

IS : 694



CM/L-7300109204



SOLAR CABLES



AN ISO 9001:2008/14001:2004 COMPANY

PRODUCT RANGE

ORBIT
THE POWER OF PEOPLE®

■ RESIDENCIAL WIRES



- HEAT RESISTANCE AND FLAME RETARDANT
- FLAME RETARDANT LOW SMOKE
- COMIT CLASS 5
- ORBIT PRIME
- MULTI-CORE FLEXIBLE CABLES

■ SERVICE WIRES



- WELDING CABLES
- SOLID STRAND WIRE
- ALUMINIUM VIR WIRE
- ALUMINIUM TWIN CORE
- SOLID SINGLE CORE

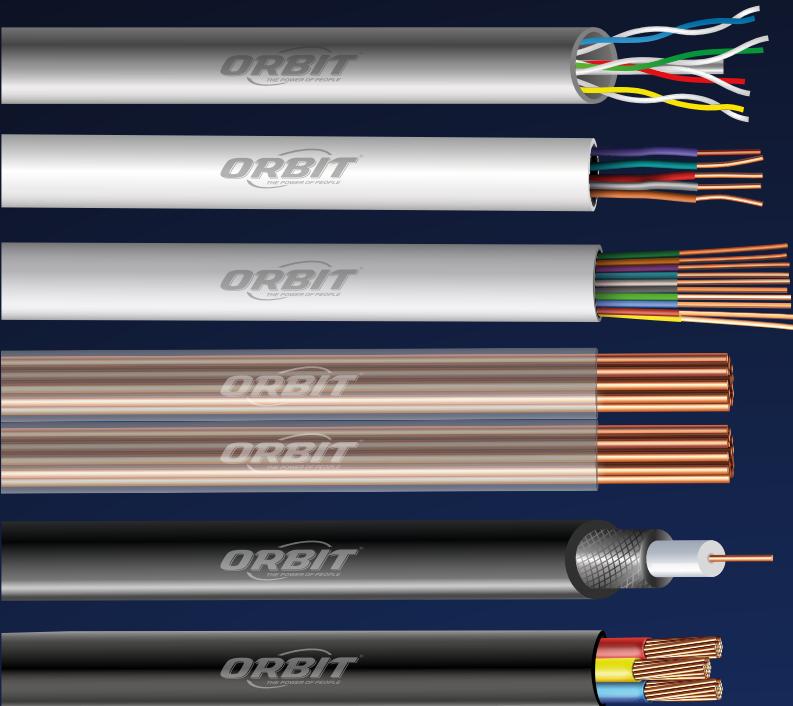
■ AGRI & SOLAR CABLES



- 3 CORE SUBMERSIBLE CABLES
- 4 CORE SUBMERSIBLE CABLES
- SOLAR CABLES



■ COMMUNICATION CABLE



- LAN CABLES
- CCTV CABLES
- TELEPHONE CABLES
- SPEAKER CABLES
- CO-AXIAL CABLES
- FLEXIBLE CORD CABLES

■ ARMOURED CABLES



- SHIELDED CABLES
- COPPER ARMoured CONTROL CABLES
- COPPER UNARMoured CONTROL CABLES
- ALUMINIUM ARMoured CABLES
- ALUMINIUM UNARMoured CABLES
- ARMoured CONTROL CABLES
- UNARMoured CONTROL CABLES



■ ORBIT ANNOUNCES THE LAUNCH OF SOLAR CABLES:

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

■ 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

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

■ 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



■ ELECTRICAL CHARACTERISTICS

- Rated Voltage: 0.6/1 kV AC
- Rated DC Voltage: 1.5 kV
- Maximum Permitted DC Voltage: 1.8 kV
- Maximum Permitted AC Voltage: 0.7/1.2 kV
- Working Voltage: DC 1000 V
- Insulation Resistance: 1000 MW-km
- Spark Test: 6000 Vac (8400 Vdc)
- Ampacity: According to requirements for cables for PV systems

