	0.00155	square inches
kilograms per square millimeter _____	1422.34	pounds per square inch	Square centimeters _____	0.155	square inches
Kilograms per square centimeter _____	14.2234	pounds per square inch	Square meters _____	10.7638	square feet
Grams per cubic cm _____	0.03613	pounds per cubic inch	Square meters _____	1.19599	square yards
Meters per minute _____	0.05468	feet per second			
Kilometer per hour _____	0.91134	feet per second			
Kilometer per hour _____	0.62137	miles per hour			
Ohms per kilometer _____	0.3048	ohms per 1000 feet			
Ohms per kilometer _____	1.6093	ohms per mile			
Decibels per kilometer _____	0.3048	decibels per 1000 feet			
Decibels per kilometer _____	1.6093	decibels per mile			
TEMPERATURE			VOLUME - Imperial		
°Fahrenheit _____	5/9 (°F) - 32	°Celsius	Cubic inches _____	16.38716	cubic meters
°Celsius _____	9/5 (°C) + 32	°Fahrenheit	Cubic feet _____	0.028317	cubic meters
			VOLUME - U.S.		
			Quarts (liquid) _____	0.9463	cubic centimeters
			Gallons _____	3.7854	cubic meters
			VOLUME - Metric		
			Cubic centimeters _____	0.06102	cubic inches
			Cubic meters _____	35.3145	cubic feet
			Liters _____	1.05668	quarts (Liquid U.S.)
			Liters _____	0.26417	gallons (U.S.)

CERTIFICATIONS

Certificate of Registration



This is to certify that the
Quality Management System of :

Tirupati Plastomatics Pvt. Ltd.

B-141 A, Road No-90, VKI Area, Jaipur-302 013, Rajasthan, - India

has been assessed and found compliant with the requirements of :

ISO 9001:2008

Approval is hereby granted for registration on the proviso that the
certification rules and conditions are observed at all times.

Certification Scope:

Manufacturing and Supply of PVC/ULPE/Fire Retardant/Polyethylene Insulated, Aluminium Alloy/Copper Conductor Cables, Unsheathed/Sheathed, Armoured/Unarmoured, Screened/Unscreened Type Including Power, Control, Submersible, Telecom, Coaxial, Radio Frequency, Composites, HF, VHF, UHF, Railway Signalling (Indoor/Outdoor) Aerial Bundled, PUF Cables for Telecommunication including (48 Quad) and Dry (4Quad) Cable, ACSS, AAC, AAAC, Conductor.

Certificate No.: **LJA-0013.06**

Original Issue Date: 30 Aug 2009

Issue Date: 12 Apr 2020

Expiry Date: 16 Jul 2012



A. Approved Signatory

Moody International Certification Ltd.

For any Quotations contact Moody International Certification India Limited (011-47133060)
For any Complaints contact Moody International Certification India Limited (011-47133060)



This is to certify that the
Occupational Health and Safety Management System of :

Tirupati Plastomatics Pvt. Ltd.

B-141 A, Road No. 90, VKI Area, Jaipur-302 013, Rajasthan, - India

has been assessed and registered against the requirements of :

BS OHSAS 18001:2007

Approval is hereby granted for registration on the proviso that the
certification rules and conditions are observed at all times.

Certification Scope:

Manufacturing and Supply of PVC/ULPE/Fire Retardant/Polyethylene Insulated, Aluminium Alloy/Copper Conductor Cables, Unsheathed/Sheathed, Armoured/Unarmoured, Screened/Unscreened Type Including Power, Control, Submersible, Telecom, Coaxial, Radio Frequency, Composites, HF, VHF, UHF, Railway Signalling (Indoor/Outdoor) Aerial Bundled, PUF Cables for Telecommunication including (48 Quad) and Dry (4Quad) Cable, ACSS, AAC, AAAC, Conductor.

Certificate No.: **LJA-U-0003.10**

Issue Date: 15 February 2010

Expiry Date: 14 February 2013

(Signature)

Pankaj Rai

Country Head
(Certification India)
(Moody International)

This certificate remains the property of Moody International Certification India Limited and the certificate holder shall be
accounted through regular surveillance audits. This must not be copied in whole or in part without the written permission of the
Managing Director of Moody International Certification India Limited. (Indebtedness of the certificate or schedule will
result in cancellation without prejudice.)

For any Quotations contact Moody International Certification India Limited (011-47133060)

Certificate of Registration



This is to certify that the
Environmental Management System of :

Tirupati Plastomatics Pvt. Ltd.

