

# USER`S MANUAL

## CLIK-Mate 1.5 Dual Series

This application specification is written in English and Japanese.  
本取扱説明書は、英文および和文で記載されております。

English 英文: Page 1~27

Japanese 和文: Page 28~55

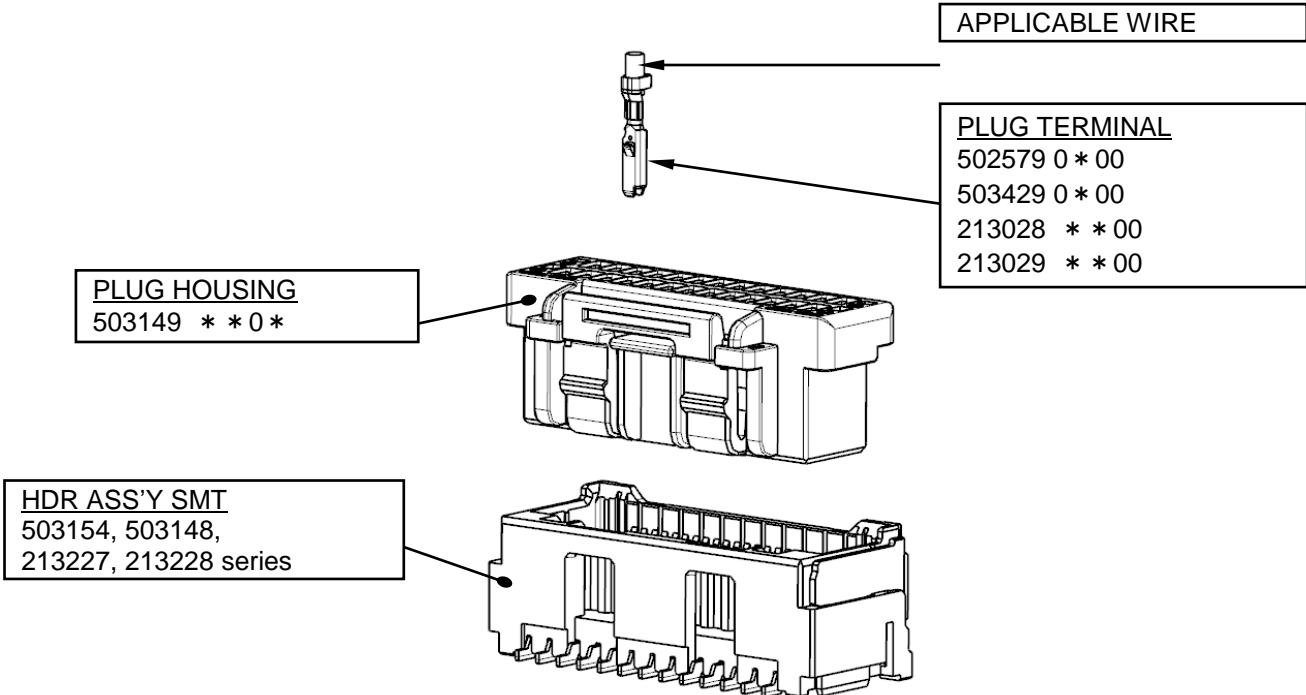
### 【1. Application】

	Product Name		Part Number	
Harness side	PLUG HOUSING		503149 series PKG: plastic bag	
	PLUG TERMINAL	Tin Plating		502579 0*00 503429 0000 PKG: Reel
		Gold plating		213028 **00 213029 **00 PKG: Reel
	Applicable wire (※)	Tin plating	502579 series	AWG#24~28
			503429 series	AWG#26~30
		Gold plating	213028 series	AWG#24, 26
			213029 series	AWG#26, 28
PCB side	RECEPTACLE HOUSING ASS'Y	Tin plating	Vertical TYPE	503154 series PKG: Embossed reel
			Right Angle TYPE	503148 series PKG: Embossed reel
		Gold plating	Vertical TYPE	213227 series PKG: Embossed reel
			Right Angle TYPE	213228 series PKG: Embossed reel

※ Please refer to our applicator tooling specifications (ATS) for futher details.

REV.	B	C	D														
SHEET	1~21	1~21	1~55														
REVISE ON PC ONLY				TITLE:  <b>CLIK-Mate 1.5</b> <b>Dual ROW CONNECTORS</b> <b>APPLICATION SPECIFICATION</b>													
<b>D</b>	REVISED 630094 '20/01/31 M.IKEDA																
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REV.	DESCRIPTION																
DESIGN CONTROL J			STATUS	WRITTEN BY: THANYU	CHECKED BY: K,ASAKAWA	APPROVED BY: YO.ITO			DATE: '07/12/21								
DOCUMENT NUMBER AS-503149-001				DOC. TYPE PS	DOC. PART 001		CUSTOMER GENERAL MARKET						SHEET 1 OF 55				
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# Structure



- Before using -
- Please confirm this specification before using the connector.
- Please keep this manual for reference at any time.
- The illustrations used in the spec may have a slight difference since they are printed.
- The contents in this spec may change without notice.
- In case there are any questions or comments regarding this spec, please feel free to contact us.

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## 【2. Instructions】

## 2-1. Product exterior

- ① There is no effect to product performance if black spots or bubbles might be on the plastic part of this product or be different its color tone including discoloration by secular change.
- ② Slide marks may sometimes appear on plating part of the product, but there is no impact on the function of this product.
- ③ Resin and terminal plating may have some changes in color after soldering depending on the reflow condition, but there is no negative impact on the function of this product.
- ④ Connectors may be damaged by inappropriate force of the mounting machine. Please confirm that there is no problem before using.

## 2-2. Applicable wire and crimp tooling

- ① Guarantee is void when product is used with wire out of application range specified in the product specifications.
- ② Guarantee is void when product is used with non Molex authorized tooling.
- ③ Recommended electric wire is tin plated stranded copper wire. Please confirm if you use other wire.

## 2-3. About safekeeping before harness process and the surface mount process

- ① Please keep product as it is delivered and packaged. Also, please keep it under normal temperature and humidity away from direct sunlight.
- ② Please do not allow external force on product and package during the storage.
- ③ During handling, avoid shock or dropping products as it may cause damage.
- ④ First-in, first-out of the stock is recommended.
- ⑤ Please keep product in original packaging until using.
- ⑥ This product should be inspected its appearance and solder performance before using after storage expiration date.

## 2-4. Harness process and surface mount process instruction.

- ① Please confirm if the products and crimp machine, crimp condition, an applicable wire are equal to product drawing, crimp specifications before use.
- ② Beware of dust, debris, or foreign objects on the product, or deformation of the product before using. It may result in insufficient of the insertion performance to the housing and electric performance.
- ③ Please do not touch the terminal by bare hand.

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- ④ When a terminal is twisted or tangled, please do not handle it by too much force. The terminal may become damaged.
- ⑤ Do not apply force to the product during work in process or in finishing goods. Product may be damaged and may not function properly as a connector.
- ⑥ Please do not expose a product and an harness half-finished goods to the following condition.
  - Dust
  - Corrosive material
  - Corrosive gas
  - High temperature and high humidity
  - Direct sunlightThe above conditions may cause poor contact, corrosion of the terminal and the insulation performance deterioration of the housing. Please keep in boxes.
- ⑦ Please do not add load to a connector and harness half-finished goods during production, packing, transporting, and storage. It may cause deformation or the damage to result in poor performance of the connector.
- ⑧ Do not damage plug housing and a crimp terminal intentionally. Product performance can be affected by this condition.
- ⑨ Please use plug housing within the day of its package is opened. Moisture absorption or drying may cause the deterioration of materials by neighboring atmospheres. When you cannot use it up, please seal the bag again and keep it in a box.
- ⑩ Because of property of RECEPTACLE HOUSING resin, blister might be generated during reflow heating by resin's hygroscopicity. When your storage condition exceeds our recommended storage condition, baking is recommended with below condition.  
Baking condition : put in 50 °C temperature chamber for 10 hours.
- ⑪ Please be careful to injuries in the edges part such as metal parts when handling a connector.
- ⑫ Please be careful to injuries to cut a hand in papers put between terminals and a reel in the case of the handling with a reel terminal.
- ⑬ About the reflow condition of this product, conditions are different by a temperature profile, solder paste, the atmosphere, N<sub>2</sub> riff low, a board. Please carry out implementation evaluation beforehand. Depending on reflow condition, there is a case to have an influence on product performance.
- ⑭ As concerns color product, the connector might fade because of reflow condition or compatibility with using PCB. Please check it before use.
- ⑮ Soldering wicking: "This connector assumes the mounting by an air reflow. In the case of mounting by the N<sub>2</sub> reflow, there is a risk of the soldering wicking. The separate evaluation is necessary for mounting by the N<sub>2</sub> reflow."
- ⑯ Our evaluation is with the use of standard rigid PCB. When the product is used on flexible printed circuits (FPC) please evaluate in advance.
- ⑰ As for non-solder of the soldering area, terminal falling off, short circuit between the pin, terminal buckling, the loser from the board of the connector are concerned about. Therefore, please solder it in all terminal tail and nail.

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- ⑮ In the case of changing our recommended board pattern size and designing, please consult in advance because it may cause a fatal defect.
- ⑯ Mounting performance of coplanarity shall not contain the influence of the warpage of the mounting board.
- ⑰ The coplanarity assurance of this product is a guarantee alone before mounting, and the coplanarity during and after the empty reflow is not guaranteed.
- 21 Please do not work to load on the connector like that the board is carried in a connector fit state. It causes the connector damage.
- 22 Please do not pile up a board after mounting connector directly.
- 23 When use solder iron, please be sure to go within the condition written in our specifications. A case beyond the condition, it will cause the damage like drop out of the terminal, change of contact gap, deformation of the mold, mold melting, and so on.
- 24 When use solder iron, please do not use excessive solder and flux. It causes poor in contact performance by solder and flux rising.
- 25 There are a change of color of the resin part and the case that a twist occurs again in the terminal plating part by a flow condition, but there is not the influence in product performance.
- 26 Please confirm mounting machine beforehand to prevent the deformation or the brokage caused from over loading to connectors.
- 27 Please do not get caught an electric wire in the gap between the housing and its lock when harness processing or harness packing. In addition, please do not pull an electric wire by force if an electric wire coiled itself round a housing and the gap of the housing lock. It causes its lock deform. When an electric wire coiled itself, please take it off with being careful not to load its lock.

## 2-5. About use in the machinery.

- ① When use this product, please do not use under below condition like there is possibility of resonance from wires or printed circuit boards (PCBs), or the mechanism part kind of rotation or any moving parts. It causes that decrease contact performance by the abrasion of the contact area. Please fix electric wires and PCBs in your machine to suppress resonance.
- ② Please fix PCBs to the machine except the connector. Please do not hold PCBs only by connector.
- ③ Please do not touch a terminal, fitting nails before or after mounting.
- ④ Please do not load when carrying around of the board with connector mating. It causes the connector damage.
- ⑤ Please insert and withdraw the connector along its mating axis as possible as you can. The diagonal insertion or withdrawal cause connector damage.
- ⑥ After mating, please do not take a connector pace direction, a span direction and load to the rotator direction. It causes connector destruction and the solder crack.
- ⑦ If electric wire is pulled after mating a connector, it may damage contact or crimping areas or the lock area and result in contact failure. When performing the guidance wiring of the electric wire. Please keep the wire loose to avoid applying excessive force and tension to connector.

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- ⑧ Please release its lock certainly when connector un-mating. Please grab wires in a mass, and push and release the lock by whole finger surely, then take off.
- ⑨ Please must use a new housing in the case of the repair. When removed crimp terminal with using some jigs, mold lance will be deformed. If reuse its housing, it causes to decrease its terminal retention force and housing can not keep its force after re-insertion.

**2-6. About rating / a performance standard.**

- ① Please use the product within the rating / the standard of product specifications.
- ② This product is not designed for usage in “hot-swap” applications where power is on.
- ③ Before using, please confirm that this product satisfies the equipment specifications.
- ④ In order to avoid short circuits, please do not allow connectors to contact with metal objects.
- ⑤ Please avoid to use current more than rating per 1PIN with dividing plural circuits.

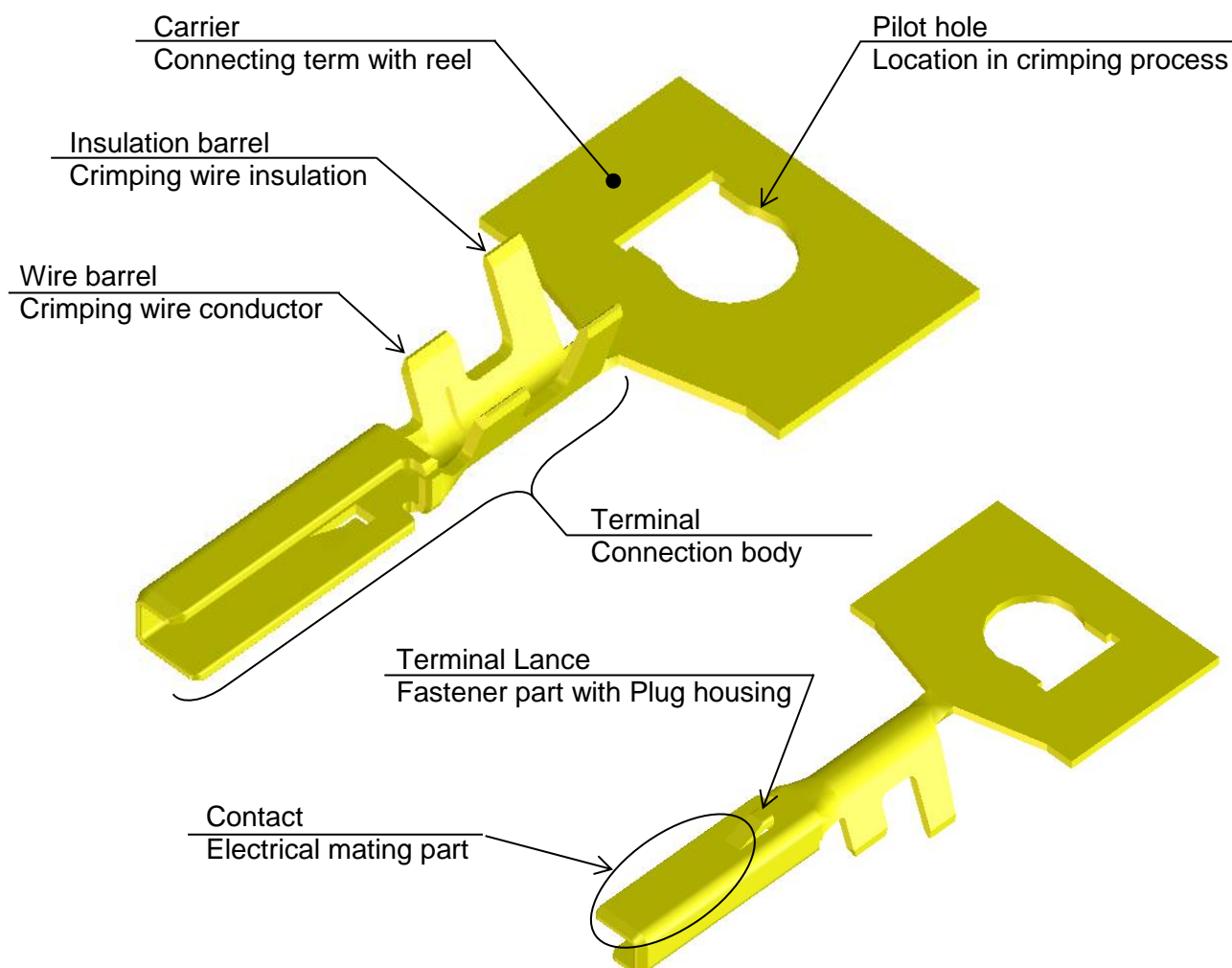
**2-7. About for use.**

- ① This product is not designed and produced for the machine or the system used under the condition concerning human life. If you want to use this product for special use like medical, aerospace, or atomic power, please confirm us beforehand.
- ② Please contact us without fail before using if you plan to using to automotive or ship application. We will consider that the product can be applied to specification condition.
- ③ Please avoid using outdoors or under similar environment.