■ THERMAL CHARACTERISTICS

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



FIRE PERFORMANCE

- Flame retardant
- Low smoke emission < 20%
- Halogen free
- Acid gas emission not more than 0.5%
- Conductivity maximum
- Toxicity according to EN 50305, ITC- index

MECHANICAL CHARACTERISTICS

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

CHEMICAL CHARACTERISTICS

- Mineral Oil Resistance
- Ozone Resistance
- Weathering-UV
- Very good resistance to oil and chemicals
- Ammonia resistant : 30 days in saturated ammonia atmosphere (internal testing)
- High wear and robust, abrasion resistant
- Acid & Alkaline Resistance

CURRENT CARRYING CAPACITY AND DIMENSIONS:

Area Sq. mm	Conductor Resistance Ω/km@ 20°C, Max.	Current carrying capacity Amp.			Overall Diameter mm (approx.)	
		In air. Single cable	On surface. Single cable	On surface. Two cables adjacent	As per standard 2Pfg 1169	As per standard 2Pfg 1990 and EN 50618
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	1.95	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
3	0.565	218	207	176	11.5	12.5



TECHNICAL SPECIFICATIONS

Parameter	TÜV 2Pfg 1169 / 08.2007	TÜV 2Pfg 1990 / 05.12 and EN 50618
Rated Voltage - AC (Uo/U)	0.6 / 1.0 kV	0.6 / 1.0 kV
DC (C - to - E)**	0.9 kV	0.9 kV
Maximum Permissible Voltage DC (V) (Circuit under NO LOAD)	1.8 kV (C - to - C)* Un-earthed system	1.8 kV (C - to - C)* Un-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		0 0 - 40 C to 90 C
Thermal Characteristics Performance		
Damp Heat		1000Hrs at 90° C with 85% humidity
Pressure at High Temp.		0 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)		Tensile strength Variation + 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/mm ² , Sheath: 8.0 N/mm ² Min.
Elongation		125 %, Min.
Dynamic Penetration	Minimum force to penetrate sheath and insulation F (N)	
	50 x OD	150 x √Conductor Dia.
Notch Propogation	Withstands Voltage test (half of rated voltage) after Notch propogation.	



SOLAR DC CABLES FROM PV MODULE TO ARRAY JUNCTION BOX

Single Core in sq.mm	XL-LSOH Insulation Thickness – Nominal in mm	XL-LSOH Sheathing Thickness – Nominal in mm	Overall Dia. Nominal in mm	Tinned Copper Maximum Resistance @ 20°C (ohms-0/Km)	Current Carrying Capacity (Single Cable in Air) (in Amps – A)
1.5	0.5	0.5	4.10 +/-0.5	13.700	30
2.5	0.5	0.5	4.10 +/-0.5	8.210	41
4	0.5	0.5	5.1 +/-0.5	5.090	55
6	0.5	0.5	6.1 +/-0.5	3.390	70

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

Single Core in sq.mm	XL-LSOH Insulation Thickness – Nominal in mm	XL-LSOH Sheathing Thickness – Nominal in mm	Overall Dia. Nominal in mm	Tinned Copper Maximum Resistance @ 20°C (ohms-0/Km)	Current Carrying Capacity (Single Cable in Air)(in Amps – A)
10	0.5	0.5	6.6 +/-0.5	1.950	98
16	0.5	0.5	7.7 +/-0.5	1.240	132
25	0.9	1.0	10.5 +/-0.7	0.795	176
35	0.9	1.1	12.0 +/-0.7	0.565	218
50	1.0	1.2	14.0 +/-0.7	0.393	274
70	1.1	1.3	16.0 +/-1.0	0.277	406
95	1.1	1.5	18.5 +/-1.0	0.210	491
120	1.2	1.6	20.0 +/-1.0	0.164	576
150	1.4	1.7	22.5 +/-1.0	0.132	670
185	1.6	1.9	25.0 +/-1.0	0.108	784
240	1.7	2.1	28.0 +/-1.0	0.0817	944



Survey No. 2450, Ahmedabad - Mehsana Highway, Near Scoda Tubes Limited,
Village - Rajpur, Taluka - Kadi, District – Mehsana, Gujarat – 382715.