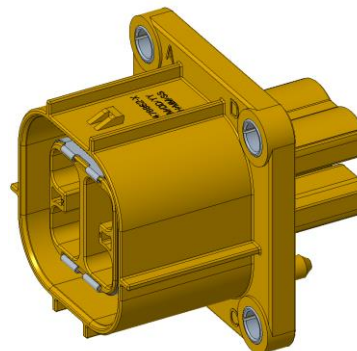
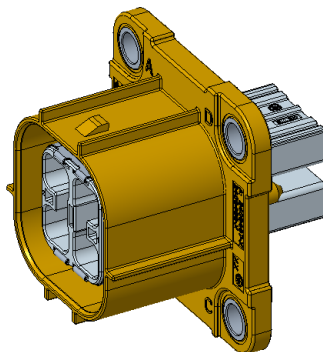
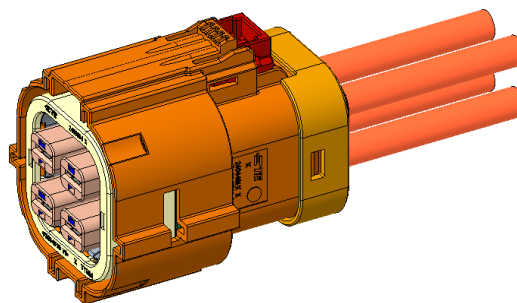





## HVA630 4+2 Connector Application Specification

## HVA630 4+2 连接器应用规范



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## HVA630 4+2 CONNECTOR

Contents/目录

<b>1. SCOPE 适用范围 .....</b>	<b>3</b>
1.1 Content 内容 .....	3
1.2 Processing Notes 加工说明 .....	3
<b>2. APPLICABLE DOCUMENTS 适用文件 .....</b>	<b>3</b>
2.1 TE Connectivity Documents 泰科电子文件 .....	3
2.1.1 Customer Drawings 客户图纸 .....	4
2.1.2 Specifications 规范 .....	4
2.2 General Documentation 通用文档 .....	5
2.2.1 Cable specification 线缆规格 .....	5
<b>3. CONDITION OF DELIVERY AND PACKING 交货和包装状态 .....</b>	<b>5</b>
3.1 Compents 零部件 .....	5
3.2 Packing and Storage 包装和储存 .....	6
<b>4. ASSEMBLY INSTRUCTIONS 组装说明 .....</b>	<b>7</b>
4.1 Header Assembly 公端组装 .....	7
4.2 Plug Assembly 母端组装 .....	9
<b>5. MATING AND UN-MATING 插拔 .....</b>	<b>9</b>
5.1 Mating 插入 .....	9
5.2 Un-mating 拔出 .....	10
<b>6. Assembly and Un-Assembly of Cap 防尘盖的组装和拆除 .....</b>	<b>11</b>
6.1 Assembly of Cap 防尘盖的组装 .....	11
6.2 Un-Assembly of Cap 防尘盖的拆除 .....	12



- ◆ This connector is intended for use in high-voltage applications. Special care must be applied to ensure that the connector functions as intended.
- ◆ If you suspect that the connector has been modified, damaged, contaminated or other wise compromised, please discontinue it use immediately.
- ◆ This connector should only be serviced by a trained and qualified technician.

## 1. SCOPE 适用范围

### 1.1 Content 内容

This specification covers the requirements for application of the sealed HVA 630 4P High Voltage connector. The HVA 630 4P connector system is designed to meet LV215-1 specifications and for a metric wire size range of 2.5mm<sup>2</sup>/4mm<sup>2</sup>/6mm<sup>2</sup> (acc. to LV216-2/ ISO19642-9). The connector incorporates conductive EMI shields to reduce radiated emissions in the application.

The HVA 630 4P connector is available for 4 different keying or polarizing configurations. The connector system incorporates an integrated High Voltage Interlock (HVIL) System. The housings are molded in orange to denote a high voltage system.

