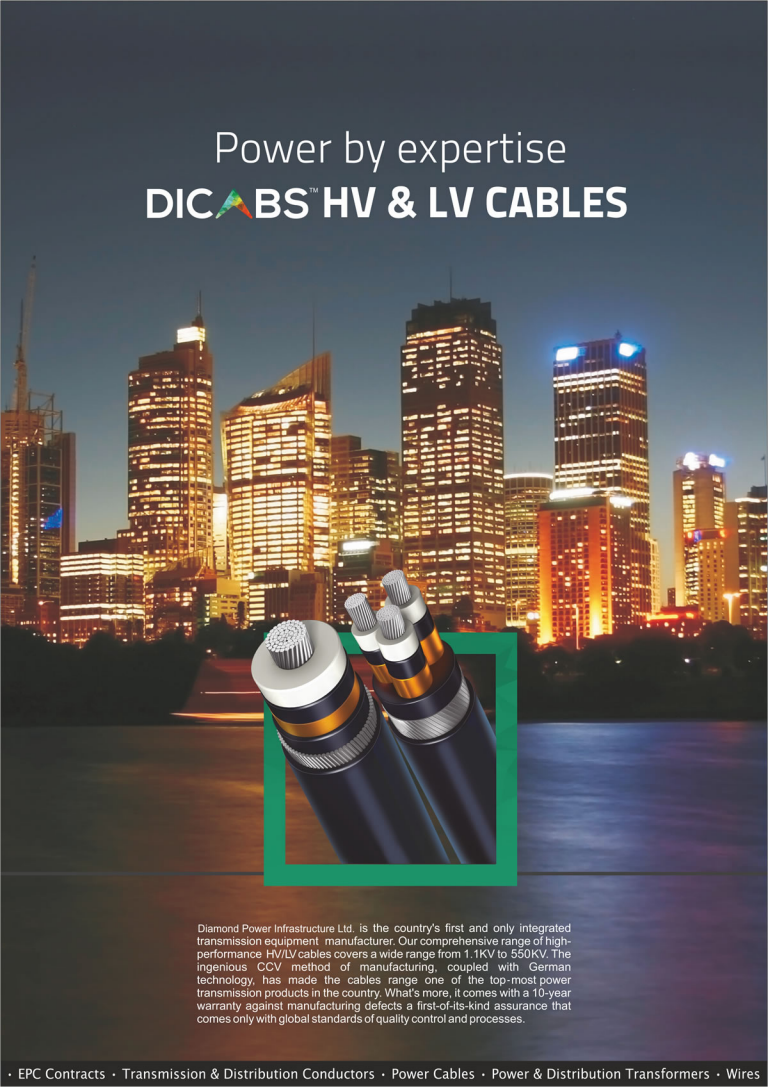
www.dicabs.com

DICABS™

Power Up
The World With
Dicabs HV CABLES
Upto 33 KV

Power by expertise

DIC ABS™ HV & LV CABLES



Diamond Power Infrastructure Ltd. is the country's first and only integrated transmission equipment manufacturer. Our comprehensive range of high-performance HV/LV cables covers a wide range from 1.1KV to 550KV. The ingenious CCV method of manufacturing, coupled with German technology, has made the cables range one of the top-most power transmission products in the country. What's more, it comes with a 10-year warranty against manufacturing defects a first-of-its-kind assurance that comes only with global standards of quality control and processes.

· EPC Contracts · Transmission & Distribution Conductors · Power Cables · Power & Distribution Transformers · Wires

CERTIFICATE OF REGISTRATION

THIS IS TO CERTIFY THAT THE INTEGRATED MANAGEMENT SYSTEMS OF

Diamond Power Infrastructure Limited

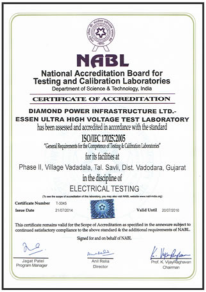
Factory:- Phase II, Village Vadadala, Taluka Savli Dist. Vadodara Gujarat 391 520 INDIA

Office:- 5/12, B.I.D.C Gorwa Baroda, Gujarat 390016 INDIA

Has been assessed and registered as complying with the requirements of the International Standards shown below for the following Goods and Services: -

Design & Development, Manufacturing & Marketing of Distribution & Transmission Conductors, LT Power & Control Cables up to 1.1 KV, HV / EHV XLPE Cables up to 500 KV, Aluminium & Alloy Wire Rods and Transmission Tower up to 765 KV.

ISO 9001:2008 | ISO 14001:2004 | OHSAS 18001:2007



NABL

National Accreditation Board for Testing and Calibration Laboratories

Department of Science & Technology, India

CERTIFICATE OF ACCREDITATION

DIAMOND POWER INFRASTRUCTURE LTD.- ESSEN ULTRA HIGH VOLTAGE TEST LABORATORY

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Phase II, Village Vadadala, Tal. Savli, Dist. Vadodara, Gujarat

in the discipline of

ELECTRICAL TESTING

Certificate Number T-3045

Issue Date 21/07/2014 Valid Until 20/07/2016

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL

Jagat Patel, Program Manager | Anil Relia, Director | Prof. K. VijayRaghavan, Chairman

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT

Test Report Number: DCCD- 12792 Dated: 11.09.2012

Name & Address of the Customer: M/s.Diamond Power Infrastructures Ltd., Vadadala Village, Savli Taluk, Vadodara Dist, Gujarat.

Name & Address of the Manufacturer: M/s.Diamond Power Infrastructures Ltd., Vadadala Village, Savli Taluk, Vadodara Dist, Gujarat

Particulars of sample tested: 1 X630 mm² 76/132 kV(E) XLPE Cable.

(Thirumurthy) TEST ENGINEER | (K.Mallikarjunappa) Joint Director

EUROCERT CERTIFICATIONS (UK) LTD.

CERTIFICATE

Certificate of Compliance

DIAMOND POWER INFRASTRUCTURE LTD.

PRODUCT DESCRIPTION: CABLES & CONDUCTORS.

Certificate No. EU3000

Authorized Signatory

CENTRAL POWER RESEARCH INSTITUTE

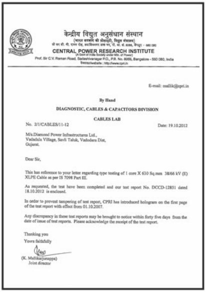
TYPE TEST CERTIFICATE

Test Certificate Number: DCCD-13671 Dated: 23.12.2013

Name & Address of the Customer: M/s Diamond Power Infrastructure, Ltd., Vill. Vadadala, Tal. Savli, distt. Vadodara, Gujarat

Particulars of sample tested: 1 X 1200 mm² 220 kV XLPE Cable

(Thirumurthy) Test Engineer | (K.Mallikarjunappa) Joint Director



केन्द्रीय विद्युत अनुसंधान संस्थान

CENTRAL POWER RESEARCH INSTITUTE

Prof. Sir C.V. Raman Road, Sadashivanagar P.O., P.B. No. 8066, Bangalore - 560 080, India

By Hand

DIAGNOSTIC, CABLES & CAPACITORS DIVISION

CABLES LAB

No. 2/1/CABLES/11-12 Date: 19.10.2012

M/s.Diamond Power Infrastructures Ltd., Vadadala Village, Savli Taluk, Vadodara Dist, Gujarat.

Dear Sir,

This has reference to your letter regarding type testing of 1 core X 630 Sq.mm 38/66 kV (E) XLPE Cable as per IS 7098 Part III.

As requested, the test have been completed and our test report No. DCCD-12851 dated 18.10.2012 is enclosed.

In order to prevent tampering of test report, CPRI has introduced hologram on the first page of the test report with effect from 01.10.2007.

Any discrepancy in these test reports may be brought to notice within forty five days from the date of issue of test reports. Please acknowledge the receipt of the test report.

Thanking you

Yours faithfully

(K. Mallikarjunappa) Joint director

DICABS™

Technical Catalogue for
POWER & CONTROL CABLES

1.1 KV TO 33 KV

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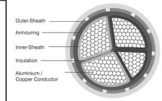
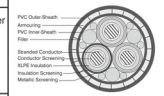
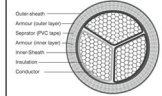
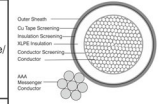
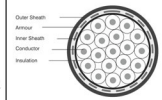
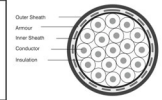
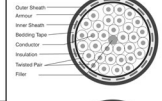
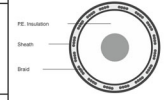
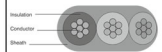
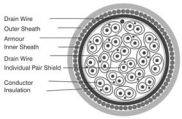
Cable ranges at a glance

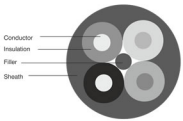
Application	Type & Size	Options	Cross Sectional View
Cables for Power Supply to Residential, Commercial & Industrial units	PVC/XLPE Power cables for 1.1 & 3.3 kv for Electrical Substations as per IS:1554- I & 2 **Sizes :** **Single Core 10-1000 sq.mm** **Multicore 6-630 sq.mm**	**Conductor -** Stranded / Solix, Circular / Shaped Aluminium / Copper Insulation - PVC / HR PVC **Inner Sheath -** PVC / HR PVC / FRLS / PVC **Unarmoured / Armoured -** G.S. Round Wire/ Flat Strip or Aluminium Wire / Flat Strip **Outer Sheath -** PVC/HR PVC/FRLS PVC	
Heavy Duty XLPE Power cables for Power Generation Distribution	XLPE Power cables upto 19/33 kv grade 33 kv (E) as per IS:7098 - I & II **Sizes :** **Single Core : 25 - 1000 sq. mm** **Multicore : 25 - 400 sq. mm**	**Conductor -** Circular/Shaped - Aluminum./Copper **Insulation -** XLPE **Innersheath -** PVC / HR PVC / FRLS Unarmoured / Armoured - G.S Round Wire / Flat Strip or Aluminium Wire / Flat Strip **Outersheath -** PVC / HR PVC / FRLS	
Heavy Duty copper cables for Coal Mines	Stranded bright annealed electrolytic copper conductor, PVC/ XLPE insulated/PVC sheathed upto and including 3.3 kv as per IS : 1554-I&II / IS : 7098 - I&II **Sizes :** **Multicore 25 to 400 sq. mm**	Conductor - Circular / Shaped Insulation - PVC / XLPE Innersheath-PVC / HR PVC / FRLS Unarmoured/Armoured - Round Wire / Flat Strip with conductivity not less than 75% of the phase Conductor Outer Sheath - PVC / HR PVC / FRLS	
Arial Bunched / Bundled required for over head power distribution	PE/XLPE insulated 1.1 kv to 33 kv as per IS:14255 & IS:7098-II	**Conductor -** Stranded Circular compaced Aluminium **Insulation -** PE/XLPE **Messenger conductor -** All Aluminium Alloy-Bare/ Insulated **Street Light Cond. -** Stranded Circular Compacted Aluminium, Bare/Insulated	
Copper Control Cables for Power Switch yard Control/ Relay Equipment	Annealed electrolytic copper Conductor, PVC/XLPE insulated, PVC sheathed 650/1100V grade asper IS:1554-I & IS: 7098-I **Sizes :** **1.5/2.5 sq. mm upto 61 core** **4 & 6 Sq. mm upto 4 core**	**Conductor -** Solid/Stranded, Plain / Tinned **Insulation -** PVC/HR PVC/XLPE **Innersheath -** PVC/HR PVC/FRLS/Zero Halogen Unarmoured / Armoured - G.S. Round Wire / Flat Strip **Outersheath -** PVC/HR PVC/FRLS/Zero Halogen **Additional Option :** Overall shielding with Aluminium mylar tape with 100% coverage & 25 % overlap on laid up cores for static noise rejection.	
Railway Signaling Cables	Annealed Bare Copper conductor, PVC insulated cores laid up PVC sheath as per IRS-S-63/89 RDSO & related specifications **Sizes :** **1.5 & 2.5 sq. mm upto 61 core** **4 & 6 sq. mm upto 4 core**	**Screened/Inscreened -** Aluminium mylar tape **Unarmoured/Armoured -** G.S. Round Wire / Flat Strip/Galvanised Tape **Additional Option :** **Insulation/Inner/Outer Sheath -** PVC **Inner/Outer sheath -** PVC	
Telecom / Switch board cables for Indoor Telephones	Annealed Copper conductor, PVC Insulated as per DOT TEC Spec No:G/WIR-06/02 **Sizes :** **0.4 / 0.5 / 0.6 / 0.7 / 0.9 mm**	**Conductor -** Tinned / Plain **Insulation -** PVC / HR PVC / Nylon **Innersheath -** PVC/HR PVC/FRLS Zero Halogen **Unarmoured / Armoured -** G.S. round wire / Flat Strip **Outer Sheath -** PVC/HR PVC / FRLS **Additional Option -** Individual / Overall pair/ Shielding / Screening	
Coaxial cables for Telcom / Microwave / CATV / MATV industry	Available in specified RG & UR Series as per MIL-C-17 / BS:2316 / IS:5608 / IS : 11967 **Sizes :** **Suitable for Impedance of 50 / 75 / 100 / 125 ohms**	**Conductor -** Plain / Tinned / Copper Clad Steel / Silver Plated **Insulation -** Solid / Foam / Semi air spaced **Screen -** Single / Double braid **Sheath -** PVC / HR PVC / FRLS / PE.	
Flat cables for Submersible Pumps & Motors	Stranded Plain copper, PVC Insulated & PVC sheathed of 1.1 kv grade as per IS:694 **Sizes :** **3 core - 1.5 to 50 sq. mm**	**Insulation -** PVC / HR PVC **Sheathing -** PVC / HR PVC	

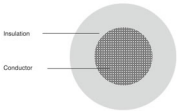
Cable ranges at a glance

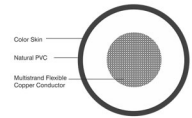
Application	Type & Size	Options
Instrumentation Signal Cables for Process control & Instrumentation	PVC Sheathed 225/650/ 1100 V grade cables as per BS:5308 / DIN VDE 0815 & 816/IS : 1554 / IEC : 189 **Sizes : 0.5/0.75/1.0/1.5 sq. mm**	**Conductor -** Standed / Solid, plain /tinned **Insulation-** PVC / HR pvc / P.E / Zero Halogen **Shielding -** Individual Pair / over all pairs **Drain wire -** Solid Standed **Innersheath -** PVC / HR PVC **Zero Halogen Unarmoured/Armoured-** G.S. Round Wire, Flat Strip Outersheath - PVC / HR PVC / FRLS / Zero Halogen
Plexible & Cord Cables for appliances, Machine Tools & Equipment Wiring	Multistrand, flexible, bright annealed electrolytic copper conductor, PVC insulated and sheathed upto 1100V as per IS:194 **Sizes : Single, Two, Three or Four core upto 25 sq. mm**	**Insulation -** PVC / HR PVC / FRLS / Zero Halogen **Unsheathed/Sheathed -** PVC/HR PVC / FRLS / Zero Halogen
Wiring Cables for electrical industry	Multistrand Flexible, upto 1100V grade PVC Cables as per IS : 694 **Sizes : Single core 1.0 - 630 sq. mm**	**Conductor -** Bright Annealed Copper Insulation - PVC/HR PVC / FRLS PVC / Zero Halogen
Energy Cables for Power Supply to Telephone Exchanges / UPS / Battery Backup / Equipments	PVC Flexible Cables upto 1.1 kv grade as per IS:694 **Sizes : 1.0 upto 240 sq. mm Single / Multi Core**	**Conductor -** Stranded / Solid bright annealed Copper **Insulation -** PVC / HR PVC / FRLS / Zero Halogen
Air Field Lighting Cables	Stranded plain annealed copper, PVC insulated & PVC sheathed of 5 kV grade **Sizes : Single core 6/16 sq. mm and 2 x 6, 16 & 25**	**Insulation -** PVC / XLPE

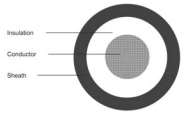
Cross Sectional view











Manufacturing of Cables

Cables with Aluminium and Copper conductor and PVC/XLPE insulated are manufactured at Diamond Power Infrastructure Ltd. Registered office: Phase-II, Village: Vadadala, Ta: Savali, Dist.: Vadodara-391520, Gujarat. Essentially cables comprise of conductors, Insulation, Inner-sheath, armour and outersheath. The brief description of the porcess is mentioned as under.

CONDUCTOR

Dicabs Cables are available with both aluminium and copper conductors. It is manufactured with solid/Stranded Circular/ Shaped Aluminium / Copper Conductor. Stranding makes Cables flexible and easy to handle while shaping makes them compact.

Compaction is provided to all stranded conductor constructions as under :

1. **Circular Conductor :** With one wire in the centre conductor contains 6, 12, 18, 24, 30... wire layers in either unilay or opposite helical directions. The conductor is sized upto 92% compaction.
2. **Shaped Conductors :** In all multicore cables from 16 Sq. mm size, conductors are"Shaped". Compaction degree in multicore power cables is upto 92%.
3. **Segmental Conductor :** As a special case Dicabs cables of 2500 Sq. mm are made up of segmental conductors.

The conductor is manufactured in equal segments and compacted, then laid together. This reduces A.C. losses in the large sized conductor, which are due to skin and proximity effects.

Dicabs has special construction of conductor to suggest to its customer for meeting their specific need.

Dicabs copper conductor cables are of the same construction that of cables with Aluminium conductor except for high tensile strength, superior conductivity, better flexibility and ease of jointing, copper cables are used in control, instrumentation, winding, submarine, mining and ship wiring etc. applications.

All conductors for Dicabs cables are manufactured strictly in accordance with National and International specifications.

National specifications IS:8130

International specification IEC:60228 / BS:6360

DIELECTRIC INSULATION

Insulation for Dicabs cables is strictly as per National and International specifications.

Dicabs cables are designed and manufactured with PVC/XLPE dielectrics to bear thermal and thermomechanical stresses safely at continuous normal and short circuit temperature conditions.

Dicabs cables are available with both thermoplastic & thermo setting insulations.

- PVC Cables Thermoplastic dielectric

- XLPE Cables Thermo setting dielectric

Dicabs PVC cables use PVC compounds that take care of over load and short circuit current with both coarse & fine protection systems.

Dicabs XLPE cables use XLPE compound with anti oxidant stabilizers and traces of aromatic polynuclear hydrocarbon. Thus improving electrical treeing characteristics and mechanical strength of insulation.

Dicabs cables are friendly during continuous, emergency and short circuit conditions.

Though there is no change in basic design of Dicabs cables yet the latest manufacturing process gives improved reliability and compactness to cables. The relative thermal expansion during short circuit between dielectric and conductor is therefore limited to minimum both in PVC & XLPE, thus limiting displacement of cores in cables during short circuit.

Insulation for Dicabs Cables are strictly manufactured and applied over conductor in accordance with National and International specifications. :

National Specification IS:5831/IS:7098

International Specifications BS:6746/BS:5467/IEC:60502

SCREENING

XLPE Cables with rated voltage over 3.3 KVshall be provided with conductor and insulation screening as follows :

Conductor Conductor shall be screened with extruded

Screen Semi-conducting compound as per IS:7098 part 2.

Insulation Insulation screening shall consist of non-metalic

Screen Part in combination with metalic part. Non metalic part shall consist of either semi conducting compound tape applied hellically or extruded layer of semi conducting compound, applied directly over insulation. Over this, metalic part (copper tape) shall be applied hellically with overlap as per IS:7098 part 2.

To avoid the cavities and voids formation in dielectric particularly on bending operation of cable, perfect bonding of insulation and screening is required. To ensure this Dicabs applying conductor screen, insulation and insulation screen (non-metalic part) in one operation through tripple extrusion.

LAYING UP

Cores are tested on line during production both for physical and electrical characteristics. Control is observed within tight tolerance limits for dimensions in case of PVC/XLPE insulation. For multicore cables cores are laid up on our latest laying up machine equipped with sector correction equipment. In case of XLPE insulated cores the same are cured so as to impart the requisite characteristics both electrical and mechanical and then are laid up.

INNER SHEATH

Laid up cables are provided with inner sheath with high quality of PVC which acts as bedding for steel wire / strip armouring. Wherever required, filler cords are provided to maintain the circularity to laid up cables.

Advantages

In Dicabs Cable-polymers used for inner sheath are sifter than insulation or outer sheath & are compatible with temperature ratings of cables & do not have deleteriocus effect on any other component of cable.

Inner sheath is applied either with extrusion or by wrapping. In Dicabs Cables thought the inner sheath is closely applied on the laid up cores, same can be stripped with ease without damaging insulation.

The inner sheath dimensions are maintained strictly in accordance with laid down specification.

Specification	For PVC Cables	IS:1554 (Part-I&II)
	For XLPE Cables	IS:7098 (Part-I&II)

Armouring

Mechanical protection to the cable is provided with armouring. Dicabs single core cables are armoured with Aluminium or Aluminium alloy wire/strips, thus avoiding magnetic hysteresis losses on A. C. System.

Multicore cables are provided with galvanised steel wire/strips.

Dicabs cables are provided with galvanised wire armouring, where cables are to run vertically and are subjected to stresses.

Dicabs Mining cables are armoured with steel wire and tinned copper wires, so as to provide conductivity of armour more than 75% of main conductor of cable.

Dicabs cables armour wires/strips are of low resistivity material and meet the requirements of Is:3975.

Dicabs armoured cables are with almost 95% armour coverage.

Outer Sheath

All Dicabs Cables are provided with PVC/Polymer outer sheath.

Dicabs Cables are manufactured with various characteristic of sheathing compounds.

General purpose sheathing Compound	ST1
Heat resistant Compound for sheath (H.R.)	ST2
Fire Retardant Low	IEC 754 Part I
Smoke Compound	IEC 60332 Part I & III
(FRLS)	IEEE-383
	ASTM-2843
	ASTM-2863
Flame Retartant Compound (FR)	to EIL Specn.

Ultra Voilet Radiations Resistance Compound to ASTM G-53.

Anti Rodent and Anti Termite Compound.

PVC compounds used for Dicabs Cables are of various grades to meet specifications IS:5831.

In order to be identified, Dicabs Cables have their name embossed/printed/indented on outersheath at regular intervals on the outer sheath of Dicabs Cables, Voltage Grade, cable size, trade name & year of manufacture are embossed, as desire.

Cables are sequentially marked for length at every metre throughout its length.

Final Testing

Each Dicabs Cable is tested for all applicable Routine Tests.

From a lot of Cable one cable of each type is tested for Type tests, as per relevant specifications.

Dicabs conduct its testing at DPIL plant at Vadadala for acceptance test as per specification.

Testing of Dicabs Cables are carried out as per National & international Dicabs Work Standards for testing, besides applicable standards.

Advantages of PVC Cables

1. A non-hygroscopic insulation almost unaffected by moisture.
2. Non-migration of compound permitting vertical installation.
3. Complete protection against most forms of electrolytic and chemical corrosion.
4. A tough and resilient sheath with excellent fire - resisting qualities.
5. Good ageing characterstics.
6. Not affected by vibration.

Advantages of XLPE Cables

1. Higher Current Rating.
2. Higher Short Circuit Rating.
3. Longer Service Life.
4. For a short time it can withstand maximum 130°C and is favourable to endure short circuit stresses.
5. It is less sensitive to the setting of the network protection.
6. Because of the thermosetting process taking place due the effect of cross linking, the crack resistance is increased.
7. Due to the chemical cross-linking internal stresses are reduced. Consequently the material is less sensitive during manufacturing process to the setting of the cooling gradient.
8. The thermal resistivity of cross-linked material is favourably low, compared to thermoplastic material.
9. The low dielectric loss is a significant advantage.
10. The excellent mechanical features of the insulation improves the protection against external effects.
11. The resistance of the XLPE to acids, alkalies is outstanding and is often compensating the adverse environmental influences.

Criteria for Selection Of Power Cables

The following factors should be taken in to account while selecting the correct size and of cables

1. SYSTEM VOLTAGE What is the system voltage and the type of system? Single phase, Three phase, earthed or unearthed AC or DC ?

2. CURRENT CARRYING CAPACITY The current rating is the main and basic criterion. Tables give the carrying capacity of various types and sizes of cables, under different conditions of laying. These should be considered before the correct size laying as under:

   2.1: Depth of Laying.
   2.2: Ambient temperature of ground or Air.
   2.3: Soil resistivity.
   2.4: Whether one or more groups of the cables are laid together.
   2.5: Any heating source near cable run.

3. MODE OF INSTALLATION The mode of installation determines the type of cable to be used. Electricity regulations require the, use of Armoured cables for underground applications. In general, Armoured cables are recommended where there is any chance of mechanical damage. If subsequent mechanical damage after laying cables is not likely, cheaper Unarmoured cables can be used.

4. PERMISSIBLE VOLTAGE DROP For longer length of cable run it is necessary to check that with the cable size selected, the voltage drop does not exceed the prescribed regulations limit. A higher size cable may have to be used if the voltage drop limits are not to be exceeded.

5. LOAD CHARACTERISTIC One should take into account the characteristics of load. It is essential to ensure that the cable selected is capable of handing temporary overloads. DICABS cables permit a conductor temperatures of upto 130^{0} C under temporary overload conditions. (If possible, the complete load cycle may be furnished).

6. SHORT CIRCUIT RATING Short circuit rating depends on the expected level and the expected duration of the short circuit. In certain cases a large size of cable than the cable required for normal full load may be needed. The cables with high KVA capacity are expected to carry short circuit currents of high magnitude, "DICABS" permit a short circuit temperature of 160^{0} C for PVC & 2500C for XLPE Cable.

7. ECONOMIC CONSIDERATIONS The most economical Construction and size of cable persistent with current carrying capacity and laying condition has to be selected. A detailed study of 3 or 4 approximate sizes is made Actual running costs are worked out taking into consideration $I^{2}R$ loss and interest, depreciation of the total cable cost. The size, which gives minimum running costs, is to be preferred.

8. Type of installations : For implementing right choice and selection of cables will depend on atmospheric conditions of area, temperature variations, type of place where it is to be used, type of industries-chemical/minning/shipping marine/fire hazardous etc.

Special Production & Testing Capabilities at

Diamond Power Infrastructure Limited

The "DICABS" HV XLPE cables are manufactured in the most sophisticated & modern plant at DPIL, Vadadala (Near Vadodara) for HV Cables upto 550KV. The unit is established in total area of approx 260 Acres.

Production process of HV XLPE cables requires high level of perfection at all stages of manufacturing. The extrusion should be Smooth, Homogeneous and free from undesirable voids and contaminations. Material handling system are planned precisely to ensure minimum contamination.

This is ensured by the Triple Extrusion using single common Crosshead Extrusion technique and DRY CURE INERT GAS CURED CROSS LINKING PROCESS USING CCV LINE.

The CCV line is of GERMAN Technology from Maschinenbay SCHOLZ GMBH & Co., which is the pioneer in this product worldwide. CCV line has got online touch free sag control system for best accuracy.

For precisionness in online measuring & securing , X Ray - 8000 NXT is installed with latest Technology from SIKORA , GERMANY. It facilitates precise control over Diameters of insulation & screenings and also controls eccentricity.

For Dry curing purpose the latest technology of NITROGEN Generator Plant is installed with sufficient volume of safety stock arrangement. For wet cooling, DM water plant with 40 TR chiller plant is installed.

HV XLPE cables are manufactured under strict quality control. Quality is ensured through a well structured Quality Assurance Plan as per IS & ISO system covering Raw Materials, In Process Quality Checks and at Finished stages.

The cables are subjected to TYPE & ROUTINE test in accordance with IS 7098 Pt2, IEC : 60502 IEC 60840 & IEC 62067 or other relevant International Standards.

The most modern testing facilities are available with shielded room size 3000 sq mtrs. The most precise equipments for Partial Discharge; AC & DC High Voltage Test, Impulse Test, Heating cycle & Ten Delta test. etc. are imported from World Famous suppliers.

For all other followed processes, all machineries are installed having latest technology & with high production features ensuring all quality measures under NABL Approved lab.

For storage of finished cable, extra care is taken. DPIL is having around 8500 sq mtrs. total storage area & approx 5000 sq mtrs. covered storage area with Trimix flooring.

Salient Features V.C.V / C.C.V Line Manufacturing Process

V.C.V Line	C.C.V Line
The system adopted for insulation of the XPLE Cable is VCV and N_2 gas is used for cross-linking, and the line is extruded in a vertical type. The outstanding characteristics of the XPLE Cable manufactured in application of this system are as under:	The system adopted for insulation of the super tension XLPE cable is CCV and N2 is used for cross-linking, and the line is extruded in a catenary type. The outstanding characteristics of the super tension XLPE Cable manufactured in application of this system are as under:
1.The insulation has no eccentrically.	1. The insulation has no eccentrically.
2. The cross-linking by use of N_2 gas guarantees excellent characteristics of the insulation.	2. The cross-linking by use of N_2 gas guarantees excellent characteristics of the insulation.
3. The simultaneous extrusion of the inner and outer semi-conducting layers and the insulation prevents treeing and other irregularities.	3. The simultaneous extrusion of the inner and outer semi-conducting layers and the insulation prevents treeing and other irregularities.
4. Uniformity of quality is maintained of all products, as the manufacturing processes are controlled by computer.	4. Uniformity of quality is maintained of all products, as the manufacturing processes are controlled by computer.

Advantages of CCV line Dry Cure Process over Wet cure sioplas Process for HV cables.

Sr. No.	Advantages of CCV line (Dry cure)	Disadvantages of Sioplas Line (Wet cure)
1	The chemistry of cross linking leads of C-C linkages.	The chemistry of cross linking leads to C-Si-O-Si-C linkage.
2	No wet atmosphere (Water/Steam) is there till the cores are cross linked	The cross linking takes place in wet environment
3	Post extrusion to cooling, the cores remain in enclosed tube	The cores are cooled in water, post extrusion.
4	Provides online cross linking & curing.	Curing is restricted to insulation only, semi conducting layers are of y thermoplastic compound based.
5	Provides the possibility to manufacture cores continuously for days without lot changing	Curing is done by batch process and because of batch process there is a limitation to drum length of the cable.
6	There is no manual handling of cores till cross linking and cooling are over.	Each stage require manual and safe handling.
7	Possible to manufacture 33 kV and above ratings of cable having desired concentricity and extent of cross linking	Because of batch curing, extremly difficult to crossing cores beyond 33 kV, chances of non uniform cross linking can not be ruled out.
8	Chances of void formation is very negligible for 33 kV and above ratings of cables.	

