

PHOTOVOLTIC CABLE (SOLAR)

Solar PV cable range has been specifically designed by us to withstand the most demanding conditions. Its excellent properties make it the best cable for all Low Voltage installations. Given their special properties, Eminent Solar PV cables constitute the ideal solution for connection between panels and connection boxes of a solar photovoltaic installation, being able to function at room temperature up to 90°C. Moreover, photovoltaic installations tend to be exposed to all possible atmospheric weather and in all their intensity, especially to ultraviolet radiation, humidity and sudden changes in temperature. For this reason, photovoltaic cables must have a specific weather resistance guarantee that guarantees their operation in time. The materials of the Eminent Solar PV cable have been especially designed to withstand the most demanding weather conditions without suffering important changes in their mechanical and electrical characteristics. To offer an adequate protection against attacks by rodents, and additional to any mechanical aggression.

APPLICATIONS :

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

STANDARDS :

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

CONSTRUCTION DETAILS:

Conductor	Electrolytic Multi Stranded Tinned Copper conductor flexible as per IEC 60228 or IS :8130 / 84 Class 5
Insulation	Crosslinked Halogen Free & Flame Retardant
Insulation Colour	Natural
Sheath	Crosslinked Halogen Free & Flame Retardant
Sheath Colour	Black , Red & Blue

ELECTRICAL CHARACTERISTICS :

Rated AC Voltage: 0.6/ 1.0 kV
Rated DC Voltage : 1.5 kV
Maximum permitted AC Voltage : 0.7/1.2 kV
Maximum permitted DC Voltage : 1.8 Kv (Conductor/conductor, non earthed system, circuit not under load)
Working Voltage: DC 1000 V
Insulation Resistance:1000 M Ohm-Km
Spark Test: 6000 Vac (8400 Vdc)
Voltage Withstand: 6500 V as per EN50395 for 5 Min.
Ampacity : According to requirements of cables for PV systems

Detailed Specifications **DEOLAX CABLES PVT LTD**

Technical Data

THERMAL CHARACTERISTICS :

Operating Temperature : -40°C to +90°C
Maximum Temperature at conductor: 120°C
Short Circuit Temperature : 250°C
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 1000hrs at 90°C with 85% humidity

MECHANICAL CHARACTERISTICS :

Minimum Bending Radius : For Fixed Installation - 6 x OD of cable & Occasional Flexing - 15 x OD of cable
Tensile Strength: 6.5 N/mm² for Insulation & 8.0 N/mm² for sheathing – according to EN 60811
Elongation :125% for Insulation & sheathing – according to EN 60811
Dynamic Penetration : According to requirement of cables for PV Systems 2 Pfg 1169/08.2007 Annex. G
Notch Propagation : According to 2 Pfg 1169/08.2007 Annex. G
Shrinkage: 2% at 120°C according to EN60811-1-3
Anticipated Period of use: 25 years

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 HD605/A1 DIN 53367
Ammonia resistance: 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 & sodium hydroxide)

FIRE PERFORMANCE :

Flame retardant : according to EN 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 : <0.5% as per IEC 60754-1, p H minimum 4.3 as per IEC 60754-2, conductivity maximum 10 as per IEC 60754-2
Toxicity according to EN 50305, ITC-index <3

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

A. PV module to PV module and PV module 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 cable are single core copper cable each for +ve & -ve. They are insulated and sheathed with cross linkable LSOH which has UV as well as Ozone protection properties. These cables are manufactured to meet requirement of TUV specification.

TYPE 2

DC Solar cable are single core copper cable each for +ve & -ve. They are insulated with HR 105°C PVC Compound and sheathed with UV stabilized PVC ST2 Compound.

TYPE 3

DC Solar cable are single core copper cable each for +ve & -ve. They are insulated with XLPE Compound and sheathed with UV stabilized PVC ST2 Compound.

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

These DC Solar cable which are not exposed to sunlight and are always routed through PVC Pipes which are laid underground. Choice of cable 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 Inverters is connected to the Transformer Primary through underground Armoured cables. These cables are copper or Aluminum XLPE insulated, GI armoured,UV stabilized PVC ST2.

D. Transformer Secondary to RMU/Switchyard

The Three phase AC output from Transformer Secondary is connected to the RMU/Switchyard through Armoured cables. These cables are copper or Aluminum XLPE insulated, GI armoured,UV stabilized PVC ST2.

E. RMU to Switchyard

The Three phase AC connection from the RMU is connected to the Switchyard through Armoured cables. These cables are copper or Aluminum XLPE insulated, GI armoured,UV stabilized PVC ST2.

Detailed Specifications Technical Data

DEOLAX CABLES PVT LTD

TYPE 1 :

DIMENTATIONS & CURRENT CARRYING CAPACITY OF SOLAR DC CABLES FROM PV MODULE TO ARRAY JUNCTION BOX								
AS PER TUV Specification-2 Pfg 1169/08.2007								
Single Core Size (Sq mm)	Wire Diameter Max. (mm)	XL-LOSH Insulation Thickness Nominal (mm)	XL-LOSH Sheath Thickness Nominal (mm)	Overall diameter Nominal (mm)	Conductor Resistance Max. (Tinned Copper) Ohm/Km	Current Carrying Capacity of DC Solar Cable with XL-LOSH Insulation & XL-LOSH Sheathing at 60 Deg.C		
						Single Cable in Air (Amp.)	Single Cable on Surface (Amp.)	Two adjacent Cable on Surface (Amp.)
1.5 Sq mm	0.26	0.7	0.8	5.0 ± 1.0	13.70	30	29	24
2.5 Sq mm	0.26	0.7	0.8	5.5 ± 1.0	8.21	41	39	33
4.0 Sq mm	0.31	0.7	0.8	6.0 ± 1.0	5.09	55	52	44
6.0 Sq mm	0.31	0.7	0.8	6.5 ± 1.0	3.39	70	67	57
ARRAY JUNCTION BOX TO MAIN JUNCTION BOX & MIB TO INVERTER								
AS PER TUV Specification-2 Pfg 1169/08.2007								
10 Sq mm	0.41	0.7	0.8	7.5 ± 1.0	1.95	98	93	79
16 Sq mm	0.41	0.7	0.9	8.5 ± 1.0	1.24	132	125	107
25 Sq mm	0.41	0.9	1.0	10.5 ± 1.0	0.795	176	167	142
35 Sq mm	0.41	0.9	1.1	12.0 ± 1.0	0.565	218	207	176
50 Sq mm	0.41	1.0	1.2	14.0 ± 1.0	0.393	274	260	219
70 Sq mm	0.51	1.1	1.2	16.0 ± 1.5	0.277	406	386	325
95 Sq mm	0.51	1.1	1.3	18.5 ± 1.5	0.210	491	467	393
120 Sq mm	0.51	1.2	1.3	20.0 ± 1.5	0.164	576	547	461
150 Sq mm	0.51	1.4	1.4	22.5 ± 1.5	0.132	670	637	536
185 Sq mm	0.51	1.6	1.6	25.5 ± 1.5	0.108	784	745	627
240 Sq mm	0.51	1.7	1.7	29.5 ± 1.5	0.0817	944	897	755

For Further Detail Plz Contact
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