

RENEWABLE ENERGY CABLES



شركة مجموعة كابلات الرياض
Riyadh Cables Group Company

Be Seen, Get Connected



INTRODUCTION

Riyadh Cables the first local Saudi Company developed with their own local research and development team the Solar cables solution taking in their consideration the local requirement as well as international requirement of PV cables used in photovoltaic power supply systems. and similar Applications as free hanging, movable, fixed installation. The cables can be used indoor, outdoor, in hazard explosion areas, in industry and agriculture.

The demand for "SOLAR CABLE", which is the current transmission medium of solar energy power generation, is expected to increase with the expansion of market and huge local requirement which may reach up to 1.5GW?

Riyadh Cables was very proud to deliver the solar cable to the first project in Saudi Arabia (SKAKA solar plant)

GENERAL INFORMATION

The designation used for Insulation & Sheath material in this catalogue is XLHF, it stands for cross-linked halogen free compound.

Cable shall be flame retardant as per IEC 60332-1.

APPLICABLE STANDARD

IEC 62930 : 2017

BS EN 50618 : 2014

UL 4703 : 2014

& TÜV 2 PFG 1169/08.2007

PROPERTIES OF SOLAR CABLES

- Max. Permissible Operating Temperature of The Conductor :
+120°C, Interpretation according to IEC 60216 : permanent temperature. 120°C for 20,000 h (= 2.3 years), at max. 90°C permanent temperature (= 30 years).
- UV resistance: full protection against ultraviolet rays.
- Halogen-free:** Absence of halogens, such as chlorine & fluorine. Determination of halogen content and acidity of gases as per BS EN 50267.
- Smoke Emission:** Visibility in a fire. Low Smoke Emission & Low Toxicity/Corrosivity during fire, light transmittance > 60% minimum. Tested as per IEC 613034-2,
- Weather Resistance:** Ozone resistance according to EN 50396 test Type B, - resistance according to UL 1581



- **Properties against fire:** flame retardant, fire retardant.
- **Flexibility and stripability:** for fast and easy installation.
- **Fully recyclable:** in accordance with new environmental regulations.
- **Easy installation** with color identification Black, Red or natural.
- **Cable colour:** Black
- **Suitable** to common connector types.
- **TÜV certified.**

ELECTRICAL FEATURES

- Voltage rating : 1.5 (1.8) KV DC / 0.6/1.0 (1.2) KV AC
- High voltage test: 6.5 KV DC for 5 minutes.

SINGLE CORE SOLAR CABLE

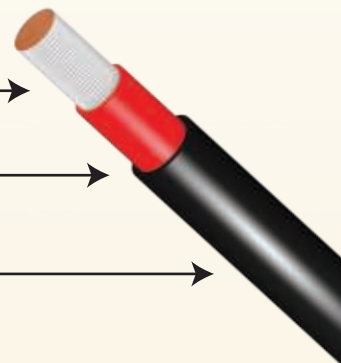
1. Conductor: Flexible Tinned Copper



2. Insulation: Cross-linked XLHF Compound



3. Outer sheath: Cross-linked XLHF Compound



Design

Complies with BS EN 50618 & IEC 62930. We are working now on UL requirements/UL Listing in case it is required by utilities

Conductor:

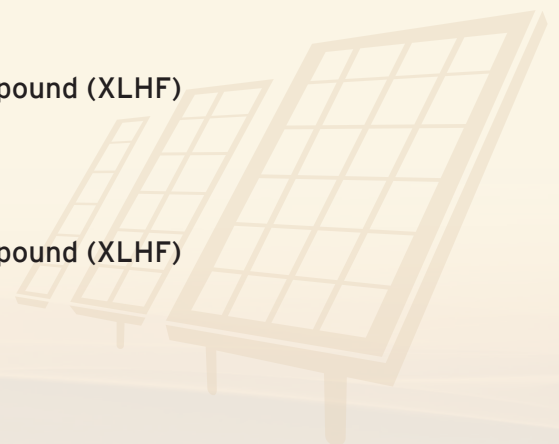
Conductors shall be of soft drawn flexible Tinned copper class 5 as per IEC 60228/BS EN 60228 (or the equivalent UL/ASTM standard).

