

POLYCAB™

WIRES & CABLES



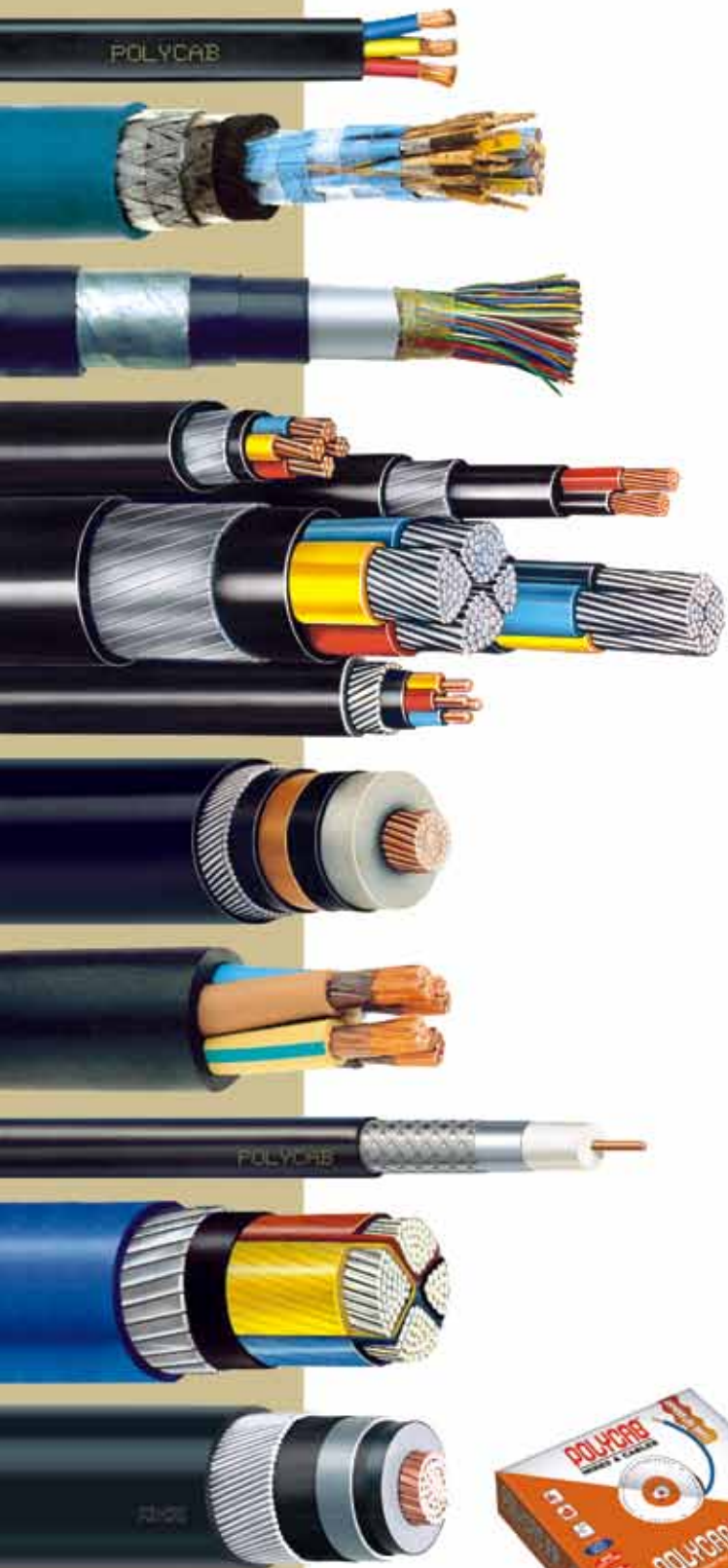
ISO
9001:2008

ISO
14001:2004

OHSAS
18001:2007


IS 7098 (Part II)

HIGH TENSION XLPE CABLES



PRODUCT RANGE

- L.V. PVC & XLPE POWER CABLES WITH COPPER AND ALUMINIUM CONDUCTOR
- L.V. PVC & XLPE CONTROL CABLES WITH COPPER CONDUCTOR
- M.V. POWER CABLES UPTO 33 KV
- EHV CABLES FROM 66KV TO 220KV
- M.V. / L.V. AERIAL BUNCHED CABLES (ABC)
- ZERO HALOGEN CABLES
- FIRE SURVIVAL CABLES (FS)
- INSTRUMENTATION CABLES SCREENED / UNSCREENED
- INDUSTRIAL BRAIDED CABLES
- THERMO COUPLE / COMPENSATING CABLES
- LEAD SHEATHED CABLES
- RUBBER CABLES
- RAILWAY SIGNALLING CABLES
- TELEPHONE CABLES – DRY & JELLY FILLED
- BUILDING WIRES – FR / FRLS / FRZH / FRLF / FRFS
- SINGLE CORE INDUSTRIAL FLEXIBLES – PVC / FR / FRLS / FRZH / HRFR / HR / HR-FRLS / FRLF / FRFS
- MULTI CORE INDUSTRIAL FLEXIBLE CABLES
- SUBMERSIBLE FLAT AND ROUND CABLES
- SUBMERSIBLE WRAPPED WINDING WIRES
- COAXIAL CABLES
- LAN CAT-5E / CAT 6 CABLES
- WELDING CABLES
- SOLAR AC / DC CABLES
- STEEL BRAIDED CABLES
- SPECIALITY CABLES – SUITED FOR MARINE / OIL & GAS / EXTREME FIRE CONDITIONS / HIGHLY CORROSIVE ENVIRONMENT / TRAFFIC / AIRCRAFT / SPACE STATION / AUTOMOBILES



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COMPANY PROFILE

POLYCAB, an ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2004 company is the largest Wire & Cable manufacturer in India with a proven track record of over three decades. The fastest growing company in the Indian Cable Industry with consistent growth. Polycab group has crossed Rs. 3600 crore turnover in the year 2010 – 11 and is set to achieve Rs. 4000 crore turnover in the year 2011 – 12.

From a modest beginning with Wires and Cables, over three decades ago Polycab set up State of Art manufacturing facilities at Daman in 1996. In the manufacture of cables, a competitive edge lies not so much in product innovation as in consistent quality and ready availability. Polycab's Daman factory was created to address these key market determinants. The manufacturing set up is sourced out from the world renowned Machinery and Technology suppliers with constant upgradation and expansions.

In an on going process to improve Customer Satisfaction Polycab offers a variety of services:

- Commercially competitive prices.
- Reliable & consistent quality.
- Reliable & just in time delivery.
- Product development for a changing market.
- A targeted stocking policy.
- Technical Support for Applications/ Projects

“BASEC CERTIFICATION OF OUR BUSINESS DEMONSTRATES OUR COMMITMENT TO NOT ONLY THE QUALITY OF OUR PRODUCTS, BUT ALSO THE LEVEL OF OUR COMMITMENT FOR CONTINUOUS IMPROVEMENT”

POLYCAB derives its strength from its customers. The growth of the latter is a prerequisite to the growth of the company and hence customers' satisfaction is its prime objective. Over the years sincere service and dedication to its Customers has earned the Company distinguished Customers which includes leaders in Sectors like Utilities, Power Generation, Transmission & Distribution, Petroleum & Oil Refineries, OEM's, EPC contractors, Steel & Metal, Cement, Chemical, Atomic Energy, Nuclear Power, Consultants & Specifiers etc.

POLYCAB has highly experienced, qualified and dedicated professionals with strong adherence to the quality management system. Polycab has offices all over the country and also has a wide network of authorized distributors and dealers to cater to all the customer segments in India and abroad.

POLYCAB has earned the trust and reputation in India and abroad by winning the customers' confidence. Several thousands kilometers of HV XLPE Cables in the voltage range of 6.6KV, 11KV, 22KV & 33KV have been manufactured and are in operation in India and abroad.

Polycab HV XLPE Cables are preferred choice in Power Plants, Distribution Systems, Heavy Industries, Various Utilities, the Titans of Indian Industry & Consultants / Specifiers.

POLYCAB CABLE OF 33KV E 3 X 400 SQ.MM HAVE BEEN SUCCESSFULLY TYPE TESTED AT KEMA - NETHERLAND (AN INTERNATIONALLY ACCLAIMED TESTING LABORATORY).

MANUFACTURING PROCESS - AT POLYCAB

POLYCAB HV XLPE cables are manufactured at its most modern manufacturing setup in DAMAN. Manufacture of HV XLPE CABLES requires great care and skill at all stages of processing. Work on HV cables has shown to raise the electric stress of XLPE cables it is essential that the extruded insulation is of high cleanliness without any imperfection, free of contamination, voids and manufacturing defects, and that the screen interface is smooth. In addition an integrated extrusion plant employing a Continuous Centenary Vulcanizing (CCV) process line (Dry Curing Line) is required. Polycab easily met these two criteria by carefully selecting imported insulating materials and by installing 2 CCV lines sourced from world renowned manufacturers. (Fig 1)



Figure 1 : 6 Nos. CCV (DRY CURE) LINES

The cable core is triple extruded and crosslinked in the fully enclosed process in which the inner semi-conducting screen, the XLPE insulation and the outer semi conducting screen are applied simultaneously (Fig 2) to the pre-heated cable conductor. Specialized in-line inspection techniques using X-rays are employed to monitor the dimensional accuracy of the extruded core. These examinations confirm the correct levels of dimensional accuracy.



Figure 2 : THREE LAYER COMON TRIPLE EXTRUSION METHOD

The final stage of HV cable manufacture is the high voltage test, which comprises an HV withstand, and a partial discharge detection test. These tests take place in Polycab's sophisticated HV Test Lab (Fig 3). The tests are of short duration, typically 30 minutes, and are capable of detecting the defects that initiate partial discharges, as small as one pico-coulomb. Such defects lead to gradual deterioration of the XLPE and eventually breakdown may occur.

