

NG
NIGERCHIN
WIRE AND CABLE
NIGERCHIN ELECTRICAL DEV. CO. LTD.



**PRODUCT
CATALOGUE**



Pioneer Manufacturer of
Quality Wires & Cables



Certificate No. 002650



ISO 9001

BUREAU VERITAS
Certification



Awards/Certificates



**BV ISO 9001-2015
Certified Company**



Product Quality Award



**Manufacturing
Association Award**



**Product Quality
Gold Award**



**Product Quality
Diamond Award**



Safety Compliance Award



**Company of the
Year 2008**



**MANCAP
Certificate**



**NCDMB Content Equipment
Certificate**

CONTENT NAVIGATOR



General Introduction	6
Product Scope	7
Technical Information	8-16
Aluminium Conductor Steel Reinforced (ACSR) For Overhead Power Transmission	17
All Aluminium Conductor (AAC) For Overhead Power Transmission	18
Hard Drawn Copper Conductors For Overhead Power Transmission BS 7884 -Bare Copper Trailing Conductors For Steel Manufacturer's Furnace 450/750V Cables	19
Single Core PVC Insulated, Non-Sheathed Cables and PVC Sheathed Cables Aluminium Cable -Current Ratings and Associated Voltage Drop	20
Single Core PVC Insulated, Non-Sheathed Cables and PVC Sheathed Cables Copper Cable -Current Ratings and Associated Voltage Drop	21-23
Flat PVC Insulated and PVC Sheathed -Current Ratings and Associated Voltage Drop	24-26

Circular PVC Insulated and PVC Sheathed (Flexible/Solid/Stranded) -Current Ratings and Associated Voltage Drop	27-30
PVC Insulated and PVC Sheathed Armoured and Unarmoured Aluminium Cable-Current Ratings and Associated Voltage Drop	31-32
Single Core PE Insulated, Brass Taped, PVC Sheathed Airfield Lighting Cables -Maximum Capacities of PVC Conduit, For Simultaneous Drawing in of Single Core PVC Cables	33-34
PVC/XLPE Insulated and PVC/LSZH Sheathed Armoured and Unarmoured Copper Cable-Current Ratings and Associated Voltage Drop	35-47
Flexible PVC Insulated and PVC Sheathed Unarmoured Copper Cable-Current Ratings and Associated Voltage Drop	48-49
PVC/XLPE Insulated PVC Sheathed Auxiliary (Control) 600/1000V cables -Current Ratings and Associated Voltage Drop	50-51
Current Rating Factors	51-52
Special Cables	53
Wooden Drum Standard Nigerchin Wire and Cable	54
Cable Drums Handling Procedure	55
Recommendations for Cable Installation	56-57
Ordering Information	58
Chinese Cable Equivalent to Nigerchin Cable (Copper)	59
Abbreviation/Alphabet Descriptions for Chinese Standards	60
Technical Parameters	60-66



GENERAL INTRODUCTION

About **US**



NIGERCHIN was incorporated in 1970 as the pioneer manufacturer of electric cables and conductors in Nigeria.

A partnership with Canada Wire and Cable International (CWI), then, a Canadian company with over 75 years experience in cable designed, engineering and manufacture, gave Nigerchin relevant technology, experience and facilities for product and manpower development.

Over time, Nigerchin has built on this foundation, competency for upgrading, producing and certifying quality products that meet international requirements in the electrical power industry and installations.

Mission

To manufacture cable and conductor products that meet the requirements of customers and governing standards, for the maximum benefit of all the stakeholders.

Vision

To emerge as the leading manufacturer of quality cable and conductor products in West Africa.



CORE VALUES



Employees • Trust • Confidence • Team-Work • Accountability

Facilities • Safe • Efficient • Innovative • Latest Testing Equipment

Products • Safe • Reliable • Environmental friendly

Services • Promptly respond to customer • Exceed customer expectation
• Maintain long-term business relationship
• On-time delivery



PRODUCT SCOPE

Nigerchin Electrical Development Company Limited is committed to deliver the highest standard wires and power cables to the local market and for export. To do so, Nigerchin Electrical Development Company produces a versatile product range cover most of our customer needs:

- Overhead Conductor - AAC, ACSR as per NIS/IEC Standard
- Flexible wires and cables up to 0.5mm²- 300mm² to IEC 60227, BS 6004 & BS 6500.
- Building wires to IEC 60227 and BS 6004.
- LV power Cables with PVC and XLPE insulation to IEC 60502-1, BS 5476, BS 7889
- Low smoke and fume, zero halogen (LSZH) with thermo setting insulation/sheath which is specific to where the application requires higher standards of safety against the emission of smoke, fumes and toxic gases as per BS 7211, BS 6724, IEC 60502 - 1 and tested to IEC 61034, IEC 60754 and IEC 60332.



RANGE OF PRODUCTS

The products are essentially electrical wires, cables and conductors of aluminium and copper made specifically to British Standard (BS), International Electrotechnical Commission (IEC) Standard and Nigeria Industrial Standard (NIS). We also have engineering capability and facilities to manufacture products to other International Standards and to customer's own specifications. The range of the electrical power cables and conductors includes but not limited to the following:

- Copper 300/500V - 600/1000V surface & conduit wiring cable;
- Copper 600/1000V multi-core up to 60 cores armoured and unarmoured control cable;
- Copper/Aluminium 600/1000V single core mains cable;
- Copper/Aluminium 600/1000V/1.9/3.3kV multi-core armoured and unarmoured cable;
- Aluminium 600/1000V service entrance cable;
- Aluminium bare overhead conductor (AAC);
- Aluminium conductor steel reinforced (ACSR);
- Airfield lighting cable;
- Fire resistant cable - mica taped with LSZH sheathed, armoured and unarmoured cable and
- Special cables such as plain copper braided cable, tinned copper braided cable, coaxial cable.



QUALITY POLICY STATEMENT

Nigerchin Electrical Development Company Limited is committed to the design, manufacture and supply of quality cable and conductor products that meet National and International Standards, and Customers' Specification consistent with NIS ISO 9001:2015 standard, our interested parties requirements including statutory and regulatory requirements. We always ensure continual improvement of our quality management systems' effectiveness to the satisfaction of our valued customers.



QUALITY IS OUR MAIN TARGET

Nigerchin Electrical Development Company Limited is the leading Power Cables Manufacturers in Nigeria. We are working in different axis to completely fulfill customers satisfaction which is the milestone of our business, such as:

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 quality suppliers. 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 from Asia and local experts 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. Nigerchin Electrical Development Company's Quality Management System conforms to the ISO 9001: 2015 International Management Quality System Standard with scope of Design and Manufacturing of Electrical Power Cables and Wires.
5. Nigerchin Electrical Development Company is frequently testing its products at internationally reputable labs, diversity of products have been tested and confirmed compliance to the international standard.

FACTORY MACHINERY

All production machines are top of the line of the cables machinery suppliers. From start up with wire drawing lines to extrusion lines, to assembly machines up to the laboratories and the final test fields, all technical, calibrated equipment is provided with the highest international standards of electronic control equipment and measuring devices which insures that the requirements of different quality standards are met.

PLANT CAPACITY

We have installed capacity to draw well over 800 metric tonnes of wire per month for both aluminium and copper. At any given time, this capacity is spread between copper and aluminium products to make for balanced plant load while still giving due consideration to customers' delivery requirements.

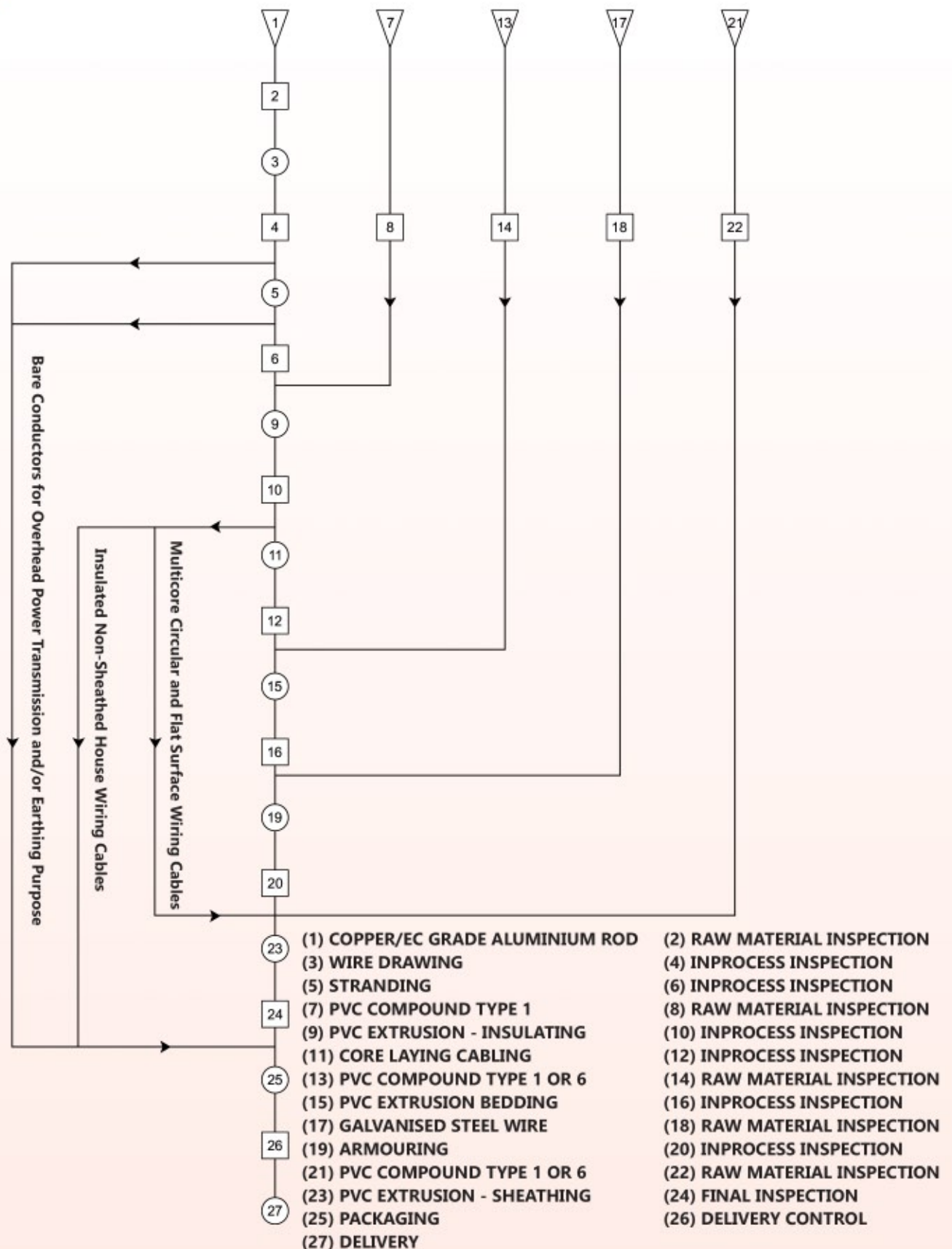
PRODUCT DEVELOPMENT

- a) The demand for customized cable design with stringent test requirements is growing in particular in the oil and gas sector. We can design, develop and deliver products that meet the high safety requirements of customers who operate in the hazardous oil and gas subsector.
- b) To meet the market needs identified from feedbacks, Nigerchin has upgraded relevant facilities to venture into the production of XLPE insulated LV cables. Meanwhile, under special arrangement we can outsource 11KV and 33KV cables to meet the needs of our regular customers until we find it commercially viable to have facilities locally for the manufacture of these products.





PROCESS FLOW CHART





INPROCESS AND QUALITY CONTROL TESTS

1. **Wire Drawing**
Diameter
Tensile Strength
Elongation
Resistance at 20°C
2. **Wire Stranding**
Diameter
Lay Length and Direction
Resistance at 20°C
3. **Core Insulation**
Thickness
Concentricity
Diameter
Tensile Strength
Elongation
Spark Test on Core
Surface Appearance
4. **Core Identification**
Visual Examination
5. **Laid-up Core**
Diameter
Lay Length
Visual Examination
6. **Bedding/Inner Covering**
Thickness
Diameter/Thickness
Tensile Strength
Elongation
7. **Armour**
Diameter
Lay Length and Direction
Wrapping Test
8. **Oversheath**
Diameter
Thickness ,Concentricity,
Surface Appearance
Tensile Strength
Elongation
Spark Test
9. **Test on Finished Cable**
Cable Marking
Conductor Resistance
Armour Resistance
Voltage Test
Insulation Resistance Test
Test under Fire Condition



TECHNICAL INFORMATION

GENERAL

1.0 CONDUCTORS

A conductor is the metallic part of cables that is carrying the electric current

Conductor materials are :

- 1.1 Plain annealed copper conductor (to BS EN 1977, ASTM B49 & ASTM B 33)
- 1.2 Aluminum (to ASTM B233)
- 1.3 The conductor structure is complying to the requirements of BS EN 60228 (IEC 60228) class 1, class 2 stranded, non Compacted , compacted or compacted sector shaped conductors and flexible conductors.

2.0 MICA TAPING - for fire resistant cable

3.0 INSULATION

- 3.1 Each core conductor is insulated by extruded plastic material as will follow; the insulation thickness is selected based on the designated voltage rate complying with IEC 60502-1 & BS 5467 2016 suitable for 0.6/1.0 KV.
- 3.2 The insulation integrity is controlled online by an AC spark tester with test methods specified in BS EN 62230 and using test voltages specified in BS5099.
- 3.3 Insulation Material:
Insulation material is selected to match the desired customer requirements and customer specification.
- 3.3.1 Standard Polyvinyl chloride type (PVC/A 70°C) complying with IEC 60502-1 requirements or Types (TI1 70°C) & heat resistant PVC type TI-3 (90°C) complying with BS EN 50363-3.
- 3.3.2 Cross Linked Polyethylene XLPE complying with IEC 60502.
The XLPE is selected to comply with the requirements of GP8 evaluation as specified in BS 7655-1.3
- 3.3.3 IEC & BS standard insulation color codes are described in Table-1 (i.e. used in the products of this catalogue), meanwhile the color code as per BS 5467 is offered to our customers upon their request.
- 3.3.4 LSZH Low Smoke zero Halogen cables with special fire performance - Single core non - sheathed cables with halogen free cross-linked insulation and low emission of smoke - BS EN50525 - 3 - 41.

TECHNICAL INFORMATION

Cable Structure

Table 1: Insulated Core Color Codes

Number of Cores	Colors to IEC 60502-1	Colors to BS 5467
1	Red or Black	Brown or Blue
2	Red & Black	Brown & Blue
3	Red, Yellow and Blue	Brown, Black and Grey
4	Red, Yellow, Blue and Black	Blue, Brown, Black and Grey
5	Red, Yellow, Blue, Black and Green / Yellow	Green / Yellow, Blue, Brown, Black and Grey

4.0 CABLE ASSEMBLY

The Insulated cores are laid up together to form the laid up cable cores. Extruded suitable polymer compound or non-hygroscopic polypropylene filler is applied (when required) between laid up cores to provide a circular shape to the cable.

Polypropylene tape(s) or PETP (Polyester) tape(s) is used as a barrier tape over the laid up cores. Such tape(s) will bind the cores together and prevents them from opening out, acts as a separator between different polymers used in a cable and works as a heat barrier between the cores and the extruded bedding.

5.0 SCREENING - Braiding for instrumentation cable

6.0 BEDDING

It could be also called inner sheath or inner jacket, which serves as a bedding under armouring to protect the laid up cores and as a separation sheath.

7.0 ARMOURING

The cable intended for tray application does not require armour in general, while it is recommended to have an armour for the cables intended for Direct Burial application. The armour provides mechanical protection against crushing forces. Armour also can serve as an Earth Continuity Conductor (ECC). The armouring type could be:

7.1 One layer of Galvanized Round Steel Wire to BS EN 10257 is applied helically over the bedding.

TECHNICAL INFORMATION

Cable Structure

- 7.2 Double Galvanized Steel Tape applied over each other, with a suitable overlap, one layer covers the gap of the other layer.
- 7.3 Aluminum wire armouring for a single Core Cable acts as non magnetic armour.

8.0 OUTER SHEATH (OUTER JACKET)

- 8.1 It is the outer protection part of the cable against the surrounding environment.
- 8.2 Several materials can be used as oversheath based on the intended application.
 - 8.2.1 General purpose PVC Type ST2 compound as specified in IEC 60502-1, or its equivalent PVC Type 9 to BS 7655-4.2.
 - 8.2.2 High density Polyethylene HDPE compound fulfill and exceed the requirements of Type ST7 IEC 60502-1 for cables that require to be abrasion resistant, protected against water ingress and strong Environmental Stress Crack Resistant.
 - 8.2.3 Halogen Free Flame Retardant (LSHF) compounds complying with ST8 to IEC 60502-1 or Types LTS 1 & LTS 4 to BS 7655: section 6 for cables installed in intrinsically safe locations and where the cables require to be low smoke, low fume and low toxic gas emitting in case of fire. Cables to this category are complying with the requirements of BS 6724.
 - 8.2.4 The standard sheath color is Black, meanwhile other colors such as Red and Yellow can also be provided as per customer request and in this case suitable UV proved additive is added to the Master batch to ensure resistance to sunlight.
 - 8.2.5 When the cable is required to be antitermite / antivermin, a special additive is added to the sheathing compound.
 - 8.2.6 All cables produced at Nigerchin with PVC or Halogen free jackets are complying with the flame retardant test to IEC 60332-1. Whenever a requirement for more severe tests as IEC 60332-3 is needed, a jacketing compound with Oxygen index value more than 30% will be used.

9.0 INSTALLATION

Low voltage cables with both PVC and XLPE insulation are suitable for indoor and outdoor applications. For more information customers may refer to BS 7671 IEE wiring regulation seventeenth edition

TECHNICAL INFORMATION

Cable Structure

The following recommendations should be followed to achieve the optimal cable service

1. Armoured cables are not recommended for tray applications, as they are heavy in weight and extra loads are exerted on the tray.
2. Unarmoured cables are not recommended for direct buried applications, except if the quoted cables are designed and produced to pass direct burial test requirements.
3. A PVC jacket is a very stable material against a wide range of chemicals, while HDPE jacketed cables can serve better in wet locations.
4. A recommended minimum bending radius is included in Table 2, the cable jacket may be damaged if the cable is bended in diameters less than these values.
5. LSZH Cables for fire safety and hazardous areas

Table 2 : Cables bending radius

Cable Type	Cable Minimum Bending Radius
Unarmoured up to 10 mm D	3D
10-25 mm D	4D
over 25 mm D	6D
Armoured up to 30 mm D	6D
over 30 mm D	8D

D: Cable diameter in mm

TECHNICAL INFORMATION

ELECTRICAL CHARACTERISTICS

Current Rating

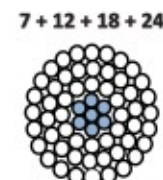
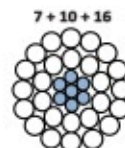
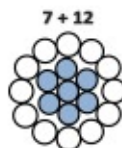
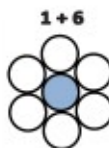
1 CURRENT RATING ASSUMPTIONS

- 1.1 The calculation of the current ratings, Current rating equations (100% load factor) and calculation of losses are based on IEC 60287 series , and the values of Current ratings for under ground applications (In Duct or Direct Buried) are derived from the latest issue of ERA Report 'Current Rating Standards 69.30 Part V'. The ratings for a cable installed in Air are adopted from BS 7671 IEE Wiring Regulations, seventeenth edition.
- 1.2 Nigercchin offers different insulation material with operating temperature of XLPE 90°C and PVC 70°C and they both have different current carrying capacity.
- 1.3 The calculation is based on the standard dimensions of cables based on IEC and BS.
- 1.4 The values given in the tables are for one circuit installed thermally isolated from other circuits or any other heat source.
- 1.5 The basis of the standard conditions is the climatic condition of the Nigeria, which is:

Ambient Air Temperature:	15 °C
Ambient Ground Temperature:	30 °C
Depth of laying in ground:	0.50 m
Soil Thermal Resistivity	1.2 K m/W
- 1.6 For other Installation conditions or any value of different air/ground temperature, depth of laying, different soil thermal resistivity the customer is advised to multiply the tabulated current rating by the de-rating factor values as in tables 3 to 8 (Page 51-52)

ALUMINIUM CONDUCTORS STEEL REINFORCED (ACSR) FOR OVERHEAD POWER TRANSMISSION

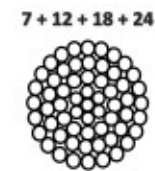
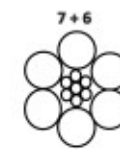
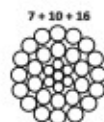
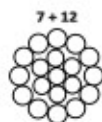
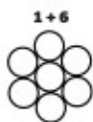
BS 215: Part 2
IEC 60209
NIS 234