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**【3. The name of each part & explanations】**

**3-1. Plug terminal definitions:** 502579 0\*00, 503429 0000 (Tin plating)  
213028 \*\*00, 213029 \*\*00 (Gold plating)



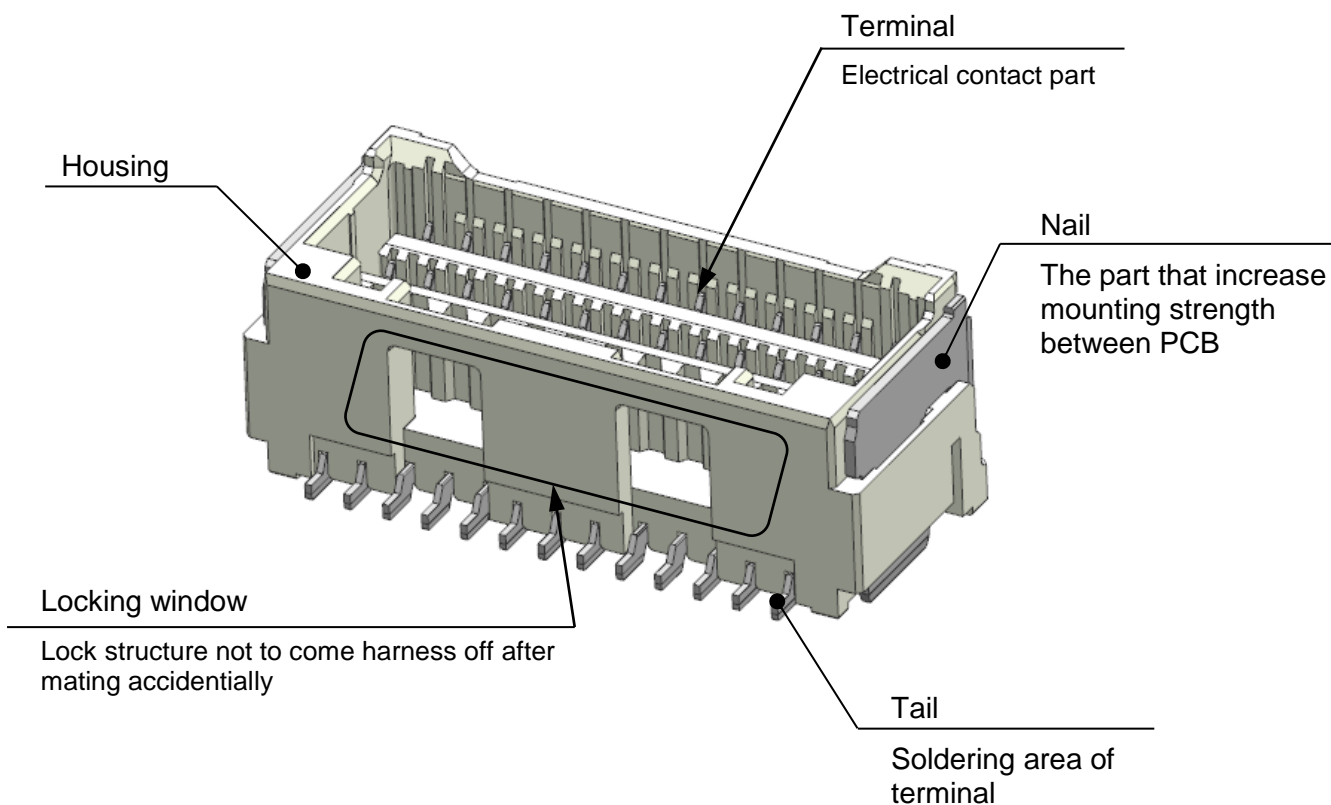
※ Please refer to sales drawing for product form and its dimension.

5025790000-SD/PSD/000, 5034290000-SD/PSD/000	(Tin plating)
2130280000-SD/PSD/000, 2130290000-SD/PSD/000	(Gold plating)

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### 3-3. Header assembly definitions (SMT vertical) : 503154, 213227 series



※ Please refer to sales drawing for product form and its dimension.

5031540000-SD/PSD/000

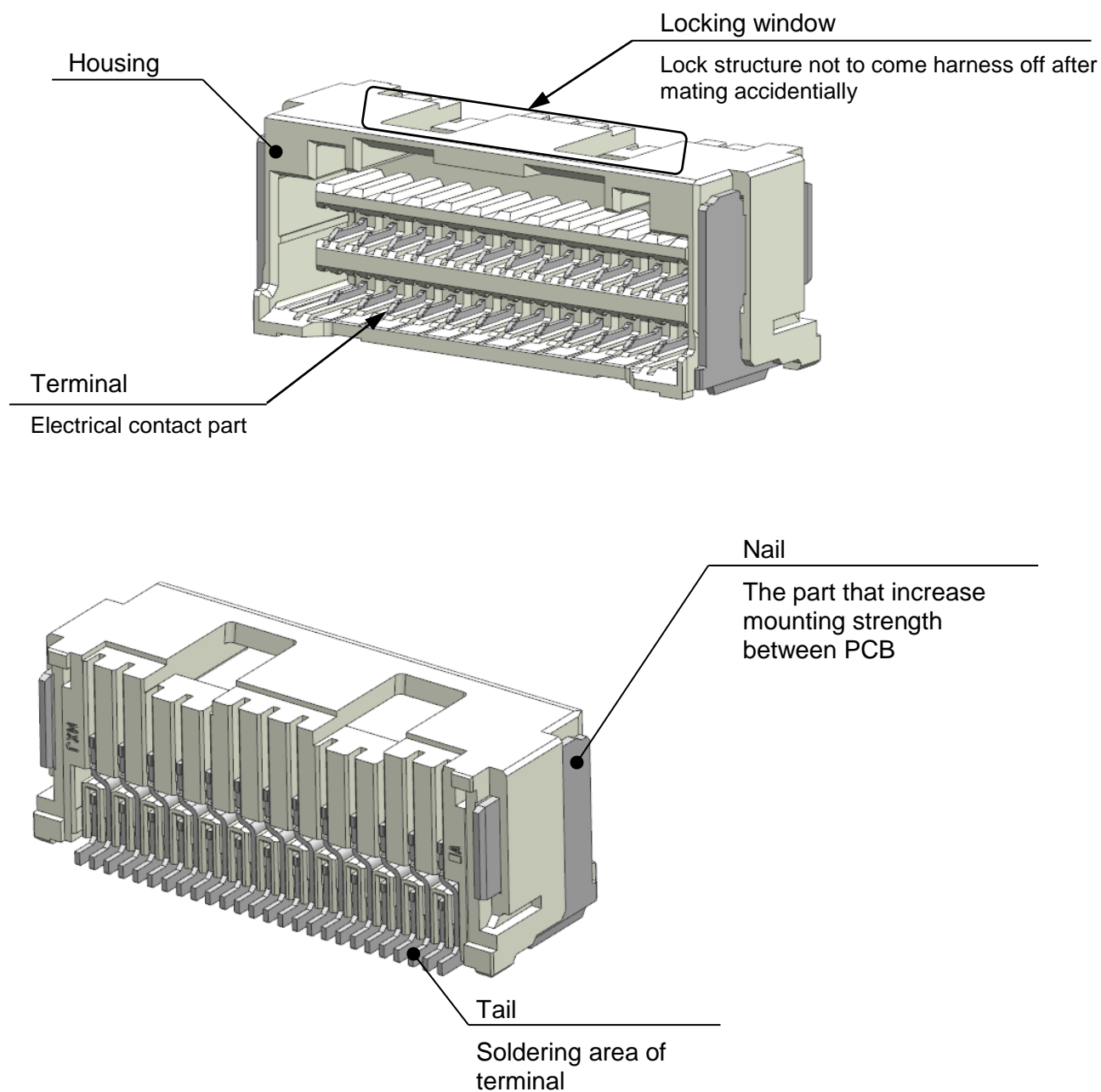
(Tin plating)

2132270000-SD/PSD/000

(Gold plating)

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### 3-4. Header assembly definitions (SMT right angle) : 503148, 213228 series



※ Please refer to sales drawing for product form and its dimension.

503148000-SD/PSD/000

(Tin plating)

2132280000-SD/PSD/000

(Gold plating)

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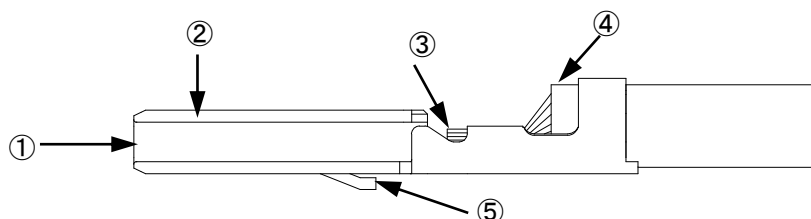
#### 【4. Crimping】

#### 4-1. Appearance before crimping

Please make sure that there is no deformation of the crimp terminal. If you find that the terminals are tangled, please do not remove them forcibly. Please refer to sales drawing for product form and its dimensions.

#### **4-2. Appearance after crimping**

Confirmation items and crimping failure after crimping are shown as follows. Please refer to crimp specifications for crimp height, and applicable wire specifications, and so on.



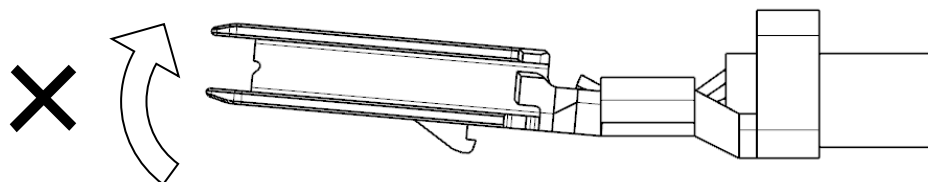
- ① No visible terminal damage.
- ② No visible contact box damage or deformation.
- ③ All wire strands are in conductor barrel.
- ④ The insulator part of the electric wire is located wire barrel and insulation barrel midway.
- ⑤ No damage with terminal lance.
- ⑥ No damage with appearance. (Dirt / foreign objects)

### **4-3. Crimping failure**

Please be careful of the crimping failure as shown below.  
It may affect the insertion to housing and affect a product function.

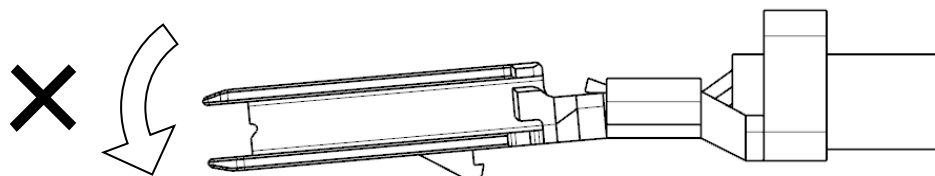
① Bend up

It may deteriorate insertion to housing and terminal retention force or cause contact failure.



② Bend down

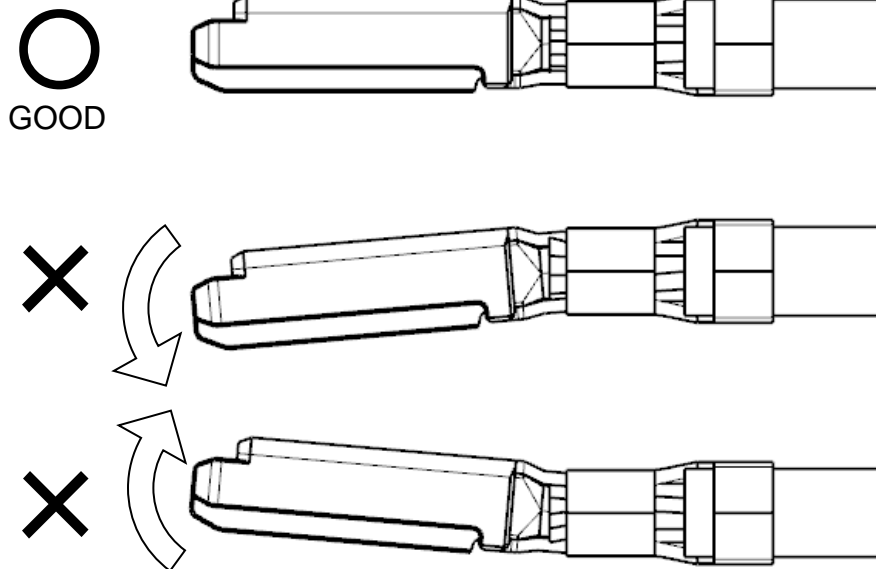
It may deteriorate insertion to housing and terminal retention force or cause contact failure.



