

连接器安装说明书-PV-JK03M2/xy Series

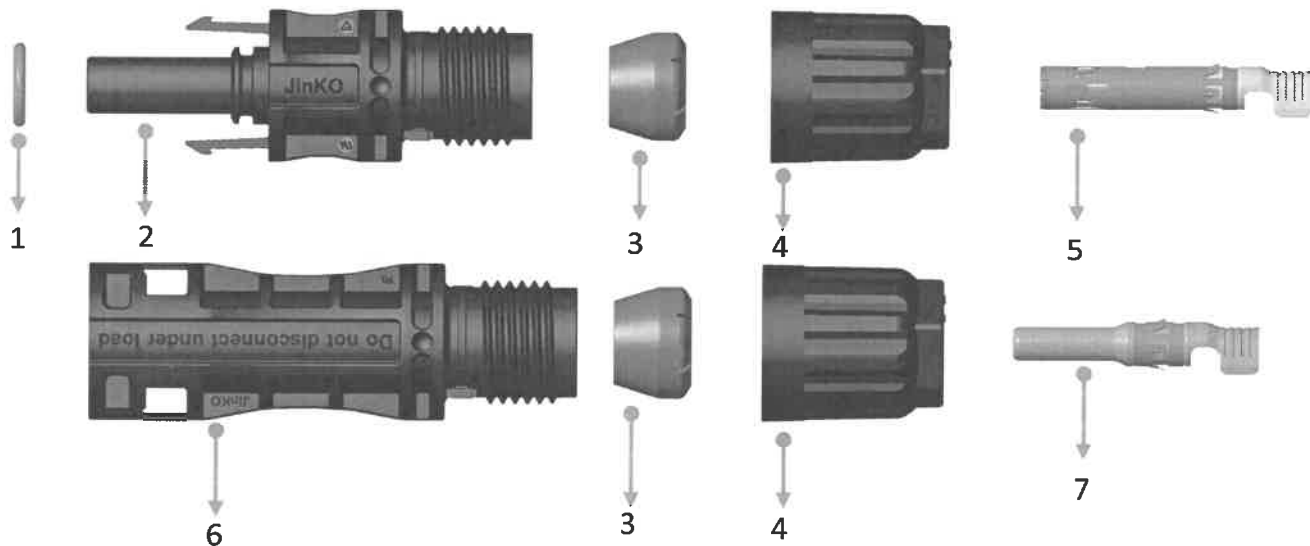
Installation Manual for PV-JK03M2/xy Series Cable Connector



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1. 产品简介 Products Overview



- 1 O型圈 (O Ring)
- 2 公头 (Male Housing)
- 3 防水内塞 (Cable Gland)
- 4 塑胶螺帽 (Gland Nut)

- 5 插套 (Female Terminal)
- 6 母头 (Female Housing)
- 7 插针 (Male Terminal)

2.工具及配件简介 Tools and Parts Overview

Item	Tool Type	Tool Name	Pic.
1	JKT-01	剥线工具 Stripping Tool	
2	JKT-02	压接工具 Crimping Tool	
3	JKT-06	组装机 Assembly Tool Open-end-Wrench	
4	JKT-04	通用工具 Universal Tool	
5	4JB03M31005 4JB03M31007	防尘塞 Dust plug	
6	JKT-09	扭矩扳手 Torque wrench	

3.技术参数 Technical Data

产品型号 Type Name or Model No.	PV-JK03M2-F/xy, PV-JK03M2-M/xy
额定电压 Rated Voltage (V DC)	1000 V DC/1500 V DC (TÜV) 1000 V DC/1500 V DC (UL)
额定绝缘电压 Rated Insulation Voltage	6000 V (1000 V DC) 8000 V (1500 V DC)
额定电流 Rated Current (A DC)	30 A (2.5mm ² /14AWG) 45 A (4.0mm ² /12AWG) 50 A (6.0mm ² /10AWG)
应用等级 Application Class	Class A
防护等级 / 污染等级 Protection Class / Pollution Degree	Class II / 2
工作温度范围 Ambient Temperature	- 40°C to + 85°C
温度上限 Upper Limit Temperature	115°C
过电压等级 Over Voltage Category	CAT III
防火等级 Flammability Class	UL94 V-0/5VA

