We Move Energy,
To Power your world

POWER CABLES (PVT) LTD.

Manufacture all types of electrical cables, wires & conductors

Product Catalogue

General Wiring

Low Voltage Cables

Medium Voltage Cables

Control Cables

Aerial Bundle Cables

Overhead Conductors

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About this Catalogue

This catalogue contains Power and Control cables designed to IEC-60502 and BSS, The purpose of this catalogue is to provide information on power and control cables used in applications for the international project business. Due to today's global thinking, the many different local specifications are not practical anymore. A plant is very often designed in one country for a customer in another country- very likely on another continent. Most countries have their own cable factories for power cables, mostly in cable constructions to their local standards for power distribution. This catalogue is not intended to compete with these applications, although the constructions are suitable.IEC 60502 helps the engineers to design with a practical standard and rules which are applicable and acceptable around the world. Engineers will understand each other, being able to use to the same standard; a plant, once engineered, can be rebuilt in another country, without having to re-engineer the cable section. Global thinking - justified, of course, and driven by overall cost saving is what we, as a manufacturer, are bound to support. Fortunately, IEC 60502 is a standard which is already used as a common basis for many international projects. More and more end-users have already changed - or are accepting IEC 60502 for their current and future projects. This catalogue has been produced by Power Cable to support engineers with the most common data on cables in accordance with IEC 60502. It will make the engineer's job easier to select the right cable and, in the end, will allow easier and faster procurement of a standard cable as well.

1. Introduction

In the field of manufacturing various kinds of cables, we have been keeping up with rapidly advancing technical paces. As a result, all specificational needs of BS 6004, BS 6360, 7884, 215, 4808, BS 6346 and IEC 60502-2 have been able to be satisfied with our high quality- oriented staff.

PRODUCTS:

PVC INSULATED CABLES	CONTROL CABLES
XLPE INSULATED CABLES	AERIAL BUNDLE CABLES
HDBC, (AAC), (AAAC) and (ACSR)	

The features of these cables have also been diversified, Stranded Compacted and Shaped Conductor, Single to Multi core, both in Copper and Aluminum Conductor. These cables are largely used for all type of applications, where their immunity to damage by moisture, together with inherent toughness and flexibility over a wide temperature range makes them particularly suitable to the respective purpose.

Power cables are used for transmission of electric power; as control cables are used to measure, control and regulate or monitor industrial plants. Power cables are mainly used in distribution networks of power utilities, in industries, in mines etc. To select the cable it is necessary to consider whether the specific system and installation conditions and requirements can be fulfilled.

The following criteria therefore should have proper consideration to define the suitable cable type:

- Occurrence of maximum voltage load
- Allowable voltage drop
- Power to be transmitted, current carrying capacity
- Permissible or necessary short-circuit admittance

• Electrical protection

• Mechanical stress/influence

• Thermal stress/influence

• Chemical stress/influence

• Standards or specifications to be followed

Feature to differentiate power cables is the voltage grade, which is indicated as quotient U0/U, where

U0 signifies the voltage between conductor and metallic coverage or earth

U signifies the voltage among phase conductors (insulated conductors)

In three-phase current systems U0 = U/√3

2. Construction

2.1 Conductor

IEC 60228 specifies four different classes of conductors; classes 1, 2, 5 and 6. Power and control cables normally have conductors of class 1 (solid conductors) or class 2 (stranded conductors).Power and control cables have plain annealed copper conductors.

Conductor forms:

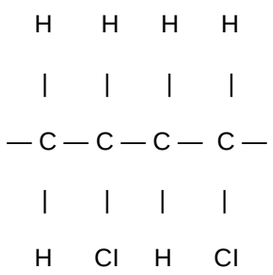
RE = circular solid RM = circular stranded

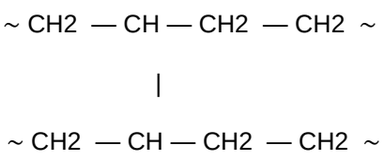
SE = sector shaped solid SM = sector shaped stranded

2.2 Insulation

The insulation materials for power and control cables are

polyvinyl chloride (PVC) or cross-linked polyethylene (XLPE).





2.3 Laying Up

The cores of cables are laid up with suitable filling elements (if necessary) to form a compact circular assembly. Suitable binder tape(s) may be applied.

2.4 Bedding

Cables incorporating an armour layer have an extruded bedding of polyvinyl chloride (PVC) or zero halogen material (LSZH).

2.5 Armour

The primary purpose of armour is to protect the cable against mechanical damage during installation and operation. Apart from this mechanical armour, it can also fulfil various electrical functions, e.g. earth conductor, screen of inductive protection.

Armouring of single core cables is provided by round aluminium wires, multicore cables will have galvanized round steel wires.

2.6 Outer Sheath

The outer sheath of cables consists of extruded polyvinyl chloride (PVC) or zero halogen material (LSZH). The colour is primarily black.

3. Use

3.1 Range of use

Cables in accordance with IEC 60502 and Bss are intended for fixed installation:

• Indoors

• Outdoors

• Underground

• In water

QUALITY IS OUR MAIN TARGET

Power Cables Company is born to be one of the leading Power Cables Manufacturers in Pakistan. We are working in different axes to completely fulfill customers satisfaction which is the milestone of our business, such axes are:

1. Product quality complying with the local and international standards
2. Product Reliability is starting from the time of product design to fit for the intended application and environmental conditions, to the selection of the raw material from only the highest class suppliers with internationally trusted reputation. Our state of art testing equipments and the strict quality procedures ensure the product quality and integrity so we can guarantee that our cables are defect free and suitable for the intended application through the cable service lifetime.
3. High Performance of the product and service through cooperation between experienced staff who are aware of the local market requirements and the highest international standards of cables manufacturing. Such cooperation in knowhow is invested to provide our customer with the best service and support.
4. Power Cables Company's Quality Management System conforms to the ISO 9001: 2008 International Management Quality System Standard with scope of Design and Manufacturing of Electrical Power Cables and Wires. PCC is certified by American Systems Registrar (ASR), ANAB Accredited.
5. Power Cables Company is frequently testing its products at internationally reputable labs,diversity of products have been tested and confirmed compliance to the international standard at KEMA Labs.

SECTION-GENERALWIRING

GENERAL WIRING

For lighting & general use, Power Cables manufactures General Wiring Cables in the range of 250/750 Volts conforming to BSS: 6004:95:

- General wiring single core cables from 1 mm^2 to 10 mm^2
- Larger single core cables from 16mm^2 to 630mm^2
- Multi-core cables from 1 mm^2 to 35 mm^2
- Flexible multi-core cables from 1 mm^2 to 4 mm^2

These cables are manufactured in conformity with the national & international standards that provide safety and savings in electricity consumption because of the use of 99.99% pure copper, cable grade PVC, and thorough quality testing of every meter

The benefits of utilizing our high quality General Wiring Cables are:

- Lower electricity billing
- Optimum efficiency of appliances
- Safety to life and property
- Better energy utilization

ORDERING ADVICE

The following details will ensure that your enquiries and orders are dealt quickly and efficiently:

1. Number of coils or drum length.
2. Relevant british or international standards
3. Voltage designation
4. Number of cores
5. Conductor size
6. Type of insulation
7. Color of insulation
8. Any other special requirement e.g solid conductor, special color of Pvc Insulation or Pvc Sheath where applicable.

PVC INSULATED CABLES

LOW VOLTAGE SINGLE CORE PVC -INSULATED CABLE

BASIC CONSTRUCTION

CONDUCTOR	- PLAIN ANNEALED COPPER
CONDUCTOR SHAPE	- ROUND CIRCULAR STRANDED OR SOLID CONDUCTOR
INSULATION	- PVC
Colours	- Red, Black, Yellow, Blue, Green, White and Grey

POWER CABLES (PVT) LTD.

Manufacture all types of electrical cables, wires & conductors

MS 136
BS 6004
IEC 60502-1

Table 1 **SINGLE-CORE 450/750V PVC INSULATED, NON-SHEATHED GENERAL PURPOSE CABLES**

CONDUCTOR		Thickness of Insulation	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire					
mm^2	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
1.5	1/1.38	0.7	2.9	12.1	0.011	21
1.5	7/0.53	0.7	3.1	12.1	0.010	21
2.5	1/1.78	0.8	3.5	7.41	0.010	33
2.5	7/0.67	0.8	3.8	7.41	0.009	35
46	7/0.85	0.8	4.3	4.61	0.0077	53
10	7/1.04	0.8	4.9	3.08	0.0065	74
16	7/1.35	1.0	6.2	1.83	0.0065	123
25	7/1.70	1.0	7.3	1.15	0.0050	185
35	19/1.35	1.2	9.0	0.727	0.0050	289
50	19/1.53	1.2	10.3	0.524	0.0040	386
70	19/1.78	1.4	12.0	0.387	0.0045	521
95	19/2.14	1.4	13.8	0.268	0.0035	731
120	37/1.78	1.6	16.0	0.193	0.0035	972
150	37/2.03	1.6	17.7	0.153	0.0032	1245
185	37/2.25	1.8	19.6	0.124	0.0032	1528
240	37/2.52	2.0	22.0	0.0991	0.0032	1923
300	61/2.25	2.2	25.0	0.0754	0.0032	2500
400	61/2.52	2.4	27.8	0.0601	0.0030	3126
500	61/2.85	2.6	31.3	0.0470	0.0028	3982
630	61/3.20	2.8	34.5	0.0366	0.0028	4994
	127/2.52	2.8	38.4	0.0283	0.0025	6344

Table 2 **SINGLE SINGLE-CORE 300/500V UNARMOURED CABLES WITH CIRCULAR COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
1.5	1/1.38	0.7	0.8	4.4	12.1	0.011	37
1.5	7/0.53	0.7	0.8	4.5	12.1	0.011	34
2.5	1/1.78	0.8	0.8	5.0	7.41	0.011	48
2.5	7/0.67	0.8	0.8	5.2	7.41	0.011	50
4	7/0.85	0.8	0.9	6.2	4.61	0.011	76
6	7/1.04	0.8	0.9	6.8	3.08	0.011	99
10	7/1.35	1.0	0.9	8.1	1.83	0.011	154
16	7/1.70	1.0	1.0	9.4	1.15	0.011	225
25	19/1.35	1.2	1.1	11.4	0.727	0.011	343
35	19/1.53	1.2	1.1	12.6	0.524	0.011	444

Table 3 **TWO-CORE 300/500V UNARMOURED CABLES WITH CIRCULAR COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Approx. Weight
Nom. Area	No./ Dia of Wire				
mm²	mm	mm	mm	mm	Kg/Km
1.5	7/0.53	0.7	1.2	10.5	120
2.5	7/0.67	0.8	1.2	12.0	170
4	7/0.85	0.8	1.2	13.0	220
6	7/1.04	0.8	1.2	14.0	290
10	7/1.35	1.0	1.4	17.5	430

Table 4 **THREE-CORE 300/500V UNARMOURED CABLES WITH CIRCULAR COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Approx. Weight
Nom. Area	No./ Dia of Wire				
mm²	mm	mm	mm	mm	Kg/Km
1.5	7/0.53	0.7	1.2	11.0	150
2.5	7/0.67	0.8	1.2	12.5	210
4	7/0.85	0.8	1.2	13.5	280
6	7/1.04	0.8	1.4	15.0	380
10	7/1.35	1.0	1.4	19.0	580

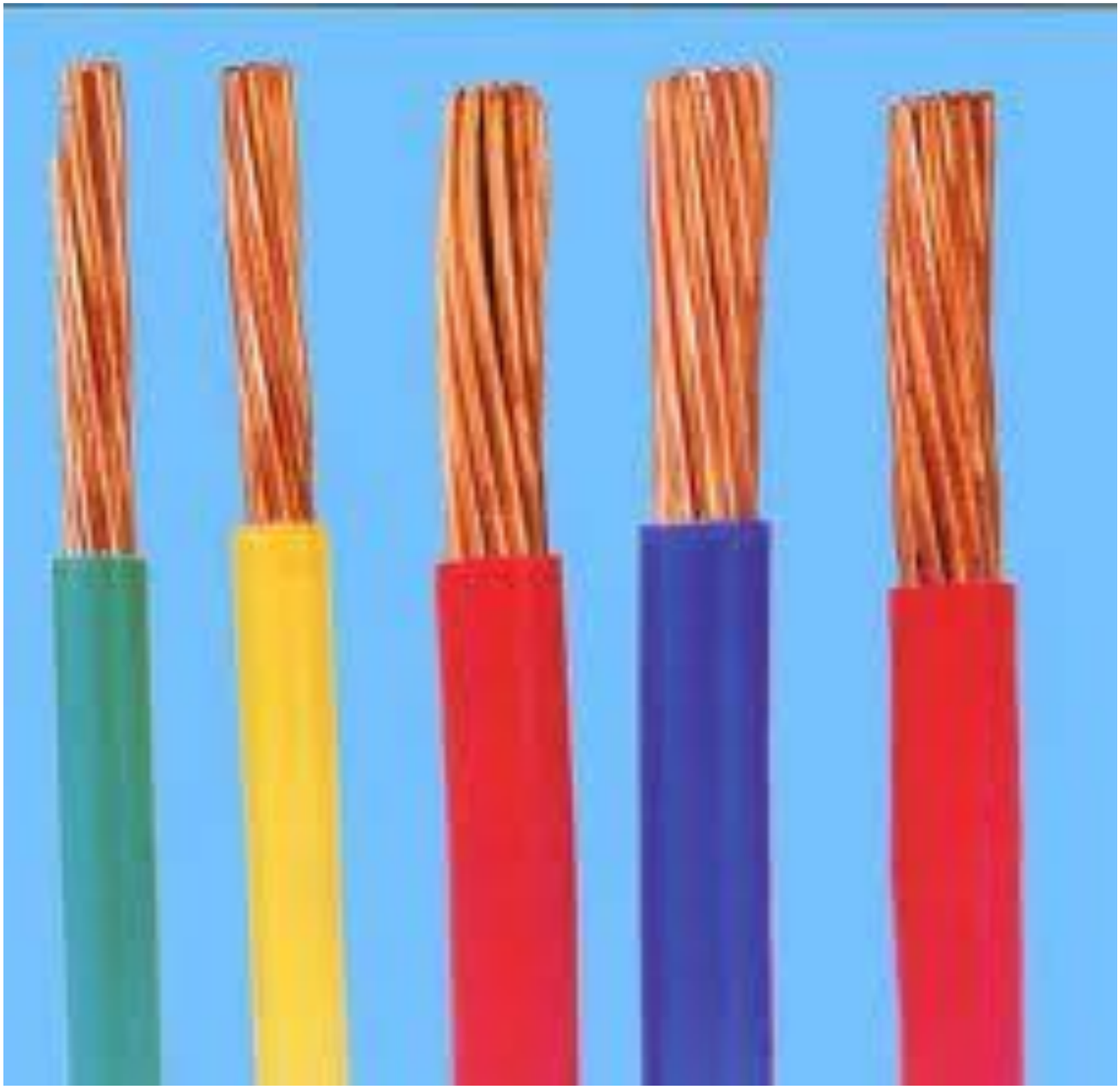
Table 5 **FOUR-CORE 300/500V UNARMOURED CABLES WITH CIRCULAR COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Approx. Weight
Nom. Area	No./ Dia of Wire				
mm²	mm	mm	mm	mm	Kg/Km
1.5	7/0.53	0.7	1.2	12.0	180
2.5	7/0.67	0.8	1.2	13.5	255
4	7/0.85	0.8	1.2	15.0	360
6	7/1.04	0.8	1.4	17.0	480
10	7/1.35	1.0	1.4	20.5	730

Table 6 **TWO-CORE 300/500V PVC INSULATED PVC SHEATHED (FLAT) CABLES WITH CIRCULAR COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Mean Overall dimension		Approx. Weight
Nom. Area	No./ Dia of Wire			Lower Limit	Upper Limit	
mm²	mm	mm	mm	mm	mm	Kg/Km
1	1/1.13	0,6	0.9	4.0 x 6.2	4.7 x 7.4	55
1.5	7/0.53	0.7	0.9	4.9 x 8.0	5.4 x 8.4	70
2.5	7/0.67	0.8	0.9	5.6 x 9.2	6.2 x 9.8	110
4	7/0.85	0.8	1.0	5.6 x 9.6	7.2 x 11.5	150
6	7/1.04	0.8	1.1	6.4 x 10.5	8.0 x 13.0	200
10	7/1.35	1.0	1.2	7.8 x 13.0	9.6 x 16.0	320