Key Manufacturing Process in HV Cable Manufacturing

Dry Cure Process

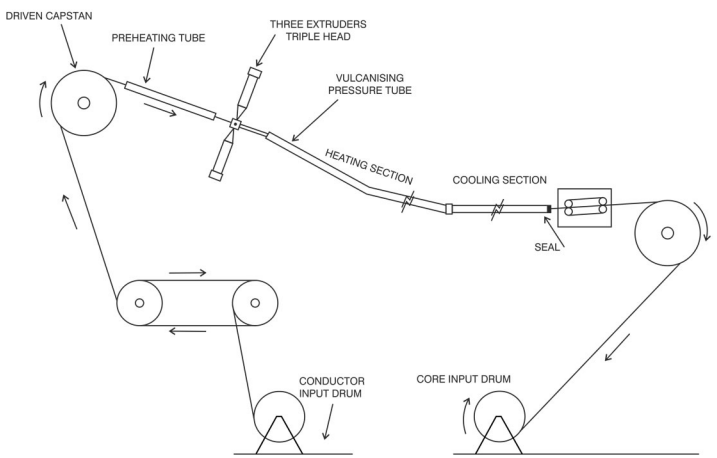
- The chemistry of cross linking leads to C-C linkage.
- No Wet atmosphere(Water/Steam) is there till the cores are cross linked.
- Post extrusion to cooling, the cores remain in enclosed tube.
- Provides online cross linking.
- Provides the possibility to manufacture cores Continuously for days without lot changing.
- There is no manual handling of cores till cross linking and cooling are over.
- Uses a very expensive manufacturing plant and needs to be imported.
- Losses are more in case of malfunctioning of equipment/process problem.
- Requires huge space to install the plant.
- Cure simulation is required to satisfy co-cross linking of three layers.
- Chances of void formation is very negligible for 33kV and above ratings of cables.
- It requires the installation of a Nitrogen gas generating plant to feed Nitrogen gas for curing.
- Possible to manufacture 33kV and above ratings of cable having desired concentricity and extent of cross Linking.
- Curing is done in a pressurized tube, calling for additional safety measures to be taken

Key Manufacturing Process in HV Cable Manufacturing

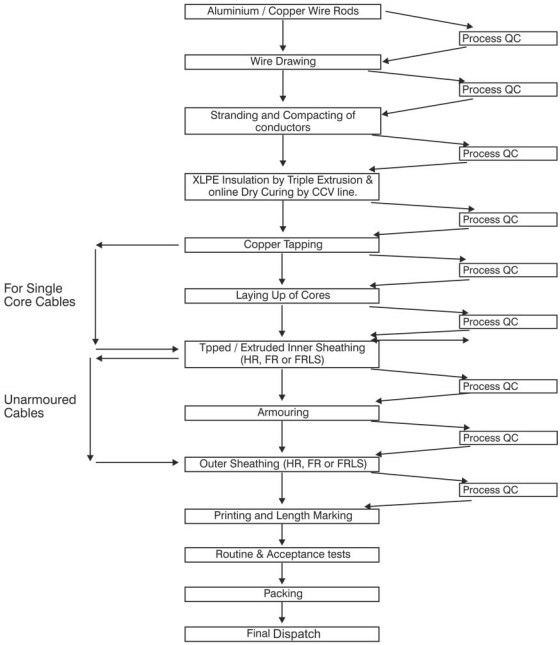
Wet (Steam/Hot Water) Cure Process.

- The Chemist,.y of Cross linking leads to C-Si-O-Si-C linkage.
- The cores are cooled in water, post extrusion.
- The cross linking takes Place in a wet environment.
- Curing is done by batch process.
- Because of batch process, there is a limitation to drum length of cable.
- The plant and machinery are not very expensive.
- Losses are less in case of equipment/process malfunctioning.
- This does not require very large factory space.
- The process requires an associated curing arrangement in the form of steam chamber or water tank etc.
- Curing is restricted to insulation only, semi Conducting layers are of thermoplastic compound based.
- Because of batch Curing, extremely difficult to crossing Cores. beyond 33 kV. Chances of nonuniform cross linking cannot be ruled out.
- Maintenance expenses are comparatively lower.

ARRANGEMENT OF A CONTINUOUS CATENARY VULCANISATION (CCV) LINE



MANUFACTUREING PROCESS FLOW CHART FOR HV CABLE (UPTO 33KV)



TEST GUIDE

List of Tests as per IS:1554(Part - I) : 1988, IS:1554 (Part-II) : 1988, IS:7098 (Part - I) : 1988 and IS : 7098 (Part-II) : 2011

1. **Routine Tests :**
   - a) Conductor Resistance Test
   - b) High Voltage Test
   - c) Armour Resistance Test for mining Type Cables
   - d) Partial Discharges test (for H.T. Screened cable)
2. **Type Tests :**
   - a) Tensile Test (for Aluminium Conductor)
   - b) Wrapping Test (for Aluminium Conductor)
   - c) Annealing Test (for Copper Conductor)
   - d) Conductor Resistance Test
   - e) Test for Armour Wires/Strips
   - f) Test for thickness of Insulation & Sheath
   - g) Physical Test for Insulation & Outer Sheath
   - h) Test for Bleeding & Blooming of Pigments
   - i) Insulation Resistance Test
   - j) High Voltage Test
   - k) Flammability Test
   - l) Hot Set Test - (For XLPE Insulation only)
   - m) Partial Discharge test (for H.T. Screened cable)
   - n) Bending test (for H.T. Screened cable)
   - o) Dielectric Power factor test (for H.T. Screened cable with rated voltage 6.35/11KV & above)
   - p) Heating cycle test (for H.T. Screened cable)
   - q) Impulse withstand test (for H.T. Screened cable)
3. **Acceptance Tests :**
   - a) Tensile Test (For Aluminium Conductor)
   - b) Wrapping Test (For Aluminium Conductor)
   - c) Annealing Test (For Copper Conductor)
   - d) Conductor Resistance Test
   - e) Test for thickness of Insulation & Sheath
   - f) High Voltage Test
   - g) Insulation Resistance Test
   - h) Tensile Strength & Elongation at break test for Insulation and Sheath
   - i) Hot Set Test - (for XLPE Insulation only)
   - j) Partial Discharge test (for H.T. Screened cable)
4. **Optional Tests :**
   - a) Cold Bend Test
   - b) Cold Impact Test
   - c) Armour Resistance Test (for other than Mining Type Cables)
5. **Special Tests (As Applicable) :**
   - a) Oxygen Index Test as per ASTMD - 2863-77
   - b) Temp. Index Test as per ASTMD - 2863-77
   - c) Smoke Generation Test as per ASTMD - 2843-77
   - d) Acid Gas Generation Test as per IEC - 754-1
   - e) Flammability Test as per IEC - 332-1, IEE-383, SS-4241475 Class F3 and IEC - 332-3
   - f) Water absorption test (by Electrical Method)
   - g) Ultra violet resistance to ASTM-G-53
   - h) Die electric Strength retention test
   - i) Test for Antirodent & Antitermite property

For selection of a cable, a first hand knowledge of the system in which the cable is to be used, and the installation conditions under which the cable has to operate, is necessary. A knowledge of statutory restrictions and the manufacturing facilities available in the country will help in finding out as to what type of cable will be available for particular usage. The environmental conditions under which the cable has to operate will decide its protective covering. Thus once voltage grade of the cable, number of cores, conductor material, type of insulation and protective coverings are known, size of conductor remains to be decided. The first and foremost criteria for the size of conductor is continuous current rating for the present load. There after the same should be checked for short circuit, voltage drop, over load capacities and future expansions. Once decided the selection of next higher size compared to what is essential for the requirement, will always be worthwhile.

Economic considerations are also necessary.

INFORMATION REQUIRED WITH ENQUIRY & ORDER

The following information should be included in an enquiry :

i) Voltage Grade.

ii) Whether cable is to be used on Earthed or Unearthed system (for voltages above 3.3 KV).

iii) Type of installation whether in air or in ducts or in ground.

iv) If cables are grouped together, then number of cables in group and vertical and horizontal spacing between them.

v) Required value and duration of short circuit current.

Following further informations are also required for offering the exact type of cable for any specific purpose :

a) The normal ambient or operating temperature.

b) The maximum temperature to which the PVC will be exposed and the duration and frequency of such exposures.

c) The material with which the PVC will be in contract i.e. oil, gases, acids, alkalies etc. at normal and maximum temperature.

d) If special flame retardent property is required.

e) If any special electrical characteristics needed.

Scope

a) Type of Cables (H.T)

1) Single-core unscreened, unarmoured (but-non-magnetic metallic tape covered);

2) Single-core Screened ,unarmoured;

3) Single-core armoured (non-magnetic) Screened or unscreened;

4) Three-core armoured, Screened or unscreened.

b) Voltage Grade (Uo/U)

1) Earthed System 1.9/3.3 kv, 3.8/6.6 kv, 6.35/11 kv, 12.7/22 kv and 19/33 kv.

2) Unearthed System- 3.3/3.3 kv and 11/11 kv.

Note 1 Cable of 6.35/11 kv grade (earthed System) are suitable for use on 6.6/6.6 kv (unearthed System) also.

Note 2 The Cable Conforming to this standard may be operated Continuously at a power frequency voltage 10 percent higher than rated voltage.

Note 3 Under Rule 54 of the Indian Electricity Rules 1956, in Case of high Voltage, the permissible Variation of declared Voltage at the point of Commencement of Supply is Percent.

1.2 These Cables are suitable for use where combination of ambient temperature and temperature-rise due to load results in conductor temperature not exceeding 90°C under operation and 250°C under short-circuit conditions.

1.3 Armoured Cables up to 11 kv grade specified in this standard are suitable for use in mines also. However, for such Cables, additional requirements have been included, wherever necessary (3.1.1, 16.5 and 20.2).

IS : 7098 (Part 2) 2011

2.5 Earthed System An electric system Which fulfils any of the following conditions :

a) Neutral-point or the mid-point connection is earthed in such a manner that, even under fault conditions, the maximum voltage that can occur between any conductor and the earth does not exceed 80 percent of the nominal system voltage;

b) The neutral-point or the mid-point connection is not earthed but a protective device is installed which accidentally becomes earthed; or

c) In case of ac systems only, the neutral-point is earthed through an arc suppression

Coil with arrangement for isolation within 1 h of occurrence of the fault for the non-radial field cables and within 8 h for radial cables, provided that the total such periods in a year dose not exceed 125 h.

2.6 Unearthed System An electric system which dose not fulfil the requirement of the earthed system (See 2.5).

Core Identification

13.1 Core identification for three core cables shall be as follows :

Voltage Grade kv	Method of Identification
19/33 and 33/33	a) Different colouring of XLPE insulation, b) Coloured strips applied on the cores,or d) By numerals (1,2,3) either by applying numbered strips or by printing on the cores.
38/66,635/11,11/11,127 and 19/33	a) Coloured strips applied on the cores,or b) By numerals (1,2,3) either by applying numbered strips or by printing on the cores.

13.1.1 For identification by different colouring of XLPE insulation, or by using coloured strips, red , yellow and blue colours respectively shall be used to identify phase conductors.

High Voltage Test

19.7.1 Type/Acceptance Test The cable shall withstand without breakdown an ac voltage to Uo when applied to the sample between conductor and screen/armour (and between conductors in case of unscreened cable). The voltage shall be gradually increased to the specified value and maintained for a period of 4 hours.

19.7.2 Routine Test The cables shall withstand without any failure, the test voltages given below, when applied for a period of five minutes for each test connection.

VOLTAGE GRADE	TEST VOLTAGE	
	Between Conductors And Screen/Armour	Between Conductors
kv	kv (rms)	kv (rms)
19/33 33/33	10	10
38/66	13	-
635/11	21	-
11/11	35	-
127/22	42	-
19/33	63	-

Cable Code (IS 7098 P-2) - The following code shall be used for designating the Cable :

Sr.No.	Constituent	Code Letter
i)	Aluminium Conductor	A
ii)	XLPE insulation	2X
iii)	Steel round wire armour	W
iv)	Non-magnetic round wire armour	Wa
v)	Steel Strip armour	F
vi)	Non-magnetic Strip armour	Fa
vii)	Double steel round wire armour	WW
viii)	Double steel strip armour	FF
ix)	PVC outer sheath	Y

Note :- No code letter for conductor is required when the conductor material is copper.

CORE IDENTIFICATION :

Single Core	Red, Black, Yellow or Blue.
Two Cores	Red and Black.
Three Cores	Red, Yellow, and Blue.
Four Cores	Red, Yellow, Blue, and Black.
Five Cores	Red, Yellow, Blue, Black and Grey.
Six Core and above	Two adjacent cores, (counting and directional core) in each layer, Blue and Yellow respectively and remaining cores Grey

For reduced neutral conductors, the core shall be black.
In case of Aerial Bunch Cable's are identified by embossed ridges along the length, 1, 2 and 3 as phase 1, 2 and 3 respectively where as ioculators is concerned.

INNER SHEATH

Cables of two or more cores have a common inner sheath. The minimum thickness of inner sheath is 0.03-mm upto laid up diameter of 25 mm.

ARMOURING

Where the calculated diameter of inner sheath doesn't exceed 13 mm the ARMOUR is of round galvanized steel wires and for calculated diameter of inner sheath above 13 mm flat galvanized steel strips are used.

OUTER SHEATH

The outer is of suitable grade PVC compound in black color.

SHORT CIRCUIT RATINGS
SHORT CIRCUIT RATING OF CABLES (KILO AMPS)

Nominal Area of Conductor (sq. mm.)	PVC CABLES		HR PVC CABLES	
	Copper	Aluminium	Copper	Aluminium
1.5	0.172			
2.5	0.287			
4	0.46	0.303	0.417	0.276
6	0.69	0.455	0.625	0.414
10	1.15	0.758	1.04	0.69
16	1.84	1.21	1.64	1.10
25	2.87	1.89	2.60	1.72
35	4.02	2.65	3.65	2.41
50	5.75	3.79	5.21	3.45
70	8.05	5.30	7.29	4.83
95	10.92	7.20	9.90	6.55
120	13.79	9.09	12.5	8.28
150	17.24	11.36	15.63	10.35
185	21.26	14.02	119.27	12.76
240	27.59	18.18	25.0	16.55
300	34.48	22.73	31.25	20.69
400	45.98	30.30	41.67	27.59
500	57.47	37.88	52.08	34.48
630	72.41	47.73	65.63	43.45
800	91.95	60.61	83.33	55.17
1000	114.94	75.76	104.17	68.97

1. Max. Conductor temperature before short circuit for normal PVC 70°C, for HR PVC 85°C
2. Max. Conductor temperature short-circuit 160°C.
3. Max. duration of short-circuits 1 second.

Formula for calculating the short-circuit rating for other duration.

$$IK = \frac{I_1}{OK}$$

Where I_1 = Short circuit rating for one second.
I_k = Short circuit rating for 'K' second.
K= Duration in seconds.
(The above formula is valid for K from 0.2 to 5 second)

Constants are tabulated below for different duration of short circuit :

Duration of short circuit in seconds	1 cycle =0.02 seconds	2 cycle =0.04 seconds	5 cycle =0.01 seconds	10 cycles =0.2 seconds	25 cycles =0.5 seconds	50 cycles =1.0 seconds	2 seconds	3 seconds	4 seconds	5 seconds
Short circuit constant per unit area	536	378	239	169	107	75.7	53.0	43.6	37.8	34.0

Example : Short circuit of 150 sq. mm conductor area with a circuit duration of 0.5 seconds = 150 x 107 = 16050 amps.

REACTANCE & CAPACITANCE OF 1.1 Kv & HP PVC CABLES.

REACTANCE
APPROXIMATE REACTANCE AT 50 HZ (OHMS/KM) 1.1 kV PVC AND HR PVC CABLES

Nominal Area of Conductor (sq. mm)	PVC and Hr PVC Cables		
	Single Core		Multicore
	Unarmored	Armoured*	
1.5	0.157	----	0.110
2.5	0.145	----	0.106
4	0.136	----	0.102
6	0.128	----	0.0962
10	0.118	----	0.0908
16	0.110	----	0.0859
25	0.107	0.122	0.0849
35	0.106	0.116	0.0823
50	0.0973	0.110	0.0765
70	0.0924	0.107	0.0769
95	0.0900	0.103	0.0766
120	0.0880	0.0989	0.0741
150	0.0862	0.0960	0.0743
185	0.0857	0.0950	0.0742
240	0.0837	0.0929	0.0737
300	0.0828	0.0922	0.0733
400	0.0810	0.0893	0.0729
500	0.0807	0.0890	0.0732
630	0.0803	0.0876	0.0731
800	0.0782	0.0862	----
1000	0.0772	0.0849	----

* Wire Armoured

CAPACITANCE

APPROXIMATE CAPACITANCE (MICROFARADS/KM) 1.1 kV PVC AND HR PVC CABLES

Nominal Area of Conductor (sq. mm.)	PVC and HR PVC Cables			
	Single Core		Two core	Three, three and a half and four core
	Unarmored	Armoured*		
1.5	0.43	----	0.12	0.35
2.5	0.52	----	0.13	0.41
4	0.57	----	0.14	0.46
6	0.67	----	0.16	0.52
10	0.83	----	0.18	0.63
16	0.97	----	0.19	0.82
25	1.00	0.83	0.22	0.86
35	1.15	0.95	0.24	0.98
50	1.26	0.95	0.24	1.00
70	1.32	1.12	0.26	1.16
95	1.36	1.17	0.26	1.18
120	1.49	1.28	0.28	1.31
150	1.52	1.32	0.28	1.28
185	1.47	1.30	0.28	1.30
240	1.54	1.37	0.28	1.34
300	1.60	1.40	0.29	1.37
400	1.70	1.50	0.29	1.43
500	1.63	1.46	0.29	1.41
630	1.64	1.45	0.29	1.42
800	1.87	1.65	----	----
1000	2.05	1.76	----	----

* Wire Armoured

Capacitive Charging Current for XLPE Cable at rated voltage and 50 Hz, A/km per phase

Cross Section mm^2	Rated voltage, kv							
	10	20	36(SS)	30	45	66	110	132
25	0.4	0.5						
35	0.5	0.5						
50	0.5	0.6						
70	0.5	0.7						
95	0.5	0.8	1.2	0.9	1.2	1.5		
120	0.6	0.9	1.3	1.0	1.3	1.6		
150	0.7	0.9	1.5	1.0	1.4	1.7		
185	0.7	1.0	1.5	1.1	1.5	1.8	2.4	2.4
240	0.8	1.1	1.7	1.2	1.6	2.0	2.6	2.6
300	0.9	1.2	1.9	1.3	1.8	2.2	3.0	3.1
400	1.0	1.3	2.1	1.4	2.0	2.4	3.2	3.4
500	1.1	1.5	2.3	1.6	2.2	2.6	3.6	3.8
630	1.2	1.6	2.5	1.8	2.5	3.1	4.0	4.1
800	1.4	1.9	2.6	2.0	2.7	3.8	4.4	4.8
1000	1.5	2.0	3.1	2.2	2.9	4.2	4.8	5.0
1200	1.6	2.1	3.3	2.3	3.7	4.6	5.0	5.3
1400	1.8	2.3	3.5	2.4	3.9	4.8	5.4	5.7
1600	1.9	2.5	3.7	2.6	4.1	5.2	5.6	6.0
2000	2.1	2.6	4.1	2.9	4.5	5.7	6.2	6.5

Inductance of three-core XLPE cables, mH/km per phase		
Cross Section mm^2	Rated Voltage, kv	
	IEC10 SS12	IEC 20 SS 24
10	0.45	
16	0.41	
25	0.38	0.43
35	0.36	0.41
50	0.35	0.39
70	0.33	0.37
95	0.31	0.35
120	0.30	0.33
150	0.29	0.32
185	0.28	0.31
240	0.27	0.30
300	0.27	0.30

APPROXIMATE REACTANCE AT 50 HZ (OHMS/KM)
1.1KV XLPE CABLES

Nominal Area Of Conductor (sq.mm)	XLPE CABLES (90°C)		
	Single Core		Multicore
	Unarmoured	Armoured*	
1.5	0.155	-	0.107
2.5	0.142	-	0.0985
4	0.132	-	0.0927
6	0.123	-	0.0884
10	0.114	0.134	0.0837
16	0.108	0.125	0.0808
25	0.103	0.120	0.0805
35	0.0986	0.114	0.0783
50	0.0937	0.108	0.0750
70	0.0900	0.102	0.0740
95	0.0865	0.100	0.0724
120	0.0841	0.0968	0.0712
150	0.0831	0.0941	0.0716
185	0.0836	0.0932	0.0718
240	0.0813	0.0900	0.0710
300	0.0795	0.0881	0.0705
400	0.0787	0.0873	0.0704
500	0.0779	0.0859	0.0702
630	0.0765	0.0843	0.0698
800	0.0755	0.0826	-
1000	0.0752	0.0829	-

TABLE - 1

TECHNICAL DETAIL FOR DICABS 1.1 KV SINGLE CORE, AL/COPPER COND., PVC INSULATED, UN-ARMOURED CABLES

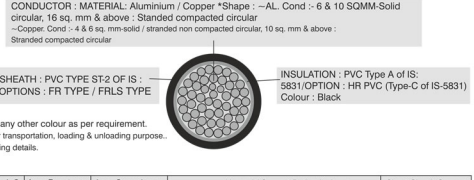
Cable Code : AYY/YY

REF SPEC : IS : 1554PART-1

PHYSICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Minimum No of Strand in Conductor		Nominal Thickness of Insulation) (mm)	Nominal Thickness of outer sheath (mm)	Approx. Overal Diameter (mm)	Approx. Weight of cable in kg / km	
	Al	Cu				With Al Conductor AYY	With Copper Conductor YY
4	---	1/7	1.0	1.8	8	80	105
6	1	1/7	1.0	1.8	9	100	135
10	1	6	1.0	1.8	10	120	180
16	6	6	1.0	1.8	11	160	260
25	6	6	1.2	1.8	13	210	365
35	6	6	1.2	1.8	14	250	460
50	6	6	1.4	1.8	16	300	610
70	12	12	1.4	1.8	17	400	830
95	15	15	1.6	1.8	19	500	1100
120	15	18	1.6	2.0	21	600	1350
150	15	18	1.8	2.0	23	750	1680
185	30	30	2.0	2.0	25	900	2050
240	30	34	2.2	2.0	28	1100	2600
300	30	34	2.4	2.0	30	1350	3200
400	53	53	2.6	2.2	35	1700	4200
500	53	53	3.0	2.2	38	2150	5250
630	53	53	3.4	2.4	43	2750	6650
800	53	53	3.4	2.4	48	3300	8250
1000	53	53	3.4	2.6	52	4100	10300

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

- Tabulated approx. netwt. of cables are only guidelines for transportation, loading & unloading purpose..
- Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 70°C in Ohm/km		App. Reactance at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal *Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air		
4	---	4.61	---	5.53	0.140	0.58	---	---	---	39	38	35	0.304	0.460
6	4.61	3.08	5.53	3.70	0.127	0.68	39	37	35	49	48	44	0.456	0.690
10	3.08	1.83	3.70	2.20	0.118	0.83	51	51	47	65	64	60	0.760	1.150
16	1.91	1.15	2.29	1.38	0.110	1.01	66	65	64	85	83	82	1.220	1.84
25	1.20	0.727	1.44	0.87	0.105	1.05	86	84	84	110	110	110	1.900	2.88
35	0.868	0.524	1.04	0.63	0.100	1.22	100	100	105	130	125	130	2.660	4.03
50	0.641	0.387	0.769	0.464	0.098	1.22	120	115	130	155	150	165	3.800	5.75
70	0.443	0.268	0.532	0.322	0.091	1.43	140	135	155	190	175	205	5.320	8.05
95	0.320	0.193	0.384	0.232	0.088	1.47	175	155	190	220	200	245	7.220	10.90
120	0.253	0.153	0.304	0.184	0.086	1.62	195	170	220	250	220	280	9.120	13.80
150	0.206	0.1240	0.247	0.1488	0.085	1.62	220	190	250	280	245	320	11.40	17.30
185	0.164	0.0991	0.197	0.1189	0.084	1.62	240	210	290	305	260	370	14.10	21.30
240	0.125	0.1754	0.151	0.0912	0.082	1.72	270	225	335	345	285	425	18.20	27.30
300	0.100	0.0601	0.122	0.0733	0.080	1.74	295	245	380	375	310	475	22.80	34.50
400	0.0778	0.0470	0.0961	0.0580	0.080	1.81	325	275	435	400	335	550	30.40	46.00
500	0.0605	0.0366	0.0759	0.0459	0.079	1.86	345	295	480	425	355	590	38.00	57.50
630	0.0469	0.0283	0.0610	0.0368	0.077	1.87	390	320	550	470	375	660	47.90	72.50
800	0.0367	0.0221	0.0503	0.0303	0.077	1.98	450	380	610	530	425	725	60.80	92.00
1000	0.0291	0.0176	0.0422	0.0255	0.076	2.20	500	415	680	590	740	870	76.00	115.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 2

TECHNICAL DETAIL FOR DICABS 1.1 KV TWO CORES, AL/COPPER COND., PVC INSULATED, UN-ARMOURED CABLES

Cable Code : AYY/YY

REF Specification : IS : 1554 PART-1

PHYSICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Minimum No of Strand in Conductor Al	Cu	Nominal Thickness of Insulation (mm)	Minimum thickness of inner Sh. (mm)	Normal thick. of OUTER Sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM) With Al cond AYY	With Cu Cond. YY
4	---	1/7	1.0	0.30	1.80	14	240	290
6	1	1/7	1.0	0.30	1.80	17	300	370
10	1	6	1.0	0.30	1.80	18	400	520
16	6	6	1.0	0.30	1.80	17	430	630
25	6	6	1.2	0.30	2.00	19	450	750
35	6	6	1.2	0.30	2.00	21	550	980
50	6	6	1.4	0.30	2.00	24	700	1300
70	12	12	1.4	0.30	2.00	26	850	1700
95	15	15	1.6	0.40	2.20	30	1150	2300
120	15	18	1.6	0.40	2.20	32	1300	2800
150	15	18	1.8	0.40	2.40	34	1600	3450
185	30	30	2.0	0.50	2.40	38	2000	4300
240	30	34	2.2	0.50	2.60	42	2500	5500
300	30	34	2.4	0.60	2.80	46	3000	6700
400	53	53	2.6	0.70	3.20	52	3800	8750
500	53	53	3.0	0.70	3.40	54	4800	11000
630	53	53	3.4	0.70	3.80	65	6000	13800

CROSS-SECTIONAL VIEW

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

-- Tabulated approx. netwt. of cables are only guidelines for transportation, loading & unloading purpose..

-- Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km Al	Cu	Approx. Cond. A.C. Resistance at 70°C in Ohm/km Al	Cu	App.Reactance of cable at 50HZ in ohms/km	App.Capetiance of cable in micro F/KM	Normal* Current Rating in Amps With Aluminium cond. Ground	Duct	Air	With Copper Cond. Ground	Duct	Air	Short Circuit Current Rating for 1 sec.duration in K. Amps Al	Cu
4	---	4.61	---	5.53	0.098	0.23	32	27	27	41	35	35	0.304	0.460
6	4.61	3.08	5.53	3.70	0.096	0.28	40	34	35	50	44	45	0.456	0.690
10	3.08	1.83	3.70	2.20	0.091	0.34	55	45	47	70	58	60	0.760	1.150
16	1.91	1.15	2.29	1.38	0.085	0.40	70	58	59	90	75	78	1.220	1.840
25	1.20	0.727	1.44	0.87	0.083	0.42	90	76	78	115	97	105	1.900	2.880
35	0.868	0.524	1.04	0.63	0.082	0.48	110	92	99	140	120	125	2.660	4.030
50	0.641	0.387	0.769	0.464	0.082	0.49	135	115	125	165	145	155	3.800	5.750
70	0.443	0.268	0.532	0.322	0.076	0.56	160	140	150	205	180	195	5.320	8.050
95	0.320	0.193	0.384	0.232	0.076	0.58	190	170	185	240	215	230	7.220	10.90
120	0.253	0.153	0.304	0.184	0.075	0.63	210	190	210	275	235	265	9.120	13.80
150	0.206	0.1240	0.247	0.1488	0.074	0.63	240	210	240	310	270	305	11.40	17.300
185	0.164	0.0991	0.197	0.1189	0.074	0.64	275	240	275	350	300	350	14.10	21.280
240	0.125	0.0754	0.151	0.0912	0.073	0.67	320	275	325	405	345	410	18.20	27.600
300	0.100	0.0601	0.122	0.0733	0.073	0.68	355	305	365	450	385	465	22.80	34.500
400	0.0778	0.0470	0.0961	0.0580	0.072	0.71	385	345	420	490	485	530	30.40	46.000
500	0.0605	0.0366	0.0759	0.0459	0.072	0.70	425	380	475	540	460	605	38.00	57.500
630	0.0469	0.0283	0.0610	0.0368	0.072	0.70	465	415	540	640	550	785	47.90	72.550

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 3

TECHNICAL DETAIL FOR DICABS 1.1 KV
THREE CORES, AL/COPPER COND., PVC INSULATED, UN-ARMOURED CABLES

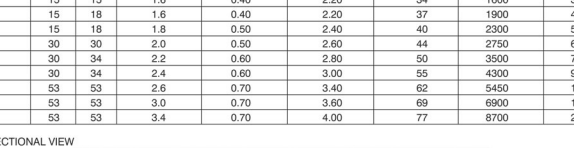
Cable Code : AYY/YY

Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

SIZE Cross--sectional are (sqmm)	Minium No of Strands in Conductor Al	Cu	Nominal thick. Thickness of Insulation) (mm)	Minimum thickness of inner Sh. (mm)	Nominal thick. of outer Sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM) With Al cond AYY	With Cu Cond. YY
4	---	1/7	1.0	0.30	1.80	16	270	340
6	1	1/7	1.0	0.30	1.80	18	360	470
10	1	6	1.0	0.30	1.80	19	440	650
16	6	6	1.0	0.30	1.80	19	460	730
25	6	6	1.2	0.30	2.00	22	620	1080
35	6	6	1.2	0.30	2.00	24	740	1400
50	6	6	1.4	0.30	2.00	27	940	1870
70	12	12	1.4	0.40	2.20	30	1200	2500
95	15	15	1.6	0.40	2.20	34	1600	3350
120	15	18	1.6	0.40	2.20	37	1900	4100
150	15	18	1.8	0.50	2.40	40	2300	5100
185	30	30	2.0	0.50	2.60	44	2750	6200
240	30	34	2.2	0.60	2.80	50	3500	7950
300	30	34	2.4	0.60	3.00	55	4300	9900
400	53	53	2.6	0.70	3.40	62	5450	12800
500	53	53	3.0	0.70	3.60	69	6900	16200
630	53	53	3.4	0.70	4.00	77	8700	20400

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

-- Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

-- Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 70°C in Ohm/km		pp.. Reactance at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.91	---	5.53	0.098	0.23	28	23	23	36	30	30	0.304	0.460
6	4.61	3.08	5.53	3.70	0.096	0.28	35	30	30	45	38	39	0.456	0.690
10	3.08	1.83	3.70	2.20	0.091	0.34	46	39	40	60	50	52	0.760	1.150
16	1.91	1.15	2.29	1.38	0.085	0.40	60	50	51	77	64	66	1.220	1.840
25	1.20	0.727	1.44	0.87	0.083	0.42	76	63	70	99	81	90	1.900	2.880
35	0.868	0.524	1.04	0.63	0.082	0.48	92	77	86	120	99	110	2.660	4.030
50	0.641	0.387	0.769	0.464	0.082	0.49	110	95	105	145	125	135	3.800	5.750
70	0.443	0.268	0.532	0.322	0.076	0.56	135	115	130	175	150	165	5.320	8.050
95	0.320	0.193	0.384	0.232	0.076	0.58	165	140	155	210	175	200	7.220	10.900
120	0.253	0.153	0.304	0.184	0.075	0.63	185	155	180	240	195	230	9.120	13.800
150	0.206	0.1240	0.247	0.1488	0.074	0.63	210	175	205	270	225	265	11.40	17.300
185	0.164	0.0991	0.197	0.1189	0.074	0.64	235	200	240	300	255	305	14.10	21.300
240	0.125	0.0754	0.151	0.0912	0.073	0.67	275	235	280	345	295	355	18.20	27.600
300	0.100	0.0601	0.122	0.0733	0.073	0.68	305	260	315	385	335	400	22.80	34.500
400	0.0778	0.0470	0.0961	0.0580	0.072	0.70	335	290	375	425	360	435	30.40	46.000
500	0.0605	0.0366	0.759	0.0459	0.072	0.70	370	320	425	470	390	520	38.00	57.500
630	0.0469	0.0283	0.0610	0.0368	0.072	0.70	405	350	480	555	470	675	47.90	72.500

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 4

TECHNICAL DETAIL FOR DICABS 1.1 KV
THREE & HALF CORES, AL/COPPER COND., PVC INSULATED, UN-ARMOURED CABLES

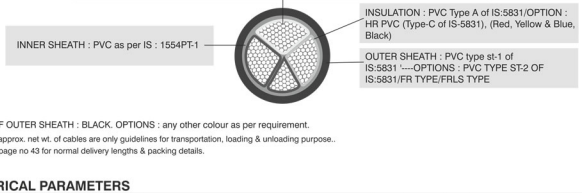
Cable Code : AYY/YY

Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Minimum nos of Strands in conductor		Nominal Thickness of (Insulation) (mm)	Minimum Thickness of inner sheath	Normal thickness of outer sheath	Approx. Overal Diameter	Approx. Net Wt. of cable (Kg/KM)	
	Phase	Neutral	Phase / Neutral	(mm)	(mm)	(mm)	With Al Conductor AYY	With Cu Conductor YY
	Al	Cu						
3x25+16	6/6	6/6	1.20/1.00	0.30	2.00	24	700	1264
3x35+16	6/6	6/6	1.20/1.00	0.30	2.00	26	850	1600
3x50+25	6/6	6/6	1.40/1.20	0.30	2.00	29	1050	2100
3x70+35	12/6	12/6	1.40/1.20	0.40	2.20	32	1400	2900
3x95+50	15/6	15/6	1.60/1.40	0.40	2.20	36	1800	3900
3x120+70	15/12	18/12	1.60/1.40	0.50	2.40	40	2200	4850
3x150+70	15/12	18/12	1.80/1.40	0.50	2.40	44	2600	5800
3x185+95	30/15	30/15	2.00/1.60	0.50	2.60	48	3200	7200
3x240+120	30/15	34/18	2.20/1.60	0.60	3.00	54	4100	9300
3x300+150	30/15	34/18	2.40/1.80	0.60	3.20	62	5000	11500
3x400+185	53/30	53/30	2.60/2.00	0.70	3.40	68	6300	15000
3x500+240	53/30	53/34	3.00/2.20	0.70	3.80	77	8000	18500
3x630+300	53/30	53/34	3.40/2.40	0.70	4.00	87	10000	23500

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

– Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

– Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 70°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
							Ground	Duct	Air	Ground	Duct	Air		
	Al	Cu	Al	Cu									Al	Cu
3x25+16	1.20	0.727	1.44	0.87	0.083	0.42	76	63	70	99	81	90	1.90	2.88
3x25+16	0.868	0.524	1.04	0.63	0.082	0.48	92	77	86	120	99	110	2.66	4.03
3x50+25	0.641	0.387	0.769	0.464	0.082	0.49	110	95	105	145	125	135	3.80	5.75
3x70+35	0.443	0.268	0.532	0.322	0.076	0.56	135	115	130	175	150	165	5.32	8.05
3x95+50	0.320	0.193	0.384	0.232	0.076	0.58	165	140	155	210	175	200	7.22	10.90
3x120+70	0.253	0.153	0.304	0.184	0.075	0.63	185	155	180	240	195	230	9.12	13.80
3x150+70	0.206	0.1240	0247	0.1488	0.074	0.63	210	175	205	270	225	265	11.40	17.30
3x185+95	0.164	0.0991	0.197	0.1189	0.074	0.64	235	200	240	300	255	305	14.10	21.30
3x240+120	0.125	0.0754	0.151	0.0912	0.073	0.67	275	235	280	345	295	355	18.20	27.60
3x300+185	0.100	0.0601	0.122	0.0733	0.073	0.68	305	260	315	385	335	400	22.80	34.50
3x400+240	0.0778	0.0470	0.0961	0.0580	0.072	0.70	335	290	375	425	360	435	30.40	46.00
3x500+240	0.0605	0.0366	0.0759	0.0459	0.072	0.70	370	320	425	470	390	520	38.00	57.50
3x630+300	0.0469	0.0283	0.0610	0.0368	0.072	0.70	405	350	480	555	470	675	47.90	72.50

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 5

TECHNICAL DETAIL FOR DICABS 1.1 KV
FOUR CORES, AL/COPPER COND., PVC INSULATED, UN-ARMOURED CABLES

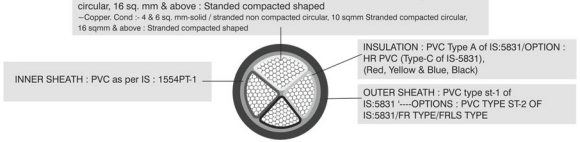
Cable Code : AYY/YY

Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Minimum No of Strand in Conductor		Nominal Thickness of Insulation) (mm)	Minimum Thickness of inner sheath (mm)	Nominal thickness of outer sheath (mm)	Approx. Overal Diameter (mm)	Approx. Net Wt. of cable (Kg/KM)	
	Al	Cu					With Al Conductor AYY	With Cu Conductor YY
4	---	1/7	1.0	0.30	1.80	16	300	400
6	1	1/7	1.0	0.30	1.80	18	390	540
10	1	6	1.0	0.30	1.80	20	540	788
16	6	6	1.0	0.30	2.00	23	560	950
25	6	6	1.2	0.30	2.00	26	750	1370
35	6	6	1.2	0.30	2.00	30	940	1800
50	6	6	1.4	0.40	2.20	34	1250	2500
70	12	12	1.4	0.40	2.20	38	1550	3300
95	15	15	1.6	0.40	2.40	43	2050	4400
120	15	18	1.6	0.50	2.40	46	2400	5380
150	15	18	1.8	0.50	2.60	51	2950	6670
185	30	30	2.0	0.60	2.80	55	3650	8250
240	30	34	2.2	0.60	3.00	60	4600	10550
300	30	34	2.4	0.70	3.40	66	5500	12950
400	53	53	2.6	0.70	3.60	73	6800	16720
500	53	53	3.0	0.70	4.00	82	8600	21000
630	53	53	3.4	0.70	4.00	92	11000	26000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 70°C in Ohm/km		App. Reactance of cableat 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.53	0.098	0.23	28	23	23	36	30	30	0.304	0.460
6	4.61	3.08	5.53	3.70	0.096	0.28	35	30	30	45	38	39	0.456	0.690
10	3.08	1.83	3.70	2.20	0.091	0.34	46	39	40	60	50	52	0.760	1.150
16	1.91	1.15	2.29	1.38	0.085	0.40	60	50	51	77	64	66	1.220	1.840
25	1.20	0.727	1.44	0.87	0.083	0.42	76	63	70	99	81	90	1.900	2.880
35	0.868	0.524	1.04	0.63	0.082	0.48	92	77	86	120	99	110	2.660	4.030
50	0.641	0.387	0.769	0.464	0.082	0.49	110	95	105	145	125	135	3.800	5.750
70	.0443	0.268	0.532	0.322	0.076	0.56	135	115	130	175	150.	165	5.320	8.050
95	0.320	0.193	0.384	0.232	0.076	0.58	165	140	155	210	175	200	7.220	10.900
120	0.253	0.153	0.304	0.184	0.075	0.63	185	155	180	240	195	230	9.120	13.800
150	0.206	0.1240	0.247	0.1488	0.074	0.63	210	175	205	270	225	265	11.400	17.300
185	0.164	0.0991	0.197	0.1189	0.074	0.64	235	200	240	300	255	305	14.100	21.300
240	0.125	0.0754	0.151	0.0912	0.073	0.67	275	235	280	345	295	355	18.200	27.600
300	0.100	0.0601	0.122	0.0733	0.073	0.68	305	260	315	385	335	400	22.800	34.500
400	0.0778	0.0470	0.0961	0.0580	0.072	0.70	335	290	375	425	360	435	30.400	46.000
500	0.0605	0.0366	0.0759	0.0459	0.072	0.70	370	320	425	470	390	520	38.000	57.500
630	0.0469	0.0283	0.0610	0.0368	0.072	0.70	405	350	480	555	470	675	47.900	72.500

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 6

TECHNICAL DETAIL FOR DICABS 1.1 KV

SINGLE CORE, AL/COPPER COND., PVC INSULATED, AL WIRE/STRIP ARMOURED CABLES

Cable Code : AYFaY/YFaY, AYWaY/YWaY Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

SIZE cross--sectional area (Sq MM)	Minimum No. of Strands in Conductor Al	Cu	Nominal Thickes of Insulation) (mm)	ARMOURING WITH FLAT STRIP (AyFaY/YFay) Nominal Thickness of armour (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM) With Al cond AYFaY	With Cu cond. AYFaY	ARMOURING WITH ROUND WIRES (AYWaY/Yway) Nominal Diameter of wire (mm)	Minimum Thickenss of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM) With Al cond AYWaY	With Cu cond YWaY
4	---	1/7	1.3	N/A	N/A	N/A	N/A	N/A	1.40	1.24	11	150	180
6	1	1/7	1.3	N/A	N/A	N/A	N/A	N/A	1.40	1.24	12	180	210
10	1	6	1.3	N/A	N/A	N/A	N/A	N/A	1.40	1.24	13	200	260
16	6	6	1.3	N/A	N/A	N/A	N/A	N/A	1.40	1.24	14	250	350
25	6	6	1.5	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	300	450
35	6	6	1.5	N/A	N/A	N/A	N/A	N/A	1.40	1.24	16	350	560
50	6	6	1.7	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	450	750
70	12	12	1.7	N/A	N/A	N/A	N/A	N/A	1.40	1.40	20	550	980
95	15	15	1.9	0.80	1.40	21	650	1230	1.60	1.40	22	700	1300
120	15	18	1.9	0.80	1.40	23	750	1500	1.60	1.40	24	800	1550
150	15	18	2.1	0.80	1.40	24	900	1830	1.60	1.40	26	950	1880
185	30	30	2.3	0.80	1.40	27	1050	2200	1.60	1.40	29	1100	2250
240	30	34	2.5	0.80	1.40	30	1300	2600	1.60	1.56	32	1400	2900
300	30	34	2.7	0.80	1.56	32	1600	3450	1.60	1.56	33	1650	3500
400	53	53	3.0	0.80	1.56	37	1950	4400	2.00	1.56	39	2100	4580
500	53	53	3.4	0.80	1.56	40	2400	5500	2.00	1.72	12	2700	5800
630	53	53	3.9	0.80	1.72	45	3100	7000	2.00	1.88	48	3300	7200
800	53	53	3.9	0.80	1.88	49	3700	8650	2.00	1.88	52	4000	8950
1000	53	53	3.9	0.80	2.04	55	4600	10800	2.50	2.04	59	4900	11000

CROSS-SECTIONAL VIEW

CONDUCTOR : MATERIAL: Aluminium / Copper *Shape : ~AL. Cond :- 6 & 10 SQMM-Solid circular, 16 sq. mm & above : Standed compacted shaped
~Copper. Cond :- 4 & 6 sq. mm-solid / stranded non compacted circular, 10 sq. mm Stranded compacted circular, 16sqmm & above : Stranded compacted shaped

ARMOURING : Single layer of Aluminium Round wires / Flat Strips

INNERSHEATH : PVC as per IS : 1554PT-1

INSULATION : PVC Type A of IS:5831/OPTION : HR PVC (Type-C of IS-5831), Colour : Black

OUTER SHEATH : PVC TYPE ST-2 OF IS : 5831 '---OPTIONS : FR TYPE/FRLS TYPE

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose.. ~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km Al	Cu	Approx. Cond. A.C. Resistance at 70°C in Ohm/km Al	Cu	App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps With Aluminium cond. Ground	Duct	Air	With Copper cond. Ground	Duct	Air	Short Circuit Current Rating for 1 Sec. duration in K. Amps Al	Cu
4	7.41	4.61	8.89	5.53	0.157	0.48	31	30	27	39	38	35	0.304	0.460
6	4.61	3.08	5.53	3.70	0.148	0.56	39	37	35	49	48	44	0.456	0.690
10	3.08	1.83	3.70	2.20	0.138	0.67	51	51	47	65	64	60	0.760	1.550
16	1.91	1.15	2.29	1.38	0.128	0.81	66	65	64	85	83	82	1.220	1.840
25	1.20	0.727	1.44	0.87	0.120	0.87	86	84	84	110	110	110	1.900	2.880
35	0.868	0.524	1.04	0.63	0.114	1.00	100	100	105	130	125	130	2.660	4.030
50	0.641	0.387	0.769	0.464	0.110	1.03	120	115	130	155	150	165	3.800	5.750
70	0.443	0.268	0.532	0.322	0.103	1.21	140	135	155	190	175	205	5.320	8.050
95	0.320	0.193	0.384	0.232	0.101	1.27	175	155	190	220	200	245	7.220	10.90
120	0.253	0.153	0.304	0.184	0.096	1.42	195	170	220	250	220	280	9.120	13.80
150	0.206	0.1240	0.247	0.1488	0.094	1.42	220	190	250	280	245	320	11.400	17.30
185	0.164	0.0991	0.197	0.1189	0.092	1.44	240	210	290	305	260	370	14.100	21.30
240	0.125	0.0754	0.151	0.0912	0.090	1.53	270	225	335	345	285	425	18.200	27.60
300	0.100	0.0601	0.122	0.0733	0.088	1.56	295	245	380	375	310	475	22.800	34.50
400	0.0778	0.0470	0.0961	0.0580	0.088	1.59	325	275	435	400	335	550	30.400	46.00
500	0.0605	0.0366	0.076	0.0459	0.087	1.67	345	295	480	425	355	590	38.000	57.50
630	0.0469	0.0283	0.0610	0.0368	0.086	1.67	390	320	550	470	375	660	47.880	72.50
800	0.0367	0.0221	0.0503	0.0303	0.083	1.75	450	380	610	530	423	725	60.800	92.00
1000	0.0291	0.0176	0.0422	0.0255	0.082	1.94	500	414	680	590	471	870	76.000	115.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 7

TECHNICAL DETAIL FOR DICABS 1.1 KV

TWO CORES, AL/COPPER COND., PVC INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CABLES

Cable Code : AYFY / YFY, AYWY / YWY Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

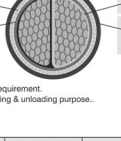
SIZE Cross-sectional area (sqmm)	Minimum No of Stands in Conductor Al	Minimum No of Stands in Conductor Cu	Nominal Thickness of Insulation) (mm)	Minimum Thickness of inner Sh. (mm)	ARMOURING WITH FLAT STRIP (AYFY / YFY) Nominal Thickness of armour (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM) With Al cond AYFY	Approx. Net Wt of cable (Kg/KM) With Cu cond YFY	ARMOURING WITH ROUND WIRES (AYWY/YWY) Nominal Diameter of armour (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM) With Al cond AYWY	Approx. Net Wt of cable (Kg/KM) With Cu cond YWY
4	---	1/7	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	600	650
6	1	1/7	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	19	660	730
10	1	6	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	20	750	870
16	6	6	1.0	0.30	0.80	1.40	18	580	780	1.60	1.40	20	750	950
25	6	6	1.2	0.30	0.80	1.40	20	700	1000	1.60	1.40	22	900	1200
35	6	6	1.2	0.30	0.80	1.40	22	800	1230	1.60	1.40	23	1030	1450
50	6	6	1.4	0.30	0.80	1.40	25	1000	1620	1.60	1.56	26	1300	1900
70	12	12	1.4	0.30	0.80	1.56	27	1200	2050	1.60	1.56	29	1500	2350
95	15	15	1.6	0.40	0.80	1.56	30	1550	2720	2.00	1.56	33	2050	3200
120	15	18	1.6	0.40	0.80	1.56	32	1800	3290	2.00	1.72	35	2400	3900
150	15	18	1.8	0.40	0.80	1.72	35	2100	3970	2.00	1.72	37	2760	4600
185	30	30	2.0	0.50	0.80	1.88	38	2500	4800	2.00	1.88	41	3200	5500
240	30	34	2.2	0.50	0.80	2.04	43	3100	6080	2.50	2.04	47	4200	7200
300	30	34	2.4	0.60	0.80	2.20	48	3700	7400	2.50	2.20	50	5000	8700
400	53	53	2.6	0.70	0.80	2.36	53	4500	9450	3.15	2.52	58	6600	11500
500	53	53	3.0	0.70	0.80	2.68	56	5600	1180	3.15	2.84	64	8000	14000
630	53	53	3.4	0.70	0.80	2.84	66	6900	14700	4.00	3.00	72	11000	18800

CROSS-SECTIONAL VIEW

CONDUCTOR : MATERIAL: Aluminium / Copper *Shape : ~AL. Cond :- 6 & 10 SQMM-Solid circular, 16 sq. mm & above : Standed compacted shaped ~Copper. Cond :- 4 & 6 sq. mm-solid / stranded non compacted circular, 10 sq. mm Stranded compacted circular, 16sqmm & above : Stranded compacted shaped

ARMOURING : Single layer of Galvanized steel Round wires / Flat Strips

INNERSHEATH : PVC as per IS : 1554PT-1



INSULATION : PVC Type A of IS:5831/OPTION : HR PVC (Type-C of IS-5831), Colour : Red & Black

OUTER SHEATH : PVC TYPE ST-1 OF IS : 5831 '---OPTIONS : PVC TYPE ST-2 OF IS: 5831/FR TYPE/FRLS TYPE

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km Al	Max. Cond. D.C. Resistance at 20°C in Ohm/km Cu	App. Cond. A.C. Resistance at 70°C in Ohm/km Al	App. Cond. A.C. Resistance at 70°C in Ohm/km Cu	App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps With Aluminium cond. Ground	Duct	Air	With Copper cond. Ground	Duct	Air	Short Circuit Current Rating for 1 Sec. duration in K. Amps Al	Cu
4	---	4.61	---	5.53	0.098	0.23	32	27	27	41	35	35	0.304	0.460
6	4.61	3.08	5.53	3.70	0.096	0.28	40	34	35	50	44	45	0.456	0.690
10	3.08	1.83	3.70	2.20	0.091	0.34	55	45	47	70	58	60	0.760	1.150
16	1.91	1.15	2.29	1.38	0.085	0.40	70	58	59	90	75	78	1.220	1.840
25	1.20	0.727	1.44	0.87	0.083	0.42	90	76	78	115	97	105	1.90	2.880
35	0.868	0.524	1.04	0.63	0.082	0.48	110	92	99	140	120	125	2.66	4.030
50	0.641	0.387	0.769	0.464	0.082	0.49	135	115	125	165	145	155	3.80	5.750
70	0.443	0.268	0.532	0.322	0.076	0.56	160	140	150	205	180	195	5.32	8.050
95	0.320	0.193	0.384	0.232	0.076	0.58	190	170	185	240	215	230	7.22	10.90
120	0.253	0.153	0.304	0.184	0.075	0.63	210	190	210	275	235	265	9.12	13.80
150	0.206	0.1240	0.247	0.1488	0.074	0.63	240	210	240	310	270	305	11.40	17.30
185	0.164	0.0991	0.197	0.1189	0.074	0.64	275	240	275	350	300	350	14.10	21.30
240	0.125	0.0754	0.151	0.0912	0.073	0.67	320	275	325	405	345	410	18.20	27.60
300	0.100	0.0601	0.122	0.0733	0.073	0.68	355	305	365	450	385	465	22.80	34.50
400	0.0778	0.0470	0.0961	0.0580	0.072	0.70	385	345	420	490	485	530	30.40	46.00
500	0.0605	0.0366	0.0759	0.0459	0.072	0.70	425	380	475	540	460	605	38.00	57.50
630	0.0469	0.0283	0.0610	0.0368	0.072	0.70	465	415	540	640	550	785	47.90	72.50

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 8

TECHNICAL DETAIL FOR DICABS 1.1 KV

THREE CORES, AL/COPPER COND., PVC INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CABLES

Cable Code : AYFY / YFY, AYWY / YWY Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

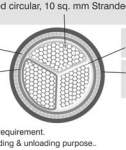
SIZE Cross--sectional area	Minimum No of Stands in Conductor		Nominal Thickness of Insulation)	Minimum Thickness of inner Sh.	ARMOURING WITH FLAT STRIP (AYFY / YFY)					ARMOURING WITH ROUND WIRES (AYWY/YWY)				
					Nominal Thickness of armour	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)		Nominal Diameter of wire	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)	
								With Al cond	With Cu cond				With Al cond	With Cu cond
(sqmm)	Al	Cu	(mm)	(mm)	strip (mm)	(mm)	(mm)	AYFY	YFY	(mm)	(mm)	(mm)	AYWY	YWY
4	---	1/7	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	600	650
6	1	1/7	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	19	700	810
10	1	6	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	21	900	1100
16	6	6	1.0	0.30	0.80	1.40	20	700	1000	1.60	1.40	21	950	1250
25	6	6	1.2	0.30	0.80	1.40	23	900	1350	1.60	1.40	23	1100	1550
35	6	6	1.2	0.30	0.80	1.40	24	1000	1650	1.60	1.40	26	1300	1950
50	6	6	1.4	0.30	0.80	1.56	27	1300	2230	1.60	1.56	29	1600	2530
70	12	12	1.4	0.40	0.80	1.56	31	1600	2900	1.60	1.56	33	2150	3450
95	15	15	1.6	0.40	0.80	1.56	35	2000	3750	2.00	1.72	37	2650	4400
120	15	18	1.6	0.40	0.80	1.72	37	2400	4630	2.00	1.72	39	3000	5200
150	15	18	1.8	0.50	0.80	1.88	41	2800	5600	2.00	1.88	43	3550	6300
185	30	30	2.0	0.50	0.80	1.88	46	3400	6840	2.00	2.04	49	4600	8000
240	30	34	2.2	0.60	0.80	2.20	51	4200	8650	2.50	2.20	54	5600	10000
300	30	34	2.4	0.60	0.80	2.36	56	5050	10630	2.50	2.36	59	6600	12000
400	53	53	2.6	0.70	0.80	2.52	63	6300	13740	3.15	2.68	68	8700	16000
500	53	53	3.0	0.70	0.80	2.84	70	7800	17100	3.15	3.00	75	11000	20000
630	53	53	3.4	0.70	0.80	3.00	78	9700	21418	4.00	3.00	84	14000	25500

CROSS-SECTIONAL VIEW

CONDUCTOR : MATERIAL: Aluminium / Copper *Shape : ~AL. Cond :- 6 & 10 SQMM-Solid circular, 16 sq. mm & above : Standed compacted shaped ~Copper. Cond :- 4 & 6 sq. mm-solid / stranded non compacted circular, 10 sq. mm Stranded compacted circular, 16sqmm & above : Stranded compacted shaped

ARMOURING : Single layer of Galvanized steel Round wires / Flat Strips

INNERSHEATH : PVC as per IS : 1554PT-1



INSULATION : PVC Type A of IS:5831/OPTION : HR PVC (Type-C of IS-5831), Red, Yellow & Blue

OUTER SHEATH : PVC TYPE ST-1 OF IS : 5831 '---OPTIONS : PVC TYPE ST-2 OF IS: 5831/FR TYPE/FRLS TYPE

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 70°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.53	0.098	0.23	28	23	23	36	30	30	0.304	0.460
6	4.61	3.08	5.53	3.70	0.096	0.28	35	30	30	45	38	39	0.456	0.690
10	3.08	1.83	3.70	2.20	0.091	0.34	46	39	40	60	50	52	0.760	1.150
16	1.91	1.15	2.29	1.38	0.085	0.40	60	50	51	77	64	66	1.220	1.840
25	1.20	0.727	1.44	0.87	0.083	0.42	76	63	70	99	81	90	1.900	2.880
35	0.868	0.524	1.04	0.63	0.082	0.48	92	77	86	120	99	110	2.660	4.030
50	0.641	0.387	0.769	0.464	0.082	0.49	110	95	105	145	125	135	3.800	5.750
70	0.443	0.268	0.532	0.322	0.076	0.56	135	115	130	175	150	165	5.320	8.050
95	0.320	0.193	0.384	0.232	0.076	0.58	165	140	155	210	175	200	7.220	10.900
120	0.253	0.153	0.304	0.184	0.075	0.63	185	155	180	240	195	230	9.120	13.800
150	0.206	0.1240	0.247	0.1488	0.074	0.63	210	175	205	270	225	265	11.400	17.300
185	0.164	0.0991	0.197	0.1189	0.074	0.64	235	200	240	300	255	305	14.100	21.300
240	0.125	0.0754	0.151	0.0912	0.073	0.67	275	235	280	345	295	355	18.200	27.600
300	0.100	0.0601	0.122	0.0733	0.073	0.68	305	260	315	385	335	400	22.800	34.500
400	0.0778	0.0470	0.0961	0.0580	0.072	0.70	335	290	375	425	360	435	30.400	46.000
500	0.0605	0.0366	0.0759	0.0459	0.072	0.70	370	320	425	470	390	520	38.000	57.500
630	0.0469	0.0283	0.0610	0.0368	0.072	0.70	405	350	480	555	470	675	47.900	72.500

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 9

TECHNICAL DETAIL FOR DICABS 1.1 KV THREE AND HALF CORES, AL/COPPER COND., PVC INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CABLES

Cable Code 3.5 Core - AYFY / YFY, AYWY / YWY

Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

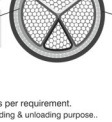
SIZE Cross--sectional area (sqmm)	Minimum No of Stands in Conductor		Nominal Thickness of Insulation) (mm)	Minimum Thickness of inner Sh. (mm)	ARMOURING WITH FLAT STRIP (AYFY / YFY)					ARMOURING WITH ROUND WIRES (AYWY/YWY)				
					Nominal Thickness strip (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM)		Nominal Diameter of wire (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM)	
								With Al cond	With Cu cond				With Al cond	With Cu cond
	Phase/Netural		Phase/Neutral					AYFY	YFY				AYWY	YWY
3x25+16	6/6	6/6	1.20/1.00	0.30	0.80	1.40	24	1000	1550	1.60	1.40	26	1300	1850
3x35+16	6/6	6/6	1.20/1.00	0.30	0.80	1.40	26	1200	1950	1.60	1.40	28	1450	2150
3x50+25	6/6	6/6	1.40/1.20	0.30	0.80	1.56	30	1500	2600	1.60	1.56	31	1800	2800
3x70+35	12/6	12/6	1.40/1.20	0.40	0.80	1.56	34	1800	3300	2.00	1.56	36	2400	3800
3x95+50	15/6	15/6	1.60/1.40	0.40	0.80	1.56	37	2300	4350	2.00	1.72	39	3000	5000
3x120+70	15/12	18/12	1.60/1.40	0.50	0.80	1.72	41	2800	5450	2.00	1.88	43	3500	6100
3x150+70	15/12	18/12	1.80/1.40	0.50	0.80	1.88	45	3200	6400	2.00	1.88	47	4000	7200
3x185+95	30/15	30/15	2.00/1.60	0.50	0.80	2.04	49	3900	7900	2.50	2.04	53	5200	9200
3x240+120	30/15	34/18	2.20/1.60	0.60	0.80	2.20	55	4800	10000	2.50	2.30	58	6400	11500
3x300+150	30/15	34/18	2.40/1.80	0.60	0.80	2.36	61	5800	12300	3.15	2.52	65	8200	14500
3x400+185	53/30	53/30	2.60/2.00	0.70	0.80	2.68	69	7300	15800	3.15	2.63	75	9900	18400
3x500+240	53/30	53/34	3.00/2.20	0.70	0.80	2.84	77	9000	19500	4.00	3.00	84	13500	24000
3x630+300	53/30	53/34	3.40/2.40	0.70	0.80	3.00	87	11500	25000	4.00	3.00	92	16000	28500

CROSS-SECTIONAL VIEW

CONDUCTOR : MATERIAL: Aluminium / Copper *Shape : ~AL. Cond :- 6 & 10 SQMM-Solid circular, 16 sq. mm & above : Standed compacted shaped ~Copper. Cond :- 4 & 6 sq. mm-solid / stranded non compacted circular, 10 sq. mm Stranded compacted circular, 16sqmm & above : Stranded compacted shaped

ARMOURING : Single layer of Galvanized steel Round wires / Flat Strips

INNERSHEATH : PVC as per IS : 1554PT-1



INSULATION : PVC Type A of IS:5831/OPTION : HR PVC (Type-C of IS-5831), Red, Yellow, Blue, Black

