

## HCM350 Insert Series

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## 1. INTRODUCTION

This specification contains the regulations for assembly of HCM350 crimping contact inserts and the handling of these inserts.

## 2. SUPPORTING DOCUMENTS

### 2.1. Customer drawings

Please refer to the customer drawings of HCM350 crimping contact insert series.

### 2.2. Product specification

The product specifications of the used articles are to be taken into account. The product specification describes the technical data as e.g. regulations, approvals, temperature range and rated voltage.

For further reference refer Product spec. 108-137073.

### 2.3. Application Specification

Connectors shall be assembled as below mentioned application specifications to ensure correct connector assembly.

### 2.4. Standards

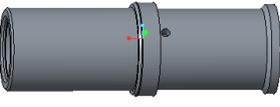
- EN 61984: Connectors - Safety requirements and tests
- IEC 60664-1: Insulation coordination for equipment within low-voltage systems (Part 1)

## 3. DESCRIPTION

This application specification describes the male insert and the female insert of the “HCM350” series crimping contact type. The listed terms are used in the specification.

### 3.1. Insert and contact

There are 4 types of HCM350, 1 pole 2poles 3Poles and 4poles. Description as below.

	Part No.	Type	Description	Picture
Inserts (Crimp)	T2193503101-000	HCM350-MC	HCM350 MALE INSERT, CRIMP	
	T2193503201-000	HCM350-FC	HCM350 FEMALE INSERT, CRIMP	
Contacts (Crimp)	T2193501XXX-000	HCM350-MC-XXX	HCM350 PIN CONTACT, CRIMP, XXXmm <sup>2</sup> , SILVER PLATING	
	T2193502XXX-000	HCM350-FC-XXX	HCM350 SOCKET CONTACT, CRIMP, XXXmm <sup>2</sup> , SILVER PLATING	

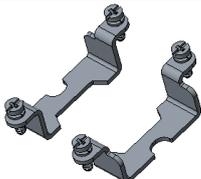


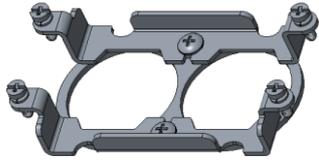
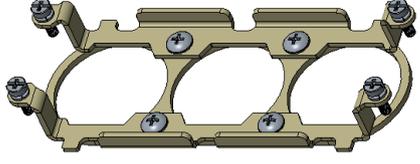
XXX represents cable cross sections. They are 5 types of cable cross sections, 35 mm<sup>2</sup>/50 mm<sup>2</sup>/70 mm<sup>2</sup>/95 mm<sup>2</sup>/120 mm<sup>2</sup>. For example, T2193501**035**-000 in the Part No. means the cable cross sections is 35mm<sup>2</sup> and the Type is HCM350-MC-35. T2193501**120**-000 in the Part No. means the cable cross sections is 120mm<sup>2</sup> and the Type is HCM350-MC-120.

## 3.2. Accessories

### 3.2.1 Frame

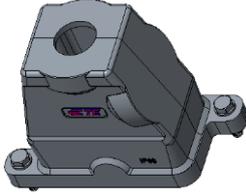
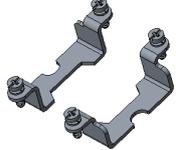
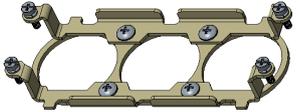
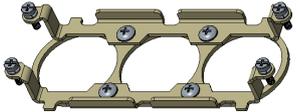
They are 4 types of frame for HCM350 inserts, Description as below.

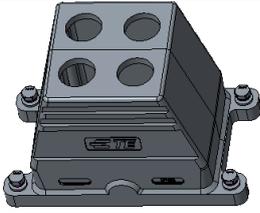
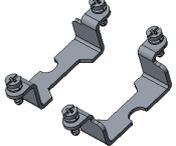
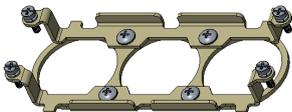
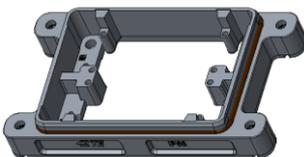
Insert Q'ty	Part No.	Type	Description	Picture
1 pole	T0924015115-000	H6BPR-1P-350 FRAME	H6BPR-1P-350 assembly frame	

2 poles	T0924027845-000	H16BPR-2P-350 FRAME	H16BPR-2P-350 assembly frame	
3 poles	T0924311044-000	H24BRP-3P-350 -FRAME	H24BRP-3P-350 assembly frame	
4 poles	T0924048581-000	H32BRP-4P-350 -FRAME	H32BRP-4P-350 assembly frame	

### 3.2.2 Hood and housing

They are 4 types of hood & housing for HCM350 insert. Description as below. The detail dimensions of entry hole refer to product catalogs.

	Type	Description	Picture	Frame
1 pole Hood	H6BPR-TGH-XX	H6BPR diagonal locking top entry hood		
2 poles Hood	H16BPR-TGH-XXX	H16BPR diagonal locking top entry hood		
3 poles Hood	H24BPR-TGH-XXX	H24BPR diagonal locking top entry hood		
	H24BPR-TGXH-XXX	H24BPR diagonal locking heighten top entry hood		

4 poles Hood	H32BPR-TGH-XXX	H32BPR 4 locking top entry hood		
	H32BPR-TGXH-XXX	H32BPR 4 locking heighten top entry hood		
1 pole Housing	H6BPR-AG	H6BPR diagonal locking housing		
2 poles Housing	H16BPR-AG	H16BPR diagonal locking housing		
3 poles Housing	H24BPR-AG	H24BPR diagonal locking housing		
4 poles Housing	H32BPR-AG	H32BPR 4 locking housing		

### 3.2.3 Cable glands

For more detailed information, please refer to related application specifications.

## 4. REQUIREMENTS

### 4.1. Wire selection and preparation

#### 4.1.1. Stripping length L

Use proper tooling to strip the wire.

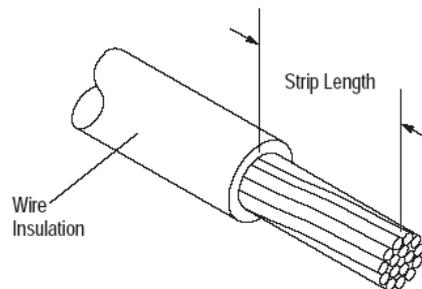


Figure: 2



When stripping the wire, care must be taken to avoid scraping, nicking, or cutting the conductor. Care must also be used when handling the wire during stripping to avoid cracking or breaking the conductor and insulation.

Depending upon the cross section of the wire or cable, the stripping length has to be selected from the table below. See Table 1.

Table: 1

Contact Insert	Max. Wire cross section [mm <sup>2</sup> ]	Strip Length For Reference L [mm]	Strip Length For Reference (outer)L [mm]
HCM350-MC-35	35 mm <sup>2</sup>	26	110-160
HCM350-FC-35	35 mm <sup>2</sup>	26	
HCM350-MC-50	50 mm <sup>2</sup>	28	
HCM350-FC-50	50 mm <sup>2</sup>	28	
HCM350-MC-70	70 mm <sup>2</sup>	28	
HCM350-FC-70	70 mm <sup>2</sup>	28	
HCM350-MC-95	95 mm <sup>2</sup>	30	
HCM350-FC-95	95 mm <sup>2</sup>	30	
HCM350-MC-120	120 mm <sup>2</sup>	24	
HCM350-FC-120	120 mm <sup>2</sup>	24	

## 4.1.2. Insulation diameter

Any wire that is used for the Electrical purpose is covered with insulating polymer. This insulation on the wires depends upon the wire size and type of application where it is being used. The insulation diameter for various wire sizes is as shown in table 2 only for reference.

Table: 2

Contact Insert	Max. Wire cross section	Insulation Diameter in (mm)
HCM350-MC/FC	≤120 mm <sup>2</sup>	22



The Insulation diameter over the wire specified in the table 2 is for the insulation concentric, with equal thickness layer over the conducting wire.

## 4.2. Assemble wires to inserts

Crimping tool

Crimping tool is available as below figure 3:

- Wire rage: 10-120mm<sup>2</sup>
- Name: Hydraulic crimper
- Order No.: T3100000015-000



Figure: 3

## 4.3. Assemble stripped wires to contacts (Crimp)

Insert the cable into the wire barrel of the contact. The wire strands must be visible in the reference hole of the contact. During the termination process make sure that the contact in the contact zone is not damaged or deformed.

When using manual crimp tools the following points must be followed:

- 1). Using the correct crimping dies for this type of contact. (Crimping dies are included in the crimping tool, for example: Using 70mm<sup>2</sup> crimping dies for 70mm<sup>2</sup> contact);
- 2). Installing the crimping dies into crimping tool.
- 3). Putting the contact and cable together into crimping dies.
- 4). Crimping the contact.

