



Report No.	VOC2020N026
Company Name	Zhejiang Sowell Electric Co., Ltd
Company Location	NO. 688, SIMING MID RD. YIZHOU, NINGBO CITY, CHINA

1. General Information

Factory Details:

Tel: 86-574-88090218

E-mail Address: steenwu@pntech-power.com

Website: www.pntech-power.com

Contact Person: Mr. Steen

Cell Phone: +8613777007566

Area: 20000 m

No. of Employees: 360 persons

Products Manufactured: Electrical wire, Power cable, Special cable, Photovoltaic cable, PV connector. Power inverter.

Sub-Contractors: N/A

2. Production Capacity

Item	detailed information
Total plant area	50616 m ²
Number of cable production lines	9
Electronic crosslinking equipment	1
Injection machine	10
Daily production capacity (10 hours)	Example: PV cable 4mm ² / 300KM PV connector 30000 PCS
Test equipment	5
Test room	1

3 . Production Standard

Products	Power Cable	PV Cable	PV Cable	PV Connector	PV Cable
Standard	JB/T 10491	EN50618:2014	2 PFG 1169	IEC62852	2 PFG 2642
Type	BYJ	H1Z2Z2-K	PV1-F	PV***	PVENER-V
Certificate	/	TUV	TUV	TUV	TUV



