

太陽能電纜

Photovoltaic Wire



污染防治、有效利用資源
全員持續為環境保護貢獻心力



太平洋電線電纜股份有限公司

PACIFIC ELECTRIC WIRE & CABLE CO., LTD

前言

本公司自西元 1950 年創辦以來，一向秉持誠正信實的經營原則，並始終保持嚴謹的態度，不斷的研究發展、更新技術，使產品朝向多樣化，以提供使用者最優良的品質及最佳的服務，為台灣地區最大的電線電纜製造廠之一，為了盡一份地球公民責任以及企業的永續經營，我們應用多年在電線電纜之開發經驗，開發出適用於綠色能源品質需求的太陽能電纜，可提供客戶通過美國 UL 認證的產品。本公司所生產的太陽能電纜具備耐溫、耐油及抗紫外線等優異特性，可滿足嚴苛環境條件下使用的太陽能發電裝置。

UL Specification (600 V, 1000/2000V)

用途

太陽能發電裝置使用之連接線。

構造

導體：鍍錫軟銅絞線

絕緣：105°C 級，照射交連無鹵聚烯烴

外被：105°C 級，照射交連無鹵聚烯烴

認證及技術規格

認證規範：UL 4703 Type PV

認證號碼：E332409

額定電壓：600V，1000/2000V

額定溫度：-40°C 至 105°C

材料特性

耐燃性能：UL VW-1

抗紫外線：UL 4703

長期水中絕緣電阻：UL 44

符合 RoHS 及 REACH

優點

良好的低溫柔繞性

長時間壽命週期

適用所有一般的連接器

Foreword

Since PEWC's foundation in 1950, our company has kept our commitment to provide high quality products, best service to customers with conscientious attitude and the principle of reliance and sincerity, and has also been involved in research and development, updating new technology for multiple products. Hence, PEWC became one of the largest wire and cable producers in Taiwan. In order to fulfill the global citizen responsibility and business continuity, we apply many years of development experience in the wires and cables, to develop the quality of the solar energy industry demand for solar cables. We can provide the products of UL approvals to our customers.

PEWC's solar cables to meet the harsh environmental conditions typical of photovoltaic installations. Its high performance features include: high resistance against environmental conditions such as temperature, oil and UV.

Application

Cables for solar power applications.

Construction

Conductor : Tinned annealed copper strands wire

Insulation : 105°C Halogen free electron-beam cross-linked polyolefin

Jacket : 105°C Halogen free electron-beam cross-linked polyolefin

Approval and Technical specification

Approvals : UL 4703 Type PV

File No. : E332409

Nominal voltage : 600V, 1000/2000V

Temperature rating : -40°C up to 105°C

Material properties

Flame performance : UL VW-1

UV resistant : UL 4703

Long-term insulation resistance in water : UL 44

RoHS and REACH compliant

Advantages

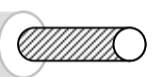
Good cold flexibility

Very long life cycle

Compatible to all popular connectors

600V Construction

PV WIRE E332409 (UL) 105°C DRY 90°C WET 600V SUNLIGHT RESISTANT -40°C VW-1 12AWG PACIFIC RoHS



規格	約計完成外徑	最大導體電阻	容許電流	包裝方式
Size	Overall Diameter(Approx.)	Maximum Conductor Resistance	Allowable Current	Package
AWG	mm	Ω/km(20°C)	A	M/R
18	5.4	23.4	16	1000
16	5.7	14.7	21	1000
14	6.1	9.25	27	1000
12	6.6	5.82	36	1000
10	7.4	3.66	48	1000
8	9.2	2.35	65	1000
6	10.3	1.48	86	1000
4	11.6	0.928	115	1000
3	12.5	0.744	133	1000
2	13.4	0.590	153	1000
1	15.9	0.467	192	1000
1/0	17.1	0.370	208	1000
2/0	18.4	0.297	240	1000
3/0	19.8	0.236	278	1000

備註：1. 容許電流為單芯線纜在環境溫度 60°C 時的參考值。

2. 包裝方式及單長可依客戶之需求提供。

Note : 1. Allowable current : Single conductor at 60°C ambient temperature.

