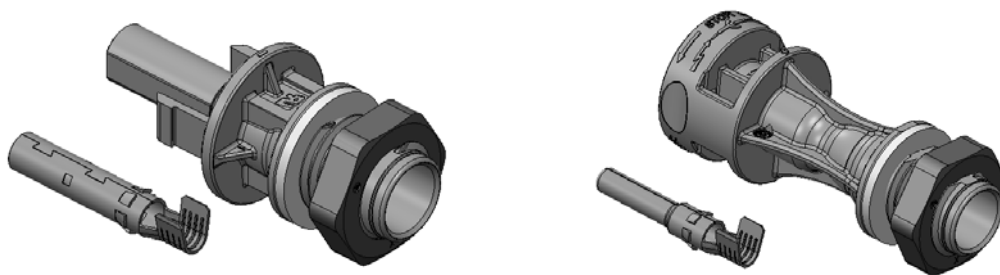


太阳能连接器UTX系列

PV Connector UTX Series



UTX 线端太阳能连接器
 UTX PV CABLE CONNECTOR



UTX 板端太阳能连接器
 UTX BULKHEAD PV CONNECTOR

编制(Prepared by): Johnny Wang 审核(Checked by): Allen Wan
 日期 (Date) : 2017-06-30 日期 (Date) : 2017-07-05

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1.警告

Caution

- ⚠ 1) 此安装手册涉及的连接器应避免与附表WI-S047-ENG-connector文件中（但不仅限于此文件）列出禁止使用的化学品接触。对于确实要使用的化学品而该化学品又不在物质表中的，请联络安费诺公司并得到确认批准后方可使用。使用未经过安费诺认可的化学品所造成的损失，不属于质保范围。**
The products in this document should avoid contact with the forbidden chemicals which listed in the attached table WI-S047-ENG-connector (but not limited to this file). If some certain chemicals which are not specified in the Sensitive Chemicals List must be introduced, please contact Amphenol for further confirmation before the proposed use of these chemicals. It is out of scope of quality assurance if the unconfirmed chemicals lead to the product failure.
- 2) 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.
- 3) 不可带电插拔。
Do not disconnect under load.
- 4) 推荐使用光伏电缆线。
The use of PV cable is recommended.
- 5) 推荐使用镀锡线芯线材。
The use of tin plated cable is recommended.
- 6) 安费诺连接器符合IP68（水下1米一小时）密封性能。
The connectors are IP68 rated, and can be positioned for short time under 1MT of water.
- 7) 该产品应由有相应资质或经过专家培训的，具备相关安全应用规范的专业人员安装。
The connector is considered to be in compliance with UL 6703 only when assembled in the manner specified by assembly instructions.
- 8) 该连接器只适用于B类和C类的铜导线（参考NFPA NEC 70第9章，表格10）。如果与其他等级的铜导线使用，连接器应做标记。参考电缆导体标准：UL 486A-486B。
This connector is suitable for use only with Class B and C stranded copper conductors (See NFPA NEC 70 Chapter 9, Table 10). If the connector is found to be suitable for use with other stranding classes, the connector shall be marked with those class conductors. See the Standard for Wire Connectors, UL 486A-486B.
- 9) 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 instructions.

UTX SERIES INSTRUCTION MANUAL

文件编号 (File Name) :WI-S035-ENG-UTX REV.G

2. 技术参数:

Technical data

额定电压: 1500V DC (UL/TUV/JET)
Electrical rating 1000V DC (ETL)

额定电流: TUV : 25A @85°C; (2.5mm²/ 14 AWG)(IEC 62852)
Current rating 35A @85°C; (4mm²/ 12 AWG) (IEC 62852)
45A @85°C; (6mm²/ 10 AWG) (IEC 62852)
75A @85°C; 69A @90°C; (10mm²/ 8 AWG) (EN50521)
JET: 30A (2.5mm²/14AWG)
40A (4.0mm²/12AWG)
50A (6.0mm²/10AWG)
ETL/UL: 15A (14AWG)
20A (12AWG)
30A (10AWG)
50A (8AWG)

保护等级: 互配状态IP68,分离状态IP2X
Protection degree IP68 mated and IP2X unmated

安全等级: II

Safety class

可使用温度范围: -40°C 到 +90°C

Operation Temperature Range -40°C to +90°C

持证方: Amphenol Technology (Shenzhen) Co., Ltd.

License holder

地址: Building C, 2nd Industrial Zone of Xia Shi Jia, Jiangshi Community, gongming
Full Address Sub-district, Guangming New District, Shenzhen, Guangdong, 518103 P. R. China

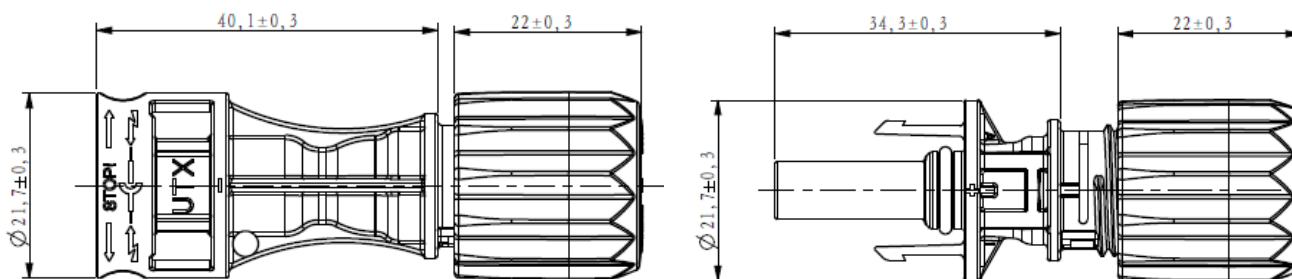
3. 产品信息

Product information

3.1) 产品图片:

Product pictures

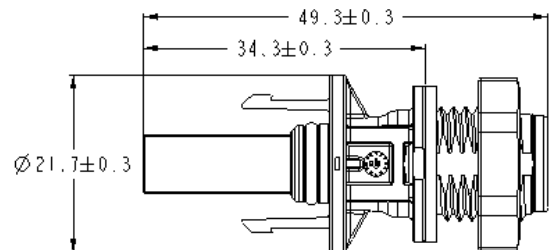
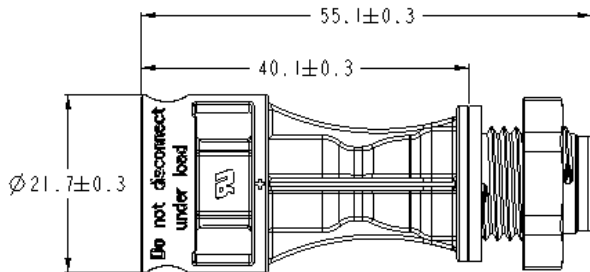
UTX 线端连接器 (TUV&UL&JET&ETL认证):
UTX cable connector (TUV&UL&JET&ETL APPROVALS)