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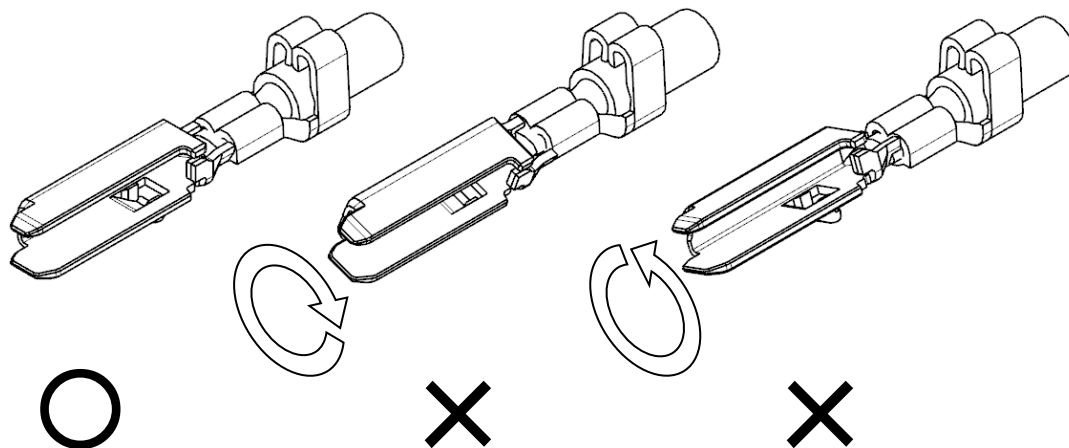
### ③ Twist

It may deteriorate insertion to housing and terminal retention force or cause contact failure.



#### ④ Rolling

It may deteriorate insertion to housing and terminal retention force or cause contact failure.

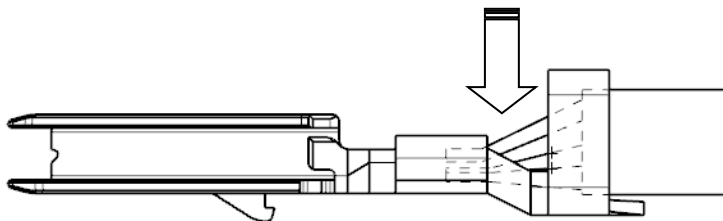


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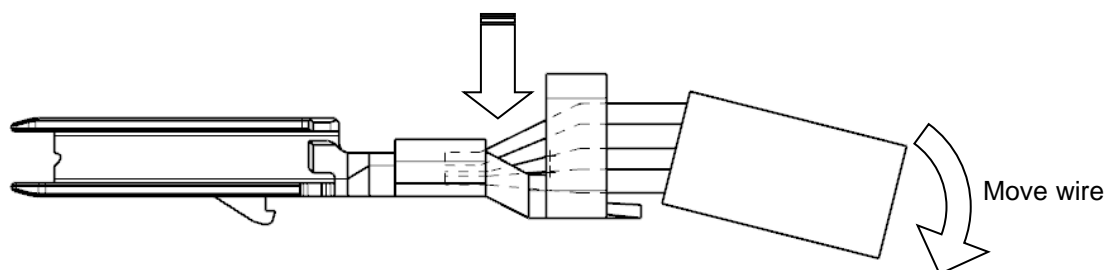


⑧ Crimping position: Too behind

It may cause deterioration of wire crimping strength and disconnection by not having enough crimping margin.

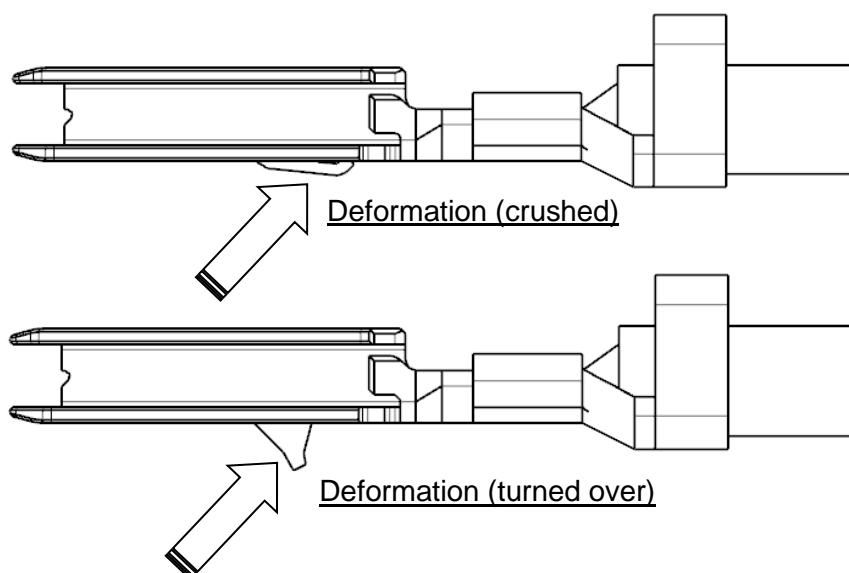


As wire insulation is not crimped completely, wire insulation falls off easily when wire is pulled.



### ⑨ Deformation of terminal lance

Locking of the terminal becomes insufficient and causes lowering of the terminal retention force.



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### 【6. Harness processing (crimping wire insertion method in plug housing)】

Insertion procedure and instructions (※) of the crimping wire are shown as follows

### 6-1. Insertion crimping wire

- ① Hold plug housing by pinching right and left side.
- ② Please pick up the cable at about 10mm position from the crimp-end with a finger lightly.

## Instruction

※It might be hard to insert terminal so that wire is easy to bend if wire is picked at distance from terminal.

※Distance value depends on wire gauge, UL, etc. Please confirm it with the wire that you chosen before you use it.

- ③ Picking with terminal lance part toward center of plug housing, please insert terminal slowly and straightly till the tip of terminal touch housing (with force of around 300~500g). (**Fig.6-1**)

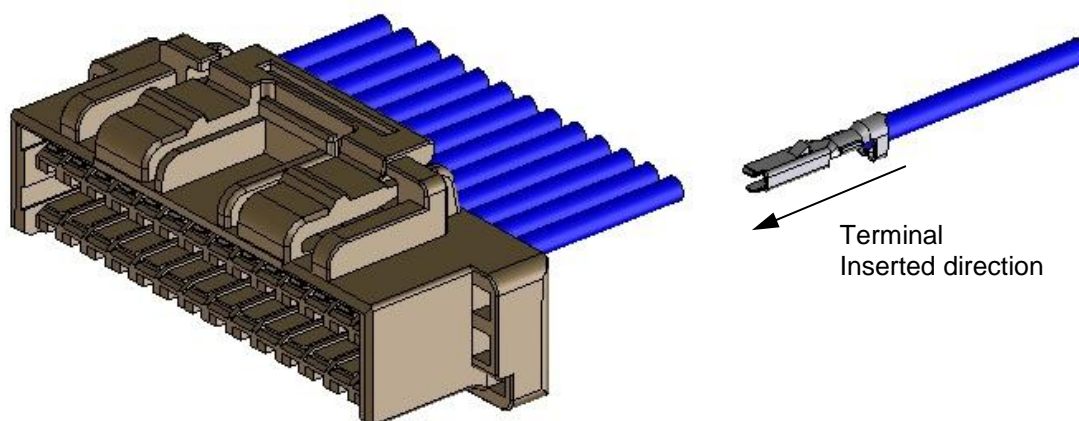


Fig.5-1

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## Instruction

※If crimping height and width are too large, there is a problem for the terminal insertion. Please follow the instructed crimping height. (Please refer to Application tooling specification (ATS) for detail.)

※Please keep correct insertion direction. (Fig.6-2) Please be careful that the terminal is not upside down, not having an angle over 5°, or not rotated against receptacle housing. These may cause terminal deformation or damage to receptacle housing. (Fig.6-3)

※If you feel unusual such as hooking during the insertion, please stop insertion and confirm if there is no damage of terminal or receptacle housing. If the damage is found, do not use the terminal and plug housing.

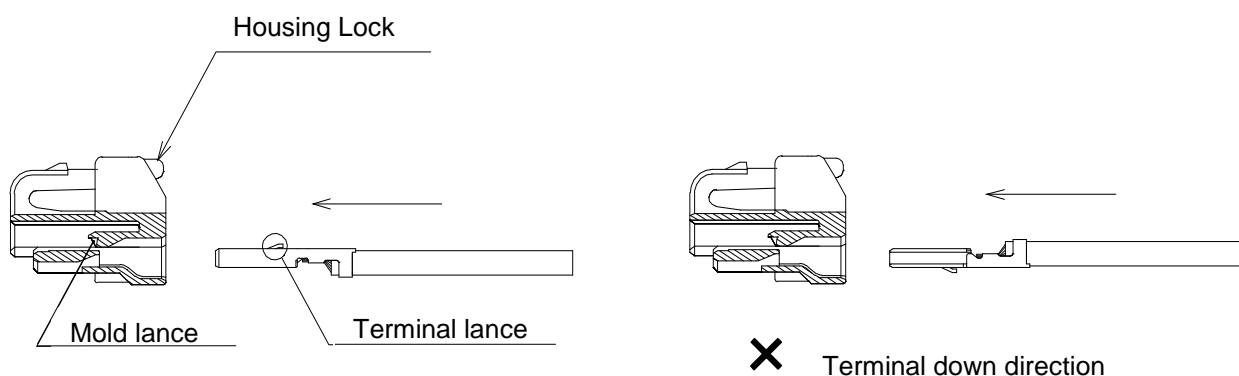


Fig.5-2 ○ Right insertion direction  
(housing is only reference)

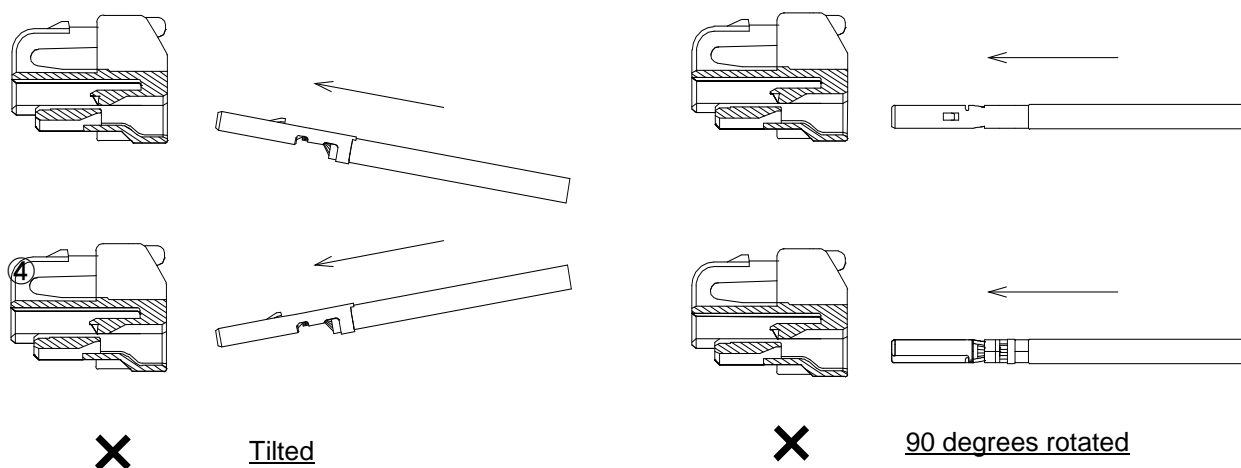


Fig.6-3 Inappropriate insertion direction (housing is only reference)

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- ④ After inserting terminal, please confirm by pulling wires lightly (with about 100g force) if terminals don't pull out from plug housing.  
(Confirmation by excessive tension might break connector.)
- ⑤ After inserting all terminals, please confirm the position of terminal lance part by seeing through window of plug mold lance. If they are inserted correctly, terminal lance is at the position where terminal lance get over mold lance properly and you can confirm clearance by shaking them insertion axially lightly. **(Fig.6-4,6-5)**

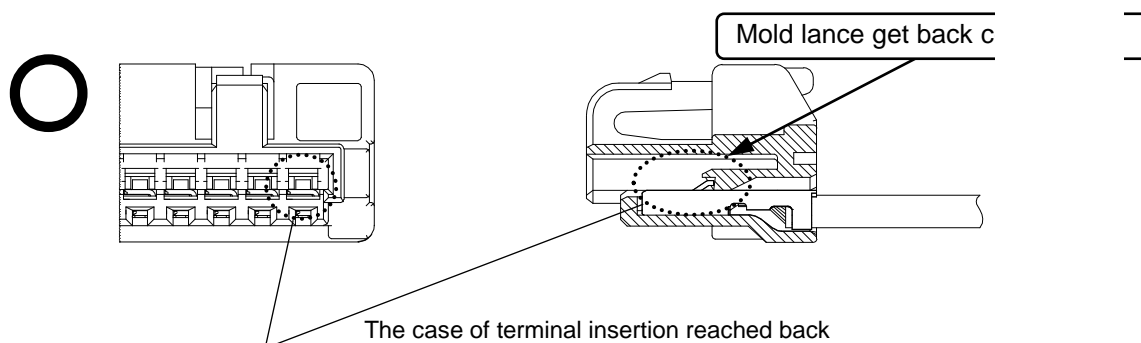


Fig.6-4 The case of correct insertion

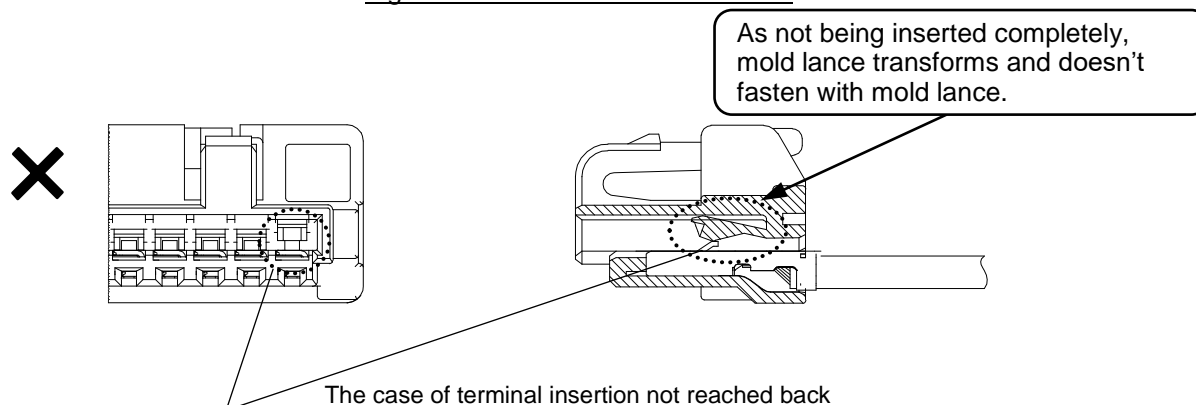


Fig.6-5 The case of incomplete insertion

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## Instruction

※If terminal is inserted incompletely, terminal lance doesn't fasten with mold lance and terminal is not retained.