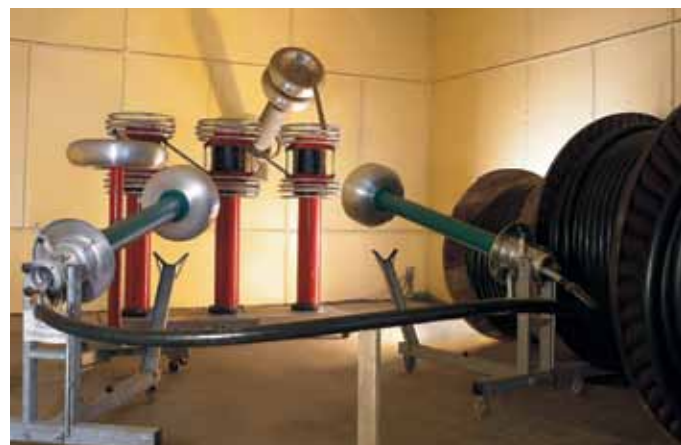
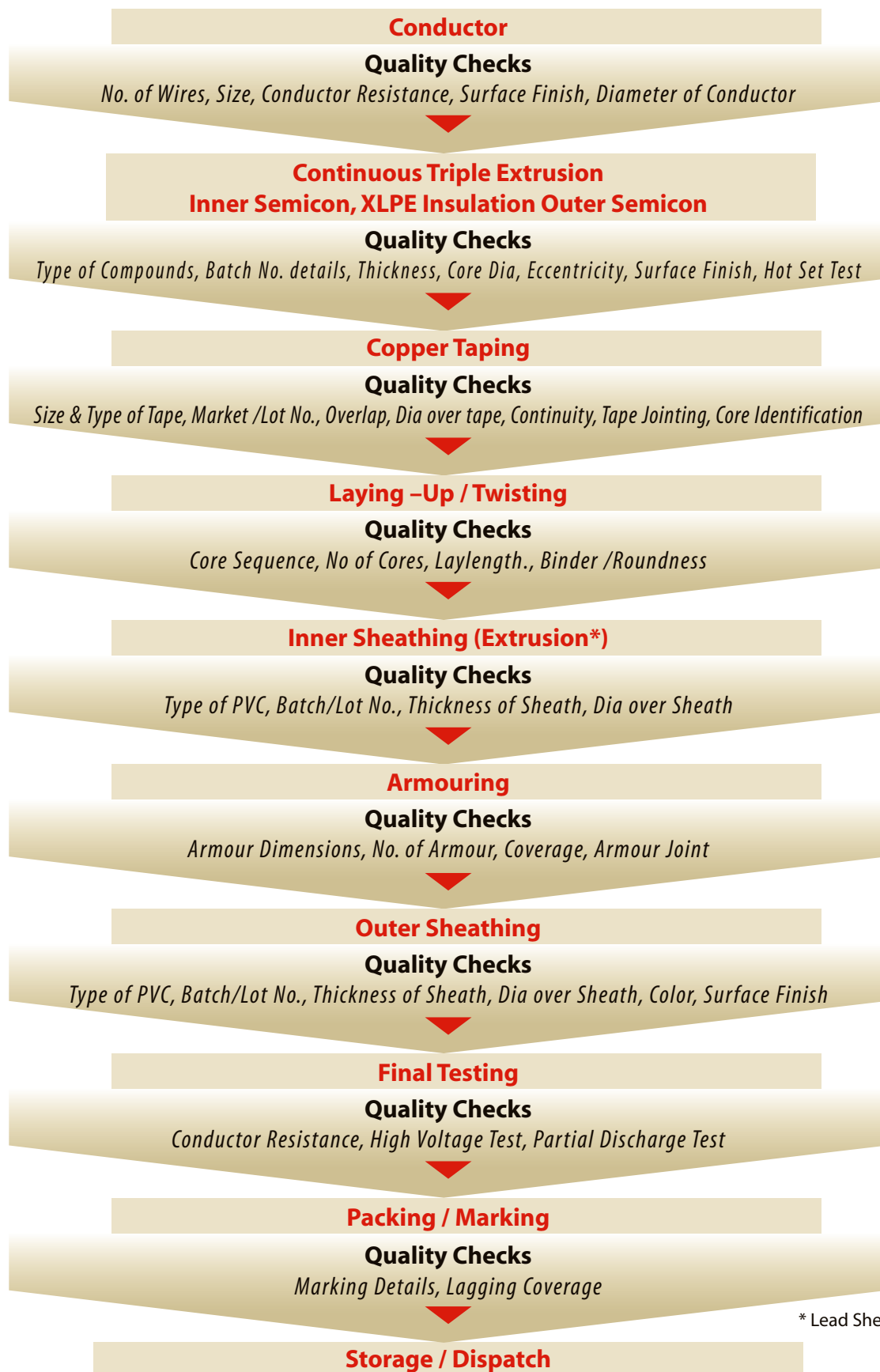


Figure 3 : ULTRA MODERN HV TESTING LAB

FLOW CHART



* Lead Sheath (optional)

Cables with FRLS / Zero Halogen Outer Sheath can be supplied against specific requirement.

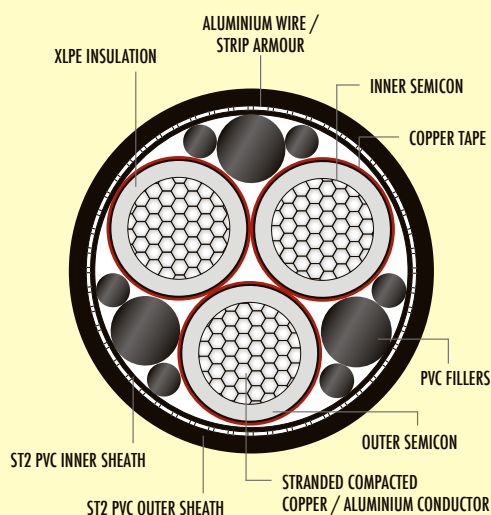
CONSTRUCTION OF HT CABLES

1. **Conductor** : Stranded Class 2 - Annealed Plain / Tinned Copper / Aluminium - IS:8130 / IEC 60228/ BS 6360.
2. **Conductor Screen** : Extruded semi-conducting compound – IS:7098 Part 2, IEC:60502 Part – 2, BS:6622, BS:7835.
3. **Insulation** : XLPE – IS : 7098 Part 2, IEC:60502 Part – 2, BS:6622, BS:7835.
4. **Insulation Non-metallic Screen** : Extruded semi-conducting compound – IS:7098 Part 2, IEC:60502 Part – 2, BS:6622, BS:7835.
5. **Insulation Metallic Screen** : Copper Wire / Tape or Aluminium Wire / Strip – IS:7098 Part 2, IEC:60502 Part – 2, BS:6622, BS:7835.
6. **Fillers** : Non Hygroscopic PVC * / Polypropelene Fiber to maintain roundness of cable.
7. **Inner sheath/Bedding** : PVC ST 2 as per IS:7098 Part 2, IEC:60502 Part – 2, BS:6622, LSOH to BS:7835.
8. **Armour** : IS:7098 Part 2, IS: 3975, IEC:60502 Part – 2, BS:6622, BS:7835.
9. **Outer Sheath** : PVC ST 2, FR, FRLS as per IS:7098 Part 2, IEC:60502 Part – 2, BS:6622, LSOH to BS:7835.

Flame Retardant (FR), Flame Retardant Low Smoke (FRLS) and Low Smoke Zero Halogen & Flame Retardant (LSOH) Sheathed HT XLPE cables are also manufactured.

*Weights given in the Tables are with PVC Fillers.

Polycab manufactures following voltage grade cables as per IS-7098[Part-2], IEC-60502 Part-2 and BS-6622 & BS:7835



- 33 kV (UE) Screened XLPE Cables as per customer requirement.
- 19/33 kV Screened Cable i.e. 33 kV (E)
- 12.7/22 kV Screened Cables i.e. 22 kV (E)
- 11/11 kV Screened Cables i.e. 11 kV (UE)
- 6.35/11 kV, Screened Cables i.e. 6.6 kV (UE)
- 3.8/6.6 kV Screened Cables.
- 3.3kV (E) and (UE) Unscreened & Screened Cables.

SIZES:

- 35 Sq.mm up to 1000 Sq.mm in Single Core Cables.
- 35 Sq.mm to 400 Sq.mm in Multi Cores Cables.

QUALITY ASSURANCE

Polycabs goal is to have satisfied customers. Quality assurance consisting of rigorous inspection followed by meticulous process and quality control in all phases, guarantees the superior quality of POLYCABS products. Up-to-Date laboratory facilities ensure that quality control requirements are met in full. Polycab XLPE Cables are tested to ensure high reliability in performance. Continuous process monitoring and post manufacturing tests ensure the compliance to Indian and International Standards. The assurance of quality is further ensured by ISI certification No. CM/L-7180366 on cables and ISO 9001 certification by U_L USA, A-7913.

QUALITY ASSURANCE TESTING :

Polycab is self sufficient to carry out all Routine & Type Tests in its own laboratory. It has world class Testing facilities for Routine & Type Tests. **Routine Tests : IS:7098 Part 2, IEC:60502, BS:6622, BS:7835**

- Partial Discharge Test
- High Voltage Test
- Conductor Resistance Test. Routine Tests are performed on each manufactured length of cable in Routine Test Laboratory.

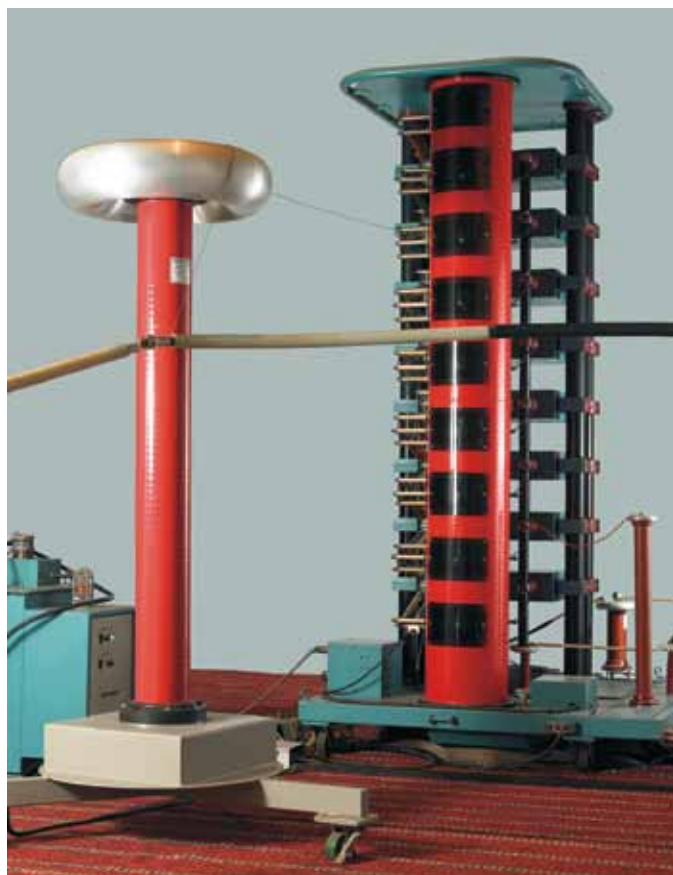
TYPE TESTS:

IS:7098 Part 2, IEC:60502, BS:6622, BS:7835

- a) Electrical Type Tests
- b) Non-Electrical Type Tests
- c) Special Tests.

The cable samples are type tested in-house to ensure conformance as to various standards.

Polycab cables of various voltage grades are type tested at CPRI Bangalore & ERDA Vadodara. Short circuit tests on cable conductor and armour are successfully carried at CPRI Bhopal & ERDA Vadodara.



IMPULSE TEST SET UP



NON ELECTRICAL TYPE TEST LABORATORY

FLAME RETARDANT LOW SMOKE CABLES

The behaviour of Electric Cables in presence of fire has been a matter of great concern to all Electrical Engineers involved in Generation, Transmission and Utilisation of electric power. Normally all XLPE Cables have an outer sheath of PVC. Although PVC by itself is flame retarding, it does produce highly toxic and corrosive fumes in the event of fire.

