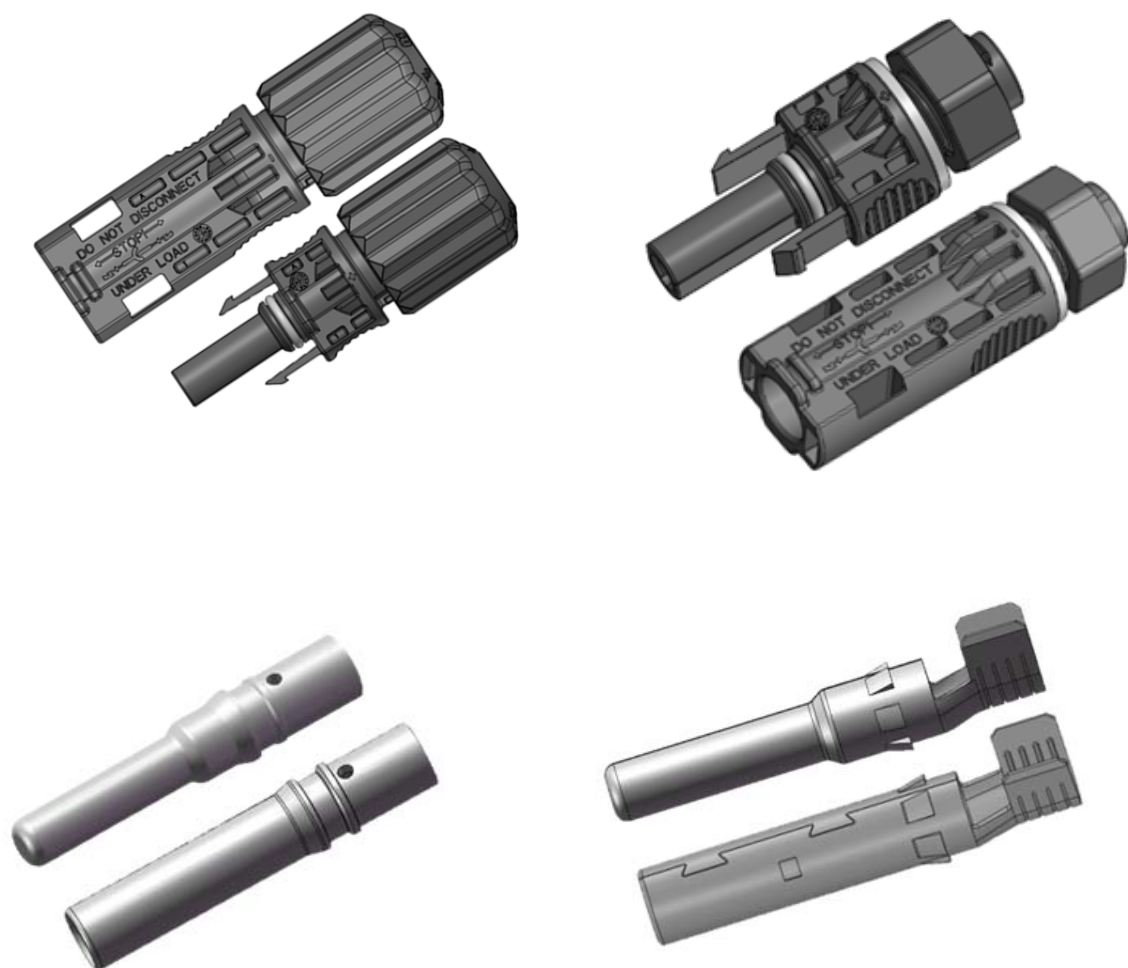


# 太阳能连接器H4 PLUS系列

## PV Connector H4 PLUS Series



## 目录

### Table of Contents

1.警告		3
Caution		
2.技术参数		4
Technical data		
3.工具及选型		5
Tools & Selection		
4. 线缆组装		7
Cable Assembly process		
4.1 选择适用线缆		7
Applicable Cable Selection		
4.2 压接工具选择		7
Crimping Tools Selection		
4.3 压接力的调整		8
Adjust the crimper for suitable crimping force		
4.4 压接质量验证		9
Crimping quality verification		
4.5 压接操作		11
Crimping		
4.6 压线钳操作注意事项		12
Crimping Operation Note		
5. 组装流程		12
Assembly process		
5.1 线端组装		12
Cable end assembly		
5.2 板端组装		14
Bulkhead end assembly		
5.3 公母端连接器对插前保护		16
Protection before mating the male and female end		
5.4 公母端连接器对插		16
Mating the male and female connectors		
5.5 公母端连接器解锁		17
Unmating the male and female connectors		
6. 布线要求		18
Requirements for cable arrangement		
7. 存储注意事项		18
Notes on storage		
8. 避免暴露化学物质清单 (WI-S047-ENG)		19
Chemicals exposure check list (WI-S047-ENG)		
9.更新记录		21
Revision records		

## 1.安全警告

## Safety Caution

-  1) 连接器在安装或拆卸过程中必须断开电源。  
The connector must be isolated and disconnected from the power supply during the assembling or disassembling process.
-  2) 不可带电插拔。  
Do not disconnect under load.
-  3) 在配合状态, 安费诺太阳能连接器的密封性能可达IP68 (水下1米24小时)。但实际使用中应避免产品长期浸泡在水中。  
The mated Amphenol PV connectors are IP68 (under water 1meter for 24 hour) compliant in the function of sealing. However please prevent the connectors immersing in the water in use.
-  4) 该产品应由有相应资质或经过专业培训、具备相关安全应用规范的专业人员安装。  
The product may be assembled and installed only by suitably qualified and trained specialists with due observance of applicable safety regulations.
-  5) 安费诺不承担对于未依照此安装手册要求安装而产生的任何责任。  
Amphenol declines any liability in the event of failure to comply with this assembly instruction.
-  6) 那些可与Amphenol零件相匹配的, 非Amphenol原产的连接器和被有时称为可与“Amphenol兼容”的连接器和, 它们不符合安全的, 长期稳定的电气要求, 并且出于安全方面的考虑, 不允许它们与Amphenol零件连接. 如果这些连接器 (未经Amphenol认证) 与Amphenol零件连接并产生损害, 对此我们不承担任何责任。  
Connectors not made by Amphenol which can be mated with Amphenol elements and in some cases are also described as “Amphenol-compatible” do not conform to the requirements for safe electrical connection with long-term stability, and for safety reasons must not be plugged together with Amphenol elements. Amphenol can therefore accept no liability for damage which occurs as a result of mating these connectors which lack Amphenol approval with Amphenol elements.
-  7) 有关第三方测试仅作为设计参考, 客户有责任自行验证在特殊应用及极端环境条件下的系统功能和连接器的耐久性, 我们建议客户在设计应用系统时, 请考虑预留足够的安全系数, 以避免高电流情况引起产品过热失效。  
Please be aware that this 3rd Party laboratory test just as a reference for application. It's customer's responsibility to validate connector durability in the system function at the specific and extreme environment conditions, we recommend customer to consider margin in actual application with high current situation which lead to overheat.
-  8) 安费诺提醒客户和用户应避免化学物质在连接器的应用环境中的暴露。热塑性塑料的化学相容性例如聚碳酸酯, 取决于接触时间、温度, 浓度和应力(应用环境中所受到的外部应力)。化学物质暴露会导致热塑性塑料变色、软化、膨胀、开裂或丧失性能。参考文件: WI -S047-ENG (避免暴露化学物质清单)。安费诺提供的避免暴露化学物质清单未包括所有可能出现在客户生产和后续使用过程中的化学品, 请客户自行验证其对产品的影响并采取相应的化学品污染的风险管理措施。