该规范涵盖了 HVA 630 4P 高压密封连接器的应用要求。HVA 630 4P 连接器系统的设计符合 LV215-1 规范，公制线径范围为 2.5mm<sup>2</sup>/4mm<sup>2</sup>/6mm<sup>2</sup>（符合 LV216-2/ ISO19642-9 标准）。该连接器采用导电 EMI 屏蔽，以减少应用中的辐射。

HVA 630 4P 连接器有 4 种不同的键位。该连接器系统包含集成的高压互锁（HVIL）系统和高压手指防护（IPXXB）要求。外壳采用橙色模制，表示高压系统。

### 1.2 Processing Notes 加工说明

The processor is responsible for ensuring the quality of the manufacturing process and the proper function of the system. The warranty and liability is excluded, if quality deficiency or damages occurs by failing compliance to this specification or using not specified, not released tools or not released connector components.

加工者负责确保制造过程的质量和系统的正常功能。如果由于因未遵守本规范或使用未定义的、未发布的工装或未发布的连接器组件而导致质量异常或损坏，则不承担保修和责任。

## 2. APPLICABLE DOCUMENTS 适用文件

The following mentioned documents are part of this specification. If there is a conflict between the information contained in the documents and this specification or with any other technical documentation supplied, the latest valid customer drawings take preference.

以下提到的文件是本说明书的一部分。如果文档中包含的信息与本规范或提供的任何其他技术文档之间存在冲突，则以最新有效的客户图纸优先。

### 2.1 TE Connectivity Documents 泰科电子文件

This Application Specification based on the latest valid customer drawings.

本应用规范基于最新的有效客户图纸。



### 2.1.1 Customer Drawings 客户图纸

Table 1: Customer drawings 客户图

DRAWING	DESCRIPTION
<b>Plug side / 母端</b>	
2406990	HVA630 4P PLUG KIT OVERVIEW
2404653	HVA630 4P PLUG ASSY
1241438	MCP 6.3 TERMINAL FEMALE
2404529	FERRULE, OUTER
2404530/2350495	FERRULE, INNER
2411705	CABLE PLANT
2404519/2470807	CABLE SEAL
2411706	SEAL COVER
2404723	CAVITY PLUG
<b>Header side/ 公端</b>	
2406467/ 2478862	HVA630 4P HEADER ASSY, PIGTAIL: 2406467(HEADER OF PBT VERSION)/ 2478862(HEADER OF PA66 VERSION)
1241895	TAB5.8X0.8 TERMINAL MALE
929453	MQS 0.63X0.63 TERMINAL MALE
<b>CAP / 防尘盖</b>	
2415926	HVA630 4P HEADER CAP

### 2.1.2 Specifications 规范

Table 2: TE-specifications / 泰科规范

Specifications	Description
114-160249	HVA630 4P CONNECTOR APPLICATION SPECIFICATION
108-161243	HVA630 4P PIGTAIL HEADER SPECIFICATION (PBT VERSION)
108-161251	HVA630 4P PIGTAIL HEADER SPECIFICATION (PA66 VERSION)
114-18388	MCP 6.3 TERMINAL FEMALE APPLICATION SPECIFICATION
108-18718	MCP 6.3 TERMINAL FEMALE SPECIFICATION
114-18052	TAB5.8X0.8 TERMINAL MALE APPLICATION SPECIFICATION
108-18064	TAB5.8X0.8 TERMINAL MALE SPECIFICATION
108-18030	MQS 0.63X0.63 TERMINAL MALE SPECIFICATION
114-18021	MQS 0.63X0.63 TERMINAL MALE APPLICATION SPECIFICATION

## 2.2 General Documentation 通用文档

### 2.2.1 Cable Specification 线缆规格

The connector is designed to meet LV216-2 / ISO19642-9 specification for metric wire range 2.5mm<sup>2</sup> / 4mm<sup>2</sup> / 6mm<sup>2</sup>. Specification of cable used on plug acc. to 114-160249 appendix.