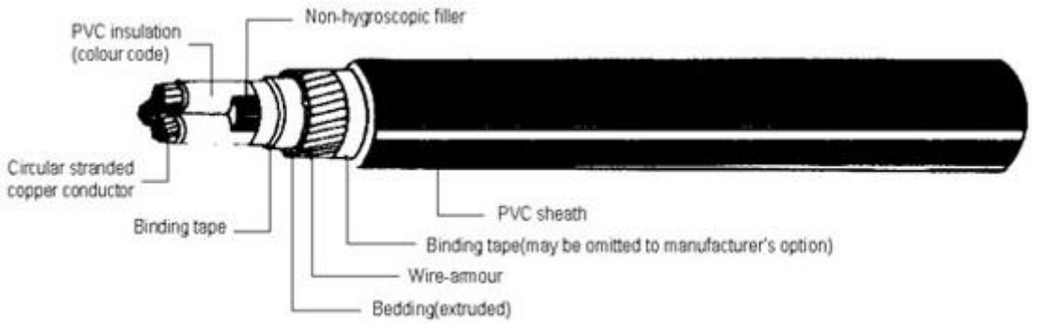
SETION- PVC CABLES



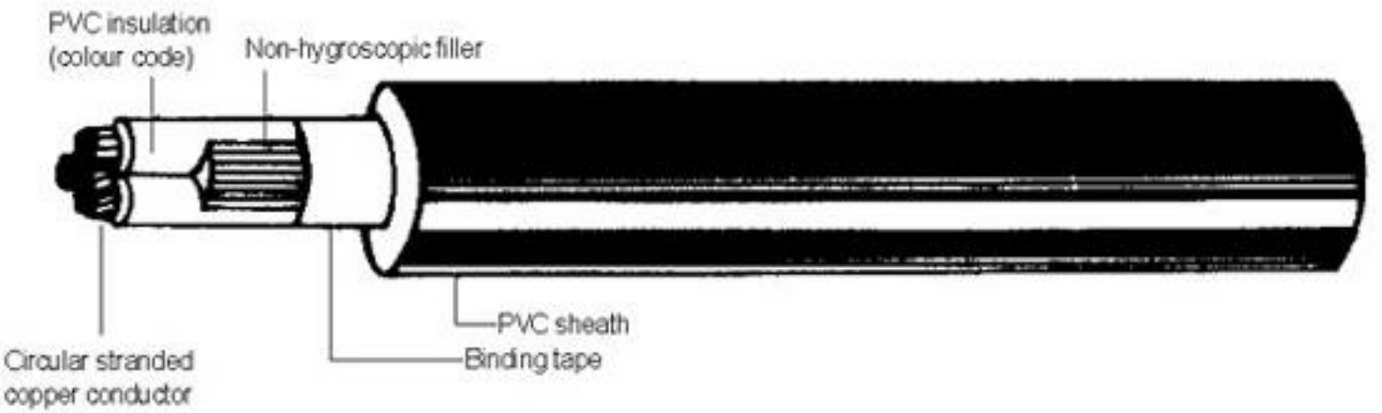
PVC INSULATED CABLES

TYPICAL EXAMPLE OF CABLE DESIGN

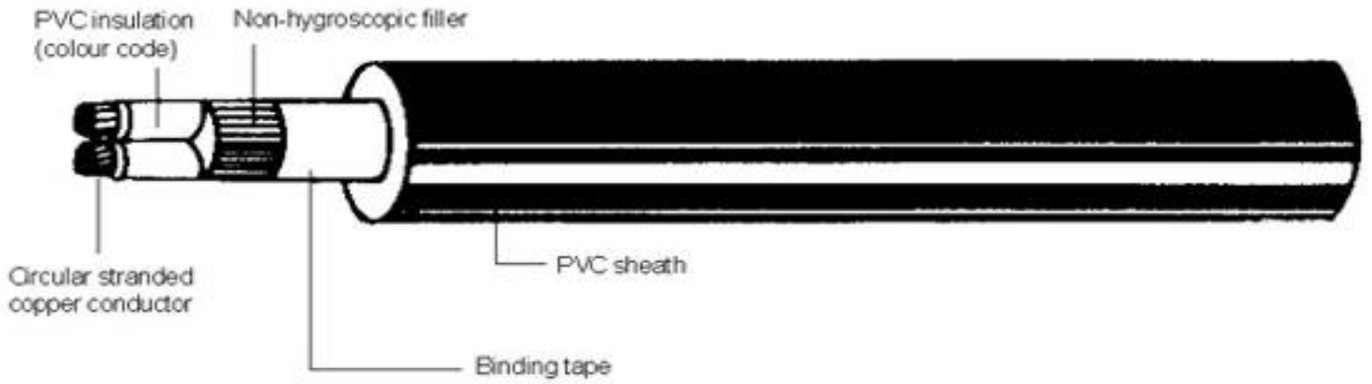
Three-core, circular stranded copper conductor, wire-armoured, sheathed cable



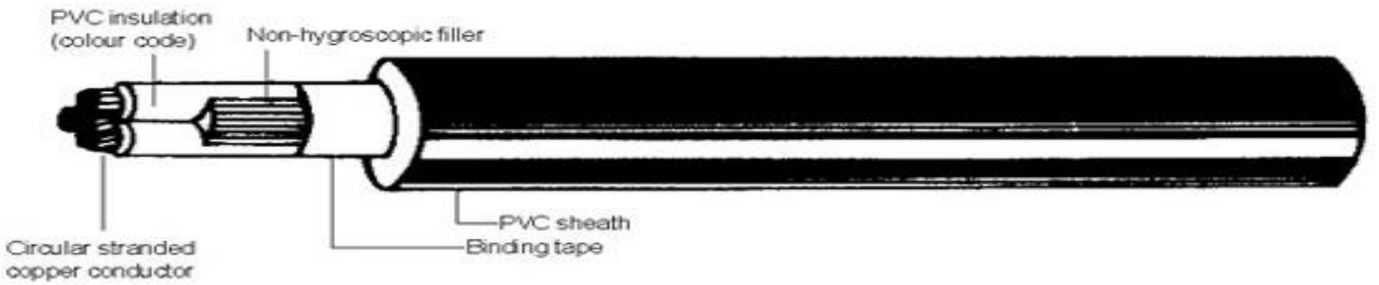
Four-core shaped stranded copper conductor, wire-armoured, sheathed cable



Two-core, circular stranded copper conductor, unarmoured, sheathed cable



Three-core, circular stranded copper conductor, unarmoured, sheathed cable



Single, circular stranded copper conductor, unarmoured, sheathed cable

PVC INSULATED CABLES

600/1000 VOLTAGE SINGLE CORE PVC -INSULATED POWER CABLE

The conductor shall consist of circular stranded copper or aluminum of electrical grade purity as in IEC 228:78. The insulation shall b extruded polyvinyl chloride compound over the conductor. The polyvinyl chloride compound shall have properties that suitable for continuous temperature of 70²C.

BASIC CONSTRUCTION

CONDUCTOR - PLAIN ANNEALED COPPER OR ALUMINUM
CONDUCTOR SHAPE - ROUND CIRCULAR STRANDED OR COMPACTED CIRCULAR STRANDED
INSULATION - PVC
BEDDING - PVC
ARMOUR WIRE - ALUMINIUM WIRES
SHEATH MATERIAL - PVC

MS 136
BS 6004
IEC 60502-1

Table 1 **SINGLE-CORE 600/1000V UNARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
50	19/1.78	1.4	1.4	15.1	0.387	5	592
70	19/2.14	1.4	1.4	16.9	0.268	5	808
95	37/1.78	1.6	1.5	19.4	0.193	5	1100
120	37/2.03	1.6	1.5	21.0	0.153	5	1353
150	37/2.25	1.8	1.6	23.2	0.124	5	1658
185	37/2.52	2.0	1.7	25.8	0.0991	5	2065
240	61/2.25	2.2	1.8	29.0	0.0754	5	2681
300	61/2.52	2.4	1.9	32.1	0.0601	5	3335
400	61/2.85	2.6	2.0	35.8	0.0470	5	4219
500	61/3.20	2.8	2.1	39.6	0.0366	5	5268
630	127/2.52	2.8	2.2	43.8	0.0283	5	6681
800	127/2.85	2.8	2.3	48.3	0.0221	5	8413
1000	127/3.20	3.0	2.5	53.7	0.0176		10545

MS 136
BS 6004
IEC 60502-1

Table 2 **SINGLE-CORE 600/1000V UNARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
50	19/1.78	1.4	1.4	15.1	0.641	5	280
70	19/2.14	1.4	1.4	16.9	0.443	5	360
95	37/1.78	1.6	1.5	19.4	0.320	5	480
120	37/2.03	1.6	1.5	21.0	0.253	5	570
150	37/2.25	1.8	1.6	23.2	0.206	5	690
185	37/2.52	2.0	1.7	25.8	0.164	5	860
240	61/2.25	2.2	1.8	29.0	0.125	5	1090
300	61/2.52	2.4	1.9	32.1	0.100	5	1340
400	61/2.85	2.6	2.0	35.8	0.0778	5	1670
500	61/3.20	2.8	2.1	39.6	0.0600	5	2060
630	127/2.52	2.8	2.2	43.8	0.0469	5	2440
800	127/2.85	2.8	2.3	48.3	0.0367	5	2940
1000	127/3.20	3.0	2.5	53.7	0.0291		3750

MS 136
BS 6004
IEC 60502-1

Table 3 **SINGLE-CORE 600/1000V ARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
50	19/1.78	1.4	0.8	1.25	1.5	19.1	0.387	5	1046
70	19/2.14	1.4	0.8	1.25	1.6	21.1	0.268	5	1322
95	37/1.78	1.6	0.8	1.25	1.6	23.4	0.193	5	1644
120	37/2.03	1.6	1.0	1.6	1.7	26.3	0.153	5	2175
150	37/2.25	1.8	1.0	1.6	1.7	28.3	0.124	5	2549
185	37/2.52	2.0	1.0	1.6	1.8	30.8	0.0991	5	3043
240	61/2.25	2.2	1.0	1.6	1.9	34.1	0.0754	5	3782
300	61/2.52	2.4	1.0	1.6	1.9	37.0	0.0601	5	4787
400	61/2.85	2.6	1.2	2.0	2.1	42.0	0.0470	5	5913
500	61/3.20	2.8	1.2	2.0	2.1	45.6	0.0366	5	7512
630	127/2.52	2.8	1.2	2.0	2.2	49.7	0.0283	5	9120
800	127/2.85	2.8	1.4	2.5	2.4	55.8	0.0221	5	11211
1000	127/3.20	3.0	1.4	2.5	2.5	61.0	0.0176	5	13614

MS 136
BS 6004
IEC 60502-1

Table 4 **SINGLE-CORE 600/1000V ARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
50	19/1.78	1.4	0.8	1.25	1.5	19.1	0.387	5	660
70	19/2.14	1.4	0.8	1.25	1.6	21.1	0.268	5	790
95	37/1.78	1.6	0.8	1.25	1.6	23.4	0.193	5	950
120	37/2.03	1.6	1.0	1.6	1.7	26.3	0.153	5	1250
150	37/2.25	1.8	1.0	1.6	1.7	28.3	0.124	5	1430
185	37/2.52	2.0	1.0	1.6	1.8	30.8	0.0991	5	1660
240	61/2.25	2.2	1.0	1.6	1.9	34.1	0.0754	5	1980
300	61/2.52	2.4	1.0	1.6	1.9	37.0	0.0601	5	2300
400	61/2.85	2.6	1.2	2.0	2.1	42.0	0.0470	5	3030
500	61/3.20	2.8	1.2	2.0	2.1	45.6	0.0366	5	3550
630	127/2.52	2.8	1.2	2.0	2.2	49.7	0.0283	5	4040
800	127/2.85	2.8	1.4	2.5	2.4	55.8	0.0221	5	5150
1000	127/3.20	3.0	1.4	2.5	2.5	61.0	0.0176	5	6240

600/1000V TWO-CORE PVC-INSULATED POWER CABLES

The construction of individual cores of the two core cable shall be the same as single core cable. The core shall be laid flat or circular and sheathed with a black PVC compound. Shaped conductors for 25mm² and above in multicore cables.

BASIC CONSTRUTION

CONDUCTOR - COPPER OR ALUMINIUM

CONDUCTOR SHAPE - CIRCULAR STRANDED OR
COMPACTED CIRCULAR STRANDED

INSULATION - PVC

BEDDING - PVC

ARMOUR - GALVANISED STEEL WIRES

SHEATH MATERIAL - PVC

MS 136
BS 6004
IEC 60502-1

Table 5 **TWO-CORE 600/1000V UNARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.8	18.6	1.15	6	607
25	19/1.35	1.2	1.8	22.1	0.727	5	923
35	19/1.53	1.2	1.8	24.5	0.524	5	1200
50	19/1.78	1.4	1.8	22.8	0.387	5	1342
70	19/2.14	1.4	1.8	25.5	0.268	5	1803
95	37/1.78	1.6	2.0	29.3	0.193	5	2432
120	37/2.03	1.6	2.1	31.8	0.153	5	3041
150	37/2.25	1.8	2.2	35.1	0.124	5	3739
185	37/2.52	2.0	2.4	39.1	0.0991	5	4636
240	61/2.25	2.2	2.7	43.9	0.0754	5	5760
300	61/2.52	2.4	2.9	48.7	0.0601	5	7160

MS 136
BS 6004
IEC 60502-1

Table 6 **TWO-CORE 600/1000V UNARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.8	18.6	1.91	6	470
25	19/1.35	1.2	1.8	22.1	1.20	5	690
35	19/1.53	1.2	1.8	24.5	0.868	5	950
50	19/1.78	1.4	1.8	22.8	0.641	5	1260
70	19/2.14	1.4	1.8	25.5	0.443	5	1700
95	37/1.78	1.6	2.0	29.3	0.320	5	2310
120	37/2.03	1.6	2.1	31.8	0.253	5	2880
150	37/2.25	1.8	2.2	35.1	0.206	5	3520
185	37/2.52	2.0	2.4	39.1	0.164	5	4390
240	61/2.25	2.2	2.7	43.9	0.125	5	5760
300	61/2.52	2.4	2.9	48.7	0.100	5	7160

MS 136
BS 6004
IEC 60502-1

Table 7 **TWO-CORE 600/1000V ARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	0.8	1.25	1.6	21.9	1.15	6	950
25	19/1.35	1.2	1.0	1.6	1.7	23.0	0.727	5	1474
35	19/1.53	1.2	1.0	1.6	1.8	24.9	0.524	5	1795
50	19/1.78	1.4	1.0	1.6	1.9	27.8	0.387	5	2207
70	19/2.14	1.4	1.0	1.6	1.9	30.4	0.268	5	2730
95	37/1.78	1.6	1.2	2.0	2.1	35.5	0.193	5	3798
120	37/2.03	1.6	1.2	2.0	2.2	38.0	0.153	5	4474
150	37/2.25	1.8	1.2	2.0	2.3	41.3	0.124	5	5312
185	37/2.52	2.0	1.4	2.5	2.4	46.4	0.0991	5	6783
240	61/2.25	2.2	1.4	2.5	2.5	51.2	0.0754	5	8794
300	61/2.52	2.4	1.6	2.5	2.7	56.4	0.0601	5	10384

MS 136
BS 6004
IEC 60502-1

Table 8 **TWO-CORE 600/1000V ARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	0.8	1.25	1.6	21.9	1.91	6	690
25	19/1.35	1.2	1.0	1.6	1.7	23.0	1.20	5	1010
35	19/1.53	1.2	1.0	1.6	1.8	24.9	0.868	5	1200
50	19/1.78	1.4	1.0	1.6	1.9	27.8	0.641	5	1440
70	19/2.14	1.4	1.0	1.6	1.9	30.4	0.443	5	1710
95	37/1.78	1.6	1.2	2.0	2.1	35.5	0.320	5	2370
120	37/2.03	1.6	1.2	2.0	2.2	38.0	0.253	5	2610
150	37/2.25	1.8	1.2	2.0	2.3	41.3	0.206	5	3034
185	37/2.52	2.0	1.4	2.5	2.4	46.4	0.164	5	3922
240	61/2.25	2.2	1.4	2.5	2.5	51.2	0.125	5	4800
300	61/2.52	2.4	1.6	2.5	2.7	56.4	0.100	5	5640

600/1000V THREE-CORE PVC-INSULATED POWER CABLES

The construction of individual cores of the three core cable shall be the same as single core cable and three individual cores shall be laid up together with a right hand lay and sheathed with a black PVC compound. Shaped conductors for 25mm² and above in multicore cables.