B-141 A, Road No. 90, VKI Area, Jaipur-302 013, Rajasthan, - India

has been assessed and found compliant with the requirements of :

ISO 14001: 2004

Approval is hereby granted for registration on the proviso that the
certification rules and conditions are observed at all times.

Certification Scope:

Manufacturing and Supply of PVC/ULPE/Fire Retardant/Polyethylene Insulated, Aluminium Alloy/Copper Conductor Cables, Unsheathed/Sheathed, Armoured/Unarmoured, Screened/Unscreened Type Including Power, Control, Submersible, Telecom, Coaxial, Radio Frequency, Composites, HF, VHF, UHF, Railway Signalling (Indoor/Outdoor) Aerial Bundled, PUF Cables for Telecommunication including (48 Quad) and Dry (4Quad) Cable, ACSS, AAC, AAAC, Conductor.

Certificate No.: **E-LJA-0014.09**

Issue Date: 15 February 2010

Expiry Date: 14 February 2013

(Signature)

Pankaj Rai

Authorized Signatory

Moody International Certification Ltd.



CERTIFICATES

Type Approval Certificate

Quality Assurance (QA) Directorate 1st Floor, Annexure II (Abhishek Bhawan), Majura Nagar, Lucknow - 226 011 Website : www.rds.co.in 91-522-2451174 (Phone) 91-522-2450482 (Fax)	Government of India - Ministry of Railways Research Designs & Standards Organisation AN ISO 9001 CERTIFIED ORGANISATION RDS 91-522-2450482 (Fax)
---	---

Type of Approval: RENEWAL	Date of Issue: 05-July-2010
Certificate No.: RDSO/2010/QSA/1310	

This certificate is issued in favour of M/S Tirupati Plastics Pvt. Ltd.,	
Office B-141(A), Road No. 80, Vishwakarma Industrial Area, Jaipur-302013	Works B-141(A), Road No. 80, Vishwakarma Industrial Area, Jaipur-302013
Phone: (0141)-2330306, 2331030, 2330427	(0141)-2330306, 2331030, 2330427
Fax: (0141)-2360073 & 2331808	E-mail: support@pennicible.com Website: www.pennicible.com
For manufacture and supply of Item: Underground Railway Jolly Filled Guard Cables For Signaling And Telecom Installations	
Production Capacity (per year): 1275 Kms.	Status of Firm (Part-I or Part-II): Part-(ONE)
This Approval is valid up to: 30-JUNE-2012	
Note: 1. The terms and conditions overlaid shall be applicable. 2. The raw material sources shall be as per approved OAP.	

(G. Govil)
Director (QA/SA/T)
For Director General/QA/SA/T

RDSO/2010/QSA/1310

Telephone : 2482 XXX 2489 XXX Fax : 91-682-2465500	www.rds.co.in Quality Assurance (QA) Directorate 1st Floor, Annexure II (Abhishek Bhawan), Majura Nagar, Lucknow - 226 011 Website : www.rds.co.in 91-522-2451174 (Phone) 91-522-2450482 (Fax)
--	--

Ref. No. 577/1-4km Guard Cable/Terrace/5/1 Date: 20.12.2010

MAINTENANCE TYPE APPROVAL CERTIFICATE

This is to certify that the product, described below is approved for use in accordance with the conditions stipulated below.

Description of Product: 1.4km dia Copper Conductor 4/6 Guard Cable	Specification No.: MSD/2007/TC/71/07 4/6 Guard Cable
Traceable to: M/S Tirupati Plastics Pvt. Ltd., Jaipur-302013	Traceable to: M/S Tirupati Plastics Pvt. Ltd., Jaipur-302013
Valid up to: 31.07.2013	Production Capacity: 4000 kms. per annum
Status: Part-II (Two)	Address: M/S Tirupati Plastics Pvt. Ltd., B-141(A), Road No. 80, Vishwakarma Industrial Area, Jaipur-302013. Phone: 0141-2331030, 2330306 Fax: 0141-2331808, 2360073

TERMS & CONDITIONS

- This type approval is subject to following terms & conditions -
- No modification without necessary permission/approval from RDSO is permitted in design, process or material for the approved product type to conversion of approval.
- During validity of the approval, RDSO reserves the right to inspect the product at any place where it is in use or at the place of manufacture.
- If any deterioration in performance of the approved product is noticed, RDSO reserves the right to cancel the approval.
- In case if material is supplied to the railways under consignment material, RDSO will not be responsible for the quality of the material, if it is found defective, unless it is found to be solid and reject it, if not found to conform with the specification.