Nominal Aluminium Area	Number and Nominal Diameter of Wires		SECTIONAL AREA			Approximate Overall Diameter	Approximate Weight of Conductor	Calculated D.C. Resistance at 20°C	Calculated Breaking Load	Code Name	Current Rating	Delivery Length
	Aluminium	Steel	Aluminium	Steel	Total							
mm ²	mm	mm	mm ²	mm ²	mm ²	mm	kg/km	Ohm/km	KN		Amps	Metres
25	6/2.36	1/2.36	26.24	4.38	30.62	7.08	106	1.093	9.61	Copher	130	5000
30	6/2.59	1/2.59	31.61	5.27	36.88	7.77	128	0.9077	11.45	Weasel	135	3500
35	6/2.70	1/2.70	34.40	5.73	40.13	8.10	141	0.8346	12.65	-	145	3500
40	6/3.00	1/3.00	42.41	7.07	49.48	9.00	172	0.6766	15.20	Ferret	166	3500
50	6/3.35	1/3.35	52.88	8.82	61.70	10.05	214	0.5426	18.35	Rabbit	205	3500
70	12/2.79	7/2.79	73.37	42.83	116.20	13.95	538	0.3936	61.20	Horse	267	3000
95	26/2.15	7/1.67	94.40	15.33	109.73	13.60	384	0.3057	35.75	-	350	2500
100	6/4.72	7/1.57	105.00	13.50	118.50	14.15	394	0.2733	32.70	Dog	366	2500
120	26/2.44	7/1.90	121.60	19.84	141.44	15.50	495	0.2376	45.62	-	410	2000
150	30/2.59	7/2.59	158.10	36.80	194.90	18.13	726	0.1828	69.20	Wolf	470	3000
150	18/3.35	1/3.35	158.70	8.82	167.52	16.75	506	0.1815	35.70	Dingo	470	3000
175	30/2.79	7/2.79	183.40	42.83	226.23	19.53	842	0.1576	79.80	Lynx	535	2500
175	18/3.61	1/3.61	184.30	10.20	194.40	18.05	587	0.1563	41.10	Caracal	535	2500
185	26/3.00	7/2.33	183.78	29.84	213.62	19.00	748	0.1570	66.20	-	535	2500
200	30/3.00	7/3.00	212.10	49.40	261.50	21.00	974	0.1363	92.25	Panther	570	2500
200	18/3.86	1/3.86	210.60	11.70	222.30	19.30	671	0.1367	46.55	Jaguar	570	2500
240	26/3.45	7/2.68	243.50	39.49	282.54	21.90	989	0.1189	86.40	-	645	2000
400	54/3.18	7/3.18	428.90	55.60	484.50	28.62	1621	0.0674	131.90	Zebra	843	1500

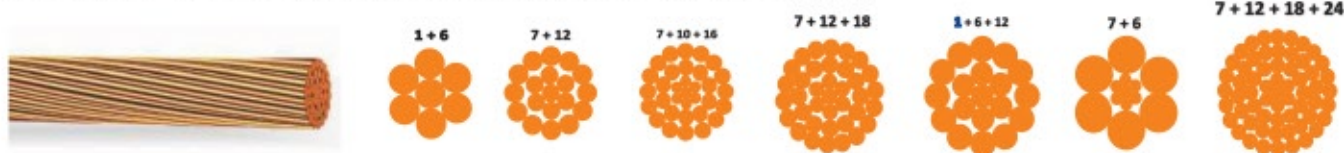
ALL ALUMINIUM CONDUCTORS (AAC) FOR OVERHEAD POWER TRANSMISSION

BS 215: Part 1
IEC 207
NIS 231



Nominal Cross Sectional Area	Number and Nominal Diameter of Wires	Approximate Overall Diameter	Nominal Weight of Conductor	Calculated D.C. Resistance at 20°C	Calculated Breaking Load	Code Name	Current Ratings	Delivery Length
mm ²	mm	mm	kg/km	Ohm/km	KN		Amps	Metres
22	7/2.06	6.18	64	1.227	3.99	Midge	90	4000
35	7/2.50	7.50	95	0.830	5.86	-	157	3500
50	7/3.00	9.00	136	0.576	8.46	-	210	6000
50	7/3.10	9.30	145	0.5419	8.28	Ant	205	6000
60	7/3.40	10.20	174	0.4505	9.90	Fly	215	4000
70	19/2.10	10.50	181	0.437	11.28	-	225	4000
100	19/2.67	13.35	295	0.2704	17.64	Beetle	316	3000
100	7/4.39	13.17	290	0.2702	16.00	Wasp	316	3000
150	19/3.25	16.25	434	0.1825	25.70	Hornet	400	2000
150	37/2.25	15.75	409	0.1960	25.212	-	398	2000
200	19/3.78	18.90	587	0.1349	32.40	Chafer	470	2500
250	19/4.22	21.10	731	0.1083	40.40	Cockroach	600	2500
300	19/4.65	23.25	888	0.08916	48.75	Butterfly	640	2500
400	37/3.78	26.46	1145	0.06944	63.10	Centipede	800	1000

HARD DRAWN COPPER CONDUCTORS FOR OVERHEAD POWER TRANSMISSION BS 7884



COPPER

Nominal Cross Sectional Area	Number and Nominal Diameter of Wires	Approximate Overall Diameter	Nominal Weight of Conductor	Maximum D.C. Resistance at 20°C	Minimum Breaking Load	Current Ratings	Delivery Length
mm ²	mm	mm	kg/km	Ohm/km	KN	Amps	Metres
10	7/1.35	4.05	89.82	1.829	3752	67	5000
16	3/2.65	5.70	148.3	1.106	6194	93	4000
25	7/2.10	6.30	217.3	0.7563	9073	118	4000
35	7/2.50	7.50	308.0	0.5337	12,860	148	3000
50	7/3.00	9.00	443.5	0.3706	18,520	186	2000
70	7/3.55	10.65	621.1	0.2646	25,930	229	2000
100	7/4.30	12.90	911.2	0.1810	36,540	281	1000
125	19/2.90	14.50	1131	0.1471	45,940	326	1000
150	19/3.20	16.00	1377	0.1208	55,940	377	1000
185	19/3.55	17.75	1695	0.09815	68,860	433	1000

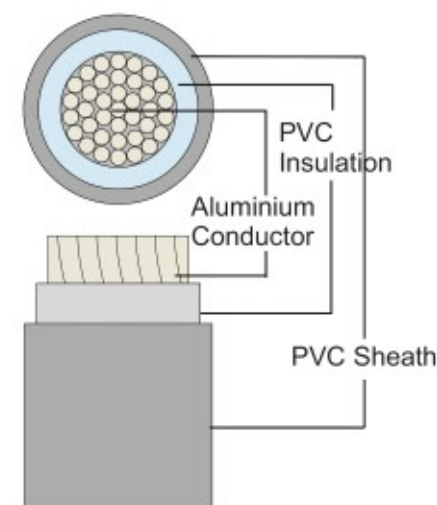
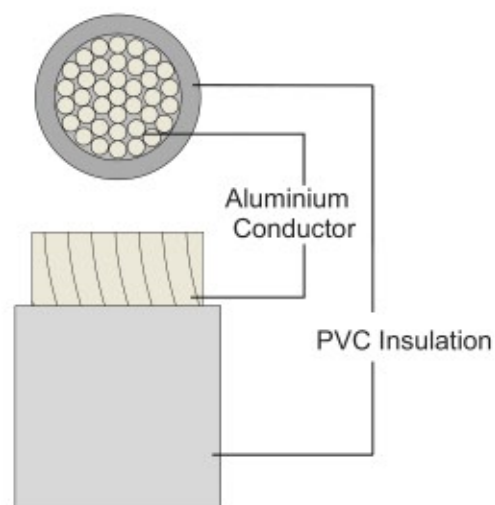
BARE COPPER TRAILING CONDUCTORS FOR STEEL MANUFACTURER'S FURNACE 450/750V CABLES

COPPER

Nominal Cross Sectional Area	Number and Nominal Diameter of Wires	Approximate Overall Diameter	Nominal Weight of Conductor	Calculated D.C. Resistance at 20°C	Delivery Length
mm ²	mm	mm	kg/km	Ohm/km	Metres
750	1159/0.90	40.5	7466	0.0243	500
800	1159/0.94	42.3	7963	0.0221	500
1000	1729/0.85	46.75	9955	0.0176	500
1250	1729/0.96	52.80	12,443	0.0140	250

SINGLE CORE PVC INSULATED, NON-SHEATHED CABLES AND PVC SHEATHED CABLES

450/750V Cables
600/1000V Cables
IEC – 60502 – 1



ALUMINIUM

DIMENSIONS AND WEIGHTS					Maximum Current Rating
Nominal Area of Conductor	Number and Nominal Diameter of Wires	Radial Thickness of Insulation	Approximate Overall Diameter	Approximate Weight of Cable	
mm ²	mm	mm	mm	Kg/km	Amps
10	1/3.57	1.0	6.4	55	49
16	7/1.70	1.0	7.8	78	65
25	7/2.14	2.0	9.7	122	85
35	7/2.52	1.2	10.9	146	105
50	19/1.78	1.4	12.8	198	123
70	19/2.14	1.4	14.6	267	156
95	19/2.52	1.6	17.0	367	193
120	37/2.03	1.6	18.8	448	225
150	37/2.25	1.8	20.9	552	259
185	37/2.52	2.0	23.3	690	290
240	61/2.25	2.2	26.5	897	361
300	61/2.52	2.4	29.5	1115	419

DIMENSIONS AND WEIGHTS						Maximum Current Rating
Nominal Area of Conductor	Number and Nominal Diameter of Wires	Radial Thickness of Insulation	Radial Thickness of Sheath	Approximate Overall Diameter	Approximate Weight of Cable	
mm ²	mm	mm	mm	mm	Kg/km	Amps
16	7/1.70	1.0	1.4	9.90	116	65
25	7/2.14	1.2	1.4	11.62	173	85
35	7/2.52	1.2	1.4	12.76	202	105
50	19/1.78	1.4	1.4	15.10	283	123
70	19/2.14	1.4	1.4	16.90	364	156
95	19/2.52	1.6	1.5	19.40	486	193
120	37/2.03	1.6	1.5	21.00	578	225
150	37/2.25	1.8	1.6	23.20	695	259
185	37/2.52	2.0	1.7	25.80	874	290
240	61/2.25	2.2	1.8	29.0	1117	361
300	61/2.52	2.4	1.9	32.1	1375	419

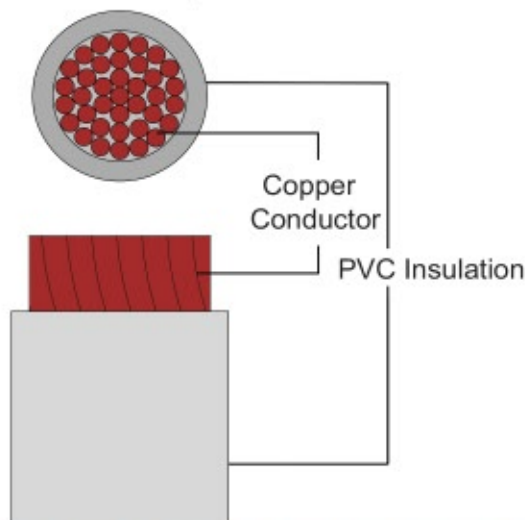
SINGLE CORE PVC INSULATED (NON-SHEATHED)

450/750V Cables

BS 6004/IEC 60227-3

NIS 172

IEC - 60502 - 1



COPPER

DIMENSIONS AND WEIGHTS

CONDUCTOR		Radial Thickness of Insulation	Overall Diameter (Upper Limit)	Approximate Weight of Cable
Nominal Area of Conductor	Nominal Diameter of Wires			
mm ²	mm	mm	mm	Kg/km
1.5*	1.38	0.7	3.2	21
2.5*	1.78	0.8	3.9	32
4*	2.25	0.8	4.4	47
6*	2.76	0.8	5.2	71
10	3.86	1.0	6.7	118
16	4.96	1.0	7.8	178
25	6.10	1.2	9.7	280
35	7.10	1.2	10.9	366
50	8.30	1.4	12.8	496
70	10.0	1.4	14.6	698
95	11.4	1.6	17.0	965
120	13.7	1.6	18.8	1203
150	14.5	1.8	20.9	1480
185	16.2	2.0	23.3	1854
240	18.5	2.2	26.5	2427
300	21.5	2.4	29.5	3035
400	24.0	2.6	33.2	3867
500	26.6	2.8	36.9	4856
630	32.7	2.8	41.0	6181

Note: 1. Upto 50mm² BS 6004

2. Upto 240mm² NIS/IEC 60227-3

3. Above 240mm² NIS/IEC 60502-1

4. * = Solid Conductor

5. On request conductor construction can be made to class 1, 2 and 5

CURRENT RATINGS AND ASSOCIATED VOLTAGE DROP SINGLE CORE PVC INSULATED (NON-SHEATHED)

450/750V Cables

BS 6004/IEC 60227 -3

NIS 172

IEC60502-1

COPPER

Nominal Cross Sectional Area	Bunched and Enclosed in Conduit or Trunking*					Clipped Direct to a Surface or on a Cable Tray and Unenclosed				
	2 Cables, Single Phase AC or DC			3 or 4 Cables, Three Phase AC		2 Cables, Single Phase AC or DC			3 or 4 Cables, Three Phase AC	
	Current Rating	Voltage Drop/Amp/ Metre		Current Rating	Voltage Drop/ Amp/ Metre	Current Rating	Voltage Drop/ Amp/ Metre		Current Rating	Voltage Drop/ Amp/ Metre
		AC	DC				AC	DC		
mm ²	Amps	mv	mv	Amps	mv	Amps	mv	mv	Amps	mv
1.5	17	28	28	14	24	21	28	28	20	24
2.5	24	17	17	21	15	30	17	17	26	15
4.0	32	11	11	29	9.2	40	11	11	36	9.2
6.0	41	7.1	7.1	37	6.2	50	7.1	7.1	45	6.2
10	55	4.2	4.2	51	3.7	68	4.2	4.2	61	3.7
16	74	2.7	2.7	66	2.3	90	2.7	2.7	81	2.3
25	97	1.7	1.7	87	1.5	118	1.7	1.7	106	1.5
35	119	1.3	1.3	106	1.1	145	1.3	1.3	130	1.1
50	145	0.97	0.91	125	0.84	175	0.93	0.91	160	0.82
70	185	0.71	0.63	160	0.62	220	0.65	0.63	200	0.59
95	230	0.56	0.45	195	0.48	270	0.48	0.45	240	0.45
120	260	0.48	0.36	220	0.42	310	0.40	0.36	280	0.38
150	-	-	-	-	-	355	0.34	0.26	320	0.34
185	-	-	-	-	-	405	0.29	0.24	365	0.30
240	-	-	-	-	-	480	0.24	0.18	430	0.27
300	-	-	-	-	-	560	0.22	0.14	500	0.25
400	-	-	-	-	-	680	0.20	0.12	610	0.24
500	-	-	-	-	-	800	0.18	0.086	710	0.23
630	-	-	-	-	-	910	0.17	0.068	820	0.22

The rating under "Enclosed conduit or Trunking" relate to Cables in metal or non-metallic conduit and trunking.

Basic Assumptions:

Ambient Temperature = 30°C

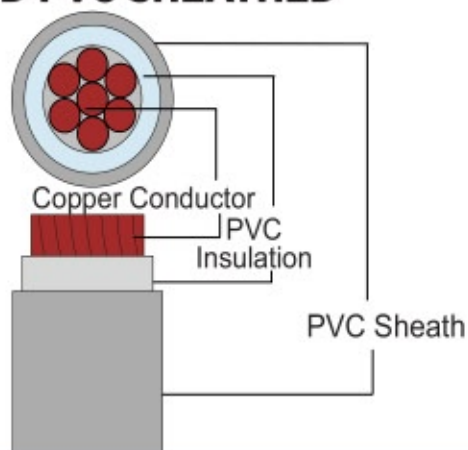
Maximum Operating Conductor Temperature at Rated Current = 70°C

SINGLE CORE PVC INSULATED PVC SHEATHED

300/500V Cables

BS 6004

NIS 172



DIMENSIONS AND WEIGHTS

CONDUCTOR		Radial Thickness of Insulation	Radial Thickness of Sheath	Approximate Overall Diameter	Approximate Cable Weight
Nominal Area of Conductor	Number and Nominal Diameter of Wires				
mm ²	mm	mm	mm	mm	kg/km
1.0	1/1.13	0.6	0.8	3.93	25
1.5	1/1.38	0.7	0.8	4.38	33
2.5	1/1.78	0.8	0.8	4.98	45
4.0	7/0.85	0.8	0.9	5.95	66
6.0	7/1.04	0.8	0.9	6.52	94
10	7/1.35	1.0	0.9	7.85	147
16	7/1.70	1.0	1.0	9.10	217
25	7/2.14	1.2	1.1	11.02	332
35	7/2.52	1.2	1.1	12.16	423

Current Ratings and Associated Voltage Drop

Nominal Cross Sectional Area	Bunched and Enclosed in Conduit or Trunking*					Clipped Direct to a Surface or on a Cable Tray and Unenclosed				
	2 Cables, Single Phase AC or DC		3 or 4 Cables, Three Phase AC			2 Cables, Single Phase AC or DC		3 or 4 Cables, Three Phase AC		
	Current Rating	Voltage Drop/Amp/ Metre		Current Rating	Voltage Drop/Amp/ Metre	Current Rating	Voltage Drop/Amp/ Metre		Current Rating	Voltage Drop/Amp/ Metre
		AC	DC				AC	DC		
mm ²	Amps	mv	mv	Amp	mv	Amps	mv	mv	Amps	mv
1.0	14	42	42	12	37	17	42	42	16	37
1.5	17	28	28	14	24	21	28	28	20	24
2.5	24	17	17	21	15	30	17	17	26	15
4.0	32	11	11	29	9.2	40	11	11	36	9.2
6.0	41	7.1	7.1	37	6.2	50	7.1	7.1	45	6.2
10	55	4.2	4.2	51	3.7	68	4.2	4.2	61	3.7
16	74	2.7	2.7	66	2.3	90	2.7	2.7	81	2.3
25	97	1.7	1.7	77	1.5	118	1.7	1.7	106	1.5
35	119	1.3	1.3	106	1.1	145	1.3	1.3	130	1.1

The rating under "Enclosed conduit or Trunking" relate to Cables in metal or non-metallic conduit and trunking.

Basic Assumptions:

Ambient Temperature = 30°C

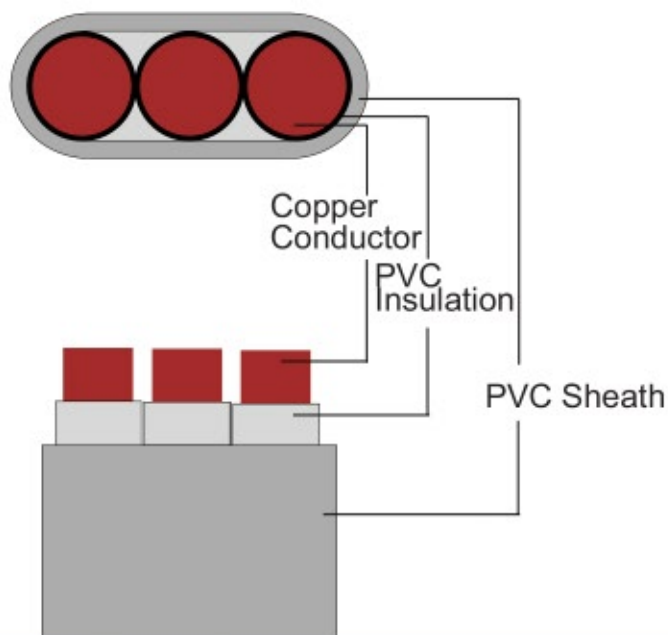
Maximum Operating Conductor Temperature at Rated Current = 70°C

FLAT TWIN AND FLAT THREE CORE PVC INSULATED PVC SHEATHED

300/500V Cables

BS 6004

NIS 172



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Type of Cables	DIMENSIONS AND WEIGHTS						
	CONDUCTOR		Radial Thickness of Insulation	Radial Thickness of Sheath	Approximate Overall Diameter mm		Approximate Weight of Cable
	Nominal Area of Conductor	Number and Nominal Diameter of Wires			Minor	Major	
Two Core	1.0	1/1.13	0.6	0.9	4.2	6.5	48
	1.5	1/1.38	0.7	0.9	4.6	7.40	63
	2.5	1/1.78	0.8	1.0	5.4	8.8	92
	4.0	1/2.25	0.8	1.0	5.9	9.7	133
	6.0	7/1.04	0.8	1.1	7.0	11.7	195
	10	7/1.35	1.0	1.2	8.5	14.5	309
	16	7/1.70	1.0	1.3	9.7	16.8	450
Three Core	1.0	1/1.13	0.6	0.9	4.2	8.8	71
	1.5	1/1.38	0.7	0.9	4.6	10.2	96
	2.5	1/1.78	0.8	1.0	5.4	12.2	143
	4.0	1/2.25	0.8	1.0	6.1	13.8	200
	6.0	7/1.04	0.8	1.1	7.3	16.7	290
	10	7/1.35	1.0	1.2	8.9	21.0	462
	16	7/1.70	1.0	1.3	10.2	24.4	672

Note : On request conductor can be made flexible.