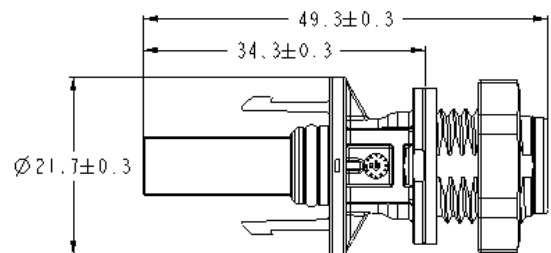
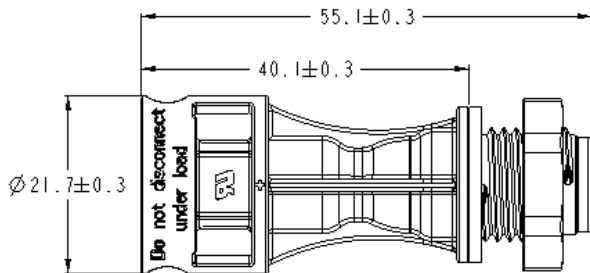
UTX SERIES INSTRUCTION MANUAL

文件编号 (File Name) :WI-S035-ENG-UTX REV.G

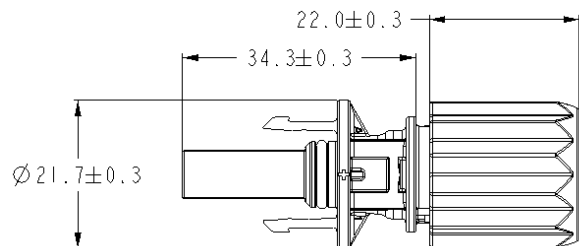
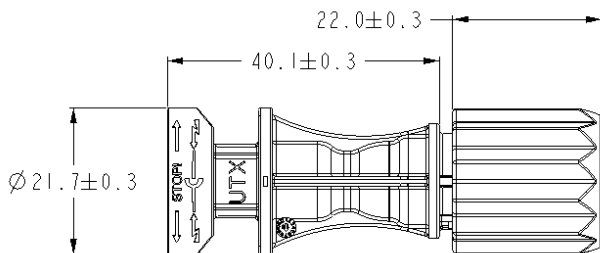
UTX M14 板端连接器 (TUV&UL认证) :
UTX M14 bulkhead connector (TUV&UL APPROVALS)



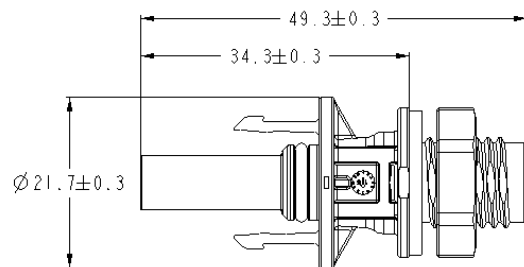
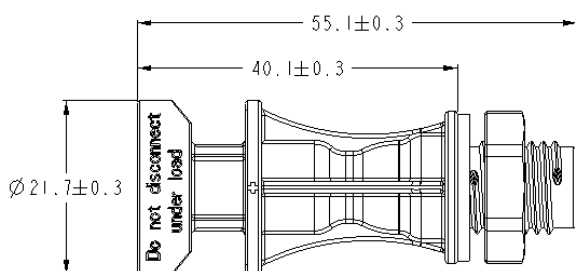
UTX M12 板端连接器 (TUV&UL认证) :
UTX M12 bulkhead connector (TUV&UL APPROVALS)



UTX-H 线端连接器 (TUV认证) :
UTX-H cable connector (TUV APPROVALS)



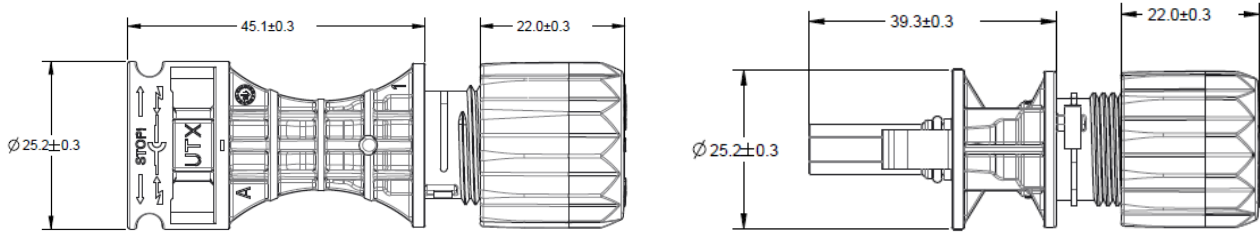
UTX-H M12 板端连接器 (TUV认证) :
UTX-H M12 bulkhead connector (TUV APPROVALS)



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UTX-XL 线端连接器 (TUV&UL双认证) :
UTX-XL cable connector (TUV&UL APPROVALS):



3.2) 连接器料号:

Connector part number

| UTX Connector Part Number Logic Code | | | |
|---|---|--|---|
| Product Line UTX UTX Connector | Product Type C Cable connector N M14 BULKHEAD M M12 BULKHEAD | Gender F Female + M Male - | CONNECTOR TYPE A Stamping forming contact for UTX B Cold forming contact for UTX L Cold forming contact for UTX-XL |
| CABLE SIZE 0 Less contacts 2 2.5 mm ² /14 AWG 4 4&6 mm ² /10&12 AWG for stamping forming contact 4mm ² /12 AWG for cold forming contact 6 6 mm ² /10 AWG (only for cold forming contact) 8 10 mm ² /8 AWG | APPROVALS A TUV/UL/JET/ETL Approvals FOR UTX TUV/UL Approvals FOR UTX-XL AND UTX BULKHEAD B TUV Approvals FOR UTX-H | PACKAGING I 800pcs/box and 1pcs bag C 800pcs/box and 100pcs bag M 800pcs/box and 400pcs/bag for UTX 500pcs/box and 250pcs/bag for UTX-XL | VARIATIONS |

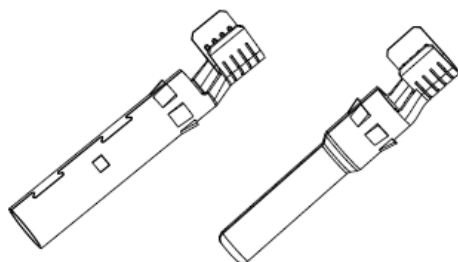
3.3) 卷装冲压端子料号:

Stamping forming contact part number for reel

| H4 S&F Contact Part Number Logic Code(only for reel type) | | | |
|---|--|----------------------------------|---|
| Product Line UTX UTX Connector | Product Type F Stamping Forming contact | Gender F Female + M Male - | CABLE SIZE 2 2.5 mm ² /14 AWG 4 4 mm ² /12 AWG 6 6 mm ² /10 AWG |
| PACKAGING R 2000 pcs/reel | VARIATIONS | | |

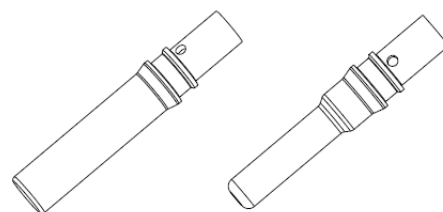
备注: 机加工端子无单独料号。

Note: Cold forming contacts are supplied standard with the connectors.