As a matter of fact, in closed and crowded places such as power stations, subways, railways with long sections in tunnels, road tunnels, ships, hospitals, schools, hotels, cinema theatres, museums and public premises in general, besides the obvious danger represented by fire propagation, also fume toxicity and opacity are particularly important as they may cause, with equally serious consequences for human safety, suffocation intoxication and panic due to reduced visibility.

FRLS PVC compound should ensure the following :

- 1) Minimum smoke emission.
- 2) Very low toxic and corrosive fumes emission.
- 3) Fire Retardant characteristics.

Our laboratory is well equipped with latest test equipments to carry out following test requirements.

- a) The oxygen index and temperature index of sheath as per ASTM-D 2863.
- b) Flammability characteristics of cable as per IEC 60332 (Pt. I) & IEC 60332 (Pt. III)
- c) Flammability characteristics of cables as per Swedish Standard SS 424 14 75, Class F3.
- d) Determination of the amount of halogen acid gas evolved during combustion of outersheath materials as per per IEC 60754 (Pt. I & II).
- e) Determination of smoke generation of outersheath material under fire as per ASTM-D 2843
- f) The measurement of smoke density as per IEC 61034.

ADVANTAGES OF POLYCAB XLPE CABLES

- **Higher Electrical Strength Retention**
- **Higher Short Circuit Rating**
- **Better Electrical , Mechanical & Thermal Properties**
- **Easy Jointing & Termination**

SELECTION OF CABLES

Power Cables are generally selected considering the application. However, following factors are important for selection of suitable cable construction required to transport electrical energy from one end to the other.

- 1) Maximum operating voltage,
- 2) Fault Level,
- 3) Load to be carried,
- 4) Possible overloading duration & magnitude,
- 5) Route length and voltage drop.
- 6) Mode of installation considering installation environment such as ambient & ground temperature chemical & physical properties of soil.
- 7) Flame retardant properties.

All sizes of POLYCAB XLPE cables are designed to standard operating conditions in India and abroad. The standards adopted are considering the geographical/climatical conditions and general applications of power for utilities, distribution and generation purposes.

The cables are manufactured conforming to Indian & International cables specifications for XLPE Insulated cables. Customer specific requirements can also be met.

POLYCAB GUIDELINES FOR SELECTION OF CABLES

Polycab is manufacturing wide range of cables, so it is important that while placing enquiries or orders, as much information as possible shall be given to Polycab, so that the enquiries and orders are dealt quickly and efficiently.

- 1) **Voltage Grade** : 1.9/3.3kV(E),3.3/3.3kV(UE),3.8/6.6kV(E),6.6/6.6kV(UE),6.35/11kV(E), 11 / 11 kV (UE), 12.7 / 22 kV (E) & 33 kV (E), 33 kV (UE) , 45 kV & 66kV
- 2) **Relevant Indian Standard** : IS 7098 (Part-2) – 1985 or International standard – IEC-60502 (Part-2), BS-6622 & BS:7835.
- 3) **Number of cores.** : Single & Three.
- 4) **Conductor** : Size - 35 Sq.mm to 1000 Sq.mm in Single Core Cables & 35 Sq.mm to 400 Sq.mm in 3 Core cables.
- 5) **Conductor Material** : Copper / Aluminium
- 6) **Type of Insulation** : XLPE
- 7) **Type of Inner Sheathing** : PVC Wrapped / PVC Extruded.
- 8) **Type of Armour** : Unarmoured / Strip Armoured / Round Wire Armoured.
- 9) **Type of Outer Sheath** : PVC / Flame Retardant / Flame Retardant Low Smoke / Zero Halogen (LSOH).
- 10) **Length of cable required and drum length.**

Note : Detailed Leaflet for 66kV & above can be available on specific request .

CONDUCTOR RESISTANCE

The details to the above Guidelines are given in tables.

Table - 1 *Conductor Technical Information for Single Core and Multicore cables conforming to IS-8130 /1984 (Stranded –Class-2) Copper & Aluminium Conductors.

Nominal Size of Conductor	Minimum no. of wires		Max. D.C. Resistance at 20° C		A.C. Resistance at 90° C	
	Compacted Round		Plain Copper	Aluminium	Plain Copper	Aluminium
	Sq.mm	CU.	ALU.	Ohm/Km	Ohm/Km	Ohm/Km
25	6	6	0.727	1.20	0.930	1.54
35	6	6	0.524	0.868	0.671	1.11
50	6	6	0.387	0.641	0.495	0.82
70	12	12	0.268	0.443	0.343	0.567
95	15	15	0.193	0.320	0.247	0.410
120	18	15	0.153	0.253	0.196	0.324
150	18	15	0.124	0.206	0.159	0.264
185	30	30	0.0991	0.164	0.127	0.210
240	34	30	0.0754	0.125	0.0965	0.160
300	34	30	0.0601	0.100	0.0769	0.130
400	53	53	0.0470	0.0778	0.0602	0.10
500	53	53	0.0366	0.0605	0.0468	0.0774
630	53	53	0.0283	0.0469	0.0362	0.060
800	53	53	0.0221	0.0367	0.0283	0.0470
1000	53	53	0.0176	0.0291	0.0225	0.0372

* Conductor meeting requirements of IEC-60228 and BS 6360 can also be manufactured.

Table - 2 SHORT CIRCUIT RATING FOR 1 SECOND DURATION FOR COPPER AND ALUMINIUM XLPE CABLES (CURRENT IN K. AMPS)

Nominal Size	XLPE Insulated	
	Copper	Aluminium
25	3.6	2.4
35	5.0	3.3
50	7.1	4.7
70	10.0	6.6
95	13.6	9.0
120	17.1	11.3
150	21.4	14.2
185	26.4	17.5
240	34.3	22.6
300	42.9	28.3
400	57.1	37.7
500	71.4	47.2
630	90.0	59.4
800	114.3	75.5
1000	142.9	94.3

XLPE Cables as per IS-7098 (Part-2)-1985

- 1) Max. Conductor Temperature during operation: 90° C
- 2) Max. Conductor Temperature during short Circuit: 250° C

Formula relating Short Circuit Rating with duration

$$I_t = \frac{I_{sh}}{\sqrt{t}}$$

Where

I_t = Short Circuit Rating for t Seconds.

t = duration in seconds

I_{sh} = Short Circuit rating for 1 second.

CAPACITANCE

Table - 3 CAPACITANCE

Approximate Capacitance (Microfarads/km) for Single Core Cables

Size	Voltage Grade(kV)						
	1.9/3.3 & 3.3/3.3	3.8/6.6	6.6/6.6 & 6.35/11	11/11	12.7/22	19/33	33/33
35							
50	0.30	0.27	0.23				
70	0.34	0.31	0.27	0.18			
95	0.39	0.34	0.31	0.20	0.19	0.15	0.14
120	0.43	0.37	0.33	0.22	0.20	0.16	0.15
150	0.49	0.42	0.36	0.24	0.22	0.17	0.16
185	0.52	0.44	0.39	0.25	0.24	0.18	0.17
240	0.59	0.50	0.43	0.28	0.26	0.20	0.19
300	0.67	0.53	0.48	0.32	0.30	0.23	0.20
400	0.76	0.55	0.53	0.36	0.33	0.25	0.23
500	0.77	0.57	0.50	0.39	0.36	0.27	0.25
630	0.81	0.64	0.69	0.43	0.40	0.29	0.28
800	0.86	0.73	0.79	0.49	0.45	0.33	0.30
1000	0.88	0.80	0.88	0.53	0.49	0.35	0.33

Table - 4 CAPACITANCE

Approximate Capacitance (Microfarads/km) For Three Core Cables

Size	Voltage Grade(kV)						
	1.9/3.3& 3.3/3.3	3.8/6.6	6.6/6.6 & 6.35/11	11/11	12.7/22	19/33	33/33
35	0.24	0.25	0.21				
50	0.27	0.27	0.22				
70	0.31	0.31	0.25	0.19			
95	0.35	0.35	0.29	0.21	0.20	0.15	0.14
120	0.39	0.38	0.31	0.23	0.22	0.16	0.15
150	0.42	0.43	0.34	0.25	0.23	0.18	0.16
185	0.46	0.45	0.36	0.27	0.25	0.18	0.17
240	0.51	0.51	0.41	0.30	0.28	0.20	0.19
300	0.57	0.54	0.46	0.33	0.31	0.23	0.20
400	0.63	0.57	0.52	0.37	0.34	0.25	0.23

REACTANCE

Table - 5 REACTANCE

Approximate Reactance At 50 Hz(Ohms/km) For Single Core Cables

Size	Voltage Grade(kV)													
	1.9/3.3& 3.3/3.3		3.8/6.6		6.6/6.6 & 6.35/11		11/11		12.7/22		19/33		33/33	
	Arm	Un-Arm	Arm	Un-Arm	Arm	Un-Arm	Arm	Un-Arm	Arm	Un-Arm	Arm	Un-Arm	Arm	Un-Arm
35														
50	0.115	0.104	0.119	0.110	0.133	0.127	0.133	0.125	0.137	0.130	0.147	0.140		
70	0.109	0.098	0.113	0.105	0.123	0.118	0.126	0.119	0.130	0.123	0.141	0.133		
95	0.104	0.095	0.108	0.100	0.116	0.111	0.120	0.114	0.124	0.116	0.135	0.127	0.143	0.137
120	0.100	0.092	0.104	0.101	0.112	0.107	0.117	0.110	0.119	0.112	0.130	0.122	0.137	0.131
150	0.096	0.088	0.101	0.093	0.109	0.104	0.112	0.106	0.115	0.107	0.126	0.118	0.134	0.129
185	0.094	0.087	0.099	0.091	0.107	0.101	0.110	0.103	0.114	0.105	0.124	0.115	0.128	0.122
240	0.091	0.084	0.096	0.089	0.104	0.097	0.106	0.100	0.110	0.101	0.118	0.110	0.124	0.118
300	0.088	0.081	0.093	0.086	0.100	0.094	0.102	0.096	0.105	0.097	0.112	0.105	0.120	0.114
400	0.086	0.079	0.091	0.085	0.096	0.091	0.098	0.092	0.101	0.093	0.119	0.102	0.115	0.109
500	0.085	0.078	0.088	0.083	0.093	0.089	0.095	0.090	8.099	0.091	0.105	0.099	0.111	0.106
630	0.083	0.077	0.087	0.081	0.092	0.086	0.094	0.087	0.095	0.089	0.101	0.096	0.108	0.103
800	0.082	0.076	0.085	0.077	0.089	0.084	0.091	0.085	0.092	0.086	0.097	0.092	0.106	0.099
1000	0.081	0.075	0.084	0.076	0.087	0.082	0.088	0.083	0.090	0.085	0.096	0.090	0.102	0.096

Table - 6 REACTANCE

Approximate Reactance At 50 Hz (Ohms/km) For Three Core Cables

Size	Voltage Grade(kV)						
	1.9/3.3& 3.3/3.3	3.8/6.6	6.6/6.6 & 6.35/11	11/11	12.7/22	19/33	33/33
35	0.094	0.104	0.111				
50	0.087	0.098	0.104				
70	0.084	0.094	0.100	0.129			
95	0.081	0.090	0.095	0.123	0.125	0.121	0.131
120	0.078	0.087	0.092	0.117	0.120	0.116	0.125
150	0.076	0.085	0.089	0.114	0.116	0.112	0.122
185	0.075	0.083	0.087	0.110	0.113	0.110	0.116
240	0.073	0.081	0.085	0.106	0.108	0.105	0.112
300	0.072	0.079	0.082	0.103	0.105	0.100	0.108
400	0.071	0.078	0.079	0.099	0.101	0.097	0.103

Note: All figures given in various tables are indicative only.