CURRENT RATINGS AND ASSOCIATED VOLTAGE DROP FLAT TWIN AND FLAT THREE CORE PVC INSULATED PVC SHEATHED

300/500V Cables

BS 6004

NIS 172

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	Enclosed in Conduit or Trunking*					Clipped Direct to a surface or on a Cable Tray and Unenclosed			
Type of Cable	Nominal Cross Sectional Area	Twin Core Cable Single Phase		Three Core Cable Three Phase		Twin Core Cable Single Phase		Three Core Cable Three Phase	
		Current Rating	Voltage Drop/amp /metre	Current Rating	Voltage Drop/ amp/ metre	Current Rating	Voltage Drop/ amp/ metre	Current Rating	Voltage Drop/ amp/ metre
		Amps	mv	Amps	mv	Amps	mv	Amps	mv
2 Core Flat	1.0	14	42	-	-	16	42	-	-
	1.5	18	28	-	-	20	28	-	-
	2.5	24	17	-	-	28	17	-	-
	4.0	32	11	-	-	36	11	-	-
	6.0	40	7.1	-	-	46	7.1	-	-
	10	53	4.2	-	-	64	4.2	-	-
	16	70	2.7	-	-	85	2.7	-	-
3 Core Flat	1.0	-	-	12	37	-	-	13	37
	1.5	-	-	16	24	-	-	17	24
	2.5	-	-	21	15	-	-	24	15
	4.0	-	-	29	9.2	-	-	32	9.2
	6.0	-	-	36	6.2	-	-	40	6.2
	10	-	-	49	3.7	-	-	54	3.7
	16	-	-	62	2.3	-	-	71	2.3

The rating under "Enclosed conduit or Trunking" relate to Cables in metal or non-metallic conduit and trunking.

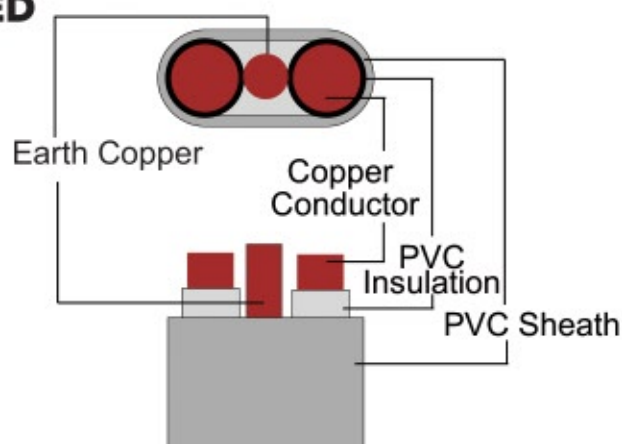
Basic Assumptions:

Ambient Temperature = 30°C

Maximum Operating Conductor Temperature at Rated Current = 70°C

FLAT TWIN WITH EARTH CONTINUITY CONDUCTOR PVC INSULATED PVC SHEATHED

300/500V Cables
BS 6004
NIS 172



COPPER

DIMENSIONS AND WEIGHTS

CONDUCTOR		Radial Thickness of Insulation	Radial Thickness of Sheath	Approximate Overall Diameter		Earth Continuity Number and Nominal Diameters of Wire	Approximate Weight of Cable
Nominal Area of Conductor	Number and Nominal Diameter of Wires						
mm ²	mm	mm	mm	Minor	Major	mm	kg/km
1.0	1/1.13	0.6	0.9	4.2	7.6	1/1.13	64
1.5	1/1.38	0.7	0.9	4.6	8.5	1/1.13	80
2.5	1/1.78	0.8	1.0	5.4	10.2	1/1.38	120
4	1/2.35	0.8	1.0	5.9	11.1	1/1.38	161
6	7/1.04	0.8	1.1	6.9	13.5	1/1.78	229
10	7/1.35	1.0	1.2	8.5	16.8	1/2.25	369
16	7/1.70	1.0	1.3	9.7	20	7/1.04	540

Note : On request conductor can be made flexible.

Current Ratings and Associated Voltage Drop

Nominal Cross Sectional Area	Enclosed in Conduit or Trunking*		Clipped Direct to a Surface or on Cable Tray and Unenclosed	
	Single Phase			
	Current Rating	Voltage Drop/amp/metre	Current Rating	Voltage Drop/amp/metre
mm ²	Amps	mv	Amps	mv
1.0	14	42	16	42
1.5	18	28	20	28
2.5	24	17	28	17
4.0	32	11	36	11
6	40	7.1	46	7.1
10	53	4.2	64	4.2
16	70	2.7	85	2.7

The rating under "Enclosed conduit or Trunking" relate to Cables in metal or non-metallic conduit and trunking.

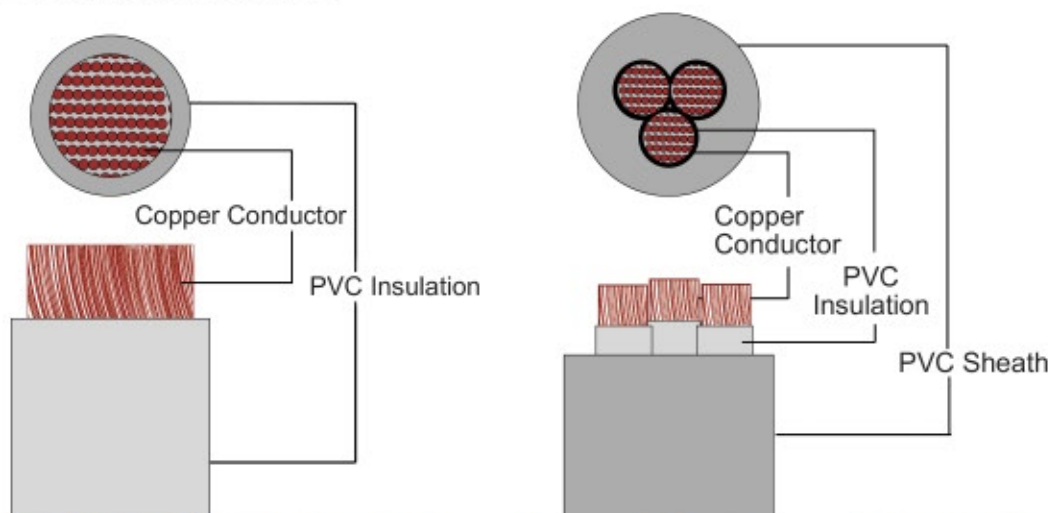
Basic Assumptions:

Ambient Temperature = 30°C

Maximum Operating Conductor Temperature at Rated Current = 70°C

SINGLE AND MULTICORE FLEXIBLE CABLE

450/750V & 300/500V
IEC60227 & BS 6500
BS 6004



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S.No	Size	Conductor Diameter	Insulation Thickness	Approx. Overall Diameter	Approx. Total
	Sq.mm	mm	mm	mm	kg/km
1	0.5	0.93	0.6	2.13	9
2	0.75	1.14	0.6	2.34	12
3	1.0	1.32	0.7	2.72	15
4	1.5	1.60	0.7	3.0	21
5	2.5	2.10	0.8	3.7	33
6	4	2.60	0.8	4.2	49
7	6	3.30	0.8	4.9	70
8	10	4.20	1.0	6.2	117
9	16	5.30	1.0	7.3	175
10	25	6.60	1.2	9.0	274
11	35	7.80	1.2	10.2	372
12	50	9.40	1.4	12.2	527
13	70	11.20	1.4	14.0	725
14	95	13.00	1.6	16.2	1006
15	120	14.50	1.6	17.7	1251
16	150	18.00	1.8	21.6	1580
17	185	20.00	2.0	24.0	1950
18	240	23.00	2.2	27.4	2521

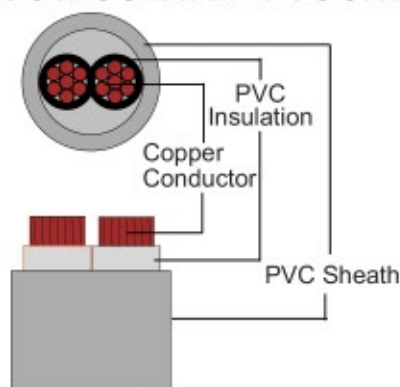
CORES	Size	Conductor Diameter	Insulation Thickness	Sheath Thickness	Approx. Overall Diameter	Approx. Total Weight
	Sqmm	mm	mm	mm	mm	kg/km
2	0.75	1.14	0.6	0.8	6.3	58
	1.0	1.32	0.6	0.8	6.6	67
	1.5	1.60	0.7	0.8	7.6	89
	2.5	2.00	0.8	1.0	9.2	136
	4	2.60	0.8	1.1	10.6	190
3	0.75	1.14	0.6	0.8	6.7	69
	1.0	1.32	0.6	0.8	7.0	81
	1.5	1.60	0.7	0.9	8.3	113
	2.5	2.00	0.8	1.1	10.0	172
	4	2.60	0.8	1.1	11.3	237
4	0.75	1.14	0.6	0.8	7.3	85
	1.0	1.32	0.6	0.9	7.9	104
	1.5	1.60	0.7	1.0	9.3	144
	2.5	2.00	0.8	1.1	10.9	214
	4	2.60	0.8	1.2	12.6	303
5	0.75	1.14	0.6	0.9	8.1	106
	1.0	1.32	0.6	0.9	8.6	124
	1.5	1.60	0.7	1.1	10.3	178
	2.5	2.00	0.8	1.2	12.1	265
	4	2.60	0.8	1.3	13.9	375

CIRCULAR TWO CORE WITH PVC INSULATED PVC SHEATHED

300/500V Cables

BS 6004

NIS 172



COPPER

DIMENSIONS AND WEIGHTS

CONDUCTOR		Radial Thickness of Insulation	Thickness of Inner Covering	Radial Thickness of Sheath	Approximate Overall Diameter	Approximate Weight of Cable
Nominal Area of Conductor	Number and Nominal Diameter of Wires					
mm ²	mm	mm	mm	mm	mm	kg/km
1.0	1/1.13	0.6	0.4	1.2	7.9	87
1.5	1/1.38	0.7	0.4	1.2	8.8	111
2.5	1/1.78	0.8	0.4	1.2	10.0	153
4.0	1/2.25	0.8	0.4	1.2	10.9	198
6	7/1.04	0.8	0.4	1.2	12.6	275
10	7/1.35	1.0	0.6	1.4	16.1	454
16	7/1.70	1.0	0.6	1.4	18.2	628
25	7/2.14	1.2	0.8	1.4	22.0	948
35	7/2.52	1.2	1.0	1.6	25.12	1272

Current Ratings and Associated Voltage Drop

Nominal Cross Sectional Area	Enclosed in Conduit or Trunking*			Clipped Direct to a Surface or on Cable Tray and Unenclosed		
	Single Phase			Single Phase		
	AC or DC			AC or DC		
	Current Rating	Voltage Drop/amp/metre		Current Rating	Voltage Drop/amp/metre	
mm ²	Amps	AC mv	DC mv	Amps	AC mv	DC mv
1.0	14	42	42	16	42	42
1.5	18	28	28	20	28	28
2.5	24	17	17	28	17	17
4.0	32	11	11	36	11	11
6	40	7.1	7.1	46	7.1	7.1
10	53	4.2	4.2	64	4.2	4.2
16	70	2.7	2.7	85	2.7	2.7
25	79	1.8	1.8	108	1.8	1.8
35	98	2.3	2.3	132	2.3	2.3

The rating under "Enclosed conduit or Trunking" relate to Cables in metal or non-metallic conduit and trunking.

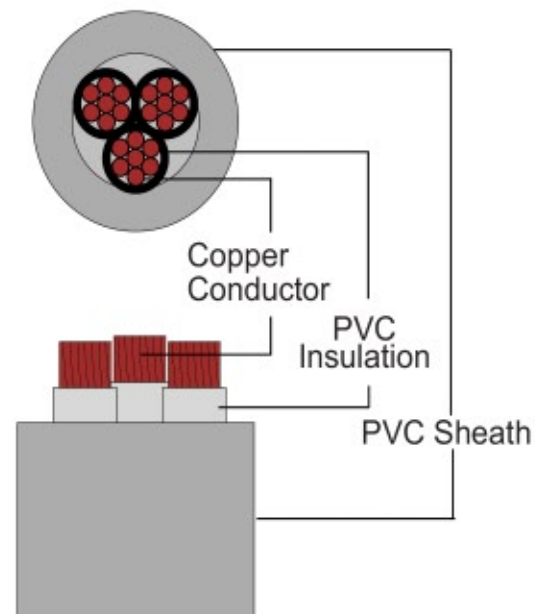
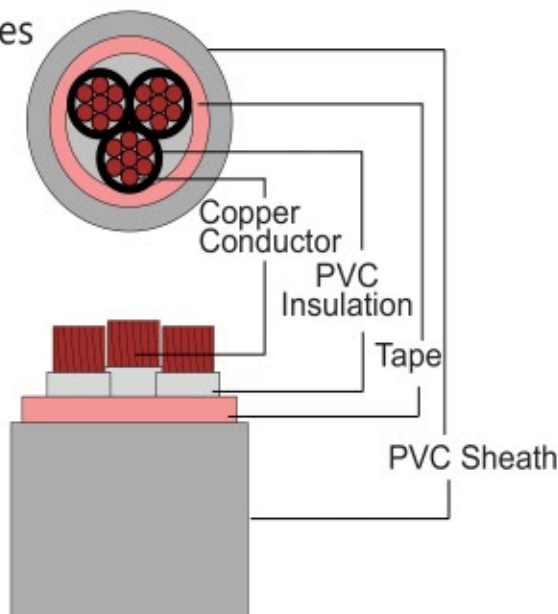
Basic Assumptions:

Maximum Temperature = 30°C

Maximum Operating Conductor Temperature at Rated Current = 70°C

CIRCULAR THREE CORE PVC INSULATED PVC SHEATHED

300/500V Cables
BS 6004
NIS 172



COPPER

DIMENSIONS AND WEIGHTS

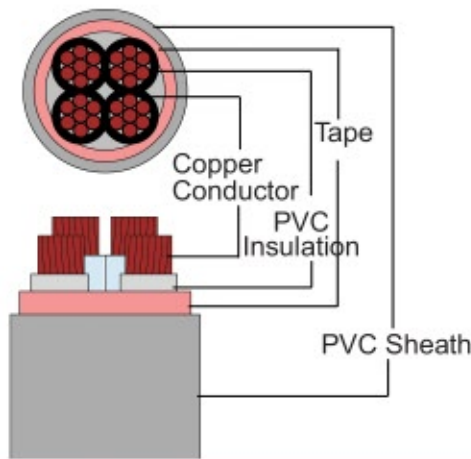
CONDUCTOR		Radial Thickness of Insulation	Thickness of Inner Covering	Radial Thickness of Sheath	Approximate Overall Diameter	Approximate Weight of Cable
Nominal Area of Conductor	Number and Nominal Diameter of Wires					
mm ²	mm	mm	mm	mm	mm	kg/km
1.0	1/1.13	0.6	0.4	1.2	8.2	100
1.5	1/1.38	0.7	0.4	1.2	9.2	131
2.5	1/1.78	0.8	0.4	1.2	10.4	183
4.0	1/2.25	0.8	0.4	1.4	11.4	242
6	7/1.04	0.8	0.4	1.4	13.7	356
10	7/1.35	1.0	0.6	1.4	17	566
16	7/1.70	1.0	0.8	1.4	19.7	818
25	7/2.14	1.2	0.8	1.6	23.8	1240
35	7/2.52	1.2	1.0	1.6	26.8	1640

Current Ratings and Associated Voltage Drop

Nominal Cross Sectional Area	Enclosed in Conduit or Trunking*		Clipped Direct to a Surface	
	Three Phase AC		Three Phase AC	
	Current Rating	Voltage Drop/amp/metre	Current Rating	Voltage Drop/amp/metre
mm ²	Amps	mv	Amps	mv
1.0	12	37	13	37
1.5	16	24	17	24
2.5	21	15	24	15
4.0	29	9.2	32	9.2
6	36	6.2	40	6.2
10	49	3.7	54	3.7
16	62	2.3	71	2.3
25	70	1.6	90	1.6
35	86	1.1	115	1.1

CIRCULAR FOUR CORE PVC INSULATED PVC SHEATHED

300/500V Cables
BS 6004
NIS 172



COPPER

DIMENSIONS AND WEIGHTS					
CONDUCTOR		Radial Thickness of Insulation	Radial Thickness of Sheath	Overall Diameter	Approximate Weight of Cable
Nominal Area of Conductor	Number and Nominal Diameter of Wires				
mm ²	mm	mm	mm	mm	kg/km
1.0	1/1.13	0.6	1.2	8.82	120
1.5	1/1.38	0.7	1.2	9.90	157
2.5	1/1.78	0.8	1.2	11.40	224
4.0	1/2.25	0.8	1.4	12.9	313
6	7/1.04	0.8	1.4	15.4	458
10	7/1.35	1.0	1.4	18.6	711
16	7/1.70	1.0	1.4	21.5	1030
25	7/2.14	1.2	1.6	26.5	1610
35	7/2.52	1.2	1.6	29.5	2089

Current Ratings and Associated Voltage Drop

Nominal Cross Sectional Area	Enclosed in Conduit or Trunking*		Clipped Direct to a Surface or on Cable Tray and Unenclosed	
	Three Phase AC		Three Phase AC	
	Current Rating	Voltage Drop/amp/metre	Current Rating	Voltage Drop/amp/metre
mm ²	Amps	mv	Amps	mv
1.0	12	37	13	37
1.5	16	24	17	24
2.5	21	15	24	15
4.0	29	9.2	32	9.2
6	36	6.2	40	6.2
10	49	3.7	54	3.7
16	62	2.3	71	2.3
25	70	1.6	90	1.6
35	86	1.1	115	1.1

The rating under "Enclosed conduit or Trunking" relate to Cables in metal or non-metallic conduit and trunking.

Basic Assumptions:

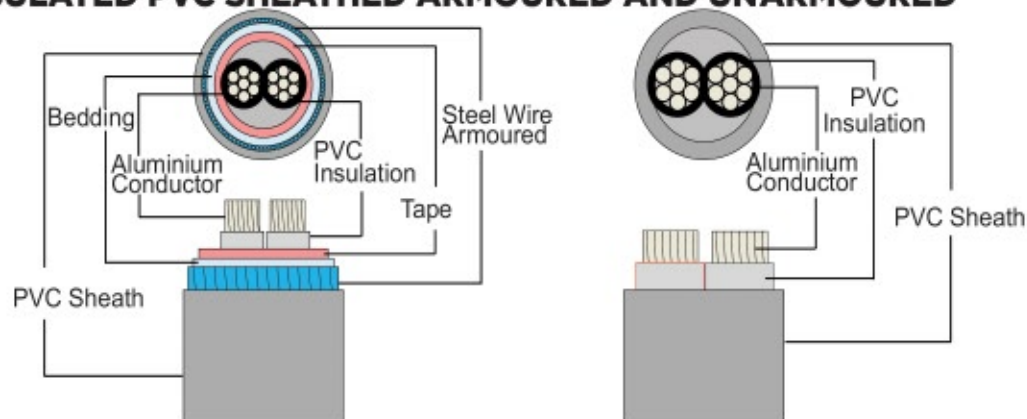
Ambient Temperature = 30°C

Maximum Operating Conductor Temperature at Rated Current = 70°C

TWO CORE PVC INSULATED PVC SHEATHED ARMoured AND UNARMoured

600/1000 V Cables

IEC 60502-1



ALUMINIUM

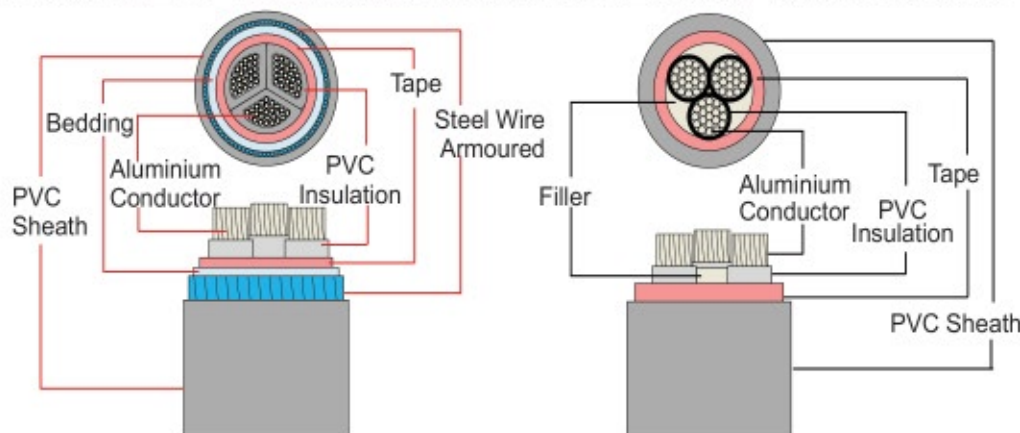
Nominal Area of Conductor	DIMENSIONS AND WEIGHTS										
	Number and Nominal Diameter of Wires	Thickness of Insulation	UNARMoured CABLES			ARMoured CABLES					Maximum Current Rating
			Thickness of Sheath	Approx. Overall Diameter	Approx. Cable Weight	Thickness of Extruded Bedding	Armour Wire Diameter	Thickness of Sheath	Approx. Overall Diameter	Approx. Cable Weight	
mm ²	mm	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km	Amps
16	7/1.70	1.0	1.8	18.6	404	0.8	1.25	1.6	21.9	752	66
25	7/2.14	1.2	1.8	22.1	581	1.0	1.60	1.7	26.3	1034	87
35	7/2.52	1.2	1.8	24.5	702	1.0	1.60	1.8	29	1090	105

Note : 1. Up to 50mm² circular conductor. 2. Above 50mm² circular and sector shaped conductor.