连接器设计符合 LV216-2/ ISO19642-9 规范，适用于公制线缆范围 2.5mm<sup>2</sup> / 4mm<sup>2</sup> / 6mm<sup>2</sup>。

应用于母端的线缆规格见 114-160249 附录。

## 3. CONDITION OF DELIVERY AND PACKAGING 交货和包装状态

### 3.1 Components 零部件

Components selection based on the latest valid kit overview drawings 2406990(Plug) and customer drawing 2406467 / 2478862 (Header)

部件选型基于最新有效的组装总览图 2406990 (Plug) 和客户图 2406467 / 2478862 (Header)。

The plug connector contains below parts. 连接器母端包含以下零件。

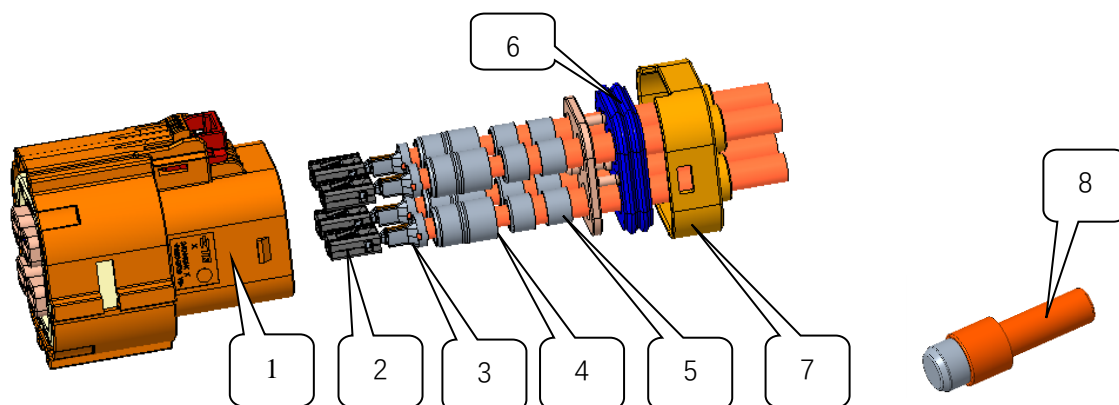


Figure 1 Plug Assy overview

Optional	2404723	CAVITY PLUG ASSY	8
1	2411706	SEAL COVER	7
1	2404519/2470807	CABLE SEAL	6
1	2411705	CABLE PLANT	5
4	2404530/2350495	FERRULE, INNER	4
4	2404529	FERRULE, OUTER	3
4	1241438	MCP 6.3 TERMINAL FEMALE	2
1	2404653	HVA630 4P PLUG ASSY	1
QTY	Customer Drawing	Description	Item

\* Item 8, under actual demand, cavity plug is used in blocked cavity for sealing.