冲压端子

Stamping forming contact



机加工端子

Cold forming contact

4.工具及应用

Tools & application

4.1) 工具:

Required tools

机加工端子压接钳:

UTXTC0001

Crimp tool for cold forming contact
(2.5/4.0/6.0/10mm²端子)
(for 2.5/4/6/10mm² contact)



机加工端子钳口:

UTXTD0001

Crimping die for cold forming contact:
(2.5/4.0/6.0/10mm²端子)
(for 2.5/4/6/10mm² contact)



冲压端子压接钳:

UTXTC0002

Crimp tool for stamping forming contact:
(2.5/4.0/6.0mm²端子)
(for 2.5/4/6mm² contact)



冲压端子钳口:

UTXTD0002

Crimping die for stamping forming contact:
(2.5/4.0/6.0mm²端子)
(for 2.5/4/6mm² contact)

剥线钳 (2.5/4.0/6.0mm²光伏线):

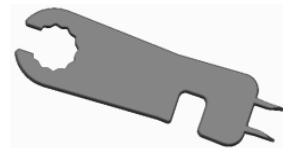
H4TS0000

Strip tool for 2.5/4/6mm² PV cable

UTX连接器蓝色扳手:

UTXTWA001

Wrench tool for UTX:



UTX-XL连接器蓝色扳手:

UTXTWL001

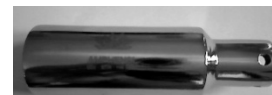
Wrench tool for UTX-XL:



UTX连接器套筒:

H4TTW100

Open-end back cap spanner:



公端防尘帽: UTXPM
Dust cap for male connector



母端防尘帽: UTXPF
Dust cap for female connector



端子深度探测工具 UTXTT0001
Contact depth inspection tool



万能解锁工具 H4TU0000
Universal disconnect tool



4.2) 剥线流程:

Cable preparation and stripping process

使用安费诺剥线工具(H4TS0000)剥线时, 首先调整卡位将线材放置合适位置, 剥去线皮长度 7.0 ± 0.5 mm。请注意不要伤及铜丝, 见下图 4.2.1 到图 4.2.3。

Amphenol specified strip tool (H4TS0000) can be used in this step. First adjust the stripe stopper, then put the cable in corresponding notch to strip the length of 7 ± 0.5 mm. Be careful NOT to nick conductors. See below pictures from 4. 2.1 to 4.2.3.



图 4.2.1
Picture4. 2.1



图 4.2.2
Picture 4.2.2

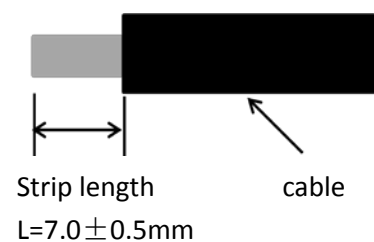


图 4.2.3
Picture4. 2.3

4.3) 机加工端子压接流程:

Crimp process for cold forming contacts

使用安费诺压线钳(UTXTC0001)压线时, 首先将已剥好的线材线芯放入端子孔内并确保所有线芯都在端子孔内(可从检查孔确认线芯是否到位)然后将带线材的端子放入对应的压线钳钳口, 并对应正确的定位器孔位, 如图 4.3.1 到 4.3.5。压接后端子电缆拔出力要求需要满足表 4.3.1。

Amphenol specified crimp tool (UTXTC0001) can be used in this step. Insert striped cable into contact barrel and insure all conductor strands are captured in the contact barrel (conductors should be visible in the inspection

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hole). Crimp contact barrel by using the 4-ident crimping die, by putting the contact barrel with striped cable in the corresponding crimping locator. See below pictures from 4.3.1 to 4. 3.5. The pull-out forces have to meet table 4.3.1 requirement.



图 4.3.1
Picture4. 3.1



图4.3.2
Picture4. 3.2

检查孔
Inspection hole

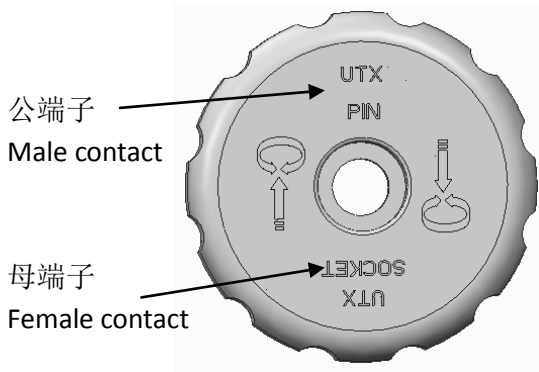


图 4.3.3
Picture4. 3.3

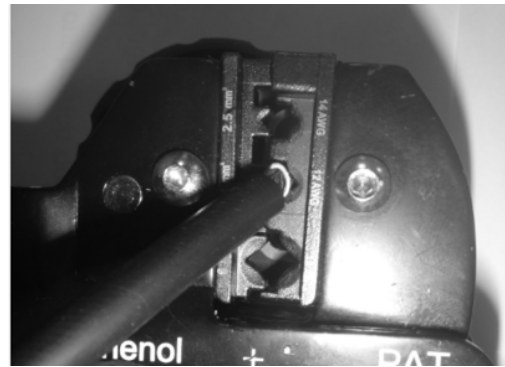


图 4.3.4
Picture 4.3.

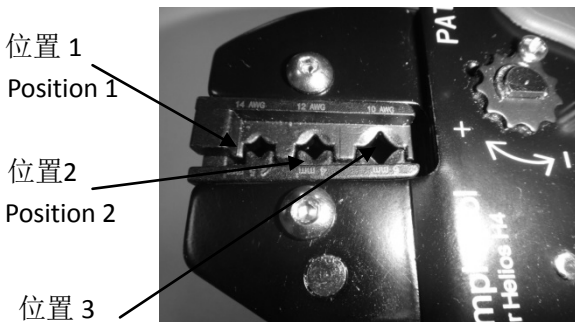


图 4.3.5
Picture 4.3.5

表格 4.3.1 (Table 4.3.1)

| 位置 Position | 电缆规格 Cable size | 电缆拔出力要求 Cable pull-out force |
|----------------|---------------------------|---------------------------------|
| 1 | 14AWG/2.5 mm ² | 最小 223 N Min. 223 N |
| 2 | 12AWG/4.0 mm ² | 最小 312 N Min. 312 N |
| 2 | 10AWG/6.0 mm ² | 最小 356 N Min. 356 N |
| 3 | 8AWG/10.0 mm ² | 最小 401 N Min. 401 N |

端子压接好后的效果见图 4.3.6 及图 4.3.7。
See below pictures 4. 3.6 and 4.3.7 for crimping result.



图 4.3.6
Picture 4.3.6



图 4.3.7
Picture4.3.7

4.4) 冲压端子压接流程:

Crimp process for stamping forming contacts

使用安费诺压接工具 (UTXTC0002)压线时, 首先将已剥好的线材线芯放入端子槽内, 并确保所有线芯都在端子槽内, 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 4.4.1 至图 4.4.5. 压接后端子电缆拔出力要求需要满足表 4.4.1 要求。

Amphenol specified crimp tool (UTXTC0002) can be used in this step. 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 4. 4.1 to 4.4.5. The pull-out force has to meet below table 4.4.1 requirement.