THREE CORE PVC INSULATED PVC SHEATHED ARMoured AND UNARMoured

600/1000 V Cables

IEC 60502-1

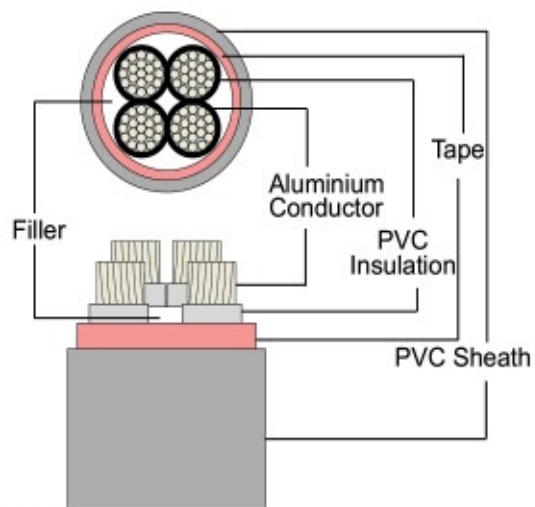
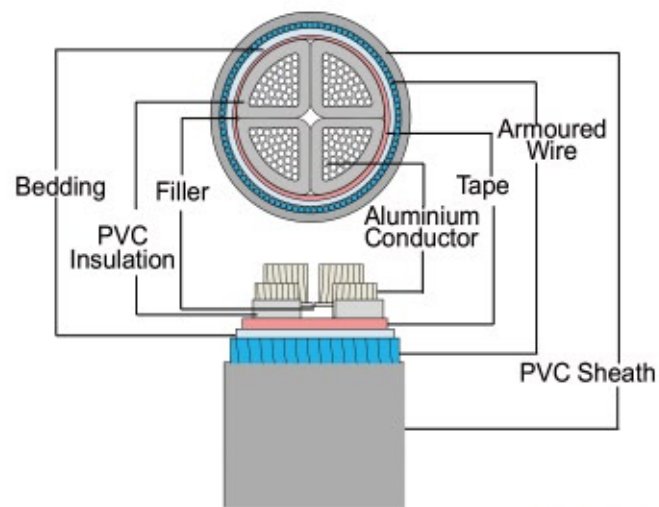


ALUMINIUM

Nominal Area of Conductor	DIMENSIONS AND WEIGHTS										
	Number and Nominal Diameter of Wires	Thickness of Insulation	UNARMoured CABLES			ARMoured CABLES					Maximum Current Rating
			Thickness of Sheath	Approx. Overall Diameter	Approx. Cable Weight	Thickness of Extruded Bedding	Armour Wire Diameter	Thickness of Sheath	Approx. Overall Diameter	Approx. Cable Weight	
mm ²	mm	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km	Amps
16	7/1.70	1.0	1.8	19.7	380	0.8	1.25	1.7	23.1	881	58
25	7/2.14	1.2	1.8	20.4	511	1.0	1.60	1.8	25.0	1205	71
35	7/2.52	1.2	1.8	23.4	636	1.0	1.60	1.9	27.3	1491	93
50	19/1.78	1.4	1.9	25.5	813	1.2	2.0	2.0	30.5	1641	110
70	19/2.14	1.4	2.0	28.7	1093	1.2	2.0	2.1	35.0	2325	145
95	19/2.52	1.6	2.2	33.3	1400	1.2	2.0	2.2	39.3	2816	175
120	37/2.03	1.6	2.3	36.3	1709	1.4	2.5	2.4	42.2	3222	205
150	37/2.25	1.8	2.5	40.0	2166	1.4	2.5	2.5	47.5	4228	230
185	37/2.52	2.0	2.6	44.6	2667	1.6	2.5	2.6	51.9	5075	270
240	61/2.25	2.2	2.8	50.1	3421	1.6	2.5	2.8	57.8	6054	320
300	61/2.52	2.4	3.1	55.6	4247	1.6	2.5	3.0	63.2	7048	365

FOUR CORE, PVC INSULATED, PVC SHEATHED ARMOURED AND UNARMOURED

600/1000V Cables
IEC60502-1



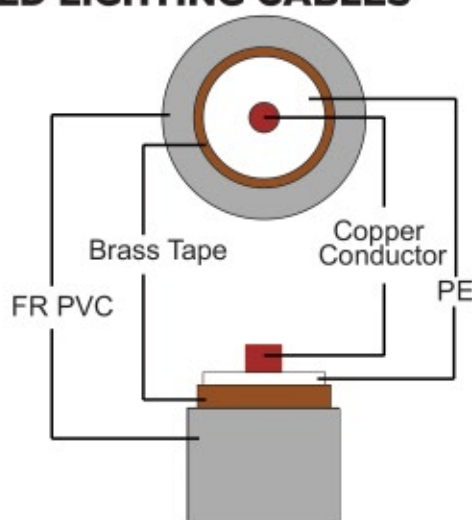
ALUMINIUM

Nominal Area of Conductor	DIMENSIONS AND WEIGHTS										
	Number and Nominal Diameter of Wires	Thickness of Insulation	UNARMOURED CABLES			ARMOURED CABLES					Maximum Current Rating
			Thickness of Sheath	Approx. Overall Diameter	Approx. Cable Weight	Thickness of Extruded Bedding	Armour Wire Diameter	Thickness of Sheath	Approx. Overall Diameter	Approx. Cable Weight	
mm ²	mm	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km	Amps
16	7/1.70	1.0	1.8	19.7	380	0.8	1.25	1.7	23.1	881	58
25	7/2.14	1.2	1.8	20.4	511	1.0	1.60	1.8	25.0	1205	71
35	7/2.52	1.2	1.8	23.4	636	1.0	1.60	1.9	27.3	1491	93
50	19/1.78	1.4	1.9	25.5	813	1.2	2.0	2.0	30.5	1641	110
70	19/2.14	1.4	2.0	28.7	1093	1.2	2.0	2.1	35.0	2325	145
95	19/2.52	1.6	2.2	33.3	1400	1.2	2.0	2.2	39.3	2816	175
120	37/2.03	1.6	2.3	36.3	1709	1.4	2.5	2.4	42.2	3222	205
150	37/2.25	1.8	2.5	40.0	2166	1.4	2.5	2.5	47.5	4228	230
185	37/2.52	2.0	2.6	44.6	2667	1.6	2.5	2.6	51.9	5075	270
240	61/2.25	2.2	2.8	50.1	3421	1.6	2.5	2.8	57.8	6054	320
300	61/2.52	2.4	3.1	55.6	4247	1.6	2.5	3.0	63.2	7048	365

Note : 1. Up to 50mm² circular conductor. 2. Above 50mm² circular and sector shaped conductor.

SINGLE CORE PE INSULATED, BRASS TAPED, PVC SHEATHED AIRFIELD LIGHTING CABLES

3KV
5KV
IEC 60502



COPPER

DIMENSIONS AND WEIGHTS

Rated Voltage	CONDUCTOR		Thickness of PE Insulation	Dimension of Brass Tape	Thickness of PVC Sheath	Approximate Overall Diameter	Approx. Weight of Cable
	Nominal Area	Number and Nominal Diameter of Wires					
kv	mm ²	mm	mm	mm	mm	mm	kg/km
3	6.0	7/1.04	2.50	0.10 x 20	1.40	11.32	188
5	6.0	7/1.04	3.00	0.10 x 20	1.40	12.32	205

MAXIMUM CAPACITIES OF PVC CONDUIT, FOR SIMULTANEOUS DRAWING IN OF SINGLE CORE PVC CABLES

Nominal Conductor Size	Number and Diameter of Wires	Nominal Overall Diameter	MAXIMUM NUMBER OF CABLES			
			Size of Conduits			
			16mm	20mm	25mm	32mm
mm ²	mm	mm				
1.0	1/1.13	2.9	7	12	20	34
1.5	1/1.38	3.1	6	11	18	30
2.5	1/1.78	3.5	5	8	14	23
4	1/2.25	4.3	3	5	12	15
6	7/1.04	4.9	2	4	9	12
10	7/1.35	6.2	-	2	7	7
16	7/1.70	7.3	-	2	4	5
25	7/2.14	9.0	-	-	3	3
35	19/1.53	10.3	-	-	2	2
50	19/1.78	12.0	-	-	-	2

Note: The Maximum number of cables in the table relate to conduit runs incorporating not more than two 90° bends or the equivalent. Where runs include additional bends, sets or other restrictions, the number must be appropriately reduced. This applies particularly where solid conductors are to be drawn in.

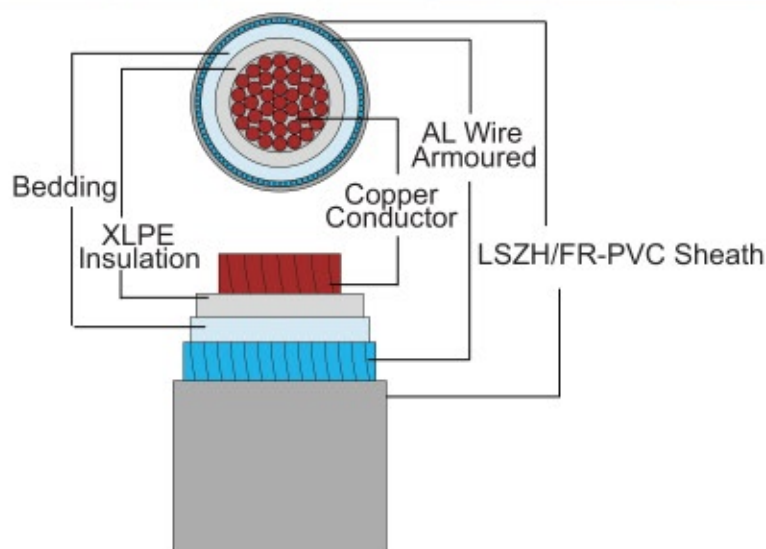
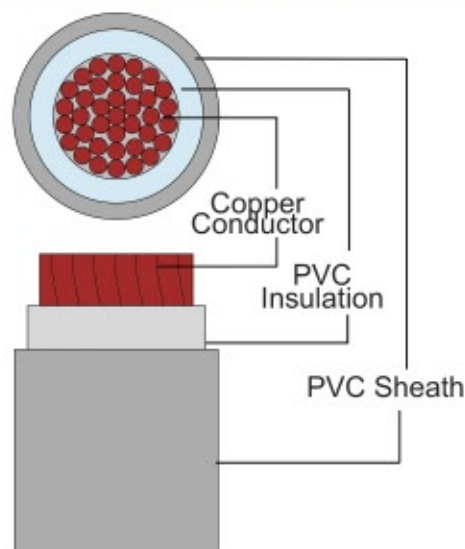
MAXIMUM CAPACITIES OF STEEL CONDUITS CAPACITY OF LIGHT AND HEAVY GAUGE STEEL CONDUIT FOR THE SIMULTANEOUS DRAWING IN OF 600/1000 VOLT SINGLE CORE PVC INSULATED CABLES

Nominal conductor size	Number and Diameter of Wires	Nominal Overall Diameter	SIZE AND GUAGE OF STEEL CONDUIT							
			16mm		20mm		25mm		32mm	
			Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
mm ²	mm	mm	Maximum number of Cables							
1.0	1/1.13	2.9	8	7	13	12	22	19	38	35
1.5	1/1.38	3.1	7	6	12	10	19	17	33	31
2.5	1/1.78	3.5	5	4	9	8	15	13	26	24
4	1/2.25	4.3	3	3	6	5	10	9	17	16
6	7/1.04	4.9	3	2	5	4	7	7	13	12
10	7/1.35	6.2	-	-	3	2	4	4	8	7
16	7/1.70	7.3	-	-	2	-	3	3	6	5
25	7/1.14	9.0	-	-	-	-	2	2	4	3
35	7/2.52	10.3	-	-	-	-	-	-	3	2
50	19/1.78	12.0	-	-	-	-	-	-	2	2

Note: The maximum number of cables in the table relate to conduit runs incorporating not more than two 90° bends or the equivalent. Where runs include additional bends, sets or other restrictions, the number must be appropriately reduced. This applies particularly where solid conductors are to be drawn in.

COPPER PVC Insulated PVC Sheathed Armoured and Unarmoured (Dimensions and weights) 600/1000V BS6346/IEC60502-1

Size No. of Core x	Thickness of Insulation	UNARMoured					ARMoured				
		Approx. Overall Diameter	Approx. Cable Weight	Delivery Length	Drum size W X L	Approx. Gross Weight	Approx. Overall Diameter	Approx. Cable Weight	Delivery Length	Drum size W X L	Approx. Gross Weight
mm ²	mm	mm	kg/km	m	mm	kg	mm	kg/km	m	mm	kg
1CX50	1.4	15.1	581	1000	1050X700	650	19.1	820	1000	1250X700	890
1CX70	1.4	16.9	795	1000	1050X700	890	21.1	1060	1000	1250X900	1180
1CX95	1.6	19.4	1084	1000	1050X700	1170	23.4	1380	1000	1450X950	1560
1CX120	1.6	21.0	1333	1000	1250X900	1450	26.3	1700	1000	1650X950	2050
1CX150	1.8	23.2	1623	1000	1450X950	1800	28.3	2030	1000	1650X950	2380
1CX185	2.0	25.8	2038	1000	1450X950	2220	30.8	2460	1000	1650X1150	2860
1CX240	2.2	29.0	2646	1000	1650X950	3000	34.1	3120	1000	2050X1200	3640
1CX300	2.4	32.1	3280	1000	1650X1150	3680	37.0	3890	500	1650X950	2300
1CX400	2.6	35.8	4170	500	1450X950	2270	42.0	4880	500	1650X950	2790
1CX500	2.8	39.6	5210	500	1650X950	2960	45.6	5990	500	1650X1150	3400
1CX630	2.8	43.8	6794	500	1650X1150	3800	49.7	7480	500	2050X1200	4260
1CX800	2.8	48.3	8339	500	2050X1200	4690	55.8	9440	500	2250X1200	5300
1CX1000	3.0	53.7	10460	250	1650X950	2970	61.0	11860	250	1650X1150	3370



COPPER XLPE Insulated LSZH/FR-PVC Sheathed Armoured and Unarmoured (Dimensions and weights) 600/1000V BS 5467/IEC60502-1

Size No. of Core x	Thickness of Insulation	UNARMoured					ARMoured				
		Approx. Overall Diameter	Approx. Cable Weight	Delivery Length	Drum size W X L	Approx. Gross Weight	Approx. Overall Diameter	Approx. Cable Weight	Delivery Length	Drum size W X L	Approx. Gross Weight
mm ²	mm	mm	kg/km	m	mm	kg	mm	kg/km	m	mm	kg
1CX50	1.0	15	570	1000	1050X700	640	19	760	1000	1250X700	850
1CX70	1.1	17	790	1000	1250X700	880	21	1010	1000	1250X900	1130
1CX95	1.1	18	1050	1000	1250X700	1140	23	1300	1000	1450X950	1480
1CX120	1.2	20	1300	1000	1250X900	1420	25	1610	1000	1450X950	1790
1CX150	1.4	22	1580	1000	1250X900	1700	27	1930	1000	1650X950	2280
1CX185	1.6	24	1960	1000	1450X950	2140	30	2340	1000	1650X950	2690
1CX240	1.7	28	2540	1000	1650X950	2890	33	2970	1000	1650X1150	3370
1CX300	1.8	30	3140	1000	1650X950	3490	35	3610	1000	2050X1200	4130
1CX400	2.0	34	4000	1000	2050X1200	4520	40	4660	500	1650X950	2680
1CX500	2.2	38	5010	500	1650X950	2860	44	5740	500	1650X1150	3270
1CX630	2.4	42	6420	500	1650X950	3560	49	7220	500	2050X1200	4130
1CX800	2.6	47	8110	500	1650X1150	4460	55	9210	500	2250X1200	5190
1CX1000	2.8	53	10370	400	1650X1150	4550	60	11590	400	2050X1200	5150

600/1000V Cables
IEC 60502-1

COPPER

Nominal Area of Conductor	ARMoured											
	INSTALLED IN AIR		RUN IN SINGLE WAY DUCTS						LAID DIRECT IN GROUND			
	2 Cables Spaced		3 Cables Spaced		2 Cables Ducts Touching		3 Cables Ducts Touching in Trefoil		2 Cables Touching		3 Cables Trefoil Touching	
	Current Rating	Voltage Drop/amp /Metre	Current Rating	Voltage Drop/amp /Metre	Current Rating	Voltage Drop/amp /Metre	Current Rating	Voltage Drop/amp /Metre	Current Rating	Voltage Drop/amp /Metre	Current Rating	Voltage Drop/amp /Metre
mm ²	Amps	mv	Amps	mv	Amps	mv	Amps	mv	Amps	mv	Amps	mv
50	193	0.97	169	0.82	183	1.0	170	0.89	200	0.95	170	0.82
70	240	0.69	216	0.57	221	0.76	204	0.66	247	0.65	208	0.57
95	291	0.55	263	0.44	259	0.62	238	0.54	293	0.50	251	0.44
120	338	0.46	306	0.36	289	0.54	264	0.47	332	0.41	285	0.36
150	381	0.42	348	0.31	315	0.49	289	0.42	374	0.36	315	0.31
185	432	0.37	400	0.27	349	0.44	319	0.38	417	0.31	353	0.27
240	498	0.36	470	0.23	391	0.39	353	0.34	485	0.26	408	0.23
300	564	0.33	536	0.21	425	0.37	387	0.32	536	0.24	451	0.21
400	620	0.30	602	0.19	459	0.34	412	0.30	595	0.22	502	0.19
500	686	0.28	677	0.18	493	0.32	442	0.28	655	0.21	544	0.18
630	771	0.26	761	0.17	536	0.30	476	0.25	723	0.19	604	0.17
800	827	0.24	818	0.16	561	0.28	493	0.25	757	0.19	629	0.16
1000	940	0.23	884	0.16	595	0.27	527	0.23	799	0.18	663	0.16

Distance between cable centres: Up to and including 185mm² – Twice the overall diameter of Cable. 240mm² and above – 90mm.

Basic Assumptions:

Ground Thermal Resistivity 1.2 K m/W

Ground Temperature 15°C

Ambient Temperature 30°C

Depth of Laying 0.5 metre (to the centre of cable) or trefoil groups of cables)

Cable shall only be continuously operated at their full rating if the minimum current at which circuit protection is designed to operate does not exceed.

(I) 1.5 times the values tabulated for cables installed in air and cables run in single way ducts and

(ii) 1.3 times the values tabulated for cables laid direct in ground.

Maximum operating conductor temperature at rated current 70°C

CURRENT RATINGS AND ASSOCIATED VOLTAGE DROP SINGLE CORE PVC INSULATED PVC SHEATHED UNARMoured

600/1000V Cables

IEC 60502-1

COPPER

Nominal Area of Conductor	UNARMoured									
	INSTALLED IN AIR						RUN IN SINGLE WAY DUCTS			
	2 Cables Spaced*		3 Cables Trefoil Touching		3 Cables Laid Flat Spaced*		2 Cables Ducts Touching		3 Cables Trefoil or Flat	
	Current Rating	Voltage Drop/ amp/ Metre	Current Rating	Voltage Drop/ amp/ Metre	Current Rating	Voltage Drop/ amp/ Metre	Current Rating	Voltage Drop /amp/ Metre	Current Rating	Voltage Drop/ amp/ Metre
mm ²	Amps	mv	Amps	mv	Amps	mv	Amps	mv	Amps	mv
50	179	0.95	160	0.80	174	0.85	187	1.0	174	0.89
70	230	0.68	207	0.59	221	0.62	230	0.76	213	0.66
95	282	0.52	254	0.42	282	0.49	276	0.62	255	0.54
120	334	0.44	291	0.34	324	0.43	315	0.54	425	0.34
150	385	0.39	338	0.29	376	0.39	353	0.37	476	0.32
185	445	0.35	395	0.25	432	0.36	400	0.34	544	0.30
240	555	0.36	465	0.22	555	0.38	468	0.39	425	0.34
300	639	0.33	545	0.19	639	0.35	527	0.37	476	0.32
400	743	0.30	620	0.17	733	0.33	604	0.34	544	0.30
500	846	0.28	714	0.16	834	0.31	680	0.32	612	0.28
630	987	0.26	818	0.15	968	0.30	782	0.30	697	0.25
800	1128	0.25	931	0.15	1100	0.30	876	0.28	782	0.25
1000	1250	0.24	1034	0.15	1213	0.30	969	0.27	859	0.23

Distance between cable centres:- Up to and including 185mm²

Twice the overall diameter of Cable. 240mm² and above – 90mm

Basic Assumptions:

Ground Thermal Resistivity	1.2 K m/W
Ground Temperature	15°C
Ambient Temperature	30°C
Depth of Laying	0.5 metre (to the centre of cable) or trefoil groups of cables)

Cable shall only be continuously operated at their full rating if the minimum current at which circuit protection is designed to operate does not exceed.

