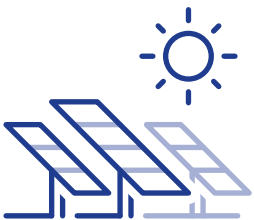


شركة الخليج للكابلات والصناعات المتعددة - الأردن
Gulf Cable & Multi Industries Co. Jordan



شركة مجموعة الخليج للكابلات والصناعات الكهربائية ش.م.ه.ع.
Gulf Cables & Electrical Industries Group Co. K.S.C.P.

SOLAR (PV) CABLES



Cables that pulse with life



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About us

Gulf Cables & Electrical Industries Group Co. (GC) was established in 1975 with objective of meeting growing local and export markets requirements, it owns two factories one located in Kuwait and the other in Jordan. Our vision is to be the leader of Gulf and Middle East region in manufacturing and supplying Cables and Conductors. Through continuous improvements driven by the integrity, teamwork and innovation, we are committed to provide such a quality that:

- Our customers will receive superior value
- Our shareholders will receive ever exceeding returns on their investments
- Our business partners will share our success Our employees will prosper

Our products are designed and manufactured to meet the needs of the Local, Regional and International Markets. All our products meet the respective world standards.

We handle all available means for exporting products - land, marine and air.

We are also equipped to meet all export requirements and formalities in the local Arab markets, including Saudi Arabia, United Arab Emirates, Oman, Bahrain, Jordan, Iraq and Qatar.

We have developed and established communication channels with our customers through which, we constantly get updates and feedbacks on their stated / implied needs and problems. Based on this information, we have devised new modalities to provide better service to our valued customers. Thus, we not only provide Quality products, but also offer a host of related services before and after the sale.

As a philosophy, our commitment to Customers does not end with a sale. We also offer a host of related services before and after the sale. These include,

- Application engineering service for selection of appropriate product best suiting the end use.
- An extensive range of Cables, single core wires, flexible cords bare & Insulated Conductors manufactured to stringent Quality standards going beyond international specifications.
- Design and Development of products tailored to meet specific requirements of the application.
- To help the customers understand the product intricacies and its performance levels.

Product Range

- Medium Voltage Power Cables up to 19/33(36) KV
- Low Voltage Power Cables up to 600/1000V
- Control Cables 600/1000V
- Bare conductors for Overhead Lines
- Earthing Conductors
- PVC or XLPE Insulated Conductors
- Domestic applications / internal wiring
- LSZH Cables & Wires
- Fire Resistant Cables & Wires
- Lead Sheathed Cables
- **Solar (PV) Cables**
- Enamelled Wires
- Telephone, Communication & Instrumentation Cables
- Resin Filled Low Voltage Joint Kits

. The tabulations on subsequent pages furnish overall dimensions, weight, drum dimensions etc.. Please note that these are "Approximate" values and subject to manufacturing tolerance. We reserve the right to change the data because of product development and /or changes in standard without notice.

. Although Gulf Cables has made every reasonable effort to ensure its accuracy, the information contained herein is subject to error or omission and to change without notice. In no event will Gulf Cable be liable for any damages whatsoever, arising in connection with the information described.

Quality & Integrated Management System

Quality has always been our top priority and to meet customer's expectation has been our prim objective; the very basis on which we earned the confidence of our clientele. It is this concern and commitment, rather than just sell of product, has given us a distinct image and competitive advantage.

Since 1997, we have Quality Assurance System to ISO:9001. The System has been certified by TÜV-Nord, as well as BASEC. The salient features of this system include:

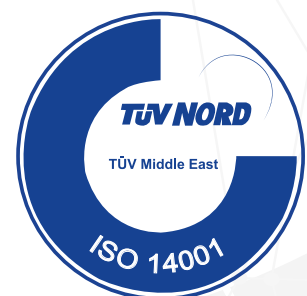
- Well defined and documented system comprising of System manual, Operating procedures, work instructions, Quality Assurance plans, Material specifications, work specifications, traceability system, Design guidelines.
- Sound vender development and approval system
- Systematic scrutiny of customer requirements and internal communication to integrate the same into product
- Thorough incoming material inspection
- Round the clock process checks at defined points and frequencies
- 100% testing before any product leaves our premises
- Well established customer interface

Our Jordan Plant management system is certified according to requirements of ISO 9001: 2015 by SGS

Environmental Management System

We at GC recognize that Environmental Issues have become critical challenge globally. We are committed to contributing towards "Leaving a beautiful planet as a legacy to future generations".