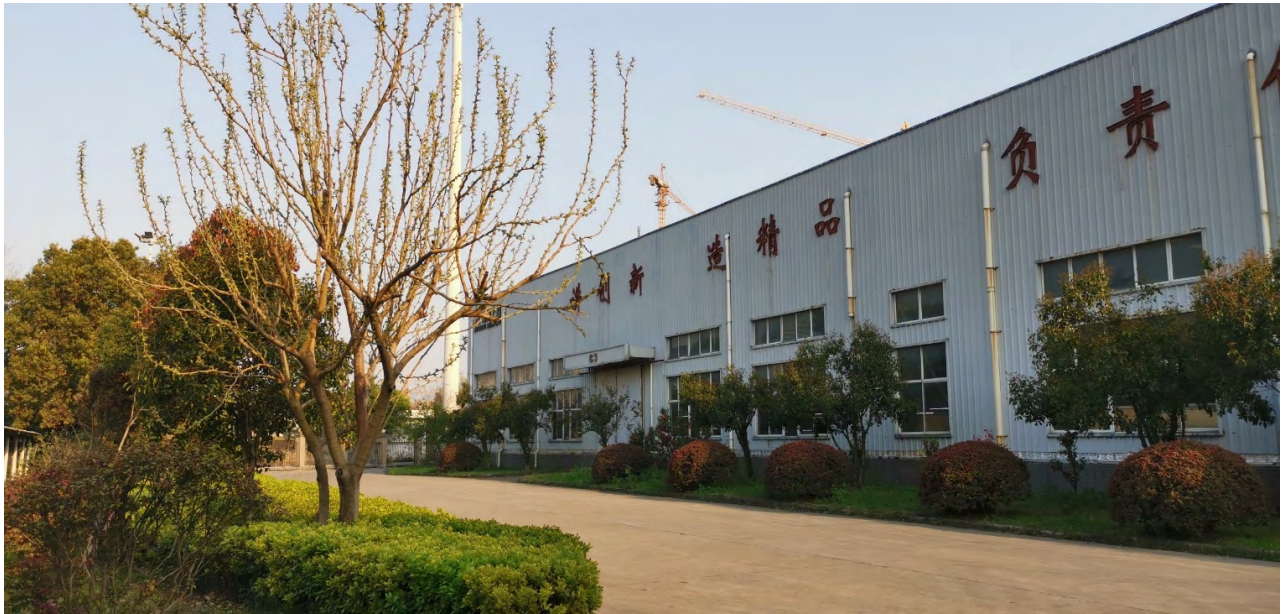
Zhejiang Sowell Electric Co., Ltd

4 . Factory and workshop



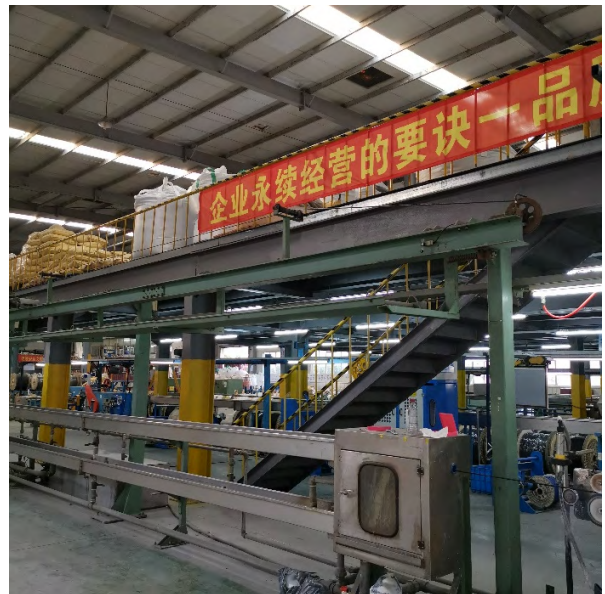


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**** Electronic crosslinking equipment that must be used to produce PV cables.**