- (i) 1.5 times the values tabulated for cables installed in air and cables run in single way ducts and
- (ii) 1.3 times the values tabulated for cables laid direct in ground.

Maximum operating conductor temperature at rated current 70°C

CURRENT RATINGS AND ASSOCIATED VOLTAGE DROP SINGLE CORE PVC INSULATED PVC SHEATHED UNARMoured

600/1000V Cables

IEC 60502-1

COPPER

Nominal Area of Conductor	UNARMoured							
	LAND DIRECT IN GROUND							
	2 Cables Touching		2 Cables Spaced		3 Cables – Trefoil or Laid Flat Touching		3 Cables – Laid Flat Spaced**	
	Current Rating	Voltage Drop/ amp/ Metre	Current Rating	Voltage Drop/ amp/ Metre	Current Rating	Voltage Drop /amp/ Metre	Current Rating	Voltage Drop/ amp/ Metre
mm ²	Amps	mv	Amps	mv	Amps	mv	Amps	mv
50	200	0.93	204	0.97	170	0.80	179	0.85
70	247	0.68	255	0.69	208	0.59	221	0.61
95	293	0.48	302	0.54	251	0.42	264	0.49
120	336	0.40	349	0.46	285	0.34	302	0.42
150	378	0.34	387	0.41	319	0.29	336	0.38
185	425	0.29	442	0.37	361	0.25	383	0.34
240	493	0.24	527	0.33	417	0.22	442	0.31
300	561	0.22	578	0.31	468	0.19	502	0.29
400	638	0.20	663	0.29	536	0.17	578	0.28
500	714	0.18	748	0.28	595	0.16	646	0.27
630	808	0.17	859	0.27	663	0.15	739	0.26
800	893	0.17	969	0.27	731	0.15	833	0.26
1000	978	0.17	1080	0.26	799	0.15	927	0.25

Distance between cable centres:- Up to and including 185mm²

Twice the overall diameter of Cable. 240mm² and above – 90mm

Basic Assumptions:

Ground Thermal Resistivity	1.2 K m/W
Ground Temperature	15°C
Ambient Temperature	30°C
Depth of Laying	0.5 metre (to the centre of cable) or trefoil groups of cables)

Cable shall only be continuously operated at their full rating if the minimum current at which circuit protection is designed to operate does not exceed.

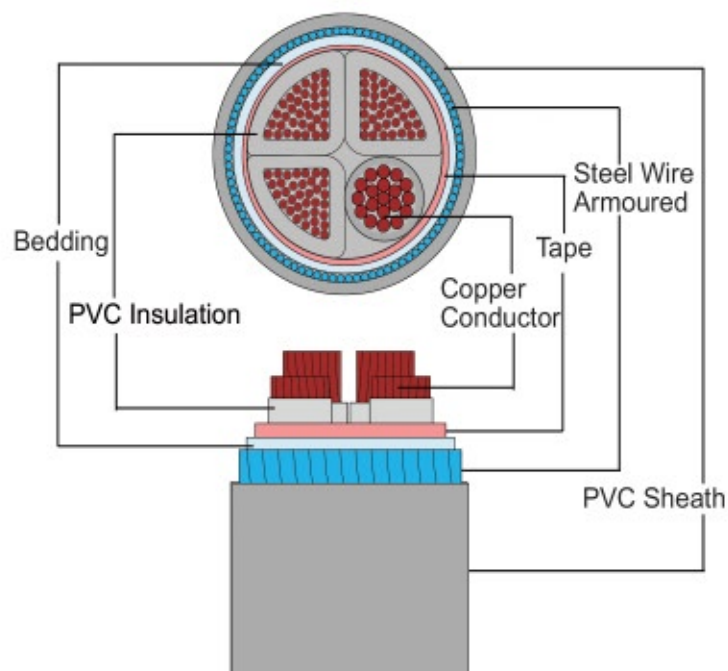
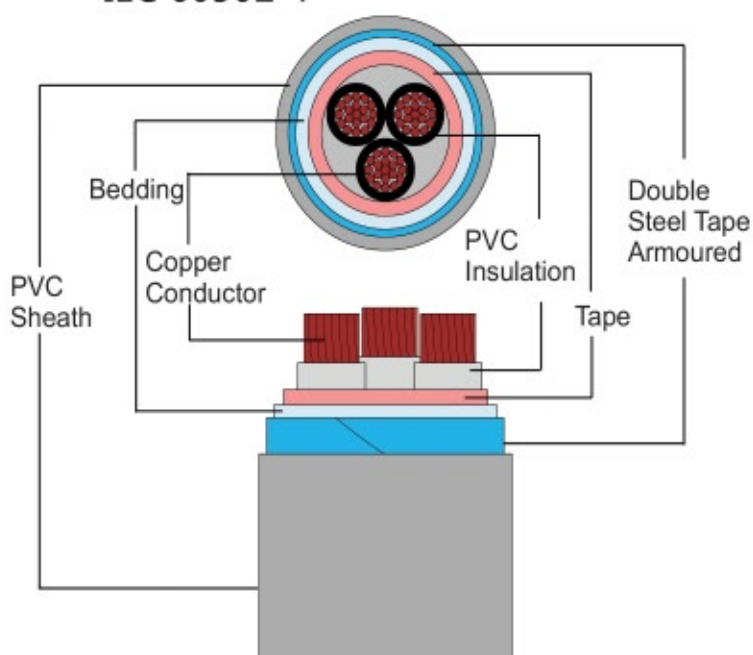
- (i) 1.5 times the values tabulated for cables installed in air and cables run in single way ducts and
- (ii) 1.3 times the values tabulated for cables laid direct in ground.

Maximum operating conductor temperature at rated current 70°C

COPPER PVC INSULATED PVC SHEATHED ARMoured AND UNARMoured

600/1000V

IEC 60502-1



DIMENSIONS AND WEIGHTS

Size / No.of Core x mm ²	Thickness of Insulation	UNARMoured				ARMoured					
		Approx. Overall Dia mm	Approx. Cable Weight kg/km	Delivery Length m	Drum size W X L mm	Approx. Overall Dia. mm		Approx. Cable Weight kg/km		Delivery Length m	Drum size W X L mm
SWA	STA	SWA	STA								
2CX1.5	0.8	10	110	1000	850X500	13	12	300	260	1000	1050X600
2CX2.5	0.8	11	140	1000	1050X600	14	13	340	300	1000	1050X700
2CX4	1.0	12	190	1000	1050X600	16	15	420	370	1000	1250X700
2CX6	1.0	13	240	1000	1050X600	18	16	600	450	1000	1250X700
2CX10	1.0	16	440	1000	1250X700	20	19	780	600	1000	1250X900
2CX16	1.0	18	610	1000	1250X700	22	20	980	760	1000	1250X900
2CX25	1.2	19	680	1000	1250X700	23	23	1290	910	1000	1450X926
2CX35	1.2	20	890	1000	1250X700	25	25	1560	1130	1000	1450X926
3CX1.5	0.8	10	145	1000	850X500	14	13	330	300	1000	1050X700
3CX2.5	0.8	11	200	1000	850X500	15	14	390	350	1000	1050X700
3CX4	1.0	13	260	1000	1050X600	17	16	580	430	1000	1250X700
3CX6	1.0	14	380	1000	1050X700	18	17	700	530	1000	1250X700
3CX10	1.0	17	570	1000	1250X700	21	20	940	730	1000	1250X900
3CX16	1.0	19	680	1000	1250X700	23	22	1190	960	1000	1450X926
3CX25	1.2	20	990	1000	1250X700	28	25	1770	1350	1000	1650X926
3CX35	1.2	23	1300	1000	1450X926	30	27	2160	1720	1000	1650X926
3CX50	1.4	26	1710	1000	1450X926	31	30	2610	2080	1000	1650X1126

COPPER PVC INSULATED PVC SHEATHED ARMoured AND UNARMoured

600/1000V

IEC 60502-1

DIMENSIONS AND WEIGHTS

Size / No.of Core x mm ²	Thickness of Insulation	UNARMoured				ARMoured					
		Approx. Overall Dia mm	Approx. Cable Weight kg/km	Delivery Length m	Drum size W X L mm	Approx. Overall Dia. mm		Approx. Cable Weight kg/km		Delivery Length m	Drum size W X L mm
						SWA	STA	SWA	STA		
3CX70	1.4	29	2390	1000	1650X926	36	33	3650	3120	1000	2050X1202
3CX95	1.6	33	3200	1000	1650X926	40	38	4680	4300	1000	2250X1202
3CX120	1.6	36	3980	500	1450X926	43	42	5560	4800	500	1650X926
3CX150	1.8	40	4950	500	1650X926	49	45	7100	6260	500	2050X1202
3CX185	2.0	45	6160	500	1650X1126	53	50	8550	7600	500	2250X1202
3CX240	2.2	50	8010	500	2050X1202	59	56	10730	9680	500	2250X1202
3CX300	2.4	56	9930	500	2250X1202	65	62	12960	11800	500	2250X1202
3CX4/2.5	1	14	290	1000	1050X700	18	17	610	480	1000	1050X700
3CX6/4	1	15	400	1000	1050X700	20	18	780	580	1000	1250X900
3CX10/6	1	19	500	1000	1250X900	21	20	980	750	1000	1250X900
3CX16/10	1	22	780	1000	1250X900	25	24	1490	1090	1000	1650X926
3CX25/16	1.2	23	1170	1000	1450X926	28	27	1960	1500	1000	1650X926
3CX35/16	1.2	25	1520	1000	1450X926	30	29	2310	1810	1000	1650X926
3CX50/25	1.4	29	2170	1000	1650X926	35	34	3250	2440	1000	2050X1202
3CX70/35	1.4	33	2970	1000	1650X1126	39	36	4140	3780	1000	2250X1202
3CX95/50	1.6	38	4070	1000	2250X1202	45	42	5700	4950	1000	2250X1202
3CX240/120	2.2	58	9230	500	2250X1202	63	62	12180	11050	500	2250X1202
3CX300/150	2.4	65	11350	500	2250X1202	73	70	14820	13490	400	2250X1202
4CX1.5	0.8	11	180	1000	1050X600	14	14	370	330	1000	1050X700
4CX2.5	0.8	12	250	1000	1050X600	15	15	440	400	1000	1050X700
4CX4	1.0	14	330	1000	1050X700	18	17	670	500	1000	1050X700
4CX6	1.0	15	470	1000	1050X700	20	18	820	640	1000	1250X900
4CX10	1.0	19	540	1000	1250X900	21	20	1050	830	1000	1250X900
4CX16	1.0	22	810	1000	1250X900	26	24	1560	1180	1000	1650X926
4CX25	1.2	23	1280	1000	1450X926	28	27	2070	1610	1000	1650X926
4CX35	1.2	25	1720	1000	1450X926	30	29	2510	2010	1000	1650X926
4CX50	1.4	29	2390	1000	1650X926	35	34	3470	2660	1000	2050X1202
4CX70	1.4	33	3310	1000	1650X1126	39	36	4480	4120	1000	2250X1202

COPPER PVC INSULATED PVC SHEATHED ARMoured AND UNARMoured

600/1000V

IEC 60502-1

DIMENSIONS AND WEIGHTS

Size / No. of Core x mm ²	Thickness of Insulation	UNARMoured				ARMoured					
		Approx. Overall Dia mm	Approx. Cable Weight kg/km	Delivery Length m	Drum size W X L mm	Approx. Overall Dia. mm		Approx. Cable Weight kg/km		Delivery Length m	Drum size W X L mm
						SWA	STA	SWA	STA		
4CX95	1.6	38	4560	1000	2250X1202	45	42	6190	5440	1000	2250X1202
4CX120	1.6	42	5580	500	1650X926	49	46	7470	6620	500	2050X1202
4CX150	1.8	46	6900	500	1650X1126	53	50	8910	7950	500	2250X1202
4CX185	2.0	51	8450	500	2250X1202	59	56	10860	9800	500	2250X1202
4CX240	2.2	58	10510	500	2250X1202	63	62	13460	12330	500	2250X1202
4CX300	2.4	65	13200	250	2250X1202	73	70	16660	15330	250	2050X1202
5CX1.5	0.8	12	210	1000	1050X600	15	14	400	360	1000	1050X700
5CX2.5	0.8	13	300	1000	1050X600	16	16	480	440	1000	1250X700
5CX4	1.0	14	400	1000	1050X700	19	18	760	570	1000	1250X700
5CX6	1.0	16	570	1000	1250X700	22	19	990	790	1000	1250X900
5CX10	1.0	20	760	1000	1250X900	25	23	1400	1030	1000	1450X926
5CX16	1.0	23	1090	1000	1450X926	28	25	1910	1480	1000	1650X926
5CX25	1.2	26	1660	1000	1650X926	33	30	2570	2070	1000	1650X1126
5CX35	1.2	30	2200	1000	1650X926	36	33	3400	2620	1000	2050X1202
5CX50	1.4	36	2950	1000	2250X1202	40	38	4380	3470	1000	2250X1202
5CX70	1.4	40	3980	1000	2250X1202	45	43	5670	5200	1000	2250X1202
5CX95	1.6	46	5640	500	1650X1126	55	52	8060	7090	600	2250X1202
5CX120	1.6	50	6830	500	2250X1202	60	57	9600	9060	500	2250X1202
5CX150	1.8	55	8350	500	2250X1202	65	63	11500	10960	500	2250X1202
5CX185	2.0	68	10490	400	2250X1202	72	69	14040	13460	400	2250X1202
5CX240	2.2	72	13600	250	2050X1202	80	73	17500	16060	250	2250X1202

Note:

1.5mm² - 6mm² round solid or stranded conductor

10mm²- 50mm² round compact or stranded conductor

70mm²- 300mm² round compact or stranded conductor or Shaped conductor

All PVC cables shall be generally complied with IEC 60332

Halogen free cables shall be generally complied with IEC 61034 and 60754

Current Ratings and Associated Voltage Drop
PVC Insulated and PVC Sheathed Cable

Size No.of Core x mm ²	UNARMoured						ARMoured			
	Installed in Air		Run is Single Way Ducts		Laid Direct in Ground		Installed in Air		Laid Direct in Ground	
	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m
	Amp	mv	Amp	mv	Amp	mv	Amp	mv	Amp	mv
3CX1.5	19	25	22	25	27	25	18	25	22	25
3CX2.5	26	15	29	15	35	15	24	15	29	15
3CX4	35	9.5	38	9.5	47	9.5	31	9.6	38	9.6
3CX6	45	6.4	48	6.4	59	6.4	41	6.4	49	6.4
3CX10	62	3.8	64	3.8	78	3.8	55	3.8	64	3.8
3CX16	69	2.4	68	2.4	83	2.4	72	2.4	83	2.4
3CX25	92	1.5	89	1.5	111	1.5	94	1.5	111	1.5
3CX35	113	1.1	106	1.1	132	1.1	118	1.1	132	1.1
3CX50	141	0.82	128	0.82	157	0.82	141	0.82	157	0.82
3CX70	174	0.57	157	0.57	191	0.57	179	0.57	191	0.57
3CX95	216	0.42	191	0.42	230	0.42	221	0.42	230	0.42
3CX120	249	0.35	217	0.35	264	0.35	254	0.35	264	0.35
3CX150	282	0.29	242	0.29	293	0.29	291	0.29	293	0.29
3CX185	329	0.25	276	0.25	331	0.25	334	0.25	332	0.25
3CX240	390	0.21	319	0.21	387	0.21	395	0.21	387	0.21
3CX300	447	0.18	361	0.18	433	0.18	447	0.18	434	0.18
3CX400	517	0.17	412	0.17	493	0.17	517	0.17	485	0.17
3CX4/2.5	35	9.5	38	9.5	47	9.5	31	9.6	38	9.6
3CX6/4	45	6.4	48	6.4	59	6.4	41	6.4	49	6.4
3CX10/6	62	3.8	64	3.8	78	3.8	55	3.8	64	3.8
3CX16/10	69	2.4	68	2.4	83	2.4	72	2.4	83	2.4
3CX25/16	92	1.5	89	1.5	111	1.5	94	1.5	111	1.5
3CX35/16	113	1.1	106	1.1	132	1.1	118	1.1	132	1.1
3CX50/25	141	0.82	128	0.82	157	0.82	141	0.82	157	0.82
3CX70/35	174	0.57	157	0.57	191	0.57	179	0.57	191	0.57
3CX95/50	216	0.42	191	0.42	230	0.42	221	0.42	230	0.42
3CX120/70	249	0.35	217	0.35	264	0.35	254	0.35	264	0.35
3CX150/70	282	0.29	242	0.29	293	0.29	291	0.29	293	0.29
3CX185/95	329	0.25	276	0.25	331	0.25	334	0.25	332	0.25
3CX240/120	390	0.21	319	0.21	387	0.21	395	0.21	387	0.21
3CX300/150	447	0.18	361	0.18	433	0.18	447	0.18	434	0.18
4CX1.5	19	25	22	25	27	25	18	25	22	25
4CX2.5	26	15	29	15	35	15	24	15	29	15
4CX4	35	9.5	38	9.5	47	9.5	31	9.6	38	9.6
4CX6	45	6.4	48	6.4	59	6.4	41	6.4	49	6.4
4CX10	62	3.8	64	3.8	78	3.8	55	3.8	64	3.8
4CX16	69	2.4	68	2.4	83	2.4	72	2.4	83	2.4
4CX25	92	1.5	89	1.5	111	1.5	94	1.5	111	1.5
4CX35	113	1.1	106	1.1	132	1.1	118	1.1	132	1.1

Current Ratings and Associated Voltage Drop

PVC Insulated and PVC Sheathed Cable

Size No. of Core x mm ²	UNARMoured						ARMoured			
	Installed in Air		Run in Single Way Ducts		Laid Direct in Ground		Installed in Air		Laid Direct in Ground	
	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m
4CX50	141	0.82	128	0.82	157	0.82	141	0.82	157	0.82
4CX70	174	0.57	157	0.57	191	0.57	179	0.57	191	0.57
4CX95	216	0.42	191	0.42	230	0.42	221	0.42	230	0.42
4CX120	249	0.35	217	0.35	264	0.35	254	0.35	264	0.35
4CX150	282	0.29	242	0.29	293	0.29	291	0.29	293	0.29
4CX185	329	0.25	276	0.25	331	0.25	334	0.25	332	0.25
4CX240	390	0.21	319	0.21	387	0.21	395	0.21	387	0.21
4CX300	447	0.18	361	0.18	433	0.18	447	0.18	434	0.18
4CX400	517	0.17	412	0.17	493	0.17	517	0.17	485	0.17
5CX1.5	19	25	22	25	27	25	18	25	22	25
5CX2.5	26	15	29	15	35	15	24	15	29	15
5CX4	35	9.5	38	9.5	47	9.5	31	9.6	38	9.6
5CX6	45	6.4	48	6.4	59	6.4	41	6.4	49	6.4
5CX10	62	3.8	64	3.8	78	3.8	55	3.8	64	3.8
5CX16	69	2.4	68	2.4	83	2.4	72	2.4	83	2.4
5CX25	92	1.5	89	1.5	111	1.5	94	1.5	111	1.5
5CX35	113	1.1	106	1.1	132	1.1	118	1.1	132	1.1
5CX50	141	0.82	128	0.82	157	0.82	141	0.82	157	0.82
5CX70	174	0.57	157	0.57	191	0.57	179	0.57	191	0.57
5CX95	216	0.42	191	0.42	230	0.42	221	0.42	230	0.42
5CX120	249	0.35	217	0.35	264	0.35	254	0.35	264	0.35
5CX150	282	0.29	242	0.29	293	0.29	291	0.29	293	0.29
5CX185	329	0.25	276	0.25	331	0.25	334	0.25	332	0.25

Installed In Air

Ratings based on Ambient air temperature 30°C

Laid directly in ground,run in single way ducts

Ratings based on ground temp 15°C

Soil thermal resistivity 1.2 K m/W

Depth of laying 0.5mts

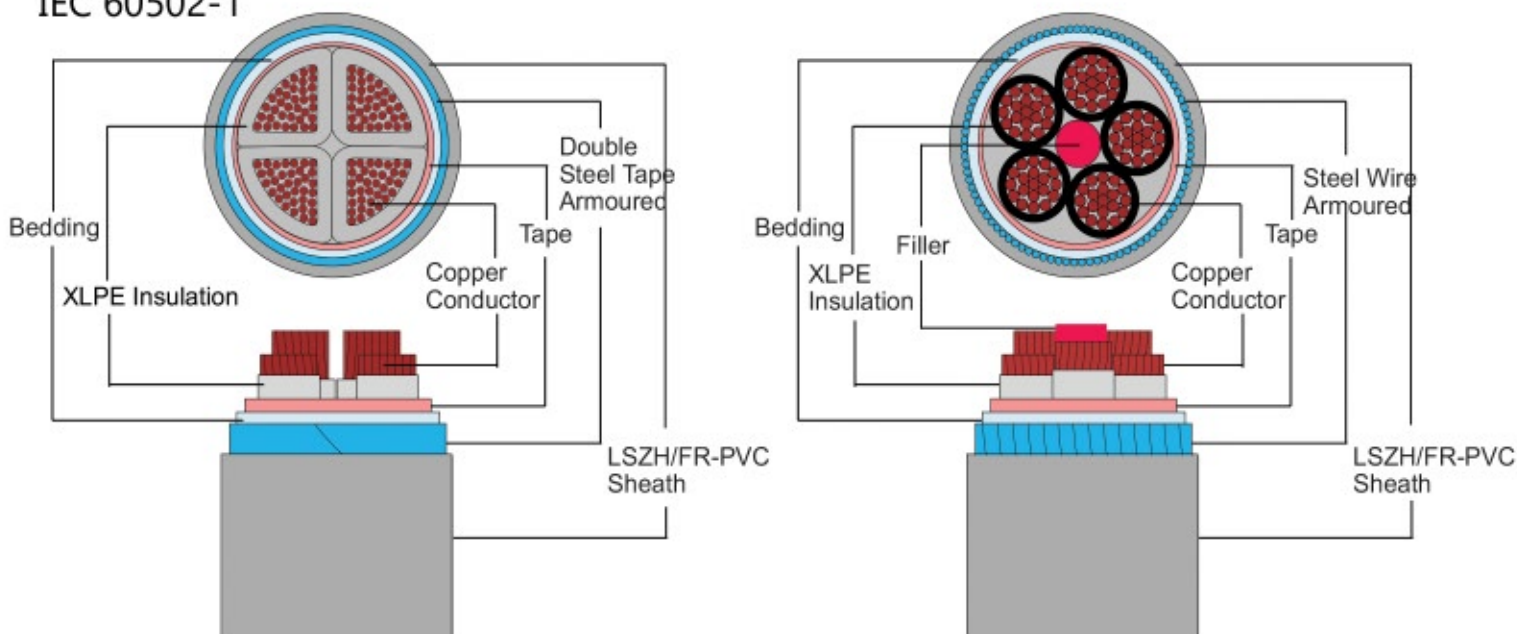
All circuits thermally independent,100mm diameter single way ducts

Note : 1.Current ratings for cables having more than four cores are available on request
2.Unarmoured cables are not suitable for direct burial in ground.