OUTER SHEATH : PVC TYPE ST-1 OF IS : 5831 '---OPTIONS : PVC TYPE ST-2 OF IS: 5831/FR TYPE/FRLS TYPE

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 70°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
							Ground	Duct	Air	Ground	Duct	Air		
	Al	Cu	Al	Cu									Al	Cu
3x25+16	1.20	0.727	1.44	0.87	0.083	0.42	76	63	70	99	81	90	1.90	2.88
3x35+16	0.868	0.524	1.04	0.63	0.082	0.48	92	77	86	120	99	110	2.66	4.03
3x50+25	0.641	0.387	0.769	0.464	0.082	0.49	110	95	105	145	125	135	3.80	5.75
3x70+35	0.443	0.268	0.532	0.322	0.076	0.56	135	115	130	175	150	165	5.32	8.05
3x95+50	0.320	0.193	0.384	0.232	0.076	0.58	165	140	155	210	175	200	7.22	10.90
3x120+70	0.253	0.153	0.304	0.184	0.075	0.63	185	155	180	240	195	230	9.12	13.80
3x150+70	0.206	0.1240	0.247	0.1488	0.074	0.63	210	175	205	270	225	265	11.40	17.30
3x185+95	0.164	0.0991	0.197	0.1189	0.074	0.64	235	200	240	300	255	305	14.10	21.30
3x240+120	0.125	0.0754	0.151	0.0912	0.073	0.67	275	235	280	345	295	355	18.20	27.60
3x300+150	0.100	0.0601	0.122	0.0733	0.073	0.68	305	260	315	385	335	400	22.80	34.50
3x400+185	0.0778	0.0470	0.0961	0.0580	0.072	0.70	335	290	375	425	360	435	30.40	46.00
3x500+240	0.0605	0.0366	0.0759	0.0459	0.072	0.70	370	320	425	470	390	520	38.00	57.50
3x630+300	0.0469	0.0283	0.0610	0.0368	0.072	0.70	405	350	480	555	470	675	47.90	72.50

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 10

TECHNICAL DETAIL FOR DICABS 1.1 KV FOUR CORES, AL/COPPER COND., PVC INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CABLES

Cable Code - AYFY / YFY, AYWY / YWY

Ref Specification : IS:1554 PT-1

PHYSICAL PARAMETERS

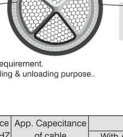
SIZE Cross--sectional area	Minimum No of Strands in Conductor		Nominal Thickness of Insulation)	Minimum Thickness of inner Sh.	ARMOURING WITH FLAT STRIP (AYFY/YFY)					ARMOURING WITH ROUND WIRES (AYWY/YWY)				
					Nominal Thickness of armour	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)		Nominal Diameter of armour	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)	
								With Al Cond	With Cu Cond				With Al Cond	With Cu Cond
(sqmm)	Al	Cu	(mm)	(mm)	(mm)	(mm)	(mm)	AYFY	YFY	(mm)	(mm)	(mm)	AYWY	YWY
4	---	1/7	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	650	800
6	1	1/7	1.0	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	21	880	1030
10	1	6	1.0	0.30	0.8	0.40	21	750	998	1.60	1.40	22	900	1150
16	6	6	1.0	0.30	0.8	1.40	22	860	1260	1.60	1.40	23	1120	1520
25	6	6	1.2	0.30	0.8	1.40	25	1100	1720	1.60	1.40	27	1400	2020
35	6	6	1.2	0.30	0.8	1.40	28	1300	2170	1.60	1.56	30	1600	2470
50	6	6	1.4	0.40	0.8	1.56	32	1600	2850	2.00	1.56	34	2200	3445
70	12	12	1.4	0.40	0.8	1.56	35	2000	3740	2.00	1.56	37	2650	4390
95	15	15	1.6	0.40	0.8	1.72	40	2600	5000	2.00	1.72	42	3300	5660
120	15	18	1.6	0.50	0.8	1.88	43	3050	6030	2.00	1.88	47	3850	6830
150	15	18	1.8	0.50	0.8	1.88	48	3600	7325	2.5	2.04	51	4850	8575
185	30	30	2.0	0.60	0.8	2.04	52	4300	8890	2.5	2.20	56	5800	10390
240	30	34	2.2	0.60	0.8	2.36	59	5400	11355	2.50	2.36	62	7000	12960
300	30	34	2.4	0.70	0.8	2.52	67	6600	14050	3.15	2.68	70	9200	16650
400	53	53	2.6	0.70	0.8	2.84	74	8200	18128	3.15	2.84	76	11000	20930
500	53	53	3.0	0.70	0.8	3.00	80	10500	22900	4.00	3.00	86	15000	27400
630	53	53	3.4	0.70	0.8	3.00	90	13000	28625	4.00	3.00	96	18000	33630

CROSS-SECTIONAL VIEW

CONDUCTOR : MATERIAL: Aluminium / Copper *Shape : ~AL. Cond :- 6 & 10 SQMM-Solid circular, 16 sq. mm & above : Standed compacted shaped ~Copper. Cond :- 4 & 6 sq. mm-solid / stranded non compacted circular, 10 sq. mm Stranded compacted circular, 16sqmm & above : Stranded compacted shaped

ARMOURING : Single layer of Galvanized steel Round wires / Flat Strips

INNERSHEATH : PVC as per IS : 1554PT-1



INSULATION : PVC Type A of IS:5831/OPTION : HR PVC (Type-C of IS-5831), Red, Yellow & Blue, Black

OUTER SHEATH : PVC TYPE ST-1 OF IS : 5831 '---OPTIONS : PVC TYPE ST-2 OF IS: 5831/FR TYPE/FRLS TYPE

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 70°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.53	0.098	0.23	28	23	23	36	30	30	0.304	0.460
6	4.61	3.08	5.53	3.70	0.096	0.28	35	30	30	45	38	39	0.456	0.690
10	3.08	1.83	3.70	2.20	0.091	0.34	46	39	40	60	50	52	0.760	1.150
16	1.91	1.15	2.29	1.38	0.085	0.40	60	50	51	77	64	66	1.220	1.840
25	1.20	0.727	1.44	0.87	0.083	0.42	76	63	70	99	81	90	1.900	2.880
35	0.868	0.524	1.04	0.63	0.082	0.48	92	77	86	120	99	110	2.660	4.030
50	0.641	0.387	0.769	0.464	0.082	0.49	110	95	105	145	125	135	3.800	5.750
70	0.443	0.268	0.532	0.322	0.076	0.56	135	115	130	175	150	165	5.320	8.050
95	0.320	0.193	0.384	0.232	0.076	0.58	165	140	155	210	175	200	7.220	10.900
120	0.253	0.153	0.304	0.184	0.075	0.63	185	155	180	240	195	230	9.120	13.800
150	0.206	0.1240	0.247	0.1488	0.074	0.63	210	175	205	270	225	265	11.40	17.300
185	0.164	0.0991	0.197	0.1189	0.074	0.64	235	200	240	300	255	305	14.10	21.300
240	0.125	0.0754	0.151	0.0912	0.073	0.67	275	235	280	345	295	355	18.20	27.600
300	0.100	0.0601	0.122	0.0733	0.073	0.68	305	260	315	385	335	400	22.80	34.500
400	0.0778	0.0470	0.0961	0.0580	0.072	0.70	335	290	375	425	360	435	30.40	46.000
500	0.0605	0.0366	0.0759	0.0459	0.072	0.70	370	320	425	470	390	520	38.00	57.500
630	0.0469	0.0283	0.0610	0.0368	0.072	0.70	405	350	480	555	470	675	47.90	72.500

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 11

TECHNICAL DETAIL FOR DICABS 1.1 KV 1.5 SQ MM COPPER COND., PVC INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CONTROL CABLES

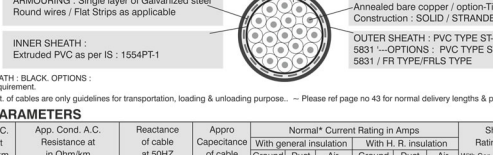
Cable Code - YY/YFY/YWY

Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

No of Cores	Minimum Thick. of inner Sheath (mm)	Nom thick of outer Sheath mm	UNARMOURED (YY)				ARMOURED WITH FLAT STRIPS (YFY)						ARMOURED WITH ROUND WIRES (YWY)					
			Approx. Overall Diameter (mm)		Approx. Net Wt. of cable (Kg/KM)		Nominal Thickness of Armour strip (mm)	Minimum Thickness of outer sh. (mm)	Approx. Overall Diameter (mm)		Approx. Net Wt of cable (Kg/KM)		Nominal Dia of Armour wire (mm)	Minimum Thickness of outr sh. (mm)	Approx. Overall Diameter (mm)		Approx. Net Wt of cable (Kg/KM) with	
			Solid cond	Std. Cond.	Solid cond	Std. Cond.			Solid cond	Std. Cond.	Solid cond	Std. Cond.			Solid cond	Std. Cond.	Solid cond.	Std. Cond.
2	0.30	1.8	12	12	180	180	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	13	14	400	420
3	0.30	1.8	12.5	13	200	210	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	14	14	450	450
4	0.30	1.8	13	14	230	250	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	15	500	500
5	0.30	1.8	14	14	250	250	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	16	16	520	550
6	0.30	1.8	15	15	290	300	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	17	17	580	600
7	0.30	1.8	15	15	310	320	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	17	17	650	680
10	0.30	1.8	18	19	420	450	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.40	20	21	800	840
12	0.30	1.8	19	20	470	500	0.80	1.24	19	20	700	745	1.60	1.40	21	22	940	970
14	0.30	1.8	20	20	530	550	0.80	1.40	20	21	800	820	1.60	1.40	22	23	1000	1050
16	0.30	1.8	21	21	600	600	0.80	1.40	21	22	850	900	1.60	1.40	23	24	1100	1100
19	0.30	2.0	22	23	700	720	0.80	1.40	22	23	950	1000	1.60	1.40	24	25	1200	1250
24	0.30	2.0	25	26	850	900	0.80	1.40	25	27	1150	1200	1.60	1.40	27	28	1450	1500
27	0.30	2.0	26	27	920	995	0.80	1.40	26	27	1250	1300	1.60	1.40	28	29	1500	1550
30	0.30	2.0	27	28	1000	1050	0.80	1.40	27	28	1330	1400	1.60	1.40	29	30	1650	1700
37	0.30	2.0	28	29	1200	1240	0.80	1.40	29	30	1530	1600	1.60	1.40	30	32	1850	1950
40	0.30	2.0	29	30	1270	1300	0.80	1.40	30	31	1650	1750	1.60	1.56	32	35	2000	2100
44	0.30	2.0	31	33	1400	1450	0.80	1.56	32	34	1850	1950	1.60	1.56	34	36	2200	2300
52	0.40	2.0	33	35	1650	1700	0.80	1.56	34	35	2050	2150	2.00	1.56	36	38	2700	2800
61	0.40	2.2	35	37	1850	1950	0.80	1.56	35	37	2300	2450	2.00	1.56	38	40	3000	3100

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

– Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose.. ~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

No of Cores	Max. Cond. D.C. Resistance at 20°C in Ohm/km	App. Cond. A.C. Resistance at in Ohm/km		Reactance of cable at 50HZ in ohms/km	Appro Capacitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration	
						With general insulation			With H. R. insulation				
		at 70°C	at 85°C			Ground	Duct	Air	Ground	Duct	Air	With Gen. Purpose Insulation	With Heat Resis. Insulation
2	12.10	14.52	15.2	0.112	0.20	23	20	20	26	24	24	0.173	0.156
3	12.10	14.52	15.2	0.112	0.20	21	17	17	24	21	21	0.173	0.156
4	12.10	14.52	15.2	0.112	0.20	21	17	17	24	21	21	0.173	0.156
5	12.10	14.52	15.2	0.112	0.20	21	17	17	24	21	21	0.173	0.156
6	12.10	14.52	15.2	0.112	0.20	15	13	13	17	16	16	0.173	0.156
7	12.10	14.52	15.2	0.112	0.20	14	13	13	16	15	15	0.173	0.156
10	12.10	14.52	15.2	0.112	0.20	13	11	11	15	13	13	0.173	0.156
12	12.10	14.52	15.2	0.112	0.20	12	10	10	14	12	12	0.173	0.156
14	12.10	14.52	15.2	0.112	0.20	11	10	10	13	12	12	0.173	0.156
16	12.10	14.52	15.2	0.112	0.20	11	9	9	13	11	11	0.173	0.156
19	12.10	14.52	15.2	0.112	0.20	10	9	9	11	11	11	0.173	0.156
24	12.10	14.52	15.2	0.112	0.20	9	8	8	10	10	10	0.173	0.156
27	12.10	14.52	15.2	0.112	0.20	9	8	8	10	10	10	0.173	0.156
30	12.10	14.52	15.2	0.112	0.20	9	7	7	10	8	8	0.173	0.156
37	12.10	14.52	15.2	0.112	0.20	8	7	7	9	8	8	0.173	0.156
40	12.10	14.52	15.2	0.112	0.20	8	7	7	9	8	8	0.173	0.156
44	12.10	14.52	15.2	0.112	0.20	7	7	7	8	7	7	0.173	0.156
52	12.10	14.52	15.2	0.112	0.20	6	6	6	7	7	7	0.173	0.156
61	12.10	14.52	15.2	0.112	0.20	6	6	6	7	7	7	0.173	0.156

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 12

TECHNICAL DETAIL FOR DICABS 1.1 KV 2.5 SQ MM COPPER COND., PVC INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CONTROL CABLES

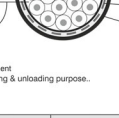
Cable Code - YY/YFY/YWY

Ref Specification : IS:1554 PART-1

PHYSICAL PARAMETERS

No of Cores	Minimum Thick. of inner Sheath (mm)	Nom thick. of outer Sheath mm	UNARMOURED (YY)				ARMOURED WITH FLAT STRIPS (YFY)				(ARMOURED WITH ROUND WIRES (YWW)							
			Approx. Overall Diameter (mm)		Approx. Net Wt of cable (Kg/KM) Armour outer		Nominal Thickness of armour Strip (mm)	Minimum Thickness of outr. sth (mm)	Approx. Overall Diameter (mm)		Approx. Net Wt of cable (Kg/KM)		Armour Wire Dia. Wire (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)		Approx. Net Wt of cable (Kg/KM) Diameter	
			Solid Cond	Std. Cond.	Solid Cond	Std. Cond.			Solid Cond	Std. Cond.	Solid Cond	Std. Cond.			Solid Cond	Std. Cond.	Solid Cond	Std. Cond.
2	0.30	1.8	13	13	220	240	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	14	15	480	500
3	0.30	1.8	14	14	260	270	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	16	530	550
4	0.30	1.8	15	15	310	320	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	16	17	600	620
5	0.30	1.8	16	16	340	350	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	17	18	640	680
6	0.30	1.8	17	17	390	420	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	19	20	730	750
7	0.30	1.8	17	17	424	440	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	19	20	760	790
10	0.30	1.8	20	21	570	600	0.80	1.40	21	22	850	900	1.60	1.40	23	24	1100	1150
12	0.30	2.0	21	22	670	700	0.80	1.40	22	23	950	1000	1.60	1.40	24	25	1180	1250
14	0.30	2.0	22	24	750	800	0.80	1.40	23	24	1050	1035	1.60	1.40	25	26	1300	1350
16	0.30	2.0	24	25	840	900	0.80	1.40	24	25	1120	1150	1.60	1.40	26	27	1400	1450
19	0.30	2.0	25	26	950	1000	0.80	1.40	25	26	1250	1330	1.60	1.40	27	28	1550	1620
24	0.30	2.0	28	30	1200	1260	0.80	1.40	29	30	1550	1630	1.60	1.56	31	32	1900	2000
27	0.30	2.0	29	31	1300	1350	0.80	1.40	30	31	1650	1750	1.60	1.56	32	33	2050	2100
30	0.30	2.0	30	32	1400	1500	0.80	1.56	31	32	1800	1920	1.60	1.56	33	34	2200	2250
37	0.40	2.2	33	34	1700	1800	0.80	1.56	34	35	2100	2225	2.00	1.56	36	37	2800	2900
40	0.40	2.2	34	36	1850	1900	0.80	1.56	35	36	2300	2400	2.00	1.56	37	39	2950	3100
44	0.40	2.2	36	38	2000	2100	0.80	1.56	37	37	2500	2600	2.00	1.56	40	41	3200	3350
52	0.40	2.2	38	40	2350	2450	0.80	1.56	39	41	2850	2950	2.00	1.72	42	43	3600	3700
61	0.40	2.2	40	43	2700	2800	0.80	1.56	41	43	3250	3350	2.00	1.72	44	46	4000	4200

CROSS-SECTIONAL VIEW



CONDUCTOR :MATERIAL: Annealed bare copper / option-Tinned Construction : SOLID / STRANDED

INSULATION MATERIAL : PVC Type A of IS : 5831/OPTION: HR PVC (Type-C of IS-5831) Nominal insulation thickness -

0.90 mm Coresidentification : Up to 5 Cores by colour coding & more than 5 cores 5 cores : By colour coding / Nos. Printing on cores as per IS : 1554pt-1

INNER SHEATH : Extruded PVC as per IS : 1554PT-1

ARMOURING : Single layer of Galvanized steel Round wires / Flat Strips as applicable

OUTER SHEATH : PVC TYPE ST-1 OF IS:5831'---OPTIONS : PVC TYPE ST-2 OF IS:5831 / FR TYPE/FRLS TYPE

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement

– Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

– Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

No of Cores	Max. Cond. D.C. Resistance at 20°C in Ohm/km	App. Cond. A.C. Resistance at in Ohm/km		Reactance of cable at 50HZ in ohms/km	Appro Capecitance of cable in microF/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration	
						With general insulation			With H. R. insulation				
		at 70°C	at 85°C			Ground	Duct	Air	Ground	Duct	Air	General Insulation	Heat Insulation
2	7.41	8.89	9.34	0.107	0.22	32	27	27	38	32	32	0.288	0.260
3	7.41	8.89	9.34	0.107	0.22	27	24	24	30	28	28	0.288	0.260
4	7.41	8.89	9.34	0.107	0.22	27	24	24	30	28	28	0.288	0.260
5	7.41	8.89	9.34	0.107	0.22	27	24	24	30	28	28	0.288	0.260
6	7.41	8.89	9.34	0.107	0.22	21	18	18	24	21	21	0.288	0.260
7	7.41	8.89	9.34	0.107	0.22	20	17	17	22	20	20	0.288	0.260
10	7.41	8.89	9.34	0.107	0.22	18	15	15	20	16	16	0.288	0.260
12	7.41	8.89	9.34	0.107	0.22	17	14	14	19	16	16	0.288	0.260
14	7.41	8.89	9.34	0.107	0.22	16	13	13	18	15	15	0.288	0.260
16	7.41	8.89	9.34	0.107	0.22	15	13	13	17	15	15	0.288	0.260
19	7.41	8.89	9.34	0.107	0.22	14	12	12	16	14	14	0.288	0.260
24	7.41	8.89	9.34	0.107	0.22	13	11	11	14	13	13	0.288	0.260
27	7.41	8.89	9.34	0.107	0.22	12	10	10	13	12	12	0.288	0.260
30	7.41	8.89	9.34	0.107	0.22	12	10	10	13	12	12	0.288	0.260
37	7.41	8.89	9.34	0.107	0.22	11	9	9	12	10	10	0.288	0.260
40	7.41	8.89	9.34	0.107	0.22	11	9	9	12	10	10	0.288	0.260
44	7.41	8.89	9.34	0.107	0.22	10	9	9	11	10	10	0.288	0.260
52	7.41	8.89	9.34	0.107	0.22	9	8	8	10	10	10	0.288	0.260
61	7.41	8.89	9.34	0.107	0.22	8	8	8	9	9	9	0.288	0.260

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 13

TECHNICAL DETAIL FOR DICABS 1.1 KV SINGLE CORE, AL/COPPER COND., XLPE INSULATED, UN-ARMOURED CABLES

Cable Code - A2XY/2XY

REF SPEC : IS : 7098PT-1

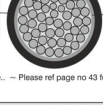
PHYSICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Minimum No of Strand in Conductor		Nominal Thickness of Insulation)	Nominal Thickness of outer sheath	Approx. Overal Diameter	Approx. Weight of cable in kg / km	
	Al	Cu	(mm)	(mm)	(mm)	With Al Conductor A2XY	With Cooper conductor 2XY
4	---	1/7	0.7	1.8	8	70	95
6	1	1/7	0.7	1.8	9	80	120
10	1	6	0.7	1.8	10	100	160
16	6	6	0.7	1.8	11	130	230
25	6	6	0.9	1.8	12	180	335
35	6	6	0.9	1.8	13	230	450
50	6	6	1.0	1.8	15	300	610
70	12	12	1.1	1.8	16	370	800
95	15	15	1.1	1.8	18	460	1050
120	15	18	1.2	1.8	20	550	1300
150	15	18	1.4	2.0	22	620	1550
185	30	30	1.6	2.0	24	820	1950
240	30	34	1.7	2.0	27	1000	2500
300	30	34	1.8	2.0	30	1200	3050
400	53	53	2.0	2.2	33	1550	4000
500	53	53	2.2	2.2	36	1900	5000
630	53	53	2.4	2.2	40	2400	6300
800	53	53	2.6	2.4	47	3000	7950
1000	53	53	2.8	2.6	51	3750	9950

CROSS-SECTIONAL VIEW

CONDUCTOR : MATERIAL: Aluminium / Copper *Shape : ~AL. Cond :- 6 & 10 SQMM-Solid circular, 16 sq. mm & above : Standed compacted circular
~Copper. Cond :- 4 & 6 sq. mm-solid / stranded non compacted circular, 10 sq. mm & above : Stranded compacted circular

OUTER SHEATH : PVC TYPE ST-2 OF IS : 5831 '~--OPTIONS : FR TYPE / FRLS TYPE



INSULATION : Crosslinked Polyethylene (XLPE) (Natural colour)

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose.. ~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reacetance at 50HZ in ohms/km	App. Capacitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.90	0.136	0.29	---	---	---	48	47	45	0.376	0.572
6	4.61	3.08	5.90	3.94	0.128	0.34	48	45	45	60	59	57	0.564	0.858
10	3.08	1.83	3.94	2.34	0.118	0.42	62	62	61	80	78	77	0.940	1.430
16	1.91	1.15	2.44	1.47	0.108	0.50	81	80	83	104	102	106	1.504	2.288
25	1.20	0.727	1.54	0.931	0.102	0.52	99	90	115	130	115	145	2.350	3.575
35	0.868	0.524	1.11	0.671	0.097	0.60	117	110	135	155	140	175	3.290	5.005
50	0.641	0.387	0.820	0.495	0.092	0.63	138	125	170	185	165	215	4.700	7.150
70	0.443	0.268	0.567	0.343	0.088	0.68	168	155	210	225	200	270	6.580	10.01
95	0.320	0.193	0.411	0.248	0.085	0.79	204	185	255	265	235	330	8.930	13.59
120	0.253	0.153	0.325	0.197	0.082	0.79	230	210	300	300	265	380	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.082	0.79	265	230	342	335	300	430	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.082	0.79	295	260	385	380	335	495	17.39	26.46
240	0.125	0.0754	0.162	0.0976	0.079	0.84	340	300	450	435	385	590	22.56	34.32
300	0.100	0.0601	0.130	0.0778	0.078	0.86	390	335	519	490	430	670	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.077	0.88	450	380	605	550	480	780	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.076	0.90	500	430	700	610	530	900	47.00	71.50
630	0.0469	0.0283	0.648	0.0391	0.075	0.94	555	485	809	680	590	1020	59.22	90.09
800	0.0367	0.0221	0.530	0.0319	0.075	0.97	625	530	935	740	630	1140	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.068	1.01	690	570	1065	780	660	1250	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 14

TECHNICAL DETAIL FOR DICABS 1.1 KV TWO CORE, AL/COPPER COND., XLPE INSULATED, UN-ARMOURED CABLES

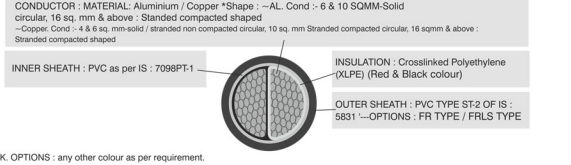
Cable Code - A2XY/2XY

Ref Specification : IS : 7098PT-1

PHYSICAL PARAMETERS

SIZE Cross--sectional area	Minimum No of Strands in Conductor		Nominal Thickness of Insulation)	Minimum Thickness of inner sheath	Nominal Thickness of OUTER sheath	Approx. overall Diameter	Approx, Net Wt of cable (Kg/KM)	
							With Al Cond	With Cu Cond.
(sqmm)	Al	Cu	(mm)	(mm)	(mm)	(mm)	A2XY	2XY
4	---	1/7	0.7	0.30	1.80	13	200	250
6	1	1/7	0.7	0.30	1.80	14	330	400
10	1	6	0.7	0.30	1.80	17	350	470
16	6	6	0.7	0.30	1.80	17	310	500
25	6	6	0.9	0.30	2.00	19	400	700
35	6	6	0.9	0.30	2.00	20	480	900
50	6	6	1.0	0.30	2.00	22	590	1200
70	12	12	1.1	0.30	2.00	25	760	1630
95	15	15	1.1	0.40	2.20	28	1000	2200
120	15	18	1.2	0.40	2.20	31	1200	2700
150	15	18	1.4	0.40	2.20	33	1400	3300
185	30	30	1.6	0.50	2.40	37	1750	4000
240	30	34	1.7	0.50	2.60	41	2000	5000
300	30	34	1.8	0.60	2.80	44	2700	6400
400	53	53	2.0	0.60	3.00	48	3350	8300
500	53	53	2.2	0.70	3.40	54	4200	10400
630	53	53	2.4	0.70	3.60	62	5300	13000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose.. ~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
							Ground	Duct	Air	Ground	Duct	Air		
	Al	Cu	Al	Cu									Al	Cu
4	---	4.61	---	5.90	0.098	0.11	34	28	30	44	37	39	0.376	0.572
6	4.61	3.08	5.90	3.94	0.090	0.13	43	37	40	55	47	50	0.564	0.858
10	3.08	1.83	3.94	2.34	0.084	0.16	57	48	53	74	61	67	0.940	1.430
16	1.91	1.15	2.44	1.47	0.080	0.18	78	61	70	94	78	85	1.50	2.29
25	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
50	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.01
95	0.320	0.193	0.411	0.248	0.084	0.29	200	165	221	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	425	17.39	26.46
240	0.125	0.0754	0.162	0.098	0.072	0.31	325	270	102	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.071	0.33	370	305	461	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

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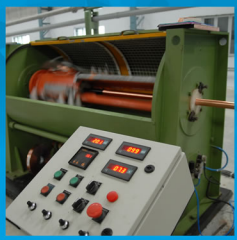


DICABS™

TABLE - 15

TECHNICAL DETAIL FOR DICABS 1.1 KV THREE CORE, AL/COPPER COND., XLPE INSULATED, UN-ARMOURED CABLES

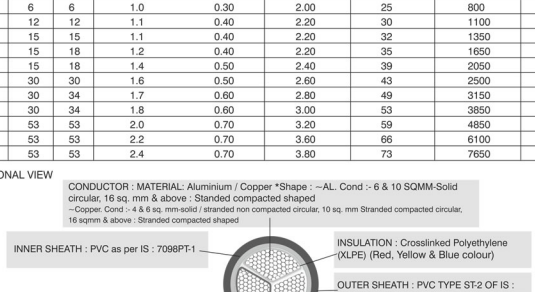
Cable Code - A2XY/2XY

Ref Specification : IS : 7098PT-1

PHYSICAL PARAMETERS

SIZE Cross--sectional area (sqmm)	Minimum No of Strands in Conductor		Nominal thickness of Insulation) (mm)	Minimum thickness of inner Sh. (mm)	Nominal thick. of outer Sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM)	
	Al	Al					With Al cond A2XY	With Cu Cond. 2XY
4	---	1/7	0.7	0.30	1.80	14	225	300
6	1	1/7	0.7	0.30	1.80	16	330	440
10	1	6	0.7	0.30	1.80	18	400	580
16	6	6	0.7	0.30	1.80	18	400	700
25	6	6	0.9	0.30	2.00	21	530	1000
35	6	6	0.9	0.30	2.00	22	640	1300
50	6	6	1.0	0.30	2.00	25	800	1700
70	12	12	1.1	0.40	2.20	30	1100	2400
95	15	15	1.1	0.40	2.20	32	1350	3100
120	15	18	1.2	0.40	2.20	35	1650	3800
150	15	18	1.4	0.50	2.40	39	2050	4800
185	30	30	1.6	0.50	2.60	43	2500	5950
240	30	34	1.7	0.60	2.80	49	3150	7600
300	30	34	1.8	0.60	3.00	53	3850	9400
400	53	53	2.0	0.70	3.20	59	4850	12000
500	53	53	2.2	0.70	3.60	66	6100	15000
630	53	53	2.4	0.70	3.80	73	7650	19000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

-- Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

-- Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE Cross-sectional area (sqmm)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitannce of cable in micro F/Km	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.90	0.098	0.11	34	28	30	44	37	39	0.376	0.572
6	4.61	3.08	5.90	3.94	0.090	0.13	43	37	40	55	47	50	0.564	0.858
10	3.08	1.83	3.94	2.34	0.084	0.16	57	48	53	74	61	67	0.940	1.430
16	1.91	1.15	2.44	1.47	0.080	0.18	78	61	70	94	78	85	1.50	2.29
25	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
50	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.01
95	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	435	17.39	26.46
240	0.125	0.0754	0.162	0.098	0.072	0.31	325	270	402	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.071	0.33	370	305	461	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 16

TECHNICAL DETAIL FOR DICABS 1.1 KV

THREE & HALF CORE, AL/COPPER COND., XLPE INSULATED, UN-ARMOURED CABLES

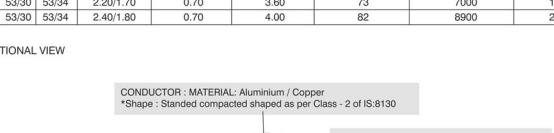
Cable Code - A2XY/2XY

Ref Specification : IS : 7098PART-1

PHYSICAL PARAMETERS

SIZE Cross-sectional area (sqmm)	Minimum No of strands in conductor Phase / Neutral		Nominal Thickness of Insulation) Phase / Neutra (mm)	Minimum Thickness of inner sheath (mm)	Nominal thickness of OUTER Sheath (mm)	Approx. overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM)	
							With Al cond	With Cu Cond.
							A2XY	2XY
3x25+16	6/6	6/6	0.90/0.70	0.30	2.00	22	600	1150
3x35+16	6/6	6/6	0.90/0.70	0.30	2.00	24	700	1450
3x50+25	6/6	6/6	1.00/0.90	0.30	2.00	27	900	2000
3x70+35	12/6	12/6	1.10/0.90	0.40	2.20	31	1200	2700
3x95+50	15/6	15/6	1.10/1.00	0.40	2.20	34	1500	3600
3x120+70	15/12	18/12	1.20/1.10	0.40	2.20	38	1900	4500
3x150+70	15/12	18/12	1.40/1.10	0.50	2.40	43	2300	5500
3x185+95	30/15	30/15	1.60/1.10	0.50	2.60	46	2800	6800
3x240+120	30/15	34/1/	1.70/1.20	0.60	2.80	52	3600	8700
3x300+150	30/15	34/18	1.80/1.40	0.60	3.00	57	4400	10800
3x400+185	53/30	53/30	2.00/1.60	0.70	3.40	65	5600	14000
3x500+240	53/30	53/34	2.20/1.70	0.70	3.60	73	7000	17500
3x630+300	53/30	53/34	2.40/1.80	0.70	4.00	82	8900	22000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

– Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

– Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx, Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
							Ground	Duct	Air	Ground	Duct	Air		
	Al	Cu	Al	Cu									Al	Cu
3x25+16	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	2.35	2.35	3.58
3x35+16	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	3.29	3.29	5.01
3x50+25	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	4.70	4.70	7.15
3x70+35	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	6.58	6.58	10.01
3x95+50	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	8.93	8.93	13.59
3x120+70	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	11.28	11.28	17.16
3x150+70	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	14.10	14.10	21.45
3x185+95	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	17.39	17.39	26.46
3x240+120	0.125	0.0754	0.162	0.098	0.072	0.31	325	270	402	410	350	22.56	22.56	34.32
3x300+150	0.100	0.0601	0.130	0.078	0.071	0.33	370	305	461	460	390	28.20	28.20	42.90
3x400+185	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	37.60	37.60	57.20
3x500+240	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	47.00	47.00	71.50
3x630+300	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	59.22	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 17

TECHNICAL DETAIL FOR DICABS 1.1 KV
FOUR CORE, AL/COPPER COND., XLPE INSULATED, UN-ARMOURED CABLES

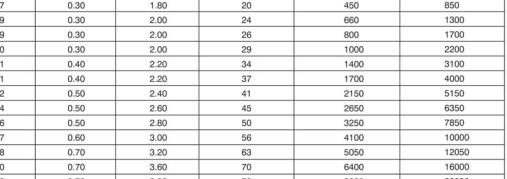
Cable Code - A2XY/2XY

Ref Specification : IS : 7098PART-1

PHYSICAL PARAMETERS

SIZE Cross--sectional area	Minimum No of Strands in Conductor		Nominal Thickness of (Insulation)	Minimum Thickness of inner sheath	Minimum Thickness of outer sheath	Approx. over all Diameter	Approx. Net Wt of cable (Kg/KM)	
							With Al cond	With Cu cond
(sqmm)	Al	Cu	(mm)	(mm)	(mm)	(mm)	A2XY	2XY
4	---	1/7	0.7	0.30	1.80	17	250	350
6	1	1/7	0.7	0.30	1.80	18	350	500
10	1	6	0.7	0.30	1.80	20	400	650
16	6	6	0.7	0.30	1.80	20	450	850
25	6	6	0.9	0.30	2.00	24	660	1300
35	6	6	0.9	0.30	2.00	26	800	1700
50	6	6	1.0	0.30	2.00	29	1000	2200
70	12	12	1.1	0.40	2.20	34	1400	3100
95	15	15	1.1	0.40	2.20	37	1700	4000
120	15	18	1.2	0.50	2.40	41	2150	5150
150	15	18	1.4	0.50	2.60	45	2650	6350
185	30	30	1.6	0.50	2.80	50	3250	7850
240	30	34	1.7	0.60	3.00	56	4100	10000
300	30	34	1.8	0.70	3.20	63	5050	12050
400	53	53	2.0	0.70	3.60	70	6400	16000
500	53	53	2.2	0.70	3.80	79	8000	20000
630	53	53	2.4	0.70	4.00	88	10000	26000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

– Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

– Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (Sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance of cable at 50HZ	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1Sec. duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu	in ohms/km		Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.90	0.098	0.11	34	28	30	44	37	39	0.376	0.572
6	4.61	3.08	5.90	3.94	0.090	0.13	43	37	40	55	47	50	0.564	0.858
10	3.08	1.83	3.94	2.34	0.084	0.16	57	48	53	74	61	67	0.940	1.430
16	1.91	1.15	2.44	1.47	0.080	0.18	78	61	70	94	78	85	1.50	2.29
25	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
50	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.01
95	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	394	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	435	17.39	26.46
240	0.125	0.0754	0.162	0.098	0.072	0.31	325	270	402	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.071	0.33	370	305	461	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 18

TECHNICAL DETAIL FOR DICABS 1.1 KV SINGLE CORE, AL/COPPER COND., XLPE INSULATED, AL WIRE/STRIP ARMOURED CABLES

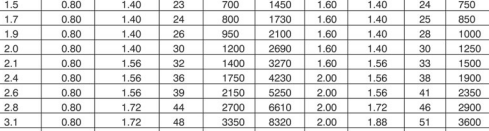
Cable Code - A2XFay/2XFaY, A2XWaY/2XWaY

Ref Specification : IS : 7098PART-1

PHYSICAL PARAMETERS

SIZE Cross-sectional area	Minimum No of Strands in Conductor		Nominal Thickness of (Insulation)	ARMOURING WITH FLAT STRIP (A2XFaY/2XFaY)					ARMOURING WITH ROUND WIRES (A2XWaY/2XWaY)				
				Nominal Thickness Strip	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM) With Al Cond.	With Cu Cond.	Nominal Diameter of wire	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM) With Al Cond.	With Cu Cond.
(sqmm)	Al	Cu	(mm)	(mm)	(mm)	(mm)	A2XFaY	2XFaY	(mm)	(mm)	(mm)	A2XWaY	2XWaY
4	---	1/7	1.0	N/A	N/A	N/A	N/A	N/A	1.40	1.24	10	90	130
6	1	1/7	1.0	N/A	N/A	N/A	N/A	N/A	1.40	1.24	11	130	170
10	1	6	1.0	N/A	N/A	N/A	N/A	N/A	1.40	1.24	12	160	22
16	6	6	1.0	N/A	N/A	N/A	N/A	N/A	1.40	1.24	13	200	300
25	6	6	1.2	N/A	N/A	N/A	N/A	N/A	1.40	1.24	14	300	455
35	6	6	1.2	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	350	567
50	6	6	1.3	N/A	N/A	N/A	N/A	N/A	1.40	1.24	17	420	730
70	12	12	1.4	N/A	N/A	N/A	N/A	N/A	1.40	1.24	19	520	954
95	15	15	1.4	0.80	1.40	21	600	1195	1.60	1.40	22	650	1235
120	15	18	1.5	0.80	1.40	23	700	1450	1.60	1.40	24	750	1494
150	15	18	1.7	0.80	1.40	24	800	1730	1.60	1.40	25	850	1780
185	30	30	1.9	0.80	1.40	26	950	2100	1.60	1.40	28	1000	2147
240	30	34	2.0	0.80	1.40	30	1200	2690	1.60	1.40	30	1250	2788
300	30	34	2.1	0.80	1.56	32	1400	3270	1.60	1.56	33	1500	3360
400	53	53	2.4	0.80	1.56	36	1750	4230	2.00	1.56	38	1900	4380
500	53	53	2.6	0.80	1.56	39	2150	5250	2.00	1.56	41	2350	5450
630	53	53	2.8	0.80	1.72	44	2700	6610	2.00	1.72	46	2900	6806
800	53	53	3.1	0.80	1.72	48	3350	8320	2.00	1.88	51	3600	8560
1000	53	53	3.3	0.80	1.88	54	4100	10300	2.50	2.04	56	4600	10800

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

-- Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

-- Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.90	0.152	0.22	---	---	---	48	47	45	0.376	0.572
6	4.61	3.08	5.90	3.94	0.144	0.26	45	45	40	60	59	57	0.56	0.858
10	3.08	1.83	3.94	2.34	0.133	0.31	59	62	53	80	78	77	0.94	1.43
16	1.91	1.15	2.44	1.47	0.122	0.40	76	80	73	104	102	106	1.50	2.29
25	1.20	0.727	1.54	0.931	0.116	0.40	99	90	115	130	115	145	2.35	3.58
35	0.868	0.524	1.11	0.671	0.110	0.47	117	110	140	155	140	175	3.29	5.01
50	0.641	0.387	0.820	0.495	0.103	0.50	138	125	170	185	165	215	4.70	7.15
70	0.443	0.268	0.567	0.343	0.099	0.55	168	155	210	225	200	270	6.58	10.01
95	0.320	0.193	0.411	0.248	0.097	0.64	204	185	255	265	235	330	8.93	13.59
120	0.253	0.153	0.325	0.197	0.093	0.67	230	210	300	300	265	380	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.091	0.67	265	230	342	335	300	430	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.090	0.67	295	260	385	380	335	495	17.39	26.46
240	0.125	0.0754	0.162	0.0976	0.086	0.72	340	300	450	435	385	590	22.59	34.32
300	0.100	0.0601	0.130	0.0778	0.085	0.75	390	335	519	490	430	670	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.085	0.75	450	380	605	550	480	780	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.083	0.77	500	430	700	610	530	900	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.082	0.81	555	485	809	680	590	1020	59.22	90.09
800	0.0367	0.0221	0.0530	0.0319	0.081	0.88	625	530	935	740	630	1140	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.081	0.88	690	570	1065	780	660	1250	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 19

TECHNICAL DETAIL FOR DICABS 1.1 KV TWO CORES, AL/COPPER COND., XLPE INSULATED, GALVANIZED STEEL WIRE/STRIPARMOURED CABLES

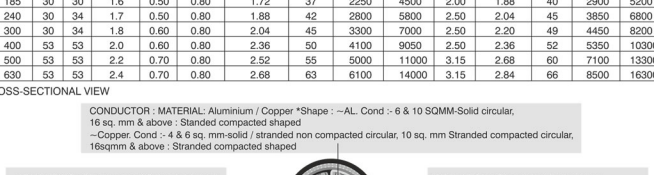
Cable Code - A2xFy/2xFY, A2XWY/2XWY

Ref Specification : IS : 7098PART-1

PHYSICAL PARAMETERS

SIZE Cross--sectional area	Minimum No of Strands in Conductor		Nominal Thickness of (Insulation)	Minimum Thickness of inner Sh.	ARMOURING WITH FLAT STRIP (A2XFY/2XFY)					ARMOURING WITH ROUND WIRES (A2XWY/2XWY)				
					Nominal Thickness of armour	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)		Nominal Diameter of wire	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)	
								With Al Cond.	With Cu Cond.				With Al Cond.	With Cu Cond.
(sqmm)	Al	Cu	(mm)	(mm)	(mm)	(mm)	(mm)	A2XFY	2XFY	(mm)	(mm)	(mm)	A2XWaY	2XWaY
4	---	1/7	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	500	550
6	1	1/7	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	16	550	600
10	1	6	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	650	770
16	6	6	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.40	19	700	900
25	6	6	0.9	0.30	0.80	1.40	20	650	950	1.60	1.40	21	850	1150
35	6	6	0.9	0.30	0.80	1.40	21	750	1200	1.60	1.40	23	950	1400
50	6	6	1.0	0.30	0.80	1.40	23	900	1500	1.60	1.40	25	1100	1700
70	12	12	1.1	0.30	0.80	1.56	26	1100	1950	1.60	1.56	28	1400	2250
95	15	15	1.1	0.40	0.80	1.56	29	1350	2500	2.00	1.56	31	1850	3000
120	15	18	1.2	0.40	0.80	1.56	31	1600	3100	2.00	1.56	34	2150	3600
150	15	18	1.4	0.40	0.80	1.72	34	1900	3750	2.00	1.72	37	2450	4300
185	30	30	1.6	0.50	0.80	1.72	37	2250	4500	2.00	1.88	40	2900	5200
240	30	34	1.7	0.50	0.80	1.88	42	2800	5800	2.50	2.04	45	3850	6800
300	30	34	1.8	0.60	0.80	2.04	45	3300	7000	2.50	2.20	49	4450	8200
400	53	53	2.0	0.60	0.80	2.36	50	4100	9050	2.50	2.36	52	5350	10300
500	53	53	2.2	0.70	0.80	2.52	55	5000	11000	3.15	2.68	60	7100	13300
630	53	53	2.4	0.70	0.80	2.68	63	6100	14000	3.15	2.84	66	8500	16300

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.90	0.098	0.11	34	28	30	44	37	39	0.376	0.572
6	4.61	3.08	5.90	3.94	0.090	0.13	43	37	40	55	47	50	0.564	0.858
10	3.08	1.83	3.94	2.34	0.084	0.16	57	48	53	74	61	67	0.940	1.430
16	1.91	1.15	2.44	1.47	0.080	0.18	78	61	70	94	78	85	1.50	2.29
25	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
50	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.1
95	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	435	17.39	26.46
240	0.125	0.0754	0.162	0.0976	0.072	0.31	325	270	402	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.0778	0.071	0.33	370	305	461	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 20

TECHNICAL DETAIL FOR DICABS 1.1 KV THREE CORES, AL/COPPER COND., XLPE INSULATED, GALVANIZED STEEL WIRE/STRIPARMOURED CABLES

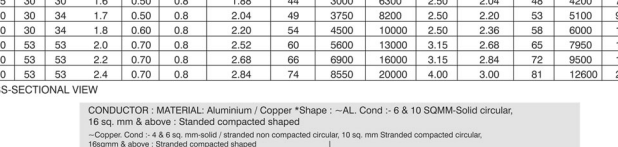
Cable Code - A2XFY/2XFY, A2XWY/2XWY

Ref Specification : IS : 7098PART-1

PHYSICAL PARAMETERS

SIZE Cross--sectional area	Minimum No of Strands in Conductor		Nominal Thickness of (Insulation)	Minimum Thickness of inner Sh.	ARMOURING WITH FLAT STRIP (A2XFY/2XFY)					ARMOURING WITH ROUND WIRES (A2XWY/2XWY)				
					Nominal Thickness of armour	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)		Nominal Diameter of wire	Minimum Thickness of outer sheath	Approx. Overall Diameter	Approx. Net Wt of cable (Kg/KM)	
								With Al Cond.	With Cu Cond.				With Al Cond.	With Cu Cond.
(sqmm)	Al	Cu	(mm)	(mm)	strip (mm)	(mm)	(mm)	A2XFY	2XFY	(mm)	(mm)	(mm)	A2XWaY	2XWaY
4	---	1/7	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	600	670
6	1	1/7	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	19	650	770
10	1	6	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	20	750	930
16	6	6	0.7	0.30	0.8	1.24	19	600	600	1.60	1.40	20	800	1100
25	6	6	0.9	0.30	0.8	1.40	21	800	1200	1.60	1.40	23	1000	1450
35	6	6	0.9	0.30	0.8	1.40	23	950	1500	1.60	1.40	25	1200	1850
50	6	6	1.0	0.30	0.8	1.40	26	1100	2000	1.60	1.56	29	1450	2300
70	12	12	1.1	0.30	0.8	1.56	29	1450	2700	2.00	1.56	32	2000	3300
95	15	15	1.1	0.40	0.8	1.56	32	1750	3500	2.00	1.56	35	2350	4100
120	15	18	1.2	0.40	0.8	1.56	35	2100	4200	2.00	1.72	39	2750	4900
150	15	18	1.4	0.40	0.8	1.72	42	2500	5200	2.00	1.88	43	3250	6000
185	30	30	1.6	0.50	0.8	1.88	44	3000	6300	2.50	2.04	48	4200	7500
240	30	34	1.7	0.50	0.8	2.04	49	3750	8200	2.50	2.20	53	5100	9500
300	30	34	1.8	0.60	0.8	2.20	54	4500	10000	2.50	2.36	58	6000	11300
400	53	53	2.0	0.70	0.8	2.52	60	5600	13000	3.15	2.68	65	7950	15200
500	53	53	2.2	0.70	0.8	2.68	66	6900	16000	3.15	2.84	72	9500	18500
630	53	53	2.4	0.70	0.8	2.84	74	8550	20000	4.00	3.00	81	12600	23700

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.90	0.098	0.11	34	28	30	44	37	39	0.376	0.572
6	4.61	3.08	5.90	3.94	0.090	0.13	43	37	40	55	47	50	0.564	0.858
10	3.08	1.83	3.94	2.34	0.084	0.16	57	48	53	74	61	67	0.940	1.430
16	1.91	1.15	2.44	1.47	0.080	0.18	78	61	70	94	78	85	1.50	2.29
25	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
50	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.01
95	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	435	17.39	26.46
240	0.125	0.0754	0.162	0.0976	0.072	0.31	325	270	402	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.0778	0.071	0.33	370	305	461	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 21

TECHNICAL DETAIL FOR DICABS 1.1 KV THREE AND HALF CORES, AL/COPPER COND., XLPE INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CABLES

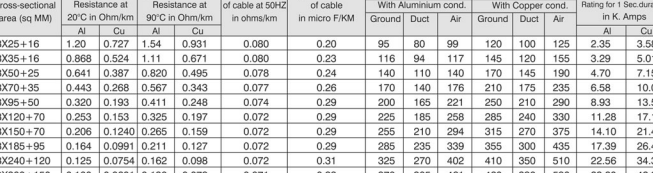
Cable Code - 3.5 Core - A2XFY/2XFY, A2XWY/2XWY

Ref Specification : IS : 7098PART-1

PHYSICAL PARAMETERS

SIZE Cross--sectional area (sqmm)	Minimum No of Strands in Conductor Al	Cu	Nominal Thickness of (Insulation) (mm)	Minimum Thickness of inner Sh. (mm)	ARMOURING WITH FLAT STRIP (A2XFY/2XFY) Nominal Thickness of armour strip (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM) With Al Cond. A2XFY	With Cu Cond. 2XFY	ARMOURING WITH ROUND WIRES (A2XWY/2XWY) Nominal Diameter of wire (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	pprox. Net Wt of cable (Kg/KM) With Al Cond. A2XWY	With Cu Cond. 2XWY
3X25+16	6/6	6/6	0.90/0.70	0.30	0.80	1.40	23	900	1400	1.60	1.40	25	1100	1700
3X35+16	6/6	6/6	0.90/0.70	0.30	0.80	1.40	25	1000	1800	1.60	1.40	27	1300	2000
3X50+25	6/6	6/6	1.00/0.90	0.30	0.80	1.40	28	1200	2300	1.60	1.56	30	1600	2700
3X70+35	12/6	12/6	1.10/0.90	0.40	0.80	1.56	32	1600	3200	2.00	1.56	35	2200	3700
3X95+50	16/6	15/6	1.10/1.00	0.40	0.80	1.56	35	2000	4100	2.00	1.56	38	2600	4600
3X120+70	15/12	18/12	1.20/1.10	0.40	0.80	1.72	39	2400	5100	2.00	1.72	42	3100	5700
3X150+70	15/12	18/12	1.40/1.10	0.50	0.80	1.72	43	2800	6000	2.00	1.88	46	3600	6800
3X185+95	30/15	30/15	1.60/1.10	0.50	0.80	1.88	47	3400	7400	2.50	2.04	51	4700	8700
3X240+120	30/15	34/1/	1.70/1.20	0.60	0.80	2.04	53	4300	9500	2.50	2.20	56	5700	10500
3X300+150	30/15	34/18	1.80/1.40	0.60	0.80	2.20	57	5000	11500	2.50	2.36	60	6700	13000
3X400+185	53/30	53/30	2.00/1.60	0.70	0.80	2.52	66	6400	14500	3.15	2.68	71	9000	17000
3X500+240	53/30	53/34	2.20/1.70	0.70	0.80	2.68	74	7900	18000	3.15	2.84	79	11000	21500
3X630+300	53/30	53/34	2.40/1.80	0.70	0.80	3.00	82	9900	23000	4.00	3.00	88	14500	28000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

-- Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

-- Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km Al	Cu	Approx. Cond. A.C. Resistance at 90°C in Ohm/km Al	Cu	App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps With Aluminium cond. Ground	Duct	Air	With Copper cond. Ground	Duct	Air	Short Circuit Current Rating for 1 Sec.duration in K. Amps Al	Cu
3X25+16	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
3X35+16	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
3X50+25	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
3X70+35	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.01
3X95+50	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	290	8.93	13.59
3X120+70	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
3X150+70	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	375	14.10	21.45
3X185+95	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	435	17.39	26.46
3X240+120	0.125	0.0754	0.162	0.098	0.072	0.31	325	270	402	410	350	510	22.56	34.32
3X300+150	0.100	0.0601	0.130	0.078	0.071	0.33	370	305	461	460	390	590	28.20	42.90
3X400+185	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
3X500+240	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
3X630+300	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 22

TECHNICAL DETAIL FOR DICABS 1.1 KV FOUR CORES, AL/COPPER COND., XLPE INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CABLES

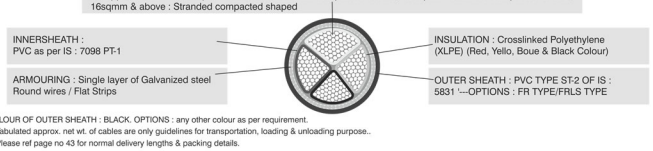
Cable Code : A2XFY/2XFY, A2XWY/2XWY

Ref Specification : IS : 7098PART-1

PHYSICAL PARAMETERS

SIZE Cross--sectional area	Minimum No of Strands in Conductor		Nominal Thickness of (Insulation)	Minimum Thickness of inner Sh.	ARMOURING WITH FLAT STRIP (A2XFY/2XFY)					ARMOURING WITH ROUND WIRES (A2XWY/2XWY)					
					Nominal Thickness of armour strip (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM)		Nominal Diameter of wire (mm)	Minimum Thickness of outer sheath (mm)	Approx. Overall Diameter (mm)	Approx. Net Wt of cable (Kg/KM)	
								With Al Cond.	With Cu Cond.				With Al Cond.	With Cu Cond.
(sqmm)	Al	Cu	(mm)	(mm)				A2XFY	2XFY				A2XWY	2XWY
4	---	1/7	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	550	650
6	1	1/7	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.24	19	600	750
10	1	6	0.7	0.30	N/A	N/A	N/A	N/A	N/A	1.40	1.40	21	670	950
16	6	6	0.7	0.30	0.80	1.40	20	700	1100	1.60	1.40	22	925	1300
25	6	6	0.9	0.30	0.80	1.40	24	900	1500	1.60	1.40	26	1200	1770
35	6	6	0.9	0.30	0.80	1.40	27	1100	2000	1.60	1.40	28	1450	2200
50	6	6	1.0	0.30	0.80	1.56	30	1400	2500	1.60	1.56	32	1750	2850
70	12	12	1.1	0.40	0.80	1.56	34	1800	3400	2.00	1.56	37	2400	4000
95	15	15	1.1	0.40	0.80	1.56	37	2200	4400	2.00	1.72	40	2900	5150
120	15	18	1.2	0.50	0.80	1.72	41	2700	5600	2.00	1.88	44	3500	6300
150	15	18	1.4	0.50	0.80	1.88	46	3200	6800	2.50	2.04	49	4500	8000
185	30	30	1.6	0.50	0.80	2.04	51	3900	8300	2.50	2.20	54	5200	9700
240	30	34	1.7	0.60	0.80	2.20	57	4850	10500	2.50	2.36	65	6400	12000
300	30	34	1.8	0.70	0.80	2.36	63	5850	13000	3.15	2.52	68	8300	15400
400	53	53	2.0	0.70	0.80	2.68	71	7320	17000	3.15	2.84	76	10000	19500
500	53	53	2.2	0.70	0.80	2.84	79	9000	21000	4.00	3.00	86	13500	25000
630	53	53	2.4	0.70	0.80	3.00	88	11000	27000	4.00	3.00	94	16000	30500

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

– Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

– Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App. Reactance of cable at 50HZ in ohms/km	App. Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
4	---	4.61	---	5.90	0.098	0.11	34	28	30	44	37	39	0.376	0.572
6	4.61	3.08	5.90	3.94	0.090	0.13	43	37	40	55	47	50	0.564	0.858
10	3.08	1.83	3.94	2.34	0.084	0.16	57	48	53	74	61	67	0.940	1.430
16	1.91	1.15	2.44	1.47	0.080	0.18	78	61	70	94	78	85	1.50	2.29
25	1.20	0.727	1.54	0.931	0.080	0.20	95	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.080	0.23	116	94	117	145	120	155	3.29	5.01
50	0.641	0.387	0.820	0.495	0.078	0.24	140	110	140	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.077	0.26	170	140	176	210	175	235	6.58	10.01
95	0.320	0.193	0.411	0.248	0.074	0.29	200	165	221	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.072	0.29	225	185	258	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.072	0.29	255	210	294	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.072	0.29	285	235	339	355	300	435	17.39	26.46
240	0.125	0.0754	0.162	0.0976	0.072	0.31	325	270	402	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.0778	0.071	0.33	370	305	460	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.070	0.33	435	350	542	520	440	670	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.070	0.34	481	405	624	580	480	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.069	0.36	537	470	723	680	575	875	59.22	90.09

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 23

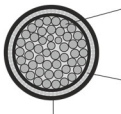
TECHNICAL DETAIL FOR DICABS 3.3 KV
SINGLE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XWaY/2XWaY (3.3KV-EARTHED/UNEARTHED GRADE) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-Sectional area (Sqmm)	Nominal Insulation thickness (mm)	Nominal Diameter of Armour Wire (mm)	Minimum Thickness of Outer Sheath (mm)	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)	
					With Al. Cond.	With Cu Cond.
25	2.5	1.40	1.24	18	350	500
35	2.5	1.40	1.24	19	400	600
50	2.5	1.40	1.40	21	500	800
70	2.5	1.60	1.40	23	650	1100
95	2.5	1.60	1.40	25	750	1350
120	2.5	1.60	1.40	26	850	1600
150	2.5	1.60	1.40	28	950	1900
185	2.5	1.60	1.40	29	1100	2250
240	2.5	1.60	1.56	32	1350	2850
300	2.5	1.60	1.56	34	1550	3400
400	2.8	2.00	1.56	39	2000	4500
500	2.8	2.00	1.56	42	2400	5500
630	3.0	2.00	1.72	47	3000	6900
800	3.3	2.00	1.88	52	3650	8600
1000	3.5	2.50	2.04	56	4500	10700

CROSS-SECTIONAL VIEW



CONDUCTOR :
Stranded Compacted Circular
Aluminium/copper as per Class-2 of IS:8130

INSULATION MATERIAL :
CROSSLINKED POLYETHYLENE (XLPE)

ARMOURING :
Single layer of Aluminium Round wires.

OUTER SHEATH :
PVC TYPE ST-2 OF IS : 5831 '—OPTIONS : PVC TYPE ST-2/FR TYPE/FRLS TYPE

COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT
–Tabulated approx. net weights of cables are only for guidelines for transportation/loading/unloading purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km	Capecitance of cable in micro F/KM	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu	(Approx.)	(Approx.)	Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.133	0.25	100	91	110	130	115	145	2.35	3.58
35	0.868	0.524	1.11	0.671	0.126	0.29	120	110	135	155	140	175	3.29	5.00
50	0.641	0.387	0.820	0.495	0.122	0.33	140	125	165	185	165	215	4.70	7.15
70	0.443	0.268	0.567	0.343	0.116	0.38	175	155	210	225	200	270	6.58	10.00
95	0.320	0.193	0.410	0.248	0.111	0.44	205	185	255	265	235	330	8.93	13.59
120	0.253	0.153	0.325	0.197	0.106	0.49	235	210	295	300	265	380	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.103	0.53	260	230	335	335	300	430	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.100	0.58	295	260	390	380	335	495	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.097	0.67	340	300	460	435	385	590	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.095	0.73	385	335	530	490	430	670	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.093	0.84	440	380	620	550	480	780	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.091	0.86	495	430	730	610	530	900	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.090	0.88	560	485	840	680	590	1020	59.22	90.10
800	0.0367	0.0221	0.0530	0.0319	0.088	0.94	620	530	960	740	630	1140	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.086	0.99	670	570	1070	780	660	1250	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 24

TECHNICAL DETAIL FOR DICABS 3.3 KV THREE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

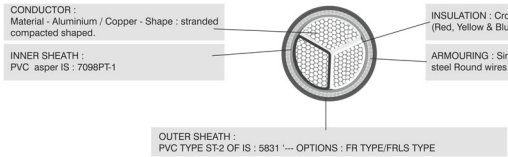
Cable Code : A2XFY/2XFY, A2XWY/2XWY (3.3KV UE/E)

Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-sectional area(Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	Normal Armour strip thickness mm	Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg / km)		Nominal diameter of armoure wire (mm)	ROUND WIRES ARMOURED			
						With Al.	With Cu		Minimum outer Sheath thickness mm	Approx. Overall Diameter (mm)	Approx. cable wt (kg/km) With Al. Cond.	Approx. cable wt (kg/km) With Cu. Cond.
25	2.2	0.3	0.8	1.40	28	1100	1550	1.60	1.56	30	1450	1900
35	2.2	0.3	0.8	1.56	31	1300	1950	1.60	1.56	33	1600	2250
50	2.2	0.4	0.8	1.56	33	1500	2450	2.00	1.56	35	2100	3050
70	2.2	0.4	0.8	1.56	36	1800	3100	2.00	1.56	38	2400	3700
95	2.2	0.4	0.8	1.72	39	2150	3900	2.00	1.72	42	2850	4600
120	2.2	0.5	0.8	1.72	42	2500	4750	2.00	1.88	45	3300	5550
150	2.2	0.5	0.8	1.88	44	2850	5650	2.50	2.04	48	4100	6900
185	2.2	0.5	0.8	2.04	48	3350	6800	2.50	2.04	51	4650	8100
240	2.2	0.6	0.8	2.20	52	4100	8550	2.50	2.20	56	5450	9900
300	2.2	0.6	0.8	2.20	56	4750	10350	2.50	2.36	60	6300	11900
400	2.2	0.7	0.8	2.36	62	5750	13200	3.15	2.68	67	8350	15800

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : any other colour as per requirement.

~ Tabulated approx. net wt. of cables are only guidelines for transportation, loading & unloading purpose..