※In the state of incomplete insertion(see **Fig.6-5**), terminal lance is transforming utmost. Therefore the retention of harness neglected in this situation might decline although you re-insert the terminal because terminal lance has transformed and not returned to correct position. In this case, please be sure to change new terminal.

- ⑥ When checking harness after processing, please avoid bending wire excessively or using under tension. That might be reason for contact failure because force was added to terminal crimping part or plug housing lance part.
- ⑦ After conductivity testing, do not attach anything besides applicable mating connector. That might be reason for contact failure because of transformation of terminal etc.

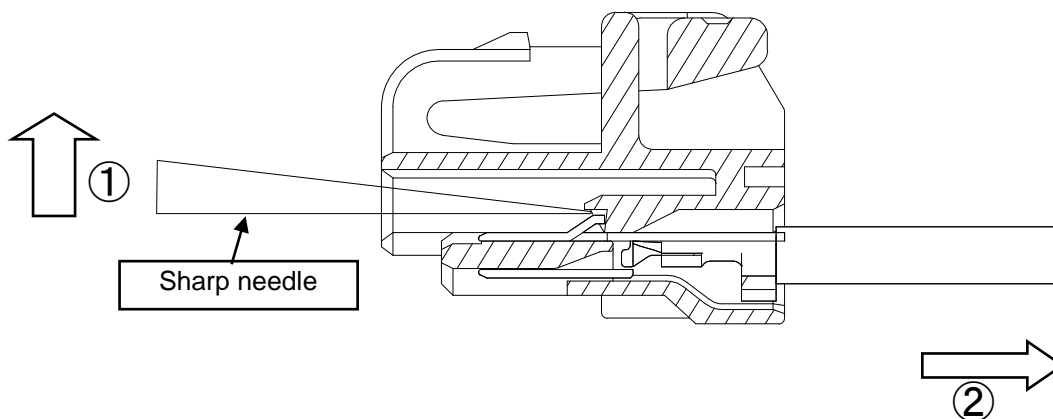
**6-2. Repair of crimp terminal**

When you withdraw the crimp terminal inserted once, please withdraw it raising mold lance with a sharp something like needle.

However, mold lance transforms by being raised. As strength of the transformed lance decreases extremely, the terminal might come out easily from housing if you insert it again. **Therefore please be sure to change the plug housing to new one when you repair crimp terminal.** And use an appropriate magnifying glass, please repair with caution.

※Please be sure to avoid with drawing terminal by force.

※When repairing, please be careful not to transform or scratch terminal lance.



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### 【7. Banding of harnesses】

When banding harness after processing, please be careful with the following point.

- ① Please band the wires at more than 35mm length from connector and equalize the force to each wires(**Fig.7-1**)
- ② Concerning harness, please consider that only one wire (or particular a few wires) is not added force.(**Fig.7-2**)

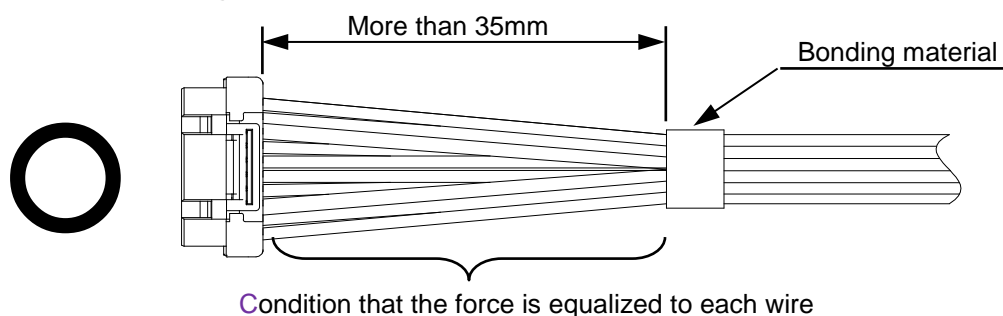


Fig.7-1 Condition that harness is banding properly

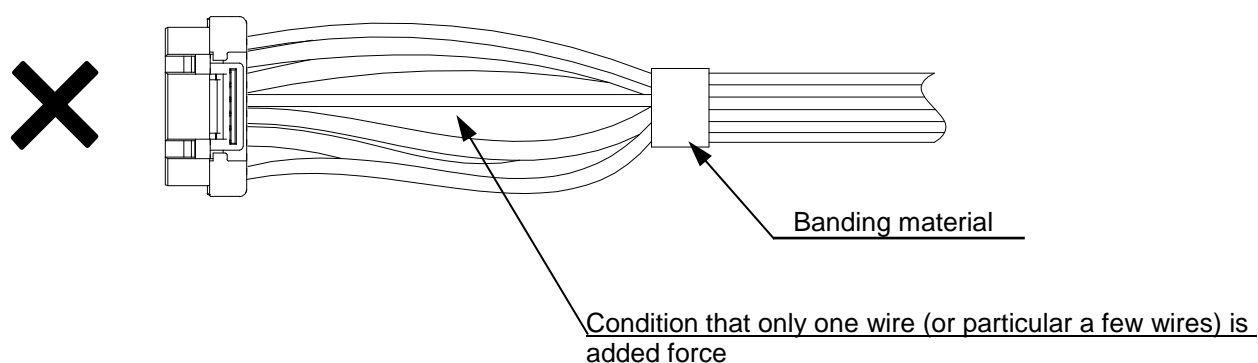


Fig.7-2 Condition that harness is banding improperly

instruction

※When harness is in a tangle with each other, please do not pull them excessively. That might cause break of connector because extreme force is added to terminal and it comes out from connector.

※Please do not drop the product or hit it against other things.

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## 【8. Recommended packing of cable harness and assemblies】

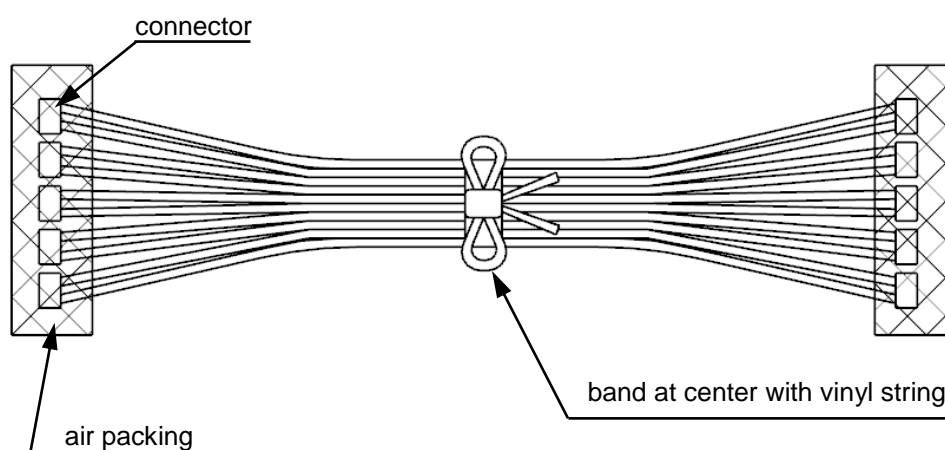
The procedure for packing harnessed products is shown below.

- ① When bundle the harnessed products, please band about 20 harness in one bunch.

### Instruction

※ When banding them, in order that wire is not added excessive force constantly please do not use something to constrict strongly, ex. rubber band. Please band the center (one place) with vinyl string. Please take measure to protect connector from shock or load by wrapping each bunch of connector with air packing. (Fig.8-1)

When some harness is banded, each connector contact and part of lock might be loaded. In that case, conformation of lock part etc. might cause defective performance because of the situation that lock is down all time.



**Fig.8-1 a bunch of harness**

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② Put banded harness into exterior carton.

Below figure(**Fig 8-2**) is one of examples recommended reference. Please take measure not to add force to connector for long time by stacking if you pack with another packing method for long harness.

#### Instruction

※When packing bundle of harness after processing in package box, please follow suggested packaging order and avoid applying excessive weight or force to harnesses. (cross shape)

(**Fig.8-2 ①**)

※Please lay air packing etc. on package box underside. In order that force by piling package boxes etc. is not added to connector for long time, please lay air packing etc. (**Fig.8-2 ②**)

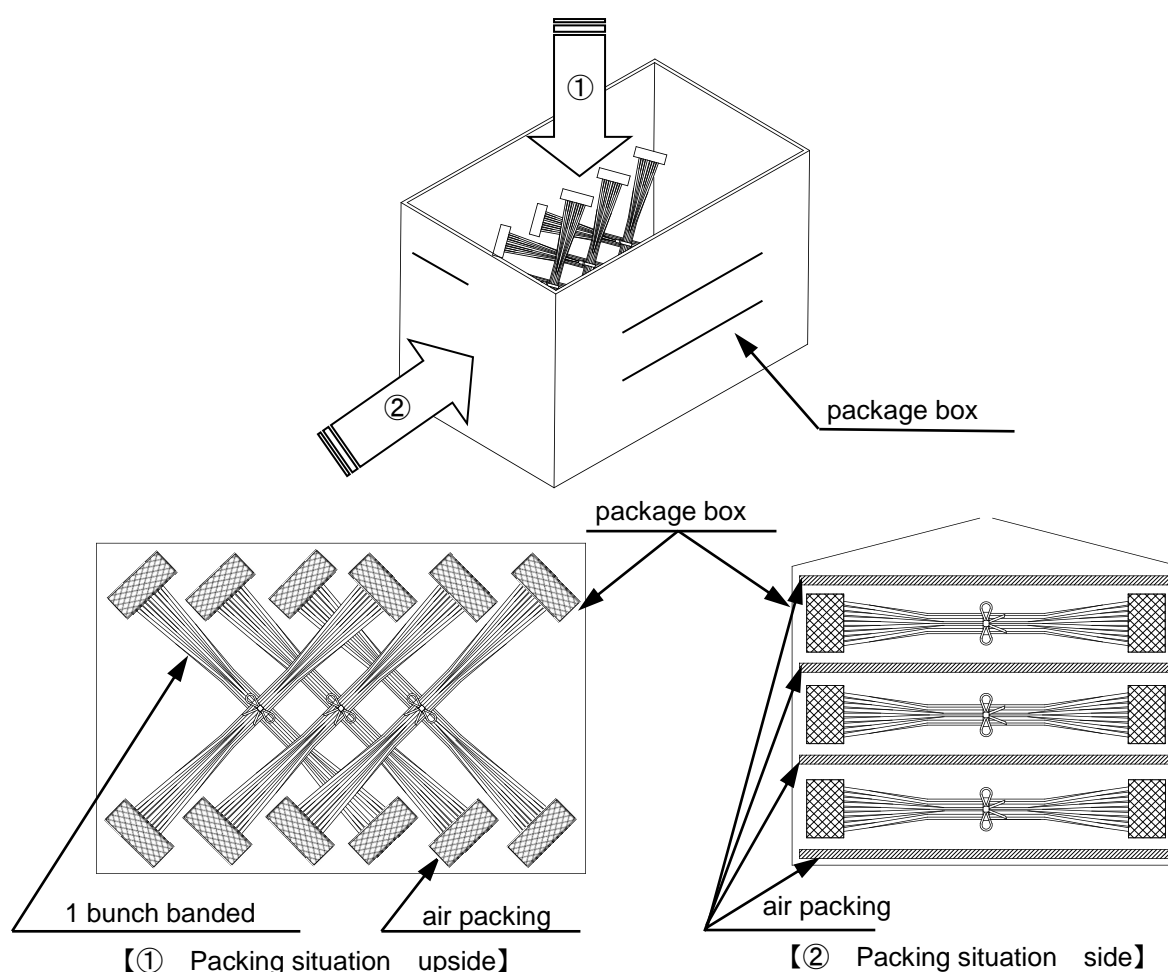


Fig.8-2 Packaging situation

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### 【9. Instruction before mounting on PCB】

- ① Please keep product under recommended storage condition. About condition detail, please refer to our product specifications.
- ② Because of housing property, header housing may occur blister to header connector by hygroscopicity. When the storage condition after opening the humidity prevention package of product is over recommended storage condition, baking treatment is recommended. About the condition detail, please refer to our product specifications

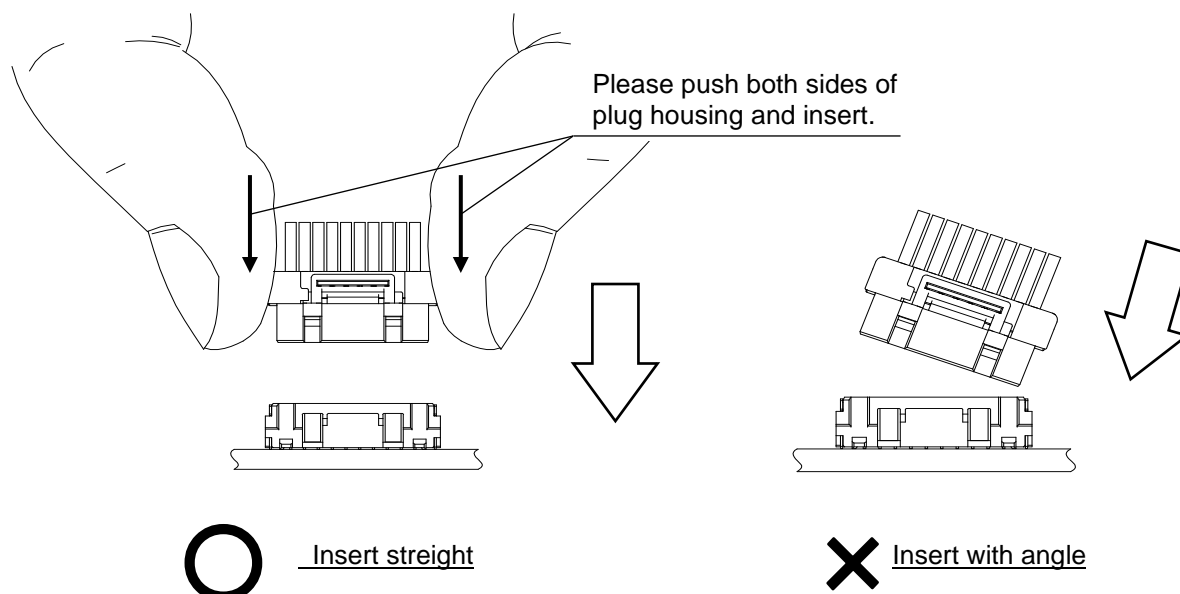
	REVISE ON PC ONLY		TITLE:  <b>CLIK-Mate 1.5</b> <b>Dual ROW CONNECTORS</b> <b>APPLICATION SPECIFICATION</b>			
	<b>D</b>	SEE SHEET 1 OF 55				
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## 【10. Instruction when mating with HDR connector】

These figures include single type.