CURRENTS RATINGS

POLYCAB RECOMMENDATIONS FOR CURRENT RATINGS:

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

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

The current carrying capacities mentioned in POLYCAB technical data are intended as a guide, to assist operating engineers in selecting cables for safety and reliability.

Basic assumptions and conditions of installation :

- 1) Maximum Conductor Temperature : 90° C
- 2) Ambient Ground Temperature : 30° C
- 3) Ambient Air Temperature : 40° C
- 4) Thermal resistivity of soil : 150° C.
Cm/W

Depth of laying (to the highest point of the cables laid direct in the ground)

- 1) 3.3,6.6 & 11kV Cables : 90 cm
- 2) 22 and 33kV Cables : 105 cm

*Max. Conductor temperature at the end of a short circuit : 250° C

To obtain the maximum current carrying capacity of a cable operating at different conditions from the standard, various rating factors are to be multiplied, as follows :

$I_a = K \times I_s$ in amperes Where ;

I_a : Current rating at actual operating conditions (amperes)

I_s : Current rating at standard operating conditions (amperes)

K : Rating factor as, applicable.

RATING FACTORS

A). FOR AIR AND GROUND TEMPERATURE.

A. Rating factors for variation in ambient air temperature.							
Ambient Temp (°C)	25	30	35	40	45	50	
Rating Factors	1.14	1.10	1.04	1.00	0.95	0.90	
B. Rating factors for variation in ground temperature.							
Ground Temp (°C)	15	20	25	30	35	40	45
Rating Factors	1.12	1.08	1.03	1.00	0.96	0.91	0.87

B). FOR DEPTH OF LAYING (CABLES LAID DIRECT IN THE GROUND)

Depth of laying (cm)	3.3kV, 6.6kV & 11kV all sizes	22kV & 33 kV all Size
90	1	—
105	0.99	1
120	0.98	0.99
150	0.96	0.97
180 or more	0.95	0.96

C). FOR VARIATION IN THERMAL RESISTIVITY OF SOIL

Thermal Resistivity of Soil (°Ccm/w)	100	120	150	200	250	300
Factor	1.20	1.11	1.0	0.89	0.80	0.73

GROUP RATING FACTORS FOR SINGLE-CORE CABLES

A). Cables laid direct in the ground in horizontal formation.

Number of trefoils in group	Spacing between trefoils 3.3 to 22kV cables				33 kV Cables.			
	Touching	15 cm	30 cm	45 cm	Touching	15 cm	30 cm	45 cm
2	0.78	0.81	0.85	0.88	0.80	0.82	0.85	0.88
3	0.68	0.71	0.77	0.81	0.68	0.71	0.76	0.79
4	0.61	0.65	0.72	0.76	0.62	0.65	0.71	0.75
5	0.56	0.61	0.68	0.73	0.57	0.60	0.67	0.72

B). Cables laid on Racks / Trays in covered trench with removable covers where air circulation is restricted, Trefoils are separated by two cable diameter horizontally and the trays are in tiers having 300 mm distance.

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

RATING FACTORS

C). As above B. but cables laid in open air.

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

FOR MULTI-CORE CABLES:

A) Cables laid inside concrete trench with removable covers, on cable trays where air circulation is restricted. The cables spaced by one cable diameter and trays are in tiers spaced by 300 mm. The clearance between the wall and the cable is 25 mm.

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

B) Cable laid on cable trays exposed to air, the cables spaced by one cable diameter and trays are in tiers spaced by 300 mm. The clearance of the cable from the wall is 25 mm.

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

C) Cables laid on cable trays exposed to air, the cables touching and trays are in tiers spaced by 300 mm. The clearance between the wall and the cable is 25 mm.

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

D) Cables laid direct in ground in horizontal formation

No. of cables in group	Distance of cables			
	Touching	15 mm	30 mm	45 mm
2	0.79	0.82	0.87	0.90
3	0.69	0.75	0.79	0.83
4	0.62	0.69	0.74	0.79
5	0.58	0.65	0.72	0.76
6	0.54	0.61	0.69	0.75

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 7-3.8 / 6.6 KV (E) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	mm		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimesion 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	19	450	0.30	0.8	1.4	20	550	1.6	1.40	21.5	620	120	105	145	500	
50	2.8	2.0	20	500	0.30	0.8	1.4	21	600	1.6	1.40	22.5	700	140	125	170	500	
70	2.8	2.0	22	600	0.30	0.8	1.4	23	750	1.6	1.40	24.5	800	175	155	215	500	
95	2.8	2.0	23.5	750	0.30	0.8	1.4	24.5	850	1.6	1.40	26	950	205	180	260	500	
120	2.8	2.0	25	850	0.30	0.8	1.4	26	950	1.6	1.40	28	1050	235	205	305	500	
150	2.8	2.0	26	950	0.30	0.8	1.4	27.5	1100	1.6	1.56	29.5	1200	260	230	345	500	
185	2.8	2.0	28	1100	0.30	0.8	1.56	30	1250	1.6	1.56	31.5	1400	295	260	395	500	
240	2.8	2.2	31	1350	0.40	0.8	1.56	32	1500	2.0	1.56	34.5	1700	340	300	470	500	
300	3.0	2.2	33.5	1550	0.40	0.8	1.56	35	1750	2.0	1.56	37	2000	385	335	540	500	
400	3.3	2.2	37.5	1950	0.40	0.8	1.56	39	2200	2.0	1.72	41.5	2450	440	380	630	500	
500	3.5	2.4	41	2400	0.50	0.8	1.72	42.5	2650	2.0	1.88	45.5	2950	495	430	730	500	
630	3.5	2.4	44.5	2850	0.50	0.8	1.88	46.5	3200	2.0	1.88	49	3450	560	480	840	500	
800	3.5	2.6	49	3450	0.50	0.8	1.88	50	3750	2.5	2.04	54	4300	620	530	960	500	
1000	3.6	2.8	54	4250	0.60	0.8	2.04	55.5	4600	2.5	2.20	59.5	5150	680	580	1070	500	

TABLE 8 - 3.8 / 6.6 KV (E) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	mm		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimesion 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	19	670	0.30	0.8	1.4	20	750	1.6	1.40	21.5	850	155	140	185	500	
50	2.8	2.0	20	850	0.30	0.8	1.4	21	900	1.6	1.40	22.5	1000	185	160	220	500	
70	2.8	2.0	22	1050	0.30	0.8	1.4	23	1150	1.6	1.40	24.5	1250	225	195	275	500	
95	2.8	2.0	23.5	1300	0.30	0.8	1.4	24.5	1450	1.6	1.40	26	1550	265	235	340	500	
120	2.8	2.0	25	1600	0.30	0.8	1.4	26	1700	1.6	1.40	28	1800	300	265	390	500	
150	2.8	2.0	26	1900	0.30	0.8	1.4	27.5	2050	1.6	1.56	29.5	2150	335	295	440	500	
185	2.8	2.0	28	2250	0.30	0.8	1.56	30	2400	1.6	1.56	31.5	2550	380	330	510	500	
240	2.8	2.2	31	2850	0.40	0.8	1.56	32	3000	2.0	1.56	34.5	3200	435	380	600	500	
300	3.0	2.2	33.5	3450	0.40	0.8	1.56	35	3600	2.0	1.56	37	3850	490	425	680	500	
400	3.3	2.2	37.5	4450	0.40	0.8	1.56	39	4650	2.0	1.72	41.5	4950	550	480	790	500	
500	3.5	2.4	41	5500	0.50	0.8	1.72	42.5	5750	2.0	1.88	45.5	6050	610	530	910	500	
630	3.5	2.4	44.5	6750	0.50	0.8	1.88	46.5	7100	2.0	1.88	49	7350	680	580	1030	500	
800	3.5	2.6	49	8450	0.50	0.8	1.88	50	8700	2.5	2.04	54	9250	740	630	1140	500	
1000	3.6	2.8	54	10450	0.60	0.8	2.04	55.5	10800	2.5	2.20	59.5	11350	790	670	1250	500	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 9 - 6.35/11 KV (E), 6.6/6.6 KV (UE) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	mm		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable.	Nominal Dimesion 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	20.5	550	0.30	0.8	1.4	23.0	650	1.6	1.40	23.5	750	120	105	145	500	
50	3.6	2.0	22	600	0.30	0.8	1.4	24.0	700	1.6	1.40	24.5	800	140	125	170	500	
70	3.6	2.0	23.3	700	0.30	0.8	1.4	25.5	800	1.6	1.40	26.5	950	175	155	215	500	
95	3.6	2.0	25	800	0.30	0.8	1.4	27.5	950	1.6	1.40	28	1050	205	180	260	500	
120	3.6	2.0	27	950	0.30	0.8	1.4	29.0	1050	1.6	1.56	30	1200	235	205	305	500	
150	3.6	2.0	28	1050	0.30	0.8	1.56	30.5	1200	1.6	1.56	31.5	1350	260	230	345	500	
185	3.6	2.2	30.5	1250	0.40	0.8	1.56	33.0	1400	2.0	1.56	33.5	1600	295	260	395	500	
240	3.6	2.2	34	1450	0.40	0.8	1.56	35.0	1600	2.0	1.56	36	1850	340	300	470	500	
300	3.6	2.2	34.5	1650	0.40	0.8	1.56	37.0	1850	2.0	1.56	38	2100	385	335	540	500	
400	3.6	2.2	37.5	2000	0.40	0.8	1.72	40.5	2250	2.0	1.72	41.5	2550	440	380	630	500	
500	3.6	2.4	41	2450	0.50	0.8	1.72	43	2650	2.0	1.88	44.5	3000	495	430	730	500	
630	3.6	2.4	44.5	2900	0.50	0.8	1.88	46.5	3200	2.0	1.88	43	3450	560	480	840	500	
800	3.6	2.6	48.5	3500	0.50	0.8	1.88	50.5	3800	2.5	2.04	53	4300	620	530	960	500	
1000	3.6	2.8	53.5	4250	0.60	0.8	2.04	55.5	4600	2.5	2.20	58.5	5150	680	580	1070	500	