Amphenol warns customers and users to avoid exposure of chemical substances in the connector application environment. Chemical compatibility of thermoplastics e.g. Lexan polycarbonate is dependent on contact time, temperature, concentration and stress (external stress to which the application is subjected). Chemicals exposure can result in discoloration, softening, swelling, crazing, cracking or loss of properties of the thermoplastics. See file:WI -S047-ENG (Chemicals exposure check list) . The list of chemicals provided by Amphenol does not include all chemicals that may appear in the production and subsequent use of customers. Customers are requested to verify their impact on products and take

corresponding risk management measures for chemical contamination. Amphenol does not accept any return requests for products contaminated with chemicals.

### 2. 技术参数:

#### Technical data

额定电压: 1500V DC

Rated Voltage:

额定电流: TUV (IEC 62852) 25A @85°C; (2.5mm<sup>2</sup>)

Rated current: 35A @85°C; (4.0 mm<sup>2</sup>)

45A @85°C; (6.0mm<sup>2</sup>)

UL (UL6703) 15A (14AWG)

20A (12AWG)

30A (10AWG)

保护等级: 连接器互配状态IP68(1m,24小时),连接器分离状态IP2X

Protection degree: IP68 mated(1m@24H) and IP2X unmated

安全等级: II

Safety class

可使用温度范围: -40°C to +85°C

Operation Temperature Range

持证方: Amphenol Industrial Operations

License holder:

地址: 40-60 Delaware Avenue, Sidney, New York State 13838-1395, USA

Full Address:

### 3. 连接器和工具选型

#### Connector and tool selection

##### 3.1 连接器型号编码

Connector Part Number Logic Code

**H4 X X X X X X X X**

Product	Type	Gender	Connector Type	Terminals-Cable Size	Approvals	Packing	Contact*
<b>H4</b>	<b>S</b>	<b>F</b> Female + <b>M</b> Male -	<b>C</b> Cable connector <b>M</b> Bulkhead M12 <b>D</b> Manually unlock cable connector <b>B</b> Manually unlock bulkhead M12	<b>0</b> less contacts <b>2</b> 2.5mm <sup>2</sup> /14AWG <b>4</b> 4mm <sup>2</sup> /12AWG&6mm <sup>2</sup> /10AWG(S&F); 4mm <sup>2</sup> /12AWG(CF) <b>5</b> 4mm <sup>2</sup> /12AWG&6mm <sup>2</sup> /10AWG(CF) <b>6</b> 6mm <sup>2</sup> /10AWG(CF)	<b>T</b> TUV <b>D</b> TUV & UL	<b>I</b> 1pcs/bag, 800pcs/box <b>C</b> 100pcs/bag 800pcs/box <b>M</b> 400pcs/bag 800pcs/box	<b>S</b> Stamped&Formed  <b>Blank</b> Cold formed

##### 3.2 卷装冲压端子料号 :

S&F contact part Number Logic Code (only for reel type)

**UTX X X X X X X**

product	Type	Gender	Terminals-Cable Size	Packaging	Variations
<b>UTX</b>	<b>F</b> Stamped & Formed contact	<b>F</b> Female + <b>M</b> Male -	<b>2</b> 2.5mm <sup>2</sup> /14AWG <b>4</b> 4mm <sup>2</sup> /12AWG&6mm <sup>2</sup> /10AWG	<b>R</b> 2000PCS/reel	

##### 3.4 工具清单:

Tools List

剥线钳（2.5/4.0/6.0mm<sup>2</sup>光伏线）：  
Strip tool for 2.5/4/6mm<sup>2</sup> PV cable

H4TS0000



连接器扳手：  
Wrench tool for H4 Plus

H4TW0001



端子深度探测工具  
Contact depth inspection tool

H4TT0002



母端防尘帽：  
Protection cap for female connector

UTXPF



公端防尘帽：  
Protection cap for male connector

UTXPM



压接钳

Crimping tool

Tool	UTXTC0003	UTXTC0004	UTXTC0005
钳口 Crimping Die	<p>UTXTD0003</p>	<p>UTXTD0005</p>	<p>UTXTD0004</p>
定位器 Locator	<p>UTXTP002</p>	<p>UTXTP004</p>	<p>UTXTP003</p>
手柄 Hand Shank	<p>UTXTC0004</p>		

### 4 端子与线缆组装: Cable Assembly

### 4.1 选择适用线缆

#### Applicable Cable Selection

- 4.1.1. 只能适用铜芯线缆，推荐使用镀锡光伏电缆线。  
Only suitable for the PV cable with copper conductor. Tin coated wire of conductors is recommended.
- 4.1.2. 连接器线材外径要求为 $\phi 5.0\text{mm}$  到 $\phi 7.8\text{mm}$ ，连接器导线的线芯数为7到140根。  
The cable OD range from  $\phi 5.0\text{mm}$  to  $\phi 7.8\text{mm}$ . The number of conductor strands is from 7 to 140.
- 4.1.3. 适用的电缆应取得EN 50618、IEC 62930 和UL 4703, USE-2认证。  
This connector is only suitable for cables with EN 50618, IEC62930, UL 4703 and USE-2 certification
- 4.1.4. 如果其它电缆，请先做压接验证&防水验证或者与安费诺联系。  
For use with others cables, do crimping and sealing performance verification first or contact with Amphenol.