图 4.4.1
Picture 4.4.1



图 4.4.2
Picture 4.4.2

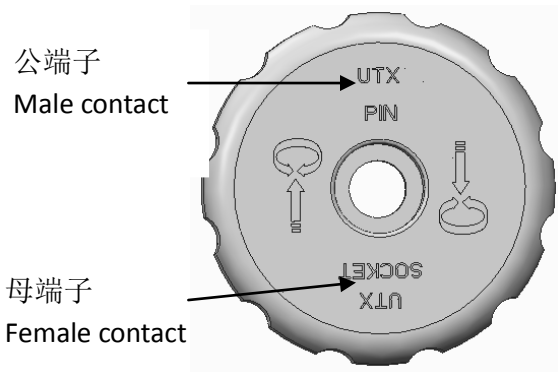


图 4.4.3
Picture 4.4.3



图 4.4.4
Picture 4.4.4

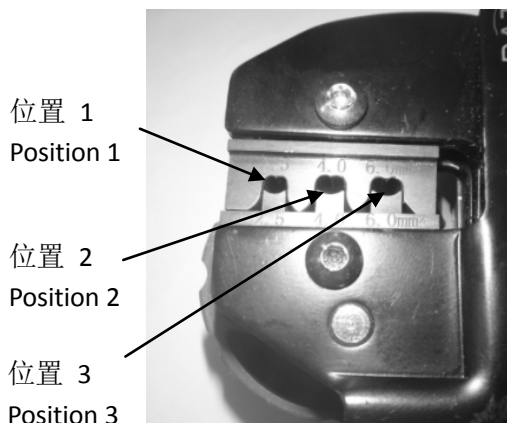


图 4.4.5
Picture 4.4.5

| 位置 Position | 电缆规格 Cable size | 电缆拔出力要求 Cable pull-out force |
|----------------|---------------------------|---------------------------------|
| 1 | 14AWG/2.5 mm ² | Min. 223 N |
| 2 | 12AWG/4.0 mm ² | Min. 312 N |
| 3 | 10AWG/6.0 mm ² | Min. 356 N |

端子压接好后的效果见图 4.4.6 及图 4.4.7。

See below pictures 4.4.6 and 4.4.7 for crimping result.



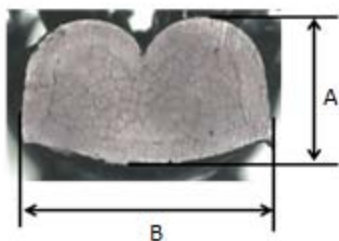
图 4.4.6
Picture 4.4.6



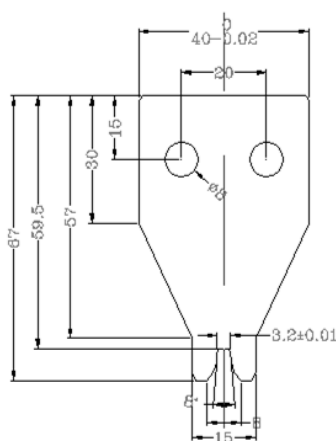
图 4.4.7
Picture 4.4.7

客户使用自动打端子机进行压接时，建议压接规范如表格 4.4.2，压接刀模尺寸要求如下图 4.4.8 到图 4.4.13(单位: mm)。

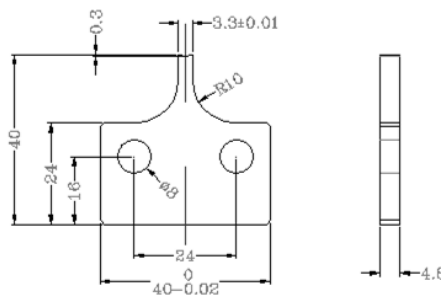
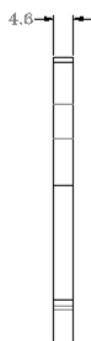
If customer use the automatic crimping machine, we suggest that the contact crimping spec should meet the table 4.4.2 requirement. The suggestion dimensions of crimping tool as below pictures 4.4.8 to 4.4.13 (Unit: mm).



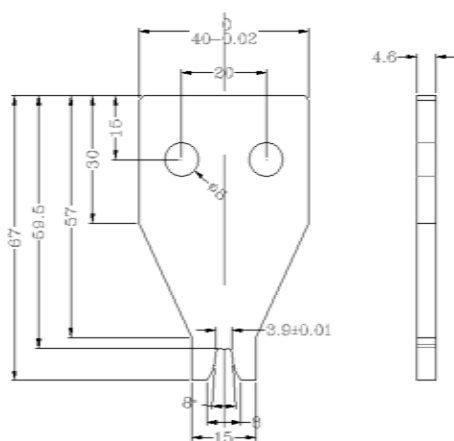
| 表格 4.4.2 (Table 4.4.2) | | |
|--|-------------------------------|------------------------------|
| 电缆规格 Cable Size | 铆接高度(A) Crimping Height(A) | 铆接宽度(B) Crimping Width(B) |
| 14AWG/2.5 mm ² | 2.10±0.05mm | 3.40±0.10mm |
| 12AWG/4.0 mm ² | 2.39±0.05mm | 4.00±0.10mm |
| 10AWG/6.0 mm ² | 2.70±0.05mm | 4.25±0.10mm |
| H/W Ratio(高度/宽度比率): 50% ≤ X ≤ 75% | | |
| Compression Ratio(压缩比率): 70% ≤ X ≤ 90% | | |



2.5mm²/14AWG 上刀模
2.5mm²/14AWG Up Blade
图4.4.8
Picture 4.4.8



2.5mm²/14AWG 下刀模
2.5mm²/14AWG Down Blade
图 4.4.9
Picture 4.4.9



4.0mm²/12AWG 上刀模
4.0mm²/12AWG Up Blade

图 4.4.10

Picture 4.4.10

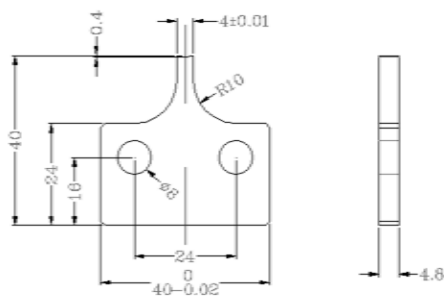
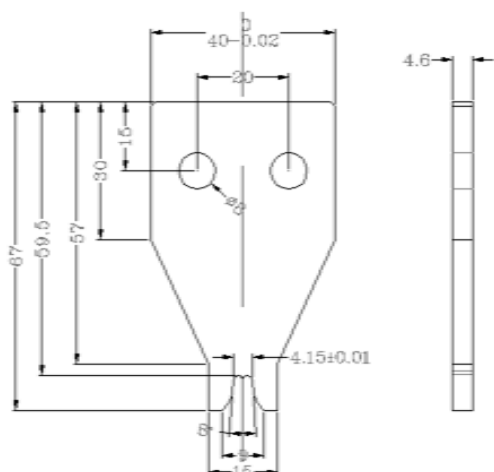
4.0mm²/12AWG 下刀模4.0mm²/12AWG Down Blade

图 4.4.11

Picture 4.4.11



6.0mm²/10AWG 上刀模
6.0mm²/10AWG Up Blade

图 4.4.12

Picture 4.4.12

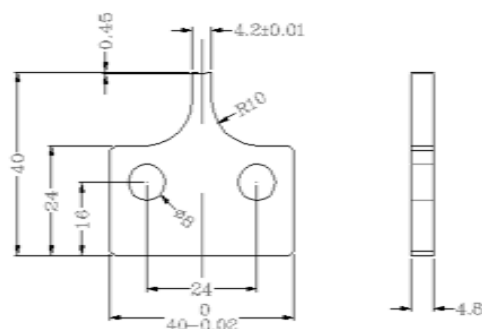
6.0mm²/10AWG 下刀模6.0mm²/10AWG Down Blade

图 4.4.13

Picture 4.4.13

5. 组装流程:

Assembly process

5.1) 线端连接器安装:

For Cable connector

5.1.1) 压接端子及插线

Crimped contacts with cable

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应用4.2到4.4)，见下图5.1.1到图5.1.4。

Insert contact cable assembly into back of male and female connector. A “click” should be heard or felt

when the contact cable assembly is seated in correct position. Contacts cannot be removed once seated.
(Contacts crimping and cable stripping per tool application from 4.2 to 4.4).