序号8，视实际需要将盲堵用于空穴，起密封作用。

The header contains below parts. 公端包含以下零件。

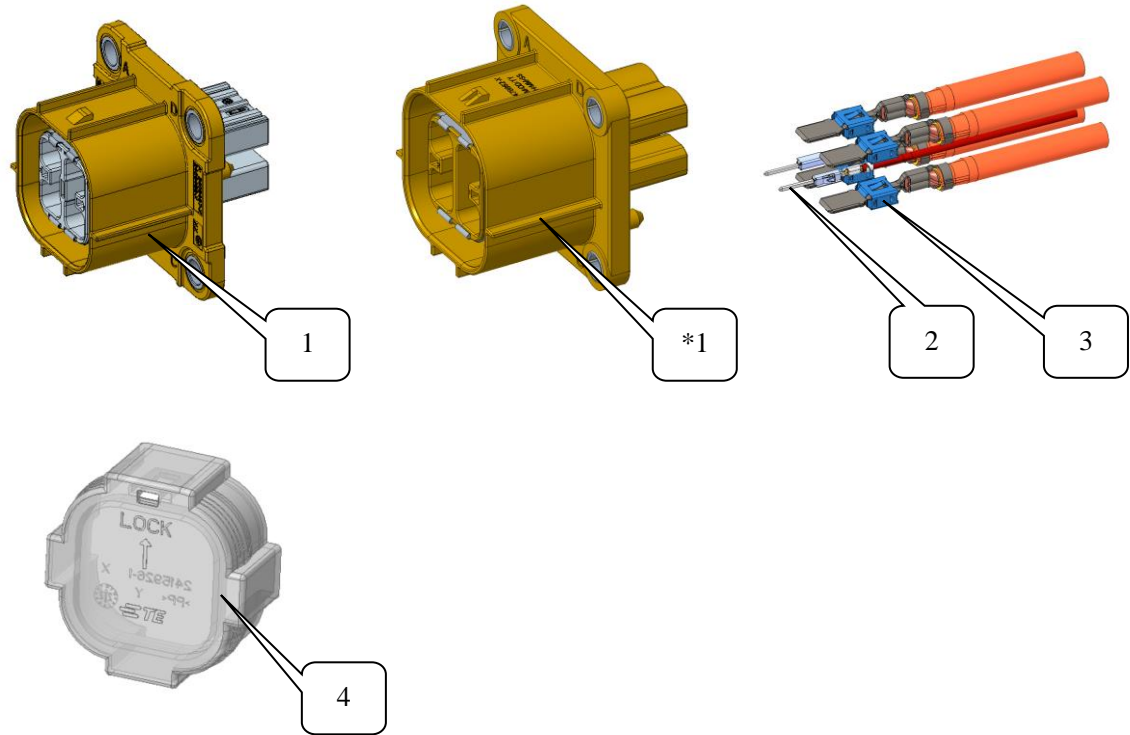


Figure 2 Header Assy overview

Optional	2415926	HVA630 4P HEADER CAP	4
4	1241895	TAB5.8X0.8 TERMINAL MALE	3
2	929453	MQS 0.63X0.63 TERMINAL MALE	2
*1	*2478862	*HVA630 4P HEADER ASSY (PA66 VERSION)	*1
1	2406467	HVA630 4P HEADER ASSY (PBT VERSION)	1
QTY	Customer Drawing	Description	Item

\* Item1, customer should select the PBT or PA66 version header depending on the needs.

序号 1， 客户应根据需要选择 PBT 或 PA66 版本公端。

\* Item 2, under actual demand, cap is used on header for keeping out dirt.

序号2， 视实际需要将防尘盖用于公端阻挡灰尘。

### 3.2 Packaging and Storage 包装和储存

The products should be used on a “first in, first out” basis to avoid storage contamination, see latest valid customer drawings too.

为避免存储污染， 产品应以“先进先出”的原则使用， 也请参见最新的有效客户图纸。

#### 4. ASSEMBLY INSTRUCTIONS 组装说明

The following procedures show the details of the cable assembly and insertion instructions of the cable assembly into the plug housing subassembly. The processing is only valid for the specified cable at appendix and only these combinations have been validated by TE. Alternative cables may be used after ensuring performance through validation testing.

下述步骤显示了线缆组件的细节和线缆组件插入母端壳体子组件的插入说明。该制程仅对附录中的指定线缆有效，并且仅这样的组合通过 TE 验证。在通过验证测试性能之后，可以使用替代电缆。

##### 4.1 Header Assembly 公端组装

1. Prepare the mounting interface (device) according to customer drawing 2406467 / 2478862.  
根据客户图 2406467 / 2478862 准备安装界面（设备）。
2. Strip the conductor insulation off each cable to the dimension defined in Application Specification.  
按照应用规范中定义的尺寸剥去每根电缆的导体绝缘层。

\*TAB5.8X0.8 male terminal refer to Figure 3-A:

TAB5.8X0.8 公端子参考图 3-A

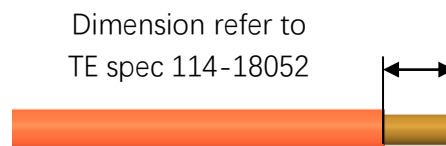


Figure 3-A

\*MQS 0.63X0.63 male terminal refer to Figure 3-B:

MQS 0.63X0.63 公端子参考图 3-B

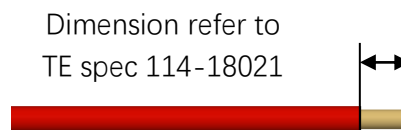


Figure 3-B

3. Apply a receptacle terminal to each cable using the tooling, method, dimensions, and inspections detailed in Application Specification. See Figure 4-A/B.  
将应用规范中详细说明了的，对于端子的工具、方法、尺寸以及检查应用于每根电缆。见图 4-A/B。

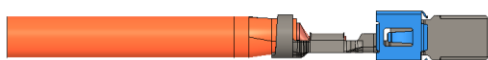


Figure 4-A

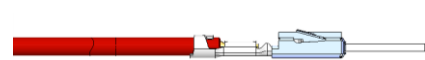


Figure 4-B



4. Insert the terminal (as below direction) as far as the end of the spring engages and produces an audible click. Complete locking can be examined by gently pulling back the terminal. Refer to figure 5-A/B.