Crimping pulling resistance: (NF F 00-363)

Cable cross section (mm <sup>2</sup> )	35	50	70	95	120
Minimal force (N)	2800	3300	3900	4600	5200

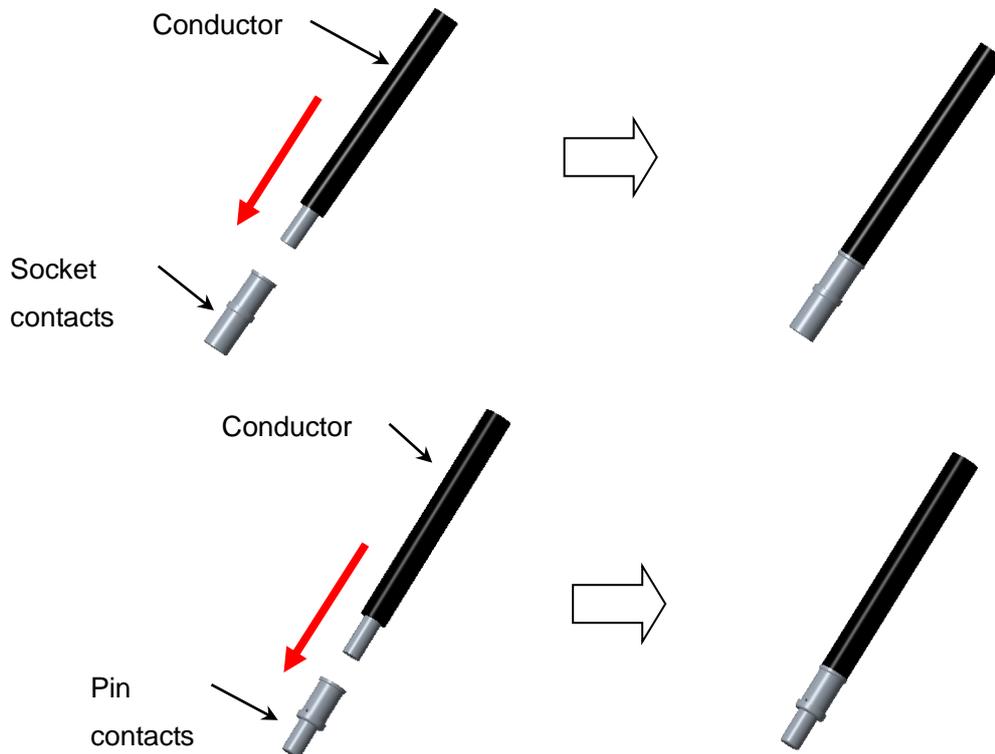


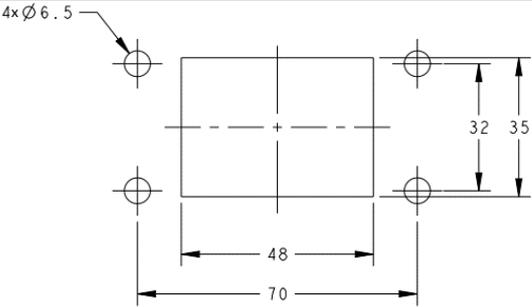
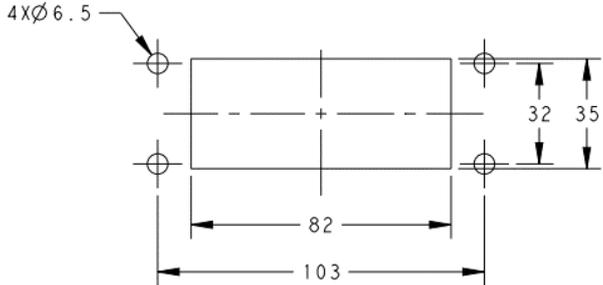
Figure: 4

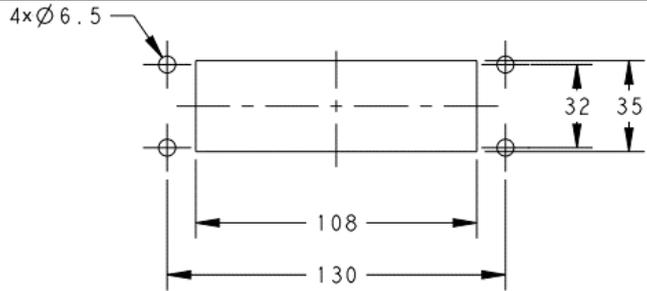
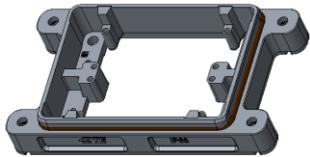
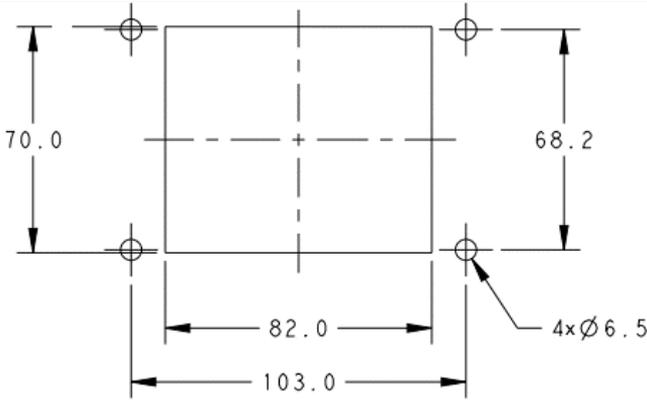


For more detailed information, please refer to related application specifications.

## 4.4. Panel Cut Out

Cut the panel before assemble housing, Dimensions are shown in the table below.

Type	Description	Picture	Dimensions
H6BPR-AG	H6BPR diagonal locking housing		
H16BPR-AG	H16BPR diagonal locking housing		

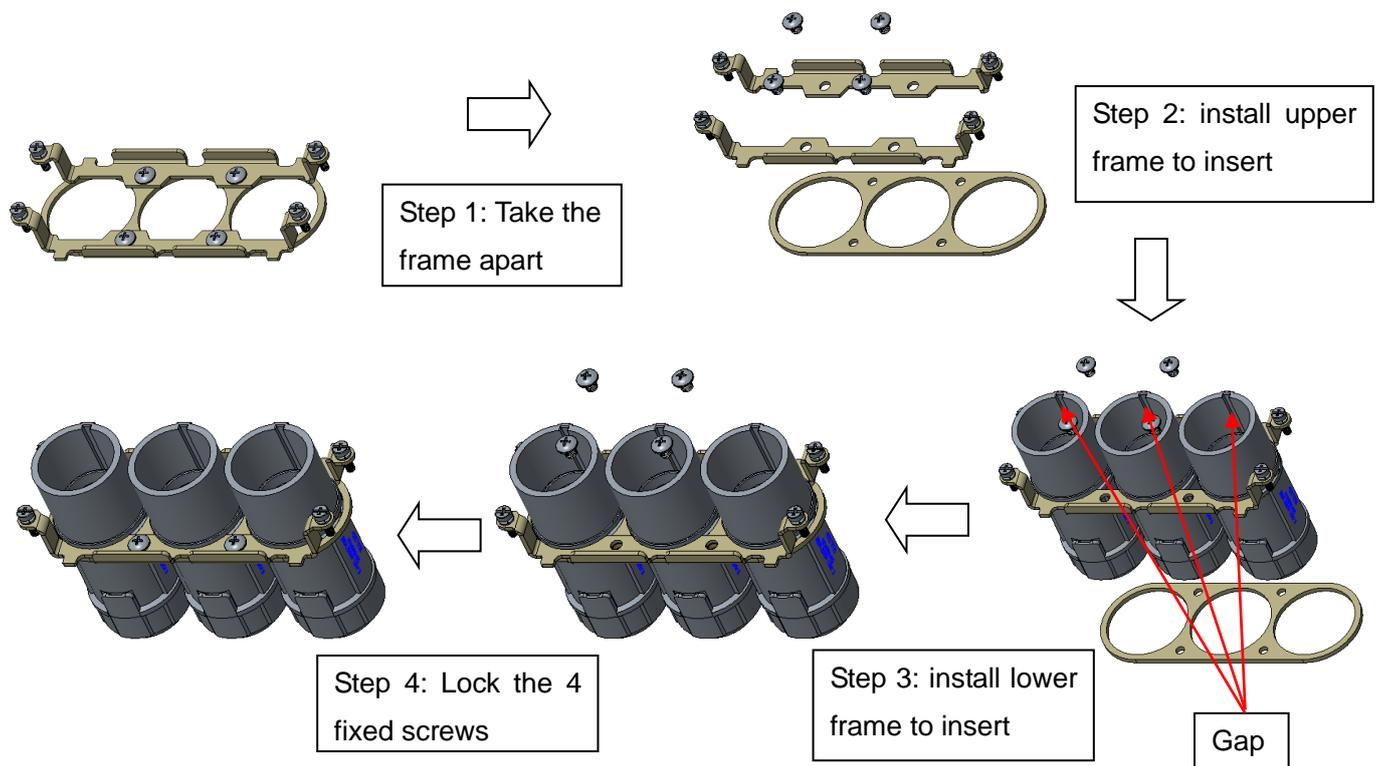
<p>H24BPR-AG</p>	<p>H24BPR diagonal locking housing</p>		
<p>H32BPR-AG</p>	<p>H32BPR 4 locking housing</p>		

## 5. ASSEMBLY

With proper tools, assembling the male and female contact inserts to frames, then assemble them together into male and female connectors.

### 5.1. Installing inserts to frame

According to the inserts quantity, choose the right frame to assembly. For example, choose 3 poles frame to install.



When installing the second step, choose the direction of the gap. It has coding and error prevention function.

### 5.2. Installing hood

According to the frame type choose the right hood to assembly, for example, choose H24BPR hood to installing.

## 5.2.1 Installing heighten hood

Step 1: Installing cable gland to hood.

Step 2: Loosen the cable gland nut.

Step 3: Put the cable through the hood.