COPPER XLPE INSULATED LSZH/FR-PVC SHEATHED ARMoured AND UNARMoured

600/1000V

IEC 60502-1



DIMENSIONS AND WEIGHTS

Size / No. of Core x mm ²	Thickness of Insulation mm	UNARMoured				ARMoured					
		Approx. Overall Dia mm	Approx. Cable Weight kg/km	Delivery Length m	Drum size W X L mm	Approx. Overall Dia mm		Approx. Cable Weight kg/km		Delivery Length m	Drum size W X L mm
						SWA	STA	SWA	STA		
2CX1.5	0.7	9	100	1000	850X500	13	12	280	250	1000	1050X600
2CX2.5	0.7	10	130	1000	850X500	14	13	320	280	1000	1050X600
2CX4	0.7	11	160	1000	1050X600	15	14	370	320	1000	1050X600
2CX6	0.7	12	210	1000	1050X600	16	15	440	390	1000	1050X700
2CX10	0.7	15	310	1000	1050X700	19	17	710	540	1000	1050X700
2CX16	0.7	16	440	1000	1050X700	21	19	900	700	1000	1250X700
2CX25	0.9	18	630	1000	1250X700	22	20	1090	720	1000	1250X700
2CX35	0.9	20	830	1000	1250X700	24	23	1480	1070	1000	1450X926
3CX1.5	0.7	10	120	1000	850X500	13	12	310	270	1000	1050X600
3CX2.5	0.7	11	160	1000	850X500	14	13	360	320	1000	1050X600
3CX4	0.7	12	210	1000	1050X600	15	14	440	390	1000	1050X700
3CX6	0.7	13	270	1000	1050X600	16	15	520	460	1000	1250X700
3CX10	0.7	15	420	1000	1050X700	20	18	840	660	1000	1250X700
3CX16	0.7	18	600	1000	1250X700	22	21	1100	880	1000	1250X900
3CX25	0.9	20	910	1000	1250X900	27	24	1640	1250	1000	1450X926
3CX35	0.9	22	1210	1000	1250X900	28	27	2030	1580	1000	1650X926
3CX50	1.0	24	1590	1000	1450X926	30	29	2410	1980	1000	1650X926
3CX70	1.1	28	2250	500	1250X900	34	31	3430	2720	500	1450X926
3CX95	1.1	30	3030	500	1250X900	38	35	4400	3570	500	1650X926
3CX120	1.2	35	3750	500	1450X926	41	39	5260	4870	500	1650X926
3CX150	1.4	39	4620	500	1650X926	47	44	6670	5900	500	1650X1126
3CX185	1.6	43	5750	500	1650X926	51	48	8080	7200	500	2050X1202
3CX240	1.7	48	7490	250	1650X926	57	54	10190	9160	500	2250X1202
3CX300	1.8	53	9330	250	1650X926	62	59	12280	11200	300	2050X1202

COPPER XLPE INSULATED LSZH/FR-PVC SHEATHED ARMoured AND UNARMoured

600/1000V IEC 60502-1

DIMENSIONS AND WEIGHTS

	UNARMoured					ARMoured					
3CX4/2.5	0.7	12	245	1000	1050X700	16	15	450	400	1000	1250X700
3CX6/4	0.7	14	320	1000	1050X700	18	17	690	530	1000	1250X700
3CX10/6	0.7	17	460	1000	1250X700	21	20	960	750	1000	1250X900
3CX16/10	0.7	18	720	1000	1250X700	25	22	1400	1050	1000	1250X900
3CX25/16	0.9	20	1070	1000	1250X900	27	25	1880	1500	1000	1650X926
3CX35/16	0.9	22	1350	1000	1250X900	30	26	2200	1780	1000	1650X926
3CX50/25	1.0	25	1840	1000	1450X926	32	29	3000	2300	1000	1650X1126
3CX70/35	1.1	28	2580	500	1250X900	38	34	3970	3200	1000	2250X1202
3CX95/50	1.1	34	3500	500	1450X926	41	39	5060	4670	500	1650X926
3CX120/70	1.2	39	4480	500	1450X926	47	44	6680	5860	500	1650X1126
3CX150/70	1.4	43	5340	500	1650X926	51	48	7750	6850	500	2050X1202
3CX185/95	1.6	48	6760	500	1650X1126	57	54	9500	8560	500	2250X1202
3CX240/120	1.7	52	8700	250	1650X926	61	58	11800	10700	300	2050X1202
3CX300/150	1.8	62	10930	250	1650X1126	70	68	14500	13200	300	2250X1202
4CX1.5	0.7	10	150	1000	850X500	14	13	350	310	1000	1050X700
4CX2.5	0.7	11	190	1000	1050X600	15	14	420	370	1000	1050X700
4CX4	0.7	12	260	1000	1050X700	16	15	500	450	1000	1250X700
4CX6	0.7	14	340	1000	1050X700	18	17	730	570	1000	1250X700
4CX10	0.7	17	540	1000	1050X700	21	20	1000	800	1000	1250X900
4CX16	0.7	18	780	1000	1050X700	25	22	1450	1100	1000	1250X900
4CX25	0.9	20	1170	1000	1250X900	27	25	1910	1500	1000	1650X926
4CX35	0.9	22	1550	1000	1250X900	30	26	2360	1930	1000	1650X926
4CX50	1.0	25	2050	1000	1450X926	32	29	3180	2500	1000	1650X1126
4CX70	1.1	28	2900	500	1250X900	38	34	4230	3440	1000	2250X1202
4CX95	1.1	34	3940	500	1250X900	41	39	5450	5060	500	1650X926
4CX120	1.2	39	4960	500	1450X926	47	44	7090	6270	500	1650X1126
4CX150	1.4	43	6080	500	1650X926	51	48	8410	7500	500	2050X1202
4CX185	1.6	48	7620	500	1650X1126	57	54	10230	9300	500	2250X1202
4CX240	1.7	52	9860	250	1650X926	61	58	12790	11700	300	2050X1202
4CX300	1.8	62	12410	250	1650X1126	70	68	15810	14500	300	2250X1202
5CX1.5	0.7	11	180	1000	1050X600	15	14	380	340	1000	1050X700
5CX2.5	0.7	12	240	1000	1050X600	17	16	470	380	1000	1250X700
5CX4	0.7	13	330	1000	1050X700	19	17	700	530	1000	1250X700
5CX6	0.7	15	435	1000	1050X700	20	19	870	690	1000	1250X900
5CX10	0.7	18	700	1000	1250X700	23	21	1200	1000	1000	1450X926
5CX16	0.7	21	1060	1000	1250X900	26	24	1680	1290	1000	1650X926
5CX25	0.9	24	1530	1000	1450X926	30	28	2420	1950	1000	1650X926
5CX35	0.9	28	2020	1000	1650X926	33	30	3020	2500	1000	1650X1126
5CX50	1.0	32	2720	500	1250X900	38	35	4180	3330	500	1450X926
5CX70	1.1	39	3780	500	1650X926	46	44	5530	5100	500	1650X1126
5CX95	1.1	41	5290	500	1650X926	52	50	7500	6600	500	2050X1202
5CX120	1.2	50	6350	300	1650X926	58	55	8870	7840	500	2250X1202
5CX150	1.4	55	7900	300	1650X926	63	60	10580	9430	300	2050X1202
5CX185	1.6	62	10020	200	1650X926	70	67	13200	11900	200	1650X1126
5CX240	1.7	70	12900	200	1650X1126	80	71	16600	15200	200	2050X1202

Current Ratings and Associated Voltage Drop
XLPE Insulated and PVC Sheathed Cable

Size No. of Core x	UNARMoured						ARMoured			
	Installed in Air		Run is Single Way Ducts		Laid Direct in Ground		Installed in Air		Laid Direct in Ground	
	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m
mm ²	Amp	mv	Amp	mv	Amp	mv	Amp	mv	Amp	mv
3CX1.5	22	22.8	22	22.8	27	22.8	25	22.8	32	22.8
3CX2.5	29	14	29	14	35	14	33	14	42	14
3CX4	38	8.7	37	8.7	45	8.7	39	8.7	46	8.7
3CX6	48	5.9	46	5.9	56	5.9	50	5.9	57	5.9
3CX10	67	3.5	62	3.5	76	3.5	67	3.5	76	3.5
3CX16	88	2.2	80	2.2	98	2.2	89	2.2	98	2.2
3CX25	118	1.5	104	1.5	128	1.5	120	1.5	128	1.5
3CX35	142	1.1	125	1.1	157	1.1	149	1.1	158	1.1
3CX50	175	0.81	149	0.81	187	0.81	182	0.81	188	0.81
3CX70	220	0.58	183	0.58	229	0.58	229	0.58	229	0.58
3CX95	272	0.44	220	0.44	276	0.44	280	0.44	274	0.44
3CX120	316	0.37	251	0.37	313	0.37	322	0.37	310	0.37
3CX150	363	0.31	283	0.31	350	0.31	368	0.31	346	0.31
3CX185	418	0.27	321	0.27	395	0.27	420	0.27	387	0.27
3CX240	496	0.23	372	0.23	458	0.23	491	0.23	444	0.23
3CX300	571	0.2	420	0.2	516	0.2	557	0.2	494	0.2
3CX400	665	0.18	478	0.18	584	0.18	635	0.18	549	0.18
3CX4/2.5	38	8.7	37	8.7	56	5.9	50	5.9	57	5.9
3CX6/4	48	5.9	46	5.9	76	3.5	67	3.5	76	3.5
3CX10/6	67	3.5	62	3.5	98	2.2	89	2.2	98	2.2
3CX16/10	88	2.2	80	2.2	128	1.5	120	1.5	128	1.5
3CX25/16	118	1.5	104	1.5	157	1.1	149	1.1	158	
3CX35/16	142	1.1	125	1.1	187	0.81	182	0.81	188	0.81
3CX50/25	175	0.81	149	0.81	229	0.58	229	0.58	229	0.58
3CX70/35	220	0.58	183	0.58	276	0.44	280	0.44	274	0.44
3CX95/50	272	0.44	220	0.44	313	0.37	322	0.37	310	0.37
3CX120/70	316	0.37	251	0.37	350	0.31	368	0.31	346	0.31
3CX150/70	363	0.31	283	0.31	395	0.27	420	0.27	387	0.27
3CX185/95	418	0.27	321	0.27	458	0.23	491	0.23	444	0.23
3CX240/120	496	0.23	372	0.23	516	0.2	557	0.2	494	0.2
3CX300/150	571	0.2	420	0.2	516	0.2	557	0.2	494	0.2
4CX1.5	22	22.8	22	22.8	27	22.8	25	22.8	32	22.8
4CX2.5	29	14	29	14	516	0.2	557	0.2		14
4CX4	38	8.7	37	8.7	45	8.7	39	8.7	46	8.7
4CX6	48	5.9	46	5.9	56	5.9	50	5.9	57	5.9
4CX10	67	3.5	62	3.5	76	3.5	67	3.5	76	3.5
4CX16	88	2.2	80	2.2	98	2.2	89	2.2	98	2.2
4CX25	118	1.5	104	1.5	128	1.5	120	1.5	128	1.5
4CX35	142	1.1	125	1.1	157	1.1	149	1.1	158	1.1

Current Ratings and Associated Voltage Drop XLPE Insulated and PVC Sheathed Cable

Size No. of Core x mm ²	UNARMoured						ARMoured			
	Installed in Air		Run is Single Way Ducts		Laid Direct in Ground		Installed in Air		Laid Direct in Ground	
	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m	Current Rating	Voltage Drop Amp/m
	Amp	mv	Amp	mv	Amp	mv	Amp	mv	Amp	mv
4CX50	175	0.81	149	0.81	187	0.81	182	0.81	188	0.81
4CX70	220	0.58	183	0.58	229	0.58	229	0.58	229	0.58
4CX95	272	0.44	220	0.44	276	0.44	280	0.44	274	0.44
4CX120	316	0.37	251	0.37	313	0.37	322	0.37	310	0.37
4CX150	363	0.31	283	0.31	350	0.31	368	0.31	346	0.31
4CX185	418	0.27	321	0.27	395	0.27	420	0.27	387	0.27
4CX240	496	0.23	372	0.23	458	0.23	491	0.23	444	0.23
4CX300	571	0.2	420	0.2	516	0.2	557	0.2	494	0.2
4CX400	665	0.18	478	0.18	584	0.18	635	0.18	549	0.18
5CX1.5	22	22.8	22	22.8	27	22.8	25	22.8	32	22.8
5CX2.5	29	14	29	14	35	14	33	14	42	14
5CX4	38	8.7	37	8.7	45	8.7	39	8.7	46	8.7
5CX6	48	5.9	46	5.9	56	5.9	50	5.9	57	5.9
5CX10	67	3.5	62	3.5	76	3.5	67	3.5	76	3.5
5CX16	88	2.2	80	2.2	98	2.2	89	2.2	98	2.2
5CX25	118	1.5	104	1.5	128	1.5	120	1.5	128	1.5
5CX35	142	1.1	125	1.1	157	1.1	149	1.1	158	1.1
5CX50	175	0.81	149	0.81	187	0.81	182	0.81	188	0.81
5CX70	220	0.58	183	0.58	229	0.58	229	0.58	229	0.58
5CX95	272	0.44	220	0.44	276	0.44	280	0.44	274	0.44
5CX120	316	0.37	251	0.37	313	0.37	322	0.37	310	0.37
5CX150	363	0.31	283	0.31	350	0.31	368	0.31	346	0.31
5CX185	418	0.27	321	0.27	395	0.27	420	0.27	387	0.27
5CX240	496	0.23	372	0.23	458	0.23	491	0.23	444	0.23

Installed In Air

Ratings based on Ambient air temperature 30°C

Laid directly in ground,run in single way ducts

Ratings based on ground temp 15°C

Soil thermal resistivity 1.2 K m/W

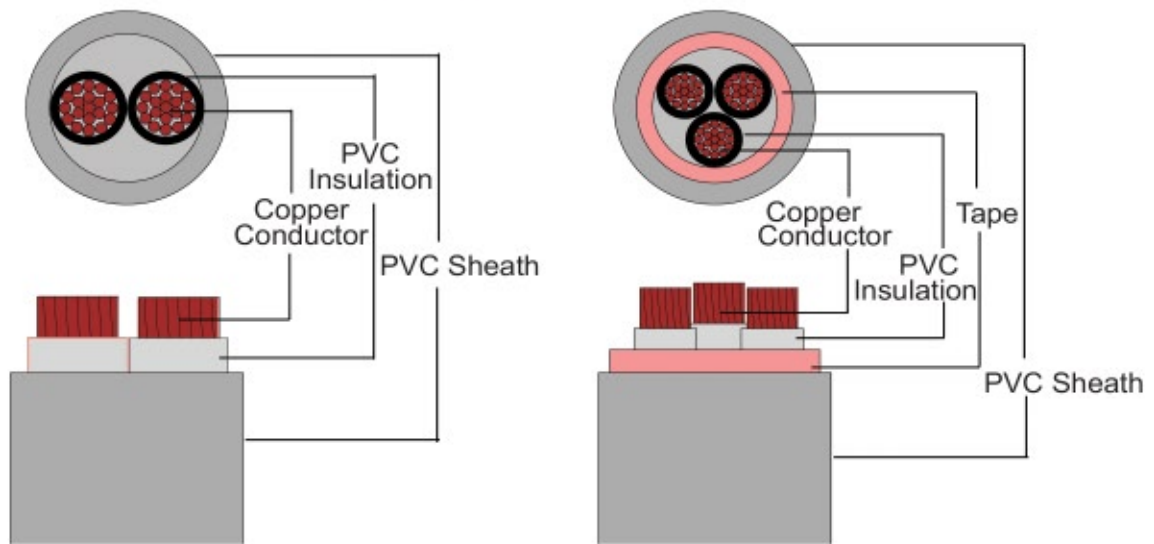
Depth of laying 0.5mts

All circuits thermally independent,100mm diameter single way ducts

Note : 1.Current ratings for cables having more than four cores are available on request
2.Unarmoured cables are not suitable for direct burial in ground.