BASIC CONSTRUTION

CONDUCTOR - COPPER OR ALUMINIUM

CONDUCTOR SHAPE - CIRCULAR STRANDED OR
COMPACTED CIRCULAR STRANDED

INSULATION - PVC

BEDDING - PVC

ARMOUR - GALVANISED STEEL WIRES

SHEATH MATERIAL - PVC

MS 136
BS 6004
IEC 60502-1

Table 9 **THREE-CORE 600/1000V UNARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.8	19.7	1.15	6	780
25	19/1.35	1.2	1.8	23.5	0.727	5	1202
35	19/1.53	1.2	1.8	26.2	0.524	5	1569
50	19/1.78	1.4	1.8	25.5	0.387	5	1874
70	19/2.14	1.4	1.8	28.7	0.268	5	2561
95	37/1.78	1.6	2.0	33.3	0.193	5	3476
120	37/2.03	1.6	2.1	36.2	0.153	5	4350
150	37/2.25	1.8	2.2	40.0	0.124	5	5292
185	37/2.52	2.0	2.4	44.6	0.0991	5	6678
240	61/2.25	2.2	2.7	50.1	0.0754	5	8150
300	61/2.52	2.4	2.9	55.6	0.0601	5	10140

MS 136
BS 6004
IEC 60502-1

Table 10 **THREE-CORE 600/1000V UNARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.8	19.7	1.91	6	380
25	19/1.35	1.2	1.8	23.5	1.20	5	540
35	19/1.53	1.2	1.8	26.2	0.868	5	660
50	19/1.78	1.4	1.8	25.5	0.641	5	900
70	19/2.14	1.4	1.8	28.7	0.443	5	1120
95	37/1.78	1.6	2.0	33.3	0.320	5	1600
120	37/2.03	1.6	2.1	36.2	0.253	5	1820
150	37/2.25	1.8	2.2	40.0	0.206	5	2350
185	37/2.52	2.0	2.4	44.6	0.164	5	2900
240	61/2.25	2.2	2.7	50.1	0.125	5	3440
300	61/2.52	2.4	2.9	55.6	0.100	5	4600

MS 136
BS 6004
IEC 60502-1

Table 11 **THREE-CORE 600/1000V ARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	0.8	1.25	1.6	23.1	1.15	6	1177
25	19/1.35	1.2	1.0	1.6	1.7	28.2	0.727	5	1843
35	19/1.53	1.2	1.0	1.6	1.8	31.0	0.524	5	2239
50	19/1.78	1.4	1.0	1.6	1.9	30.5	0.387	5	2818
70	19/2.14	1.4	1.2	2.0	2.0	35.0	0.268	5	4004
95	37/1.78	1.6	1.2	2.0	2.1	39.3	0.193	5	5031
120	37/2.03	1.6	1.2	2.0	2.2	42.2	0.153	5	6022
150	37/2.25	1.8	1.4	2.5	2.4	47.5	0.124	5	7616
185	37/2.52	2.0	1.4	2.5	2.5	51.9	0.0991	5	9203
240	61/2.25	2.2	1.6	2.5	2.6	57.8	0.0754	5	11464
300	61/2.52	2.4	1.6	2.5	2.8	63.2	0.0601	5	13843

MS 136
BS 6004
IEC 60502-1

Table12 **THREE-CORE 600/1000V ARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	0.8	1.25	1.6	23.1	1.91	6	850
25	19/1.35	1.2	1.0	1.6	1.7	28.2	1.20	5	1250
35	19/1.53	1.2	1.0	1.6	1.8	31.0	0.868	5	1440
50	19/1.78	1.4	1.0	1.6	1.9	30.5	0.641	5	1770
70	19/2.14	1.4	1.2	2.0	2.0	35.0	0.443	5	2370
95	37/1.78	1.6	1.2	2.0	2.1	39.3	0.320	5	3000
120	37/2.03	1.6	1.2	2.0	2.2	42.2	0.253	5	3420
150	37/2.25	1.8	1.4	2.5	2.4	47.5	0.206	5	4400
185	37/2.52	2.0	1.4	2.5	2.5	51.9	0.164	5	5160
240	61/2.25	2.2	1.6	2.5	2.6	57.8	0.125	5	6250
300	61/2.52	2.4	1.6	2.5	2.8	63.2	0.100	5	7400

600/1000V FOUR-CORE PVC-INSULATED POWER CABLES

The construction of individual cores of the four core cable shall be the same as single core cable and four individual cores shall be laid up together with a right hand lay and sheathed with a black PVC compound. Shaped conductors for 25mm² and above in multicore cables.

BASIC CONSTRUTION

CONDUCTOR - COPPER OR ALUMINIUM

CONDUCTOR SHAPE - CIRCULAR STRANDED OR
COMPACTED CIRCULAR STRANDED

INSULATION - PVC

BEDDING - PVC

ARMOUR - GALVANISED STEEL WIRES

SHEATH MATERIAL - PVC

MS 136
BS 6004
IEC 60502-1

Table 13 **FOUR-CORE 600/1000V UNARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.8	21.6	1.15	6	1001
25	19/1.35	1.2	1.8	25.9	0.727	5	1543
35	19/1.53	1.2	1.8	28.9	0.524	5	2018
50	19/1.78	1.4	1.9	29.2	0.387	5	2462
70	19/2.14	1.4	2.0	33.0	0.268	5	3368
95	37/1.78	1.6	2.2	38.3	0.193	5	4603
120	37/2.03	1.6	2.3	41.8	0.153	5	5660
150	37/2.25	1.8	2.5	46.3	0.124	5	6995
185	37/2.52	2.0	2.6	51.3	0.0991	5	8691
240	61/2.25	2.2	2.8	58.0	0.0754	5	11329
300	61/2.52	2.4	3.1	64.6	0.0601	5	14095

MS 136
BS 6004
IEC 60502-1

Table 14 **FOUR-CORE 600/1000V UNARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire						
mm²	mm	mm		mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.8	21.6	1.91	6	480
25	19/1.35	1.2	1.8	25.9	1.20	5	640
35	19/1.53	1.2	1.8	28.9	0.868	5	840
50	19/1.78	1.4	1.9	29.2	0.641	5	1130
70	19/2.14	1.4	2.0	33.0	0.443	5	1450
95	37/1.78	1.6	2.2	38.3	0.320	5	2060
120	37/2.03	1.6	2.3	41.8	0.253	5	2480
150	37/2.25	1.8	2.5	46.3	0.206	5	3060
185	37/2.52	2.0	2.6	51.3	0.164	5	3780
240	61/2.25	2.2	2.8	58.0	0.125	5	4850
300	61/2.52	2.4	3.1	64.6	0.100	5	5990

MS 136
BS 6004
IEC 60502-1

Table 15 **FOUR-CORE 600/1000V ARMOURED CABLES WITH STRANDED COPPER CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.0	1.6	1.7	26.3	1.15	6	1598
25	19/1.35	1.2	1.0	1.6	1.8	27.8	0.727	5	2188
35	19/1.53	1.2	1.0	1.6	1.9	30.5	0.524	5	2739
50	19/1.78	1.4	1.2	2.0	2.0	35.4	0.387	5	3746
70	19/2.14	1.4	1.2	2.0	2.1	39.2	0.268	5	4798
95	37/1.78	1.6	1.2	2.0	2.2	44.3	0.193	5	6174
120	37/2.03	1.6	1.4	2.5	2.4	49.3	0.153	5	7976
150	37/2.25	1.8	1.4	2.5	2.5	53.6	0.124	5	9758
185	37/2.52	2.0	1.6	2.5	2.6	59.0	0.0991	5	11392
240	61/2.25	2.2	1.6	2.5	2.8	65.7	0.0754	5	14414
300	61/2.52	2.4	1.6	2.5	3.0	72.0	0.0601	5	17502

MS 136
BS 6004
IEC 60502-1

Table 16 **FOUR-CORE 600/1000V ARMOURED CABLES WITH STRANDED ALUMINUM CONDUCTORS**

CONDUCTOR		Thickness of Insulation	Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Max. Conductor Resistance	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Nom. Area	No./ Dia of Wire								
mm²	mm	mm	mm	mm	mm	mm	Ω/Km	MΩ.Km	Kg/Km
16	7/1.70	1.0	1.0	1.6	1.7	26.3	1.91	6	1150
25	19/1.35	1.2	1.0	1.6	1.8	27.8	1.20	5	1490
35	19/1.53	1.2	1.0	1.6	1.9	30.5	0.868	5	1750
50	19/1.78	1.4	1.2	2.0	2.0	35.4	0.641	5	2380
70	19/2.14	1.4	1.2	2.0	2.1	39.2	0.443	5	2880
95	37/1.78	1.6	1.2	2.0	2.2	44.3	0.320	5	3680
120	37/2.03	1.6	1.4	2.5	2.4	49.3	0.253	5	4640
150	37/2.25	1.8	1.4	2.5	2.5	53.6	0.206	5	5390
185	37/2.52	2.0	1.6	2.5	2.6	59.0	0.164	5	6370
240	61/2.25	2.2	1.6	2.5	2.8	65.7	0.125	5	7770
300	61/2.52	2.4	1.6	2.5	3.0	72.0	0.100	5	9230

MS 136
BS 6004
IEC 60502-1

Table 17 **FOUR-CORE 600/1000V UNARMORED CABLES WITH REDUCED NEUTRAL AND WITH STRANDED COPPER CONDUCTORS**

Nominal Sectional Area		Thickness of Insulation		Thickness of Sheath	Overall Diameter	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Phase Conductor	Neutral Conductor	Phase Conductor	Neutral Conductor				
mm²	mm	mm	mm	mm	mm	MΩ.Km	Kg/Km
25	16	1.2	1.0	1.8	22.9	5	1260
35	16	1.2	1.0	1.8	24.7	5	1590
50	25	1.4	1.2	1.9	28.3	5	2120
70	35	1.4	1.2	2.0	32.0	5	2890
95	50	1.6	1.4	2.2	37.5	5	3920
120	70	1.6	1.4	2.3	41.4	5	4890
150	70	1.8	1.4	2.4	44.7	5	5190
185	95	2.0	1.6	2.5	49.0	5	7400
240	120	2.2	1.6	2.7	56.0	5	9590
300	150	2.4	1.8	2.9	62.2	5	11910

MS 136
BS 6004
IEC 60502-1

Table 3 **FOUR-CORE 600/1000V ARMORED CABLES WITH REDUCED NEUTRAL AND WITH STRANDED COPPER CONDUCTORS**

Nominal Sectional Area		Thickness of Insulation		Thickness of Bedding	Nominal armore wire diameter	Thickness of Sheath	Overall Diameter	Min. Insulation Resistance at 70 ◦C	Approx. Weight
Phase Conductor	Neutral Conductor	Phase Conductor	Neutral Conductor						
mm²	mm	mm	mm	mm	mm	mm	mm	MΩ.Km	Kg/Km
25	16	1.2	1.0	1.0	1.6	1.8	27.8	5	2010
35	16	1.2	1.0	1.0	1.6	1.8	29.5	5	2370
50	25	1.4	1.2	1.0	1.6	1.9	33.1	5	3100
70	35	1.4	1.2	1.2	2.0	2.0	38.0	5	4290
95	50	1.6	1.4	1.2	2.0	2.2	43.7	5	5540
120	70	1.6	1.4	1.4	2.5	2.3	49.0	5	7150
150	70	1.8	1.4	1.4	2.5	2.4	52.0	5	8330
185	95	2.0	1.6	1.4	2.5	2.5	57.2	5	10110
240	120	2.2	1.6	1.6	2.5	2.7	63.7	5	12740
300	150	2.4	1.8	1.6	2.5	2.9	69.8	5	14910

SUSTAIN CURRENT RATING AND VOLTAGE DROP

TABLE A SUSTAINED CURRENT RATING AND VOLTAGE DROP FOR SINGLE-CORE PVC INSULATED CABLE WITH COPPER CONDUCTORS

CODUCTOR Nom. Area	Uarmored Cables						Armored Cables					
	Current Rating				Voltage Drop		Current Rating				Voltage Drop	
	In Air		In Ground				In Air		In Ground			
mm^2	amp		amp		mV		amp		amp		mV	
	Trefoil	Spaced*	Trefoil	Spaced*	Trefoil	Spaced*	Trefoil	Spaced*	Trefoil	Spaced*	Trefoil	Spaced*
50	184	214	200	210	0.82	0.83	193	223	203	211	0.82	0.87
70	233	271	246	258	0.58	0.60	243	279	248	257	0.58	0.65
95	290	337	294	310	0.43	0.47	298	339	297	305	0.44	0.52
120	338	392	335	354	0.35	0.40	347	386	337	341	0.36	0.45
150	388	451	376	397	0.30	0.35	395	433	376	377	0.31	0.41
185	450	523	424	451	0.25	0.33	452	486	423	417	0.27	0.38
240	537	625	491	524	0.22	0.32	532	555	485	469	0.23	0.35
300	620	724	553	594	0.19	0.31	607	618	542	515	0.20	0.33
400	722	847	627	679	0.18	0.28	690	666	600	549	0.19	0.32
500	832	986	706	774	0.16	0.27	776	718	660	586	0.18	0.31
630	957	1152	790	883	0.15	0.25	869	778	721	627	0.16	0.31
800	1083	1329	872	995	0.15	0.23	937	819	756	648	0.16	-
1000	1206	1502	948	1103	0.14	0.22	1010	873	797	679	0.15	-

*Installed vertically spaced

MS 136/MS 274
BS 6004/BS 6346
IEC 60502-1

TABLE B SUSTAINED CURRENT RATING AND VOLTAGE DROP FOR SINGLE-CORE PVC INSULATED CABLE WITH COPPER CONDUCTORS

CODUCTOR Nom. Area	Uarmored Cables			Armored Cables		
	Current Rating		Voltage Drop	Current Rating		Voltage Drop
	In Air	In Ground		In Air	In Ground	
mm²	amp	amp	mV	amp	amp	mV
1.5	-	-	-	23	30	29
2.5	-	-	-	32	40	18
4	-	-	-	42	53	12
6	-	-	-	54	66	7.4
10	71	88	4.3	74	88	4.3
16	97	117	2.8	102	119	2.8
25	130	157	1.7	136	158	1.7
35	159	189	1.3	166	190	1.3
50	194	225	0.94	201	225	0.94
70	244	276	0.66	252	277	0.66
95	302	332	0.49	312	332	0.49
120	351	379	0.40	360	377	0.40
150	402	425	0.34	409	422	0.34
185	464	480	0.29	473	478	0.29
240	552	559	0.24	558	551	0.24
300	636	631	0.21	636	616	0.21
400	739	718	0.19	729	693	0.19

MS 136/MS 274
BS 6004/BS 6346
IEC 60502-1

TABLE C SUSTAINED CURRENT RATING AND VOLTAGE DROP FOR THREE-CORE AND FOUR-CORE PVC INSULATED CABLE WITH COPPER CONDUCTORS

CONDUCTOR Nom. Area	Uarmored Cables			Armored Cables		
	Current Rating		Voltage Drop	Current Rating		Voltage Drop
	In Air	In Ground		In Air	In Ground	
mm²	amp	amp	mV	amp	amp	mV
1.5	-	-	-	20	26	25
2.5	-	-	-	27	34	16
4	-	-	-	36	45	10
6	-	-	-	46	57	6.3
10	61	75	3.8	63	75	3.8
16	84	100	2.4	87	101	2.4
25	110	131	1.5	116	132	1.5

35	136	158	1.1	142	159	1.1
50	166	188	0.82	172	188	0.82
70	210	231	0.57	218	233	0.57
95	259	277	0.42	268	279	0.42
120	302	316	0.35	310	317	0.35
150	345	355	0.29	355	355	0.29
185	398	401	0.25	407	401	0.25
240	474	466	0.21	480	462	0.21
300	545	525	0.18	547	517	0.18
400	631	595	0.17	627	580	0.17

GROUP RATING FACTOR

For a cable installed direct buried, the following tables will be used to calculate the current rates based on the actual soil thermal resistivity,
Ground ambient temperature and the Depth of Laying.

Temperature ºC	10	15	20	25	30	35	40	45	50
Laid in air or ducts	1.04	1.0	0.95	0.90	0.85	0.79	0.73	0.67	0.60
Installed in air	1.15	1.10	1.05	1.0	0.94	0.88	0.81	0.74	0.66

1. RATING FACTOR FOR VARIATION THERMAL RESISTIVITY OF SOIL

Nominal area of conductor	Twin or multi-core cable in single-way ducts							Three single-core cables in the ground							Three single-core cables in ducts						
	Value of g, deg C m/W							Value of g, deg C m/W							Value of g, deg C m/W						
mm2	0.7	0.8	0.9	1.0	1.5	2.0	2.5	0.7	0.8	0.9	1.0	1.5	2.0	2.5	0.7	0.8	0.9	1.0	1.5	2.0	2.5
1.5/2.5	1.04	1.03	1.02	1.02	0.98	0.94	0.91	1.12	1.09	1.07	1.04	0.94	0.86	0.80	-	-	-	-	-	-	-
4	1.04	1.04	1.03	1.02	0.97	0.94	0.90	1.13	1.10	1.07	1.05	0.94	0.85	0.79	-	-	-	-	-	-	-
6	1.05	1.04	1.03	1.02	0.97	0.93	0.90	1.14	1.10	1.07	1.05	0.93	0.85	0.79	-	-	-	-	-	-	-
10	1.05	1.04	1.03	1.02	0.97	0.93	0.89	1.15	1.11	1.08	1.05	0.93	0.85	0.78	-	-	-	-	-	-	-
16	1.06	1.04	1.03	1.02	0.96	0.92	0.88	1.16	1.12	1.08	1.05	0.93	0.84	0.77	-	-	-	-	-	-	-
25	1.06	1.05	1.03	1.02	0.96	0.92	0.88	1.17	1.13	1.09	1.05	0.93	0.83	0.77	-	-	-	-	-	-	-
35	1.06	1.05	1.03	1.02	0.96	0.92	0.87	1.17	1.13	1.09	1.06	0.92	0.83	0.76	-	-	-	-	-	-	-
50	1.07	1.05	1.03	1.02	0.96	0.91	0.87	1.17	1.13	1.09	1.06	0.92	0.83	0.76	1.11	1.08	1.06	1.04	0.94	0.87	0.82
70	1.07	1.05	1.04	1.02	0.96	0.91	0.86	1.18	1.14	1.09	1.06	0.92	0.83	0.75	1.12	1.09	1.06	1.04	0.94	0.87	0.81