~ Please ref page no 43 for normal delivery lengths & packing details.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		App..Reactance at 50HZ in ohms/km (Approx.)	App. Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.098	0.25	94	80	99	120	100	125	2.35	3.58
35	0.868	0.524	1.11	0.671	0.094	0.29	115	95	120	145	120	155	3.29	5.00
50	0.641	0.387	0.820	0.495	0.086	0.33	135	110	145	170	145	190	4.70	7.15
70	0.443	0.268	0.567	0.343	0.084	0.38	165	140	185	210	175	235	6.58	10.00
95	0.320	0.193	0.410	0.248	0.081	0.44	195	165	225	250	210	290	8.93	13.59
120	0.253	0.153	0.325	0.197	0.078	0.49	220	185	255	285	240	330	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.076	0.53	245	210	295	315	270	375	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.075	0.58	280	235	340	355	300	435	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.073	0.67	320	270	400	410	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.072	0.73	360	305	460	460	390	590	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.071	0.84	410	350	535	520	440	670	37.60	57.20

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 25

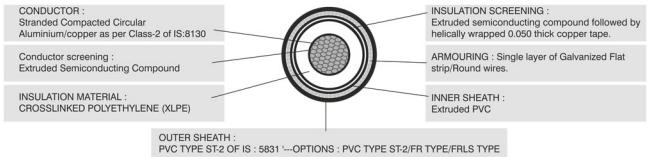
TECHNICAL DETAIL FOR DICABS 3.8/6.6 KV SINGLE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XWaY/2XWaY, (6.6KV-EARTHED GRADE) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-Sectional area (Sqmm)	Nominal Insulation thicknes mm	Minimum Inner Sheath thickness mm	Nominal Diameter of Armour Wire (mm)	Minimum Thickness of Outer Sheath (mm)	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)	
						With Al. Cond.	With Cu.. Cond.
25	2.8	0.3	1.60	1.40	23	600	750
35	2.8	0.3	1.60	1.40	24	650	850
50	2.8	0.3	1.60	1.40	25	700	1000
70	2.8	0.3	1.60	1.40	27	800	1250
95	2.8	0.3	1.60	1.40	28	950	1550
120	2.8	0.3	1.60	1.40	30	1050	1800
150	2.8	0.3	1.60	1.56	32	1200	2100
185	2.8	0.3	1.60	1.56	34	1400	2550
240	2.8	0.4	2.00	1.56	37	1700	3200
300	3.0	0.4	2.00	1.56	39	2000	3850
400	3.3	0.4	2.00	1.72	44	2450	4900
500	3.5	0.5	2.00	1.72	47	2800	5900
630	3.5	0.5	2.00	1.88	51	3400	7300
800	3.5	0.5	2.50	2.04	57	4300	9200
1000	3.6	0.5	2.50	2.20	61	5100	11300

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

~ Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	App. Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.149	0.21	100	90	120	130	115	155	22.35	3.58
35	0.868	0.524	1.11	0.671	0.142	0.24	120	105	145	155	140	185	3.29	5.00
50	0.641	0.387	0.820	0.495	0.133	0.27	140	125	170	185	160	220	4.70	7.15
70	0.443	0.268	0.567	0.343	0.127	0.31	175	155	215	225	195	275	6.58	10.00
95	0.320	0.193	0.410	0.248	0.121	0.36	205	180	260	265	235	340	8.93	13.59
120	0.253	0.153	0.325	0.197	0.116	0.39	235	205	305	300	265	390	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.113	0.43	260	230	345	335	295	440	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.109	0.47	295	260	395	380	330	510	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.105	0.53	340	300	470	435	380	600	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.104	0.54	385	335	540	490	425	680	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.102	0.57	440	380	630	550	480	790	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.100	0.60	495	430	730	610	530	910	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.096	0.67	560	480	840	680	580	1030	59.22	90.10
800	0.0367	0.0221	0.0530	0.0319	0.094	0.76	620	530	960	740	630	1140	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.092	0.82	680	580	1070	790	670	1250	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 26

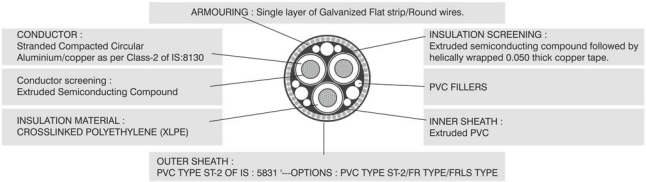
TECHNICAL DETAIL FOR DICABS 3.8/6.6 KV THREE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XFY/2XFY, A2XWY.2XWY (6.6KVE) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-sectional area(Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	FLAT STRIP ARMOURED					Nominal diameter of armour wire (mm)	ROUND WIRES ARMOURED				
			Nominal Armour strip thickness mm	Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)			Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)		
						With Al. Cond.	With Cu Cond.				With Al. Cond.	With Cu Cond.	
25	2.8	0.4	0.8	1.56	37	1800	2250	2.00	1.72	40	2500	2950	
35	2.8	0.4	0.8	1.72	39	2000	2650	2.00	1.72	42	2800	3450	
50	2.8	0.5	0.8	1.72	42	2300	3250	2.00	1.88	45	3200	4150	
70	2.8	0.5	0.8	1.88	46	2800	4100	2.00	1.88	49	3700	5000	
95	2.8	0.5	0.8	1.88	50	3300	5050	2.50	2.04	54	4700	6450	
120	2.8	0.6	0.8	2.04	54	3800	6050	2.50	2.20	58	5400	7650	
150	2.8	0.6	0.8	2.20	58	4300	7100	2.50	2.20	61	5900	8700	
185	2.8	0.6	0.8	2.20	61	4800	8250	2.50	2.36	65	6600	10050	
240	2.8	0.7	0.8	2.36	67	5900	10350	3.15	2.52	72	8400	12850	
300	3.0	0.7	0.8	2.52	72	6800	12400	3.15	2.68	77	9700	15300	
400	3.3	0.7	0.8	2.84	82	8500	15950	4.00	3.00	88	13000	20450	

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

~ Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	App. Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
							Ground	Duct	Air	Ground	Duct	Air		
	Al	Cu	Al	Cu									Al	Cu
25	1.20	0.727	1.54	0.931	0.126	0.21	95	82	105	120	105	135	2.35	3.58
35	0.868	0.524	1.11	0.671	0.120	0.24	115	97	125	145	125	165	3.29	5.00
50	0.641	0.387	0.820	0.495	0.114	0.27	130	115	150	170	150	195	4.70	7.15
70	0.443	0.268	0.567	0.343	0.107	0.31	160	140	190	210	180	240	6.58	10.00
95	0.320	0.193	0.410	0.248	0.102	0.36	190	165	230	250	215	295	8.93	13.59
120	0.253	0.153	0.325	0.197	0.098	0.39	220	190	260	280	240	335	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.095	0.43	245	210	295	310	270	380	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.093	0.47	275	240	335	350	305	430	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.090	0.53	315	275	395	400	350	500	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.090	0.54	355	310	450	445	390	570	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.087	0.57	400	350	520	500	440	650	37.60	57.20

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 27

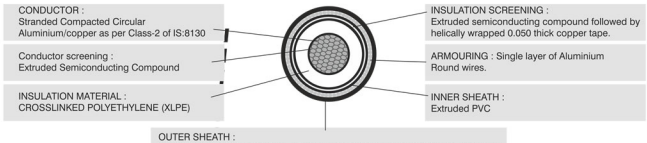
TECHNICAL DETAIL FOR DICABS 6.6/6.6 KV & 6.35/11 KV SINGLE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XWaY/2XWaY, (6.6KV-UNEARTHED OR 11KV EARTHED GRADE) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-Sectional area (Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	Nominal Diameter of Armour Wire (mm)	Minimum Thickness of Outer Sheath (mm)	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)	
						With Al. Cond.	With Cu.. Cond.
25	2.8	0.3	1.60	1.40	24	650	800
35	2.8	0.3	1.60	1.40	25	700	900
50	2.8	0.3	1.60	1.40	26	800	1100
70	2.8	0.3	1.60	1.40	28	900	1300
95	2.8	0.3	1.60	1.40	30	1050	1650
120	2.8	0.3	1.60	1.40	32	1200	1950
150	2.8	0.3	1.60	1.56	33	1300	2200
185	2.8	0.3	2.00	1.56	36	1600	2750
240	2.8	0.4	2.00	1.56	39	1850	3350
300	3.0	0.4	2.00	1.56	41	2050	3900
400	3.3	0.4	2.00	1.72	44	2500	5000
500	3.5	0.5	2.00	1.72	47	2900	6000
630	3.5	0.5	2.00	1.88	51	3450	7350
800	3.5	0.5	2.50	2.04	57	4300	9250
1000	3.6	0.5	2.50	2.20	61	5100	11300

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

-- Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	Capacitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.164	0.18	100	90	120	130	115	155	2.35	3.58
35	0.868	0.524	1.11	0.671	0.156	0.20	120	105	145	155	140	185	3.29	5.00
50	0.641	0.387	0.820	0.495	0.147	0.22	140	125	170	185	160	220	4.70	7.15
70	0.443	0.268	0.567	0.343	0.139	0.26	175	155	215	225	195	275	6.58	10.00
95	0.320	0.193	0.410	0.248	0.133	0.29	205	180	260	265	235	340	8.93	13.59
120	0.253	0.153	0.325	0.197	0.127	0.32	235	205	305	300	265	390	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.124	0.35	260	230	345	335	295	440	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.120	0.38	295	260	395	380	330	510	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.117	0.43	340	300	470	435	380	600	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.113	0.46	385	335	540	490	425	680	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.110	0.53	440	380	630	550	480	790	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.107	0.59	495	430	730	610	530	910	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.104	0.66	560	480	840	680	580	1030	59.22	90.10
800	0.0367	0.0221	0.0530	0.0319	0.100	0.74	620	530	960	740	630	1140	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.098	0.82	680	580	1070	790	670	1250	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 28

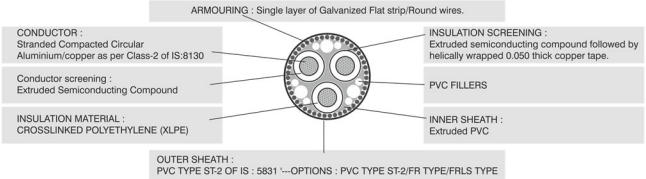
TECHNICAL DETAIL FOR DICABS 6.6/6.6 KV & 6.35/11 KV THREE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XFY/2XFY, A2XWY,2XWY (6.6KV UE / 11KVE)) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-sectional area(Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	FLAT STRIP ARMOURED					Nominal diameter of armour wire (mm)	ROUND WIRES ARMOURED				
			Nominal Armour strip thickness mm	Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)			Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)		
						With Al. Cond.	With Cu Cond.				With Al. Cond.	With Cu Cond.	
25	3.6	0.4	0.8	1.72	41	2100	2550	2.00	1.72	43	2800	3250	
35	3.6	0.5	0.8	1.72	43	2350	2950	2.00	1.88	46	3200	3850	
50	3.6	0.5	0.8	1.88	46	2700	3650	2.50	2.04	50	4000	4950	
70	3.6	0.5	0.8	1.88	50	3100	4400	2.50	2.04	54	4500	5800	
95	3.6	0.6	0.8	2.04	54	3700	5450	2.50	2.20	58	5200	6950	
120	3.6	0.6	0.8	2.20	58	4200	6450	2.50	2.20	62	5800	8050	
150	3.6	0.6	0.8	2.20	61	4700	7500	2.50	2.36	65	6400	9200	
185	3.6	0.7	0.8	2.36	65	5300	8750	3.15	2.52	70	7900	11350	
240	3.6	0.7	0.8	2.52	71	6300	10750	3.15	2.68	76	9000	13500	
300	3.6	0.7	0.8	2.68	75	7200	12800	3.15	2.84	80	10000	15600	
400	3.6	0.7	0.8	2.84	83	8700	16150	4.00	3.00	90	13500	20500	

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

-- Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	App. Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.133	0.18	95	82	105	120	105	135	2.35	3.58
35	0.868	0.524	1.11	0.671	0.126	0.20	115	97	125	145	125	165	3.29	5.00
50	0.641	0.387	0.820	0.495	0.118	0.22	130	115	150	170	150	195	4.70	7.15
70	0.443	0.268	0.567	0.343	0.116	0.26	160	140	190	210	180	240	6.58	10.00
95	0.320	0.193	0.410	0.248	0.107	0.29	190	165	230	250	215	295	8.93	13.59
120	0.253	0.153	0.325	0.197	0.102	0.32	220	190	260	280	240	335	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.099	0.35	245	210	295	310	270	380	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.097	0.38	275	240	335	350	305	430	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.084	0.43	315	275	395	400	350	500	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.093	0.46	355	310	450	445	390	570	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.089	0.53	400	350	520	500	440	650	37.60	57.20

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating would be multiplied by rating factor.

TABLE - 29

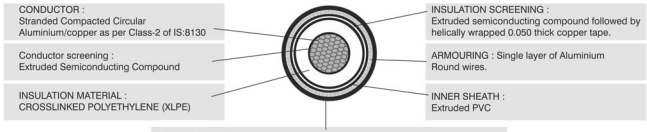
TECHNICAL DETAIL FOR DICABS 11/11 KV SINGLE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XWaY/2XWaY, (11KV - UN-EARTHED GRADE) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-Sectional area (Sqmm)	Nominal Insulation thicknes mm	Minimum Inner Sheath thickness mm	Nominal Diameter of Armour Wire (mm)	Minimum Thickness of Outer Sheath (mm)	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)	
						With Al. Cond.	With Cu.. Cond.
25	5.5	0.3	1.60	1.40	28	900	1050
35	5.5	0.3	1.60	1.40	29	950	1150
50	5.5	0.3	1.60	1.56	31	1100	1400
70	5.5	0.3	1.60	1.56	33	1200	1650
95	5.5	0.3	1.60	1.56	34	1400	2000
120	5.5	0.4	2.00	1.56	37	1600	2350
150	5.5	0.4	2.00	1.56	38	1700	2600
185	5.5	0.4	2.00	1.56	40	1900	3050
240	5.5	0.4	2.00	1.72	43	2200	3700
300	5.5	0.4	2.00	1.72	44	2500	4350
400	5.5	0.5	2.00	1.88	48	2900	5400
500	5.5	0.5	2.50	1.88	53	3500	6600
630	5.5	0.5	2.50	2.04	56	4100	8000
800	5.5	0.6	2.50	2.20	61	4900	9900
1000	5.5	0.6	2.50	2.20	65	5700	11900

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

– Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.164	0.14	100	90	120	130	115	155	2.35	3.58
35	0.868	0.524	1.11	0.671	0.156	0.16	120	105	145	155	140	185	3.29	5.00
50	0.641	0.387	0.820	0.495	0.147	0.17	140	125	170	185	160	220	4.70	7.15
70	0.443	0.268	0.567	0.343	0.139	0.20	175	155	215	225	195	275	6.58	10.00
95	0.320	0.193	0.410	0.248	0.133	0.21	205	180	260	265	235	340	8.93	13.59
120	0.253	0.153	0.325	0.197	0.127	0.23	235	205	305	300	265	390	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.124	0.25	260	230	345	335	295	440	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.120	0.26	295	260	395	380	330	510	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.116	0.29	340	300	470	435	380	600	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.112	0.32	385	335	540	490	425	680	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.109	0.35	440	380	630	550	480	790	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.105	0.39	495	430	730	610	530	910	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.102	0.43	560	480	840	680	580	1030	59.22	90.10
800	0.0367	0.0221	0.0530	0.0319	0.097	0.50	620	530	960	740	630	1140	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.096	0.56	680	580	1070	790	670	1250	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 30

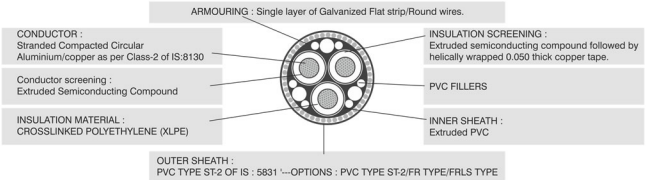
TECHNICAL DETAIL FOR DICABS 11/11 KV THREE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XFY/2XFY, A2XWY/2XWY (11KVUE)) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-sectional area(Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	FLAT STRIP ARMOURED					Nominal diameter of armour wire (mm)	ROUND WIRES ARMOURED				
			Nominal Armour strip thickness mm	Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)			Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)		
						With Al. Cond.	With Cu Cond.				With Al. Cond.	With Cu Cond.	
25	5.5	0.5	0.8	1.88	50	3000	3500	2.50	2.04	54	4300	4750	
35	5.5	0.5	0.8	2.04	53	3200	3850	2.50	2.20	57	4700	5350	
50	5.5	0.6	0.8	2.20	56	3700	4600	2.50	2.20	60	5100	6050	
70	5.5	0.6	0.8	2.20	60	4100	5400	2.50	2.36	64	5800	7100	
95	2.5	0.6	0.8	2.36	64	4800	6567	3.15	2.52	69	7300	9100	
120	5.5	0.7	0.8	2.52	68	5400	7632	3.15	2.52	73	8000	10250	
150	5.5	0.7	0.8	2.52	71	5900	8690	3.15	2.68	76	8600	11400	
185	5.5	0.7	0.8	2.68	75	6500	9950	3.15	2.84	80	9400	12850	
240	5.5	0.7	0.8	2.84	81	7600	12050	3.15	3.00	85	11000	15500	
300	5.5	0.7	0.8	3.00	85	8600	14200	4.00	3.00	91	13000	18600	
400	5.5	0.7	0.8	3.00	93	10000	17500	4.00	3.00	98	15000	22450	

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

– Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	App. Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.145	0.14	95	82	105	120	105	135	2.35	3.58
35	0.868	0.524	1.11	0.671	0.138	0.16	115	97	125	145	125	165	3.29	5.00
50	0.641	0.387	0.820	0.495	0.129	0.17	130	115	150	170	150	195	4.70	7.15
70	0.443	0.268	0.567	0.343	0.124	0.20	160	140	190	210	180	240	6.58	10.00
95	0.320	0.193	0.410	0.248	0.116	0.21	190	165	230	250	215	295	8.93	13.59
120	0.253	0.153	0.325	0.197	0.112	0.23	220	190	260	280	240	335	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.108	0.25	245	210	295	310	270	380	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.105	0.26	275	240	335	350	305	430	17.39	26.45
240	0.125	0.0754	0.162	0.0976	0.102	0.29	315	275	395	400	350	500	22.56	34.32
300	0.100	0.0601	0.130	0.0778	0.0999	0.32	355	310	450	445	390	570	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.0954	0.35	400	350	520	500	440	650	37.60	57.20

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 31

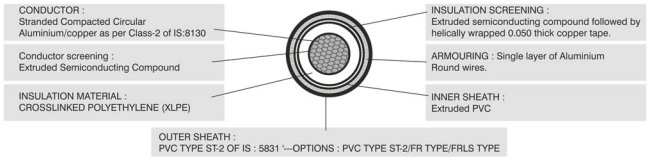
TECHNICAL DETAIL FOR DICABS 12.7/22 KV SINGLE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XWaY/2XWaY, (22KV - EARTHED GRADE) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-Sectional area (Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	Nominal Diameter of Armour Wire (mm)	Minimum Thickness of Outer Sheath (mm)	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)	
						With Al. Cond.	With Cu.. Cond.
25	6.0	0.3	1.60	1.40	29	950	100
35	6.0	0.3	1.60	1.40	31	1050	1250
50	6.0	0.3	1.60	1.56	32	1150	1500
70	6.0	0.3	1.60	1.56	34	1300	1750
95	6.0	0.3	1.60	1.56	36	1600	2200
120	6.0	0.4	2.00	1.56	38	1700	2450
150	6.0	0.4	2.00	1.56	39	1800	2750
185	6.0	0.4	2.00	1.56	41	2000	3150
240	6.0	0.4	2.00	1.72	44	2300	3800
300	6.0	0.4	2.00	1.72	46	2600	4500
400	6.0	0.5	2.00	1.88	50	3000	5500
500	6.0	0.5	2.50	1.88	53	3600	6700
630	6.0	0.5	2.50	2.04	57	4300	8200
800	6.0	0.6	2.50	2.20	62	5000	9950
1000	6.0	0.6	2.50	2.26	66	5800	12000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

– Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	Capacitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
							Ground	Duct	Air	Ground	Duct	Air		
	Al	Cu	Al	Cu									Al	Cu
25	1.20	0.727	1.54	0.931	0.166	0.13	100	90	120	130	115	155	2.35	3.58
35	0.868	0.524	1.11	0.671	0.158	0.15	120	105	145	155	135	185	3.29	5.00
50	0.641	0.387	0.820	0.495	0.149	0.16	140	120	175	180	155	225	4.70	7.15
70	0.443	0.268	0.567	0.343	0.140	0.18	170	150	220	215	190	280	6.58	10.00
95	0.320	0.193	0.410	0.248	0.134	0.20	200	175	265	255	220	335	8.93	13.59
120	0.253	0.153	0.325	0.197	0.130	0.22	225	195	300	285	245	380	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.126	0.23	250	215	340	310	270	430	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.122	0.25	280	240	385	345	300	485	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.118	0.27	315	275	450	390	335	560	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.113	0.30	345	300	500	420	360	620	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.110	0.32	385	330	570	455	395	690	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.107	0.36	415	360	640	480	415	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.103	0.40	450	385	720	510	440	820	59.22	90.10
800	0.0367	0.0221	0.0530	0.0319	0.0997	0.46	485	415	790	540	460	840	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.097	0.52	510	435	850	550	475	940	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 32

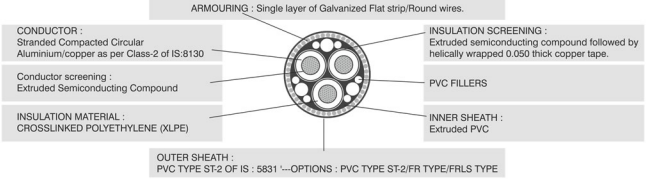
TECHNICAL DETAIL FOR DICABS 12.7/22 KV THREE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XFY/2XFY, A2XWY/2XWY (22KV-E) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-sectional area(Sqmm)	FLAT STRIP ARMOURED							Nominal diameter of armour wire (mm)	ROUND WIRES ARMOURED			
	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	Nominal Armour strip thickness mm	Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km) With Al. Cond.	Approx. cable wt (kg/km) With Cu Cond.		Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km) With Al. Cond.	Approx. cable wt (kg/km) With Cu Cond.
25	6.0	0.5	0.8	2.04	53	3200	3650	2.50	2.20	56	4600	5050
35	6.0	0.6	0.8	2.04	56	3500	4150	2.50	2.20	59	5000	5650
50	6.0	0.6	0.8	2.20	59	3900	4850	2.50	2.36	61	5400	6350
70	6.0	0.6	0.8	2.20	63	4400	5700	2.50	2.36	65	6100	7400
95	6.0	0.7	0.8	2.36	67	5000	6800	3.15	2.52	72	7600	9350
120	6.0	0.7	0.8	2.52	70	5700	7950	3.15	2.52	75	8300	10550
150	6.0	0.7	0.8	2.52	74	6200	9000	3.15	2.68	78	9000	11800
185	6.0	0.7	0.8	2.68	77	6800	10250	3.15	2.84	83	9800	13250
240	6.0	0.7	0.8	2.84	83	7900	12350	3.00	3.00	90	12500	16950
300	6.0	0.7	0.8	3.00	88	8900	14500	4.00	3.00	93	13500	19100
400	6.0	0.7	0.8	3.00	95	10500	17950	4.00	3.00	102	15500	22950

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

-- Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	Capacitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps With Aluminium cond.			With Copper cond.			Short Circuit Current Rating for 1 Sec.duration in K. Amps	
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.148	0.13	90	85	110	120	100	135	2.35	3.58
35	0.868	0.524	1.11	0.671	0.141	0.15	110	100	130	145	120	165	3.29	5.00
50	0.641	0.387	0.820	0.495	0.132	0.16	130	115	155	170	150	200	4.70	7.15
70	0.443	0.268	0.567	0.343	0.125	0.18	160	140	190	205	180	245	6.58	10.00
95	0.320	0.193	0.410	0.248	0.119	0.20	190	170	230	245	215	300	8.93	13.59
120	0.253	0.153	0.325	0.197	0.114	0.22	215	190	265	275	245	340	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.111	0.23	240	215	300	305	275	385	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.107	0.25	270	240	340	345	305	435	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.104	0.27	310	275	400	395	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.102	0.30	350	310	455	440	390	580	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.097	0.32	395	355	530	495	440	660	37.60	57.20

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 33

TECHNICAL DETAIL FOR DICABS 19/33 KV SINGLE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

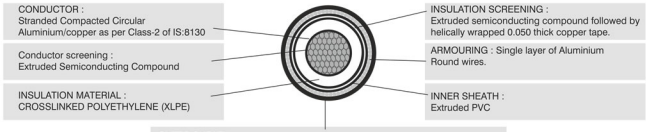
Cable Code : A2XWaY/2XWaY, (33KV - EARTHED GRADE)

Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-Sectional area (Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	Nominal Diameter of Armour Wire (mm)	Minimum Thickness of Outer Sheath (mm)	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)	
						With Al. Cond.	With Cu.. Cond.
25	8.80	0.40	2.00	1.56	36	1400	1450
35	8.80	0.40	2.00	1.56	38	1500	1600
50	8.80	0.40	2.00	1.56	39	1600	1800
70	8.80	0.40	2.00	1.56	40	1800	2100
95	8.80	0.40	2.00	1.72	43	2000	2500
120	8.80	0.40	2.00	1.72	44	2100	2700
150	8.80	0.40	2.00	1.72	46	2300	3130
185	8.80	0.50	2.00	1.72	47	2500	3550
240	8.80	0.50	2.00	1.88	50	2800	4200
300	8.80	0.50	2.50	2.04	53	3300	5050
400	8.80	0.50	2.50	2.04	57	3800	6200
500	8.80	0.60	2.50	2.20	60	4300	7300
630	8.80	0.60	2.50	2.20	64	4900	8800
800	8.80	0.60	3.15	2.36	70	6000	10500
1000	8.80	0.70	3.15	2.52	74	6900	13000

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

~ Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
							Ground	Duct	Air	Ground	Duct	Air		
	Al	Cu	Al	Cu									Al	Cu
25	1.20	0.727	1.54	0.931	0.175	0.10	100	90	120	130	115	155	2.35	3.58
35	0.868	0.524	1.11	0.671	0.169	0.11	120	105	145	155	135	185	3.29	5.00
50	0.641	0.387	0.820	0.495	0.161	0.12	140	120	175	180	155	225	4.70	7.15
70	0.443	0.268	0.567	0.343	0.152	0.14	170	150	220	215	190	280	6.58	10.00
95	0.320	0.193	0.410	0.248	0.145	0.15	200	175	265	255	220	335	8.93	13.59
120	0.253	0.153	0.325	0.197	0.140	0.16	225	195	300	285	245	380	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.135	0.18	250	215	340	310	270	430	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.130	0.19	280	240	385	345	300	485	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.126	0.21	315	275	450	390	335	560	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.122	0.23	345	300	500	420	360	620	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.117	0.25	385	330	570	455	395	690	37.60	57.20
500	0.0605	0.0366	0.0808	0.0489	0.113	0.27	415	360	640	480	415	750	47.00	71.50
630	0.0469	0.0283	0.0648	0.0391	0.111	0.29	450	385	720	510	440	820	59.22	90.10
800	0.0367	0.0221	0.0530	0.0319	0.105	0.34	485	415	790	540	460	840	75.20	114.40
1000	0.0291	0.0176	0.0444	0.0268	0.102	0.37	510	435	850	550	475	940	94.00	143.00

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

TABLE - 34

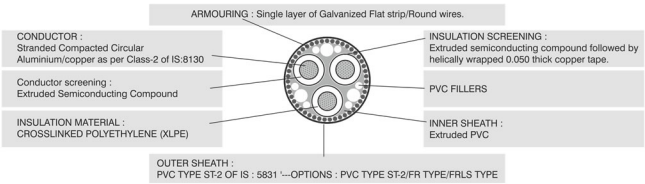
TECHNICAL DETAIL FOR DICABS 19/33 KV THREE CORES, AL/COPPER COND., XLPE INSULATED, ARMOURED CABLES

Cable Code : A2XFY/2XFY, A2XWY/2XWY (33KV-E) Ref Specification : IS : 7098PART-2

PHYSICAL PARAMETERS

SIZE cross-sectional area(Sqmm)	Nominal Insulation thickness mm	Minimum Inner Sheath thickness mm	FLAT STRIP ARMOURED					Nominal diameter of armour wire (mm)	ROUND WIRES ARMOURED				
			Nominal Armour strip thickness mm	Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)			Minimum outer Sheath thickness mm	Approx. Over all Diameter (mm)	Approx. cable wt (kg/km)		
						With Al. Cond.	With Cu Cond.				With Al. Cond.	With Cu Cond.	
25	8.80	0.70	0.8	2.36	67	4700	5150	3.15	2.68	72	7400	7850	
35	8.80	0.70	0.8	2.52	70	5100	5750	3.15	2.68	75	7800	8450	
50	8.80	0.70	0.8	2.52	72	5500	6450	3.15	2.68	77	8200	9150	
70	8.80	0.70	0.8	2.68	76	6100	7400	3.15	2.84	81	9000	10300	
95	8.80	0.70	0.8	2.84	80	6800	8550	3.15	3.00	86	10000	11750	
120	8.80	0.70	0.8	2.84	84	7500	9750	4.00	3.00	90	12000	14250	
150	8.80	0.70	0.8	3.00	87	8100	10900	4.00	3.00	94	12700	15500	
185	8.80	0.70	0.8	3.00	90	8800	12250	4.00	3.00	97	13500	16950	
240	8.80	0.70	0.8	3.00	95	9900	14350	4.00	3.00	103	15000	19450	
300	8.80	0.70	0.8	3.00	100	11000	16600	4.00	3.00	106	16000	21600	
400	8.80	0.70	0.8	3.00	108	12500	19950	4.00	3.00	114	18000	25450	

CROSS-SECTIONAL VIEW



COLOUR OF OUTER SHEATH : BLACK. OPTIONS : ANY OTHER COLOURS AS PER REQUIREMENT

– Tabulated approx. net weights of cables are only for guidelines for transportation / Loading / Unloading Purpose.

ELECTRICAL PARAMETERS

SIZE cross-sectional area (sq MM)	Max. Cond. D.C. Resistance at 20°C in Ohm/km		Approx. Cond. A.C. Resistance at 90°C in Ohm/km		Reactance of cable at 50HZ in ohms/km (Approx.)	Capecitance of cable in micro F/KM (Approx.)	Normal* Current Rating in Amps						Short Circuit Current Rating for 1 Sec.duration in K. Amps	
							With Aluminium cond.			With Copper cond.				
	Al	Cu	Al	Cu			Ground	Duct	Air	Ground	Duct	Air	Al	Cu
25	1.20	0.727	1.54	0.931	0.160	0.10	90	85	110	120	100	135	2.35	3.58
35	0.868	0.524	1.11	0.671	0.153	0.11	110	100	130	145	120	165	3.29	5.00
50	0.641	0.387	0.820	0.495	0.146	0.12	130	115	155	170	150	200	4.70	7.15
70	0.443	0.268	0.567	0.343	0.138	0.14	160	140	190	205	180	245	6.58	10.00
95	0.320	0.193	0.410	0.248	0.130	0.15	190	170	230	245	215	300	8.93	13.59
120	0.253	0.153	0.325	0.197	0.125	0.16	215	190	265	275	245	340	11.28	17.16
150	0.206	0.1240	0.265	0.159	0.122	0.18	240	215	300	305	275	385	14.10	21.45
185	0.164	0.0991	0.211	0.127	0.118	0.19	270	240	340	345	305	435	17.39	26.45
240	0.125	0.0754	0.162	0.098	0.113	0.21	310	275	400	395	350	510	22.56	34.32
300	0.100	0.0601	0.130	0.078	0.111	0.23	350	310	455	440	390	580	28.20	42.90
400	0.0778	0.0470	0.1023	0.0618	0.106	0.25	395	355	530	495	440	660	37.60	57.20

Note : Normal current rating are given in standard conditions. If site conditions are different, current rating should be multiplied by rating factor.