按照如下方向插入端子，插入到位后有轻微咔嗒声。为确保插入到位，可轻微回拉线材检查。参考图 5-A/B。

**Note: Rotate terminals and cable properly to fit the terminal cavity before inserting. Unsuitable direction and forced insertion may lead to plastic debris.**

**注意：插入前顺着端子孔的方向适当旋转端子和线材，不合适的方向和强行插入可能导致塑胶屑。**

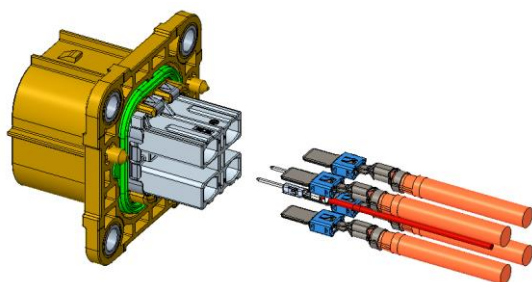


Figure 5-A

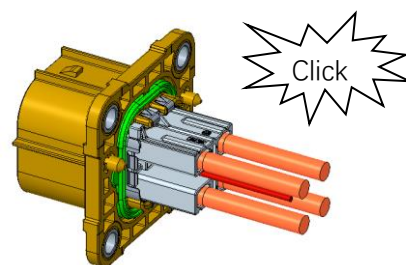


Figure 5-B

5. Check that the seal is present on the header. Align the polarization feature of the header with the polarization hole in the device, then push the header onto the device until it is seated against the face of the device. Refer to Figure 6-A/B, 7-A/B.

检查确认公端是否已安装密封圈。将公端的防呆特征与安装设备的防呆孔对齐，然后将公端推到设备上，直到其紧靠设备表面。参考图 6-A/B, 7-A/B。

For PBT version header, obtain four M5 mounting fasteners that are compatible and capable of meeting the required torque of  $5 \pm 0.3$  Nm. Insert each fastener through a mounting hole in the header and into the hole in the device. Tighten each fastener to the required torque. See Figure 6-C.

对于 PBT 版本公端，取 4 个能够满足  $5 \pm 0.3$  Nm 扭矩要求的 M5 安装紧固螺丝。将每个紧固螺丝通过公端安装孔装入到设备孔中。按照要求的扭矩紧固每个紧固螺丝。见图 6-C。