TABLE 10 - 6.35/11 KV (E), 6.6/6.6 KV (UE) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	mm		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable.	Nominal Dimesion 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	21.5	750	0.30	0.8	1.4	23.0	850	1.6	1.40	24.5	950	155	140	185	500	
50	3.6	2.0	23.0	900	0.30	0.8	1.4	24.0	1000	1.6	1.40	25.5	1110	185	160	220	500	
70	3.6	2.0	24.5	1150	0.30	0.8	1.4	25.5	1250	1.6	1.40	27.5	1350	225	195	275	500	
95	3.6	2.0	26.0	1400	0.30	0.8	1.4	27.5	1550	1.6	1.40	29.0	1650	265	235	340	500	
120	3.6	2.0	28.0	1650	0.30	0.8	1.4	29.0	1800	1.6	1.56	31.0	1950	300	265	390	500	
150	3.6	2.0	29.0	1950	0.30	0.8	1.56	30.5	2150	1.6	1.56	32.5	2250	335	295	440	500	
185	3.6	2.2	31.5	2400	0.40	0.8	1.56	33.0	2550	2.0	1.56	35.5	2750	380	330	510	500	
240	3.6	2.2	33.5	2900	0.40	0.8	1.56	35.0	3100	2.0	1.56	38.0	3350	435	380	600	500	
300	3.6	2.2	36.0	3500	0.40	0.8	1.56	37.0	3700	2.0	1.56	40.0	3950	490	425	680	500	
400	3.6	2.2	39.0	4500	0.40	0.8	1.72	40.5	4750	2.0	1.72	43.5	5050	550	480	790	500	
500	3.6	2.4	42.5	5500	0.50	0.8	1.72	44.0	5800	2.0	1.88	46.5	6100	610	530	910	500	
630	3.6	2.4	46.0	6800	0.50	0.8	1.88	47.5	7100	2.0	1.88	50.0	7350	680	580	1030	500	
800	3.6	2.6	50.0	8450	0.50	0.8	1.88	51.5	8750	2.5	2.04	55.0	9250	740	630	1140	500	
1000	3.6	2.8	55.0	10450	0.60	0.8	2.04	56.5	10800	2.5	2.20	60.5	11350	790	670	1250	500	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

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

“POLY-CAB” 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 Diaeter of Cable	Approx. Weight of Cable.	mm		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable.	Approx. Weight of Cable.	Nominal Dimesion 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	850	0.30	0.8	1.56	30.0	1050	1.6	1.56	31.5	1150	175	155	215	500	
95	5.5	2.0	29.5	980	0.30	0.8	1.56	31	1200	2.0	1.56	33.5	1350	205	180	260	500	
120	5.5	2.2	31.5	1150	0.40	0.8	1.56	32.5	1300	2.0	1.56	35.5	1500	235	205	305	500	
150	5.5	2.2	33	1260	0.40	0.8	1.56	34	1450	2.0	1.56	36	1650	260	230	345	500	
185	5.5	2.2	34.5	1430	0.40	0.8	1.56	36	1600	2.0	1.56	38	1850	295	260	395	500	
240	5.5	2.2	36.5	1650	0.40	0.8	1.56	38	1850	2.0	1.72	41	2150	340	300	470	500	
300	5.5	2.2	38.5	1900	0.40	0.8	1.72	40.5	2150	2.0	1.72	43	2400	385	335	540	500	
400	5.5	2.4	42	2300	0.50	0.8	1.72	44	2600	2.0	1.88	46.5	2900	440	380	630	500	
500	5.5	2.4	45	2700	0.50	0.8	1.88	47	3000	2.5	2.04	51	3500	495	430	730	500	
630	5.5	2.6	48.5	3200	0.50	0.8	1.88	50.5	3500	2.5	2.04	53.5	4050	560	480	840	500	
800	5.5	2.8	52.5	3880	0.60	0.8	2.04	54.5	4200	2.5	2.2	58.5	4800	620	530	960	500	
1000	5.5	2.8	57.5	4600	0.60	0.8	2.2	59.5	5000	2.5	2.36	63.5	5650	680	580	1070	500	

TABLE 12 - 11 / 11 KV (UE) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

“POLY-CAB” 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 Diaeter of Cable.	Approx. Weight of Cable.	mm		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable.	Approx. Weight of Cable.	Nominal Dimesion 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	28.5	1300	0.30	0.8	1.56	30.0	1500	1.6	1.56	31.5	1600	225	195	275	500	
95	5.5	2.0	30.0	1550	0.30	0.8	1.56	32.0	1800	2.0	1.56	34.0	1950	265	235	340	500	
120	5.5	2.2	32.0	1900	0.40	0.8	1.56	33.5	2050	2.0	1.56	36.0	2250	300	265	390	500	
150	5.5	2.2	33.5	2200	0.40	0.8	1.56	35.0	2400	2.0	1.56	37.0	2600	335	295	440	500	
185	5.5	2.2	35.5	2600	0.40	0.8	1.56	37.0	2750	2.0	1.56	39.0	3000	380	330	510	500	
240	5.5	2.2	37.5	3150	0.40	0.8	1.56	39.0	3350	2.0	1.72	42.0	3650	435	380	600	500	
300	5.5	2.2	39.5	3750	0.40	0.8	1.72	41.5	4000	2.0	1.72	44.0	4250	490	425	680	500	
400	5.5	2.4	43.0	4800	0.50	0.8	1.72	45.0	5100	2.0	1.88	47.5	5400	550	480	790	500	
500	5.5	2.4	46.0	5800	0.50	0.8	1.88	48.0	6100	2.5	2.04	52.0	6600	610	530	910	500	
630	5.5	2.6	50.0	7100	0.50	0.8	1.88	51.5	7400	2.5	2.04	55.0	7950	680	580	1030	500	
800	5.5	2.8	54.0	8850	0.60	0.8	2.04	56.0	9150	2.5	2.2	60.0	9750	740	630	1140	500	
1000	5.5	2.8	59.0	10800	0.60	0.8	2.2	61.0	11200	2.5	2.36	65.0	11850	790	670	1250	500	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 13 - 12.7/22 KV (E) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	Minimum Thickness of Strip		Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimesion 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	32.0	1100	0.40	0.8	1.56	33.0	1250	2.0	1.56	36.0	1450	205	180	270	500	
120	6.0	2.2	34.0	1200	0.40	0.8	1.56	35.0	1400	2.0	1.56	37.5	1600	230	200	310	500	
150	6.0	2.2	35.0	1350	0.40	0.8	1.56	36.0	1530	2.0	1.56	39.0	1750	260	225	350	500	
185	6.0	2.2	37.0	1500	0.40	0.8	1.56	38.0	1700	2.0	1.72	41.0	2000	290	255	400	500	
240	6.0	2.2	39.0	1750	0.40	0.8	1.56	40.5	1950	2.0	1.72	43.0	2250	335	290	470	500	
300	6.0	2.2	41.0	2000	0.40	0.8	1.72	43.0	2250	2.0	1.72	45.0	2500	380	325	540	500	
400	6.0	2.4	45.0	2400	0.50	0.8	1.88	47.0	2700	2.0	1.88	49.0	3000	430	370	630	500	
500	6.0	2.6	48.0	2850	0.50	0.8	1.88	50.0	3100	2.5	2.04	53.5	3650	485	420	730	500	
630	6.0	2.6	51.5	3300	0.50	0.8	2.04	54.0	3700	2.5	2.04	57.0	4150	550	470	840	500	
800	6.0	2.8	56.0	4000	0.60	0.8	2.04	58.0	4350	2.5	2.2	61.0	5000	610	520	950	500	
1000	6.0	3.0	61.0	4800	0.60	0.8	2.2	62.5	5150	2.5	2.36	66.0	5800	660	560	1060	500	

TABLE 14 - 12.7 / 22 KV (E) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	Minimum Thickness of Strip		Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimesion 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	32.0	1650	0.40	0.8	1.56	33.0	1850	2.0	1.56	36.0	2050	265	230	345	500	
120	6.0	2.2	34.0	1950	0.40	0.8	1.56	35.0	2150	2.0	1.56	37.5	2350	300	260	400	500	
150	6.0	2.2	35.0	2250	0.40	0.8	1.56	36.0	2450	2.0	1.56	39.0	2700	330	290	450	500	
185	6.0	2.2	37.0	2650	0.40	0.8	1.56	38.0	2850	2.0	1.72	41.0	3150	375	325	510	500	
240	6.0	2.2	39.0	3200	0.40	0.8	1.56	40.5	3450	2.0	1.72	43.0	3750	430	370	600	500	
300	6.0	2.2	41.0	3850	0.40	0.8	1.72	43.0	4100	2.0	1.72	45.0	4350	480	415	690	500	
400	6.0	2.4	45.0	4900	0.50	0.8	1.88	47.0	5200	2.0	1.88	49.0	5500	540	465	790	500	
500	6.0	2.6	48.0	5950	0.50	0.8	1.88	50.0	6200	2.5	2.04	53.5	6750	600	520	910	500	
630	6.0	2.6	51.5	7200	0.50	0.8	2.04	54.0	7600	2.5	2.04	57.0	8050	660	570	1020	500	
800	6.0	2.8	56.0	8950	0.60	0.8	2.04	58.0	9300	2.5	2.2	61.0	9900	720	620	1140	500	
1000	6.0	3.0	61.0	11000	0.60	0.8	2.2	62.5	11350	2.5	2.36	66.0	12000	760	660	1240	500	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 15 - 19 / 33 KV (E) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	Minimum 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	36.5	1400	0.40	0.8	1.56	38.5	1600	2.0	1.72	41	1900	200	180	270	500	
120	8.8	2.2	38	1550	0.40	0.8	1.72	40.5	1800	2.0	1.72	42.5	2050	230	200	310	500	
150	8.8	2.2	39	1700	0.40	0.8	1.72	41	1950	2.0	1.72	44	2200	260	225	350	500	
185	8.8	2.4	42	1900	0.50	0.8	1.72	43.5	2200	2.0	1.88	46	2500	290	255	400	500	
240	8.8	2.4	44	2200	0.50	0.8	1.88	46	2500	2.0	1.88	48.5	2760	335	290	470	500	
300	8.8	2.6	47	2500	0.50	0.8	1.88	48	2750	2.0	2.04	51	3100	380	325	540	500	
400	8.8	2.6	50	2900	0.50	0.8	2.04	51.5	3250	2.0	2.04	54	3550	430	370	630	500	
500	8.8	2.8	52.5	3400	0.60	0.8	2.04	55	3700	2.5	2.2	59	4250	485	420	730	500	
630	8.8	2.8	56	3900	0.60	0.8	2.2	59	4300	2.5	2.36	62	4900	550	470	840	500	
800	8.8	3.0	60.5	4600	0.60	0.8	2.36	63	5050	2.5	2.36	65.5	5600	610	520	950	500	
1000	8.8	3.2	65	5450	0.70	0.8	2.36	67.5	5900	2.5	2.52	71	6550	660	560	1060	500	