2. The package and length can be modified according to the requirements of customer.

1000V and 2000V Construction

PV WIRE E332409 (UL) 105°C DRY 90°C WET 1000V 2000V SUNLIGHT RESISTANT -40°C VW-1 12AWG PACIFIC RoHS



規格	約計完成外徑	最大導體電阻	容許電流	包裝方式
Size	Overall Diameter(Approx.)	Maximum Conductor Resistance	Allowable Current	Package
AWG	mm	Ω/km(20°C)	A	M/R
18	6.0	23.4	17	1000
16	6.3	14.7	22	1000
14	6.7	9.25	28	1000
12	7.2	5.82	37	1000
10	8.0	3.66	49	1000
8	9.9	2.35	66	1000
6	11.0	1.48	87	1000
4	12.3	0.928	116	1000
3	13.2	0.744	134	1000
2	14.1	0.590	154	1000
1	16.5	0.467	193	1000
1/0	17.7	0.370	209	1000
2/0	19.0	0.297	241	1000
3/0	20.4	0.236	279	1000

備註：1. 容許電流為單芯線纜在環境溫度 60°C 時的參考值。

2. 包裝方式及單長可依客戶之需求提供。

Note : 1. Allowable current : Single conductor at 60°C ambient temperature.

2. The package and length can be modified according to the requirements of customer.

PV WIRE E332409 (UL) 105°C DRY 90°C WET 1000V 2000V SUNLIGHT RESISTANT -40°C VW-1 4mm²(12AWG) PACIFIC RoHS



規格	約計完成外徑	最大導體電阻	容許電流	包裝方式	
Size	Overall Diameter(Approx.)	Maximum Conductor Resistance	Allowable Current	Package	
mm ²	AWG	mm	Ω/km(20°C)	A	M/R
1.5	16	6.3	13.7	23	1000
2.5	14	6.8	8.21	30	1000
4	12	7.4	5.09	40	1000
6	10	8.5	3.39	53	1000
10	8	9.9	1.95	74	1000
16	6	11.4	1.24	97	1000
25	4	12.8	0.795	128	1000
35	2	14.0	0.565	159	1000
50	1/0	17.2	0.393	202	1000
70	2/0	19.2	0.277	252	1000
95	3/0	21.1	0.210	300	1000

備註：1. 容許電流為單芯線纜在環境溫度 60°C 時的參考值。

2. 包裝方式及單長可依客戶之需求提供。

Note : 1. Allowable current : Single conductor at 60°C ambient temperature.

2. The package and length can be modified according to the requirements of customer.

容許電流比較表(Allowable Current Comparison Table)

Rating Size	PEWC	Others	PEWC	Others
	105°C	90°C	105°C	90°C
	1000/2000V	1000/2000V	600V	600V
18 AWG	17	15	16	14
16 AWG	22	19	21	18
14 AWG	28	24	27	23
12 AWG	37	31	36	30
10 AWG	49	41	48	40
8 AWG	66	55	65	54
6 AWG	87	73	86	72
4 AWG	116	97	115	96
3 AWG	134	112	133	111
2 AWG	154	129	153	128
1 AWG	193	161	192	160
1/0 AWG	209	174	208	173
2/0 AWG	241	201	240	200
3/0 AWG	279	233	278	232
1.5 mm ²	23	19	-	-
2.5 mm ²	30	25	-	-
4 mm ²	40	34	-	-
6 mm ²	53	45	-	-
10 mm ²	74	62	-	-
16 mm ²	97	82	-	-
25 mm ²	128	108	-	-
35 mm ²	159	133	-	-
50 mm ²	202	169	-	-
70 mm ²	252	210	-	-
95 mm ²	300	250	-	-

CERTIFICATE OF COMPLIANCE

Certificate Number E332409
Report Reference E332409-20200629
Issue Date 2020-JULY-01

Issued to: Pacific Electric Wire & Cable Co Ltd
858 Sec 5 Kuaisu Rd
Yangmei District
Taoyuan
32661 TAIWAN

This certificate confirms that
representative samples of PHOTOVOLTAIC WIRE
Photovoltaic Wire, Type PV.