95	1.07	1.06	1.04	1.02	0.96	0.91	0.86	1.18	1.14	1.09	1.06	0.92	0.83	0.75	1.12	1.09	1.06	1.04	0.94	0.87	0.81
120	1.08	1.06	1.04	1.03	0.95	0.90	0.85	1.19	1.14	1.10	1.06	0.92	0.82	0.75	1.13	1.10	1.07	1.04	0.94	0.86	0.80
150	1.09	1.06	1.04	1.03	0.95	0.90	0.85	1.19	1.14	1.10	1.06	0.92	0.82	0.75	1.13	1.10	1.07	1.04	0.94	0.86	0.80
185	1.09	1.07	1.05	1.03	0.95	0.89	0.84	1.19	1.14	1.10	1.06	0.92	0.82	0.74	1.13	1.10	1.07	1.04	0.93	0.86	0.79
240	1.09	1.07	1.05	1.03	0.95	0.89	0.84	1.20	1.15	1.10	1.07	0.92	0.81	0.74	1.14	1.11	1.08	1.05	0.93	0.85	0.79
400	1.10	1.07	1.05	1.03	0.95	0.88	0.83	1.20	1.15	1.10	1.07	0.92	0.81	0.74	1.14	1.11	1.08	1.05	0.93	0.85	0.78
500	-	-	-	-	-	--	--	-	-	-	-	-	-	-	1.15	1.11	1.08	1.05	0.93	0.85	0.78
630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.15	1.12	1.08	1.05	0.93	0.84	0.78
800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16	1.12	1.09	1.05	0.93	0.84	0.77
1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16	1.13	1.09	1.05	0.92	0.84	0.77

2. RATING FACTOR OF SPACING FOR LAYING

Voltage design-ation	Number of cables in group	Twin or multi-core cables laid in the ground					Three single-core cables laid in the ground						Twin or multi-core in single-way ducts			
																
		Spacing-metre					Spacing-of circuit-metre						Spacing-metre			
		Touching	0.15	0.3	0.45	0.6	Touching		0.15	0.3	0.45	0.6	Touching	0.3	0.45	0.6
							Trefoil	Laid flat								
-	2	0.81	0.87	0.91	0.93	0.95	0.78	0.81	0.83	0.88	0.91	0.93	0.90	0.93	0.95	0.96
-	3	0.70	0.78	0.84	0.88	0.90	0.66	0.70	0.73	0.79	0.84	0.87	0.83	0.88	0.91	0.93
-	4	0.63	0.74	0.81	0.86	0.89	0.61	0.64	0.68	0.75	0.81	0.85	0.79	0.85	0.89	0.92
-	5	0.59	0.70	0.78	0.84	0.87	0.56	0.60	0.64	0.73	0.79	0.83	0.75	0.83	0.88	0.91
600/	6	0.55	0.68	0.77	0.83	0.87	0.53	0.57	0.61	0.71	0.78	0.82	0.73	0.82	0.87	0.90

1000V	7	0.52	0.66	0.75	0.82	0.86	0.50	0.54	0.59	0.69	0.76	0.82	0.71	0.81	0.86	0.89
-	8	0.50	0.64	0.75	0.81	0.86	0.49	0.53	0.57	0.68	0.76	0.81	0.70	0.80	0.85	0.89
-	9	0.48	0.63	0.74	0.81	0.85	0.47	0.51	0.56	0.67	0.75	0.81	0.68	0.79	0.85	0.89
-	10	0.47	0.62	0.73	0.80	0.85	0.46	0.50	0.55	0.67	0.75	0.80	0.67	0.79	0.85	0.89
-	11	0.45	0.61	0.73	0.80	0.85	0.44	0.49	0.54	0.66	0.74	0.80	0.66	0.78	0.84	0.88
-	12	0.44	0.60	0.72	0.80	0.84	0.43	0.48	0.53	0.66	0.74	0.80	0.66	0.78	0.84	0.88

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ELECTRICAL CHARACTERISTICS

TABLE D PVC INSULATED CABLES WITH COPPER CONDUCTORS

CONDUCTOR Nom. Area	Armoured Cables Single Core				Armoured Cables		
	AC Resistance at 70◦C	Reactance at 50HZ		Capacitance	Capacitance		
		Trefoil	Flat		Two Core	Three Core	Four Core
mm²	Ω/Km	Ω/Km	Ω/Km	µF/Km	µF/Km	µF/Km	µF/Km
1.5	-	-	-	-	0.68	0.68	0.68
2.5	-	-	-	-	0.81	0.81	0.81
4	-	-	-	-	0.88	0.88	0.88
6	-	-	-	-	1.04	1.04	1.04
10	-	-	-	-	1.06	1.06	1.06
16	-	-	-	-	0.92	1.07	1.14
25	-	-	-	-	0.95	1.19	1.20
35	-	-	-	-	1.09	1.28	1.36
50	0.464	0.112	0.198	1.56	1.10	1.25	1.36
70	0.321	0.107	0.193	1.83	1.27	1.41	1.60
95	0.232	0.103	0.189	1.89	1.32	1.55	1.64
120	0.184	0.103	0.188	2.11	1.45	1.67	1.83
150	0.150	0.101	0.186	2.08	1.44	1.71	1.81
185	0.121	0.099	0.184	2.09	1.44	1.72	1.81
240	0.0927	0.096	0.182	2.17	1.55	1.78	1.88
300	0.0751	0.094	0.181	2.22	1.59	-	1.94
400	0.0600	0.091	0.178	2.31	-	-	-
500	0.0484	0.089	0.176	2.41	-	-	-
630	0.0398	0.086	0.173	2.71	-	-	-
800	0.0334	0.086	-	3.04	-	-	-
1000	0.0290	0.084	-	3.17	-	-	-

MS 136/MS 274
BS 6004/BS6346
IEC 60502-1

MINIMUM INSTALLATION RADIUS

TABLE F PVC INSULATED CABLES WITH COPPER CONDUCTORS

TYPE OF CONDUCTOR AND CABLE*	OVERALL DIAMETER, D mm	MINIMUM INTERNAL RADIUS OF BEND mm
CIRCULAR COPPER CONDUCTORS, UNARMOURED	≤ 10 > 10 ≤ 25 > 25	3D 4D 4D 6D
CIRCULAR COPPER CONDUCTORS, ARMOURED	ANY	6D
SHAPED COPPER CONDUCTORS, ARMOURED OR UNARMOURED	ANY	8D

*Armoured or Unarmoured

SECTION-CONTROL CABLE (P-100:2005)

Pvc Insulated/Pvc Sheathed Cable (screening/without screening cable)

Nominal Area	No. of Cores	No. of Wire	Wire Dia	Strand Dia	Insulation Thickness	Bedding Thickness	Sheathing Thickness	Dia over Sheathing
mm²			mm	mm	mm	mm	mm	mm
2.5	2	1	1.78	1.78	1.0	Without screening	1.80	11.16
2.5	4	1	1.78	1.78	1.0	0.8	1.80	16.33
2.5	8	1	1.78	1.78	1.0	0.8	1.80	19.77
2.5	16	1	1.78	1.78	1.0	0.8	1.80	24.97
6	4	7	1.04	3.12	1.0	0.8	1.80	19.56

SECTION- LOW & MEDIAM VOLTAGE CABLES

Low Voltage Cables

To cater to the requirements of utilities, projects and industries, Power Cables manufactures Low Voltage (LV) and Medium Voltage (MV) cables up to 15KV with PVC and XLPE insulation. Power Cables most recent addition to its product line is the triple extruded 300mm^2 3 Core Al / XLPE/ PVC / SWA / PVC 8.7 / 15 kv cable.

All our cables are subject to rigorous in-house quality checks. LV and MV Cables have been fully type tested by Rawat PEPCO – Islamabad in accordance with IEC 60502-2:2005.

With growing power demand in Pakistan, the use of overhead conductors for power transmission purposes has increased. Power Cables provides high quality overhead conductors to Pakistan's utility companies. These conductors are manufactured from EC grade Aluminum and Copper Rod.

A summary of our product range for LV & MV Cables, as well as Conductors is below:

Product	Specification	Range	Usage
Lowe Voltage Cable Copper or Aluminium Conductor, XLPE Insulated	600/1000 * IEC 60502-1	A)SINGLE-CORE 25mm² to 1000 mm² Armored / Unarmored B) MULTI-CORE 16mm² to 400mm² Armored / Unarmored	Industrial Projects
Medium Voltage Cable Copper or Aluminium Conductor, XLPE or PVC Insulated	11000 – 15000V P-29:2010, IEC-60502-2:2005	A)SINGLE-CORE 25mm² to 630 mm² Armored / Unarmored B) MULTI-CORE 25mm² to 300mm² Armored / Unarmored	Primary Cable of Utility Companies for Distribution to Sub-Stations
CONDUCTOR PACC/HDBC/ACSR/AAC	BSS: 6360, 7884 & 215	Up to 600mm²	Overhead Transmission

CHARACTERISTICS OF CROSSLINKED POLYETHYLENE

It is well known that polyethylene is superior in electrical characteristics and chemical resistance, but it has a defect of melting point at the temperature of 110ºC.Crosslinked polyethlene, which results from a chemical process of "cross-linking" of the molecular structure, has eliminated this defect of melting point.Cross-linked Ploye thylene insulation for cables is extruded and vulcanized in roughly the same way as rubber insulation. The XLPE material is formed concentrically over the conductor in the extruder head chemical cross-linking of the polyethylene molecular takes place with the aid of organic peroxides mixed with the PE material. During the Vulcanization, the peroxides disintegrate cross-linking of the PE molecules.Due to its molecular structure, it has excellent ozone resistance and outstanding heatstabilityand resistance. The features of cross-linked polyethyleneare as mentioned below in brief.

(1) High softening temperature and small heat distortion
(2) High mechanical strength under high temperature.
(3) Superior heat aging resistance.
(4) High resistance against stress cracking.
(5) Superior electrical characteristics.
(6) Light in weight.

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Material Item	Crosslinked Polyethylene	Polyethylene	PVC	Butyl Rubber	EP Rubber	Polychloroprene
Specific gravity	0.92	0.92	1.2~1.5	1.4~1.5	1.3~1.4	1.4~1.6
Dielectric strength(kv/mm)	30~50	30~50	20~35	20~30	30~45	15~25
Volume resistivity(ohm-cm)	1018	1018	1012~15	1015	1015	107~12
Dielectric constant	2.3	2.3	5~9	4~5	4~5	7~10
Power factor(%)	0.03	0.03	4~12	1~3	1~2	Not more than 10
Tensile strength(kg/mm2)	1.4~1.8	1.2~1.5	1.0~2.5	0.4~0.7	0.4~0.9	1.2~2.0
Elongation(%)	500~600	500~600	100~300	300~600	400~650	300~600
Max. operating Temperature(ºC)	90	75	60~75	80	90	75
Flame resistivity	NG	NG	E	NG	NG	E
Heat deformation	F	G	G	G	F	G
Ozone resistivity	F	F	G	F	E	G
Weather proof	G	G	F	F	F	F
Oil resistivity	E	E	F	NG	NG	G

TABLE 1A SINGLE-CORE 600/1000V UNARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical characteristic					
						Current Rating		Conductor Resistance			
Nominal Area	Shape					In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
50	circular	1.0	*1.4*	14.0	560	185	205	0.387	0.494	0.0905	7.15
70	stranded	1.1	*1.4*	15.8	770	235	250	0.268	0.342	0.0870	10.0
95	or	1.1	*1.5*	17.8	1020	290	295	0.193	0.247	0.0851	13.5
120	circular	1.2	*1.5*	20.0	1310	340	340	0.153	0.196	0.0837	17.1
150	compacted	1.4	*1.6*	22.2	1600	390	380	0.124	0.160	0.0837	21.4
185		1.6	*1.6*	24.4	1980	455	430	0.0991	0.128	0.0826	26.4
240		1.7	*1.7*	27.5	2560	545	495	0.0754	0.0988	0.0812	34.3
300		1.8	*1.8*	30.3	3190	630	560	0.0601	0.0801	0.0801	42.9
400		2.0	*1.9*	33.9	4040	735	635	0.0470	0.0643	0.0792	57.2
500		2.2	*2.0*	37.7	5070	850	715	0.0366	0.0521	0.0785	71.5
630		2.4	*2.2*	42.6	6510	985	800	0.0283	0.0428	0.0776	90.0
800		2.6	*2.3*	47.5	8250	1150	895	0.0221	0.0363	0.0759	114.0
1000		2.8	*2.4*	52.6	10330	1280	970	0.0176	0.0317	0.0749	143.0

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TABLE 1B SINGLE-CORE 600/1000V ARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Bedding*	*Nominal Armour wire diameter*	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical characteristic					
								Current Rating		Conductor Resistance			
Nominal Area	Shape							In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	*mm*	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
50	circular stranded or circular compacted	1.0	*0.8*	*0.9*	*1.5*	17.3	740	200	205	0.387	0.494	0.113	7.15
70		1.1	*0.8*	*1.25*	*1.5*	19.8	1020	255	250	0.268	0.342	0.107	10.0
95		1.1	*0.8*	*1.25*	*1.6*	21.9	1330	310	300	0.193	0.247	0.102	13.5
120		1.2	*0.8*	*1.25*	*1.6*	24.0	1610	365	340	0.153	0.196	0.101	17.1
150		1.4	*1.0*	*1.6*	*1.7*	27.1	2030	415	385	0.124	0.159	0.0999	21.4
185		1.6	*1.0*	*1.6*	*1.8*	29.6	2460	480	435	0.0991	0.128	0.0975	26.4
240		1.7	*1.0*	*1.6*	*1.8*	32.4	3080	570	500	0.0754	0.0982	0.0946	34.3
300		1.8	*1.0*	*1.6*	*1.9*	35.2	3750	650	565	0.0601	0.0793	0.0920	42.9
400		2.0	*1.2*	*2.0*	*2.0*	40.0	4830	760	635	0.0470	0.0632	0.0923	57.2
500		2.2	*1.2*	*2.0*	*2.1*	44.1	6040	870	715	0.0366	0.0509	0.0903	71.5
630		2.4	*1.2*	*2.0*	*2.2*	48.3	7430	995	800	0.0283	0.0415	0.0878	90.0
800		2.6	*1.4*	*2.5*	*2.4*	54.8	9550	1150	890	0.0221	0.0347	0.0863	114.0
1000		2.8	*1.4*	*2.5*	*2.5*	60.0	11750	1250	940	0.0176	0.0300	0.0847	143.0

TABLE 2A TWO-CORE 600/1000V UNARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical charactristic					
						Current Rating		Conductor Resistance			
Nominal Area	Shape					In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
50	circular stranded or circular compacted	1.0	*1.8*	1.8	1150	205	230	0.387	0.494	0.0651	7.15
70		1.1	*1.8*	1.8	1545	255	285	0.268	0.342	0.0637	10.0
95		1.1	*1.9*	1.9	2070	315	340	0.193	0.247	0.0616	13.5
120		1.2	*2.0*	2.0	2580	370	380	0.153	0.196	0.0613	17.1
150		1.4	*2.2*	2.2	3200	420	435	0.124	0.160	0.0618	21.4
185		1.6	*2.3*	2.3	3955	485	490	0.0991	0.129	0.0623	26.4
240		1.7	*2.5*	2.5	5150	580	565	0.0754	0.0993	0.0612	34.3
300		1.8	*2.6*	2.6	6340	665	640	0.0601	0.0807	0.0605	42.9
400		2.0	*2.9*	2.9	8150	770	725	0.0470	0.0650	0.0603	57.2

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TABLE 2B TWO-CORE 600/1000V ARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Bedding*	*Nominal Armour wire diameter*	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical charactristic					
								Current Rating		Conductor Resistance			
Nominal Area	Shape							In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	*mm*	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
50 70 95 120 150 185 240 300 400	circular stranded or circular compacted	1.0 1.1 1.1 1.2 1.4 1.6 1.7 1.8 2.0	*1.0* *1.0* *1.2* *1.2* *1.2* *1.4* *1.4* *1.6* *1.6*	*1.6* *1.6* *2.0* *2.0* *2.0* *2.5* *2.5* *2.5* *2.5*	*1.8* *1.9* *2.0* *2.1* *2.2* *2.4* *2.5* *2.6* *2.8*	26.5 29.5 33.1 36.1 39.3 44.7 49.0 53.5 59.0	1840 2450 3210 3850 4650 5880 7300 8740 11000	210 260 315 370 425 485 570 650 745	230 280 335 380 425 480 555 620 695	0.387 0.268 0.193 0.153 0.124 0.0991 0.0754 0.0601 0.0470	0.494 0.342 0.247 0.196 0.160 0.129 0.0993 0.0807 0.0650	0.0648 0.0633 0.0612 0.0609 0.0618 0.0623 0.0612 0.0605 0.0603	7.15 10.0 13.5 17.1 21.4 26.4 34.3 42.9 57.2

TABLE 3A THREE-CORE 600/1000V UNARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical charactristic					
						Current Rating		Conductor Resistance			
Nominal Area	Shape					In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
50 70 95 120 150 185 240 300	circular stranded or circular compacted	1.0 1.1 1.1 1.2 1.4 1.6 1.7 1.8	*1.8* *1.9* *2.0* *2.1* *2.2* *2.4* *2.6* *2.7*	24.0 27.5 31.0 34.2 37.9 42.5 47.8 52.6	1600 2260 3035 3790 4700 5810 7600 9350	1600 2260 3035 3790 4700 5810 7600 9350	195 235 285 325 365 410 475 535	0.387 0.268 0.193 0.153 0.124 0.0991 0.0754 0.0601	0.494 0.342 0.247 0.196 0.160 0.129 0.0996 0.0809	0.0651 0.0637 0.0616 0.0613 0.0618 0.0623 0.0612 0.0605	7.15 10.0 13.5 17.1 21.4 26.4 34.3 42.9