BASIC ASSUMPTION FOR CURRENT RATINGS & RATING FACTORS

1. SCOPE

The current rating of cables as indicated in various tables have been calculated on certain assumed conditions
In actual practice these conditions may be different. Therefore to determine the actual current ratings as per installation conditions, the tabulated ratings shall be multiplied with appropriate factors

a) BASIC ASSUMPTION FOR CURRENT RATINGS

i) Maximum permissible temperature-90°C for XLPE insulation, 70°C for general purpose PVC, 85C for HR PVC
ii) Ground/Duct temperature - 30°C
iii) Ambient temperature - 40°C
iv) Thermal resistivity of soil - 150°C cm/W
v) Thermal resistivity of Dielectric 650°C cm/W for PVC, 350°C cm/W for XLPE
vi) Depth of laying - for 1.1kv cables - 750 mm, 3.3 KV to 11KV-900MM, Above 11KV-1050mm
vii) Single core cables installed in one circuit in following arrangement
OR
VIII) Multicore cables installed in single circuit

b) RATING FACTORS

i) Rating factors related to variation in ambient air temperature

Air temperature in Deg. C		20	25	30	35	40	45	50	55
	Normal PVC	1.32	1.25	1.16	1.09	1.00	0.90	0.80	0.80
Rating factors	HRPVC	1.22	1.17	1.12	1.06	1.00	0.94	0.87	0.80
	XLPE	1.20	1.16	1.11	1.06	1.00	0.95	0.88	0.81

Ii) Rating factors related to variation in ground temperature

Air temperature in Deg. C		15	20	25	30	35	40	45	50
	Normal PVC	1.17	1.12	1.06	1.00	0.94	0.	0.79	0.71
Rating factors	HRPVC	1.13	1.09	1.04	1.00	0.95	0.90	0.85	0.80
	XLPE	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82

iii) Rating factors related to variation in ground thermal resistivity of soil for 3 single core cables laid direct in ground. (Average value)

Thermal Res. in °C.Cm/W		100	120		150	200		250	300
Rating factors		1.20	1.10		1.00	0.90		0.81	0.74

vi) Rating factors related to variation in ground thermal resistivity of soil for multi core cables laid direct in ground. (Average value)

Thermal Res. in °C.Cm/W		100	120		150	200		250	300
Rating factors		1.16	1.08		1.00	0.90		0.82	0.76

v) Rating factors related to variation in depth of laying for 1.1kv cables.
For cross-sectional area of conductor <25sqmm

Depth of laying (cm) >	75	90	105	120	150	180 & ABOVE
Rating factors	1.00	0.99	0.98	0.97	0.96	0.95

For cross-sectional area of conductor 25 to 300 sqmm

Depth of laying (cm) >	75	90	105	120	150	180 & ABOVE
Rating factors	1.00	0.98	0.97	0.96	0.94	0.93

For cross-sectional area of conductor above 300sqmm

Depth of laying (cm) >	75	90	105	120	150	180 & ABOVE
Rating factors	1.00	0.97	0.96	0.95	0.92	0.91

vi) Rating factors related to variation in depth of laying for 3.3kv to 11kv cables

Depth of laying (cm) >	75	90	105	120	150	180 & ABOVE
Rating factors	---	1.00	0.99	0.98	0.96	0.95

vii) Rating factors related to variation in depth of laying for above 11kv cables

Depth of laying (cm) >	75	90	105	120	150	180 & ABOVE
Rating factors	---	---	1.00	0.99	0.98	0.96

BASIC ASSUMPTION FOR CURRENT RATINGS & RATING FACTORS

GROUP RATING FACTORS

1. Cable laid direct in Ground

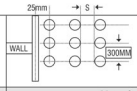
No of cables/ circuits in groups	Multicore cables in horizontal formation					Single cables in horizontal formation				
	Touching	S=15CM	S=30CM	S=45CM	S=60CM	Touching	S=15CM	S=30CM	S=45CM	S=60CM
2	0.8	0.84	0.87	0.90	0.91	0.80	0.85	0.90	0.92	0.95
3	0.68	0.74	0.79	0.83	0.86	0.70	0.78	0.85	0.88	0.91
4	0.62	0.69	0.75	0.80	0.83	0.64	0.73	0.81	0.86	0.89
5	0.58	0.65	0.72	0.77	0.80	0.59	0.70	0.79	0.84	0.88
6	0.55	0.62	0.69	0.75	0.78	0.55	0.67	0.77	0.83	0.87
7	0.52	0.59	0.67	0.73	0.77	0.53	0.65	0.76	0.82	0.86
8	0.5	0.57	0.66	0.72	0.75	0.51	0.64	0.76	0.82	0.86
9	0.45	0.55	0.65	0.71	0.75	0.49	0.63	0.74	0.81	0.85
10	0.46	0.54	0.64	0.70	0.74	0.48	0.63	0.74	0.81	0.85
11	0.45	0.53	0.63	0.70	0.74	0.47	0.62	0.73	0.80	0.84
12	0.44	0.52	0.62	0.69	0.73	0.46	0.61	0.73	0.80	0.84

S=axial spacing of cable

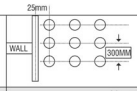
No of cables/ circuits in groups	No of Tier	Multicore cables in Tier formation				
		Touching	S=15CM	S=30CM	S=45CM	S=60CM
2	1	0.80	0.84	0.87	0.90	0.91
3	1	0.68	0.74	0.79	0.83	0.86
4	2	0.6	0.66	0.73	0.77	0.79
5	2	0.55	0.61	0.68	0.71	0.73
6	2	0.51	0.57	0.63	0.67	0.69
7	3	0.48	0.54	0.59	0.63	0.64
8	3	0.46	0.51	0.56	0.6	0.61
9	3	0.44	0.48	0.53	0.57	0.58
10	4	0.42	0.47	0.52	0.55	0.56
11	4	0.41	0.46	0.50	0.54	0.55
12	4	0.4	0.45	0.49	0.53	0.54

1. Cable laid direct in open racks in air

MULTICORE CABLES IN OPEN RACKS IN AIR



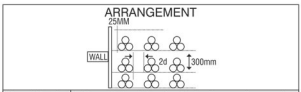
S=dia of cable



t=touching

No. of racks	No. of cables per rack					No. of cables per rack				
	1	2	3	6	9	1	2	3	6	9
1	1.00	0.98	0.96	0.93	0.92	1.00	0.84	0.80	0.75	0.73
2	1.00	0.95	0.93	0.90	0.89	1.00	0.80	0.76	0.71	0.69
3	1.00	0.94	0.92	0.89	0.88	1.00	0.78	0.74	0.70	0.68
6	1.00	0.93	0.90	0.87	0.86	1.00	0.76	0.72	0.65	0.66

SINGLE CORE CABLES IN OPEN RACKS IN AIR



No. of Racks	No. of Circuit Racks (3 single cores) per rack		
	1	2	6
1	1.00	0.98	0.96
2	1.00	0.95	0.93
3	1.00	0.94	0.92
4	1.00	0.93	0.90

S=axial spacing of cable

No. of cables/ circuits in groups	No. of Tier	Multicore cables in Tier formation				
		Touching	S=15CM	S=305CM	S=45CM	S=60CM
2	1	0.80	0.84	0.87	0.90	0.91
3	1	0.68	0.74	0.79	0.83	0.86
4	2	0.60	0.66	0.73	0.77	0.79
5	2	0.55	0.61	0.68	0.71	0.73
6	2	0.51	0.57	0.63	0.67	0.69
7	3	0.48	0.54	0.59	0.63	0.64
8	3	0.46	0.51	0.56	0.60	0.61
9	3	0.44	0.48	0.53	0.57	0.58
10	4	0.42	0.47	0.52	0.55	0.56
11	4	0.41	0.46	0.50	0.54	0.55
12	4	0.40	0.45	0.49	0.53	0.54

No. of cables/ circuits in groups	Multicore cable (Touching) No. of cables in racks				Multicore cable (spacing of cable eequal to dia meter of cable No of cables in racks				S/core cables in trefoil touching formation spacing between circuits equal to twice the diameter of cable) No of cables in racks			
	1		3	4	1	2	3	4	1	2	3	4
1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	0.84	0.80	0.78	0.76	0.98	0.95	0.94	0.93	0.98	0.95	0.94	0.93
3	0.80	0.76	0.74	0.72	0.96	0.93	0.92	0.90	0.96	0.93	0.92	0.90
4	0.76	0.71	0.70	0.68	0.93	0.90	0.89	0.87	---	---	---	---

Estimated Voltage Drops in PVC/XLPE Aluminium Cables For A.C. System

Nominal area of conductor (sq.mm)	(Voltage drop - Volts/Km/Amps)			
	P.V.C. Cables		XLPE Cables	
	Single Phase	Three Phase	Single Phase	Three System
1.5	43.44	37.62	46.34	40.13
2.5	29.04	25.15	30.98	26.83
4	17.78	15.40	18.98	16.44
6	11.06	9.58	11.80	10.22
10	7.40	6.41	7.88	6.82
16	1.58	3.97	4.9	4.24
25	2.89	2.50	3.08	2.67
35	2.10	1.80	2.23	1.94
50	1.55	1.30	1.65	1.44
70	1.10	0.94	1.15	1.00
95	0.79	0.68	0.83	0.70
120	0.63	0.55	0.66	0.56
150	0.52	0.46	0.55	0.48
185	0.42	0.37	0.44	0.40
240	0.34	0.30	0.35	0.30
300	0.28	0.26	0.30	0.26
400	0.24	0.22	0.24	0.22
500	0.23	0.20	0.23	0.20
630	0.20	0.18	0.21	0.18
800	0.19	-	0.20	-
1000	0.18	-	0.18	-

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

* Selection criteria of MV/HV cable size for primary distribution

1 SCOPE

The conductor size in the cables for any installation is also governed by its ability to carry short circuit current of system. For L.V. distribution cable may be selected on the basis of continuous load current. But in case of MV/HV distribution it is always safer to select the cable on the basis of ability of conductor to carry expected short circuit current. Short circuit current rating of cable should in line with short circuit capacity of damping apparatus such as circuit breakers. Transformers & reactor etc. beside its capacity to carry desired load current. Short circuit ratings of cables each size are given in relevant tables & have been calculated on the basis of IEC-949 & IEC-986 & on the following assumption

a) Temperature of conductor just prior to short circuit
i) With XLPE insulation - 90 Deg.. C ii) With PVC insulation - 70 Deg. C

b) Maximum permissible conductor temperature during short circuit
i) With XLPE insulation - 250 Deg. C ii) With PVC insulation - 160 Deg. C

c) Volumetric specific heat of the conductor
i) With Aluminium conductor - 2.5 x 10-3J/Deg. C/MM3 ii) With Copper conductor-3.45 x 103J/Deg. C/MM3

d) Receprocal of temperature co-efficient of resistance at 9 Deg. C
i) With Aluminium conductor-228 ii) With Copper conductor - 243.5

Short circuit current rating at different duration may be calculated as

Ish (for duration = Ish (for 1 Sec.) Ish for 1 Sec. Duration is given in relevant tables in KA

t t=Time duration required to be calculated of short circuit in Sec.

SELECTION CRITERIA OF hH.V./MV CABLES FOR PRIMARY DISTRIBUTION

	REQUIRED DATAS	FOR EXAMPLE
1)	Nominal System voltage at H.T. Side	11KV
2)	Short circuit level for H.T. System	25KA
3)	Fault withstand time for H.T. CBs	0.5SEC
4)	Formula for calculating H.T. cable size	

With Aluiminium, cond/XLPE insulated cable = $\frac{Ish X}{0.094} = \frac{25 X 0.5}{0.094} = 94$

Hence nearest higher size 240sqmm is required

With Copper cond. / XLPE insulated cable = $\frac{Ish X \sqrt{t}}{0.143} = \frac{25 X \sqrt{0.5}}{0.143} = 124$

Hence nearest higher size 150sqmm is required

ELECTRICAL FORMULAS FOR CALCULATING A.C. LOAD CURRENT

Load current in Amps when KVA is given	for Single phase (A.C.) KVA X 100 / V	for Three phase (A.C.) KVA X 100 / 1.732 X V
Load current in Amps when Kilo Watt is given	for Single phase (A.C.) KW X 1000 / VXpf	for Three phase (A.C.) KW X 1000 / 1.732 X V X pf
Load current in Amps when H.P. is given	for Single phase (A.C.) H.P X 746 / VX%EFf X pf	for Three phase (A.C.) H.P X 746 / 1.732 X VX % EFf X pf

V = Nominal system voltage in Volts, **pf**=Power factor, **KVC** = Kilo Volts Ampere, **H.P.** = Horse Power

Unarmoured PVC Control Cable IS : 1554 (Pt - D - 1988)

No. of Cores & Cross Sectional Area	Thickness of PVC Insulation (Nom.)	Thickness of PVC Innersheath (min.) Extruded	Thickness of PVC Outersheath (Nom.)	Approx. O.D.	Approx. Net Weight of Cable	Standard Delivery Length in Mtrs.	Current Rating	
							Direct in Ground	In Air / Duct
NO x mm2		mm	mm	mm	Kg / Km		Amps.	Amps.
2 x 1.5	0.8	0.3	1.8	11.8	185	1000	23	20
3 x 1.5	0.8	0.3	1.8	12.3	190	1000	21	17
4 x 1.5	0.8	0.3	1.8	13.2	225	1000	21	17
5 x 1.5	0.8	0.3	1.8	14.1	260	1000	16	14
6 x 1.5	0.8	0.3	1.8	15.1	295	1000	15	13
7 x 1.5	0.8	0.3	1.8	15.1	315	1000	14	13
10 x 1.5	0.8	0.3	1.8	18.4	425	1000	13	11
12 x 1.5	0.8	0.3	1.8	18.9	480	1000	12	10
14 x 1.5	0.8	0.3	1.8	19.8	535	1000	11	10
16 x 1.5	0.8	0.3	1.8	20.7	595	1000	11	9
19 x 1.5	0.8	0.3	2.0	22.5	720	1000	10	9
24 x 1.5	0.8	0.3	2.0	25.8	880	1000	9	8
27 x 1.5	0.8	0.3	2.0	26.3	960	1000	9	8
30 x 1.5	0.8	0.3	2.0	27.2	1040	1000	9	7
37 x 1.5	0.8	0.3	2.0	29.1	1230	1000	8	7
2 x 2.5	0.9	0.3	1.8	13.0	230	1000	32	27
3 x 2.5	0.9	0.3	1.8	13.6	240	1000	27	24
4 x 2.5	0.9	0.3	1.8	14.6	290	1000	27	24
5 x 2.5	0.9	0.3	1.8	15.7	335	1000	23	19
6 x 2.5	0.9	0.3	1.8	16.9	385	1000	21	18
7 x 2.5	0.9	0.3	1.8	16.9	420	1000	20	17
10 x 2.5	0.9	0.3	1.8	20.8	570	1000	18	15
12 x 2.5	0.9	0.3	2.0	22.2	690	1000	17	14
14 x 2.5	0.9	0.3	2.0	23.2	775	1000	16	13
16 x 2.5	0.9	0.3	2.0	24.3	860	1000	15	13
19 x 2.5	0.9	0.3	2.0	25.5	985	1000	14	12
24 x 2.5	0.9	0.3	2.0	29.4	1215	1000	13	11
27 x 2.5	0.9	0.3	2.0	30.0	1330	1000	12	10
30 x 2.5	0.9	0.3	2.0	31.0	1450	1000	12	10
37 x 2.5	0.9	0.4	22	34.1	1790	1000	11	9

Construction

1. Solid / Stranded annealed copper conductor & Tinned / Bare
2. General Purpose / HR PVC insulation
3. Cores laid up (filled if needed)
4. FRLS / General Purpose PVC Inner sheath
5. FRLS / General Purpose PVC Outer sheath

Max. Conductor D. C. Resistance at 20 Deg C - Conductor Size :

1.5 sq. mm - 12.1 Ohm / km (Bare). 12.2 W/ km (Tinned)
2.5 sq. mm - 7.41 Ohm / km (Bare). 7.56 W/ km (Tinned)
* Dimensions specified are with stranded conductor.

Armoured PVC Control Cable IS : 1554 (Pt - D - 1988)

No. of Cores & Cross Sectional Area	Thickness of PVC Insulation (Nom.)	Thickness of Innersheath (min.) Extruded	STRIP ARMOURED CABLE				WIRE ARMOURED CABLE				Standard Delivery Length in Mtrs.	Current Rating	
			Strip Size	Thickness of PVC outer sheath (Min) mm	Approx OD	Approx Net Weight of Cable mm	Strip Size	Thickness of PVC outer sheath (Min) mm	Approx OD	Approx Net Weight of Cable mm		Direct in Ground Amps	In Air/ Duct. Amps
NO x mm2	mm	mm	mm		mm		mm		mm				
2 x 1.5	0.8	0.3	-	-	-	-	1.4	1.24	13.6	415	1000	23	20
3 x 1.5	0.8	0.3	-	-	-	-	1.4	1.24	14.1	430	1000	21	17
4 x 1.5	0.8	0.3	-	-	-	-	1.4	1.24	15.0	490	1000	21	17
5 x 1.5	0.8	0.3	-	-	-	-	1.4	1.24	15.9	545	1000	16	14
6 x 1.5	0.8	0.3	-	-	-	-	1.4	1.24	16.9	605	1000	15	13
7 x 1.5	0.8	0.3	-	-	-	-	1.4	1.24	16.9	630	1000	14	13
10 x 1.5	0.8	0.3	-	-	-	-	1.4	1.24	20.6	835	1000	13	11
12 x 1.5	0.8	0.3	4x0.8	1.24	19.5	760	1.6	1.40	21.5	950	1000	12	10
14 x 1.5	0.8	0.3	4x0.8	1.24	20.8	830	1.6	1.40	22.4	1040	1000	11	10
16 x 1.5	0.8	0.3	4x0.8	1.24	21.7	920	1.6	1.40	23.3	1130	1000	11	9
19 x 1.5	0.8	0.3	4x0.8	1.24	23.1	1040	1.6	1.40	24.7	1265	1000	10	9
24 x 1.5	0.8	0.3	4x0.8	1.24	26.4	1250	1.6	1.40	28.0	1510	1000	9	8
27 x 1.5	0.8	0.3	4x0.8	1.24	26.9	1355	1.6	1.40	28.5	1610	1000	9	8
30 x 1.5	0.8	0.3	4x0.8	1.24	27.8	1430	1.6	1.40	29.4	1700	1000	9	7
37 x 1.5	0.8	0.3	4x0.8	1.24	29.7	1670	1.6	1.40	31.3	1960	1000	8	7
2 x 2.5	0.9	0.3	-				1.4	1.24	14.8	500	1000	32	27
3 x 2.5	0.9	0.3	-				1.4	1.24	15.4	520	1000	27	24
4 x 2.5	0.9	0.3	-				1.4	1.24	16.4	590	1000	27	24
5 x 2.5	0.9	0.3	-				1.4	1.24	17.5	660	1000	23	19
6 x 2.5	0.9	0.3	-				1.4	1.24	18.7	745	1000	21	18
7 x 2.5	0.9	0.3	-				1.4	1.24	18.7	780	1000	20	17
10 x 2.5	0.9	0.3	4x0.8	1.24	21.8	900	1.6	1.40	23.4	1110	1000	18	15
12 x 2.5	0.9	0.3	4x0.8	1.24	22.8	1020	1.6	1.40	24.4	1240	1000	17	14
14 x 2.5	0.9	0.3	4x0.8	1.24	23.8	1130	1.6	1.40	25.4	1340	1000	16	13
16 x 2.5	0.9	0.3	4x0.8	1.24	24.9	1210	1.6	1.40	26.5	1455	1000	15	13
19 x 2.5	0.9	0.3	4x0.8	1.24	26.1	1355	1.6	1.40	27.7	1605	1000	14	12
24 x 2.5	0.9	0.3	4x0.8	1.24	30.0	1655	1.6	1.56	32.0	1970	1000	13	11
27 x 2.5	0.9	0.3	4x0.8	1.24	30.6	1770	1.6	1.56	32.6	2100	1000	12	10
30 x 2.5	0.9	0.3	4x0.8	1.24	32.0	1940	1.6	1.56	33.6	2250	1000	12	10
37 x 2.5	0.9	0.4	4x0.8	1.24	34.7	2300	2.0	1.56	37.1	2900	1000	11	9

Construction

1. Solid / Stranded annealed copper conductor & Tinned / Bare
2. General Purpose / HR PVC insulation
3. Cores laid up (filled if needed)
4. FRLS / General Purpose PVC Inner sheath
5. Armouring round galvanised steel wires / strips
6. FRLS / General Purpose PVC Outer sheath

Max. Conductor D. C. Resistance at 20 Deg C - Conductor Size :

1.5 sq. mm - 12.1 Ohm / km (Bare). 12.2 W/ km (Tinned)
2.5 sq. mm - 7.41 Ohm / km (Bare). 7.56 W/ km (Tinned)
* Dimensions specified are with stranded conductor.

TECHNICAL DETAIL FOR DICABS 1.1 KV 2.5 SQ.MM COPPER COND,

XLPE INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CONTROL CABLES

Casble Code - 2XY, 2XFY,2XWY PHISICAL PARAMETERS							Ref Specification : IS 7098 PART-1											
No of cores	Minimum Thick of Inner Sheath (mm)	Nom thick of outer Sheath (mm)	UNARMOURED(2XY)				ARMOURED WITH FLAT STRIPS (2XFY)						ARMOURED WITH ROUND WIRES (2XWY)					
			Approx Overall Diameter (mm)	Approx Overall Diameter (mm)	Approx Net Wt of cable (kg/km)		Nomonal Thickness of Armour	Minimum Thickness of outr.sth	Approx Overall Diameter (mm)		Approx Net Wt of cable (kg/km)		Armour Wire Dia	Minimum Thickness of outer.sth	Approx Overall Diameter (mm)		Approx Net Wt of cable (kg/km)	
			Solid Cond	Std, Cond	Solid Cond	Std, Cond	Strip (mm)	(mm)	Solid Cond	Std, Cond	Solid Cond	Std, Cond	(mm)	(mm)	Solid Cond	Std, Cond	Solid Cond	Std, Cond
2	0.3	1.8	11	12	175	181.7192	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	12	13	313	327
3	0.3	1.8	11	12	202	203.2118	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	13	13	356	371
4	0.3	1.8	12	13	236	237.5254	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	14	14	410	427
5	0.3	1.8	13	14	274	276.356	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	15	466	485
6	0.3	1.8	14	15	313	315.4037	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	16	524	545
7	0.3	1.8	14	15	343	346.2108	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	16	551	571
10	0.3	1.8	17	18	470	474.8049	N/A	N/A	N/A	N/A	N/A	N/A	1.60	1.4	19	19.84	746	774
12	0.3	1.8	18	19	537	542.2067	0.80	1.4	18.3	19	743	767.8	1.60	1.40	20	21	819	848
14	0.3	1.8	18	20	607	612.8641	0.80	1.4	19.1	20	821	846.6	1.60	1.40	21	22	899	929
16	0.3	2	20	21	696	703.2809	0.80	1.4	20.0	21	902	929.2	1.60	1.40	22	23	1042	1079
19	0.3	2	21	22	799	807.4583	0.80	1.4	21.0	22	1011	1040.2	1.60	1.40	23	24	1158	1196
24	0.3	2	24	26	990	1000.681	0.80	1.4	24.2	25	1238	1273.0	1.60	1.40	26	27	1409	1456
27	0.3	2	24	26	1087	1098.98	0.80	1.4	24.7	26	1333	1369.7	1.60	1.40	26	28	1506	1554
30	0.3	2	25	27	1188	1201.59	0.80	1.4	25.5	27	1439	1476.8	2.00	1.40	27	28	1617	1667
37	0.3	2	27	30	1424	1440.36	0.80	1.4	27.4	29	1684	1725.3	2.00	1.56	29	31	1928	1985
40	0.3	2	28	31	1528	1545.713	0.80	1.56	28.8	30	1823	1868.0	2.00	1.56	30	32	2048	2108
44	0.4	2.2	31	33	1732	1751.34	0.80	1.56	31.1	33	2026	2076.2	2.00	1.56	34	35	2454	2533
52	0.4	2.2	32	35	1994	2016.336	0.80	1.56	32.4	34	2285	2337.6	2.00	1.56	35	37	2728	2810
61	0.4	2.2	34	37	2294	2320.277	0.80	1.56	34.3	36	2588	2644.8	2.00	1.56	37	39	3055	3143

TECHNICAL DETAIL FOR DICABS 1.1 KV 1.5 SQ.MM COPPER COND,

XLPE INSULATED, GALVANIZED STEEL WIRE/STRIP ARMOURED CONTROL CABLES

Casble Code - 2XY, 2XFY,2XWY

Ref Specification : IS 7098 PART-1

PHISICAL PARAMETERS

No of cores	Minimium Thick of Inner Sheath (mm)	Nom thick of outer Sheath (mm)	UNARMOURED(2XY)				ARMOURED WITH FLAT STRIPS (2XFY)						ARMOURED WITH ROUND WIRES (2XWY)					
			Approx Overall Diameter (mm)	Approx Overall Diameter (mm)		Approx Net Wt of cable (kg/km)	Nomonal Thickness of Armour	Minimum thickness of outr.sth	Approx Overall Diameter (mm)		Approx Net Wt of cable (kg/km)		Armour Wire Dia	Minimum Thickness of outer.sth	Approx Overall Diameter (mm)		Approx Net Wt of cable (kg/km)	
			Solid Cond	Std,Cond	Solid Cond	Std,Cond	Strip (mm)	(mm)	Solid Cond	Std, Cond	Solid Cond	Std,Cond	(mm)	(mm)	Solid Cond	Std, Cond	Solid Cond	Std,Cond
2	0.3	1.8	9.8	10.2	138	143.8749	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	12	12.2	274.5976	287.8932
3	0.3	1.8	10.2	10.7	153	158.3315	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	12	12.7	307.167	321.5263
4	0.3	1.8	11.0	11.5	174	179.2653	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	13	13.5	349.0433	365.1311
5	0.3	1.8	11.8	12.3	198	204.4551	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	14	14.3	392.781	410.7302
6	0.3	1.8	12.6	13.2	223	229.8483	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	15.2	438.3802	458.3237
7	0.3	1.8	12.6	13.2	241	247.5265	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	15	15.2	456.0584	476.0019
10	0.3	1.8	15.4	16.2	325	334.4733	NA	N/A	N/A	N/A	N/A	N/A	1.40	1.24	17	18.2	602.1628	628.7541
12	0.3	1.8	15.8	16.7	366	375.2557	N/A	N/A	N/A	N/A	N/A	N/A	1.40	1.24	18	18.7	652.4104	680.0654
14	0.3	1.8	16.5	17.4	409	419.0902	0.80	1.4	18	20	634.4719	653.8714	1.60	1.24	19	19.4	711.0343	740.3512
16	0.3	1.8	17.4	18.3	454	464.2812	0.80	1.4	19	21	692.5843	712.9126	1.60	1.40	20	20.7	828.8603	863.6892
19	0.3	1.8	18.2	19.2	516	527.4895	0.80	1.4	22	22	769.1596	790.4488	1.60	1.40	21	21.6	913.0187	950.0707
24	0.3	2	21.4	22.6	656	670.8936	0.80	1.4	22	25	936.0195	960.5115	1.60	1.40	23	24.6	1105.156	1149.618
27	0.3	2	21.8	23.1	714	729.439	0.80	1.4	23	25	1000.824	1025.797	1.60	1.40	24	25.1	1173.752	1219.326
30	0.3	2	22.5	23.8	776	792.0256	0.80	1.4	25	26	1074.261	1100.066	1.60	1.40	25	25.8	1253.761	1301.261
37	0.3	2	24.2	25.6	920	937.4488	0.80	1.4	26	28	1244.305	1272	1.60	1.40	26	27.6	1438.718	1490.591
40	0.3	2	25.1	26.6	985	1002.607	0.80	1.4	27	29	1323.235	1351.986	1.60	1.40	27	28.6	1525.989	1580.307
44	0.3	2	27.0	28.6	1078	1097.935	0.80	1.4	29	31	1446.522	1477.419	1.60	1.40	29	30.6	1666.212	1725.495
52	0.3	2	28.1	29.8	1234	1254.423	0.80	1.4	31	32	1620.12	1652.33	1.60	1.56	30	31.8	1850.173	1912.495
61	0.3	2.2	30.2	32.0	1441	1465.158	0.80	1.56	32	34	1827.028	1890.895	2.00	1.56	33	34.7	2250.174	2328.878

DICABS

General Properties of XLPE Insulated Cables	
Specific Gravity	0.93
Dielectric loss factors (tan 6) at 20° C	0.0004
Volume resistivity at 20° C	10^{17}
Max. Permissible operating conductor Temp°C	90
Max. Permissible short circuit Temp°C	250
Short Time overload Temp°C	130
Dielectric constant at 20°C	2.35
Power factor at max conductor Temp°C	0.008
Impulse level volts / Mill	2000
Thermal reisitivity ° / C cm / watt	350
Partial discharge pC	8

A Few Striking Features Of XLPE Cables :

High Continuous Current Ratings : Higher continuous operating temperature 90°C for conductor permits XLPE cables to withstand higher current than PVC or PILC cable.

High Short Circuit Ratings : Maximum allowable continuous temperature during short circuit is 250°C, which is vastly increased as compared to PVC or PILC cables.

Little Deformation at High Temperature : Under combined heat and mechanical pressure XLPE suffers less deformation compared to other solid dielectrics.

High Emergency Load Capacity : XLPE cable can be operated at 130°C during emergency. This should not exceed 2 hours a day, 100 hrs, per year or 500 hrs. during the lifetime of the cable. Due to this 20% higher current than the specific rating may be carried for this period.

Low Dielectric Loss : The dielectric loss angle of XLPE is much lower than conventional dielectric. The dielectric losses are quadratically dependent on the voltage. Hence use of XLPE cable at higher voltages would generate considerable saving in costs.

Low Charging Currents : The charging currents are considerably lower than outer dielectrics. This permits close setting of protection relays.

Short Circuit Current Rating for XLPE Cables

Short circuit Rating I second duration for Copper and Aluminium XLPE Cables (Isc Current in Kamps)

Nominal Size	XLPE Insulated	
Sq.mm	Copper	Aluminium
25	3.6	2.4
35	5	3.3
50	7.1	4.7
70	10	6.6
95	13.6	9
120	17.1	11.3
150	21.4	14.2
185	26.4	17.5
240	34.3	22.6
300	42.9	28.3
400	42.9	28.3
500	71.4	47.2
630	90	59.4
800	114.3	75.5
1000	142.9	94.3

Rating for any other duration :

1) Max. Initial conductor Temperature during operation : 90°C
2) Max. Final Conductor Temperature during short circuit : 250°C

Formula relating short Circuit Rating with t second duration

$$It = \frac{Isc}{\sqrt{t}}$$

where It = short circuit Rating for t seconds.

t = duration in seconds.