**** Test room**



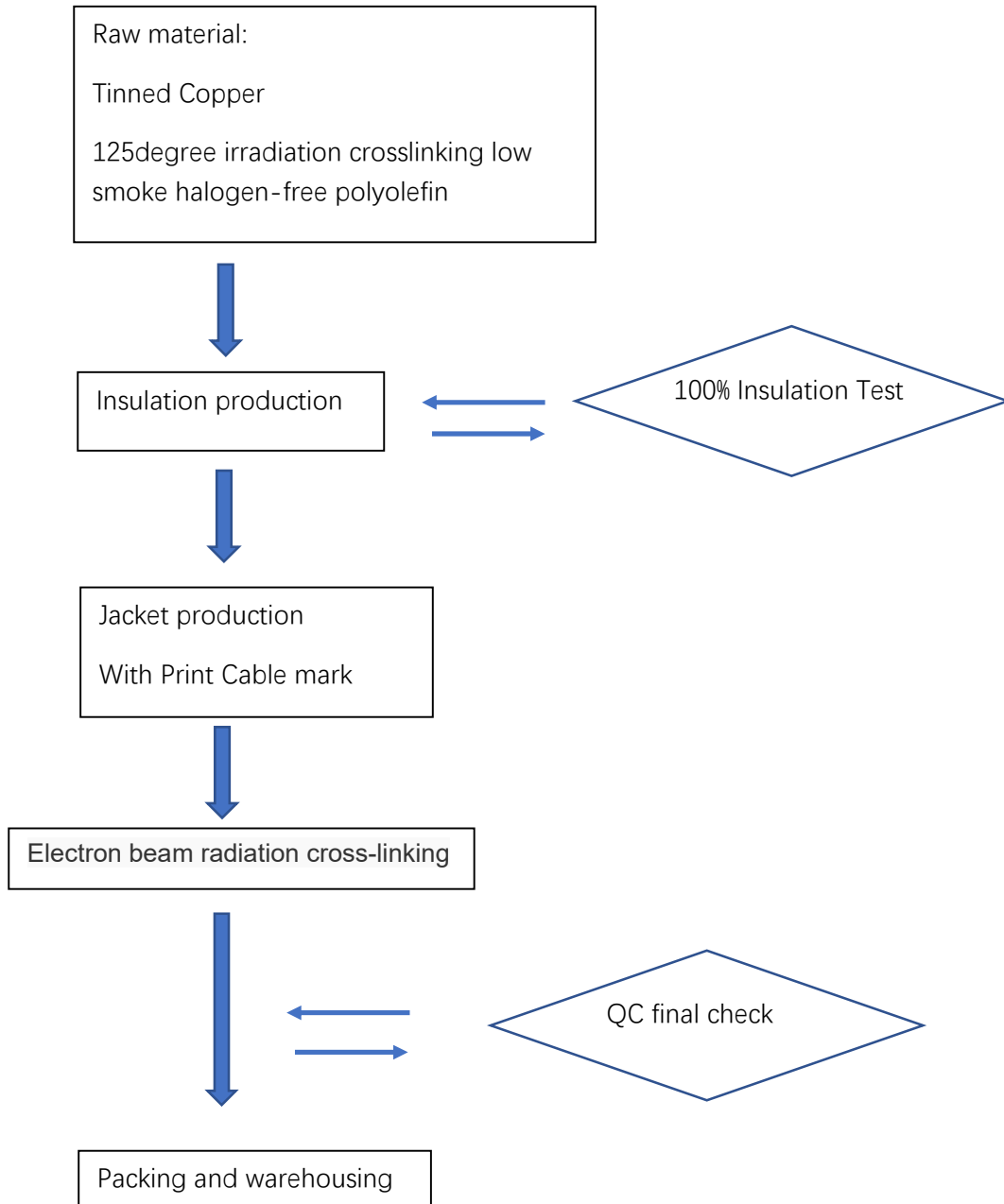


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5 . Production process of photovoltaic cable



Note: Our company has electron beam radiation crosslinking equipment, and provides processing services for other PV cable factory.



6. Solar Project

6.1 Amorphous film solar system in Ningbo



6.2 Color steel tile roof solar system





6.3 Cement roof photovoltaic system







6.4 Desert surface PV system





7. Certification

Zertifikat mit überwachter Konformität		Certificate of surveyed conformity		 TÜVRheinland [®]	
Zertifikat Nr.	Certificate No.	Blatt Sheet			
J 50490609		0001			
Ihr Zeichen	Client Reference	Unser Zeichen	Our Reference	Ausstellungsdatum	Date of Issue
Z.H.Q.		01-SYF-60421298	002	07.01.2021	(day/month/year)
Genehmigungsinhaber			License Holder		
ZHEJIANG SOWELL ELECTRIC CO., LTD #020520, NO.688, SIMING MID RD, YINZHOU DISTRICT, NINGBO Zhejiang P.R. China			Fertigungsstätte		
			Manufacturing Plant		
			ZHEJIANG SOWELL ELECTRIC CO., LTD #020520, NO.688, SIMING MID RD, YINZHOU DISTRICT, NINGBO Zhejiang P.R. China		
Prüfzeichen		Geprüft nach			
Test Mark		Tested acc. to			
		2 PFG 2642/11.17			
Safety Regular Production Surveillance					
www.tuv.com ID 1111234135					
Zertifiziertes Produkt (Geräteidentifikation)			Lizenzentgelte - Einheit		
Certified Product (Product Identification)			License Fee - Unit		
<u>(PV Aluminium cable for installation in ground)</u>					
Type Designation	: 2283877			7	
Code Designation	: PV1500DC-AL				
Additional Marking	: HALOGEN FREE LOW SMOKE				
Scope of Sizes	: 1X4...10mm ²				
Rated Voltage	: DC 1,5kV				
Max. Temperature at Conductor	: 90°C				
Remark 1:	Only suitable terminals specified for aluminium conductors shall be used.				
Remark 2:	The conductors are flexible aluminium conductors not covered by IEC 60228.				
					7
<p>Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde. Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht. This certificate is based on our Testing and Certification Regulation. The product fulfills above mentioned requirements, the production is subject to surveillance.</p>					
<p>TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg Tel.: +49 221 806-1371 e-mail: cert-validity@de.tuv.com Fax: +49 221 806-3935 http://www.tuv.com/safety</p>					
				 Zertifizierungsstelle  Bo Liu	



Zertifikat

Certificate



Zertifikat Nr. Certificate No.
R 50334055

Blatt Sheet
0002

Ihr Zeichen Client Reference	Unser Zeichen Our Reference	Ausstellungsdatum Date of Issue
Z.H.Q.	01-JJX-15087164 004	23.08.2018 (day/mo/yr)

Genehmigungsinhaber License Holder	Fertigungsstätte Manufacturing Plant
Huzhou Tianyu Science and Technology Co., Ltd. No. 1 Industrial Road, No. 1 Layer 3 Building 3 of The Science Park, South Taihu High Tech Park, Wuxing District, Huzhou, Zhejiang P. R. China	Huzhou Tianyu Science and Technology Co., Ltd. No. 1 Industrial Road, No. 1 Layer 3 Building 3 of The Science Park, South Taihu High Tech Park, Wuxing District, Huzhou, Zhejiang P. R. China

