ORBIT®

THE POWER OF PEOPLE

SOLAR CABLE

ORBIT SOLAR CABLES:

Solar energy is the most abundant source of energy on our planet. Solar energy is converted into electrical energy by means of arrays of Photovoltaic modules. Specially designed Photovoltaic cables are used in these modules. Solar Cables are designed to meet the growing needs of th 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. Solar energy is the most abundant source of energy on our planet.

APPLICATIONS

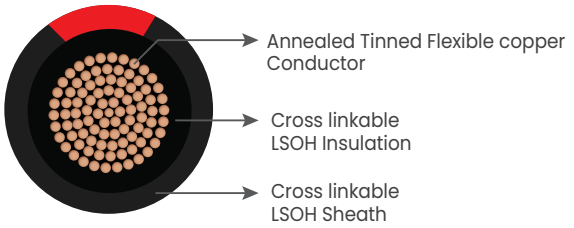
These cables are designed for connecting photovoltaic power supply systems. These cables can be used indoor & outdoor for flexible and fixed installations with high mechanical strength in extreme weather conditions

CONSTRUCTION CHARACTERISTICS

Conductor : Electrolytic Multi Stranded tinned copper conductor flexible (As per IEC 60228) Class 5.

Insulation : Crosslinked Halogen Free & Flame Retardant Insulation

Sheath : Crosslinked Halogen Free & Flame Retardant Sheath (in Black/Blue/Red Colour)



TECHNICAL SPECIFICATION

Electrical:

Voltage test: 6500V as per EN 50395.

Max permissible operating voltage: DC 1.5Kv (conductor-conductor, non earthed system).

Nominal voltage: AC - 0.6/1 Kv, DC - 900/1.5 Kv.

Temperature:

Ambient Temperature: -40°C to + 90°C.

Max conductor temperature: 40°C to 120°C.

Max bending radius:

5*0D (fixed installation)

15 *OD (occasional moved)

Standards / Material Properties:

Fire performance: IEC 60332-1-2

Smoke emission: IEC 61034/ EN 50268-2

Halogen free: EN 50267-2-1/-2, IEC 60754-2

Toxicity: EN 50305, ITC - index <3

Ozone Resistant: EN50396

Weathering UV: HD 605/A1 or DIN 53367

Approvals: EN 50618

FEATURES

Cross linked halogen free low smoke flame retardant Insulation

UV, ozone, temperature & hydrolysis resistant

Flame retardant, low smoke

Excellent encapsulation

Very long /service life >25 years.

CURRENT CARRYING CAPACITY AND DIMENSIONS:

Area (Sq. mm)	Conductor Resistance (Ω/km@ 20oC, Max)	Current carrying capacity (Amp)			Overall Diameter in mm (approx.)	
		Single cable (In air)	Single cable (On surface)	Two cable (On surface)	2Pfg 1169 (As per IS standard)	2Pfg 1990 and EN 50618 (As per IS standard)
2.5	8.21	41	39	33	5.0	6.5
4	5.09	55	52	44	5.5	7.0
6	3.39	70	67	57	6.0	7.5
10	1.96	98	93	79	7.0	8.6
16	1.24	132	125	107	8.0	9.9
25	0.795	176	167	142	10.5	11.4
35	0.565	218	207	176	11.5	12.5

SOLAR DC CABLES FROM PV MODULE TO ARRAY JUNCTION BOX

(AS PER TUV SPECIFICATION - EN 50618 : 2014)

Area (Sq. mm)	INSULATION Thickness (mm)	SHEATH Thickness (mm)	Overall Diameter (mm)	Tolerance on Diameter	Tinned Copper Maximum Resistance at 20°C (ohms- Ω / Km)	Current Carrying Capacity (Single cable in Air) Amps
1.5	0.7	0.8	4.8	+/- 0.4	13.700	30
2.5	0.7	0.8	5.2	+/- 0.4	8.210	41
4	0.7	0.8	5.8	+/- 0.4	5.090	55
6	0.7	0.8	6.4	+/- 0.4	3.390	70

SOLAR DC CABLES FROM ARRAY JUNCTION BOX TO MAIN JUNCTION BOX & MJB TO INVERTER

(AS PER TUV SPECIFICATION - EN 50618 : 2014)

Area (Sq. mm)	INSULATION Thickness (mm)	SHEATH Thickness (mm)	Overall Diameter (mm)	Tolerance on Diameter	Tinned Copper Maximum Resistance at 20°C (ohms- Ω / Km)	Current Carrying Capacity (Single cable in Air) Amps
10	0.7	0.8	7.3	+/-0.4	1.950	98
16	0.7	0.9	8.6	+/-0.4	1.240	132
25	0.9	1.0	10.4	+/-0.4	0.795	176
35	0.9	1.1	11.8	+/-0.4	0.565	218
50	1.0	1.2	13.8	+/-0.4	0.393	276
70	1.1	1.2	15.6	+/-0.4	0.277	347
95	1.1	1.3	17.7	+/-0.4	0.210	416
120	1.2	1.3	19.5	+/-0.5	0.164	488
150	1.4	1.4	21.6	+/-0.5	0.132	566
185	1.6	1.6	24.2	+/-0.5	0.108	644
240	1.7	1.7	27.1	+/-0.5	0.0817	775

TECHNICAL SPECIFICATIONS

Parameter	TUV 2Pfg 1169 / 08.2007	TUV 2Pfg 1990 / 05.12 and EN 50618
Rated Voltage - AC (Uo/U)	0.6 / 1.0 kV	-
DC (C - to - E)**	0.9 kV	1.5 kV
Maximum Permissible Voltage DC (V) (Circuit under NO LOAD)	1.8 kV (C - to - C)* Un-earthed system	1.8 kV (C - to - E)* earthed system
Conductor Material	Electrolytic, Multi Strand Annealed Bunched Tinned Copper	
Conductor Flexibility Class	5	
Insulation & Sheath Material	Cross-linked Polyolefin Halogen Free Flame Retardant	
Max. Temp at conductor	120°C (20000Hrs)	
Operating temp range	-40°C to 90°C	
Thermal Characteristics Performance		
Damp Heat	1000Hrs at 90°C with 85% humidity	
Pressure at High Temp.	4Hrs at 140°C	
Thermal Endurance	20000Hrs, 50% Residual elongation	
Weathering / UV Resistance	720Hrs	1500Hrs
Performance under fire conditions		
Flame Propagation	Yes	
Halogen Free	Less than 0.5%	
Acid / Alkaline Resistance (Oxal Acid, Sodium Hydroxide)	Tensite strength Variation $\pm$ 30% elongation min 100%	
Electrical Chacterstics : in kV		
AC Test Voltage - 5 Mins	6.5	11
DC Test Voltage - 5 Mins	15	25
AC Spark Test Voltage	10	12
Mechanical Characteristics of Insulation & Sheath		
Tensile strength	Insulation: 6.5 N/mm2, Sheath: 8.0 N/mm2 Min.	
Elongation	125 %, Min.	
Dynamic Penetration	Minimum force to penetrate sheath and insulation F (N)	
	50 x OD	150 x $\sqrt{\text{Conductor Dia.}}$
Notch Propogation	Withstands Voltage test (half of rated voltage) after Notch propogation.	

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