TABLE 3B THREE-CORE 600/1000V ARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Bedding*	*Nominal Armour wire diameter*	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical charactristic					
								Current Rating		Conductor Resistance			
Nominal Area	Shape							In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	*mm*	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
50 70 95 120 150 185 240 300	circular stranded or circular compacted	1.0 1.1 1.1 1.2 1.4 1.6 1.7 1.8	*1.0* *1.0* *1.2* *1.2* *1.4* *1.4* *1.4* *1.6*	*1.6* *1.6* *2.0* *2.0* *2.5* *2.5* *2.5* *2.5*	*1.8* *1.9* *2.1* *2.2* *2.3* *2.4* *2.6* *2.7*	29.5 34.0 37.5 40.0 45.0 49.5 55.0 59.5	2450 3440 4380 5250 6680 8050 10180 12150	175 220 265 300 350 410 480 570	190 235 285 325 365 410 480 570	0.387 0.268 0.193 0.153 0.124 0.0991 0.0754 0.0601	0.494 0.342 0.247 0.196 0.160 0.129 0.0996 0.0809	0.0648 0.0633 0.0612 0.0609 0.0618 0.0623 0.0612 0.0605	7.15 10.0 13.5 17.1 21.4 26.4 34.3 42.9

TABLE 4A FOUR-CORE 600/1000V UNARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical charactristic					
						Current Rating		Conductor Resistance			
Nominal Area	Shape					In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
16 25 35 50 70 95 120 150 185 240 300 400	circular stranded or circular compacted	0.7 0.9 0.9 1.0 1.1 1.1 1.2 1.4 1.6 1.7 1.8 2.0	*1.8* *1.8* *1.8* *1.8* *2.0* *2.1* *2.2* *2.4* *2.6* *2.8* *3.0* *3.2*	18.4 26.9 29.5 33.3 38.8 44.2 49.5 55.0 61.4 69.2 76.9 85.2	820 1440 1880 2470 3480 4600 5900 7250 9080 11790 14680 18440	88 115 140 175 220 265 300 350 410 480 570 660	100 135 160 195 235 285 325 365 410 475 535 610	1.15 0.727 0.524 0.387 0.268 0.193 0.153 0.124 0.0991 0.0754 0.0601 0.0470	1.47 0.927 0.669 0.494 0.342 0.247 0.196 0.160 0.129 0.0996 0.0809 0.0653	0.0761 0.0683 0.0656 0.0651 0.0637 0.0616 0.0613 0.0618 0.0623 0.0612 0.0605 0.0603	2.28 3.57 5.00 7.15 10.0 13.5 17.1 21.4 26.4 34.3 42.9 57.2

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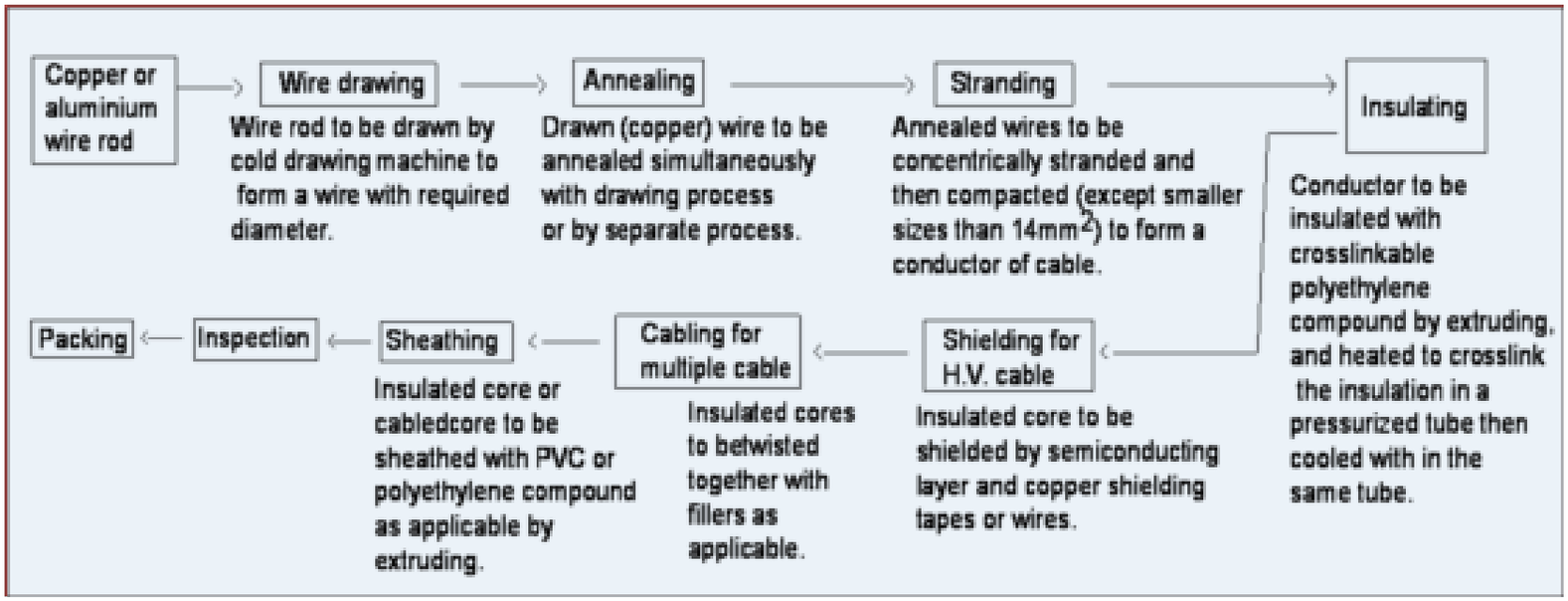
TABLE 4B FOUR-CORE 600/1000V ARMOURED CABLES (COPPER CONDUCTOR)

Conductor		Thickness of Insulation	*Thickness of Bedding*	*Nominal Armour wire diameter*	*Thickness of Sheath*	Overall Diameter	Approx. Weight	Electrical charactristic					
								Current Rating		Conductor Resistance			
Nominal Area	Shape							In air at 40◦C	In ground at 25◦C	At 20◦C	At 90◦C	Reactance at 50hz	Short circuit current for 1 sec
mm²		mm	*mm*	*mm*	*mm*	mm	Kg/km	amp	amp	Ω/km	Ω/km	Ω/km	kA
1.5	circular stranded or circular compacted	0.7	*0.8*	*0.9*	*1.4*	13.1	380	23	29	12.1	15.4	0.1010	0.21
2.5		0.7	*0.8*	*0.9*	*1.4*	14.6	480	29	37	7.41	9.45	0.0930	0.36
4		0.7	*0.8*	*0.9*	*1.4*	15.9	580	38	49	4.61	5.88	0.0871	0.57
6		0.7	*0.8*	*1.25*	*1.5*	18.2	830	48	61	3.08	3.93	0.0828	0.85
10		0.7	*0.8*	*1.25*	*1.5*	20.4	1080	66	81	1.83	2.33	0.0780	1.42
16		0.7	*0.8*	*1.25*	*1.6*	21.4	1420	88	100	1.15	1.47	0.0761	2.28
25		0.9	*1.0*	*1.6*	*1.7*	25.4	1970	115	135	0.727	0.927	0.0679	3.57
35		0.9	*1.0*	*1.6*	*1.8*	27.9	2500	140	160	0.524	0.669	0.0652	5.00
50		1.0	*1.0*	*1.6*	*1.9*	30.8	3130	175	190	0.387	0.494	0.0648	7.15
70		1.1	*1.2*	*2.0*	*2.1*	36.1	4460	220	235	0.268	0.342	0.0633	10.0
95		1.1	*1.2*	*2.0*	*2.2*	40.0	5600	265	285	0.193	0.247	0.0612	13.5
120		1.2	*1.4*	*2.5*	*2.3*	45.0	7350	300	325	0.153	0.196	0.0609	17.1
150		1.4	*1.4*	*2.5*	*2.4*	49.2	8750	350	365	0.124	0.160	0.0618	21.4
185		1.6	*1.4*	*2.5*	*2.6*	53.7	10530	410	410	0.0991	0.129	0.0623	26.4
240		1.7	*1.6*	*2.5*	*2.7*	59.5	13230	480	475	0.0754	0.0996	0.0612	34.3
300		1.8	*1.6*	*2.5*	*2.9*	65.6	16100	570	535	0.0601	0.0809	0.0605	42.9
400		2.0	*1.8*	*3.15*	*3.2*	79.3	21760	655	605	0.0470	0.0653	0.0603	57.2

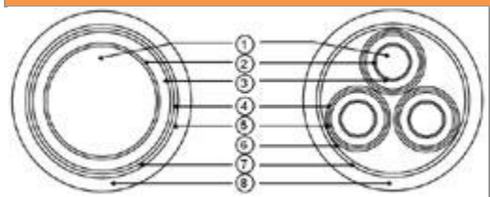
MEDIUM VOLTAGE CABLE

MANUFACTURING PROCESS OF CROSSLINKED POLYTHELENE INSULATED CABLE



CONSTRUCTION:

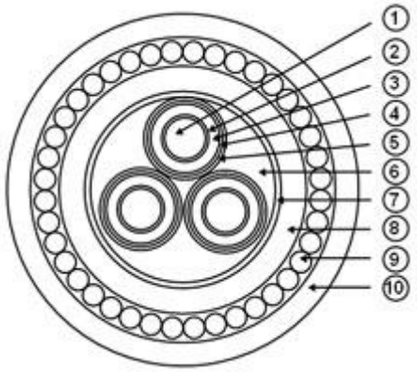
8.7/15kV and 6.35/11kV XLPE/PVC Power Cable



Single-core Three-core

1-Conductor
2-Conductor (Semi - conducti
3-Insulation
4-Insulation (Semi - conducti
5-Metallic
6-Fillers
7-Binder
8-Outer sheath

8.7/15kV and 6.35/11kV XLPE/SWA/PVC Power Cable



1-Conductor
2-Conductor shielding (Semi-conducting layer)
3-Insulation
4-Insulation shielding (Semi-conducting layer)
5-Metallic shielding
6-Fillers
7-Binder tape
8-Separation sheath
9-Steel wire armour
10-Outer sheath

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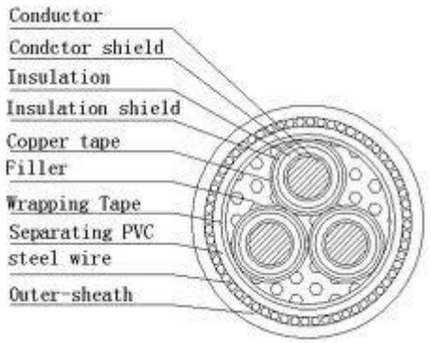
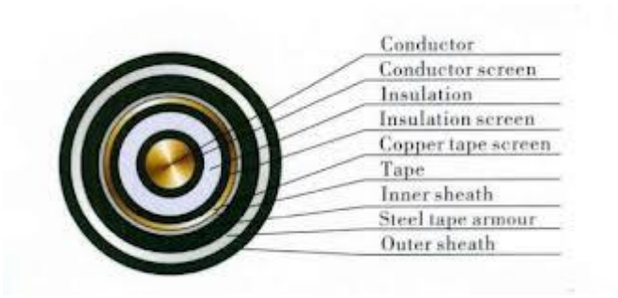
Manufacture all types of electrical cables, wires & conductors





TYPICAL EXAMPLES OF XLPE CABLE

TECHNICAL OF XLPE 11-15KV SINGLE CORE COPPER ARMORED/UNARMORED CABLE

6.35/11 kV Single Core Copper Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	**mm²**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**	**400**	**500**	**630**
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80
Weight of Conductor (Approx)	Kg/km	420	605	839	1056	1297	1629	2140	2686	3421	4335	5585
Insulation Thickness (Nominal)	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Outer sheath Thickness (Nominal)	mm	1.6	1.7	1.7	1.8	1.8	1.9	2.0	2.0	2.1	2.2	2.3
Approximate Overall Diameter	mm	22.0	23.5	25.5	27.0	28.50	30.0	32.5	35.0	38.0	41.5	44.5
Approximate Cable Weight	Kg/km	900	1150	1470	1730	2040	2460	3070	3710	4600	5690	7150
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	434	466	502	532	564	598	648	694	760	822	890
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.047	0.0366	0.0283
Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792	0.063	0.051	0.041
Approximate Reactance at 50 Hertz	Ohm/km	0.13	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km	0.51	0.36	0.27	0.22	0.19	0.16	0.14	0.15	0.11	0.10	0.10
Approximate Capacitance of Cable	µf/km	0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.44	0.58	0.66	0.74
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.47	0.55	0.66	0.72	0.77	0.89	0.96	1.0	1.1	1.2	1.4
Sustained Current Ratings												
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	196	240	285	320	365	409	472	534	605	668	739

2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	200	240	285	320	365	392	449	498	543	605	668
3. Laid Singly in Air, Ambient Temp. 35 ºC	A	217	262	331	382	432	497	589	681	773	865	1021
One Second Short Circuit Current Rating of Conductor	kA	7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90	57.20	71.50	90.10

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

6.35/11 kV Single Core Copper Conductors XLPE Insulated to IEC 60502-2 Armored Cable

Nominal Area of Conductor	**mm²**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**	**400**	**500**	**630**
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80
Weight of Conductor (Approx)	Kg/km	420	605	839	1056	1297	1629	2140	2686	3421	4335	5585
Insulation Thickness (Nominal)	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Separation Sheath Thickness	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.4
Armore Wire Diameter	mm	1.6	1.6	1.6	1.6	1.6	2.0	2.0	2.0	2.0	2.5	2.5
Outer sheath Thickness (Nominal)	mm	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.6
Approximate Overall Diameter	mm	24.5	26.0	27.5	29	31	32.5	35	37.5	40.5	43.5	47
Approximate Cable Weight	Kg/km	1200	1600	1950	2270	2690	3100	3800	4500	5650	6910	8560
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	416	440	467	489	527	552	568	623	692	738	792
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.047	0.0366	0.0283

Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792	0.063	0.051	0.041
Approximate Reactance at 50 Hertz	Ohm/km	0.13	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km	0.51	0.36	0.27	0.22	0.19	0.16	0.14	0.15	0.11	0.10	0.10
Approximate Capacitance of Cable	µf/km	0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.44	0.58	0.66	0.74
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.47	0.55	0.66	0.72	0.77	0.89	0.96	1.0	1.1	1.2	1.4
Sustained Current Ratings												
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	196	240	285	320	365	409	472	534	605	668	739
2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	196	231	271	303	334	365	418	445	472	507	552
3. Laid Singly in Air, Ambient Temp. 35 ºC	A	217	262	331	382	432	497	589	681	773	865	1021
One Second Short Circuit Current Rating of Conductor	kA	7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90	57.20	71.50	90.10

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

8.5/15 (17.5) kV Single Core Copper Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	**mm²**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**	**400**	**500**	**630**
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80

Weight of Conductor (Approx)	Kg/km	420	605	839	1056	1297	1629	2140	2686	3421	4335	5585
Insulation Thickness (Nominal)	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Outer sheath Thickness (Nominal)	mm	1.8	1.8	1.8	1.9	1.9	2	2	2.1	2.2	2.3	2.4
Approximate Overall Diameter	mm	24.5	26.0	27.5	29	31	32.5	35	37.5	40.5	43.5	47
Approximate Cable Weight	Kg/km	990	1270	1580	1850	2210	2620	3210	3870	4790	5880	7350
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	482	514	550	580	612	645	696	742	808	870	938
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.047	0.0366	0.0283
Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792	0.063	0.051	0.041
Approximate Reactance at 50 Hertz	Ohm/km	0.13	0.13	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km	0.51	0.36	0.27	0.23	0.19	0.17	0.14	0.13	0.12	0.11	0.099
Approximate Capacitance of Cable	µf/km	0.22	0.25	0.28	0.31	0.33	0.36	0.41	0.44	0.49	0.54	0.59
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.60	0.61	0.77	0.85	0.90	1.0	1.1	1.2	1.3	1.5	1.6
Sustained Current Ratings												
4. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	196	240	285	320	365	409	472	534	605	668	739
5. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	200	240	285	320	365	392	449	498	543	605	668
6. Laid Singly in Air, Ambient Temp. 35 ºC	A	217	262	331	382	432	497	589	681	773	865	1021
One Second Short Circuit Current Rating of Conductor	kA	7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90	57.20	71.50	90.10

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

POWER CABLES (PVT) LTD.