### 10-1. Mating process method

Please meet both mating direction of receptacle housing (harness side) and plug housing (header side), and push plug housing both sides of pitch direction (part shown with arrows) **until both connectors strikes each other (complete mating position)**. And after mating, please confirm that 2 friction locks are fastened completely.



---

Instruction

※When mating, please do not push positive lock of plug housing. It might cause damage by excessive load as correct movement that lock part get over catching part of mating is avoided.

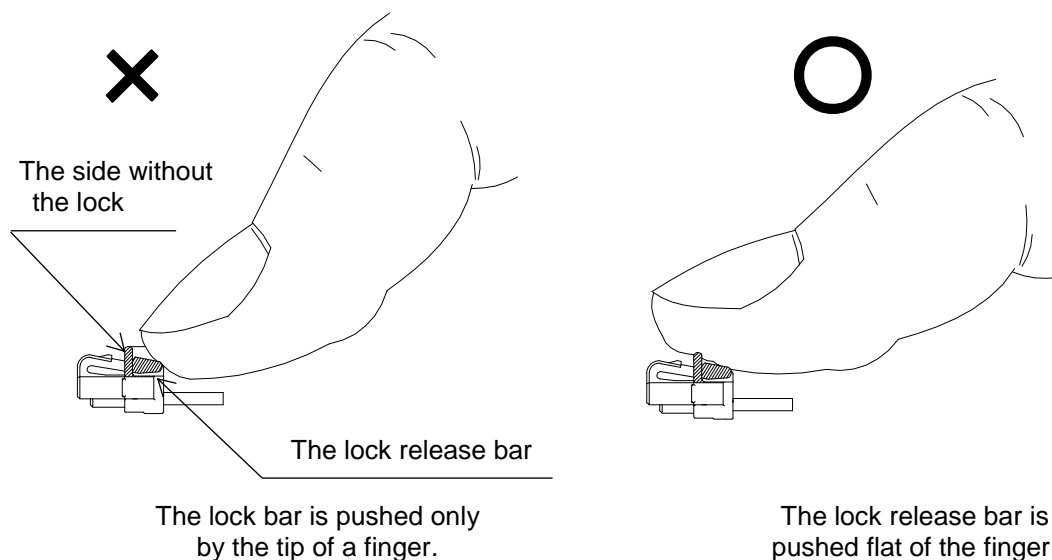
※Please push plug housing and insert it straightly until they strike each other. This product is designed as follows. Connectors mating should end up in straight direction even if started insertion with an angle. However if you insert it gradually with angle and maintaining the situation artificially, this situation might make the case that only one side lock is fastened because elastic plug housing is inserted conformed. (Especially in multiple circuits)

※If you can not insert smoothly, please insert again after confirming transformation of terminal and plug housing etc.

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### 10-2. Un-mating process method

Please hold wires all together lightly. After releasing lock completely by attaching fingers to the lock and pushing bar for releasing lock using flat part of finger, please withdraw receptacle plug slowly, axially and straightly. Please avoid withdrawing them with an angle and roughly. That might cause damage to connector.



**NOTE**

※Please do not withdraw with holding only a few particular wires. As excessive force is applied to particular terminals, the connector might be damaged or a terminal might come off.

※When you press the lock removal bar, use your finger cushion and not the tip of your fingers, to avoid nail damage injury.

※When withdrawing, please release the lock completely. This product has the structure of connector coming off prevention that depends on positive lock. If you pull off it by force, without the lock releases incompletely, the connector might damage.

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## 10-3. Consideration after mating

### Instruction

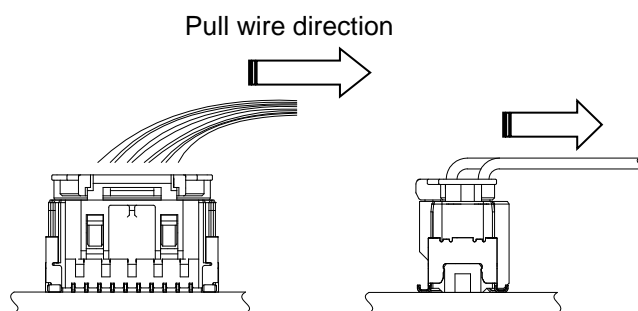
※When pulling wires around inside actual machine, please do not use under the condition that wires are bent excessively or tension is added. That might be reason for terminal pull out because force is added to terminal crimping zone or terminal insertion portion of plug by wire tension. Especially, please be careful force is not added to only particular wire. (**Fig.10-1**)

※If force is added to one particular wire, wire(crimp terminal) might pull out.

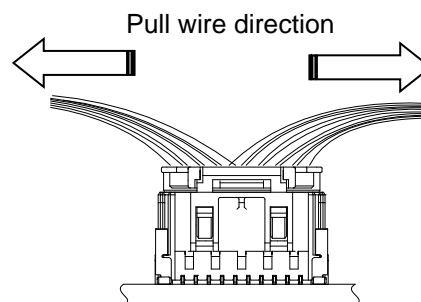
※Wire routing inside customer's device needs to avoid excessive stress. Please avoid pulling them toward more than 2 direction. (**Fig.10-2**)

※If you plan pulling around wires inside machine, please take measures to it for example wires have enough curve, and be careful force is not added to connectors directly. (**Fig.10-3**)

※If you plan on special wiring inside customer's device, please contact us before using. (i.e. **Fig.10-1,10-2**)

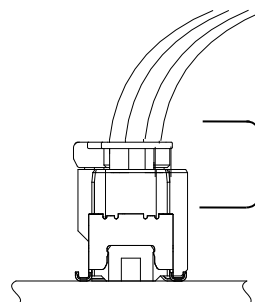
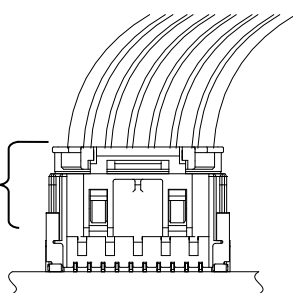


**Fig.10-1 Pull excessively**



**Fig.10-2 Pull in more than two directions**

Please curve wires in order that force is not added to terminal.



Please curve wires in order that force is not added to terminal.



**Fig.10-3 Condition wires are curved**

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# コネクタ 取扱説明書

## CLIK-Mate 1.5 Dual Series

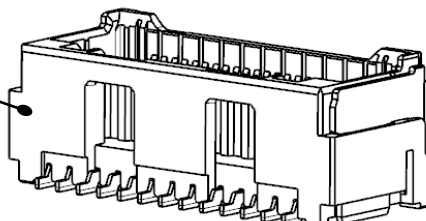
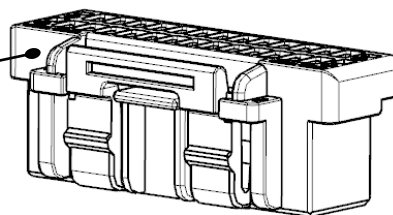
【1. 適用製品】

	製品名称 Product Name		製品型番 Part Number	
ハーネス側	プラグ ハウジング PLUG HOUSING		503149 series 梱包形態：ビニール袋	
	プラグ ターミナル PLUG TERMINAL	錫めっき Tin plating	502579 0*00 503429 0000 梱包形態：リール	
		金めっき Gold plating	213028 **00 213029 **00 梱包形態：リール	
	適用電線	錫めっき Tin plating	AWG#24～28	502579 series
			AWG#26～30	503429 series
		金めっき Gold plating	AWG#24, 26	213028 series
			AWG#26, 28	213029 series
基板側	リセプタクル ハウジング アッセンブリ RECEPTACLE HOUSING ASS'Y  SMT	錫めっき Tin plating	パーティカルタイプ Vt TYPE	503154 series 梱包形態：エンボスリール
			ライトアングルタイプ R/A TYPE	503148 series 梱包形態：エンボスリール
		金めっき Gold plating	パーティカルタイプ Vt TYPE	213227 series 梱包形態：エンボスリール
			ライトアングルタイプ R/A TYPE	213228 series 梱包形態：エンボスリール

※ 詳細は弊社圧着仕様書を参照願います。

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## 製品構成 Structure

適用電線  
APPLICABLE WIREプラグターミナル  
PLUG TERMINAL  
502579 0 \* 00  
503429 0 \* 00  
213028 \* \* 00  
213029 \* \* 00プラグハウジング  
PLUG HOUSING  
503149 \* \* 0 \*ヘッダーアッセンブリ SMT  
HDR ASS'Y SMT  
503154, 503148,  
213227, 213228 series

## —はじめに—

- ・本コネクタを御使用頂く前に必ず御一読頂き十分に理解した上、正しくご使用下さい。
- ・本書はいつでも参照できるように、お手元に大切に保管してください。
- ・本書中の表示及びイラストは印刷の為、実物と異なることがあります。
- ・本書の内容に関しては、予告無しに変更する場合があります。
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- ① プラグ ハウジング及び端子、圧着条件、適用電線が弊社製品図面、圧着仕様書に合致しているかを事前に確認して下さい。（弊社製品図面、圧着仕様書が揃っていない場合は、弊社営業に御要求ください。）
- ② 本製品を使用する上で端子コンタクトボックス等に変形、汚れ（異物付着）等のあるものは使用しないでください。プラグ ハウジングへの挿入性や電気的な性能を満足出来なくなる原因となります。

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- ③ 端子には直接手で触れること無きよう、御注意願います。（皮脂、汗等の汚れがメッキ面に悪影響を与え、電氣的性能が満足出来ない原因となります。）
- ④ 圧着前後において端子が絡まっている状態で、無理に端子を引っ張らないでください。端子を変形させる原因となります。
- ⑤ プラグハウジング及び端子、加工工程品や加工品（ハーネス等）には、外力を加えないでください。製品が変形し、コネクタの性能を満足出来ない原因となります。
- ⑥ プラグハウジング及び端子、加工工程品や加工品（ハーネス等）は、ゴミ（埃等）、腐食性物質、腐食性ガス、高温多湿及び直射日光に曝さないでください。接触不良や端子の腐食及びハウジングの絶縁性能劣化等の原因となり、機器の動作不良の原因となります。箱等への保管の御配慮をお願い致します。
- ⑦ 本製品及び加工工程品（仕掛品）や加工品（ハーネス等）の梱包及び輸送・保管時にはコネクタに負荷が加わらないようご注意ください。変形、破損などの原因となり、コネクタの性能不良の原因となります。
- ⑧ プラグハウジング及び端子を故意に変形させないでください。  
製品性能が満足出来ない原因となります。
- ⑨ 袋詰め梱包の製品を開封した際には当日に使い切るようお願い致します。周囲の雰囲気による過度な乾燥や吸湿等、材料の劣化の原因となる恐れがあります。（使い切ることが無理な場合は、袋の口を再度シーリングし、箱に保管を行う等のご配慮をお願い致します。）
- ⑩ RECEPTACLE HOUSINGの樹脂の特性上、吸湿によりリフロー加熱時にブリスタが発生する可能性があります。推奨保管条件を超えた場合、下記条件でのベーキングを推奨します。  
ベーキング条件：恒温槽50℃ 10時間放置
- ⑪ 本コネクタを取り扱う際、金属部などのエッジ部での怪我には御注意願います。
- ⑫ リール端子を取り扱う際、端子やリールの間紙などで手を切るなどの怪我には御注意願います。
- ⑬ 本製品リフロー条件に関しては、温度プロファイル、半田ペースト、大気、N2リフロー、基板などにより条件が異なりますので事前に実装評価（リフロー評価）を必ず実施願います。実装条件によっては、製品性能に影響を及ぼす場合があります。
- ⑭ 色物製品についてはリフロー条件及び御使用基板との合性によっては色落ちする場合がありますので、事前にご確認願います。
- ⑮ 半田上がりについて、本コネクタは大気リフローでの実装を想定しています。N2リフローで実装した場合、リフロー後、半田上がりを生じる恐れがあります。N2リフローでの実装をお考えの場合、別途評価が必要になります。
- ⑯ 本製品の一般性能確認はリジット基板にて実施しております。フレキシブル基板等の特殊な基板へ実装する場合は事前に実装確認等を行った上でご使用願います。
- ⑰ 半田実装部の未半田は、ターミナル脱落、ピン間ショート、ターミナル座屈、またコネクタの基板からの外れが懸念されます。従って全てのターミナルテール部及び、ネイル部に半田付けを行ってください。
- ⑱ 弊社の推奨基板パターン寸法を変更して設計を行なう際は、致命的な不良の原因にもなりますのであらかじめご相談ください。