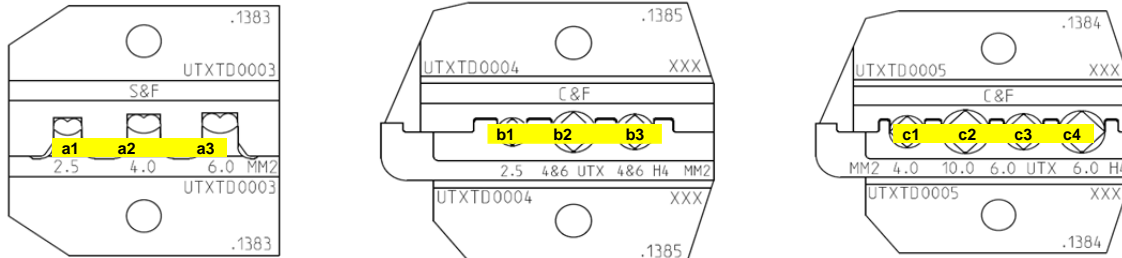
### 4.2 压接工具选择

#### Crimping tools selection



请根据端子和电缆导线截面积选择正确的压接钳口。用错钳口会导致连接器发热增加，可靠性降低。  
Please choose the crimping die based on the terminal and cross section area of cable conductors. Wrong crimping die may lead to the connector overheat, and lower reliability of connectors.

压接钳口示意图 (crimping die layout)



Machining Contact		Cable Conductor		Crimp Die		Crimping width height (mm)	Pull force (N)	Conductor Compression Ratio
Type	Crimp Barrel	IEC 60228 class 2, 5, 6		Part number	Position			
	OD (mm)	ID (mm)	AWG	Cross section area(mm <sup>2</sup> )				
C&F 2.5	3.50	2.30	14	2.08	UTXTD004	b1	2.40	70%~90%
C&F 4	4.60	3.05	12	3.31	UTXTD005	c1	3.05	
C&F 6	6.00	3.76	10	5.26	UTXTD005	c3	4.10	

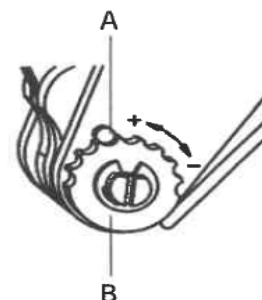
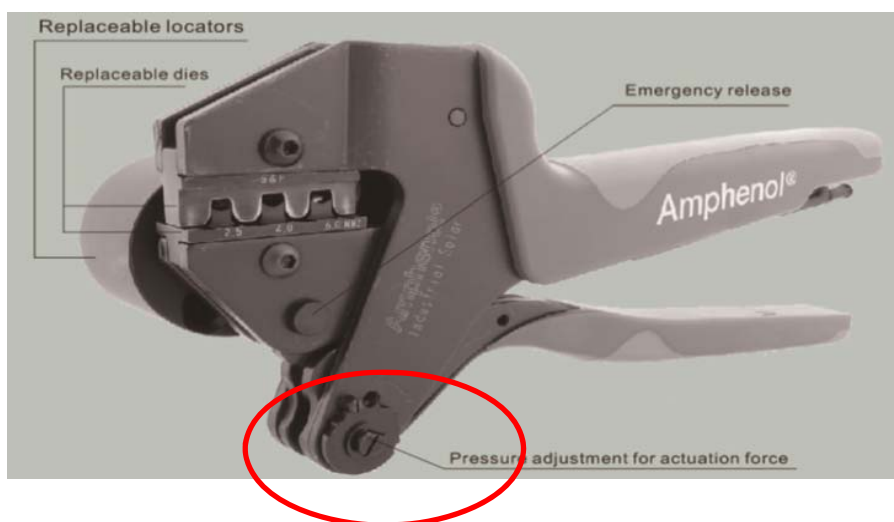
Stamping Contact Size	Cable Conductor IEC 60228 class 2, 5, 6		Crimp Die		Crimping		Pull Force Min (N)	Conductor Compression Ratio
	AWG	Cross section area (mm <sup>2</sup> )	Part number	Position	Height (mm)	Width (mm)		
S&F 2.5	14	2.08	UTXTD003	a1	2.05	3.40	>223	70%~90%
S&F 4&6	12	3.31		a2	2.39	4.00	>312	
	10	5.26		a3	2.65	4.25	>356	

### 4.3 调整压接工具

#### Adjust crimping tool

如果有需要，可根据下一步骤进行调节压接力以达到最佳的压接效果。

If need, according to the following steps to adjust the pressure force to reach the best crimping effect.



- I. 用螺丝刀放松无头螺钉 (A)。  
Loosen the headless screw (A) with a screwdriver.
- II. 逆时针旋转刻度盘B (+) 增加压接力量，同时减小压接间隙。  
Turn the dial counter (B) clockwise (+) to increase the crimping force. This also reduces the jaw spread.
- III. 顺时针方向旋转拨号(-) 减少压接的强度,这也增加压接间隙，不超过180N。  
Turn the dial clockwise (-) to reduce the strength of the crimping force, This also increases the jaw spread. Do exceed 180N.
- IV. 更改设置后，确保无头螺丝锁紧。  
After changing the setting, make sure the headless screw is adequately tightened.



### 4.4 施工前压接效果验证

#### Crimping quality verification

因为PV线缆的线芯的直径与芯线总截面积都存在较大的差异，而且还会影响压接效果，以上压接尺寸仅供参考。为了保证压接效果，请在施工前对压接力和压接横截面进行确认。

Great variations exist on the diameter, quantity and cross section of strands between PV cables which made by different manufactures, so the above dimensions are only for reference. In order to get good crimping, please verify the pull force and crimping cross section.

端子与线缆的拉力应满足UL486a-486b要求，参见4.2章表格、

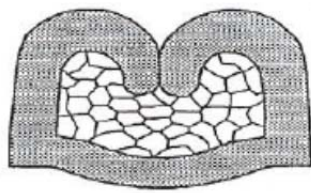
Pull force between the contact and cable should meet to UL486a-486b, refer to the table in section 4.2

横截面检验标准如下：

The cross section inspection standard:

- 每根铜丝应被压变形成近似的六边形，截面积压缩到初始面积的70%~90%；铜丝间的空隙越小越好。  
The crimp shall have all cable strands compressed into hexagonal shapes with minimal voids.
- 铜丝及端子不能有裂纹或破损。  
No cracks/fractures in crimp material or wire stranding
- 铜丝在端子内分布均匀对称。  
Ensure symmetrical and uniform distribution of strands.
- 所有的铜丝都应被包紧。  
All strands are captured within crimp
- 端子在压接后形成完全闭合的表面，其变形或卷曲均匀一致。  
Crimp wings are fully closed at surface. Crimping wings are curled evenly and uniform.
- 压接后毛边不能超过0.1mm，不能在后工序中刮伤连接器的密封件。  
The burr on the base of the crimp must not exceed 0.1mm, will not scratch the sealing component in next assembly process
- 引用USCAR21压接截面标准如下。  
Quote crimping cross section criteria in USCAR21as below