防护等级, 插合状态 / 未插合状态 Degree of Protection, mated / unmated	IP65/ IP68 (1m, 2h) in mated condition IP2X in unmated condition
电缆截面积 Wire Cross Section Area or Cross Section Range	1X2.5mm ² (14AWG) for y=A; 1X4.0mm ² (12AWG) for y=B; 1X6.0mm ² (10AWG) for y=C;
可否更换电缆 Rewireable	No
电缆线径 Cable Diameter	4,70mm to 8,00mm
接触电阻 Contact Resistance	≤0.2 m Ω
金属材料 Contact material	铜, 镀锡 Copper, tin plated
绝缘材料 Insulation Material	PA
是否封闭 Existence of an enclosure	封闭式连接器 (不可徒手打开) Enclosed connector
认证标准 Certification Standard	IEC 62852 Edition 1.0 2014-11; UL6703

Note: PV-JK03M2-F/xy ; PV-JK03M2-M/xy (x=1 or 2, y=A or B or C)

4.工具使用说明 Tools Instruction

◇ 剥线工具-JKT-01：适用于 2.5mm²(14AWG)、4.0mm²(12AWG)、6.0mm²(10AWG)线缆。

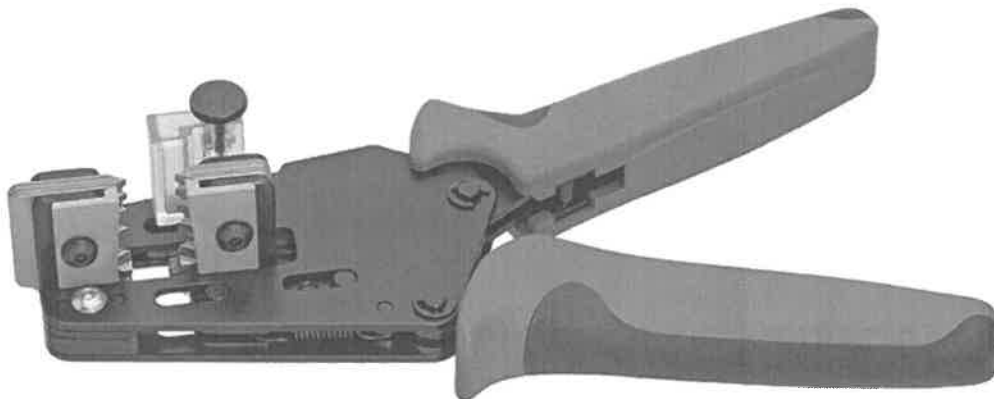
The Stripping Tool-JKT-01 is applicable to 2.5mm²(14AWG) or 4.0mm²(12AWG) or 6.0mm²(10AWG) cable.

一套=1 把

There is one stripping tool JKT-01 per tool set.

作用：裁切电缆线绝缘层（使得铜丝外露）。

Function: Cutting the wire insulation (exposing the copper wire).



Stripping Tool - JKT-01

◇ 压接工具-JKT-02：适用于 2.5mm²(14AWG)、4.0mm²(12AWG)、6mm²(10AWG)线缆。

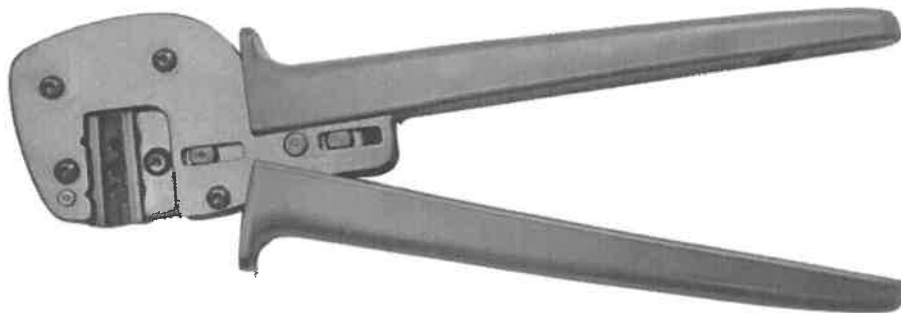
The Crimping Tool-JKT-02 is applicable to 2.5mm²(14AWG) or 4.0mm²(12AWG) or 6.0mm²(10AWG) cable.

一套=1 把

There is one crimping tool-JKT-02 per tool set.