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 44 - Thermoset-Insulated Wires and Cables
UL 4703 - Photovoltaic Wire

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

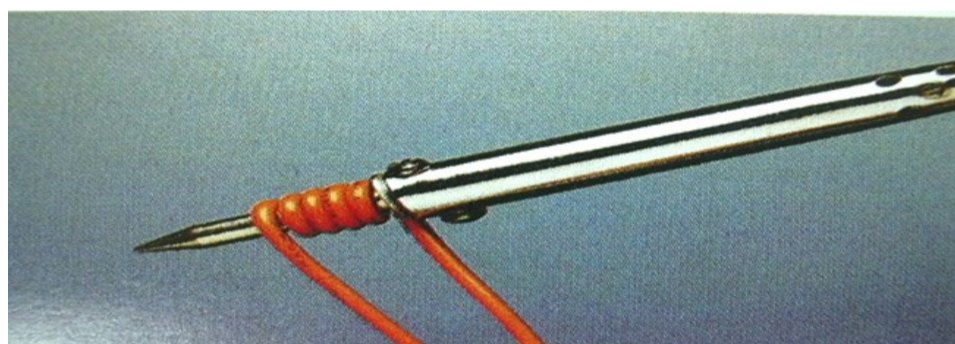
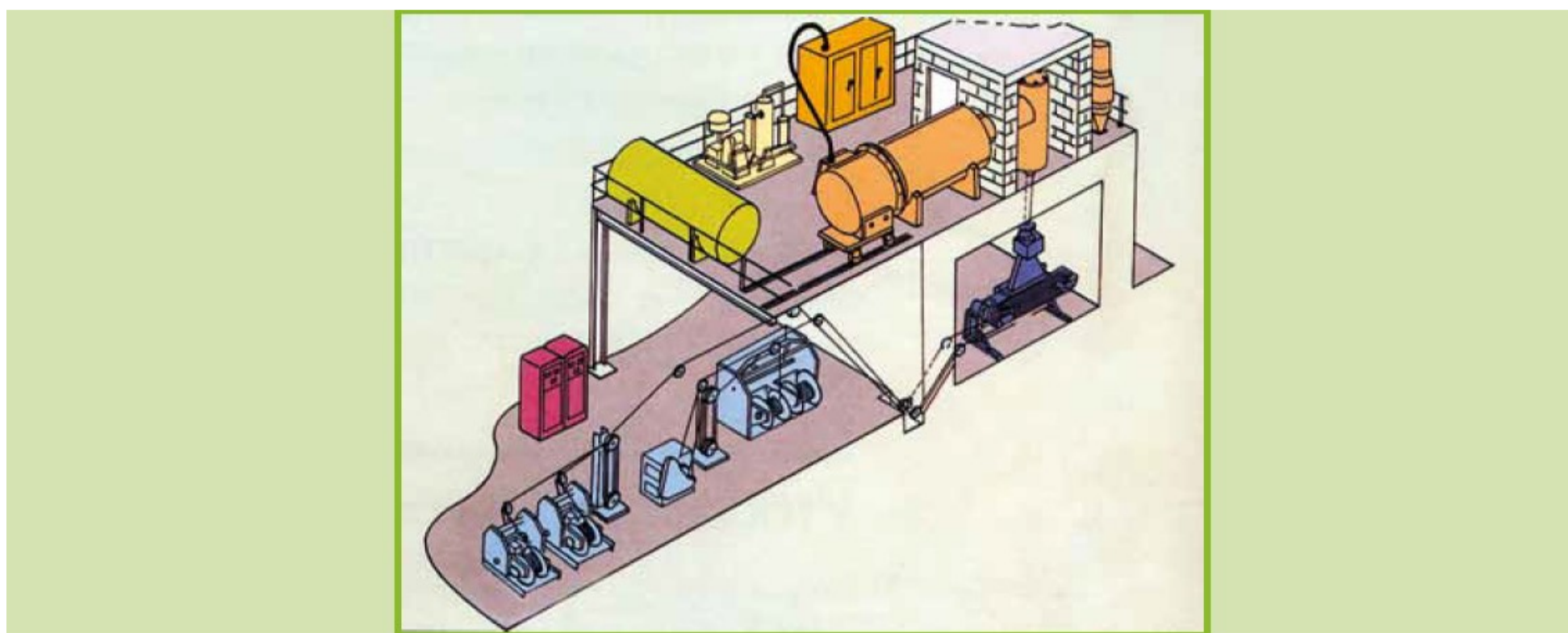
Look for the UL Certification Mark on the product.