See below pictures 5.1.1 to 5.1.4.

母端连接器

Female PV Connector



图5.1.1
Picture 5.1.1

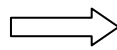


图 5.1.2
Picture 5.1.2

公端连接器

Male PV Connector



图 5.1.3
Picture 5.1.3

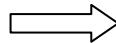


图 5.1.4
Picture 5.1.4

备注:

Notes:

可通过端子探测工具确认端子是否插到位。连接器边缘要落在端子深度探测工具白色区域内。见下图5.1.5到图5.1.7。

Can use the contact depth inspection tool confirm whether the contact is right seated or not. The edge of connector should locate within the white area of the contact depth inspection tool. See below picture 5.1.5 to 5.1.7.

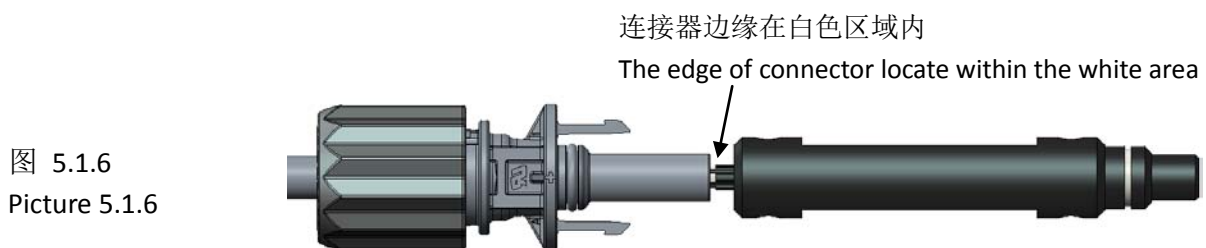
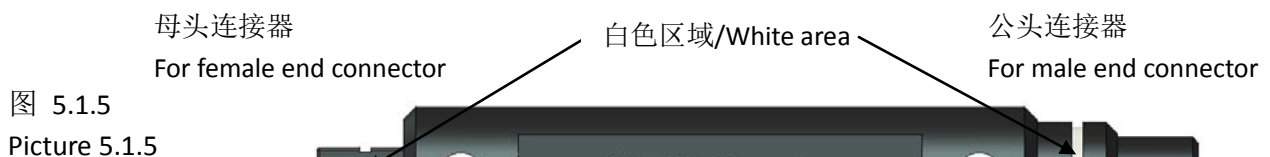
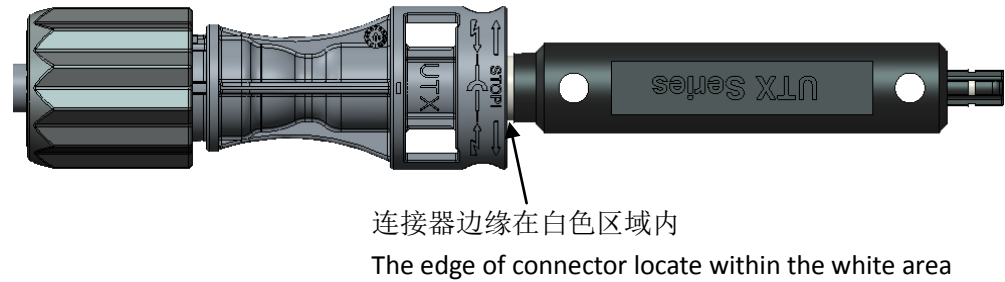


图 5.1.6
Picture 5.1.6



5.1.2) 锁紧螺帽 Tightening the back cap

UTX 连接器需用 3.5 N·m 到 4.0 N·m 的扭矩锁紧螺帽。

UTX PV connector back cap must be screwed up with a properly torque range from 3.5 to 4.0 N·m

UTX-XL 连接器用 4.0 N·m 到 4.5 N·m 扭矩锁紧螺帽。

UTX-XL PV connector back cap must be screwed up with a properly torque range from 4.0 to 4.5 N·m.

在锁紧螺帽时，不论是使用帽子还是本体进行连接器组装都不会影响连接器的功能，客户可以根据自己的组装工艺选择组装方式。

Whether the connectors were screwed by cap or body, there is no any effect on the functionality. Customer can choose the different screwed method according to their manufacturing processes..

以下是连接器通过本体或帽子组装时的受力面，如图 5.1.5 到图 5.1.8。

See the acting point when connector was screwed by body or cap, as below picture from 5.1.5 to picture 5.1.8

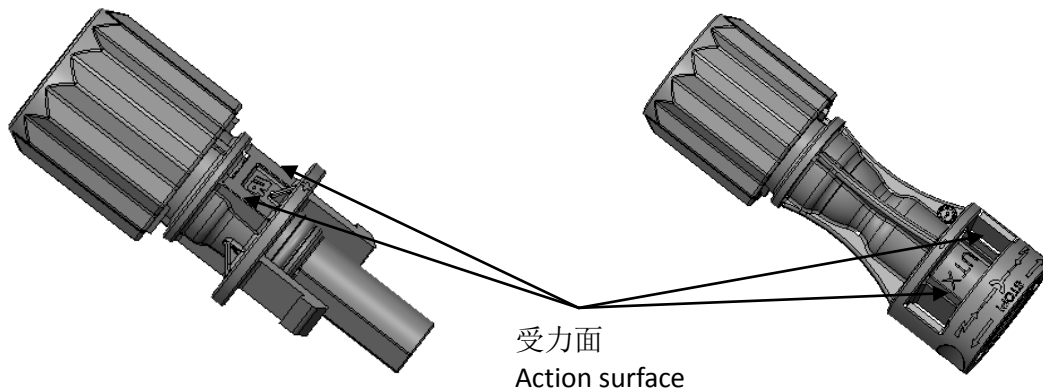
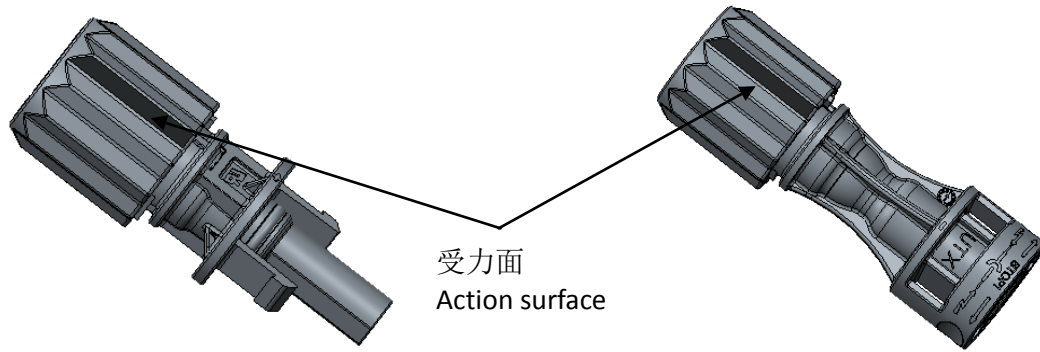