FLEXIBLE COPPER PVC INSULATED PVC SHEATHED UNARMoured

600/1000V
IEC 60502-1



DIMENSIONS AND WEIGHTS

Size No. of Core x	Thickness of Insulation	UNARMoured				
		Approx. Overall Dia	Approximate Cable Weight	Delivery Length	Drum size W X L	Approx. Gross Weight
mm ²	mm	mm	kg/km	m	mm	kg
2CX1.5	0.8	7	90	1000	850X500	120
2CX2.5	0.8	9	137	1000	1050X600	200
2CX4	1.0	11	191	1000	1050X600	250
2CX6	1.0	13	250	1000	1050X600	310
2CX10	1.0	16	400	1000	1250X700	490
2CX16	1.0	18	545	1000	1250X700	645
2CX25	1.2	22	790	1000	1250X700	890
2CX35	1.2	24	1045	1000	1250X700	1145
3CX1.5	0.8	8	114	1000	850X500	145
3CX2.5	0.8	10	174	1000	850X500	204
3CX4	1.0	11	239	1000	1050X600	300
3CX6	1.0	14	330	1000	1050X700	410
3CX10	1.0	17	520	1000	1250X700	610
3CX16	1.0	19	730	1000	1250X700	830
3CX25	1.2	23	1090	1000	1250X700	1200
3CX35	1.2	26	1430	1000	1450X926	1630
3CX50	1.4	30	1950	1000	1450X926	2150
3CX70	1.4	34	2590	1000	1650X926	2940
3CX95	1.6	39	3430	1000	1650X926	3780
3CX120	1.6	42	4230	500	1450X926	2400
3CX150	1.8	51	5400	500	1650X926	3100
3CX185	2.0	57	6640	500	1650X1126	3600
3CX240	2.2	65	8530	500	2050X1202	4665
3CX300	2.4	72	10890	500	2250X1202	5900
3CX4/2.5	1.0	13	290	1000	1050X600	350
3CX6/4	1.0	15	390	1000	1050X700	450
3CX10/6	1.0	19	610	1000	1250X700	700
3CX16/10	1.0	21	860	1000	1250X700	950
3CX25/16	1.2	25	1290	1000	1450X926	1470
3CX35/16	1.2	28	1660	1000	1450X926	1840
3CX50/25	1.4	33	2270	1000	1650X926	3620

FLEXIBLE COPPER PVC INSULATED PVC SHEATHED UNARMoured

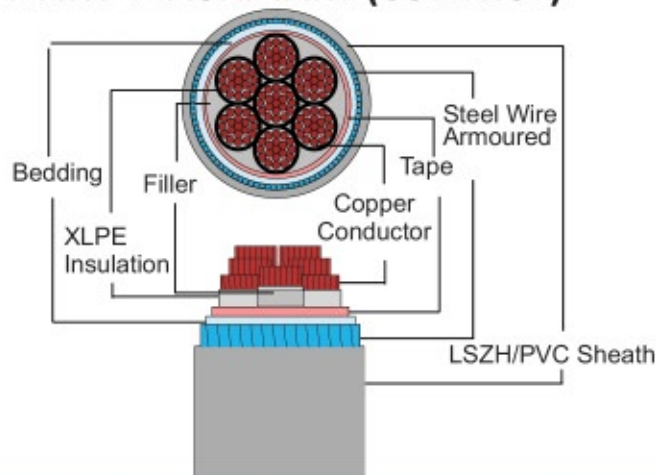
600/1000V IEC 60502-1

DIMENSIONS AND WEIGHTS						
3CX35/16	1.2	28	1660	1000	1450X926	1840
3CX50/25	1.4	33	2270	1000	1650X926	3620
3CX70/35	1.4	38	3050	1000	1650X1126	3450
3CX95/50	1.6	44	4060	1000	2250X1202	4700
3CX120/70	1.6	47	5070	500	1650X926	2900
3CX150/70	1.8	57	6230	500	1650X1126	3600
3CX185/95	2.0	63	7760	500	2250X1202	4500
3CX240/120	2.2	72	9900	500	2250X1202	5900
3CX300/150	2.4	80	12620	300	2250X1202	4300
4CX1.5	0.8	9	146	1000	1050X600	210
4CX2.5	0.8	11	216	1000	1050X600	280
4CX4	1.0	13	306	1000	1050X700	380
4CX6	1.0	15	410	1000	1050X700	480
4CX10	1.0	19	660	1000	1250X900	780
4CX16	1.0	21	920	1000	1250X900	1050
4CX25	1.2	25	1390	1000	1450X926	1570
4CX35	1.2	28	1850	1000	1450X926	2030
4CX50	1.4	33	2540	1000	1650X926	2890
4CX70	1.4	38	3410	1000	1650X1126	3800
4CX95	1.6	44	4510	1000	2250X1202	4910
4CX120	1.6	48	5600	500	1650X926	3160
4CX150	1.8	57	7100	500	1650X1126	4050
4CX185	2.0	64	8720	500	2250X1202	5040
4CX240	2.2	72	11610	500	2250X1202	6300
4CX300	2.4	81	14320	250	2250X1202	3980
5CX1.5	0.8	10	181	1000	1050X600	241
5CX2.5	0.8	12	268	1000	1050X600	330
5CX4	1.0	14	379	1000	1050X700	450
5CX6	1.0	17	500	1000	1250X700	580
5CX10	1.0	20	810	1000	1250X900	930
5CX16	1.0	23	1170	1000	1450X926	1350
5CX25	1.2	28	1690	1000	1650X926	2040
5CX35	1.2	31	2270	1000	1650X926	2620
5CX50	1.4	37	3200	1000	2250X1202	3720
5CX70	1.4	42	4340	1000	2250X1202	4930
5CX95	1.6	49	5760	500	1650X1126	3340
5CX120	1.6	53	7070	500	2250X1202	4070
5CX150	1.8	61	8900	500	2250X1202	5310
5CX185	2.0	71	11100	400	2250X1202	5290
5CX240	2.2	80	14150	250	2050X1202	4470

PVC OR XLPE INSULATED PVC SHEATHED AUXILIARY (CONTROL)

600/1000V CABLES

NIS/IEC 60502-1 and BS 6346



DIMENSIONS AND WEIGHTS

	Conductor Area mm ²	UNARMoured				ARMoured					
		Approx.Overall diametre in mm		Approx.weight kg/km		Approx.Over Armour Diametre in mm		Approx.Overall diametre in mm		Approx.weight kg/km	
		PVC	XLPE	PVC	XLPE	PVC	XLPE	PVC	XLPE	PVC	XLPE
2Core	1.5	12.4	10.3	190	125	7.9	7.7	12.3	12.1	285	275
	2.5	12.9	11	230	155	9	9	13.6	13.6	350	340
	4	14.8	12.5	310	200	10.5	10.1	15.1	14.7	440	420
	6	15.8	13.4	380	265	11.7	11.3	16.5	15.9	530	490
	10	18	15.5	510	375	14.4	13.2	20.1	18	800	640
3Core	1.5	12.8	10.5	220	150	8.3	8.2	12.8	12.6	305	300
	2.5	13.5	11.8	260	190	9.5	9.5	14.1	14.1	380	385
	4	15.5	12.8	365	250	11.2	10.7	15.8	15.3	495	460
	6	17	14	460	325	12.5	12	18	16.6	690	570
	10	19	16.1	640	475	15.5	14	21.2	19.5	935	835
4Core	1.5	13.4	11.7	265	180	8.9	8.9	13.5	13.3	365	355
	2.5	14.5	12.5	340	230	10.4	10.4	15	15	460	445
	4	17	14.3	465	320	12.3	11.8	17.8	16.4	685	556
	6	18.5	15.5	570	410	13.7	13.2	19.2	18.7	810	760
	10	21	17.8	800	615	17.1	15.6	22.8	21.2	1092	985
5Core	1.5	14.5	12.5	305	270	13.8	11.7	17.4	15.3	406	380
	2.5	15.7	13.6	370	260	14.2	12.8	17.8	16.4	600	470
	4	18	15	520	350	16	15.2	19.6	18.8	760	720
7Core	1.5	15	13.2	360	320	10.6	10.6	15.2	15.2	465	448
	2.5	16.5	14.5	460	330	12.5	12.5	18	17.4	685	575
	4	19.3	16.1	650	450	14.8	14.2	20.5	19.7	900	830
12Core	1.5	19	16.7	550	470	13.9	13.9	19.4	19.4	745	710
	2.5	21	18.5	710	520	16.7	16.7	22.4	22.4	995	945
	4	25.1	20.7	1040	720	20.2	19.3	26.8	25.7	1535	1380
19Core	1.5	21.6	19.3	780	675	16.5	16.5	22.2	22.2	1000	945
	2.5	24	21.5	1020	750	20	20	26.6	26.6	1500	1420
	4	28.6	24.3	1515	1070	23.7	22.7	30.5	29.3	2010	1820
27Core	1.5	25.8	23.6	1050	750	20.1	20.1	26.7	26.7	1435	1355
	2.5	27	25.5	1390	1030	23.9	23.9	30.7	30.7	1930	1815
	4	34.5	29	2100	1475	29.1	27.4	37.1	34.4	2945	2350
37Core	1.5	28.5	25.6	1360	975	22.4	22.4	29.2	29	1765	1645
	2.5	31.7	28.5	1810	1350	27	27	34	33.8	2392	2240
	4	39.2	33	2800	1970	32.6	31.2	40.8	39.2	3650	2320
48Core	1.5	32.6	29.5	1735	1260	25.9	25.9	32.9	32.7	2155	2000
	2.5	35.8	32.8	2340	1810	31.3	31.3	39.6	39.3	3245	3045
	4	43	36.1	3400	2325	37.6	35.9	46	44.1	4475	4003

PVC OR XLPE INSULATED PVC SHEATHED AUXILIARY (CONTROL) 600/1000V CABLES NIS/IEC 60502-1 and BS 6346

Current Ratings

Cable Type and size in sq.mm			XLPE					PVC				
			1.5	2.5	4	6	10	1.5	2.5	4	6	10
Maximum Conductor Temperature			90°C					70°C				
IN AIR	2C	Current Rating (Amps)	29	39	52	66	90	22	31	41	53	92
		Voltage Drop (mv)	31	19	12	7.9	4.9	29	18	11	7.3	4.4
	3C&4C	Current Rating (Amps)	25	33	44	56	78	19	26	35	45	62
		Voltage Drop (mv)	27	16	10	6.8	4	25	15	9.5	6.4	3.8
IN GROUND	2C	Current Rating in Ground (Amps)	38	49	65	81	109	32	41	55	69	92
		Current Rating in Duct (Amps)	31	41	53	67	89	26	34	45	57	76
		Voltage Drop (mv)	31	19	12	7.9	4.9	29	18	11	7.3	4.4
		Current Rating in Ground (Amps)	32	42	55	69	92	27	35	47	59	78
	3C&4C	Current Rating in Duct (Amps)	26	34	45	56	75	22	29	38	48	64
		Voltage Drop (mv)	27	16	10	6.8	4	25	15	9.5	6.4	3.8
		Current Rating in Ground (Amps)	32	42	55	69	92	27	35	47	59	78
		Current Rating in Duct (Amps)	26	34	45	56	75	22	29	38	48	64

TECHNICAL INFORMATION

CURRENT RATING FACTORS

Rating factors for Ambient air temperature

Table 3

Ambient air temperature	25°C	30°C	35°C	40°C	45°C	50°C	55°C
Cable type	Rating factors						
XLPE AND LSZH cable	1.02	1.00	0.96	0.91	0.87	0.82	0.76
PVC cable	1.03	1.00	0.94	0.87	0.79	0.71	0.61

Correction factors for Groups of cable, installed in air

Table 4

	Number of circuit or multicore cable									
Arrangement of cable	2	3	4	5	6	7	8	9	0	
In conduit, Trucking or Bunched and Clipped directly	0.8	0.7	0.65	0.6	0.57	0.54	0.52	0.5	0.48	
On metal tray and Cable touching	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	

**Rating factors depth of laying
(to centre of cable or to centre of duct)**

Table 5

Depth of layer m	Multicore Cables	
	Direct in ground	In single way duct
0.5	1.00	1.00
0.6	0.99	0.99
0.8	0.97	0.97
1.00	0.95	0.96
1.25	0.94	0.95

Rating factors for variation in thermal resistivity of soil (average values)

Table 6

Type of installation	Soil thermal resistivity in K m/W					
	0.8	0.9	1.0	1.5	2.0	2.5
Multicore cables laid directly in ground	1.09	1.06	1.04	0.93	0.84	0.77
Multicore cables installed in single way ducts	1.03	1.02	1.02	0.97	0.91	0.87

Rating factors for ground temperature (cables laid direct or in duct)

Table 7

Ground temperature	15°C	20°C	25°C	30°C	35°C	40°C	45°C
XLPE insulated	1.0	0.97	0.93	0.80	0.86	0.82	0.76
PVC insulated	1.0	0.95	0.90	0.85	0.80	0.74	0.67

Group rating factors for multicore cables In horizontal formation (average values)

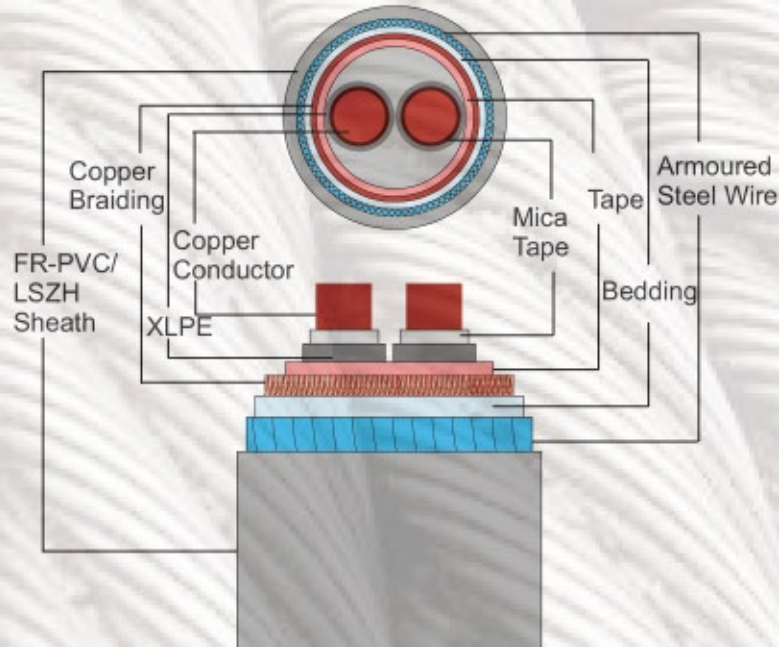
Table 8

	Number of cables	Spacing between cable centre				
		Touching of cables in group	0.15m	0.3m	0.45m	0.6m
Cables direct in ground	2	0.81	0.87	0.91	0.93	0.94
	3	0.70	0.78	0.84	0.87	0.90
	4	0.63	0.74	0.81	0.86	0.89
	5	0.59	0.70	0.78	0.83	0.87
	6	0.55	0.67	0.76	0.82	0.86
Cables in single way duct	2	0.90		0.92	0.95	0.96
	3	0.80		0.87	0.90	0.93
	4	0.78		0.85	0.89	0.91
	5	0.76		0.82	0.87	0.90
	6	0.72		0.81	0.86	0.90



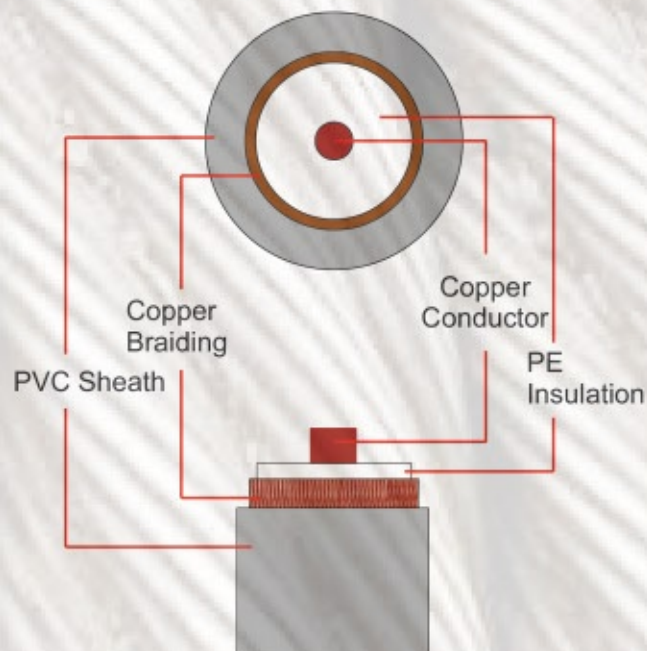
SPECIAL CABLES

FIRE ALARM ARMoured CABLE



CU/MICA/XLPE/BRAID/PVC/SWA/FR-PVC or LSZH

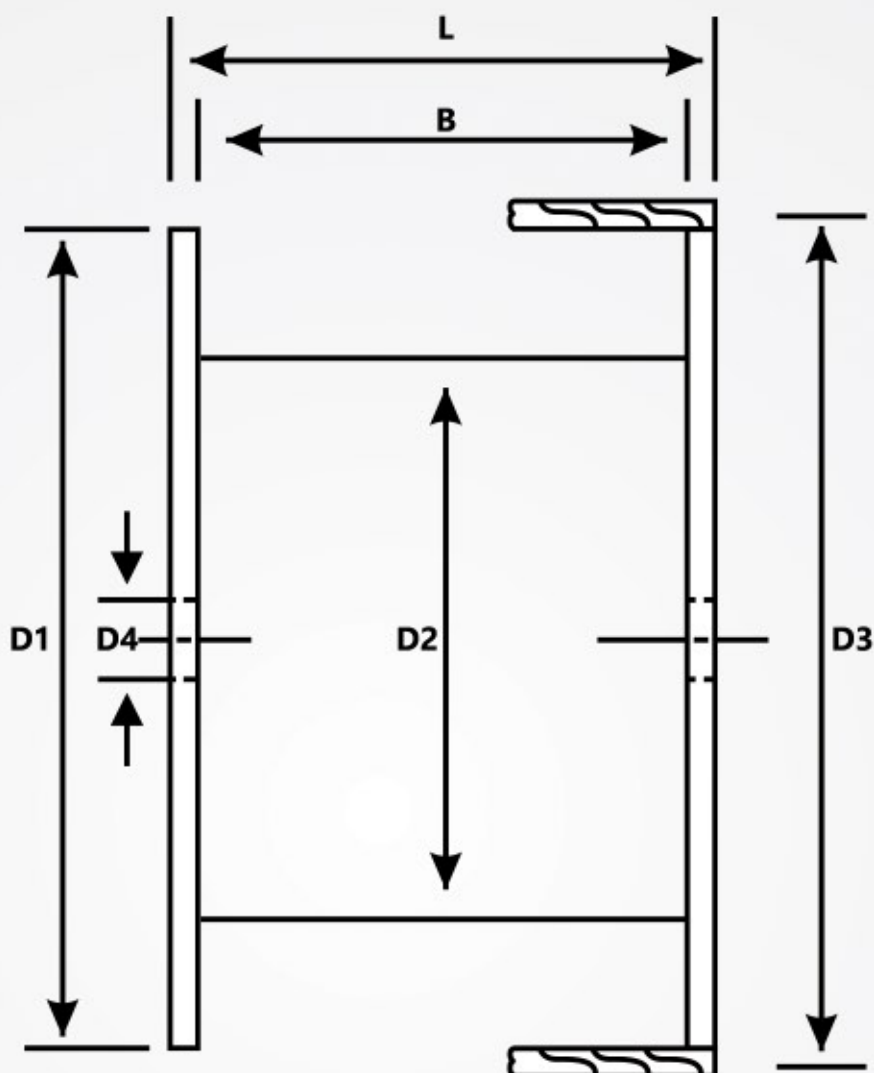
CO-AXIAL CABLE



CU/PE/BRAID/PVC



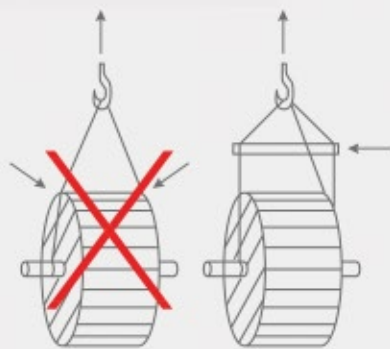
Wooden Drum Standard Nigerchin Wire And Cable



Drum Size	D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)	B (mm)	L (mm)	Weight (Approx.)Kg
1	800	400	850		400	500	40
2	1000	565	1050	85	500	600	60
3	1000	565	1050	85	600	700	80
4	1200	565	1250	85	600	700	98
5	1200	565	1250	85	800	900	118
6	1400	764	1450	85	800	926	226
7	1600	764	1650	85	800	926	350
8	1600	764	1650	85	1000	1126	400
9	2000	1296	2050	85	1000	1202	515
10	2200	1296	2050	85	1000	1202	585

Cable Drums Handling Procedure

Cables and Conductors should be installed by trained personnel in accordance with good engineering practices, recognized codes of practise, statutory local requirements, IEE wiring regulations and where relevant, in accordance with any specific instructions issued by the company. Cables are often supplied in heavy cable reels and handling these reels can constitute a safety hazard. In particular, dangers may arise during the removal of packing and during the removal of retaining battens and timbers which may expose projecting nails.



Lifting cable drums using crane



Do not lay drums flat on their sides, use proper stops to prevent drums rolling.



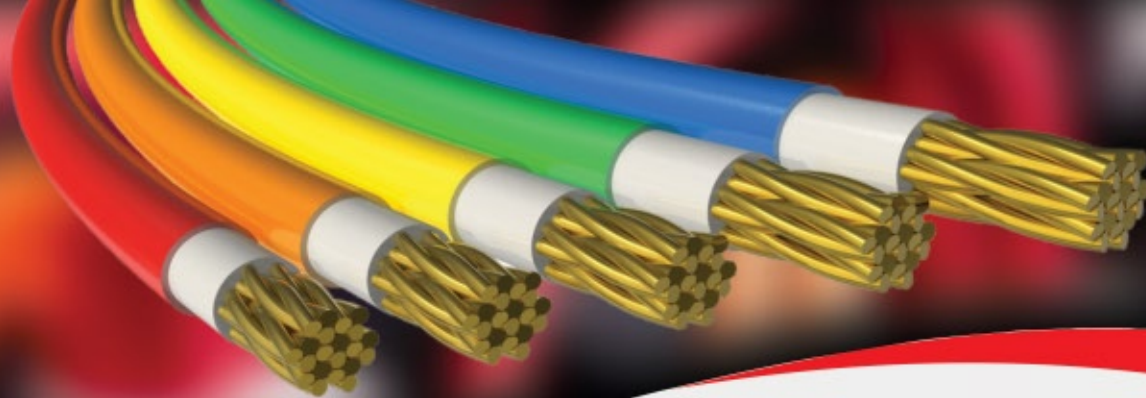
Lift drums on fork trucks correctly



Secure drums adequately before transportation.



