

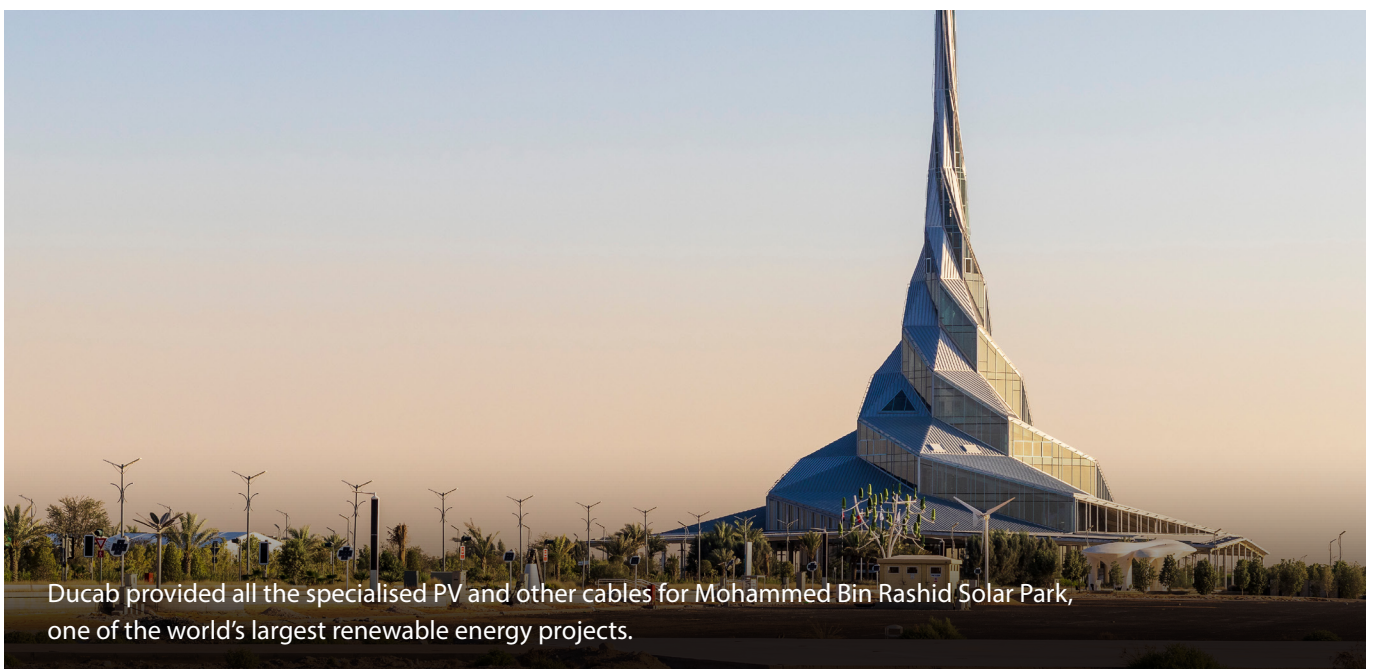


# We're looking at a bright future.

Solar energy does not contribute towards greenhouse gases or fossil fuels unlike carbon-based energy sources.

Energy that is produced by solar power is clean, renewable and has zero-emissions. Enough sunlight strikes the earth's surface every ninety minutes to handle the world's entire energy consumption for a full year. When the sun shines onto a photovoltaic solar panel, energy is absorbed by the PV cells in the panel. This energy can be used to generate electricity or be

stored in batteries or thermal storage. Concentrating solar-thermal power (CSP) systems use mirrors to reflect and concentrate sunlight onto receivers that collect solar energy and convert it to heat, which can then be used to produce electricity or stored for later use. It is used primarily in very large power plants.



Ducab provided all the specialised PV and other cables for Mohammed Bin Rashid Solar Park, one of the world's largest renewable energy projects.

## Our definitions explained

**XLPO** | The designation XLPO stands for cross-linked polyolefin compound. It has excellent mechanical and electrical characteristics

**BS EN 50267-2-1** | Determines the halogen content of the material. To meet the halogen free requirement, the halogen content of the material may not exceed 0.5 % or 5mg/g

**BS EN 50267-2-2** | Determines the degree of acidity of gases evolved during combustion. The limit values are 4.3 for pH and 10 micorS for conductivity

**Halogen-free** | All our materials are halogen free. Halogen free refers to the absence of halogens, such as chlorine and fluorine, and is determined based on halogen content and the acidity of gases of cable

**Smoke emission** | Smoke emission refers to visibility in a fire. The greater the light transmittance, the better the visibility. When tested in accordance with IEC 61034-2 the minimum light transmittance shall be greater than 60%

**IEC 60332-1** | Is the test for single insulated wire and cable. Test procedure and requirements according to the picture, below. Min. 50 mm of the cable, measured from the upper support, must remain unburned after the specified time

## H1Z2Z2-K / 62930

IEC 131 Halogen-free cable for photovoltaic systems  
1.5 kV DC



### Applications

Solar cable is the interconnection cable used in photovoltaic power plants, connecting solar panels and other electrical components of a photovoltaic system.