Type Approval Certificate

Quality Assurance (QA) Directorate 1st Floor, Annexure II (Abhishek Bhawan), Majura Nagar, Lucknow - 226 011 Website : www.rds.co.in 91-522-2451174 (Phone) 91-522-2450482 (Fax)	Government of India - Ministry of Railways Research Designs & Standards Organisation AN ISO 9001 CERTIFIED ORGANISATION RDS 91-522-2450482 (Fax)
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Type of Approval: RENEWAL	Date of Issue: 14-October-2010
Certificate No.: RDSO/2010/QSA/1318	

This certificate is issued in favour of M/S Tirupati Plastics Pvt. Ltd.,	
Office B-141(A), Road No. 80, Vishwakarma Industrial Area, Jaipur-302013	Works B-141(A), Road No. 80, Vishwakarma Industrial Area, Jaipur-302013
Phone: 0141-2330306, 2330427	0141-2330306, 2330427
Fax: 0141-2331808	E-mail: support@pennicible.com
For manufacture and supply of Item: PVC Insulated Railway Signaling Indoor Single Core Cable	
Production Capacity (per year): 2444 Kms	Status of Firm (Part-I or Part-II): Part-(ONE)
This Approval is valid up to: 31-December-2012	
Note: 1. The terms and conditions overlaid shall be applicable. 2. The raw material sources shall be as per approved OAP.	

(G. Govil)
Director (QA/SA/T)
For Director General/QA/SA/T

RDSO/2010/QSA/1318

CERTIFICATES

Quality Assurance (S&T) Directorate 1st Floor, Annexure II (Aphkalya Bhawan) Manak Nagar, Lucknow - 226 011 Website: www.rdsso.gov.in 91-522-2451174 (Phone) 91-522-2450482 (Fax)		 Government of India - Ministry of Railways Research Designs & Standards Organisation AN ISO 9001 CERTIFIED ORGANISATION	
Type Approval Certificate			
Type of Approval: RENEWAL Certificate No.: RDSO/2010/QS/1382		Date of Issue: 25-October-2010	
This certificate is issued in favour of M/s Tirupati Plastomatics Pvt. Ltd.,			
Office: B-141(A), Road No. 9-D, Vishwakarma Industrial Area, Jaipur-302013		Works: B-141(A), Road No. 9-D, Vishwakarma Industrial Area, Jaipur-302013	
Phone: 0141-2330305, 2330427 Fax: 0141-2331808		E-mail: support@geminicable.com	
For manufacture and supply of Item: PVC Insulated Railway Signalling Indoor Multi Core Cable Dwg./Specs: IRS-5-76-89 (Amd-3) Production Capacity: 2448 Kms. (per year) Status of Firm (Part-I or Part-II): Part-I (ONE)			
This Approval is valid up to: 31-December-2012 Note: 1. The terms and conditions overleaf shall be applicable. 2. The raw material sources shall be as per approved QAP.			
 (G. Govil) Director(QA/S&T) For Director General/QA/S&T			
RDSO/2010/QS/Cable/471			

Quality Assurance (S&T) Directorate 1st Floor, Annexure II (Aphkalya Bhawan) Manak Nagar, Lucknow - 226 011 Website: www.rdsso.gov.in 91-522-2451174 (Phone) 91-522-2450482 (Fax)		 Government of India - Ministry of Railways Research Designs & Standards Organisation AN ISO 9001 CERTIFIED ORGANISATION	
Type Approval Certificate			
Type of Approval: RENEWAL Certificate No.: RDSO/2010/QS/1393		Date of Issue: 02-December-2010	
This certificate is issued in favour of M/s Tirupati Plastomatics Pvt. Ltd.,			
Office: B-141(A), Road No. 9-D, Vishwakarma Industrial Area, Jaipur-302013		Works: B-141(A), Road No. 9-D, Vishwakarma Industrial Area, Jaipur-302013	
Phone: 0141-2330305, 2330427 Fax: 0141-2331808		E-mail: support@geminicable.com	
For manufacture and supply of Item: PVC Insulated Armoured, Unscreened Underground Power Cable Dwg./Specs: IRS-5-63/2007 (Amd-2) & IS-1554 (Part-1) Production Capacity: 1800 Kms. (per year) Status of Firm (Part-I or Part-II): Part-I (ONE)			
This Approval is valid up to: 31-December-2012 Note: 1. The terms and conditions overleaf shall be applicable. 2. The raw material sources shall be as per approved QAP.			
 (G. Govil) Director(QA/S&T) For Director General/QA/S&T			
RDSO/2010/QS/Cable/471			