TABLE 16 - 19 / 33 KV (E) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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	Minimum 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	37.5	2000	0.40	0.8	1.56	39.0	2200	2.0	1.72	41.5	2550	265	230	345	500	
120	8.8	2.2	39.0	2300	0.40	0.8	1.72	41.0	2550	2.0	1.72	43.0	2800	300	260	400	500	
150	8.8	2.2	40.0	2600	0.40	0.8	1.72	42.0	2850	2.0	1.72	44.5	3100	330	290	450	500	
185	8.8	2.4	43.0	3050	0.50	0.8	1.72	44.5	3300	2.0	1.88	47.0	3650	375	325	510	500	
240	8.8	2.4	45.0	3650	0.50	0.8	1.88	47.0	4000	2.0	1.88	49.5	4250	430	370	600	500	
300	8.8	2.6	48.0	4350	0.50	0.8	1.88	49.0	4600	2.0	2.04	52.0	4950	480	415	690	500	
400	8.8	2.6	51.0	5350	0.50	0.8	2.04	52.5	5700	2.0	2.04	55.0	6050	540	465	790	500	
500	8.8	2.8	54.0	6450	0.60	0.8	2.04	56.0	6800	2.5	2.2	60.0	7350	600	520	910	500	
630	8.8	2.8	57.5	7000	0.60	0.8	2.2	60.0	8200	2.5	2.36	63.0	8800	660	570	1020	500	
800	8.8	3.0	62.0	9550	0.60	0.8	2.36	64.0	10000	2.5	2.36	67.0	10600	720	620	1140	500	
1000	8.8	3.2	67.0	11600	0.70	0.8	2.36	69.0	12100	2.5	2.52	72.5	12750	760	660	1240	500	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 17 - 33 / 33 KV (UE) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLE

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	Kg/Km		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimesion of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Kg/Km	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.	
120	9.5	2.2	40	1700	0.40	0.8	1.72	42	2000	2.0	1.72	45.5	2250	230	200	310	500	
150	9.5	2.4	41.5	1900	0.40	0.8	1.72	43.5	2150	2.0	1.88	47.5	2500	260	225	350	500	
185	9.5	2.4	43.5	2100	0.50	0.8	1.72	45	2400	2.0	1.88	49.5	2700	290	255	400	500	
240	9.5	2.4	46	2350	0.50	0.8	1.88	48	2700	2.5	2.04	53.0	3200	335	290	470	500	
300	9.5	2.6	48.5	2650	0.50	0.8	1.88	50	3000	2.5	2.04	55.0	3500	380	325	540	500	
400	9.5	2.6	51	3100	0.50	0.8	2.04	53.5	3450	2.5	2.2	58.5	4000	430	370	630	500	
500	9.5	2.8	54.5	3600	0.60	0.8	2.04	56.5	3950	2.5	2.2	62.0	4550	485	420	730	500	
630	9.5	3.0	58	4200	0.60	0.8	2.2	60	4550	2.5	2.36	65.5	5200	550	470	840	500	
800	9.5	3.0	62	4850	0.60	0.8	2.36	64	5300	3.15	2.52	71.0	6200	610	520	950	500	
1000	9.5	3.2	67	5700	0.70	0.8	2.52	69	6250	3.15	2.68	76.0	7250	660	560	1060	500	

TABLE 18 - 33 / 33 KV (UE) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLE

“POLYCAP” 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 Diaeter of Cable	Approx. Weight of Cable	Kg/Km		Nominal Dimesion of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimesion of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Kg/Km	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.	
120	9.5	2.2	41.5	2450	0.40	0.8	1.72	43.0	2750	2.0	1.72	45.5	3000	300	260	400	500	
150	9.5	2.4	43.0	2850	0.40	0.8	1.72	44.5	3050	2.0	1.88	47.5	3400	330	290	450	500	
185	9.5	2.4	45.0	3250	0.50	0.8	1.72	46.5	3500	2.0	1.88	49.5	3850	375	325	510	500	
240	9.5	2.4	47.5	3850	0.50	0.8	1.88	49.5	4200	2.5	2.04	53.0	4650	430	370	600	500	
300	9.5	2.6	50.0	4550	0.50	0.8	1.88	51.5	4850	2.5	2.04	55.0	5350	480	415	690	500	
400	9.5	2.6	53.0	5600	0.50	0.8	2.04	55.0	5950	2.5	2.2	58.5	6500	540	465	790	250	
500	9.5	2.8	56.5	6700	0.60	0.8	2.04	58.0	7050	2.5	2.2	62.0	7650	600	520	910	250	
630	9.5	3.0	60.0	8100	0.60	0.8	2.2	61.5	8450	2.5	2.36	65.5	9100	660	570	1020	250	
800	9.5	3.0	64.0	9800	0.60	0.8	2.36	66.0	10250	3.15	2.52	71.0	11200	720	620	1140	250	
1000	9.5	3.2	69.0	11900	0.70	0.8	2.52	71.0	12450	3.15	2.68	76.0	13450	760	660	1240	200	

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 19 - 1.9/3.3 KV (E) & 3.3/3.3 KV (UE) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured SCREENED CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	2.2	0.4	2.2	36.5	1500	0.8	1.56	37.0	1950	2.0	1.72	39.5	2600	115	97	125	500
50	2.2	0.4	2.2	38.5	1700	0.8	1.72	39.5	2200	2.0	1.72	41.5	2900	130	115	150	500
70	2.2	0.5	2.4	43	2150	0.8	1.72	43	2650	2.0	1.88	46	3450	160	140	190	500
95	2.2	0.5	2.6	46	2600	0.8	1.88	46.5	3150	2.5	2.04	50.5	4400	190	165	230	500
120	2.2	0.5	2.6	48.5	3000	0.8	2.04	50.5	3650	2.5	2.04	53.5	5000	220	190	260	500
150	2.2	0.6	2.8	53	3500	0.8	2.04	53	4100	2.5	2.2	56.5	5550	245	210	295	500
185	2.2	0.6	3.0	57.5	4150	0.8	2.2	57.5	4800	2.5	2.36	61	6350	275	240	335	500
240	2.2	0.7	3.0	62.5	4900	0.8	2.36	63	5750	2.5	2.36	66	7350	315	275	395	500
300	2.2	0.7	3.2	67	5850	0.8	2.52	68	6650	3.15	2.68	72	9250	355	310	450	500
400	2.2	0.7	3.6	75	7300	0.8	2.68	74.5	8100	3.15	2.84	79	11000	400	350	520	500

TABLE 20 - 1.9/3.3 KV (E) & 3.3/3.3 (UE) KV HT XLPE THREE CORE COPPER CONDUCTOR CABLES

“POLYCAP” THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured SCREENED CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	2.2	0.4	2.2	38.0	2150	0.8	1.56	37.0	2600	2.0	1.72	40.5	3250	145	125	165	500
50	2.2	0.4	2.2	40.0	2650	0.8	1.72	39.5	3150	2.0	1.72	42.5	3800	170	150	195	500
70	2.2	0.5	2.4	44.5	3450	0.8	1.72	44.0	3950	2.0	1.88	47.0	4750	210	180	240	500
95	2.2	0.5	2.6	48.5	4350	0.8	1.88	47.5	4950	2.5	2.04	51.5	6150	250	215	295	500
120	2.2	0.5	2.6	52.0	5250	0.8	2.04	51.5	5900	2.5	2.04	55.5	7200	280	240	335	500
150	2.2	0.6	2.8	55.5	6300	0.8	2.04	54.5	6900	2.5	2.2	58.5	8350	310	270	380	500
185	2.2	0.6	3.0	60.0	7600	0.8	2.2	59.0	8250	2.5	2.36	63.0	9800	350	305	430	500
240	2.2	0.7	3.0	65.0	9350	0.8	2.36	64.5	10250	2.5	2.36	68.0	11800	400	350	500	500
300	2.2	0.7	3.2	70.0	11400	0.8	2.52	70.0	12250	3.15	2.68	75.0	14850	445	390	510	500
400	2.2	0.7	3.6	78.0	14750	0.8	2.68	76.5	15550	3.15	2.84	82.0	18450	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 21 - 3.8 / 6.6 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.4	2.2	38.5	1600	0.8	1.72	40.0	2200	2.0	1.72	42	2800	115	97	125	500
50	2.8	0.5	2.4	41.5	1950	0.8	1.72	42.5	2500	2.0	1.88	44.5	3200	130	115	150	500
70	2.8	0.5	2.6	45.5	2350	0.8	1.88	46	3000	2.0	1.88	48	3700	160	140	190	500
95	2.8	0.5	2.6	49	2800	0.8	1.88	49.5	3400	2.5	2.04	52.5	4700	190	165	230	500
120	2.8	0.6	2.8	53	3300	0.8	2.04	54	4000	2.5	2.20	57	5400	220	190	260	500
150	2.8	0.6	2.8	56	3800	0.8	2.2	56.5	4500	2.5	2.2	59.5	5900	245	210	295	500
185	2.8	0.6	3.0	61	4400	0.8	2.2	60.5	5150	2.5	2.36	63.5	6700	275	240	335	500
240	2.8	0.7	3.2	65	5300	0.8	2.36	68	6100	3.15	2.52	70.5	8600	315	275	395	500
300	3.0	0.7	3.4	71	6300	0.8	2.52	71.5	7160	3.15	2.68	76	9900	355	310	450	500
400	3.3	0.7	3.8	80	8000	0.8	2.84	80	9000	4.0	3.0	86.5	13200	400	350	520	500

TABLE 22 - 3.8/6.6 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.4	2.2	40.0	2250	0.8	1.72	40.0	2850	2.0	1.72	43.0	3450	145	125	165	500
50	2.8	0.5	2.4	43.0	2850	0.8	1.72	42.5	3400	2.0	1.88	45.5	4150	170	150	195	500
70	2.8	0.5	2.6	47.0	3650	0.8	1.88	47.0	4250	2.0	1.88	49.5	5000	210	180	240	500
95	2.8	0.5	2.6	51.0	4550	0.8	1.88	50.5	5200	2.5	2.04	54.0	6500	250	215	295	500
120	2.8	0.6	2.8	55.0	5500	0.8	2.04	55.0	6200	2.5	2.20	58.5	7600	280	240	335	500
150	2.8	0.6	2.8	58.0	6550	0.8	2.2	58.0	7250	2.5	2.2	61.0	8700	310	270	380	500
185	2.8	0.6	3.0	63.0	7850	0.8	2.2	62.0	8600	2.5	2.36	66.0	10150	350	305	430	500
240	2.8	0.7	3.2	68.0	9800	0.8	2.36	67.5	10550	3.15	2.52	73.0	13050	400	350	500	500
300	3.0	0.7	3.4	74.0	11900	0.8	2.52	73.5	12750	3.15	2.68	78.5	15450	445	390	570	250
400	3.3	0.7	3.8	83.0	15400	0.8	2.84	82.0	16400	4.0	3.0	89.0	20650	500	440	650	200