Conductor crimp attributes considered ideal



- Symmetric
- Compaction of all strands (no round strands)
- Wings touch only conductor
- Terminal stock free of cracks / breaks
- Core wings "Locked" (no gap) at top of crimp

Conductor crimp attributes considered acceptable but not ideal

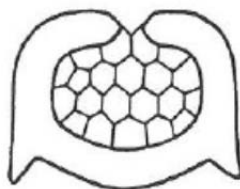


Overlapping wings



Extreme "ram-horning"

Conductor crimp attributes that are unacceptable\*



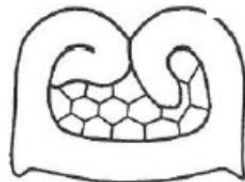
Open wings with core exposed or folded down into core but not touching (not locked)



One or both wings penetrate ("crash") to the terminal floor or wall



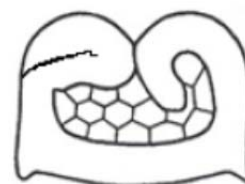
Low / No strand compaction. Round strands in core crimp are never acceptable



One or both wing details do not capture strands




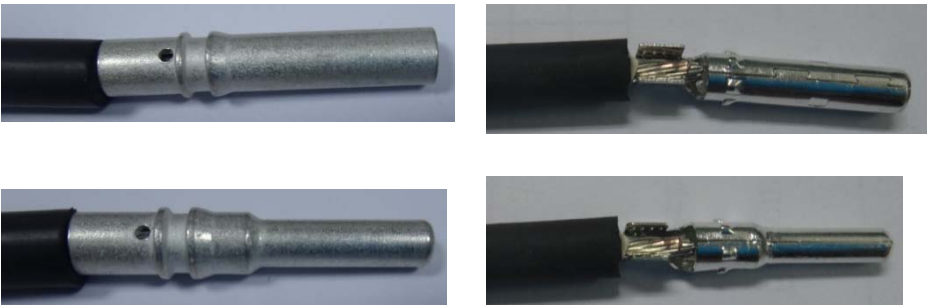

Terminal stock cracked / broken



One or both wings folded back

### 4.5 压接操作

#### Crimping operation

过程 Process	工具 Tools	过程控制 Process control
剥线: Stripping	H4TS0000	<p>剥去线皮长度 <math>7.0 \pm 0.5\text{mm}</math> ,不要伤及铜丝。 Stripping Length <math>7.0 \pm 0.5\text{mm}</math>, don't damage or cut the wires.</p>  <p><math>L = 7 \pm 0.5\text{mm}</math></p>
插线 Insert the cable into the contact	N/A	<ul style="list-style-type: none"> <li>将端子放在合适的压接口和定位器之间。 Put the contact at right crimping die and position.</li> <li>将剥好的线芯插入端子铆线孔，确保所有芯线都在铆线孔内，机加端子需从检查孔可见芯线。Insert striped cable into contact barrel and insure all conductor strands are captured in the contact barrel and the conductors are visible in the inspection hole for CF terminal.</li> </ul> 
压接 Crimping	UTXTC003 UTXTC0004 UTXTC0005	<ul style="list-style-type: none"> <li>压紧钳柄直到钳子能自动张开。 Close the hand shank of the tool until they open automatically.</li> <li>线压接效果满足4.4压接验证要求。 Crimping can meet with the requirements in section 4.4.</li> <li>定期点检压接高度,调整压接力保证压接效果。 Regular check crimping height, and adjust the crimping force to get the perfect crimping quality.</li> </ul> 

#### 4.6 手动压接钳操作及注意事项

##### Crimping Tool Operation Attentions

1. 错用可能导致人身伤害，勿让儿童接触。  
Misuse may cause personal injury, be out of reach of children.
2. 切勿将手指插入压接工具的夹口。  
Do not insert fingers into the jaws of the tool.
3. 在使用前应清洁压接钳口，避免防锈油污染端子和连接器。  
Before use the crimper, clean the die to prevent the oil or other chemical material polluting the contact and connector.
4. 压接工具和压接模口容易磨损，定期检查压接高度&拉力，通过移动锁紧螺丝和旋转调节器补偿压接工具和压接模口的磨损。  
Crimp tool and crimp dies are prone to wear, regularly check quality of Crimping Height and pull out force, tool and die wear can be compensated by removing the lock screw and turning the adjuster -

#### 5 组装流程:

##### Assembly process

#### 5.1 线端组装

##### Cable end assembly

##### 5.1.1 将压接好的端子插入壳体

##### Insert the crimped contact into the body

将已压接好的端子从连接器后端插入，当插到位后会听到“滴”的卡位声，端子插入后不可再拔出，(端子的压接方法及剥线请参考工具的应用3.2到3.4) 见下图5.1.1到图5.1.4。

Insert terminal into back of male and female connector. A “click” should be heard or felt when the terminal is seated in right position. Terminals cannot be removed once seated (Terminals are crimped per tool application 3.2 to 3.4) See below pictures 5.1.1 to pictures 5.1.4.