For achieving this, we believe that we need to work in harmony with the nature; recognize the environmental impact related to our business activities & products and undertake protection of environment through technologically and economically feasible goals within our scope. To pursue this in year 2007, we have implemented Environmental Management System satisfying requirements of ISO:14001. The System has been certified by TÜV-Nord.



Occupational Health & Safety Management System

We at GC recognize that way to greater sustainability is through better Health measures for employees and better Safety measures for protecting men, machines, materials and environment.

For achieving this, we believe that we need to provide a healthy and safe working habitat at our facility and take adequate steps to prevent accidents and injury arising from the course of our activities, by minimizing, so far as is reasonably practicable, the causes of hazards inherent in the working environment.

To pursue this in year 2007, we have implemented Occupational Health & Safety Management System satisfying requirements of OHSAS:18001 and continue to meet the upgraded standard ISO 45001. The System has been certified by TUV-Nord.

In order to more effectively and efficiently deliver our organizations objectives, from managing employees needs to monitoring risks and hazards, from reducing inefficiencies and maximizing resources, an Integrated Management System (IMS) approach have been adopted.

Our integrated Management system includes all three ISO Standards requirements of ISO 9001, ISO 14001 & ISO 45001. Established IMS policy is made aware to employees at all levels within GC and available to the interested parties/stake holders in GC website.



Type tested and **CERTIFICATE of Conformity** awarded
by TÜV Rheinland for full range of Solar (PV) cable family.

CERTIFICATE of Conformity		
Certificate No.:	MR 69266334 0001	
Test Report No.:	HU22GG56 002	
Certificate Holder:	Gulf Cable & Electrical Industries Co. K.S.C.P, Kuwait Al Abraj Building, Khalaf Al Ahmer Street Al Sharea Al Khams Sulaibiya Area (Area 11A), Safat, 13012 Kuwait	
Product:	Electric Cables for photovoltaic systems	
Identification:	<u>Model / Type reference:</u> H1Z2Z2-K PV cable family	
	<u>Code designation:</u>	H1Z2Z2-K
	<u>Cross section:</u>	from 1,5 mm ² to 240 mm ² acc. to EN 60228:2005 Table 3
	<u>Trade mark:</u>	GULF CABLE
	<u>Rated voltage (U₀/U):</u>	AC 1,0/1,0 kV; DC 1,5 kV (conductor-conductor, conductor-earth)
	<u>Max. permitted voltage:</u>	DC 1,8 kV
	<u>Ambient temperature:</u>	-40°C to + 90°C
	<u>Max. conductor temp.:</u>	+90°C (for normal use) +120°C (for 20000 hours)
	<u>Material of insulation:</u>	LSZH
	<u>Material of sheath:</u>	LSZH
	<u>Colour of insulation:</u>	Natural
	<u>Colour of sheath:</u>	Black
Tested according to:	EN 50618:2014	
<p>This certificate refers to the above mentioned product. This is to certify that the test sample is in conformity with the requirements stated above. This certificate does not imply assessment of the series-production of the product and does not permit the use of a TÜV Rheinland mark of conformity.</p>		
Certification Body		
Date of Issue:		
Budapest, 2022-10-18	Tamás László Tötös	
TÜV Rheinland InterCert Kft. – Product Certification Body — H-1143 Budapest, Gizella út 51-57. — www.tuv.com		
Validity of certificate can be checked on www.CERTIPEDIA.com		

GC SOLAR (PV) CABLE

Introduction:

As the world marches towards renewal source of energy, Solar Power has been the most integral part of this change. We, at GC are committed to preserve the beautiful planet for our future generations & are actively participating in this change.