Manufacture all types of electrical cables, wires & conductors

8.5/15 (17.5) kV Single Core Copper Conductors XLPE Insulated to IEC 60502-2 Armored Cable

Nominal Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80
Weight of Conductor (Approx)	Kg/km	420	605	839	1056	1297	1629	2140	2686	3421	4335	5585
Insulation Thickness (Nominal)	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Separation Sheath Thickness	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.4
Armore Wire Diameter	mm	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5
Outer sheath Thickness (Nominal)	mm	1.9	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.5	2.6	2.7
Approximate Overall Diameter	mm	24.5	26.0	27.5	29	31	32.5	35	37.5	40.5	43.5	47
Approximate Cable Weight	Kg/km	1400	1650	2050	2400	2750	3300	3850	4450	5500	6750	8250
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	482	514	550	580	612	645	696	742	808	870	938
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.047	0.0366	0.0283
Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792	0.063	0.051	0.041
Approximate Reactance at 50 Hertz	Ohm/km	0.13	0.13	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km	0.51	0.36	0.27	0.23	0.19	0.17	0.14	0.13	0.12	0.11	0.099
Approximate Capacitance of Cable	µf/km	0.22	0.25	0.28	0.31	0.33	0.36	0.41	0.44	0.49	0.54	0.59
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.60	0.61	0.77	0.85	0.90	1.0	1.1	1.2	1.3	1.5	1.6
Sustained Current Ratings												

4. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	196	240	285	320	365	409	472	534	605	668	739
5. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	196	240	285	320	365	392	449	498	543	605	668
6. Laid Singly in Air, Ambient Temp. 35 ºC	A	230	262	331	382	432	497	589	681	773	865	1021
One Second Short Circuit Current Rating of Conductor	kA	7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90	57.20	71.50	90.10

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

TECHNICAL OF XLPE 11 - 15KV THREE CORE COPPER ARMORED/UNARMORED CABLE

6.35/11kV Three Core Copper Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	mm²	25	50	70	95	120	150	185	240	300
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		1281	1845	2558	3219	3954	4966	6526	8187
Insulation Thickness (Nominal)	mm		3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Outer sheath Thickness (Nominal)	mm		2.4	2.5	2.6	2.7	2.8	2.9	3.1	3.2
Approximate Overall Diameter	mm		45.0	48.5	52.5	55.5	59.0	62.5	68.0	73.0
Approximate Cable Weight	Kg/km		2800	3580	4510	5430	6370	7640	9810	11830
Standard Drum Length	m		500	500	500	400	300	300	250	200
Minimum Bending Radius of Cable (during installation)	mm		661	726	782	831	882	938	1017	1094
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792
Approximate Reactance at 50 Hertz	Ohm/km		0.11	0.11	0.10	0.10	0.09	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km		0.51	0.36	0.27	0.22	0.18	0.16	0.13	0.12
Approximate Capacitance of Cable	µf/km		0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.54

Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.47	0.55	0.66	0.72	0.77	0.89	0.96	1.0
Sustained Current Ratings										
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		198	241	283	321	358	406	462	510
2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		170	202	241	273	312	349	401	443
3. Laid Singly in Air, Ambient Temp. 35 ºC	A		210	262	331	382	432	497	589	681
One Second Short Circuit Current Rating of Conductor	kA		7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

6.35/11kV Three Core Copper Conductors XLPE Insulated to IEC 60502-2 Steel Armored Cable

Nominal Area of Conductor	**mm²**	**25**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		1281	1845	2558	3219	3954	4966	6526	8187
Insulation Thickness (Nominal)	mm		3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Separation Sheath Thickness	mm		1.4	1.4	1.5	1.6	1.6	1.7	1.8	1.9
Armore Wire Diameter	mm		2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15
Outer sheath Thickness (Nominal)	mm		2.6	2.7	2.9	3.0	3.1	3.2	3.4	3.6
Approximate Overall Diameter	mm		53.0	56.5	61.0	64.0	67.5	71.5	79.0	83.5
Approximate Cable Weight	Kg/km		5250	6250	7350	8500	9550	11000	14250	16600
Standard Drum Length	m		500	500	500	400	300	300	250	200
Minimum Bending Radius of Cable (during installation)	mm		636	678	727	768	810	857	940	1002
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792
Approximate Reactance at 50 Hertz	Ohm/km		0.11	0.11	0.10	0.10	0.09	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km		0.51	0.36	0.27	0.22	0.18	0.16	0.13	0.12
Approximate Capacitance of Cable	µf/km		0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.54
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.47	0.55	0.66	0.72	0.77	0.89	0.96	1.0
Sustained Current Ratings										
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		187	227	267	303	338	383	436	481

2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		161	191	227	258	294	329	378	418
3. Laid Singly in Air, Ambient Temp. 35 ºC	A		203	248	304	345	396	451	524	598
One Second Short Circuit Current Rating of Conductor	kA		7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

8.5/15 (17.5) kV Three Core Copper Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	**mm²**	**25**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		1281	1845	2558	3219	3954	4966	6526	8187
Insulation Thickness (Nominal)	mm		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Outer sheath Thickness (Nominal)	mm		2.5	2.6	2.8	2.9	3	3.1	3.2	3.4
Approximate Overall Diameter	mm		50.0	53.5	57.5	60.5	64.0	68.0	73.0	78.0
Approximate Cable Weight	Kg/km		3190	4030	5000	5930	6920	8190	9880	12470
Standard Drum Length	m		500	500	500	500	500	400	300	300
Minimum Bending Radius of Cable (during installation)	mm		749	800	858	908	959	1014	1094	1170
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792
Approximate Reactance at 50 Hertz	Ohm/km		0.118	0.115	0.108	0.102	0.099	0.095	0.092	0.890
Approximate Impedance at 50 Hertz	Ohm/km		0.507	0.361	0.272	0.226	0.188	0.160	0.135	0.119
Approximate Capacitance of Cable	µf/km		0.223	0.250	0.278	0.300	0.325	0.645	0.383	0.426
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.60	0.68	0.77	0.85	0.90	1.00	1.10	1.20
Sustained Current Ratings										
4. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		198	241	283	321	358	406	462	510
5. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		170	202	241	273	312	349	401	443
6. Laid Singly in Air, Ambient Temp. 35 ºC	A		210	258	316	359	412	469	545	622
One Second Short Circuit Current Rating of Conductor	kA		7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

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8.5/15 (17.5) kV Three Core Copper Conductors XLPE Insulated to IEC 60502-2 Steel Armored Cable

Nominal Area of Conductor	mm²	25	50	70	95	120	150	185	240	300
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		1281	1845	2558	3219	3954	4966	6526	8187
Insulation Thickness (Nominal)	mm		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Separation Sheath Thickness	mm		1.5	1.5	1.6	1.7	1.7	1.8	1.9	2.0
Armore Wire Diameter	mm		2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Outer sheath Thickness (Nominal)	mm		2.8	2.9	3.10	3.2	3.3	3.4	3.5	3.15
Approximate Overall Diameter	mm		61	67	71	75	78	81	91	95
Approximate Cable Weight	Kg/km		6177	7200	8490	9620	11640	13260	15700	18260
Standard Drum Length	m		500	500	500	500	500	400	300	300
Minimum Bending Radius of Cable (during installation)	mm		749	800	858	908	959	1014	1094	1170
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.493	0.342	0.246	0.196	0.159	0.127	0.0981	0.792
Approximate Reactance at 50 Hertz	Ohm/km		0.118	0.115	0.108	0.102	0.099	0.095	0.092	0.890
Approximate Impedance at 50 Hertz	Ohm/km		0.507	0.361	0.272	0.226	0.188	0.160	0.135	0.119
Approximate Capacitance of Cable	µf/km		0.223	0.250	0.278	0.300	0.325	0.645	0.383	0.426
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.60	0.68	0.77	0.85	0.90	1.00	1.10	1.20
Sustained Current Ratings										
4. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		198	241	283	321	358	406	462	510
5. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		170	202	241	273	312	349	401	443
6. Laid Singly in Air, Ambient Temp. 35 ºC	A		210	258	316	359	412	469	545	622
One Second Short Circuit Current Rating of Conductor	kA		7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

TECHNICAL OF XLPE 11–15 KV SINGLE CORE ALUMINUM ARMORED/UNARMORED CABLE

6.35/11 kV Single Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	**mm²**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**	**400**	**500**	**630**
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80
Weight of Conductor (Approx)	Kg/km	125	180	250	313	386	486	637	800	1024	1318	1672
Insulation Thickness (Nominal)	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Outer sheath Thickness (Nominal)	mm	1.6	1.7	1.7	1.8	1.8	1.9	2.0	2.0	2.1	2.2	2.3
Approximate Overall Diameter	mm	22.0	23.5	25.5	27.0	28.50	30.0	32.5	35.0	38.0	41.5	44.5
Approximate Cable Weight	Kg/km	610	730	890	990	1130	1320	1570	1830	2210	2720	3360
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	434	466	502	532	564	598	648	694	760	822	890
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100	0.778	0.0605	0.0469
Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130	0.102	0.080	0.064
Approximate Reactance at 50 Hertz	Ohm/km	0.13	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km	0.83	0.58	0.43	0.34	0.29	0.23	0.19	0.16	0.14	0.12	0.11
Approximate Capacitance of Cable	µf/km	0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.54	0.58	0.66	0.74
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.47	0.55	0.66	0.72	0.77	0.89	0,96	1.0	1.1	1.2	1.4
Sustained Current Ratings												

1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	151	187	223	249	285	320	369	423	481	543	605
2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	156	191	227	254	280	312	360	405	454	507	570
3. Laid Singly in Air, Ambient Temp. 35 ºC	A	166	207	258	294	336	391	460	534	616	727	837
One Second Short Circuit Current Rating of Conductor	kA	4.70	6.58	8.93	11.28	14.10	17.39	22.56	28.20	37.60	47	59.22

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

6.35/11 kV Single Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Armored Cable

Nominal Area of Conductor	**mm²**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**	**400**	**500**	**630**
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80
Weight of Conductor (Approx)	Kg/km	125	180	250	313	386	486	637	800	1024	1318	1672
Insulation Thickness (Nominal)	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Separation Sheath Thickness	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.4
Armore Wire Diameter	mm	1.6	1.6	1.6	1.6	1.6	2.0	2.0	2.0	2.0	2.5	2.5
Outer sheath Thickness (Nominal)	mm	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.6
Approximate Overall Diameter	mm	24.5	26.0	27.5	29	31	32.5	35	37.5	40.5	43.5	47
Approximate Cable Weight	Kg/km	810	980	1170	1260	1390	1660	1950	2320	2710	3440	4090
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	416	440	467	489	527	552	568	623	692	738	792
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100	0.778	0.0605	0.0469

Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130	0.102	0.080	0.064
Approximate Reactance at 50 Hertz	Ohm/km	0.13	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km	0.83	0.58	0.43	0.34	0.29	0.23	0.19	0.16	0.14	0.12	0.11
Approximate Capacitance of Cable	µf/km	0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.54	0.58	0.66	0.74
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.47	0.55	0.66	0.72	0.77	0.89	0,96	1.0	1.1	1.2	1.4
Sustained Current Ratings												
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	151	187	223	249	285	320	369	423	481	543	605
2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	151	191	227	254	280	312	360	405	454	507	570
3. Laid Singly in Air, Ambient Temp. 35 ºC	A	179	221	271	327	350	400	469	534	616	708	810
One Second Short Circuit Current Rating of Conductor	kA	4.70	6.58	8.93	11.28	14.10	17.39	22.56	28.20	37.60	47	59.22

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

8.5/15 (17.5) kV Single Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	**mm²**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**	**400**	**500**	**630**
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80
Weight of Conductor (Approx)	Kg/km	125	180	250	313	386	486	637	800	1024	1318	1672
Insulation Thickness (Nominal)	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5

Outer sheath Thickness (Nominal)	mm	1.8	1.8	1.8	1.9	1.9	2	2	2.1	2.2	2.3	2.4
Approximate Overall Diameter	mm	24.5	26.0	27.5	29	31	32.5	35	37.5	40.5	43.5	47
Approximate Cable Weight	Kg/km	700	850	1000	1110	1300	1480	1710	1990	2400	2870	3440
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	526	558	594	624	656	690	738	786	852	914	982
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100	0.778	0.0605	0.0469
Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130	0.102	0.080	0.064
Approximate Reactance at 50 Hertz	Ohm/km	0.14	0.13	0.12	0.12	0.12	0.11	0.11	0.10	0.10	0.10	0.10
Approximate Impedance at 50 Hertz	Ohm/km	0.83	0.58	0.43	0.34	0.29	0.23	0.19	0.16	0.14	0.12	0.11
Approximate Capacitance of Cable	µf/km	0.18	0.21	0.23	0.25	0.27	0.29	0.32	0.35	0.39	0.43	0.48
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.68	0.79	0.87	0.94	1.0	1.1	1.2	1.3	1.5	1.6	1.8
Sustained Current Ratings												
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	151	187	223	249	285	320	369	423	490	534	614
2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	156	167	223	249	285	369	409	463	507	579	685
3. Laid Singly in Air, Ambient Temp. 35 ºC	A	175	216	258	304	345	396	469	534	626	727	646
One Second Short Circuit Current Rating of Conductor	kA	4.50	6.58	8.93	11.28	14.10	17.39	22.56	28.20	37.60	47	59.22

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

8.5/15 (17.5) kV Single Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Armored Cable

Nominal Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630
Conductor Diameter (Max)	mm	8.4	9.9	11.6	13	140.5	16.1	18.4	20.6	23.37	26.60	29.80
Weight of Conductor (Approx)	Kg/km	125	180	250	313	386	486	637	800	1024	1318	1672
Insulation Thickness (Nominal)	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Separation Sheath Thickness	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.4
Armore Wire Diameter	mm	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5
Outer sheath Thickness (Nominal)	mm	1.9	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.5	2.6	2.7
Approximate Overall Diameter	mm	24.5	26.0	27.5	29	31	32.5	35	37.5	40.5	43.5	47
Approximate Cable Weight	Kg/km	1110	1230	1470	1660	1840	1960	2350	2570	3110	3740	4340
Standard Drum Length	m	500	500	500	500	500	500	500	500	500	500	500
Minimum Bending Radius of Cable (during installation)	mm	526	558	594	624	656	690	738	786	852	914	982
Maximum DC resistance of Conductor at 20 ºC	Ohm/km	0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100	0.778	0.0605	0.0469
Approximate AC resistance of Conductor at 90 ºC	Ohm/km	0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130	0.102	0.080	0.064
Approximate Reactance at 50 Hertz	Ohm/km	0.14	0.13	0.12	0.12	0.12	0.11	0.11	0.10	0.10	0.10	0.10
Approximate Impedance at 50 Hertz	Ohm/km	0.83	0.58	0.43	0.34	0.29	0.23	0.19	0.16	0.14	0.12	0.11
Approximate Capacitance of Cable	µf/km	0.18	0.21	0.23	0.25	0.27	0.29	0.32	0.35	0.39	0.43	0.48
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m	0.68	0.79	0.87	0.94	1.0	1.1	1.2	1.3	1.5	1.6	1.8
Sustained Current Ratings												
7. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	151	187	223	249	285	320	369	423	490	534	614

8. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A	156	167	223	249	285	369	409	463	507	579	685
9. Laid Singly in Air, Ambient Temp. 35 ºC	A	175	216	258	304	345	396	469	534	626	727	646
One Second Short Circuit Current Rating of Conductor	kA	4.50	6.58	8.93	11.28	14.10	17.39	22.56	28.20	37.60	47	59.22

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

TECHNICAL OF XLPE 11-15KV THREE CORE ALUMINUM ARMORED/UNARMORED CABLE

6.35/11kV Three Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	**mm²**	**25**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		381	549	762	955	1177	1482	1942	2439
Insulation Thickness (Nominal)	mm		3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Outer sheath Thickness (Nominal)	mm		2.4	2.5	2.6	2.7	2.8	2.9	3.1	3.2
Approximate Overall Diameter	mm		45.0	48.5	52.5	55.5	59.0	62.5	68.0	73.0
Approximate Cable Weight	Kg/km		2330	2780	3300	3820	4300	4920	5990	7050
Standard Drum Length	m		500	500	500	400	300	300	250	200
Minimum Bending Radius of Cable (during installation)	mm		671	723	782	831	882	938	1017	1094
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130
Approximate Reactance at 50 Hertz	Ohm/km		0.11	0.11	0.10	0.10	0.09	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km		0.83	0.58	0.43	0.34	0.29	0.23	0.19	0.16
Approximate Capacitance of Cable	µf/km		0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.54
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.47	0.55	0.66	0.72	0.77	0.89	0,96	1.0
Sustained Current Ratings										
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		151	184	217	250	283	316	358	410
2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		127	156	189	212	216	274	316	354
3. Laid Singly in Air, Ambient Temp. 35 ºC	A		163	201	239	282	316	369	431	488

One Second Short Circuit Current Rating of Conductor	kA		4.70	6.58	8.93	11.28	14.10	17.39	22.56	28.20

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS

6.35/11kV Three Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Steel Armored Cable

Nominal Area of Conductor	**mm²**	**25**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		381	549	762	955	1177	1482	1942	2439
Insulation Thickness (Nominal)	mm		3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Separation Sheath Thickness	mm		1.4	1.4	1.5	1.6	1.6	1.7	1.8	1.9
Armore Wire Diameter	mm		2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15
Outer sheath Thickness (Nominal)	mm		2.6	2.7	2.9	3.0	3.1	3.2	3.4	3.6
Approximate Overall Diameter	mm		53.0	56.5	61.0	64.0	67.5	71.5	79.0	83.5
Approximate Cable Weight	Kg/km		4350	4960	5360	6240	6780	7520	9670	10860
Standard Drum Length	m		500	500	500	400	300	300	250	200
Minimum Bending Radius of Cable (during installation)	mm		636	678	727	768	810	857	940	1002
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130
Approximate Reactance at 50 Hertz	Ohm/km		0.11	0.11	0.10	0.10	0.09	0.09	0.09	0.09
Approximate Impedance at 50 Hertz	Ohm/km		0.83	0.58	0.43	0.34	0.29	0.23	0.19	0.16
Approximate Capacitance of Cable	µf/km		0.25	0.29	0.35	0.38	0.41	0.47	0.51	0.54
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.47	0.55	0.66	0.72	0.77	0.89	0,96	1.0
Sustained Current Ratings										
1. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		142	174	205	236	267	298	338	387
2. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		120	147	178	200	227	258	298	334
3. Laid Singly in Air, Ambient Temp. 35 ºC	A		156	193	230	271	304	354	414	469
One Second Short Circuit Current Rating of Conductor	kA		4.70	6.58	8.93	11.28	14.10	17.39	22.56	28.20

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS.