母端连接器Female connector

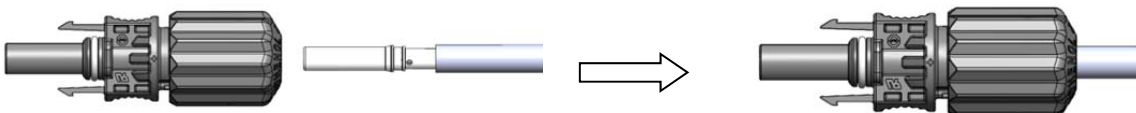


图5.1.1 Picture 5.1.1

图 5.1.2 Picture 5.1.2

##### 公端连接器Male Connector:

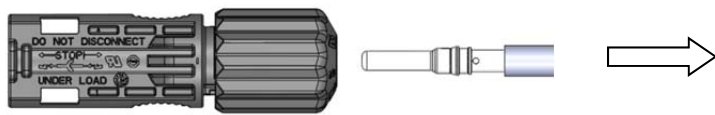


图 5.1.3 Picture 5.1.3

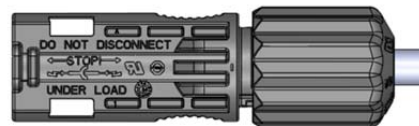


图 5.1.4 Picture 5.1.4



如果端子没有插入到正确位置，连接器本体将无法扣住端子，以致公母连接器无法对插好，如此将导致连接器发热引起着火或安全问题。

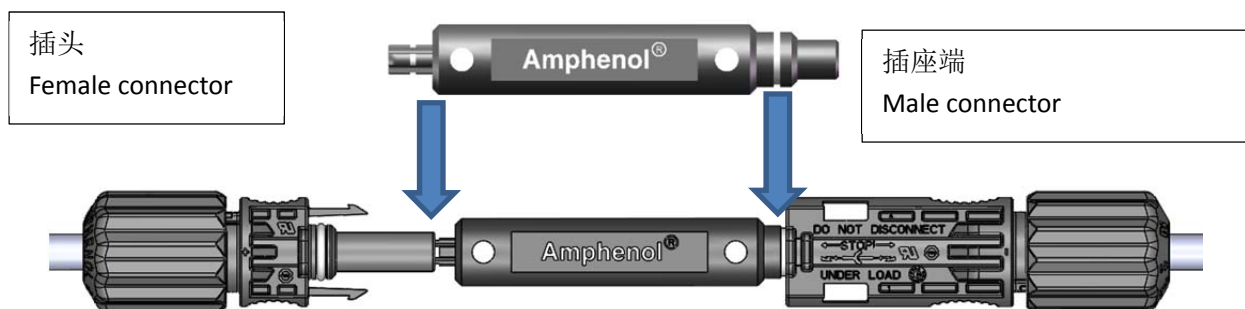
If the terminals are not inserted in the correct position, the connector itself will not be able to latch the terminals so that the male and female connectors will not be properly inserted, which will cause the connector to heat and cause fire or safety problems.

### 检验

#### Inspection

通过端子探测工具确认端子是否插到位。连接器外壳边缘要落在端子深度探测工具白色区域内。

Use the contact depth inspection tool to check if the contact was in right position. The edge of connector housing should be located within the white area of the contact depth inspection tool.



### 5.1.2 锁紧螺帽

#### Tightening the back cap

H4 plus连接器锁紧螺帽的扭矩：2.6 N·m 到2.9 N·m。

H4 Plus connector back cap must be screwed up with a properly torque range 2.6 to 2.9 N·m.



扭矩过大会引起电缆绝缘层损伤，导致防水失效和漏电，引发安全事故。

Over torque was applied may damage insulation on the cable, lead to water proof failure and electrical leakage.

扭矩过小会导致防水失效，降低连接器可靠性。

Too small torque fore may lead to water proof fail, decline reliability of connector.

以下是连接器通过本体和帽子组装时的受力面，如图5.1.5。

See the actual press surface when connector was screwed by body and cap, as below picture 5.1.5.

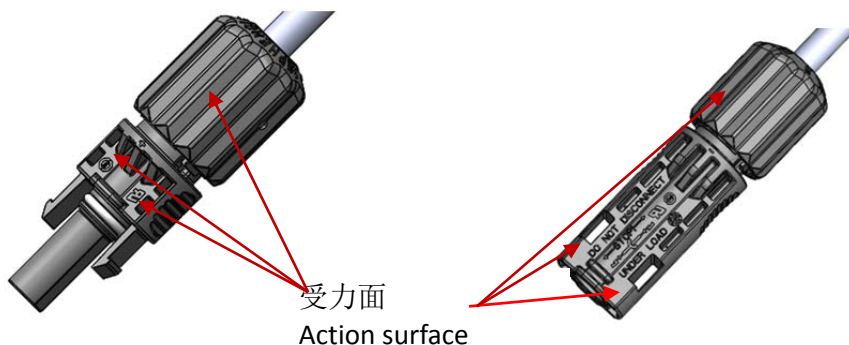
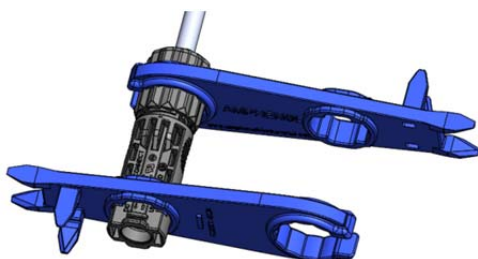


图 5.1.5 Picture 5.1.5

客户在现场安装时，可使用安费诺蓝色扳手(H4TW0001)组装连接器。客户用扭力扳手组装连接器时，可使用安费诺专用连接器套筒进行组装(使用H4TTW100)。

Amphenol specified wrench tool (H4TW0001) can be used in this step. Customer can use open-end back cap spanner (Use H4TTW100) if customer use electric torque controlled wrench tool to tighten the cap.



## 5.2 板端组装

### Bulkhead end assembly

#### 5.2.1 连接器组装

##### Connector assembly

将连接器安装到逆变器或者转换器的面板上,如图5.2.1。

Mount the connectors to the panel of inverter or converter, see picture 5.2.1.

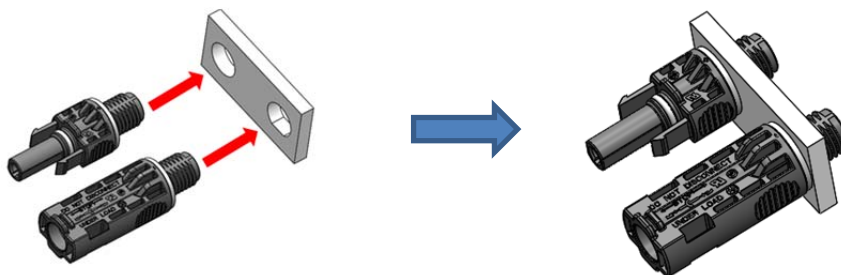


图5.2.1

Picture 5.2.1

使用扭力扳手使螺母紧固在面板上,如图5.2.2, 用1.1 N·m到1.4N·m扭矩扭紧螺母。

Use the wrench tool to tighten the nut to the panel, see picture 5.2.2. The nut must be screwed up with a Properly torque range 1.1 to 1.4 N·m.