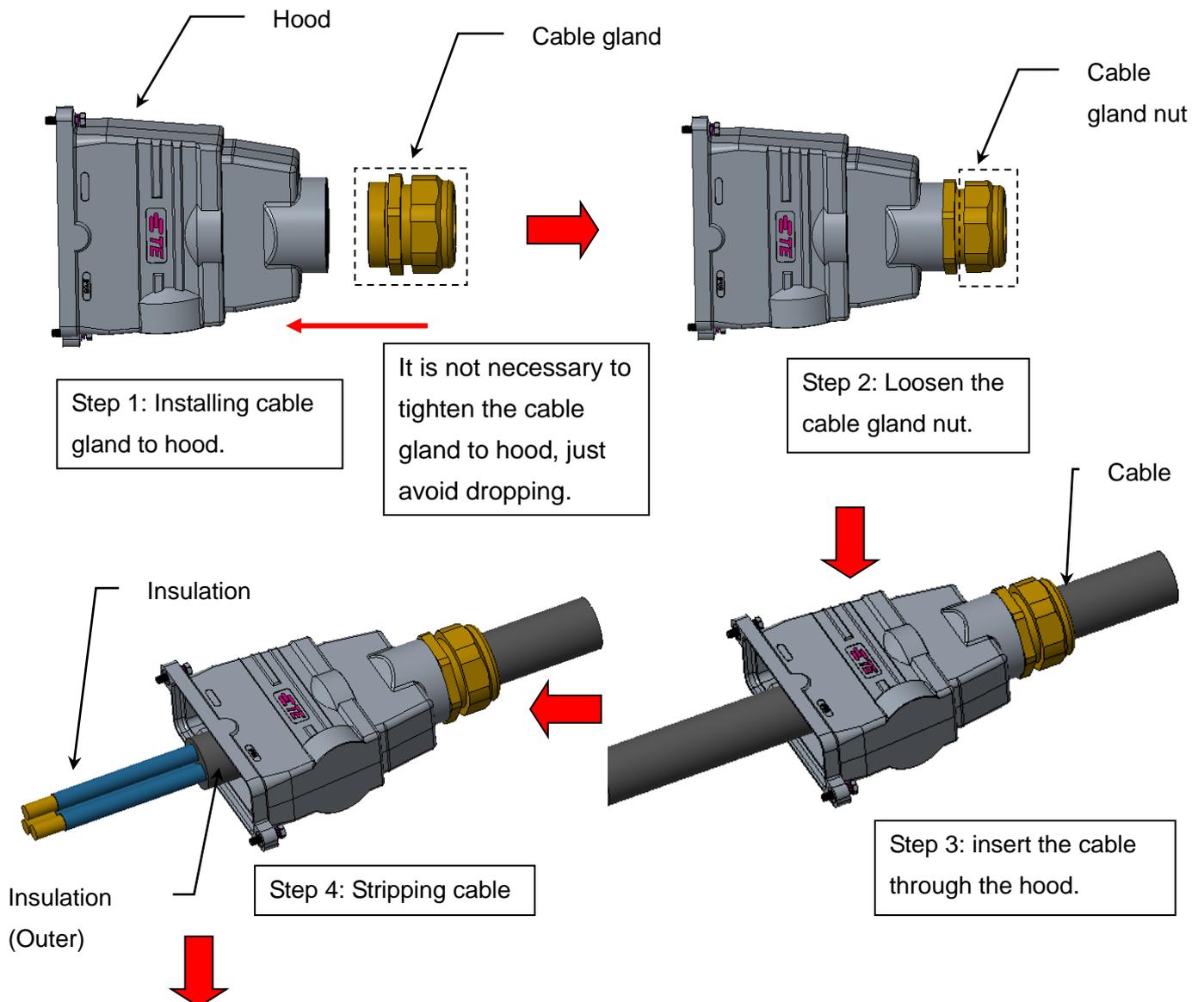
Step 4: Stripping cable (detail information please see 4. requirements).

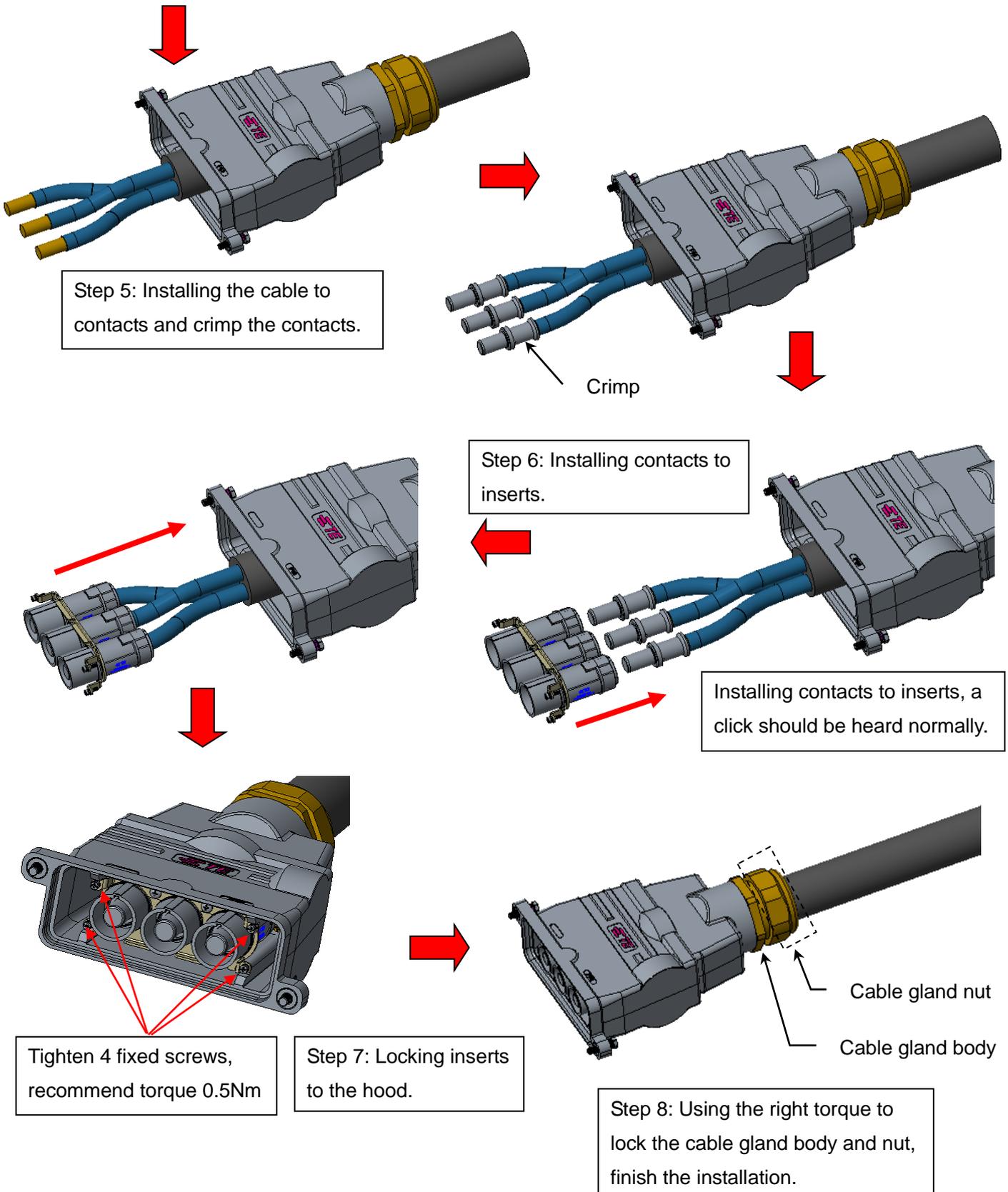
Step 5: Installing the cable to contacts and crimp the contacts.

Step 6: Installing contacts to inserts.

Step 7: Locking inserts to the hood.

Step 8: Using the right torque to lock the cable gland body and nut, finish the installation.





NOTE Proper tightening torque depends on the type of cable glands and also on the used cable, mainly based on application instruction and/or drawing of the cable gland.

## 5.2.2 Installing normal hood

Step 1: Installing cable gland to hood.

Step 2: Loosen the cable gland nut.

Step 3: Put the cable through the hood.