作用：起到铆接功能，使得电缆线铜丝与金属端子之间的连接与固定。

Function: The connection and crimping between the copper wire and metal terminals are all made by the crimping tool.



Crimping Tool- JKT-02

◇ 组装工具-JKT-06: 一套=2 把;

Assembly Tool -JKT-06: There are two assembly tools per tool set.

作用: 用于组装拆装连接器。

Function: Used for assembling and disassembling connectors.

作用: 锁紧螺母
Function: Lock nut

作用: 固定接头
Function: Fixed connector

组装工具: 开口扳手 (1 套=2 把)
Assembly tool: Open-end Wrench (1 set=2 pieces)

作用: 打开紧锁装置
Function: To open the locking device



Assembly Tool -JKT-06

5.安装说明 Installation Instruction

5.1 电缆准备 Cable Preparation:

◇ 连接器配置与 TÜV, TÜV/UL

Connector configuration in combination with TÜV, TÜV/UL

使用经过 TÜV、TÜV/UL（双认证）的电缆时，请从表 1 中选择适合的配置：

Choose the suitable configuration in Tab. 1 by using TÜV, TÜV/UL (dual) certified cables:

表1 (Table 1)

导体横截面 Conductor cross section		电缆直径范围(mm) Ø-range of the cable (mm)	选用防水内塞 Chose Cable Gland	连接器配置 Connector configuration
mm ²	AWG			
2.5	14	4.7~6.4	黑色/Black	PV-JK03M2/xA
4	12	5.5~6.4	黑色/Black	PV-JK03M2/xB
6	10	6.4~8.0	红色/Red	PV-JK03M2/xC

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- ◇ 请勿使用无镀锡的或已氧化的导线，推荐使用镀锡的导线。

Do not use untreated cables. Tinned wires are recommended.

- ◇ 剥去电缆线端部 L=7-9mm 的绝缘层。

When stripping the cable insulation “L”, 7mm to 9mm in length should be removed on the end of cable.

- ◇ 剥线时请勿切断内部的铜丝。

Do not cut the copper wire inside.



- ◇ 把剥线工具的固定块调至 7-9mm 处（控制 “L” 的长度）。

Fix the stripping tool, cutting length to 7mm to 9mm (the length of L should be fixed).

- ◇ 调节完毕后，一手拿取电缆，一手手持剥线工具。

Take the cable one hand and take the stripping tool-JKT-03 the other hand.

- ◇ 将电缆线的端部放至对应的刀口处，并使电缆的端部触碰到固定块（如图 1）
Insert cables until the end touches fixed block.(Fig. 1)
- ◇ 手用力压紧剥线工具的手柄，最后切除绝缘层（如图 2）。
Squeeze the handle of the stripping tool by hand, then cut and remove the cable insulation.(Fig. 2).

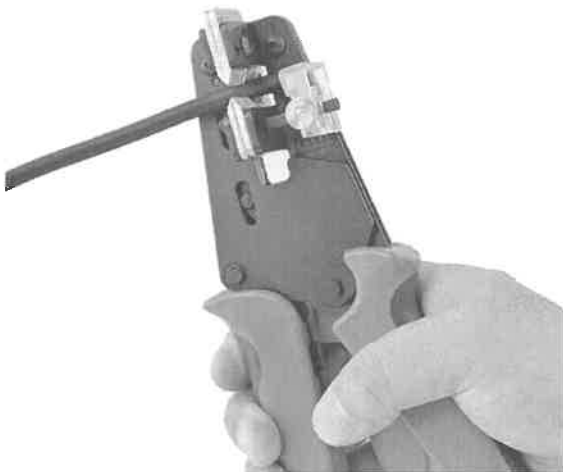


Figure 1



Figure 2

5.2 压接 Crimping

5.2.1 压接工具压接 Manual Tools Crimping

- 使用专用压接工具（如 JKT-02）压接时，先将已剥好的线缆线芯放入端子槽内，并确保所有芯线都在端子槽内，然后将要压接的端子放入压线钳钳口，并对应正确的定位器孔位压接（见图 3 至图 7），压接完成后检查压接是否牢固（如图 8），压接后电缆拉力要求需满足表-1 要求。

When crimping with specified Crimping tools (e.g. JKT-04), insert striped cable into contact barrel and insure all conductor strands are captured in the contact barrel. Crimp contact barrel by using the corresponding crimping die, See below pictures from Fig.3 to Fig.7. Check whether the crimping is firm after the crimping is completed. (Fig. 8). The pull-out force has to meet below table-1.