 अनुसंधान अधिकार्य और मानक संपदन सचिवालय - 226011 Government of India Ministry of Railways Research Designs & Standards Organisation Lucknow - 226 011		टेलीफोन/टैक्स: +91-522-2451200 (PBX) +91-522-2457114 फैक्स: +91-522-2450482	
RENEWAL (MAINTENANCE) TYPE APPROVAL CERTIFICATE			
No. RDSO/2006/QS/Cable/477/ MTA		Dated: 25.04.2007	
Page No. 1 of 2		Date: 25.4.2007	
CERTIFICATE NO: RDSO/2007/QS/783			
DESCRIPTION OF ITEM: PVC Insulated, Armoured Unscreened Underground Cable			
SPECIFICATION NO./ DRAWING NO.: IRS-5-63/89 Amd-4			
TESTED BY: RDSO / Lucknow (RDSO Lucknow / National Test House/Firm Premises)			
ISSUED ON: 25.04.2007			
VALID UPTO: 30.06.2010			
ISO 9001-2000 valid up to: 18 July, 2009			
PRODUCTION CAPACITY: 2448 KM/Year			
SSI / NON SSI FIRM: SSI			
DIGITAL SIGNATURE CERTIFICATE NO: Obtained			
STATUS: Part-I			
ADDRESS: 1) Office: M/s. Tirupati Plastomatics Pvt Ltd, B-141-A, Road No. 9-D, Vishwakarma Industrial Area, Jaipur-302013 2) Works: M/s. Tirupati Plastomatics Pvt Ltd, B-141-A, Road No. 9-D, Vishwakarma Industrial Area, Jaipur-302013			
TELEPHONE No.: (0141) 2331030, 2330305, 2330427			
Fax No.: (0141) 2331808			
Contd. ... 2			
 Director (Quality Assurance (S&T) & T/A) B.D.S.O. (Government of India) Manak Nagar, Lucknow-226011			

 भारतीय मानक ब्यूरो BUREAU OF INDIAN STANDARDS Jaipur Branch Office		Address: Manak Bhawan Pithampur Road, C/Scheme- Jaipur-302005 Phones: 0141-2221282, 2221283, 2221284 Fax: 0141-2221286 E-Mail: bis@bis.org.in web: http://www.bis.org.in	
ATTACHMENT TO LICENCE NO. CM/L- 3221334			
CML/NO	NAME OF THE LICENSEE WITH THE ADDRESS	NAME OF THE PRODUCT	IS NO.
3221334	Tirupati Plastomatics Private Limited, B-141(A), Road No. 9-D, Vishwakarma Industrial Area, Distt: Jaipur Rajasthan 302013	Crosslinked polyethylene insulated PVC sheathed cables: Part 2 For working voltages from 3.3 kV upto and including 33 kV	IS 7098 : Part 2 : 1985
ENDORSEMENT NO. 2 Dated 08-08-2011			
The following additional (sizes/types/grades etc.) has (have) been included in Column(2) of the first schedule and column (1) of the Second Schedule of the Licence alongwith the Standard Mark in Column (1) of First Schedule with effect from: Eighth August Two Thousand and Eleven			
Copper Conductors including Cables for mining use.			
Other terms and conditions of Licence remain the same.			
 (N.L. DHAVAL) Scientist E & Head			

CERTIFICATES



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ATTACHMENT TO LICENCE NO. CML- 3089562

CML NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
3089562	Tingari Plastics Private Limited, B-14(A) Road No 09-D, Vishva Karma Industrial Area, Jaipur Rajasthan 302013	Aluminium Conductors for Overhead Transmission Purposes Part 1 Aluminium Stranded Conductors for the sizes upto & including 300mm ²	IS 398 : Part 1 : 1995

ENDORSEMENT NO. 1 Dated 15-3-2011

Renewed for a further period of two years from Twenty Fourth February Two Thousand and Eleven to Twenty Third February Two Thousand and Thirteen.

Other terms and conditions of Licence remain the same.