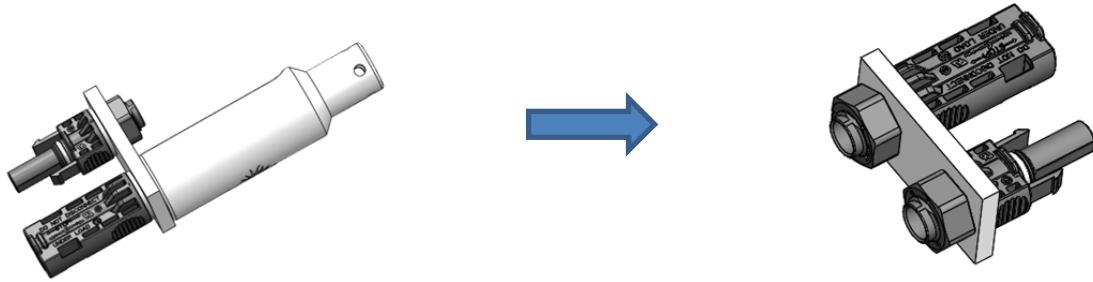


图5.2.2

Picture 5.2.2

将已打好端子的线材从连接器后端插入, 当插到位后会听到“滴”的卡位声, 端子插入后不可再拔出。(端子的压接方法及剥线请参考工具的应用3.2到3.4), 见下图5.2.3到图5.2.4。

Insert terminal into back of male and female connector. A “click” should be heard or felt when The terminal is seated in right position. Terminals cannot be removed once seated.

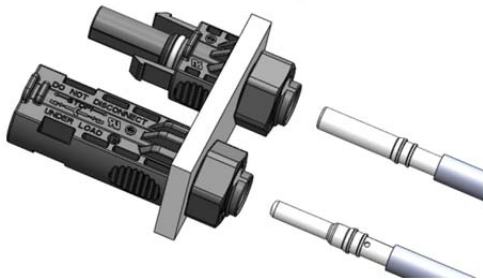


图5.2.3

Picture 5.2.3

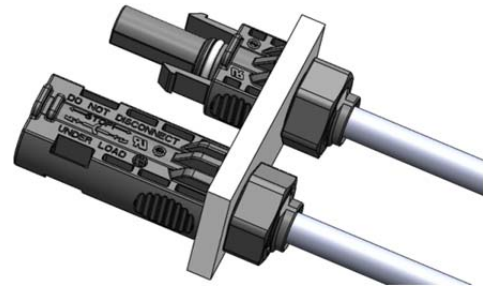


图5.2.4

Picture 5.2.4



如果端子没有插入到正确位置, 连接器本体将无法扣住端子, 以致公母连接器无法对插好, 如此将导致连接器发热引起着火或安全问题。

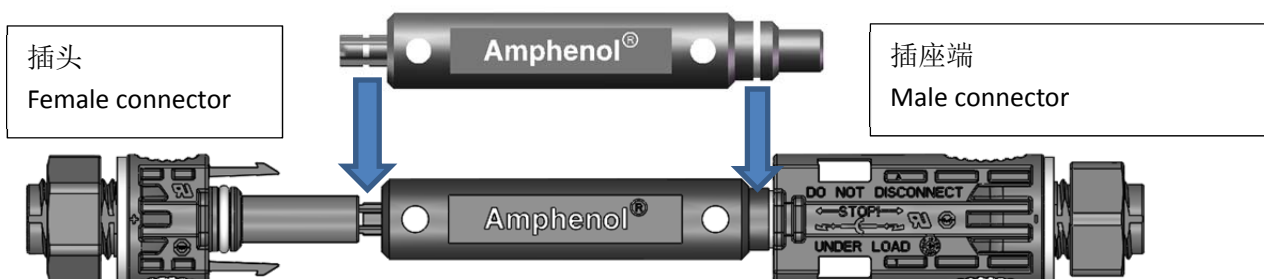
If the terminals are not inserted in the correct position, the connector itself will not be able to latch the terminals so that the male and female connectors will not be properly inserted, which will cause the connector to heat and cause fire or safety problems.

### 检验

#### Inspection

通过端子探测工具确认端子是否插到位。连接器外壳边缘要落在端子深度探测工具白色区域内。

Use the contact depth inspection tool to the check if the contact was in right position. The edge of connector housing should be located within the white area of the contact depth inspection tool.



### 5.3 连接器对插前保护

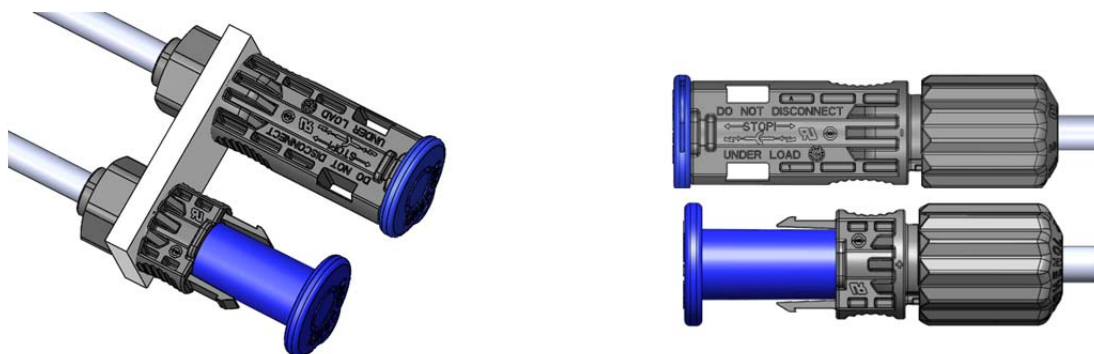
#### Protection before mating

如未能及时对插公母头连接器，应采取措施防止沙尘，湿气等污染连接器，导电端子被氧化，或防水失效。

If the male and female connectors couldn't mating together in time, the connector needs to be protected for free of dusty and moisture pollution, or the contactors were corroded, water proof failure etc.

客户可以选用防尘帽（母头使用UTXPF，公头使用UTXPM)进行防护。

Customer can use dust cap (female end use UTXPF and male end use UTXPM) for protection.