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- ⑳ 平坦度の実装性能は、実装基板の反りの影響を含まないものと致します。
- 21 本品の平坦度保証につきましては、実装前での保証のみであり、空リフロー中及び空リフロー後での平坦度につきましては、保証の限りではありません。
- 22 コネクタ嵌合状態で基板の持ち運び等コネクタに負荷が掛かる作業は行わないようにしてください。コネクタ破損等の原因となる場合があります。
- 23 基板実装後に基板を直接積み重ねない様に注意してください。
- 24 実装後において半田ごてによる手修正を行う際は、必ず仕様書掲載の条件以内で行ってください。条件を超えて実施した場合、端子の抜け、接点ギャップの変化、モールドの変形、溶融等、破損の原因になります。
- 25 半田ごてによる手修正を行なう際、過度の半田やフラックスを使用しないでください。半田上がりやフラックス上がりにより接触、機能不良に至る場合があります。
- 26 フロー条件によっては、樹脂部の変色や端子めっき部にヨリが発生する場合がありますが、製品性能に影響はございません。
- 27 実装機によってコネクタに負荷が加わると変形、破損する場合がありますので事前にご確認ください。
- 28 ハーネス加工時及びハーネス品梱包時にハウジングとロックの隙間に電線が絡まない様に注意してください。また、ハウジングとロックの隙間に電線が絡んだ場合には電線を無理矢理引っ張らないでください。ロックが変形する場合があります。電線が絡んだ際にはロックに負荷が掛からない様注意して外してください。

## 2-5. 機器内での使用について

- ① 本製品をご使用時に取り付けられた電線・プリント基板の共振や、機器の回転構造や可動部分の動作によりコネクタ嵌合部（接点部）が常に動いてしまう状態での御使用は避けてください。接触部の摺動磨耗等による 接触不良の原因となります。従って、機器内で電線・プリント基板を固定し、共振を抑える等の処置をお願い致します。
- ② コネクタのみで基板を支えることは避け、コネクタ以外での基板固定対策を行ってください。
- ③ 基板実装前後に端子、補強金具に触らないでください。
- ④ コネクタ嵌合状態で基板の持ち運び等コネクタに負荷が掛かる作業は行わないようにしてください。コネクタ破損等の原因となる場合があります。
- ⑤ コネクタは極力嵌合軸に沿って挿入抜去を行ってください。斜め挿抜はコネクタ破損等の原因になる場合があります。
- ⑥ 嵌合後、コネクタピッチ方向、スパン方向及び回転方向への負荷がかかるような動作またはセットはしないでください。コネクタ破壊や半田クラックを引き起こします。
- ⑦ コネクタ嵌合後の電線の引き回しの際、引張りによる力が加わりますと、接点部、結線部（圧着部）やロック部（端子ロック部）が損傷を受け、接触不良の原因となります。電線の引回し配線をされる場合、コネクタに無理な外力が加わらないように、電線に緩みを持たせ、余裕を持たせる処置をしてください。
- ⑧ コネクタの嵌合を取り外す際は、必ずロックを解除して行ってください。電線はまとめて軽く掴み、

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指全体で確実にロックを解除し、取り出してください。

- ⑨ 治具等を使用し、圧着端子を抜いた場合には、ランスが変形し強度が低下し端子を再装着後の端子保持力が極端に低下します。そのため、圧着端子のリペアの際には新しいハウジングを必ず使用してください。

## 2-6. 定格・性能規格について

- ① 製品仕様書の定格・規格の範囲内で御使用ください。
- ② 活電状態の電気回路で、挿入、抜去ができることを前提に作られていません。  
スパーク等による危険の発生、性能不良につながりますので、活電状態での挿入、抜去はしないでください。 \* 活電状態：電気を流したまま挿抜を行うこと。
- ③ 実使用時には、その機器に関する設計基準を満足することを確認の上、御使用ください。
- ④ 予測できないショート（短絡）の発生を防ぐため、コネクタに金属製のパネルや金属片等が接触しないように御配慮願います。
- ⑤ 本製品をご使用時には、1 PIN当りの定格以上の電流を複数の回路に分岐しての使用は避けてください。

## 2-7. 使用用途

- ① 本製品は人命に関わるような状況下で使用される機器、あるいはシステムに用いられることを目的として設計、製造されたものではありません。本製品を医療用、航空宇宙用、原子力等の特殊用途への組み込みの御使用については当社に確認の上、御使用ください。
- ② 自動車、船舶等への御使用を検討される場合は、必ず事前に御連絡ください。(仕様条件によって使用可能であるか検討させていただきます。)
- ③ 室外またはそれに相当する環境下での御使用は避けてください。

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本端子形状は連鎖状を示します

2130280000-SD/PSD/000, 2130290000-SD/PSD/000 (金めっき)

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## 3-2. ハーネス各部の名称及び機能 : 503149 series

## ロック保護壁

偶発的にロック解除用バーに引っ掛けたり、押し付けたりすることにより、ロック部が破損することを抑制するための部分

## ロック解除用バー

左右に配置されたポジティブロックを同時に解除するための連結部分

## ポジティブロック

嵌合後、偶発的に抜けないようにするためのロック機構。  
抜去時にロック解除動作を必要とする

## プラグターミナル

502579 0\*00, 503429 0000 (錫めっき)  
213028 \*\*00, 213029 \*\*00 (金めっき)

プラグハウジング  
(503149 series)

## 電線

( AWG#24~#30 )

## モールドランス

ハウジングから端子を  
抜けないように引っ掛ける部分

※ 製品形状及び寸法については弊社製品図面を参照願います。 : 5031490000-SD/PSD/000

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DESCRIPTION

TITLE:

**CLIK-Mate 1.5**  
**Dual ROW CONNECTORS**  
**APPLICATION SPECIFICATION**

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端子(ターミナル)  
嵌合相手と電氣的接続するための部品

ハウジング

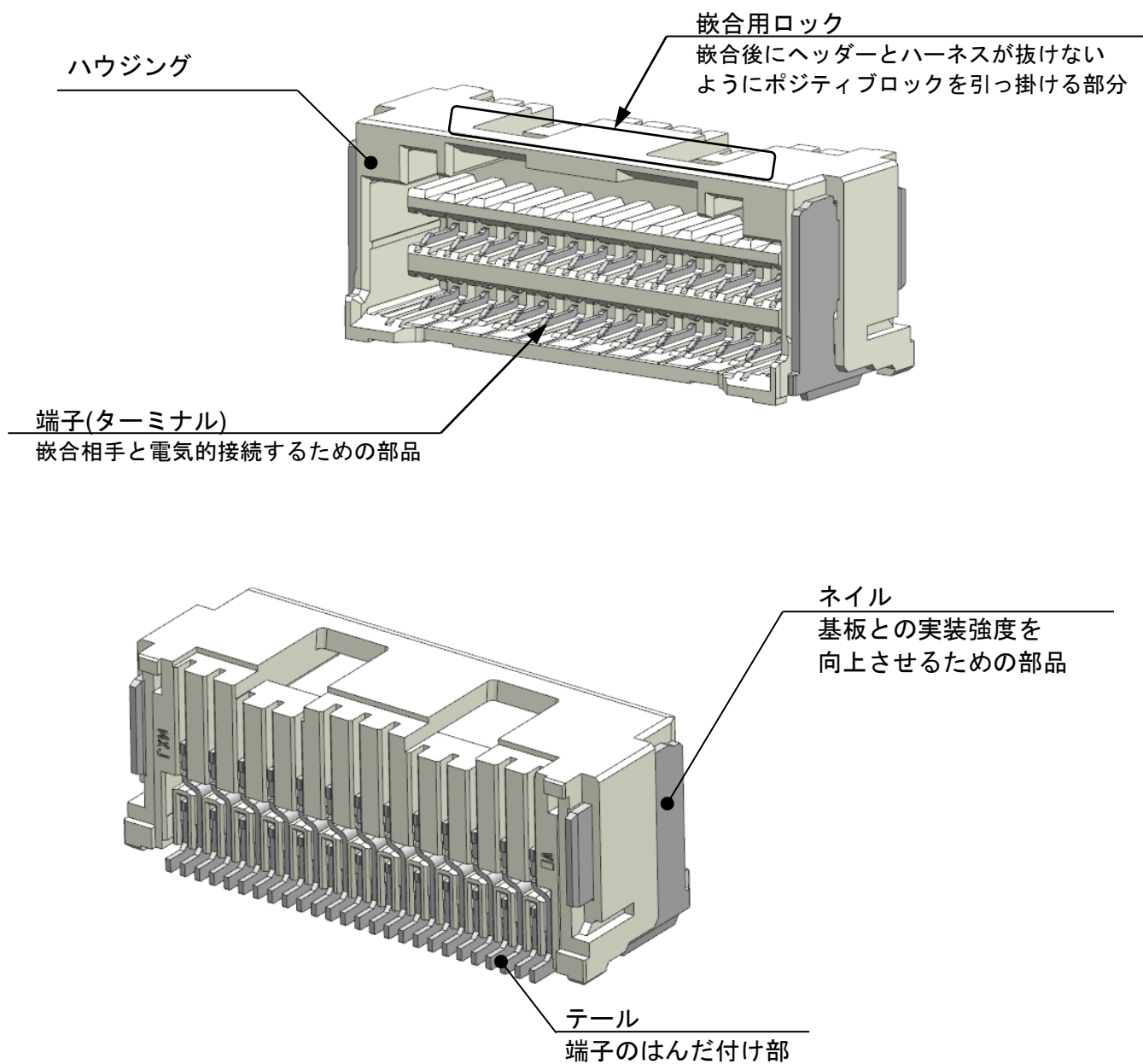
嵌合用ロック  
嵌合後にヘッダーとハーネスが抜け  
ないようにポジティブロックを引っ掛ける部分

ネイル  
基板との実装強度を  
向上させるための部品

テール  
端子のはんだ付け部

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### 3-4. ヘッダー各部の名称及び機能 (SMTライトアングル) : 503148, 213228 series



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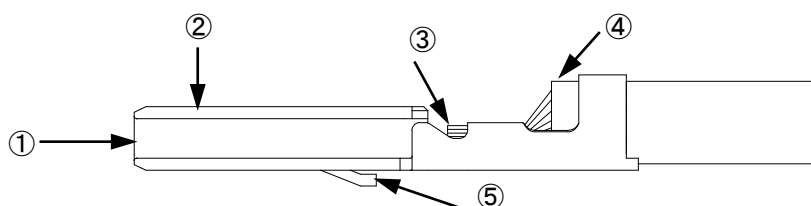
## 【4. 端子圧着加工について】

### 4-1. 圧着前の外観確認項目

圧着前に、製品外観の変形、コンタクトボックスの潰れ等が無いことを確認してください。  
また、端子同士が絡んでいる場合無理に引き剥がさないでください。変形等の原因となります。  
尚、製品形状及び寸法については弊社製品図面を参照願います。

### 4-2. 圧着後の外観確認項目

圧着加工後の外観確認項目及び圧着不良について、下記に示します。圧着時の参考としてください。  
尚、圧着高さ、状態、適用電線等の詳細は、弊社圧着仕様書を参照願います。



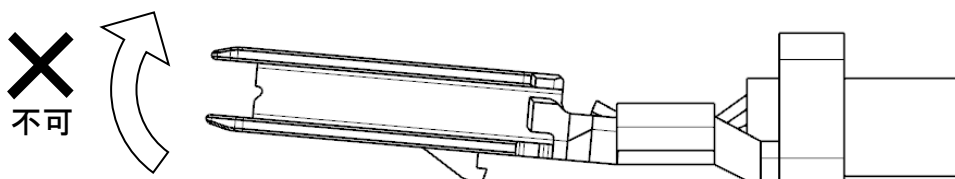
- ① 変形が無く、真っ直ぐになっている。
- ② 接点部及びコンタクトボックスの潰れ、変形が無い。
- ③ 芯線がワイヤーバレルより出ている、端子の外側に飛び出していない。
- ④ 電線の絶縁被覆ストリップ部分がワイヤーバレルとインシュレーションバレルのほぼ中間に位置している。
- ⑤ ランスに変形が無い。
- ⑥ その他、外観に異常なきこと。（汚れ／異物付着など）

### 4-3. 圧着不良について

下記に示す圧着不良はリセプタクルハウジングへの挿入作業及び製品機能に影響を与えますので、特に御注意願います。

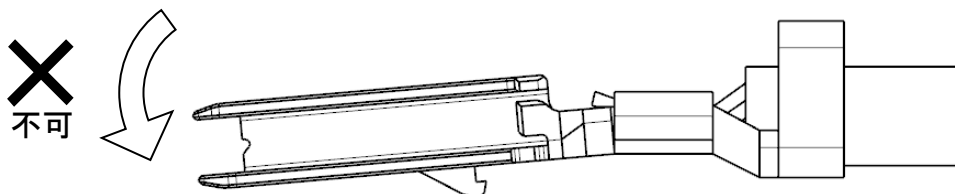
#### ① ベンドアップ

ハウジングへの挿入性及び保持力など、また電氣的に接触しないなどの問題の原因となります。



#### ② ベンドダウン

ハウジングへの挿入性及び保持力など、また電氣的に接触しないなどの問題の原因となります。

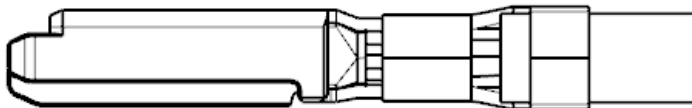


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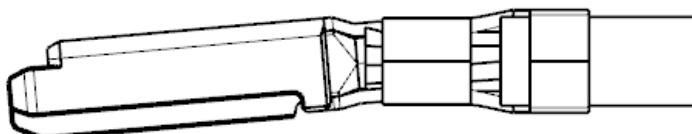
ハウジングへの挿入性及び保持力など、また電氣的に接触しないなどの問題の原因となります。



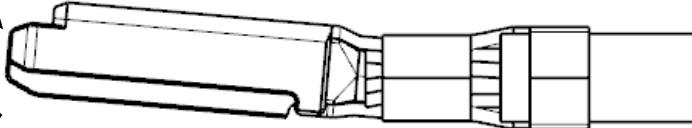
良好



不可

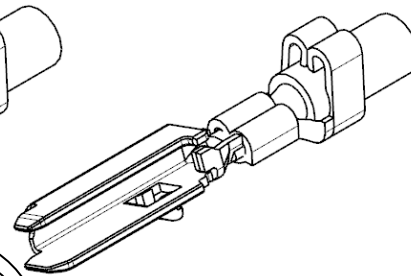
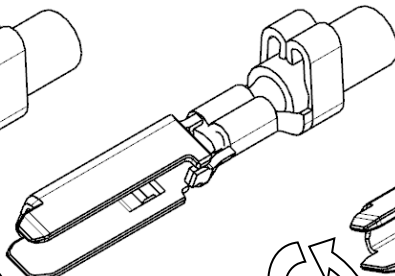
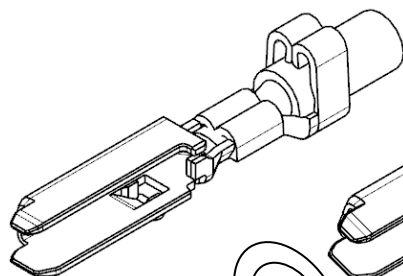