Roll in the direction shown by the arrow



RECOMMENDATIONS FOR CABLES INSTALLATION

PRODUCT LIFE DATA

Low Voltage cables is not subjected to high electric stress, the XLPE insulating material has a dielectric strength voltage of about 22 KV, with the best manufacturing and testing practice applied in Nigerchin Electrical Development Company Limited to ensure good quality insulation . As Insulation treeing is uncommon problem for LV cables, the chance of electric break down is very minor. The PVC or PE jacketing material is very stable against most of the Chemical traces could be existing at the soil, these material with Black colour Master batch have a strong resistance against UV and Environmental conditions.

The cables have to be selected and installed as per the recommendation mentioned below. By keeping such standard of installation and operation, Low Voltage cables can survive in service for a time of 25 years or more without failure.

CABLES INSTALLED IN HAZARDOUS AREAS

Where cables are required to be installed in areas classified as hazardous, i.e. potentially explosive gas atmospheres, reference should be made to IEC 60079-14.

CURRENT RATINGS

The current rates introduced previously in this catalogue have to be followed.

- Cables should be installed and used in association with other equipment in accordance with BS7671 and/or the Electricity Safety, Quality and Continuity Regulations, as appropriate. In special environments, the appropriate regulations and codes of practice should be observed.

- Minimum temperature during installation

It is recommended that the cables be installed only when both the cable and ambient temperatures are above 0 °C and have been so for the previous 24 h, or where special precautions have been taken to maintain the cable above this temperature.

MINIMUM INSTALLATION RADIUS

None of the cables specified in this catalogue should be bent during installation to a radius smaller than that given in NC product Catalogues and the offered data sheets, wherever possible, larger installation radii should be used.

PREVENTION OF MOISTURE INGRESS

Care should be exercised during installation to avoid any damage to cable coverings. This is important in wet or other aggressive environments. The protective cable end cap should not be removed from the ends of the cable until immediately prior to termination or jointing, especially for cables that do not have extruded bedding. When the end caps have been removed the unprotected ends of the cable should not be exposed to any kind of moisture.

CABLES FAULTS PREVENTION

The Low Voltage Cables faults are possible due to different reasons:

1. Physical damage due to mishandling or misuse
2. Physical Damage during operations.
3. Over current.
4. Fire or excessive temperature at the cables location.
5. Manufacturing malfunction, which Nigarchin Electrical Development Company Limited guarantees its product against any defect or wrong workmanship, meanwhile in case of damage due to this reason, the action will be taken as per the submitted warranty letter, and the company will apply the required corrective and preventive actions.

Recommendation for failures:

Insulation failure, the defected section is recommended to be replaced , the replacement should be from joint to joint.

Serving/ jacketing failure, if the water did not ingress through the cable, the jacket will be repaired using proper repairing techniques carried out by skilled technician. If the water came inside the cables to insulation, for cables suitable for wet location, practically dry the defected portion before repair.

If the cable is not suitable for wet applications and the underground water engrossed inside it, replacing the defected section from joint to joint is the recommend solution.





ORDERING INFORMATION

To serve our customer in minimum time and high efficiency, our valuable customers are requested to provide the following details along with their enquiries and orders:

1. Number of phases/cores /colour code.
2. Conductor required cross sectional area (conductor size along with size of neutral phase).
3. System Voltage Rate .
4. Applicable customer specification or International Standard / Norm.
5. Conductor material (Copper/Aluminum).
6. Insulation Material (PVC/XLPE/LSZH/PE/FR)
7. Bedding / Inner Sheathing (Inner Jacketing (PVC/PE, /LSZH/FR - PVC)
8. Shielded - Braiding/Screening
9. Armouring Type (SWA, AWA or STA).
10. Cable jacketing material (PVC/LSZH/PE/FR/PVC)
11. Cable special features required, e.g. circular conductors, Flame Retardant Type to IEC 60332-3, Anti-termite
12. Required length of cables (drum schedules)

Chinese Cable Equivalent to Nigercin Cable (Copper)

Cable Type	Chinese Description	Voltage Grade	Nigercin Description
PVC Series	BV	450/750V	Solid /PVC
	BVR	450/750V	Stranded/ PVC
	RV	450/750V (300/500V)	FLEX / PVC
	RVV	300/500V	FLEX/ PVC/PVC
	KVV	450/750V	Control Solid PVC/PVC
	KVVR	450/750V	Control FLEX PVC/PVC
	KVVRP	450/750V	Control FLEX Braiding PVC/PVC
	KVVP	450/750V	Control Solid Braiding PVC/PVC
	KVVP22	450/750V	Control Solid Braiding PVC/STA/PVC
	KVVP2	450/750V	Control Solid Brass Screen PVC/PVC
	KVVP2/22	450/750V	Control Solid Brass Screen PVC/STA/PVC
	VV	600/1000V	Solid PVC/PVC
	VV22	600/1000V	PVC/STA/PVC
	VVR	600/1000V	FLEX/PVC/PVC
XLPE Series	KYJV	450/750V	Control XLPE/PVC
	KYJV22	450/750V	Control XLPE/STA/PVC
	KYJV32	450/750V	Control XLPE/SWA/PVC
	YJV	600/1000V	XLPE/PVC
	YJY	600/1000V	XLPE/PE
	YJV22	600/1000V	XLPE/STA/PVC
	YJV32	600/1000V	XLPE/SWA/PVC
	BYJ	600/1000V	CU/XLPE
	YJY 22	600/1000V	CU/XLPE/STA/PE
	YJY	600/1000V	CU/XLPE/PE
XLPE-MICA Series	NH -YJY	600/1000V	CU/MICA/XLPE/PE
	NH -BYJ	600/1000V	CU/MICA/XLPE
	WDZN - YJY	600/1000V	CU/MICA/XLPE/LSOH
	NH -YJY 22	600/1000V	CU/MICA/XLPE/STA/PE
WDZ Series	WDZ-BYJ	450/750V	LSOH
	WDZ-KYJY	450/750V	Control XLPE/LSOH
	WDZ-KYJY23	450/750V	Control XLPE/STA/LSOH
	WDZ-KYJY33	450/750V	Control XLPE/SWA/LSOH
	WDZ-YJY(E)	600/1000V	XLPE/LSOH
	WDZB-YJY(E)	600/1000V	XLPE/2layers Tapes/LSOH
	WDZA-YJY(E)	600/1000V	XLPE/4layers Tapes/LSOH
	WDZ-YJY(E)23	600/1000V	XLPE/STA/LSOH
	WDZB-YJY(E)23	600/1000V	XLPE/2layers Tapes/STA/LSOH
	WDZA-YJY(E)23	600/1000V	XLPE/4layers Tapes/STA/LSOH
	WDZ-YJY(E)33	600/1000V	XLPE/SWA/LSOH
	WDZB-YJY(E)33	600/1000V	XLPE/2layers Tapes/SWA/LSOH
	WDZA-YJY(E)33	600/1000V	XLPE/4layers Tapes/SWA/LSOH

Abbreviation/ Alphabet Descriptions for Chinese Standards

Letter	Description
L	Aluminium
NH(N)	Fire Resistance N-mica , NB-2layers mica ,NA-4layers mica
YJ	XLPE
R	Flexible
Z(ZR)	Flame Retardant;ZR-one Flame Tape , ZRB-Two Flame Tapes ZRA-Four Flame Tapes
WD(DW)	LSOH/LSZH/LSHF/POE
WDZ	One layer POE(LSOH) Tape
WDZB	Two layer POE(LSOH) Tapes
WDZA	Four layer POE(LSOH) Tapes
K	Control Cable (450/750V)
V	PVC
22	STA/PVC Sheathing
23	STA/PE or LSOH Sheathing
32	SWA/PVC Sheathing
33	SWA/PE or LSOH Sheathing
P	Copper Braiding
P22	Copper Braiding/STA
P2	Brass Tape
P2/22	Brass Tape/STA



THICKNESS AND ELECTRICAL PARAMETERS FOR SINGLE/MULTICORE

NIS/IEC 60502-1 for Insulation

NIS/IEC 60228 for conductor Resistance

NIS/IEC 60724 for Short circuit current

Size in Sq.mm	PVC	XLPE	DC Resistance at 20°C Ohms/km			Copper		Aluminium	
	Insulation Thickness	Insulation Thickness	Copper		Aluminium	Short Circuit Current in 1 Sec. (kA) for Single/Multicore			
			CLASS 1 & 2 SOLID/STRANDED	CLASS -5 FLEXIBLE	CLASS 1 & 2 SOLID/STRANDED	PVC	XLPE	PVC	XLPE
	mm	mm							
1.5	0.8	0.7	12.1	13.3		0.17	0.21	0.11	0.14
2.5	0.8	0.7	7.41	7.98		0.29	0.36	0.19	0.24
4	1	0.7	4.61	4.95		0.46	0.57	0.30	0.38
6	1	0.7	3.08	3.3		0.69	0.86	0.46	0.56
10	1	0.7	1.83	1.91	3.08	1.15	1.43	0.76	0.94
16	1	0.7	1.15	1.210	1.91	1.84	2.29	1.22	1.50
25	1.2	0.9	0.727	0.78	1.2	2.88	3.58	1.90	2.35
35	1.2	0.9	0.524	0.554	0.868	4.03	5.01	2.66	3.29
50	1.4	1	0.387	0.386	0.641	5.75	7.15	3.80	4.70
70	1.4	1.1	0.268	0.272	0.443	8.05	10.01	5.32	6.58
95	1.6	1.1	0.193	0.206	0.32	10.93	13.59	7.22	8.93
120	1.6	1.2	0.153	0.161	0.253	13.80	17.16	9.12	11.28
150	1.8	1.4	0.124	0.129	0.206	17.25	21.45	11.40	14.10
185	2	1.6	0.0991	0.106	0.164	21.28	26.46	14.06	17.39
240	2.2	1.7	0.0754	0.0801	0.125	27.60	34.32	18.24	22.56
300	2.4	1.8	0.0601	0.0641	0.1	34.50	42.90	22.80	28.20
400	2.6	2	0.0470	0.0486	0.0778	46.00	57.20	30.40	37.60
500	2.8	2.2	0.0366	0.0384	0.0605	57.50	71.50	38.00	47.00
630	2.8	2.4	0.0283	0.0287	0.0469	72.45	90.09	47.88	59.22

Note: (A) 1. Conductor at maximum operating temperature of 90°C for XLPE.

2. Short Circuit conductor temperature maximum 250°C.

(B) 1. Conductor at maximum operating temperature of 70°C for PVC.

2. Short Circuit conductor temperature maximum 140°C for C.S.A > 300mm².

3. Short Circuit conductor temperature maximum 160°C for C.S.A ≤ 300mm².

C.S.A= Cross Sectional Area

XLPE= Cross Linked Polyethelene

PVC= Polyvinyl Chloride

Mechanical Properties of Zinc Coating of Galvanized Steel Wires

Nominal Wire Diameter	Minimum Stress at 1% Elongation	Minimum Tensile Strength		Minimum Weight of Zinc Coating
		Before Stranding	After Stranding	
mm	kg/mm ²	kg/mm ²	kg/mm ²	g/m ²
1.25	119.5	133.6	129.9	183
1.5	119.5	133.6	129.9	183
1.75	119.5	133.6	129.9	198
2.25	119.5	133.6	129.9	214
2.75	116	133.6	129.9	229
3	116	133.6	129.9	244
3.5	112.5	133.6	129.9	244
4.25	112.5	133.6	129.9	259
4.75	112.5	133.6	129.9	275

Moduli of Elasticity and Coefficients of Linear Expansion for Construction of Aluminium Conductors Steel Reinforced to IEC Publication No. 60209

Number of Wires		Final Modulus of Elasticity	Final Modulus of Elasticity
Aluminium	Steel	kg/mm ²	1/°C
6	1	8100	19.1 x 10 ⁻⁶
6	7	7700	19.8 x 10 ⁻⁶
12	7	10700	15.3 x 10 ⁻⁶
18	1	6700	21.2 x 10 ⁻⁶
24	7	7400	19.6 x 10 ⁻⁶
26	7	7700	18.9 x 10 ⁻⁶
28	7	7900	18.4 x 10 ⁻⁶
30	7	8200	17.8 x 10 ⁻⁶
30	19	8000	18.0 x 10 ⁻⁶
32	19	8200	17.5 x 10 ⁻⁶
54	7	7000	19.3 x 10 ⁻⁶

- Note:** 1. Moduli Values given may be regarded accurate to within ± 300 kg/mm²
2. Moduli Values given may be taken as applying to conductors between 15% and 50% of the ultimate tensile strength of the conductor.
3. Coefficients of linear expansion have been calculated from final (practical) moduli for the aluminium, and steel components of the conductor and coefficients of linear expansion 23 x 10⁻⁶ and 11⁻⁶ x 10⁻⁶ per celsius degree for aluminium and steel respectively.

Moduli of Elasticity and Coefficients of Linear Expansion for Construction of All Aluminium Stranded Conductors to IEC 60207

Number of Wires	Final Modulus of Elasticity	Coefficients of Linear Expansion
	kg/mm ²	1/°C
7	6000	23×10^{-6}
19	5700	23×10^{-6}
37	5700	23×10^{-6}
61	5500	23×10^{-6}
91	5500	23×10^{-6}

- Note:** 1. Moduli Values given may be regarded accurate to within ± 300 kg/mm²
 2. Moduli Values given may be taken as applying to conductors between 15% and 50% of the ultimate tensile strength of the conductor.

Mechanical Properties of Hard Drawn Aluminium Wire

Nominal Wire Diameter	Minimum Ultimate Tensile Stress	
	Before Stranding	After Stranding
	kg/mm ²	kg/mm ²
1.25	20.4	19.4
1.5	19.7	18.7
1.75	19.2	18.2
2	18.8	17.9
2.25	18.4	17.5
2.5	18	17.1
2.75	17.6	16.7
3	17.2	16.3
3.25	16.9	16
3.5	16.7	15.9
3.75	16.5	15.7
4	16.3	15.5
4.25	16.3	15.5
4.5	16.2	15.4
4.75	16.2	15.4
5	16.2	15.4

- Note:** 1. Gauge Length: 200mm
 2. For a wire of intermediate diameter, the minimum ultimate tensile strength shall be the same as that for next larger diameter listed.

Quality Assurance Test on Cables

A.Raw Material Tests	Copper	Aluminium	PVC			STEEL	
			TI1	TM1	6	Armour	ACSR
1. Unaged Sample							
Tensile Streth (N/mm ²)	2	110 - 145	12.5	12.5	6	340-500	-
Elongation(%)	≥30	-	125	125	125	10	-
2. Aged Sample(Accelerated Ageing for 7 days at 80°C + 2°C)							
Tensile Streth (N/mm ²)	2	-	12.5	12.5	-	-	-
Max. Variation (%)	-	-	20	20	-	-	-
Elongation(%)	-	-	125	125	-	-	-
Max. Variation (%)	-	-	20	20	-	-	-
3. Resistivity at 20°C							
OHM.mm ² /km	17.241	28.264	-	-	-	-	-
4. Deformation at High Temperature (80°C)							
	-	-	<50	<50	<50	-	-
5. Resistance to Cracking at 150°C			NO CRACK				
6. Density (g/cm³)	8.89	2.703	1.30 - 1.47			7.8	7.8
7. Mass of Zinc Coat						ACC to BS 443	
	-	-	-	-	-		
8.Insulation Resistance Test							
at 70°C M.OHM.km	-	-	0.037	-	-	-	-
at 20°C M.OHM.km	-	-	-	-	0.0035	-	-



Equivalent of Imperial American Wire Gauge & Metric Standard Conductors

CROSS SECTIONAL AREA				NEAREST LARGER CORRESPONDING SIZE			
Nominal Size		Calculated Area		Nominal		Calculated	
Metric	Imperial						
Sq. mm	Sq. In	Sq. in	CM	AWG	MCM	Sq. mm	Sq. In
1	—	0.00155	1,974	17	—	1.038	0.00161
—	—	—	—	16	—	1.309	0.00203
15	—	0.00233	2,961	15	—	1.65	0.00256
—	—	0.00248	3,158	15	—	1.65	0.00256
2.5	—	—	—	14	—	2.081	0.00323
—	—	0.00388	4,934	13	—	2.624	0.00407
4	—	—	—	12	—	3.309	0.00513
—	0.007	0.0062	7,894	11	—	4.172	0.00647
6	—	0.00701	8,919	10	—	5.26	0.00816
—	—	0.0093	11,840	9	—	6.634	0.0103
—	—	0.00977	12,430	9	—	6.634	0.0103
—	0.0145	—	—	8	—	8.366	0.013
10	—	0.0146	18,615	7	—	10.55	0.0164
—	—	0.0155	19,740	7	—	10.55	0.0164
—	0.0225	—	—	6	—	13.3	0.0206
16	—	0.0222	28,190	5	—	16.77	0.026
—	—	0.0248	31,580	5	—	16.77	0.026
25	—	—	—	4	—	21.15	0.0328
—	0.04	0.0368	49,350	3	—	26.67	0.414
—	—	0.0396	50,420	3	—	26.67	0.414
35	—	0.0496	63,150	2	—	33.63	0.521
—	0.06	0.0543	69,090	1	—	42.41	0.657
—	—	0.06	76,382	1	—	42.41	0.657
50	—	0.062	78,940	1	—	42.41	0.657
—	—	0.0775	98,680	1/0	—	53.48	0.0829
—	0.1	0.0977	124,300	2/0	—	67.43	0.105
70	—	0.101	128,470	2/0	—	67.43	0.105
—	—	0.109	138,200	3/0	—	85.03	0.132
95	—	0.124	157,900	3/0	—	85.03	0.132
—	0.15	0.147	187,530	4/0	—	107.2	0.166
—	—	0.148	188,190	4/0	—	107.2	0.166
—	—	0.155	197,400	4/0	—	107.2	0.166
120	—	0.186	236,900	—	250	126.7	0.196
—	—	0.194	246,700	—	250	126.7	0.196
—	0.2	0.196	250,100	—	250	126.7	0.196
150	—	0.233	296,100	—	300	152	0.236
—	0.25	0.247	313,900	—	350	177.3	0.275
—	—	0.248	315,800	—	350	177.3	0.275
185	—	0.287	365,200	—	400	202.7	0.314
—	0.3	0.302	385,000	—	400	202.7	0.314
—	—	0.31	394,700	—	400	202.7	0.314
240	—	0.372	473,800	—	500	253.4	0.393
—	—	0.388	493,500	—	500	253.4	0.393
—	0.4	0.406	517,500	—	550	278.7	0.432
300	—	0.465	592,200	—	600	304	0.471
—	—	0.488	621,700	—	650	329.4	0.511
—	0.5	0.499	634,700	—	750	380	0.589
—	0.6	0.606	771,800	—	800	405.4	0.628
400	—	0.62	789,400	—	800	405.4	0.628
—	0.75	0.744	946,500	—	1000	506.7	0.785
500	—	0.775	986,800	—	1000	506.7	0.785
—	—	0.969	1,234,000	—	1250	633.4	0.982
630	—	0.977	1,244,000	—	1250	633.4	0.982
—	1	1.038	1,321,000	—	1500	760.1	1.18
800	—	1.24	1,579,000	—	1750	886.7	1.37
1000	—	1.55	1,974,000	—	2000	1013	1.57

Characteristics Physical Properties of Wire Materials for Overhead Power Transmission Lines According to the Data in the IEC Recommendations

	Properties	Unit	Annealed Copper	Hard-Drawn Copper	Annealed Aluminium	Hard Drawn Aluminium	Galvanized Steel
1	Properties at 20 °C	g/cm ³	8.89	8.89	2.703	2.703	7.8
2	Modulus of Elasticity	kg/mm ²	9000-10500	12500	–	6500	20000
3	Tensile Strength at 20mm	kg/mm ²	25 appr.	41	10 appr.	16.2 - 20.4	133.6
4	Elongation at 200mm	%	10–30	1.8-2.5	20 appr.	1.5-2	4
5	Breaking length	km	2.81	4.61	3.70 appr.	5.99-7.55	17.13
6	Specific Heat (0-100 °C)	Cal/g. °C	0.093	0.093	0.22	0.22	0.12
7	Coefficient of linear expansion	/°C	17 x 10 ⁻⁶	17 x 10 ⁻⁶	23 x 10 ⁻⁶	23 x 10 ⁻⁶	11.5 x 10 ⁻⁶
8	Volume Resistivity	Ohm .mm ²	0.017241	0.01777	0.028	0.028	–
9	Conductivity at 20 °C	IACS % wgt/unit	100	97	61.58	61	–
10	Temperature Coefficient of Resistance (10 o- 30o C)	/°C	0.00393	0.00381	0.00407	0.00403	–
11	Cross Sectional Factor referred to IACS Unit	–	1	1.027	1.624	1.639	–
12	Weight Per Unit Length referred to IACS Unit	kg/mm	8.89	9.13	4.39	4.43	–



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