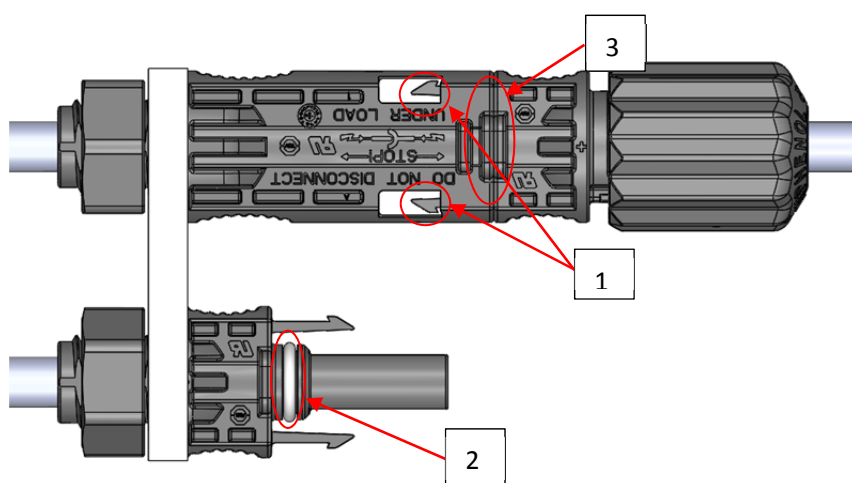
### 5.4 公母端连接器对插

#### Mating the male and female connectors

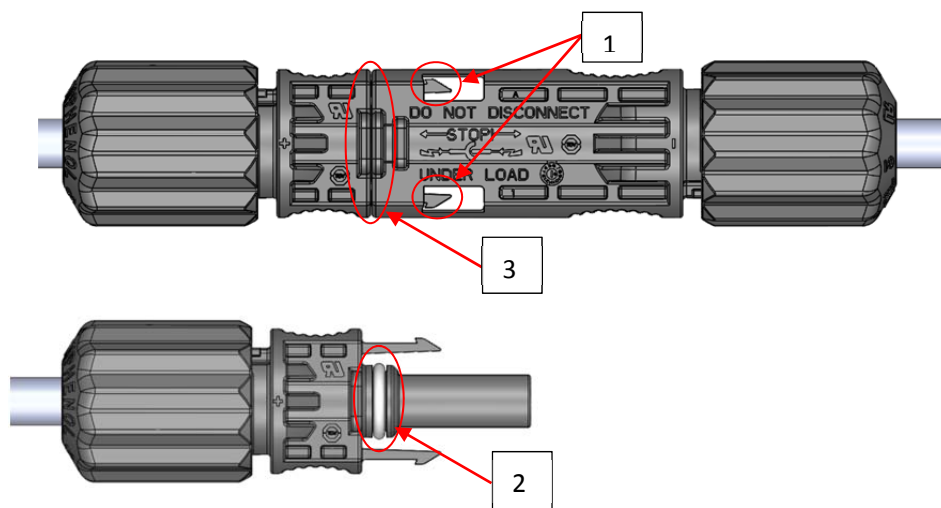
将组装好的公母端连接器对插，并检查以下特征可以确认连接器是否对插到位：

After mating the female and female connector, check below items to confirm the male and female connectors were right mated.

- ✓ 卡扣卡到位如下第一点。The latch was hookup as below point one.
- ✓ 密封圈在外部不可看见。O-ring pressed inside and invisible.
- ✓ 公头和母头之间仅可有小的间隙（间隙 $\leq 0.3\text{mm}$ ）。There is very small gap between the interface of male and female（gap $\leq 0.3\text{mm}$ ）.







### 5.5 公母端连接器解锁

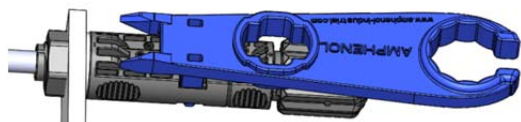
#### Unmating the male and female connectors

使用专业工具对连接器解锁，不能直接用强力或扰动连接器来开锁。

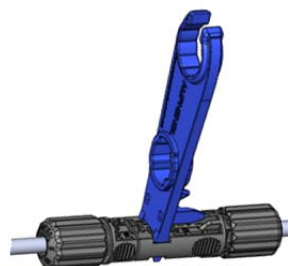
**Use the professional tool to open the connectors. Don't pull directly or shake the connector back and forth wildly to open the mated connector.**



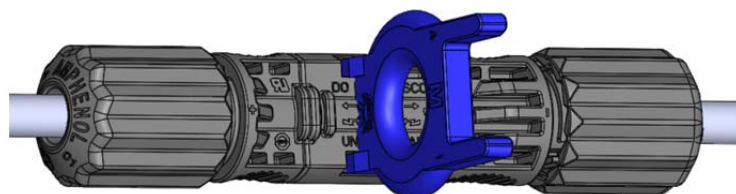
安费诺提供蓝色扳手(H4TW0001)和解锁工具(H4TU0000)用于安费诺 H4 系列连接器连接器的解锁，如图。  
Amphenol specified wrench tool (H4TW0001) or Universal tool (H4TU0000) should be used in this step for H4 Series see below picture.



蓝色扳手解锁  
WRENCH TOOL DISCONNECT



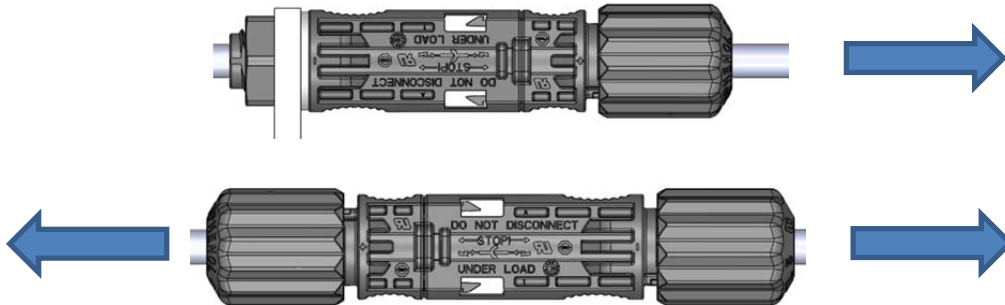
万能解锁工具解锁  
UNIVERSAL TOOL DISCONNECT



## 6 布线要求

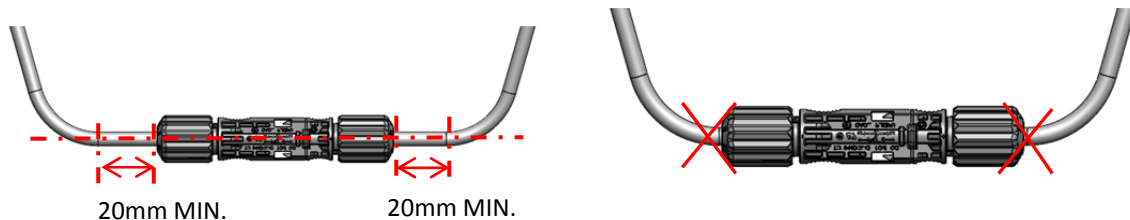
### Requirements for cable arrangement:

- ✓ H4 系列连接器锁扣保持力（沿轴向）89N 最小。  
The locking fixture of H4 series can withstand the pull force 89N min along the axial.