不可



#### ④ ローリング

ハウジングへの挿入性及び保持力など、また電氣的に接触しないなどの問題の原因となります。



良好



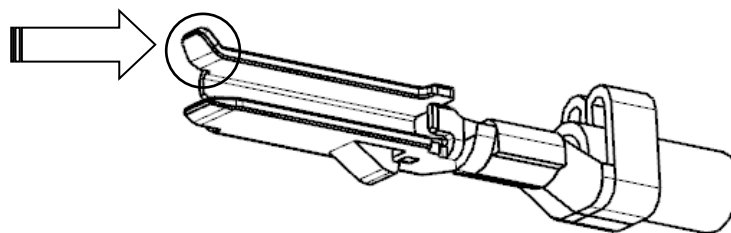
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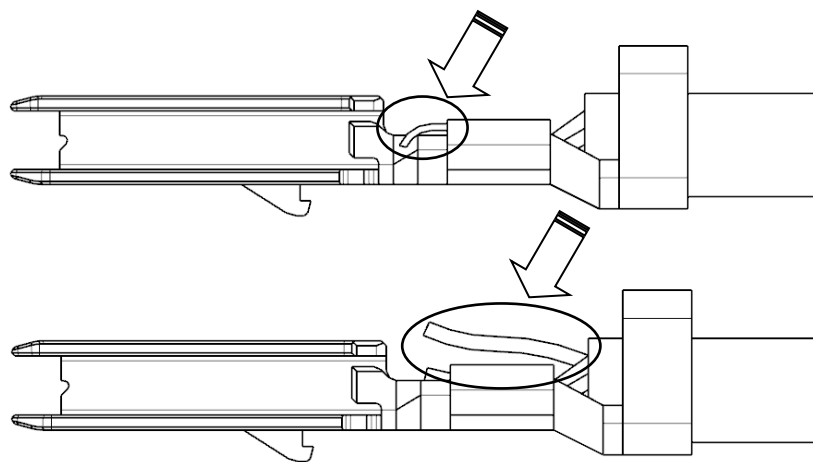
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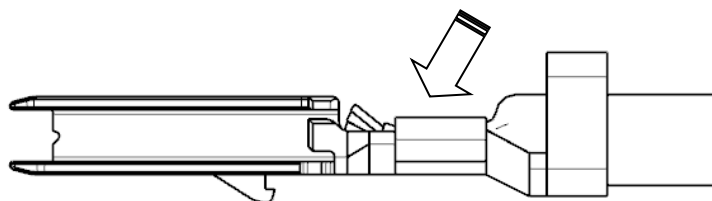
ハウジングへの挿入性及び保持力など、また電氣的に接触しないなど問題の原因となります。



ハウジングへの挿入時に於ける作業性が悪くなる、また電氣的な不良の原因となります。



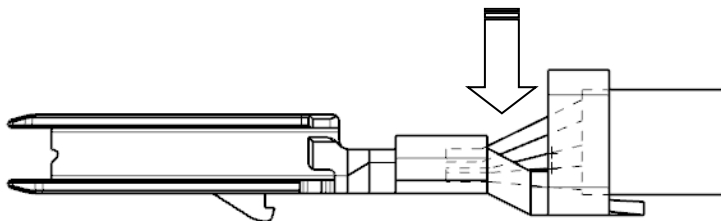
断線、圧着部の引張り強度の低下や、ワイヤーバレルにて電線被覆を圧着した場合、電氣的に通電しないなど性能を満足出来なくなる原因となります。



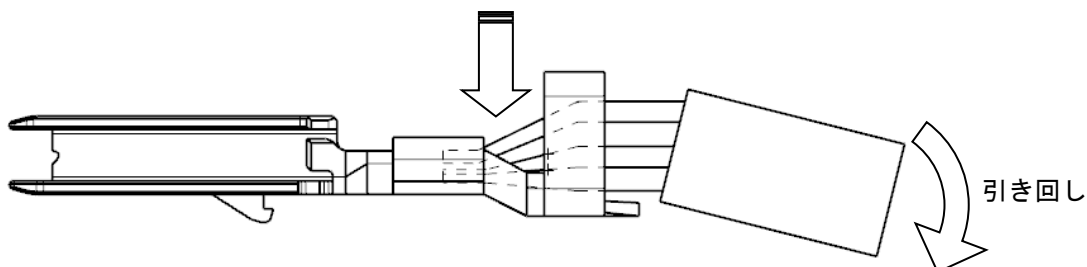
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**⑧ 電線圧着位置一後ろ過ぎ**

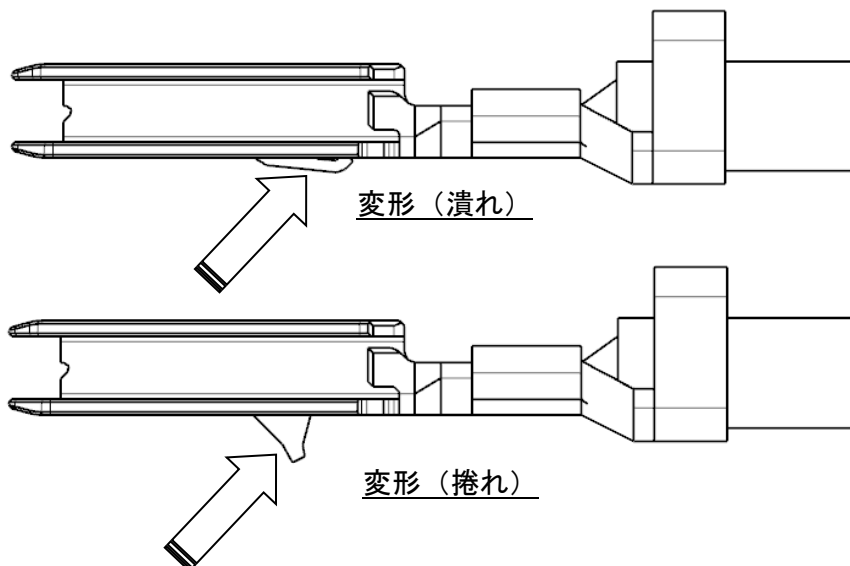
圧着がバレル内側で行われるため、圧着部の引張り強度が低下してしまう恐れや、また、電氣的に通電しないなど性能を満足できない原因となります。



被覆がインシュレーションバレル全体で保持されていないため、電線を軽く引き回した際、芯線が容易に露出してしまう。


**⑨ ターミナルランス部の変形（潰れ、捲れなど）**

ハウジングの係止が不十分となり保持力の低下の原因となります。



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## 【5. 圧着後の電線結束および梱包について】

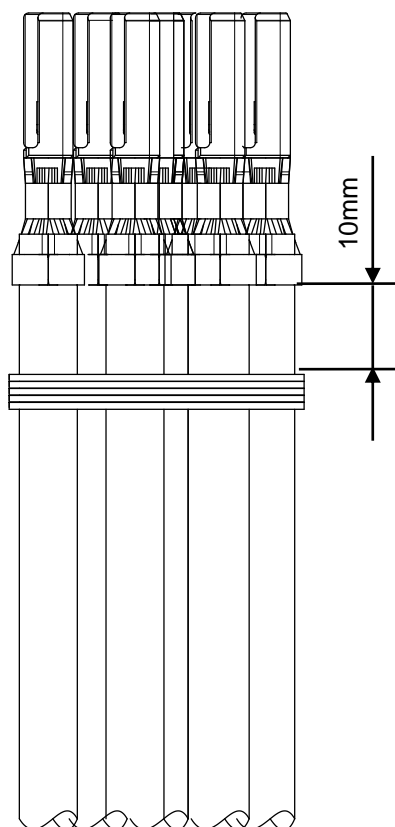
圧着後の電線加工品を束ねる際には絡みによる端子の変形・傷・電線の被覆破れ等が発生しないよう御配慮をお願いします。

（輪ゴム等で結束する際には端子圧着部から10mm程度の位置にての結束を推奨いたします。**Fig5-1**）  
又、加工後梱包箱への詰め込みを行う際には詰め込み過多による製品変形等も考えられますので1箱あたりの梱包重量についても御配慮願います。

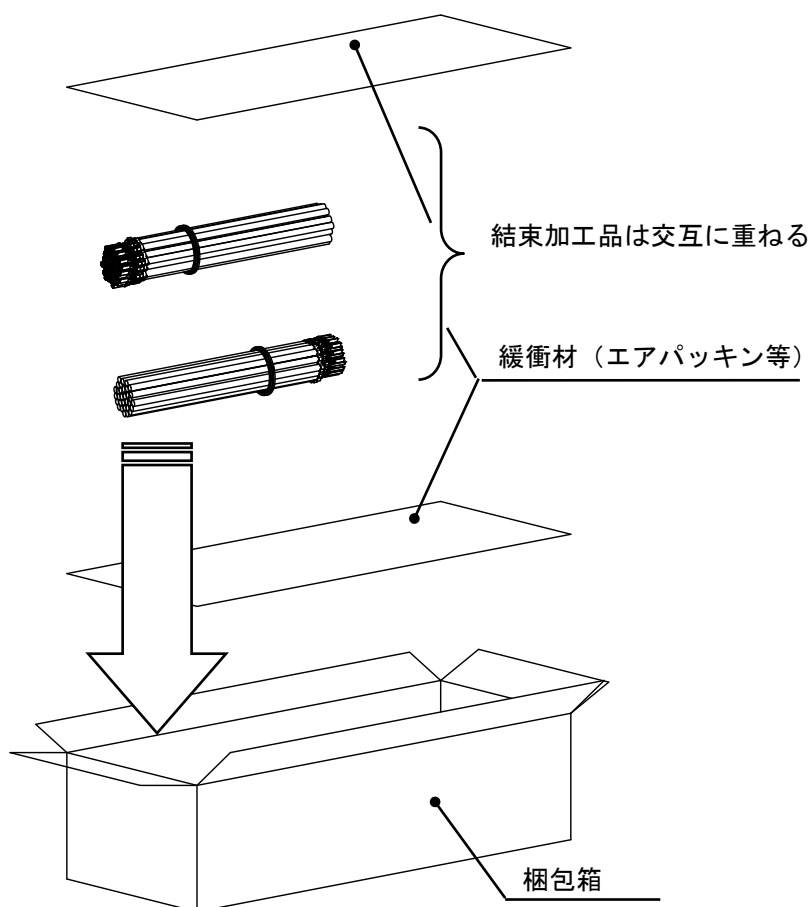
### 注意事項

※加工品の束を梱包箱に入れる際、積み重ねによる荷重等の負荷が端子へ直接長時間加わらない様、交互に重ねるなどして下さい。（**Fig.5-2**）

※梱包箱底面および上面には、緩衝材等を敷いて下さい。また、段積みによる荷重等の負荷が端子へ直接長時間加わらない様に、緩衝材を敷く等の御配慮をお願い致します。（**Fig.5-2**）



**Fig. 5-1**



**Fig. 5-2**

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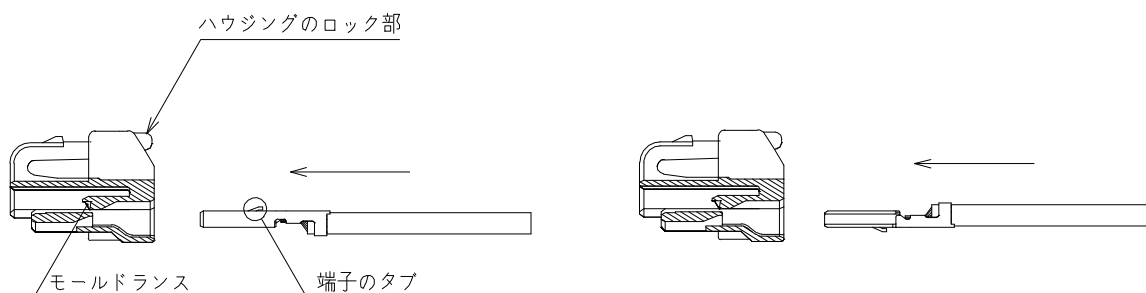
## 注意事項

※圧着高さ及び幅が大きいと端子挿入に問題がある場合があるため、規定の圧着高さにて作業を行ってください。（弊社圧着仕様書を参照ください。）

※装着途中で引っ掛かり等の異常を感じた際には無理に装着せず、端子やプラグハウジングの変形などが無いことを確認し、再度装着し直してください。

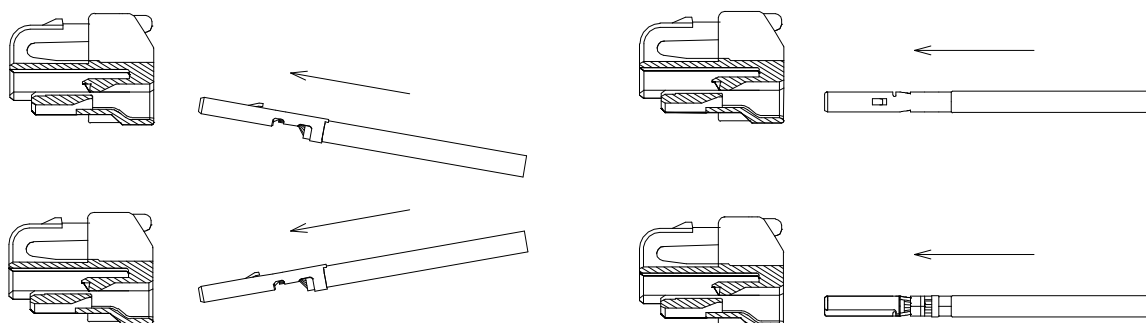
変形などが確認された場合、その端子やプラグハウジングは、再使用しないでください。

※プラグハウジングに対して端子を装着する向きにご注意ください（Fig.6-2）。装着時、端子がプラグハウジングに対して上下逆、斜め、回転した状態にならないように御注意ください（Fig.6-3）。端子変形、プラグハウジング破損の原因となります。