Prüfzeichen Test Mark Geprüft nach Tested acc. to
EN 50618:2014



Bauart geprüft
Sicherheit
Regelmäßige
Produktions-
überwachung

www.tuv.com
ID 1419032898

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

PV-Leitungen (Electric Cables for Photovoltaic Systems)

Type Designation : H1Z2Z2-K 1X2,5...35mm² 11

Rated Voltage : DC 1,5kV
AC 1,0/1,0kV

Ambient Temperature : -40°C to +90°C

Max. Temperature
at Conductor : 120°C

The labelling requirements acc. to EU Directive 2001/95 have to be observed for distribution within the EEA.

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht. This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg

Tel.: +49 221 806-1371 e-mail: cert-validity@de.tuv.com
Fax: +49 221 806-3935 http://www.tuv.com/safcty



Lecham Zhuang



Zhejiang Sowell Electric Co., Ltd



中安认证

质量管理体系认证证书

经北京中安质环认证中心有限公司审核，确认
湖州天煜科技有限公司

统一社会信用代码：91330502MA28CHEE3X

(注册地址：浙江省湖州市吴兴区义山路 1506 号中节能
(湖州)节能环保产业园 A37 厂房 邮编：313000)

质量管理体系符合：

GB/T 19001—2016/ISO 9001:2015

本质量管理体系覆盖下列产品：

**光伏发电系统用电线电缆、额定电压 450/750V 及以下
交联聚烯烃绝缘电线电缆的生产和服务（需 3C 产品除外）**

地址：浙江省湖州市吴兴区义山路 1506 号中节能
(湖州)节能环保产业园 A37 厂房。

注册号：02817Q11164R0M

有效期：2017 年 09 月 14 日至 2020 年 09 月 13 日

换证日期：2019 年 11 月 06 日

北京中安质环认证中心有限公司
(原 8·1 质量体系认证中心)

(地址：北京市朝阳区东三环南路 58 号富顿中心 1 号楼 22 层 邮编：100022)

签发人：

任磊



中国认可
国际互认
管理体系
MANAGEMENT SYSTEM
CNAS C028-M

证书信息查询方式：
The website of inquiry certificate:
<http://www.cnca.gov.cn>



认证状态查询



联系方式查询



证书号第 6368694 号



外观设计专利证书

外观设计名称：太阳能电池接线盒连接件

设计人：巫卫平

专利号：ZL 2020 3 0453428.8

专利申请日：2020 年 08 月 12 日

专利权人：小微（浙江）电气有限公司

地址：315100 浙江省宁波市鄞州区中河街道四明中路 688 号 0205 20 室

授权公告日：2021 年 02 月 26 日

授权公告号：CN 306350225 S

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专利证书记载专利权登记时的法律状况。专利权的转移、质押、无效、终止、恢复和专利权人的姓名或名称、国籍、地址变更等事项记载在专利登记簿上。



局长
申长雨

申长雨

2021 年 02 月 26 日

第 1 页（共 2 页）

其他事项参见续页



Produkte
Products

Prüfbericht-Nr.: Test Report No.:	CN202TD3 001	Auftrags-Nr.: Order No.:	244265055	Seite 1 von 7 Page 1 of 7
Kunden-Referenz-Nr.: Client Reference No.:	2283877	Auftragsdatum: Order date:	08.09.2020	
Auftraggeber: Client:	ZHEJIANG SOWELL ELECTRIC CO., LTD #020520, No.688, SIMING MID RD, YINZHOU DISTRICT, NINGBO, Zhejiang P. R. China			
Prüfgegenstand: Test item:	Junction Box			
Bezeichnung / Typ-Nr.: Identification / Type No.:	5T+			
Auftrags-Inhalt: Order content:	Partially test			
Prüfgrundlage: Test specification:	IEC 62790:2014; EN 62790:2015			
Wareneingangdatum: Date of receipt:	20.09.2020			
Prüfmuster-Nr.: Test sample No.:	A002909783 001 --- A002909783 002			
Prüfzeitraum: Testing period:	20.09.2020-20.10.2020			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
06.11.2020 Wanping Lou/PE <i>Wanping Lou</i>		06.11.2020 Bright Liu/Reviewer <i>Bright Liu</i>		
Datum Date	Name / Stellung Name / Position	Unterschrift Signature	Datum Date	Name / Stellung Name / Position
Sonstiges / Other: As required by ZHEJIANG SOWELL ELECTRIC CO., LTD, Group H and Group J test have been carried out on product: 5T+ Measurement Devices List: See page 2. Test results listed in this test report refer exclusively to the mentioned test sample which provided by ZHEJIANG SOWELL ELECTRIC CO., LTD.				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				