8.5/15 (17.5) kV Three Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Unarmored Cable

Nominal Area of Conductor	**mm²**	**25**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		381	549	762	955	1177	1482	1942	2439
Insulation Thickness (Nominal)	mm		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Outer sheath Thickness (Nominal)	mm		2.5	2.6	2.8	2.9	3	3.1	3.2	3.4

Approximate Overall Diameter	mm		50	53.5	57.5	60.5	64	68	73	78
Approximate Cable Weight	Kg/km		2450	2890	3400	3920	4500	5120	6190	7250
Standard Drum Length	m		500	500	500	500	500	400	300	300
Minimum Bending Radius of Cable (during installation)	mm		749	800	858	908	959	1014	1094	1170
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130
Approximate Reactance at 50 Hertz	Ohm/km		0.118	0.115	0.108	0.102	0.099	0.095	0.092	0.890
Approximate Impedance at 50 Hertz	Ohm/km		0.835	0.578	0.425	0.345	0.282	0.232	0.186	0.159
Approximate Capacitance of Cable	µf/km		0.223	0.250	0.278	0.300	0.325	0.645	0.383	0.426
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.60	0.68	0.77	0.85	0.90	1.00	1.10	1.20
Sustained Current Ratings										
4. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		155	190	225	260	290	325	370	425
5. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		130	160	190	215	245	275	325	365
6. Laid Singly in Air, Ambient Temp. 35 ºC	A		160	200	240	280	315	360	425	485
One Second Short Circuit Current Rating of Conductor	kA		7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS.

8.5/15 (17.5) kV Three Core Aluminum Conductors XLPE Insulated to IEC 60502-2 Steel Armored Cable

Nominal Area of Conductor	**mm²**	**25**	**50**	**70**	**95**	**120**	**150**	**185**	**240**	**300**
Conductor Diameter (Max)	mm		8.4	9.9	11.6	13	140.5	16.1	18.4	20.6
Weight of Conductor (Approx)	Kg/km		381	549	762	955	1177	1482	1942	2439
Insulation Thickness (Nominal)	mm		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Separation Sheath Thickness	mm		1.5	1.5	1.6	1.7	1.7	1.8	1.9	2.0
Armore Wire Diameter	mm		2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Outer sheath Thickness (Nominal)	mm		2.8	2.9	3.10	3.2	3.3	3.4	3.5	3.15
Approximate Overall Diameter	mm		61	67	71	75	78	81	91	95
Approximate Cable Weight	Kg/km		5280	5900	6670	7330	8830	9725	11060	12450
Standard Drum Length	m		500	500	500	500	500	400	300	300
Minimum Bending Radius of Cable (during installation)	mm		749	800	858	908	959	1014	1094	1170
Maximum DC resistance of Conductor at 20 ºC	Ohm/km		0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100
Approximate AC resistance of Conductor at 90 ºC	Ohm/km		0.822	0.568	0.410	0.325	0.264	0.211	0.161	0.130
Approximate Reactance at 50 Hertz	Ohm/km		0.118	0.115	0.108	0.102	0.099	0.095	0.092	0.890
Approximate Impedance at 50 Hertz	Ohm/km		0.835	0.578	0.425	0.345	0.282	0.232	0.186	0.159
Approximate Capacitance of Cable	µf/km		0.223	0.250	0.278	0.300	0.325	0.645	0.383	0.426
Approx. Charging Current per phase at Uo = 8.7KV and f=50Hz	mA/m		0.60	0.68	0.77	0.85	0.90	1.00	1.10	1.20

Sustained Current Ratings										
7. Laid Direct, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		155	190	225	260	290	325	370	425
8. Draw into Ducts, Ground Temp. 30 ºC & g=1.2ºC m/W, depth of laying=0.8m, laid singly	A		130	160	190	215	245	275	325	365
9. Laid Singly in Air, Ambient Temp. 35 ºC	A		160	200	240	280	315	360	425	485
One Second Short Circuit Current Rating of Conductor	kA		7.15	10.01	13.60	17.20	21.50	26.50	34.30	42.90

FOR ALL CABLES THE MAXIMUM CONDUCTOR OPERATING IS 90ºC AND LIMITED CONDUCTOR TEMPERATURE AFTER SHORT CIRCUIT IS 250ºC. LONGER DRUM LENGTH IS AVAILABLE TO CUSTOMER REQUIREMENTS.

HANDLING

4. Minimum bending radius and permissible maximum pulling tension

For safety installation without damaging electrical and physical properties, the following minimum bending radius and permissible maximum pulling tension must be observed:

Minimum bending radius

er of core	**Single core**		**Multi core**
of cable	**Round conductor**	**Four segmental stranded conductor**	
cable	8D	12D	6D
V cable and higher	10D	12D	8D
type cable	—	—	8D
ated metal armoured cable	10D	12D	8D
pe amoured cable	10D	12D	8D
rmoured cable	10D	12D	8D
heathed cable	10D	12D	10D

Permissible Maximum Pulling Tension

Pulling tool	Material of conductor	**Permissible maximum pulling tension(kg)**
Pulling eye	Copper	7 x (Number of core) x (Cross-sectional area of conductor)
	Aluminium	14 x (Number of core) x (Cross-sectional area of conductor)

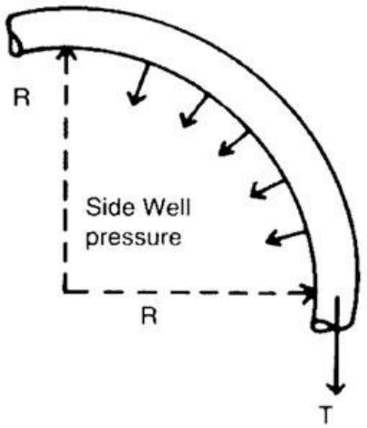
Cable grip	Copper & aluminium	The same as using the pulling eye, but the maximum tension should be less than two tons.

Note: When cable grip is used it should cover more than 500 mm in length of the cable end and be bound to the cable sheath.

5. Side wall pressure to cable

Permissible maximum side wall pressure to the cable at bending point durinng installation is 500 kg/m.

Side wall pressure to cable = T/-R
T : Pulling tension (kg)
R : Bending radius (m)



6. Removal of sheath or tape

Special care must be taken not to harm the insu When removing the sheath or tapes with a otherwise it may result in a dielectric breakdown.

7. Cleaning the surface of insulation

The surface of insulation should be cleaned to av flash over at the cable termination or joint.

8. Applying of self adhesive tape

When applying a self adhesive tape after jointi terminating of XLPE cable, stretch it properly abou times as long as the original one. If it is overstre crack may occur on the tape in the long run and stretched properly, tape will be adhered between layer.

9. Water proof treatment for out-door termination

For out-door termination water proof treatme necessary to avoid the water penetrating into the end and special care must be taken to apply tapes terminals.

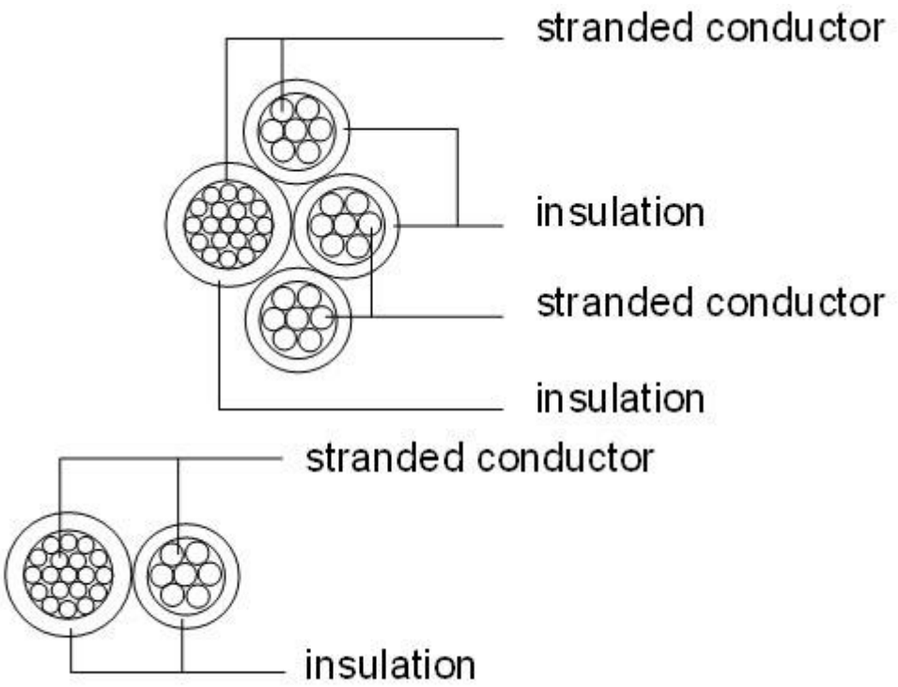
SECTION- AERIAL BUNDLE CABLES

AERIAL BUNDLE CABLES

LT Aerial bundle cable (ABC) 600/1000V suitable for overhead installation on electric poles, XLPE insulated, Aluminum conductor, the

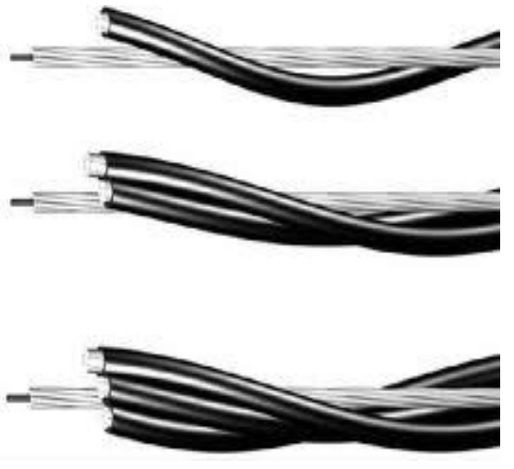
cable consist of four insulated aluminum conductors, stranded around insulated aluminum alloy or ACSR messenger. The messenger will also serve as a neutral conductor.

CONSTRUCTION



TYPICAL EXAMPLE OF ABC CABLE DESIGN





TECHNICAL DATA FOR Low Voltage Aerial Cable (0.61/1 kV Almoe)

Insulation material can be High Density Polyethlene(HDPE) or PVC Max Permissable conductor temperaure for HDPE = 75 deg.C Max permissable conductor temprature for HDPE=70deg .C			Cable Size			
			1× 16mm2 1× 16mm2	3× 16mm2 +1×25mm2	3×95mm2 +1×70mm2 1× 16mm2	3×185mm +1×120m +1× 16m
Phase Conductor						
Conductor	Cross-sectional area	mm2	16	16	95	185
	No. of strands		7	7	19	37
	Diameter	mm	4.9	4.9	11.7	16.2
Thickness of insulation		mm	1.05	1.05	1.70	2.20
Approx. diameter of phase conductor		mm	7.0	7.0	15.1	20.2
Max. DC resistance of conductor at 20deg.C		Ω/km	1.91	1.91	0.320	0.164
Messenger/ Neutral Conductor						
Conductor	Cross-sectional area	mm2	25	25	70	120
	No. of strands		7	7	19	19
	Diameter	mm	6.0	6.0	10.2	13.0
Thick ness of insulation		mm	1.25	1.25	1.50	1.70
Approx. diameter of phase conductor		mm	1.50	1.50	13.20	16.40
Max. DC resistance of conductor at 20deg.C		Ω/km	1.20	1.20	0.443	0.253
Breaking Load			7.4	7.4	36.0	36.0
Lighting Conductor						
Conductor	Cross-sectional area	mm2	*	*	16	16
	No. of strands		*	*	7	7
	Diameter	mm	*	*	4.9	4.9

Thick ness of insulation	mm	*	*	1.05	1.05
Approx. diameter of phase conductor	mm	*	*	7.0	7.0
Max. DC resistance of conductor at 20deg.C	km	*	*	1.91	1.91
Approx. overall diameter of cable	mm	12.0	19.5	40.7	54.0
Approx. overall weight of the cable	kg/km	160	290	1300	1630
Cable lenght per drum	m	1000	1000	500	2500

Cross-section of 11 kv up to 33 kv AI-XLPE/PE aerial cable

Conductor	Cross-sectional area	mm2	16	35	70	95	150	185
	No. of strands		7	7	19	19	37	37
	Diameter	mm	4.7	7.0	10.1	11.7	14.1	16.4
Norminal thickness of conductor screen		mm	0.8	0.8	0.8	0.8	0.8	0.8
Norminal thickness of isulation		mm	3.4	3.4	3.4	3.4	3.4	3.4
Norminal thickness of screen		mm	0.8	0.8	0.8	0.8	0.8	0.8
Norminal thickness of metalic sreen		mm	0.09	0.09	0.09	0.09	0.09	0.09
Norminal thick ness of outer sheath		mm	1.5	1.6	1.7	1.8	1.9	1.9
Approx. overall diameter of cable		mm	17.5	21.0	25.0	27.5	28.3	31
Messenger / Wire								
Cross-sectional area		mm2	35	35	50	50	50	120
No. of strands and diameter		no./mm	7/2.6	7/2.6	7/3.2	7/3.2	7/3.2	19/2.8
Diameter		mm	7.8	7.8	9.6	9.6	9.6	14.0

Modulus of elasticity		kg/mm2	17500	17500	17500	17500	17500	17500
Temprature coefficient of expension			12×10E-6	12×10E-6	12×10E-6	12×10E-6	12×10E-6	12×10E-6
Breaking Load		kN	45.6	45.6	45.6	63.0	63.0	95.2
Stranded Cable								
Approx. overall diameter of stranded cable		mm	38	50	54	60	65	67
Approx. net weight		kg/mm	1260	1500	2500	2900	3450	4250
Max. DC resistance of conductor at 20 º C		Ω/km	1.91	0.868	0.443	0.320	0.206	0.164
Min insulation resistance at 20 º C		mΩ/km	3000	2200	1900	1700	1500	1300
Test Voltage for 5 minutes		kV	22.3	22.3	22.3	22.3	22.3	22.3
AC DC conductor resistance at 90 ºC, 50HZ		Ω/km	2.449	1.113	0.568	0.410	0.265	0.211
Reactance at 50 HZ		Ω/km	0.134	0.132	0.116	0.112	0.104	0.101
Continous current rating at ambient temperature of 32 deg. C		A	85	150	225	280	365	395
Max. short circuit current rating for conductor	0.1sec	kA	3.11	6.81	13.62	18.48	29.19	36.00
	0.5sec	kA	1.39	3.05	6.09	8.27	13.05	16.10
	0.1sec	kA	0.98	2.15	4.31	5.85	9.23	11.38
	3.0 sec	kA	0.57	1.24	2.49	3.37	5.33	6.57

SECTION – BARE CONDUCTORS

Aluminium Conductors (i) All Aluminium Conducts (AAC) (ii) All Alloy Aluminium Conductors (AAAC), and (iii) Aluminium Conductors Steel Reinforced (ACSR) are used in Transmission and Distribution system to carry the generated electrical energy fromgenerating station to end user. The Electrical energy is normally generated at the power stations far away from the urban areas where the consumers are located. There is a large network of conductors between the generating stations and the consumer.

THERMAL CHARACTERISTICS

Continuous Current Carrying Capacity

The continuous current carrying capacity of a conductor depends on the permissible conductor temperature rise above ambient air temperature. For the calculation of current ratings of bare overhead conductors, ambient air temperatures between 20ºC and 40ºC are usually considered.

The maximum permissible continuous operating temperature of an overhead conductor is limited by the permanent effects of high temperatures on the strength of the conductor material. Aluminium wire may be operated indefinitely at temperatures of up to 75°C without significant annealing occurring. Therefore, this temperature is taken as the continuous operating temperature for bare aluminium and aluminium alloy conductors.

For aluminium and aluminium alloy conductors, a maximum operating temperature limit of 100°C is recommended, resulting in approximately 3% loss of strength after 1000 hours of operation. Under emergency operating conditions with higher temperatures, the effect of annealing should be considered. The loss of strength for an AAC or AAAC/1120 conductor operated at 150°C for 10 hours is equivalent to the loss of strength for the same conductor operated at 100°C for 7000 hours. The effect is less significant with steel-reinforced conductors, where the steel provides most of the strength of the conductor and is essentially unaffected by temperature. However, to allow for the effects on grease and fittings, a maximum operating temperature limit of 120°C is recommended in this case.

The maximum load capacity of a long line is usually dictated by consideration of system stability, permissible voltage regulation, or the cost of energy losses. However, the maximum load capacity of a short line may be determined by the maximum permissible operating temperature of the conductor. The maximum permissible operating temperature is that which results in the greatest permissible sag (allowing for creep) or that which results in the maximum allowable permanent loss of tensile strength due to annealing.

The conductor temperature depends on the current load, the electrical characteristics of the conductor, and the atmospheric parameters such as wind and sun. Assuming these factors to be fairly constant, the conductor temperature does not change significantly. In this situation, the heat supplied to the conductor is balanced by the heat dissipated and the thermal condition of the conductor is then defined as “steady state”. At such a steady state, with the conductor at maximum permissible temperature, a heat balance equation can be used to calculate the continuous current carrying capacity of a conductor.

The formulae used for the calculations are generally in accordance with those published by V. T. Morgan.

Ambient Temperature

For dry conductors the choice of ambient temperature has little influence on the increase of the calculated current carrying capacity for a given temperature rise. For example, for temperature rises higher than 30°C, the increase in the current carrying capacity for a given temperature rise above an ambient of 20°C is within 2% of the value obtained with the same temperature rise above an ambient of 35°C. Rain has a major effect on the current carrying capacity of a conductor, and the rating of a wet conductor is higher than that of a dry one. For conductors with a wet surface, the choice of ambient temperature significantly influences the current carrying capacity.