Insulation

Insulation shall be of extruded cross-linked halogen free compound (XLHF) complies with IEC 62930 & BS EN 50618

Sheath

Insulation shall be of extruded cross-linked halogen free compound (XLHF) complies with IEC 62930 & BS EN 50618





CABLE DIMENSIONAL & ELECTRICAL DETAILS

No of Cores	Nominal Cross Sectional Area	Approx. Conductor Diameter	Thickness of Insulation Specified Value	Thickness of Sheath Specified value	Mean overall diameter (Approx.)	Approx. Weight of complete cable	Dc Resistance at 20 °C	Minimum Insulation Resistance at 20°C	Minimum Insulation Resistance at 90°C	Short circuit rating for 1 Sec.
	mm ²	(mm)	(mm)	(mm)	(mm)	(Kg/Km)	ohm/km	MΩ.km	MΩ.km	(kA)
1C	1.5	1.5	0.7	0.8	5.4	35	13.7	1050	1.05	0.19
1C	2.5	1.9	0.7	0.8	5.9	45	8.21	862	0.862	0.32
1C	4	2.51	0.7	0.8	6.6	60	5.09	709	0.709	0.51
1C	6	3.1	0.7	0.8	7.2	80	3.39	610	0.61	0.76
1C	10	4.1	0.7	0.8	8.3	121	1.95	489	0.489	1.26
1C	16	5.1	0.7	0.9	9.8	188	1.24	393	0.393	2.02
1C	25	6.35	0.9	1	12.2	275	0.795	395	0.395	3.16
1C	35	7.5	0.9	1.1	14	390	0.565	335	0.335	4.42
1C	50	9	1	1.2	16.3	545	0.393	314	0.314	6.32
1C	70	10.7	1.1	1.2	18.7	750	0.277	291	0.291	8.84
1C	95	11.8	1.1	1.3	20.8	910	0.21	258	0.258	12.0
1C	120	13.4	1.2	1.3	23	1105	0.164	249	0.249	15.2
1C	150	14.9	1.4	1.4	25.7	1465	0.132	260	0.26	18.95
1C	185	16.5	1.6	1.6	28.7	1820	0.108	268	0.268	23.4
1C	240	19	1.7	1.7	32.3	2535	0.0817	249	0.249	30.3
1C	300	21.2	1.8	1.8	35.6	3200	0.0654	237	0.237	37.9
1C	400	26	2.0	2.0	40.6	4220	0.0495	230	0.230	50.5

* The short circuit rating is calculated based on the condition of normal maximum operating conductor Temperature of 120 °C prior to short circuit & maximum conductor temperature of 250 C after the short circuit

CURRENT CARRYING CAPACITY OF PV CABLES

Nominal Cross Sectional Area	Current carrying capacity according to method of installation		
	Single cable free in Air	Single cable on a surface	Two loaded Cables on a surface
mm ²	A	A	A
1.5	31	30	24
2.5	42	40	33
4	57	54	45
6	72	69	58
10	98	96	80
16	132	130	107
25	183	174	138
35	227	215	171
50	287	273	209
70	361	344	269
95	433	411	328
120	508	483	382
150	590	560	441
185	671	638	506
240	808	767	599
300	913	866	639
400	1098	1041	825



CURRENT CARRYING CONVERSION FACTORS FOR DIFFERENT AMBIENT TEMPERATURES:

Ambient Temperature	conversion factor
0	1.22
10	1.15
20	1.08
30	1
40	0.91
50	0.82
60	0.71
70	0.58

BENDING RADIUS REQUIREMENTS

Overall diameter (D)	Minimum Bending Radius (Fixed Installation)
$D \leq 12$	3D
$D \geq 12$	4D

Proud To
Be A Part Of **The First**
SOLAR CABLE
Project **IN SAUDI ARABIA**
(SKAKA SOLAR PLANT)





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