Isc = short circuit rating for I second.

Emergency overload : cable may operate under overload conditions under such condition conductor temperature not to exceed 130°C for maximum 100 hours per year and not more than 500 hours during lifetime of cable. This is approximately 20% higher than specified rated current during the emergency period.

CAPACITANCE

"DICABS" Approximate Capacitance for single core & Multi core cable in Microfarad per KM at 50 C/S

Sq mm	6.35/11kv (E) or 6.6/6.6kv (uE)	11/11kv (UE)	12.7/22KV (E)	19/33KV (E)
25	-	-	-	-
35	0.21	0.16	0.15	-
50	0.23	0.17	0.16	0.13
70	0.26	0.19	0.18	0.14
95	0.29	0.21	0.20	0.16
120	0.33	0.24	0.23	0.18
150	0.35	0.25	0.24	0.18
185	0.38	0.27	0.26	0.20
240	0.43	0.31	0.29	0.22
300	0.47	0.33	0.31	0.23
400	0.52	0.37	0.35	0.26
500	0.58	0.41	0.38	0.28
630	0.65	0.45	0.42	0.31
800	0.76	0.52	0.49	0.35
1000	0.83	0.57	0.53	0.38

REACTANCE

"DICABS" Approximate Reactance for Multi Core Cable in ohms per KM at 50 C/s

Sq mm	6.35/11kv (E) or 6.6/6.6kv (uE)	11/11kv (UE)	12.7/22KV (E)	19/33KV (E)
25	0.122	0.136		
35	0.116	0.13	0.134	
50	0.111	0.124	0.128	0.143
70	0.106	0.114	0.118	0.133
95	0.101	0.109	0.112	0.126
120	0.096	0.103	0.106	0.119
150	0.095	0.102	0.105	0.117
185	0.089	0.097	0.100	0.112
240	0.85	0.093	0.096	0.107
300	0.083	0.091	0.093	0.104
400	0.081	0.088	0.09	0.100

"DICABS" Approximate Reactance for single core cable in ohm per KM at 50 C/S, Cables laid trefoil touching

	UNARMOURED				ARMOURED			
Sq mm	6.35/11kv(E) or	11/11kv (UE)	12.7/22 kv(E)	19/33kv (E)	6.35/11kv(E) or	11/11kv(UE)	12.7/22kv(E)	19/33kv(E)
	6.6/6.6kv (UE)				6.6/6.6kv (UE)			
25	-	-	-	-	-	-	-	-
35	0.132	0.142	0.146	-	0.143	0.152	0.156	-
50	0.126	0.136	0.139	0.153	0.137	0.146	0.149	0.162
70	0.116	0.126	0.129	0.142	0.126	0.135	0.138	0.151
95	0.11	0.119	0.123	0.135	0.12	0.128	0.133	0.144
120	0.105	0.114	0.117	0.128	0.115	0.124	0.126	0.136
150	0.103	0.112	0.115	0.125	0.113	0.122	0.124	0.134
185	0.1	0.107	0.11	0.12	0.11	0.116	0.119	0.128
240	0.096	0.102	0.105	0.115	0.105	0.112	0.114	0.123
300	0.093	0.099	0.101	0.112	0.102	0.108	0.111	0.12
400	0.09	0.096	0.098	0.107	0.098	0.105	0.106	0.115
500	0.087	0.093	0.096	0.104	0.096	0.102	0.104	0.112
630	0.085	0.09	0.092	0.1	0.093	0.099	0.1	0.108
800	0.082	0.087	0.089	0.096	0.091	0.096	0.097	0.103
1000	0.081	0.085	0.087	0.093	0.088	0.092	0.094	0.101

CURRENT RATING FOR THREE SINGLE CORE 6.35/11 KV XLPE CABLES ACCORDING TO IS: 7098 (Part 2)

Table :- 1

Normal Area of Conductor mm^2	Laid Direct in Ground		In Ducts		In Air	
	Copper	Aluminium	Copper	Aluminium	Copper	Aluminium
	A	A	A	A	A	A
25	125	97	113	87	138	107
35	148	115	133	104	172	134
50	174	135	257	122	207	160
70	213	165	192	149	253	200
95	254	197	229	177	317	245
120	288	224	259	202	368	286
150	324	251	292	226	410	324
185	364	283	328	255	480	373
240	420	328	378	295	573	445
300	474	371	427	334	655	513
400	538	425	484	283	748	603
500	605	484	545	436	857	705
630	678	550	610	495	987	821
800	754	623	697	561	1146	964
1000	819	690	737	621	1271	1094

CURRENT RATING FOR THREE SINGE CORE 12.7/22 KV XLPE CABLES ACCORDING TO IS: 7098 (Part 2)

Table :- 3

Normal Area of Conductor mm^2	Laid Direct in Ground		In Ducts		In Air	
	Copper	Aluminium	Copper	Aluminium	Copper	Aluminium
	A	A	A	A	A	A
35	148	114	133	103	176	143
50	173	134	156	121	215	167
70	211	164	190	148	268	207
95	252	195	227	178	319	253
120	286	221	257	199	375	291
150	323	250	291	225	427	333
185	361	280	325	252	489	380
240	417	326	375	293	565	450
300	471	367	424	330	652	521
400	534	420	481	378	777	616
500	602	478	542	430	871	709
630	675	545	608	491	1003	828
800	752	618	677	556	1159	975
1000	825	685	743	617	1317	1107

CURRENT RATING FOR THREE SINGE CORE 19/33 KV XLPE CABLES ACCORDING TO IS: 7098 (Part 2)

Table :- 4

Normal Area of Conductor mm^2	Laid Direct in Ground		In Ducts		In Air	
	Copper	Aluminium	Copper	Aluminium	Copper	Aluminium
	A	A	A	A	A	A
50	174	135	157	122	216	170
70	213	165	192	149	268	212
95	254	196	229	176	326	258
120	287	223	258	201	374	297
150	323	250	291	225	429	339
185	363	282	327	254	486	386
240	419	326	377	293	573	464
300	473	369	426	332	661	526
400	538	423	484	381	784	617
500	606	481	545	433	878	713
630	684	549	616	494	1014	832
800	763	620	687	558	1172	978
1000	832	689	749	617	1330	1110

CURRENT RATING FOR THREE CORE 6.35/11 KV XLPE CABLES ACCORDING TO IS: 7098 (Part 2)

Table :- 5

Normal Area of Conductor mm^2	Laid Direct in Ground		In Ducts		In Air	
	Copper	Aluminium	Copper	Aluminium	Copper	Aluminium
	A	A	A	A	A	A
25	120	93	108	84	137	106
35	143	111	129	100	158	123
50	168	130	151	117	188	153
70	206	160	185	144	235	182
95	246	191	221	172	285	221
120	278	217	250	195	327	254
150	312	243	281	219	374	291
185	351	273	316	246	423	330
240	404	317	364	285	498	390
300	454	357	409	321	570	450
400	511	408	460	367	658	525
500	596	462	512	416	745	597
630	632	522	569	470	847	692

CURRENT RATING FOR THREE CORE 11/11 KV XLPE CABLES ACCORDING TO IS: 7098 (Part 2)

Table :- 6

Normal Area of Conductor mm^2	Laid Direct in Ground		In Ducts		In Air	
	Copper	Aluminium	Copper	Aluminium	Copper	Aluminium
	A	A	A	A	A	A
25	121	94	109	85	142	110
35	144	112	130	101	161	133
50	168	131	151	118	191	158
70	206	160	185	144	238	197
95	246	191	221	172	288	237
120	278	217	250	195	329	257
150	312	243	281	219	376	292
185	350	273	315	246	424	331
240	404	316	364	284	498	390
300	453	357	408	321	569	448
400	512	408	461	367	657	523
500	571	462	514	416	745	602
630	634	518	571	466	846	696

CURRENT RATING FOR THREE CORE 12.7/22 KV XLPE CABLES ACCORDING TO IS: 7098 (Part 2)

Table :- 7

Normal Area of Conductor mm^2	Laid Direct in Ground		In Ducts		In Air	
	Copper	Aluminium	Copper	Aluminium	Copper	Aluminium
	A	A	A	A	A	A
35	142	110	128	99	162	132
50	166	129	149	116	192	157
70	203	158	183	142	238	194
95	242	188	218	169	288	224
120	274	213	247	192	329	257
150	307	239	276	215	375	292
185	345	269	311	242	425	332
240	397	312	357	281	499	390
300	446	352	401	317	570	448
400	503	402	453	362	657	523
500	564	455	508	410	747	602
630	626	513	563	462	826	695

CURRENT RATING FOR THREE CORE 19/33 KV XLPE CABLES ACCORDING TO IS: 7098 (Part 2)

Table :- 8

Normal Area of Conductor mm^2	Laid Direct in Ground		In Ducts		In Air	
	Copper	Aluminium	Copper	Aluminium	Copper	Aluminium
	A	A	A	A	A	A
50	167	130	150	117	196	158
70	204	158	184	142	241	198
95	243	188	219	169	290	236
120	274	214	247	193	332	270
150	308	239	277	215	377	293
185	345	270	311	243	426	348
240	398	312	358	281	500	408
300	447	352	402	317	571	449
400	504	402	454	362	657	522
500	566	454	509	409	750	600
630	630	515	567	464	852	694

APPROXIMATE A.C. RESISTANCE OF CONDUCTOR (OHM/KM) AT MAX. OPERATING CONDUCTOR TEMPERATURE & XLPE CABLES

Table :- 9

Nominal Area Of Conductor (sq.mm)	XLPE CABLE (90°C)	
	Aluminium	Copper
1.5	23.2	15.5
2.5	15.5	9.5
4	9.5	5.9
6	5.9	3.94
10	3.94	2.34
16	2.44	1.47
25	1.53	0.931
35	1.11	0.671
50	0.818	0.496
70	0.565	0.344
95	0.409	0.248
120	0.323	0.197
150	0.264	0.160
185	0.210	0.129
240	0.161	0.099
300	0.129	0.080
400	0.102	0.064
500	0.082	0.052
630	0.065	0.043

APPROXIMATE REACTANCE AT 50 HZ (OHMS/KM) SINGLE CORE HV XLPE CABLES

Table :- 10

Nominal Area of Conductor (Sq.mm)	3.3 KV (E) & (UE)		6.6 KV (E)		11 KV (E)		11 KV (UE)		22 KV (E)		33 KV ()	
	Unarm-oured	* Armoured	Unarm-oured	* Armoured	Unarm-oured	* Armoured	Unarm-oured	* Armoured	Unarm-oured	* Armoured	Unarm-oured	* Armoured
25	0.116	0.125	0.130	0.138	0.136	0.143	0.148	0.153	-	-	-	-
35	0.110	0.119	0.125	0.131	0.130	0.136	0.140	0.145	0.143	0.146	-	-
50	0.103	0.112	0.119	0.123	0.124	0.127	0.134	0.137	0.136	0.139	0.140	0.153
70	0.0980	0.107	0.110	0.116	0.115	0.120	0.124	0.129	0.126	0.131	0.133	0.145
95	0.0945	0.102	0.105	0.110	0.109	0.114	0.117	0.122	0.120	0.126	0.127	0.137
120	0.0912	0.0981	0.102	0.106	0.105	0.110	0.115	0.119	0.117	0.121	0.122	0.132
150	0.089	0.0953	0.099	0.103	0.102	0.107	0.111	0.115	0.113	0.117	0.117	0.128
185	0.0865	0.0925	0.095	0.100	0.099	0.105	0.107	0.112	0.108	0.113	0.116	0.124
240	0.0835	0.0897	0.092	0.0976	0.095	0.101	0.102	0.107	0.104	0.109	0.111	0.121
300	0.0816	0.0874	0.091	0.0961	0.093	0.0982	0.099	0.105	0.102	0.106	0.106	0.117
400	0.080	0.0862	0.089	0.0940	0.090	0.0949	0.097	0.101	0.098	0.102	0.103	0.112
500	0.0787	0.0843	0.087	0.0921	0.088	0.0917	0.093	0.0974	0.0952	0.100	0.0994	0.109
630	0.0774	0.0830	0.085	0.0890	0.085	0.0892	0.091	0.0956	0.092	0.0967	0.0960	0.106
800	0.0764	0.0815	0.082	0.0891	0.083	0.0893	0.088	0.0937	0.0889	0.0948	0.0925	0.101
1000	0.0761	0.0818	0.081	0.0874	0.081	0.0874	0.086	0.0913	0.0871	0.0926	0.0907	0.100

APPROXIMATE REACTANCE AT 50 HZ (OHMS/KM) THREE CORE HV XLPE CABLE

Table :- 11

Nominal Area of Conductor (Sq.mm)	3.3kv (E)& (UE)	6.6kv (E)	11kv (E)	11kv (UE)	22kv (E)	33kv (E)
25	0.0981	0.118	0.125	0.139	-	-
35	0.0940	0.113	0.118	0.132	0.135	-
50	0.0878	0.105	0.111	0.123	0.127	0.140
70	0.0842	0.100	0.105	0.116	0.119	0.132
95	0.0813	0.095	0.101	0.111	0.113	0.125
120	0.0785	0.092	0.0964	0.106	0.109	0.120
150	0.0769	0.090	0.0952	0.103	0.105	0.117
185	0.0755	0.087	0.0913	0.100	0.102	0.113
240	0.0737	0.084	0.0879	0.096	0.0980	0.108
300	0.0725	0.083	0.0866	0.094	0.0960	0.105
400	0.0712	0.081	0.0839	0.091	0.0925	0.101
500	0.0688	0.079	-	-	-	-
630	0.0678	0.077	-	-	-	-

APPROXIMATE CAPACITANCE (MICROFARADS/KM) HV XLPE CABLES

[illegible] :- 12

Nominal Area of Conductor (Sq.mm)	3.3 KV (E) & (UE)			6.6 KV (E)		11 KV (E)		11 KV (UE)		22 KV (E)		33 KV (E)	
	Single core		Three core	Single core	Three core	Single core	Three core	Single core	[illegible]hree core	Single core	Three core	Single core	Three core
	[illegible]- [illegible]	[illegible]											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]19	0.14	0.14	-	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]21	0.15	0.15	0.14	0.15	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]23	0.16	0.17	0.16	0.16	0.12	0.13
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]26	0.19	0.19	0.17	0.18	0.14	0.14
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]29	0.21	0.21	0.20	0.20	0.15	0.16
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]32	0.22	0.23	0.21	0.21	0.16	0.16
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]34	0.24	0.24	0.22	0.23	0.17	0.18
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]37	0.26	0.26	0.24	0.25	0.18	0.19
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]42	0.29	0.29	0.27	0.27	0.20	0.21
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]46	0.31	0.32	0.29	0.30	0.22	0.22
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]51	0.35	0.35	0.33	0.33	0.25	0.24
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	0.39	-	0.36	-	0.27	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	0.43	-	0.40	-	0.29	-
[illegible]	[illegible]	[illegible]	-	[illegible]	-	[illegible]	-	0.50	-	0.46	-	0.34	-
[illegible]	[illegible]	[illegible]	-	[illegible]	-	[illegible]	-	0.54	-	0.50	-	0.36	-

APPROXIMATE THREE PHASE VOLTAGE DROP (VOLTS/AMP/KM) HV CABLES

Table :- 13

Nominal Area of Conductor (Sq.mm)	3.3 KV (E)&(UE)		6.6 KV (E)		11 KV (E)		11 KV (UE)		22 KV (E)		33 KV (E)	
	AL	CU	AL	CU	AL	CU	AL	CU	AL	CU	AL	CU
25	2.7	1.6	2.7	1.6	2.7	1.6	2.7	1.6	-	-	-	-
35	1.9	1.2	1.9	1.2	1.9	1.2	1.9	1.2	1.9	1.2	-	-
50	1.4	0.87	1.4	0.88	1.4	0.88	1.4	0.89	1.4	0.89	1.4	0.89
70	0.99	0.61	0.99	0.62	1.0	0.62	1.0	0.63	1.0	0.63	1.0	0.64
95	0.72	0.45	0.73	0.46	0.73	0.46	0.73	0.47	0.73	0.47	0.74	0.48
120	0.58	0.37	0.58	0.38	0.58	0.38	0.59	0.39	0.59	0.39	0.60	0.40
150	0.48	0.31	0.48	0.32	0.49	0.32	0.49	0.33	0.49	0.33	0.50	0.34
185	0.39	0.26	0.39	0.27	0.40	0.27	0.41	0.29	0.40	0.28	0.41	0.30
240	0.31	0.21	0.31	0.22	0.32	0.23	0.32	0.24	0.33	0.24	0.34	0.25
300	0.26	0.19	0.27	0.20	0.27	0.20	0.28	0.21	0.28	0.22	0.29	0.23
400	0.22	0.17	0.23	0.18	0.23	0.18	0.24	0.19	0.24	0.19	0.25	0.21
500	0.19	0.15	0.20	0.16	-	-	-	-	-	-	-	-
630	0.16	0.14	0.17	0.15	-	-	-	-	-	-	-	-

Table :- 14

Cross Section mm	Max. Short circuit current on the conductor during 1 s, kA			
	Conductor temperature before the Short Circuit			
	Aluminium Conductor		Copper Conductor	
	65°C	90°C	65°C	90°C
25	2.6	2.4	3.9	3.6
35	3.6	3.3	5.5	5.0
50	5.2	4.7	7.8	7.2
70	7.2	6.6	11.0	10.0
95	9.8	9.0	14.9	13.6
120	12.4	11.3	18.8	17.2
150	15.5	14.2	23.5	21.5
185	19.2	17.5	29.0	26.5
240	24.8	22.7	37.6	34.5
300	31.1	28.3	47.0	42.9
400	41.4	37.8	62.7	57.2
500	51.8	47.2	78.4	71.5
630	65.2	59.5	98.7	90.1
800	82.8	75.6	125	114
1000	104	94.5	157	143
1200	124	113	188	172
1400	145	132	219	200
1600	166	151	251	229
2000	207	189	313	286
Per mm^2	0.104	0.0945	0.157	0.143

Table :- 15

Max. short circuit current on the screen during 1 s, kA			
Metallic Screen Cross Section, mm^2		Metallic Screen temperature before the short circuit	
Copper Screen	Lead Sheath	50°C	70°C
16	110	3.4	3.3
25	170	5.4	5.1
35	240	7.5	7.1
50	340	11	10
95	650	21	19
150	1030	32	30
300	2070	64	60
Per mm^2 Cu	Per mm^2 Pb	0.215 0.032	0.203 0.029

CLASSIFICATION OF TEST FOR XLPE CABLE

TYPE TEST:-

The following shall constitute the type tests :

a) Test on Conductor:
   - i) Annealing test (for copper)
   - ii) Resistance test

b) Physical test on insulation :
   - i) Test for thickness and dimensions of insulation
   - ii) Tensile strength and elongation at break
   - iii)Thermal ageing in air oven
   - iv) Hot set test
   - v) Shrinkage test
   - vi) Void and Contaminants test

c) Resistivity test for semi-conductor layers

d) Test for concentric metallic screen :
   - i) Test for concentric copper wire
   - ii) Test for concentric copper tape

e) Thickness of metallic sheath.

f) Test of armouring material:
   - i) Dimensions
   - ii) Tensile strength and elongation at break
   - iii) Wrapping test
   - iv) Resisitivity test

g) Physical tests for outer sheath :
   - i) Tensile strength and elongation at break
   - ii) Thermal ageing in air oven
   - iii) Loss of mass
   - iv) Heat shock test
   - v) Hot shock test
   - vi) Shrinkage test
   - vii) Thermal stability
   - viii) For PE sheath
     - i) Carbon black content
     - ii) Tensile strength and elongation at break before and after ageing
     - iii) Hot-deformation

h) Flammability test (for PVC outer sheathed cables only)

k) i) Thermal ageing on complete cable sample
   - ii) Tensile ageing on complete cable sample
   - iii) Resisitivity tests for semi-coducting layer

m) Bending test followed by P.D. Test

n) Dielectric power factor and capacitance measurement at ambient temperature

o) Dielectric power factor measurement at elevated temperature

p) Load cycle test followed by P.D measurement

q) Impulse withstand test followed by HV test

SPECIAL PROVISION

Test at (p) and (q) may be carried out on different samples.

ACCEPTANCE TESTS

The following shall constitute acceptance tests

a) Conductor resistance test
b) Annealing test
c) Test for dimensions of insulation
d) Hot set test for insulation
e) Void and contaminants test
F) Test for thickness of metallic sheath
g) Test for thickness of outer sheath
h) Partial discharge test
i) High voltage test
j) Measurement of capacitance

Note :- Partial discharge test shall be carried out on full drum length

MAXIMUM PERMISSIBLE TENSILE STRENGTH FOR CABLES

A) For cables pulled with stocking :-
PVC and XLPE insulated armoured power cables $P = 9\ D^2$
PVC and XLPE insulated unarmoured power cables $P = 5\ D^2$
Paper insulated armoured power cables
Belated & H type Cables $P = 3\ D^2$
HSL type Cables $P = D^2$

Where P = pulling force in Newtons.
D = outer diameter of cables in mm

B) For cable pulled by pulling eye :- if the Cables are pulled by gripping the conductor directly with pulling eye, the maximum permissible tensile stress depends on the material of the conductor and on their cross section as given below :-
For aluminium conductor 4kgs/mm^2
For copper conductor 7kgs/mm^2

DEPTH OF LAYING

TABLE :- 32

The recommended depth of trench for laying the cables are:

S.NO.	Voltage Grade	Depth of trench
1	Upto 1.1.kv	46 to 76 Cms. + Radius of Complete Cable.
2	3.3 to 11kv	91 Cms. + Radius of complete Cable.
3	22 kv and 33 kv	107 Cms. + Radius of complete Cable.
4	110 kv and above	135 Cms. + Radius of Complete Cable.

HANDLING & STORAGE

Handling (Unloading at site) : On receipt of cable drums visual inspection of drums should be made ensuring drum packing is original. While unloading the cables certain precautions are to be taken to ensure the safety of the cables.

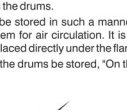
1. The cable drums should not be dropped or thrown from railway wagons or trucks during unloading operations as the shock may cause serious damage to cable layers. A crane should be used for unloading cable drums. When lifting drums with the crane, it is recommended that the lagging should be kept in place to prevent the flanges from curshing on to the cable. If the crane is not available, a ramp should be prepared with approximate inclination of 1:3 or 1:4. The cable drum should be rolled over the ramp by means of ropes and winches. Additionally a sand bed at the foot of the ramp may be prepared to brake the rolling the cable drum.
2. Cable should not be dragged along the earth surface.
3. Cable ends should always be sealed by means of suitable end sealing materials to prevent moisturisation of cores and armour.
4. Drums should be rolled in direction of arrow marked on the drum.

Storage :

Cables should be stored in a dry covered place to prevent exposure to climatic conditions and wear and tear of wooden drums and it should preferably on a concrete surface/firm surface which will not cause the drums to sink and thus lead to flange rot and extreme difficulty in moving the drums.

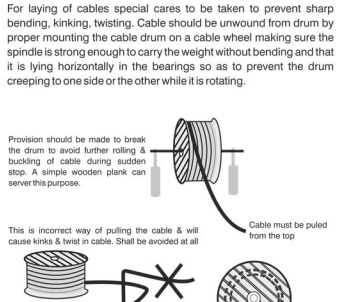
All drums should be stored in such a manner as to leave sufficient space between them for air circulation. It is desirable for drums to stand on battens placed directly under the flanges.

In no case should the drums be stored, "On the Flat:, i.e., with flange horizontal.



Laying :

For laying of cables special cares to be taken to prevent sharp bending, kinking, twisting. Cable should be unwound from drum by proper mounting the cable drum on a cable wheel making sure the spindle is strong enough to carry the weight without bending and that it is lying horizontally in the bearings so as to prevent the drum creeping to one side or the other while it is rotating.



However, following salient points are to be considered during laying procedure of cables laid in racks and in built-in trenches.

1. For laying of cables power cables to be placed at the bottom most layer and control cables at top most layer.
2. Single core power cable for use on A.C. system shall be laid in delta formation supported by non-magnetic material. Trefoil clamps of suitable size are to be placed at regular intervals but preferably not more than 800 mm. Axial spacing of two circuits in delta formation shall not be less than 4 times the cable dia.

In case of multicore power cables, cables shall be laid side by side, with spacings not less than one cable diameter. However derating factors for cables laid on trenches are to be referred.

Multicore power cables and single core D.C. circuits may be clamped by means of galvanised mild steel saddles but 1.1 KV single core cables should be clamped by means of non-magnetic saddles. The saddles shall not be placed at intervals more than 1500 mm. for horizontal and 1200 mm. for vertical runs.

3. Multicore control cables can be laid touching each other on cable racks and wherever required may be taken in two layers. They should be clamped by means of PVC straps both for horizontal and vertical runs (alternatively, fabricated aluminium clamps may be used) at regular intervals.
4. a) If the cables are buried directly in ground I.S. 1255 is to be followed for code of practice. However, generally cables are laid 1000 mm. below finished ground level at any point of cable run and 75 mm. of sand cushioning to be provided.
4. b) In loose soil concrete pillar should be provided for as support and hence pipes are recommended to the used for cable path.
5. If there is a possibility of menchanical damage, cables should be protected by means of mild steel covers placed on racks.
6. While laying cables, special care to be taken at bends. Followings are the recommended bending radius for power and control cables.

Voltage Rating KV	PVC and XLPE Cables	
	Single Core	Multi Core
Upto 1.1	15 D	12 D
Above 1.1 but upto 11 K.V.	15 D	15 D
Above 11 K.V.	20 D	15 D

Where 'D' is overall diameter of cable.

7. Maximum safe pulling force (when pulled by pulling eye) Aluminium Conductor Cables : 3.0 Kg/mm2 Copper Conductor Cables : 5.0 Kg/mm2 Proper method of pulling of cable should be used.

TESTING

INSULATION RESISTANCE MEASUREMENT OF CABLE

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

Voltage grade of cable	Rating of IR Tester (Megger)	Voltage grade of cable	Rating of IR Tester (Megger)
1.1 KV	500 V	11 KV	1000 V
3.3 KV	1000 V	22 KV	2500 V
6.6 KV	1000 V	33 KV	2500 V

Testing during laying :

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

End Terminations & Jointing :

Termination and jointing of Power & Control Cables shall be done by means of compression methods using solderless tinned copper/ Aluminium terminal lugs. For control cables terminations, ring tongue or reducer pin type terminal lug can also be used to suit the purpose.

QUALITY CONTROL

It has been rightly said that "Quality is never an accident, it is always the result of intelligent efforts".

In the manufacture of cables, intelligent efforts are incorporated to achieve quality. For a quality end products, control starts from proper design of the product. All raw materials are selected carefully and only materials of high quality are used in production. Having done this, stage wise inspection is done to ensure conformity with the requirements of relevant Indian Standards where these apply.

Stage - Wise Inspection

i)	Wire-Drawing	:	Wire diameter Surface Shape Quality of joints in the wire
ii)	Stranding of Wires	:	Quality of joints in the wires Compaction of conductor Shape of Conductor Dimensions Resistance of Conductor
iii)	Insulation	:	Dimension over Insulation, Thickness of Insulation,
iv)	Curing (for XLPE Insulation)	:	Hot set test, Tensile strength & elongation test.
v)	Screening (for H.T. Screened cables)	:	Dimension over screen, thick of screen visual examination of surface/defects.
v)	Laying Up	:	Sequence of Cores Direction of lay Diameter over laid up cores Circularity
vi)	Inner Sheath	:	Thickness of Sheath Diameter over Sheath Surface Uniformity Circularity Porosity
vii)	Armouring	:	Diameter of Wires/ Dimensions of Strips Direction of lay Coverage Quality of Joints of Wires
viii)	Outer Sheath	:	Thickness of Sheath Diameter over Sheath Tightness of Sheath Eccentricity Porosity, Embossing

TEST

The tests on cables have been classified broadly in four categories as follows :

Routine Tests :

Tests carried out on each cable to check the requirements which are likely to vary during production.

Type Tests :

Tests carried out to prove conformity with the specification. These are intended to prove the general qualities and design of a given type of cable.

Acceptance Tests :

Tests carried out on samples taken from a lot for the purpose of acceptance of the lot.

Optional Tests :

Special tests to be carried out when required by agreement between the purchaser and the manufacturer.

Special tests required for FRLS Cables can also be carried out at our works i.e. Halogen gas generation test to IEC - 754 Part - I, Smoke generation test to ASTMD 2843, Oxygen index test and Temperature index test to ASTMD - 2863, Flammability test to (1) IEC-332-1, (2) Swedish Chimney test to SS-4241475 Class F3 & (3) IEC-332-3, Flame resistance test to IEEE-383.

Together with the most advanced equipment available, we are able to offer to our valued customers assurances of highest quality and strict adherence to the required specification. As a third party guarantee, our cables have passed rigorous tests at various Government recogonized test laboratories such as CPRI, Shri Ram Test House, ERDA Baroda, National Test House, ERTL, RTC.

Routine Tests, Type Tests, Acceptance Tests and Optional Tests as per the Indian Standard Specification for Power and Control Cables with PVC insulation, Cross linked Polyethylene insulation and Special Tests are given in the Annexure.

Power by expertise

DIC BS™ HV & LV CABLES

Diamond Power Infrastructure Ltd. is the country's first and only integrated transmission equipment manufacturer. Our comprehensive range of high-performance HV/LV cables covers a wide range from 1.1KV to 550KV. The ingenious CCV method of manufacturing, coupled with German technology, has made the cables range one of the top-most power transmission products in the country. What's more, it comes with a 10-year warranty against manufacturing defects a first-of-its-kind assurance that comes only with global standards of quality control and processes.

· EPC Contracts · Transmission & Distribution Conductors · Power Cables · Power & Distribution Transformers · Wires

IN THE GREAT POWER EQUATION, INTEGRATION IS THE KEY

Conductors, Power Cables, Aerial Bunch Cables & Wires

Power Transformers 245KV, 350MVA

Distribution Transformers upto 36KV, 2500KVA

• I, I KV to 550 KV • WITH CGV PROCESS & GERMANY TECHNOLOGY

True value addition comes from going that extra mile and make ends meet. Like the end to end solutions that we at Diamond Power Infrastructure Ltd. have been offering our clients. Solutions that are seamlessly aligned and extensively developed so that they don't have to go anywhere else to find answers. We call it the power of integration. Our clients call it peace of mind.

EPC Contracts
Transmission & Distribution Conductors
Power Cables
Power & Distribution Transformers
Wires

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