图 5.1.5
Picture 5.1.5

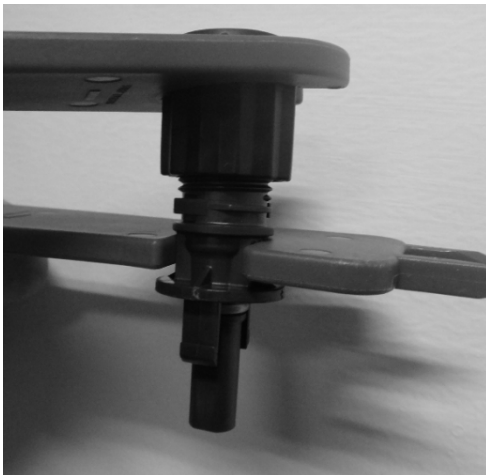
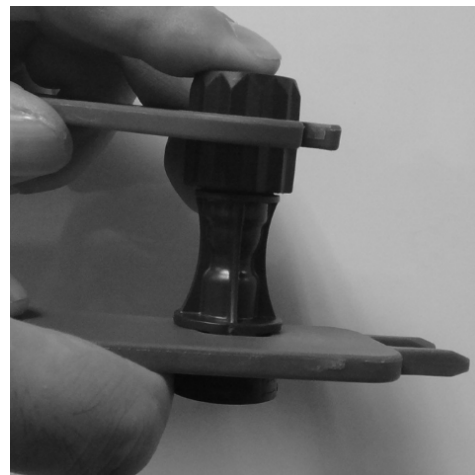
图 5.1.6
Picture 5.1.6

图 5.1.7
Picture 5.1.7图 5.1.8
Picture 5.1.8

客户选择现场安装,可使用安费诺蓝色扳手(UTX 使用 UTXTWA001, UTX-XL 使用 UTXTWL001)组装连接器,如图 5.1.9 及图 5.1.10。如果客户使用扭力扳手组装连接器,可用安费诺专用连接器套筒(H4TTW100)进行组装,如图 5.1.11 及图 5.1.12。

Amphenol specified wrench tool (UTXTWA001 for UTX and UTXTWL001 for UTX-XL) can be used in this step, as below picture 5.1.9 and 5.1.10.

Customer can use open-end back cap spanner (H4TTW100) if customer use electric torque controlled wrench tool to tighten the cap, as below picture 5.1.11 and 5.1.12..

图 5.1.9
Picture 5.1.9图 5.1.10
Picture 5.1.10图 5.1.11
Picture 5.1.11图 5.1.12
Picture 5.1.12

5.1.3) 备注:

Notes

1. UTX 连接器线材外径要求为 $\phi 5.3\text{mm}$ 到 $\phi 7.65\text{mm}$, UTX-XL 连接器线材外径要求为 $\phi 7.9\text{mm}$ 到 $\phi 9.3\text{mm}$ 。
The cable range of UTX PV connector is from $\phi 5.3\text{mm}$ to $\phi 7.65\text{mm}$, UTX-XL is from $\phi 7.9\text{mm}$ to $\phi 9.3\text{mm}$.
2. 适用 UTX 连接器导线的线芯数为 19 到 105 根。
The number of conductor strands for UTX is from 19 to 105.
3. 适用 UT-XL 连接器导线的线芯数为 19 到 84 根。
The number of conductor strands for UTX-XL is from 19 to 84.
4. 扭矩要求只针对安费诺太阳能线材。不同的线材组装完成后都需达到 IP68 及拉力测试要求 (无端子状态下吊重 20Lb, 一分钟)。
These torque force apply to Amphenol PV cable only. The cable assembly should pass IP68 and Pullout test (20Lb, Min, without contact) which UTX and UTX-XL PV connector assembled with different PV cable.
5. 线材线芯只能用铜线芯。
A statement that the conductor type is limited to copper wire only ("Copper" or "CU" are acceptable).

5.2) 板端连接器安装

For Bulkhead connector assembling

5.2.1) 板端连接器安装

Bulkhead connector mounting

不论是水平安装还是垂直安装, 孔间距最小要求30mm, 面板壁厚最大5mm来安装连接器, 并用1.1 N·m到1.4N·m扭矩扭紧螺母, 如图5.2.1及图5.2.2 (单位: mm)。

Drill the box wall according to the illustration. For both horizontal and vertical mounting we recommend a minimum Distance X=30mm, the wall thickness need be 5mm MAX. The nut must be screwed up with a Properly torque range from 1.1 to 1.4 N·m. See below picture 5.2.1 to picture 5.2.2(unit: mm).

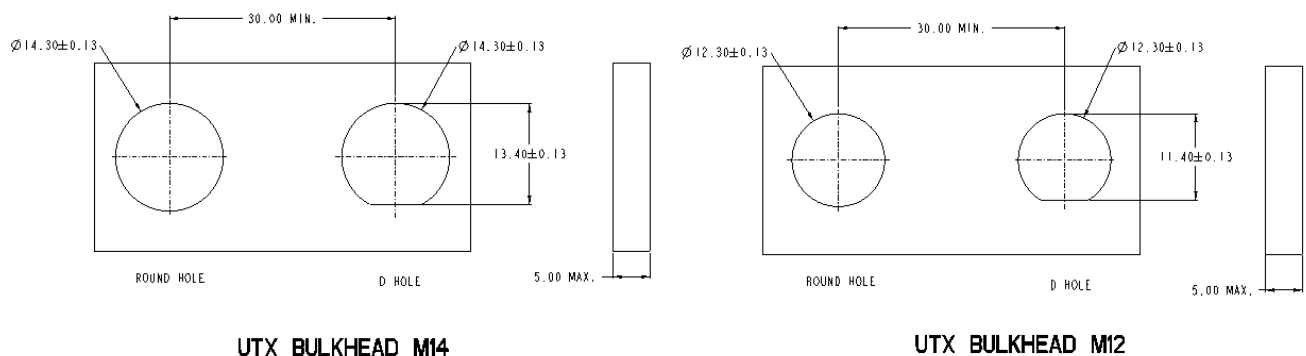


图5.2.1

Picture 5.2.1

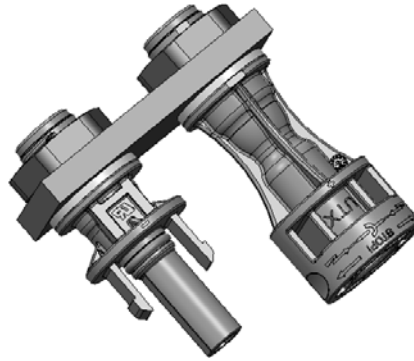


图 5.2.2
Picture 5.2.2

5.2.2) 压接端子及插线

Crimped contacts with cable

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4.2到4.4）见下图5.2.3到图5.2.4。

Insert contact cable assembly into back of male and female connector. A “click” should be heard or felt when the contact cable assembly is seated in correct position. Contacts cannot be removed once seated. (Contacts crimping and cable stripping per tool application from 4.2 to 4.4). See below pictures 5.2.3 to 5.2.4.