表-1 (Table-1)

No.	线缆规格 Cable Size	电缆压接拉力要求 Cable Crimping Pull-Out Force
1	2.5mm ² /14AWG	≥223 N (Min.223 N)
2	4.0mm ² /12AWG	≥310 N (Min.310 N)
3	6.0mm ² /10AWG	≥360 N (Min.360 N)
4	10.0mm ² /8AWG	≥400 N (Min.400 N)

- ❖ 打开压接工具并按住夹子，把插针/插套放在合适的界面区域，转动插针/插套使开口朝上，松开夹子，插针/插套即被固定（如图 3、4）。

Open the crimping tool and press the clip. Insert the male/female terminal into appropriate groove until fully seated. To make the opening of the male/female terminal face up. (Fig. 3 & 4).

- ❖ 逐渐压接工具直到插针/插套开口完全接触到压接模（如图 5）。

Squeeze the crimping tool gradually until the male/female terminal touches the lower half of the crimping mold.(Fig.5).



Figure 3

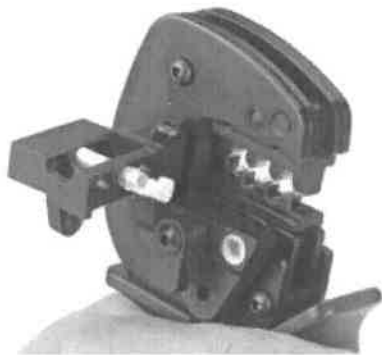


Figure 4

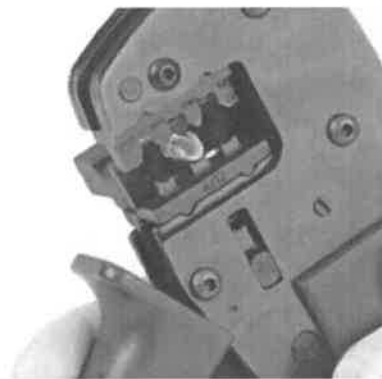


Figure 5

- ✧ 将电缆线的剥线端插入插针/插套的开口内直到电缆线的绝缘层接触到插针/插套开口处，最后完全压紧压接工具（如图 6、7）。

Insert the stripped wire into the male/female terminal until the cable insulation touches the opening of the male/female terminal. Press the crimping tool completely. (Fig. 6、7).

- ✧ 检查压接完整且牢固（如图 8）。

Be sure the crimping is complete and fixed. (Fig. 8).

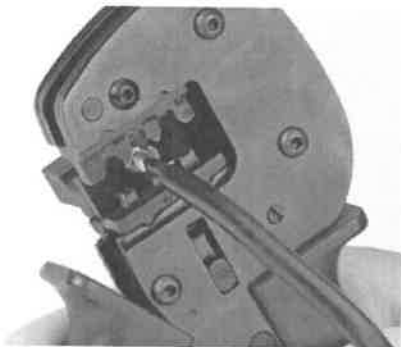


Figure 6

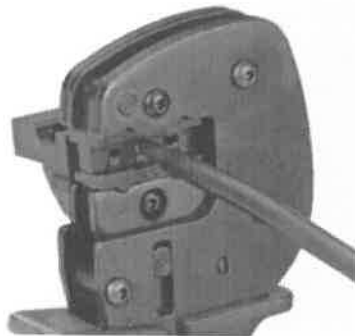


Figure 7



Figure 8

5.2.2 自动压接设备压接 Automatic Machine Crimping

◇ 客户用自动铆接设备对线缆进行压接时，建议压接规范如表格-2。

If customer use the automatic crimping machine, we suggest that the contact crimping spec. should meet the table-2 requirement.

◇ 需要定期对压接结构做剖面分析，分析内容应涵盖如下（参考 Fig. 9）。

It is very important to do a micro-cutting tests, the test should be contained following items: (REF. Fig.9).

