Solar Energy.
The Fuel of Tomorrow.

POLYCAB

PHOTOVOLTAIC CABLE (SOLAR)

POLYCAB

COMPANY PROFILE

POLYCAB is the industry leader in the manufacturing of Electric Wires & Cables in India.

We are a customer focused company, and always keen to develop wires & cables to meet the specific market segment. During financial year ending March 2012 Polycab has achieved a Sales turnover of Rs. 42500 millions (USD$ 775 million). We are committed to interacting with our customers to deliver innovative cable solutions that increase productivity and safety. Polycab is also a ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 certified cable manufacturer headquartered in Mumbai with plants in Daman (UT) & Halol (Gujarat).

POLYCAB announces the launch of Solar Cables to support Renewable Energy initiative of the world.

Solar Cables are designed to meet the growing needs of the solar industry. Our solar cables is just the beginning of our plans to develop and launch green technology in wires & cables. Solar Cables are flexible and are resistant to abrasion & moisture. Regardless of your panel-to-grid needs, we have the cables to meet your requirements.

Applications

These cables are designed for connecting photovoltaic power supply systems. These cables can be used indoor & outdoor for flexible and fixed installations with high mechanical strength in extreme weather conditions.

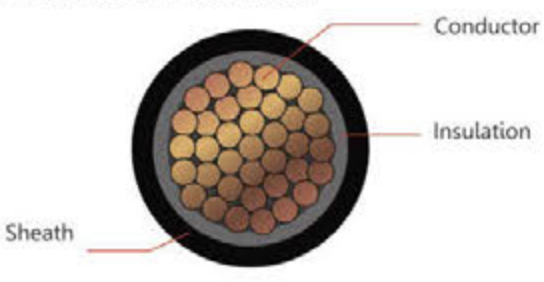
Standards

2 Pfg 1169/08.2007.

Electrical Characteristics

- Rated Voltage: 0.6/1 kV AC
- Rated DC Voltage: 1.5 kV
- Maximum Permitted DC Voltage: 1.8 kV (conductor/ conductor, non earthed system, circuit not under load)
- Maximum Permitted AC Voltage: 0.7/1.2 kV
- Working Voltage: DC 1000 V
- Insulation Resistance: 1000M Ω - km
- Spark Test: 6000 Vac (8400 Vdc)
- Voltage Withstand: 6500 V as per EN50395 for 5 min
- Ampacity: According to requirements for cables for PV systems

Construction Characteristics



Conductor	Electrolytic Multi Stranded tinned copper conductor flexible as per IEC 60228 Class 5.
Insulation	Crosslinked Halogen Free & Flame Retardant Insulation
Sheath	Sheath Crosslinked Halogen Free & Flame Retardant Sheath in Black/Blue/Red Colour

Thermal Characteristics

- Ambient Temperature: -40°C ~ +90°C
- Maximum Temperature at Conductor: 120°C (20000h)
- Short Circuit Temperature: 200°C (at conductor max. 5sec)
- Thermal Endurance Test: According to EN 60216-2 (temperature index +120°C)
- High Temperature Pressure: Test according to EN 60811-3-1
- Damp – Heat Test: According to EN 60068-2-78 1000 hrs. at 90°C with 85% humidity

Mechanical Characteristics

- Minimum Bending Radius: 5 x OD (fixed), 15 x OD (occasional flexing)
- Dynamic Penetration: According to requirement of Cables for PV systems 2 Pfg 1169/08.2007 Annex F
- Notch Propagation: According to 2 Pfg 1169/08.2007 Annex G
- Tensile Strength: 6.5 N/mm2 for insulation and 8 N/mm2 for sheathing – according to EN60811
- Elongation of Insulation and sheathing: 125% – according to EN60811
- Anticipated Period of Use: 25 years
- Shrinkage: 2% at 120°C according to EN60811-1-3

EU Directives

- The cables are RoHS (Restriction of certain Hazardous Substances) compaliant as per EU Directives 2002/95/EC

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Chemical Characteristics

- Mineral Oil Resistance: according to EN 60811-2-1
- Ozone Resistance: according to EN 50396 part 8.1.3 Method B
- Weathering-UV Resistance: according to HD 605/A1 or DIN 53367
- Ammonia resistant : 30 days in saturated ammonia atmosphere (internal testing)
- Very good resistance to oil and chemicals
- High wear and robust, abrasion resistant
- Acid & Alkaline Resistance: According to EN 60811-2-1 (Oxal acid and sodium hydroxide)

Fire Performance

- Flame retardant according to IEC 60332-1-2
- Low smoke emission < 20% as per ASTM D-2843
- Halogen free according to EN 50267-2-1/-2, IEC 60754-2
- Acid gas emission not more than 0.5% as per IEC 60754-1 pH minimum 4.3 as per IEC 60754-2 conductivity maximum 10 as per IEC 60754-2
- Toxicity according to EN 50305, ITC- index<3

Specifications

As per TÜV Rheinland specification: 2 Pfg 1169/08.2007.

Solar Cables used in Solar Farm installations are mainly categorized as given below:

A. PV module to PV module and PV modules to Array Junction Box

These cables though not exposed to direct sunlight are throughout the day time exposed to diffused/indirect sunlight and atmospheric temperatures in open air.

TYPE 1

DC Solar Cables are Single core Copper cables each for +ve and –ve. They are insulated and sheathed with Cross Linkable LSOH which has UV as well as Ozone protection properties. These cables confirm to TUV specificationst.

TYPE 2

DC Solar Cables are Single core Copper cables each for +ve and –ve. They are insulated with HR 105°C PVC compound and sheathed with UV stabilized HR 105°C PVC compound.

TYPE 3

DC Solar Cables are Single core Copper cables each for +ve and –ve. They are insulated with XLPE compound and and sheathed with UV stabilized PVC ST2 compound.

B. Array Junction Box to Main Junction Box and Main Junction Box to Inverter

These Solar DC cables which are not exposed to sunlight and are always routed through PVC Pipes which are laid underground. Choice of cables can be done from any one of the options given. Generally Option 3 is chosen for this route.

C. Inverter to Transformer Primary

The Three Phase AC output from the Inverters is connected to the Transformer Primary through Underground Armoured Cables. These cables are Copper or Aluminium XLPE insulated, GI armoured, UV stabilised PVC ST2.

D. Transformer Secondary to RMU/Switchyard

The Three Phase AC output from the Tranformer Secondary is connected to the RMU/Switchyard through Armoured Cables. These cables are Copper or Aluminium XLPE insulated, GI armoured, UV stabilised PVC ST2.

E. RMU to Switchyard

Three Phase AC connection from the RMU is connected to the Switchyard through Armoured Cables. These cables are Copper or Aluminium XLPE insulated, GI armoured, UV stabilised PVC ST2.

Note:

All Solar cables used with XLPE insulation armoured or unarmoured are specially manufactured with UV stabilised PVC ST2 outer sheathing which are specially formulated compounds to sustain the Direct / Diffused / Indirect Sunlight in case of exposed cables at any stage of installation.