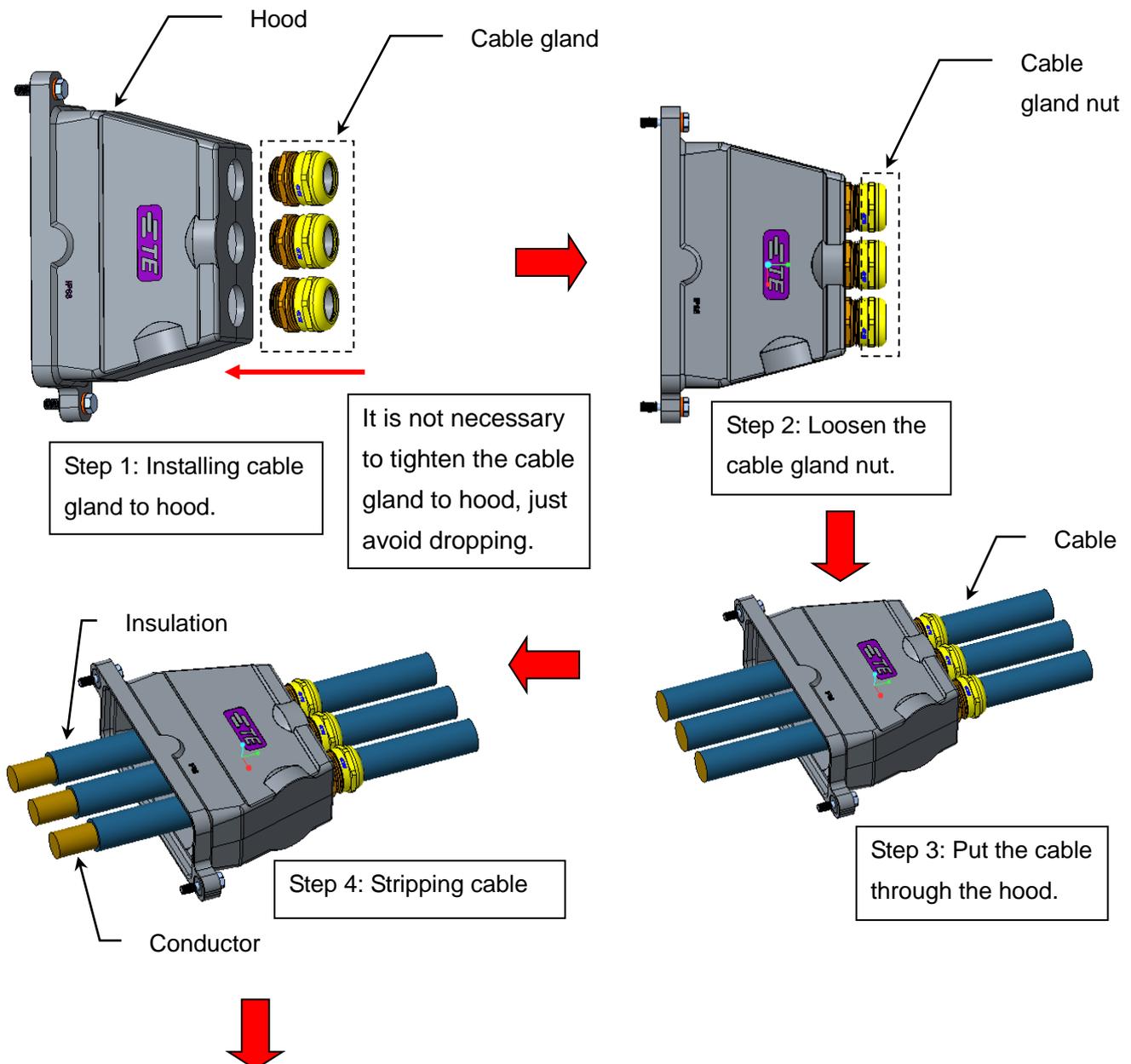
Step 4: Stripping cable (detail information please see 4. requirements).

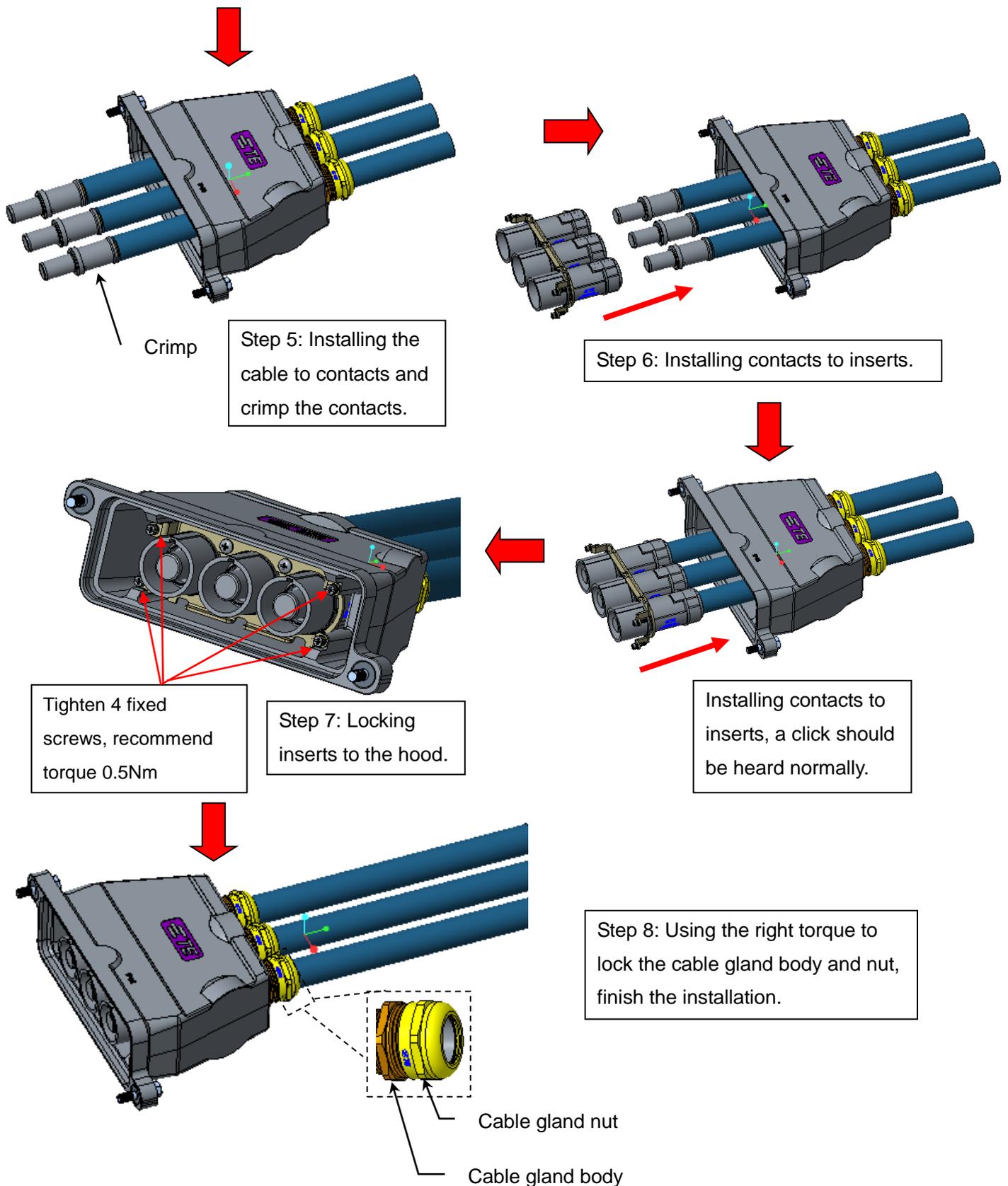
Step 5: Installing the cable to contacts and crimp the contacts.

Step 6: Installing contacts to inserts.

Step 7: Locking inserts to the hood.

Step 8: Using the right torque to lock the cable gland body and nut, finish the installation.





**NOTE** Proper tightening torque depends on the type of cable glands and also on the used cable, mainly based on application instruction and/or drawing of the cable gland.

## 5.3. Installing housing

According to the hood type choose the right housing to assembly. for example, choose H24BPR housing to installing.

Step 1: Installing housing to a panel. (panel cut out see 4.4)

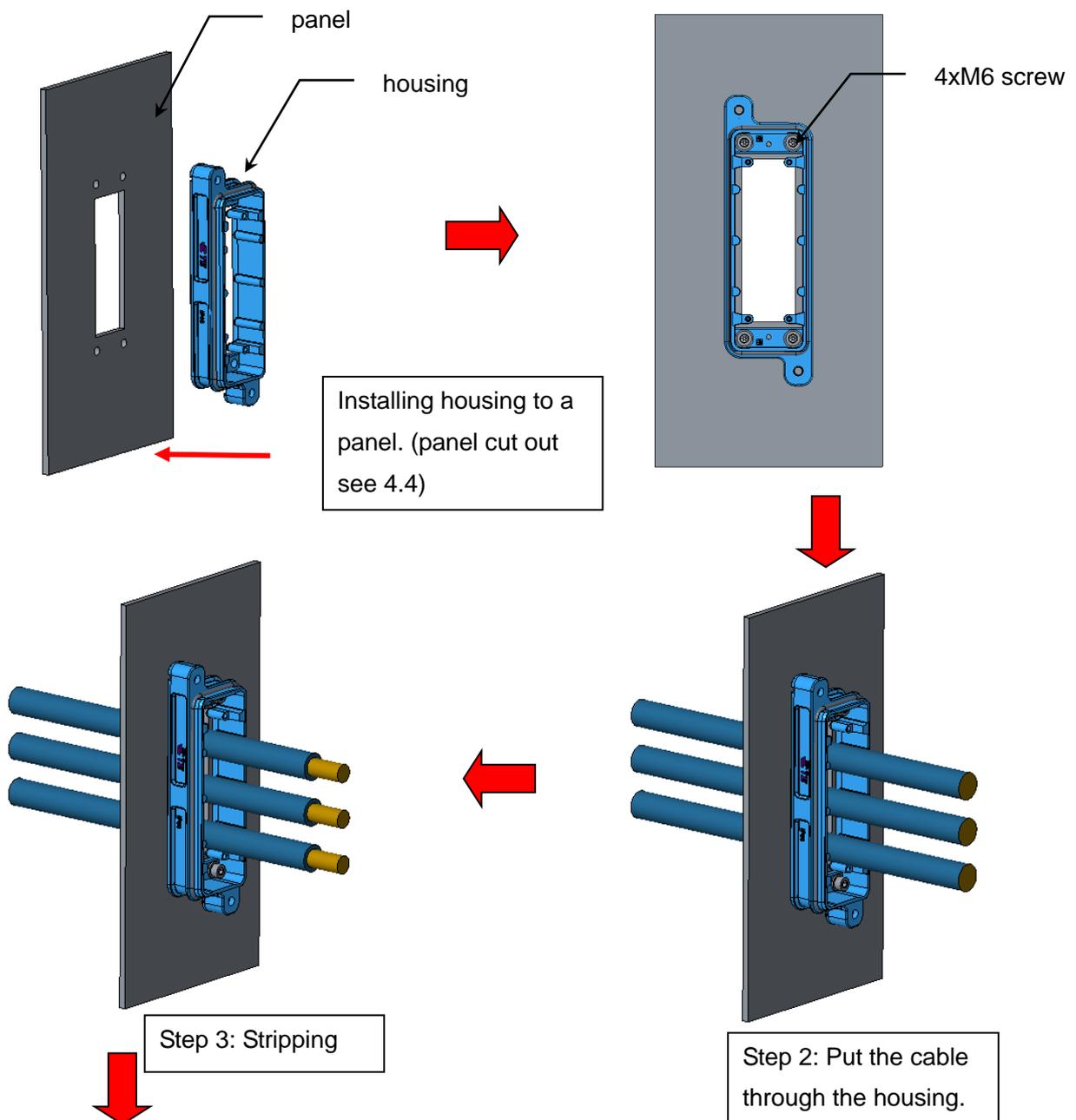
Step 2: Put the cable through the housing.