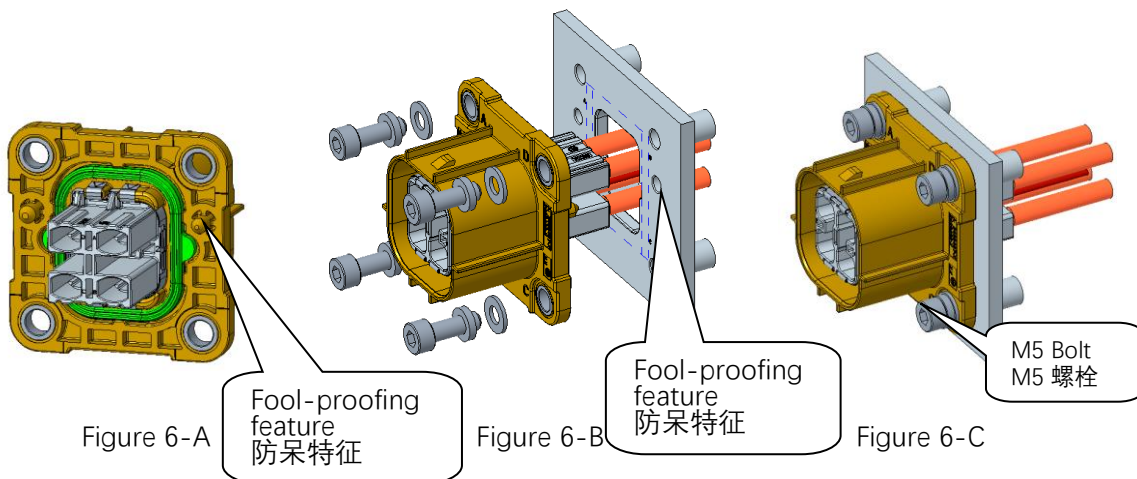


Figure 6-A

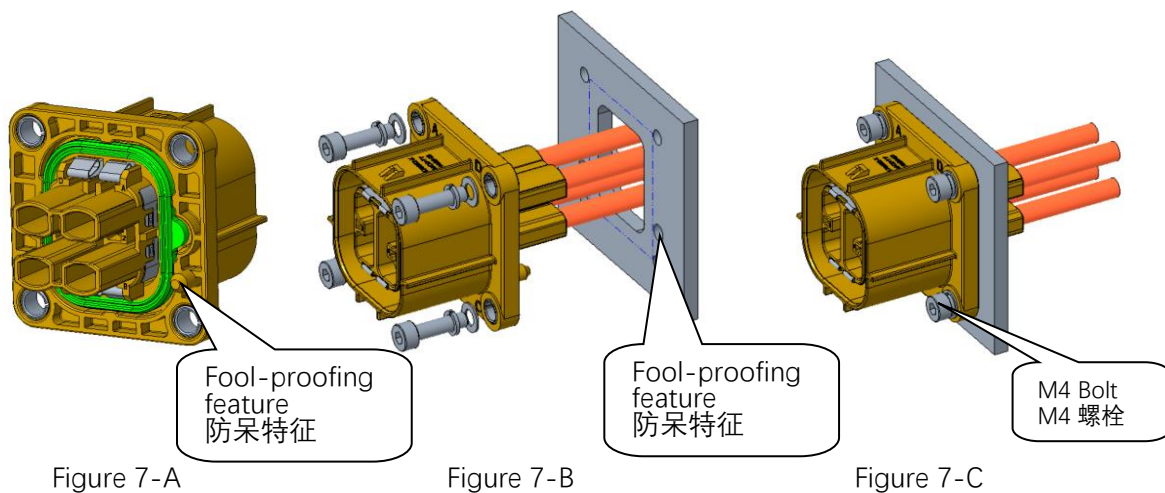
Figure 6-B

Figure 6-C



For PA66 version header, obtain four M4 mounting fasteners that are compatible and capable of meeting the required torque of  $2.5 \pm 0.3$  Nm. See Figure 7- C.

对于 PA66 版本公端，取 4 个能够满足  $2.5 \pm 0.3$  Nm 扭矩要求的 M4 安装紧固螺丝。见图 7- C。



## 4.2 Plug Assembly 母端组装

Plug Assembly refers to latest valid application specification 114-160249.

母端组装参考最新有效的应用规范 114-160249。

## 5. Mating and Un-mating 插拔

### 5.1 Mating 插入

1. Align the plug connector and header connector as shown in Figure 8.

如图 8 所示，公母端连接器对齐。

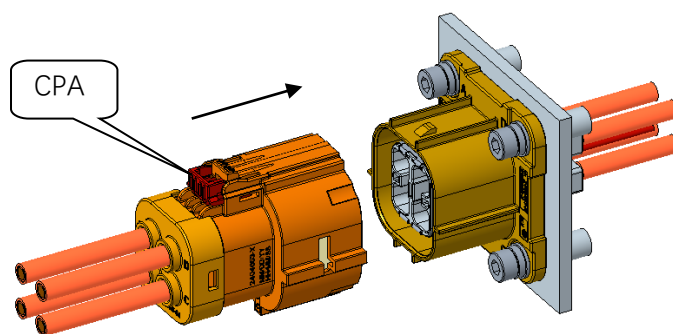


Figure 8

2. Push the plug connector and header connector together fully until they stop (click will be heard) as shown in Figure 9.