表-2 线缆截面分析 (Table-2 Cable cross-sectional Analysis)

	NO.	截面规格 Cross-Sectional		技术要求 Spec.	
				12AWG/4mm ²	10AWG/6mm ²
<p>Figure 9</p>	1	CH	压接高度 Crimp Height	2.30±0.05mm	2.60±0.05mm
	2	CB	压接宽度 Crimp Width	4.00±0.10mm	4.25±0.10mm
	3	CBm	可测量压接宽度 Measurable Crimp Width	1.0*CB≤CBm≤1.1*CB	1.0*CB≤CBm≤1.1*CB
	4	D	羽翼尖端间距 Crimp face Ends	D ≤ 0.35mm	D ≤ 0.35mm
	5	GH	毛刺高度 Burr Height	GH ≤ 0.7mm	GH ≤ 0.7mm
	6	GB	毛刺宽度 Burr Width	GB ≤ 0.5mm	GB ≤ 0.5mm
	7	CH/CB	高度/宽度比率 Crimp Height/Crimp Width	50%≤(CH/CW)≤70%	50%≤(CH/CW)≤70%
	8	C/R	压缩比率 Compression Ratio	75%≤C/R≤85%	75%≤C/R≤85%
	9	P	孔隙率 Void Ratio	≤1.00%	≤1.00%

注意：上述剖面分析仅针对 12AWG/4mm²& 10AWG/6mm² 线缆，其它规格线缆本说明书暂不提供。

Note: The above cross-sectional analysis are only for 12AWG/4mm²& 10AWG/6mm² cable.

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◇ 压接刀具图纸参考 (如图 10&11)

Crimping Tool Drawing (Fig 10&11)

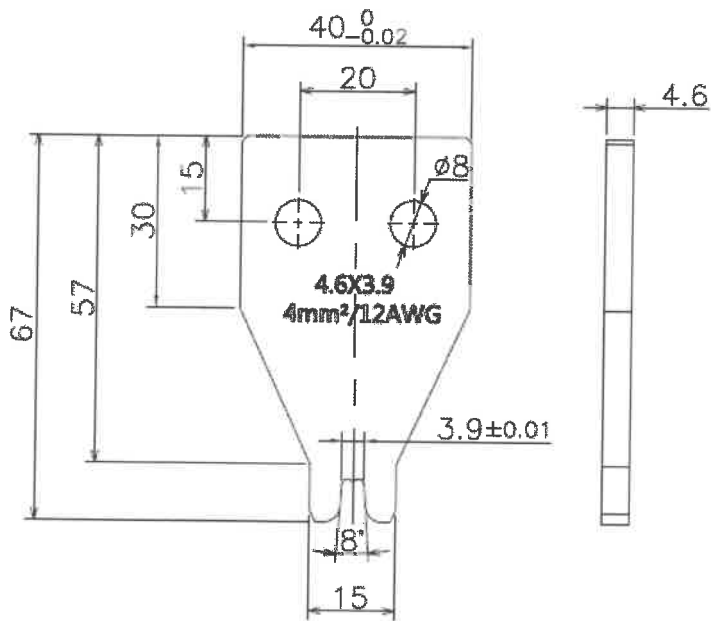


Figure 10 上刀模 (Up Blade)

注意: 上述压接刀具图纸仅针对 12AWG/4mm² 线缆。

Note: The above crimping tool drawing are only for 12AWG/4mm² cable.

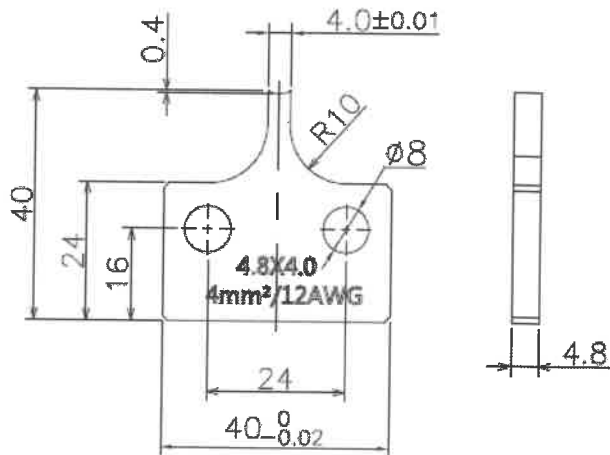


Figure 11 下刀模 (Down Blade)

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◇ 压接刀具图纸参考（如图 12&13）

Crimping Tool Drawing (Fig 12&13)