We would like to introduce newly developed Solar (Photovoltaic) Cables which are used to connect solar panels & other electrical equipment in photovoltaic systems. Solar cables used in a solar power plant are specifically designed to safely transfer DC solar energy from one part of a photovoltaic device to another.



Salient Features of GC Solar (PV) Cables:

- Greater Flexibility
- Withstand wide temperature range (-40 °C to + 120 °C)
- Weathering & UV resistant
- Ozone Resistant
- Low Smoke Emission
- Flame Retardant & Halogen Free
- Acid and Alkaline Resistant Sheath

International Standards

- **BS EN 50618:** Electric Cables for Photovoltaic Systems
- **IEC 62930:** Electric Cables for Photovoltaic Systems with a voltage rating of 1.5 KV DC
- **BS EN / IEC 61034 -1 & 2:** Measurement of Smoke density of cables
- **BS EN / IEC 60754 - 1 & 2:** Tests on gases evolved during combustion of material from cables
- **IEC 60332-1-2 :** Vertical Flame propagation for a single insulated wire or cable

General Note:

- The Tabulations on subsequent pages furnish overall dimensions, weight, and drum dimensions. Please note that these are “Approximate” values and subject to manufacturing tolerance. We reserve the right to change the data because of product development and/or changes in standard.
- For any products not listed in this catalogue, please do not hesitate to contact our Sales & Marketing division, we shall be too pleased to meet your specific requirements.

GC Solar (PV) Cable 1.5 KV DC (1.8 KV DC Max) Single Core Flexible Cable – ATC/LSZH/LSZH

Description:

Tinned Flexible Class 5 Circular Copper Conductor, Low Smoke Zero Halogen (LSZH) Insulation & Low Smoke Zero Halogen (LSZH) Sheath.

Insulation Material & Colour : Crosslinked LSZH & Natural Colour

Sheath Material & Colour : Crosslinked LSZH & Black Colour



Standards :

Construction : BS EN 50618

Testing : BS EN / IEC 60754, BS EN / IEC 61034,
BS EN/ IEC 60332-1

Voltage Rating : 1.5 KV DC (1.8 KV DC Max), 1.0/1.0 KV AC

Cable Size	Maximum Conductor DC Resistance at 20°C	Nominal Insulation thickness	Nominal Sheath thickness	Approx Overall Diameter	Approx Cable Weight	Standard Packing Length (+5%)	Drum Size
Sq.mm.	0hm/km	mm	mm	mm	kg/km	Meter	
1.5	13.7	0.7	0.8	5.0	35	1000	D-6
2.5	8.21	0.7	0.8	5.5	50	1000	D-6
4	5.09	0.7	0.8	6.1	65	1000	D-6
6	3.39	0.7	0.8	6.7	85	1000	D-6
10	1.95	0.7	0.8	7.6	130	1000	D-7
16	1.24	0.7	0.9	9.0	195	1000	D-7
25	0.795	0.9	1.0	10.6	285	1000	D-8
35	0.565	0.9	1.1	12.2	390	1000	D-9
50	0.393	1.0	1.2	15.2	560	1000	D-11
70	0.277	1.1	1.2	17.0	750	1000	D-11
95	0.210	1.1	1.3	19.0	985	1000	D-12
120	0.164	1.2	1.3	21.5	1225	1000	D-14
150	0.132	1.4	1.4	24.1	1550	1000	D-16
185	0.108	1.6	1.6	26.9	1920	1000	D-16
240	0.0817	1.7	1.7	30.1	2420	1000	D-18

- The above cables shall also meet the requirements as per IEC 62930.
- Different Insulation & Sheath colours as per Customer requirement can be provided upon request
- The above data is approximate and subject to manufacturing tolerances, Gulf cable reserve the right to amend the product information without notice or any liability.