- ✓ 现场布线时应避免轴向线缆应力长时间作用在连接器上；禁止径向应力或扭矩，因为其会引起连接器防水失效，可靠性降低。The external stress on the cable should be avoided; the cable stress along axial couldn't load to the connector for long time; the radial cable stress and torque should be prohibited, which may impact the water proof and reliability of connector

- ✓ 电缆根部建议保留最少 20mm 未折弯长度，以免因线缆折弯产生的外力影响防水。  
In order to avoid the cable stress impact the water proof function of connector, the cable beside connector should keep straight, that straight cable length should be at least 20mm MIN.



- ✓ 线缆最小弯曲半径请参考电缆生产厂商详细要求。  
Refer to cable manufacturer's specification for minimum bending radius of cable.

## 7 存储注意事项

### Storage Requirement

我们建议连接器零件的存储温度为-30℃ +60℃，相对湿度低于70%。连接器零件不能暴露在因直接降雨、冷凝等带来的水汽中。确保零件不能与酸、碱、瓦斯、丙酮或者任何其他会影响材料使用的化学物质接触。在满足以上条件的环境中，连接器的零件可存储两年时间。

We recommend that you store connector components at temperature between -30℃ to +60℃ and with a relative humidity of less than 70%. The components must not be exposed to moisture due to direct rainfall, condensation etc. Ensure that the individual components do not come into contact with acids, alkalis, gases, acetone or any other chemical substance that could impact the materials use. The connector can store two years if these conditions are met.

## 8 避免暴露化学物质清单 (WI-S047-ENG)

## Chemicals exposure check list (WI-S047-ENG)

## WARNING

## 警告



Amphenol warns customers and users to avoid exposure of chemical substances in the connector application environment. Chemical compatibility of thermoplastics e.g. Lexan polycarbonate is dependent on contact time, temperature, concentration and stress (external stress to which the application is subjected). Chemicals exposure can result in discoloration, softening, swelling, crazing, cracking or loss of properties of the thermoplastics.

安费诺提醒客户和用户应避免化学物质在连接器的应用环境中的暴露。热塑性塑料的化学相容性例如聚碳酸酯，取决于接触时间、温度，浓度和应力(应用环境中所受到的外部应力)。化学物质暴露会导致热塑性塑料变色、软化、膨胀、开裂或丧失性能。

A list of chemicals known to avoid exposure is shown in the table below:

已知应避免暴露化学物质清单如下表:

Classify分类	Chemical Name 化学物质名称
Commonly used chemicals 常用化学品	Grease 黄油、Lubricate oil 润滑油、Rust inhibitors 防锈剂、Stamping oil 冲压油、Engine Oil 机油、Banana Oil 天那水、WD40、Insecticide 杀虫剂、Oily sealing agent 油性封孔剂、Doduconta B25 Kontaktol、Chlorcosane 氯化石蜡、Evabrite S、Virex TB 强氧化性消毒剂、Suma Lima L3、Suma Rinse Tableware cleaner 餐具清洗剂、Plasticizer 增塑剂、Spray Cleaner 8188、Mold clean agent 模具清洗剂、Detergent 洗洁精、Herbicide 除草剂
Grease脂类	Molykote EM-50L(Dow Corning)、Molykote PG-641(Dow Corning)
Oils油类	Die Cut(OELHELD), Machine Oil KV46(Nippon Oil)
Mould Release Agent脱模剂	Pelicoat S-6(Chukyo-Kasei)
Binder粘合剂	Chemlok(LORD)胶粘剂
Alcohols醇类	Isopropyl alcohol(IPA)乙醇
Fatty hydrocarbons 脂肪族化合物	Heptane 庚烷、Hexane 乙烷、Cyclohexane 环己烷、Liquid paraffin 液状石蜡
Acid,Alkali,Salt 酸碱类	Salt acid 盐酸、Sulfuric acid 硫酸、Nitric acid 硝酸、Phosphoric acid 磷酸、Acetic acid 醋酸、Ammonia 氨气/氨水、Sodium hydroxide 氢氧化钠
Halogenated hydrocarbon 卤族碳化合物	Freon氟利昂、Carbon tetrachloride四氯化碳、Trichloromethane氯仿/三氯化碳、Virex 256 Alkyl dimethyl ammonium chloride烷基二甲基氯化铵
Ketone酮类	Acetone丙酮、Methyl ethyl ketone甲基乙基酮、Butanone丁酮
Aromatic Hydrocarbon 芳香族碳氢化合物	Toluene甲苯、Xylene二甲苯、Cresol甲酚、CRC Clean Solvent电器清洁剂
Other, Organic solvent 其他/有机溶剂	Ethyl acetate乙酸乙酯、Butyl acetate乙酸丁酯、Tributyl phosphate磷酸三丁酯、Kerosene 煤油、Gasoline汽油、Chloride氯化物、Varnish清漆、Esters酯类、Ethers醚类、Amines 胺类、Glacial acetic acid冰醋酸、Print ink additive印刷油墨添加剂、3M thinner 3M稀释剂

Adhesion sealant 粘合密封材料	APF125(Wacker Chemical)
Potting Material 填充材料	KE-200(ShinEtsu)、CX-200(ShinEtsu)

## Remarks:

- 1) The true chemical compatibility can only be determined under conditions as in the final application. Chemicals not listed in the above table (other oils & chemicals in manufacturing process & in solar farm sites), it is the responsibility of user to validation such chemicals not affect the product performance, or please contact your representative in case additional information is required.
- 2) Chemicals used in inverters (such as Conformal coatings, 3M glue, Dowcorning glue, ect.) contain volatile substances which have an impact on our products, may cause corrosion, degradation or cracking, Amphenol suggested customer adding baking process to speed up the substances volatilization before assembly of connectors.
- 3) Pesticides should not be used directly or indirectly to contact/spray products. It is recommended to use UV lamps for disinfection.

## 备注:

- 1) 真正的化学相容性只能在最终应用的条件下确定。对于不在此列表内的其他在生产制造过程和产品安装过程中可能接触或使用的化学物质需用户自行确认对产品无影响后方可使用，对于无法自行确定的化学物质请联系安费诺的销售或服务代表。
- 2) 在逆变器中使用的化学品（如三防漆、三防漆稀释剂、密封胶，硅酮胶等）等含有对产品具有冲击可能的化学物质具有挥发性，可能引起产品被污染、腐蚀，安费诺建议客户在安装产品前，增加烘烤工艺使有害物质加速挥发。
- 3) 消杀类物质不能直接或间接接触/喷洒产品，建议使用UV灯进行消杀作业。

## 9.更新记录

## REVISION RECORD

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