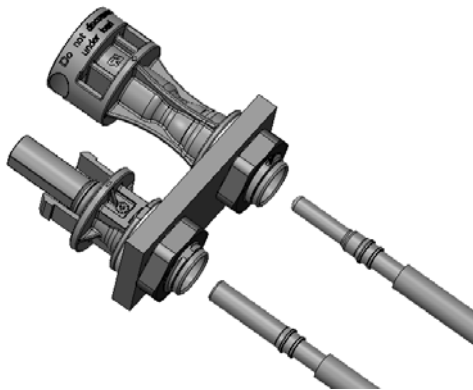


图 5.2.3
Picture 5.2.3

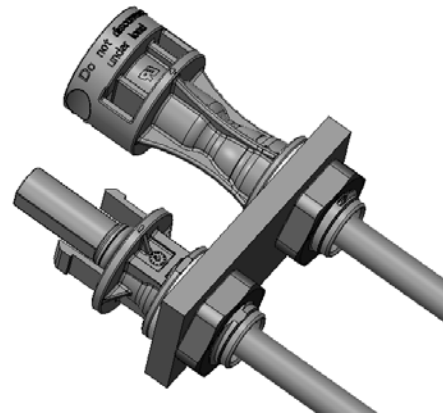


图 5.2.4
Picture 5.2.4

5.3) 连接器对插及解锁

Connector mating and un-mating

公端和母端连接器对插直到听到“滴”的卡位声说明对插到位。安费诺 UTX 连接器及 UTX-XL 连接器符合 NEC 2008 690.33 标准，所以需要工具进行解锁。

For mating, align the 2 half connectors and mate them together by hand until a “click” is heard and/or felt. For un-mating, since the Amphenol UTX and UTX-XL connector complies with the NEC 2008 690.33, a tool is required to disconnect the connector once mated.

安费诺蓝色扳手(UTX 使用 UTXTWA001, UTX-XL 使用 UTXTWL001)或万能解锁工具(H4TU0000)用于安费诺 UTX 系列连接器的解锁, 如图 5.3.1 及图 5.3.2。UTX 系列与 H4 系列互配时也可用蓝色扳手 UTXTWA001 进行解锁。

Amphenol specified wrench tool (UTXTWA001 for UTX and UTXTWL001 for UTX-XL) or Universal tool (H4TU0000) should be used in this step. See below picture 5.3.1 and 5.3.2. The wrench tool UTXTWA001 is adapted if UTX series and H4 series mated.

蓝色扳手解锁

WRENCH TOOL DISCONNECT

图5.3.1
Picture 5.3.1

万能解锁工具解锁

UNIVERSAL TOOL DISCONNECT

图5.3.2
picture 5.3.2

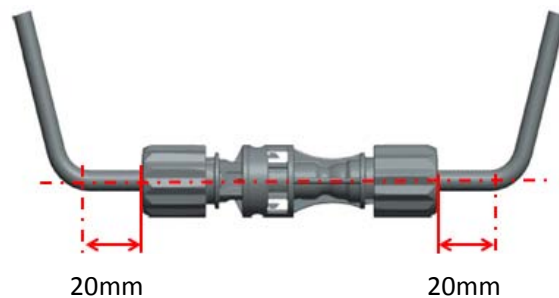
6. 电缆状态:

Cable routing

电缆根部建议保留 20mm 未折弯长度, 避免因线缆折弯产生的外力引起连接器密封件变形, 如图 6.1 和图 6.2。
In order to avoid the cable bend force lead to a visible deformation in the sealing portion of the insulation, the cable need keep at least 20mm straight length. See picture 6.1 and 6.2.

电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.

图 6.1
Picture 6.1图 6.2
Picture 6.2

7. 防尘帽安装:

Dust cap assembly:

连接器安装过程中，如未能及时对插公母头连接器，需要用防尘帽（母头使用UTXPF，公头使用UTXPM）组装保护，以防止连接器内部被污染。如图7.1和图7.2。

In the process of connector assembly, the connect need be protected by dust cap (female end use UTXPF and male end use UTXPM) if connector can't be mated in time, so as to prevent the internal of connector be contaminated. See picture 7.1 and 7.2.

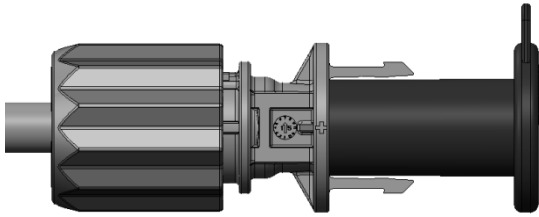


图 7.1
Picture 7.1

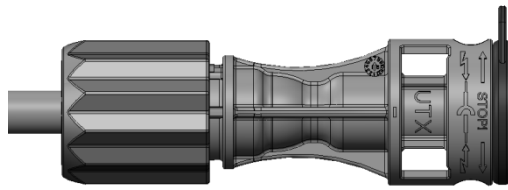


图 7.2
Picture 7.2

更新记录REVISION RECORD

| 版本 <u>REV</u> | 描述 <u>DESCRIPTION</u> | 日期 <u>DATE</u> |
|------------------|--|-------------------|
| A | 首次发行 FIRST RELEASE | May/13/2014 |
| B | UTX-XL 信息更新 Update information for UTX-XL | Aug/19/2014 |
| C | UTX和UTX-XL 信息更新 Update information for UTX and UTX-XL | AUG/15/2015 |
| D | 更新压接规范 Update the crimping specification | Dec/4/2015 |
| E | 增加板端连接器信息 Add bulkhead connector information | Feb/17/2016 |
| F | 增加端子深度探测工具、防尘帽、UTX-H连接器等信息 Add contact depth inspection tool, dust cap, UTX-H connector information | Dec/12/2016 |
| G | 重点标示化学品相关说明 Highlight the chemical illustration | Jun/28/2017 |

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敏感化学物质表

Sensitive Chemicals List



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日期 (Date) : 2016-12-20

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一、目的/Purpose

防止化学品污染导致的对产品的影响。/Preventing chemicals pollution affecting product performance.

二、产品范围/ Product range

UTX及UTX-XL系列连接器/UTX and UTX-XL series connector.

1500V保险丝连接器/ 1500V Inline fuse.

H4-R 系列连接器/ H4-R series connector.

UTX分支连接器/UTX branch connector.

保险丝分支连接器/Branch fuse connector.

三、常用对产品有影响的化学品清单/

The common used chemicals which lead to the product failure easily

| 产品名称 Product Name | 测试结果 Test result |
|-----------------------------|------------------------------------|
| 黄油 Grease | 不可接触本体 Can't contact with body. |
| 润滑油 Lubricate oil | 不可接触本体 Can't contact with body. |
| 防锈剂 Rust inhibitors | 不可接触本体 Can't contact with body. |
| 冲压油 Stamping oil | 不可接触本体 Can't contact with body. |
| 机油 Engine Oil | 不可接触本体 Can't contact with body. |
| 天那水 Banana Oil | 不可接触本体 Can't contact with body. |
| WD40 | 不可接触本体 Can't contact with body. |
| 杀虫剂 Insecticide | 不可接触本体 Can't contact with body. |
| 油性封孔剂 Oily sealing agent | 不可接触本体 Can't contact with body. |