GC Solar (PV) Cable 1.5 KV DC (1.8 KV DC Max) Single Core Cable – ATC/LSZH/LSZH

Description:

Tinned Circular Class 2 Copper Conductor, Low Smoke Zero Halogen (LSZH) Insulation & Low Smoke Zero Halogen (LSZH) Sheath.
Insulation Material & Colour: Crosslinked LSZH & Natural Colour
Sheath Material & Colour : Crosslinked LSZH & Black



Standards :

Construction : IEC 62930
Testing : BS EN / IEC 60754, BS EN / IEC 61034,
BS EN/ IEC 60332-1

Voltage Rating : 1.5 KV DC (1.8 KV DC Max), 1.0/1.0 KV AC

Cable Size	Maximum Conductor DC Resistance at 20°C	Nominal Insulation thickness	Nominal Sheath thickness	Approx Overall Diameter	Approx Cable Weight	Standard Packing Length (+5%)	Drum Size
Sq.mm.	0hm/km	mm	mm	mm	kg/km	Meter	
16	1.16	0.7	0.9	8.6	190	1000	D-7
25	0.734	0.9	1.0	10.3	295	1000	D-8
35	0.529	0.9	1.1	11.6	395	1000	D-9
50	0.391	1.0	1.2	13.1	525	1000	D-10
70	0.270	1.1	1.2	14.9	725	1000	D-10
95	0.195	1.1	1.3	16.7	980	1000	D-11
120	0.154	1.2	1.3	18.3	1210	1000	D-12
150	0.126	1.4	1.4	20.3	1500	1000	D-12
185	0.100	1.6	1.6	22.8	1895	1000	D-14
240	0.0762	1.7	1.7	25.8	2445	1000	D-16

- Different Insulation & Sheath colours as per Customer requirement can be provided upon request
- The above data is approximate and subject to manufacturing tolerances, Gulf cable reserve the right to amend the product information without notice or any liability.

Current Carrying Capacity

Csble Size (Sq.mm)	Current Carrying Capacity according to method of installation		
	Single cable in free air Amps	Single cable on surface Amps	Two loaded cables, touching on a surface Amps
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

Installation Condition

Ambient Temperature: 60 °C

Max Conductor Temperature: 120 °C

Note: The expected period of use at a max. conductor temperature of 120 °C and at a max ambient temperature of 90 °C is limited to 20000 hrs.

The above current rating is also applicable for cables as per IEC 62930

Rating Factor for Ambient Temperature

Air Temperature (in °C)	Upto 60	70	80	90
Rating Factor	1.00	0.92	0.84	0.75

Short Circuit Rating

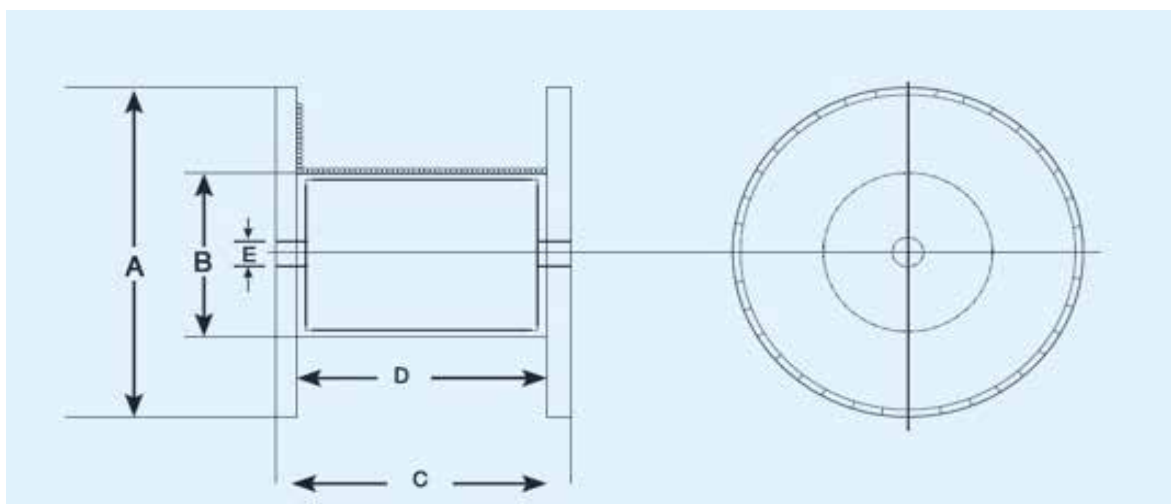
Cable Size (Sq.mm.)	Short Circuit Rating for 1 sec (kA)
1.5	0.19
2.5	0.32
4	0.51
6	0.76
10	1.26
16	2.02
25	3.16
35	4.42
50	6.32
70	8.84
95	12.0
120	15.16
150	18.95
185	23.37
240	30.32