Zhejiang Sowell Electric Co., Ltd



TMZC44548112D01T210330



第 44548112 号

商标注册证

PNTECH

核定使用商品/服务项目（国际分类：35）

第35类：人事管理咨询；在计算机档案中进行数据检索（替他人）（截止）

注册人 宁波德汇检测认证有限公司

注册人地址 浙江省宁波市鄞州区四明中路688号040622室

注册日期 2021年03月07日 有效期至 2031年03月06日

局长



申长雨

发证机关





Zhejiang Sowell Electric Co., Ltd

No. 1924026
編號



公司註冊處
COMPANIES REGISTRY

CERTIFICATE OF INCORPORATION

公司註冊證書

I hereby certify that
本人謹此證明

NINGBO PNTECH NEW ENERGY CO., LIMITED
寧波品恩泰克新能源有限公司

is this day incorporated in Hong Kong under the Companies Ordinance
於本日根據《公司條例》(香港法例第32章)
(Chapter 32 of the Laws of Hong Kong) and that this company is limited.
在香港註冊成為有限公司。

Issued on 17 June 2013.

本證書於二〇一三年六月十七日發出。

Ms Ada L L CHUNG

.....
Registrar of Companies
Hong Kong Special Administrative Region
香港特別行政區公司註冊處處長鍾麗玲

Note 註:

Registration of a company name with the Companies Registry does not confer any trade mark rights or any other intellectual property rights in respect of the company name or any part thereof.
公司名稱獲公司註冊處註冊，並不表示獲授予該公司名稱或其任何部分的商標權或任何其他知識產權。



Zhejiang Sowell Electric Co., Ltd



缆慧检测



170921341513



中国认可
国际互认
检测
TESTING
CNAS L9930

报告编号: TN19-2760

样品编号: CN19-2673

第 1 页 共 6 页

合同号: ISTCW19-1363

检 测 报 告

委托方	湖州天煜科技有限公司 浙江省湖州吴兴区义山路 1506 号中节能环保产业园 A37 厂房
样品名称	/
型号规格	ZC-RV 1.5 平方 450/750V
试验类别	委托试验
样品接收日期	2019 年 08 月 12 日
检测周期	2019 年 08 月 12 日至 2019 年 08 月 22 日
检测结论	该样品所检测项目符合 GB/T 5023.3—2008 的标准要求。

上海缆慧检测技术有限公司授权

李骥 Li Ji

签发日期 2019-08-22

检测工程师: 袁常俊 Yuan Changjun

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上海市浦东新区金藏路 258 号 2 幢 1 楼
电话: 86-4008526288

邮编: 201206
传真: 86-21-50680618

网址: www.istcw.com
邮箱: service@istcw.com



Zhejiang Sowell Electric Co., Ltd

SPECIFICATION FOR APPROVAL

Customer:

.....

Description:

TUV CERTIFIED SOLAR CABLE

EN50618 H1Z2Z2-K

.....

Edition:

A0

.....