○ Fig.6-2 正しい挿入方向

× 上下逆方向



×

×

Fig.6-2 不適切な装着方向（製品形状は参考例）

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- ④ 端子装着後、軽く(100g 程度の力で)電線を引張り、端子が抜け出さないか確認を行ってください。  
(過度の引張りでの確認はコネクタを破損させる場合があります。)
- ⑤ すべての端子の装着後、プラグハウジングのモールドランスを間口より覗き、モールドランス部の位置を確認してください。正しく装着されている場合は、端子ランス部がきちんとモールドランスを乗り越えた位置にあります。(Fig.6-4, 6-5)

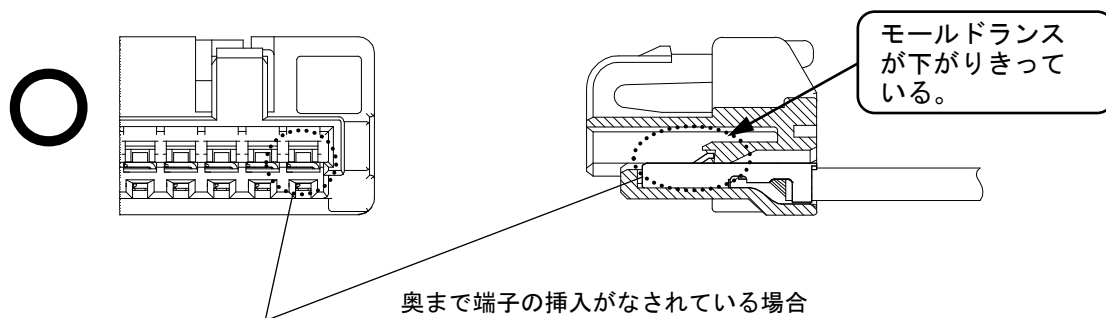


Fig.6-4 正しく装着されている場合 (製品形状は参考例)

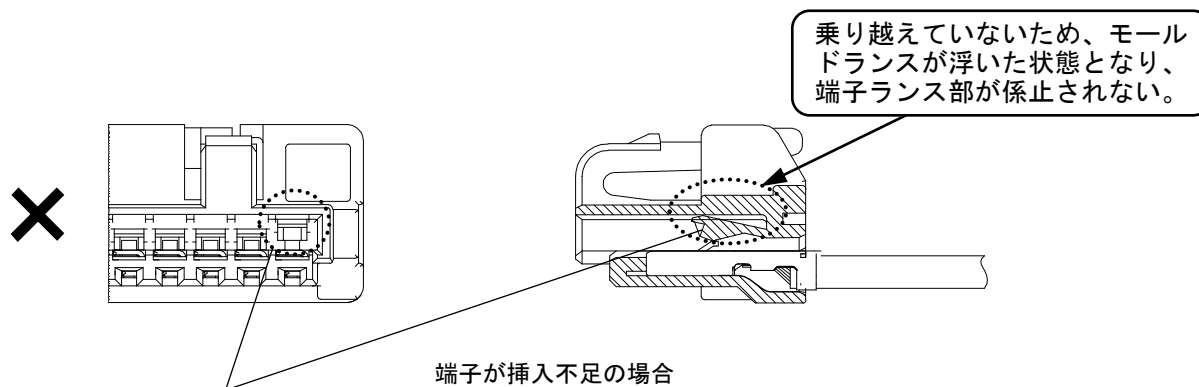


Fig.6-5 不完全装着の場合 (製品形状は参考例)

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## 注意事項

※端子が不完全装着の場合、端子ランス部がモールドランスに引っ掛からない状態になり、端子が保持出来なくなります。

※モールドランスが正規の位置に戻っていない箇所（不完全装着状態：Fig.6-5参照）では、モールドランスが最も変形している状態です。そのため、この状態のハーネス品は、端子を再挿入したとしても、モールドランスが変形し、正規の位置に戻らず、保持力が低下する場合があります。このような場合は、必ずプラグハウジングを取り替えて頂くよう、お願い致します。

- ⑥ ハーネス加工後のチェック時には、電線を極端に曲げる、または突っ張る状態での使用は避けてください。電線の張力により端子圧着部やプラグハウジングの端子装着部に力が加わり、接点不良の原因となります。
- ⑦ ハーネス加工後における導通チェックの際には適合する嵌合相手以外のものに挿入しないでください。端子の変形等による接触不良の原因となります。

## 6-2. 圧着端子のリペアについて（製品形状は参考例）

一度挿入した圧着端子を抜く時は、先の尖った針等を使いモールドランスを持ち上げながら引き抜いてください。

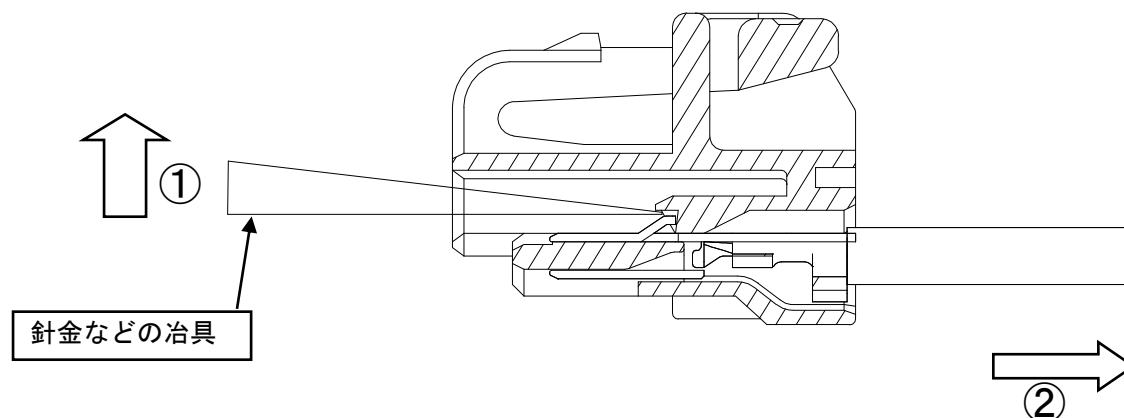
但し、モールドランスを持ち上げると変形します。変形した箇所のランス強度は極端に低下するため、端子を再装着したとしても直ぐに抜けてくる可能性があります。

そのため、**圧着端子のリペアの際には新しいプラグハウジングを必ず使用してください。**

また、拡大鏡等を使うなどして、十分御注意の上、作業を行ってください。

※端子を無理に引き抜くことは、必ず避けてください。

※リペアの際、端子のランス部の変形や傷を付けないように御注意ください。



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- 尚、下図 (Fig.8-2) は推奨参考例ですが、ハーネス長が長いなどの理由で他の梱包方式でご利用される場合にも段積みによる加重等の負荷がコネクタに長時間加わらない様ご配慮をお願い致します。

※梱包箱底面には、緩衝材等を敷いてください。また、段積みによる荷重等の負荷がコネクタに長時間加わらない様に、緩衝材を敷く等の御配慮をお願い致します。(Fig.8-2 ②)

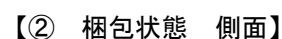


Fig.8-2 梱包状態図

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## 【9. 基板側コネクタの実装前でのお願い事項】

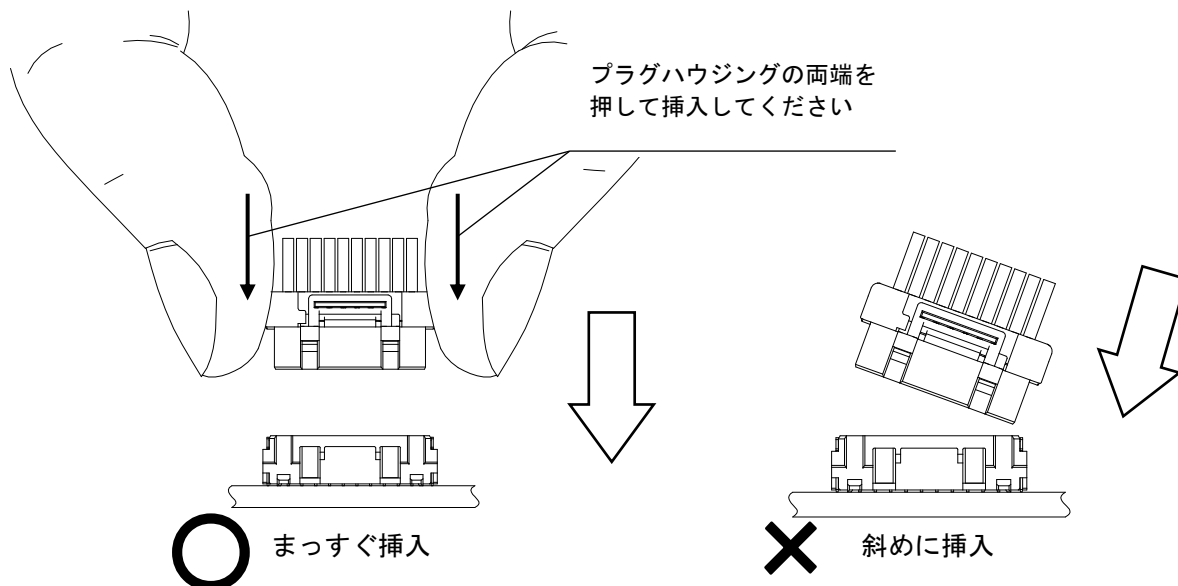
- ① 推奨保管条件での保管をお願いします。条件詳細は、弊社仕様書を参照ください。
- ② 基板側コネクタについてはハウジングの樹脂の特性上、吸湿によりリフロー加熱時にブリスタが発生する可能性があります。推奨保管条件を超えた場合、ベーキング処理を推奨します。推奨ベーキング条件については、弊社仕様書を参照ください。

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## 【10. 基板側コネクタとの嵌合時に於ける注意事項】

## 10-1. 推奨挿入方法（製品形状は参考例）

プラグハウジング（ハーネス側）とリセプタクルハウジング（基板側）の嵌合方向を合わせ、嵌合時にプラグハウジングのピッチ方向の両端（矢印で示す部位）を押し、**コネクタ同士が突き当たる（完全嵌合位置）まで、真っ直ぐ押し込んでください。**また、嵌合後、2箇所のポジティブロックが完全に掛かっていることを御確認ください。



## 注意事項

※嵌合時、プラグハウジングのポジティブロック部を押さないようにしてください。

ロック部が嵌合相手の引っ掛かり部を乗り越える正規の動作が妨げられて、過度の負荷が加わり破損する恐れがあります。

※プラグハウジングを押して、まっすぐに突き当たるまで挿入してください。

本製品は、嵌合間口を深く設定し、斜め挿入しても間口で矯正され、挿入されるようにしておりますが、人為的に斜め状態を維持させて、ゆっくり挿入させた場合、弾性力のあるプラグハウジングは変形しながら挿入されるため、片側しかロックされない状態を作り出す場合があります。

（特に多極品の場合）

※スムーズに挿入できない場合は、端子やプラグハウジングの変形などを確認して、嵌合方向マークを確認した上でもう一度挿入してください。

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**10-3. 嵌合後の電線の引き回しについて（製品形状は参考例）**

**注意事項**

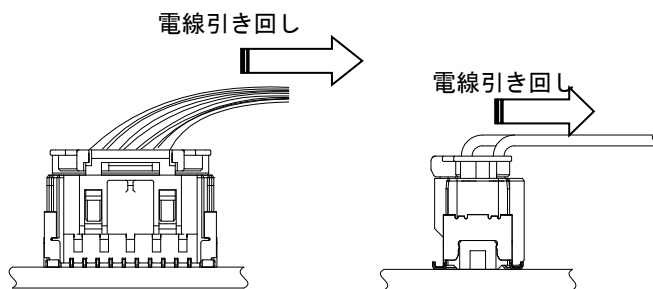
※嵌合後、機器内での電線の引き回しの際には、電線を極端に曲げる、または突っ張る状態で使用しないでください。電線の引っ張り力、突っ張り力により端子圧着部やリセプタクルハウジングの端子装着部及び基板側のコネクタに力が加わり接点不良の原因となります。特に、特定の電線のみ力が加わることは避けてください。(Fig.10-1)

※特定の電線一本に対して負荷が加わると電線（圧着端子）が抜ける可能性があります。

※嵌合後、機器内での電線の引き回しの際、2方向以上での引き回しは避けてください。(Fig.10-2)

※機器内の引き回しを検討される際には、電線に十分なたわみを持たせる等の処置を検討頂き、直接コネクタに力が加わらないようにしてください。(Fig.10-3)

※特殊な電線の引き回し（Fig.10-1, 10-2等）を行う際には、事前に当社へ確認の上ご使用ください。



**×** Fig.10-1 電線を極端に曲げる又は、突っ張った状態

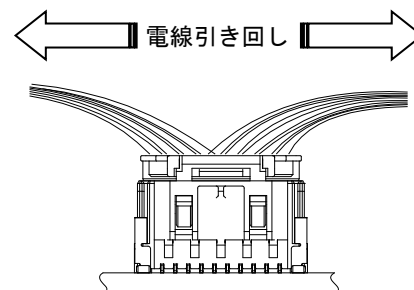


Fig.10-2 2方向以上での電線の引き回し状態

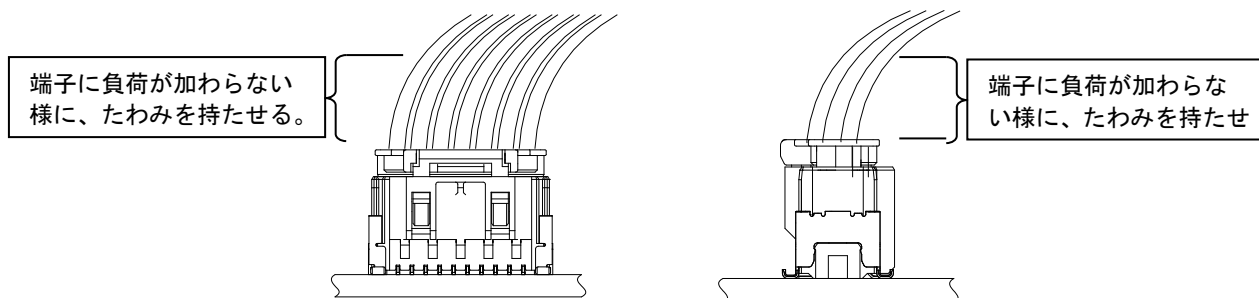


Fig.10-3 電線にたわみを持たせた状態

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