 (NARENDRA KUMAR SHARMA)
 SCIENTIST-E (Director)



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ATTACHMENT TO LICENCE NO. CML- 8757097

CML NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
8757097	Tingari Plastics Private Limited B-14 (A) Road No 09-D, Vishva Karma Industrial Area, Jaipur Rajasthan 302013	Aluminium Conductors for Overhead Transmission Purposes Part 2 Aluminium Conductors Galvanneal Steel Reinforced of all nominal Aluminium upto and including 560 mm ²	IS 398 : Part 2 : 1995

ENDORSEMENT NO. 4 Dated 08-11-2010

Renewed for a further period of two years from Twenty Seventh October Two Thousand and Ten to Twenty Sixth October Two Thousand and Twelve.

Other terms and conditions of Licence remain the same.


 (NARENDRA KUMAR SHARMA)
 SCIENTIST-E (Director)



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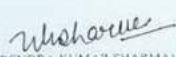
ATTACHMENT TO LICENCE NO. CML- 3010725

CML NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
3010725	Tingari Plastics Private Limited, B-14(A) Road No 09-D, Vishva Karma Industrial Area, Jaipur Rajasthan 302013	Aluminium Conductors for Overhead Transmission Purposes Part 4 Aluminium Alloy Stranded Conductors (aluminium- magnesium silicon type)	IS 398 : Part 4 : 1997

ENDORSEMENT NO. 2 Dated 04-3-2010

Renewed for a further period of two years from Seventeenth March Two Thousand and Ten to Sixteenth March Two Thousand and Twelve.

Other terms and conditions of Licence remain the same.


 (NARENDRA KUMAR SHARMA)
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ATTACHMENT TO LICENCE NO. CML- 3100928

CML NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
3100928	Tingari Plastics Private Limited, B-14(A) Road No 09-D, Vishva Karma Industrial Area, Jaipur Rajasthan 302013	Aluminium conductors for overhead transmission purposes part 5 aluminium conductors galvanneal steel reinforced for extra high voltage (400 kv and above)	IS 398 : Part 5 : 1992

ENDORSEMENT NO. 1 Dated 26/11/2011

Renewed for a further period of one year from Thirty First March Two Thousand and Eleven to Thirtieth March Two Thousand and Twelve.

Other terms and conditions of Licence remain the same.


 (N. L. DHAYAL)
 Director & Head

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ATTACHMENT TO LICENCE NO. CM/L- 8649892

CM/L NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
8649892	M/s. Turner Plastomatics Private Limited, B-141(A), Road No. 09-D, Vishwa Karma Industrial Area, Jaipur (Rajasthan)-302013	Consolidated polyethylene insulated pre-terminated cables part 1 for working voltage upto and including 1100 v	IS 7098 : Part 1 : 1988

ENDORSEMENT NO. 5 Dated 24-03-2011

Renewed for a further period of one year from Sixteenth March Two Thousand Eleven to Fifteenth March Two Thousand Twelve.

Other terms and conditions of Licence remain the same.


 (NARENDRA KUMAR SHARMA)
 SCIENTIST-E (Director)



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ATTACHMENT TO LICENCE NO. CM/L- 8305163

CM/L NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
8305163	Tirupati Plastomatics Private Limited, B-141(A), Road No. 09-D, Vishwa Karma Industrial Area, Jaipur Rajasthan 302013	Pvc insulated (heavy duty) electric cables part 1 for working voltages upto and including 1100 v	IS 1554 : Part 1 : 1988

ENDORSEMENT NO. 12 Dated 26-9-07-12

Renewed for a further period of two years from First July Two Thousand and Nine to Thirtieth June Two Thousand and Eleven.

Other terms and conditions of Licence remain the same.


 (N. K. Grover)
 Scientist(F) & Head



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ATTACHMENT TO LICENCE NO. CM/L- 8316572

CM/L NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
8316572	M/s. Tirupati Plastomatics Private Limited, B-141(A), Road No. 09-D, Vishwa Karma Industrial Area, Jaipur (Rajasthan)-302013	Pvc insulated cables for working voltages upto and including 1100 v	IS 694 : 1990

ENDORSEMENT NO. 11 Dated 21-10-2010

Renewed for a further period of two years from Sixteenth October Two Thousand Ten to Fifteenth October Two Thousand Twelve.

Other terms and conditions of Licence remain the same.