Customer Approve	Checked By	Made By
		Steen Wu



Tel: 86-574-88090218 Email: sales@pntech-power.com

Add: No.688, Siming Mid Road, Yinzhou District, Ningbo, Zhejiang, China



TÜV CERTIFIED SOLAR CABLE

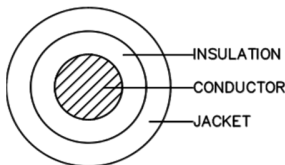
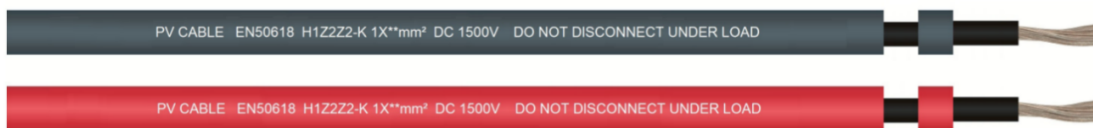
EN50618 H1Z2Z2-K 1.5mm²-240mm²



1.Application

The PV-H1 Solar Cable is used for cabling solar modules or solar system.

2.Cable design



- 1.Conductor: fine wire strands of tinned copper wires, according IEC 60228, Class 5
- 2.Insulation: halogen free PE, electron beam cross-linked, colour: black
- 3.Outer jacket: halogen free and flame retardant XLPE, electron beam cross-linked resistance against water, UV resistant, colour: black or red

3.Temperature range

Max. temperature at conductor	-40°C up to +120°C
Temperature range	-40°C up to +90°C (min.25 years)

4.Electrical characteristics

Nominal voltage U ₀ /U	AC 1000V, DC 1500V
Mat. DC voltage	1800V (conductor-conductor, Non-earthed system, circuit not under load)
test-voltage	AC-6.5KV
Min. Surface resistance of sheath	10 ⁹ Ω
Other tests	according EN 50618



TÜV CERTIFIED SOLAR CABLE

EN50618 H1Z2Z2-K

5. Mechanical Characteristics

Min. bending radius	5 x cable diameter
Tensile strength and elongation	according EN 60811-1-1
Cold bending	according EN 60811-1-4
Thermal endurance properties	according EN60216-2



6. Environmental characteristics

Halogen free	according 50525-1 Annex B
Ozone resistance	according EN 50396
UV resistance	according HD 605/A1
Flame characteristics	according IEC 60332-1-2

7. Product Description

Part no.	No. cores x cross-sec. mm ²	Conduct No. and dia. N/mm	Outer Ø Approx. mm	Conductor dc res. ≤ Ω /km	Min. insulation resistance (MΩ.km)	
					at 20°C	at 90°C
PV-H1-15	1X1,5	30/0.25	4.8 ± 0.2	13.7	860.00	0.86
PV-H1-25	1X2,5	49/0.25	5.3 ± 0.2	8.21	690.00	0.69
PV-H1-40	1X4	56/0.285	5.6 ± 0.2	5.09	580.00	0.58
PV-H1-60	1X6	84/0.285	6.1 ± 0.2	3.39	500.00	0.50
PV-H1-100	1X10	80/0.40	7.3 ± 0.2	1.95	420.00	0.42
PV-H1-160	1X16	126/0.40	9.3 ± 0.2	1.24	340.00	0.34
PV-H1-250	1X25	196/0.40	11.2 ± 0.2	0.795	340.00	0.34

Part no.	No. cores x cross-sec. mm ²	Conduct No. and dia. N/mm	Outer Ø app. mm	Conductor dc resistance ≤ Ω /km	Min. insulation resistance (MΩ.km)	
					at 20°C	at 90°C
PV-H1-350	1X35	273/0.40	12.6 ± 0.2	0.565	290.00	0.29
PV-H1-500	1X50	378/0.40	13.2 ± 0.2	0.393	270.00	0.27
PV-H1-700	1X70	360/0.50	14.6 ± 0.2	0.277	250.00	0.25
PV-H1-950	1X95	480/0.50	16.3 ± 0.2	0.21	220.00	0.22
PV-H1-1200	1X120	600/0.50	18.2 ± 0.2	0.164	210.00	0.21
PV-H1-1500	1X150	740/0.50	19.8 ± 0.2	0.132	210.00	0.21
PV-H1-1850	1X185	940/0.50	22.5 ± 0.2	0.108	200.00	0.20
PV-H1-2400	1X240	1220/0.5	25.2 ± 0.2	0.0817	200.00	0.20

Dimensions and specifications may be changed without prior notice.