Bending Radius

Minimum Bending Radius	(in mm)
For Fixed Installations	4 X Overall Diameter
For Free Movement	6 X Overall Diameter

DRUM SIZES & DIMENSIONS

- A. Flange Diameter (Excluding lagging), mm
- B. Barrel diameter, mm
- C. Overall width, mm
- D. Traverse width, mm
- E. Minimum spindle hole diameter, mm



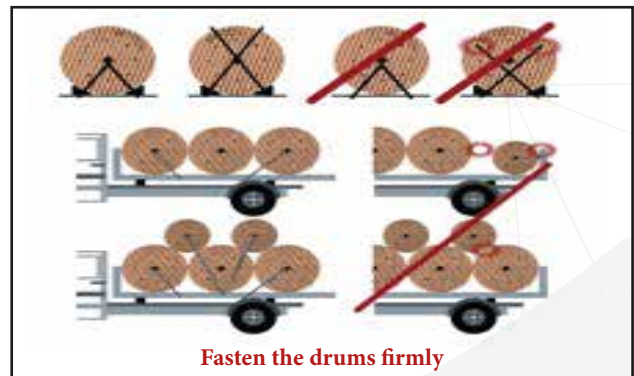
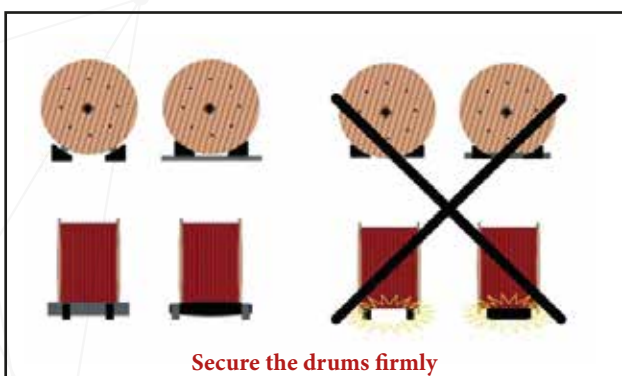
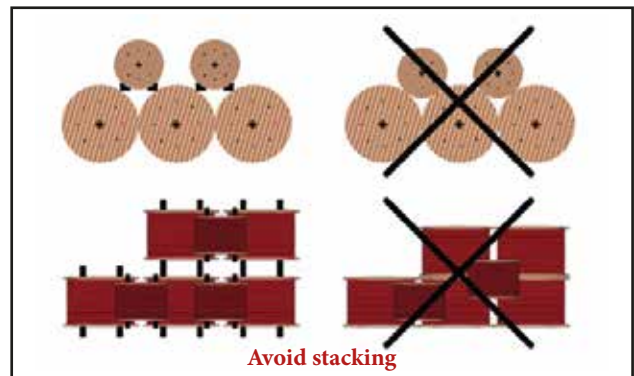
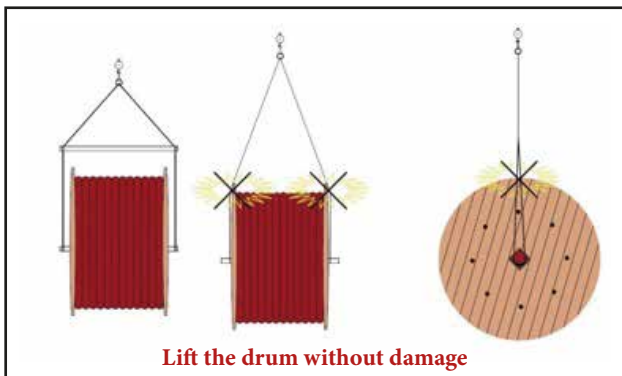
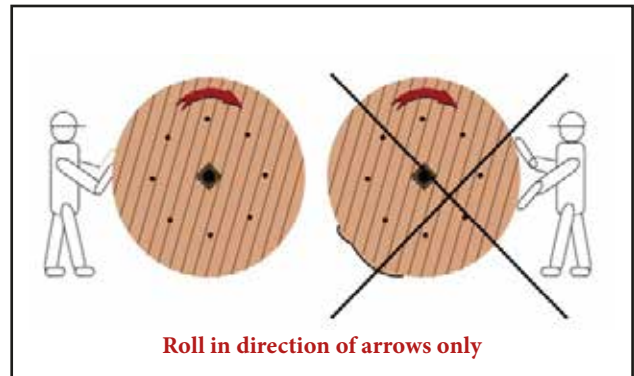
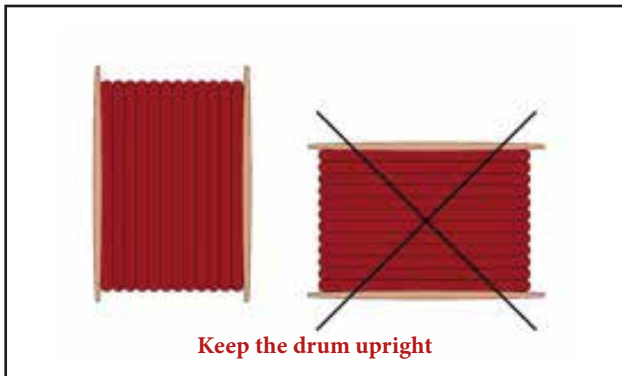
Dimensions