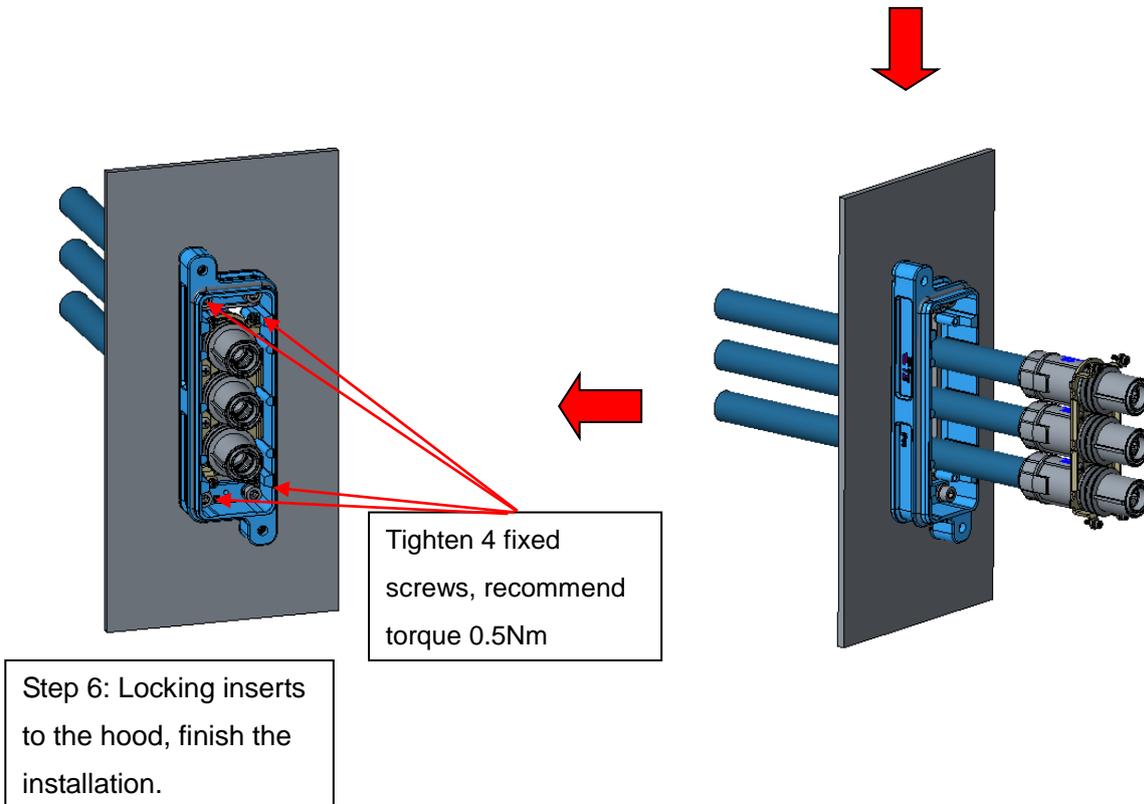
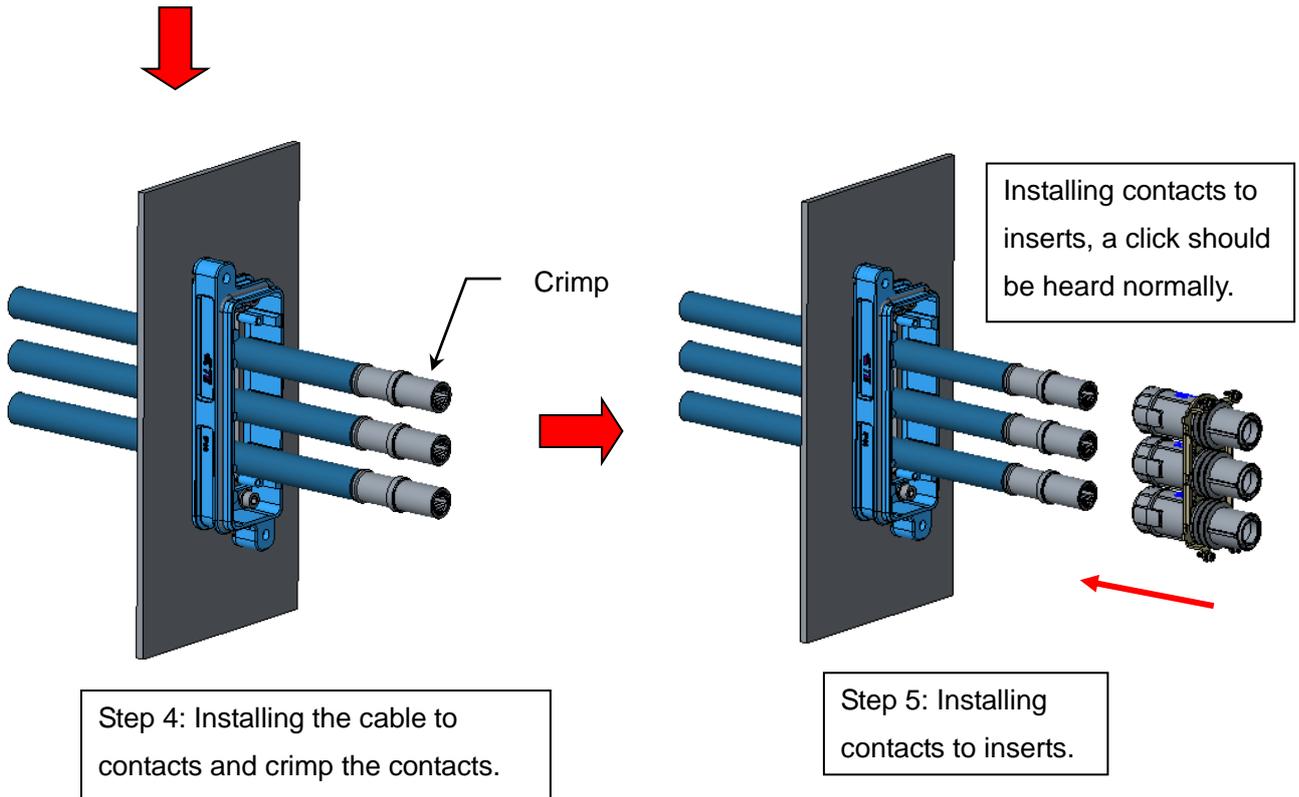
Step 3: Stripping cable (detail information please see 4. requirements).

Step 4: Installing the cable to contacts and crimp the contacts.

Step 5: Installing contacts to inserts.

Step 6: Locking inserts to the hood, finish the installation.