如图 9 所示，将公母端连接器完全推到一起，直到他们停止（将听到咔嗒声）。

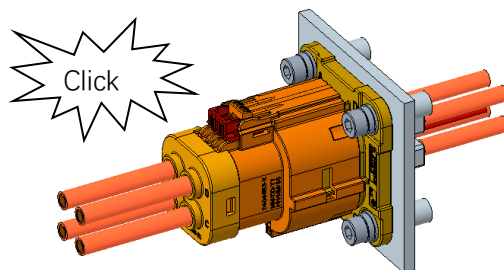


Figure 9

3. Push the CPA until it stops (click will be heard) as shown in Figure 10.

如图 10 所示，推动 CPA 直到停止（将听到咔嗒声）。

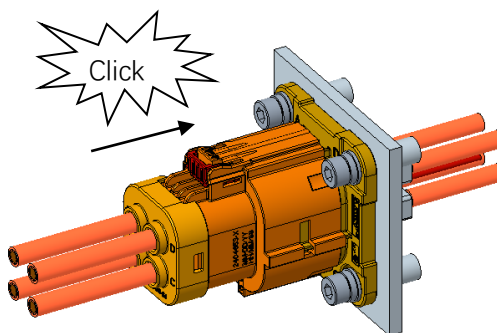


Figure 10

**Note:** When mating the plug with the header, the CPA should not be pushed (If the thrust on CPA is greater than 75N, CPA and product buckle may be damaged). After the male and female products are completely matched with each other, the maximum CPA thrust is 30N. If the thrust is much greater than 30N, it is necessary to stop pairing immediately to prevent damage to the CPA or the product buckle. At the same time, it is necessary to further check whether the product is abnormal.

**注意事项：**当公母端对配时，不应推动 CPA(如果 CPA 承受了大于 75N 的推力，CPA 和产品卡扣可能损坏)。公母产品完全互配后，CPA 推力最大 30N。如果推力远大于 30N，此时需要立即停止对配，防止损坏 CPA 或产品卡扣。同时需要进一步检查产品有无异常发生。

## 5.2 Un-mating 拔出

1. Pull the CPA (as below direction) until it stops as shown in Figure 11.

如图 11 所示，（如下方向）拉动 CPA 直至停止。

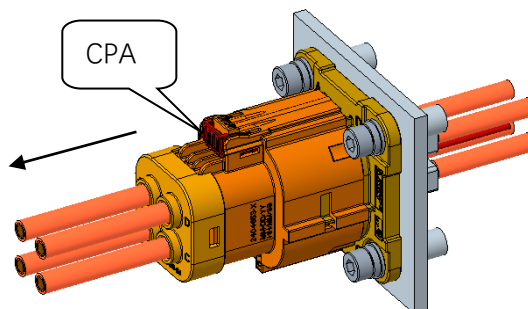


Figure 11

2. Fully depress the thumb actuation pad on the plug connector flexible latch. See Figure 12.  
完全按下母端连接器柔性锁扣的拇指驱动垫。见图 12。
3. Pull the plug connector until it is fully separated from the header connector. See Figure 13.  
拔出母端连接器，直到公母端连接器完全分离。见图 13。

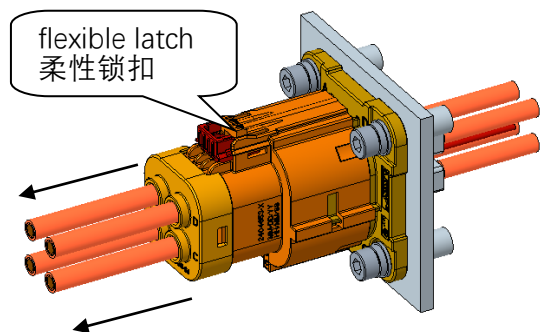


Figure 12

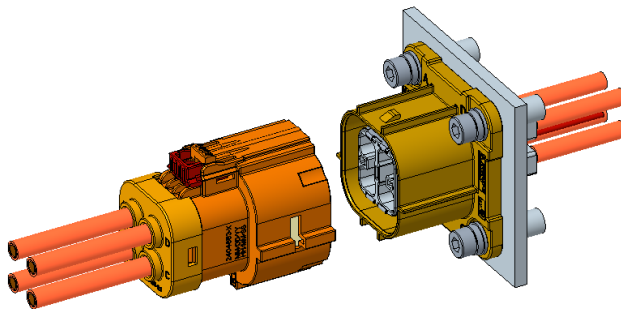


Figure 13

## 6. Assembly and Un-Assembly of Cap 防尘盖的组装和拆除

If customer need cap of Header, the assembly and un-assembly of cap please refer to section 6.1&6.2.