8. Marking

PV CABLE EN50618 H1Z2Z2-K 1X ** mm² DC 1500V DO NOT DISCONNECT UNDER LOAD

9. Industry Standards

EN 50618:2014



TÜV CERTIFIED SOLAR CABLE

2 PFG 2642 PVENER-V

5. Mechanical Characteristics

Min. bending radius

Tensile strength and elongation

Cold impact test

Thermal endurance properties

5 x cable diameter

according EN 60811-501

according EN 60811-1-4

according EN60216-2



6. Environmental characteristics

Halogen free

Ozone resistance

UV resistance

Flame characteristics

according 50525-1 Annex B

according EN 50396

according EN50289-4-17

according IEC 60332-1-2

7. Product Description

Part no.	No. cores x cross-sec. mm ²	Conduct No. and dia. N/mm	Outer Ø Approx. mm	Conductor dc res. ≤ Ω /km	Min. insulation resistance (MΩ.km)	
					at 20°C	at 90°C
PV-H1-40	1X4	56/0.285	5.6 ± 0.2	5.09	580.00	0.580
PV-H1-60	1X6	84/0.285	6.1 ± 0.2	3.39	500.00	0.500
PV-H1-100	1X10	80/0.40	7.3 ± 0.2	1.95	489.00	0.489
PV-H1-160	1X16	126/0.40	9.3 ± 0.2	1.24	395.00	0.395
PV-H1-250	1X25	196/0.40	11.2 ± 0.2	0.795	393.00	0.393

Part no.	No. cores x cross-sec. mm ²	Conduct No. and dia. N/mm	Outer Ø app. mm	Conductor dc resistance ≤ Ω /km	Min. insulation resistance (MΩ.km)	
					at 20°C	at 90°C
PV-H1-350	1X35	273/0.40	12.6 ± 0.2	0.565	335.00	0.335
PV-H1-500	1X50	378/0.40	13.2 ± 0.2	0.393	314.00	0.314
PV-H1-700	1X70	360/0.50	14.6 ± 0.2	0.277	291.00	0.291
PV-H1-950	1X95	480/0.50	16.3 ± 0.2	0.21	258.00	0.258
PV-H1-1200	1X120	600/0.50	18.2 ± 0.2	0.164	249.00	0.249
PV-H1-1500	1X150	740/0.50	19.8 ± 0.2	0.132	268.00	0.268
PV-H1-1850	1X185	940/0.50	22.5 ± 0.2	0.108	260.00	0.260
PV-H1-2400	1X240	1220/0.5	25.2 ± 0.2	0.0817	249.00	0.249

Dimensions and specifications may be changed without prior notice.

8. Marking

PV CABLE 2PFG 2642 PV1500DC-AL 1X ** mm² DC 1500V DO NOT DISCONNECT UNDER LOAD PVENER-V1

9. Industry Standards

2PFG 2642



Zhejiang Sowell Electric Co., Ltd

Collection account and instructions

USD account (NO.1): For SOWELL PI

BENEFICIARY BANK: BANK OF NINGBO
SWIFT BIC: BKNBCN2N
BENEFICIARY ACCOUNT: 53182025000000849
BENEFICIARY NAME: **ZHEJIANG SOWELL ELECTRIC CO., LTD**

USD account (NO.2) For PNTECH PI

BENEFICIARY BANK: PING AN BANK CO., LTD
(SWIFT BIC: SZDBCNBS)
BENEFICIARY ACCOUNT: 11014513593004
BENEFICIARY NAME: NINGBO PNTECH NEW ENERGY CO., LTD
BENEFICIARY ADDRESS: NO.31 HUANZHEN NORTH ROAD JIANGSHAN YINZHOU NINGBO ZHEJIANG CHINA

RMB account: For China YUAN PI

BENEFICIARY BANK (RMB): 平安银行宁波市分行营业部
BENEFICIARY ACCOUNT : 6230580000035867873
BENEFICIARY NAME: 巫卫平



Cable and Connectors



Plastic Products



International trading

小微（浙江）电气有限公司
ZHEJIANG SOWELL ELECTRIC CO.,LTD

For and on behalf of
NINGBO PNTECH NEW ENERGY CO., LIMITED
寧波品恩泰克新能源有限公司

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Authorized Signature(s)