電子束照射過程

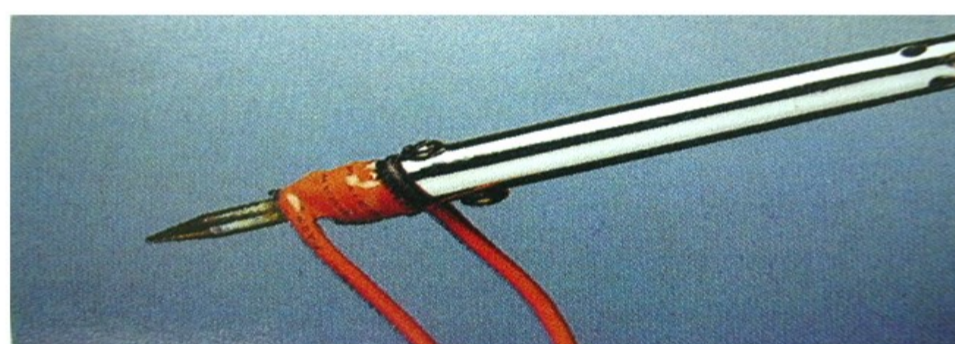
電線常用的交連方法有兩種，一為化學交連法，一為電子束交連法。在化學交連過程中，將有機過氧化物之聚烯烴材料經押出機押出，包覆在導體上然後進入連續加硫機，在高壓蒸汽管中經過一段時間，來完成交連反應；然而此種生產方式對較小外徑或薄厚度者，皆不適合。而在電子照射交連過程中，電線直接由給線架精確且均一地經由高能量電子束掃描器照射，不論導體線徑或大或小，皆可加工成交連電線。

The Irradiation Process

There are two methods of curing cross-linked, chemical cross-linking and radiation cross-linking. In chemical process, polyolefin compound mixed with peroxide is extruded, and directly passed through a continuous vulcanization facility for a certain period to make contact with high pressure steam, but it is not practical for small diameter or thin thickness. In radiation cross-linking process the wire from pay-off stand uniformly and accurately passes through a scanner where high energy electron beams are ejected from a power source. In this way, both small and large size wires with irradiated cross-linking can be processed.



照射交連 Irradiation cross-linking



無交連 Non cross-linking

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傳真：(04) 2359-4576

高雄營業處：
802 高雄市苓雅區四維三路 111 號
電話：(07) 334-8188
傳真：(07) 331-3208

本產品廢棄時處理方式：
1. 需符合當地環保法規定
2. 需交由專業處理廠商
* 專業處理廠商係指當地主管機關所核可之廢棄物處理廠商

Head Office：
No.858, Sec. 5, Kuaisu Rd., Yangmei District, Taoyuan City 326, Taiwan (R.O.C.)
TEL：(03) 420-2555
FAX：(03) 420-0670
Internet：<http://www.pewc.com.tw>

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TEL：(04) 2359-5135
FAX：(04) 2359-4576

Kaohsiung Sales Department：
No.111, Sihwei 3rd Rd., Lingya District, Kaohsiung City 802, Taiwan (R.O.C.)
TEL：(07) 334-8188
FAX：(07) 331-3208

Disposal Method：
1. Must conform to the regulation of local environmental protection policy.
2. Must professional company to deal with the disposal.
* The professional company means the authorized company owns the official permit and recognized by the local environmental protection department.