如果客户需要防尘盖，组装和拆除请参考 6.1&6.2 章节。

### 6.1 Assembly of Cap 防尘盖的组装

As Fig 14-A/B shown, align the lock direction of cap with lock on header. Push the cap until stop (click will be heard).

如图 14-A/B 所示，将防尘盖上的 Lock 方向与公端上的 Lock 方向对齐。推动防尘盖直到停止(将听到咔哒声)。

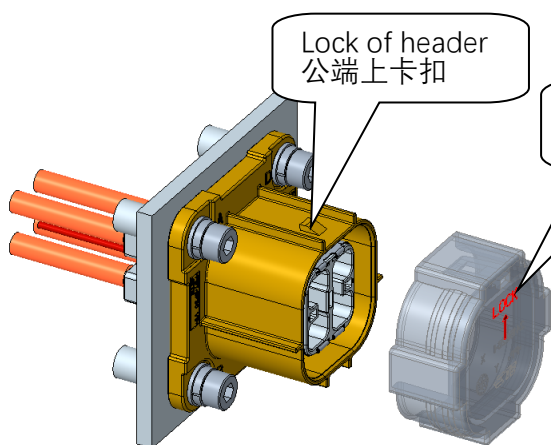


Fig 14-A

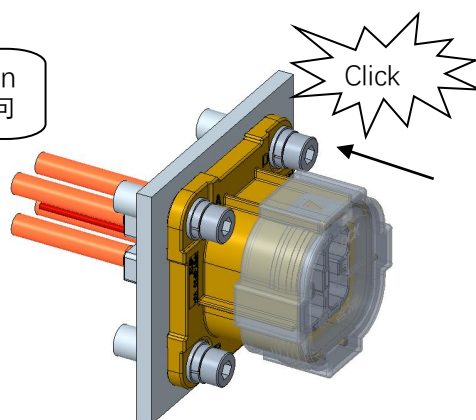


Fig 14-B

## 6.2 Un-Assembly of Cap 防尘盖的拆除

Pull the cap directly until it is fully separated from the header connector. See Fig 15-A/B.

直接拔出防尘盖，直到防尘盖与公端连接器完全分离。见图 15-A/B。

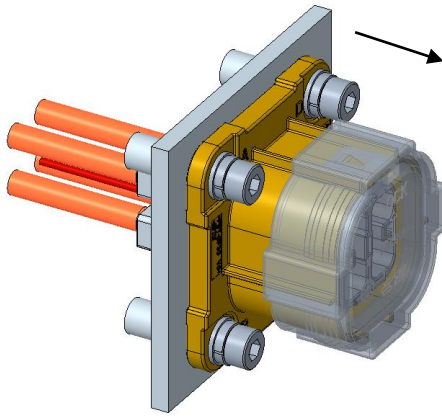


Fig 15-A

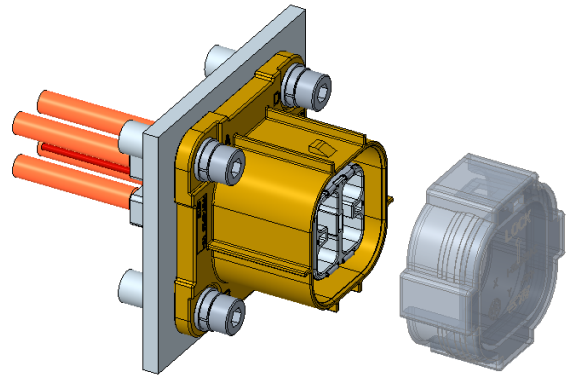


Fig 15-B