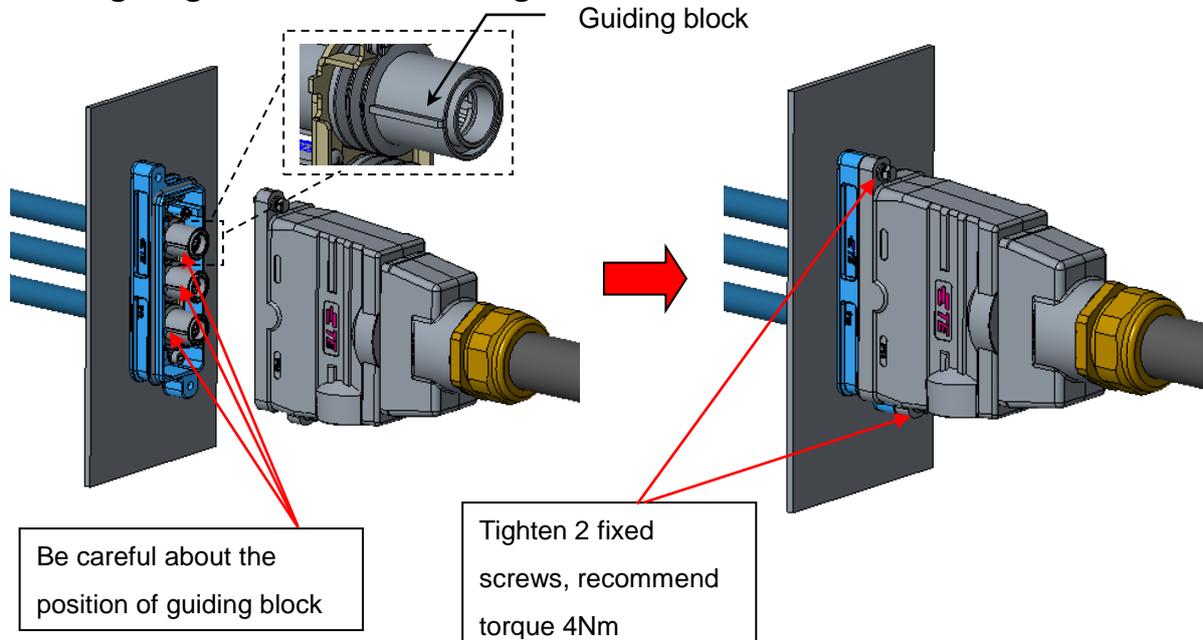




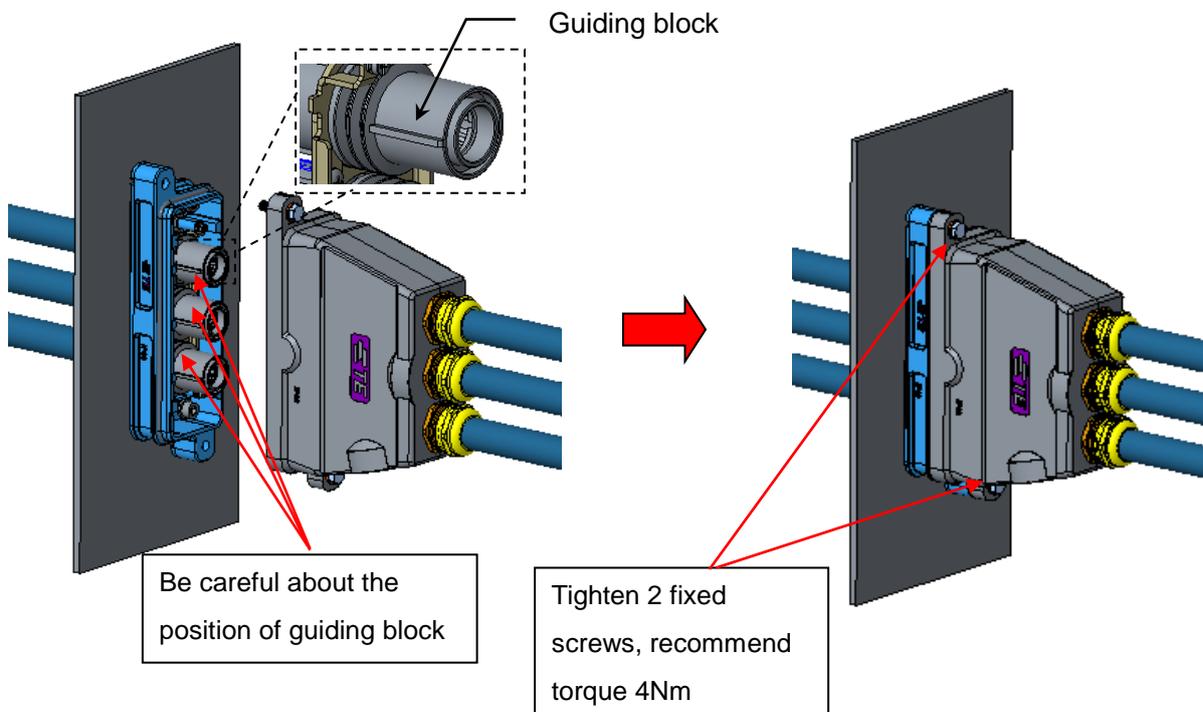
## 5.4. Installing hood to housing

Installing hood to housing, tighten 2 fixed screws, finish the installation.

### 5.4.1 installing heighten hood to housing



### 5.4.2 Installing normal hood to housing

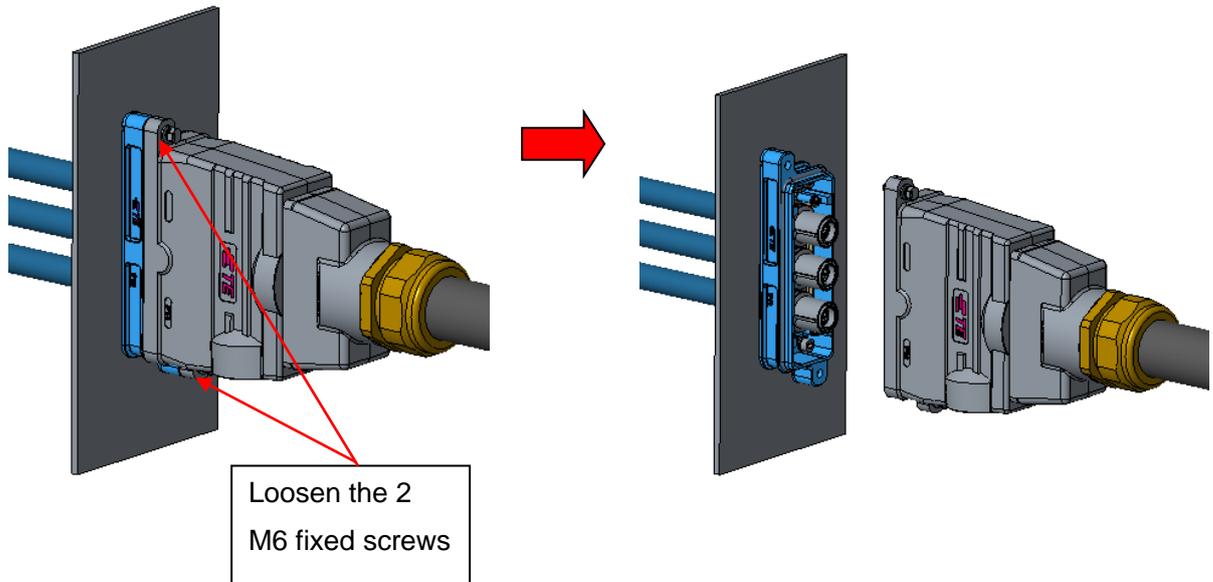


## 6. Disassembly

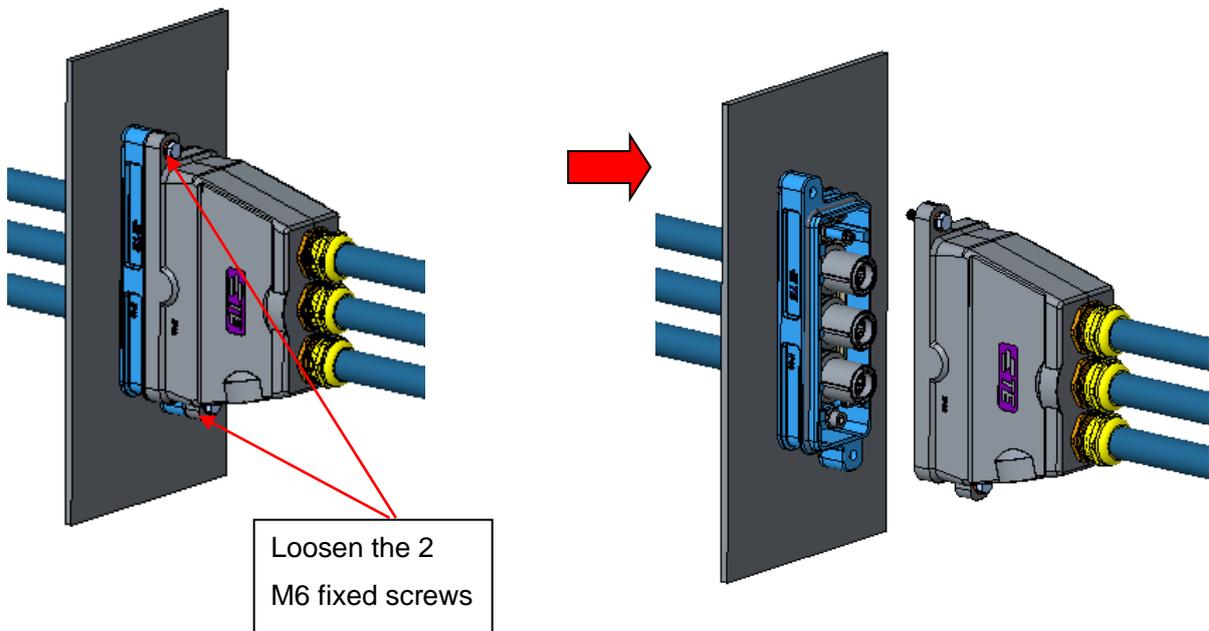
### 6.1. Disassemble the hood from the housing

Loosen the 2 screws on the hood, finish the disassemble.