The cables are suitable to be used with Class II equipment as per BS EN 50618 and IEC 62930.

### Conductor

Flexible Class 5 - Tinned annealed copper to IEC 60228

### Standards

BS EN 50618 TUV 2 PFG 116908/ and IEC 62930

### Insulation

Cross linked (XLPO) to BS EN 50618:2014 and IEC 62930:2017

### Voltage rating

1.5 kVDC | 1.01.0/ kVAC

### Sheath

Cross linked (XLPO) to BS EN 50618:2014 and IEC 62930:2017

### Operating Temp

-40° C to +120°C

### Sheath Colour

Black, other colours on request

No. of cores	Conductor area	Thickness of insulation specified value	Thickness of sheath specified value	Mean overall diameter	Minimum insulation resistance at 20°C	Minimum insulation resistance at 90°C	Approx. weight of completed cable
	(mm <sup>2</sup> )	(mm)	(mm)	(mm)	MΩ.km	MΩ.km	(Kg/Km)
1C	1.5	0.7	0.8	5.4	860	0.86	35
1C	2.5	0.7	0.8	5.9	690	0.69	46
1C	4	0.7	0.8	6.6	580	0.58	59
1C	6	0.7	0.8	7.4	500	0.50	80
1C	10	0.7	0.8	8.8	420	0.42	120
1C	16	0.7	0.9	10.1	340	0.34	182
1C	25	0.9	1.0	12.5	340	0.34	282
1C	35	0.9	1.1	14.0	290	0.29	375
1C	50	1.0	1.2	16.3	270	0.27	520
1C	70	1.1	1.2	18.7	250	0.25	733
1C	95	1.1	1.3	20.8	220	0.22	963
1C	120	1.2	1.3	22.8	210	0.21	1196
1C	150	1.4	1.4	25.5	210	0.21	1504
1C	185	1.6	1.6	28.5	200	0.20	1851
1C	240	1.7	1.7	32.1	200	0.20	2425

\*Values as per BSEN 50618:2014

\*Ducab SolarBICC also meets IEC 62930:2017 requirements

## Electrical data

Conductor size	DC resistance at 20°C	Short circuit rating for 1 sec
(mm <sup>2</sup> )	(ohm/km)	(kA)
1.5	13.7	0.19
2.5	8.21	0.32
4	5.09	0.50
6	3.39	0.75
10	1.95	1.26
16	1.24	2.02
25	0.795	3.15
35	0.565	4.42
50	0.393	6.31
70	0.277	8.84
95	0.210	11.9
120	0.164	15.2
150	0.132	18.9
185	0.108	23.3
240	0.0817	30.3

\*The short circuit rating is calculated based on a normal maximum operating conductor temperature of 120°C prior to short circuit and a maximum conductor temperature of 250°C after the short circuit.

# Current carrying capacity of PV cable

## Current carrying capacity according to installation method

Conductor size (mm <sup>2</sup> )	Single cable free in Air (A)	Single cable on a surface (A)	Two loaded cables touching on a surface (A)
1.5	30	29	24
2.5	41	39	33
4	55	52	44
6	70	67	57
10	98	93	79
16	132	125	107
25	176	167	142
35	218	207	176
50	276	262	221
70	347	330	278
95	416	395	333
120	488	464	390
150	566	538	453
185	644	612	515
240	775	736	620

\*These values are as per BSEN 50618:2014

\*DUCAB SolarBICC also meets IEC 62930:2017 requirements

\*Current ratings are based on ambient temperature at 60°C. Maximum conductor temperature 120°C. For different ambient temperatures correction factors as below shall be used

### Current rating conversion factors for different ambient temperatures

Temperature in °C | Up to 60 | 70 | 80 | 90

Factor | 1.00 | 0.92 | 0.84 | 0.75

### Bending radius requirements

Overall diameter of cable (D) |  $D \leq 12$  |  $D \geq 12$

Minimum bending radius (fixed installation) | 3 D | 4 D