Drum size D-No.	A	B	C	D	E
D-6	600	250	470	400	110
D-7	700	325	570	500	110
D-8	800	375	570	500	110
D-9	900	425	620	550	110
D-10	1000	500	690	600	110
D-11	1100	575	740	650	110
D-12	1200	675	950	850	110
D-14	1400	800	950	850	110
D-16	1600	950	970	850	110
D-18	1800	1100	1220	1100	110
D-19	1900	1100	1230	1100	110
D-20	2000	1300	1235	1100	110
D-21	2100	1150	1290	1100	110
D-22	2200	1400	1390	1250	110
D-23	2340	1200	1795	1625	110
D-24	2400	1200	1795	1625	110
D-25-S	2540	1200	1825	1625	110
D-25	2540	1400	1800	1625	110
D-26	2600	1400	1970	1800	110

DRUM HANDLING

A Cable is a valuable product. If handling is not done correctly, the drum and in turn the Cable wound over it can be damaged. At times, damage might not be discovered until after installation, when repairs can be extremely difficult / expensive.

The purpose of this guide is to illustrate, how damages can be avoided by correct handling.



Cables that pulse with life

Notes

A series of horizontal dashed lines for writing notes.





WWW.GULFCABLE.COM

KUWAIT
SULAIBIYA INDUSTRIAL ZONE AREA 1, STREET NO.5
P.O.BOX: 1196 SAFAT 13012 KUWAIT

Tel: +965 24645500 - 24675244 - Fax: +965 24675305 - 24675850
E-mail: info@gulfcable.com - Website: www.gulfcable.com

JORDAN
AMMAN - MECCA ST.-AL-HUSSEINI COMPLEX NO. 152
P.O.BOX: 17938 AMMAN 11195 JORDAN

Tel: +962 65524143 - 65524144 - Fax: +962 65524145
E-mail: infojo@gulfcable.com - Website: www.gulfcable.com