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 23 - 6.35 / 11 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.5	2.4	43.5	1950	0.8	1.72	44.0	2500	2.0	1.88	45.5	3250	115	97	125	500
50	3.6	0.5	2.6	46.5	2250	0.8	1.88	46.5	2850	2.5	2.04	49.5	4000	130	115	150	500
70	3.6	0.5	2.6	50.5	2650	0.8	1.88	50.5	3300	2.5	2.04	53.5	4600	160	140	190	500
95	3.6	0.6	2.8	54.5	3150	0.8	2.04	54.5	3850	2.5	2.20	58.0	5250	190	165	230	500
120	3.6	0.6	2.8	58.0	3600	0.8	2.2	58.5	4400	2.5	2.20	61.5	5850	220	190	260	500
150	3.6	0.6	3.0	61.0	4100	0.8	2.2	61.0	4900	2.5	2.36	64.5	6450	245	210	295	500
185	3.6	0.7	3.2	66.0	4850	0.8	2.36	66.0	5650	3.15	2.52	71.0	8100	275	240	335	500
240	3.6	0.7	3.4	71.5	5700	0.8	2.52	71.5	6600	3.15	2.68	76.0	9250	315	275	395	500
300	3.6	0.7	3.6	76.5	6650	0.8	2.68	76.5	7600	3.15	2.84	81.0	10400	355	310	450	250
400	3.6	0.7	3.8	83.5	8100	0.8	2.84	83.5	9100	4.0	3.0	90.0	13450	400	350	520	250

TABLE 24 - 6.35 / 11 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.5	2.4	43.5	2600	0.8	1.72	44.0	3150	2.0	1.88	45.5	3900	145	125	165	500
50	3.6	0.5	2.6	46.5	3150	0.8	1.88	46.5	3750	2.5	2.04	49.5	4950	170	150	195	500
70	3.6	0.5	2.6	50.5	3950	0.8	1.88	50.5	4600	2.5	2.04	53.5	5900	210	180	240	500
95	3.6	0.6	2.8	54.5	4950	0.8	2.04	54.5	5600	2.5	2.20	58.0	7000	250	215	295	500
120	3.6	0.6	2.8	58.0	5850	0.8	2.2	58.5	6650	2.5	2.20	61.5	8100	280	240	335	500
150	3.6	0.6	3.0	61.0	6900	0.8	2.2	61.0	7650	2.5	2.36	64.5	9250	310	270	380	500
185	3.6	0.7	3.2	66.0	8300	0.8	2.36	66.0	9100	3.15	2.52	71.0	11550	350	305	430	500
240	3.6	0.7	3.4	71.5	10200	0.8	2.52	71.5	11050	3.15	2.68	76.0	13700	400	350	500	250
300	3.6	0.7	3.6	76.5	12200	0.8	2.68	76.5	13150	3.15	2.84	81.0	15950	445	390	570	250
400	3.6	0.7	3.8	83.5	15550	0.8	2.84	83.5	16550	4.0	3.0	90.0	20900	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 25 - 11 / 11 KV (UE) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.6	3.0	59.5	3550	0.8	2.2	59.5	4300	2.5	2.36	63.0	5900	160	140	190	500
95	5.5	0.6	3.2	63.5	4100	0.8	2.36	63.5	4900	3.15	2.52	68.5	7250	190	165	230	500
120	5.5	0.7	3.2	67.5	4650	0.8	2.36	67.5	5500	3.15	2.52	72.0	8000	220	190	260	500
150	5.5	0.7	3.4	70.5	5200	0.8	2.52	70.5	6100	3.15	2.68	75.0	8650	245	210	295	500
185	5.5	0.7	3.4	74.5	5900	0.8	2.68	74.5	6950	3.15	2.84	80.0	9650	275	240	335	500
240	5.5	0.7	3.6	80.0	6850	0.8	2.84	80.0	7900	3.15	3.0	85.0	10850	315	275	395	250
300	5.5	0.7	3.8	85.0	7850	0.8	3.0	85.5	8950	4.0	3.0	91.0	13250	355	310	450	250
400	5.5	0.7	4.0	92.0	9400	0.8	3.0	92.0	10500	4.0	3.0	98.0	15200	400	350	520	250

TABLE 26 - 11 / 11 KV (UE) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.6	3.0	59.5	4900	0.8	2.2	59.5	5600	2.5	2.36	63.0	7150	210	180	240	500
95	5.5	0.6	3.2	63.5	5900	0.8	2.36	63.5	6700	3.15	2.52	68.5	9000	250	215	295	500
120	5.5	0.7	3.2	67.5	6900	0.8	2.36	67.5	7750	3.15	2.52	72.0	10250	280	240	335	500
150	5.5	0.7	3.4	70.5	8000	0.8	2.52	70.5	8900	3.15	2.68	75.0	11450	310	270	380	500
185	5.5	0.7	3.4	74.5	9300	0.8	2.68	74.5	10300	3.15	2.84	80.0	13100	350	305	430	250
240	5.5	0.7	3.6	80.0	11300	0.8	2.84	80.0	12350	3.15	3.0	85.0	15350	400	350	500	250
300	5.5	0.7	3.8	85.0	13400	0.8	3.0	85.5	14500	4.0	3.0	91.0	18850	445	390	570	250
400	5.5	0.7	4.0	92.0	16850	0.8	3.0	92.0	17950	4.0	3.0	98.0	22650	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 27 - 12.7/22 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.7	3.2	66.0	4450	0.8	2.36	66.0	5300	3.15	2.52	71.0	7750	190	170	230	500
120	6.0	0.7	3.4	70.0	5050	0.8	2.52	70.0	5900	3.15	2.68	75.0	8500	215	190	265	500
150	6.0	0.7	3.4	72.5	5550	0.8	2.68	72.5	6500	3.15	2.68	77.5	9200	240	215	300	250
185	6.0	0.7	3.6	77.5	6300	0.8	2.68	77.5	7250	3.15	2.84	82.0	10150	270	240	340	250
240	6.0	0.7	3.8	82.5	7300	0.8	2.84	82.5	8300	4.0	3.0	89.0	12600	310	275	400	250
300	6.0	0.7	4.0	87.5	8300	0.8	3.0	87.5	9350	4.0	3.0	93.5	13850	350	310	455	250
400	6.0	0.7	4.0	94.5	9850	0.8	3.0	94.5	10950	4.0	3.0	100.0	15800	395	355	530	250

TABLE 28 - 12.7 / 22 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.7	3.2	66.0	6200	0.8	2.36	66.0	7050	3.15	2.52	71.0	9500	245	215	300	500
120	6.0	0.7	3.4	70.0	7300	0.8	2.52	70.0	8150	3.15	2.68	75.0	10750	275	245	340	500
150	6.0	0.7	3.4	72.5	8300	0.8	2.68	72.5	9300	3.15	2.68	77.5	11950	305	275	385	250
185	6.0	0.7	3.6	77.5	9750	0.8	2.68	77.5	10700	3.15	2.84	82.0	13600	345	305	435	250
240	6.0	0.7	3.8	82.5	11750	0.8	2.84	82.5	12750	4.0	3.0	89.5	17050	395	350	510	250
300	6.0	0.7	4.0	87.5	13900	0.8	3.0	87.5	14950	4.0	3.0	93.5	19400	440	390	580	250
400	6.0	0.7	4.0	94.5	17250	0.8	3.0	94.5	18400	4.0	3.0	100.0	23250	495	440	660	200

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 29 - 19 / 33 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.7	3.6	79.0	6050	0.8	2.84	79.0	7100	3.15	3.0	84.0	10050	190	170	230	500
120	8.8	0.7	3.8	83.0	6750	0.8	2.84	83.0	7750	4.0	3.0	89.5	12100	215	190	265	500
150	8.8	0.7	4.0	86.5	7400	0.8	3.0	86.5	8400	4.0	3.0	92.0	12800	240	215	300	250
185	8.8	0.7	4.0	90.5	8150	0.8	3.0	90.0	9250	4.0	3.0	96.5	13900	270	240	340	250
240	8.8	0.7	4.0	95.5	9150	0.8	3.0	95.5	10300	4.0	3.0	101.0	15150	310	275	400	250
300	8.8	0.7	4.0	100.0	10200	0.8	3.0	100.0	11350	4.0	3.0	105.5	16450	350	310	455	250
400	8.8	0.7	4.0	106.5	11800	0.8	3.0	106.5	13100	4.0	3.0	112.5	18550	395	355	530	250

TABLE 30 - 19 / 33 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

“POLYCAP” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.7	3.6	79.0	7850	0.8	2.84	79.0	8900	3.15	3.0	84.0	11800	245	215	300	250
120	8.8	0.7	3.8	83.0	9000	0.8	2.84	83.0	10000	4.0	3.0	89.5	14300	275	245	340	250
150	8.8	0.7	4.0	86.5	10150	0.8	3.0	86.5	11200	4.0	3.0	92.0	15600	305	275	385	250
185	8.8	0.7	4.0	90.5	11600	0.8	3.0	90.0	12700	4.0	3.0	96.5	17300	345	305	435	250
240	8.8	0.7	4.0	95.5	13600	0.8	3.0	95.5	14750	4.0	3.0	101.0	19600	395	350	510	250
300	8.8	0.7	4.0	100.0	15750	0.8	3.0	100.5	16950	4.0	3.0	105.5	22000	440	390	580	200
400	8.8	0.7	4.0	106.5	19250	0.8	3.0	106.5	20550	4.0	3.0	112.5	26000	495	440	660	200

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

WEIGHT, DIMENSION DATA & CURRENT CARRYING CAPACITY OF CABLES

TABLE 31 - 33 / 33 KV (UE) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES

“POLYCAB” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.7	4.0	88.5	7600	0.8	3.0	88.5	8650	4.0	3.0	94.5	12700	215	190	265	500
150	9.5	0.7	4.0	91.0	8150	0.8	3.0	91.0	9250	4.0	3.0	97.0	13450	240	215	300	250
185	9.5	0.7	4.0	95.5	8950	0.8	3.0	95.5	10100	4.0	3.0	101.0	14550	270	240	340	250
240	9.5	0.7	4.0	100.5	10000	0.8	3.0	100.5	11200	4.0	3.0	106.0	15850	310	275	400	250
300	9.5	0.7	4.0	105.0	11050	0.8	3.0	105.0	12300	4.0	3.0	110.5	17300	350	310	455	250
400	9.5	0.7	4.0	111.5	12750	0.8	3.0	111.5	14100	4.0	3.0	117.0	19350	395	355	530	250

TABLE 31 - 33 / 33 KV (UE) HT XLPE THREE CORE COPPER CONDUCTOR CABLES

“POLYCAB” 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	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE				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 GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI 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	0.7	4.0	88.5	9800	0.8	3.0	88.5	10850	4.0	3.0	94.5	14950	275	245	340	250
150	9.5	0.7	4.0	91.0	10950	0.8	3.0	91.0	12000	4.0	3.0	97.0	16250	305	275	385	250
185	9.5	0.7	4.0	95.5	12400	0.8	3.0	95.5	13550	4.0	3.0	101.0	18000	345	305	435	250
240	9.5	0.7	4.0	100.5	14450	0.8	3.0	100.5	15650	4.0	3.0	106.0	20300	395	350	510	250
300	9.5	0.7	4.0	105.0	16650	0.8	3.0	105.0	17900	4.0	3.0	110.5	22900	440	390	580	200
400	9.5	0.7	4.0	111.5	20150	0.8	3.0	111.5	21550	4.0	3.0	117.0	26750	495	440	660	200

The above data is approximate and subject to manufacturing tolerance.

* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

HANDLING, STORAGE AND LAYING OF POLYCARB CABLES

A. CABLE INSPECTION

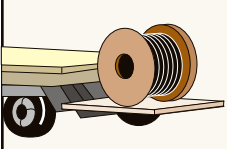
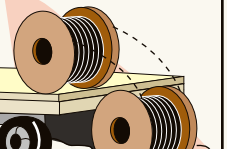
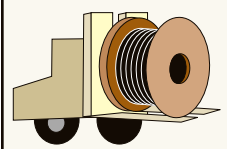
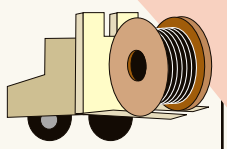
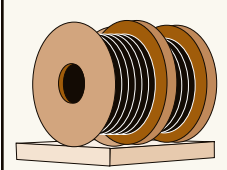
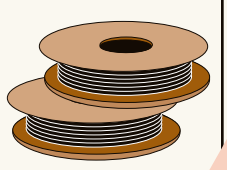
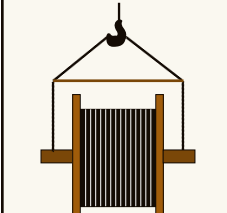
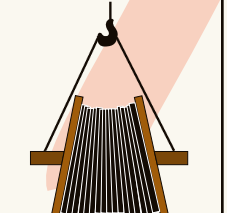
Inspect every cable reel for damage before accepting the shipment. Be particularly alert for cable damage if:

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 is immediately exposed to damage. Cables damaged during handling & storage can cause service failures when the subject cable is put to use.

Thus the following is a list of 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 reels 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 a spreader bar approximately 6 inches longer than the overall reel width placed between the sling ends just above the reel flanges.		This may lead to the bending of the reel flanges and mashing the cable

HANDLING, STORAGE AND LAYING OF POLYCAP CABLES

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. Polycab 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 lying flat at the flanges. This would cause serious twist and 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 x D

Multicore : 15 x D

Where D= Diameter of cable in mm

F. RECOMMENDED SAFE PULLING FORCE WITH STOCKINGS:

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

Where P= Pulling Force

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

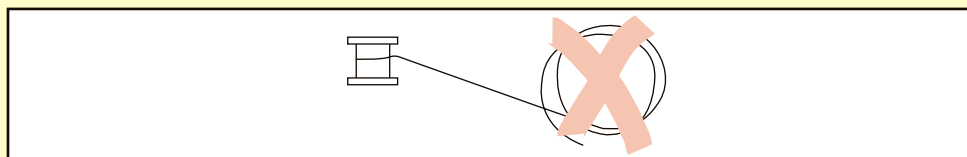
Where D= Diameter of cable in mm

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

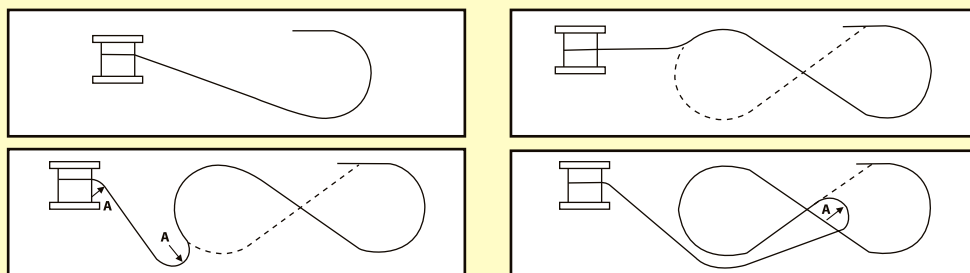
a) For Aluminium Conductors : 30 N/mm²

b) For Copper Conductor : 50 N/mm²

DO NOT ATTEMPT "COILING" OF CABLE ON THE GROUND



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



Note: R Minimum Permissible bending radius of cable.

IMPORTANT FORMULAE

IMPORTANT FORMULAE * TO CALCULATE VARIOUS ELECTRICAL PARAMETERS OF CABLES

1) Inductance :

$$L = K + 0.2 \log_e \left(\frac{2S}{d} \right) \text{ (mH/km)}$$

where K = Constant for different stranded conductors

S = Axial Spacing between Cables & Conductors in mm.

d = Conductor Diameter

No. of wires in Conductor	K
7	0.0642
19	0.0554
37	0.0528
61 and above	0.0514
1(Solid)	0.0500

2) Reactance :

$$X = 2\pi f \times L \times 10^{-3} \Omega / \text{km}$$

where f = frequency

L = Inductance

3) Impedance :

$$Z = (R^2 + X^2)^{1/2} \Omega / \text{km}$$

where R = A.C Resistance at operating temperature Ω / km

X = Reactance

4) Charging Current :

$$A = U_0 \times 2\pi \times f \times C \times 10^{-6} \text{ Amp/km}$$

C = Cable capacitance in $\mu\text{f/km}$

5) Voltage Drop :

For 3 Core Cables : $\sqrt{3} \times Z \text{ mv/A/mtr}$

For 1 Core Cables : $2 \times Z \text{ mv/A/mtr}$

where Z = Impedance in ohm/km

6) Capacitance:

$$C = \frac{E_r}{18 \log_e (D/d)} \text{ (}\mu\text{f / km)}$$

where E_r = Relative Permittivity for XLPE : 2.3

D = Dia over Insulation in mm

d = Dia over conductor screen in mm

7) Dielectric loss in watts per km/phase:

$$2\pi f \times C U_0^2 \tan\delta \times 10^{-6} \text{ (watt / km per phase)}$$

where C = Capacitance in $\mu\text{f/km}$

U_0 = Power frequency voltage between conductor & earth -V

$\tan\delta$ = Dielectric power factor

= 0.004 for XLPE

8) Voltage Induced in Sheath :

$$E_s = IX_m$$

where I = conductor current (A)

$$X_m = 2\pi fM \times 10^{-3} \text{ (}\Omega / \text{km)}$$

$$M = 0.2 \log_e \frac{2S}{dm} \text{ (mH/km)}$$

S = Distance between Cable Centres, dm

= Mean Diameter of Sheath

9) Short Circuit Rating:

$$I^2 = \frac{K^2 S^2}{T} \log_e \left(\frac{\theta_1 + \beta}{\theta_0 + \beta} \right)$$

where I = Short circuit (R.M.S over duration) in Amps.

T = Duration of short circuit in second

K = Constant – 226 for Copper, 148 for Aluminium, 78 for Steel

S = Area of Conductor in mm^2

θ_1 = Final Temperature of Conductor or Armour

θ_0 = Initial Temperature of Conductor or Armour

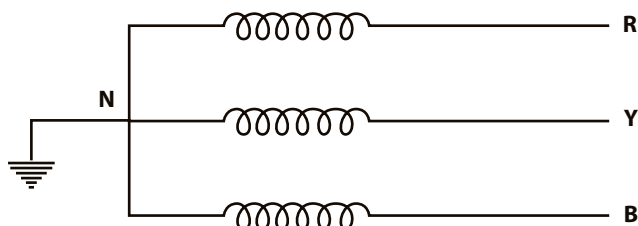
β = Reciprocal of the temperature coefficient of resistance of the conductor per $^\circ\text{C}$ at 0°C (228 for Aluminium, 202 for Steel, & 234.5 for Copper)

* source BICC handbook

DIFFERENCE BETWEEN EARTHED & UNEARTHED SYSTEM

EARTHED SYSTEM:

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.

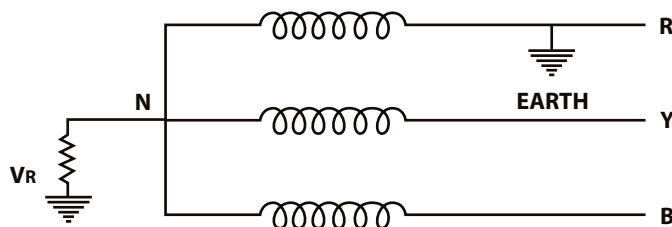


In this system if an earth fault occurs on any of the phases, the voltages of other two healthy phases with respect to the earth remain the same.

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 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.



Production Facilities at Daman Factory

POLYCAB REGIONAL OFFICES

CHENNAI : Old No. 5/2, New No.9/2 Gopalkrishna Road, T-Nagar, CHENNAI - 600 017.
Tel: 044 42022775 / 32969257 • Fax: 044 42022774 • Email : chennai@polycab.com

BARODA : 9, Khushbu Corner, 56, Vishwas Colony, Alkapuri, BARODA - 390 007.
Tel: 0265 3252825 • Fax: 0265 3083366 • Email : gujarat@polycab.com

PUNE : 36, Sangam Project, Off. Indian Air Lines, Near RTO (PUNE), Ambedkar Road,
PUNE - 411 001. • Tel: 020 26058277 / 30209678 • Email : pune@polycab.com

BENGALURU : #104/6, 5th Cross, 5th Block, SSI Area, Rajajinagar, BENGALURU - 560 010.
Tel: 080 23102172 • Fax: 080 23102071 • Email : karnataka@polycab.com

SECUNDERABAD : 401, A, 4th floor, Suryakiran Complex, S. D. Road,
SECUNDERABAD - 500 003.

Tel: 040 66326228 / 30962600 • Fax: 040 66326229 / 3072355
Email : andhra@polycab.com

DELHI : 0-13, 3rd Floor, Lajpat Nagar II, NEW DELHI - 110 024.

Tel: 011 29841721-24 • Fax: 011 29841697 • Email : north@polycab.com

KOLKATA : 1-3, A, South End Park, KOLKATA - 700 029.

Tel: 033 32929602-3 • Fax: 033 24197706 • Email : pwplkolkata@polycab.com



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POLYCAB™
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POLYCAB WIRES PVT. LTD.

(an ISO 9001:2008, 14001:2004, 18001:2007 Company)

Regd. & Head office :

Polycab House, 771, Pandit Satwalekar Marg,
Mahim (W), Mumbai 400 016.

Tel. : 91-22-2432 7070 - 4, 6735 1400

Fax : 91-22-2432 7075

E-mail : enquiry@polycab.com

Website : www.polycab.com