#### 6.1.1 Disassemble the heighten hood from the housing



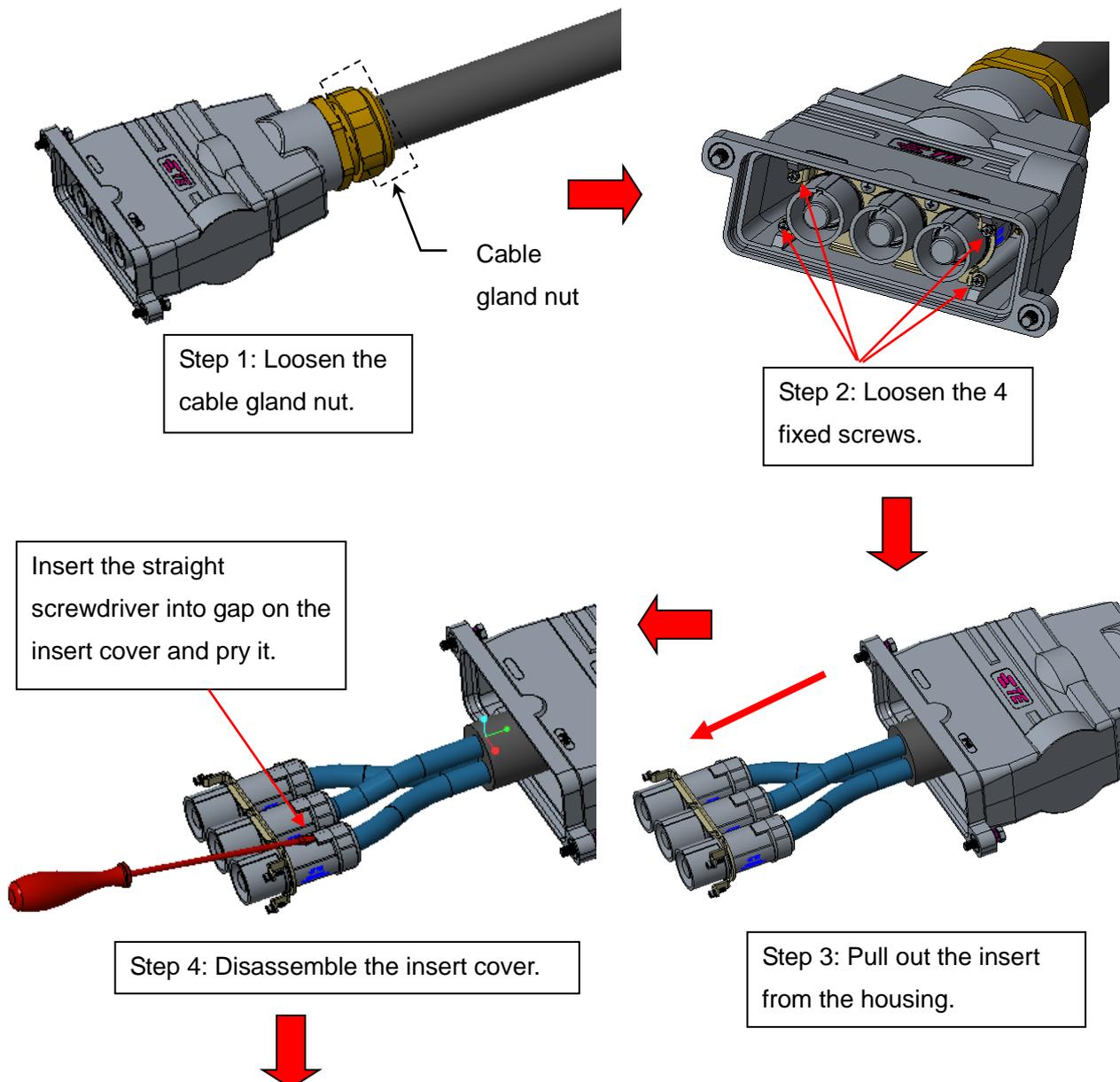
#### 6.1.2 Disassemble the normal hood from the housing

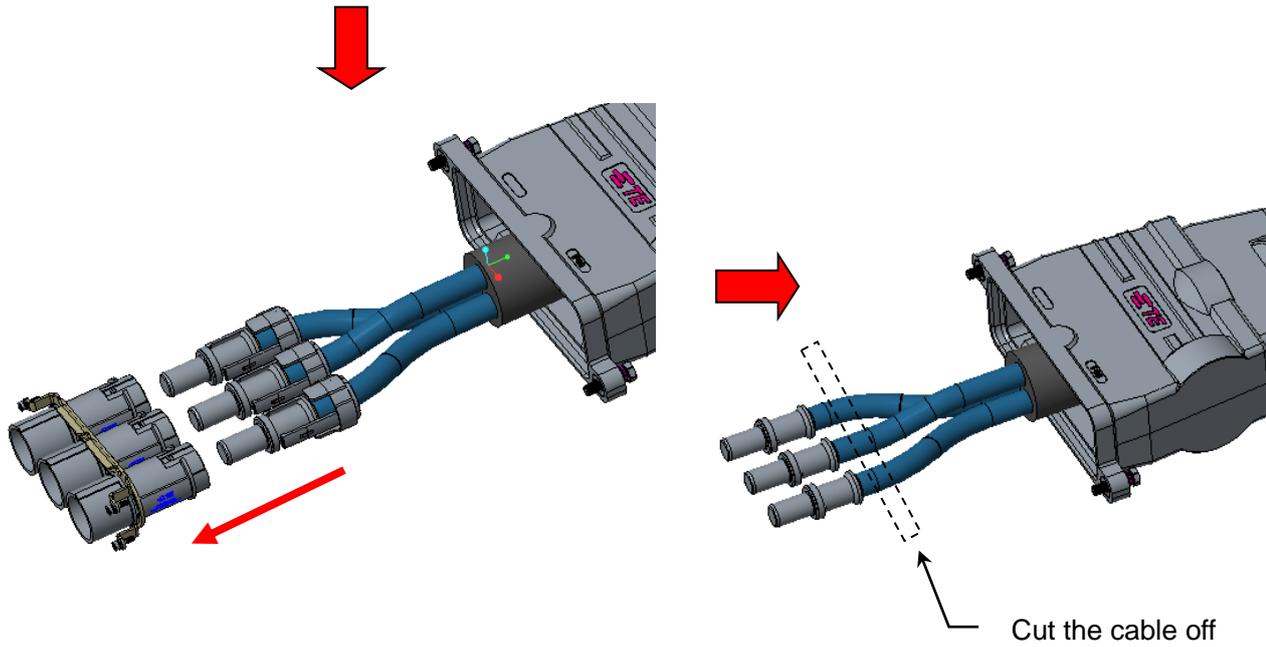


## 6.2. Disassembly hood

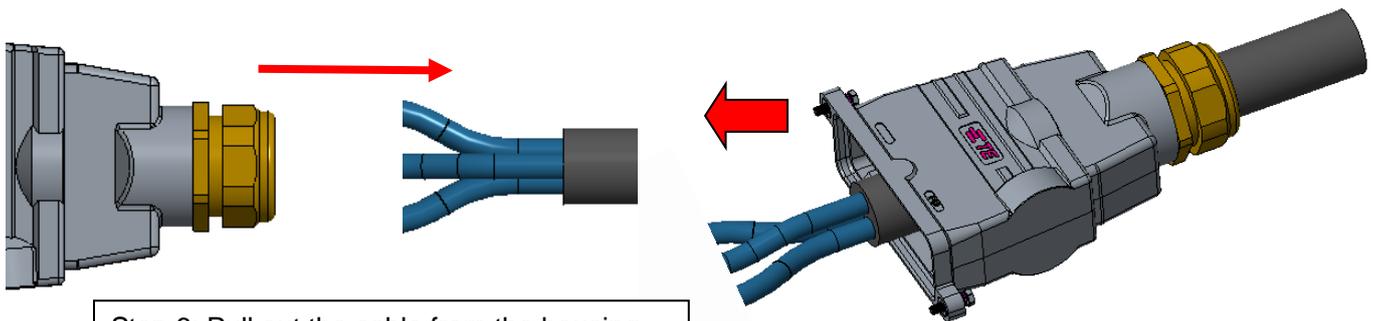
Taking heighten hood disassembly as an example, the normal hood is same as it.

- Step 1: Loosen the cable gland nut.
- Step 2: Loosen the 4 fixed screws.
- Step 3: Pull out the insert from the housing.
- Step 4: Disassemble the insert cover.
- Step 5: Cut the cable off (Attention, this step is irreversible).
- Step 6: Pull out the cable from the housing.
- Step 7: Loosen the cable gland, finish the disassembly.

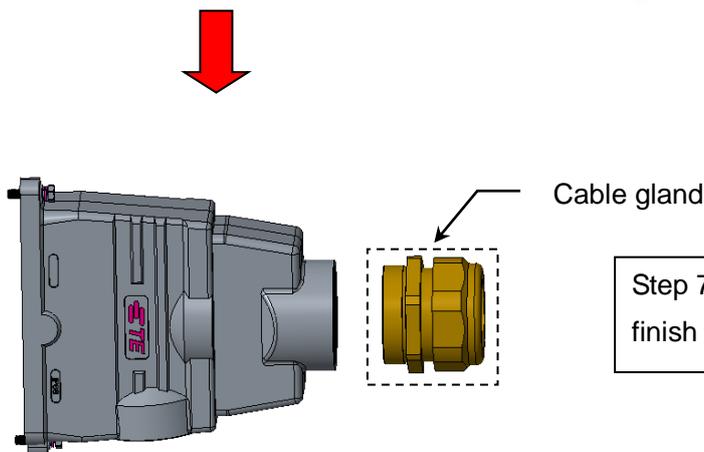




Step 5: Cut the cable off (Attention, this step is irreversible).



Step 6: Pull out the cable from the housing.



Step 7: Loosen the cable gland, finish the disassembly.

## 6.3. Disassembly housing

Taking H24BPR housing disassembly as an example, the other housing is same as it.