四、原材料测试化学物质/ Test with raw material

表一： 化学物质/Table 1: Chemical

| 化学品名 Chemical Name | CAS No. | 制造商 Manufacture | 临界应变值 Critical strain | 等级 Rank |
|-----------------------|---------|--------------------|--------------------------|------------|
| 脂类 Grease | | | | |
| Z260 | N/A | HASCO | 1.2 | A |
| A7002 | N/A | HASCO | 1.2 | A |
| Molykote EM-30L | N/A | Dow Corning | >1.5 | A |

| | | | | |
|---|------------|--------------------|------------|---|
| Molykote EM-50L | N/A | Dow Corning | 0.44 | C |
| Molykote PG-641 | N/A | Dow Corning | 0.87 | B |
| 油类 Oils | | | | |
| Silicone Oil KF96 | N/A | ShinEtsu Silicones | >1.5 | A |
| Silicone Oil SH200 | N/A | ShinEtsu Silicones | >1.5 | A |
| Dia Cut | N/A | OELHELD | 0.6 | C |
| Machine Oil KV46 | N/A | Nippon Oil | 0.56 | B |
| 脱模剂 Mould Release Agent | | | | |
| Pelicoat B | N/A | Chukyo-Kasei | >1.5 | A |
| Pelicoat S-6 | N/A | Chukyo-Kasei | 0.39 | C |
| 粘合剂 Binder | | | | |
| Chemlok | N/A | LORD | 0.08 | D |
| 表面活性剂 Surfactant | | | | |
| Charmy VQuick | N/A | Kao | 1.0 | A |
| 醇类 Alcohols | | | | |
| 甲醇 Methyl alcohol | 67-56-1 | / | 1.2 | A |
| 乙醇 (无水纯酒精) Ethyl Alcohol (100% concentration) | 64-17-5 | / | 1.2 | A |
| 乙丙醇 Isopropyl alcohol(IPA) | 67-63-0 | / | 0.9 | B |
| 酸碱类 Acid, Alkali, Salt | | | | |
| 盐酸 (50%水溶液) Salt acid (50% aqueous solution) | 7647-01-20 | / | >1.5 | A |
| 硫酸 (50%水溶液) Sulfuric acid acid(50% aqueous solution) | 7664-93-9 | / | >1.5 | A |
| 硝酸 (50%水溶液) Nitric acid(50% aqueous solution) | 7697-37-2 | / | >1.5 | A |
| 磷酸 (60%水溶液) Phosphoric acid(60% aqueous solution) | 7664-38-2 | / | >1.5 | A |
| 醋酸 (50%水溶液) Acetic acid(50% aqueous solution) | 64-19-7 | / | >1.5 | A |
| 氨水 (10%水溶液) Ammonia(10% aqueous solution) | 1336-21-6 | / | >1.5 | A |
| 氢氧化钠 (10%水溶液) Sodium hydroxide(10% aqueous solution) | 1310-73-2 | / | >1.5 | A |
| 氯化钠 (饱和溶液) | 7647-14-5 | / | >1.5 | A |
| 磷酸铵 (饱和溶液) Ammonium phosphate(saturated solution) | 25447-33-0 | / | >1.5 | A |
| 脂肪族化合物 Fatty hydrocarbons | | | | |
| 庚烷 Heptane | 142-82-5 | / | 0.2 | C |
| 乙烷 Hexane | 110-54-3 | / | 0.15 | D |
| 环己烷 Cyclohexane | 110-82-7 | / | 0.1 | D |
| 液状石蜡 Liquid paraffin | 8012-95-1 | / | 0.39@23° C | C |
| | | | 0.29@60° C | C |
| | | | 0.18@80° C | D |
| 卤族碳化合物 Halogenated hydrocarbon | | | | |
| 氟利昂 Freon | 75-45-6 | / | <0.1 | D |

| | | | | |
|---------------------------------------|-----------|---|------|---|
| 四氯化碳 Carbon tetrachloride | 56-23-5 | / | <0.1 | D |
| 氯仿/三氯化碳 Trichloromethane | 67-66-3 | / | <0.1 | D |
| 酮类 Ketone | | | | |
| 丙酮 Acetone | 67-64-1 | / | <0.1 | D |
| 甲基乙基酮 Methyl ethyl ketone | 78-93-3 | / | <0.1 | D |
| 芳香族碳氢化合物 Aromatic Hydrocarbon | | | | |
| 甲苯 Toluene | 108-88-3 | / | <0.1 | D |
| 二甲苯 Xylene | 1330-20-7 | / | <0.1 | D |
| 甲酚 Cresol | 1319-77-3 | / | 0.8 | B |
| 其他/有机溶剂 Other, Organic solvent | | | | |
| 醋酸乙酯 Ethyl acetate | N/A | / | <0.1 | D |
| 磷酸三丁酯 Tributyl phosphate | 126-73-8 | / | 0.11 | D |
| 煤油 Kerosene | 8008-20-6 | / | 0.2 | C |
| 汽油 Gasoline | 8006-61-9 | / | <0.1 | D |
| 清漆 Varnish | 9000-14-0 | / | 0.18 | D |

表 2： 粘合密封与填充材料

Table 2 : Adhesion bond & potting resin

| 应用方面 Application | 产品名称 Product Name | 制造商 Manufacture | 临界应变值 Critical strain | 等级 Rank |
|----------------------------|----------------------|--------------------|--------------------------|------------|
| | | | 23°C | |
| 粘合密封材料 Adhesion Sealant | KE45W | ShinEtsu Silicones | >1.5 | A |
| | KE4828W | ShinEtsu Silicones | >1.5 | A |
| | TSE382W | Momentive | >1.5 | A |
| | TSE392W | Momentive | >1.5 | A |
| | PV 804 | Dow Chemical | >1.5 | A |
| | PV 8101 | Dow Chemical | >1.5 | A |
| | APF125 | Wacker Chemical | 0.6 | B |
| | VHB TAPE 4941 | 3M | >1.5 | A |
| 填充材料 Potting Material | KE-200 CX-200 | ShinEtsu Silicones | 0.41 | C |
| | KE-210F CAT-210 | ShinEtsu Silicones | >1.5 | A |
| | PV7010 | ShinEtsu Silicones | 1.5 | A |
| | | | | |

表3： 临界开裂点说明

Table 3: Explanation of the critical crack point

| 临界应变值 Critical strain (%) | 注解 Remark | 等级 Rating |
|------------------------------|--|--------------|
| >1.0 | 开裂的次要因素等级 Not primary factor of cracking, May be secondary factor in some case of cracking. | A |
| 1.0~0.5 | 应力开裂的应力集中区域。特别注意化学品的利用 May be a primary factor of stress cracking at the stress concentrated region. Special care of chemical use is required. | B |

| | | |
|--|---|---|
| 0.5~0.2 | 在运输使用过程中有开裂的风险，特别注意不能与化学品接触。 Risk of cracking under static or dynamic strain during assembly, transportation, or use. Special care for no contact to chemical is required part design. | C |
| 0.2> | 与化学品接触开裂的风险很高 High risk of cracking only contact with chemical. | D |
| 备注：/Notes: 等级A物质可与本体直接接触，等级B、C、D物质不可与本体接触。 Rating A chemicals can contact with body, rating B/C/D can't contact with body. | | |

五、规则要求/Rules

1、对上表中注明不可接触及B、C、D等级的化学品需禁止与产品的接触。

Forbidding product to contact chemicals which indicate can't contact and B、C、D rank in the table above.

2、对于在表外的化学品需经安费诺确认无影响后再使用。

Chemicals which is not contained in the table should only be used after Amphenol confirm it has no influence to the product.

更新记录

REVISION RECORD

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