Solar Radiation

Many factors can influence the effect of solar radiation. The altitude of the sun, the clearness ratio of the sky, the incidence of the solar beam and the reflectance of the sun from the ground, affect the magnitude of the solar heat input into the conductor. However, small changes in solar radiation intensity have little effect on the current carrying capacity. An increase in solar radiation intensity from 1000 W/m^2 to 1200 W/m^2 decreases the rating of a conductor by about 2%. A value of 1000 W/m^2 for direct solar radiation and 100W/m^2 for diffuse solar radiation for summer noon conditions has been chosen as appropriate to general conditions throughout Australia and New Zealand.

Emissivity and Solar Absorption Coefficients

Emissivity is the value between zero and unity which defines the fraction of the black-body radiation that the surface emits. Similarly, absorptivity is the value between zero and unity that defines the fraction of the incident irradiation that is absorbed by the surface. The surface condition of a conductor affects both these parameters, and for convenience they are assumed to be equal.

The Rural Weathered condition is considered to exist on old lines in clean atmospheres and may also exist as sections of new conductor in an old line arising from augmentation or alteration works.

Air Movement

This is the most significant of all the parameters. The rate of increase of the current carrying capacity of a conductor with increasing wind velocity is greatest at

low wind velocities. This is partly due to the effect of wind velocity on the radial temperature gradient in the conductor.
Wind direction also affects the current carrying capacity of a conductor. However, it would be difficult to take the variability of the wind into account because of its dependence on many factors, including local topography and climate.
In view of this and of the lack of comprehensive meteorological data across the country, current carrying capacities have been calculated for the theoretical extreme condition of still air and for 1.0 metre/second.

ELECTRICAL CHARACTERISTICS

AC Resistance

The electrical resistance of a conductor with alternating current is greater than its resistance with direct current. For all-aluminium conductors, the increased resistance is due mainly to skin effect, which causes the current to concentrate in the outer portion of the conductor. Non-uniformity of current distribution is also caused by a proximity effect, which results from electromagnetic fields from nearby conductors. However, for normal spacing of overhead lines this effect is small and can be ignored. For steel-reinforced conductors the current that follows the spiral of the helically applied aluminium wires around the steel
core produces a longitudinal magnetic flux in the steel core. This alternating flux causes both hysteresis and eddy current losses, increasing the effective resistance of the conductor to alternating current. The magnetic flux in the steel varies with current, and is most significant when the number of aluminium layers is odd, because there is incomplete cancellation of the magnetic flux in the steel core. Skin effect and, in the case of steel-reinforced conductors with single and three layers of aluminium, hysteresis and eddy current effects, were taken into consideration in determining the AC resistance.

Inductive Reactance

The inductive reactance of stranded conductors in an overhead line is calculated by considering the flux linkages caused by current flowing in the conductors. To simplify the calculation, it is usually considered to consist of two components: the conductor component of reactance resulting from the magnetic flux, and the spacing component of reactance resulting from the magnetic flux to the equivalent return conductor. The conductor component depends on the number of strands and the geometry of the conductor. The spacing component takes into consideration the spacing between conductors and the geometry of the circuit. The reactance of an overhead line is found by adding the two components. For steel-reinforced conductors, the magnetic flux in the steel core depends on the amount of current flowing in the conductors and is most significant when the number of aluminium layers is odd. However, the magnetic properties of the steel core are highly non-linear, and the conductor component of reactance can be accurately determined only from tests. The values shown in the tables of electrical performance data in the following sections are sufficiently accurate for most
practical installations. Values for inductive reactance to 300 mm horizontal spacing are shown in the following Product Sheets

BARE OVERHEAD CONDUCTORS

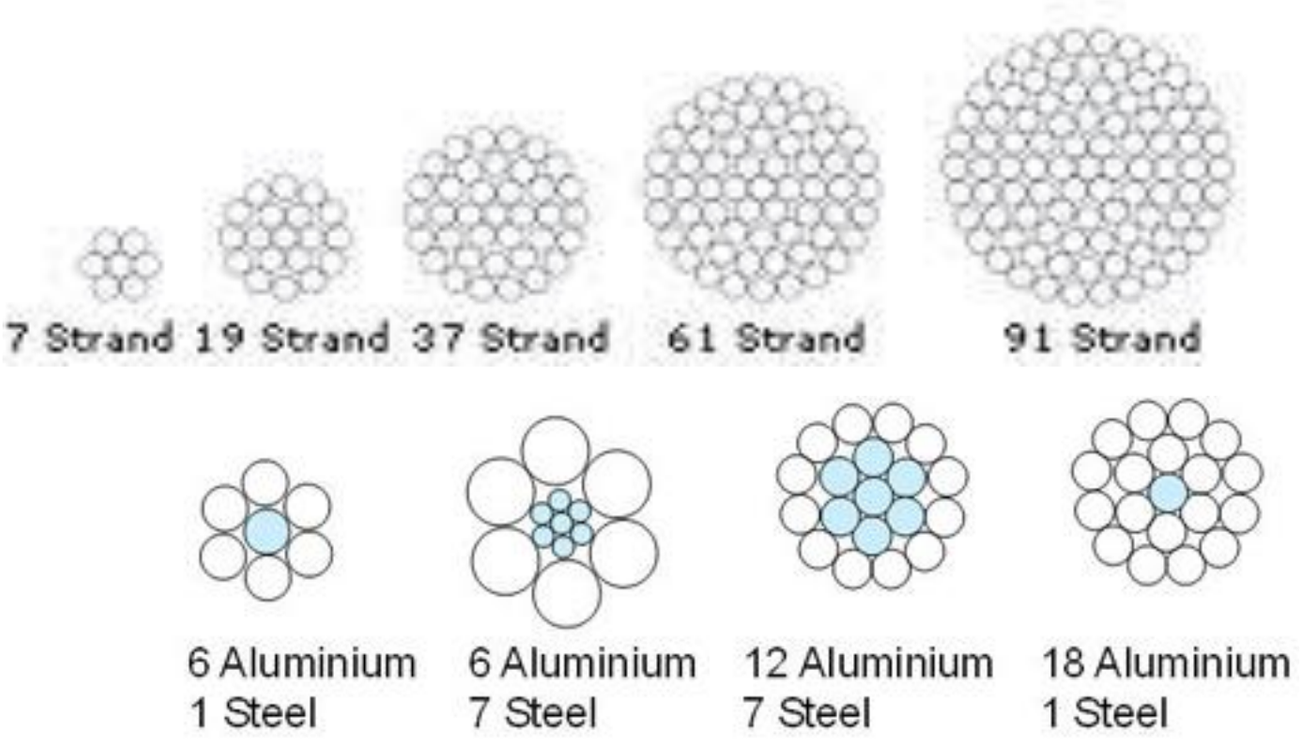
Materials

Olex offers a number of materials meeting the requirements of both Australian and International Standards.Aluminium 1350: High purity electrical conductor (EC) grade aluminium (alloy 1350) has a conductivity of 61% IACS and UTS of 160–185 MPa. Aluminium alloy 1120: Olex alloy 1120 (Ductolex) has a conductivity of 59% IACS and UTS of 240–250 MPa. It provides a conductor with comparable electrical resistance and 40–50% higher strength than a similar conductor of EC grade material. This alloy can be considered a ‘high tech’ version of EC grade aluminium and offers significant advantages over older type alloys, such as alloy 6201.

Steel-reinforced aluminium alloy 1120 conductors have a high strength to weight ratio, resulting in small sags on long span lengths. Fittings for alloy 1120 conductors are similar to those used for EC grade aluminium
conductors. Copper: Hard drawn copper wire produced from high conductivity alloy 110A has a conductivity of 97% IACS and UTS of 405–460 MPa.
Galvanised steel: Galvanised steel wire made from fully-killed steel with a carbon content of 0.6% has a UTS of 1.31–1.39 GPa. It is galvanised by either a hot dip or electrolytic process to give a zinc coating mass of 200–260 g/m_2.

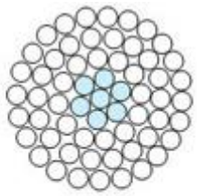
Construction

The wires in all bare conductors are stranded concentrically with successive layers having an opposite direction of lay, the outermost layer being right-handed. When required, a larger central wire (king wire) is included in a conductor. The diameter of this wire is based on conductor design considerations and is usually 5% greater than the surrounding wires. The incorporation of a king wire is often an advantage for ACSR type conductors, as it ensures that the surrounding layer of wires fits firmly on the central wire. ACSR conductors may be subjected to corrosive conditions such as high pollution found in industrial areas or salt spray in coastal areas. The application of high melting point grease over the steel wires provides additional protection against
corrosion. Aluminium alloy 1120 conductors are becoming more popular as replacements for steel-reinforced conductors in areas of high corrosion risk.



18 Aluminium
7 Steel

30 Aluminium
7 Steel



54 Aluminium
7 Steel

TYPICAL EXAMPLE OF CONDUCTORS

Property of Materials

Property	Unit	Aluminum	Aluminum Alloy	Copper	Galvanized Steel
Density at 20ºC	kg/m3	2700	2700	8890	7800
Conductivity at 20ºC	% IACS	61	59	97	10.1
Resistivity at 20ºC	µΩ.m	0.0283	0.0293	0.01777	0.17
Constant-Mass Temperature Coefficient of Resistance	per ºC	0.00403	0.00390	0.00381	0.0044
Ultimate Tensile Stress	MPa	160 - 185	230 - 250	405 - 460	1310 - 1390
Modulus of Elasticity	GPa	68	68	124	193
Coefficient of Linear Expansion	per ºC	23.0 x 10–6	23.0 x 10–6	17.0 x 10–6	11.5 x 10–6

BARE COPPER CONDUCTOR

Hard Drawn/Annealed Copper Conductor

APPLICATIONS:

Solid and stranded bare copper conductors are suitable for overhead transmission and distribution applications. Stranded conductors of greater flexibility are suitable for un-insulated hook up, jumpers and grounds in electrical construction, circuit ground connections as well as machinery and equipment grounding.

SPECIFICATIONS:

Power Cables bare copper conductors meet the following specifications:

- BS 7884 : 1997
- ASTM B-1; ASTM B-8

CONSTRUCTION:

Bare copper, solid or stranded. Available in tempers hard and annealed. The conductors are concentrically stranded.

BRITISH SIZES: BS 7884:1997

Nominal Area	Number of Wires in Conductor	Nominal Dia. of Wires in Conductor	Approx. Conductor Diameter	Conductor Resistance at 20°C (Max.)	Nominal Weight	Maximum Weight	Breaking Load (Min.)
mm²	Nos.	mm	mm	Ohm/km	Kg/km	Kg/km	N
10	7	1.35	4.05	1.829	89.82	91.62	3752
16	3	2.65	5.70	1.106	148.3	151.3	6194
16	7	1.70	5.10	1.154	142.4	142.2	5946
25	7	2.10	6.30	0.7563	217.3	221.6	9073
35	7	2.50	7.50	0.5337	308.0	314.2	12860
50	7	3.00	9.00	0.3706	443.5	452.4	18520
50	19	1.80	9.00	0.3819	435.8	444.5	17700
70	19	2.10	10.50	0.2806	593.2	605.1	24090
95	19	2.50	12.50	0.1980	840.7	857.5	34140
100	7	4.30	12.90	0.1818	911.1	929.4	36540
120	19	2.80	14.00	0.1578	1055.0	1076.0	42830
150	37	2.25	15.75	0.1264	1334.0	1361.0	53880
185	37	2.50	17.50	0.1024	1647.0	1680.0	66490

AAC CONDUCTORS

AAC conductor is also known as aluminium stranded conductor. It is manufactured from electrolytically refined aluminium, with a minimum purity of 99.7%. AAC is used mainly in urban areas where the spacing is short and the supports are close. All aluminium conductors are made up of one or more strands of aluminium wire depending on the end usage. AAC is also used extensively in coastal regions because it has a high degree of corrosion resistance.

BS 215 PS1 1970

Code Name	Nominal Area of Conductor	Stranding	Sectional Area of Conductor	Nominal Overall Diameter	Mass	Breaking Load	DC-Resistance at 20 °C	Current Rating
	mm²	No./mm	mm²	mm	Kg/km	N	(Ohm/km)	(Amps)
MIDGE ANT FLY	22 50 60	7/2.06 7/3.10 7/3.40	23.3 52.8 63.6	6.2 9.3 10.2	64 145 174	4000 8300 9900	1.227 0.5419 0.4505	72 112 124
WASP HORNET CHAFER	100 150 200	7/4.39 19/3.25 19/3.78	106.0 157.6 213.2	13.2 16.3 18.9	290 434 587	16000 24700 32400	0.2702 0.1825 0.1349	158 190 215
COCKROACH BUTTERFLY CENTIPEDE	250 300 400	19/4.22 19/4.65 37/3.78	265.7 322.7 415.2	21.1 23.3 26.5	731 888 1145	40400 48700 63100	0.10830 0.08916 0.06944	232 247 262
HAWTHORN	600	61/3.55	603.7	31.95	1668	87.79	0.0479	601

ALL ALUMINUM ALLOY CONDUCTOR (AAAC) BS 3242:1970

This conductor is made from aluminium-magnesium-silicon alloy of high electrical conductivity containing enough magnesium silicide to give it better mechanical properties after treatment. These conductors are generally made out of aluminium alloy 6201. AAAC CONDUCTOR has a better corrosion resistance and better strength to weight ratio and improved electrical conductivity than AAC.

BS 3242 PS1 1970

Code Name	Nominal Area of Conductor	Stranding	Sectional Area of Conductor	Nominal Overall Diameter	Mass	Breaking Load	DC-Resistance at 20 ºC	Current Rating
	mm²	No./mm	mm²	mm	Kg/km	N	(Ohm/km)	(Amps)
ALMOND CEDAR FIR	25 30 40	7/2.34 7/2.54 7/2.95	30.1 35.5 47.8	7.02 7.62 8.85	82 97 131	8450 9950 13400	1.094 0.9281 0.6880	85 85 99
HAZEL OAK ASH	50 100 150	7/3.30 7/4.65 19/3.48	59.90 118.9 180.7	9.90 13.95 17.40	164 325 497	16800 33300 50600	0.5498 0.2769 0.1830	113 150 181
ELM UPAS	175 300	19/3.76 37/3.53	211.0 362.1	18.80 24.71	580 997	59100 101500	0.1568 0.09155	188 209

ACSR CONDUCTORS

ACSR conductor consists of a solid or stranded steel core surrounded by strands of aluminium. ACSR conductor is available in a range of steel strengths varying from 6% up to 40%. The higher strength ACSR conductors are used for river crossings, overhead earth wires, and installations involving extra long spans. Against any given resistance of conductor, ACSR conductor may be manufactured to have different tensile strengths as per requirement. The principal advantage of these conductors is their high tensile strength and light weight, covering longer spans with less supports. Due to the greater diameter of an ACSR conductor much higher corona limit can be obtained, giving a big advantage on high and extra high voltage overhead lines.

POWER CABLES (PVT) LTD.

Manufacture all types of electrical cables, wires & conductors

BS 215 PS2 1970

Code Name	Nominal Area of Conductor	Stranding & Wire Dia		Aluminum cross ection area	Area of complete Conductor	Nominal Overall Diameter	Mass	Breaking Load	Calculated DC Resistance at 20°C	Current Rating
	mm²	Alum.	Steel	mm²	mm²	mm	Kg/km	N	(Ohm/km)	(Amps)
GOPHER WEASEL FERRET	25 30 40	6/2.36 6/2.59 6/3.00	1/2.36 1/2.59 1/3.00	26.24 31.64 42.41	30.62 36.88 49.48	7.08 7.77 9.00	106 128 172	9600 11400 15200	1.093 0.9077 0.6766	77 84 98
RABBIT HORSE DOG	50 70 100	6/3.35 12/2.59 6/4.72	1/3.35 7/2.79 7/1.57	52.88 73.37 105	61.70 116.2 118.5	10.05 13.95 14.15	214 538 394	18400 61200 32700	0.5426 0.3936 0.2733	112 148 153
WOLF DINGO LYNX	150 150 175	30/2.59 18/3.35 30/2.79	7/2.59 1/3.35 7/2.79	158.1 158.7 183.4	194.9 167.5 226.2	18.13 16.75 19.53	726 506 842	69200 35700 79800	0.1828 0.1815 0.1576	162 179 178
CARACAL PANTHER BISON	175 200 -	18/3.61 30/3.00 54/3.00	1/3.61 7/3.00 7/3.00	184.3 212.1 381.7	194.5 261.5 431.3	18.05 21.00 27.00	587 974 1444	41000 92200 120900	0.1563 0.1363 0.0757	205 191 208
JAGUAR ZEBRA	200 400	18/3.86 54/3.18	1/3.86 7/3.18	210.6 428.9	222.3 484.5	19.30 28.62	671 1621	46600 131900	0.1367 0.0674	197 202
RABBIT	50	6/3.35	1/3.35	52.88	61.70	10.05	214	18.38	0.543	238
RAIL	484	45/3.70	7/3.70	483.84	517.38	29.61	1599	116.27	0.060	497
CARDINAL	485	54/3.38	7/3.38	484.50	517.38	30.42	1832	149.45	0.060	590
OSPREY	280	18/4.465	1/4.465	281.90	297.56	22.33	899	60.90	0.123	640