 (NARENDRA KUMAR SHARMA)
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ATTACHMENT TO LICENCE NO. CM/L- 8616685

CM/L NO	NAME OF THE LICENSEE WITH ADDRESS	PRODUCT	IS NO
8616685	Tirupati Plastomatics Private Limited, B-141(A), Road No. 09-D, Vishwa Karma Industrial Area, Jaipur Rajasthan 302013	Aerial bunched cables for working voltages upto and including 1100 volts	IS 14255 : 1995

ENDORSEMENT NO. 4 Dated : 05/08/2009

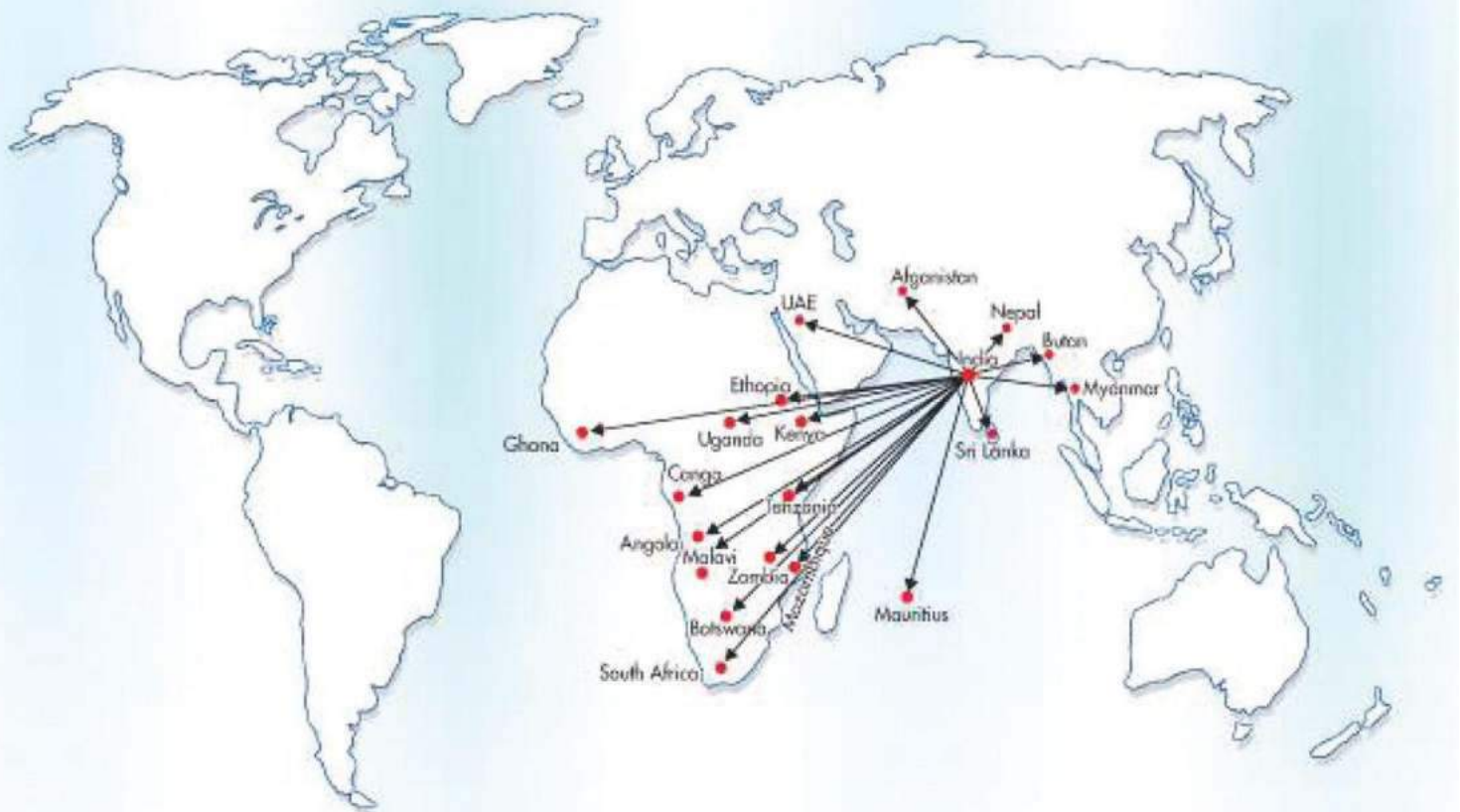
Renewed for a further period of two years from First August Two Thousand and Nine to Thirty First July Two Thousand and Eleven.

Other terms and conditions of Licence remain the same.


 (NARENDRA KUMAR SHARMA)
 SCIENTIST-E (Director)



CLIENTS ACROSS GLOBE



Tirupati Plastomatics Pvt. Ltd.



Tirupati Plastomatics Pvt. Ltd.

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