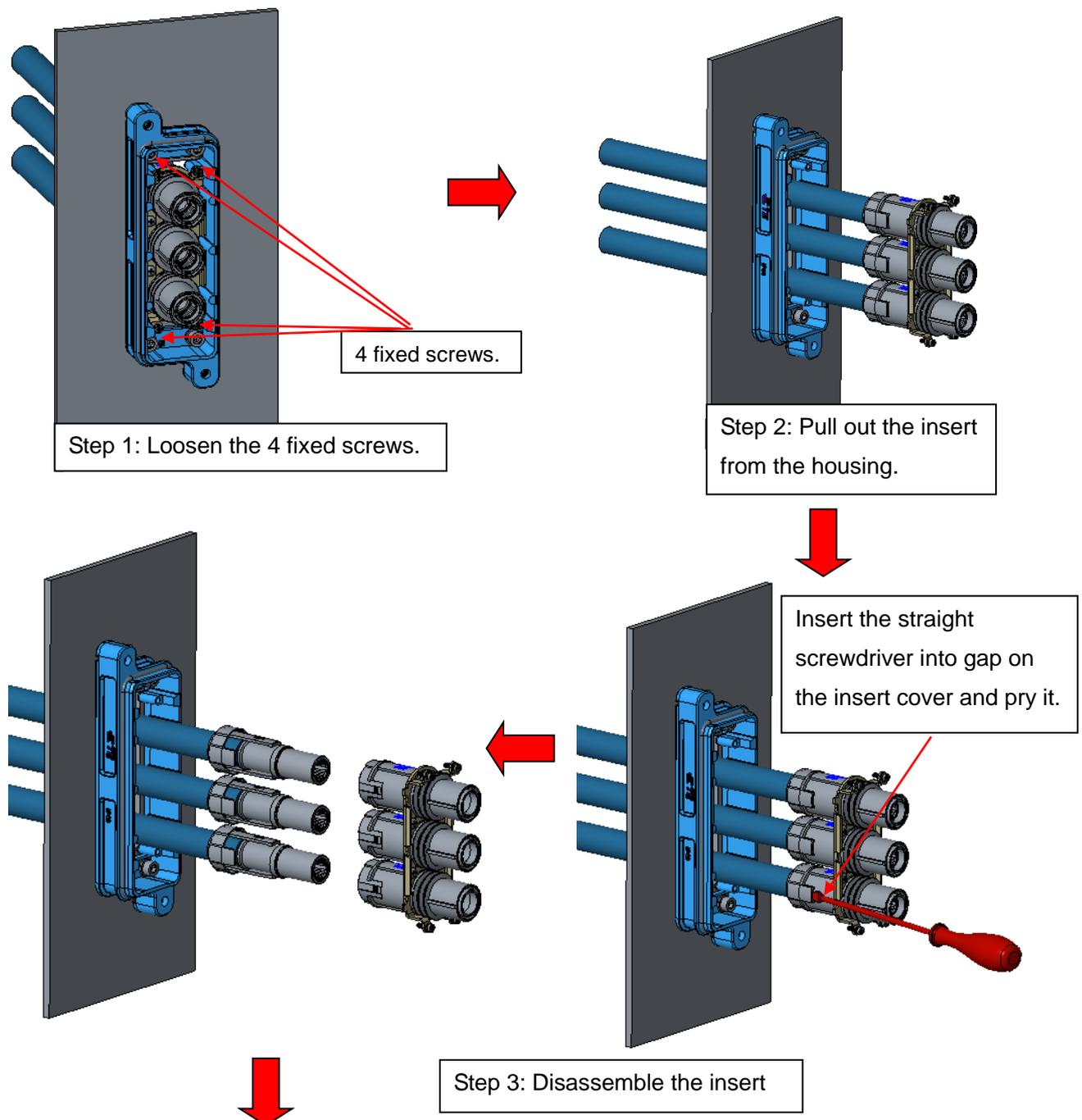
Step 1: Loosen the 4 fixed screws.

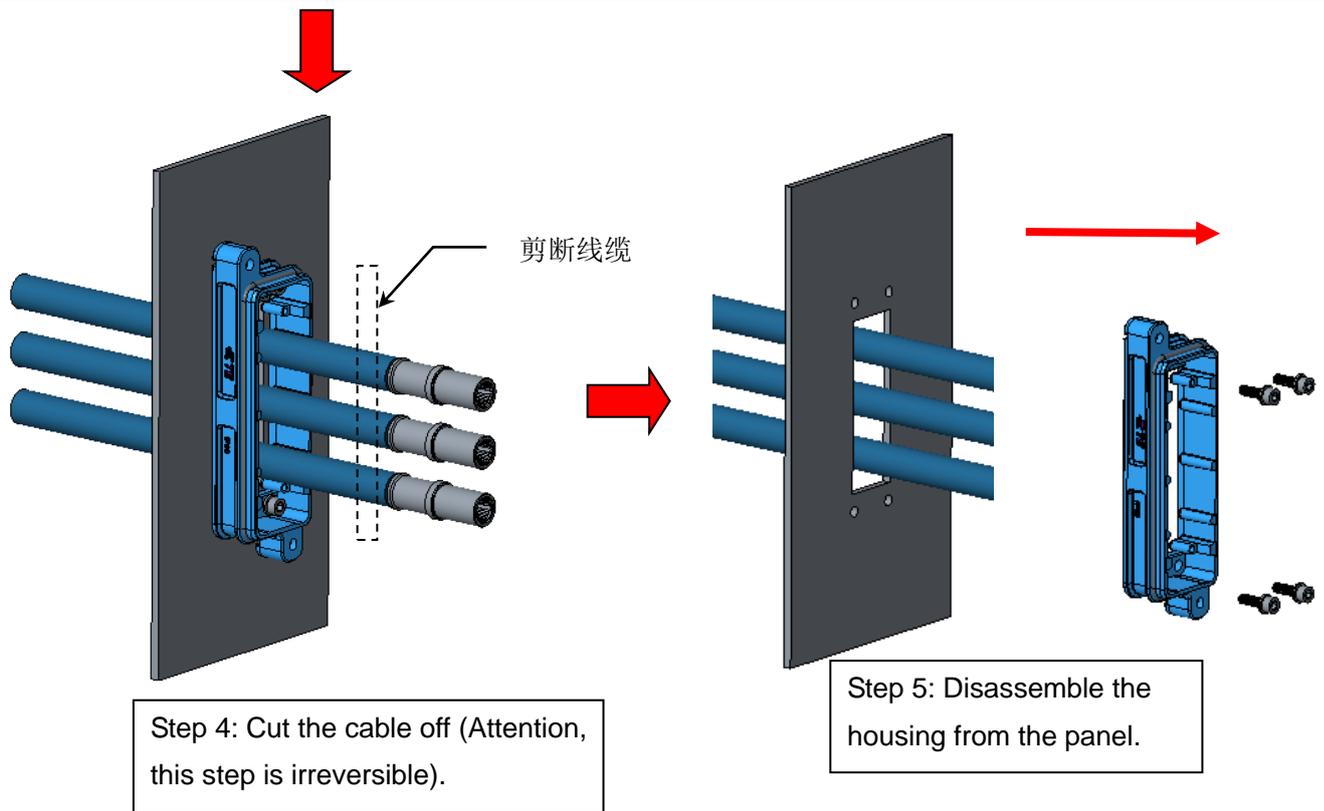
Step 2: Pull out the insert from the housing.

Step 3: Disassemble the insert cover.

Step 4: Cut the cable off (Attention, this step is irreversible).

Step 5: Disassemble the housing from the panel.





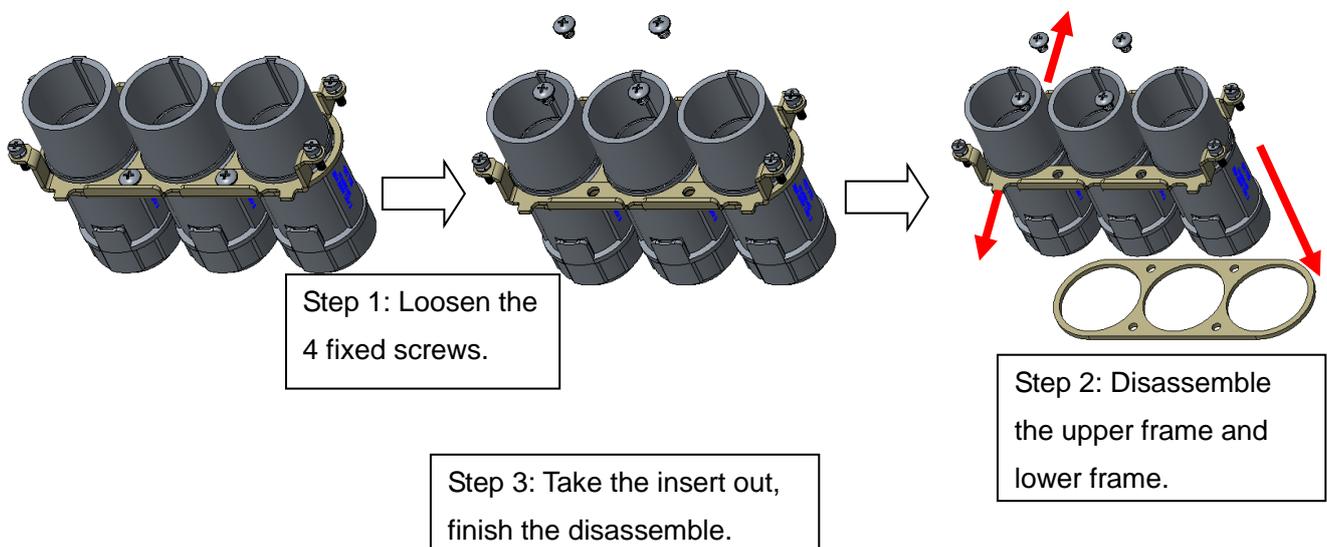
## 6.4. Disassembly frame

Taking 3 poles frame disassembly as an example, the other frame is same as it.

Step 1: Loosen the 4 fixed screws.

Step 2: Disassemble the upper frame and lower frame.

Step 3: Take the insert out, finish the disassemble.



## 7. STORAGE

### 7.1. Chemical exposure

Do not store the connectors near any chemical listed below as they may cause corrosion stress the connector contacts:

Alkalies, Ammonia, Citrates, Phosphates, Citrates, Sulfur, Amines, Carbonates, Nitrites, Sulfides, Nitrites, Tart rates.

### 7.2. Storage condition

The connectors should be stored in the air ventilation, no corrosive gas, no rain and no snow in the warehouse. Relative humidity: less than 85% RH. The connectors should remain in the shipping containers until ready for use to prevent deformation to the contacts. The connectors should be used on a first in, first out basis to avoid storage contamination that could adversely affect electrical functions.

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