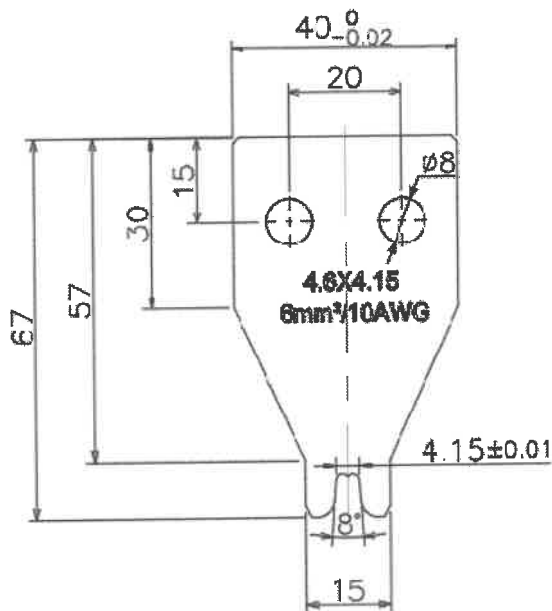


Figure 12 上刀模 (Up Blade)

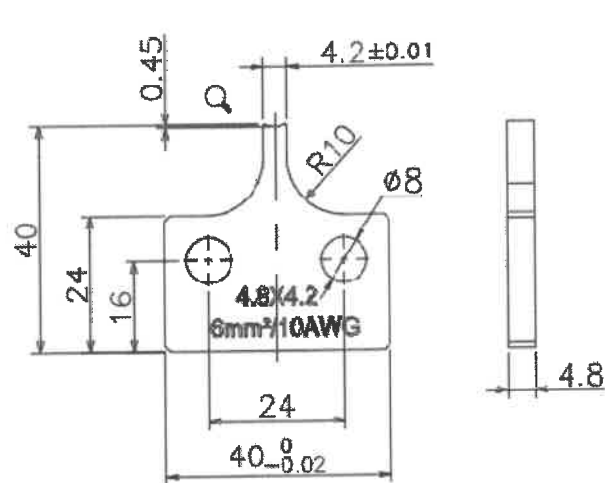


Figure 13 下刀模 (Down Blade)

注意：上述压接刀具图纸仅针对 10AWG/6mm² 线缆。

Note: The above crimping tool drawing are only for 10AWG/6mm² cable.

5.3 插针/插套安装 Male/Female Terminals Installation

- ✧ 压接好的插针/插套插入到公端电缆连接器/母端电缆连接器内（如图 14）。插入时听到滴答声说明安装到位（如图 15）。

Insert the crimped male or female terminal into corresponding male or female cable connector (Fig. 14). Installation is complete when heard an audible click sound. (Fig. 15).

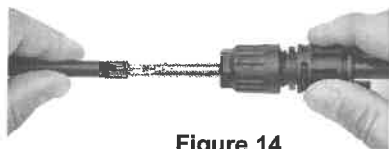


Figure 14



Figure 15

- ✧ 锁螺帽：使用一个扭矩扳手-17mm 的开口处固定螺帽，另一个开口扳手固定公/母端电缆连接器（如图 16）。
To fixed the gland nut by the torque wrench-17mm of the assembly tool, and to fixed the male cable connector or female cable connector by the another assembly tool, then tighten the gland nut with the specified tightening torque.(Fig. 16).
- ✧ 顺时针旋转扭紧螺帽，作用的拧紧力矩必须适合于每个具体情况下使用的光伏电缆。（如表 2）。

Spin clockwise to tighten the gland nut. The acting tightening torque must be adapted to the solar cables used in each specific case. (Table2).

使用工具或扭矩扳手顺时针旋转扭紧螺帽，参考下表扭力值以及确保将螺帽拧至防松脱处并能扣住即可，考虑不同电线厂家的制作工艺及绝缘/护套材料软硬度，不可将螺帽强拧至本体底部（建议留 0.8~1.5mm 间隙），避免损坏螺帽及防止变形（如图 17）。

Tighten the gland nut clockwise by using a tool or a torque wrench, refer to the torque values in the table below and ensure that the nut is screwed to the anti-loosening position and can be buckled. Take consideration of the production process of different wire manufacturers and the softness and hardness of insulation/sheath material. To avoid damage to the nut and prevent deformation, do not screw the nut to the bottom of the body (It is recommended to leave a gap of 0.8~1.5mm) (see Figure 17).



Figure 16



Figure 17

电缆直径 Cable diameters		拧紧扭矩 Tightening torque
mm ²	AWG	Nm
2.5	14	3.0
4	12	3.5
6	10	4.0

Table 2

- 公母电缆连接器插合：在螺帽锁紧后将公母电缆连接器对插，对插时发出滴答声说明插合到位，拉拔电缆线，检查公母电缆连接器是否完全连接好（如图 18、19）。

Insert the female cable connector into the male cable connector when the gland nut is fully tightened. The connection of female and male cable connector is complete when an audible click is heard. (Fig. 18 – 19).

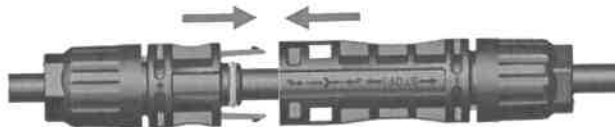


Figure 18



Figure 19

5.4 连接器拆卸 Disconnecting Cable Connector

- ◇ 使用通用工具带有插销的一端插入连接器的卡扣位置（如图 20）
Insert the forks into the buckle of the cable connector by the universal tool. (Fig. 20)
- ◇ 用左右手分别拉拔连接器，即可分开公母电缆连接器（如图 21-22）。
Pull the cable connector by hand respectively. The cable connector can now be separated.(Fig. 21 to 22)



Figure 20



Figure 21



Figure 22

5.5 安装提示 Installation Warning

- ◇ 在自行安装时，如果所用的部件和工具不是 JinKO 官方指定的，或者没有按照官方要求进行准备和安装操作，我们将不保证产品的安全性和技术参数的一致性。
If parts and tools used are not specified by JinKO or not prepared and assembled as JinKO described during installation, the uniformity of safety and technical data on products are not guaranteed.
- ◇ 连接器只有按照安装说明指定的方式组装时，才被认定符合 UL 6703。

The connector is considered to be in compliance with UL 6703 only when assembled in the manner specified by these assembly instructions.

- ✧ 在安装过程中，应避免接触机械油、油脂、溶剂等可能会造成连接器功能失效的物质，同时需注意施工人员的手套不能带有以上物质。被污染的连接器的不能插入使用。

During assembling, the connector must not be touched with any machine oil, grease, solvent, with which connector would be out of action. Notice that the gloves the operators used must not contain the substance above. The male cable connectors and the female connectors must not plugged together when soiled.

- ✧ 该说明书中的所有操作不允许在带电或者负载下进行。

The work described here must not be carried out on live or load-carrying part.

- ✧ 在负载的情况下，连接器不允许断开。在带电压的情况下允许插拔。

Connectors must not be disconnected under load. Plugging and unplugging when voltage is permitted.

- ✧ 长期不对插连接或断开连接时必须盖上防尘塞（4JB03M31005&4JB03M31007）以防止灰尘和湿气。

The dust plug（4JB03M31005/4JB03M31007）should be placed to avoid exposing the dust and water when disconnected or disconnected after connected.

- ✧ 插合状态后的连接器符合 IP68 水密性的标准。但是它们不适合长期在水下使用。请勿将连接器直接放置在屋顶表面。

The plug connectors are watertight in accordance with IP68 protection class. However, they are not suitable for continuous operation under water. Do not place the connectors directly on the proof membrane.

- ✧ 连接器电缆不能承受持续的机械拉伸。电缆应该由扎带固定。

The plug connection must not be subjected to continuous mechanical tension. The cable should be fixed with cable binders.

- ✧ 出于安全原因，强烈建议不要使用 PVC 导线或无镀锡电缆。

For safety reason, the use of either PVC cables or untinned cables are prohibited.

- ✧ 此连接器只适用于 B 类和 C 类铜导线（参见 NFPA NEC 70 第 9 章，表 10）。

This connector is suitable for use only with Class B and C stranded copper conductors (See NFPA NEC 70 Chapter 9, Table 10).

备注：连接器安装过程中操作困难或无法操作，请参照如下联络方式询问、查询：

Notes: If you have any questions during installation ,please feel free to contact us as follows:

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